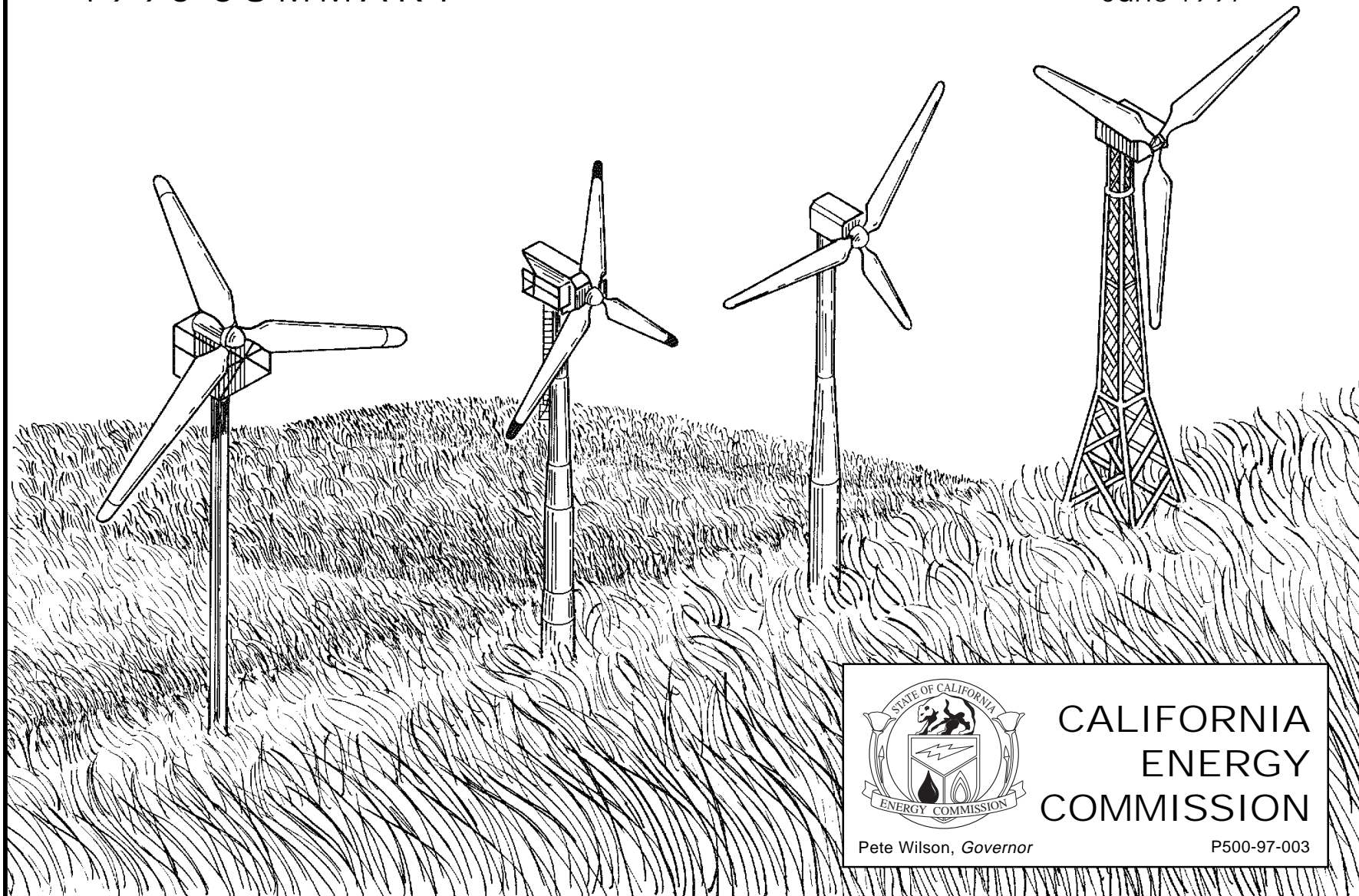


Wind Project Performance

1995 SUMMARY

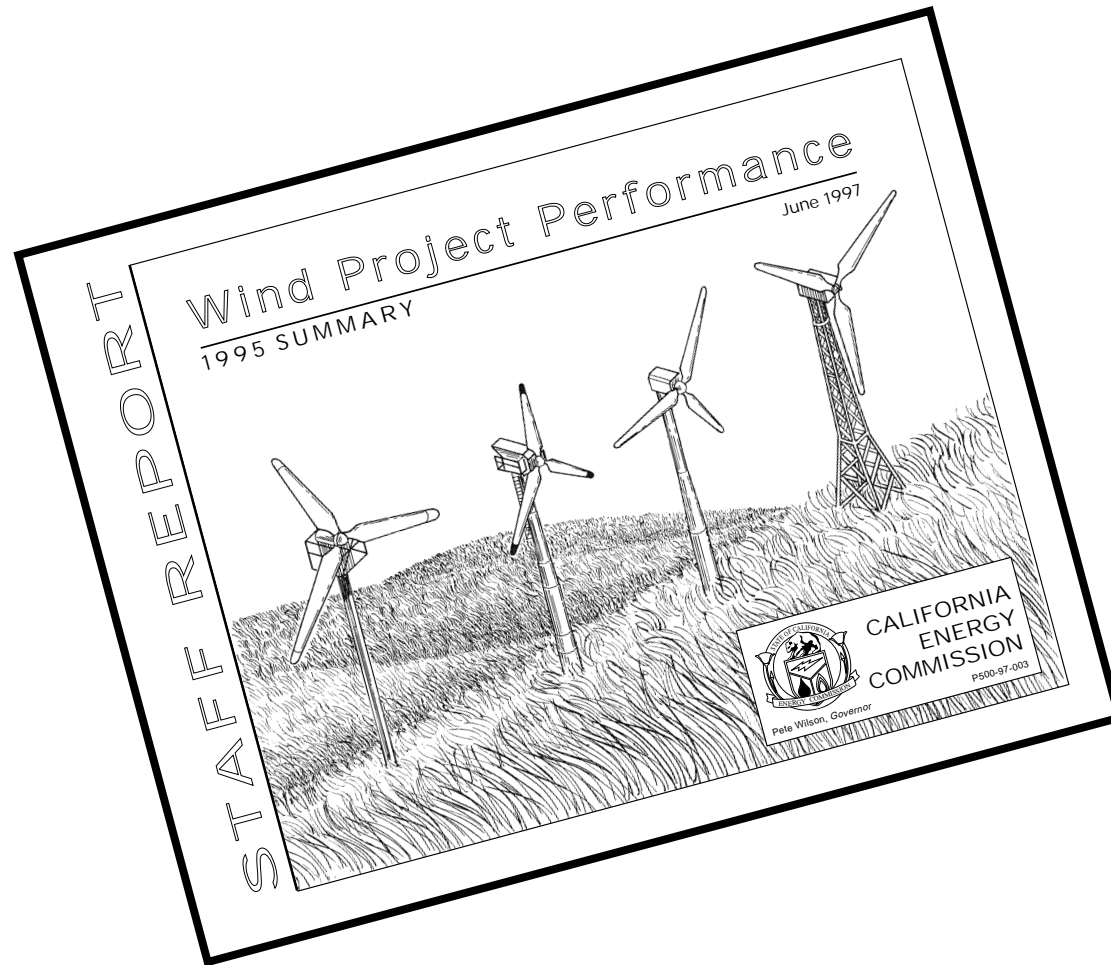
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Catherine Siebensohn Small, *Principal Author*
Michael Smith, *Manager*

RESEARCH & DEVELOPMENT OFFICE

Nancy Deller, *Deputy Director*

ENERGY TECHNOLOGY DEVELOPMENT DIVISION

NOTICE

This document is prepared pursuant to Wind Project Performance Reporting System regulations (California Administrative Code, Title 20, Chapter 2, Subchapter 3, Article 4) and to support California Energy Commission (Commission) staff analyses. Neither the Commission, State of California, any officer or employee thereof, nor any of its contractors or subcontractors intend that the information herein is to be used for any other purpose and make no warranty, express or implied, or assume any legal liability whatsoever for the contents of this document.

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1. INTRODUCTION

California has long been recognized as a world leader in the development of wind energy. Early wind industry growth in California was supported by the availability of federal and state tax credits and long-term interim standard offer (ISO4) contracts with electric utilities that offered favorable rates. These economic incentives provided the impetus for substantial growth from about 500 megawatts (MW) of installed capacity at the beginning of 1985 to a high of 1,679 MW at the end of 1991.

