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## ***United States Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy***

### *Overview*

The Office of Energy Efficiency and Renewable Energy (EERE) develops cost-effective energy efficiency and renewable energy technologies that protect the environment and support the Nation's economic competitiveness. EERE achieves this goal through a strong and balanced program of research, development, and market deployment through private sector partnerships. EERE is organized around the four main energy users—utilities, industry, transportation, and buildings. This orientation toward end users has helped the technology development programs focus on addressing the needs of the marketplace.

### *Office of Industrial Technologies*

Industry accounts for 37% of the energy we consume as a Nation. Most manufacturing processes use more energy than necessary. The Office of Industrial Technologies (OIT) collaborates with industry to improve the energy efficiency and productivity of industrial processes. OIT manages programs to reduce energy use through new technologies in heat recovery, energy utilization, and industrial waste management. Other programs develop process improvements and innovations for specific energy-intensive industries such as forest products, steel, and chemicals. In addition, applied research in combustion, biotechnology, advanced materials, and heat transfer will provide the foundation for future advances in technology. An active technology access program provides an effective link between the research and development programs and the community of potential users.

### *Office of Utility Technologies*

Electricity now accounts for 36% of the Nation's energy consumption, and its use is expected to grow 15% by the end of the century. Increased energy efficiency and renewable energy could play a significant role in meeting that increased electrical demand. To that end, the Office of Utility Technologies (OUT) is working with industry to improve the cost and performance of renewable energy technologies, including photovoltaics, solar thermal power, biomass power, wind power, hydroelectric power, and geothermal energy. OUT encourages utility energy efficiency by managing research in advanced transmission and distribution technologies, high temperature superconductivity, and energy storage as well as by supporting programs that promote integrated resource planning.

### *Office of Transportation Technologies*

Transportation consumes more than 60% of the oil used in this country, and almost half of that oil is imported. To reduce our Nation's dependence on foreign oil and reduce the air pollution caused by gasoline-powered vehicles, the Office of Transportation

Technologies (OTT) supports research in electric and hybrid vehicles; fuel cells and other advanced power sources; alternative fuels made from biomass and other renewable energy sources; and advanced materials such as high-temperature ceramics for gas turbine and diesel engines. OTT is a partner in the U.S. Advanced Battery Consortium—composed of the three major U.S. automakers, leading electric utilities, and battery companies—working to develop improved batteries for electric vehicles.

### *Office of Building Technologies*

**State and Community Programs.** Residential and commercial buildings account for more than one-third of the Nation's total energy use and consume about two-thirds of the Nation's electricity. The Office of Building Technologies (OBT) supports private sector efforts in the building industry to improve energy efficiency and increase the use of renewable energy. OBT supports basic and applied research on building systems and materials, primarily focused on the building envelope and the indoor environment and how they interact in determining energy performance. Other OBT research activities focus on the equipment that provides heating, cooling, ventilation, lighting, hot water, and other services necessary for safe, efficient building operation. OBT also fulfills legislative requirements for DOE to set energy efficiency standards for buildings and household appliances.

### *Additional Information*

Each of these programs offer many resources that are useful to industry. Further information can be obtained from our Customer Service Center at (800) 363-3732 or our web site at [www.eren.doe.gov](http://www.eren.doe.gov).

DOE/EERE also has the following six regional support offices:

#### **Atlanta Regional Support Office**

*Serving:* NC, SC, GA, FL, AL, MS,  
TN, KY, AR, and PR

*Phone:* (404) 347-2837

*Fax:* (404) 347-3098

#### **Denver Regional Support Office**

*Serving:* MT, ND, SD, NE, KS, OK, TX,  
NM, UT, CO, and WY

*Phone:* (303) 275-4801

*Fax:* (303) 275-4839

#### **Boston Regional Support Office**

*Serving:* ME, NY, VT, NH, MA, CT, and  
RI

*Phone:* (617) 565-9710

*Fax:* (617) 585-9723

#### **Philadelphia Regional Support Office**

*Serving:* NJ, PA, WV, VA, MD, and  
DE

*Phone:* (215) 656-6955

*Fax:* (215) 656-6981

#### **Chicago Regional Support Office**

*Serving:* MN, IA, MO, IL, IN, WI, MI,  
and OH

*Phone:* (312) 886-8590

*Fax:* (312) 886-8561

#### **Seattle Regional Support Office**

*Serving:* AK, WA, OR, CA, ID, NV, AZ,  
and HI

*Phone:* (206) 553-1132

*Fax:* (206) 553-2200

## ***California Energy Commission***

The California Energy Commission oversees and protects the energy supply of the seventh largest economy on earth. Even as California grew by more than 850,000 people per year—adding more than the total population of Montana every year for 12 years—careful planning by the Energy Commission enabled the State to develop the world's most diverse energy supply. The Commission's goal to cut energy waste has saved Californians over \$15.8 billion on their utility bills since 1978 even as they improved the State's air and water quality.

The Commission's major areas of responsibility include forecasting the State's future electricity needs and licensing power plants to meet them. It also promotes energy efficiency in California government, homes, businesses, the manufacturing sector and agriculture. Following the restructuring of California's electricity market in 1998, the Energy Commission became responsible for advancing energy from renewable sources such as wind, solar, geothermal and biomass. At the same time, the Commission took charge of Public Interest Energy Research and Development programs formerly undertaken by utilities. It also is responsible to for planning and directing State response to energy emergencies.

The Commission's primary goal is "to ensure that California's energy needs are met in a manner which enhances the State's long-term economic competitiveness in balance with health, safety, and environmental concerns."

*Website:* [www.energy.ca.gov](http://www.energy.ca.gov)

## ***Northeast-Midwest Institute***

*The Center for Regional Policy*

The Northeast-Midwest Institute, the Center for Regional Policy, is a nonprofit research and public education organization dedicated to the long-term economic vitality of the northeastern and midwestern States. It conducts research, develops public policies, provides technical assistance, sponsors regional conferences, and distributes publications.

The Institute is unique among Washington policy centers because of its close working relationship with the Northeast-Midwest Congressional and Senate Coalitions. Founded in 1976, the Congressional Coalition, co-chaired by Reps. Marty Meehan (D-MA) and Bob Franks (R-NJ), is a bipartisan group of nearly 100 representatives who recognize the common problems facing their States. The Northeast-Midwest Senate Coalition, formed in 1978 and co-chaired by Sens. Jim Jeffords (R-VT) and Daniel Patrick Moynihan (D-NY), has 36 members. Together the Coalitions seek to inform members of Congress about the impact of Federal legislation and build consensus on issues of regional importance.

The Institute sponsors the Northeast-Midwest Leadership Council, a distinguished panel advising members of Congress on issues affecting the region's future. Composed of corporate, academic, and labor leaders, the Council presents the private-sector viewpoint on how public policies should be shaped to create jobs and expand business.

States served by the Institute and Coalitions are: Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

*Website:* [www.nemw.org](http://www.nemw.org)

## Preface

The Department of Energy's Office of Energy Efficiency and Renewable Energy is conducting Financing Technology Workshops and sponsoring important tools such as this book for three reasons:

- the potential for increasing the efficiency of energy use in manufacturing is enormous and largely untapped and directly impacts the bottom line;
- manufacturing is a crucial part of the U.S. economy; and,
- few conventional sources of financing focus on production process technologies.

### ***The Importance of Manufacturing***

Manufacturing drives the economy much like an engine drives a car. At the National level, \$1 in final sales of manufactured goods generates about \$1.30 in activity in other sectors. By implication, the effect of \$1 in Gross Domestic Product (GDP) in manufacturing is to generate \$2.30 in total production. On average, each \$1 million in final sales in manufacturing is associated with 13.6 jobs in manufacturing—both the jobs to produce the final product and the intermediate products that go into it—and 8.4 jobs in other sectors such as raw materials and services. Moreover, the manufacturing sector is responsible for the majority of research and development performed in the United States—and by some estimates R&D is responsible for up to 50% of our economic growth. While manufacturers represent a vital component of the National economy, many U.S. companies falter in the increasingly competitive global marketplace. The Office of Technology Assessment in *Making Things Better: Competing in Manufacturing* argued that the United States must improve its manufacturing technology; not only by generating new products but by teaching how to use equipment, organize work, and manage people who make the products.

U.S. manufacturers compete with many countries that provide their companies with low-cost, direct loans, as well as tens of billions in loan guarantees. In the United States the relationship is different. The financing workshops highlight the opportunities for partnering that can be critical to success in the global economy.

Often U.S. manufacturing plants were built, run until they were unproductive, and then closed down. A new state-of-the-art plant may open in a new location. But the old plants stand empty and unused, creating what's known as "brownfields" abandoned plants reminding cities of the old days. Fortunately, we have begun to understand the waste of resources inherent in this process. The staggering problems of brownfields and the sprawling greenfield development, purchasing farmland to build new manufacturing plants, attest to the associated costs. Just as companies have learned the cost advantage of recycling resources, innovators are investing in existing manufacturing plants to improve their efficiency, competitiveness, and life. Finding new enterprises to locate on abandoned plant sites presents real challenges; far better to prevent plant closures by retrofitting for efficiency.

Success stories exist. Public/private partnerships in energy efficiency and pollution prevention can be effective. In Bowling Green, Ohio, the municipal utility, the Bowling Green Community Development Foundation, and the Ohio Department of Development's Office of Energy Efficiency conducted a pilot program with four participating factories (a foundry, a hydraulic cylinder manufacturer, a metal stamping plant, and a plastic parts manufacturer) that exceeded the expectations of all of the partners. With \$48,000 from the Office of Energy Efficiency and \$4,500 each from the utility and the foundation, an outside expert conducted assessments for the plants. As a result, in the first year the companies invested \$60,000 in improvements that resulted in cost savings totaling \$400,000 annually. The investments the companies made in the first year paid back in less than four months. Yet the project benefited all the partners. The State's contribution paid back in 5 days from expanded tax revenues, to the utility in 1.5 days from utility revenues, and 2 days from local tax revenues to the local government. These results are compelling and justify efforts to make capital more available to manufacturers.

### ***Scarce Capital for Equipment***

Companies have a hard time finding capital to pay for equipment or technology for a variety of reasons: banks may be reluctant to lend money for technology they are unfamiliar with; lenders may be concerned about whether technologies will deliver the savings estimated; and many hesitate to allow the full value of equipment they do not understand for collateral. The uncertainty impedes the implementation of cost-effective efficiency improvements in two ways: good opportunities are missed because companies can't secure funding and companies may conclude that projects aren't good because they can't get capital to pursue them.

Opportunities exist to link technical providers to lenders or other financiers in order to provide objective information on a project's impact on the company's operation and maintenance costs. One purpose of this toolbox is to help facilitate this process. Similarly, technical providers can often provide examples of companies that have installed similar technologies that can provide proof of operational impacts to lenders who are unfamiliar with the equipment. Finally, providing the financial means to companies to undertake efficiency improvements makes sense from several perspectives. As the Bowling Green example illustrates, a company that invests in enhanced efficiency invests in its present and future viability in the marketplace. The competitiveness of small and mid-sized manufacturing underpins the local economy, yet it is this segment of manufacturing that typically has the most trouble keeping up with the pace of technological change. It often has the fewest resources on which to draw.

### ***Why Energy Efficiency?***

The potential for improving energy efficiency in manufacturing is well documented. Both the Electric Power Research Institute (EPRI) and the Congressional Office of Technology Assessment (OTA) found that U.S. manufacturers, even energy-intensive factories, could reduce energy use substantially. OTA calculated that energy intensive industry could reduce energy use by 16 to 37% with existing technology. Case studies to date suggest

that substantial improvements can be made without enormous investment in new equipment or technologies. In many plants, a process of continuous improvement can utilize the savings from low-cost improvements to encourage management to consider more costly projects once the benefits of the initial investments become apparent. Rather than viewing waste—whether wasted energy or resources—as an inevitable by-product of manufacturing, waste should be viewed as a measure of plant inefficiency. Dramatic improvements in efficiency and productivity can result once employees and plant owners view their waste stream from the same cost-cutting perspective as has been afforded to “downsizing,” “rightsizing” and restructuring.

Best viewed as a goal, energy efficiency improvement becomes a process rather than a single project. An effective industrial efficiency program strives for a commitment to improvement that involves plant employees as well as management. Technologies, markets, and opportunities for manufacturers constantly change. Effective companies build a commitment to continuous improvement within the manufacturing facility. Similarly, plant employees must be motivated to participate in the plant’s energy efficiency goals.

The process of making products from materials and inputs requires energy to move, mold, heat, machine, clean, pack, and ship. Typically the largest energy savings come from changes in the production process. By evaluating the use of energy in a production line with an eye to improving efficiency, other benefits often become apparent—gains in productivity and/or reduction in the generation of waste. The Oberti Olives company provides a good example of this. Similarly, many new technologies are more energy efficient than older ones.

### ***Productivity Through Technology***

Because of their success in job creation and technological innovation, small manufacturers have become the vanguard of growth and competitiveness in the U.S. economy. Technical assistance programs, therefore, typically concentrate on helping smaller firms, usually those with fewer than 500 employees. Many Federal and State technical assistance resources are available to manufacturers, but manufacturers need to realize that they have different goals (i.e., technology innovation, product development, or technology diffusion); different sectorial targets; and different quirks in terms of the nature and extent of assistance, as well as its cost.

When considering whether or not to use a public program as a technical or technology assistance partner, manufacturers need to remember the general philosophy behind all of these public-sector efforts.

Small enterprises have enormous potential to stimulate economic growth, but they also have the greatest need for technical or management advice or links to financial support. The impetus for action rests with the private sector, and manufacturers themselves need to commit to invest in improving production processes and adapting more modern technologies. Yet within this framework of private-sector action and market forces, the

public sector can play an important technical information, liaison, or brokering role, enhancing private decisions with public-sector support.

A driving force behind many Federal and State efforts is bringing existing technologies to established companies that have not considered them before and this includes deployment of technologies useful to manufacturers that can help with production improvements, as well as those that can lead to operational or energy consumption efficiencies. This type of technology deployment can make these enterprises operate more efficiently, without compromising proprietary information or other company “secrets.” It also can help them establish new product lines, which can be especially important in areas where the manufacturing base is eroding and traditional producers are looking for new growth opportunities.

The toolbox provides information on several different technical assistance programs. Despite their diversity, manufacturers should be aware that they address one or more of the following four goals:

**Developing new technologies and products.** Many research institutions, such as Federal labs, have long traditions of research, but promoting the “commercial applicability” of those research results is a new arena for them. To encourage these institutions to promote new technologies and products, two types of technology transfer strategies typically are pursued: (1) using existing advanced technologies in new ways; and (2) supporting research to develop new technologies and help bring them to market. What this means, in practice, is that manufacturers have a window of opportunity to identify and explore a wealth of information on and opportunities for innovations that could prove quite profitable if commercialized. In the case of small and mid-sized companies, this opportunity would not be available any other way, because of cost and technical concerns.

These institutions are interested in forging new partnerships, but many are still developing their approaches to these partnerships. Therefore, manufacturers may want to take the first step, contacting these organizations, explaining their need, and working with them to identify possible joint activities. Federal agencies and local officials are encouraging such partnerships in order to enhance manufacturing activity, spin-off entrepreneurial enterprises, create and retain jobs, and increase tax revenues.

**Bringing more modern technologies, processes, and efficiencies to existing industries.** In several areas, notably the industrial Midwest, public-sector technology initiatives have helped existing industrial operations attract new investment capital for modernization projects. These “technology deployment” efforts are dispelling the myth that technology innovations and traditional manufacturing operations do not fit together. Federally-supported programs are credited with developing key breakthroughs in a wide range of industrial sectors, in areas such as CAD/CAM, ceramics, and welding. These breakthroughs have improved productivity in heavy industry. State programs have tallied similar achievements. Most of these efforts are aimed at helping small and mid-sized operators, unable to explore these areas on their own, adopt new and existing technologies.

**Helping new and small manufacturers access the technology they need to compete.**

If public program experts or other technical service providers can help these firms adapt newer, more productive technologies, their ability to sustain markets and retain jobs will be strengthened, and they can continue to play an important role in community economies. Many of these companies have been founded and operated by entrepreneurs who have good ideas about what will work or sell in their area. Often, however, these entrepreneurs do not have access to the technical facilities, information, and similar resources necessary to develop, produce, and market the next generation of products or services for their traditional customer niches. A key role of technical assistance programs is to help such companies better understand how they can use technology to ensure that their products remain competitive in the eyes of customers locally and in the global marketplace. In addition, these programs allow small companies to gain access to information and facilities that only large companies can usually afford.

**Easing the expansion process for firms already established, or prevent plant closings.**

In many cases, technical assistance programs can help firms that successfully have overcome start-up hurdles prepare to expand. Manufacturers have welcomed such programs as a reliable, neutral source of information for plant owners or managers facing critical decisions about modernization or diversification. In other situations, technical assistance programs can serve as an information lifeline for troubled manufacturers, helping them overcome identified difficulties and anticipate their needs. When long-time shop owners finally confront issues such as erosion of their customer base and obsolete production processes, they often have no place to turn for help. Given their broad web of contacts, program staff may be able to help these manufacturers develop new products and seek new markets, as well as work with creditors and suppliers to help ease the company's transition and buy it some breathing room. Technology transfer typically surfaces as a major barrier for these companies; manufacturers can use Federal and State programs to play an important role by linking the firms to the expertise and resources they need to surmount this barrier.

Depending on the program, technology development and transfer programs participate in or coordinate a series of activities in which research with commercial potential is refined and brought to market. Publicly supported programs and research and technology centers take several forms:

- research and development efforts in one industry, such as chemicals;
- comprehensive resource centers that link scientific and service networks; and
- one-stop advanced centers offering prototype development and servicing a variety of business types and sizes.

Federal technology programs, and many State initiatives, address manufacturing technical assistance needs in various ways. Some programs put formal networks in place; others arrange for small operations to share facilities and equipment with larger producers; still others encourage resource entities, such as universities, to seek out and work with prospective beneficiaries. Other programs focus on commercialization, a key part of a successful technology transfer initiative.

Successful technology development and transfer programs targeted to product development can use public-sector intervention at two stages: (1) during the early steps to stimulate research on new technologies; and (2) with subsequent efforts to promote their commercial application.

In addition, rather than concentrate solely on “high” technology, many programs have broadened their scope to focus on “advanced” technology. In the case of technology deployment initiatives, program staff will work with existing manufacturers, regardless of sector, in applying proven technological techniques to upgrade and modernize a production process, or introduce greater efficiencies into the operation.

Good technical assistance can improve business efficiency and profitability. For the many small manufacturers—machine shops, foundries, and metal workers, for example—that are owner-operated and have small profit margins, savings of as little as a few thousand dollars can have big impacts. Public program officials can improve the economic climate for these firms by serving as a conduit to needed assistance services. In fact, many of the most successful programs are those skilled in obtaining good, affordable technical assistance quickly.

This toolkit will help bridge these gaps between manufacturing and efficiency by encouraging a wide variety of people to focus on the potential that exists to improve the energy efficiency of manufacturing:

- underscoring the numerous benefits that would accompany such an approach to manufacturers, financiers, and policy makers;
- helping manufacturers work in the financial community to find the capital and other resources needed to implement production efficiencies;
- helping manufacturers better understand lenders’ views of risk;
- helping financiers better understand the impact of efficiency investments on the bottom line in manufacturing; and,
- providing the resources available to reduce the perceived risk inherent in such loans.

## **Background—Why a Toolkit and What Types of Information Does it Offer?**

Manufacturers face a number of barriers as they seek to modernize and remain competitive and they often feel isolated in their quest for the support they need to address these hurdles. However, they are not alone in their search for financing and technical assistance. Many companies, in numerous sectors, and in all types of situations have found it. This toolkit intends to build on these successes and provide a range of information that can help manufacturers address these problems.

### ***What Is Really Out There?***

A multitude of private financing sources are out there, ranging from traditional banks to energy service companies (ESCOs) to venture capital “angels”— wealthy individuals looking for an innovative way to invest. However, manufacturers typically have little contact with such sources, and may not even be aware of them. Billions of dollars worth of Federal and State financing resources are also available through a number of programs—but *manufacturers must get a sense of which are most appropriate and gain an understanding of how these programs work. They must also be able to show that their needs coincide with program missions and that their needed projects can be shaped to meet program eligibility requirements and award criteria.*

Not all manufacturers will need, or be interested in, all of the information offered in this toolkit. This reflects their diversity as well as the different barriers they face. The following description of the sections is intended to help direct readers to those sections that will be of greatest use to them.

### ***What Will This Toolkit Do For Manufacturers?***

This toolkit is designed to help manufacturers work through key issues and alternatives relating to financing manufacturing modernization. Some manufacturers may choose to read the entire document, to get a full flavor of the barriers to and opportunities for financing efficiency and other improvements. Others will want to concentrate on different types of available assistance, such as loan guarantees or equity capital, in order to learn what resources could best fit their needs. Still others will want to use the toolkit to gain a firmer grasp of the rationale behind certain lender decisions, or to decide which private financier may be best suited to their situation. In any situation, the toolkit can help manufacturers advance their efforts to become more efficient and more competitive. Manufacturing matters!

### ***What Is In the Toolkit?***

The Toolkit is divided into the following six sections:

### *Section One*

The Background section sets the stage for financing manufacturing projects and provides an overview of public and private financing resources and private lender concerns. It explains the types of financing manufacturers need at various stages in their evolution and types of public-sector tools suitable for manufacturers—debt, equity, tax incentives, and grants—and key factors affecting the use of each.

### *Section Two*

Financing Options, Techniques, and Strategies describes the types of financing for manufacturers to consider and lists the various methods manufacturers can turn to for financing help including

- Federal or State assistance;
- commercial loans;
- lease-purchase or vendor financing programs;
- energy services or shared savings contracts;
- utility rebates or incentives;
- company cash flow; and
- equity financing.

### *Section Three*

The third section provides case studies which show the modernization process from the assessment stage to the financing stage. The specific technology upgrades are discussed and their costs, payback, and energy savings are shown.

### *Section Four*

The fourth section focuses on more than a dozen Federal financial and technical assistance programs, focusing on key offerings of the Department of Energy's Office of Industrial Technologies and the Small Business Administration, which manufacturers have found to be effective. These are profiled in detail and include

- program objectives or mission;
- the services they offer and what they cost;
- who's eligible and how to apply;
- conditions and considerations—how the programs work in practice;
- pertinent program data (such as top participating lenders or level of energy savings achieved); and,
- regional and headquarters program contacts for more information.

### *Section Five*

The fifth section is a look at State financing and technical assistance programs best suited to meet the needs of manufacturers within this region. Programs are briefly profiled and a contact given. In addition, this section highlights other financing and technical assistance programs available that California manufacturers may find useful, which are offered by nonprofit or private organizations. Most of these are relatively new players in this arena. They harbor significant potential to help manufacturers address key efficiency needs. A contact is provided for each one.

### *Section Six*

The last section consists of information provided by participating organizations describing their operations and the types of financial or technical services they provide to advance manufacturing modernization and efficiency initiatives within this region.

Participating organizations include

- private lenders;
- financial service providers;
- utilities;
- nonprofit development organizations;
- State and local agencies;
- Federal agencies.

## ***What Are Some of the Financing Issues Manufacturers Face?***

Adequate amounts of investment capital at affordable terms are necessary if manufacturers are to modernize and compete. Plenty of capital is available nationally, but many manufacturers have trouble gaining access to the money they need at affordable rates. This is especially true for small producers who often have great difficulty in securing financing. Many cannot obtain capital either for long-term investments in plant and equipment or short-term funds for materials to build inventory.

In addition, the normal issues associated with underwriting reviews of loan applications are complicated by several factors, including

- lender uncertainty about the viability of proposed production process-related changes;
- lender adversity to operations involving new technologies that the bank has had little experience evaluating; and,
- the environmental uncertainties that many lenders associate with manufacturing projects (in terms of lender liability and collateral devaluation).

## ***Why Do Lenders Operate This Way?***

Financing institutions typically prefer to limit their lending to low-risk propositions, so manufacturers may have more success in the money markets if they understand the reasons why lenders operate the way they do. One of the most important reasons is lenders' concerns over how their own regulators will view the viability of their bank operations and lending practices. The Federal Office of the Comptroller of the Currency and other bank regulators have laid down specific loan performance criteria for lenders to meet, and no financial institution wants the stigma of too many bad or "nonperforming" loans.

In practice, this means that lenders are most comfortable with certainty, with things they know, and processes they understand. As a result, many often view innovations or new technologies as situations to be avoided in favor of other types of lending. Many small manufacturers, in fact, are not able to land long-term capital or construction loans at any price; they are viewed as too risky. ***Manufacturers need to realize that banks can turn down their loan requests for a variety of reasons.***

- plant owners may lack enough collateral to meeting underwriting stipulations—or lenders may be uncomfortable with the collateral offered to secure the loan;
- borrowers may not be able to show adequate cash flow to meet debt service requirements;
- borrowers do not have enough cash on hand to meet loan processing costs and environmental assessment requirements.

***Manufacturers also need to recognize that some reasons will have nothing to do with their specific project.*** For example

- banks may have internal policies against making certain types of manufacturing or technology loans, or limits based on industry sector loan concentration within the bank's portfolio;
- borrowers may bump up against internal bank prohibitions on making loans at terms that the applicant needs.

Manufacturer and business needs are different; therefore the "ideal" loan depends on each of their perspectives and requirements. While product development initiatives, new technologies, and efficiency improvements receive a lot of attention from public and corporate leaders, they often are viewed skeptically by bank underwriters, who may finance only a fraction of the project's value—if they offer any capital at all. Innovative projects without a record of success and certainty often do not compete well in financial markets because lenders, looking to their own bottom line, are not sufficiently convinced that they will be repaid.

Individual institutions determine their own lending procedures to avoid this stigma, and these procedures vary. Some lenders have developed a speciality and an in-house expertise in certain types of lending, such as manufacturing equipment and facilities. Because they understand the needs, the practical risks, and true nature of collateral value in such circumstances, they are likely to be much more receptive to a loan request from

an industrial company than a financier that focuses on shopping centers or commercial businesses.

### ***What Kinds of Financing Do Manufacturers Need?***

Manufacturers face different types of financing needs as they go through various business cycles and as their companies evolve. ***Manufacturers need to recognize these variations, so they can devise the right approach for seeking financing, pick the right lender to approach for assistance, and make their best case to loan reviewers.*** No matter what type of operation or its location, manufacturers must secure several types of credit to do business.

- **Short-term loans**, made for less than one year, cover immediate production costs; such loans are available only if the business can generate the cash flow to redeem them during the same period.
- **Working-capital loans** purchase raw materials or help a company operate after sales are made but before payments are received; they are absolutely essential for most small and medium-sized manufacturers, which typically lack a cash-flow cushion. (ESCOs and performance contracting can meet this type of need.)
- **Equity investment**, venture capital-type funding, makes available the block of capital needed for major capital projects such as new product development; venture investors typically take a portion of the company in return for their investment, usually in the form of stock.
- **Long-term loans** purchase capital equipment, and construct or rehabilitate production facilities; generally they are repaid in installments over a period pegged to the life of the assets.
- **Lines of credit** are loans that banks make available up to a prearranged level for a short time (usually 90 days); usually secured by accounts receivable, lines of credit help overcome cash shortages resulting from the normal delays when customers process invoices and send payments.

In addition, manufacturers that produce for foreign customers will have to be able to secure letters of credit. These are, in essence, a type of commercial loan used to finance international transactions involving the shipment of merchandise.

Finally, as they figure out their financing strategies, ***manufacturers need to recognize the fundamental difference between debt and equity financing.*** DEBT—four of the five categories noted above—is paid back on a pre-determined schedule. It is typically secured by the assets being financed, and it assumes that the company will be able to generate the cash flow needed to pay it back. Debt does not involve management control of the company. EQUITY, on the other hand—which is an investment and not a loan—gets paid back based on the performance of the business. This means that the investor may participate in, or even take control of, the management of the company. Equity investors typically demand a high rate of return due to this performance risk, and assert some control of the business assets through stock ownership.

## ***How Can the Public-Sector Help?***

**What do State and Federal programs do, and how can they help manufacturers gain access to needed financing?** Several Federal agencies and nearly all States have devised financing tools to help manufacturers gain access to the money they need for efficiency and production process improvements. Some of these tools are relatively simple, like loan or grant programs; others are quite sophisticated, such as equity investment initiatives. The structure of these tools vary; some offer direct financial assistance while others provide indirect incentives via the tax code.

Manufacturing needs are as diverse as the industrial sectors they represent. Therefore, no one “best” public sector financing approach will fit all modernization and energy efficiency needs. As indicated below and in the Federal Programs section, the options are many. ***Manufacturers need to remember that while their common mission is linking companies to necessary resources, their goals and strategies will differ, and this may affect the choice of tools.*** Public programs are designed to meet one or more of the following goals to help make projects work, including

- Reducing the lender’s risk, making capital more available by providing incentives such as loan guarantees to attract private lender participation;
- Reducing the borrower’s cost of financing, for example, by making capital more affordable with reduced interest rates or by using assistance programs that reduce loan underwriting and documentation costs;
- Improving the financial situation of the manufacturer seeking financing, by providing incentives such as tax credits or abatements that can help improve the project’s cash flow; and
- Providing greater comfort to lenders or investors, through technical assistance information or programs that show that planned improvements will yield the benefits they claim.

***Manufacturers need to know where to look for help.*** At the Federal level, some financing tools are administered directly by Federal agencies; others by authorized private development companies or similar organizations; still others by local development agencies or nonprofit institutions or corporations, in accordance with Federal rules and in conjunction with Federal agency partners. Similar variations are found in State programs.

### ***Types of Financial Assistance***

The financing tools available to manufacturers take many forms, but four types predominate: debt, equity, tax incentives, and grants. Different tools are best suited to different needs, and ***manufacturers need to understand these variations in order to come up with the best fit with their financing needs.***

**Debt—Loans, Loan Guarantees, and Other Tools.** Most public assistance to manufacturers seeks to make financial resources more available to businesses through loans, loan guarantees, and various types of interest subsidies. ***Manufacturers should***

***recognize that the general goal of all these programs is to make loan capital more available at the best rates and terms possible.***

At the same time, manufacturers need to understand the context in which all these programs operate, namely, that they are usually available to all qualifying businesses, no matter what sector of the economy. Most programs only limit company participation on the basis of size (usually, number of employees or annual sales).

The Small Business Administration (SBA) is the leading Federal agency in this arena; many States have similar programs in place as well. These programs either subsidize the cost of capital or help ensure its availability. Typically, rates of interest are at or below prevailing market rates, depending on the program's objectives and constituency. These debt programs often are used to help attract capital for expansion projects or general business operation. They also seek to support promising firms that private lenders view as high risk, as well as otherwise solid companies unable to meet standard commercial lending terms.

Depending on the specifics of any given program (i.e., what's eligible for assistance, private match required, etc.) manufacturers can use them for a variety of business capital needs—financing building construction, acquiring equipment and machinery, funding plant expansions, or supporting export activity. Some programs meet a company's need for working capital, chronically in short supply for smaller manufacturers. In recent years, SBA loan guarantees have helped a number of manufacturers who needed capital to incorporate new technologies or make important efficiency improvements.

Debt programs are designed to improve the availability and affordability of capital. ***Manufacturers need to realize, though, that most public program officials follow their own guidelines to minimize risk, and these may be rigid as well.*** They are accountable to State or Federal agency oversight, and are just as concerned about business failure as their private-sector counterparts. Therefore, to the extent, they can, ***manufacturers need to shape their requests for financial assistance to meet the requirements of the program being considered.*** As a result, capital access remains a problem for many new or small operations, despite considerable State and Federal attempts to improve it.

Although debt financing is the primary Federal financing approach, and well suited to many situations, ***manufacturers need to realize that debt programs will not work in every case.*** Loans and loan guarantees may not fit with the financial needs of various new or expanding business situations, modernization or efficiency improvements, or of manufacturers engaged in technology-related projects. Many such firms, while economically sound overall, have initial cash-flow difficulties, and debt programs require a constant stream of repayments beginning almost immediately. Manufacturers trying to modernize or diversify often must borrow considerable sums to invest in production facilities and equipment. As small manufacturers are only too aware, many small firms fail—not from lack of demand for their products or services—but because they cannot meet debt installments. The time lag on accounts receivable, for instance, can cause an insurmountable cash-flow barrier for small businesses.

**Equity.** Equity-finance programs can address concerns over cash flow, because they do not feature a strict repayment schedule. Equity programs make capital more available through direct investment (and a potential return based on the success of the company), rather than by lump-sum loan proceeds (which must be repaid in installments). They promote development by investing funds in capital-poor but otherwise competitive enterprises, many of which are technologically innovative. Equity programs on a significant scale are a relatively new public-sector financial assistance phenomenon. A few States have explored venture capital-style assistance programs. At the Federal level, only SBA's Small Business Investment Company (SBIC) operates as an equity assistance program.

In terms of equity programs, *manufacturers need to realize that, in practice, SBA and similar State programs makes equity investments much like a private equity investor or venture capitalist.* SBA and its program partners—licensed Small Business Investment Companies (SBICs) are looking for deals that work. Investors (in the case of SBA programs, through the SBICs) take an ownership interest in a company in exchange for funds. Equity is a riskier channel of investment than debt. If there are no profits or the business folds, the investor makes nothing or even loses its money. On the other hand, if the company does well, the investor (private, State, or SBIC) can reap a substantial return.

Equity programs operate more like a stock purchase than a debt investment, structured to give a company relief from redeeming its obligation until a certain level of return is reached. In contrast to debt financing, equity usually is more “patient” money. Because returns are a function of profit, and profit is linked to the company's success, they are not expected immediately. The timing and size of payments are geared to the company's financial condition, thus removing early cash-flow pressures and giving the firm time to use its cash to advance restructuring or modernization efforts. At the same time, though, investors usually expect a greater return on an equity investment than traditional lenders do from loans.

**Tax Incentives.** The only significant Federal tax incentives specifically targeted to manufacturers are tax-exempt industrial development bonds (IDBs) which can be used for a variety of financial needs including site preparation and equipment acquisition. IDBs are available in every State, and each State sets its own eligibility conditions and authorizes its own set of issuing entities; typically, they include State agencies, local governments, development authorities, and similar organizations.

State and local governments offer most of the tax incentives to promote manufacturing activity, including abatements, investment incentives, exemptions or moratoriums for capital improvements, and incentives for job creation. State and local tax incentives often are linked to or packaged with Federal financing assistance. They are offered on the premise that reducing taxes lowers the cost of doing business in an area, making it more attractive for companies to locate there or to maintain or expand existing operations. The latter rationale often is cited when long-time manufacturing companies seek help to retool. Thus, *manufacturers can make a stronger case for State and local tax relief or*

*tax-code linked assistance by showing the community impact and local benefits of their proposed projects.*

**Grants.** Many manufacturers, when they decide to seek public financing assistance, think of grants. Grants are direct transfers of money to the recipient, usually with no payback obligation. *Manufacturers need to know that little direct grant assistance is available, and the competition for it is fierce*—and not just from other companies, but also from healthcare facilities and social service organizations. The average grant dollar amounts for each project are kept as low as possible because grants are designed to help leverage other sources of financing. Many grants are cost-shared—requiring financial commitments from grant recipients. Most grants are done as “pass throughs”—funds are provided to an intermediary, such as a city or development organization, which, in turn, provides funds to the private company. Virtually all Federal grant assistance is delivered this way.

In short, *manufacturers can tap several types of public resources*, and use them in a variety of ways to help finance manufacturing efficiency and modernization projects, develop new technologies and products, and help attract private investment. *The most suitable approach depends on the specifics of any given program, the current development climate in a given area, and the financial requirements of the companies wanting to carry out improvements.* It is limited only by the creativity of the participants.

# Financing Options, Techniques, and Strategies

## ***What Types of Financing Should Manufacturers Consider?***

Manufacturers seeking financial assistance to improve their energy efficiency, production processes, and overall competitiveness have an array of financing options to choose from, including

- Federal or State financial assistance;
- commercial loans, including those backed by Federal or State guarantees;
- lease-purchase or vendor financing;
- energy services or shared savings contracts (through ESCOs);
- utility rebates or incentives;
- equity financing (including stock sales) and venture capital.

***Manufacturers need to remember that the most appropriate approach will vary, company by company, depending on a number of factors, such as the size of the operation, nature of investment needed, primary purpose of capital proceeds, cash flow situation, and/or financial health of the company,*** etc. This section will lay out these options, and highlight a few special considerations.

### ***Federal or State Financial Assistance***

The Federal Government offers several loan and loan guarantee programs that manufacturers can tap to support energy efficiency and production modernization activities. Nearly all of these are general business development assistance programs that manufacturers—along with commercial and service enterprises—are eligible to use. The *Federal Programs* section of this Toolbook is devoted to Federal assistance programs. Each description includes program specifics such as

- basic program objectives and description;
- eligibility and application process;
- services available, and their cost; and,
- regional and headquarters program contacts.

Only one Federal financing initiative—tax-exempt industrial development bonds—is targeted exclusively to manufacturers. Therefore, ***the challenge manufacturers face when contemplating use of Federal or State programs is linking their specific financing needs with broader program criteria, and building a competitive case for their applications.*** Federal technical assistance programs, also profiled in the *Federal Programs* section, can prove useful in this regard.

California offers a host of financing programs applicable to manufacturing needs, although few of them are reserved exclusively for manufacturing use. Accordingly, ***manufacturers must figure out how to make the fit between State program requirements and their own needs.*** The *State Programs* section provides brief information on the most suitable financial assistance efforts offered by States within this Department of Energy region, along with contacts and other pertinent information.

As they consider the various types of financing help available, ***manufacturers need to match their project to the appropriate program.*** They need to select the right program, one which

- can fill the financing gap (i.e., equipment, working capital, etc.) they've identified;
- has timing, approval, and decision-making time frames that coincide with the project's needs;
- is not more trouble than it's worth, from a paperwork and processing standpoint;
- does not include "strings" or restrictions on the manufacturer — such as job creation requirements or spending limits — which undermine its value; and
- the manufacturer has a reasonable chance of being able to tap into — in other words, a program that is not so competitive or short on resources that the probability of getting an award is remote.

### ***Commercial Loans***

Firms seeking funds in private lending essentially compete with one another. Lenders scrutinize the risk and potential rate of return each deal offers. Based on this assessment, companies gain or are denied access to capital. The cost of capital will be lower to those with lower risk and higher return, while more expensive capital, or none at all, will go to those with higher risk and uncertain return.

The majority of commercial loans made to industrial companies are used to purchase inventory goods or raw materials, and typically the term on them is for one year or less. These are also known as working capital loans. These are typically secured by accounts receivable or the materials they acquire. Established manufacturers usually have little difficulty getting such financing.

Manufacturers periodically need to borrow money for longer terms, up to ten years (or even longer), to finance new equipment, more capital-intensive efficiency improvements, or building renovation or acquisition. These loans are often more difficult to secure, for reasons noted in the prior section.

In addition to its discussion of various types of financing, this section of the Toolbook will also focus in-depth on issues of risk and other factors that affect commercial lenders' willingness to provide financing to manufacturers.

A variety of conventional financiers support projects in California. For a list of major energy-efficiency financing companies, compiled by the Energy Cost Savings Council and NAESCO, please see Section Five.

***Manufacturers should remember that banks are not monoliths.*** Especially in this age of bank mergers, a single bank may have different types of loan products or services that can help a manufacturer, depending on the company's specific needs. Moreover, each of these products may be managed by a different part of the bank, and have its own lending goals and requirements. In addition, some banks are organized based on the nature of the borrower—small businesses, for example, is often one such focus. Other banks are organized based on the product offered—real estate lending, for instance.

Many lenders are more inclined to provide money to manufacturers if they can gain the extra comfort afforded by a loan guarantee. At the Federal level, the Small Business Administration (SBA) may participate in loans for these purposes. ***Manufacturers should keep in mind that SBA typically guarantees up to 90% of the principal balance of loans up to \$155,000, and 85% of loans up to \$500,000, to make them more acceptable, and less risky, to participating private lenders.*** SBA assistance usually comes with more advantageous terms than purely private loans—longer loan maturities (seven years for working capital, ten years for equipment, and 25 years for fully amortized real estate); and greater debt-to-equity ratios (often 4:1). And in recent years, SBA has worked to reduce paperwork requirements and loan processing times. However, ***manufacturers must realize that SBA loans are not giveaways; they require adequate collateral and personal guarantees from company owners.***

SBA has designated several hundred lenders from around the country as Preferred Lenders; these banks have expedited decision-making authority delegated to them by SBA. ***Manufacturers should identify SBA-designated preferred lenders in their local area. Manufacturers should also note that SBA-backed loans are not necessarily cheap money;*** rates range from prime-plus 2.25% to prime-plus 2.75%. More information on SBA programs may be found in the *Federal Programs* section of this Toolbook. Finally, ***manufacturers should remember that SBA, like banks, is not a monolithic institution, but rather an agency that operates in large part through the private banking system. Thus, if one SBA lender decides not to finance a project, another one might; while SBA's basic qualifications are uniform, the specific lender's underwriting criteria may vary.***

### ***Lease-Purchase or Vendor Financing***

Most manufacturers are familiar with the leasing concept. Leasing can be an attractive financing option to use to get new equipment. For many companies, in practice, leasing is a way for them to borrow money without putting any liabilities on their balance sheet. In the case of energy-related project financing, the energy efficiency savings realized from new equipment—the bottom line impacts on the electric or gas bill—usually can offset the lease payment. This will result in a positive cash flow situation for the company. Sometimes the value of the equipment and the cost of its installation is amortized over the term of the lease, making its eventual acquisition by the lessee more affordable. In

many cases, the lease term is shorter than the useful life of the equipment; most such leases include a purchase option pegged to the fair market value at the end of the lease. ***Manufacturers should explore the two types of lease arrangements that are typically available.*** The right choice will depend on a number of factors, ranging from the cost and type of equipment needed, to the anticipated shelf-life of the equipment, to the company's tax situation.

***Manufacturers must recognize that the cost and length of available lease terms will depend on both the equipment itself, as well as the manufacturer's own creditworthiness.*** Reasons for the latter are similar to those of conventional bank financing. In the case of the former, the equipment's life span and potential for resale will influence the terms and costs of the lease. Operations characterized by rapidly changing technologies will find equipment more expensive to finance than will companies using more durable equipment with longer staying power.

1. **Finance Leases** are essentially installment purchases. ***Manufacturers pursuing this option will need little or no initial money to purchase the equipment.*** The lessee company is considered the owner of the equipment for tax purposes, and is entitled to take deductions for depreciation and the interest portion of the payments to the lessor. Finance leases may be offered by leasing companies, ESCOs, suppliers, installation contractors, and utilities.
2. **Operating Leases** are also known as vendor financing. In this scenario, the lessor owns the equipment and leases it out for a pre-determined contract period. In some cases, vendor financing companies finance one type of equipment, or serve a specific industry. In other situations, the lessor is the maker of the equipment being acquired. ***Manufacturers should explore these lease financing options, since these companies understand the equipment best and typically offer the best terms.*** In the case of energy efficiency equipment, ***the vendor often guarantees that the customer/manufacturer will pay no more for the lease than the energy savings it generates.*** Vendors, on occasion, may act as an ESCO and offer a broader range of services. The lessor takes the tax benefits, and the lessee writes off the lease payments as a business expense.

Lease financing options offer several advantages over conventional bank financing:

- the entire cost of the property or equipment is financed (and many lease payments can be structured to also include soft costs such as installation charges and license fees);
- company constraints on taking on new debt or using lines of credit can be circumvented, and (in terms of company accounting) debt-to-equity ratios are decreased and current level of financial liabilities reduced;
- more flexible payment schedules can be structured (for example, to reflect seasonal business cycles);
- more advantageous tax treatment (i.e., a lease is treated as an operating cost that can be expensed rather than as a capital investment recoverable over a longer period of time).

From a practical operations standpoint, leasing also allows manufacturers to determine the usefulness of equipment before investing in it. In addition, plant managers will find

that leases make it easier to upgrade production equipment as improved versions are introduced.

This approach also carries several disadvantages:

- contracts may carry penalties upon cancellation, an important consideration if the equipment becomes outdated before the lease expires;
- higher real cost of acquisition, after taxes, when payments over the total term are considered;
- no ownership value of the property or equipment at the end of the lease term, even if value remains;
- cost of removal usually borne by lessee if the equipment is not purchased or leased again at the end of the lease term;
- loss of certain tax advantages such as accelerated depreciation;
- unusual or uncommon equipment is typically more difficult to lease.

### *Energy Service Companies (ESCOs) and Shared Savings Contracts*

ESCOs provide energy efficiency improvements and energy management services to companies. Unlike most traditional vendors, ESCOs get paid out of the savings realized from the improvements they recommend and install. Most ESCOs do not require or expect any cash up-front for the energy efficiency measures they acquire and install on behalf of participating companies.

Most ESCO contracts stipulate that they will get paid only if the energy efficiency measures deliver the savings projected. This makes ESCO projects especially attractive for companies where cash flow or environmental concerns make traditional financing hard to get or more costly to secure. A manufacturer's payment to an ESCO is generally based on the savings that the company actually realizes, usually over a period ranging from five to 15 years. Because this return is performance-based, the ESCO will monitor the savings, against a pre-determined baseline, over the course of the contract. The Energy Cost Savings Council has compiled a list of ESCOs that are active in California, which is found in Section Six.

### *Utility Incentives*

Some electric utilities offer incentives such as rebates to help their manufacturing customers reduce the initial cost of energy-efficiency improvements. With a rebate, the utility reimburses the company for some portion of the cost of implementing or installing the improvement. Depending on the utility program rebates they may be based either on the actual cost of the improvement or on the level of energy load reduction.

Some utilities offer different types of incentives. For example, they may cover some or all of the cost of installation of energy saving equipment. Utilities may help pay for technical plant assessments designed to uncover opportunities for enhanced energy

savings, pollution prevention, and larger productivity gains. They may also offer low-interest financing for energy efficiency projects. ***Manufacturers should contact their utility account representatives to identify the types of incentives that may be available, their cost, and the level of financial support that may be available to carry out projects.*** Utilities almost always require projects to show some link to energy efficiency as a condition of offering assistance. Therefore, ***manufacturers need to think creatively about operation improvements in the context of energy efficiency.*** Some manufacturers, in areas as diverse as rural Iowa and Boston, have demonstrated how creative that link can be—getting utility financial assistance for projects ranging from plant layout to toxic waste minimization by showing the energy efficiency connection. More information on various utility initiatives in California can be found in Section Six.

In addition, ***manufacturers need to be aware that the electric utility industry is in an era of uncertainty***, as Congressionally mandated deregulation starts to take hold. Eventually, every electricity user will be able to choose his service provider, from any place in the country. For the utility, this means placing much greater emphasis on customer service, to maintain their existing client base and guard against customer raids from other utilities based in different parts of the country. For the manufacturer, deregulation could mean the loss of rebates and traditional types of utility assistance, as utilities explore more effective marketing strategies. On the other hand, many energy analysts see manufacturers in a position to benefit from the upheaval in the electricity industry. ***Deregulation could prove beneficial for savvy manufacturers wishing to use their energy needs as a negotiating tactic to gain financial or technical assistance.***

Deregulation could give manufacturers:

- the ability to explore new, better, and more tailored assistance packages from current energy providers, who are seeking to retain the manufacturer as a long-term customer;
- the ability to encourage utilities to provide better technical assistance, and links to ESCOs and other financial providers to make improvements, as part of a long-term service agreement; and/or,
- reduced rates, many believe, over the long haul.

### *Venture Capital or Equity Financing*

Equity financing, or venture capital, is by nature risk capital. Venture capitalists are investors who are not interested in a company's collateral assets; they are hooked by a company's potential cash flow and the profits their investment will generate. Their profit is derived from their part-ownership, or equity position, in the companies they support. ***Manufacturers need to shed their common perception that venture capital only lands in high-tech arenas; in fact, venture capitalists will invest in any company in any sector poised for big growth and significant profits.*** Venture capitalists take big risks, and they expect big returns.

Venture capitalists fall into two categories: *traditional* and *informal*. Traditional venture capital firms are typically partnerships capitalized by large institutions, such as private or public pension funds, major corporations, or insurance companies. ***Manufacturers need***

*to realize that, in practice, traditional venture capital opportunities may be limited, since traditional venture capital firms historically fund less than one percent of all companies seeking assistance.* Many traditional venture firms focus on existing companies with considerable growth potential, or on the leveraged buy-out of strong companies.

The bulk of available venture capital comes from informal sources, typically, the so-called “angels” (wealthy individuals with money to risk). A network of informal venture capital intermediaries has sprung up to link angels with promising deals; this network includes investment bankers; financial consultants; loan brokers; and venture capital clubs. SBA is developing a new computerized system, called ACE-Net, to link small companies and private angel venture investors. (See the *Federal Programs* section for more details.)

***Manufacturers need to know that a key constraint to finding informal venture capital is not necessarily the nature of the project itself, but the simple lack of information about who has venture capital to invest, how they want to invest it, and where it is.***

Venture capitalists are driven by the goal of making a lot of money, and they rarely make their investments on purely objective reasons. But companies that gain resources commonly:

- offer a proprietary product or service;
- feature significant potential for growth (many traditional venture investors look for at least \$50 million in product revenue) within a definable time period, usually five to ten years;
- demonstrate the potential for a high return to investors—most venture capitalists demand an average of at least 20% annually over the life of their investment;
- feature strong, able, and creative management teams;
- are able to define a clear “exit strategy” for the investor, typically, through sales of stock.

As they consider whether or not to pursue equity investors, ***manufacturers should keep in mind that venture capitalists will consider several factors when making their decisions about whether or not to invest in a company.*** They include the cost of the venture capitalists’ own source of investment funds, the maximum level of risk and minimum rate of return they will accept for a given deal; and the prospect that the return from the investment will materialize in an acceptable time frame.

SBA’s Small Business Investment Company program (SBIC) provides traditional equity financing to small businesses. (See the *Federal Programs* section for more details.) SBICs are owned by investment groups, other companies, and often by banks. Banks often participate in SBICs because this provides them with a way to become involved with potentially more lucrative venture capital projects, and offers them an institutional mechanism to serve companies that normally would not qualify for conventional loans in their commercial loan departments. Thus, ***manufacturers refused conventional financing should inquire if the bank participates in an SBIC.*** SBICs are at the root of

success for many companies who have made it big, including Apple Computer and Federal Express.

### ***Conventional Lenders and Risk: What Influences Their Approach to Manufacturing Projects?***

**What do manufacturers need to know about their lenders?** Various factors affect any given lender's basic view about financing manufacturing projects. Therefore, industrial manufacturers must know their lenders. When seeking financing for energy efficiency or process improvements, they should try to determine the following:

- the lender's **market policy-making structure**—are they a local bank with purely local interests, are they a National bank with policies set in a distant home office, etc. This will influence the lender's flexibility and approach to specific local situations.
- the lender's **sphere of activity or market niche**—is the lender's focus primarily on commercial projects, multi-family housing projects, shopping malls, or industrial projects; determining this will offer some sense of the lender's receptivity to manufacturing modernization and energy efficiency projects.
- the lender's **level of sophistication and knowledge** base—the more the lender knows about and understands industrial facility issues and needs, the more willing they are likely to be to finance such projects.
- the lender's **past experience** in financing similar modernization and energy efficiency projects—financiers who have undertaken such projects are less likely to be swayed by horror stories and more likely to be open to this type of loan
- lender **“trigger” issues**—the types of red flags that will dissuade it from lending, such as past problems with collateral disposition or adequacy of value, etc.
- lender's **comfort level with new technologies**, and its internal capacity to understand how new technologies can work and how likely it is to achieve the projected benefits.

***As they seek financing, manufacturers need to recognize that banks evaluate different types of businesses differently.*** Most lenders focus on the production and inventory cycles of manufacturing applicants (as opposed to the seasonal cycles that they may emphasize for retail borrowers). For example, some lenders may probe a manufacturer's long-term relationship with suppliers, or the sources and availability of raw materials, when determining the potential risks associated with loan repayment. Technology-based manufacturers may face additional questions about the life cycle of their products, or over issues relating to patents and licenses.

In short, ***manufacturers must remember that rejection by one lender may only reflect that financier's view of the risk involved with that sector or technology, and not the broader credit-worthiness of the applicant.*** Therefore, manufacturers should seek out lenders that may be a better fit with the project needing financing. In addition, ***manufacturers need to realize that their loan applications may be “victims of***

*circumstances*”—assigned to an overly-conservative loan officer, assigned to a loan officer with little clout within his or her institution, or submitted to a bank at a time when it is bumping up against its own loan limits and, consequently has tightened its lending standards. A creative loan officer, and an aggressive bank, can find ways to make loans work.

