

1.0 EXECUTIVE SUMMARY

THE MODERNIZATION OF THE MORRO BAY POWER PLANT

1.1 INTRODUCTION

Duke Energy⁽¹⁾ is pleased to present this Application for Certification (AFC) to the California Energy Commission (Commission) for the modernization of the Morro Bay Power Plant (MBPP). This application proposes to modernize the existing MBPP with a state-of-the-art combustion turbine, combined-cycle electric generating plant that is substantially smaller yet capable of producing more power than the existing facility (Project). With a proposed commercial operation date of the fall 2003, the Project's 1200 megawatts (MW) of electrical generating capacity will improve California's electrical supply system reliability, help stabilize the state's electricity costs, and reduce environmental impacts at a critical time when balancing all of these requirements is essential.

According to the Morro Bay plant manager, the MBPP "...is available for production over 80 percent of the time during peak market months..." and that the "...existing Morro Bay Power Plant is a reliable and efficient energy producer..."⁽²⁾. Moreover, the investment that Duke Energy is proposing is made without subsidy from or risk to California's or Morro Bay's ratepayers or taxpayers, precisely the outcome envisioned by California policy makers with the passage of Assembly Bill (AB) 1890, which requires a restructuring of the California energy market and the development and repowering of electric generators at the expense of investor operators.⁽³⁾ With thorough and diligent Commission review and approval, this Project's significant benefits to California's electrical system and environmental benefits can be realized by the fall 2003.

Through an extensive review by Duke Energy and the City of Morro Bay of how to improve the site, the City of Morro Bay and its residents have fundamentally shaped the specific features of the MBPP modernization effort. In August 1999, Duke Energy had proposed a single 500 MW Project at the MBPP to take the place of Units 1 and 2, with Units 3 and 4 continuing to operate. Through diligent efforts by the City of Morro Bay and Duke Energy, the present Project - the subject of this AFC - is an outstanding example of community planning and participation. Looking beyond the engineering aspects of modernization, Duke Energy and the Morro Bay

⁽¹⁾ Duke Energy North America, LLC, a Delaware Limited Liability Company, is referred to throughout this document as "Duke Energy."

⁽²⁾ Plant record from May 1998 to April 2000.

⁽³⁾ Assembly Bill 1890, Electric Industry Restructuring, August 1996.

leaders and citizens have created a comprehensive community plan for the power plant site, both modernizing it with the latest high efficiency and environmental friendly technology, as well as fitting it into its surroundings and the larger community. Key benefits of the Project are:

- **Improvements to the Visual Landscape** - Duke Energy is addressing visual concerns of the existing power plant with a number of design features for the Project including:
 - Moving the new lower profile units farther back from the waterfront and Embarcadero.
 - Completely demolishing the existing power building and stacks for Units 1 through 4, and the onsite fuel oil tanks in the near term.
 - Use of color schemes for the new units and stacks enabling them to blend better with surroundings.
 - Developing a comprehensive landscape plan for the Project.
- **Improvements to Coastal Access** - Duke Energy is creating bikeways/pedestrian paths along the coast with a bridge across Morro Creek. As part of the Project, Duke Energy is pursuing an option to purchase the "Den Dulk" property which may enable the City of Morro Bay to proceed with aspects of its Waterfront Master Plan.
- **Improvements to the Local Economy** - The Project will improve the economy for the City of Morro Bay in a number of ways including a guaranteed revenue stream to stabilize and enhance the City of Morro Bay's budget.
- **Single Construction Phase Modernization** - Duke Energy will accelerate the construction of the modernization Project into a single phase, shortening the overall timeline to less than half of the complete replacement project proposed to the City, while achieving all of the benefits sooner.
- **Improving the Environment** - Duke Energy is addressing environmental issues by choosing power generation technology that reduces noise, reduces seawater use, reduces cooling water thermal discharge temperatures to Estero Bay, reduces annual emissions of NO_x and completely offsets increases in SO₂ and PM₁₀, protects public health, uses approximately 30 percent less natural gas per MW hour, and further enhances the protection of marine and terrestrial biological resources. Furthermore, with the assistance of the San Luis Obispo County Chumash Council (SLOCCC), the Project provides rigorous and respectful treatment of cultural resources including permanent protection of an existing site.

The foundation of the collaborative effort that created these Project benefits has been the implementation of the Memorandum of Understanding (MOU) signed by Duke Energy and the City of Morro Bay on February 28, 2000. This MOU provides the framework for development of the Project and the opportunities for both parties to meet and discuss their concerns. It also enables the community to have a forum for providing comments and asking questions. The result of this extensive process is this current AFC.

1.2 PROJECT OVERVIEW

The Duke Energy modernization Project consist of the following activities: the removal of the on-site tank farm, the construction at this site of a 1200 MW, combined-cycle electrical generation power plant, the demolition, once the new units are operational, of existing Units 1 through 4 and their three 450-foot-tall stacks that generate 1002 MW, and a variety of site improvement initiatives including landscaping, the construction of a bridge across Morro Creek, and the construction of bikeways/pedestrian paths around the entire power plant.

The MBPP is located within the City of Morro Bay, San Luis Obispo County, near Morro Bay Harbor, bordered on the west by Embarcadero Road and on the east by Highway 1. It is in the northwesterly quarter of Township 29 South, Range 10 East, San Bernardino Base and meridian. The Assessor's parcel number for the MBPP is 066-331-24. Assessor's parcel numbers for properties within 1,000 feet of MBPP are included in Appendix 1-1.

The 107-acre power plant site is adjacent to the existing 24-acre, Pacific Gas & Electric Company (PG&E) Morro Bay Switchyard. The MBPP location and the Project's location on the plant site are shown in Figures 1-1, 1-2, 1-3 and 1-4. Figures 1-5 and 1-6, respectively, show the site in its current state and after Project completion.

Power from the combined cycle units will tie into PG&E's existing 230-kilovolt switchyard at the same positions currently used by Units 1 through 4. Natural gas fuel will be delivered from PG&E's existing compressor station at Kettleman and via an existing natural gas pipeline and distribution system. The minimal Project modifications to natural gas facilities include:

- Short extensions of pipeline from PG&E's onsite pressure regulating station to the combined-cycle combustion turbines.
- Onsite gas compression enhancements to support needed gas pressure requirements for combined-cycle operation.
- Meter modifications to meet pressure requirements.