California dominated worldwide development of wind energy during the 1980s. In recent years, however, California's share of the world's installed capacity has decreased due to continued retirement of older turbines and low levels of industry growth in California compared to growth in the rest of the world. The 54 MW of new capacity added during 1994 and the 1.08 MW added in 1995 did not offset capacity losses from turbine retirements. Thus, installed capacity declined to 1,523 MW and California now accounts for 30¹ percent of the world's installed capacity.

Presently, the California wind industry is facing a challenge as the long term power purchase contracts have stopped paying high avoided cost payments on each contract entering the eleventh year. Contracts based on forecasts made in 1983 began at about 5 cents/kilowatt-hour (kWh), ramping up to approximately 14 cents/kWh in 1997. Current forecasts of about 5 cents/kWh are less than one-third of the fixed payment. These revenue reductions are of particular concern to wind projects with outstanding loans extending beyond the 10th year.

Some California wind farm operators are responding to challenges facing the industry by planning for or initiating project redevelopment at existing wind sites with optimum wind resources. Repowering wind farms by upgrading existing equipment or replacing aging turbines with newer equipment offers benefits such as higher efficiency and generating capacity as well as lower operating and maintenance costs associated with maintaining older equipment.

¹ Calculated from "Windpower: Clean Energy for the 21st Century", AWEA, 1996.

Although the California wind industry's capacity factor, efficiency and output has steadily increased since 1985, statewide wind output for 1995 took a drop. The record 3.2 billion kWh of electricity generated in 1994, declined to 2.9 billion kWh in 1995. This figure, however, is higher than the 2.8 billion kWh produced in 1993, and represents enough output to meet the annual electricity needs of more than 500,000 typical California homes.

In previous years, it was assumed that the statewide capacity factor had leveled off at 20 percent; however, capacity factor performance continues to be higher at 21 percent in 1995. When turbines installed since 1985 were isolated, the capacity factor climbs to 26 percent. The statewide capacity factor would be even higher if turbines installed in the mid- to late-1980s were not considered.

Decreased electricity production in 1995 may have resulted from one or a combination of factors, including low availability of the wind resource and operators idling their turbines to lower costs. Other reasons may be due to the lack of market demand for wind generated electricity and the expiration of interim standard offer contracts.

2. WPRS BACKGROUND

What Commission Efforts Led to the Wind Project Performance Reporting System?

The California Energy Commission (Commission) Wind Program was initiated in 1977 and later expanded in 1978 with the passage of California Assembly Bill 2976 authored by Assemblyman Henry Mello. The Mello bill required the Commission to implement a state wind energy program to expedite the commercialization of utility-scale wind turbines. The Commission was responsible for: assessing wind resources throughout California; operating a public wind information center; testing wind turbines; and conducting research to support development of large-scale prototype wind turbines.

When the industry began exponential growth in 1981, the Commission and the American Wind Energy Association (AWEA) recognized the need for performance and other technology-related information. Subsequent efforts by these two organizations led to adoption of Wind Project Performance Reporting System (WPRS) regulations in 1984.

What is the WPRS Program?

California law requires the California Energy Commission to serve as a central repository in state government for the collection and dissemination of information on energy

supplies. Starting in January 1985, WPRS regulations required all California wind operators with projects rated at 100 kW or more to provide quarterly wind performance reports if they sold electricity to a power purchaser (utility). WPRS reports filed by operators include actual energy production and related project information. In addition, all California power purchasers are required to file quarterly reports documenting power purchases from wind operators. The Commission compiles and evaluates this data and documents findings in quarterly and annual reports on wind industry performance in California.

Why Were WPRS Regulations Developed?

WPRS regulations were instituted for several reasons. First, the industry, investors, financial community and government agencies needed actual performance data to better evaluate the status of wind technology. Second, information that would help minimize tax abuse would benefit everyone involved in wind development: the industry would generate less “bad press” and more favorable public opinion; investors would be better able to make informed investments; and government and public monies would be allocated to projects with optimal performance. WPRS regulations were intended to provide performance data useful for improved government tracking of energy supplies and better planning of the state’s energy needs.

Before federal tax credits expired in 1985, project financing was primarily venture capital from private investors willing to take a substantial risk on the technology due to available tax benefits. Since the tax credits expired, wind projects have focused on revenues from power sales and placed greater reliance on conventional project financing from institutional lenders and foreign investors. WPRS data also were needed to establish performance credibility with these new sources of financing.

What Information Do WPRS Reports Provide?

The *WPRS Annual Report* includes the following information for all wind projects in California rated at 100 kilowatts (kW) or more that sell electricity to a power purchaser: turbine manufacturers, model numbers, rotor diameters and kW ratings; the number of cumulative and new turbines installed; the projected output per turbine; the output for each turbine model; and the output for the entire project. The *WPRS Annual Report* is compiled from quarterly reports submitted by project operators and public utilities. Commission staff use this WPRS data to analyze wind project performance and industry production and capacity trends. The Annual Report also contains data summary tables reflecting performance statewide and by resource area; turbine size, type and origin; manufacturer; and project operator. Note that totals expressed in tables and figures may not equal 100 percent due to rounding.

Since 1985, the Commission has documented and evaluated data submitted by operators and utilities in compliance with WPRS regulations. The extensive empirical data collected and disseminated by the Commission is used by industry, utility, investor, manufacturer, government, and research and development groups to measure the performance and relative benefits of wind technology.

What Information Is Not Found in WPRS Reports?

WPRS reports do not provide information on every wind energy project in California. Non-operating wind projects are not required to report to the Commission. The absence of a project from WPRS reports typically indicates that the project is not selling any power or is rated less than 100 kW. Other unreported capacity includes turbines that do not produce electricity for sale, such as turbines installed by utilities, government organizations and research facilities. Additional unreported capacity results when operators fail to file. Installed capacity for these operators cannot be confirmed and only kWh production verified from utility reports is included in WPRS reports.

WPRS reports cannot always account for the impact turbine age has on performance because turbines are often reported in groups combining old and new machines. To track improvements in technology, new turbine performance has been analyzed separately where possible.

The limited number of developers installing new capacity precluded adequate confidentiality of cost data. Therefore, aggregate cost data have not been included in the *1995 Annual Report*.

What Limitations Should Be Considered Before Using WPRS Data?

Although many valuable observations about California's wind industry can be drawn from WPRS data, it is important to recognize four major limitations:

1) While the Commission collects and reports WPRS wind data in annual reports, a complete industry evaluation requires consideration of collective data from several years. This is because the available wind resource varies from year to year depending on weather conditions.

2) Much of the data reported is not directly comparable because the wind industry still does not employ a standardized turbine rating system. Turbines are tested under different conditions and rated at widely varying miles-per-hour specifications.

3) Operator or manufacturer performance may not be accurately represented in the report when old and new turbine data are grouped together. Analysis of wind data reported since 1985 confirms that newer equipment typically performs more efficiently and reliably than older equipment.

4) Performance data contained in WPRS reports do not reflect other important variables that should be considered. These variables include: cost per kilowatt, operation and maintenance costs, durability of the system and quality of the site's wind resource.

3. WPRS IMPLEMENTATION ISSUES

Validating performance data. It was originally intended that utility quarterly reports be used to validate operator output data; however, numerous problems occurred. Some utilities did not provide data according to calendar quarters or provided data for only those operators who filed a power sales agreement. In many cases, more than one project was reported under a single utility contract making it difficult to verify individual project output figures.

To establish a more reliable validation procedure, Commission staff allowed operators to voluntarily submit utility receipts with quarterly reports. When output figures provided by operators agree with either submitted utility receipts or utility reported data, output figures are recorded as “validated.”

Operators who fail to file. Utility quarterly reports inform Commission staff of all wind farm operators with projects rated 100 kW or more who sell power. These operators are required to submit WPRS reports. Operators who sell power but do not submit reports are noted as “failed to file.” During 1995, eight operators failed to file for one or more quarters. Depending on the circumstances, Commission staff consider various options for resolving filing issues.

Operators who file reports with missing data. Some operators filed WPRS reports with one or more data items missing. The predominant missing data item was projected quarterly output per turbine. Some wind projects reported only annual output estimates. In such cases, no value has been assigned. Commission staff continue to assist project operators with reporting so that data submitted will be complete.

4. CALIFORNIA WIND RESOURCE AREAS

The wind resource map on this page includes the geographical location of, and quality associated with, major wind resource areas in California. During 1995, wind performance data was received from operators with projects located in the following five resource areas:

Shown:

- Altamont Pass
- Pacheco Pass
- San Geronio Pass
- Tehachapi Pass

Not Shown:

- Solano (Solano County)

Areas designated “good” are roughly equivalent to an estimated mean annual power, at 10 meter height, of 200 to 300 Watts per square meter (W/m^2), and “excellent” if more than 300 W/m^2 .

Source: A. Miller and R. Simon, “Wind Power Potential in California,” San Jose State University, prepared for the California Energy Commission, May 1978.