### *What are the faces of Risk?*

Risk—ways to quantify it, avoid it, and manage it—is the number one concern of lenders. As they consider it, many bankers follow the credo of the so-called “*Five Cs of credit*,” namely:

- ***Capacity*** to repay the loan, determined through a company’s financial statements (which many lenders report are typically poorly prepared); bankers like to see evidence of a consistent increase in profits and retained earnings devoted to the business;
- ***Collateral*** offered to secure the loan, and evidence that the collateral (such as equipment or real estate) will hold its value for the duration of the loan;
- ***Capital*** on hand—the company’s liquid assets or cash-on-hand; lenders also find it attractive if the owner has a good net worth-to-debt ratio;
- ***Conditions***—special situations or extenuating circumstances that could impact the borrower during the life of the loan; and,
- ***Character*** —borrower’s reputation for integrity and forthrightness (in presenting information to underwriters, the position in the community, and similar types of intangibles).

Within these parameters, the decision-making process is a fluid one within any given bank, in the context of loan officer interpretations, the reputation of the loan officer (within the bank) who may be handling your loan request, the nature of the bank loan committee and their comfort with basic data presented, and so forth.

***Manufacturers must remember that, in the final analysis, the key factor is risk***—the chances that problems are likely to arise with a project, relative to the potential payoff for the lender. Risk may take many forms, depending on the financial institution, its perceptions of various manufacturing situations, and the specific circumstances of the individual manufacturing project. ***Manufacturers must realize that, in the case of projects involving new process equipment or new technologies, the nature of the risks that lenders fear as they consider loan applications fits into one of the following categories:***

- the equipment or technology will not perform as promised, undermining the ability of the manufacturer to repay the loan based on predictions of that performance;
- the equipment or technology is so tailored to the specific borrowing company that it will not be marketable to others and that its purchase price will not be recovered in the event of a foreclosure (even accounting for normal wear and tear);

- basic concerns over environmental liability, prominent in many heavy industrial manufacturing sectors (such as printing or metalplating), will translate into one of two situations, either (1) the lender will not be able to gain liability-free access to manufacturing facilities to reclaim equipment used as collateral in the event of default, or (2) borrowers will be saddled with environmental cleanup costs and their ability to repay the loan may be jeopardized.

Numerous factors affect any individual lender's decision whether or not to lend to manufacturers seeking to finance equipment acquisition or capital improvements related to competitiveness. *Manufacturers must recognize that some of these factors will be out of the prospective borrower's control and may not even be relevant to the specific loan request at hand*; some lenders clearly follow the "once burned, twice shy" philosophy when dealing with projects in certain industrial sectors. Therefore, *manufacturers often have to make a considerable effort to educate their lenders on the nature of their industry and the scope of the project they propose to undertake*. In many cases, they are not successful in establishing a necessary level of comfort. Thus, *manufacturers are encouraged to try other lenders if the first one they approach rejects their application*. Technical information available through the Department of Energy and various State programs can prove valuable in this regard.

### ***What Types of Manufacturing-related Risks do Lenders Most Often Consider?***

Most lenders are traditionally conservative in their lending policies, often because they feel that their own regulators place them in that position. This varies for a number of reasons, but the size, specialty, and expertise of a given institution plays a key part. For example, some financial institutions focus on certain types of commercial lending; others may be much more open when considering loan requests from manufacturers. Some lenders are much more versed in environmental issues. Moreover, within a specific institution, some loan officers are more conservative than others, for a variety of reasons. *Manufacturers must not forget that some lenders simply do not understand various manufacturing technologies and processes*. And no bank officer wants to be party to a bad or "nonperforming" loan. The fact of the matter is that manufacturing loans are perceived—rightly or wrongly—as having a greater chance of going awry than most other types of lending.

Lenders concern themselves with various types of risk, but how a manufacturer addresses the following three types will be crucial in a lender's decision on a manufacturing project loan request.

1. **Basic credit risk**—the likelihood that the borrower will be able to make payments. Lenders address this risk by looking at the credit rating and financial situation of the borrower, to review such factors as past record of loan repayments and current debt to income ratios.
2. **Collateral risk**—the possibility that the lender will not be able to recover the loan amount due in the event of foreclosure because of a decline in collateral value (with manufacturing equipment, these concerns arise because the equipment is not viewed as marketable to others at a sufficient price).

*Manufacturers need to know that lenders confront this risk in two related ways: (1) by minimizing the value of the collateral to a level they are comfortable with (in the case of equipment, this may involve reducing its value to scrap value); or (2) by reducing the loan-to-value ratios they will accept for the project to a level they feel addresses the uncertainty.* For equipment loans, this means, in practice, that lenders might only provide 20 or 30% of the purchase price, rather than the 70 or 80% that they might loan in other situations.

*Manufacturers must remember that loan-to-value is an important concept in financing, and is especially key in evaluating potential risks in manufacturing loans.*

Basically, the smaller the loan request relative to the size of the overall project, the lower the loan risk to the lender, and the more likely the loan is to be approved. This boils down to a simple cash flow issue; the profits that manufacturers would earn from their own investment in the project could be shifted to cover the loan payments if that became necessary. In practice, this may mean that if manufacturers have limited cash to commit to a modernization strategy, they might be better off tackling initial segments, rather than a major effort. Thus, the gains from the initial investments can be used to make subsequent projects less risky and more bankable. In this way, it may be possible to get financing for a greater share of the purchase price; in the example above, perhaps 40% instead of 20% or 30%.

- 3. Liability risk**—lender's concerns that they will somehow be exposed to environmental risk for contamination if they move to claim collateral at a facility where production results in environmental contamination.

Lenders have interpreted the rulings in several court cases in the 1990s as particularly onerous barriers. In one instance, the manner of removing equipment used as collateral from a bankrupt manufacturer triggered Superfund liability. Lenders want to avoid such situations at all cost, and many do so by simply not lending to such companies.

*Manufacturers must remember that, to overcome lender concerns, they usually must provide environmental assessments and other detailed information to their banks about the condition of their facility, the nature of their production, and their waste disposal plans.* All of this drives up transaction costs considerably.

*Manufacturers may be able to circumvent environmental fears over collateral value for specific equipment acquisitions simply by offering alternative collateral.* For example, some banks may accept other real estate holdings, or other assets such as stocks or bonds as collateral for the equipment loan. (In practice, of course, this forces manufacturers to make some hard decisions about what they are willing to risk to secure the loan.)

Finally, insurance products are available that provide lenders the comfort they need when considering loans where environmental risks may be present. However, in practice, such insurance is very expensive (although the costs of typical coverage have dropped by more than a third over the past few years and continue to decline as an actuarial track record in this arena is developed). Currently, policy fees typically make such insurance prohibitively expensive for projects needing less than \$500,000 in capital.

## ***Choosing the Right Lender: Size May Matter***

Given the nature of manufacturing lending, prospective borrowers may have to search for the right match between their needs and the inclinations of the prospective lending institution. For example, loan size/complexity and bank size may have to be matched properly. In some instances, if the needed amount of loan proceeds is small and for routine purposes, the best bet may lie with a small community bank that specializes in tiny loans for projects in the local area. In other cases, where the technology proposed may be complex or relatively new, or a sizable amount of financing may be needed, the right lender may be a large, multi-billion lender with staff expertise and experience in making such loans.

### **Advantages of small lenders** (with less than \$100 million in assets)

- tend to focus on smaller loans;
- market niche is the local area, and they may be more interested in making loans in their immediate community;
- may be able to make a decision more quickly, and offer more flexible terms and conditions.

### **Disadvantages of small lenders**

- project size may exceed maximum loan amount (while such banks often participate in local lending consortia to meet higher capital needs, working through such an arrangement adds to the transaction costs);
- may be rigid when dealing with contamination concerns (automatically rejecting applications for this reason) or overly conservative when faced with loan requests involving innovative technologies or equipment.

### **Advantages of large lenders** (with more than \$100 million in assets)

- tend to be more open when considering loans involving manufacturing equipment and contamination concerns, because of greater staff expertise and experience;
- can consider larger size loans (because of their size, any individual loan will constitute a small proportion of their loan portfolio, allowing risk to be spread);
- may have a greater, and more targeted, variety of products and services to offer manufacturers.

### **Disadvantages of large lenders**

- minimum threshold for a loan may be too large for the typical manufacturing equipment loan need (in some cases, lenders have established floors of as much as \$10 million)
- some may view manufacturing loans as too complex, and their servicing too time-consuming (basically, they may have easier ways to make more money, via commercial or real-estate lending).

## **Other Factors Affecting Lender's Willingness to Lend on Manufacturing Projects**

*Finally, manufacturers need to know that sometimes, other factors will affect a bank's willingness to finance manufacturing-related projects—even if they have little or no direct bearing on either the specific project or the prospective borrower.* They may include the following:

- basic institutional attitude towards certain types of risk—top bank leadership simply decrees that the organization will not finance this type of project;
- the lender's need to make loans—"hungry" banks needing to shore up their level of lending activity may be more willing to finance innovative manufacturing projects than institutions having a number of prospective borrowers at their door competing for limited loan funds;
- the extent to which the lender pursues good ratings under the Community Reinvestment Act and needs to make qualifying loans to maintain those ratings—a factor that can work to the advantage of smaller companies in distressed community areas who employ local, lower-income persons;
- environmental factors.

The latter can have a significant, if more invisible impact on a lender's openness to lending. Historically, many manufacturing operations are viewed as "dirty"—rightly or wrongly—and companies seeking financial assistance must be prepared to prove that they can still meet the 5 Cs of credit and will not compromise a participating lender in terms of environmental liability. ***Manufacturers need to be aware that lenders continue to be very nervous over the prospect of incurring liability for environmental contamination from loans they make.*** While Congress and the Federal EPA have acted over the past year to reduce this risk, many lenders remain extremely reluctant to lend on manufacturing projects. This is particularly true of loans for improvements to long-time manufacturing operations. ***Manufacturers need to be aware that certain types of situations which will raise red flags with lenders, and they could require additional borrower effort to establish the right lender comfort level.*** These include the following.

- use of the facility for what may be viewed as "dirty" manufacturing operations, including those which involve the use of toxic substances, such as cyanide or lead;
- presence of discarded industrial batteries, paints, pesticides, or other chemicals, or waste ponds or lagoons;
- evidence of lead-based paint, asbestos, or underground storage tanks, or transformers, capacitors, or hydraulic equipment that may contain PCBs.

Even if the plant is in full compliance with State and Federal environmental laws and regulations, these situations may convey the *potential* for problems and stigmatize the project in the eyes of lenders.

## **Total Cost Assessment**

### *Pollution Prevention and Energy Efficiency*

Until recent years, Federal and State policy and practices at most industrial firms focused on pollution management and mitigation using “end-of-pipe” pollution control regulations and technologies. Although this approach was effective in promoting the first wave of pollution reduction, it was very costly. The next wave of environmental improvement will require pollution prevention and energy efficiency which focus on eliminating the sources of pollution and improving processes and energy efficiency so there will be less need for pollution control measures. Pollution prevention and energy efficiency techniques include substitution away from harmful chemicals, improvements in process efficiency or housekeeping that reduce waste and energy use, or in-process recycling of waste materials. Pollution prevention is also closely related to energy efficiency, which prevents pollution by reducing energy demand in place of increasing energy supply.

Because pollution prevention and energy efficiency focus on process improvements and waste elimination, they involve capital investments and process changes that are often profitable. Avoiding the costs or regulatory compliance, hazardous waste management, energy use, liability, and risks to worker health is simply good business.

### *Financial Analysis and Total Cost Assessment (TCA)*

Financial analysis is the process by which companies evaluate potential investments. Financial analysis assigns an indicator of profitability to each investment option to aid business decision making. Conventional financial analysis methods often neglect indirect or hidden costs, focusing on short-term costs and benefits instead.

Total Cost Assessment (TCA) is an approach to removing potentially unwarranted and misleading financial barriers to energy efficiency and pollution prevention and other related investments. It does so by assisting managers and other staff—research and development, product design, financial, energy, environmental, and operations—to develop a comprehensive financial analysis of the true profitability of environmental investments. TCA differs from conventional project analysis methods in four key ways:

- the inventory of costs, savings, and revenues includes indirect, less tangible items typically omitted from project analysis, such as compliance, training, testing, and liability.
- costs and savings are directly allocated to specific process and product lines instead of being pooled in overhead accounts.
- time horizons for calculating profitability are extended to capture longer term benefits.
- profitability indicators, such as Net Present Value (NPV) and Internal Rate of Return (IRR), capable of incorporating the time value of money and long term costs and savings are used.

Although developed for use with pollution prevention, energy efficiency and other related projects, the TCA approach can be used for the financial analysis of any industrial project under consideration by a firm.

### *Comprehensive Cost/Savings Inventory*

A comprehensive cost/savings inventory is a critical component in carrying out a financial analysis, particularly for energy and environmental projects. For example, a pollution prevention project that reduces the use of a hazardous substance as a raw material, therefore decreasing hazardous waste generation from the manufacturing process, can affect not only waste disposal costs, but also less-tangible items such as corporate or product image, and waste-related liabilities (such as Superfund liability). Analyses often omit these issues because they are problematic, difficult to quantify, or both.

The inventory component of TCA includes as many relevant and significant cost/savings items in the analysis as possible. Starting with the universe of potentially relevant costs and benefits, managers should consider each item for relevance to the project at hand. Some items (such as capital costs and basic labor/materials costs) are obvious and easily quantifiable. Other relevant items may require more effort to track down the information necessary to attach a dollar figure to the activity. If the best cost estimate is actually a range of costs, sensitivity analysis can determine how much the uncertainty affects the bottom-line profitability of the project.

Although an attempt should be made to evaluate all cost items (including less tangible items, e.g., liability), the same level of analysis is not necessarily appropriate for every item. In some cases, the analysis of a particular item will go further than simply determining that the item is not significant enough to warrant the time and effort that would be needed to rigorously quantify it. It is important to determine not only whether a particular cost item is relevant to the analysis, but also whether the item is significant in comparison to more readily quantifiable capital and operating costs.

### *Appropriate Cost Allocation*

Other relevant cost items may be omitted because of inappropriate cost allocation within the firm's accounting system. For example, environmental management costs, such as labor time for internal waste handling (e.g., manifesting) spill reporting, or compliance planning are often retained in general facility overhead accounts rather than being allocated to the process or product that is actually responsible for the activity. Even when these costs later are allocated back to processes/products for purposes such as product pricing or capital budgeting, the basis for allocation (for instance, amount of raw materials used per production line) may not accurately relate the overhead costs to the actual activity generating the cost.

In general, each cost item contained in overhead should be allocated to processes and products using an appropriate allocation basis. Under Activity Based Costing (ABC), overhead costs are first assigned to activities with a direct relationship to cost generation;

these activities are in turn allocated to processes and products. This two-stage technique facilitates selection of appropriate allocation bases, and provides valuable information for managing overhead costs. Although ABC is typically applied to a facility-wide or company-wide managerial accounting system, its methods and concepts are also valuable for capital budgeting.

### *Long Analysis Time Horizon*

Total Cost Assessment takes into account costs and benefits that accrue over the life of a project. The relevant time horizon could be, for example, the expected lifetime of the equipment purchased. For projects with very long expected life (15 to 20 years or more) a time horizon of a least 10 to 15 years enables the analysis to capture costs, savings, and revenues that occur in investment out-years, such as recurring waste disposal savings or future avoided liability savings. Unfortunately, many companies restrict capital budgeting to time horizons of 5 years, 3 years, or less.

### *Profitability Indicators and the Time Value of Money*

When summing costs and benefits over many years, it is important to recognize that cash flows in the future are less valuable than cash flows of the same magnitude in the present. In a large part, this is because a present cash flow can be invested (for example, in Government bonds) to yield a greater value in the future. This preference for receiving cash in the present is reflected through a discount rate—for most companies, the operative discount rate is their weighted-average cost of capital.

Profitability indicators, such as Net Present Value (NPV) and Internal Rate of Return (IRR), use the discount rate to appropriately value out-year cash flows in terms of present-year dollars; by contrast, other indicators such as simple payback neglect both the time value of money and out-year costs/ benefits, both of which may have a significant impact on the analysis.

## ***Glossary of Public Finance Terminology***

*The following list of terms was originally published by the California Energy Commission.*

**Abatement Risk**—(California Definition) The risk to investors that rental payments stop if project use and occupancy stops. Thus lessees must have full use and occupancy in order to be able to continue paying on the lease.

**Acceleration**—The means by which the Trustee of a bond issue may make all future payments of principal immediately due and payable after the issue has been declared to be in default.

**Accrued Interest**—The dollar amount of interest earned between the dated date and the date of delivery. This amount is usually included in the purchase price of the security and is normally rebated back to the investor with the first coupon payment.

**Ad Valorem Tax**—A tax based on property value. It may also be based on the assessed value of the property.

**Advance Refunding**—As the name implies, this is the refunding of an outstanding bond issue by means of a new issue. Such refundings can only be done if the issue being refunded includes terms allowing for the bonds to be “called” by the issuer. An advance refunding is normally performed to achieve substantial interest rate savings for the issuer. Outstanding bonds with high interest rates are replaced with bonds with lower interest rates.

**Agreement Among Underwriters (AAU)**—The document which forms the Underwriting syndicate and allows the managing Underwriters to act on behalf of the syndicate.

**American Municipal Bond Assurance Corporation (AMBAC)**—Insurance company which will insure a bond issue’s payments of principal and interest. AMBAC insured bonds are rated AAA.

**Alternative Minimum Tax (AMT)**—Established in the 1986 Tax Reform Act to ensure that individuals and corporations pay some amount of federal income tax on the interest income from certain tax-exempt bonds.

**Appropriation Risk**—The risk investors face if the lessee (public entity) fails to appropriate funds for rental payments through its annual budget process.

**Arbitrage**—This is the earnings difference between invested bond proceeds and the interest paid on the bonds. The 1986 Tax Reform Act states that these earnings must be rebated back to the Federal Government unless certain conditions are met (e.g. choosing the two-year penalty schedule).

**Asked Price**—The price at which municipal securities are offered to buyers or the price at which sellers agree to take.

**Assessed Valuation**—The valuation of real property for the purposes of taxation.

**Bad Money**—The limitation, now equal to 5% of the bond proceeds, imposed by the 1986 Tax Reform Act which determines the percentage of the proceeds from private activity bonds which may be used for any activity without violating the conditions for tax-exemption of interest on these bonds.

**Balloon**—A principal amount, equal to a large percentage of the total principal amount, to be retired at maturity. A Mandatory Sinking Fund redemption is normally required for such amounts.

**Bank Qualified (Bank Eligible)**—Refers to issues from municipalities issuing no more than \$10,000,000 of general debt and lease obligations annually. Certain financial institutions are allowed to deduct 80% of the interest expense associated with such issues, thereby increasing the demand for the issue among these financial institutions.

**Bankers' Days**—The number of days in a period based on a 360-day year.

**Basis Point**—An amount used to express yield differentials equal to 1/100 of a percent (.01%).

**Bid**—The price someone will pay for a security or a purchase offer.

**Block**—A large amount of Bonds (i.e. normally larger than a *Round Lot*).

**Blow-Out**—A new issue which sells exceedingly well in the market.

**Blue List**—A list of dealer offerings of Municipal Bonds - published daily.

**Blue Sky Laws**—State laws established to protect the public from securities frauds.

**Blue Sky Survey**—Conducted for each new issue, this survey assures that distribution restrictions and guidelines for the relevant State are met.

**Bond**—An interest bearing promise to pay a specified sum - the Principal - due on a specific date to the owner of the security. Compare to *Note*.

**Bond Anticipation Note (BAN)**—Short-term obligations issued by public agencies to temporarily finance a project. Bonds are expected to be sold to repay the BANs and to provide long-term financing for the project.

**Bond Bank**—A means of lowering borrowing costs in which local government securities are pooled into larger offerings which provide the financing for the local governments' projects.

**Bond Counsel**—Attorney who produces an opinion which determines the tax-exempt status of the Issue, the security for the Bonds, and the obligations of the Issuer.

**Bond Fund**—Is usually held by the Trustee for payment of debt service. It may also refer to a tax-exempt mutual fund.

**Bond House**—Any one of many firms specializing in underwriting, distributing, and dealing in Bonds.

**Bond Purchase Agreement (BPA)**—Exists between an Issuer and the Underwriter of the Bonds. The terms of sale, conditions to closing, liability restrictions of the Issuer, and any indemnity provisions are set forth therein.

**Bond Year**—Begins with the date of issuance and consists of twelve-month periods.

**Bonds-Years**—Are used for a Block of Bonds. They are equal to the sum of the products of the years to maturity times the number of Bonds retired on each maturity.

$$\text{Bonds-Years} = \text{Sum(Products of years to maturity)} * \text{Number of bond retired on each maturity.}$$

**Book Loss**—The difference between the original cost (see Book Value) of an Issue and the proceeds from the sale if sold at a loss.

**Book Value**—The value of the security as determined by the accounting process of the holder. This value is dependent on the accounting process of the holder and may not reflect the true market value of the item.

**Book Yield**—Uses the Book Value of the security when calculating the yield of a security.

**Bracket**— The order of Underwriters as determined by the amount of the issue that each firm is underwriting. The Syndicate is normally listed in bracket order.

**Bond Reinvestment Equivalent (BRE) Yield**—Analyzes the reinvestment potential (thereby including the value of discounts and premiums) in terms of Yield to Maturity.

**Break**—Occurs when the price and trading restrictions of the Agreement Among Underwriter have been discontinued. The security involved is then normally traded at a discount.

**Broker**—A person or group of persons receiving a commission for acting as an agent for buyers and sellers of securities.

**Bullet**—An Issue with a single maturity date, before which no principal or sinking fund payments are Amortized.

**Buying Ahead**—Purchasing Bonds in the open market by a sinking fund before the sinking fund due date.

**Calendar (Visible Supply)**—The schedule of new issues coming to market.

**Call**—A provision which allows the Issuer to prepay its debt prior to the maturity date of the security at a price at or above par.

**Call Price**—The specified price at which bonds are redeemed under a call provision (equal to or above the par amount of the bond).

**Capital Appreciation Bonds (CAB's)**—Bonds which pay no interest but accrue in value from the date of issuance to the date of maturity. A CAB is a type of discount bond. See Zero Coupon Bonds.

**Capital Gain**—A profit realized from selling a security at a price higher than the original purchase price.

**Capital Lease**—A lease is classified and accounted for by a lessee as a *capital lease* if it meets *any* of the following criteria: a) the lease transfers ownership to the lessee at the end of the lease term; b) the lease contains an option to purchase property at a bargain price; c) the lease term is equal to 75% or more of the estimated economic life of the

property. (Exceptions for used property leased toward the end of its useful life); or d) the present value of minimum lease rental payments is equal to 90% or more of the fair market value of the leased property less related investment tax credit retained by the lessor.

**Capitalized Interest**—A specified portion of the original bond proceeds total which will be used to pay interest on the Bonds until revenue from planned sources becomes available, or until the beneficial use of the asset is acquired.

**Capital Spending**—Reflects the spending on long-lived productive facilities and equipment (used as an economic indicator).

**Carry**—The difference between the rate of interest earnings from securities and the cost of funds for purchasing the securities.

**Cash Flow**—The combined return of interest and principal payments received from held securities.

**Cash Settlement**—The same-day delivery of funds from a Government securities transaction.

**Certificate of Deposit (CD)**—A certificate representing a time deposit of fixed maturity issued by a commercial bank. These interest-bearing certificates are traded on a yield basis with the interest computed on the basis of a 360-day year (Bankers' Days).

**Certificate of Participation (COP) Lease**—A type of lease in which the lessor (or designated Trustee) issues shares (in the form of COPs) which entitle the holder to a portion of the lessor's interest in the lease.

**Clearing House Bank**—A member bank of a clearing house association which exists to facilitate the clearing of checks, drafts, and other items drawn on banks.

**Clearing House Funds**—Funds from Clearing House Bank checks, which will be honored on the business day following the day of presentation for payment.

**Closed-End Fund**—A mutual fund with a fixed number of shares. Shares cannot be redeemed and are traded on the open market at prices which may differ from the underlying net asset value per share.

**Collateral**—Property (quite often securities) pledged by a borrower to secure payment of a loan.

**Collateral Loan**—A loan backed by some type of property (often times securities).

**Co-Manager**—A manager participating in a securities offering who is normally not responsible for maintaining the books of account for the offering. (Compare to Lead Manager).

**Comfort Letter**—A letter to Underwriters of a securities offering from an independent accountant which is delivered both at the sale and close of an Issue for the purpose of providing information concerning financial matters which may have occurred since the last audited financial statement of the Issuer.

**Commercial Paper**—Unsecured debt obligations with short (usually less than 180 days) maturities which are used to provide funds for operating expenses or for interim financing of permanent capital improvements. Lines of credit are generally used for the backing of such offerings.

**Commission**—The agent fee a broker receives for buying or selling securities.

**Competitive Sale**—A sale of securities in which Underwriters submit bids to purchase the securities.

**Concession (or Reallowance)**—The maximum portion of the funds received for the sale of securities that an Underwriter may give up to another registered securities dealer, who may or may not be a member of the underwriting syndicate, as determined at pricing.

**Confirmation**—A detailed report given to a customer which outlines all of the relevant data to a trade.

**Construction Fund**—The fund from which project costs are financed. A portion of the Bond proceeds is deposited into this fund which then earns interest during the construction period.

**Consumer Price Index**—Measures retail price changes and is often a closely monitored economic indicator.

**Convertible Bond**—A bond which may be converted into other securities, most often common equity securities.

**Coupon**—Determines (1) the amount of interest due on a Bond, (2) on what date the interest payments are to be made, and (3) where the payment is to be made.

**Coverage**—The ratio of operating income plus interest expense to interest obligations over a period (usually the life of the Issue). It represents the Issuer's ability to make debt service payments.

**Credit Risk**—The risk that an Issuer may default on its securities.

**Current Yield**—The ratio of interest to the market price of a Bond.

**CUSIP**—The Committee on Uniform Security Identification Procedures, formed to provide a standard means of identifying securities. A security is identified by its CUSIP number.

**Dated Date**—The date of an Issue from which bondholders are entitled to receive interest.

**Dealer**—A firm or an individual whose business it is to act as a principal in the purchase and sale of securities.

**Debenture**—A bond which only has the security of the general credit of the Issuer and certain unpledged assets.

**Debt Limit**—The limit on the principal amount of debt that an Issuer may legally have outstanding at any time.

**Debt Service**—The sum of required principal and interest payments for a given period.

**Debt Service Reserve Fund**—This fund is normally required under most Indentures for the payment of debt service in the event that pledged sources of payment are insufficient. The initial balance of the fund is a portion of total bond proceeds and is in an amount equal to the lesser of 10% of the bond size and the largest annual debt service payment.

**Deep Discount Bonds**—Bond sold at a large discount from its face value in order to compensate for the fact that this type of bond either bears interest at rates well below the market or bears no interest at all (the discount allows the yield of such a bond to approximate market yields).

**Default**—Occurs when payment of principal and/or interest for a given period is not made, or if a covenant in the financing documents is not kept.

**Defeasance**—To replace the existing security of an Issue with another allowable security. Such a substitution is often necessary for refundings, which place sufficient funds in escrow to guarantee the payment of principal and interest on the Issue being refunded.

**Deficit**—The amount by which expenditures exceed revenues.

**Delivery Date**—The date on which the purchaser takes full possession of an Issue.

**Denomination**—The face value of a security.

**Direct Financing Lease**—A non-leveraged lease by a lessor (not a manufacturer or dealer) in which the lease meets any of the criteria definitions of a *capital* lease, plus two additional criteria as follows: a) collectibility of minimum lease payments must be reasonably predictable and, b) no uncertainties surround the amount of unreimbursable costs to be incurred by the lessor under the lease.

**Direct Pay Letter of Credit**—Allows the Trustee to draw the full amount of principal and interest due on each Bond payment date.

**Discount**—The amount by which the purchase price of a security is less than its par value.

**Discount Basis**—A means of quoting discounted securities (the discount from the par value of the securities is calculated according to Bankers' Days).

**Discount Rate**—The rate a financial institution must pay when it borrows from the Federal Reserve Bank (this rate is determined by the Federal Reserve System).

**Divided Account**—An agreement between Underwriters which limits each underwriting group's liability to its portion of the securities offering (i.e. no Underwriter can be held liable for the unsold portion of another Underwriter's portion of the Issue).

**Dollar Bond**—A Bond which is traded and quoted in dollar pieces rather than in terms of yield.

**Double-Barreled Bond**—A Bond which is secured by more than one source. A common combination is the full faith and credit of the Issuer and certain pledged revenues.

**Double (Triple) Exemption**—The exemption of the income from certain securities from Federal, State (and local) income taxes.

**Downgrade**—Occurs when a Ratings Agency lowers the rating of an Issuer (e.g. AAA to AA).

**DTC (Depository Trust Company)**—A means of registering securities through the book-entry system. The use of this depository facilitates the delivery of Book-entry securities among its members. Most municipal bonds are distributed through this company.

**Due Diligence**—An investigation conducted by concerned parties to determine the accuracy of all the pertinent items associated with an Issue, and to ensure that no necessary information has been omitted.

**Economic Life of Leased Property**—The estimated period during which the property is expected to be economically usable by one or more users, with normal repairs and maintenance, for the purpose for which it was intended at the inception of the lease.

**Effective Yield**—An investor's rate of return when it sells a security.

**Equity Strip**—An Issue which is secured by property unrelated to the project being financed.

**Even Par Swap**—The sale of a Block of Bonds and the simultaneous purchase of another Block of Bonds with the same principal amount.

**Event of Default**—A specific event, as defined in the financing documents associated with an Issue, which allows the Trustee and/or the bondholders to commence certain default proceedings as outlined in the Issue's security document.

**Evergreen Refunding**—The use of a fixed-rate refunding bond issue to hedge against the possibility of rising interest rates on an outstanding variable-rate issue. Such refundings are done when interest rates are expected to remain at levels above the rates on the refunding bonds.

**Face Amount**—The par value of a security.

**Feasibility Study**—A study conducted by an independent consultant to determine the financial feasibility of a project. The study may consist of a forecast, a projection, or a compilation.

**Federal Funds**—Commercial bank deposits held at Federal Reserve Banks. Some bond transactions require payment of proceeds in such funds, which are immediately available.

**Federal Funds Rate**—The interest rate at which such funds are traded.

**Fiduciary**—Individuals or trusts who are given the responsibility of acting for the benefit of others.

**Finance Lease**—A financing device whereby a user can acquire use of an asset for most of its useful life. Rentals are net to the lessor, and the user is responsible for maintenance, taxes, and insurance. Rent payments over the life of the lease are sufficient to enable the lessor to recover the cost of the equipment plus a return on its investment. A finance lease may be either a *true lease* or a *conditional sale*.

**Financial Guaranty Insurance Company (FGIC)**—An insurance company which often issues policies which insure the required repayment of the principal and interest amounts of an Issue. All issues insured by FGIC carry the company's AAA credit rating.

**Financing Statements**—Take the form of summary documents which detail the characteristics of a transaction for the benefit of public knowledge.

**Firm**—A type of buy or sell order that can be implemented without immediate confirmation.

**Flat**—Without reference to accrued interest.

**Flip**—Realizing a trading profit by selling securities shortly after purchase.

**Float**—(1) Issuing a security, or (2) the amount of money which cannot be invested by the Issuer for a particular reason. (The float may be some form of accrued interest which is not allowed to be invested).

**Flow of Funds**—The security documents' description of how revenues are to be collected, invested, transferred, and applied.

**Form**—The type of certificate (e.g. registered) available for an Issue.

**Full-Payout Lease**—A Finance Lease or a Conditional-Sales Lease, in which the total payments of the lessee to the lessor more than match the lessor's investment in purchasing the property.

**Fully Invested**—Pertains to a portfolio that has no assets in the form of cash or cash equivalents.

**Funnel Sinking Fund**—The Trustee may underwrite the Indenture purchase and retire Bonds of an outstanding series with respect to this fund in order to satisfy a funding requirement for a sinking fund.

**Future Value**—Given a present amount and an assumed interest rate, future value is what this amount will be worth after a certain number of periods into the future if it were discounted forward to that point. In simplest terms, the future value equation is as follows:

$$\text{Future Value of a cash flow} = \text{Present Value} * (1 + \text{interest rate})^{\text{number of periods to be discounted}}$$

**General Obligation (GO)**—A municipal security which has payments secured by a pledge of the full faith and credit of the Issuer. The Issuer covenets to meet payment requirements through every legal means at its disposal. It is considered to be the strongest form of an uninsured security pledge.

**Good Faith Deposit**—A cash deposit in an amount equal to 2% of the bond issue required upon the award to an Underwriter to demonstrate the intent to accept the Bonds when tendered. (In a competitive sale, each Underwriter submitting a bid must include such a deposit).

**Gross Pledge**—A pledge of all targeted revenues to the payment of debt service before the deduction of any operation and maintenance expenses.

**Gross Proceeds**—The total proceeds of a bond issue including the original issue proceeds, the investment earnings on obligations acquired with the bond proceeds (including the repayment of principal), and any sums available to pay debt the issue's debt service. This is the definition in the context of Federal tax law.

**Guaranteed Investment Contracts (GICs)**—Investment products with a typical maturity of less than ten years which are offered by financial institutions, and which pay investors a fixed rate of return. This rate of return normally follows the current yield on high grade debt securities.

**Guaranty or Guaranty Agreement**—An agreement by a third party to pay the debt service on another party's Issue. It may also refer to the promise of an Issue's primary obligor to pay debt service on the Issue under a sale and lease-back arrangement.

**Hedge Clause**—A clause which is intended to relieve the publisher of a document of any responsibility for the accuracy of information received from outside sources.

**Hell or High Water Clause**—A covenant which states the agreement of the covenanted to meet certain payment obligations regardless of germane conditions whether they be anticipated or not.

**High-to-Low Refunding**—Refunding an Issue which has a high interest rate with an Issue with lower rates.

**Indemnification**—The state of agreement in which one party to a securities transaction agrees to pay the expenses incurred by another party for whatever situations are set forth in the agreement.

**Indenture**—Also Trust Indenture. A contract between the issuer of municipal securities and a trustee, for the benefit of the bondholders. The trustee administers the funds or property specified in the indenture in a fiduciary capacity on behalf of the bondholders. The trust indenture, which is generally a part of the bond contract, establishes the rights, duties, responsibilities, and remedies of the issuer and trustee and determines the exact nature of the security for the bonds. The trustee is generally empowered to enforce the bond contract on behalf of the bondholders.

**Industrial Development Bonds (IDBs)**—Securities issued by an entity to finance the business of a private corporation. The security backing for such issues is not the credit of the Issuer, but rather the credit of the private corporation.

**Initial Offering Price**—The percentage of par price at which the original purchaser intends to market an Issue. This price is based on yield to maturity.

**Installment Sale**—A lease financing sale where an issuer makes installment payments to finance a project; these payments cover debt service and other costs the Issuer incurs due to the project.

**Institutional Investor**—Any one of many financially-sophisticated organizations which is in the practice of investing. Examples are insurance companies, Bond Funds, banks, and other financial institutions.

**Institutional Pot**—The portion of a new issue offering (usually equal to 20%) which is set aside by underwriters for sale to large institutional investors.

**Interest**—An annual percentage of the principal amount borrowed which is paid for the use of such money.

**Interest Payment Date**—Date on which interest is due to bondholders.

**Interim Financing**—Financing needed to meet payment requirements between the time of closing and when the project begins to generate revenue. A construction fund is often set up as part of this financing.

**Investment Banker**—An individual belonging to a firm engaged in the financing of capital. Investment Bankers are normally in the practice of purchasing new issue offerings for resale to investors with whom they communicate.

**Investment Grade Securities**—Bonds or notes with a high enough rating to attract institutional investor interest. This rating is typically BAA/BBB or above.

**Issue**—A specific group of securities (e.g., City of San Francisco, Certificates of Participation, Series 1993A).

**Issuer**—The public entity borrowing money through the issuance of securities.

**Junk Bonds**—High-risk, high-return bonds which are below investment grade.

**Lead Manager**—The manager(s) participating in a securities offering responsible for maintaining the books of account for the offering.

**Lease-Purchase Agreement (Conditional-Sales Lease)**—Essentially an installment sale in which a lease provides a means for the lessee to eventually acquire the leased property.

**Legal Investment Survey**—A report outlining the State laws governing State (or local) funds' and State-regulated entities' legal ability to invest in a particular Issue.

**Lease Line**—A lease line of credit similar to a bank line of credit which allow a lessee to add equipment, as needed, under the same basic terms and conditions without negotiating a new lease.

**Legal List**—The list of investments legally available to institutional and other State-regulated investors.

**Letter of Credit**—The obligation of a bank to meet specified payment requirements of an issuer in the event the issuer cannot meet such requirements.

**Leveraged Lease**—A type of lease in which a lender lends funds to the lessor (normally more than 50% of what is required to buy the property). The leased property serves as part of the collateral behind the lender/lessor loan, but other credit of the lessor is generally immune from any recourse.

**Lien**—A security interest (possibly a mortgage) in a piece of property.

**Limited Tax Bond**—A bond whose backing is only a specified portion of the taxing power of the issuer.

**Management Fee**—The percentage of the underwriting spread which goes to the manager(s) of the account.

**Manager**—The underwriting firm(s) responsible for dealing with the Issuer on behalf of the entire group of underwriters.

**Mandatory Sinking Fund**—A standard means of paying Term Bonds in which deposits are made to an account for the express purpose of gaining interest and then being applied toward the Term Bond repayment.

**Market Price Rule**—A regulation preventing the acquisition of arbitrage profits by determining yields at the market price.

**Market Value**—The current price of a security in its trading market.

**Marketability**—The ease with which a security can be sold at a given price.

**Master Lease**—A lease line of credit which allows a lessee to add equipment under the same basic terms and conditions without negotiating a new lease contract.

**Maturity Date**—The date on which the specified principal amount of a security becomes due.

**Mello-Roos Bonds**—Under the California Community Facilities District Act of 1982 special districts may be created to finance infrastructure improvements by levying special taxes within the district. A public hearing and an election are necessary to issue bonds for the district. The decision to issue bonds may be the result of: (1) legislative initiative, (2) an outside request endorsed by members of the legislative body concerned, or (3) a petition filed by 10 percent of the property owners in the district. Both facilities and services may be financed by the issuance of Mello-Roos Bonds.

**Minor Portion**—An amount (not exceeding the lesser of five percent of the proceeds of the bond issue or \$100,000) which has no yield restriction as it is invested.

**Moral Obligation Bond**—A municipal security which does not have the backing of the full faith and credit of the issuer, but which has means of payment morally (as opposed to legally) obligated to it.

**Municipal Bond**—A tax-exempt security issued on behalf of a state or any subdivision thereunder.

**Municipal Bond Investors Assurance Corporation (MBIA)**—An insurance company which will issue policies covering the payment of principal and interest on an issue. MBIA insured bonds are rated AAA.

**Municipal Lease**—*See Tax-Exempt Lease.*

**Municipal Securities Rulemaking Board (MSRB)**—The primary rulemaking authority of the municipal securities industry.

**National Association of Securities Dealers (NASD)**—The self-regulating body in charge of establishing rules geared for the protection of the investing public.

**Negative Pledge Agreement**—An agreement by whatever entity is providing the security backing for an Issue not to incur any new debt which will encumber use of revenues targeted for debt service payments.

**Negotiated Underwriting**—An underwriting situation in which the underwriters of a securities offering are selected well in advance of the sale of the securities. The terms of the underwriting agreements are subject to negotiation.

**Net Lease**—A lease requiring rental payments to be set by the particulars of the debt securities issued to finance the subject of the lease. Certain costs of the lessor resulting from lease obligations may or may not be covered by the payments.

**Net-Net Lease, or Triple-Net Lease**—Leases requiring the lessee to include as part of its rental payments all of the following: amounts required by the debt securities issued to finance the subject of the lease, and all maintenance, tax, and insurance costs of the leased premises.

**Net Pledge**—The pledge to debt service payment requirements of targeted revenues minus all operation and maintenance costs.

**Net proceeds**—Total bond proceeds less the portion of the proceeds invested in a reserve fund.

**New Money Issue**—A bond issue used to finance a new capital project.

**Nominal Yield**—The face interest rate of a Bond.

**Non-Arbitrage Certificate**—The certification by authorized officials of an Issuer regarding matters which form the basis for concluding that certain Bonds are not arbitrage Bonds.

**Non-Callable Bond**—A Bond that is not redeemable by the Issuer prior to the maturity date.

**Nonpurpose Investment**—Any investment acquired with the proceeds of an issue which is not intended to carry out the purpose of the issue as described in the Indenture.

**Note**—A security with a (normal) maturity less than that of a Bond. All the notes in an Issue typically have the same maturity.

**Offering Price**—The price investors in an issues receive when the original purchaser (Underwriters)) offers the securities for sale.

**Official Statement (OS)**—A document normally required for each new Issue which contains information about the nature of the security being offered and the pledged sources of payment behind the security.

**Operating Lease**—For financial accounting purposes, a lease which does not meet the criteria of a capital lease or direct financing lease. Also, used generally to describe a short-term lease whereby a user can acquire use of an asset for a fraction of the useful life of the asset. The lessor may provide services in connection with the lease such as maintenance, insurance, and payment of personal property taxes.

**Original Issue Discount**—The discount from par at which an original offering is sold.

**Original Proceeds**—Net proceeds (total proceeds less the costs of issuance) received from a bond sale.

**Original Purchaser**—The purchaser (usually the underwriters) of an original Issue directly from the Issuer.

**Over the Counter (OTC)**—An organized method of trading securities other than the stock exchanges.

**Par or Par Value**—The principal amount of a security - normally the amount found on the face of the security.

**Par Bond**—A bond which is neither sold at a discount nor at a premium.

**Partial-Payout Lease**—A type of lease in which the lessee's payments to the lessor do not fully cover the investment required to purchase the leased property. The lessor must recover the difference between the investment value of the leased property and the sum of the lease payments made by the lessee by selling the property when the lease term expires.

**Paying Agent**—The institution chosen by the Issuer to make principal and interest payments to bondholders.

**Pledge**—A promise to use targeted sources of revenue for the payment of debt service. A pledge differs from a lien in that the targeted source is not readily available or identifiable (e.g., revenues from the project being financed by the Bonds which has not yet been constructed).

**Point**—One percent of the face value of a Bond.

**Pot**—The portion of a Bond offering which may be sold to institutions or dealers at the discretion of the lead manager (underwriter).

**Preliminary Official Statement (POS)**—The draft of the Official Statement (without price, yield, or maturity information) which is used for the marketing of the bonds prior to issuance. A red-inked statement on the cover page of a POS contains information which prevents orders for the security to be issued from being taken. This statement lends the POS its nickname, a "Red Herring."

**Premium**—The amount by which the price of a Bond exceeds the face value of the Bond.

**Present Value**—The value today of a future cash flow.

**Primary Market**—The market for new security offerings.

**Principal Amount**—The face amount of a Bond payable at maturity. Accrued interest is not a portion of this amount.

**Private Activity Bond**—Can be defined as either of two things: (1) A bond of which more than 10% of the proceeds will be used for non-governmental purposes, and which is going to be repaid from revenues received from a private entity, or (2) A bond which will have the lesser of 5% or \$5 million of the proceeds being used for loans to non-governmental entities.

**Private Placement**—A negotiated sale in which the new issue securities are sold directly to institutional or private investors rather than through a public offering. Issuers often require investors purchasing privately placed securities to agree to restrictions as to resale; the investor may provide a signed agreement to abide by those restrictions.

**Pro Forma**—A projection for a revenue project which includes expected costs and income from the project.

**Proceeds**—The money received by the Issuer from the original delivery of an Issue. The total proceeds include any variation of the price from par (discounts or premiums) and accrued interest.

**Project**—The proposed use of the proceeds from an original securities offering.

**Project Costs**—All outlays expected to be associated with the financing of a project which are legally able to be included in the principal amount of the Bond Issue. These outlays may include the costs of acquisition, construction costs, equipment use and acquisition costs, capitalized interest expenses, reserve funding requirements, printing cost, legal fees, and the like.

**Prospectus**—The statement which must be filed with the Securities and Exchange Commission containing similar information to that found in an Official Statement, namely pertinent information about the Issue and the Issuer.

**Public Approval Requirement**—A private activity bond must be approved after a public hearing by both an elected representative of the Governmental unit issuing the Bonds and each Governmental unit which has some form of direct authority over the area in which any proposed facility is located.

**Public Sale**—Sale of an Issue through a competitive bidding process in which the bidder offering to buy the Issue and the lowest cost of funds to the Issuer is awarded the Bonds.

**Put Bond**—A Bond which allows the bondholder to redeem the Bond at a specific price either during a specified time period or on or after a specific date. The issuers of Put Bonds must have the means available to pay off these Bonds should they be tendered.

**Quotation or quote**—A market indication of the price at which a security can be bought or sold.

**Rate Covenant**—A promise to set rates or fees for the use of certain facilities, products or operations at levels sufficient to meet a specific percentage of the maximum annual debt service required.

**Rating**—An evaluation made (for a fee) by Rating Agencies of the creditworthiness of an Issue.

**Rating Agencies**—Organizations which are in the business of providing ratings of securities Issues. Agencies performing the evaluation of an Issue's creditworthiness include Standard & Poor's Corporation, Moody's Investors Service, Inc., and Fitch's Investors Service.

**Realized Yield**—The return on a Bond over a certain period of time, assuming that income earned from the Bond is reinvested at a stated reinvestment rate.

**Reasonably Required Reserve**—An amount, not exceeding 10% of the face value of an Issue, to be held in reserve for the purpose of meeting debt service requirements.

**Rebate**—A current Internal Revenue Service notion which requires that interest earnings from investments which exceed the Bond yield be paid to the Internal Revenue Service at least every five years. Exceptions from this requirement do exist.

**Redemption**—The retirement of outstanding Bonds prior to maturity by means of a cash payment. Certain bonds are redeemable "callable" at a premium on certain dates. Redemption information is set forth in the Indenture.

**Refunding**—Using a new Bond Issue to replace an existing Bond Issue either to decrease the annual debt service requirements of the issuer or to alter the restrictions included in the Indenture of the issue being refunded.

**Registered Bond**—A Bond the owner of which is recorded by the paying agent of the Issue. A registered Bond holder is entitled to the income from the Bond.

**Reoffering Price**—The price at which the original purchasers of an Issue offer the securities to investors.

**Reserve Fund**—A fund established under the Indenture to meet expense or debt service payment shortfalls.

**Revenue Anticipation Note (RAN)**—A short-term debt instrument the security pledge of which is the receipt of anticipated future revenues.

**Revenue Bond**—A Bond which is payable from a specific source of revenue (typically from the facility for which the Bond was originally issued) and which is not backed by a pledge of the full faith and credit of the issuer.

**Round Lot**—The increment in which securities can be traded without addition or deduction of a price differential due to the size of the block. There is disagreement in the industry as to what constitutes a round lot of municipal securities, with \$25,000, \$100,000, and \$250,000 par value lots each considered the minimum round lot size by some industry member.

**Run the Books**—To be in charge of the marketing, allocation, payment and delivery of a securities offering - the job of the lead underwriter.

**Safe Harbor True Lease**—A means by which a business can acquire capital assets to offset its tax liabilities.

**Sale and Leaseback**—A transaction in which an Issuer will purchase property and immediately lease the property back to the entity from which it was purchased for operation. The lease payments of the seller serve as the revenue required to pay debt service on the Issue which allowed the Issuer to purchase the property.

**Secondary Market**—The market in which securities are traded after they have been sold by the original investors.

**Serial Bonds**—Bonds which are scheduled to mature over a number of years - compare to Term Bonds.

**Service Lease**—A true lease (the term of the lease is usually less than 80% of the useful life of the leased property and the lessee does not acquire possession of the property).

**Short-Term**—Obligations which generally have a maturity of less than one year.

**SLGS (State and Local Government Series)**—A type of U.S. Treasury security used by tax-exempt Issuers to tailor the investment of Bond proceeds to avoid earnings excessive arbitrage profits. Issuers must subscribe to these securities two weeks in advance of purchase.

**Special Tax Bond**—Any Bond secured by a special form of tax; a tax on a certain commodity would be such a tax.

**Spread**—(1) The discount (usually computed in basis points per Bond) an Underwriter receives for purchasing a Bond Issue - the difference between what the Underwriter pays for the Issue and the resale price to the public. (2) The difference between the bid and offered price in the market for a security.

**Stand-by Letter of Credit**—A Letter of Credit which provides for a single draw should the Bonds be declared to be in default and therefore accelerated by the Trustee involved.

**Stated Interest Rate**—The interest rate used to compute the annual interest payable on a security.

**Story Bonds**—Bonds exhibiting special features which must be explained to potential buyers in order that they will be purchased.

**Supplemental Indenture**—A supplement to an outstanding Indenture which does not fundamentally alter an outstanding Indenture, but functions to settle an inconsistency or remedy a formal defect.

**Syndicate**—A group of Underwriters who purchase a new Issue and resell it to the public.

**Syndicate Restrictions**—Obligations of the group of Underwriters concerning the distribution, price, and market actions surrounding an Issue.

**Take**—To buy at the offered price.

**Tax-Exempt Lease (Municipal Lease)**—A lease agreement in which the lessee is a State or local government and which exhibits interest payments which are exempt from the gross income portion of Federal income tax.

**Tax Reform Act of 1986**—Legislation which produced profound changes in the municipal practice of issuing tax-exempt debt securities.

**Term Bonds**—Bonds which have a single maturity. Compare to Serial Bonds.

**Total Bonded Debt**—A municipality's total general obligation debt outstanding.

**Total Direct Debt**—A municipality's combined sum of total bonded debt and any unfunded debt.

**Transferred Proceeds**—Refer to the proceeds of an Issue being refunded. Federal tax law restricts the investment yield of these proceeds as they become part of the refunding bond issue.

**Treasury Bill**—Obligations of the United State Government which bear no interest but are sold at a discount.

**Treasury Bond**—An interest-bearing security issued by the U.S. Treasury with a typical maturity of more than ten years.

**Treasury Note**—An interest-bearing security issued by the U.S. Treasury with a maturity of between one and ten years.

**True Interest Cost (TIC)**—The true cost of borrowing money. Computes the interest cost on a discounted present value method.

**True Lease**—A true lease is a transaction which qualifies as a lease under the Internal Revenue Code so the lessee can claim rental payments as tax deductions and the lessor can claim tax benefits of ownership such as depreciation and ITC.

**Trustee**—The bank or trust company which serves both as the custodian of funds and the official representative of an Issue’s securities holders.

**Two-Percent Rule**—The percentage, as defined by the Tax Reform Act of 1986, of private activity Bond proceeds which may be used to finance costs of issuance.

**Underwrite**—To assume the liability of delivering to the Issuer the expected proceeds of an Issue by agreeing to buy the Issue in its entirety.

**Underwriting Spread**—*See spread.*

**Undivided Account**—An agreement between Underwriters holds each member of an underwriting group liable for the other members’ unsold portion of the Issue.

**Unlimited Tax Bonds**—Bonds backed by taxes which are not limited by rate.

**Useful Life**—The period of time during which an asset will have economic value and be usable. Useful life of an asset is sometimes called the economic life of the asset. To qualify as a true lease, the leased property must have a remaining useful life of 20% of the original estimated useful life of the leased property at the end of the lease term, and at least a life of one year.

**Variable Interest Rates**—Interest rates which change according to a formula set forth in the securities Issue.

**Volume Cap**—The limitation on the aggregate annual amount of private activity Bonds that may be issued in each State as stated in the Tax Reform Act of 1986.

**When Issued (WI)**—Trading securities before they have actually been issued. The trades are on a “when, as and if issued” basis.

**Yield curve**—Relationship between short and long term interest rates.

**Yield to Average Life**—The yield resulting from the use of average maturity instead of the maturity date of the Issue in the yield calculation.

**Yield to Call**—The yield derived when the sum of interest payments to the call date is used as the cash flow when the issue is redeemed at its call price.

**Yield to Maturity** - The average annual percentage of return on a security assuming the interest is reinvested at the same yield and that the security is held to maturity.

**Zero Coupon Bonds** - Bonds which do not pay interest but are sold at a substantial discount such that the difference between the par price and the discounted price results in the desired yield on the security. The Bond is redeemable at its face value at maturity.