As shown in Figure 1-7, the construction of the combined cycle units is scheduled for 21 months, with initial start-up to follow one month later. Based on construction beginning in the winter of 2001, initial start-up would occur the fall of 2002 and full-scale commercial operation would begin in fall 2003. The demolition of Units 1 through 4 and the three 450-foot-tall stacks will begin after commercial operation of the combined cycle units and, assuming the fall 2003 commercial operation date, will be completed by 2007.

The new combined cycle units will continue to use the existing once-through seawater cooling system that includes an intake structure that draws water from Morro Bay and an ocean out fall which discharges water into Estero Bay. Overall seawater cooling use will decrease with the new combined cycle units by 29 percent, from 464,000 gallons per minute (gpm) to 330,000 gpm.

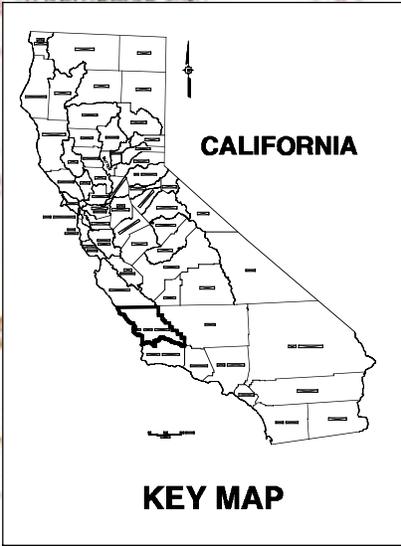
To meet air quality requirements for the Project, Duke Energy has included numerous air quality control devices in the design of the new units. To assure that NO_x emissions are kept at a minimum, Duke Energy has selected gas turbines equipped with dry low-NO_x combustors. In addition, the turbines will be equipped with selective catalytic reduction (SCR) systems to further reduce NO_x emissions consistent with the California Air Resources Board's recently released guidelines. The Project will also include an oxidation catalyst to ensure low carbon monoxide emissions.

The Project will be owned and operated by the current owner and operator of MBPP, Duke Energy Morro Bay LLC, a subsidiary of Duke Energy North America. The Morro Bay Switchyard and the connecting power transmission system are owned and operated by PG&E, which transmits power from the site to local and regional grids.

Duke Energy Corporation, the parent company of Duke Energy North America, is a global energy company with assets that include retail and wholesale electric operations, interstate natural gas pipelines, natural gas gathering and processing and natural gas liquids facilities. Duke Energy Corporation's business units are recognized nationally for excellence in customer service, power plant operations and efficiency, and their commitment to and expertise in environmental stewardship. In California, Duke Energy operates four power plants (Moss Landing, Morro Bay, Oakland, and South Bay), supplies electricity to the California electric market, and conducts energy marketing activities as part of California's wholesale natural gas and electric markets.

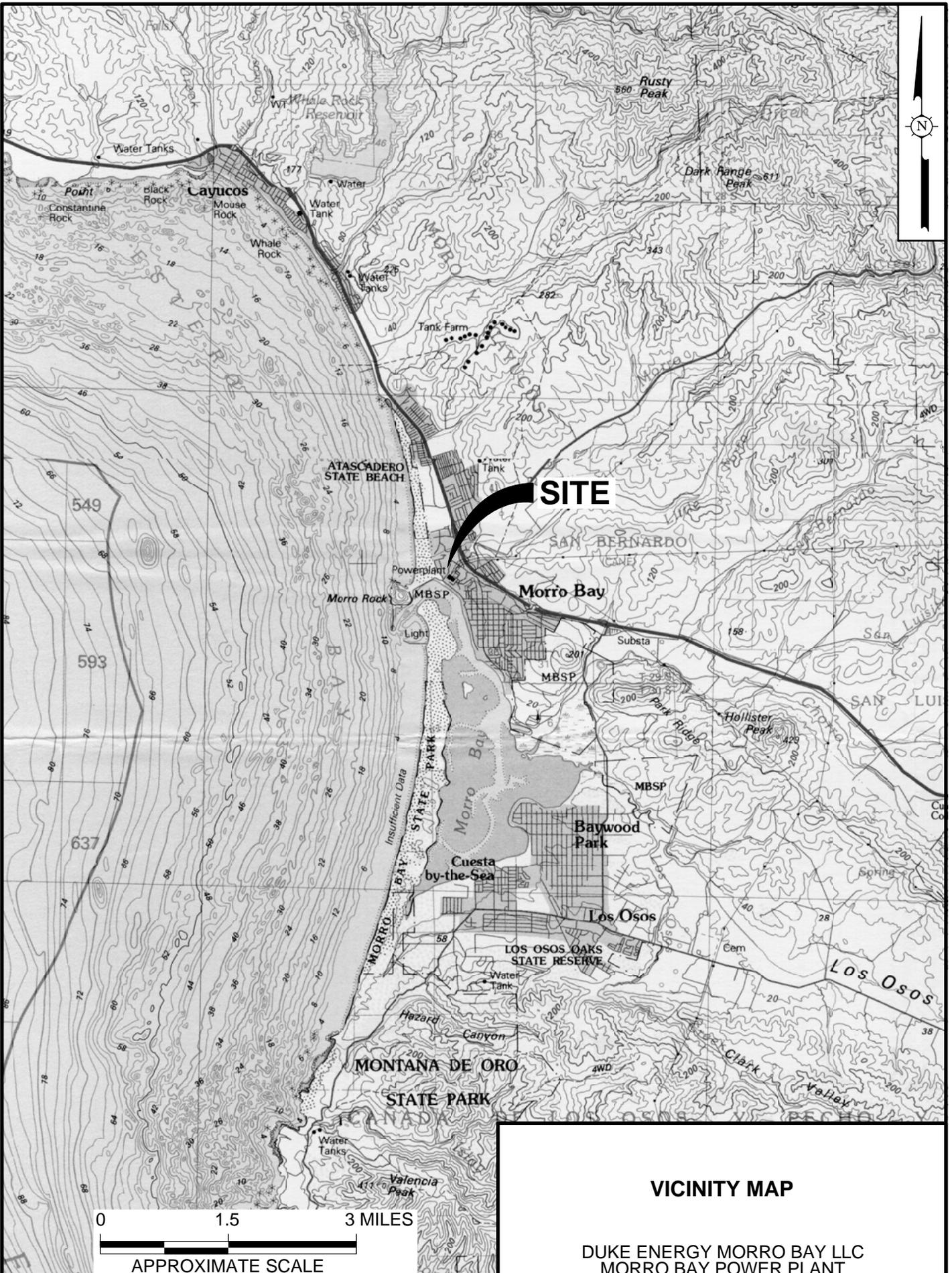


PROJECT SITE



REFERENCE: USGS NATIONAL ATLAS SOUTHERN CALIFORNIA MAP, 1973.