5. STAFF SUMMARY

5.A INDUSTRY PERFORMANCE

Total Capacity. A cumulative capacity of 1,523 megawatts (MW) was reported operational during the fourth quarter of 1995. The 1.08 MW of new capacity installed during 1995 was lower than previous years. Cumulative capacity also declined due to continued attrition of older turbines.

Electricity Output. In 1995, the California wind industry produced more than 2.9 billion kWh of electricity, enough power to meet the annual electricity needs of almost 500,000 typical California homes. The amount of electricity generated during 1995 declined from 1994, yet has exceeded all previous years including 1991 and 1992 when reported installed capacity was higher.

Electricity Production Percent of Projected. Although California wind projects generate a substantial amount of electricity, the industry as a whole produced only 78 percent of the total output projected for 1995. This figure is a decline from the 79 percent of total projected output attained in 1994, yet is a significant improvement from the 45 percent of total projected output attained in 1985. Because many wind developers overstated output capabilities

during the tax credit era, a number of older turbines with overstated projections lower the total average statewide percent of projected output. When turbines installed since 1985 are isolated, the percent of projected output for 1995 rises to 88 percent.

Capacity Factor. Capacity factor is defined as the ratio of actual energy output to the amount of energy a project would produce if it operated at full rated power for 24 hours per day within a given time period. As indicated previously, there should be standardized testing of all wind turbines for capacity factors to be truly comparable. With no such program, wind turbine ratings currently are based on widely varying test conditions and miles-per-hour specifications. Voluntary standards for testing wind turbines, however, have been developed by the American Wind Energy Association (AWEA).

Despite testing limitations, the capacity factor is still considered a strong indicator of wind project performance. The annual capacity factor is computed as the average of quarterly capacity factors calculated for each group of turbines reported. Only operating turbines are used to calculate capacity factors so that performance results are not skewed by non-operational capacity. For projects with new turbines, only one-half of new capacity is included in the capacity factor calculation during the quarter of installation because new turbines are not likely

to operate for the entire quarter in which they are installed and new equipment typically needs a “debugging” period before operating at fully rated power.

The resulting statewide capacity factor for 1995 is 21 percent. Although the capacity factor has decreased nine percent from 1994, current output represents almost a 62 percent increase from the 13 percent capacity factors for 1985 and 1986 (Figure 1). The upper limit capacity factor achieved by some California wind projects continues to exceed 30 percent. In particular, one project has consistently reached this upper limit, including an annual capacity factor of 35 percent in 1995.

Note that statewide average performance is still adversely affected by a number of older turbines that are less reliable and efficient than those currently being installed. When wind turbines installed since 1985 are isolated, the capacity factor rises to 26 percent (Figure 2).³

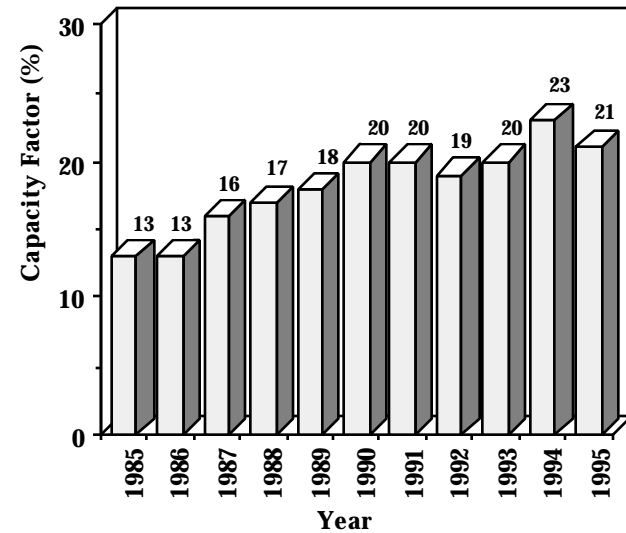


FIGURE 1: Statewide Capacity Factors 1985-1995

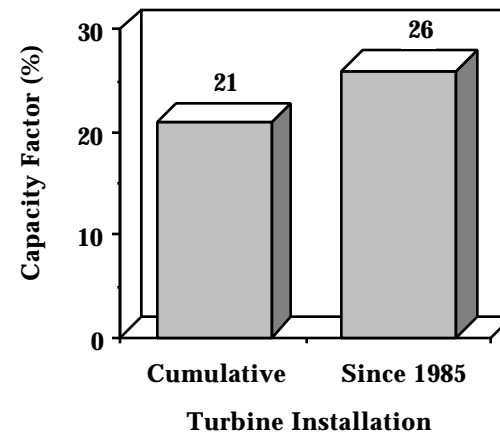


FIGURE 2: Capacity Factors for Turbine Stock

³ All calculations of the turbine base “Since 1985” in this report exclude 3,430 100kW turbines installed in Altamont because the project operator is reporting kWh production in the aggregate. Some of these turbines were installed prior to 1985 and some were not. Since the operator is reporting a single electricity-produced figure for this mixed turbine base, performance calculations in the category “Since 1985” cannot be made.

kWh-Per-Square-Meter. Annual kWh-per-square-meter calculations are another wind technology performance indicator. The advantage of this indicator is that it is based on blade-swept area, a wind turbine specification determined by standard measurements rather than non-standardized kW ratings used to determine capacity factors. Unfortunately, it is still difficult to develop directly comparable kWh-per-square-meter results because data reported for some turbine models include new turbines that have not had the benefit of a full operational year. When any kWh-per-square-meter calculation does not include a full operational year for all turbines, an asterisk has been placed next to the value on all summary tables in Section 6.

Average kWh-per-square-meter annual production for 1995 was 732, an eight percent decrease from the 798 kWh per square meter recorded for 1994. When turbines installed since 1985 are isolated, however, the resulting kWh-per-square-meter annual production figure increases to 853 (*Figure 3*).

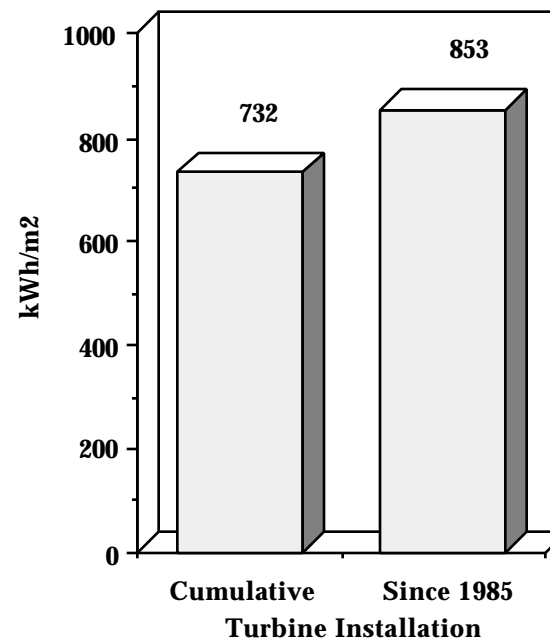


FIGURE 3: kWh-Per-Square-Meter Production of Turbine Stock

5.B PRODUCTION AND CAPACITY TRENDS

Statewide

During 1995, 1.08 MW of new capacity was installed in California (Figure 4). This new capacity was significantly lower than the 54 MW installed in 1994 and 9 MW installed in 1993. Total installed capacity decreased due to continued attrition of older turbines.

Wind output during 1995 was consistent with the typical California wind resource profile: low winds at the beginning and end of the year and high winds during spring and summer when the warmer seasons create a natural draw of cool coastal air into hot inland valleys and deserts. WPRS data indicates that 74 percent of all annual output was produced in the second and third quarters of 1995 (Figure 5). This is a good seasonal match to California’s peak demand for electricity during summer months. Quarterly capacity factors were consistent with the California wind resource profile previously discussed. The statewide capacity factors for 1995 were 10, 34, 29 and 12 percent respectively for the first, second, third and fourth quarters.