# Case Studies in Energy Efficiency and Pollution Prevention Excellence

- 3COM
- CHEVRON
- GENENTECH, INC.
- MBA POLYMERS, INC.
- NISSHINBO, CALIFORNIA, INC.
- OBERTI OLIVES, TRI VALLEY GROWERS
- SIEMENS ICN
- WEST COAST SAMPLES, INC.
- JORDAN COMPOSITES
- A. FINKL & SONS CO.\*
- AAP ST. MARY'S\*
- DECATUR FOUNDRY, INC.\*
- QUAD/GRAPHICS, INC.\*
- PONDERAY NEWSPRINT COMPANY\*\*
- WACKER SILTRONIC\*\*
- TOP VENEER & TRADING CO., LTD. - HELLER FIRST CAPITAL\*\*
- TRAILBLAZER FOODS, INC. - THE MONEY STORE & KEY BANK\*\*
- NAUMES, INC. - PACIFICORP\*\*
- U.S. BANCORP LEASING AND FINANCIAL\*\*
- B & G MACHINE, INC. - CASCADIA REVOLVING FUND\*\*

\* These case studies were originally prepared for the Chicago, Illinois, Innovative Financing Workshop

\*\*These case studies were originally prepared for the Portland, Oregon, Innovative Financing Workshop by the U.S. Department of Energy Golden Field Office and Environmental Plus, Inc.

## **3Com**

### ***Lighting Upgrade Improves Quality and Saves Energy***

#### **Background**

3Com, headquartered in Santa Clara, California, has approximately 13,000 employees operating through 200 offices in 48 countries on six continents. 3Com—which stands for Computer, Communication, Compatibility—was co-founded in 1979 by Dr. Robert Metcalfe, an inventor of Ethernet technology. As one of the world's largest suppliers of data, voice and video communications technology, 3Com is working toward expanding networking—the integration of voice, video and data capabilities across a single network interface medium. 3Com has delivered networking solutions to more than 200 million customers worldwide, providing large enterprises, small and medium-sized businesses, carriers and network service providers, and consumers with comprehensive, innovative information access products and system solutions for building intelligent, reliable and high-performance local and wide area networks.

3Com's product mix includes network interface cards and management software, remote access equipment and internet access devices, high-speed modems (analog, ISDN, cable and DSL), hubs, switches and routers, and desktop video devices.

#### **Project Description**

3Com Corporation recently completed a site-wide lighting upgrade project for its existing buildings at the Santa Clara, California, campus. The contractor selected for the comprehensive retrofit was Parke Industries who used its South San Francisco office to manage the project. While the retrofit project was aimed at reducing energy costs, the need to improve lighting quality and standardize equipment through the campus, provided an additional incentive. The project was done in two phases.

The first phase was the retrofit of general office area lighting from T12 fluorescent lamps with magnetic ballast to T8 fluorescent lamps with electronic ballast. In most cases, fixtures were delamped from four lamps to two. MagneTek electronic ballasts in one, two, three, and four lamp configurations were also installed. To achieve pre-retrofit light levels, Parke Industries also installed (2,300) custom specular reflectors into existing deep-celled parabolic troffers. Over 6,500 T8-lamps by Osram/Sylvania (Danvers, Massachusetts) were installed. The lamps produced a color-rendering index of at least 80.

The second phase of the project was retrofitting former manufacturing space with (232) Ultra Low Bay Fixtures from 1<sup>st</sup> Source Lighting (Auburn, California). These fixtures enabled 3Com to illuminate an area utilizing T8 fluorescent lights instead of the existing metal halide HID light source. Several of the buildings, had originally been used as

manufacturing facilities and when 3Com changed the use of those buildings the HID lighting was not as desirable. The manufacturing facility operated the HID lights 24 hours per day, 7 days per week. The new use was for cubicles and networking labs that operated on a weekday schedule. It was difficult to add lighting controls to the HID lights due to their restrike time. The lighting retrofit provided additional savings by using fluorescent lights which could be switched on and off when needed without the restrike time. In addition, after the lighting upgrade, the quality of light improved and employees were better able to perform their work with less eyestrain. Once again uniformity of product, light levels, and illumination quality, played a big part in 3Com's decision to proceed with this phase of the project.

3Com didn't approach this lighting project with one goal in mind. Rather it wanted to improve energy efficiency, employee morale, as well as continue to reduce the overall energy costs. Even with such new facilities, 3Com is taking a proactive and ongoing approach to improving energy efficiency wherever possible.

### **Financing: Creative Partnerships**

3Com was able to finance the upgrade through Silicon Valley Power's (SVP) Customer Directed Benefits Program. The California legislature, through Assembly Bill 1890 (August 1996), raised customer electricity rates 2.85% over 4 years from July 1998 to July 2001. These funds, which constitute a Public Benefits Charge (PBC), are then made available to electricity customers through their local utility to finance energy efficient technology improvements. Customers can apply for a refund of up to 50% of their total expected contribution over the 4 years of the program. 3Com worked with a key customer representative at Silicon Valley Power to take advantage of the financing through the SVP Customer Directed Program.

The comprehensive lighting retrofit generated a return on investment of over 55% and had a payback of well under 2 years. At a total cost of just over \$269,880 the project will save over 1,837,000 kWh annually. The first phase of the project cost \$185,000 and there weren't any rebates available at the time of this phase. The second phase cost \$84,880 and 3Com was able to receive a rebate for this phase. The funds received from the SVP Customer Directed Program totaled \$33,107. This partnership allowed 3Com to better manage the lighting of its facilities in an energy efficient way while enabling 3Com employees to better perform their jobs.

# **Chevron**

## ***Increasing Pump Efficiency***

### **Introduction**

Chevron, a U.S. Department of Energy Motor Challenge Partner, is a large U.S. refiner of gasoline with six gasoline refineries in operation. There are five refineries in the San Francisco Bay area, of which Chevron's Richmond refinery is the largest single producer of petroleum fuels and lubricants. Annual electricity costs at the Richmond refinery total just over \$25 million a year.

In 1993 the Richmond refinery converted its Vacuum Gas Oil plant to a Diesel Hydrotreater (DHT) plant, decreasing the feed rate by 50%. The pumps were oversized and because of lower flow rates, many of them were operating 40% below their best efficiency points, resulting in low hydraulic efficiency and excessive vibration. As a result, the refinery had to deal with decreased equipment reliability and availability. The DHT receives raw diesel fuel and further refines it to produce a finished product. With a daily production of 20,000-25,000 barrels, the DHT accounts for about 10% of the Richmond refinery's total daily output.

The Distribution and Reforming Business Division at the Richmond refinery had for years been trying to downsize the pumps in the DHT, but had never been able to secure internal funding. Chevron evaluated several proposals to improve the situation, but return-on-investment hurdles, budget, and manpower priorities precluded any immediate action.

### **Project Description**

The upgrade project began when Planergy Services, Inc., of Richmond, California, a nationwide energy services company and a Motor Challenge Allied Partner, responded to a request for proposals from Pacific Gas & Electric Company (PG&E) for energy conservation and generation projects. PG&E contracted with Planergy to reduce industrial energy consumption by 23 million kWh per year. As part of this demand-side management (DSM) program, PG&E paid incentives, over and above energy bill savings, to energy services companies that install energy savings measures at PG&E customers' sites, and monitor and report the savings to PG&E. Planergy was a successful bidder for industrial DSM.

In early 1995 Planergy approached Chevron as a potential candidate for the PG&E Power Saving Partners Program with an offer to implement energy efficiency retrofit projects at the Richmond refinery at no cost to Chevron. Planergy would provide design, construction, and capital for the project. With this offer, Chevron decided to proceed with the upgrade to the DHT plant's equipment.

The DHT upgrades consisted of the following:

- Installing variable speed drives on the 2,250-hp primary feed pump and 700-hp transfer pump;
- Replacing the internal elements on the 2,250-hp secondary feed pump and a 400-hp power recovery turbine; and
- Changing operating procedures for the main 5,000-hp and 4,000-hp backup pumps.

## **Project Financing**

ABB Energy Capital, a nationwide financier of capital-intensive energy-related and environmental projects, was selected to provide a \$1,200,000, six-year term loan for the DHT upgrade project. The loan was used to cover the cost of the equipment upgrades and installation. A non-recourse, performance-based project financing structure was utilized. Planergy put in place an Energy Services Agreement, whereby Chevron paid no up-front capital costs for the DHT upgrade project and the project was treated as off-balance sheet to Chevron. Planergy installed the equipment in return for a share of the measured savings resulting from the project. This share of savings will be used by Planergy to repay the debt service to ABB Energy Capital and cover its profit margin. After the financing term of the project is complete, all energy cost savings achieved by the upgrade will flow to Chevron's bottom line.

With this non-recourse project financing structure, Planergy also bears the financial risk associated with the project's performance. Chevron, however, is obligated to run the plant as it normally would within the parameters established for the energy savings measures.

In addition, DSM subsidies under PG&E's program provide regular payments tied to project performance that can also contribute to servicing the project financing.

## **Project Results**

After implementation of the upgrades, energy consumption at the Richmond refinery was reduced by 1 million kWh a month, resulting in more than \$750,000 cost savings annually. Electric demand at the refinery was reduced 2MW, and Chevron's demand charge from PG&E has been reduced accordingly.

Other aspects of the upgrade project were increased efficiency, improved equipment reliability, and improved process control, all resulting in less downtime and easier maintenance. Chevron has experienced no mechanical failures since the drives went into service and pump vibration was reduced by a factor of 10. In addition, the efficiency of the second-stage pump and power recovery turbine has improved from 50% to 70%.

## **The Team That Was Required to Succeed**

The motor systems upgrade project is an excellent example of how a large industrial company, energy services company, and financier of energy projects can join forces to create a win-win-win situation.

ABB Energy Capital was able to finance the project by offering Planergy a value-added, innovative financing solution to offer Chevron.

Planergy was able to offer financing incentives in the form of a DSM subsidy and a performance-based financing structure, as well as a creative project approach that met the needs of Chevron. The success of this project has resulted in a long-term relationship between Planergy and Chevron that has led to additional project opportunities for Planergy at Chevron's Richmond plant.

Using a performance-based project financing structure, Chevron was able to achieve its equipment upgrade project, which otherwise would have been overlooked in its capital budgeting process due to the many hurdles that the project needed to overcome. The project approach allowed Chevron to focus its resources, both staffing and financial, on its core business activities, while achieving increased equipment efficiency and reliability and creating a positive impact on the company's bottom line.

# **Genentech, Inc.**

## ***Implementing Energy Saving Technology in Manufacturing Facilities***

### **Background**

Genentech, Inc., discovers, develops, manufactures, and markets pharmaceuticals for human consumption using recombinant DNA techniques. Headquartered in South San Francisco, California, Genentech, Inc. was founded in 1976 by venture capitalist, Robert A. Swanson, and biochemist, Dr. Herbert W. Boyer. An unusual union at first but each was excited by the possibilities for commercial viability of a new scientific field, recombinant DNA technology, pioneered by Dr. Boyer and geneticist Stanley Cohen in the early 1970s. In 1980 Genentech went public and is now traded on the New York Stock Exchange and the Pacific Exchange under the symbol GNE.

Beginning with a belief in the promise of biotechnology, science at Genentech focuses primarily on three areas of medicine: cardiovascular, oncology, and endocrinology. Among its many achievements of excellence, Genentech was the first biotechnology company to successfully scale up protein manufacturing from small quantities used for research to the much larger quantities needed for clinical trials and marketing. The company continues to be a world leader in the manufacture of biopharmaceuticals, producing approximately 100 kilograms of product yearly for clinical research and the marketplace, through a variety of fermentation and proprietary purification processes.

In 1998 Genentech constructed a second manufacturing facility in Vacaville, California, which will begin manufacturing following its licensure by the U.S. Food and Drug Administration later this year. The \$250 million, 310,000-square-foot facility is the world's largest biotech manufacturing facility for the large-scale production of pharmaceutical proteins. This expansion/project construction comprises 6 buildings and structures: bio-pharmaceutical manufacturing, central utilities area, warehouse, facilities services, laboratory/administration, and an interconnecting corridor for all buildings. Overall Genentech occupies 2 million square feet of space in 21 buildings in South San Francisco and five buildings in Vacaville.

### **Project Description**

In order to address significant unmet medical needs, Genentech, Inc., is committed to high standards of integrity in contributing to the best interests of patients, the medical profession, and its employees. Genentech, Inc., strives to do this work in the most cost-effective and energy-efficient way. The Genentech Vacaville Project is an example of this philosophy in action.

Genentech, Inc., worked with its utility, Pacific Gas and Electric (PG&E), and an energy consultant during the conceptual design of the Vacaville facility. The team developed a list of 22 energy saving and advanced technology measures based on State requirements

and the needs of the facility once it was operating. The 22 measures range from installing high efficiency lighting, boilers, chillers, and air handlers, and optimizing equipment. The consultants prepared a base energy assessment and an enhanced energy assessment for each of the 22 measures, assessing the material, labor, and other costs. The base assessment indicated what the relative cost would be of the standard technology and in some cases was zero because a facility wouldn't normally implement such a measure unless they were looking to install technologies that would offer them energy savings. The enhanced case assessment looked at the costs of choosing the "higher" end energy saving measure. By comparing the two assessments for each measure, Genentech was able to identify the total energy savings they would realize as a result.

Energy use for the base assessment breaks down as follows: Lighting accounts for 10% of the annual electrical energy consumption; Miscellaneous loads – 18% of the annual electrical energy consumption; and HVAC/Other energy accounts for 72% of the annual electrical energy use. By implementing the most energy efficient technologies available, the enhanced energy assessment showed that lighting accounts for 12% of the annual energy consumption; Miscellaneous loads – 23% of the annual electrical energy consumption; and HVAC/Other energy accounts for 65% of the annual energy use. HVAC/Other energy includes process use of central utilities, as well as HVAC fans, all pumps, chillers, cooling towers, etc. In addition the enhanced energy assessment case indicates an annual energy usage of approximately 16,000,000 kWh and 1,200,000 therms with a peak demand estimated to be 3,521 kW. The base case indicates annual energy usage to be 20,000,000 kWh and 1,500,000 therms with a peak demand 5,198 kW. The technologies ultimately implemented from the enhanced energy assessment were chosen based on their energy saving capability.

## **Benefits**

By implementing the best available technologies suggested in the enhanced case assessment, Genentech estimates its annual savings to be 4,018,129 kWh, 316,621 therms, and \$552,818. In addition, the technologies used will continue to be energy efficient and cost effective long after Genentech, Inc., opens the doors to this facility.

## **Financing**

The total project cost was \$250,000,000 and of that the energy saving technologies cost was \$800,000. By implementing the best available technology and working with PG&E early on throughout the design of the facility, Genentech was able to take advantage of a PG&E rebate offer of \$842,400 to offset these charges. After the PG&E financial incentive, simple payback was 1.7 years. Genentech, Inc., was able to take advantage of programs offered by its utility by getting input from PG&E early in the design phase of the Vacaville Project.

# **MBA Polymers, Inc.**

## ***Recovering Post-Industrial Plastics from Durable Goods***

### **Background**

MBA Polymers, Inc., founded in 1994 by President Michael Biddle and Vice President Trip Allen, is known industry-wide as the most advanced facility for the study and development of technology to recover post-industrial plastics from durable goods. The U.S. produces almost 20 billion pounds of engineering plastic every year. Operating a 90,000 square foot research and manufacturing facility in Richmond, California, MBA Polymers manufactures plastics using post-industrial, and in the future using post consumer, plastic waste and develops new technologies to recycle plastics. They want their plant to be a model of energy efficient technology at work. To do this, they use no virgin plastic, relying solely on feedstock from discarded materials. Their plant recycles the water they use in the recycling process further contributing to their ability to be environmentally conscious and energy efficient. In deciding to start such a business, the founders had several goals in mind. They genuinely wanted to find a better way to recycle and reuse plastic waste, be better citizens of the environment and, as businessmen with the essential eye on the bottom line, still show a profit.

### **Project**

In short, MBA Polymers, Inc., is itself a project in energy-efficiency and was founded on the idea that being good stewards of the environment is important and the large amount of plastic that is landfilled each year is unacceptable. Dr. Biddle and Mr. Allen sought to develop and commercialize the technologies that yielded a better way to make plastics products. In pursuing this mission, what they found will result in huge energy savings industry-wide.

Manufacturers of plastic products generate scrap at the beginning and end of production runs, during equipment upsets, and during secondary processing. Manufacturing scrap is simpler than post-consumer scrap in that it typically has only a single material and is easier to recover and reuse. Fortunately this type of simple plastics feedstock is available in many communities across the Nation. More complex products, such as post-consumer automobiles or computers which may contain as many as 50 distinct types of plastic as well as paint, fillers, metals, foams, and other mixed plastic types. This complicated mix makes recovering the pure plastic resin much more difficult. The plastics used in post-consumer durable goods are highly specialized making the current practice of extracting the component plastic materials based on density almost infeasible.

When the valuable engineering grades of plastics, used in computers and automobiles, are recycled, it is usually done from manufacturing scrap or post-industrial waste and less often from post-consumer plastic waste. MBA Polymers, Inc., takes this post-industrial waste from manufacturers and turns it into feedstock that they or other manufacturers use to make these types of products. By substituting recycle for virgin plastic, manufacturers

effectively reduce the amount of energy used to make a part. As a result, the total cost that goes into manufacturing goods decreases.

MBA Polymers, Inc., uses feedstock from many different types of plastics. Because their basic material is already plastic, they don't incur the high-energy costs that virgin resin manufacturers who use petroleum feedstocks in their products do. The MBA manufacturing process uses only air, water, and clever engineering. First MBA Polymers, Inc., grinds the feedstock and then separates the plastic relying on its molecular and mechanical properties, using a process best described as molecular selection. Neither of these steps uses a great deal of energy especially when compared to the process of manufacturing pure plastic resin from petroleum. The final step in recycling these plastics requires re-pelletizing, turning the material into uniform plastic pellets, and this step does use a larger amount of energy. Nonetheless, MBA Polymers, Inc.'s technology uses just 10% of the energy that traditional virgin plastic manufacturing uses.

These large energy savings allow MBA Polymers, Inc., to compete on a value-basis across the industry. There are challenges, of course, they want to be able to reduce the amount of energy that the re-pelletizing process requires, and recycling incurs transportation costs. The cost of transporting raw chemicals is lower than the cost of transporting bulky computer housings.

## **Benefit**

The target of this type of plastic recycling technology is the approximately 4 billion pounds of plastic used by manufacturers of computer and automotive equipment. Twenty-five percent of this plastic could be recovered by the year 2010 if the molecular separation strategy is successfully implemented. MBA estimates that the use of material recovered by this process in place of additional virgin plastic will result in energy savings of 37 trillion Btu, diversion of 1 billion pounds of waste from landfills, and cost savings of \$250 million. The environmental benefits, especially since MBA Polymers, Inc., recycles their water and produces no emissions as a result of the manufacturing process, are great. By taking advantage of the recyclable nature of plastic and its wide usage as a versatile material, keeping it out of landfills, and using less energy than traditional manufacturing methods, the economic benefits are also large.

## **Financing**

To launch their efforts, MBA Polymers, Inc., had seed funding from many sources, including a loan of \$1.1 million and an even larger investment from friends and family. They have also had tremendous support from the American Plastics Council and the California Energy Commission. A 1995 NICE<sup>3</sup> grant helped to build their current plant and to develop the technology to recycle post-industrial plastics. They also received ATP funds from the National Institute of Standards and Technology to aid in the further development and commercialization of these plastic-recycling technologies. In 1999 a separate NICE<sup>3</sup> grant was awarded to begin the construction of a post-consumer plastic recycling facility and to develop the technology necessary to obtain and recycle post-consumer plastics. The Office of Industrial Technologies NICE<sup>3</sup> grants assist companies,

such as MBA Polymers, with demonstrating and commercializing energy-efficient and environmentally friendly industrial technologies. In addition, 100% of their profits are reinvested into their efforts. By reaching out to find a wide variety of assistance that is available in order to find a better way to manufacture and recycle plastics, MBA Polymers, Inc., has been able to succeed.

### **Future Improvements and Next Steps**

MBA Polymers, Inc., wants to expand their capabilities into recycling engineering grade, post-consumer plastic waste. Developing and commercializing the technology to realize the savings from this market goes a long way toward their goal of reusing perfectly good materials to make the products we rely on every day. MBA Polymer's success has proven that there really is no reason to continue to throw perfectly reusable materials into landfills. Especially when MBA Polymers, Inc., is working everyday to develop and commercialize the technology to save it.

# **Nisshinbo, California, Inc.**

## ***Variable Speed Drives Installation***

### **Introduction**

Nisshinbo, California, Inc., is a textile manufacturer that produces natural fiber textiles including yarns and threads beginning with the initial spinning to the final finishing process. The company has been in business since 1989 and is located in Fresno, California. Nisshinbo is an innovative, young company that uses energy efficiency techniques as part of its business approach to maximize its profits and create positive environmental results. The company is also a U.S. Department of Energy Motor Challenge Partner.

### **Project Description**

Nisshinbo wanted an energy solution that would lower its operating costs and improve productivity in its textile manufacturing processes. The company realized that the installation of new variable speed drives throughout its manufacturing facility could meet these objectives by outperforming the current system and allowing for energy consumption that more adequately tracked energy requirements.

Nisshinbo hired Planergy Inc. as their energy services provider to upgrade its existing ventilation system and install 15 ABB variable speed drives throughout the company's manufacturing facility. Related measurement and verification equipment to measure and document energy savings was also installed. Standard drives require a constant supply of electricity regardless of system requirements. The new variable speed drives would allow the company to conserve energy, and thus, reduce operating expenses. Using its expertise in energy efficient technologies, Planergy was able to guide Nisshinbo through the upgrade process.

### **Creative Financing**

Planergy chose ABB Energy Capital as its financier for the project. After evaluating the project, ABB Energy Capital proposed a \$178,640 project finance structure with a nine-year term. This performance-based, project-based financing structure allowed Nisshinbo to undertake the project and treat it as off-balance sheet to reflect the upgrades as a cost of doing business. Planergy used the funds to install the equipment with no up front costs to its customers. The loan will be repaid based on the performance of the project (i.e., the energy savings realized by the new equipment over the contract term).

### **Benefits: Cost Effectiveness and Energy Efficiency**

The strength of the relationship among Planergy, Nisshinbo, and ABB Energy Capital led to important benefits. Nisshinbo was able to upgrade its system with new variable speed drives that helped the company conserve energy, reduce operating expenses, increase production, and improve performance in the spinning and weaving processes, resulting in

higher product quality. Nisshinbo's annual measured energy savings are 1,314,343 kWh, which translate to approximately \$140,000 in savings for the company each year.

The financing structure chosen, along with Planergy's energy projects expertise, allowed Planergy to install, operate, and maintain new equipment that promoted a more cost-effective and efficient production process for Nisshinbo. The term of the loan also enabled Planergy to develop a long-term, mutually-beneficial relationship with its customer.

ABB Energy Capital's knowledge of the energy industry structure and its expertise in financing energy efficiency projects allowed the company to put together a financing structure that offered Planergy a financial annuity, and Nisshinbo a performance-based solution. The Nisshinbo project is just one of the many Planergy projects that ABB Energy Capital has successfully financed as part of Planergy's participation in the Pacific Gas & Electric Savings Partners Program, which has further enhanced their relationship.

### **Future Improvements**

Drives are a fundamental part of many manufacturing operations and buildings in general. Nisshinbo, California, Inc., like any competitive company must, recognized that minimizing unnecessary use of energy has a positive impact on profitability and productivity. Innovative financing like that offered by ABB Energy Capital helps companies take advantage of energy efficiency and pollution prevention technologies with little or no out-of-pocket expenses. Finally, Planergy's assistance, as an energy service company (ESCO), made the deal possible. Successful energy efficient technology improvement projects require the cooperation and expertise exemplified by the team effort of Nisshinbo, Planergy, and ABB Energy Capital.

# **Oberti Olives, Tri Valley Growers**

## ***Closed Loop, Zero Discharge Membrane Filtration System***

### **Company and Industry Background**

Tri Valley Growers is a 500-member fruit and vegetable co-op with eight plants in California and one in New Jersey. Started in 1932, the co-op sells its products under private and brand name labels including Oberti Olives, Libby, and Redpack Tomatoes. Tri Valley Growers employs approximately 11,000 people with annual sales in 1997 of \$782 million. The University of California at Berkeley estimated that Tri Valley Growers alone has a \$1.9 billion financial impact on the State of California, responsible for 59,000 direct and indirect jobs and generates \$930 million of personal income.

Tri Valley Growers' Oberti Olives plant in Madera, California, processes black olives and olive oil and, at peak production, processes 128 tons of olives per day and approximately 80,000 gallons of olive oil per year. Processing of black ripe olives requires a storage solution of one-percent acid, a processing solution of one-percent lye, and large volumes of water, up to 10,400 gallons of water per ton of olives processed. Disposal of this water is expensive as it contains large amounts of oil, organic materials, solids and salt.

Before September 1997 Oberti used 160 acres of clay and later plastic-lined evaporation ponds, where the water evaporated off and the remaining salts were eventually collected. However, this method led to problems, when the clay lined ponds leached salt into the groundwater, resulting in an underground plume. After the Regional Water Quality Control Board (RWQCB) promulgated new regulations requiring ponds to be double-lined, Oberti Olives was faced with a difficult choice: compliance costs of approximately \$40 million, or closing the plant permanently. Closing the plant would have cost Madera County 578 jobs and a 15% to 17% effect on its tax base. Capital expenditures to replace the existing technology were excessive especially considering the rising value of the land and the additional cost of evaporation pond maintenance and monitoring. To remain profitable, competitive, and in compliance, Oberti Olives and Tri Valley Growers participated in a demonstration project of a closed loop, zero discharge membrane filtration system and ultimately implemented this technology permanently.

### **Project Description**

Oberti Olives implemented ultrafiltration and reverse osmosis filtration together with a pre-treatment process system, and is now the only olive-processing facility with a wastewater discharge of zero. The system works much like the human lung allowing for the reuse of membrane-filtered process material (in Oberti Olives' case, water) from four different waste streams. Olive wastewater from the storage tank yard and oil mill is sent directly to the evaporator while wastewater from the vat room and cannery are first pumped through an ultrafiltration membrane and then undergo reverse osmosis filtration. The membranes hold back the salts, sugars, and other solids allowing only water to pass through. The recovered solid by-products, approximately 20% of the effluent, are sold as

animal feed. In addition, the olive pomace, olive pits, and other olive material, has a fuel value of 9200 Btus per pound in a biomass cogenerator. This system allows Oberti Olives to purify and recycle for reuse 80% of its olive-processing water, reducing by 91% the amount of groundwater that Oberti has to pump every day. Membrane systems offer lower energy use, greater reliability, smaller floor space requirements, lower capital costs, better control of microbes and organic matter in process effluent, and improved product quality. Advanced technology developed in the past several years using ceramics and polymeric material reduce past problems with clogging and are more economical allowing for greater applicability including this success story at a food processing plant.

Since Oberti Olives obtains its freshwater from its own private wells, the rising cost of municipal freshwater was less of a factor in switching to membrane filtration than the environmental and regulatory costs of wastewater disposal. Oberti also wanted to improve yield, labor efficiency, reduce chemical usage and achieve zero discharge of wastewater. Keys to the success of the membrane filtration system implementation were the ability to reuse large volumes of water, produce useful by-products, and modify the existing process.

## **Financing**

Faced with the cost of replacing the current technology—evaporation ponds—at a cost of \$40 million, or implementing the new technology—membrane filtration—at a cost of approximately \$8 million, Oberti Olives made the obvious choice. The project cost was partially offset by grants from Pacific Gas and Electric (\$100,000), the California Trade and Commerce Agency (\$250,000), and a U.S. Department of Energy NICE<sup>3</sup> grant, administered by the California Energy Commission, of \$400,000. The remaining \$7.25 million was covered by Tri Valley Growers and partially offset by the benefits realized from the new wastestream treatment technology.

## **Benefits**

Oberti Olives was able to achieve its primary goal of reducing wastewater discharge to zero. By changing from evaporation ponds to the membrane technology, Oberti Olives was able to reclaim valuable land for other uses that had been lost to the ponds. In addition, growth of its operations is now possible; in the past Oberti Olives was limited to the capacity of its evaporation ponds. Due to the needs of the ultrafiltration and reverse osmosis equipment, electrical usage increased by 60%. Through the operation of an evaporator 20% of the effluent can be reused as a byproduct with natural gas usage increased by 56%. However, net energy savings of 14% were realized due to a 94% reduction in energy used to pump groundwater. In addition, the manufacture of chemicals used in olive processing resulted in energy savings of 23%. Use of olive pomace in a biomass cogenerator has a fuel value and could result in energy savings of  $96,048 \times 10^6$  Btus/year/unit. In implementing membrane filtration, Oberti Olives realized other several benefits, including:

- Zero discharge resulting in zero groundwater pollution;

- 99% waste savings;
- 31% reduction in chemical usage;
- Improved productivity; and,
- Improved yield as cases of olives per ton of raw product due to plant modifications.

### **Future Applications**

**Oberti Olives demonstrated the feasibility of implementing a closed loop system for the food processing industry in California. Proving that such a system works has enabled the industry to reduce water pollution, chemical usage, treatment costs, and also to become more competitive. California food processors use approximately one million gallons per day per plant to wash, cure, cook, store, and package food. They also discharge a large amount of wastewater to municipal treatment facilities or their own treatment facilities. Membrane filtration could replace the evaporation ponds or the need to pay for or rely on the municipal wastewater facilities treatment of discharged effluent, allowing other food processors to be more energy efficient, cost effective, environmentally conscious, and more productive. The U.S. Department of Energy connection, through a NICE<sup>3</sup> grant in this project, enables this industry saving, water quality enhancing technology to be commercialized widespread throughout the food processing industry.**

### *Investment in Technology Saves California Company*

Oberti Olives of Madera, CA, managed by the cooperative Tri-Valley Growers, turned bad news into good by investing in an energy and environmentally efficient membrane filtration system. This zero-discharge, *closed loop* system allowed Oberti, which operates the largest olive processing plant in California, to keep its doors open. The new technology also has set the stage for Oberti's long-term economic competitiveness.

Faced with a \$40 million tab for retrofitting its 160 acres of wastewater ponds in a conventional manner to comply with new environmental regulations, officials at the Oberti facility—in operation in Madera County since the 1930s—chose new technology over plant closure. The new membrane filtration technology, which cost \$8 million to install, will purify and recycle 80% of the olive plant's liquid waste back into the plant, while converting the remaining 20% of the effluent into a concentrate that Oberti can distribute as animal feed. Had the plant—which represents more than 15% of Madera County's tax base—closed, nearly 600 jobs would have been lost.

A grant of \$400,000 from DOE's National Industrial Competitiveness for Energy, Environment, and Economics (NICE<sup>3</sup>) program, \$100,000 from PG&E, and \$250,000 from the California Trade and Commerce Agency played key roles in the \$8 million financing package that Oberti put together to carry out the project.

Initial efficiencies achieved by the new technology are impressive. Oberti

- saved \$32 million in environmental compliance costs;
- currently operates a zero discharge system;
- reuses 80% of its olive-processing water, saving 800,000 gallons per day;
- cut its ground water pumping requirements by an average of 91%, to between 10,000 and 120,000 gallons per day;
- uses 40% less energy overall compared to anticipated consumption had traditional compliance measures been adopted.

Furthermore, Oberti will see important long-term benefits as well. The more efficient membrane filtration technology will allow the company to phase out its existing wastewater ponds entirely over the next 20 years. Then, the 160 acres of pond will be able to be restored to agricultural land, providing Oberti with significant potential for additional economic benefits.

Oberti is the first olive processor in the world to use this technology. According to the project manager at the California Energy Commission, which administered the NICE<sup>3</sup> grant, "if [the technology] worked at Oberti, transferring it to other food processing industries would be a breeze." Based on the results so far, that breeze has great potential to foster a more competitive and efficient food processing sector in California. Already, a Sunkist Growers orange juice plant has used a similar membrane filtration system, and is saving \$120,000 per year by reducing chemical inputs, while reducing the energy needed to treat wastewater by 30%.

# Siemens ICN

## ***Implementing Energy Efficient Technology in Manufacturing Systems***

Siemens ICN, headquartered in Boca Raton, Florida, manufactures phones and phone switches in Lake Mary, Florida. The Santa Clara, California, campus operations consist of administrative, marketing, research and development, a data center and a recreation center. These 8 buildings total 700,000 square feet. The data center and recreation facilities are housed in Building Four and it was this building that was targeted for an energy efficiency upgrade.

### **Project Description**

Assembling a team including Siemens Energy Efficiency Team, Morris Knudsen, Energy Logic, Therma Mechanical, Canzam Electric and Siemens Business Services staff, Siemens decided to replace two antiquated HVAC units (one 40 ton and one 60 ton unit) in Building Four at the Santa Clara campus with energy efficient air handler units. Building Four, 137,000 square feet, is currently a multi-use building, housing offices, a data center, and a recreation center. Office space comprises 74% of the building, 100,811 square feet. At one time Building Four was used for manufacturing but in 1988 the building was converted to its current use. The air conditioning (A/C) units in Building Four were installed 20 years ago and had outlived their usefulness and appropriateness for the current usage of the facility. Siemens knew it needed to replace or repair these units and at the same time, resize the systems to better fit the needs of the space.

To be more cost-effective and efficient in their energy use, Siemens decided to take advantage of the chilled water from the existing underutilized building chiller system. Rather than replace the A/C unit with a similar package, Siemens opted to use the current building chillers and install new air handlers that use considerably less energy than the old compressors. This required improving the current technology and Siemens opted to install Andover Controls, which are user friendly, allow programming of on/off schedules, and allows for remote access that further reduces wasted energy. In addition this control system generates alarms when fans or other parts fail allowing facilities maintenance to respond quickly.

### **Financing: Creative Partnerships**

Siemens was able to finance the upgrade through Silicon Valley Power's Customer Directed Benefits Program. Assembly Bill 1890 (August 1996) raised customer electricity rates 2.85% over 4 years from July 1998 to July 2001. These funds, a Public Benefits Charge (PBC), are then made available to electricity customers through their local utility to finance energy efficient technology improvements. Customers can apply for a refund of up to 50% of their total expected contribution over the 4 years of the program. Siemens worked with a key customer representative at Silicon Valley Power to

take advantage of the financing through the SVP Customer Directed Program. Siemens was also able to invest its own funds to accomplish these upgrades.

### **Benefits: Energy and Equipment Cost Savings**

Siemens, after replacing the AC Package Unit and the Air Handler, realized equipment cost savings of approximately \$480/ton. Using the Air Handler system allowed for a savings of 55 kWh/ton refrigeration and, at a rate of .078 cents per kWh, Siemens was able to realize energy savings of \$37,580 per year. With a total investment (minus the Public Benefits Charge credit offered by Silicon Valley Power) of just \$54,600, this upgrade paid for itself in 16 months. By saving 55 kWh/hour, Siemens saves 477,840 kW per year and this eliminates air pollution emissions significantly exceeding the standards by an even higher margin than ever before.

#### **Savings Realized with Air Handlers**

- 100 ton refrig. (1.35 kWh/tonrefrig - .8 kWh/ton refrig) = 55 kWh/ton refrig
- 55 kWh x .078 cents/kWh = \$4.29/hour
- \$4.29/hour x 24 hour/day = \$102.96/day
- \$102.96/day x 365 days/year = \$37,580 year

### **Future Improvements**

Siemens plans on continued use of the chillers and new air handlers to handle the A/C capabilities of the HVAC units. Based on the success of this energy efficient technology upgrade, future package unit replacements will include replacing a 30 ton and a 60 ton unit with one 40 ton Air Handler and replacing two other 30 ton units with one 40 ton air handler.

# **West Coast Samples, Inc.**

## ***New Printing Technology Saves Energy and Resources***

### **Background**

West Coast Samples, Inc., a full-service textile sample house in Chino, California, was founded in 1972. More than 200 employees work in West Coast Samples, Inc.'s, 63,000 square foot facility in Chino, California, and 75 employees in their 82,000 square foot facility in Tecate, Mexico. This forward-looking, customer-service oriented company produces nearly 50 separate "editions" of sample books each day. The final products are shipped to textile manufacturers for distribution to American furniture and department stores, as well as to textile makers in Australia, Denmark, and Italy. Book runs range from 500 to 15,000 copies and can contain more than 100 different swatches. Priding itself on its commitment to service, quality, affordable prices, satisfaction, and prompt service, West Coast Samples accomplishes these high standards by maintaining complete control over all processes involved in sample-book production.

The work includes cutting hundreds of feet of carpeting and fabric into sample-sized pieces, collating colors, and finishing the sides of the swatches. Other areas of the plant print multi-colored book covers and backing pages that show swatch color codes and names. Final inspection, assembly, and shipping to worldwide users takes place in a third area of the facility.

Originally, the company's conventional silk-screen printing system used solvent-based inks to produce binders, rigid covers, and papers. One serious result of high amounts of solvents contained in the inks was excessive volatile organic compounds (VOCs) emitted as printed materials moved through the heat dryer. The drying process required extra production time stacking and air drying each printed piece as well as electricity to run the dryers. Further, these solvent-based inks dried on the printing screen. This caused lost production time while employees cleaned the screens and wiped off the squeegees on the presses. In addition, employees operating the old equipment were exposed to harmful materials as they handled the solvents.

### **Project**

To increase the efficiency of energy use, increase employee production efficiency, and reduce environmental pollution, West Coast Samples changed to a modern ultraviolet (UV) silk-screening system. This process produces no noticeable VOC emissions as the inks are 100% solids and contain no solvents. Ink is silk-screened onto a surface and the pages pass under ultraviolet light that cures, or hardens, the ink.

In contrast to heat drying methods, UV inks cure almost instantly to the substrate after passing through the UV lights, which increases the system's availability for production. West Coast improved the environmental friendliness of its production process when it installed a UV silk-screening printing system in 1992. The success of that system convinced the company to install three more UV silk-screening printing systems and an

automatic cylinder screen press unit. The decision to pursue this technology came about due to a unique partnership between West Coast Samples and Southern California Edison (SCE), which provides electric service to West Coast Samples. SCE introduced the company to this technology through one of its Clean Air Coatings Technologies seminars. These seminars provide accurate and timely technical information on environmentally safe and efficient applications of electrotechnologies. The utility followed up with a series of on-site plant visits to provide hands-on support. SCE also worked with vendors' technical representatives to ensure that West Coast Samples used the best equipment and supplies available.

## **Benefits**

By working with the local utility to improve its production technologies, West Coast Samples was able to increase the speed of production, reduce chemical pollutants produced, and increase the efficiency of energy use. They were able to remain focused on high quality production and customer satisfaction. West Coast Samples further improved its energy use thereby adding to the bottom line.

- Energy Use
- Increased Production – Process speed now has more than doubled, from 25 ft/min to 60 ft/min
- Better Process Control – UV inks remain in a fluid state until exposed to UV light
- Reduced Cleanup – No downtime is required to clean screens and squeegees.
- Improved Work Environment – Line operators are no longer exposed to harmful solvents.
- Material Savings – Squeegee blades now last longer because they are not exposed to caustic solvents and fewer chemicals are needed for each production run.

## **Financing**

For West Coast Samples, Inc., the total purchase and installation cost of the entire ultraviolet silk screen printing systems was \$340,000. Simple payback on the capital investment for each unit is estimated within a two-year period. There's also another financial advantage: while UV inks cost four times that of their solvent-based counterparts, they provide eight times more coverage, resulting in a net decrease in ink costs. Reduced chemical use decreases the overall payback cost and increases the overall efficient use of production materials.

## **Future**

West Coast Samples, Inc., a forward looking company, met the challenge of changing environmental regulations head-on with a solution that allows it to take in new customers and outdistance the competition. At its new facility in Chino, the shift to new equipment has allowed West Coast Samples, Inc. to incorporate a number of resource management mechanisms such as energy conservation techniques, materials separation and recovery, and conversion of four offset printing presses from solvent-based to water-based inks.

# **Jordan Composites**

## ***Producing Energy Efficient Manufacturing Systems***

Jordan Composites in Riverdale, IL has developed a finishing process that uses fiberglass construction that provides substantial energy savings, reduced maintenance, and extended equipment life. Jordan's fiberglass equipment is proving to be a significant cost saver for companies that have used it, ranging from auto and heavy equipment manufacturers, to metal painting job shops. The system reduces maintenance and energy use by as much as 70% in companies where it has been installed.

The Jordan system features composite surface pretreatment, heated blow-offs, and cure oven components. In terms of the pretreatment element, the strong composite material used in the Jordan system resists corrosion. The washer is insulated for optimum heat retention, which results in great efficiency and uniformity. The drying and curing components of the process have been designed to be most efficient with less heat, while being less harmful to the production parts. This system requires less floor space than conventional technology for both curing and cool down, thus increasing the potential throughput of the system.

The Jordan system has been installed in a powder coating job shop in Minnesota, which has documented its impacts—worth nearly \$149,000 per year at existing production levels—as described below. In business since 1965, this powder coating operation has grown to be one of the most versatile finishing shops in the midwest.

In 1997, this firm purchased a Jordan finishing system, which cost about \$548,000 to acquire and install. (This included \$35,800 in rebates from local gas and electric utilities.) Company officials have identified significant savings attributable to the Jordan system, which it has documented in a report to its own lender as part of a strategic plan aimed at expansion.

## **Optimizing Energy Efficiency**

The Jordan system runs on gas, and would result in an increased gas bill of nearly \$29,000 per year. However, the Jordan system's new technology allows the Minnesota company to eliminate the need for an electric batch oven, since all work could be done in the existing gas ovens. This would save considerable amounts of electricity — 191 hours per month of operating time. The whole system centers around efficiency in both the heat energy produced by high-efficiency burners, as well as the heat energy retained by the heavily insulated fiberglass structure. In addition, the Jordan system eliminates the need to run curing ovens empty for two hours between major color changes; in the existing system, this must be done to get all of the old color burned out of the oven.

The bottom line in energy efficiency:

- operating costs for the Jordan system are estimated at \$45,233;

- operating costs using existing technology systems are \$94,848;
- annual savings total \$49,615 — more than 53%.

## **Optimizing Chemical Efficiency**

The chemical baths play an integral part in producing the job shop's cost savings, compared to their existing system. Under their old system, baths lasted about two weeks, and required adding an average of 42 gallons per week because parts going through the process carried out chemical, which was not recoverable. In the Jordan five-stage chemical bath system, parts can be hung vertically, and "drain zones" are large enough to reduce the amount of chemical carried out on clean parts. When considering a Jordan system, plant managers interviewed other Jordan customers, and learned that their average bath life was extended significantly — to between three and six months. Moreover, chemical loss was cut way down; operators needed to add only an average of two or three gallons of solution per week.

Using the conservative end of these ranges, company managers determined that the Jordan system would save nearly 2,500 gallons of cleaning and phosphate solutions per year, resulting in:

- a cut in chemical costs from \$23,500 per year, down to \$3,773 per year, even though the Jordan system requires much more expensive chemicals; and,
- a \$19,724 annual savings, which translates into an 84% reduction.

## **Reduced Labor Costs, per Unit of Output**

Because the Jordan system freed up existing conveyors, workers could do jobs currently done in batch equipment. To identify the savings, they examined the impact on one customer, to which approximately \$85,000 in costs were attributed in 1996. Most of the finishing jobs for this client were done manually, with a liquid spray gun, a turntable, and hand-pushed carts. Since the Jordan system requires no separate washing cycle for this type of paint job, labor savings of 30% could be defined, since employees could use existing conveyors rather than move parts around on push carts.

- Annual savings from this one customer alone are \$25,500;
- Projected annual savings on other manual jobs moved to lines would be nearly \$20,000.

## **Reduced Reject Costs**

With its existing system, the job shop experienced average reject costs of \$3,571 per month — 26% from poor washing, and 64% from painting problems. The Jordan system's new technology provided a way to

- eliminate 90% of the wash problems;
- cut paint problems by one-quarter;
- ultimately, save more than \$1,400 per month (totaling \$16,872 a year).

## **Improved Product Quality**

In addition to the labor, energy, and environmental savings which are easily documented, the company identified other advantages to the Jordan system. For instance, the quality of the wash is improved. The Jordan system permits a direct spray route to the parts; they are hit with a uniform mist, and there is no spray deflection. In addition, the Jordan washer has optimally designed drains, so that cross-contamination of the baths is almost eliminated. The new technology of the Jordan process has resulted in an improved quality of the painting coming out of the cure-ovens. The subject company's old system allowed air to circulate freely within the oven, causing some of the uncured powder to float in the air, and would cause defects in the finish. The Jordan system uses a gas infra-red heat gel-zone, which minimizes air movement during the first minute of powder curing.

## **Increased Potential for Profitability**

Finally, this Minnesota powder coating job shop intends to use the Jordan system as a key element of its growth strategy, because of the efficiencies it offers. For them, it offers great potential for the company to add sales because it makes them competitive in new markets — long production runs and larger parts. The Jordan system allows the company to expand its production capacity within its existing facility without affecting fixed costs. Company officials estimate that potential additional profits could total more than \$450,000 per year — nearly the cost of the entire system.

# **A. Finkl & Sons Co.**

## ***Innovation in the Die Steel Forging Industry***

### **Introduction**

In 1879, German immigrant Anton Finkl started his own blacksmithing firm, the Finkl Forge Co., at Clinton and Monroe Streets in Chicago that would evolve into A. Finkl & Sons and pass down through three generations of his descendants. From a “smithy” that specialized in making high-grade tools for tradesmen, A. Finkl & Sons Co. has evolved into one of the largest and most innovative custom forgers in the U.S. The privately held firm, which employs more than 400 people, is anticipating 1995 revenues of \$80 million. Its products — die blocks for the closed die forging industry, plastic mold and die casting die steels, custom open die forgings, and forge shop and steel mill repair parts — are turned out from a fully integrated steel production facility in the heart of Chicago’s near north side.

The innovative touch that Anton Finkl exhibited more than a century ago has been carried through by subsequent generations and is a major reason why A. Finkl & Sons is widely regarded as an industry leader.

Anton’s grandson William Finkl, who led the company from 1933 until his death in 1984, invented his first patentable product while still a teenager before the first World War — a combustion bulb that determined the amount of carbon in steel faster than any previous technique. Throughout the 1920s, he developed a variety of new processes and steels, ranging from molybdenum-bearing steel (a breakthrough for its strength characteristics) to what would be patented as “FX,” the first successfully water-quenched die block of nickel-chrome-moly steel and the introduction into the 4300 series of steel. Today, FX is still the most successful die block in the business.

William’s son, Charles (Chuck), current chairman and chief executive officer, continued the company’s innovative tradition by developing the vacuum arc degassing (VAD) system. This is a patented process for vacuuming deleterious gasses from molten metal that, if left unattended, would result in cracks and impurities in the finished product. The VAD system today is licensed by Finkl to steelmakers across the world and provides the cleanest air-melted steel.

Today, the Finkl company holds more than 100 worldwide patents on a variety of steels, steelmaking processes, techniques, and equipment.

### **Energy Efficiency and Productivity**

At its plant, Finkl’s recycling effort currently reuses or recycles 99.7% of the solid waste generated by the company. It also has won its reputation for leadership by virtue of its ability to respond rapidly to changing market conditions — particularly when those conditions could have negative implications for the industries it serves. For example, in

the late 1970s and early 1980s, A. Finkl & Sons was setting new records for production, shipment, and sales volume. But by spring of 1982, the bottom had fallen out of the market and the industry was rocked by the worst recession since the 1930s.

With many customers down to three-day work weeks, the company knew it had to change and reduce its costs in order to help its accounts — and its own operation — survive. Flying in the face of the industry trends of spending and production cutbacks, Finkl launched a continuing long-term capital improvements program to reduce its costs and improve productivity — and thus prove more cost-effective to the industries it serves.

With the addition of new larger machinery, upgrading with computerization of other equipment and building of new and more efficient heat treat and heating furnaces, including the addition of a Vacuum Arc Remelt furnace, the results have been impressive.

Today, A. Finkl & Sons is one of the most efficient and productive forge shops in the business. Among the specific results:

- Total energy consumed has declined 36.4% from 165 therms to 105 therms per ton shipped.
- Production efficiency, in terms of man-hours worked, has doubled.

## **Pollution Prevention**

A. Finkl & Sons is committed to improving its community by reducing its solid waste output. In fact, more than 99.7% of the solid waste it produces is reused in the plant or recycled.

Here are just a few examples of its waste-reduction efforts:

- First and foremost, 100% of the steel the company makes is produced from premium scrap metal.
- In the melt shop, Finkl has extended the life of a furnace and ladle brick by 400%. And when it's time to reline, the company does not throw the brick away; it returns it for recycling.
- In the smooth forge area, the shot used by the shot blaster is delivered in drums. Rather than discarding those drums, the company reuses them as everything from garbage cans to storage containers around the plant.
- Finkl no longer discards the used shot and dust from this operation — instead, it is now charged into the melt furnaces and ultimately leaves the plant as part of Finkl steel.
- The company used to spend a small fortune on wooden pallets for use in the plant and for shipping — today, it reuses pallets throughout the plant and, when they finally fall apart, it sends them to a pallet-rebuilding company.

Does reduce and reuse work? Consider this, the company's waste hauler used to pick up 18 containers of refuse from Finkl three times per week or 54 containers a week. Today,

it sends out less than two containers a week — a near total elimination of its solid waste output.

## **Results of Efficiency and Waste Reduction: Steelmaking in an Upscale Neighborhood**

Partly because of its success in the areas of pollution prevention and energy efficiency, the City of Chicago and A. Finkl & Sons Co. have created a new urban manufacturing campus in the heart of Chicago's exclusive Lincoln Park-Clybourn Corridor community.

The dedication of Finkl's new manufacturing campus culminates almost a decade of effort to preserve the nearly 10,000 manufacturing jobs provided by Finkl and its industrial neighbors. The specialty steelmaker is located only steps away from single-family homes that are valued at more than \$500,000.

The manufacturing campus falls within the City's recently dedicated Northbranch Industrial Corridor, a designated manufacturing area roughly bounded by the Kennedy Expressway, Clybourn Avenue, Diversey Street, and Chicago Avenue. The Industrial Corridor is believed to be the first in the Nation to blend heavy manufacturing and affluent residential interests. According to the City, 164 industrial firms are located within the Corridor.

Bruce C. Liimatainen, Finkl president, notes that the Northbranch Industrial Corridor represents the accomplishment of a goal that began with the creation of several planned manufacturing districts (PMDs) in the area. "Thanks to the innovative leadership of Mayor Daley and city departments, this designated area for manufacturing will encourage industrial companies to stay in the City," he explains. "With the meteoric growth of the surrounding community, it was clear that Chicago needed to take proactive steps to retain high-paying manufacturing jobs."

The PMDs' tiered zoning maps reserve the core of the area for manufacturing and create a buffer layer for commercial use, separating residential properties from the heavy manufacturing area.

According to Scott Sonoc, principal of Sonoc, Hutter, Lee Ltd., the architectural firm that created the master plan for Finkl's campus, the designation of the area as an "Industrial Corridor" assures its future prosperity. "It became apparent early on in the planning process that meshing the interests of the manufacturers and the adjoining neighborhoods would be required to assure the area's long-term survival," he said.

# **AAP Saint Mary's**

## ***The Savings Are in the Chips***

### **Introduction**

AAP Saint Mary's is a producer of original and after-market aluminum wheels for the automotive industry. As an integrated casting and machine shop, AAP takes raw aluminum ingots and melts, casts, machines, and polishes finished aluminum wheels. While they were able to perform the whole process within one firm, AAP, like many other aluminum machining firms, still relied on an outside contractor to retrieve, clean, and re-form the chips from the machining process back into aluminum ingot.

### **The Problem**

While many firms would look at the metal chips falling off rough castings in the machining process as a necessary waste product of fabrication, AAP identified a potential resource. Given that a typical wheel at the plant loses up to 40% of its weight in the machining process, the resulting waste chips add up to around one million pounds of aluminum *per month*. With 6,000 tons of aluminum shavings spinning off of AAP's milling machines per year, the opportunities for cost savings were immense

Previously, these chips, which are covered with cutting oil and other waste products, were transported by truck from the plant to a third-party recycling center. There, the chips were cleaned of the oil and other waste, re-melted, and reformed into aluminum ingots. The ingots were then transported back to AAP Saint Mary's, where they were melted once again and poured back into molds.

### **A Team Emerges With a Solution**

AAP received an unsolicited information package from the Ohio Department of Development (ODOD) detailing the State's participation in the NICE<sup>3</sup> program sponsored by the US Department of Energy. Realizing that they had a potential point of improvement in the efficiency of their production process, and that they could find a partner in ODOD, AAP Saint Mary's developed a plan to move the chip reclamation process in-house, eliminating the need to transport and re-melt their waste aluminum chips.

AAP submitted an abstract to NICE<sup>3</sup> detailing their proposal for the trial of a new in-house centrifuge-based cleaning process that would allow them to integrate recycling into the plant's wheel production process. The new chip recycling process transports aluminum chips directly from the machine shop to the cleaning and re-melting operation for immediate recycling. The chips are separated from the cutting oils in a centrifuge, and then fed into an advanced furnace which improves the recovery of aluminum and produces fewer pollutants than the equivalent off-site melting process.