REGIONAL MAP	
DUKE ENERGY MORRO BAY LLC MORRO BAY POWER PLANT	
TRC	FIGURE 1-1



SITE

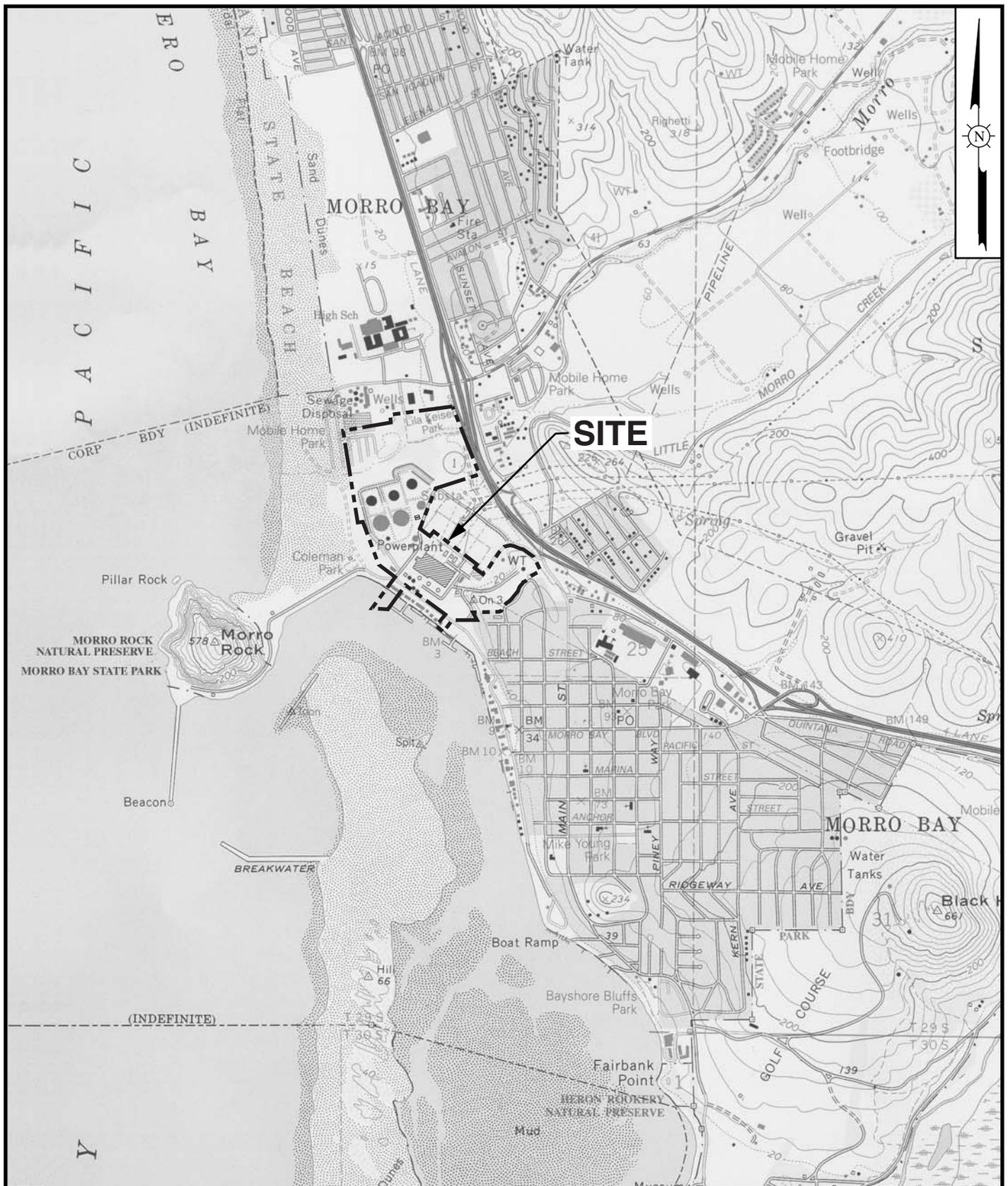
VICINITY MAP

**DUKE ENERGY MORRO BAY LLC
MORRO BAY POWER PLANT**

TRC

FIGURE 1-2

REFERENCE: USGS 1:100,000 SCALE TOPOGRAPHIC MAP OF SAN LUIS OBISPO, CALIFORNIA DATED 1981.