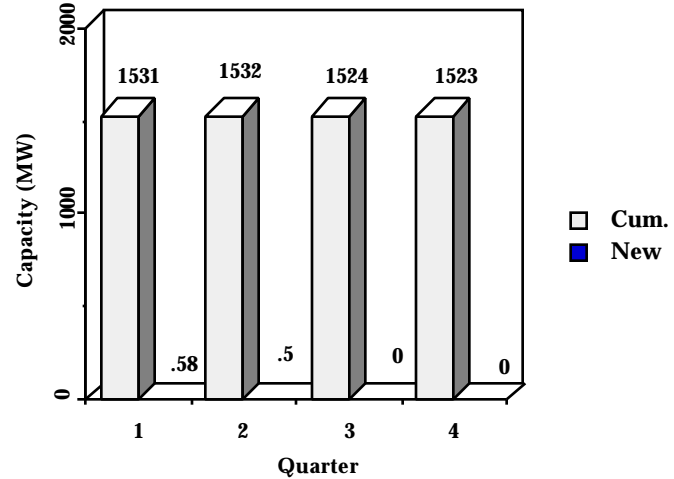


FIGURE 4: Statewide Wind Capacity

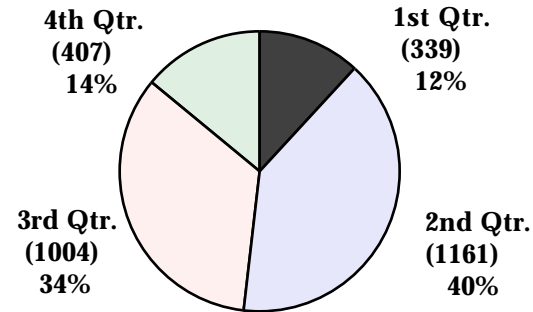


FIGURE 5: Statewide Wind Output (Millions of kWh)

The 2.9 billion kilowatt hours of electricity produced by California wind project operators during 1995 decreased from 1994, yet exceeded production for all previous years including 1991 and 1992 when reported installed capacity was higher. (Figure 6). Decreased production during 1995 may result from low availability of the wind resource. Other reasons may be due to the lack of market demand for wind generated electricity and the expiration of interim standard offer contracts.

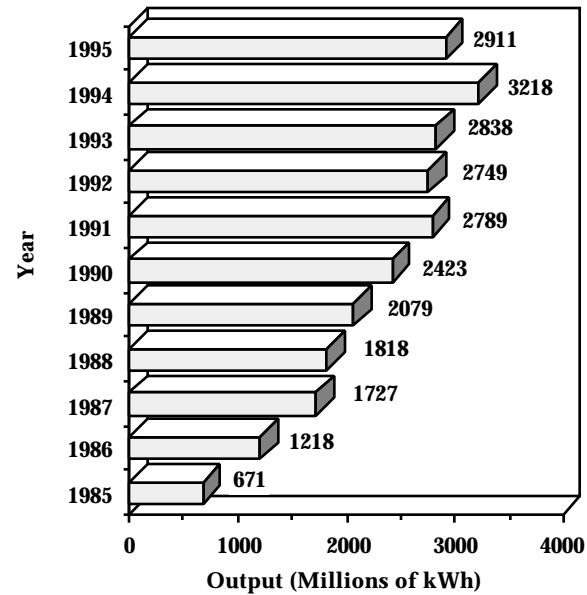


FIGURE 6: Statewide Wind Output 1985-1995

Resource Areas

Although wind project operators from five different resource areas in California reported to WPRS, about 95 percent of all California capacity and output is generated in only three resource areas: Altamont, San Gorgonio and Tehachapi. All three of these areas are narrow mountain passes leading into hot valley or desert regions. Among these three resource areas, 41 percent of all capacity is found in Tehachapi, more than 36 percent in Altamont, and about 18 percent in San Gorgonio resource areas (Figure 7).

When resource area capacity (Figure 7) and percent of total statewide output (Figure 8) for the three primary resource areas are compared, Tehachapi (41 percent output at 41 percent capacity) produced output equal to the percentage of capacity, and San Gorgonio (23 percent output at 18 percent capacity) produced more than its share, and Altamont (32 percent output at 36 percent capacity) produced less than its share.

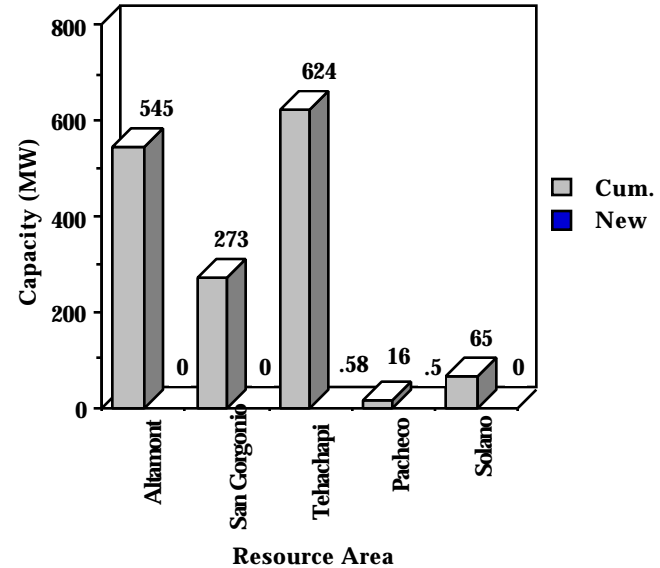


FIGURE 7: Resource Area Capacity

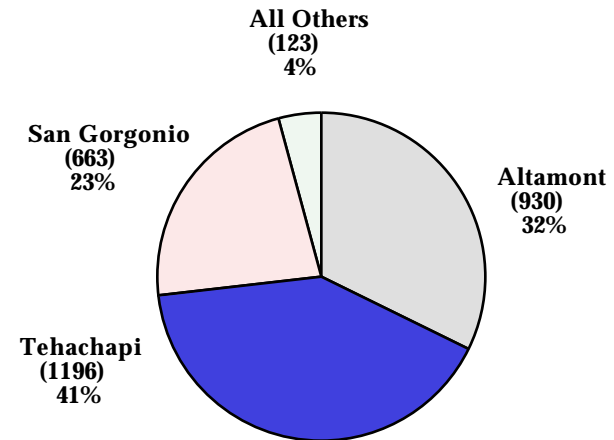


FIGURE 8: Resource Area Output (Millions of kWh)

Of the three largest resource areas, San Gorgonio had the highest capacity factor (29 percent), followed by Tehachapi (22 percent) and Altamont (18 percent). Solano and Pacheco, two smaller resource areas, had capacity factors of 18 percent and 15 percent respectively (Figure 9).

When comparing resource area performance, many factors should be considered. For example, age of equipment appears to be a significant factor affecting the performance difference between San Gorgonio and Altamont. The Altamont resource area includes two large developers with very old capacity, significantly lowering Altamont’s overall performance. San Gorgonio wind developers met substantial delays getting local government approval for their projects, thus their equipment is newer.

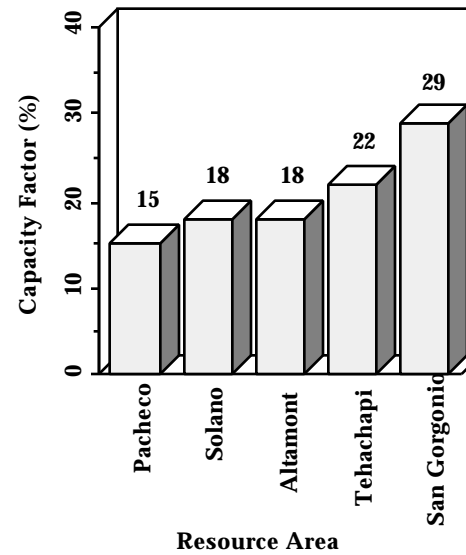


FIGURE 9: Capacity Factor by Resource Area

Turbine Size

About 46 percent of all new capacity installed in 1995 was in the the 201+ kW size category (Figure 10). Although the 51-100 kW turbine size still accounts for slightly less than one-half of all cumulative capacity, this percentage share may decrease over time as smaller, older turbines are permanently retired from service.

Capacity factor performance in 1995 is highest for turbines in the 201+ kW size range (Figure 11). Further, a comparison of cumulative capacity and percent share of kWh output reveals that larger turbines in the 201+ kW range produced more than their share at 35 percent output and 30 percent capacity (Table 1).