## **Energy and Environmental Savings**

By reducing chip transportation and melting the aluminum once instead of twice, the new system reduces the energy consumption of the whole process by 15.6 billion BTUs. Additionally, aluminum waste has been reduced to 1.5% from the 8% waste rate found in the old process, and cuttings oils are now recycled as well.

## **Economic Impact**

By reducing transportation and handling costs, cutting out the unnecessary independent recycling step, and maximizing the efficiency of its internal recycling system AAP Saint Mary's has realized significant economic savings. The cost savings amount to \$1.60 per wheel, and with a 100,000 wheel per month production rate, saves AAP Saint Mary's over \$1.9 million per year. The cost savings paid for the implementation costs of the project in a little over 18 months.

## **Project Financing**

AAP Saint Mary's, with the help of the Ohio Department of Development, was able to secure \$300,000 in Federal financing to defray the cost and offset the risks involved in this \$1.3 million project. This grant was made available through the National Industrial Competitiveness through Energy, Environment and Economics (NICE<sup>3</sup>) program sponsored by the Department of Energy. The program attempts to reward projects that promote innovative solutions to problems of energy and waste conservation. The remainder of the costs associated with the project were financed internally, and recovered from savings in a little over 18 months.

*Dan Hosek of AAP St. Mary's and Sue Covey and John Greenway of the Ohio Department of Development were especially helpful in aiding in the preparation of this article*

# **Decatur Foundry, Inc.**

## ***Small Foundry Makes Big Efficiency Gains With Process Improvements***

### **Introduction**

Decatur Foundry's 1993 sales of \$5.9 million may be small relative to the \$4.5 billion dollar National market for gray and ductile iron castings, but the innovative management of this small manufacturing firm in Southern Illinois has made Decatur a leader in high-quality, high-efficiency manufacturing. While a small facility, with a 1993 employment of 75 workers and output of 1,000 tons per month, Decatur's agility and regard for customer satisfaction, quality products, and efficient manufacturing make it an example for what can be accomplished.

As a small-run jobbing foundry, Decatur's production process places a high premium on a nimble production process. At the same time, the castings industry has been moving away from quickly drying solvent-based coatings to environmentally safer but slower drying water-based coatings. For many firms, this transition has created a bottleneck in the production process, as such coatings require extensive drying times.

### **The Problem**

As this shift in drying procedures constrained Decatur's ability to establish quick turnaround time on production runs, market conditions demanded the opposite. The plants' customers, such as utilities and manufacturers of products containing Decatur's castings, were moving to just-in-time inventory systems, and were placing a premium on the ability of their suppliers to provide short-cycle responses to orders.

Decatur's unique need for a flexible, fast production cycle was further mandated by its small production runs. With an average run of only 10-25 parts on any particular mold, and with some orders for individual items, it was necessary that molds be formed and made ready for casting as quickly as possible.

The production of gray and higher strength ductile castings is a time-consuming process that requires precision and a tightly controlled environment if the end product is to be satisfactory. Initially, a mold is constructed using sand and a two-part epoxy binder. Once solidified, the mold is then coated to provide a smooth surface for the casting, and to prevent the molten iron from attaching to the porous sand.

While organic solvents have long been used for such coatings because of their high evaporation rate, environmental concerns now require Decatur to use drying water-based coatings. Even with electric ovens, it may take 20 minutes or more to dry the coatings. Worse, the tendency of the water to soak into the porous molds makes them prone to catastrophic failure. As the molten iron hits the sand, any remaining water will vaporize with sufficiently explosive force to shatter the mold.

Before approaching Illinois Power, and eventually working with the Electric Power Research Institute's (EPRI) Center for Materials Production, Decatur Foundry used two conventional electric-resistance ovens to dry molds. The slow drying time involved in the process was made worse by the ovens' inability to thoroughly dry the 20 mil coatings used, and to penetrate molds that often had deep crevices and pockets.

## **A Team Emerges With a Solution**

Working with Illinois Power (now Illinova) and EPRI, Decatur identified a technology that solved their production problems. BGK Finishing Systems of Minneapolis, MN, which manufactures short-wavelength infrared drying systems used in the application of automotive paints, suggested the replacement of the ovens with an infra-red/forced air unit.

While the old electric-resistance ovens warmed the coatings indirectly by warming the air in contact with the mold's surface, the new short-wavelength infrared systems radiate heat directly to the surface of the mold. Instead of reflecting off of the coating, the infrared light directly heats the mold's surface, quickly driving moisture out of the sand. Further, the new system requires no warm-up time, so it need only be powered up when in use. It was outfitted with precision instrumentation, allowing a greater degree of control through the drying process. The net effect has been an increase in product quality with a decrease in drying time of 85%.

## **Energy and Environmental Savings**

Decatur Foundry's approach to efficient mold drying has reduced the energy consumption of the first production line to be upgraded by 120,000 kwh annually, shaving \$9,000 dollars from Decatur's electric bill. The system has worked so well that the foundry replaced the dryer on the other original line soon after the prototype was installed, and has placed the infrared system on two subsequent lines as original equipment. In addition to the environmental benefits of water-based coatings, Decatur, through reduced electrical consumption, has also reduced CO<sub>2</sub> emissions associated with electrical production by 27 tons of carbon-equivalent per year.

## **Economic Impact**

As often happens with energy-efficiency improvements, the benefits of the new system extend well beyond the reduced electrical bill. While the drying-bottle neck at one time forced extensive idle time for shifts of workers waiting for dry molds and created the need to pay inordinate amounts of overtime wages, the product flow from forming the mold to being able to pour and produce a finished product has been shortened. This reduced wage costs, and enabled Decatur Foundry to offer an extremely competitive turnaround time from the initial bid to the delivery of the finished product.

Improvements in the control of the drying time, coupled with advanced water-based coatings have provided mold surfaces that are sufficiently smooth to produce end products that require little or no additional polishing. The new units have freed up floor space, and provide enough flexibility to finish molds for castings weighing as little as a

pound, or as heavy as almost 3 tons. Mold failure rates have fallen, and end-product quality is up.

### **Project Financing**

A true success story, Decatur has added two new lines, increased employment to 85 workers, and has \$10 million in annual sales, an increase of over 40% from 1993. The cost of the initial system was \$12,000, which was paid back in electrical savings alone in less than 16 months. Financed internally through normal cash flow, the payback on this investment has been sufficient to make it a “no-brainer” according to factory management. Decatur’s experience demonstrates the payback that small initial investments in energy efficient technology can have in a short time frame. It is also proof of the advantages such low-cost investments can have on an entire plant.

*Special thanks are due to the assistance of Mr. Terry Young of Decatur Foundry, Inc. for his extensive help in the preparation of this case study.*

# Quad/Graphics, Inc.

## *Innovation in the Printing Industry*

### **Introduction**

In 1971, President and Founder of Quad/Graphics, Inc., Harry Quadracci, bought an abandoned factory in Pewaukee, Wisconsin, using a \$35,000 second mortgage on his home and capital raised from a handful of associates. The beginnings were humble: 11 employees, a single press, and a 20,000- square-foot building. Today, Quad/Graphics ranks as the largest privately held printing company in North America. It has been growing more than 20% annually since it opened its doors.

As one of the country's top five printers, with 10 manufacturing sites, over 8,000 employees, and annual revenues of \$1 billion, Quad/Graphics specializes in high quality, four-color printing, and prints more than 1,000 titles, including *Time*, *Newsweek*, *Playboy*, *JAMA*, *Architectural Digest*, *Black Box Catalog*, as well as a variety of niche publications and catalogs. Quad/Graphics also has a division — Quad/ Tech — that designs, builds, markets, and services press and finishing controllers to the printing industry.

Quad/Graphics serves the catalog, magazine, free-standing insert, direct-mail and commercial products markets, and will soon serve the book industry. Quad/Graphics provides full production services, from design and photography through finishing, mailing, and distribution. The company offers full graphic design and typesetting; studio photography; professional desktop production; full photomechanical and digital image retouching, stripping, and final film preparation; archiving of digitized information; platemaking; gravure cylinder preparation; direct digital cylinder engraving; direct-to-plate imaging; mailing list management; and direct-mail manufacturing services.

Quad/Tech is the research and development division of Quad/Graphics. It provides engineering solutions to improve product quality, reduce waste, and add control and logic to press and finishing operations. Quad/Tech's High Tech Center, a facility specially built to house its design and manufacturing efforts, represents an investment in the development of technology to improve signature and web handling, control color registration, provide management information and improve ink-jet addressing and demographic mailings. Quad/Tech's resources range from software programming and computer-aided design to manufacturing heavy machinery.

### **Energy Conservation**

Energy may be the ultimate resource, and Quad/Graphics has worked aggressively over the long term to conserve it. The company used 13% less energy per unit of production in 1994 than in 1985, despite offering increasingly complex services.

In 1995, Quad/Graphics was awarded a \$400,000 grant from the Department of Energy's National Industrial Competitiveness through Energy, Environment, and Economics program (NICE<sup>3</sup>), whose goal is to improve industrial energy efficiency, reduce industry's production costs, and lower emissions to the environment. The Wisconsin Energy Bureau handled the application process and worked with Federal agencies to meet all application requirements. The grant was used by Quad/Tech to design, test, demonstrate, and commercialize a closed-loop ink-jet supply and printer solvent recovery system. This new technology has significant environmental, economic, and energy benefits for Quad/Graphics and other businesses in the publication, product labeling, direct mailing, and packaging industries. The ink-jet supply and printer solvent recovery system will reduce the amount of ink and solvent used in the ink-jet printing process by at least 50%, will reduce materials costs by \$552,000 annually, and will reduce energy costs by \$72,900 annually.

Quad/Tech has devised a closed-loop ink-jet system that captures 80 to 90% of methyl ethyl ketone (MEK) vapor and condenses it for reuse instead of letting it escape into the air. Once the closed-loop system is installed on all the ink jet lines at Quad/Graphics, use will be reduced by nearly 7,000 gallons annually, resulting in savings of \$420,000. The company also expects to save a minimum of 2.31 trillion BTUs by the year 2010 by eliminating ventilation systems and the production and transportation of MEK. The closed-loop system will soon be commercially available. Because the system is very economical and has its emission-reducing apparatus built into the unit, small print shops (which typically receive less regulatory scrutiny) will have both the incentive and the means to reduce emissions.

### **Conserving Energy in Other Ways:**

- In 1994 Quad/Graphics signed on as one of the initial participants in the Federal Climate-Wise initiative, a program jointly sponsored by the Environmental Protection Agency and the Department of Energy. The company pledged to work toward continuing a 3% annual rate of reduction in energy usage. Maintaining that rate will require increasing innovation as we approach the limits of current technology. On December 12, 1994, the company was honored for its leadership in the Climate-Wise initiative at the first White House Conference on Environmental Technology in Washington, D.C.
- With many other energy conservation projects coming into fruition in 1994, Quad/Graphics earned more than \$472,000 in utility company energy rebates from process improvements.
- The company uses the latest, most energy-efficient technology in equipment expansions and in retrofits.
- It also designs energy-efficiency into new building construction — in insulation, lighting, and mechanical systems.
- Quad/Graphics recovers waste heat by making use of the hot water created in water-cooled mechanical systems.

- The company continually evaluates new technologies and techniques for opportunities to make manufacturing processes and infrastructure more efficient. Currently under scrutiny are ways to reduce temperatures in our ink-drying ovens, converting part or all of their fleets of vehicles to alternative fuels, and using more energy-efficient computer terminals.
- As a participant in the Federal Green Lights program, Quad/Graphics followed an accelerated schedule for retrofitting lighting fixtures with more efficient technology. The company's initial round of Green Lights improvements annually conserves 1.5 million kilowatt-hours, preventing emission of 2.25 million pounds of carbon dioxide 8.7 million grams of sulfur dioxide, and 3.75 million grams of nitrogen oxides.

## **Reduce, Reuse, Recycle — Using Resources as Wisely as Possible**

Quad/Graphics' environmental stewardship centers around making the best possible use of all resources. The company's first step is to use resources as conservatively as possible. Then the company reuses or recycles all that it can. Finally, it evaluates materials that leave the plants for disposal, looking for ways to prevent waste in the future.

A key factor that makes this strategy viable for the long term is that it makes perfect business sense. When business and environmental interests coincide, efforts are doubly productive.

### **Paper**

*Conserve:* The company's consistent waste percentage reduction — from 10.11% in 1988 to just 7.58% in 1994 — results in millions of pounds of paper saved each year.

*Recycle:* Production, office paper and cardboard recovered for recycling in 1994: 133,000 tons.

*Dollars and sense:* Recycling paper waste makes perfect sense. The costs of collecting, shredding, and baling wastepaper are offset by the money it brings in as a raw material, and by the \$6.7 million in landfill fees avoided.

### **Ink**

*Conserve:* In the late 1980s, Quad/Graphics began providing employees with information about ink waste. The company asked for their ideas on reducing it, and implemented the best plans. Decline in ink waste from 1989 to 1994 reached 40%, to 460 drums from 762. (Note that these figures are absolute, not relative to production, which increased 111% during the same period.)

*Dollars and sense:* Approximate cost of offset printing ink: \$1,000 per drum. Disposal cost of offset printing ink: \$150 per drum.

### **Plastic**

*Recycle:* Quad/Graphics works aggressively with vendors and others to find willing recipients of, or better yet, markets for used plastic. Much of its plastic is sent back to the vendors for reuse. The careful sorting of colored plastic creates a closed-loop system. For instance, the green strap is recycled back into green strap. Much of the stretch wrap that the company recycles is made into garbage bags. Plastic recycled in 1994: 287 tons. Plastic end cores from polywrap rolls, sent back to the manufacturer for reuse in 1994: 35,000.

*Dollars and sense:* Plastic recycling revenue: \$33,114. Landfilling fees avoided: \$14,350.

## **Wood**

Master Carpenter Ben Erdman established a highly efficient Pallet Repair Department to fix broken pallets. The company also chips and shreds waste wood for mulch. In 1994, it developed a new facility and made upgrades to equipment to increase capacity for chipping and shredding.

*Conserve:* Number of pallets repaired for reuse in 1994: 96,000.

*Recycle:* Wood plugs from paper-roll stocks: 224 tons.

## **Metals**

*Recycle:* Quad/Graphics recycles strapping, aluminum and miscellaneous metals from all facilities. Metals recycled in 1994: 370 tons.

*Dollars and sense:* Hauling, tipping and landfill fees avoided: \$18,500.

Quad/Graphics was honored in 1994 with the Wisconsin Business Friend of the Environment Award for Environmental Stewardship. In 1993, The State of Wisconsin recognized Quad/Graphics' environmental commitment by bestowing the company with its second Governor's Waste Reduction & Recycling Award.

## **Pollution Prevention**

Quad/Graphics invests in the best practical pollution control technology to minimize emissions from drying ink, and maintains its equipment to ensure maximum performance. The catalytic converters on offset presses are more than 99% efficient, and the solvent recovery system in the gravure pressroom is more than 97% efficient.

The company literally keeps a lid on press cleaning solvents and other evaporative chemicals by closely monitoring how employees use, reuse, handle, and store them.

For instance, the Hartford plant has started wringing blanket wash from press-cleaning rags and reusing it. Other plants use a centrifuge to be sure that solvent is separated from cloths before sending them out to the cleaners. In 1994, waste figures were less than half the amount from four years earlier, despite the company's increasingly complex services and steady production increases.

# Ponderay Newsprint Company

## *Bypass Sulphonated Long Fiber Digester Project*

### **Introduction**

Ponderay Newsprint Company located in Usk, Washington, manufactures the paper required for the newspaper industry. Ponderay employs 200 individuals. The newspaper manufacturer is an excellent example of a company that uses energy efficiency to increase profitability and productivity. Ponderay Newsprint continues to achieve energy savings and increase productivity in their High Yield Pulp Mill, using energy efficiency techniques.

### **Project Description**

The underlying concept behind Ponderay's project is to simplify the existing paper refining process and to make it more efficient. Operational experience has shown Ponderay that they have the ability to produce an acceptable strength material without using the standard pressurized chemical treatment process. The standard process required equipment that used a large amount of energy in an inefficient system. The standard equipment used energy continuously, irrespective of the treatment process. In addition, the existing system in the High Yield Pulp Mill was a single line system that caused total line curtailment when out of service. Ponderay's process energy efficient improvements relieved operational difficulties, reduced maintenance requirements, and improved system capacity. Ponderay replaced the chemical treatment equipment with a much simpler system for fiber refining.

The company installed a Bypass Sulphonated Long Fiber Digester.<sup>1</sup> The new system consists of an atmospheric variable speed metering conveyor, a vertical drop chute, and a fixed speed, low compression, plug screw feeder for each refiner. Ponderay Newsprint created two independent lines to increase operational flexibility and reliability. The total cost of the project was \$389,265.

<sup>1</sup>The Bypass Sulphonated Long Fiber Digester involves the technology used to collect long fibers and bundles created as waste in the former process. The new system reprocesses these fibers into acceptable pulp. The long fibers are collected in storage tanks, dewatered to a consistency of about 27%, possibly chemically treated, heated under pressure, and refined.

### **Project Economics**

Ponderay's energy efficiency project results in savings in several operational areas and results in an increase in productivity. The savings from the Bypass Sulphonated Long Fiber Digester project result in a 4.61 year payback period. The company has a debt to equity ratio criteria of approximately 40% nominal, and an internal rate of return hurdle rate of 20%-30%. The estimated rate of return for this project is 18.72%. Though this would appear to be slightly lower than Ponderay's hurdle rate, for special projects, with clear corporate advantages, the company pursues projects accordingly.

## **Energy and Environmental Savings**

Ponderay's annual measured energy savings from the energy efficient digester in their High Yield Pulp Mill is 182.26 kW or 1,596,614 kWh.

## **Project Financing**

Ponderay Newsprint financed the majority of their energy efficiency project internally. They received additional financing assistance from Pend Oreille County's conservation program. The program pays \$.15 per kWh/year which translates to \$239,492 per year in savings. These savings improve the payback period from 8.03 years to 4.61 years. Ponderay's financing program is effectively a capital lease, but Ponderay's energy manager readily suggests that in the future they will consider doing projects of this type, using energy savings performance contracts.

## **The Team That Was Required To Succeed**

The team that worked together to see this project to completion consisted of utility partners, county government, and technical consultants, as well as Ponderay's in-house expertise, including Ponderay's energy manager, Don Guenther and the company's financial operations.

## **Special Considerations**

Don Guenther explains that although Ponderay chose to finance the digester project internally, next time he would consider financing a similar project with performance contracting.

Ponderay clearly benefits from its energy manager's close working relationship with the company's production processes. Don Guenther's network with the Industrial Customers of Northwest Utilities helps energy managers share ideas on energy efficiency and pollution prevention, and other cost effective projects that make sense for manufacturers.

Ponderay's energy manager explains that for profitable energy efficiency and pollution prevention projects, the company "just finds a way to get it done." The company doesn't base everything on hurdle rate and IRR. They also want to do the right thing, "knowing that energy efficiency and pollution prevention moves often lead to increased profitability and productivity of manufacturing operations."

# **Wacker Siltronic**

## ***Multi-Wire Saw for Silicon Slicing***

### **Introduction**

Wacker Siltronic Corporation located in Portland, Oregon manufactures silicon wafers used in the semiconductor industry. The company employs 1700 individuals and involves each employee in the achievement of environmental performance and pollution prevention goals. Wacker Siltronic is an excellent example of a corporation that utilizes energy efficiency and pollution prevention technologies to increase their profitability and productivity.

### **Project Description**

Wacker Siltronic's process improvements decrease waste production and reduce the large amount of consumables required by wire saw operations. In an effort to minimize waste, and improve efficiency, profitability, and productivity, Wacker Siltronic identified the following tasks:

- Develop alternative cutting fluids, which reduces consumables, and is recyclable.
- Develop a reclaiming technology to recover silicon carbide abrasive.

To meet these goals Wacker Siltronic installed a new multi-wire saw silicon slicing technology, and reclaimed the cutting slurry from the company's wire saw operations. The estimated cost of the entire project is \$2 million. Wacker Siltronic's energy efficiency project increases productivity and reduces costs as a result of water savings and reduced sewer charges.

### **Project Economics**

Wacker Siltronic's slicing and reclaiming technology increases productivity and creates savings in several operational areas of the company. The installation of the new multi-wire saw increases silicon wafer production by 20%. They continue to save \$400,000 per year in water expenses and sewer charges. Alternative cutting fluids and recycling technology result in a 75% savings in disposal costs. This translates into a savings of \$640,000 each year for the company. Wacker Siltronic's reduction of consumables generates \$1.5 million in savings per year. The savings from the new system result in a 1.4 year payback period. Wacker Siltronic has an internal rate of return hurdle rate of 10% for new projects. The rate of return for this project is 26.3%.

### **Energy And Environmental Savings**

Wacker Siltronic's project decreases the use of alternative cutting fluid, the use of water, and the production of air emissions. Wacker Siltronic developed an alternative cutting fluid that is recyclable, thus decreasing waste production and reducing the need for the fluid itself. The project reduces the volume of hazardous air emissions, created when

changing cutting fluids, by 36 tons per year. The improvements create a savings of 37 million gallons of water each year.

### **Project Financing**

Wacker Siltronic is a privately held company. The company provides for all of its financing internally from shareholders and operating budgets. Wacker Siltronic considers energy savings and pollution prevention projects under the same terms as other capital projects. All capital projects must have a payback period of five years, and the company prioritizes projects and expenditures with a payback period of three years or less.

### **The Team That Was Required To Succeed**

The team that worked to see this project to completion consisted of process technology engineers, environmental engineers, equipment suppliers, waste treatment providers, and Wacker Siltronic's internal corporate and financial decision-makers.

### **Special Considerations**

Wacker Siltronic Corporation is an ISO 9001 certified supplier of hyper pure silicon wafers. The Corporation operates under a Quality Management System and strives to be the vendor of choice to their customers by exceeding expectations in terms of quality and total value, and achieving six sigma quality products and services. Wacker Siltronic strives toward continuous improvements of their products and services, and energy efficiency and pollution prevention projects offer opportunities for improvements in all areas of the manufacturer's operations.

Corporate quality goals serve equally as well for environmental performance and pollution prevention. Continuous improvement in all environmental areas has resulted in numerous awards for Wacker Siltronic including: the first Oregon Governor's Award for Toxic Use Reduction, Excellence Award for Waste Water Treatment Performance, the first EPA Evergreen Award for Environmental Leadership and the Best Success Award for Energy Savings, Waste Reduction, Water Conservation, and Transportation Alternatives.

# **Top Veneer & Trading Co., Ltd. - Heller First Capital**

## ***Shade and Mist Spray System***

### **Introduction**

Top Veneer & Trading Company, Ltd. is a new veneer manufacturing plant, located in Merlin, Oregon. They will employ 50 individuals and specialize in the production of sliced and dried hardwood face veneers. Top Veneer will produce their “fancy face” veneers from a sustainable Western United States hardwood species. They are an excellent example of how a manufacturer can work with a financial provider to generate profits by incorporating energy efficiency and pollution prevention techniques into their manufacturing process, even during business start-up.

### **Project Description**

In its new facility, Top Veneer will be installing a new Shade and Mist Spray System. The new system will utilize water containment and recirculation, combined with steam condensate collection from flitch heating chambers. Top Veneer will install the new energy and water efficient steam chambers in place of standard hot water vats. The efficiency project also addresses accident potential and disposal requirements. The total cost of the project is \$35,000.

### **Project Economics**

Top Veneer’s energy efficiency project will result in savings in several operational areas and will result in an increase in productivity. The savings from the Shade and Mist Spray System will result in a 7 year payback period. The Shade and Mist Spray System will decrease water usage, resulting in reduced water costs. Smaller volumes of water produced at the end of each flitch cooking schedule will save Top Veneer sizable water disposal costs. Productivity for flitch cooking will increase because there is no need to heat large volumes of water for each cycle. The implementation of steam chambers will eliminate the time and energy consuming process of continually heating and maintaining the temperature of 500-600 gallons of water required to fill the vats.

### **Energy and Environmental Savings**

Top Veneer’s Shade and Mist Spray System will reduce water usage, and recycle (re-use) evaporated non-contaminated water rather than releasing the water into the sewer system. Veneer manufacturers have historically used hot water vats to process materials. The hot water vats create large quantities of water for disposal at the end of each flitch cooking schedule. The new process will reduce disposal requirements. Eliminating the presence of large, open hot water vats on the premises, will reduce the potential for occupational accidents, improving conditions and reducing liabilities.

## **Project Financing**

Top Veneer and Trading Co. financed the project with the help of Heller First Capital. Heller First Capital's financing package involves a conventional loan, with a 75% SBA loan guarantee. The loan has a 7 year term. The financing is part of an SBA guaranteed loan package that Heller First Capital offers to finance business improvements. The loan financing package provides for inventory, working capital, equipment, and tenant improvements.

## **The Team That Was Required to Succeed**

The team leader, working to see this project to completion, is Dave Fairbairn, from Top Veneer & Trading Co., Ltd. Dave Fairbairn is Top Veneer's general manager, and is responsible for the conception and outline of the project. Rance Plumb, of Plumb industries, is the project supervisor, and is responsible for the installation of the Shade and Mist Spray System. Tom Gillman, of Pacific Northwest Steel Construction, is the engineer/fabricator, and is responsible for the design of the project. Robin Hudson, of Rendatta Industrial Parks, is the park's business manager, and is responsible for the waste disposal in the park. Heller First Capital joined forces with the team to make the project financing work.

## **Special Considerations**

Top Veneer and Trading Co., Ltd. will be producing thin sliced (1/100" thick) fancy face veneers from a sustainable, Western United States hardwood species. The veneers will be marketed primarily in Asian markets. The company knows they can make profitable improvements using energy efficiency and pollution prevention technologies. The Top Veneer project illustrates that E2 and P2 approaches are projects that the financial community has faith in, because they know their customers will be improving profitability and productivity and reducing liabilities.

# **Trailblazer Foods, Inc. - The Money Store & Key Bank**

## ***Water Recycling and Treatment System***

### **Introduction**

Trailblazer Foods, Inc. is a food manufacturing company, located in Portland, Oregon. They specialize in the production of fruits, jams, and syrups, and currently employ 45 individuals. Trailblazer Foods exemplifies how a manufacturer can work with a team of financial providers to generate profits by incorporating energy efficiency, pollution prevention, and recycling into their manufacturing techniques.

### **Project Description**

As a result of expanding business Trailblazer Foods needed a new building to meet demand. The company realized that the new building represented a terrific opportunity to take advantage of profitable energy efficiency and pollution prevention projects. Working as a team, Trailblazer designed and installed one of the most innovative water recycling systems for heating and cooling in the food processing industry. The system cuts the company's water use and electricity use in half. The system also reduces gas use by 10%. The water recycling and treatment system also helps Trailblazer comply with State environmental requirements for process effluents. The project is truly unique because the company's employees proposed, designed, and implemented the innovative recycling and energy saving system. Employees at Trailblazer Foods saw the benefits of E2 and P2 and made the innovative project work. The water treatment system uses recirculated water for pasteurizing and cooling food products. The system recycles water continually for the consistent processing of syrups, fruits, and jams. The system increases and decreases temperatures reliably, using the heat capacity and thermal integrity of water to control the process. The Trailblazer system accomplishes the cooling efficiently, reducing the unnecessary electricity and gas costs required by fans for cooling and by boilers for pasteurization. After using the water multiple times for pasteurization and the cooling process, Trailblazer treats system water and discharges effluent that meets environmental standards. Trailblazer's separator eliminates sludge prior to discharge, preventing the release of hazardous sludge material. The cost of the Water Treatment project was \$40,000.

### **Project Economics**

Trailblazer's energy efficiency project results in savings in several areas. The new system reduces water and electricity use by half, cutting associated operating expenses by 50%. The reduction in gas use is 10%. The savings from the water treatment project result in a 2 year payback period. The company has a debt to equity ratio criteria of 2 to 1 nominal, and an internal rate of return hurdle rate of 20%. The rate of return for this project is 30%. While economic payback is a crucial factor in considering new projects, Trailblazer

Foods also considered this project in terms of its environmental, and energy efficiency advantages.

### **Energy and Environmental Savings**

Trailblazer Foods, Inc. is required by the state of Oregon to meet State environmental regulations and specifications. They know they can create profits by doing the right thing environmentally. Trailblazer Foods takes advantage of this challenge, creating profits, increasing energy savings, and decreasing pollution. From an energy standpoint for pasteurization, recirculating water cuts boiler energy use in half, reducing gas requirements and the associated costs. This translates to 10% gas savings. This system also cuts electricity required by fans for the cooling process in half. The system cuts water use by 50%, saving 1,500,000 gallons of water per year. In addition to the resource savings, the water system eliminates the release of hazardous sludge into the water system. Trailblazer accomplished this by installing a separator to filter sludge out of the water sent into the water system.

### **Project Financing**

Key Bank's Paul Warr-King and Northwest Small Business Finance Corporation's (NSBFC) Teresa Cowles, now of The Money Store, joined forces to finance Trailblazer Foods' new building and their innovative water and energy saving project. The companies worked together to finance the project with competitive rates, using a conventional loan with an SBA guaranteed loan under the SBA's 504 loan program. Trailblazer's president Gary Walls, explains that "a half percentage point one way or the other didn't make as much of a difference as our financial partners' understanding of the needs and goals of Trailblazer Foods." Trailblazer Foods chose financial partners that are sensitive to the specialized needs of the company and willing to work with Trailblazer to create an appropriate financing package. Key Bank and NSBFC helped see the project through to completion. Key Bank and NSBFC created a 10 year loan with an 8.6% interest rate in the amount of \$750,000. NSBFC provided a 20 year loan in the amount of \$750,000, subordinated to Key Bank using an SBA 504 loan guarantee. NSBFC's 504 loan program provides financing for owner occupied commercial real estate and equipment.

### **The Team That Was Required to Succeed**

Trailblazer Foods hired a contractor for the overall design and construction of the new building. Trailblazer designed the new water recycling and treatment facility in the building, and the design and construction contractor helped ensure that the building design properly incorporated the requirements for the innovative new water and energy savings system. Teresa Cowles and Paul Warr-King, and their respective financial institutions, worked with Trailblazer Foods to ensure financing was in place for the project.

### **Special Considerations**

Trailblazer illustrates that good companies listen to their employees, because good ideas often surface from within. They demonstrate that energy efficiency and pollution prevention investments are compatible with new building design and often result in increased profitability and productivity.

## **Naumes, Inc. - PacifiCorp**

### ***Ammonia Refrigeration Upgrade***

#### **Introduction**

Naumes, Inc. is the largest family-owned pear grower in the United States, with facilities in Medford, Oregon; Wapato, Washington; and Marysville, California. They specialize in fruit growing, storage, processing, and juice production. The company joined forces with PacifiCorp of Portland, Oregon for up front auditing and analysis of their energy efficiency and pollution prevention project at their Medford facilities. Naumes, Inc. exemplifies how a manufacturer can generate profits through the implementation of energy efficiency technologies.

#### **Project Description**

Naumes, Inc. implemented new and retrofit projects for ammonia refrigeration upgrades. The company upgraded two ammonia refrigeration systems to increase energy efficiency. The first project was a retrofit of an ammonia refrigeration system serving three buildings. The new system uses computer controls and variable speed drives. The second project involves new construction with an additional three buildings. The new construction employs computer controls, variable speed drives, and optimized equipment selection. The project cost for the retrofit was \$125,000. The project cost for the new construction was \$185,903.

#### **Project Economics**

Savage Engineering performed the verification of the results for Naumes' new and retrofit projects. The actual operation savings from the new construction refrigeration, controls, and variable speed drives installation result in a 4.4 year payback period. The retrofit project's payback period is 2.1 years. The manager explains that on average the company typically likes to see projects with 7 year (or less) payback periods.

#### **Energy and Environmental Savings**

Naumes, Inc.'s energy efficiency project results in energy savings and even higher product quality, though product quality may be hard to quantify. The energy efficiency project also improves monitoring and awareness with regard to energy and environmental management. Originally the new construction project was expected to save 475,386 kWh per year; however, in the first three years the project has outperformed estimates, saving an estimated 550,000 kWh/year. The retrofit project creates a savings of approximately 741,000 kWh/year. Naumes' cost savings amount to \$28,000/year for the new

construction, and \$37,000/year for the retrofit project with an electricity rate of \$0.05/kWh for both projects. The new project creates a 46% refrigeration savings, and the retrofit project saves 53% on refrigeration costs.

## **Project Financing**

Pacificorp's FinAnswer program provided Naumes, Inc. with free, up-front auditing and analysis for their upgrades. The company evaluated economic and environmental implications of the new and retrofit projects and then financed the improvements internally, counting on additional financial return from the State of Oregon's performance based tax credits. The tax credits amount to a total of 35% of the implementation costs of the E2 and P2 project accrued from the project over its first five years. Naumes was awarded \$65,000 in tax credits for the new construction project, and \$42,000 for the retrofit.

## **The Team That Was Required to Succeed**

The participants in this project were:

- Cascade Energy Engineering for analysis
- PacifiCorp for the project direction and information
- State of Oregon for tax credits
- Techni-Systems for controls contracting
- Valley Electric for electrical contracting
- Savage Engineering for verification
- Allen Bradley for the variable speed drives

## **Special Considerations**

Naumes, Inc., understands the competitive nature of its business better than anyone. They understand that any competitive advantage represents potential market share and profitability. energy efficiency and pollution prevention projects are helping Naumes remain competitive in a price and quality conscious market place. The company understands that quality and commitment are synonymous with the profitability and productivity results of E2 and P2 projects.

# **U.S. Bancorp Leasing and Financial**

## ***Recycling Process Enhancements***

### **Introduction**

U.S. Bancorp Leasing and Financial located in Beaverton, Oregon provides equipment leasing and financing services for businesses of all types. The corporate examples below are examples of the kind of projects in which U.S. Bancorp serves its customers. Each refuse collection and recycling company is one of the largest in the industry in the Portland area. Each company generates revenues in the range of \$15,000,000 - \$30,000,000. Both companies prefer to remain anonymous. Each company is an excellent example of a company that uses energy efficiency to increase profitability. Both recycling and refuse collection companies have achieved energy savings through enhancements to their recycling process.

### **Project Description**

Each recycling company has increased productivity through the use of measures that improve the energy efficiency of the recycling process. Both companies developed projects that involve energy efficient conveyor systems, balers, transportation equipment, and loading equipment to increase efficiency throughout their operations.

### **Project Economics**

The energy efficiency projects result in savings in several operational areas of each company. The savings from recycling enhancements result in a 3.5 year payback period for the first company, and a 3 year payback period for the second company.

The Oregon Office of Energy (OOE) offers a program that allows a company to claim tax credits on qualifying energy efficiency projects. The program is called the Business Energy Tax Credit program (BETC). The program allows the User or the Lessor to claim a 35% tax credit on the total energy project implementation cost, claiming 10% in the first two years, and 5% for each of the 3 years thereafter. The process begins when the company files an application with OOE for consideration under the BETC program. OOE evaluates the project and determines the project's eligibility. If eligible, OOE issues a Preliminary Certificate of Qualification. The applicant pursues the project and OOE awards a Final Certification. In the recycling industry examples, the companies applied for and received the OOE tax credit after demonstrating the savings each would create with its energy efficiency improvements.

### **Energy and Environmental Savings**

Each company determined the total cost for the implementation of their energy efficiency and pollution prevention project, and included this information in the application for the BETC program. The first company now handles 95,800,000 lbs. of material annually. The recycling company's E2 and P2 project enables the company to recycle 43,110,000

lbs. of this material each year. They included both of these figures in their BETC application. Each company's project reduces their electricity use, gasoline use and labor costs. As a Lender or Lessor, U.S. Bancorp Leasing and Financial considered all of this information in their credit decision and in terms of the agreements that would link to the BETC program.

### **Project Financing**

Project planners frequently approach U.S. Bancorp with proposed projects involving a variety of tax and financing assumptions. In the two current examples U.S. Bancorp created an equipment lease totaling \$750,000 for the first company, and an equipment lease totaling \$185,000 for the second. The first recycler uses the depreciation to reduce their tax liability. The approximate terms of the transaction are 60 months with monthly payments of \$11,704. There will be a 20% residual at the end of the lease. The cost to finance, on a yield to maturity basis, is approximately 4.3%. The second company's equipment lease also has a 60 month term with 60 monthly payments of \$2,567 to a Fair Market Value Residual. Based on U.S. Bancorp's experience with the equipment, they estimate that their cost to finance, on a yield to maturity basis, is about 3.0%.

### **The Team That Was Required To Succeed**

A U.S. Bancorp team for an equipment lease typically consists of the lessor's CFO, the project planner (frequently an engineer), the lessor's CPA or tax advisor, the technical contractors, and the state partners participating in the energy efficiency and pollution prevention project.

### **Special Considerations**

Leases work best for some companies, while loans work best for others. In each of the two U.S. Bancorp examples, the financial partners worked with the company to provide an E2 and P2 financial package that is most responsive to the client's business needs.

# **B & G Machine, Inc. - Cascadia Revolving Fund**

## ***Jet Washer/Evaporator System***

### **Introduction**

B&G Machine, Inc. is a machine tool fabricator located in Seattle, Washington. The company “re-machines” large trucks, and employs 31 individuals. The manufacturer recycles automotive parts, machining and refining them for use in new and used heavy duty vehicles. B&G’s customers are those who seek a cost-effective alternative to parts replacement. B&G joined forces with Cascadia Revolving Fund to finance their innovative cleaning and evaporating system, involving energy efficiency and pollution prevention. Cascadia Revolving Fund provides financing, enabling companies like B&G to carry out similar projects. B&G exemplifies how a manufacturer can work with a financial provider to generate profits and increase efficiency through pollution prevention technologies.

### **Project Description**

B&G’s project eliminates most of the company’s caustic automotive parts cleaning. They accomplish this by using a jet washer/evaporator system. The new system creates benefits for the environment and improves B&G’s occupational environment. The B&G system works on the principal of total pollutant segregation. It reduces water requirements in the automotive parts cleaning process.

Toxic Use Reduction (TUR) is a major result of the new jet washer/evaporator system. TUR is a cost-effective pollution prevention strategy. A small amount of caustic is still used to clean oversized parts. The reduction of caustic use, combined with the tandem use of the jet washer, caustic tank, and evaporator improves the energy efficiency of B&G’s operations. The total cost of B&G’s jet washing and evaporator system was \$31,000.

### **Project Economics**

B&G’s pollution prevention project results in savings in several operational areas of B&G’s production process and results in increased productivity. The jet washer/evaporator system generates \$36,000 in savings each year.

The new technology increases throughput which in turn increases profitability. The new process reduces cleaning time from several hours to less than half an hour. Reductions in water usage and the elimination of expenses for sewer discharge permits significantly reduce costs. Hazardous discharge permit fees, based on volume, are eliminated entirely.

### **Energy and Environmental Savings**

The jet washer/evaporator system reduces water consumption in the cleaning process from 180-220 gallons per day to 73-101 gallons per day. This represents a 27% decrease in annual water consumption. The new system allows for the separation of hazardous

effluents and eliminates the disposal of hazardous waste into the sewer system. The significant reduction in cleaning time also reduces energy use.

### **Project Financing**

B&G financed their jet washing and evaporator system using Cascadia Revolving Fund's financing program. Cascadia's program is called the Pollution Prevention Lending Program, providing financing to small businesses to reduce their output of pollution. B&G evaluated economic and environmental implications of the jet washer/evaporator system within their company first, and then provided Cascadia Revolving Fund with the specifics on the project. Cascadia created an 8 year loan for B&G at the rate of 11.5%. B&G's loan principal with Cascadia is \$37,000 with a \$600/month payment.

### **The Team That Was Required To Succeed**

The team that worked together to see this project to completion consisted of B&G (the manufacturer), Cascadia Revolving Fund (the financier), and the contractors required to install the new system.

### **Special Considerations**

B&G's environmental management project generates positive results in numerous areas of the company. These results include financial, environmental, and energy benefits. The new system reduces employee exposure to caustics, increasing employee comfort and productivity. The design and installation of the technology has facilitated a "learning process" that has encouraged B&G to make other environmental changes. Improved labeling and a stricter segregation of chemicals are a few of the positive ramifications of B&G's energy efficiency and pollution prevention endeavor.

# Federal Assistance Programs: What's Available to Manufacturers?

Without outside guidance and support few small manufacturers are able to secure all the technical and financial assistance they need to modernize, adopt the right efficiency improvements, and improve productivity. This *toolbook* seeks to serve as a handbook of basic information and contacts for manufacturers that want to stay competitive, but often don't know where to look for help.

The Federal Government offers a wide variety of programs—loan guarantees, grants, technology transfer support, and technical assistance—to help reverse shortcomings in the capital markets. As the program explanations will show, some of these tools are administered directly by Federal agencies, while others are coordinated by private organizations, local development agencies, and nonprofit development groups.

This section reviews financial and technical assistance initiatives overseen by Federal agencies with particular interest in manufacturing.

Through its *Office of Industrial Technologies (OIT)*, the *Department of Energy* acts as a partner to industry in its efforts to operate more efficiently. A key component of OIT is to provide research and development, and direct financial assistance, as an investment in the long-term growth and competitiveness of U.S. manufacturing. Key programs include

- Compressed Air Challenge
- Industries of the Future
- Industrial Assessment Centers
- Inventions and Innovation
- Motor Challenge
- National Industrial Competitiveness through Energy, Environment, and Economics (NICE<sup>3</sup>)
- Regional Resource Centers for Innovation
- Small Business Initiative Program
- Solicitation for Plant-Wide Energy Efficiency Assessments
- Steam Challenge

Other programs profiled include

- the Manufacturing Extension Partnership operated by the National Institute of Standards and Technology; and
- NASA's National Technology Transfer Network.

Several Small Business Administration programs are also profiled. In total, they provide billions of dollars in assistance annually to all types of small businesses, including manufacturers. Programs include

- general-business loan guarantees, the Section 7(a) program, SBA's largest, which helps small businesses gain access to private capital to finance plant construction, conversions, and expansions, as well as acquire equipment, facilities, and supplies;
- technical assistance available through small business development centers (SBDCs);
- Small Business Investment Companies, SBICs, licensed by SBA to make venture and other equity investments in emerging small companies;
- development company guarantees, through Section 504, of debentures issued by certified public-private development groups to provide companies with long-term, fixed-asset financing; and,
- special programs targeted to women and minority small business owners.

In each case, several types of information are provided so the reader can determine the nature of the support out there, what it can do, who is eligible, and how to receive it:

- program description and objective or mission—what does it do, what is it designed to achieve?
- eligible activities—what can be done, supported, or financed with program resources?
- program costs and services;
- agency contacts—address, phone, fax, and website information for the program's headquarters office, as well as local or regional program centers.
- other contacts—lists of banks and other program partners.

## Compressed Air Challenge

The Compressed Air Challenge (CAC) is a voluntary collaboration of industrial users; manufacturers, distributors and their associations; facility operating personnel and their associations; consultants; State research and development agencies; energy efficiency organizations; and utilities. This group has one purpose in mind—helping you enjoy the benefits of improved performance of your compressed air system.

Paying attention to your compressed air system can lead to a number of benefits. Compressed air is a utility that is generated in-house. That means that you have more control over it than any other utility. By learning more about efficient use of compressed air systems, you can improve efficiency, reduce costs, and increase productivity and reliability. This can lead to improved competitiveness, less downtime, and greater return on investment.

The mission of the CAC is to develop and provide resources that educate industry on the opportunities to increase net profits through compressed air system optimization.

Compressed air is not typically viewed as a cost of production—but it is anything but “free.” The generation of compressed air requires a huge amount of energy—and a piecemeal approach to building a compressed air system serves to worsen the problem through leaks, mismatched supply/demand, and inappropriate uses. The result is unreliability, energy waste, reduced productivity, and higher operating costs.

To help manufacturers learn more about improving the efficiency of your compressed air system, the Compressed Air Challenge has developed a series of training seminars and an exclusive compressed air system sourcebook. “Improving Compressed Air System Performance: A Sourcebook for Industry” This publication is an in-depth resource designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. Copies are \$19.95 each.

*For more information, contact:*

**Compressed Air Challenge**

*Phone:* 1-800-862-2086

*Website:* [www.knowpressure.org](http://www.knowpressure.org)

## Industries of the Future Initiative

- OBJECTIVE:** To help companies within the Department of Energy's *Industries of the Future* increase their competitiveness and decrease their environmental impact
- ELIGIBILITY:** Business activity within one of nine *Industries of the Future*
- COST:** No preset costs
- SERVICES:** Coordinates Government and industry research efforts, provides access to existing Government technology, and allows the integration of industry-wide efforts
- WEBSITE:** [www.oit.doe.gov/industries.shtml](http://www.oit.doe.gov/industries.shtml)

The Industries of the Future strategy creates partnerships between industry, Government, and supporting laboratories and institutions to accelerate technology research, development, and deployment. Led by the Department of Energy's Office of Industrial Technologies (OIT), the Industries of the Future strategy is being implemented in nine energy- and waste-intensive industries: agriculture, aluminum, chemicals, forest products, glass, metal casting, mining, petroleum, and steel.

Two key elements of the strategy include 1) an industry-driven document outlining each industry's vision for the future, and 2) a technology roadmap to identify the technologies that will be needed to reach that industry's goals. The Laboratory Coordinating Council (LCC) works to respond to the Industries of the Future research needs by streamlining industries' access to the expertise and capabilities of DOE's National laboratories and facilities.

The Industries of the Future strategy has made it possible for entire industries, many for the first time, to work together to define and pursue their top priorities for research, development, and demonstration. The process takes advantage of the inherent relationship between efficiency and production costs, using market drivers to help focus scarce resources where they can effect the greatest improvements in U.S. industrial efficiency. The Industries of the Future strategy effectively integrates a broad range of efforts to meet industry's current and future needs:

- Collaborative R&D on selected energy-intensive industries
- R&D in enabling technologies applicable to a wide range of manufacturing industries, including combustion, sensors and controls, advanced materials, continuous-fiber ceramic composites, and distributed generation.
- Technical assistance through the provision of energy and environmental plant assessments as well as data, decision tools, and recognition programs promoting adoption of a systems approach to increasing the efficiency of electric motors and drive systems, compressed air, combined heat and power, and steam.

- Financial assistance to encourage cooperative demonstrations of emerging technologies and the development of energy-saving ideas and innovations by inventors and small businesses.

The Industries of the Future have signed agreements of understanding and cooperation with OIT. With OIT acting as a catalyst, vision documents that reflect industry-wide goals to achieve greater competitiveness, efficiency, waste reduction, and pollution prevention, are then published. The visions are followed by technology roadmaps that spell out the prioritized, specific action areas to meet the goals contained within the visions. This process has created a common understanding of industry's R&D needs, which can then be addressed by the broad research community, focusing National talents on the most important priorities of U.S. industry as a whole.

Through a Memorandum of Cooperation, the National laboratories agreed to use the Laboratory Coordinating Council to streamline common arrangements of intellectual property and work-for-others agreements. This provides transparent and efficient negotiations among industries and the participating labs. The Coordinating Council also makes continuous improvement possible by applying lessons learned from prior years' experiences. Because each laboratory and facility has its specific areas of excellence, the Laboratory Coordinating Council has developed a matrix of competencies, assembling directly related and crosscutting R&D for each of the areas identified in the industry roadmaps. With this, industries' interests and R&D capabilities in all laboratories are matched.

The Laboratory Coordinating Council structure allows coordinated response and action in a flexible way to suit the needs and character of the incredibly diverse National manufacturing base. Results are already being realized. The mobilization time needed between identification of a need and the establishment of research commitments has been significantly shortened. Projects emerging from this collaborative process have a larger number of partners and widespread industrial interest.

The Industries of the Future is a winning proposition for participating companies, U.S. industry as a whole, and the entire Nation. Participating manufacturers, suppliers, and vendors enhance their public image, expand their technical knowledge base, gain access to complementary technical expertise and facilities, and acquire a bigger voice in directing R&D in their industry.

The nine most energy-intensive industries in the U.S. are working together to find ways to reduce their energy use and boost their bottom line. Throughout America, many leading companies and trade organizations within these industries have a vision of where they want to go in the next century...and how they'll get there.

*For more information, contact:*

**The Office of Industrial Technologies**

EE-20

U.S. Department of Energy

1000 Independence Avenue, SW  
Washington, DC 20585

*Phone:* 1-800-DOE-EREC

*Website:* [www.oit.doe.gov](http://www.oit.doe.gov)

## Industrial Assessment Centers (IACs)

- OBJECTIVE:** To help small and medium-sized manufacturers maximize energy efficiency, reduce waste, and improve productivity
- ELIGIBILITY:** Small and medium-sized manufacturers (SIC 20-39, typically with 500 or fewer employees)
- COST:** Free of Charge
- SERVICES:** Technical assistance from graduate engineering students and faculty from affiliated university programs
- WEBSITE:** [www.oit.doe.gov/iac](http://www.oit.doe.gov/iac)

### ***Description***

The Department of Energy's Office of Industrial Technologies IAC program provides no-charge energy, waste, and productivity assessments to help small and medium-sized manufacturers identify measures and plant and office designs to maximize energy efficiency, reduce waste, and improve productivity. The analyses are performed by local teams of engineering faculty and students from 30 participating universities across the country.

### ***Assessment Process***

IACs provide small manufacturers access to local engineering school expertise. A university-based assessment team of experienced faculty and students conducts a one-day site visit and performs an assessment. Within 60 days, a site report detailing the analysis, findings, and recommendations is presented to the participating company. In six to nine months, follow-up with the plant manager is performed. The plant is under no obligation to act on any recommendations and the client firm's proprietary information is protected.

### ***Benefits***

The IAC program offers the following benefits:

- Presents objective information to help you make manufacturer's plants cleaner, more productive, and more energy efficient;
- Provides engineering students both theoretical and hands-on, practical plant experience in energy and waste management practice;
- Recommendations from industrial assessments have averaged about \$55,000 in potential annual savings for each manufacturer and more than 7,600 assessments have been conducted.

## ***Eligibility and Application Process***

IAC clients are small and medium-sized manufacturing plants in Standard Industrial Codes 20-39. They should be located within 150 miles of a host campus and meet the following criteria to qualify for these free assessments:

- Gross annual sales below \$75 million.
- Fewer than 500 employees at the plant site.
- Annual utility bills of more than \$75,000 but less than \$1.75 million.
- Lack of in-house professional staff to perform the assessment.

### ***For more information***

For more information, or to apply for an assessment, contact the appropriate Field Manager or the nearest participating school. Further information, including a searchable database of past assessments, can be found by visiting the IAC website at [www.oit.doe.gov/iac](http://www.oit.doe.gov/iac).

### **Eastern Division Field Manager**

Office of Industrial Productivity and Energy Assessment  
Rutgers University  
P.O. Box 1179  
Piscataway, NJ 08855

*Phone:* (732) 445-5540

*E-mail:* [oipea@camp.rutgers.edu](mailto:oipea@camp.rutgers.edu)

### **Western Division Field Manager**

Industrial Technology and Energy Management  
University City Science Center  
3642 Market Street  
Philadelphia, PA 19104

*Phone:* (215) 387-1535

*E-mail:* [75430.3225@compuserve.com](mailto:75430.3225@compuserve.com)

# Industrial Assessment Center Locations

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## Eastern Division

### University of Dayton

Dr. Kelly Kissock, Director  
Dept. of Mechanical and  
Aerospace Engineering  
University of Dayton IAC  
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### University of Florida

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Dept. of Industrial and Systems Engineering  
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University of Florida  
Gainesville, FL 32611-2083  
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### Georgia Institute of Technology

Mr. William A. Meffert, Director  
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Atlanta, GA 30332  
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## Eastern Division (*con't*)

### Hofstra University

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### University of Louisville

Dr. James C. Watters, Director  
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### University of Maine

Industrial Assessment Center  
9 Barrows Hall  
University of Maine  
Orono, ME 04469  
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**Eastern Division (con't)****University of Massachusetts**

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**University of Notre Dame**

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**Old Dominion University**

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Dept. of Mechanical Engineering  
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**West Virginia University**

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Dept. of Industrial Engineering  
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*E-mail:* plummer@cemr.wvu.edu

**University of Wisconsin**

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**Western Division****Arizona State University**

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**University of Arkansas at Little Rock**

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**Bradley University**

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**Western Division (con't)****Colorado State University**

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**University of Missouri-Rolla**

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**University of Nevada-Reno**

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**Oklahoma State University**

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*E-mail:* wturner@okway.okstate.edu

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**Western Division (con't)****Oregon State University**

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**San Diego State University**

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**San Francisco State University**

Dr. Ahmad Ganji, Director  
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**South Dakota State University**

Dr. Kurt Bassett, Director  
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**Texas A&M University**

Dr. Warren M. Heffington, Director  
Dept. of Mechanical Engineering  
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College Station, TX 77843-3123  
*Phone:* (409) 845-5019  
*E-mail:* wheffington@mengr.tamu.edu

## Inventions and Innovation Program

- OBJECTIVE:** Provides funding and commercialization support for the development of energy saving inventions.
- ELIGIBILITY:** Independent and small business applicants are given preference
- COST:** Free of Charge
- SERVICES:** Technical support and financial assistance at two levels: up to \$40,000 and up to \$200,000.
- WEBSITE:** [www.oit.doe.gov/inventions](http://www.oit.doe.gov/inventions)

### ***Description***

The Inventions and Innovation program provides financial assistance at two levels: up to \$40,000 or up to \$200,000—depending on the stage of development—for establishing technical performance and conducting early development of innovative ideas and inventions. Ideas that have a significant energy savings impact and future commercial market potential are chosen for financial support through a competitive solicitation process. In addition to financial assistance, this program offers technical guidance and commercialization support to successful applicants.