SCALE
SCALE: 1: 24,000

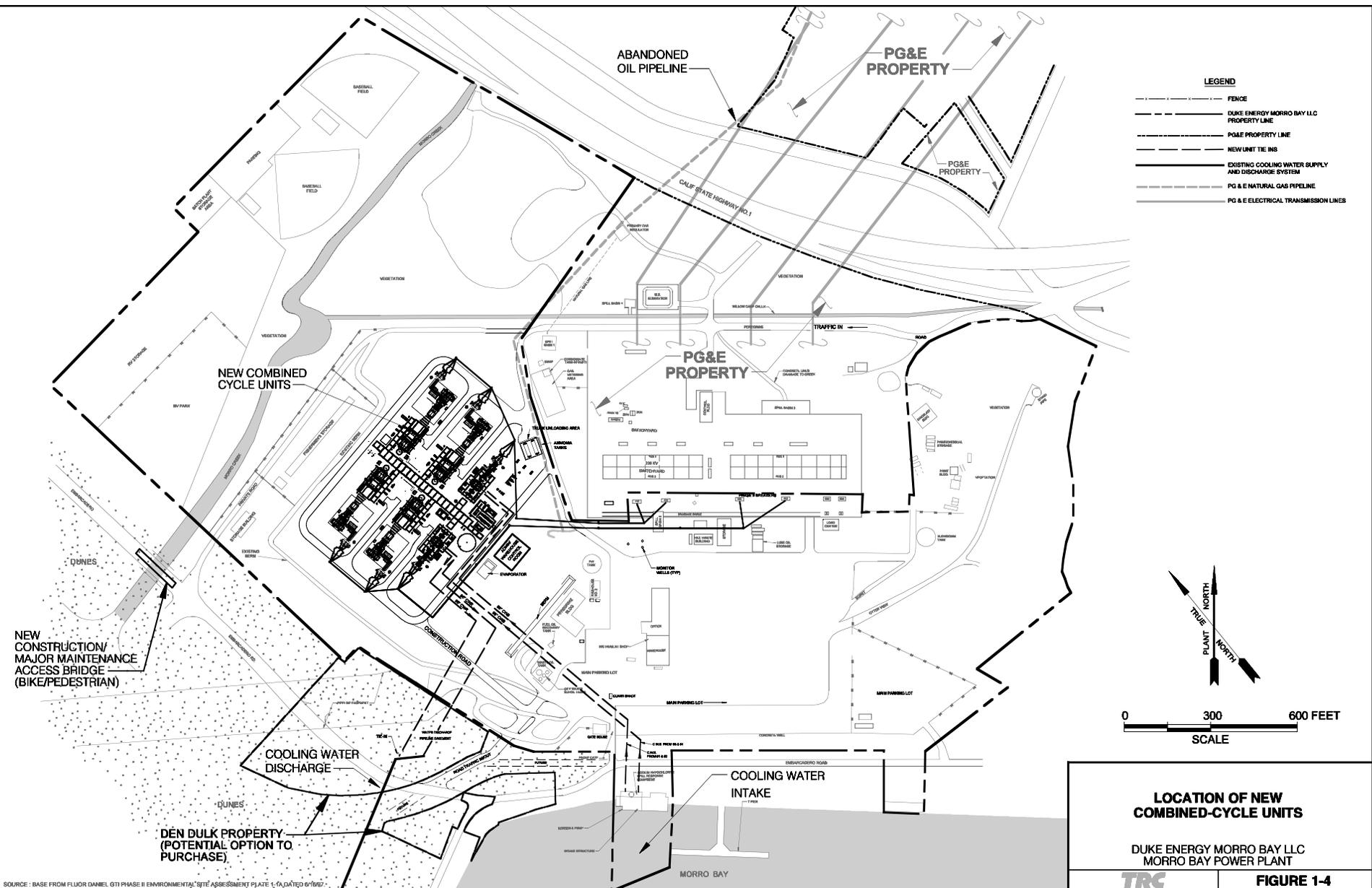
REFERENCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF MORRO BAY NORTH AND MORRO BAY SOUTH, CALIFORNIA, DATED 1993 AND 1994.

SITE LOCATION MAP

DUKE ENERGY MORRO BAY LLC
MORRO BAY POWER PLANT



FIGURE 1-3



SOURCE: BASE FROM FLUOR DANIEL G71 PHASE II ENVIRONMENTAL SITE ASSESSMENT PLATE 1, DATED 6/1/97.

Before Modernization



**CURRENT VIEW
MORRO BAY POWER PLANT
VIEW: FROM BASE OF MORRO ROCK**

DUKE ENERGY MORRO BAY LLC
MORRO BAY POWER PLANT

TRC

FIGURE 1-5

After Modernization



**PROJECT VIEW
MORRO BAY POWER PLANT
VIEW: FROM BASE OF MORRO ROCK**

DUKE ENERGY MORRO BAY LLC
MORRO BAY POWER PLANT



FIGURE 1-6

Duke Energy is uniquely situated to carry out the modernization at the MBPP, given its access to equipment, expert engineers, operational experience, and the needed resources to succeed with such a Project. Duke/Fluor Daniel has joined with Duke Energy to create a design, construction and operation team to develop a state-of-the-art power plant entirely within the existing MBPP site. Duke/Fluor Daniel, a corporate partnership of Duke Energy and Fluor Daniel Corporation of Irvine, California, is a global leader in design, construction and operation of combined-cycle power plants. Duke/Fluor Daniel will design and construct the Project

Duke Energy's "Single Construction Phase" Modernization Project

Duke Energy had originally proposed in its 1999 AFC the construction of two new gas turbines at MBPP along with the continued use of the existing Units 3 and 4 indefinitely. Although the existing Units 1 through 4 at MBPP are competitive in the California energy market, the City of Morro Bay sought the complete and early demolition of the existing units as a condition of its support for the modernization Project. Recognizing the importance of City of Morro Bay support, and recognizing the improvement to the viewsheds in the local community with the early removal of the existing power building and stacks, Duke Energy agreed to an accelerated "single-construction phase" Project.

Duke Energy's modernization Project includes the construction of two combined cycle units in a single-construction phase on a portion of the Duke Energy property located approximately 600 feet to the northeast of the existing turbine/boiler complex and three stacks of the Units 1 through 4 to an area presently occupied by six fuel tanks (see Figure 1-5). Construction is planned to commence in the winter of 2001, with commercial operation slated for fall-2003. Each of the two new combined cycle units will consist of two gas-fired turbines and one unfired steam turbine driven by the exhaust heat produced by the gas turbines. Each unit will be capable of producing a nominal 600 MW. With both trains, the modernized Plant will produce 1200 MW, or about 200 MW more than the current plant. The combined cycle units will replace the currently operating generation Units 1 and 2 (326 MW, 1950s technology) and Units 3 and 4 (676 MW, 1960s technology) with state-of-the-art combined-cycle technology that is 40 percent more efficient on a fuel consumption basis per MW than the existing power plant, and will produce substantially less environmental impacts to generate an equivalent amount of electrical power. While producing greater amounts of power, the new combined cycle units will burn less

natural gas by 12 percent during peak load operations (30 percent less during normal operations), use less seawater by 29 percent during peak load operations, and emit fewer pollutants, especially NO_x. Aggregate environmental impacts will also be reduced.