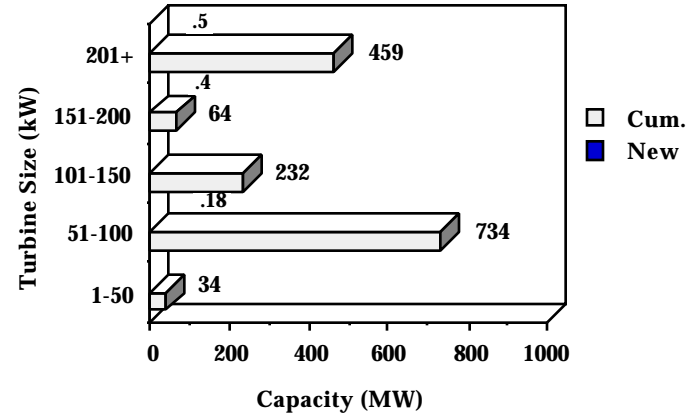


FIGURE 10: Capacity by Turbine Size

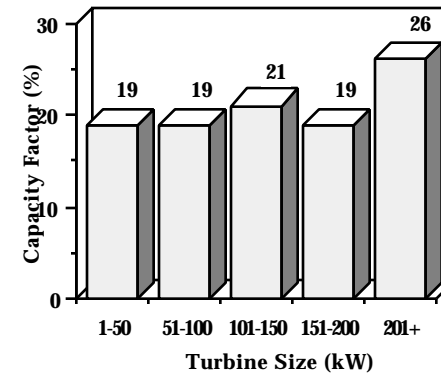


FIGURE 11: Capacity Factor by Turbine Size

**TABLE 1
1995 CAPACITY AND OUTPUT BY TURBINE SIZE**

Size (kW)	Cum. Capacity (% of Total)	New Capacity (% of Total)	kWh Output (% of Total)
1-50	2	0	2
51-100	48	11	42
101-150	15	0	14
151-200	4	25	4
201+	30	64	35
Failed to File	---	---	3

Turbine Type

WPRS performance results also have been categorized by horizontal or vertical axis machines. When comparing performance of horizontal and vertical turbines, it should be recognized that vertical axis turbines used in California at the present time represent relatively old technology. No new capacity has been added since 1986.

The California wind industry continues to be dominated by horizontal axis machines accounting for 95 percent of all capacity and 100 percent of new capacity. Comparison of performance indicates a 22 percent capacity factor for horizontal axis turbines compared to a 9 percent capacity factor for vertical axis turbines (*Figure 12*).

Performance by kWh per square meter was 741 for horizontal axis turbines compared to 487 for vertical axis turbines (*Figure 13*). WPRS data does not explain why the variation in kWh per square meter performance between horizontal and vertical axis turbines is so much less than the difference in capacity factor performance.

Note that other important turbine characteristics such as downwind and upwind configurations, number of blades, fixed or variable pitch blades, and braking devices are not tracked in WPRS reports.

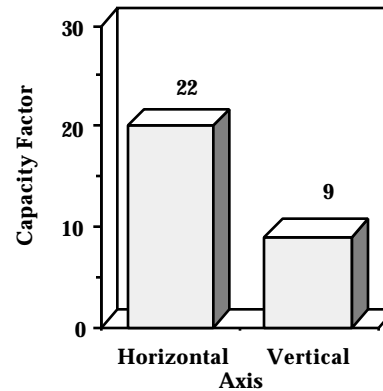


FIGURE 12: Capacity Factors by Turbine Axis

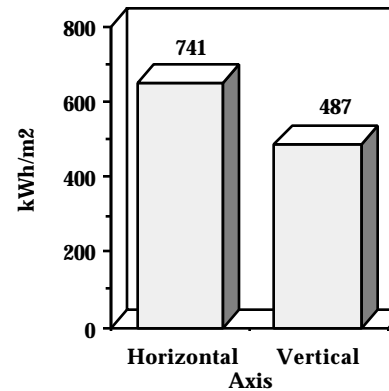


FIGURE 13: kWh Per Square Meter Production by Turbine Axis

Domestic and Foreign Turbines

By the end of 1995, capacity from foreign made turbines was 869 MW, compared to 654 MW from domestic turbines. During 1995, .18 MW of domestic and .9 MW of foreign turbine capacity was installed (Figure 14).

A comparison of capacity distribution for domestic and foreign turbines in 1985 and 1995 is shown in Figure 15. For a more complete historical perspective, cumulative and new capacity for domestic and foreign turbines is shown in Table 2.

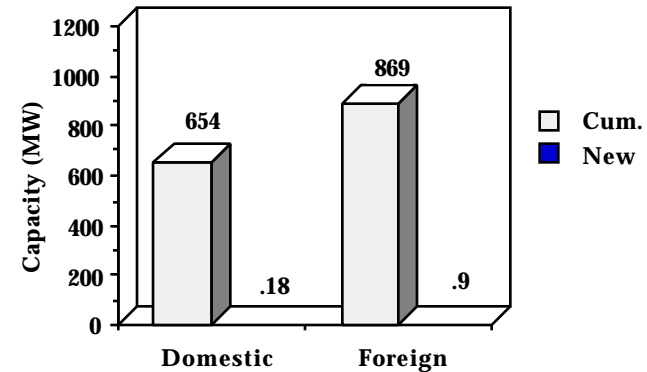
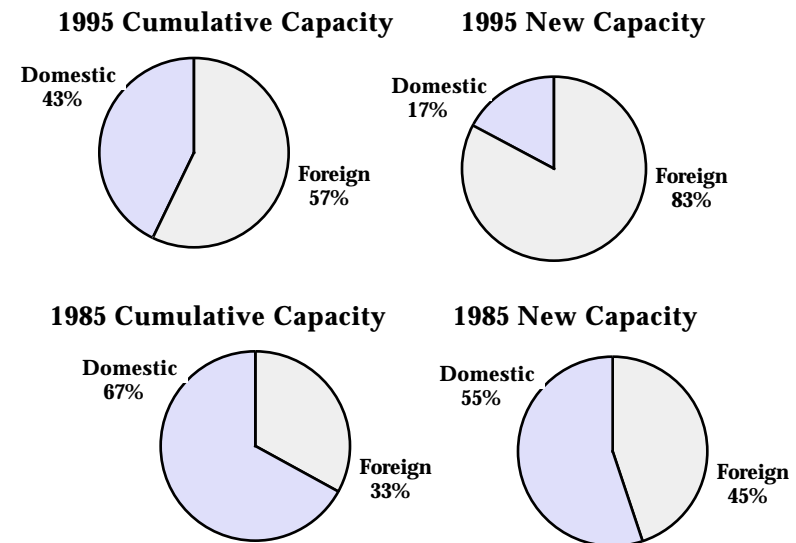


FIGURE 14: Capacity by Turbine Origin

**TABLE 2
1985-1995 CAPACITY DISTRIBUTION
BY TURBINE ORIGIN**

Year	Domestic (%)		Foreign (%)	
	Cum.	New	Cum.	New
1985	67	55	33	45
1986	55	25	45	75
1987	56	49	44	51
1988	58	87	42	13
1989	52	17	48	83
1990	53	45	47	55
1991	46	4	54	96
1992	47	39	53	61
1993	45	58	55	42
1994	46	74	54	26
1995	43	17	57	83



**FIGURE 15: Capacity Distribution by Origin
1985 and 1995**

The overall capacity factor results of foreign turbines (23 percent) exceeds that of domestic turbines (19 percent). Both foreign and domestic turbine stock benefit from the inclusion of newer, more efficient machines. Historically, the performance of the domestic turbine stock has been more adversely affected by older, less efficient turbines. When turbines installed since 1985 are isolated, the performance gap narrows. The capacity factor of domestic turbines increases from 19 percent to 28 percent, while that of foreign turbines increases from 23 percent to 25 percent (Figure 16). The improvement in capacity factor for domestic turbines may result from the retirement of old turbines with poor performance and the addition of newer, more efficient turbine stock.

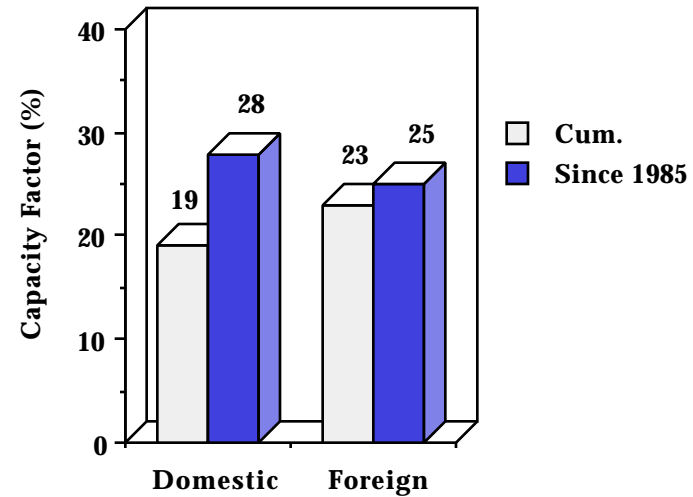


FIGURE 16: Capacity Factor by Origin

The impact of other variables on domestic turbine performance is demonstrated by two large projects in the Altamont resource area with more than 139 MW of turbine capacity and an average capacity factor of only 13 percent. Domestic turbines account for 110 MW of the 139 MW capacity with only a 9 percent capacity factor. When these two projects are eliminated from the domestic turbine base, the adjusted capacity factor increases to 21 percent (Figure 17).