Inventions and Innovation program grants are restricted to U.S. applicants, with special consideration provided to individual inventors and small businesses.

This program is conducted as part of the mission of the Office of Energy Efficiency and Renewable Energy. Its mission is to develop and promote the adoption of cost-effective renewable energy and energy efficiency technologies within the building, industrial, transportation, and power sectors for the benefit of economic competitiveness, energy security, and environmental quality of the nation.

Projects within the focus of the Office of Industrial Technologies – agriculture, aluminum, chemicals, forest products, glass, metalcasting, mining, petroleum, and steel – will be provided special funding consideration.

The Inventions and Innovation program funds up to \$200,000 for promising projects demonstrating both energy-related innovation and future commercial market potential.

There are four steps in the Inventions and Innovation grant process:

- 1. Preliminary Evaluation**—Prior to the annual solicitation, an inventor or small technology-based company submits a short project description/pre-proposal following a specified format to the DOE Golden Field Office. DOE will provide a timely response regarding the idea's program relevance and information on how to submit a proposal for detailed review.

2. **Competitive Solicitation**–DOE issues a formal solicitation once each Fiscal Year, which seeks proposals and includes instructions for completing a proposal.
3. **Grant Award**–After a detailed review, DOE awards financial assistance grants to the winning applicants based on available funding each fiscal year.
4. **Mentoring and Networking**–During and after the grant project period, assigned portfolio managers and a network of regional resource providers will assist the grantees with technical program management and market development planning. This support includes
  - Regional training and learning centers for business planning;
  - Regional, State, and local level support for economic development;
  - Incubation centers specializing in small energy-related technology businesses;
  - Internet sites and information relevant to energy-related innovations;
  - Technology conferences and trade shows; and,
  - Forums for financial investors with particular interest in energy-related businesses.

The formal 1999 Competitive Solicitation became available May 12, 1999. An optional Preliminary Evaluation may be submitted to DOE through April 2, 1999. DOE will provide a timely response regarding the invention's relevance to the program.

#### *Timeline for the 1999 Solicitation*

- Optional pre-proposals are accepted through April 2, 1999.
- Competitive Solicitation opens on May 12, 1999.
- Competitive Solicitation closes on July 30, 1999.
- Award announcements targeted for December 15, 1999.

*For more information, contact:*

**U.S. Department of Energy  
Inventions and Innovation Program**  
Mail Stop EE-24  
1000 Independence Ave SW  
Washington, DC 20585  
*Phone:* 202-586-2079

For a copy of the pre-proposal format or the solicitation, contact:

**Inventions and Innovation Program  
U.S. DOE Golden Field Office**  
1617 Cole Blvd. #1734  
Golden, CO 80401  
*Phone:* 303-275-4788

## Motor Challenge

- OBJECTIVE:** To promote a systems approach to the design, purchase, and management of electric motor-driven systems throughout the manufacturing sector
- ELIGIBILITY:** All Businesses
- COST:** Free of Charge
- SERVICES:** Provides recommendations, technical support, and energy-saving information
- WEBSITE:** [www.motor.doe.gov](http://www.motor.doe.gov)

### *Description*

The United States Department of Energy's (DOE) Motor Challenge program is an industry/ Government partnership designed to help industry capture 2 billion kilowatt-hours per year of electricity savings by the year 2000. Initiated in 1993 as part of the Department's renewed effort to promote voluntary industry/Government partnerships to improve energy efficiency, economic competitiveness, and the environment, the program's official mission is to "create a partnership with our allies to deliver products and services that assist our customers in gaining a competitive advantage in managing their electric motor systems while saving energy and enhancing environmental quality."

The primary goal of the program is to increase the market penetration of energy-efficient, industrial electric motor-driven systems by encouraging the selection of efficient motors, pumps, fans, other motor driven equipment, and more importantly, by encouraging the most appropriate matching and integration of these system components. This relationship allows the Motor Challenge program to offer the most up-to-date advice, allowing end-users to make the most cost-effective decisions possible.

The Motor Challenge is a network of resources. It exists to supply free, unbiased, reliable information tailored to help make key decisions about motor system purchasing and design. That unbiased reliable information comes from experts in motor systems and peers in your field.

Motor Challenge serves those organizations for whom the energy consumed by electric motors and driven equipment comprises a significant portion of their energy use. Examples of these types of organizations are:

- Industrial end-users/manufacturers
- Water and Waste Water Facilities
- Certain Federal Facilities

Motor Challenge can help motor system end-users increase the productivity and reliability of their systems, reduce energy costs, and improve their bottom line.

## ***Motor Challenge at Work: Peabody Holding***

Peabody Holding, a large U.S. coal producer, recently improved the pumping system at its Randolph Coal Preparation Center. By replacing three parts — the motor, the belt drive, and the pump — Peabody realized savings of \$5,000 per year from improvements in a single 100 horsepower system. In conjunction with U.S. Electric Motors, Georgia Iron Works Industries, Illinois Power Co., and The Benham Group, Peabody sponsored a Motor Challenge Showcase Demonstration, with power savings validated by an independent DOE performance audit.

The Randolph plant operates six cyclone pumps as part of its coal washing process. Each pump was equipped with a 10" suction and discharge, a 32" impeller, and was driven by a 100 horsepower motor with a V-belt drive. By replacing the motor with an energy efficient model, replacing the V-belt with a toothed belt, and by reducing the pump and impeller size, the operating cost of a single pumping system was reduced by \$5,000 annually.

## ***Motor Challenge Partnership***

There are several ways to participate in the Motor Challenge program, but all start with becoming a Motor Challenge Partner. Motor Challenge Partners are organizations that are collaborating with DOE to encourage increased market penetration of energy efficient motor systems. An organization that signs on as a Partner of the Motor Challenge sends a message to its employees that energy efficiency is an important consideration when developing electric motor system management strategies and decisions. Partners also play a key role in helping guide the program to ensure that it continues to meet the needs of U.S. industry.

Motor Challenge Partners receive many benefits. Partners and any of their employees may register for and receive a copy of MotorMaster, motor selection software with over 18,000 motor listings in its database. Partners also have access to the Motor Challenge Information Clearinghouse, which provides reliable and up-to-date information on energy efficient electric motor systems through technical assistance and a variety of free publications. In addition, partners receive the quarterly "Turning Point" and updates about the Motor Challenge program and upcoming activities and events.

To become a Partner, an organization simply needs to complete the Motor Challenge Partner Application and either the End-user Agreement, or the Non End-user Agreement, depending upon the activities in which the organization is involved (this is explained in detail on the application form).

## ***Motor Challenge Allied Partnership***

Allied Partners are private companies who provide industrial motor systems equipment and services to industry. They also include a number of organizations and Government agencies which offer assistance and programs that benefit industry. These companies join Motor Challenge because it offers them opportunities to help their customers achieve

motor system efficiency. As Allied Partners, they gain access to Motor Challenge information and tools to assist customers in learning about the benefits of efficient electric motor systems.

More than 200 companies have enrolled as Motor Challenge Allied Partners since the initiative began in 1995.

Becoming an Allied Partner offers many opportunities to enhance visibility with customers and build leads. Allies are affiliated with a National initiative sponsored by the Department of Energy with the aim of providing unbiased information and education in motor systems management. Allies can keep current with new developments in the field through newsletters, technical publications, and case studies, and by attending workshops and informational meetings on motor system technologies and practices. Allies also have access to a broad array of educational tools and publications. Allies can offer their customers Motor Challenge technical publications, software decision making tools, and training modules at little or no cost. To date, Allied Partners have ordered over 100,000 Motor Challenge tools and publications for distribution to industry customers, positioning your company as a credible resource for industrial customers. Allies often have opportunities to make presentations in Motor Challenge sponsored workshops, meetings, and conferences to help industry make informed purchase and management decisions.

### ***MotorMaster+ Software***

The MotorMaster+ Software is an integrated motor selection and maintenance package which provides companies with the selection tools necessary to assure a correct motor-to-installation match. The package contains a database which carries up-to-date information on more than 13,800, 3-phase National Electric Manufacturers Association Design A and B induction motors. The motors range from 1 to 600 horsepower, and have speeds ranging from 900 to 3600 RPM. The database tracks motor efficiency (as measured by the Institute for Electronic and Electrical Engineers (IEEE) 112 Test Method B protocol), part-load efficiency, power factor, full-load speed, torque, voltage, list price, warranty, utility rebate schedules and rebate qualification requirements. Price, performance and efficiency can easily be compared among a number of motors appropriate for a given task. In addition, MotorMaster+ software can track motor inventory, operational data, life cycle cost forecasting, and energy accounting and evaluation through its Savings Tracker module.

### ***ASDMaster Software***

Control of process equipment using electronic adjustable speed drives (ASDs) offers significant opportunity to save energy and improve operations. However, the effects of ASDs on process systems are not always well understood by application engineers. To simplify the process of learning about, analyzing, and specifying an ASD application, the Electric Power Research Institute (EPRI) Adjustable Speed Drive Demonstration Office (ASDO), in cooperation with the Bonneville Power Administration, has developed the ASDMaster software. Designed with the layperson in mind, ASDMaster provides a suite

of educational materials and software tools that are useful to a range of users from persons with little or no experience applying ASDs, to experienced ASD application engineers looking for accurate, user friendly analysis software.

ASDMaster is a windows-based software package consisting of six different modules designed to educate and assist users in the proper application of ASDs. A software instruction module and text are included to educate users on the process effects, technology, and power quality issues associated with ASDs. Analysis tools assist users in the accurate, total systems-based analysis of the energy and production benefits associated with ASDs. A simultaneous analysis is performed on constant speed controls for comparison. ASDMaster also contains a specification tool that assists users in writing a solid performance specification for an ASD just by answering the appropriate questions and filling in the blanks. Finally, ASDMaster's Database module directs users to manufacturers with ASDs that can meet their needs, generating a bid-list and contact information with just a few button-clicks.

To order a copy of ASDMaster, or to receive more information about the product, call the EPRI ASDO today at 1-800-982-9294.

*For more information, contact:*

**The Motor Challenge Information Clearinghouse**

P.O. Box 43171  
Olympia, WA 98504-3171

*Phone:* (800) 862-2086  
*Fax:* (360) 586-8303  
*E-mail:* [motors@eicbbs.wseo.wa.gov](mailto:motors@eicbbs.wseo.wa.gov)  
*Website:* [www.motor.doe.gov](http://www.motor.doe.gov)

Or contact one of the following regional offices:

*Office:* **Atlanta Support Office**

*Contact:* Tim Eastling

*Address:* 730 Peachtree Street  
Suite 876  
Atlanta, GA 30308

*Phone:* (404) 347-7141

*Fax:* (404) 347-3098

*States:* NC, TN, NC, SC, GA, AL, FL, MS, LA, AK plus PR, VI and US Caribbean possessions

*Office:* **Boston Support Office**

*Contact:* Lili Griffin

*Address:* JFK Federal Building  
Room 675  
Boston MA 02203-0002

*Phone:* (617) 565-9714

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*States:* ME, VT, NH, CT, RI, MA, NY

*Office:* **Chicago Support Office**

*Contact:* Sharon Gill

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# National Industrial Competitiveness Through Energy, Environment, and Economics (NICE<sup>3</sup>)

- OBJECTIVE:** To facilitate the commercialization of technologies that promote energy efficiency, clean production, and economic competitiveness in industry
- ELIGIBILITY:** Cooperative State/private efforts meeting certain criteria
- SERVICES:** NICE<sup>3</sup> provides one-time funding of up to \$425,000 for projects selected on a competitive basis. Non-Federal cost-share of at least 55% of the total project cost is required.
- WEBSITE:** [www.oit.doe.gov/nice3](http://www.oit.doe.gov/nice3)

## ***Description***

The U.S. Department of Energy (DOE), Office of Industrial Technologies (OIT) sponsors an innovative, cost-sharing program to promote energy efficiency, clean production, and economic competitiveness in industry. The grant program, known as NICE<sup>3</sup>, provides funding to state and industry partnerships (large and small business) for projects that develop and demonstrate advances in energy efficiency and clean production technologies. NICE<sup>3</sup> has sponsored 91 projects, with more than half going to small businesses. NICE<sup>3</sup> has leveraged \$26.3 million in Federal funds, with \$81.8 million in State and industry funds since 1991.

The goals of the NICE<sup>3</sup> program are to provide U.S. industry with new technologies/processes which save energy, the environment, and money while providing U.S. consumers with high-quality, lower-cost goods. This goal is accomplished by:

- funding first time industrial demonstrations of innovative technologies/processes;
- reporting the results of those demonstrations;
- commercializing the technologies/processes throughout applicable industries.

Industry applicants must submit project proposals through a State energy, pollution prevention, or business development office. Industry/State awardees receive a one-time grant of up to \$425,000 for the proposed project. Grants fund up to 50% of total project cost for up to 3 years. The FY 99 solicitation opens on May 3, 1999. Instructions and other information regarding the solicitation will be available on this website after that date.

NICE<sup>3</sup> selection criteria fall into three categories. Preference is given to projects based on environmental impact, industrial classification, and success in improving the competitiveness of the underlying process. DOE lists the following specific criteria:

- Concept Description
- Energy Savings
- Innovation/Project Tasks
- Commercialization/Technology Transfer

- Economic Competitiveness
- Environmental (Waste) Impacts

Because of their energy- and waste-intensive nature, further preference is given to projects that promote the visions of the industries in the Office of Industrial Technologies' Industries of the Future initiative, including the agriculture, aluminum, chemicals, forest products, glass, metalcasting, mining, petroleum refining, and steel industries. Several areas have been excluded from the program, including nuclear waste and radiation; electromagnetic radiation (EMF); waste treatment and disposal; hazardous waste site remediation; cross-media contamination shifts; municipal solid waste collection or separation; and noise abatement.

### **1999-2000 Timeline**

The new solicitation opens May 3, 1999, and closes September 1, 1999, though some States may have their own earlier deadlines for submission to their offices. The National Selection Panel activities are to be completed by December 10, 1999. Awards announcements will be made on or about January 15, 2000.

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 NC, SC, TN, VI)

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# Regional Resource Centers for Innovation

**Regional Resource Centers for Innovation (RRCI)** provide

- Networks of regional, State, and local professionals who can facilitate business development and technology commercialization;
- Assistance in connecting small business grantees of the Inventions and Innovation Program (I&I) with this network of experts to advance their technologies to the next stage of development;
- Access to information and tools on U.S. Department of Energy (DOE) Office of Industrial Technologies (OIT) programs that promote energy efficient and clean production in the Industrial manufacturing sector.

The RCIs promote networking among the various regional, State, and local specialists who provide services to inventors and small business innovators. This networking facilitates the rapid deployment of I&I technologies that provide solutions for the energy challenges facing the U.S.

RCIs are developing partnerships with interested individuals and organizations specialized in the following areas in order to better assist inventors and innovators to commercialize their ideas:

- small business development
- project and product definition
- economic development
- market assessments
- new venture financing
- overall commercialization process
- small business investment
- intellectual property
- business planning
- economic analysis
- licensing

New technology fuels the engine of American economic development. Since World War II, new technology has spurred approximately half the U.S. economy's growth. Yet the process of commercialization fails all but a few of even the most promising technologies. The Northeast Regional Resource Center for Innovation recognizes that small businesses need support in order to develop new innovations and technologies. By encouraging the development of energy-saving, low emissions technologies DOE fosters solutions that lower greenhouse gas emissions, avoid further climate change, and reduce U.S. dependence on imported fossil fuels to meet basic energy needs.

DOE fosters networks of regional, State, and local business professionals that can facilitate business development.

## **Commercialization Assistance to I&I Grantees**

The Inventions and Innovation program (I&I) provides individual inventors and small businesses financial assistance for establishing technical performance and promoting development of innovative ideas and inventions. DOE offers R&D grants to develop technologies that have a significant energy efficiency impact and future commercial market potential through a competitive solicitation process.

The I&I program, through the RRCIs, gives grantees nonfinancial support by helping them find commercial sponsors, business plan resources, and additional funding sources through a network of business development/technology transfer experts. Examples of potential program support and resources include:

- Feedback and support during the development and commercialization process;
- Mentoring for project development planning and management;
- Training and learning centers for business planning;
- Regional, state, and local level support for economic development;
- Incubation centers specializing in small technology businesses;
- Internet sites and information relevant to energy-related innovations;
- Technology conferences and trade shows;
- Forums with financial investors interested in energy-related businesses.

### *For more information:*

Contact one of the following RRCI directors listed on the next page.

For information on upcoming events, workshops, solicitation schedules, requests for proposals, and deadlines is posed on the Internet at **[www.oit.doe.gov/inventions](http://www.oit.doe.gov/inventions)**. You can also learn more by requesting materials from the Energy Efficiency and Renewable Energy Clearinghouse (EREC) at 1-800-363-3732 (800.DOE.EREC).

## **Regional Resource Centers for Innovation Contacts**

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### **Far West Region**

Operated by Pacific Northwest National Laboratory (PNNL)

*Contact:* Nancy Moore  
*Phone:* 509-372-4299

*Serving:* AK, CA, HI, OR, WA

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### **West Region**

Operated by the Idaho National Engineering & Environmental Laboratory (INEEL)

*Contact:* Ann Rydalch

*Phone:* 208-526-1010

*Serving:* AZ, ID, MT, ND, NM, NV, SD, UT,  
and WY

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### **Central Region**

Operated by the National Renewable Energy Laboratory (NREL)

*Contact:* Lynnae Boyd  
*Phone:* 303-275-2995

*Serving:* CO, IA, KS, MN, MO, NE, OK, TX,  
and WI

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**Southeast Region**

Operated by Oak Ridge National Laboratory  
(ORNL)

*Contact:* David Jamison

*Phone:* 423-576-9679

*Serving:* AL, AR, FL, GA, KY, LA, MS, NC,  
PR, SC, TN, VA, VI, and WV

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**Northeast Region**

Operated by the Northeast-Midwest Institute  
(NEMW)

*Contact:* Diane DeVaul

*Phone:* 202-544-5200

*Serving:* CT, DE, IL, IN, MA, MD, ME, MI,  
NH, NJ, NY, OH, PA, RI, and VT

## **Small Business Initiative Program**

In mid 1993 the Department of Energy's (DOE's) Defense Programs organization started the Small Business Initiative Program (SBI) to provide technical support to the Nation's small businesses. The mission of this program is to transfer technology to U.S. small-businesses in ways that contribute to U.S. industrial competitiveness. The program lets qualified businesses tap into advanced technical capabilities that have been developed and refined over the past 50 years as part of our National defense mission.

The assistance provided is in the form of up to \$5,000 of work performed by Sandia scientists. The technical assistance service is offered free of charge to qualified businesses. It is available on a first-come, first-served basis, and is generally limited to one request per business per year. There is a \$5,000 cap on our expenditures per technical assistance request. Technical assistance is also contingent upon the availability of qualified personnel to perform the required work. Some services are offered without cost; others are available on a cost-shared or cost-recovery basis. In providing technical assistance, Sandia will not compete with technical services that can be obtained from commercial concerns.

To qualify for our SBI Program, your business must meet not have more than 500 employees and must meet small business standards described in Section 3 (a) of the Small Business Act [15 U.S.C. 632(a)]. In addition, it must be independently owned and operated, and not a subsidiary or division of a larger firm. The business must be organized for profit and have its principal place of business located in the United States. If privately owned, at least 51% owned by citizens of the United States or lawfully admitted permanent resident aliens; if publicly owned, at least 51% of its voting stock must be owned by U.S. citizens or lawfully admitted permanent resident aliens.

*For more information:*

**Small Business Initiative Program**

Sandia National Laboratories

P.O. Box 969, MS 9141

Livermore, CA 94551

*Phone:* (800) 294-8358, Ext. 1

*Fax:* (510) 294-3389

*Website:* [www.ca.sandia.gov/casite/sbi.html#Technical Assistance](http://www.ca.sandia.gov/casite/sbi.html#Technical Assistance)

## **Solicitation for Plant-Wide Energy Efficiency Assessments**

Oak Ridge National Laboratory (ORNL), on behalf of the U.S. Department of Energy's (DOE) Office of Industrial Technologies (OIT), is interested in obtaining proposals from industrial manufacturing plant sites for plant-wide assessments that will lead to substantial improvements in industrial energy efficiency, waste reduction, productivity, and global competitiveness. The overall goal of such plant assessments is to develop a comprehensive strategy that will significantly increase plant energy efficiency and reduce environmental emissions. In this regard, ORNL strongly encourages industrial sites to work closely with their resources and equipment suppliers, engineering firms, and other third party entities. Funding of up to \$75,000 is available for each project selected with an industrial cost share of at least 50% required. It is anticipated that multiple awards will be made in FY 1999, and possibly more in FY 2000.

Industrial sites that take a comprehensive, plant-wide systems approach to increasing energy efficiency and reducing environmental emissions are of interest. Specifically proposals are sought where teams will be considering the adoption of best available and emerging technology using state-of-the-art tools, information, process engineering techniques, and best practices for operating and planned plant support and process systems. Priority will be given to proposals for plant assessments from industrial sites that fall within the OIT Industry of the Future (IOF) initiative, including forest products, chemicals, petroleum, steel, aluminum, metalcasting, glass, mining, and agriculture.

It is expected that the plant assessments will address a variety of generic and industry-specific technology areas, and a variety of plant/process optimization methods. Proposers should also consider demand-side energy management best practices and technology implementation in plant steam delivery and process heating systems, electric-motor systems (including motors, drives, pumps, fans, blowers), compressed air systems, and heat exchange optimization (e.g., pinch technology), as well as, supply-side options using cogeneration and combined heat and power system technologies.

The results, successes, and experiences from these assessments will be published to encourage other U.S. industrial companies to adopt and implement a comprehensive, plant-wide systems approach to increasing energy efficiency and reducing environmental emissions. In this way, it is desired to increase the market penetration of energy efficient systems across U.S. industry and to increase industrial energy efficiency, waste reduction, productivity and global competitiveness. Participating plants will be made aware of, and provided technical assistance to accessing all OIT Industries of the Future emerging technology and best practices, tools and information resources that could assist the plants in implementing the most cost-effective state-of-the-art technology.

The request for proposals (RFP) for the plant-wide energy efficiency assessments is expected to be released in April, 1999.

*Parties interested in receiving the RFP should contact::*

**Mitch Olszewski**

Oak Ridge National Laboratory

PO Box 2009

Building 9102-1, MS 8038

Oak Ridge, TN 37831

*Phone:* 423-574-0770

*Fax:* 423-576-0493

*E-mail:* zmo@ornl.gov

Please include the following statement: Please send a copy of the Plant-Wide “Industries of the Future” Energy Efficiency Assessments RFP to: [include your name, company, address, phone, fax, and e-mail address].

# Steam Challenge

Steam Challenge is a voluntary program that provides information and technical assistance to companies that have questions about their steam systems and are interested in pursuing opportunities to increase steam system efficiency.

Steam Challenge is dedicated to

- Improving industrial competitiveness through enhanced productivity and lower production costs;
- Providing steam plant operators with the tools and technical assistance they need to improve the efficiency of their steam plants; and,
- Promoting greater awareness of the energy and environmental benefits of efficient steam systems through improved technology and operation.

By offering a variety of tools and services the Steam Challenge program seeks to help companies identify and implement projects that will help enhance safety, save money, improve productivity, and lower emissions. Steam Challenge tools and services currently include

- Fact Sheets
- Brochures
- Checklists
- Guidebooks
- Software
- Case Studies
- Demonstrations
- Seminars
- Training
- Workshops
- Conferences
- Referrals
- Access to Steam Efficiency Experts
- Answers to Your Steam-Related Questions

For industrial steam system owners and operators, Steam Challenge is a voluntary program you can join that will give you access to targeted information on steam system efficiency.

For suppliers of steam-related technologies, there is the Steam Team, which will enable providers of steam products and services to provide input into the program and work together to promote “total steam system efficiency.” DOE, the Alliance to Save Energy and a technical advisory committee reviews all material before recommending it for use by industry.

*For more information, contact:*

**Steam Challenge Clearinghouse**  
P.O. Box 43165  
925 Plum St. SE  
Olympia, WA 98504-3171

*Phone:* (800) 862-2086

*Fax:* (360) 586-8303

*E-mail:* [steamline@energy.wsu.edu](mailto:steamline@energy.wsu.edu)  
*Website:* [www.oit.doe.gov/steam](http://www.oit.doe.gov/steam)

## Manufacturing Extension Partnership (MEP)

- OBJECTIVE:** To provide a National network of services to assist small manufacturing establishments adopt modern technologies and business practices
- ELIGIBILITY:** Manufacturing firms with fewer than 500 employees.
- COST:** Fee structures for client firms vary depending on the service(s) requested and the center that is involved.
- SERVICES:** Technical assistance for improving productivity and efficiency
- WEBSITE:** [www.mep.nist.gov](http://www.mep.nist.gov)

The **Manufacturing Extension Partnership** (MEP) links Federal support with State and local organizations to assist small manufacturers in adopting modern technologies and business practices that help increase their competitive ability in the global marketplace. The goal of the MEP is to provide smaller firms, who are unable to realize their full potential because of a lack of access to technological resources, an upper hand in this environment.

MEP is a nationwide network of more than 70 not-for-profit Centers whose sole purpose is to provide small and medium-sized manufacturers with the help they need to succeed. The Centers, located in all 50 states and Puerto Rico, are linked together through the Department of Commerce's National Institute of Standards and Technology. That makes it possible for even the smallest firms to have access to more than 2,000 knowledgeable manufacturing and business specialists. These are people who have had experience on manufacturing floors and in plant operations. They've been where you are today.

MEP services include helping businesses assess their technology and business needs, developing specific improvements to increase productivity, and providing guidance with manufacturing processes, worker training, personnel, marketing, financing, and quality issues. Some centers also offer demonstrations of new technologies. MEP staff work individually with manufacturers, as well as with groups of manufacturers who share common needs. Each center's assistance programs vary according to the needs of the region's manufacturing base, but each is connected electronically to a National network, allowing access to a nationwide pool of knowledge, services, and technology.

The combination of each Center's local expertise and their access to National resources aids the work MEP can do for your company. MEP has assisted more than 62,000 firms. Here are some examples where MEP has helped other firms:

- Process improvement
- Business management systems
- Market development
- Quality management systems
- Human resource development
- Materials engineering

- Plant layout
- Energy audits
- financial planning
- Electronic commerce/EDI
- Product development
- Environmental studies
- CAD/CAM/CAE

*For more information, contact:*

**The Manufacturing Extension Partnership**

100 Bureau Drive

Stop 4800

Building 301, Room C121

National Institute of Standards and Technology

Gaithersburg, MD 20899-0001

*Phone:* (301) 975-5020

*Fax:* (301) 963-6556

*Website:* [www.mep.nist.gov](http://www.mep.nist.gov)

Or contact your local center directly using the following directory. Call toll free 1-800-MEP 4 MFG and your call will be automatically routed to the MEP Center that serves your region.

# Manufacturing Extension Center Directory

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**Alabama**

Alabama Technology Network

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**Alaska**

Alaska Manufacturing Extension Partnership

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**Arizona**

Industry Network Corporation (INC)

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**Arkansas**

Arkansas Manufacturing Extension Network

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**California**

California Manufacturing Technology Center (CMTC)

The Corporation for Manufacturing Excellence (Manex)

San Diego Manufacturing Extension Center, Inc.

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**Colorado**

Mid-America Manufacturing Technology Center (MAMTC)

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**Connecticut**

Connecticut State Technology Extension Program (CONN/STEP)

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**Delaware**

Delaware Manufacturing Extension Partnership

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**Florida**

Florida Manufacturing Technology Center

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**Georgia**

Georgia Manufacturing Extension Partnership

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**Hawaii**

Hawaii Manufacturing Extension Center

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**Idaho**

Idaho Tech Help

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**Illinois**

Chicago Manufacturing Center

Illinois Manufacturing Extension Center

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**Indiana**

Indiana Business Modernization and Technology Corporation (Indiana BMT)

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**Iowa**

Iowa Manufacturing Technology Center (Iowa MTC)

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**Kansas**

Mid-America Manufacturing Technology Center (MAMTC)

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**Kentucky**

Kentucky Technology Service

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**Louisiana**

Louisiana Manufacturers Technical Extension Center

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**Maine**

Maine Manufacturing Extension Partnership

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**Maryland**

Maryland Technology Extension Service (MTES)

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**Massachusetts**

Massachusetts Manufacturing Partnership (MMP)

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**Michigan**

Michigan Manufacturing Technology Center (MMTC)

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**Minnesota**

Minnesota Technology Inc.

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**Mississippi**

Mississippi Polymer Institute (MPI) and Pilot Manufacturing Extension Center (PMEC)

Mississippi Technology Extension Partnership

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**Missouri**

Mid-America Manufacturing Technology Center (MAMTC)

MAMTC Missouri Rolla Regional Office

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**Montana**

Montana Manufacturing Extension Center

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**Nebraska**

Nebraska Industrial Competitiveness Service (NICS)

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**Nevada**

Nevada Manufacturing Extension Partnership

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**New Hampshire**

Manufacturing Extension Partnership of New Hampshire Inc.

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**New Jersey**

New Jersey Manufacturing Extension Partnership

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**New Mexico**

Industry Network Corporation

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**New York**

New York Manufacturing Extension Partnership (New York MEP)

Alliance for Manufacturing and Technology (AM&T)

Center for Economic Growth

Central New York TDO

CI-TEC

High Technology of Rochester

Hudson Valley Technology Development Center (HVTDC)

Industrial Technology Assistance Corporation (ITAC)

Long Island Forum for Technology (LIFT)

Mohawk Valley Applied Technology Commission

Western New York Technology Development Center

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**North Carolina**

North Carolina Manufacturing Extension Partnership

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**North Dakota**

North Dakota Manufacturing Technology Partnership (NDMTP)

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**Ohio**

Great Lakes Manufacturing Technology Center (GLMTC)

Miami Valley Manufacturing Extension Center

Lake Erie Manufacturing Extension Partnership

Plastics Technology Deployment Center (PTDC)

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**Oklahoma**

Oklahoma Alliance for Manufacturing Excellence

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**Oregon**

Oregon Manufacturing Extension Partnership

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**Pennsylvania**

North/East Pennsylvania Manufacturing Extension Partnership and Manufacturers Resource Center (MRC)

Southeastern Pennsylvania Manufacturing Extension Partnership, Delaware Valley Industrial Resource Center (DVIRC), and MANTEC Inc. the Manufacturers Technology Center

Industrial Modernization Center (IMC) and

Northeastern Pennsylvania Industrial Resource Center (NEPIRC)

Southwestern Pennsylvania Industrial Resource Center (SPIRC)

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**Puerto Rico**

Puerto Rico Manufacturing Extension, Inc (PRIMEX)

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**Rhode Island**

Rhode Island Manufacturing Extension Services

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**South Carolina**

South Carolina Manufacturing Extension Center (SCMEP)

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**South Dakota**

South Dakota Manufacturing Extension Partnership Center

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**Tennessee**

Tennessee Manufacturing Extension Partnership

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**Texas**

Texas Manufacturing Assistance Center

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**Utah**

Utah Manufacturing Extension Partnership

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**Vermont**

Vermont Manufacturing Extension Center

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**Virginia**

Virginia's A.L. Philpott Manufacturing Extension Partnership

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**Washington**

Washington Manufacturing Services

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**West Virginia**

West Virginia Manufacturing Extension Partnership (WVMEP)

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**Wisconsin**

Northwest Wisconsin Manufacturing Outreach Center (NWMOC)

Wisconsin Manufacturing Extension Partnership

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**Wyoming**

Mid-America Manufacturing Technology Center (MAMTC)

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**National**

National Center for Printing, Publishing and Imaging

National Metal Finishing Resource Center (NMFRC)

## **National Technology Transfer Network**

**OBJECTIVE:** To disseminate technology and information findings

**ELIGIBILITY:** Any U.S. company

**COST:** No initial cost for service

**SERVICES:** Guarantees commercial loans of up to \$750,000

**WEBSITE:** [www.nttc.edu](http://www.nttc.edu)

### ***The National Technology Transfer Network (NTTN)***

The NTTN is a NASA-funded program that provides access to the National network of research facilities as a one-stop-shop for technology transfer, licensing, technical assistance, and other business assistance programs. At the center of the program is the National Technology Transfer Network. The NTTN acts as a clearinghouse of information, and is augmented by six Regional Technology Transfer Centers (RTTCs). Programs offered by the NTTC are outlined below. The RTTCs offer additional commercialization and business management services. The RTTC in your area can be reached at 1-800-472-6785.

### ***The National Technology Transfer Center (NTTC)***

NTTC is the hub of a National network established by Congress to link U.S. companies with Federal laboratories to turn Government research results into practical, commercially-relevant technology. The Center's free Gateway Service, staffed by specialists in biology, physics, chemistry, computer sciences, and the various branches of engineering, provides private sector callers with person-to-person contacts in the Federal laboratory system. NTTC technology agents have facilitated requests in a wide range of areas including materials, computer and information systems, biotechnology, agriculture, transportation, energy and environmental innovations, electronics, and defense-related R & D with commercial applications.

The center also conducts National outreach and promotional activities to improve U.S. private sector awareness of technology transfer resources and opportunities. NTTC assists Federal laboratories in finding partners to develop and commercialize new technologies. The Center works closely with the Federal Laboratory Consortium, Federal, State, and local economic development authorities, academia, companies and industry associations, and makes referrals to the six RTTCs, which assist companies with customized services for licensing and other commercialization areas.

#### ***To contact the NTTC:***

The NTTC's Gateway Service operates between 8:30 am and 5:00 pm, EST at 800-678-6882 or visit their website at [www.nttc.edu](http://www.nttc.edu).

# Regional Technology Transfer Centers (RTTC)

## **National Technology Transfer Center (NTTC)**

Wheeling Jesuit University  
Wheeling, West Virginia 26003  
David Moran, Ph.D., President  
*Phone:* (304) 243-2462  
*E-mail:* dmoran@nttc.edu

## **Far-West**

Technology Transfer Center  
University of Southern California  
3716 South Hope Street, Suite 200  
Los Angeles, California 90007-4344  
Kenneth E. Dozier, Jr., Executive Director  
*Phone:* (213) 743-2353  
*E-mail:* kdozier@bcf.usc.edu  
*Website:* www.usc.edu/dept/engineering/TTC

## **Mid-Continent**

Texas Engineering Extension Service  
Texas A&M University System  
301 Tarrow Street  
College Station, Texas 77843-8000  
Gary Sera, Director  
*Phone:* (409) 845-8762  
*E-mail:* ecsera@teexnet.tamu.edu

## **Mid-West**

Great Lakes Industrial Technology Center  
25000 Great Northern Corp. Ctr., Suite 260  
Cleveland, Ohio 44070-5320  
Christopher Coburn, Executive Director  
*Phone:* (216) 734-0094  
*E-mail:* coburnc@battelle.org

## **Northeast**

Center for Technology Commercialization, Inc.  
1400 Computer Drive  
Westborough, Massachusetts 01581  
William Gasko, Ph.D., Director  
*Phone:* (508) 870-0042  
*E-mail:* wgasko@ctc.org

## **Mid-Atlantic**

University of Pittsburgh  
3400 Forbes Avenue, 5th Floor  
Pittsburgh, Pennsylvania 15260  
Lani Hummel, Director  
*Phone:* (412) 383-2500  
*E-mail:* lhummel@mtac.pitt.edu

## **Southeast**

Southern Technology Application Center  
University of Florida College of Engineering  
Box 24  
One Progress Boulevard  
Alachua, Florida 32615-9987  
J. Ronald Thornton, Director  
*Phone:* (904) 462-3913  
*E-mail:* jrthorn@nervm.nerdc.ufl.edu

## Small Business Development Centers

- OBJECTIVE:** To provide information to existing and prospective small business owners and operators
- ELIGIBILITY:** Existing or prospective small business owners and operators, entrepreneurs, or persons interested in exploring small business activity
- COST:** Initial consultations are generally free; charges may be levied for additional services
- SERVICES:** Business and management counseling, training, and technical assistance
- WEBSITE:** [www.sba.gov/SBDC](http://www.sba.gov/SBDC)

The U.S. **Small Business Administration (SBA)** administers the **Small Business Development Center** program to provide management assistance to current and prospective small business owners. SBDCs offer one-stop assistance to small businesses by providing a wide variety of information and guidance in central and easily accessible branch locations.

The program is a cooperative effort of the private sector, the educational community, and Federal, State and local governments. It enhances economic development by providing small businesses with management and technical assistance.

There are now 57 small business development centers — one in every State (Texas has four), the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands — with a network of nearly 1,000 service locations. In each State there is a lead organization which sponsors the SBDC and manages the program. The lead organization coordinates program services offered to small businesses through a network of subcenters and satellite locations in each State. Subcenters are located at colleges, universities, community colleges, vocational schools, chambers of commerce, and economic development corporations.

SBDC assistance is tailored to the local community and the needs of individual clients. Each center develops services in cooperation with local SBA district offices to ensure statewide coordination with other available resources.

Each center has a director, staff members, volunteers, and part-time personnel. Qualified individuals recruited from professional and trade associations, the legal and banking community, academia, chambers of commerce, and SCORE (the Service Corps of Retired Executives) are among those who donate their services.

SBDCs also use paid consultants, consulting engineers, and testing laboratories from the private sector to help clients who need specialized expertise.

The SBA provides 50% or less of the operating funds for each State SBDC; one or more sponsors provide the rest. These matching fund contributions are provided by State legislatures, private sector foundations and grants, State and local chambers of commerce, state-chartered economic development corporations, public and private universities, vocational and technical schools, community colleges, etc. Increasingly, sponsors contributions exceed the minimum 50% matching share.

The SBDC program is designed to deliver up-to-date counseling, training, and technical assistance in all aspects of small business management. SBDC services include, but are not limited to, assisting small businesses with financial, marketing, production, organization, engineering and technical problems and feasibility studies. Special SBDC programs and economic development activities include international trade assistance, technical assistance, procurement assistance, venture capital formation and rural development.

The SBDCs also make special efforts to reach minority members of socially and economically disadvantaged groups, veterans, women, and the disabled. Assistance is provided to both current or potential small business owners. They also provide assistance to small businesses applying for Small Business Innovation and Research (SBIR) grants from Federal agencies.

Assistance from an SBDC is available to anyone interested in beginning a small business for the first time or improving or expanding an existing small business, who cannot afford the services of a private consultant.

In addition to the SBDC Program, the SBA has a variety of other programs and services available. They include training and educational programs, advisory services, publications, financial programs, and contract assistance. The agency also offers specialized programs for women business owners, minorities, veterans, international trade and rural development.

*To contact the SBA:*

SBA has offices located throughout the country. To obtain a listing of offices in your State call SBA at 1-800-U-ASK-SBA, or consult the following phone directory.

**Telephone Guide for SBA Small Business Development Centers**

University of Alabama, Birmingham, AL	(205) 934-7260
University of Alaska/Anchorage, Anchorage, AK	(907) 274-7232
Maricopa County Community College, Tempe, AZ	(602) 731-8202
University of Arkansas, Little Rock, AR	(501) 324-9043
California Trade and Commerce Agency, Sacramento, CA	(916) 324-5068
Office of Business Development, Denver, CO	(303) 892-3809
University of Connecticut, Storrs, CT	(203) 486-4135
University of Delaware, Newark, DE	(302) 831-2747
Howard University, Washington, DC	(202) 806-1550
University of West Florida, Pensacola, FL	(904) 444-2060
University of Georgia, Athens, GA	(706) 542-6762
University of Hawaii at Hilo, Hilo, HI	(808) 933-3515

Boise State University, Boise, ID	(208) 385-1640
Dept. of Commerce & Community Affairs, Springfield, IL	(207) 524-5856
Economic Dev. Council, Indianapolis, IN	(317) 264-6871
Iowa State University, Ames, IA	(515) 292-6351
Fort Hays State University, Hays, KS	(785) 296-6514
University of Kentucky, Lexington, KY	(606) 257-7668
Northeast Louisiana University, Monroe, LA	(318) 342-5506
University of Southern Maine, Portland, ME	(207) 780-4420
University of Maryland, College Park, MD	(301) 405-2147
University of Massachusetts, Amherst, MA	(413) 545-6301
Wayne State University, Detroit, MI	(313) 577-4848
Dept. of Trade and Economic Development St. Paul, MN	(612) 297-5770
University of Mississippi, University, MS	(601) 232-5001
University of Missouri, Columbia, MO	(314) 882-0344
Department of Commerce, Helena, MT	(406) 444-4780
University of Nebraska at Omaha, Omaha, NE	(402) 554-2521
University of Nevada in Reno, Reno, NV	(702) 784-1717
University of New Hampshire, Durham, NH	(603) 862-2200
Rutgers University, Newark, NJ	(201) 648-5950
Santa Fe Community College, Santa Fe, NM	(505) 438-1362
State University of New York, Albany, NY	(518) 443-5398
University of North Carolina, Raleigh, NC	(919) 571-4154
University of North Dakota, Grand Forks, ND	(701) 77-3700
Dept. of Development, Columbus, OH	(614) 466-2711
S.E. Oklahoma State University, Durant, OK	(405) 924-0277
Lane Community College, Eugene, OR	(503) 726-2250
University of Pennsylvania, Philadelphia, PA	(215) 898-1219
Inter American University, Hato Rey, PR	(787) 763-5108
Bryant College, Smithfield, RI	(401) 232-6111
University of South Carolina, Columbia, SC	(803) 777-4907
University of South Dakota, Vermillion, SD	(605) 677-5498
University of Memphis, Memphis, TN	(901) 678-2500
Dallas Community College, Dallas, TX	(214) 565-5833
University of Houston, Houston, TX	(713) 752-8444
Texas Tech University, Lubbock, TX	(806) 745-3973
University of Texas at San Antonio, San Antonio, TX	(210) 558-2450
Salt Lake City Community College, Salt Lake City, UT	(801) 957-3481
Vermont Technical College, Randolph Center, VT	(802) 728-9101
University of the Virgin Islands, St. Thomas, US VI	(809) 776-3206
Dept. of Economic Development, Richmond, VA	(804) 371-8258
Washington State University, Pullman, WA	(509) 335-1576
Governor's Office of Community and Industrial Development, Charleston, WV	(304) 558-2960
University of Wisconsin, Madison, WI	(608) 263-7794
University of Wyoming, Laramie, WY	(307) 766-3505

## **Small Business Development Centers Network**

\* Lead Small Business Development Center

\*\* Specialized Center

# Historical Black College/University

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### **California Small Business Development Center**

California Trade and Commerce Agency\*

Ms. Kim Neri, State Director

801 K Street, Suite 1700

Sacramento, CA 95814

*Phone:* (916) 324-5068

(800) 303-6600

*Fax:* (916) 322-5084

*Website:* [commerce.ca.gov/business/small/starting/sb\\_sbdc.html](http://commerce.ca.gov/business/small/starting/sb_sbdc.html)

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### **Central Coast Small Business Development Center**

Ms. Teresa Thomae, Director

6500 Soquel Drive

Aptos, CA 95003

*Phone:* (831) 479-6136

*Fax:* (831) 479-6166

*E-mail:* [tethomae@cabrillo.cc.ca.us](mailto:tethomae@cabrillo.cc.ca.us)

*Website:* [www.businessonline.org](http://www.businessonline.org)

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### **Sierra College**

Small Business Development Center

Ms. Mary Wollesen, Director

560 Wall Street, Suite J

Auburn, CA 95603

*Phone:* (530) 885-5488

*Fax:* (530) 823-2831

*E-mail:* [smallbuz@sierra.campus.mci.net](mailto:smallbuz@sierra.campus.mci.net)

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### **Weill Institute Small Business Development Center**

Mr. Jeffrey Johnson, Director

1706 Chester Ave., Ste. 200

Bakersfield, CA 9330

*Phone:* (805) 322-5881

*Fax:* (805) 322-5663

*E-mail:* [weill@lightspeed.net](mailto:weill@lightspeed.net)

*Website:* [www.kccd.cc.ca.us/sbdc.html](http://www.kccd.cc.ca.us/sbdc.html)

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### **Butte College**

Small Business Development Center

Ms. Sophie Konuwa, Director

260 Cohasset Road, Suite A

Chico, CA 95926

*Phone:* (530) 895-9017

*Fax:* (530) 895-9099

*E-mail:* [konuwaso@butte.cc.ca.us](mailto:konuwaso@butte.cc.ca.us)

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### **Southwestern College**

International Trade Center\*\*

Small Business Development Center

Ms. Mary Wylie, Director

900 Otay Lakes Road, Bldg. 1600

Chula Vista, CA 91910

*Phone:* (619) 482-6391

*Fax:* (619) 482-6402

*E-mail:* [mwylie@sbditc.org](mailto:mwylie@sbditc.org)

*Website:* [www.sbditc.org](http://www.sbditc.org)

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### **Contra Costa Small Business Development Center**

Mr. Maurice Williams, Director

2425 Bisso Lane, Suite 200

Concord, CA 94520

*Phone:* (925) 646-5377

*Fax:* (925) 646-5299

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### **North Coast Small Business Development Center**

Ms. Fran Clark, Director

207 Price Mall, Suite 500

Crescent City, CA 95531

*Phone:* (707) 464-2168

*Fax:* (707) 465-6008

*E-mail:* [fransbdc@northcoast.com](mailto:fransbdc@northcoast.com)

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### **Imperial Valley Satellite**

Small Business Development Center

Ms. Debbie Trujillo, Manager

1240 State Street

El Centro, CA 92243

*Phone:* (760) 312-9800

*Fax:* (760) 312-9838

*E-mail:* [ivsbdc@quix.net](mailto:ivsbdc@quix.net)



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**Export Small Business Development Center**

El Monte Outreach Center  
Mr. Charles Blythe, Manager  
10501 Valley Blvd., Ste. 106  
El Monte, CA 91731  
*Phone:* (626) 459-4111  
*Fax:* (626) 443-0463  
*E-mail:* info@exportsbdc.org

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**Export SBDC of Southern California**

Ms. Gladys Moreau, Director  
222 North Sepulveda, Ste. 1690  
El Segundo, CA 90245  
*Phone:* (310) 606-0166  
*Fax:* (310) 606-0155  
*E-mail:* info@exportsbdc.org  
*Website:* www.exportsbdc.org

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**North Coast**

Small Business Development Center  
Ms. Fran Clark, Director  
520 E Street  
Eureka, CA 95501  
*Phone:* (707) 445-9720  
*Fax:* (707) 445-9652  
*E-mail:* fransbdc@northcoast.com

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**West Company Coast Office**

Small Business Development Center  
306 Redwood Avenue  
Fort Bragg, CA 95437  
*Phone:* (707) 964-7571  
*Fax:* (707) 964-7571

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**Central California SBDC**

Mr. Dennis Winans, Director  
3419 West Shaw Avenue, Suite 102  
Fresno, CA 93711  
*Phone:* (559) 275-1223  
(800) 974-0664  
*Fax:* (559) 275-1499  
*E-mail:* dennisw@csufresno.edu  
*Website:* www.ccsbdc.org

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**Gavilan College Small Business Development Center**

Mr. Peter Graff, Director  
7436 Monterey Street  
Gilroy, CA 95020  
*Phone:* (408) 847-0373  
*Fax:* (408) 847-0393  
*E-mail:* p.graff@gilroy.com  
*Website:* www.gavilansbdc.org

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**Pasadena Small Business Development Center**

Mr. David Ryal, Manager  
330 N. Brand, Suite 190  
Glendale, CA 91203  
*Phone:* (818) 552-3254  
*Fax:* (818) 398-3059

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**Amador Small Business Development Center**

1500 S. Highway 49  
P.O. Box 1077  
Jackson, CA 95642  
*Phone:* (209) 223-0351  
*Fax:* (209) 223-2261

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**Greater San Diego Chamber of Commerce**

Small Business Development Center  
Mr. Hal Lefkowitz, Director  
4275 Executive Square, Suite 920  
La Jolla, CA 92037  
*Phone:* (619) 453-9388  
*Fax:* (619) 450-1997  
*E-mail:* sbdc@smallbiz.org  
*Website:* www.smallbiz.org

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**Lakeport Small Business Development Center**

P.O. Box 1566  
Lakeport, CA 95453  
*Phone:* (707) 263-0330  
*Fax:* (707) 263-8516  
*E-mail:* 4833@sshare.com

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**South Central Los Angeles Small Business Development Center**

Cope Norcross, Manager  
3650 Martin Luther King Jr. Blvd. Suite 246  
Los Angeles, CA 90008  
*Phone:* (213) 290-2832  
*Fax:* (213) 290-7190  
*E-mail:* sbdcla@ibm.net

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**Alpine Chamber of Commerce & Visitor Authority**

3 Webster Street  
P.O. Box 265  
Markleeville, CA 96120  
*Phone:* (530) 694-2475  
*Fax:* (530) 694-2478

---

**Yuba College Small Business Development Center**

Mr. Jim Bengson, Interim Director  
429 10th Street  
P.O. Box 262 (mailing)  
Marysville, CA 95901  
*Phone:* (530) 749-0152  
*Fax:* (530) 749-0155

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**Valley Sierra Small Business Development Center**

Kelly Bearden, Director  
1012 Eleventh Street, Suite 400  
Modesto, CA 95354  
*Phone:* (209) 521-6177  
*Fax:* (209) 521-9373  
*E-mail:* bearden@scedco.org  
*Website:* www.smallbizcenter.org

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**Napa Valley College**

Small Business Development Center  
Mr. Chuck Eason, Director  
1556 First Street, Suite 103  
Napa, CA 94559  
*Phone:* (707) 253-3210  
*Fax:* (707) 253-3068  
*E-mail:* charles.eason@usa.net  
*Website:* home.quiknet.com/napasbdc

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**Inland Empire Business Incubator**

Mr. John O'Brien, Incubator Manager  
155 S. Memorial Drive  
Norton Air Force Base, CA 92509  
*Phone:* (909) 382-0065  
*Fax:* (909) 382-8543

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**East Bay Small Business Development Center**

Mr. Faheem Hameed, Director  
519 17th Street, Suite 210  
Oakland, CA 94612  
*Phone:* (510) 893-4114  
*Fax:* (510) 893-5532  
*E-mail:* sbdc@peralta.cc.ca.us

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**Coachella Valley/Palm Springs Satellite**

Small Business Development Center  
Mr. Brad Mix, Business Consultant  
500 S. Palm Canyon Drive, Suite 222  
Palm Springs, CA 92264  
*Phone:* (760) 864-1311  
*Fax:* (760) 864-1319

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**Eastern Los Angeles County**

Small Business Development Center  
Ms. Toni Valdez, Director  
375 South Main Street, Suite 101  
Pomona, CA 91766  
*Phone:* (909) 629-2247  
*Fax:* (909) 629-8310

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**Cascade Small Business Development Center**

Ms. Carole Enmark, Director  
737 Auditorium Drive, Suite A  
Redding, CA 96001  
*Phone:* (530) 225-2770  
*Fax:* (530) 225-2769  
*E-mail:* cenmark@awwwsome.com

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**Inland Empire Small Business Development Center**

Mr. Michael Stull, Director  
1157 Spruce Street (909) 781-2345  
Riverside, CA 92507  
*Phone:* (800) 750-2353  
*Fax:* (909) 781-2353  
*E-mail:* sbdc@winriverside.org  
*Website:* www.iesbdc.org

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**Greater Sacramento**

Small Business Development Center  
Ms. Cynthia Steimle, Director  
1410 Ethan Way  
Sacramento, CA 95825  
*Phone:* (916) 563-3210  
*Fax:* (916) 563-3266  
*E-mail:* steimlc@mail.do.losrios.cc.ca.us  
*Website:* www.losrios.cc.ca.us/oed/sbdc/  
sbdc.htm

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**San Francisco Small Business Development Center**

Mr. Tim Sprinkles, Director  
711 Van Ness Ave., Suite. 305  
San Francisco, CA 94102  
*Phone:* (415) 561-1890  
*Fax:* (415) 561-1894  
*E-mail:* sfsbdc@ziplink.net

---

**Orange County Small Business Development Center**

Mr. Gregory Kishel, Director  
901 East Santa Ana Boulevard  
Suite 101  
Santa Ana, CA 92701  
*Phone:* (714) 647-1172  
*Fax:* (714) 835-9008  
*E-mail:* gkishel@pacbell.net

---

**Westside SBDC**

Small Business Development Center  
Mr. Ken Davis, Administrative Assistant  
3233 Donald Douglas Loop South, Suite C  
Santa Monica, CA 90405  
*Phone:* (310) 398-8883  
*Fax:* (310) 398-3024

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**Redwood Empire Small Business Development Center**

Chris Facas, Director  
520 Mendocino Avenue, Suite 210  
Santa Rosa, CA 95401  
*Phone:* (707) 524-1770  
*Fax:* (707) 524-1772  
*E-mail:* chris\_facas@garfield.santarosa.edu  
*Website:* www.santarosa.edu/sbdc

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**San Joaquin Delta College**

Small Business Development Center  
Ms. Gillian Murphy, Director  
445 North San Joaquin Street  
Stockton, CA 95202  
*Phone:* (209) 943-5089  
*Fax:* (209) 943-8325  
*E-mail:* gmurphy@sjdccc.ca.us  
*Website:* www.inreach.com/sbdc

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**Solano County Small Business Development Center**

Ms. Beth Pratt, Director  
424 Executive Court North, Suite C  
Suisun, CA 94585  
*Phone:* (707) 864-3382  
*Fax:* (707) 864-8025  
*E-mail:* epratt@solano.cc.ca.us

---

**Silicon Valley Small Business Development Center**

Mr. Elza Minor, Director  
298 S. Sunnyvale Ave., Ste. 204  
Sunnyvale, CA 94086  
*Phone:* (408) 736-0680  
*Fax:* (408) 736-0679  
*E-mail:* rebecca@siliconvalley-sbdc.org  
*Website:* www.siliconvalley-sbdc.org

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**Southwest Los Angeles County**

Small Business Development Center  
Ms. Susan Hunter, Director  
2377 Crenshaw Blvd., Suite 120  
Torrance, CA 90501  
*Phone:* (310) 787-6466  
*Fax:* (310) 782-8607  
*Website:* www.swlasbdc.org

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**West Company Small Business Development Center**

Ms. Sheilah Rogers, Executive Director  
367 N. State St., Ste. 201  
Ukiah, CA 95482  
*Phone:* (707) 468-3553  
*Fax:* (707) 468-3555

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**North Los Angeles**

Small Business Development Center  
Ms. Wilma Berglund, Director  
4717 Van Nuys Blvd., Suite 201  
Van Nuys, CA 91403  
*Phone:* (818) 907-9922  
*Fax:* (818) 907-9890  
*E-mail:* VNsbdc@aol.com  
*Website:* www.vedc.org/sbdc

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**Export SBDC Satellite Center**

Ms. Heather Wicka, Manager  
5700 Ralston St., Ste. 310  
Ventura, CA 93003  
*Phone:* (805) 644-6191  
*Fax:* (805) 658-2252  
*E-mail:* esbdc@primenet.com

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**Gold Coast Small Business Development Center**

Mr. Joe Huggins, Manager/Business Counselor  
5700 Ralston St., Ste. 310  
Ventura, CA 93003  
*Phone:* (805) 658-2688  
*Fax:* (805) 658-2252  
*E-mail:* GCsbdc@aol.com

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**High Desert/Victorville Satellite**

Small Business Development Center  
Ms. Janice Moore, Manager/Business Consultant  
15490 Civic Drive, Suite 102  
Victorville, CA 92392  
*Phone:* (760) 951-1592  
*Fax:* (760) 951-8929

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**Central California/Visalia Satellite**

Small Business Development Center  
Mr. Randy Mason, Manager  
430 W. Caldwell Avenue, Suite D  
Visalia, CA 93277  
*Phone:* (559) 625-3051  
*Fax:* (559) 625-3053  
*E-mail:* wendim@csufresno.edu  
*Website:* www.ccsbdc.org

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**Gavilan College SBDC Satellite**

Small Business Development Center  
Ms. Genene Boldt  
Cuesta College  
Highway 1/P.O. Box 8106  
San Luis Obispo, CA 93403-8106  
*Phone:* (805) 541-0924  
*E-mail:* p.graff@gilroy.com  
*Website:* www.gavilansbdc.org  
www.cuesta.cc.ca.us

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**Valley Sierra SBDC Satellite**

Small Business Development Center  
Ms. Della Temple  
3180 Collins Drive, Suite A  
Merced, CA 95348  
*Phone:* (800) 541-0924  
*Website:* www.smallbizcenter.org

## **SBA 7(a) Loan Programs**

- OBJECTIVE:** To provide loan guarantees to creditworthy small businesses unable to obtain financing from private lenders
- ELIGIBILITY:** Small, independently-owned businesses that are not dominant in their fields. Size limitations vary by SIC code (generally at fewer than 500 employees)
- COST:** Vary with size and maturity of loan. Guarantee fees start at 2% of principle, interest starts at 225 basis points over the Prime Rate.
- SERVICES:** Guarantees commercial loans of up to \$750,000
- WEBSITE:** [www.sba.gov/financing/indexloans.html](http://www.sba.gov/financing/indexloans.html)

### ***SBA 7(a) Loan Guarantee Program Overview***

The 7(a) Loan Guaranty Program is one of SBA's primary lending programs. It provides loans to small businesses unable to secure financing on reasonable terms through normal lending channels. The program operates through private-sector lenders that provide loans that are, in turn, guaranteed by the SBA — the Agency has no funds for direct lending or grants. Most lenders are familiar with SBA loan programs so interested applicants should contact their local lender for further information and assistance in the SBA loan application process. Information on SBA loan programs, as well as the management counseling and training services offered by the Agency, is also available from the local SBA office.