The new combined cycle units will be much less visible than the existing facility from nearly all viewpoints and will have a significantly enhanced visual environment. The six above ground tanks will be removed. The new combined cycle units are smaller in height than the existing building (95 feet compared to 200 feet) and the stacks are over 300 feet lower (145 feet compared to 450 feet). By locating the new generating units as far away from the coast and the Embarcadero as possible and by making landscaping improvements, industrial appearance of the facility from outside of the property will be reduced. The Project represents a dramatic improvement over the existing complex with its three 450-foot-tall stacks located close to the coast and the Embarcadero.

A key aspect of the Project is the continued use of the existing coastal dependent industrial-zoned parcel and a variety of existing systems contained in the parcel. Duke Energy believes this represents an environmentally superior Project when compared with other potential greenfield projects in San Luis Obispo County which disturb new property and require significant investments and environmental degradation to build new linear systems, including transmission lines, fuel supply, and cooling water.

The combined cycle units will be placed on a site in an area currently occupied by out-of-service oil tanks and related equipment, which will be removed as part of this Project. The combined cycle units will use the existing infrastructure currently onsite. The existing once-through cooling seawater intake and outfall system will continue to be used with relatively minor refurbishment to the intake structure and the installation of new water pumps. The new units will connect to both the existing PG&E transmission lines and switchyard, at the positions currently used by existing Units 1 through 4, and to the PG&E natural gas supply pipeline currently serving Units 1 through 4. Also, the site's distilled water plant and oily-water separator will continue in operation as will the firewater system. Similarly, many other systems and equipment will be reused such as cooling water intake and discharge systems including buildings, structures and tunnels; a State Lands Commission easement (administered by the City of Morro Bay) for the cooling water discharge tunnels to the discharge canal near Morro Rock; deep well pumps and a raw water standpipe to supply fresh water and fire system make up; a hypo-chlorination system to supply potable water; telecommunications infrastructure; connection

to electrical grounding grid; continued use of an existing stormwater drainage system; continued use of an oily water separator system for processing runoff; and continued use of a sea water vapor compression/evaporator system to supply high quality make up water, thus avoiding use of fresh water. The Project provides for demolition of the existing boiler steam turbine complex, removal of three 450-foot-tall stacks and their replacement with four 145-foot-tall stacks, construction of a pedestrian/bicycle bridge across Morro Creek (to be used as a construction vehicle bridge initially), and the planned use of adjacent coastal property consistent with the City of Morro Bay's Waterfront Master Plan.

The Role of Local Agreements

The five previously mentioned benefits of the Project (visual improvements, coastal access, economic development, single-phase construction, and improving the environment) would not have been possible without Duke Energy's voluntary withdrawal of the initial Morro Bay AFC in October 1999 to respond to issues raised by the City of Morro Bay, Morro Bay residents and others about the perceived impacts of modernizing the MBPP. A rigorous assessment of these issues led Duke Energy to enter into the MOU with the City of Morro Bay addressing a broad set of concerns and, as requested by the City of Morro Bay, a Memorandum of Agreement (MOA) with the SLOCCC related to cultural resource sensitivity and preservation. These agreements, involving major changes to the Project that are incorporated into this revised AFC, reflect an unprecedented level of commitment on Duke Energy's part to address the concerns of local residents as they relate to both construction and ongoing operation.

The MOU continues to create a framework for meaningful City of Morro Bay and Duke Energy dialogue. This dialogue takes the form of formal venues such as public workshops, as well as many informal meetings and negotiations. What has emerged through this process is a significantly improved Project from what was filed and subsequently withdrawn in 1999. Assuming the ability to implement the agreements called for in the MOU, Duke Energy is pursuing a Project with the following elements:

- **Single-Construction Phase Project** - Duke Energy now proposes a "Single-Construction Phase" Project, meaning that instead of a lengthy program that would have stretched the construction of each 600 MW combined cycle unit and demolition out over as many as 15 years, Duke Energy is now proposing an accelerated construction program of approximately 21 months, followed by an early and expeditious removal of the existing power plant immediately following. In short, Duke Energy has agreed to shorten the program to 6 years.

- **Removal of Stacks and Building** - Duke Energy's revised AFC provides for the removal of the existing power building and three 450-foot-tall stacks for Units 1 through 4, as soon as practical and no later than 4 years after the commercial operation date of the new units.
- **Long-term Site Plan** - Upon approval of the Project and commencement of construction of the new units, Duke Energy proposes to develop a long-term site plan with the City of Morro Bay for non-industrial uses of the portion of the site currently occupied by the existing Units 1 through 4. As stated in the MOA with the SLOCCC, the long-term site plan will include a cultural resources conservation easement.
- **City of Morro Bay Revenues Guarantee** - As part of the MOU, Duke Energy proposes to enter into an agreement to stabilize and enhance the City of Morro Bay's revenues that are derived from property taxes, franchise fees based on fuel use, and lease revenues for the water outfall by agreeing to a floor for the combined ongoing fees paid by Duke Energy to the City of Morro Bay. This will enable the City of Morro Bay to plan its budgets without concern about revenue fluctuations.
- **Waterfront Improvements** - Duke Energy proposes to refurbish the exterior façade of the existing water intake building on the waterfront 1 year after commercial operation of the combined cycle units, to make it more architecturally compatible with the objectives of the City of Morro Bay's waterfront.
- **Support for City's Waterfront Master Plan and Coastal Access** - Consistent with the MOU, Duke Energy proposes to work with the City of Morro Bay to enhance its waterfront in several ways. First, Duke Energy proposes to construct a bicycle and pedestrian path around the property, including a bridge, as described previously, across Morro Creek. Second, Duke Energy is pursuing a purchase option for an adjacent coastal property known as Den Dulk, which is strategically located between Morro Rock and the power plant. This property may facilitate the City of Morro Bay with implementation of its Waterfront Master Plan.
- **Address Native American Concerns** - The City of Morro Bay and the SLOCCC urged Duke Energy to address concerns of local Native American groups. Both the City and the SLOCCC were interested in having Duke develop an agreement with the Council, which would allow them to function as a conduit for other Native American groups before the filing of the AFC. Duke Energy acknowledged the importance of this, and has agreed to substantial protection of Native American resources and an ongoing consultation process defined in a MOA with the SLOCCC. (The MOA is presented publicly for the first time with this AFC.)