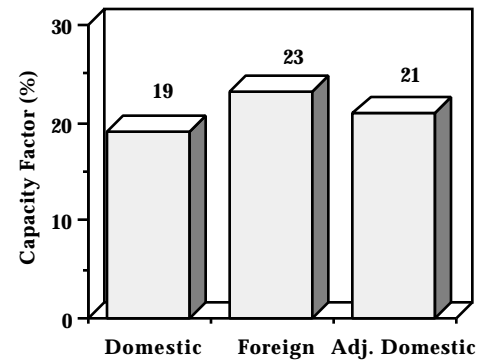


FIGURE 17: Adjusted Capacity Factor for Domestic Turbines

Analysis of kWh-per-square-meter performance data indicates that foreign turbine performance (774) is about 13 percent higher than domestic turbines (671) without any adjustments (Figure 18). It should be noted that when newer turbines installed since 1985 are isolated, kWh-per-square-meter production for both domestic and foreign turbines normally increases.

As a general rule, the kWh-per-square-meter measure is comparatively better than the capacity factor measure when evaluating domestic turbine performance. This is because overstated capacity ratings for older domestic turbines appear to significantly reduce capacity factor performance.

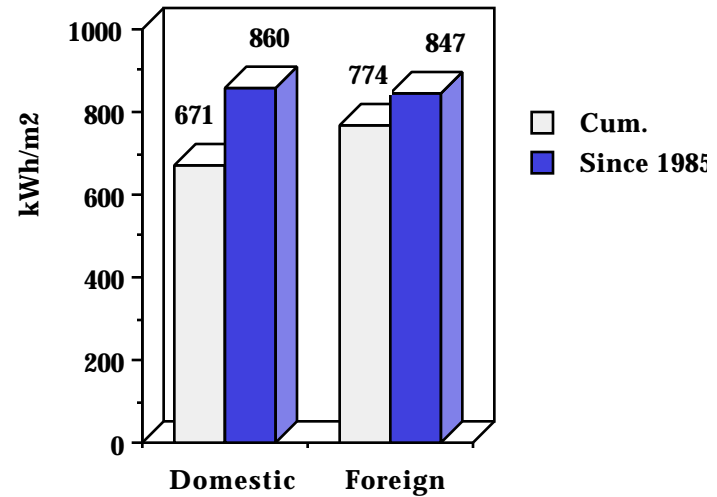


FIGURE 18: kWh-Per-Square-Meter Production by Turbine Origin

The 10 Largest Wind Turbine Manufacturers

The 10 largest wind turbine manufacturers represent about 93 percent of California's wind generating capacity. The five largest manufacturers alone (Kenetech, Vestas, MWT, Micon and FloWind) account for more than 76 percent of all capacity. The 10 largest manufacturers and their individual generating capacities are shown in *Figure 19*. A wide range of capacity factors exist among these manufacturers (*Figure 20*). Manufacturers with the highest capacity factors are Danwin (27 percent); MWT (24 percent); Vestas (24 percent); Bonus (23 percent); Micon (23 percent); and Kenetech (22 percent). It should be noted that capacity factor performance for all but one of the 10 largest manufacturers, (FloWind), decreased from the previous year. Also, note that Fayette is no longer reporting, and has been substituted by Howden as one of the largest manufacturers.

Both equipment and siting variables should be considered when evaluating turbine manufacturer data. Manufacturers with older turbine stock are more adversely affected relative to their total performance. The overall quality of a particular resource area also has considerable impact on reported performance of turbines sited in that area. Higher capacity factors for some specific turbine types may result from their concentration at particularly good sites within high quality resource areas.

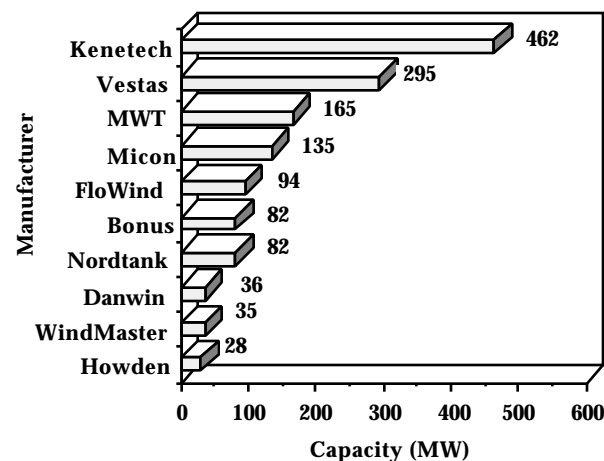


FIGURE 19: Cumulative Capacity 10 Largest Turbine Manufacturers

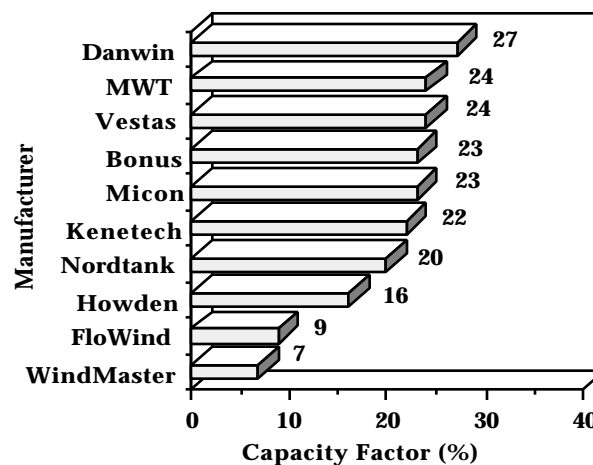


FIGURE 20: Capacity Factors for 10 Largest Turbine Manufacturers

Annual kWh-per-square-meter results are shown for the ten largest manufacturers in *Figure 21*. Manufacturers with the highest kWh-per-square-meter production are Danwin (893), MWT (883), Vestas (796), Kenetech (744) and Bonus (729). kWh-per-square-meter performance for all of the 10 largest manufacturers decreased from the previous year.

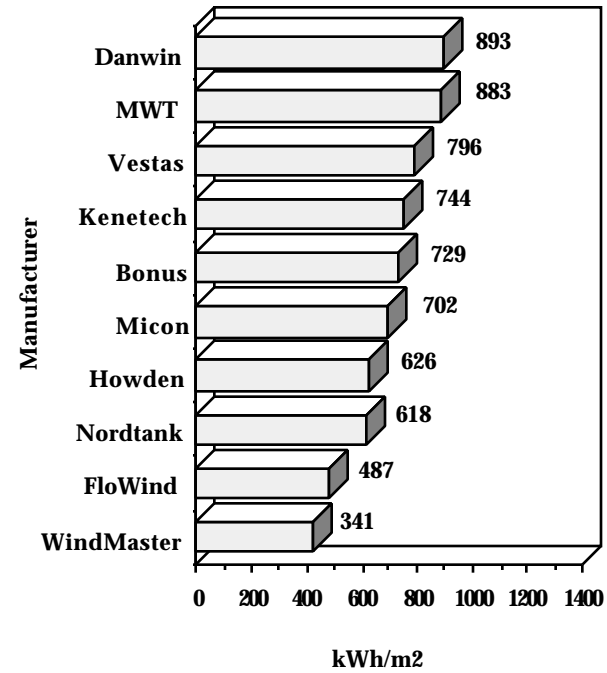


FIGURE 21: kWh-Per-Square-Meter For 10 Largest Manufacturers

The Five Largest Wind Project Operators

The 1995 Annual Report continues to focus on the five largest wind project operators due to industry consolidation and growth primarily limited to major developers. The five largest wind project operators include Kenetech, SeaWest, Zond, FloWind and Cannon. These five operators alone account for 1,276 MW, representing almost 84 percent of total California wind generating capacity (Figure 22). Note that Arcadian is no longer reporting and has been substituted by Cannon as one of the five largest wind project operators.

Capacity factors for the largest wind project operators are quite varied (Figure 23). Operators with the highest capacity factors are Cannon (26 percent); SeaWest and Zond (23 percent); Kenetech (22 percent); and FloWind (13 percent). It should be noted that one smaller operator, San Gorgonio Farms (not shown in Figures 22 and 23), has consistently produced the highest capacity factors for every year WPRS data has been compiled and published, including a 35 percent capacity factor for 1995. This project is significant because it consistently demonstrates the impressive potential for wind technology performance when developers combine quality machines and maintenance programs with a good wind resource site.