For most SBA loans there is no legislated limit to the total amount of the loan that may be requested from the lender. However, the maximum amount the SBA can guaranty is generally \$750,000. Thus, with a lender requesting the maximum SBA guaranty of 75%, the total loan amount available under this program generally would be limited to \$1 million. However, there are some exceptions as presented below in the discussion of specialized loan programs.

For those applicants that meet the SBA's credit and eligibility standards, the Agency can guaranty up to 80% of loans of \$100,000 and less, and up to 75% of loans above \$100,000 (generally up to a maximum guaranty amount of \$750,000).

Repayment ability from the cash flow of the business is a primary consideration in the SBA loan decision process but good character, management capability, collateral, and owner's equity contribution are also important considerations. All owners of 20% or more are required to personally guarantee SBA loans.

## **Eligibility**

Although most small businesses are eligible for SBA loans, some types of businesses are ineligible and a case-by-case determination must be made by the Agency. Applicant businesses must operate for profit; be engaged in, or propose to do business in the United States or its possessions; have reasonable owner equity to invest; and, use alternative financial resources first including personal assets. It should be noted that some businesses are ineligible for financial assistance. Eligibility is generally determined by four factors:

- Type of Business
- Use of Loan Funds
- Size of Business
- Special Circumstances

While size constraints for SBA loans are specific to SIC codes, they adhere *in general* to the following table:

<b>Industry</b>	<b>Maximum Size</b>
Retail and Service	\$3.5 to \$13.5 million
Construction	\$7 to \$17 million
Agriculture	\$.5 to \$3.5 million
Wholesale	No more than 100 employees
Manufacturing	500 to 1,500 employees

## **Use of Loan Proceeds**

The proceeds of SBA loans can be used for most business purposes. These may include the purchase of real estate to house the business operations; construction, renovation or leasehold improvements; acquisition of furniture, fixtures, machinery, and equipment; purchase of inventory; and, working capital. Proceeds of an SBA loan cannot be used

- to finance floor plan needs;
- to purchase real estate where the participant has issued a forward commitment to the builder/developer, or where the real estate will be held primarily for investment purposes;
- to make payments to owners or pay delinquent withholding taxes;
- to pay existing debt unless it can be shown that the refinancing will benefit the small business and that the need to refinance is not indicative of imprudent management.

In addition, SBA cannot make loans to a business engaged in any of the following types of activities: financing real property to be held for sale or investment, nonprofit organizations, gambling, speculation, lending or investment, monopolies and businesses engaged in pyramid sales plans, illegal business activities, or those which violate the Constitution.

## **SBA Loan Maturities**

SBA loan programs are generally intended to encourage longer term small business financing but actual loan maturities are based on the ability to repay, the purpose of the loan proceeds, and the useful life of the assets financed. However, maximum loan maturities have been established: 25 years for real estate and equipment; and, generally 7 years for working capital.

Loans for working capital purposes will not exceed 7 years, except when a longer maturity (up to 10 years) may be needed to ensure repayment. The maximum maturity of loans used to finance fixed assets other than real estate will be limited to the economic life of those assets - but in no instance to exceed 25 years. The 25-year maximum will generally apply to the acquisition of land and buildings or the refinancing of debt incurred in their acquisition. Where business premises are to be constructed or significantly renovated, the 25-year maximum would be in addition to the time needed to complete construction.

## **Fees and Interest**

SBA charges commercial lenders a guaranty and servicing fee for 7(a) loans, which may be passed on to the borrower once paid to SBA by the lender. These fees are determined by the size of the guaranteed portion of the loan, according to the following schedule:

<b>Loan Amount</b>	<b>Guarantee Fee</b>
Less than \$80,000	2%
More than \$80,000 but under \$250,000	3%
Amounts over \$250,000	3.5% of amount over \$250,000
Amounts over \$500,000	3.875% of amount over \$500,000

In addition, an annual .5% servicing fee is applied to the outstanding guaranteed balance.

## **Interest Rates**

While interest rates are negotiated between the borrower and the lender, they are subject to maximum rates set by SBA and vary with the amount of the loan and its maturity. Fixed rate loans are capped at 2.25% to 4.75% over prime, and are determined by this table:

	<b>Less than \$25,000</b>	<b>\$25,000-\$50,000</b>	<b>More than \$50,000</b>
<b>Less than 7 years</b>	4.25%	3.25%	2.25%

7 years or more

4.75%

3.75%

2.75%

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### **Specialized 7(a) Loan Programs**

SBA also offers a number of specialized or targeted programs, including the LowDoc, SBAExpress, CAPLines, Pollution Control, DELTA, Minority and Women's Prequal, and MicroLoan programs.

The new **SBALowDoc** and **SBAExpress** loans are designed to expedite the loan application process for loans under \$150,000. LowDoc loans offer a simple one-page application form (included in this section), and are usually processed within 36 hours by SBA. Credit history and character are the principle factors in loan consideration. Interest rates and fees are the same as those for general 7(a) loans. FA\$TRACK is a pilot program which authorizes certain lenders to use their existing documentation and procedures to make and service a SBA guaranteed loan. There are no additional forms and no waiting for SBA approval.

The **CAPLines** program is the umbrella for five short-term working capital loan programs:

- **Seasonal Line:** An advance against future inventory and accounts receivable help during peak seasonal fluctuations.
- **Contract Line:** Finances direct labor and material costs associated with performing assignable contract(s)
- **Builder's Line:** For small general contractors or renovators, building projects may serve as collateral for loans covering direct labor and material costs.
- **Standard and Small Asset-Based Lines:** Offer revolving credit to companies backed by short-term assets.

The maximum maturity for a CAPLine is 5 years. Interest rates are capped on such loans at 225 basis points over the prime rate, and annual servicing fees are capped at 2% (except for the standard asset based lines which may be higher).

**Pollution Control** loans are intended to finance the planning, design, or installation of pollution control facilities. These facilities must prevent, reduce, abate, or control any form of pollution and may include recycling facilities. SBA will guarantee up to \$1,000,000 in principal for such loans.

The **DELTA** program is jointly sponsored by SBA and the Department of Defense. It provides loans of up to \$1.25 million for defense-dependent firms adversely affected by defense cutbacks. The loans must be used to further one of three objectives: job retention, job creation, or plant retooling/expansion.

The **Minority and Women's Prequalification** loan programs are pilots using intermediaries to aid minorities and women in an effort to develop viable loan application

packages. Such applications are then submitted directly to SBA which, if it approves the loan (usually within three days), issues a letter of Prequalification stating SBA's intent to guarantee the loan. Under both programs, maximum amount guaranteed is \$250,000.

The **MicroLoan** program offers very small loans to businesses through private not-for-profit organizations. Loans are made in amounts ranging from under \$100 to a maximum of \$25,000. The average loan size is \$10,000.

*For more information, contact the SBA at:*

1-800-U-ASK-SBA

Or one of the following regional offices:

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**Region 9**

San Francisco Regional Office  
455 Market St., Ste 2200  
San Francisco CA 94105  
*Phone:* 415-744-2118  
*Fax:* 415-744-2119

Fresno District Office  
2719 N. Air Fresno Dr.  
Suite 200  
Fresno, CA 93727-1547  
*Phone:* 559-487-5791  
*Fax:* 559-487-5292

Glendale District Office  
330 N. Brand Blvd.  
Glendale CA 91203-2304  
*Phone:* 818-552-3210  
*Fax:* 818-552-3260

Sacramento District Office  
660 J Street, Ste 215  
Sacramento CA 95814  
*Phone:* 916-498-6410  
*Fax:* 916-498-6422

San Diego District Office  
550 West "C" Street  
Suite 550  
San Diego CA 92101-3500  
*Phone:* 619-557-7250  
*Fax:* 619-557-5894

Santa Ana District Office  
200 W. Santa Ana Blvd.  
#700  
Santa Ana CA 92701  
*Phone:* 714-550-7420  
*Fax:* 714-550-0191

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**Region 1**

Boston Regional Office  
10 Causeway St.  
Boston MA 02222-1093  
*Phone:* 617-565-8415  
*Fax:* 617-565-8420

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**Region 2**

New York Regional Office  
26 Federal Plaza  
Suite 3108  
New York NY 10278  
*Phone:* 212-264-1450  
*Fax:* 212-264-0038

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**Region 3**

Philadelphia Regional Office  
900 Market Street  
5th Floor  
Philadelphia PA 19107  
*Phone:* 215-580-2722  
*Fax:* 215-580-2762

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**Region 4**

Atlanta Regional Office  
1720 Peachtree Rd., NW  
South Tower, Ste. 496  
Atlanta GA 30309-2482  
*Phone:* 404-347-4999  
*Fax:* 404-347-2355

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**Region 5**

Chicago Regional Office  
500 W. Madison St.  
Chicago IL 60661-2511  
*Phone:* 312-353-5000  
*Fax:* 312-353-3426

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**Region 6**

Dallas/Fort Worth Regional Office  
4300 Amon Carter Blvd.  
Dallas/Ft. Worth TX 76155  
*Phone:* 817-885-6581  
*Fax:* 817-885-6588

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**Region 7**

Kansas City Regional Office  
323 W 8th St. Ste 307  
Kansas City MO 64105  
*Phone:* 816-374-6380  
*Fax:* 816-374-6339

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**Region 8**

Denver Regional Office  
721 19th Street Suite 500  
Denver CO 80202  
*Phone:* 303-844-0500  
*Fax:* 303-844-0506

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**Region 10**

Seattle Regional Office  
1200 6th Ave. Ste. 1805  
Seattle WA 98101-1128  
*Phone:* 206-553-5676  
*Fax:* 206-553-2872

## ***Directory of Certified and Preferred Banks in California***

Associates Commercial Corp, Walnut Creek (800) 831-7963	Commercial Bank of San Francisco, San Francisco (415) 627-0303	Grossmont Bank, Bay Area (510) 587-1760
Bank of America Community Development Bank, Bay Area (925) 988-4801	Community Bank of the Bay, Oakland (510) 433-5403	Heller First Capital, San Francisco (415) 356-1300
Bank of Commerce – San Diego, Bay Area (800) 303-4722	Cupertino National Bank, Cupertino (408) 996-1144	Heritage Bank of Commerce, San Jose (408) 494-4580
Bank of Los Altos, Los Altos (650) 941-9300	Dai – Ichi Kangyo Bank, San Jose (408) 487-1788	Humboldt Bank, Eureka (707) 269-3120
Bank of Oakland, Oakland (510) 763-8486	East County Bank, Antioch (925) 776-2200	Imperial Bank, Bay Area (916) 443-3293
Bank of Petaluma, Petaluma (707) 765-2222	El Dorado Bank, Orinda (510) 253-0548	Lake Community Bank, Lakeport (707) 263- 7500
Bank of Santa Clara, Santa Clara (408) 987-9429	Exchange Bank Santa Rosa (707) 524-3200	Metro Commerce Bank, South San Francisco (650) 266-6844
Bank of Walnut Creek, Walnut Creek (925) 932-5353	First Bank of California, Concord (925) 689-9100	Metropolitan Bank, Bay Area (510) 834-7534
Bay Bank of Commerce, San Leandro (510) 895-5515	First Counties Bank, Clearlake (707) 995-0329	Millennium Bank, San Francisco (415) 434-2265
Borrego Springs Bank, Bay Area (925) 746-7172	First National Bank of Central CA, Salinas (800)-698-4722	Money Store Investment Corp., Bay Area (800) 998-6888
California Federal Bank (Cal Fed), Bay Area (800) 500-9810	First National Bank of Northern California, Daly City (650) 875-4850	Napa National Bank, Napa (707) 257-2440
Citibank F.S.B. California, San Francisco (415) 658-4230	First Northern Bank, Dixon (916) 567-6270	National Bank of the Redwoods, Santa Rosa (707) 573-4800
Coast Commercial Bank, Santa Cruz (408) 458-4560	Fremont Bank, Fremont (510) 792-2300	Newcourt Small Business Lending, Oakland (800) 722-2552
Comerica Bank of California, Santa Cruz (408) 460-1700	G.E. Capital, Bay Area (415) 284-7450	North Coast Bank, Santa Rosa (707) 838-8000

Pacific Bank,  
Bay Area  
(650) 696-6435

Sacramento Commercial  
Bank, Bay Area  
(916) 554-4870

SAFEBIDCO,  
Santa Rosa  
(707) 577-8621

San Benito Bank,  
Hollister  
(408) 637-2265

San Jose National Bank,  
San Jose  
(408) 947-7562

Santa Cruz Community  
Credit Union, Santa Cruz  
(408) 425-7708

Sierra West Bank,  
San Francisco  
(415) 248-3120

Six Rivers National Bank,  
Eureka  
(707) 268-1012

Sonoma National Bank,  
Santa Rosa  
(707) 579-0610

South Valley National Bank,  
Gilroy  
(408) 848-2161

Summit Bank,  
Oakland  
(510) 839-8800

Trans Pacific National Bank,  
San Francisco  
(415) 543-3377

U.S. Bank of California,  
Bay Area  
(800) 591-1112

Union Bank,  
San Francisco  
(415) 705-7473

United Commercial Bank,  
San Francisco  
(415) 928-0700

Wells Fargo Bank,  
San Jose  
(800) 495-8256

World Trade Finance,  
San Jose  
(408) 225-8671

Zions First National Bank,  
Bay Area  
(510) 523-6500

## Small Business Investment Companies

- OBJECTIVE:** To provide equity capital, long-term loans, and management assistance to eligible small businesses
- ELIGIBILITY:** Small, independently-owned businesses that are not dominant in their fields
- COST:** Variable, depending on the policies of the individual SBIC and the situation of the small businesses receiving financing
- SERVICES:** Financial assistance in the form of direct loans, guaranteed loans and equity investment, sometimes coupled with advisory services.
- WEBSITE:** [www.sba.gov/INV](http://www.sba.gov/INV)

### ***Small Business Investment Company Program***

The **Small Business Investment Company (SBIC)** program helps independent small businesses gain access to long-term financing and venture capital resources needed to maintain and expand their operations. SBICs are privately held investment firms licensed and regulated by the Small Business Administration (SBA). SBA supports authorized SBICs with Government-backed funds, which in turn are invested in small enterprises. SBICs are controlled by their owners and managers, who make all decisions according to their own policies with regard to investment strategy, size of financing provided, industry preference, and their favored region of activity.

SBICs seek to fill a gap in available financing for small businesses, serving as financier in one of three ways by:

- making direct long-term loans of up to 20 years (independently or in conjunction with other lenders) for working capital and equipment; facility expansion or renovation; product development; or marketing strategy implementation and related activities;
- lending money in exchange for the company's debt securities, which may be convertible into an equity position in the business;
- providing capital through the purchase of company stock or some other type of equity interest.

While many venture capital firms may only make investments of several million dollars and up, SBICs concentrate their lending efforts on smaller investments. Small operations can derive other benefits from a relationship with an SBIC, as the SBA requires all investment companies to provide management expertise and a broad range of business advice that can help insure the success of SBIC clients. SBICs are prohibited from taking control of businesses they help finance.

## ***Specialized Small Business Investment Companies (SSBICs)***

SSBICs invest only in companies that are owned by persons who are economically or socially disadvantaged. Generally, the same rules and operating procedures apply, although in return for their specialized focus, SSBICs are offered unique incentives in the form of preferred stock and debentures subsidized by the SBA.

## ***ACE-Net***

The Access to Capital Electronic Network (ACE-Net) is a National Internet listing of the securities offerings of small companies with password control providing access only to accredited investors (angels) that allows venture capitalists, and institutional and individual accredited investors to find small, growing companies through a secure Internet database. ACE-Net The SBA's Office of Advocacy has received a "no action" letter from the SEC for ACE-Net and has consulted with State securities regulators and the North American Securities Administrators Association.

The ACE-Net project provides a precedent-setting solution to the problem of raising equity capital for small companies seeking investments in the range of \$250,000 to \$5 million. Prior to ACE-Net, companies were limited in their ability to network with accredited investors (angels), and the costs of pursuing and closing these transactions were high. By working closely with the U.S. Securities and Exchange Commission (SEC), State securities regulators, and the North American Securities Administrators Association, the U.S. Small Business Administration's Office of Advocacy has developed an Internet forum for the listing of securities offerings of small companies.

Companies will work with local university- and state-based nonprofit organizations to

1. Develop their business plans and network with accredited investors (angels) using existing local networks.
2. List on the ACE-Net nationwide Internet home page notification of their securities offerings under Regulation A, Regulation D, Rule 504, or their "test the water documents," after complying with any necessary Federal and State requirements. These listings will be accessible on a password basis only by accredited investors (angels). ACE-Net will permit local networks to be extended into a National system at very low cost.
3. Permit angels to select quickly and efficiently the companies of interest by such factors as market/technology, investment size, stage of company development, geographic location, and minority- or women-owned status.
4. Reduce the cost of transactions by providing angels and entrepreneurs with model terms and conditions for securities transactions, which will also be included in the mentoring programs of the participating State and university systems.

ACE-Net was developed by the U.S. Small Business Administration's Office of Advocacy, working in consultation with the U.S. Securities and Exchange Commission (SEC), the North American Securities Administrators Association, Inc. (NASAA), and

the University of New Hampshire's Whittemore School of Business and Economics. The day-to-day operations are managed by regional Network Operators that are nonprofit, university- or State-based entrepreneurial development centers. These Network Operators are established leaders in all aspects of economic development in their regions, and collectively, they have helped small companies raise over \$4 billion over the past few years.

ACE-Net is a fee-based service. The maximum annual fee of \$450 provides both the investor and entrepreneur with unlimited access to all ACE-Net services and covers administrative expenses of maintaining the network. While the maximum that any ACE-Net Network Operator can charge is \$450, some Network Operators are funded by States that compensate the fee for in-State investors or entrepreneurs. Check with the local Network Operator for more information on fees and other services they may offer to the investor-entrepreneur community.

Regulation A allows small corporations to raise up to \$5 million through the sale of corporate securities. Regulation A offerings are required to file a Form U-7 with the SEC, and may be required to submit additional information to the State securities office in which the offering is to take place.

Regulation D, Rule 504 allows corporations to offer up to \$1 million in securities. At the Federal level, Rule 504 registrants must file a Form D, and may have to file a Form U-7 with the relevant State securities office.

ACE-Net will also allow *testing-of-waters* documents to be made available, which allow companies to tentatively disseminate information over the network without prior registration with State and Federal securities regulators.

*For more information on ACE-Net, contact:*

**Whittemore School of Business and Economics**

*Website:* [www.unh.edu/wsbc](http://www.unh.edu/wsbc)

Or through the Small Business Administration home page:

*Website:* [www.sba.gov](http://www.sba.gov)

## **SBIC Program Licensees**

The following list contains Small Business Investment Companies (SBICs) in California as of March 4, 1999.

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### **AVI Capital, L.P.**

P. Wolken, B. Weinman & B. Grossi, Mgrs.  
One First Street, Suite 12  
Los Altos, CA 94022  
*Phone:* (650) 949-9862  
*Fax:* (650) 949-8510

- *Preferred Investment Size:* \$1,000,000
- *Investment Policy:* Equity Only
- *Investment Type:* Seed, Early Stage
- *Industry Preference:* High Tech and Electronic Deals only
- *Geographic Preference:* California, West Coast

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### **Allied Business Investors, Inc. (SSBIC)**

Jack Hong, President  
301 W. Valley Blvd. Suite #208  
San Gabriel, CA 91776  
*Phone:* (626) 289-0186  
*Fax:* (626) 289-2369

- *Preferred Investment Size:* \$50,000
- *Investment Policy:* Loans Only
- *Investment Type:* Early Stage
- *Industry Preference:* Diversified
- *Geographic Preference:* Los Angeles

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### **Ally Finance Corp. (SSBIC)**

Eric Steinmann, CEO  
14011 Park Ave., Suite 310  
Victorville, CA 92392  
*Phone:* (760)241-7025  
*Fax:* (760)241-8232

- *Preferred Investment Size:* \$500,000
- *Investment Policy:* Loans and/or Equity
- *Investment Type:* All Stages
- *Industry Preference:* Advertising, Construction, Telecomm.
- *Geographic Preference:* National

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### **Asian American Capital Corporation (SSBIC)**

Jennie Chien, Manager  
1251 West Tennyson Road Suite #4  
Hayward, CA 94544  
*Phone:* (510) 887-6888  
*Fax:*(510) 887-6897

- *Preferred Investment Size:* \$50,000 to \$100,000
- *Investment Policy:* Secured Loans
- *Investment Type:* Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* Regional

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### **Aspen Ventures West II, L.P.**

Alexander Cilento & David Crocket, Mgrs.  
1000 Fremont Avenue, Suite V  
Los Altos, CA 94024  
*Phone:* (650) 917-5670  
*Fax:* (650) 917-5677

- *Preferred Investment Size:* \$500,000 to \$3 M
- *Investment Policy:* Equity
- *Investment Type:* Seed, Early Stage
- *Industry Preference:* Information Technology
- *Geographic Preference:* Western U.S.

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### **Astar Capital Corp. (SSBIC)**

George Hsu, President  
9537 E. Gidley Street  
Temple City, CA 91780  
*Phone:* (626) 350-1211  
*Fax:* (626) 443-5874

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**BT Capital Partners, Inc.**

(Main Office: New York, NY)  
300 South Grand Avenue  
Los Angeles, CA 90071

- *Preferred Investment Size:* \$5 to \$25 Million
- *Investment Policy:* Equity Investments
- *Investment Type:* Expansion, Later Stage
- *Industry Preference:* Diversified
- *Geographic Preference:* National

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**BankAmerica Ventures**

Carla Perumean, Senior Vice President  
950 Tower Lane, Suite 700  
Foster City, CA 94404  
*Phone:* (415) 378-6000  
*Fax:* (415) 378-6040

- *Preferred Investment Size:* Up to \$5 Million
- *Investment Policy:* Equity
- *Investment Type:* Early Stage, Expansion, Later Stage
- *Industry Preference:* Medical Related Biotechnology, Communications, Electricity.
- *Geographic Preference:* National

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**Bay Partners SBIC II, L.P.**

John Friedenrich & Neal Dempsey, Mgrs.  
10600 N. DeAnza Boulevard Suite 100  
Cupertino, CA 95014  
*Phone:* (408) 725-2444  
*Fax:* (408) 446-4502

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**Bentley Capital (SSBIC)**

John Hung, President  
592 Vallejo Street, Suite #2  
San Francisco, CA 94133  
*Phone:* (415) 362-2868  
*Fax:* (415) 398-8209

- *Preferred Investment Size:* \$200,000
- *Investment Policy:* Loans and/or Equity
- *Investment Type:* Early Stage
- *Industry Preference:* Diversified
- *Geographic Preference:* West

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**Best Finance Corporation (SSBIC)**

Yong Ho Park, General Manager  
3540 Wilshire Blvd., Suite 804  
Los Angeles, CA 90010  
*Phone:* (213) 385-7030  
*Fax:* (213) 385-7130

- *Preferred Investment Size:* \$50,000
- *Investment Policy:* Loans and/or Equity
- *Investment Type:* Purchase, Seed, Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* California

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**Calsafe Capital Corp. (SSBIC)**

Ming-Min Su, President, Director & Mgr.  
245 East Main Street, Suite 107  
Alhambra, CA 91801  
*Phone:* (626) 289-3400  
*Fax:* (626) 300-8025

- *Preferred Investment Size:* Up to \$450,000
- *Investment Policy:* Loans and Equity Investments
- *Investment Type:* Expansion, Later Stage
- *Industry Preference:* Diversified
- *Geographic Preference:* National

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**Canaan SBIC, L.P.**

(Main Office: Rowayton, CT)  
Eric Young, Manager  
2884 Sand Hill Road  
Menlo Park, CA 94025  
*Phone:* (415) 854-8082  
*Fax:* (415) 854-8127

- *Preferred Investment Size:* \$2,000,000
- *Investment Policy:* Equity
- *Investment Type:* Early Stage, Expansion, Later Stage
- *Industry Preference:* Diversified
- *Geographic Preference:* National

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**Capstone Ventures SBIC, L.P.**

Barbara Santry & Gene Fischer, Managers  
3000 Sand Hill Road  
Building 1, Suite 290  
Menlo Park, CA 94025  
*Phone:* (650) 854-2523  
*Fax:* (650) 854-9010

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**Charterway Investment Corporation (SSBIC)**

Edmund C. Lau, Chairman  
9660 Flair Dr., Suite 328  
El Monte, CA 91731  
*Phone:* (626) 279-1189  
*Fax:* (626) 279-9062

- *Preferred Investment Size:* \$100,000 to \$450,000
- *Investment Policy:* Loans
- *Investment Type:* Expansion
- *Industry Preference:* Retail/ Wholesale
- *Geographic Preference:* Los Angeles County

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**Critical Capital Growth Fund, L.P.**

Steven Sands & Allen Gold, Mgrs.  
17 East Sir Francis Drake Blvd. Suite 230  
Larkspur, CA 94939  
*Phone:* (415) 464-5720  
*Fax:* (415) 464-5701

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**Draper Associates, a California LP**

Timothy C. Draper, President  
400 Seaport Court, Suite 250  
Redwood City, CA 94063  
*Phone:* (650) 599-9000  
*Fax:* (650) 599-9726

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**Draper-Richards L.P.**

William Draper III, President  
50 California Street Suite 2925  
San Francisco, CA 94111  
*Phone:* (415) 616-4050  
*Fax:* (415) 616-4060

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**Far East Capital Corp. (SSBIC)**

Tom Wang, Manager  
977 N. Broadway, Suite 401  
Los Angeles, CA 90012  
*Phone:* (213) 687-1361  
*Fax:* (213) 626-7497

- *Preferred Investment Size:* \$250,000
- *Investment Policy:* Loans and/or Equity
- *Investment Type:* Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* California

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**First American Capital Funding, Inc. (SSBIC)**

Chuoc Vota, President  
10840 Warner Avenue, Suite 202  
Fountain Valley, CA 92708  
*Phone:* (714) 965-7190  
*Fax:* (714) 965-7193

- *Preferred Investment Size:* \$50,000
- *Investment Policy:* Loans
- *Investment Type:* Early Stage, Expansion, Later Stage
- *Industry Preference:* Medical/Health
- *Geographic Preference:* California

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**Fourteen Hill Capital, L.P.**

Bradley Rotter & Alan Perper, Managers  
1700 Montgomery Street, Suite 250  
San Francisco, CA 94111  
*Phone:* (415) 394-9469  
*Fax:* (415) 394-9471

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**Fulcrum Venture Capital Corporation (SSBIC)**

Brian Argrett, President  
300 Corporate Pointe, Suite 380  
Culver City, CA 90230  
*Phone:* (310) 645-1271  
*Fax:* (310) 645-1272

- *Preferred Investment Size:* \$500,000
- *Investment Policy:* Sub. Debentures & Equity
- *Investment Type:* Expansion, Acquisition  
\$1 million in sales
- *Industry Preference:* Low/Med Tech, Manufacturing, Communications, Service
- *Geographic Preference:* West Coast, CA

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**Hall, Morris & Druvva II, L.P.**

Ronald J. Hall, Managing Director  
26161 La Paz Road, Suite E  
Mission Viejo, CA 92691  
*Phone:* (714) 707-5096  
*Fax:* (714) 707-5121

- *Preferred Investment Size:* Fully invested

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**Imperial Ventures, Inc.**

Christian Hobbs, Vice President  
9920 South La Cienega Blvd.  
Inglewood, CA 90009  
*Mail:* P.O. Box 92991  
Los Angeles, CA 90009-2991  
*Phone:* (310) 417-5409  
*Fax:* (310) 417-5781

- *Preferred Investment Size:* Under \$1 million
- *Investment Policy:* Debt or Equity
- *Investment Type:* Expansion, Acquisition
- *Industry Preference:* Healthcare Technology, Financial Services
- *Geographic Preference:* California

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**Kline Hawkes California SBIC, LP**

Frank R. Kline, Manager  
11726 San Vicente Blvd. Suite 300  
Los Angeles, CA 90049  
*Phone:* (310) 442-4700  
*Fax:* (310) 442-4707

- *Preferred Investment Size:* \$3 to \$7 Million
- *Investment Policy:* Equity
- *Investment Type:* Expansion Capital MBO
- *Industry Preference:* Info Technology Medical Serv. Defense spin-out Enviro
- *Geographic Preference:* California

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**LaiLai Capital Corp. (SSBIC)**

Danny Ku, President  
223 E. Garvey Avenue, Suite 228  
Monterey Park, CA 91754  
*Phone:* (626) 288-0704  
*Fax:* (626) 288-4101

- *Preferred Investment Size:* \$150,000
- *Investment Policy:* Loans and Equity
- *Investment Type:* Seed, Early Stage, Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* California

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**Magna Pacific Investments (SSBIC)**

David Wong, President  
330 North Brand Boulevard, Suite 670  
Glendale, CA 91203  
*Phone:* (818) 547-0809  
*Fax:* (818) 547-9303

- *Preferred Investment Size:* \$50,000 to \$300,000
- *Investment Policy:* Loan and/or Equity
- *Investment Type:* All Stages
- *Industry Preference:* Hi-Tech, Medical/Health Defense Contractors
- *Geographic Preference:* National

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**Marwit Capital Company, L.P.**

Matthew Witte, President  
180 Newport Center Drive Suite 200  
Newport Beach, CA 92660  
*Phone:* (949) 640-6234  
*Fax:* (949) 720-8077

- *Preferred Investment Size:* \$500,000 to \$2 million
- *Investment Policy:* Subordinated Debt w/ Equity
- *Investment Type:* Expansion, Acquisitions Buyouts
- *Industry Preference:* Diversified
- *Geographic Preference:* Western U.S.

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**New Vista Capital Fund, L.P.**

Roger Barry and Frank Greene, Managers  
540 Cowper Street, Suite 200  
Palo Alto, CA 94301  
*Phone:* (650) 329-9333  
*Fax:* (650) 328-9434

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**Novus Ventures, L.P.**

Daniel D. Tompkins, Manager  
20111 Stevens Creek Boulevard  
Suite 130  
Cupertino, CA 95014  
*Phone:* (408) 252-3900  
*Fax:* (408) 252-1713

- *Preferred Investment Size:* \$400,000 to \$1 million
- *Investment Policy:* Convertible Debt Convert. Stock
- *Investment Type:* Early Stage, Expansion
- *Industry Preference:* Information Technology
- *Geographic Preference:* Western U.S.

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**Opportunity Capital Corporation (SSBIC)**

J. Peter Thompson, President  
2201 Walnut Avenue, Suite 210  
Fremont, CA 94538  
*Phone:* (510) 795-7000  
*Fax:* (510) 494-5439

- *Preferred Investment Size:* \$300,000
- *Investment Policy:* Debt with Warrants, Equity
- *Investment Type:* Expansion, Later Stage, Acquisitions
- *Industry Preference:* Manufacturing, Healthcare, Telecom
- *Geographic Preference:* West Coast, National

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**Opportunity Capital Partners II, L.P. (SSBIC)**

J. Peter Thompson, General Partner  
2201 Walnut Avenue, Suite 210  
Fremont, CA 94538  
*Phone:* (510) 795-7000  
*Fax:* (510) 494-5439

- *Preferred Investment Size:* \$1,500,000
- *Investment Policy:* Debt with Warrants, Equity
- *Investment Type:* Expansion, Later Stage, Acquisition
- *Industry Preference:* Manufacturing, Healthcare, Telecommunications
- *Geographic Preference:* West Coast, National

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**Pacific Mezzanine Fund, L.P.**

Nathan W. Bell, General Partner  
2200 Powell St., Suite 1250  
Emeryville, CA 94608  
*Phone:* (510) 595-9800  
*Fax:* (510) 595-9801

- *Preferred Investment Size:* \$2 to \$5 million
- *Investment Policy:* Loans with Equity Features
- *Investment Type:* Expansion, Later Stage, Buyouts
- *Industry Preference:* Diversified
- *Geographic Preference:* Western US

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**Pinecreek Capital Partners, L.P.**

Randall F. Zurbach, President  
18301 Von Karman, Suite 100  
Irvine, CA 92612  
*Phone:* (949) 225-4620  
*Fax:* (949) 225-4629

- *Preferred Investment Size:* \$500,000 to \$3 million
- *Investment Policy:* Sub Debt with Warrants
- *Investment Type:* Later Stage, Growth Acquisition
- *Industry Preference:* Diversified
- *Geographic Preference:* Western US

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**Positive Enterprises, Inc. (SSBIC)**

Kwok Szeto, President  
1489 Webster Street, Suite 228  
San Francisco, CA 94115  
*Phone:* (415) 885-6600  
*Fax:* (415) 928-6363

- *Preferred Investment Size:* Up to \$150,000
- *Investment Policy:* Loans, Equity
- *Investment Type:* Expansion, Early Stage, Later Stage
- *Industry Preference:* Diversified, Senior Home Care/Rest Homes, Manufacturing
- *Geographic Preference:* North, Regional

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**San Joaquin Business Investment Group Inc. (SSBIC)**

Eugene Waller, President  
1900 Mariposa Mall, Suite 100  
Fresno, CA 93721  
*Phone:* (559) 233-3580  
*Fax:* (559) 233-3709

- *Preferred Investment Size:* \$100,000 to \$300,000
- *Investment Policy:* Loans and Equity
- *Investment Type:* Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* West Coast

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**Sorrento Growth Partners I, L.P.**

Robert Jaffe, Manager  
4370 La Jolla Village Drive, Suite 1040  
San Diego, CA 92122  
*Phone:* (619) 452-3100  
*Fax:* (619) 452-7607

- *Preferred Investment Size:* \$2 Million
- *Investment Policy:* Loans and Equity Investments
- *Investment Type:* Early Stage
- *Industry Preference:* Med./Health, Special Retail Communications/ Electron
- *Geographic Preference:* Southern California

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**Sundance Venture Partners, L.P.**

Brian Burns, General Manager  
10600 N. DeAnza Blvd., Suite 215  
Cupertino, CA 95014  
*Phone:* (408) 257-8100  
*Fax:* (602) 252-1450

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**Tangent Growth Fund, L.P.**

Alexander H. Schilling, Manager  
180 Geary Street, Suite 500  
San Francisco, CA 94108  
*Phone:* (415) 392-9228  
*Fax:* (415) 392-1928

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**TeleSoft Partners IA L.P.**

Arjun Gupta, Manager  
1450 Fashion Island Boulevard  
Suite 610  
San Mateo, CA 94404  
*Phone:* (650) 358-2500  
*Fax:* (650) 358-2501

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**UnionBanCal Venture Corporation**

Robert S. Clarke, President  
445 South Figueroa Street  
P.O. Box 3100  
Los Angeles, CA 90071  
*Phone:* (213) 236-4092  
*Fax:* (213) 629-5328

- *Preferred Investment Size:* \$1,000,000
- *Investment Policy:* Loans with Equity
- *Investment Type:* Expansion
- *Industry Preference:* Communications  
Cable TV Television Radio
- *Geographic Preference:* National

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**Viridian Capital, L.P.**

Christine Cordaro, Contact  
220 Montgomery Street Suite 946  
San Francisco, CA 94104  
*Phone:* (415) 391-8950  
*Fax:* (415) 391-8937

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**VK Capital Company**

Franklin Van Kasper, General Partner  
600 California Street, Suite 1700  
San Francisco, CA 94108  
*Phone:* (415) 391-5600  
*Fax:* (415) 397-2744

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**Walden-SBIC, L.P.**

Arthur S. Berliner, Manager  
750 Battery Street, 7th Floor  
San Francisco, CA 94111  
*Phone:* (415) 391-7225  
*Fax:* (415) 391-7262

- *Preferred Investment Size:* \$3,000,000
- *Investment Policy:* Equity
- *Investment Type:* Seed, Early, Expansion, Later Stages
- *Industry Preference:* Diversified
- *Geographic Preference:* Western Region

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**Western General Capital Corporation (SSBIC)**

Alan Thian, President  
13701 Riverside Drive, Suite 610  
Sherman Oaks, CA 91423  
*Phone:* (818) 907-8272  
*Fax:* (818) 905-9220

- *Preferred Investment Size:* \$100,000 to \$300,000
- *Investment Policy:* Loans Only
- *Investment Type:* Later Stage, Expansion
- *Industry Preference:* Diversified
- *Geographic Preference:* Regional

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**Woodside Fund III SBIC, L.P.**

Vincent Occhipinti & Frank Mendicino  
850 Woodside Drive  
Woodside, CA 94062  
*Phone:* (650) 368-5545  
*Fax:* (650) 368-2416

## **Certified Development Company Guaranteed Loans (Section 504)**

- OBJECTIVE:** To provide long-term financing for small business fixed assets
- ELIGIBILITY:** Small, independently-owned businesses that are not dominant in their fields
- COST:** no fixed application costs; individual CDCs may impose application and servicing fees
- SERVICES:** Guaranteed loans
- WEBSITE:** [www.sba.gov](http://www.sba.gov)

The **504 Certified Development Company (CDC)** program provides growing businesses with long-term, fixed-rate financing for major fixed assets, such as land and buildings. A Certified Development Company is a nonprofit corporation set up to contribute to the economic development of its community or region. CDCs work with the SBA and private-sector lenders to provide financing to small businesses. There are about 290 CDCs nationwide. Each CDC covers a specific area.

Typically, a 504 project includes a loan secured with a senior lien from a private-sector lender covering up to 50% of the project cost, a loan secured with a junior lien from the CDC (a 100% SBA-guaranteed debenture) covering up to 40% of the cost, and a contribution of at least 10% equity from the small business being helped. The maximum SBA debenture generally is \$750,000 (up to \$1 million in some cases). The program is designed to enable small businesses to create and retain jobs; the CDC's portfolio must create or retain one job for every \$35,000 provided by the SBA.

Proceeds from 504 loans must be used for fixed asset projects such as purchasing land and improvements, including existing buildings, grading, street improvements, utilities, parking lots, and landscaping; constructing new facilities, or modernizing, renovating or converting existing facilities; or purchasing long-term machinery and equipment.

The 504 program cannot be used for working capital or inventory, consolidating or repaying debt, or refinancing.

Interest rates on 504 loans are pegged to an increment above the current market rate for five-year and 10-year U.S. Treasury issues. Maturities of 10 and 20 years are available. Fees total approximately 3% of the debenture and may be financed with the loan.

Generally, the project assets being financed are used as collateral. Personal guaranties of the principal owners are also required.

To be eligible, the business generally must be operated for profit and fall within the size standards set by the SBA. Under the 504 program, the business qualifies as small if it does not have a tangible net worth in excess of \$6 million and does not have an average net income in excess of \$2 million after taxes for the preceding two years. Loans cannot be made to businesses engaged in speculation or investment in rental real estate.

*For more information, contact:*

The Small Business Administration, 1-800-U-ASK-SBA

***Certified Development Companies For SBA 504 Program***

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**Fresno Certified Development Corporation**

*CDC#:* 09-529

Robert R. Garcia, Executive Director

906 N Street, Suite 100

Fresno, CA 93721

*Phone:* (559) 485-5735

*Fax:* (559) 485-5302

*E-mail:* rgarcia@ngate.com

*Area of Operation:* Fresno and Kings Counties

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**Mid State Development Corporation**

*CDC#:* 09-073

Lesley Lang-Lopez

4800 Easton Drive, Suite 111 P.O. Box 302

Bakersfield, CA 93309

*Phone:* (661) 322-4241

*Fax:* (661) 322-0536

*E-mail:* president@midstatedevelopment.com

*Area of Operation:* Kern County

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**Stanislaus County Economic Development Corporation**

*CDC#:* 09-593

Susan Martin, Vice President, Fin.

1012 11th Street, Suite 400

Modesto CA 95354-0808

*Phone:* (209) 521-9333

*Fax:* (209) 521-9373

*E-mail:* suem@scedco.org

*Area of Operation:* Stanislaus County

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**Tulare County Economic Development Corporation**

*CDC#:* 09-511

Lisa Hollingshead, Dir. of Financial Services

113 South M Street

Tulare, CA 93274

*Phone:* (559) 688-6666

*Fax:* 559) 688-1406

*E-mail:* lisa@edctulare.com

*Area of Operation:* Tulare County

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**Business Finance Center**

*CDC#:* 09-628

Raymond K. Sakaida, General Manager

6055 E. Washington Blvd., Suite 414

Commerce, CA 90040

*Phone:* (213) 278-9600

*Fax:* (213) 278-4898

*Area of Operation:* Los Angeles County

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**Central Coast Development Corporation**

*CDC#:* 09-362

Thomas W. Martin, Executive Director

100 Civic Center Plaza P.O. Box 8001

Lompoc CA 93436-8001

*Phone:* (805) 736-1445

*Fax:* (805) 740-4707

*E-mail:* ccdc@impulse.net

*Area of Operation:* County of San Luis Obispo

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**Enterprise Funding Corporation**

*CDC#:* 09-540

Nick Landis

419 North Third Avenue

Upland, CA 91786

*Phone:* (909) 981-2744

*Fax:* (909) 608-0876

*Area of Operation:* San Bernardino County

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**Long Beach Area Certified Development Corporation**

*CDC#:* 09-054

Regina Grant Peterson, Executive Director

11 Golden Shore, Suite 630

Long Beach, CA 90802

*Phone:* (310) 983-7450

*Fax:* (310) 983-7453

*Area of Operation:* Southern L. A. County

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**Amador Economic Development Corporation**

*CDC#:* 09-176

Ron Mittelbrunn, Executive Director

22 North Highway 49 P.O. Box 1077

Jackson, CA 95642

*Phone:* (209) 223-0351

*Fax:* (209) 223-2261

*Area of Operation:* County of Amador

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**Economic Development Foundation of Sacramento, Inc.**

*CDC:* 09-111

Frank Dinsmore, Executive Director

7509 Madison Avenue, Suite 111

Citrus Heights, CA 95610

*Phone:* (916) 962-3669

*Fax:* (916) 962-1822

*Area of Operation:* Counties of El Dorado, Nevada, Placer, Sacramento, San Joaquin, Sierra, Sutter, Yolo and Yuba

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**Greater Sacramento Certified Development Corporation**

*CDC#:* 09-594

Raymond Sebastian, Executive Director

5428 Watt Avenue

Sacramento, CA 95660-4945

*Phone:* (916) 339-1096

*Area of Operation:* Sacramento, El Dorado, Placer and Yolo Counties

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**Tracy/San Joaquin County Certified Development Corporation**

*CDC#:* 09-520

Joyce Grubbs

1151 W. Robinhood Drive, Suite B-4

Stockton, CA 95207

*Phone:* (209) 951-0801

*Fax:* (209) 951-0999

*Website:* www.sjcdc.com

*Area of Operation:* San Joaquin County

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**La Habra Local Development Company, Inc.**

*CDC#:* 09-015

A. Edwards Evans, Executive Director

441 East Whittier Boulevard, Suite C

La Habra, CA 90631

*Phone:* (310) 690-6400

*Fax:* (310) 690-6300

*Area of Operation:* L. A. and Orange Counties

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**Southland Economic Development Corporation**

*CDC#:* 09-429

James R. Davis, President

2000 E. Fourth Street, Suite 206

Santa Ana, CA 92705

*Phone:* (714) 647-1143

*Fax:* (714) 953-0944

*Area of Operation:* Orange County

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**CDC Small Business Finance Corporation**

*CDC#:* 09-024

Kurt Chilcott, CEO

925 Fort Stockton Drive

P.O. Box 882228

San Diego, CA 92103

*Phone:* (619) 291-3594

*Fax:* (619) 291-6954

*Area of Operation:* Imperial, San Diego, Riverside and Orange Counties

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**Arcata Economic Development Corporation**

*CDC#:* 09-409

Kathleen E. Moxon, Executive Director

100 Ericson Court, Suite 100

Arcata, CA 95521

*Phone:* (707) 822-4616

*Fax:* (707) 822-8982

*Area of Operation:* Humboldt and Del Norte Counties

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**Bay Area Employment Development Company**

*CDC#:* 09-058

James Baird, Executive Director  
1801 Oakland Boulevard, Suite 300  
Walnut Creek, CA 94596

*Phone:* (510) 926-1020

*Fax:* (510) 926-1021

*Area of Operation:* San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solani, Napa, Sonoma and Marin Counties

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**California Statewide Certified Development Corporation**

*CDC#:* 09-609

Barbara A. Vohryzek, Executive Director  
129 C Street  
Davis, CA 95616

*Phone:* (530) 756-9310

*Fax:* (530) 756-7519

*E-mail:* vohryzek@aol.com

*Area of Operation:* Statewide

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**Capital Business Group, Inc. dba Capital Access Group**

*CDC#:* 09-654

Jacklyn Jordan, President  
55 Green Street, Suite 210  
San Francisco, CA 94111

*Phone:* (415) 981-0770

*Area of Operation:* City of Pittsburg and the California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma

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**The Mortgage Capital Development Corporation**

*CDC#:* 09-655

Barbara Morrison, President/CEO

611 Front Street

San Francisco, CA 94111

*Phone:* (415) 989-8855

*Fax:* (415) 989-3382

*Area of Operation:* City of Pittsburg, Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties

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**Economic Development Corporation of Shasta County**

*CDC#:* 09-105

Jimce Zanzhu, General Manager

737 Auditorium Drive, Suite D

Redding, CA 96001

*Phone:* (916) 225-5300

*Fax:* (916) 225-5303

*Area of Operation:* Shasta, Trinity, Siskiyou and Modoc Counties

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**Los Medanos Fund, A Local Development Company**

*CDC#:* 09-026

Tom LaFleur, Executive V.P.

329 Railroad Avenue P.O. Box 1397

Pittsburg, CA 94565

*Phone:* (510) 439-1056

*Fax:* (510) 439-0831

*Area of Operation:* City of Pittsburg; Alameda, contra Costra, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties

## California Environmental Protection Agency

CalEPA, created in 1991, is responsible for coordinating and prioritizing the State's efforts to protect the environment. CalEPA emphasizes environmental regulation that is clear, understandable, and uniform. The specific goals of CalEPA are to

- Preserve California's environmental standards while reforming and simplifying the complex permitting process;
- Set risk-based priorities using the best, most consistent science available;
- Prevent pollution from being created, rather than attempting to control it after the fact;
- View environmental protection and economic progress as complimentary goals;
- Provide vigorous and fair enforcement of the law, not only for public protection, but also to assure that law-abiding businesses are not undercut by unscrupulous competitors; and,
- Open regulatory process for public transportation.