- **Public Information and Outreach (see also Chapter 3.0 - Community Outreach)** - Duke Energy is dedicated to assuring that local residents have mechanisms that keep them well informed on an ongoing basis about the Project from the Commission process through construction. To this end, Duke Energy will provide via a proposed Cost Reimbursement Agreement to support the City of Morro Bay's review of the AFC and to fund video taping of Commission activities in Morro Bay for broadcast over local cable TV channel 54. During Project construction, information updates including a 24-hour telephone information line will be available to the community. As a part of its substantial community outreach program, Duke Energy has also begun an outreach effort to monolingual Latinos in the San Luis Obispo County area. This effort seeks to inform the Latino community about the Project and the progress throughout the Commission process in a manner that will effectively reach Latinos that speak primarily the Spanish language. Duke Energy will also provide Spanish translation of key Project information (further details in Chapter 3.0 - Community Outreach).

Project Design Features to Minimize or Avoid Impact

Duke Energy has designed the Project's facilities in a way that either avoids or minimizes potential impacts. For example, the facility has been optimally designed to simply replace existing equipment at a nominal 1200 MW capacity rating. This replacement avoids substantial increases in the overall plant size which might result in complicated improvements to the water intake and discharge system, gas supply system and electrical and switchyard systems.

The Project relocates power generation facilities to a site farther from the Morro Bay waterfront business district. Duke Energy originally selected four site alternatives that were presented to City of Morro Bay staff and preapplication Project team, and additionally to the community at a public workshop in May 2000. From feedback encouraged by Duke Energy, the Project alternative site design selected used the most desirable location, placing the new units farther from the waterfront area. This siting also allows use of the existing berms with a new landscaping scheme to buffer the Project from visitors along the waterfront. Furthermore, Duke Energy has solicited and is implementing community preferences regarding color concepts for the new structures.

As the Project unfolds, Duke Energy will continue to seek community feedback for design features such as the landscaping and color treatment. To further enhance the surrounding area, Duke Energy proposes to construct a pedestrian/bicycle path that will surround the MBPP property. A Project construction and maintenance bridge to be built over Morro Creek, slated for future use by the City of Morro Bay as pedestrian/bicycle path coupled with two new pathways along the Embarcadero and southern edges of the property, will create a coastal access loop for residents and visitors to enjoy.

Further design features include the rerouting of the piping system, which normally runs over the top of the new units, to traverse through the center and along the sides of the new equipment to minimize visual impacts. The low profile piping structure combined with low profile turbine buildings will enhance view corridors by avoiding solid masses of structures.

Duke Energy and Duke/Fluor Daniel have designed this Project to reduce noise. At considerable expense, Duke Energy has added quiet components to the Project including stack silencers, specially designed HRSGs with thicker walls and a 10-foot silencer section to the turbine buildings, and a sound wall. To reduce noise in the surrounding community during construction, Duke Energy has responded to community input by agreeing to use an auger method, instead of pile driving, to install the necessary foundation supports for the new units.

To minimize the seawater-cooling intake, Duke Energy proposes a new efficient multiple pump system that operates based on load requirements. By using more small pumps, only those pumps needed will be used; for example, at base load, one pump will be off and will only be needed when duct firing is used. This design creates a variable flow use of seawater, which reduces the amount of seawater needed for cooling the new units.

To minimize disruption from construction traffic and avoid impacts, Duke Energy has established a traffic circulation proposal that features: routing construction traffic away from neighborhoods and the Embarcadero onsite or near site concrete batch plants, developing offsite construction laydown areas, scheduling construction shifts start and end times to avoid peak traffic hours, and splitting the workforce into shifts.

Overall, the design features incorporated into the Project, based upon community and City of Morro Bay input, has led to a Project design that is unprecedented for a power plant nestled in a small community. Duke Energy's proposal to demolish the existing power building and stacks for Units 1 through 4, replace it with a more environmentally sensitive and lower profile plant, and provide secure economic benefits to the City of Morro Bay demonstrates the commitment by Duke Energy to be a good and responsible neighbor to the City of Morro Bay and surrounding environs.

Improving the Environment

The MBPP is a key component of the local and regional electrical system in Central California and has contributed to keeping the lights on. The ever-increasing state electrical demand has triggered the need for the MBPP to operate in excess of 45 percent of the plant's total capacity factor over the past 12 months. Due to present conditions and expected future electrical power load requirements in California, the MBPP will continue to operate at increased levels.

Given the current operation of the power plant at these current or higher levels, the modernization Project provides many environmental benefits using the new technology. The combined-cycle technology is a state-of-the-art, highly efficient and cost-effective facility. A megawatt hour comparison between the existing units and the new combined cycle units shows a clear-cut advantage of using new technology over the old. It utilizes a high degree of environmental control that dramatically increases the efficiency and lowers the demand on natural resources. Even though energy production could exceed current production at the existing facility, the Project will result in a total reduction in environmental impacts which is a positive step and most certainly appropriate for this location.