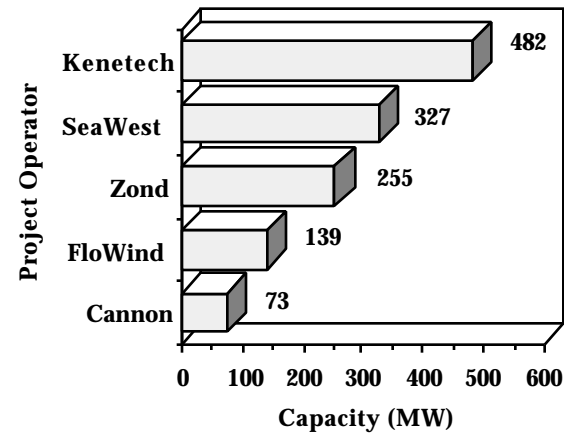


FIGURE 22: Cumulative Capacity For 5 Largest Operators

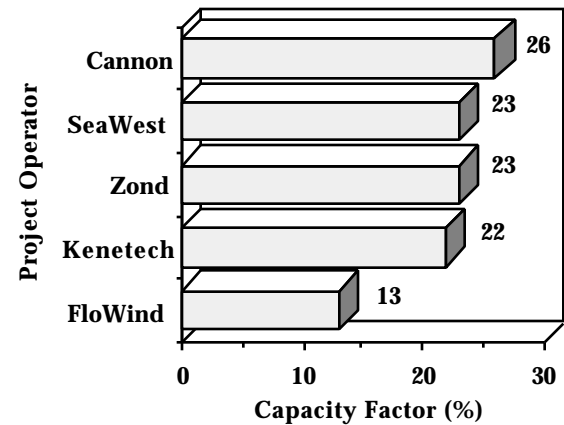


FIGURE 23: Capacity Factors For 5 Largest Operators

Annual kWh-per-square-meter results for the five largest operators are shown in *Figure 24*. Among the five largest operators, Cannon (831), Zond (764), SeaWest (761), and Kenetech (738) had the best performance. It should also be noted that two smaller wind project operators (not included in *Figure 24*) also had impressive kWh-per-square-meter production during 1995. These operators are San Gorgonio Farms (1,153), and AB Energy (1,100).

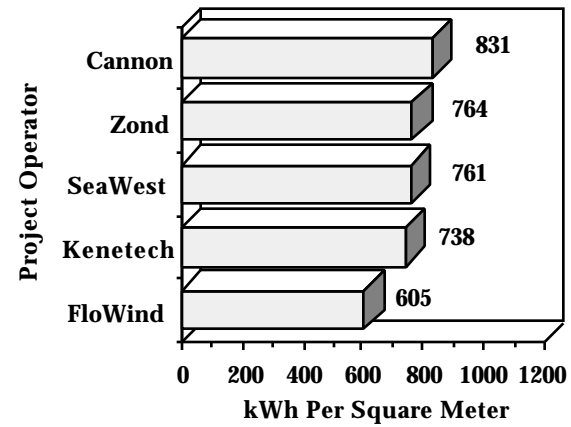


FIGURE 24: kWh-Per-Square-Meter Production For 5 Largest Operators

6. WPRS ANNUAL SUMMARY TABLES

Summary tables on the following pages include aggregate data for all wind projects submitting 1995 quarterly reports to the California Energy Commission as part of the WPRS program. The data, extracted from project operator quarterly reports compiled in Section 7, includes information about specific resource areas, turbine sizes, turbine types, turbine manufacturers, turbine operators, and turbine origins (domestic or foreign).

Note that some operators filed reports with missing data; therefore, totals for the various subcategories may not always equal statewide totals. **An asterisk on the kWh per square meter results indicates that some portion of the cumulative turbine capacity being considered includes new turbines that did not operate for a full year.** Unless the new turbine capacity represents a significant percentage of cumulative capacity, however, the negative impact on performance for most turbine groups will be minimal.

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
STATEWIDE								
1st Quarter	1,530,950	580	339,475,250	64	10%	86	13,713	5
2nd Quarter	1,531,882	500	1,160,945,855	154	34%	292	13,718	1
3rd Quarter	1,524,276	0	1,004,157,682	84	29%	250	13,455	0
4th Quarter	1,523,261	0	406,894,954	76	12%	104	13,437	0
1995 Totals	1,523,261	1,080	2,911,473,741	95	21%	732	13,437	6
RESOURCE AREA								
Altamont								
1st Quarter	544,529	0	62,098,637	73%	5%	43	5,041	0
2nd Quarter	544,529	0	340,637,810	92%	26%	235	5,041	0
3rd Quarter	544,529	0	434,411,851	107%	33%	298	5,041	0
4th Quarter	544,529	0	92,550,127	63%	7%	65	5,041	0
1995 Totals	544,529	0	929,698,425	84%	18%	642	5,041	0
San Geronio								
1st Quarter	276,622	0	97,506,224	68%	16%	128	3,098	0
2nd Quarter	277,054	0	298,722,765	87%	53%	391	3,102	0
3rd Quarter	273,274	0	201,354,898	86%	36%	266	2,898	0
4th Quarter	273,274	0	65,065,181	75%	11%	86	2,898	0
1995 Totals	273,274	0	662,649,068	79%	29%	871	2,898	0
Tehachapi								
1st Quarter	628,794	580	169,867,422	57%	12%	108	4,791	5
2nd Quarter	628,794	0	480,522,702	230%	35%	305	4,791	0
3rd Quarter	624,968	0	311,392,841	73%	23%	199	4,732	0
4th Quarter	623,953	0	234,072,727	75%	17%	150	4,714	0
1995 Totals	623,953	580	1,195,855,692	109%	22%	762	4,714	5

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
---------------	--------------------------------	-------------------------	-----------------	--	-------------------------------------	-------------------------	------------------------	-----------------

RESOURCE AREA

Pacheco

1st Quarter	15,905	0	1,458,367	61%	4%	28	166	0
2nd Quarter	16,405	500	8,475,306	104%	24%	159	167	1
3rd Quarter	16,405	0	8,372,652	92%	23%	158	167	0
4th Quarter	16,405	0	2,880,759	111%	8%	54	167	0
1995 Totals	16,405	500	21,187,084	92%	15%	399	167	1

Solano

1st Quarter	65,100	0	8,544,600	0%	6%	53	617	0
2nd Quarter	65,100	0	32,587,272	0%	24%	200	617	0
3rd Quarter	65,100	0	48,625,440	0%	34%	299	617	0
4th Quarter	65,100	0	12,326,160	0%	9%	76	617	0
1995 Totals	65,100	0	102,083,472	0%	18%	627	617	0

1995 WPRS DATA SUMMARY TABLE

Data Category		Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
TURBINE MANUFACTURER									
Aeroman	(Germany)	11,320	0	17,283,489	0%	17%	497	283	0
AWT	(USA)	0	0	1,047,712	0%	0%	0	2	0
Bonus	(Denmark)	81,880	0	166,727,314	136%	23%	729	838	0
Cannon	(USA)	1,100	0	1,957,674	0%	23%	737	5	0
Carter	(USA)	5,175	0	6,027,864	58%	13%	548	108	0
Danwin	(Denmark)	36,030	0	84,116,864	66%	27%	893	233	0
Delta	(Unknown)	750	0	1,610,333	65%	25%	1,066	5	0
Enertech	(USA)	19,000	0	36,931,920	63%	22%	557	469	0
ESI	(USA)	1,800	180	1,091,960	27%	7%	148	35	3
FloWind	(USA)	94,026	0	72,326,200	50%	9%	487	509	0
Howden	(Scotland)	28,290	0	40,708,335	22%	16%	626	91	0
Jacobs	(USA)	0	0	1,105,141	10%	3%	104	0	0
Kenetech	(USA)	462,300	0	863,822,427	0%	22%	744	4,277	0
Micon	(Denmark)	134,667	0	267,332,715	68%	23%	702	1,498	0
MWT	(Japan)	165,000	0	353,449,455	73%	24%	883	660	0
Nordtank	(Denmark)	81,720	500	139,559,362	81%	20%	618	989	1
Oak	(USA)	19,690	0	34,326,732	46%	19%	491	295	0
Storm Master	(USA)	400	0	267,399	58%	8%	237	10	0
Vestas	(Denmark)	294,460	400	614,496,334	126%	24%	796	2,575	2
WEG	(England)	5,000	0	12,569,080	0%	29%	1,280	20	0
Wincon	(USA)	21,268	0	33,866,481	79%	18%	528	199	0
Windane	(Denmark)	13,600	0	45,690,320	131%	38%	1,480	34	0
WindMaster	(USA)	34,700	0	21,321,048	95%	7%	341	161	0
Windmatic	(Denmark)	11,085	0	16,447,580	100%	17%	566	141	0