Specific financial assistance programs are available through several boards, departments, or divisions under the jurisdiction of CalEPA and are described in this toolbox:

- California Materials Exchange (CALMAX)
- Innovative Clean Air Technologies Program
- Recycling Market Development Zone Loan Program
- CalGOLD

*For more information on this agency, contact:*

**California Environmental Protection Agency**

555 Capitol Mall Suite 525

Sacramento, CA 95814

Phone: (916) 445-3846

Website: [www.calepa.ca.gov](http://www.calepa.ca.gov)

## **California Integrated Waste Management Board**

The California Integrated Waste Management Board (CIWMB) is responsible for managing California's solid waste stream. The Board is helping California divert 50% of its waste from landfills by 2000 by

- Developing waste reduction programs;
- Providing public education and outreach;
- Assisting local governments and businesses; and,
- Fostering market development for recyclable materials.

The Board also protects public health and the environment by

- Encouraging used oil recycling;
- Regulating waste management facilities;
- Cleaning up abandoned and illegal dump sites.

The Waste Board is one of six agencies under the umbrella of the California Environmental Protection Agency.

*For more information on this agency, contact:*

**California Integrated Waste Management Board**

8800 Cal Center Drive

Sacramento, CA 95826

*Phone:* (916) 255-2200

*Website:* [www.ciwmb.ca.gov](http://www.ciwmb.ca.gov)

***California Air Resources Board***

The California Air Resources Board (ARB) mission is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the State.

*For more information on this agency, contact:*

**California Air Resources Board (ARB)**

2020 L Street

Sacramento, CA 95814

*Phone:* (916) 322-2990

*Fax:* (916) 445-5025

*Website:* [www.arb.ca.gov](http://www.arb.ca.gov)

## **California Trade and Commerce Agency**

The California Trade and Commerce Agency is the State's lead agency for promoting economic development, job creation, and business retention in California by offering both loans and grants as well as other types of financial assistance. To improve California's economic climate, the agency works closely with various permit-issuing State and municipal government agencies, domestic and international businesses, economic development corporations, chambers of commerce, and regional visitor convention bureaus.

The agency's programs and offices assist in-state expansion of existing companies while nurturing the growth of emerging industries and small businesses. Information on the following programs can be found in this toolkit:

- California Loan Guarantee Program
- California Small Business Financial Development Micro Loan Guarantees
- California Technology Investment Partnership Program (CalTIP)
- Clean Small Business Loan Program (CLEAN )
- Economic Revitalization Manufacturing Property Tax Rebates
- Enterprise Zone Program
- Manufacturing Technology Program
- Goldstrike Partnership
- Hazardous Waste Reduction Direct Loans
- Sudden and Severe Economic Dislocation Loan Program (SSED)

*For more information on this agency, contact:*

**California Trade and Commerce Agency**

801 K Street

Sacramento, CA 95814

*Website:* [commerce.ca.gov](http://commerce.ca.gov)

## **California Office of Small Business**

The California Office of Small Business offers a wide array of programs and services to small business and entrepreneurs starting, buying, or expanding their operations in California. About 98% of all employers or one million businesses in California are small businesses employing less than 100 workers, and they provide more than 7 million jobs or half of California's workforce.

*For more information on this agency, contact:*

**California Office of Small Business**

801 K Street, Suite 1700

Sacramento, CA 95814

*Phone:* 1-800-303-6600 (recorded information)

916-324-1295

### ***California Small Business Development Centers***

Management and technical assistance may be obtained through the Small Business Development Centers. The Centers' one-stop business counseling, planning, marketing, and training programs which link Federal, State, educational and private resources are available in nearly every county in California. Under certain circumstances, some centers also provide export assistance, technology resources, and disaster relief assistance. A list of California Small Business Development Centers may be found in the Federal Programs section of this toolkit.

### ***California Small Business Financial Development Corporations***

The California Small Business Financial Development Corporations provide loan guarantees, bond guarantees, and special direct loans to qualified small business owners. CSBFDCs offer two types of financial assistance through their Loan Guarantee Program and the Micro Loan Guarantee Program. The loan guarantee program has the capacity to guarantee more than \$120 million for starting or expanding small businesses. Direct loans include farm loans in targeted areas; underground storage tank replacement or removal; environmental compliance loans; and the fishing fleet loan program for energy retrofitting. Disaster relief programs in the form of "bridge or interim loans" are available when the situation arises. To apply for a loan guarantee or a special direct loan, call the California Office of Small Business for the location of the Corporation nearest you.

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**Bay Area Small Business Financial Development Corporation**

455 Market Street, Suite 1230  
San Francisco, CA 94105  
*Phone:* (415) 778-6110

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**California Capital Small Business Financial Development Corporation**

926 J Street, Suite 1500  
Sacramento, CA 95814  
*Phone:* (916) 442-1729

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**California Coastal Rural Development Corporation**

221 Main St., Suite 301  
Salinas, CA 93711  
*Phone:* (831) 424-1099

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**California Southern Small Business Financial Development Corporation**

600 B St., Suite 2450  
San Diego, CA 92101  
*Phone:* (619) 232-7771

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**Pacific Coast Regional Development Corporation**

3255 Wilshire Blvd., Suite 1501  
Los Angeles, CA 90010  
*Phone:* (213) 739-2999 Ext. 225

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**Hancock Urban Development Corporation**

3600 Wilshire Blvd., Suite 926  
Los Angeles, CA 90010  
*Phone:* (213) 382-4300

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**SAFE-BIDCO**

1626 Fourth St.  
Santa Rosa, CA 95404  
*Phone:* (707) 577-8621

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**Valley Small Business Financial Development Corporation**

3417 West Shaw Ave., Suite 100  
Fresno, CA 93711  
*Phone:* 209-271-9030

## ***California Small Business Advocate***

The office serves as the State's chief advocate for small business by addressing wide ranging issues impacting the small business community.

## ***California Small Business Board***

The Board is composed of newly constituted legislators and small business owners representing a broad spectrum of the California economy. The Board, through the Office of Small Business, provides marketing and advocacy services to the small business communities in California; advises the governor on matters and issues affecting the small business community; and serves as the principal advocate to the small business community.

## ***Office of Strategic Technology***

The Office of Strategic Technology (OST) was created to assist California businesses in maintaining and enhancing their technological leadership in the face of an increasingly competitive global marketplace. Its goal is to create and retain jobs by helping to leverage California technology into the development of new, commercially viable products and services. Strategic technology development for the creation of new globally competitive products and services is the engine for future economic expansion and job creation.

OST administers the Gold Strike Partnership Program for technology transfer that provides a cash match to leverage private and Federal dollars for technology development

and commercialization, particularly in response to defense industry conversion and diversification. The Office of Strategic Technology oversees three Regional Technology Alliances which form partnerships and consortia and serve as a network of technology-based, industry-driven nonprofit organizations. OST provides a framework for the internal integration of investment initiatives and infrastructure. It oversees the California Technology Investment Partnership (CAL TIP) program, infrastructure development through the three Regional Technology Alliances located in the Bay Area, Los Angeles, and San Diego areas and program development that includes the California Information Infrastructure (Information Superhighway), California Manufacturing Excellence Program, and emerging technology industry clusters.

*For more information on this agency, contact:*

**Office of Strategic Technology**

200 East Del Mar Blvd., Suite 204

Pasadena, CA 91105

*Phone:* (626) 568-9437

## California State Treasurer's Office

The State Treasurer's Office (STO) was created in 1849 with the adoption of the State Constitution. The STO is one of several central service agencies which function as part of the State's fiscal administrative network. In general, the Treasurer's Office provides banking, investment, and trust services for State Government with a minimum interest and service cost and with a maximum yield on investments.

The State Treasurer is charged with the responsibility for investing temporarily surplus operating funds, coordinating and consolidating the collection of State revenues, providing for the custody of all money and securities belonging to or held in trust by the State, administering the State's bond debt program, redeeming and reconciling State warrants issued in payment for goods and services, and payment of warrants drawn by the State Controller and other State agencies.

The STO oversees the following agencies:

- Pollution Control Financing Authority (CPCFA)
- California Industrial Development Financing Advisory commission (CIDFAC)
- Franchise Tax Board
- State Board of Equalization Audit Evaluation and Planning

Information on the following programs can be found in this toolbox:

- California Capital Access Program (CalCAP)
- Enterprise Zone Program
- Industrial Development Bonds (IDBs)
- Manufacturers' Investment Tax Credit
- Sales and Tax Use Exemption
- Small Business Pollution Control Tax-Exempt Bond Program
- Large Business Pollution Control Tax-Exempt Bond Program

*For more information on this agency, contact:*

**State Treasurer's Office**

725 South Figueroa, Suite 400

Los Angeles, CA 90017

Phone: (213) 620-4467

**State Treasurer's Office**

915 Capitol Mall

Sacramento, CA 95814

Phone: (916) 653-2995

Website: [www.treasurer.ca.gov/stohome.htm](http://www.treasurer.ca.gov/stohome.htm)

Mail: Post Office Box 942809  
Sacramento, CA 94209-0001

## California Energy Commission

The California Energy Commission is the State's primary energy policy and planning agency, charged with ensuring a reliable and affordable energy supply.

Created by the Legislature in 1974 and located in Sacramento, the Commission has five major responsibilities:

- Forecasting future energy needs and keeping historical energy data;
- Siting and licensing power plants;
- Promoting energy efficiency through appliance and building standards;
- Developing energy technologies and supporting renewable energy;
- Planning for and directing State response to energy emergencies.

The Energy Efficiency Division is committed to making California's businesses, homes, and appliances more energy efficient. This commitment is achieved by

- Developing and implementing economic energy efficiency building standards which help ensure comfort and affordability;
- Identifying and developing ways to streamline energy use in agriculture, manufacturing, water systems, and processing functions;
- Letting Californians know that using energy wisely is a good investment in the economy and the environment.

Information on the following CEC program is contained in this toolbox:

- Public Interest Energy Research (PIER) Program

*For more information on this agency, contact:*

**California Energy Commission**

1516 Ninth St.

Sacramento, CA 95814-5512

*Phone:* (800) 555-7794 (CA)

(916) 654-5106 (Outside CA)

*Fax:* (916) 654-4304

*Website:* [www.energy.ca.gov](http://www.energy.ca.gov)

## **Air Quality Assistance Fund**

The Air Quality Assistance Fund (AQAF) was established to increase the availability of financial assistance to small businesses for the purpose of complying with South Coast Air Quality Management District's (SCAQMD) air quality regulations. The AQAF is available for small businesses in need of financing for the purchase and installation of air pollution controls, or for process changes to comply with air quality rules. The AQAF will issue a guaranty of repayment to your lender if you are an eligible, credit-worthy small business.

This program is designed to motivate lenders to offer financing terms usually available to only their most-preferred customers - lower interest rates, longer repayment schedules, and the lowest financing costs. This will help you avoid using scarce working capital or credit lines when you need to invest in air pollution control equipment.

Loan guarantees, which can range between \$25,000 to \$250,000, can be issued for up to 90% of the loan amount and accrued interest. The maximum term of repayment is seven years - this helps keep the monthly payment manageable.

The AQMD does not lend money. Your lender must apply for a loan guaranty on your behalf. If you need a lender, the AQMD can help you find one and work with them to get the funding started.

The South Coast AQMD is the smog control agency for all or portions of Los Angeles, Orange, Riverside, and San Bernardino Counties, California. SCAQMD accomplishes its work in achieving and maintaining healthful air quality through a comprehensive program of planning, regulation, compliance assistance, enforcement, monitoring, technology advancement, and public education.

In addition the AQMD's Small Business Assistance Office can help business owners comply with clean air rules in the most cost-effective way possible. The Small Business Assistance Office believes that there are many ways to prevent pollution in business operations just by changing the choices in production process and equipment that a business owner makes everyday.

*For more information on this program, contact:*

**Small Business Assistance Office**

*Phone:* 800-CUT-SMOG

*Website:* [www.aqmd.gov/business/basb.html](http://www.aqmd.gov/business/basb.html)

**South Coast Air Quality Management District**

AQMD Headquarters

21865 E. Copley Drive

Diamond Bar, CA 91765

*Phone:* 909-396-2000

800-CUT-SMOG

Website: [www.aqmd.gov](http://www.aqmd.gov)

## **California Capital Access Program (CalCAP)**

CalCAP provides loan portfolio insurance for banks to encourage banks to make loans to small businesses that carry higher-than-conventional lending risk. CalCAP is available through banks statewide. A bank can enroll all or a portion of a loan. CalCAP allows a lender to cover loans beyond its conventional risk threshold whether it is for all of a loan or only a portion. Any Federal or State-chartered bank, savings association, or credit union is eligible to participate in CalCAP. Lenders set all terms and conditions of the loans and decide which loans to enroll into CalCAP.

The maximum loan amount is \$2.5 million. The maximum premium that CPCFA will pay, per loan, is \$100,000. Loans can be short- or long-term, have fixed or variable rates, be secured or unsecured, and bear any type of amortization schedule. Funds, loans, or lines of credit, may be used for the acquisition of land, construction or renovation of buildings, and purchase of equipment and inventory. To be eligible under this program, the business must do business in California, be classified as a small business under U.S. Small Business Administration guidelines or have fewer than 500 employees.

Eligible lenders include any Federal or State-chartered bank, savings association, or credit union. Loans received may be used to finance the acquisition of land, construction or renovation of buildings, the purchase of equipment, other capital projects, and working capital.

### ***Program Process***

A “near bankable” business applies to their local bank for a business loan and pays a premium to get that loan. The lender then applies to CPCFA to participate in CalCAP and enrolls each loan into the program. The lender also contributes a premium to the portfolio loss reserve account. The CPCFA, at the time of loan enrollment, pays a matching premium into the loss reserve account. In the case of a loss, CPCFA pays the claims that are submitted by the lender.

*For more information on this program, contact:*

**California Pollution Control Financing Authority (CPCFA)**

State of California Treasurer’s Office

915 Capitol Mall, Room 466

Sacramento, CA 95814

Phone: (916) 654-5610

Website: [www.treasurer.ca.gov/calcap.htm](http://www.treasurer.ca.gov/calcap.htm)

## Clean Small Business Loan Program

In 1992 the California Pollution Control Financing Authority began issuing loans to small businesses under a program called California Loans for Environmental Assistance Now (CLEAN). Through CLEAN, the Authority provides loans to small businesses for the purchase and installation of pollution control equipment that meets current or future regulatory standards.

The California Pollution Control Financing Authority uses its Small Business Assistance Fund to make direct loans to small businesses that qualify for CLEAN loans. The California Trade and Commerce Agency reviews loan applications and makes recommendations to the Authority for loan approval.

To qualify for a CLEAN loan, the applicant must be a California small business, meet standard lending requirements, provide collateral, and use all proceeds for the project.

The interest rate is comparable to commercial bank loans to businesses. The rate will be fixed at the time of funding, depending on market conditions. The maximum loan under this program is \$750,000 per project per borrower with a minimum loan of \$10,000. The maximum loan term is seven years. A loan origination fee of 2% will be collected from the applicant at the time of funding. This fee can be financed or capitalized. The applicant will have some out-of-pocket expenses to be paid to close the transaction, i.e. title company charges, credit reports, and so forth.

An eligible project must reduce emissions, effluents or other contaminants. Projects might include closed-end dry cleaning equipment, filters, fluid filtration systems, waste water pre-treatment facilities, chemical coating or processing equipment, printing equipment, paint spray booths, restaurant kitchen emission controls (such as filters), small boiler emission controls, thermal oxidizers and any other process that controls, reduces, or eliminates pollution.

Loan financing includes:

- environmental assessment services;
- control measure design;
- control measure implementation, including equipment acquisition and installation;
- direct costs of financing, including the loan fees;
- other costs associated with implementation.

One hundred percent of the eligible costs of a project can be financed with a CLEAN loan.

*For more information on this program, contact:*

**California Trade and Commerce Agency**

Office of Small Business

801 K Street, Suite 1700

Sacramento, CA 95814

*Phone:* (916) 324-9582

(916) 324-1295

*Fax:* (916) 322-5084

*Website:* [www.calepa.ca.gov/epareview/loan.txt](http://www.calepa.ca.gov/epareview/loan.txt)

**California Pollution Control Financing Authority (CPCFA)**

State of California Treasurer's Office

915 Capitol Mall, Room 466

Sacramento, CA 95814

*Phone:* (916) 654-5610

## Enterprise Zone Program

California's Enterprise Zone Program, an innovative partnership between the State, local government, and the private sector, spurs business development in 34 designated areas through special zone incentives. Only companies located within enterprise zones are eligible and incentives may include

- Up to 100% net operating loss (NOL) carry-forward for up to 15 years.
- Firms can earn \$26,000 or more in State tax credits for each qualified employee hired.
- Corporations can earn sales tax credits on purchases of \$20 million per year for qualified machinery and machinery parts.
- Up-front expensing of certain depreciable property.
- Lenders to businesses within an Enterprise Zone may receive a net interest deduction.
- Unused tax credits can be applied to a future tax year, stretching out the benefit of the initial investment.
- Enterprise zone companies can earn preference points on State contracts.
- Local enterprise zone communities may also offer local incentives such as reduced local permit fees, expedited processing of plans and permits, reduced utility rates, and low-interest revolving loans.

All businesses who are located in an Enterprise Zone are eligible for program benefits. In addition, local incentives may be available that include reduction or elimination of local permit and construction-related fees; expeditious processing of plans and permits; reduced utility rates; reduced land costs, assistance in employee hiring; low-cost financing and low-interest revolving loans. Contact the California Trade and Commerce Agency's Enterprise Zone Program office for additional information or the appropriate local area contact listed below.

### *Enterprise Zone contacts:*

Agua Mansa (Riverside, Colton, Rialto)	(909) 388-0832
Altadena/Pasadena	(626) 744-4660
Antelope Valley (Palmdale, Lancaster, Los Angeles County)	(661) 267-5125
Southeast Metropolitan Bakersfield	(661) 862-5029
Calexico	(760) 768-2177
Coachella Valley (Coachella, Indio, Thermal)	(760) 391-5176
Delano	(661) 721-3340
Eureka	(707) 441-4216
Fresno	(559) 498-4591
Kings County (Hanford, Lemoore, Corcoran)	(559) 582-4326
Lindsay	(559) 562-7117
Long Beach	(310) 570-3821
Los Angeles, Central City	(213) 485-2956

Los Angeles, Eastside	(213) 485-4767
Los Angeles, Northeast Valley (Pacoima)	(213) 485-2956
Los Angeles, Mid-Alameda Corridor (Los Angeles, Lynwood, Huntington Park, South Gate)	(213) 485-2956
Los Angeles, Harbor Area	(213) 485-2956
Madera	(559) 675-7768
Merced/Atwater	(209) 385-4788
Oakland	(510) 238-7794
Oroville	(530) 538-2433
Pittsburg	(925) 439-3505
Porterville	(559) 782-7460
Richmond	(510) 307-8140
Sacramento, Florin Perkins	(916) 440-1399 ext. 411
Sacramento, Northgate/Norwood	(916) 440-1399 ext. 411
Sacramento, Army Depot	(916) 440-1399 ext. 411
San Diego-San Ysidro/Otay Mesa	(619) 424-0231
San Diego-Southeast/Barrio Logan	(619) 424-0231
San Francisco	(415) 861-4002
San Jose	(408) 277-3616
Santa Ana	(714) 647-6987
Shafter	(661) 746-6365
Shasta Metro (Redding, Anderson)	(530) 225-5300
Shasta Valley (Yreka, Weed)	(530) 842-1638
Stockton	(209) 937-8530
Yuba/Sutter (Yuba City, Marysville)	(530) 741-6248
Watsonville	(831) 728-6152
West Sacramento	(916) 373-5860

**California Trade and Commerce Agency**

Enterprise Zone Program

801 K Street, Suite 1700

Sacramento, CA 95814

*Phone:* (916) 324-8211

*Fax:* (916) 322-7214 (fax)

*Website:* [commerce.ca.gov/business/select/communities/entzone.html](http://commerce.ca.gov/business/select/communities/entzone.html)

**Specialized or Technical Tax Questions:**

Franchise Tax Board

Resource Development Section

PO Box 1468

Sacramento, CA 95812-1468

*Phone:* (916) 845-3464

# California Employment Training Panel

The Employment Training Panel is a California State agency created in 1982 as a cooperative business-labor program to retrain workers. ETP was designed to fund training that meets the needs of employers for skilled workers and the need of workers for good, long-term jobs. This employer-supported training is used to improve the economic climate by training new workers and retraining workers in danger of being laid off as a result of technological advancements in the workplace, and because of foreign and domestic competition.

ETP has paid over \$600 million in training funds since its inception, with over 300,000 California workers trained. ETP has served 28,000 California businesses, and 80% of the companies participating have been small businesses with fewer than 250 employees per firm.

ETP uses the Employment Training Fund (one-tenth of one percent of subject unemployment insurance wages paid by every private, for-profit employer in the State and some nonprofits also) amounting to no more than \$7.00 per covered employee per year. ETP usually provides between \$60-80 million per year in training funds. In general, companies are eligible to apply for ETP funding provided they are paying into the State's Employment Training Fund (ETF) and:

- Are hiring and training unemployed workers who are receiving unemployment insurance (UI) benefits; and/or,
- Face Out-of-State competition and need to retrain current employees; and/or,
- Need to upgrade workers in areas where there are demonstrable skills shortages; and/or,
- Have special, unique training programs in areas such as defense conversion, entrepreneurial training, and new industries.

*For more information on this program, contact:*

*Website:* [www.etp.ca.gov](http://www.etp.ca.gov)

**Northern California  
Employment Training Panel**  
1100 J Street, 5<sup>th</sup> FL  
Sacramento, CA 95814  
*Phone:* 916-327-5582

**San Diego Area  
Employment Training Panel**  
5333 Mission Center Rd., Ste 300  
San Diego, CA 92108  
*Phone:* 619-686-1920

**San Francisco Bay Area  
Employment Training Panel**  
177 Bovet Road Ste 180  
San Mateo, CA 94402  
*Phone:* 650-655-6930

**Greater Los Angeles Area  
Employment Training Panel**  
4640 Lankershim Blvd. Ste 311  
North Hollywood, CA 91602  
*Phone:* 818-505-6200

# Manufacturing Technology Program

Existing law establishes the Manufacturing Technology Program within the Trade and Commerce Agency, to provide matching grants and technical assistance to California nonprofit corporations and public agencies to perform various functions relating to the development, diffusion, and implementation of manufacturing technology in the State. Investments by the State, in the form of grants, are awarded on a competitive basis to eligible applicants.

The purpose of the Manufacturing Technology Program is to provide funding on a competitive basis to applicants who submit proposals to a manufacturing program of a Federal agency or department in response to requests for proposals, broad area announcements, or other Federal funding mechanisms. The targeted Federal programs must be: (1) nationally competitive, (2) require applicants to contribute matching funds (i.e. cost share), *and* (3) be relevant to Manufacturing Technology, subject to the provisions of the attached regulations.

The objectives of this matching grant program are to 1) aid California in the development of an effective manufacturing improvement infrastructure that encourages and supports the improvement and growth of manufacturers throughout the State, and 2) make California proposals in manufacturing technology projects more competitive in National Federal solicitations by supporting projects which leverage a broad spectrum of private sector, Federal and State resources in pursuit of creating new, globally competitive, commercial products and services that will lead to sustained economic growth and job creation.

Submitted proposals must meet all of the following eligibility criteria:

- Applicant complied with requirements specifying funding be tied to a specific Federal Award program, if required by the solicitation for a specific grant funding cycle;
- Submitted by the applicant themselves;
- Only one proposal per applicant;
- Received by the deadline specified in the solicitation;
- Manufacturing Technology Program Budget Form is included in proposal;
- Amount requested does not exceed 33% of budget costs per year;
- Demonstrates that 100% of the Agency funds will be spent in California;
- At least 33% of the project costs shall be provided by sources other than the Federal Government and/or California Trade and Commerce Agency.

*For more information on this program, contact:*

**Office of Strategic Technology**  
California Trade and Commerce Agency  
200 East Del Mar Boulevard, Suite 204  
Pasadena, CA 91105  
*Phone:* (626) 568-9437

## Goldstrike Partnership

The Goldstrike Partnership is a program of the California Trade and Commerce Agency's Office of Strategic Technology (OST) which supports the development, application, and commercialization of technology to create jobs, respond to industry changes, and foster competitiveness. The California Goldstrike Partnership is a public/private partnership between the State of California and three regional technology alliances, created through legislation in 1993 by the State of California in response to the needs of small defense industry companies affected by the reduction of Federal defense spending. The mission of the Partnership is to accelerate the development of new technology products and services to the marketplace, with the express purpose of supporting industry clusters in multimedia, health care technologies, software development, information displays, environmental technologies and other emerging industries.

OST also administers programs that provide cash matches to leverage private and Federal dollars for technology development and commercialization, particularly in response to defense industry conversion. OST currently has two grant programs: The Manufacturing Technology Program and the California Technology Investment Partnership (CalTIP) which are discussed separately.

*For more information on this program, contact:*

**The Goldstrike Partnership**  
Office of Strategic Technology,  
Trade and Commerce Agency  
200 East Del Mar Boulevard Suite 204  
Pasadena, CA 91105  
*Phone:* (626) 568-9437  
*Fax:* (818) 568-9962  
*Website:* goldstrike.net

**The Bay Area Regional Technology Alliance (BARTA)**  
39675 Cedar Boulevard Suite 135  
Newark, CA 94560-5490  
*Phone:* (510) 354-3900  
(888) 273-2604  
*Fax:* (510) 354-3903  
*Website:* www.barta.org

**The Los Angeles Regional Technology Alliance (LARTA)**  
746 W. Adams Blvd.  
Los Angeles, CA 90089-7727  
*Phone:* (213) 743-4150  
*Fax:* (213) 747-7307  
*Website:* www.larta.org

**The San Diego Regional Technology Alliance (SDRTA)**  
225 Broadway Suite 1250  
San Diego, CA 92101  
*Phone:* (619) 615-1050  
*Fax:* (619) 615-1058  
*Website:* www.sdrta.org

## Hazardous Waste Reduction Direct Loans

The California Trade and Commerce Agency, through the Office of Small Business, offers a direct loan program to finance equipment or a production practice which either achieves a net reduction in solid waste generated or lessens the hazardous properties of the solid waste generated.

Small Businesses that have an Environmental Protection Agency Identification Number and generate solid hazardous waste are eligible. Loan proceeds can be used to finance equipment and/or changes in production practices that will reduce the solid waste generated or lessen the hazardous properties of the solid waste generated. The minimum loan is \$20,000. The maximum loan is \$150,000. Loan terms are for seven years and adequate collateral equity is required. These loans offer below conventional market rates with a loan fee of 2% paid at final loan closing.

*For more information on this program, contact:*

**California Trade and Commerce**

California Office of Small Business  
801 K Street, Suite 1700  
Sacramento, CA 95814916-323-0777

Applications are available from the following authorized loan packagers:

Bay Area Small Business  
Financial Development Corp.  
1814 Franklin Street, Suite 900  
Oakland, CA 94612  
*Phone:* 510-267-9300

California Coastal Rural  
Development Corporation  
221 Main St., Suite 301  
Salinas, CA 93711  
*Phone:* 408-424-1099

Pacific Coast Regional  
Development Corporation  
3255 Wilshire Blvd., Suite 1501  
Los Angeles, CA 90010  
*Phone:* 213-739-2999 Ext. 225

SAFE-BIDCO  
1626 Fourth St.  
Santa Rosa, CA 95404  
*Phone:* 707-577-8621

California Capital Small Business  
Financial Development Corp.  
926 J Street, Suite 1500  
Sacramento, CA 95814  
*Phone:* 916-442-1729

California Southern Small Business  
Financial Development Corporation  
600 B St., Suite 2450  
San Diego, CA 92101  
*Phone:* 619-232-7771

Valley Small Business Financial  
Development Corporation  
3417 West Shaw Ave., Suite 100  
Fresno, CA 93711  
*Phone:* 209-271-9030

## Industrial Development Bonds (IDB)

Industrial Development Bonds (IDBs) are granted by the California Industrial Development Financing Advisory Commission (CIDFAC) to assist California manufacturing businesses with funding capital expenditures for acquisitions or expansions. This program allows a business to borrow funds at competitive rates through the issuance of tax-exempt bonds enhanced by a letter of credit. These bonds can be used for several kinds of projects:

- Industrial projects for assembling, fabrication, manufacturing, or processing which creates a product for sale;
- Energy development projects, production, collection, or conversion;
- Projects which manufacture or process recycled or reused products and materials.

Bond proceeds may be used for buildings and equipment; machinery and furnishings; land; costs of architects, engineers, attorneys, and permits; costs of bond issuance; and landscaping.

IDB Bonds may be up to \$10 million per applicant per public jurisdiction. The total outstanding IDBs by any one company nationwide may not exceed \$40 million. One job should be created for every \$50,000 of bonds issued. If a company is relocating within the State, the company is required to advise the city or county where it is presently located and make an effort to find suitable space in the same vicinity.

There are several Federal restrictions on the use of bond proceeds:

- 95% of proceeds must be used for the defined IDB project;
- 2% of bond proceeds can be used for costs of issuance;
- 25% of bond proceeds can be used for land costs;
- A notice public hearing (TEFRA) must be held before the bonds are issued;
- To acquire an existing building, a minimum of 15% of the bond proceeds must be used to renovate the facility;
- The weighted average life of the bond issue cannot exceed 120% of the weighted average of the estimated useful life of the assets being financed;
- The bond maturities cannot exceed 40 years.

*For more information on this program, contact:*

**California Industrial Development Financing Advisory Commission**

Philip Angelides, State Treasurer and Chair

Michael Picker, Executive Director

915 Capitol Mall

Sacramento, CA 95814

*Phone:* (916) 653-3843

*Website:* [www.treasurer.ca.gov/cidfdes.htm](http://www.treasurer.ca.gov/cidfdes.htm)

## California Materials Exchange (CALMAX)

CALMAX is a free service, offered by the California Integrated Waste Management Board (CIWMB), designed to help businesses find markets for materials they have traditionally discarded, enabling businesses, industries, and institutions to save resources and money. This helps to conserve energy, resources, and landfill space. In turn, businesses, schools, and nonprofits can utilize CALMAX's resources to search for available, needed materials to reuse.

CALMAX also aims to help California reach the goals of AB939, mandating that cities and counties must reduce the amount of waste going to landfills 50% by the year 2000. CALMAX offers new markets for excess materials, reduced disposal costs, an aid for economic development, and environmental enhancement. CALMAX has diverted 550,000 tons of waste from landfills since 1992, saving businesses over \$5 million. CALMAX can reduce or eliminate disposal fees, find buyers for materials typically discarded, locate free or inexpensive materials and feedstocks, enhance your image as an environmentally-conscious business, and help you gain tax benefits through the KidMAX program.

### Services Offered Through CALMAX:

- A catalog of materials available and wanted. Any business, nonprofit group, or Government agency can list materials they have available or would like to acquire, either for free or at a bargain.
- A CAL-MEX component to encourage exchanges of useful discards within the California/Mexico border.
- Special matchmaking assistance. CALMAX exchange facilitators work with businesses to find customers of sources of materials as soon as possible.
- KidMAX, a special promotion to solicit available listings from California's schools during these challenging times of limited resources. CALMAX encourages materials to the schools be donated.

To place a "materials wanted" or "materials available" listing, or to receive a CALMAX catalog contact CALMAX.

*For more information on this program, contact:*

**California Integrated Waste Management Board (CIWMB)**

California Materials Exchange (CALMAX program)

8800 Cal Center Drive MS23

Sacramento, CA 95826-3268

Phone: (916) 255-2369

*Website:* [www.ciwmb.ca.gov/CALMAX](http://www.ciwmb.ca.gov/CALMAX)  
*E-mail:* [CALMAX@ciwmb.ca.gov](mailto:CALMAX@ciwmb.ca.gov)

## California Loan Guarantee Program

The California Loan Guarantee Program enables a small business to obtain a term loan or line of credit when it cannot otherwise qualify for a loan. The Office of Small Business administers the program with the primary objective of creating and retaining jobs, as well as providing a service to small businesses (including women, minority, and disabled owned). The program provides a lender with the necessary security, in the form of a guarantee, for the lender to approve a loan or line of credit. The guarantees are issued on behalf of the State by any of eight nonprofit corporations throughout California. These offices are called Small Business Financial Development Corporations (FDCs). Some FDCs offer direct loans up to \$25,000. This program is not related to any SBA program.

Any small business as defined by the Federal Small Business Administration (SBA) is eligible. Proceeds must be used primarily in California, and for any standard business purpose beneficial to the applicant's business, such as expansion into new facilities or to purchase new equipment.

The guarantee amount is normally, 80% of the loan amount, with the guaranteed portion of the loan not exceeding \$350,000. Micro loans, up to \$25,000, are fully guaranteed. The guarantee's maximum percentage may vary among the FDCs and are subject to negotiation between the FDC and the lender.

The term of the guarantee may extend up to seven years, with the average term being about three years. Interest rates are negotiated between the borrower and the lender. The FDCs can charge a guarantee fee of up to 2% of the amount guaranteed, plus a documentation fee of \$250.

The processing time for loan guarantees, is usually three to five weeks, depending on how fast the applicant provides the necessary information and documentation, and on the lender's responsiveness. Collateral is required, if available, but each transaction is tailored to meet the borrower's financial situation.

This program allows a business to not only obtain a loan it could not otherwise obtain, but to establish a favorable credit history with a lender. With that, the business may obtain further loans on its own, without the assistance of the program.

Contact directly, or through your bank, any of the eight FDCs listed below. Applications which are supported by a bank give the applicant a better chance at approval.

*For more information on this program, contact:*

**Bay Area Small Business Financial Development Corporation**

455 Market Street, Suite 1230

San Francisco, CA 94105

Phone: 415-778-6110

**California Capital Small Business Financial Development Corporation**

926 J Street, Suite 1500

Sacramento, CA 95814

*Phone:* 916-442-1729

**California Coastal Rural Development Corporation**

221 Main St., Suite 301

Salinas, CA 93711

*Phone:* 831-424-1099

**California Southern Small Business Financial Development Corporation**

600 B St., Suite 2450

San Diego, CA 92101

*Phone:* 619-232-7771

**Pacific Coast Regional Development Corporation**

3255 Wilshire Blvd., Suite 1501

Los Angeles, CA 90010

*Phone:* 213-739-2999 Ext. 225

**Hancock Urban Development Corporation**

3600 Wilshire Blvd., Suite 926

Los Angeles, CA 90010

*Phone:* 213-382-4300

**SAFE-BIDCO**

1626 Fourth St.

Santa Rosa, CA 95404

*Phone:* 707-577-8621

**Valley Small Business Financial Development Corporation**

3417 West Shaw Ave., Suite 100

Fresno, CA 93711

*Phone:* 209-271-9030

*Website:* [commerce.ca.gov/business/small/financial/loanguarantee.html](http://commerce.ca.gov/business/small/financial/loanguarantee.html)

## California Small Business Financial Development Micro Loan Guarantees

The purpose of the Micro Loan Program is to provide a means of making loans of \$25,000 or less to small businesses who, because of the size of their request or failure to meet certain lending criteria, cannot find a lender willing to make such a loan available to them. The maximum amount of the loan is \$25,000 with a term of up to 5 years. Micro Loans are fully guaranteed. The funds may be used for equipment, acquisition, plant improvements, inventory, or permanent working capital. Only small businesses located in California are eligible.

Contact directly, or through your bank, any of the eight FDCs listed below. Applications which are supported by a bank give the applicant a better chance at approval.

*For more information on this program, contact:*

**Bay Area Small Business  
Financial Development Corp.**

455 Market Street, Suite 1230  
San Francisco, CA 94105  
*Phone:* 415-778-6110

**California Coastal Rural  
Development Corporation**

221 Main St., Suite 301  
Salinas, CA 93711  
*Phone:* 831-424-1099

**Pacific Coast Regional  
Development Corporation**

3255 Wilshire Blvd., Suite 1501  
Los Angeles, CA 90010  
*Phone:* 213-739-2999 Ext. 225

**SAFE-BIDCO**

1626 Fourth St.  
Santa Rosa, CA 95404  
*Phone:* 707-577-8621

**California Capital Small Business  
Financial Development Corp.**

926 J Street, Suite 1500  
Sacramento, CA 95814  
*Phone:* 916-442-1729

**California Southern Small Business  
Financial Development Corporation**

600 B St., Suite 2450  
San Diego, CA 92101  
*Phone:* 619-232-7771

**Hancock Urban Development  
Corporation**

3600 Wilshire Blvd., Suite 926  
Los Angeles, CA 90010  
*Phone:* 213-382-4300

**Valley Small Business Financial  
Development Corporation**

3417 West Shaw Ave., Suite 100  
Fresno, CA 93711  
*Phone:* 209-271-9030

*Website:* [commerce.ca.gov/business/small/financial/loanguarantee.html](http://commerce.ca.gov/business/small/financial/loanguarantee.html)

## **California Technology Investment Partnership Program (CalTIP)**

The mission of the California Technology Investment Partnership Program (CalTIP) is to accelerate the development of new, globally competitive technology-based commercial products and services from California firms and consortia. The CalTIP program provides matching grants and technical assistance to California-based businesses, consortia, nonprofit organizations and public agencies for projects qualifying for Federal funds through cost share technology-based projects from a variety of Federal agencies. A competitive, Federal grant is required for this program. Funds are awarded to public/private partnerships whose objective is to capitalize on California's technology and migrate that technology into the commercial marketplace to create new products and services. CalTIP provides up to a maximum of \$250,000 per award. CalTIP allows the State to leverage limited general funds while forming a comprehensive foundation for business expansion. Partnerships can be formed between Federal agencies, academic institutions, National laboratories, and corporations.

Regional Technology Alliances (RTAs) have primary responsibility for evaluating and ranking proposals from their designated geographical areas. If a proposal is statewide in nature, or if no RTA has been designated for a geographical area, applications may be sent to the California Trade and Commerce Agency's Office of Strategic Technology for evaluation and ranking.

Following the evaluation and ranking of proposals by the RTAs, the Office of Strategic Technology convenes a peer review panel to recommend State funding commitments or endorsements by the Defense Conversion Council. The peer review panels are composed of industry representatives and technical experts, nonvoting representatives from each RTA and other members.

All applications which receive a positive endorsement from the Office of Strategic Technology's peer review panel, are presented to the Defense Conversion Council. The Council makes the final funding recommendations which are transmitted to the agency responsible for administering the funding source.

Proposals are evaluated based on immediate and measurable ability to create jobs, clearly identified product line and market, inclusion of a training component for workers associated with the project, demonstrated links with other applicable programs, and whether the proposers and partners are small businesses. Contact the California Trade and Commerce Agency's Office of Strategic Technology for more information on this program.

*For more information on this program, contact:*

**California Trade and Commerce Agency**

Office of Strategic Technology  
200 East Del Mar Blvd., Suite 204  
Pasadena, CA 91105

*Phone:* (626) 568-9437

*Website:* [commerce.ca.gov/finance/tech.html](http://commerce.ca.gov/finance/tech.html)

## **Sudden and Severe Economic Dislocation Loan Program (SSED)**

The Sudden and Severe Economic Dislocation Loan Program (SSED) is an economic development revolving loan fund (RLF) provided through a partnership with the U.S. Department of Commerce, Economic Development Administration, and the California Trade and Commerce Agency. The goal is to provide capital to create and retain jobs in areas of the State affected by plant and military base closures, defense downsizing, industry layoffs, presidentially declared disasters, and other economic problems contributing to job loss in California. The program is designed to be used in conjunction with private lending and investment sources to complete projects that ordinarily wouldn't qualify for conventional lending.

Loan proceeds may be used for land and buildings (excluding construction), machinery and equipment, and working capital. Businesses may borrow from \$25,000 to \$500,000 and loan terms may go up to 20 years, depending on the use of the loan funds. Lower than market interest rates, flexible repayment terms and subordinate collateral positions provide a unique opportunity to assist loan applicants in structuring projects which will create or retain permanent employment while responding to local and statewide development strategies.

Financing objectives are flexible, however projects receiving priority consideration include

- Re-employment of recently dislocated manufacturing employees;
- Re-employment of dislocated civilian and military personnel affected by military base closures;
- Retention of jobs by suppliers and contractors affected by defense downsizing;
- Provision of capital for the manufacture of new technologies;
- Development of identified growth industries;
- Diversification of rural economies through the attraction of resource-based manufacturing.

*For more information on this program, contact:*

**Sudden and Severe Economic Dislocation Program**

California Trade and Commerce Agency

801 K Street, Suite 1700

Sacramento, CA 95814

*Phone:* 916-322-8311

*Fax:* 916-322-7214

*Website:* [commerce.ca.gov/business/select/communities/ssed.html](http://commerce.ca.gov/business/select/communities/ssed.html)



# Innovative Clean Air Technologies Program

The Innovative Clean Air Technologies (ICAT) program, established by the California Air Resources Board, will co-fund the development and demonstration of technologies that reduce air pollution. The ARB issues an ICAT request for proposals (RFP) once each fiscal year and the announcement is made in the State Contracts Register. To be eligible for ICAT funding, the project must

- Be technically feasible;
- Reduce air pollution;
- Have good market potential;
- Have the potential for job creation on California;
- Meet administrative requirements such as matching funds and the minority, women, and disabled veteran requirement.

Approximately \$1 million is available for this program annually. The maximum funding for each project is \$500,000. The ICAT program demonstrates a successful partnership between Government and private industry. ICAT helps technology innovators to nurture and further develop their clean air solutions by providing co-funding and guidance through the critical pilot, prototype, and demonstration stages until the company is ready for the commercialization of its technology.

*For more information on this program, contact:*

**California Air Resources Board, Research Division**

Innovative Clean Air Technologies

2020 L St. 1<sup>st</sup> FL

Sacramento, CA 95814

*Phone:* 916-323-1067

*Website:* [arbis.arb.ca.gov/icat/icat.htm](http://arbis.arb.ca.gov/icat/icat.htm)

*E-mail:* [icat@arb.ca.gov](mailto:icat@arb.ca.gov)

## **Manufacturers' Investment Tax Credit**

Manufacturers operating in California are eligible for a 6% manufacturers' investment credit (MIC) against State income tax for purchases of qualified machinery and equipment (over and above the Enterprise Zone tax credit where applicable). This credit is generally unlimited.

The manufacturers' investment credit can be used to offset income or franchise tax based upon the purchase or lease of manufacturing and related equipment which is "depreciable" under certain Federal regulations and has California sales or use tax paid on its purchase. The credit also includes certain capitalized labor costs. In addition "special purpose buildings and foundations," (i.e. clean rooms) for certain electronic manufacturers, semiconductor equipment manufacturers, commercial space satellite manufacturers and property related to specified pharmaceutical activity are eligible for this credit. The credit can be claimed against the bank and corporation tax. Any unused credit can be carried forward for 8 years. Specified taxpayers carry forward 10 years. It is important to note that the MIC can be coupled with enterprise zone credits discussed later in this section.

California also provides "new" or start up companies the option of a 5% partial sales or use tax exemption on all qualifying manufacturing property purchased or leased generally during the company's first three years of operation. The partial sales tax exemption is available as an option to the investment credit on an item- by-item basis. Commercial aircraft parts, maintenance, and related labor are now exempt from sales tax.

The company might prefer to claim an in-lieu sales and use tax refund equal to the MIC available for the current year. Under this program, the company can elect to file a claim for refund equal to the amount of MIC that the company could have used to offset current year franchise or income tax liability (and can be claimed no sooner that the MIC could have been claimed).

*For more information on this program, contact:*

**California Franchise Tax Board**

PO Box 942857

Sacramento, CA 94257-0540

*Phone:* 800-852-5711

*Website:* [www.ftb.ca.gov](http://www.ftb.ca.gov)

# Recycling Market Development Zone Loan Program

The Recycling Market Development Zone (RMDZ) program was created by the California Legislature to provide incentives to businesses that use secondary materials from the waste stream as feedstock for their manufacturing processes.

The RMDZs are geographic areas designated by the California Integrated Waste Management Board at the request of local governments. There are 40 zones in California, covering much of the State from the Oregon border to San Diego.

The RMDZ revolving loan program provides direct loans to businesses that use postconsumer or secondary waste materials to manufacture new products, or that undertake projects to reduce the waste resulting from the manufacture of a product. To be eligible, the business must be located in one of the 40 designated RMDZs.

Local governments may apply for funds to finance public works infrastructure that directly supports an eligible business.

Funds may be used for the following activities:

- Acquisition of equipment
- Leasehold improvements
- Working capital
- Acquisition of owner-occupied real property

Each eligible business or local government agency may borrow up to 50% of the cost of a project, for a maximum loan of \$1 million. The term of the loan is not to exceed 10 years and amortization schedules are based on the useful life of the asset being financed.

Interest rates are fixed for the term of the loan, and are set by the Board semiannually.

Check with your zone administrator for the current rate. A nonrefundable application fee of \$300.00 is due at time of application submittal. A loan origination fee of one and one-half percentage points will be charged on each loan. Points are due at the time of closing. The points are an eligible loan expense.

*For more information on this program, contact:*

**California Integrated Waste Management Board**

8800 Cal Center Drive

Sacramento, California 95826

*Phone:* 916-255-2200

*Website:* [www.ciwmb.ca.gov/mrt/mrkt sch/mktspage/default.htm](http://www.ciwmb.ca.gov/mrt/mrkt sch/mktspage/default.htm)

## **Sales and Tax Use Exemption**

The partial sales tax exemption applies to persons that commence a new trade or business as described in the 1987 Standard Industrial Classification (SIC). The partial sales tax exemption generally applies to purchases of tangible personal property used primarily for manufacturing, processing, refining, fabricating, recycling, research and development, and the repair of qualified property. As an alternative to the partial sales tax exemption, SB 676 provides an investment tax credit for purchases of qualified property by persons engaged in a business described in SIC codes 2000 to 3999.

*For more information on this program, contact:*

**State Board of Equalization Audit Evaluation and Planning**

450 N Street, MIC 40

Sacramento, CA 95814

*Phone:* 916-324-2883

*Website:* [www.boe.ca.gov](http://www.boe.ca.gov)

# Small Business Pollution Control Tax-Exempt Bond Program

The Small Business Pollution Control Tax-Exempt Bond Financing Program (SBAF Tax-Exempt Bond Program) provides loans to creditworthy small businesses for the acquisition, construction, or installation of qualified pollution control, waste disposal, and resource recovery facilities in California. Loans are funded from the sale of tax-exempt bonds issued by the California Pollution Control Financing Authority on behalf of the eligible small business. Tax-exempt bond financing provides qualified small businesses with lower interest costs than are available through conventional financing mechanisms.

Small businesses usually do not have access to financial markets in the same way that larger businesses do. The SBAF Tax-Exempt Bond program gives small businesses “access” to the financial markets by issuing the bonds on behalf of the borrower and by providing other financial and technical assistance to applicants. Some of the specific benefits a small business may realize from a SBAF financing include

- Lower interest rates;
- An enhanced work environment due to improved technology and pollution abatement;
- Business growth—more revenues, more customers, more jobs;
- Savings in terms of lower debt service and a longer pay back period than what conventional financing generally allows.

The California Pollution Control Financing Authority uses its Small Business Assistance Fund to pay for the costs of issuance of tax-exempt bonds issued on behalf of small businesses.

The SBAF also pays for letter of credit fees, transaction fees and other costs associated with the issuance of bonds. This assistance reduces the net cost of financing to the small business.

Small businesses eligible for the SBAF Tax-Exempt Bond Program must be classified as a small business under U.S. Small Business Administration guidelines (Title 13 of the Code of Federal Regulations) or have fewer than 500 employees.

Loan amounts ranging from not less than \$1,000,000 to not more than \$20 million can be obtained through the SBAF Tax-Exempt Bond Program. The proceeds may be used to pay for virtually all qualified capital costs incurred by the small business for the project, including:

- Land (as allowed by tax law)
- Buildings, fixtures, and furnishings
- Machinery and equipment
- Architectural, engineering, surveying, permitting, and other incidental costs.

Pollution control financing uses the proceeds of tax-exempt bonds issued by the California Pollution Control Financing Authority (CPCFA) to provide funds for private business capital costs. This type of financing allows the Authority to pass through to the private Borrower the lower interest costs found in the tax-exempt financial market. The tax-exempt market also usually allows longer repayment terms than conventional borrowing sources.

In the typical transaction, CPCFA issues SBAF tax-exempt bonds on behalf of the borrowing small business. The bond proceeds are deposited into a construction fund held by the Bond Trustee (usually a commercial bank). The small business borrower draws down these funds as needed to pay for the project. The small business makes periodic payments, according to the terms of the loan agreement, to repay the bonds.

*For more information on this program, contact:*

**California Pollution Control Financing Authority (CPCFCA)**

Attention: SBAF Program Manager

915 Capitol Mall, Room 466

Sacramento, CA 95814

*Phone:* 916-654-5610

*Website:* [www.treasurer.ca.gov/smallbus.htm](http://www.treasurer.ca.gov/smallbus.htm)

## **Large Business Pollution Control Tax-Exempt Bond Program**

This program provides bond financing to California businesses, regardless of company size, for the acquisition, construction or installation of qualified pollution control, waste disposal, and resource recovery facilities. Structured much the same as the Small Business Pollution Control Tax-Exempt Bond Program, funding for this year is still pending.

*For more information on this program, contact:*

**California Pollution Control Financing Authority (CPCFCA)**

State of California Treasurer's Office

915 Capitol Mall, Room 457

Sacramento, CA 95814

*Phone:* 916-654-5610

*Website:* [www.treasurer.ca.gov/cpcfca.htm](http://www.treasurer.ca.gov/cpcfca.htm)

## **Economic Revitalization Manufacturing Property Tax Rebates**

Section 5108 of California Property Tax Law now permits local governing bodies to rebate some or all of the property tax revenue that local agencies would receive from “economic revitalization manufacturing property” for a period of five fiscal years from the date the property was placed in service. Tangible personal property must be directly involved in the manufacturing process, the project must lead to the creation of 10 new full-time manufacturing jobs, the company must pay at least \$10 per hour and those jobs must be in continuous existence for the duration of the rebate. Local agencies include cities, the county, city and county, and special districts - except for school districts. These provisions end sunset on January 1, 2000, unless extended by the legislature.

*For more information on this program, contact:*

**State of California Trade and Commerce Agency**

801 K Street

Sacramento, CA 95814

*Website:* [commerce.ca.gov](http://commerce.ca.gov)

## Public Interest Energy Research (PIER) Program

The Public Interest Energy Research (PIER) Program provides approximately \$62.5 million for energy research, development, and demonstration projects. Collected from ratepayers of investor-owned utilities, PIER is dedicated to providing research assistance for energy initiatives not adequately provided by competitive and regulated markets. The program portfolio targets five subject areas:

- renewable energy technologies
- environmentally preferred advanced generation
- energy-related environmental enhancements
- end-use energy efficiency
- strategic energy research

PIER projects should reduce the cost of electricity and increase the value; increase the reliability of the electric system; reduce the environmental impacts of electricity generation, distribution and use; and provide a potential benefit to California ratepayers; demonstrate a connection to the market; and advance science and technology. Each project requires some level of match funding but there are no minimum or maximum amounts.

The six program areas of PIER are Industrial/Agriculture/Water End-use Efficiency, Building End-use Efficiency, Environmentally Preferred Advanced Generation, Renewable Generation, Energy-Related Environmental Research, and Strategic Energy Research. Several rounds of funding are initiated each year.

Within the Strategic program area is the Small Grants Innovation Program which determines the feasibility of energy technology and science innovations for new energy concepts. The Energy Innovations Small Grant Program provides up to \$75,000 to small businesses, small non-profits, individuals and academic institutions to conduct research that establishes the feasibility of new, innovative energy concepts.

*For more information on this program, contact:*

**EISG Program Administrator**

5250 Campanile Drive, MC 1934

San Diego, CA 92182-1934

*Phone:* 619-594-1049

*Fax:* 619-594-0996

*Website:* [www.energy.ca.gov/research/innovations/index.html](http://www.energy.ca.gov/research/innovations/index.html)

[www.energy.ca.gov/research/PIER/pier\\_facts.html](http://www.energy.ca.gov/research/PIER/pier_facts.html)

*E-mail:* [eisg@energy.state.ca.us](mailto:eisg@energy.state.ca.us)

## CalGOLD

In 1992 the California Environmental Protection Agency (CalEPA), combined with local and regional agencies, established a network of permit assistance centers throughout the State to help businesses comply with environmental and other regulations. So far, these centers have helped thousands of businesses establish or expand their operations. By giving businesses much of the information they need at a single location and having permitting experts from State, local, or regional agencies on site, the Permit Assistance Centers have removed much of the hassle and confusion of complying with regulations.

This year, due to the outstanding success achieved by the program and in an effort to expand program coverage from the 13 regional Centers to the entire state, Cal/EPA created California Government: On-Line to Desktops (CalGOLD) to provide permit assistance on the Internet in a cost-effective, consumer-driven manner.