Together with the various site design considerations, the reduced environmental impacts of the facility are measurable and substantial, and in many cases absolute and not dependent upon levels of utilization. Also of great significance is the opportunity to achieve these environmental improvements as soon as possible. The longer it takes to complete the Commission process, the more delayed are the following environmental improvements:

- **Visual** - The visual dominance of the existing power building and three stacks from nearly all points of views will be eliminated. Removal of the existing power building will improve the views of Morro Rock. Coastal views from the hills and homes and skyline views will be improved with the removal of the three 450 foot-tall stacks and existing power building

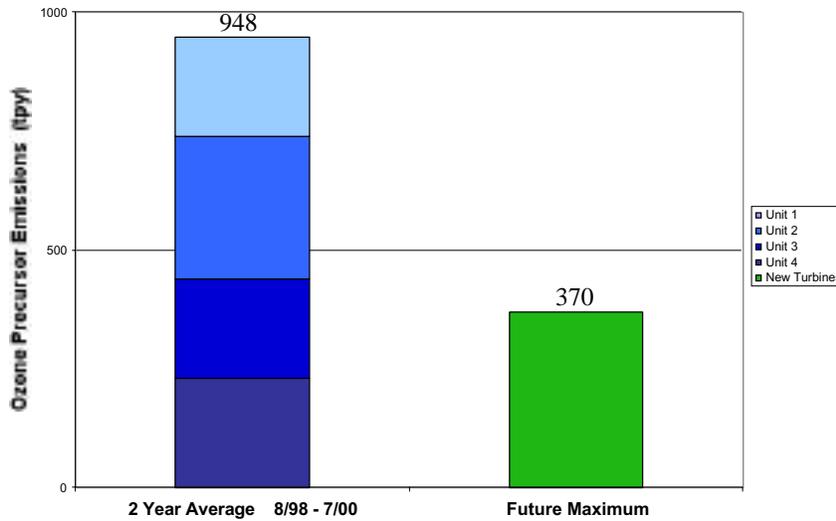
for Units 1 through 4. As an alternative, the new combined cycle units will require four 145-foot-tall stacks with low profile turbine buildings, appropriate landscaping and berms around the plant. The Project will open visual corridors and provide for a pleasing buffered area between the neighborhoods, waterfront business district, and beach areas. Also, the frequency and size of water vapor plumes from the power plant will be reduced with the new power plant technology.

- **Noise** - The new combined cycle units will be quieter than the existing power plant. Noise suppression will be engineered on key pieces of equipment and systems, including specially designed HRSGs. Stack silencers and a sound wall will also be employed. The enclosures over the turbines will be noise insulated. The configuration of the two combined cycle units themselves will further assist in lowering noise levels, as will the location of units farther away from the waterfront.
- **Air** - The new combined-cycle technology minimizes the amount of fuel needed to generate electricity and uses clean burning natural gas as fuel. Natural gas is fired in the gas turbines equipped with specially designed low NO_x burners that use excess air to create a very lean mixture to minimize NO_x production. The hot exhaust gases leaving the gas turbine are used to create steam for a separate steam turbine. These exhaust gases also pass through a selective catalyst reactor to further reduce the amount a NO_x released to the atmosphere. NO_x emissions are among the emissions that are classified as precursors to formation of ozone. Like household gas water heaters and gas cooking ranges, the new units will use natural gas. The Project will also use an oxidation catalyst to ensure low carbon monoxide emissions. More generally, the maximum emission rates from the new combined cycle units are based on worst case assumptions regarding emission rates, weather conditions and operations. These worst case assumptions will become the permit limits. Emissions, fuel use and generation rates will be monitored continuously to assure that the new combined cycle units are always in compliance with permit conditions.

The chart below shows the emissions that form ozone (i.e., NOx). The proposed maximum emissions are lower than the historical averages at the MBPP.

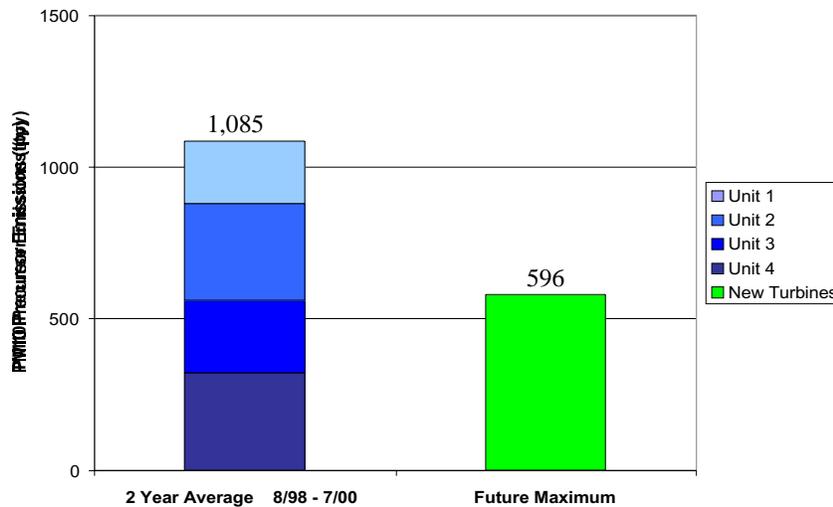
The chart below shows the emissions that form particulate matter, also known as PM₁₀. The

**Duke Energy Morro Bay Power Plant
Annual Ozone Precursor Emissions**

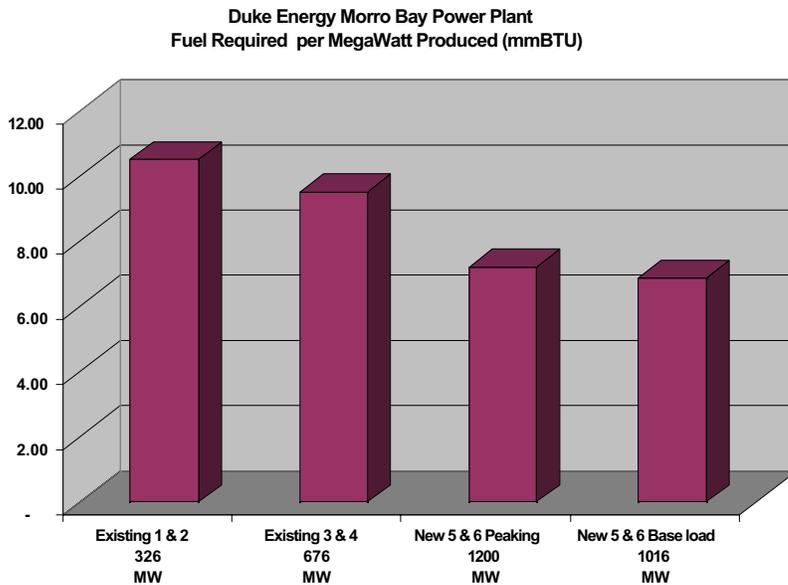


proposed maximum emissions are lower than the historical averages at the MBPP.

**Duke Energy Morro Bay Power Plant
Annual PM₁₀ Precursor Emissions**



- Fuel Use** - The fuel efficiency of the new units is dramatically better than the existing units. As the following chart illustrates, natural gas fuel use will be substantially less for the new units than for the existing Units 1 through 4. All figures shown are net power production, or power as it is sent to the transmission grid. Fuel use is shown per MW.



- Water** -The new combined cycle units will utilize significantly less seawater for cooling and reject significantly less heat to Estero Bay than the existing units for all power generation loads. For example, the existing units require approximately 464,000 gpm of seawater for cooling at the maximum capacity of about 1000 MW, while the new units will utilize about 330,000 gpm at their maximum capacity of about 1200 MW (29 percent decrease). The corresponding cooling water use for the new units when operating at an output of about 1000 MW is less than 250,000 gpm, a decrease of more than 40 percent compared to the existing units. The thermal discharge (in terms of British Thermal Units (BTUs) of heat released to the ocean) for the new units at a load of 1000 MW will be approximately half the thermal discharge from the existing units, also operating at 1000 MW, before being released to the atmosphere.
- Site Use** - The Project will improve the overall site in numerous ways. The existing power plant sits on a portion of the total site of 107 acres owned by Duke Energy. This industrial zoned site has been home to the MBPP for almost 50 years. The Project site will continue to remain in

its current zoning of M-2, which allows for consistency with local land use plans, policies and regulations. Other portions of the MBPP site are leased by Duke Energy to the City of Morro Bay and a private party, both of whom sublease the property. This leased/subleased property includes Lila Keiser Park, the fisherman's gear storage, City of Morro Bay Harbor Department yard, two parking areas and the Morro Dunes recreational vehicle (RV) park.

- **Continued Use of Existing Infrastructure** - Numerous systems at the Morro Bay facility will be reused, including but not limited to: natural gas lines, the main substation, the water intake, the water discharge, the oily-water separator, the physical property itself. This eliminates the impacts of disturbing a greenfield site and of building the supporting gas and transmission line infrastructure from it. The MBPP is already an industrial site. There is no need to trench additional offsite gas lines, construct additional transmission towers to a distant substation, build large cooling towers, or grade and level another 50 plus acre site.
- **Cultural Resources** - Duke Energy and the SLOCCC entered into an MOA regarding the monitoring of cultural resources and protection of Native American interests during activities associated with the construction and operations of the Project. Project activities associated with the combined cycle units will occur entirely within existing property boundaries on previously disturbed land. Various cultural resource surveys have been and will be conducted for the site resulting in a thorough understanding of the cultural resources of the area.
- **Coastal Access** - Duke Energy is proposing a series of new bicycle and pedestrian paths to provide access to the coast including a bridge across Morro Creek as well as two pathways along the Embarcadero and southern edge of the property.

Duke Energy is proposing to construct its Project within the existing tank farm area that encompasses approximately 24 acres. Within four years of commercial operation of the new units, the existing power plant will be demolished. This will open up the existing power plant site for other potential uses. As part of the MOU, and once the commercial operation of the new units commences, Duke Energy and the City of Morro Bay will develop a long-term plan for a portion of the site. Notwithstanding this plan, Duke Energy proposes to enhance the surrounding area with landscaping and pedestrian/bicycle paths.

In addition to the leases and power plant uses, the site contains areas of environmentally sensitive habitat (ESH) and cultural resources. Duke Energy has committed to the delineation and preservation of these areas.

Improving the Local Economy

The Project will improve the local economy in several ways. There will be increased revenue to local vendors and suppliers from the \$650 million Project and maximum utilization will be made for local available skilled labor. This utilization of local labor will increase the employment opportunities for residents in the area. There will be an increase in property taxes paid by Duke Energy to the City of Morro Bay and the County of San Luis Obispo. The purchase of equipment for the Project will increase sales tax revenue to the State and to the City of Morro Bay (\$1.8 million for the City of Morro Bay). Natural gas franchise fees paid by Duke Energy to PG&E for distribution to the City of Morro Bay are estimated to total \$850,000 annually. The allocation to the City of Morro Bay from property taxes paid by Duke Energy are expected to increase to \$650,000 annually. Duke Energy will also pay the City of Morro Bay an estimated annual fee of \$250,000, beginning in 2003, for use of the cooling water outflow channels into Estero Bay. Duke Energy's MOU with the City of Morro Bay will, with the beginning of commercial operation of the proposed generation facility, assure the City of Morro Bay a minimum level of total funding from property tax, franchise fees and outfall lease costs. This will allow the City of Morro Bay to effectively plan future projects to enhance local activities. Lastly, Duke Energy has funded the City of Morro Bay's examination of the draft AFC; assessment of the implications of the Project to the local community; and the implementation of the MOU. To date this funding has exceeded \$600,000. An additional \$400,000 is part of a proposed cash reimbursement agreement to fund the City of Morro Bay through the Commission's licensing process for the Project.

Continued Operation of Existing Morro Bay Facility

Without this modernization effort, California's electrical system will be further compromised both in terms of overall generation capacity, as well as in system reliability. In lieu of this Project, Duke Energy would continue to operate the existing Units 1 through 4, but would need to make necessary air quality control retrofits. Once these retrofits are made, the existing units, in excellent condition, would be able to operate for the indefinite future. Perhaps most importantly, utilizing the existing facility would not allow the environmental and tremendous fuel efficiency benefits of the new facility to materialize. This is particularly relevant to the residents of San Luis Obispo County. Their electrical requirements will continue to be serviced by the MBPP irrespective of whether the site is modernized or not. Plant managers anticipate that the physical life of the well-maintained existing plant to be more than 20 years. Plant engineers also have the option of extending the life of the plant even further with additional maintenance investments.

Assessment of Need

With the passage of Senate Bill 110 (1999 ch 581 Section 8), the Commission no longer makes findings regarding the conformity of the Project with the integrated assessment of need for new resource additions. Senate Bill 110 became effective on January 1, 2000, and removed that requirement from Cal. Publ. Res. Code Section 15523, which specifies the contents and required findings of a Commission decision on an AFC. Thus, the Project is not required to show conformance with the integrated assessment of need in this AFC.