Cal/EPA is continuing to partner with local and regional agencies in the State for greater coordination of multi-agency permitting processes on the Internet. The Centers are now collecting State, local, and regional permitting, licensing, and other requirements for specific businesses to maximize the use and convenience of CalGOLD.

Special software has been developed to provide customized responses to businesses' initial permit service requests. Current forms and applications required by a wide range of permitting authorities are available to businesses on the Internet. Some can be completed and submitted right over the Internet.

The CalGOLD site offers direct Internet links to State, local, regional, and Federal permitting authorities for more information.

Local agencies and business groups are able to extend the reach of this exciting new service — identifying business-by-business requirements for all State, local, regional, and Federal permits — simply by creating a link to CalGOLD from their own Internet sites.

*For more information on this program, contact:*

*Website:* [www.calgold.ca.gov](http://www.calgold.ca.gov)

Or any of Cal/EPA's Permit Assistance Centers located throughout the State. For information on the closest office, please call the Center information line at 1-800-GOV-1-STOP.

## Standard Performance Contract (SPC)

The Standard Performance Contract (SPC) program is a California Public Utilities Commission (CPUC) mandated program, overseen by the California Board for Energy Efficiency (CBEE), that is intended to stimulate the development of the private energy efficiency services industry by making financial incentives available to third parties to implement energy efficiency projects at customers' facilities. The ultimate goal of this program is to transform the current market for energy efficiency services into one that is competitive and sustainable without the need for publicly funded subsidies or utility company participation. These Standard Performance Contract (SPC) programs are funded by California ratepayers through a Public Goods Charge (PGC) and are performance-based, offering incentive payments to applicants who develop projects delivering verified energy savings at customer facilities. The State's three investor-owned utilities, Pacific Gas and Electric Company, San Diego Gas and Electric, and Southern California Edison administer the SPC programs, the Small Business Standard Performance Contract (SBSPC) program and the Large Non-Residential Standard Performance Contract (LNSPC) program.

SPC is a performance-contracting program where the rules, incentive payments, procedures, and agreements are standardized for all participants. Payments are directly tied to the measured energy savings. Key elements of the program include

- A 1-year payout of incentives;
- KWh or Therm savings determined using standardized measurement and verification (M&V) procedures;
- Project descriptions and host customer approval required before the contract is signed;
- Number of SPC participants limited by available incentive dollars.

Only a third party Project Sponsor possessing a valid business license issued in the State of California may submit applications. A Project Sponsor can be any organization that contracts with the SPC Program Administrator to provide energy savings under the Program's rules and within the program specified time frame. Energy service companies (ESCOs) are one type of Project Sponsor. The utility's non-residential customers may also participate as a Project Sponsor by developing projects at their own facilities. The Project Sponsor will receive incentive funds directly from their SPC Program Administrator. Customers may not act as their own Project Sponsor. The Project Sponsor must prove all energy savings by employing the methods approved by their SPC Program Administrator. No single Project Sponsor may receive more than 25% of the available incentives.

## *Project Application and Approval Process*

The basic flow of an SBSPC or LNSPC project is as follows:

- Basic Project Application [BPA]. The BPA provides basic information about the Project Sponsor, the Customer Site, and the project [including estimated kWh savings]. Upon approval of the BPA by the SPC Program Administrator, funding for the project, based on the estimated kWh savings, will be reserved.
- Detailed Project Application [DPA]. The DPA must be submitted within 45 days of the BPA approval [for a lighting-only project], or within 100 days for a project involving measures other than lighting. If this timeline is not met, the Project Sponsor risks expiration of the project funding. The DPA provides all the detailed information necessary for an SPC Program Administrator to check and verify the estimated savings. A proposed measurement and verification plan is one necessary part of the DPA. Upon approval of the DPA, the SPC Program and Administrator and the Project Sponsor will enter into a contract, or SPC Agreement.
- SPC Agreement [contract]. This Agreement will spell out all the terms and conditions relating to the measurement and reporting of the energy savings from the project, and the incentive payments to be made by the SPC Program Administrator.
- Project Installation Report [PIR]. Once the project installation is completed, the Project Sponsor submits a PIR. The PIR reflects the project's actual as-built condition, documents any measurement and verification activities performed, reports actual project costs and recalculates project savings estimates. After approval of the PIR, an SPC Program Administrator will make the first incentive payment and refund the installation deposit.
- Annual Savings Report [ASR]. Upon project installation, The Project Sponsor moves into a two-year performance period of the contract, during which the Project Sponsor must follow the approved measurement and verification plan to determine the actual energy savings for the project. After each year, an ASR is submitted by the Project Sponsor, summarizing the measurement results. Based on these actual energy savings, SPC Program Administrator will make the second and third incentive payments.

Some of the eligible technologies are lighting retrofits, chiller replacements, variable speed drives, lighting controls, energy management systems, and high efficiency motors. In general, an eligible measure is any electric technology that saves energy beyond the Title 24 minimum standards, for which the baseline energy and retrofit energy use can be verified. Ineligible measures include any power-producing projects such as cogeneration, switching from electric energy to another fuel, new construction projects, repair or maintenance projects, and load shifting projects.

All three utilities have electronic versions of the SPC program materials available from their SPC websites. More specific information and application materials for the small business program may be found at

Pacific Gas and Electric Company: [www.pge.com/spc/small\\_nr/index.html](http://www.pge.com/spc/small_nr/index.html)

San Diego Gas and Electric: [www.sdge.com/spc/bus/index.htm](http://www.sdge.com/spc/bus/index.htm)

Southern California Edison: [www.scespc.com/spc.nsf/spcviews/nrsb99main](http://www.scespc.com/spc.nsf/spcviews/nrsb99main)

More specific information and application materials for the large non-residential business program may be found at

Pacific Gas and Electric Company: [www.pge.com/spc/large\\_nr/index.html](http://www.pge.com/spc/large_nr/index.html)

San Diego Gas and Electric: [www.sdge.com/spc/bus/index.htm](http://www.sdge.com/spc/bus/index.htm)

Southern California Edison: [www.scespc.com/spc.nsf/spcviews/nr99main](http://www.scespc.com/spc.nsf/spcviews/nr99main)

### *Pacific Gas and Electric Time Lines*

#### **Small Business SPC**

- Basic Project Applications (BPA) may be submitted beginning April 2, 1999
- BPAs no longer accepted by PG&E after December 31, 1999
- Final date to submit Project Installation Report (PIR) is December 31, 2000
- Program ends May 10, 2002

#### **Large Non-Residential SPC**

- Basic Project Applications (BPA) may be submitted beginning March 23, 1999
- BPAs no longer accepted by PG&E after December 31, 1999
- Final date to submit Project Installation Report (PIR) is December 31, 2000
- Program ends May 10, 2003.

#### *Contact information and application submittal address:*

##### **Pacific Gas and Electric Company**

Mail Code H28L

PO Box 770000

San Francisco, CA 94177

Attention: Bruce Douglas

*E-mail:* [bsd5@pge.com](mailto:bsd5@pge.com)

*Phone:* 415-972-5853

PG&E will date stamp and log in all program materials that it receives. It is recommended that materials be sent certified or registered mail.

### *San Diego Gas and Electric Time Lines*

#### **Small Business SPC**

- Basic Project Applications (BPA) may be submitted beginning April 2, 1999

- BPAs no longer accepted by PG&E after December 31, 1999, or after all funds are committed

### **Large Non-Residential SPC**

- Basic Project Applications (BPA) may be submitted beginning March 1, 1999
- BPAs no longer accepted by PG&E after December 31, 1999, or after all funds are committed.

*Contact information:*

**San Diego Gas & Electric**  
 9965 Carroll Canyon Road  
 San Diego, CA 92131-1105  
 Attention: Linda Linderman  
*Phone:* 619-621-8808  
*E-mail:* llinderm@sdge.com

**Measurement and Verification Information:**

Ron Rubin  
*Phone:* 619-654-1244  
*E-mail:* rrubin@sdge.com

**Technical Information:**

Jeffrey Van Horn  
*Phone:* 619-536-4008  
*E-mail:* jvanhorn@sdge.com

*Southern California Edison Time Lines*

The SBSPC and LNSPC programs will remain open for application until the total program incentive budget is committed, or until December 31, 1999, whichever occurs first.

*Contact information for SBSPC and LNSPC programs:*

**General Information:**

*E-mail:* SPC99@sce.com

**Technical/Measurement and**

**Verification/or Forms Information:**

Bob Botkin  
*Phone:* 626-302-8259  
*E-mail:* botkinrc@sce.com

**SPC Program Manager:**

Grant Hjelsand  
*Phone:* 626-302-8131  
*E-mail:* hjelsagr@sce.com

## California Energy Service Companies (ESCOs)

ESCOs provide energy efficiency improvements and energy management services to companies. ESCOs are paid out of the savings realized from the improvements they recommend and install. Because this return is performance-based, the ESCO will monitor the savings, against a predetermined baseline, over the course of the contract. Contact the following ESCOs who are either located in California or who provide services to California companies.

Companies denoted with a \* are members of the National Association of Energy Service Companies (NAESCO). In some cases there is more than one office located in California, phone numbers for multiple locations are given where appropriate and available. In other cases an ESCO may be able to provide services to California-based companies but may not have an office located in the State.

Aircon Energy, Inc.	916-922-2004	Honeywell, Inc.*	
American Illuminetics	760-438-3338	(San Jose)	508-433-3000
Bechtel National, Inc.	415-768-4918		(San Francisco/Hayward)
The Bentley Company	510-945-3500	510-256-2000	
Bosek, Gibson and Associates, Inc.*	813-960-3399	(San Diego)	619-671-5600
CH2M Hill	714-429-2000	Johnson Controls, Inc.*	
Comprehensive Energy Management, Inc.	714-722-6457	(Southern CA Area)	562-799-8882
CES/Way International, Inc.		(Golden Pacific Area)	510-783-4000
A Sempra Energy Solutions* Company	713-361-7600	(Rancho Cordova)	916-635-6699
Davis Energy Group, Inc.	916-753-1100	(Rancho Dominguez)	310-637-8800
D-Base Communications, Inc.	909-335-1699	(San Diego)	619-560-9966
Edison Source/Edison International	562-463-3110	North American Lighting, Inc.	805-257-6290
EMCOR Energy Services*	415-989-1700	Northeast Energy Services, Inc. (NORESKO)*	508-875-2252
Energy Applications Inc.	619-294-8448	Onsite Energy	619-931-2400
Energy Masters International*	612-905-2270	Onsite Sycom Energy Corp.*	760-931-2400
Energy Pacific, L.L.C.	213-895-5818	Pacific Enterprises Energy Service Co.	213-895-5818
Energy USA*	415-547-7757	Parke Industries, Inc.*	909-599-1204
Enova Energy, Inc.	213-895-5818	PowerLight Corporation	510-540-0550
EUA Cogenex Corporation*	978-441-0090	Proven Alternatives, Inc.	800-728-6749
Farinha, Inc.	530-823-6775	Science Applications International Corp.	619-646-9114
Ferreira Service, Inc.	510-783-9330	Siebe Environmental Controls*	714-774-8410
FMCS Energy Services	209-662-8570	Siemens Building Technologies, Inc.*	
HEC Energy Services*	508-653-0456	(Los Angeles)	714-761-2200
		(San Diego)	619-693-8711
		(San Jose)	408-453-5222
		(San Francisco)	510-783-6000
		(Sacramento)	916-553-4444

Southland Industries	562-424-8638	Valley Air Conditioning &	
Super Systems, Inc.	714-786-7117	Repair, Inc.	209-237-3188
Syska & Hennessy/CEM, Inc.	310-312-0200	Viron Energy Services	800-475-3500
USA Planergy, Inc.	818-225-7580		

In addition, more information about energy-efficiency financing companies is available on the Internet. EPA's ENERGY STAR Buildings program offers an "Allies Services and Products Directory" at [www.epa.gov/asap](http://www.epa.gov/asap); it can be searched for finance companies. The National Association of Energy Services Company database ([www.naesco.org](http://www.naesco.org)) can also be searched for finance companies. The Green Energy Finance site ([energyfinance.org](http://energyfinance.org)) provides a wide range of energy-efficiency financing resources and information. And an energy project financing directory can be found at [www.informationforecast.com](http://www.informationforecast.com).

Source: Energy Cost Savings Council Brochure and NAESCO

## **California Environmental Business Assistance Resources**

This quick reference focuses on Governmental agencies that provide some form of assistance to business. Agencies are listed by the medium they regulate (e.g., air, water, etc.). Call local agencies first. If they cannot help you, try State and Federal agencies.

### ***Air Pollution***

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**Local Agencies**

Air Pollution districts - for information on facility permits or local air pollution laws contact:

Amador County APCD	209-223-6406
Antelope Valley APCD	805-723-8070
Bay Area AQMD	415-771-6000
Butte County APCD	530-891-2882
Calaveras County APCD	209-754-6504
Colusa County APCD	530-458-0590
El Dorado County APCD	530-621-6662
Feather River AQMD	530-634-7659
Glenn County APCD	530-934-6500
Great Basin Unified APCD	760-872-8211
Imperial County APCD	760-339-4314
Kern County APCD	805-862-5250
Lake County AQMD	707-263-7000
Lassen County APCD	530-251-8110
Mariposa County APCD	209-966-5151
Mendocino County APCD	707-463-4354
Modoc County APCD	530-233-6419
Mojave Desert AQMD	760-245-1661
Monterey Bay Unified APCD	408-647-9411
North Coast Unified AQMD	707-443-3093
Northern Sierra AQMD	530-274-9360
No. Sonoma County APCD	707-433-5911
Placer County APCD	530-889-7130
Sacramento Metro AQMD	916-386-6650
San Diego County APCD	619-694-3300

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**Local Agencies (continued)**

San Joaquin Val. Unified APCD	209-497-1000
San Luis Obispo County APCD	805-781-5912
Santa Barbara County APCD	805-961-8800
Shasta County AQMD	530-225-5674
Siskiyou County APCD	530-841-8029
South Coast AQMD	909-396-2000
Tehama County APCD	530-527-3717
Tuolumne County APCD	209-533-5693
Ventura County APCD	805-645-1400
Yolo-Solano AQMD	530-757-3650

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**State Agencies***California Air Resources Board*

Public Information	916-322-2990
Business Assistance Cen. (outside California)	800-ARB-HLP2 916-323-3336
Compliance Assistance Program Publications	916-327-7211
Compliance Training Classes	916-322-8272
Pollution Prevention Information	800-ARB-HLP2
Vehicle Information Hotline (outside California)	800-242-4450 800-322-9277

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**Federal Agencies***Environmental Protection Agency*

Air and Toxics Division	415-744-1219
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## *Hazardous Waste*

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### **Local Agencies**

Hazardous Material Release Response Plans/Inventory Program and Hazardous Materials Registration -  
Contact your local fire department or county health department.

For information on hazardous waste regulations and requirements contact:

Region 1 - Sacramento	916-255-3545
Region 1 - Dist. Office (Clovis)	209-297-3901
Region 2 - Berkeley	510-540-2122
Region 3 - Glendale	818-551-2800
Region 4 - Long Beach	310-590-4868

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### **State Agencies**

*Department of Toxic Substances Control*

Public Information 916-324-1826

*Superfund program and hazardous waste cleanup assistance*

Site Mitigation 916-323-3394

*Permitting, surveillance and enforcement info:*

Hazardous Waste Management Program	916-323-6042
Pollution Prevention	916-322-3670
Regulatory Assistance	916-322-0476
Waste Alert Hot Line	800-69-TOXIC

*Office of Emergency Services:*

Public Information 916-262-1843

*Hazardous materials information:*

Hazardous Materials Division	916-464-3230
Hazardous materials spill/release	800-852-7550

*Office of Environmental Health Hazard Assessment:*

Public Information/Proposition 65  
implementation 916-324-7572

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### **Federal Agencies**

*Environmental Protection Agency:*

Hazardous Materials Spills (24 hr. emergency line)	800-424-8802
Hazardous Waste Division	415-744-1730

## *Pesticides*

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### **State Agencies**

#### *Department of Pesticide Regulation:*

Public Information 916-445-4300

#### *Restricted materials permitting and general questions:*

Sacramento Headquarters 916-445-4400

Anaheim District 714-680-7903

Fresno District 209-445-5401

Goleta District 805-683-8825

Richmond District 510-669-0295

Sacramento District 916-445-6983

Watsonville District 408-724-9252

Agricultural pest control  
business licensing 916-445-4038

Registration of pesticide  
products 916-445-4400

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### **Federal Agencies**

#### *Environmental Protection Agency:*

National Pesticide Network 800-858-7378

Pesticides Section 415-744-1087

## *Solid Waste*

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### **Local Agencies**

Waste Management - for information on enforcement, facility permits, and for other solid waste-related activities at the local level, contact the following county environmental health departments:

Alameda 510-567-6757

Alpine 619-932-7485

Amador 209-223-6438

Butte 530-891-2727

Calaveras 209-754-6399

Colusa 530-458-0396

Contra Costa 510-646-4233

Del Norte 707-464-7227

El Dorado 916-621-6197

Fresno 209-445-3380

Glenn 916-934-6588

Humboldt 707-441-5675

Imperial 760-339-4203

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**Local Agencies (continued)**

Inyo	760-873-7866
Kern	805-862-8734
Kings	209-584-1411
Lake	707-263-2222
Lassen	530-251-8176
Los Angeles	213-881-4181
Madera	209-675-7823
Marin	415-499-6907
Mariposa	209-966-0200
Mendocino	707-463-4466
Merced	209-385-7391
Modoc	530-251-8176
Mono	760-932-7485
Monterey	408-647-7943
Napa	707-253-4144
Nevada	916-265-1469
Orange	714-667-2014
Placer	530-581-6240
Plumas	530-251-8176
Riverside	619-863-7000
Sacramento	916-386-6116
San Benito	408-636-4035
San Bernardino	909-387-4655
San Diego	619-338-2209
San Francisco	415-255-3614
San Joaquin	209-468-3458
San Luis Obispo	805-781-5554
San Mateo	650-363-4668
Santa Barbara	805-681-4942
Santa Clara	408-299-6930
Santa Cruz	408-454-2022
Shasta	530-225-5787
Sierra	530-251-8176
Siskiyou	530-842-8230
Solano	707-421-6770
Sonoma	707-525-6546
Stanislaus	916-255-3856
Sutter	916-741-6251
Tehama	530-527-8020
Trinity	530-623-1276
Tulare	209-733-6441
Tuolumne	209-533-5990
Ventura	805-654-2433
Yolo	530-666-8646
Yuba	916-741-6251

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**State Agencies***California Integrated Waste Management Board:*

Public Information	916-255-2296
Solid waste facility permitting	916-255-2453
Enforcement	916-255-2285
Enforcement (Redlands Office)	909-798-5455
Enforcement (Valencia Office)	805-294-1360
Closure of landfills	916-255-2616
Recycling Hotline	800-553-2962

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**Federal Agencies***Environmental Protection Agency:*

Hazardous Waste Division	415-744-2074
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## *Water*

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**Local Agencies**

Regional Water Quality Control Boards - For information on discharge permits contact:

San Francisco Bay Region	510-286-1255
Central Coast Region	805-549-3147
Central Valley Regions(s)	
Sacramento	916-255-3000
Fresno	209-445-5116
Redding	530-224-4845
North Coast Region	707-576-2220
Los Angeles Region	213-266-7500
Lahontan Region(s):	
South Lake Tahoe	530-542-5400
Victorville	760-241-6583
Colorado River Basin Region	760-346-7491
Santa Ana Region	909-782-4130
San Diego Region	619-467-2952

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**State Agencies***State Water Resources Control Board:*

Public Information 916-657-2390

*Discharge requirements, permit or water pollution control information:*

Water Quality Division 916-657-0687

*Water rights, amounts, and diversion information:*

Water Rights Division 916-657-2170

*Department of Health Services:*

Safe drinking water 916-323-6111

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**Federal Agencies***Environmental Protection Agency*

Water Management 415-744-2125

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**Business Assistance**

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**Local Resources**

Sacramento County Business

Environmental Resource

Center 916-364-4110

*Small Business Development Centers - for management and technical assistance:*

Alameda 510-893-4114

Alpine 530-694-2475

Amador 209-223-0351

Butte 530-895-9017

Calaveras 209-754-1834

Colusa 530-458-5881

Contra Costa 510-646-5377

Del Norte 707-464-2168

El Dorado 916-563-3210

Fresno 209-275-1223

Glenn 530-895-9017

Humboldt 707-445-9720

Imperial 760-312-9800

Inyo 805-322-5881

Kern 805-322-5881

Kings 209-625-3051

Lake 707-995-3440

Lassen 916-885-5488

Los Angeles (East) 909-629-2247

Los Angeles (Central) 818-552-3254

Los Angeles (S. Central) 213-846-1710

Los Angeles (North)	818-907-9922
Los Angeles (Southwest)	310-787-6466
Los Angeles (West)	310-398-8883
Madera	209-275-1223
Marin	707-524-1770
Mariposa	209-521-6177
Mendocino	707-468-3553
Merced	209-725-3800
Modoc	530-885-5488
Mono	805-322-5881
Monterey (East of 101)	408-847-0373
Monterey (West of 101)	408-479-6136
Napa	707-253-3210
Nevada	916-885-5488
Orange	714-647-1172
Placer	916-885-5488
Plumas	530-885-5488
Riverside (Coachella Val.)	760-864-1311
Riverside (Inland Empire)	909-781-2345
Sacramento	916-563-3210
San Benito	408-847-0373
San Bernardino	619-951-1592
San Diego (North)	619-453-9388
San Diego (South)	619-482-6391
San Francisco	650-561-1890
San Joaquin	209-943-5089
San Luis Obispo	805-322-5881
San Mateo (North)	415-561-1890
San Mateo (South)	408-736-0680
Santa Barbara	805-658-2688
Santa Clara (North)	408-736-0680
Santa Clara (South)	408-847-0373
Santa Cruz	408-479-6136
Shasta	530-247-8100
Sierra	916-885-5488
Siskiyou	530-247-8100
Solano	707-864-3382
Sonoma	707-524-1770
Stanislaus	209-521-6177
Sutter	916-749-0153
Tehama	530-895-9017
Trinity	530-247-8100
Tulare	209-625-3051
Tuolumne	209-521-6177
Ventura	805-658-2688
Yolo	530-563-3210
Yuba	530-749-0153

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**Local Resources**

*For multimedia consultation, link to Permit Assistance Centers Air Resources Board:*

Business Assistance  
Program 800-ARB-HLP2  
Ombudsman 800-ARB-HLP2

*California Environmental Protection Agency:*

Help Desk 800-808-8058

*Department of General Services:*

Office of Small and  
Minority Business 916-322-5060  
State Contracts Register 916-322-6966

*Department of Pesticide Regulation:*

Ombudsman 916-324-3939

*Department of Toxic Substances Control:*

Ombudsman (North) 510-540-3919  
Ombudsman (South) 310-590-4864

*Integrated Waste Management Board:*

Ombudsman 916-255-2427  
CA Recycling Business  
Assistance Team (R-TEAM) 916-255-1000  
CalMAX (California  
Materials Exchange) 916-255-2369  
Market Development and  
Zone Assistance 916-255-2406  
Recycling Information 800-553-2962

*Office of Environmental Health Hazard Assessment:*

Ombudsman 916-324-1945

*State Water Resources Control Board:*

Ombudsman 916-657-1287

*Trade and Commerce Agency:*

Small Business Helpline 800-303-6600

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**Federal Agencies:**

*Environmental Protection Agency:*

Office of the Small  
Business Ombudsman 800-368-5888

*U.S. Small Business Administration:*

Business start-up counseling,  
financial assistance info 800-827-5722

## *Electronic Resources*

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### **Local Resources**

California Local Air Districts and Other Air Related Links  
[www.arb.ca.gov/html/links.htm](http://www.arb.ca.gov/html/links.htm)

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### **State Resources:**

California Air Resources Board  
[www.arb.ca.gov](http://www.arb.ca.gov)

California Environmental Protection Agency  
[www.calepa.ca.gov](http://www.calepa.ca.gov)

CalGOLD  
[www.calgold.ca.gov](http://www.calgold.ca.gov)

California State Government  
[www.ca.gov](http://www.ca.gov)

California State Senate  
[www.sen.ca.gov](http://www.sen.ca.gov)

Department of Pesticide Regulation  
[www.cdpr.ca.gov](http://www.cdpr.ca.gov)

Department of Toxic Substances Control  
[www.dtsc.ca.gov](http://www.dtsc.ca.gov)

Integrated Waste Management Board  
[www.ciwmb.ca.gov](http://www.ciwmb.ca.gov)

Office of Environmental Health Hazard Assessment  
[www.oehha.ca.gov](http://www.oehha.ca.gov)

Water Resources Control Board  
[www.swrcb.ca.gov/:80](http://www.swrcb.ca.gov/:80)

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### **Federal Resources:**

Environmental Library  
[envirolink.org/EnvirolLink\\_Library](http://envirolink.org/EnvirolLink_Library)

Federal Register  
[www.epa.gov/epahome/rules.html](http://www.epa.gov/epahome/rules.html)

Government Information Exchanges  
[www.info.gov](http://www.info.gov)

U.S. EPA  
[www.epa.gov/epahome/index.html](http://www.epa.gov/epahome/index.html)

U.S. EPA AIRS  
[www.epa.gov/airs/airs.html](http://www.epa.gov/airs/airs.html)

U.S. EPA EnviroSense  
[www.epa.gov/envirosense](http://www.epa.gov/envirosense)

U.S. EPA Small Business Gateway  
[www.epa.gov/smallbusiness](http://www.epa.gov/smallbusiness)

## **ABB Energy Capital**

1517 Palos Verde Court • El Dorado, CA 95762

*Phone:* 916-939-0446 • *Fax:* 916-939-0447

*Contact:* Gregg Haggart • *E-mail:* gregg.haggart@energycapital.com

As a full-service financial services firm, ABB Energy Capital (formerly Energy Capital Partners) offers energy service providers, manufacturers, and other project developers creative financing solutions in support of their energy-related and environmental project initiatives in North America. The company is headquartered in Boston with a west-coast office located in the Sacramento area.

From our initial focus on financing energy efficiency and utility-sponsored demand-side management programs, ABB Energy Capital has grown to provide comprehensive project financing for a wide range of projects, including landfill gas-to-energy, central plan facilities, pollution control, water and wastewater treatment, and other industrial process outsourcing opportunities. Our customers use project financing to increase their development of capital-intensive systems and services to the commercial, industrial, institutional, residential, municipal, and Federal marketplaces.

**Product and Service Offerings.** ABB Energy Capital has the financial flexibility and dedicated resources to meet the diverse funding requirements of our customers' projects. We can fund up to 100% of the costs and development fees for well-conceived and executed projects.

While performance-based project financing is our hallmark product, in order to meet our customers' needs, we offer an array of project financing options and services:

### **Products**

- Performance-Based Project Financing
- Long-Term Contract Receivables Purchasing
- Federal Contract Financing
- Leasing
- Construction Financing
- Portfolio Refinancing

### **Customer Services**

- Training and Support
- Contract Development

- Project Sales Screening
- Sales Presentations
- Customized Transaction Reports
- Loan/Contract Servicing (Billing and Collection)

The typical size of our project funding is between \$500,000 and \$5 million; however, projects have ranged in size from \$250,000 to \$30 million. ABB Energy Capital will also evaluate the financing of any individual project up to \$100 million in size. Financing terms are normally between 3 and 10 years, with terms of up to 20 years available for certain long-term Federal projects.

**Staff Expertise and Experience.** The expertise and experience of our professionals make ABB Energy Capital unique within the industry. The senior management of ABB Energy Capital has more than 60 years of collective energy and environmental project finance experience, including project financing, leasing, construction financing, and general lending. They have participated in more than \$1.2 billion of financing transactions for projects ranging in size from \$150,000 to \$380 million.

## California Chamber of Commerce

1201 K St., 12th Floor • P.O. Box 1736 • Sacramento, CA 95812-1736

*Phone:* 916-444-6670 • *Fax:* 916-444-6685

*Website:* [www.calchamber.com](http://www.calchamber.com) • *Contact:* Valeria Nera

The California Chamber of Commerce is the State's largest broad-based, nonprofit membership organization through which key business, industry, and agriculture join forces to work for positive action on key legislative and regulatory issues affecting California's economic and job climate.

The mission of the California Chamber is to serve as an advocate and resource for California employers and to engage in activities, both domestically and internationally, which enhance the California economy and make the State a better place to live, work, and do business.

The Chamber's membership encompasses more than 11,000 employers, including 160 trade associations and 450 local chambers of commerce. Through the cooperation of the local chambers, the California Chamber grassroots legislative network reaches out to half a million local business owners across the State.

In addition to its association with these local chambers of commerce, the California Chamber also is affiliated with the United States Chamber of Commerce and works cooperatively with that organization. However, while the California Chamber participates with local chambers and the U.S. Chamber on many projects and issues, each chamber is a separate, independent organization which represents its own members, elects its own officials, and sets its own policies.

Policy is established by a board of directors composed of nearly 100 of California's leading business executives. Nineteen policy committees, made up of more than 1,200 representatives from member firms, meet and study priority legislative and regulatory issues and recommend policy and program decisions to the board of directors.

The Chamber staff is led by President Allan Zaremborg, a veteran of nearly 20 years of working with California Government. Eleven registered lobbyists specialize on different legislative issues and their expertise is recognized by legislators, regulators, and others with whom they work. This recognition of the staff's knowledge makes the Chamber's lobbying efforts particularly effective.

The Chamber also serves as a valuable information resource to the business community through its large number of publications, videos, and software packages informing employers of legislative and regulatory requirements and how to comply with them. These programs are updated annually to provide the most current information.

The California Chamber has represented the State's business community for more than a century. Its success has played a key role in the growth and prosperity of the California economy and it is needed more than ever in today's dynamic economic environment.

## **California League of Food Processors (CLFP)**

980 Ninth St., Suite 230 • Sacramento, CA 95814

Phone: 916-444-9260 • Fax: 916-444-2746

*Website:* [www.clfp.com](http://www.clfp.com) • *Contact:* Ed Yates • *E-mail:* [ed@clfp.com](mailto:ed@clfp.com)

Founded in 1905, the California League of Food Processors (CLFP) is a nonprofit trade association representing canners, freezers, dryers, and dehydrators of fruits and vegetables. CLFP's members account for about 95% of canned and frozen production and around 70% of dried production in California. California represents 40-45% of the U.S. production.

CLFP's purpose is to foster a favorable environment for the growth and strength of the industry within California. It is devoted to furthering the food processing industry's interests before all levels of State and Federal Government. The objective is for a framework of reasonable and equitable laws and regulations which allow the industry an opportunity to prosper. CLFP strives to maintain a close working relationship with Government, academia, trade associations and others.

CLFP's annual Exposition and Showcase Tradeshow draws nearly 3,000 people from food processors and allied industries.

# California Municipal Utilities Association

1225 Eighth St., Suite 440 • Sacramento, CA 95814

*Phone:* 916-441-1733 • *Fax:* 916-441-4053

*Website:* [www.cmua.org](http://www.cmua.org) • *Contact:* Stu Wilson • *E-mail:* [swilso@cmua.org](mailto:swilso@cmua.org)

**Representation.** The California Municipal Utilities Association (CMUA) brings publicly owned utilities together to speak with one voice to the legislature and regulatory agencies of the State. The 64-year-old statewide organization was formed to protect the interests of consumer-owned water, electric, and gas utilities before the legislature. As State Government has grown, the association's coverage has expanded to take in the numerous administrative and regulatory agencies that impact utility operations.

Most of CMUA's effort involves representing its members' interests before the legislature and the maze of regulatory bodies, including the State Water Resources Control Board, Department of Health Services, Department of Water Resources, and the California Energy Commission. The association monitors the activities of the administrative agencies, presents testimony, and participates in rulemaking. Legislation is followed on a day-to-day basis, and the association's Legislative Committee meets frequently when the legislature is in session to set policy and adopt positions on bills.

CMUA is more than a lobbying and public relations organization. It is a leader in serving the interests of its member utilities in a variety of ways.

**FARECal.** CMUA formed FARECal the first statewide joint powers agency created specifically to finance water and energy conservation and efficiency programs through pooling financial resources. CMUA successfully sponsored legislation spelling out the authority of joint power agencies such as FARECal (the Financing Authority for Resource Efficiency of California) to issue revenue bonds to finance water and energy conservation programs. The first financing was completed in August 1994 with the sale of \$19.4 million in revenue bonds to finance conservation programs for three utilities.

**Utility Restructuring.** CMUA coordinated its members' lobbying efforts and played a significant role in shaping AB 1890 — especially as it applies to municipal electric systems. CMUA and its member electric utilities are now actively engaged in discussions to establish Independent System Operator (ISO) and Power Exchange (PX).

**DSM-Model Plan & Energy Services Guide.** CMUA and member electric utilities produced the first statewide Model Plan for Energy Efficiency, an effort which attracted National attention and praise from a variety of energy organizations, including the California Energy Commission. More recently, a Model Energy Services Guide has been developed reflecting the move toward competition.

**Committees.** CMUA's committees are active throughout the year in areas of mutual concern, such as legislative, commercial activities, energy services and marketing, telecommunications, and electric and magnetic fields. The association's water rates survey is updated annually and provided free to member utilities. Committees do

additional surveys from time to time in order to chart members' concerns and industry trends.

**Annual Conference and Policy Makers' Seminars.** CMUA's annual conference and policy makers' seminars bring officials of publicly owned utilities together with Government and industry makers, representatives of scientific, environmental, technological, and economic interests to share information and views. The conference is held in early spring, alternating between northern and southern California.

**Governing Board.** CMUA is governed by a 19-member Board of Governors representing large and small utilities from throughout the State. The board meets quarterly. Any public or municipal utility is eligible for membership, as are joint action agencies. Private organizations may become associate members. These include engineering, financial, telecommunications and management consultants and similar organizations and individuals providing services to the utility industry.

**Communications.** Communication is maintained through the association's Utilities Forum, Legislative Report, frequent mailings to members and utilization of CMUA's web site. CMUA's World Wide Web site was developed in 1995: [www.cmua.org](http://www.cmua.org). CMUA also conducts seminars, workshops, and meetings to deal with matters that arise affecting water and energy utilities.

**Legislation Introduction.** Besides monitoring and testifying on legislation, CMUA sponsors bills on behalf of member utilities and the utility industry. For example, CMUA sponsored and obtained enactment of legislation to allow the Sacramento Municipal Utility District to issue short-term revenue bonds to have more flexibility in financing. This type of specific service is available to all CMUA members. CMUA also sponsors legislation which benefits all of its members such as the ultra low-flush toilet bill, which required all new construction (as of January 1992) to install ultra low-flush toilets using no more than 1.6 gallons per flush. In an era of continuing State budget deficits and the constant search by State agencies for additional sources of funding, it is even more critical that utilities be represented by a strong, active association. Legislation is introduced frequently to shift or increase costs to cities and districts through fees for service and other veiled tax increases.

**One Voice.** The impact of the utilities acting together in concert is considerably greater than the power of even the largest individual utility. Some publicly owned utilities may go several years without specific legislative or administrative problems; yet they need to belong to a strong association. They always have need for an organization to represent them on general issues. When the need arises for concerted legislative action, that need becomes urgent. Maintaining active participation in an association speaking for all utilities is an insurance policy. It insures against adverse developments and assures that specific critical needs can be dealt with as they arise.

## **CMA Services Corp. — California Manufacturers Association**

980 Ninth St., Suite 2200 • Sacramento, CA 95814  
*Phone:* 916-441-5420 • *Fax:* 916-441-5449  
*Website:* [www.camfg.com](http://www.camfg.com) • *Contact:* Brian McMahon

The California Manufacturers Association is the only statewide organization dedicated solely to protecting your ability as a manufacturer to operate profitably in California.

Established in 1918, CMA is headquartered in Sacramento, close to the State Capitol, where we defend against high taxes, red tape, and excessive regulations.

CMA aggressively represents its members before the California Legislature, the Governor's Office, State agencies, and the courts.

CMA also works to educate policy makers, opinion leaders, and the media about the importance of manufacturing to California's economy and to gain support for CMA-sponsored legislation.

In addition, CMA offers outstanding member benefits and access to a wide range of services to help cut your day-to-day business costs.

CMA members receive timely legislative updates, special conference discounts, valuable networking opportunities, and insight into current manufacturing trends.

As a CMA member, you'll be in good company. Our membership includes nearly 1,000 companies and their suppliers in manufacturing, processing, and refining — 70% of California's manufacturing workforce.

Our board of directors includes CEOs and other top executives from California's leading companies, large and small.

As a CMA member, you'll be part of this high-powered team.

**The Power to Shape the Future.** CMA policy committees meet regularly to discuss issues of common concern and to develop legislation designed to help manufacturers remain competitive and productive.

In addition, CMA works with other business and trade organizations to promote or defeat legislation and ballot measures that impact manufacturers and their ability to operate.

A key part of CMA's efforts to improve the State's business climate and influence public policy is its landmark "Agenda for Jobs." Published annually, CMA's "Agenda for Jobs" is a comprehensive report detailing the legislative, legal, and regulatory reforms needed to restore California's competitive edge and quality of life.

As a CMA member, you'll be invited to serve on CMA policy committees of interest to you, including:

- Environmental Quality
- Energy
- Workers' Compensation
- Taxation
- Health and Safety
- Human Resources
- Government Relations
- Corporate Counsel

You'll also be invited to take action at the grassroots level to provide critical support for CMA's lobbying efforts in Sacramento.

# EPRI (Electric Power Research Institute)

3412 Hillview Avenue • P.O. Box 10412 • Palo Alto, CA 94303

*Phone:* 650-855-2415 • *Fax:* 650-855-8565

*Website:* [www.epri.com](http://www.epri.com) • *Contact:* Bill Smith • *E-mail:* [wmsmith@epri.com](mailto:wmsmith@epri.com)

EPRI creates science and technology solutions for the global energy and energy services industry. U.S. electric utilities established the Electric Power Research Institute in 1973 as a nonprofit research consortium for the benefit of utility members, their customers, and society. Now known simply as EPRI, the company provides a wide range of innovative products and services to more than 700 energy-related organizations in 40 countries. EPRI's multidisciplinary team of scientists and engineers draws on a worldwide network of technical and business expertise to help solve today's toughest energy and environmental problems.

**EPRI Powering Progress through Innovative Solutions.** EPRI can help you prosper in today's competitive world. With our broad-based expertise, we integrate diverse and complex disciplines to develop unique solutions—solutions for the toughest problems—where an off-the-shelf answer won't do.

**Solutions That Work.** Through strategic alliances, we not only develop solutions for global problems, we can also help you meet your business objectives. Whether you're exploring least-cost production, wholesale distribution, or niche markets—or even buying and selling electrons—we can help you open up the opportunities for success.

**Solutions to Serve Your Customers.** EPRI will work with you to develop solutions that help your customers prosper. Drawing on our technology and expertise, you can assist your business customers in becoming more productive, efficient, and profitable.

**Solutions to Drive Your Success.** Advancements in science and technology are bringing new possibilities for increasing the profitability of your own business as well. Whether you're seeking ways to squeeze higher performance from your existing power system or exploring entirely new ways of doing business, EPRI's solutions can help you meet your strategic goals and power your progress.

The key is to incorporate innovative technology into your business strategy. The technology choices you make will differentiate you from your competitors. And EPRI is your technology link to success.

## *EPRI Facts:*

**Mission.** EPRI is a nonprofit organization committed to advancing electric power generation, delivery, and use throughout the world. To carry out our mission, we manage a far-reaching program of scientific research, technology development, and product implementation.

Founded in 1973 by a far-sighted group of U.S. electric utility executives, EPRI today maintains a presence in North America, Europe, Asia, South Africa, and Latin America. Membership is open to any organization worldwide that generates, transmits, or distributes electricity.

**Technical Program.** Working directly with you, we can provide the tools, technologies, and training to

- Assess your electricity system needs;
- Develop an appropriate power infrastructure;
- Manage your operating costs and risks;
- Monitor and maintain the reliability of your entire system;
- Enhance the productivity and living standards of electricity users;
- Extend the benefits of electricity.

EPRI has built one of the finest research and development teams in the world, employing highly respected scientists and engineers who manage projects in collaboration with private industry, Government laboratories, universities, and other organizations worldwide.

We develop new technology to meet emerging needs and we can modify and tailor our state-of-the-art technology for application on your system. We work with power providers of varying sophistication, technological expertise, and system design and have demonstrated how our technologies and services create significant benefits at any level. Using EPRI-developed technologies and expertise, power providers anywhere in the world can produce, transmit, and use electricity as efficiently as the most highly developed countries do today.

**Benefits of EPRI Participation.** EPRI offers more than 80 scientific research and technology development areas from which you can choose in order to tailor a program to meet your own objectives. As an EPRI member, you can also take part in developing the technologies of the future.

To ensure that you gain the greatest value for your EPRI investment, we maintain a network of unique training and application centers—and we continue to open new centers around the world—where we help you and your customers tailor technologies to specific needs. We also offer on-site training and technology transfer using indigenous contractors and services, coordinating as needed with local universities, utilities, and Government organizations. In this way we can help build technological resources within your own country.

For direct access to EPRI products and information, we offer extensive, interactive information on EPRIweb, an Internet-based World Wide Web site available only to EPRI members. As an EPRI member, you can also subscribe to a free print publication service that provides up-to-date overviews of new products and information keyed to your specific areas of interest.

Considering the products, expertise, and collaboration available only through the Electric Power Research Institute, members themselves have conservatively estimated, on average, a 3:1 to 4:1 return on their EPRI investment.

**Membership and Funding.** Our annual budget of about \$500 million comes primarily from membership funding.

Today EPRI has more than 700 U.S. members (representing about 70% of all U.S. electricity generation) as well as growing international participation from Western, Central, and Eastern Europe; South Africa; India; East Asia; and South America. EPRI also holds cooperative agreements with such agencies as the World Bank and USAID to enhance the transfer and use of EPRI-developed technology throughout the world.

# NAESCO

1615 M St., NW, Suite 800 • Washington, DC 20036

*Phone: 202-822-0950 • Fax: 202-822-0955*

*Website: [www.naesco.org](http://www.naesco.org)*

The mission of the National Association of Energy Service Companies (NAESCO) is to promote the delivery by ESCOs of comprehensive energy services including energy efficiency to maximize customer benefits and environmental sustainability.

NAESCO accomplishes this mission by encouraging high standards of quality and integrity among its members; disseminating information about developing technologies and their appropriate applications; participating in legislative and regulatory proceedings which affect energy policy; ensuring the best use of ESCOs in the delivery of energy services; providing opportunities to share and publicize ESCO project successes; and generally speaking on behalf of the Association membership when its welfare and that of the public requires a single voice.

NAESCO sponsors a rigorous accreditation program for ESCOs and certain specialized project developers.

NAESCO's members represent every aspect of the energy services industry including ESCOs, utility affiliates, utilities, energy equipment manufacturers, suppliers, distributors, electric power and gas marketers, engineering and design companies, lawyers, consultants, allied trade associations, financial institutions, international entities, and public sector entities.

NAESCO members provide a wide array of energy services to retail customers, including energy consumption reduction, new energy supply, financing, total facility and asset management, commodity risk management, power quality assurance, electric power and gas marketing and brokering, hazardous waste disposal, measurement and verification of energy consumption and efficiency, water and sewage management, indoor air quality assessment and amelioration, training and consulting, operations and maintenance, building certification, and district heating and cooling.

## **Northern California Power Agency (NCPA)**

180 Cirby Way • Roseville, CA 95678

Phone: 916-781-3636 • Fax: 916-782-219

*Website:* [www.ncpa.com](http://www.ncpa.com) • *Contact:* John Berlin • *E-mail:* [jberlin@ncpa.com](mailto:jberlin@ncpa.com)

NCPA is a nonprofit California joint-powers agency established in 1968 to generate, transmit, and distribute electric power to, and on behalf of, its fourteen members serving nearly 700,000 electric consumers in central and northern California: the cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, Ukiah, the Port of Oakland, the Truckee Donner Public Utility District, and the Turlock irrigation District, and eight associate members: the cities of Davis, Santa Barbara, Watsonville, West Sacramento, the Bay Area Rapid Transit District, the California Irrigation District, the Placer County Water Agency, and the Plumas-Sierra Rural Electric Cooperative.

NCPA was established in 1968 as a nonprofit California Joint Action Agency. NCPA membership is open to municipalities, rural electric cooperatives, irrigation districts, and other publicly owned entities interested in the purchase, aggregation, scheduling, and management of electrical energy.

For nearly three successful decades, NCPA has provided scale and skill economies devoted to the purchase, generation, transmission, pooling, and conservation of electric energy and capacity for its members. With the onset of electric utility restructuring, NCPA has become a primary supplier of power scheduling and interchange management services to power marketers and public agencies.

NCPA operates through four Business Units: Administrative Services, Generation Operations, Legislative and Regulatory, Marketing, Pooling and Member Services. NCPA charter and associate members individually elect participation in NCPA activities according to their particular needs.

## **Silicon Valley Power**

1500 Warburton Ave • Santa Clara, CA 95050-3796

*Phone:* 408-615-5686 • *Fax:* 408-244-2990

*Website:* [www.ci.santa-clara.ca.us](http://www.ci.santa-clara.ca.us) • *Contact:* Joyce Kinnear

*E-mail:* [jkinnear@siliconvalleypower.com](mailto:jkinnear@siliconvalleypower.com)

The City of Santa Clara is a charter city of the State of California, operating under the Council/Manager form of Government. Since 1896, the Santa Clara has provided electric service to its citizens through its City-owned and operated Silicon Valley Power, which includes generation, transmission, and distribution facilities. The legal responsibilities and authority of the Silicon Valley Power, including the establishment of rates and charges, are exercised through the seven-member City Council. The City Manager has the overall responsibility for the management of the Silicon Valley Power.

Silicon Valley Power is a new name for the City of Santa Clara's Electric Utility. At our centennial celebration, on March 19, 1998, we officially announced our new name, Silicon Valley Power. Our record of over 100 years of service brings pride to the City and its employees. Silicon Valley Power provides Santa Clara residents with reliable electric service at average rates below those of the local investor-owned utility and it does this while consistently making a significant financial contribution to the City's General Fund.

Located in the heart of the Silicon Valley, with a 1995 population of 98,159, the City has a unique customer class composition. For Fiscal Year 1995-96, the system peak demand was 400 MW and the sales were 2,295 Gigawatt-hour (GWh), a 5% increase over FY 1994-95. The industrial customers in the City represented over 86% of kilowatt-hour (kWh) sales. The commercial and residential customers represented approximately 9% and 4%, respectively, of the total sales. The System Load Factor has historically been about 70%.

Santa Clara's Silicon Valley Power provides all electric service within the City to almost 46,000 customers. Currently 87% of the customers are residential and small businesses, while fully 86% of the electric sales are attributable to industrial and large commercial customers. The largest 20 customers account for 50% of total revenues.

The Silicon Valley Power, on its own and through participation in various Joint Powers Agencies, owns more than 320 Megawatts (MW) of generating capacity and has long-term contracts providing an additional 267 Megawatts of capacity.

# Southern California Edison — An Edison International Company

2244 Walnut Grove • Rosemead, CA 91770

Phone: 916-441-2369 • Fax: 916-441-4047

Website: [www.edison.com](http://www.edison.com) • Contact: Manuel Alvarez • E-mail: [alverem@sce.com](mailto:alverem@sce.com)

Edison International is a world leader in energy production, distribution, research and technology, capital financing, and the marketing of consumer products and services. Headquartered in Rosemead, California, Edison International is the parent corporation of six related energy companies with combined assets totaling more than \$24 billion. Following is a description of each Edison company.

## The Edison Companies

- *Southern California Edison (SCE)* is the Nation's second largest investor-owned electric utility, serving 11 million people within a 50,000-square-mile area within central, coastal, and Southern California. Based in Rosemead, the regulated utility is a recognized world leader in cutting-edge research and technology and for providing reliable electrical service in the region for more than a century. The company has assets of nearly \$18 billion.
- *Edison Mission Energy* is one of the world's leading developers, owners, and operators of independent power facilities. Based in Irvine, it has assets of nearly \$6 billion and interests in 57 projects totaling more than 10,000 megawatts of generation.
- *Edison Capital* is a leading provider of capital and financial services for energy and infrastructure projects. Headquartered in Irvine, it has assets of more than \$1.4 billion and is one of the Nation's leading investors in affordable housing developments eligible for tax credits.

The corporation's three retail companies operate under the corporate umbrella, *Edison Enterprises*.

- *Edison EV (Electric Vehicles)* supports the growing electric vehicle market by providing safe, convenient, and cost-effective charging equipment and installation. Based in Los Angeles, Edison EV serves the charging needs of public, fleet, and residential EV owners.
- *Edison Source* provides total energy management services to business customers. Based in the City of Industry, it is dedicated to increasing customer value through a portfolio of integrated energy services.
- *Edison Select* provides mass-retail market consumer products and services that build on the Edison brand. Based in the City of Industry, it offers home security, computer repair, Internet access, and electrical repair services.

Southern California Edison, the flagship of the Edison International family of companies, is the Nation's second-largest investor-owned electric utility company. With 4.2 million

business and residential customers spanning a 50,000 square mile service area in coastal, central, and southern California, SCE is proud of its more than 100 years of providing high-quality, reliable electric service.

SCE's transmission facilities include almost 12,000 circuit miles of lines and 800 substations. Its distribution system, taking power from substations to the customer, includes 88,000 circuit miles of line connecting 1.5 million poles, 642,000 transformers, and 490,000 street lights. SCE played a central role in the restructuring of the electric industry in California, which was a leader in deregulating the way in which electricity is generated and sold nationwide. As part of this effort, the company sold its 12 fossil fuel generating stations in 1997 and overhauled nearly every aspect of its business to prepare for the changing environment.

Central to the growth of the region's economy, SCE continues its decades-old commitment to assist businesses seeking to start, expand, or relocate to its service territory, through a comprehensive economic development program. Its support for energy-efficiency earned SCE the Green Lights Utility Ally of the Year Award, presented by the U.S. Department of Energy and the U.S. Environmental Protection Agency in 1996, for leadership in reducing energy usage among major business customers.

Cited by Fortune magazine in 1998 as the Nation's leading corporation in its support of minority vendors, and by *Working Woman* magazine in 1996 for its health care programs that embrace the needs of women and their families, SCE fields a corps of employee volunteers who annually donate more than 700,000 hours of work to community and nonprofit organizations. It is a major economic and social force actively striving to improve the quality of life in the hundreds of communities in which its 12,000 employees, thousands of retirees, and their families live and work.

## Wells Fargo Bank

120 Kearney St., Suite 2560 • San Francisco, CA 94108  
*Phone:* 415-396-4218 • *Website:* [www.wellsfargo.com](http://www.wellsfargo.com)  
*Contact:* Bing Xiao • *E-mail:* [xiaobi@wellsfargo.com](mailto:xiaobi@wellsfargo.com)

Wells Fargo & Company operates one of the largest commercial banking businesses in the United States, serving as financial services providers to more than 15 million households in 21 western States with over \$202 billion in assets. The bank has the Nation's largest financial service network of more than 5,900 staffed stores; 1,000 supermarket banking stores; 6,200 Wells Fargo ATMs; access to over 380,000 point of sale/ATMs worldwide; 24-hour telephone banking and the industry's "gold standard" on-line banking service. We cover all financial services: retail and business banking, investments, insurance, consumer and commercial finance, commercial real estate, home mortgages, home equity, venture capital, and capital markets.

Wells Fargo is also one of the Nation's largest lenders to small business with over \$10 billion in balances for small business loans under \$1 million and almost \$5 billion in loans under \$100,000. In 1997 alone, Wells Fargo originated new small business loans of \$10.7 billion, far ahead of the second largest originator.

Business Direct, a division of Wells Fargo's Business Banking Group, is targeted to businesses requiring less than \$150,000 in aggregate credit. Another division of the Business Banking Group is the Business Lending division, which lends between \$150,000 and \$2,000,000 to small and medium-sized businesses. Established in 1994, the business grew out of the pioneering work that Wells Fargo had done to develop credit scoring tools for small business credit and enable applications to be sourced through mail and over the phone. In the four years since the direct origination of loans began, the amount of outstanding loans has grown dramatically to \$3 billion. In addition, to date, Wells Fargo has lent over \$3.7 billion to women business owners and over \$184 million to Hispanic business owners.

More than any other banking institutions, Wells Fargo is consistently on the frontier of financial innovation. The recognized leader in the banking industry's adoption of technology, the bank has demonstrated its strategic initiative to pioneer electronic banking and commerce.

As the largest bank headquartered in California, its business lending experience, innovation, a record of superior customer service, and a management team dedicated to the growth and prosperity of California businesses make Wells Fargo a perfect partner for financing California energy efficiency programs.