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
DOMESTIC TURBINES								
1st Quarter	658,770	180	98,171,372	57%	7%	62	6,192	3
2nd Quarter	658,770	0	403,676,926	68%	29%	255	6,192	0
3rd Quarter	654,990	0	446,422,289	71%	32%	282	5,988	0
4th Quarter	653,975	0	115,287,433	74%	8%	73	5,970	0
1995 Totals	653,975	180	1,063,558,020	68%	19%	671	5,970	3
FOREIGN TURBINES								
1st Quarter	872,180	400	236,541,322	66%	12%	103	7,421	2
2nd Quarter	873,112	500	728,970,415	185%	39%	318	7,426	1
3rd Quarter	869,286	0	519,559,370	89%	27%	228	7,467	0
4th Quarter	869,286	0	285,454,612	75%	15%	125	7,467	0
1995 Totals	869,286	900	1,770,525,719	104%	23%	774	7,467	3

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
TURBINE SIZE								
1-50 kw								
1st Quarter	37,720	0	8,482,390	36%	10%	68	1,082	0
2nd Quarter	37,720	0	26,028,692	48%	32%	209	1,082	0
3rd Quarter	33,940	0	18,404,723	53%	25%	162	878	0
4th Quarter	33,925	0	7,138,211	52%	10%	63	877	0
1995 Totals	33,925	0	60,054,016	47%	19%	501	877	0
51-100 kw								
1st Quarter	739,251	180	108,622,867	55%	7%	55	8,599	3
2nd Quarter	739,251	0	491,499,677	80%	30%	248	8,544	0
3rd Quarter	735,425	0	485,840,309	78%	30%	249	8,540	0
4th Quarter	734,425	0	151,000,963	73%	9%	77	8,523	0
1995 Totals	734,425	180	1,236,963,816	72%	19%	629	8,523	3
101-150 kw								
1st Quarter	231,339	0	48,862,454	102%	10%	86	1,905	0
2nd Quarter	231,771	0	177,828,379	117%	35%	313	1,909	0
3rd Quarter	231,771	0	130,416,577	120%	26%	230	1,909	0
4th Quarter	231,771	0	54,261,255	79%	11%	96	1,909	0
1995 Totals	231,771	0	411,368,665	104%	20%	725	1,909	0
151-200 kw								
1st Quarter	64,480	400	16,187,017	67%	11%	109	364	2
2nd Quarter	64,480	0	46,014,982	85%	33%	310	364	0
3rd Quarter	64,480	0	31,153,471	82%	22%	210	364	0
4th Quarter	64,480	0	13,553,096	89%	10%	91	364	0
1995 Totals	64,480	400	106,908,566	81%	19%	719	364	2

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
TURBINE SIZE								
201+ kw								
1st Quarter	458,160	0	152,391,118	66%	15%	142	1,761	0
2nd Quarter	458,660	500	391,275,611	408%	42%	363	1,762	1
3rd Quarter	458,660	0	299,950,202	81%	31%	278	1,762	0
4th Quarter	458,660	0	174,539,384	84%	17%	162	1,762	0
1995 Totals	458,660	500	1,018,156,315	160%	26%	945	1,762	1
TURBINE AXIS								
Horizontal								
1st Quarter	1,436,839	580	325,375,010	64%	10%	87	13,203	5
2nd Quarter	1,437,771	500	1,102,135,766	160%	36%	295	13,208	1
3rd Quarter	1,430,165	0	944,767,791	86%	31%	254	12,945	0
4th Quarter	1,429,235	0	389,478,972	76%	12%	105	12,928	0
1995 Totals	1,429,235	1,080	2,761,757,539	96%	22%	741	12,928	6
Vertical								
1st Quarter	94,111	0	9,337,684	64%	5%	63	510	0
2nd Quarter	94,111	0	30,511,575	72%	15%	205	510	0
3rd Quarter	94,111	0	21,213,868	63%	10%	143	510	0
4th Quarter	94,026	0	11,263,073	0%	5%	76	509	0
1995 Totals	94,026	0	72,326,200	50%	9%	487	509	0

1995 WPRS DATA SUMMARY TABLE

Data Category	Cumulative Capacity (kW)	New Capacity (kW)	Output (kWh)	Actual / Projected Output (%)	Actual Capacity Factor (%)	kWh/ Square Meter	Cumulative Turbines	New Turbines
PROJECT OPERATOR								
AB Energy, Inc.	6,975	0	19,537,000	0%	32%	1,100	31	0
Altamont Energy Corporation	----	----	12,978,851	----	----	----	----	----
American Power Systems, Inc.	0	0	1,825,141	10%	3%	104	0	0
Arcadian/New World	----	----	10,714,356	----	----	----	----	----
Calwind Resources, Inc.	8,710	0	14,180,000	83%	19%	526	134	0
Cannon Energy Corporation	73,388	0	161,189,093	0%	26%	831	669	0
Coram Energy Group	11,320	0	17,283,489	0%	17%	497	283	0
Difko Administration (US), Inc.	24,675	0	49,997,314	101%	23%	734	244	0
EUI Management	15,713	0	35,624,959	85%	26%	882	161	0
FloWind Corporation	138,551	0	160,283,338	103%	13%	605	861	0
Howden Wind Parks, Inc.	28,290	0	40,708,335	22%	16%	626	91	0
International Turbine Research	16,405	500	20,459,761	88%	15%	395 *	167	1
Kenetech	482,335	0	902,733,991	0%	22%	738	4,527	0
LFC Power Systems Corporation	----	----	37,279,314	----	----	----	----	----
Los Vaqueros/New World	----	----	12,040,481	----	----	----	----	----
Mogul Energy Corporation	----	----	793,000	----	----	----	----	----
Northwind	12,090	0	11,859,927	52%	11%	317	186	0
San Gorgonio Farms	33,685	0	97,608,407	107%	35%	1,153	233	0
SeaWest Energy Group	327,282	0	669,550,826	59%	23%	761	2,634	0
Southern California Sunbelt	11,085	0	16,447,580	100%	17%	566	141	0
Westwind Association	16,207	0	31,367,974	72%	22%	696	172	0
Windfarms Management	----	----	74,000	----	----	----	----	----
Windland, Inc.	17,200	580	30,682,238	70%	20%	744	141	5
WindMaster	34,700	0	21,321,048	95%	7%	341	161	0
Windridge	----	----	2,790,000	----	----	----	----	----
Wintec, Ltd.	9,720	0	19,946,144	70%	23%	660	187	0
Zond Systems, Inc.	254,930	0	512,197,174	134%	23%	764	2,414	0

7. WPRS DATA

This section of the *WPRS 1995 Annual Report* contains performance data as submitted by wind project operators for four quarters. Wind data are organized by individual resource area with operators listed alphabetically within each resource area.

Project operators are numbered sequentially throughout the WPRS performance data section. For quick access to specific wind industry data, an alphabetical list of wind project operators and participants keyed to these sequential numbers follows.

Section Notes immediately precede performance report data. These notes describe how WPRS data is reported and calculated. Points of clarification and limitations of the data are also discussed.

Appendix A contains comments received from project operators during 1995. For easy reference, the project name and corresponding number in Section 7 has been noted. Where appropriate, staff comments have been added to provide additional information. **Appendix B** contains a list of turbine manufacturers and distributors keyed to sequential numbers assigned to operators and participants. **Appendix C** identifies sources of wind energy technical

assistance available to California project proponents. **Appendix D** contains WPRS Regulations which provide definitions for most wind categories used in this report.

Data contained in the *WPRS 1995 Annual Report* represent project performance results for only a single year. As mentioned previously, data from any one year should not be used as the sole basis for evaluating overall wind project performance.

Alphabetical List of Wind Project Operators and Participants

The following alphabetical list includes all operators and other participants involved in California wind projects reporting 1995 performance data to the WPRS program. The number in parentheses following each operator and other participant refers to the sequential number location in this section.

AB Energy	(25A)	LFC Power Systems Corp.	(6A)
Alta Mesa	(19D)	Los Vaqueros Power Corp.	(7A)
Altamont Energy Corp.	(1A)	Meridian Trust Co. of Calif.	(22A,B,C)
Altech Energy Ltd.	(9A)	Mesa Wind Developers	(23B)
Altech Energy Ltd., II	(19A)	Natural Resource Ventures	(26A)
Altech Energy Ltd., III	(19B)	Northwind Energy Inc.	(8A)
American Div. Wind Partners	(7A)	PanAero Corp.	(23B)
American Power Systems	(14A)	Phoenix Energy, Ltd.	(15A) (19C)
Arcadian /New World	(2A) (7A)	San Gorgonio Farms	(18A)
Cal. Wind Energy Sys.(CWES)	(9B)	SeaWest Energy Group	(9A-F) (19A-E) (32A-D)
Calwind Resources, Inc.	(26A-B)	Section 22 Partners, Inc.	(15C)
Cannon Energy Group	(27A-B)	Southern California Sunbelt	(20A) (33A)
CTV Power Purchase Trust	(25A) (28C)	TaxVest Wind Farms	(9D)
Coram Energy Group, Ltd.	(28A-D)	TERA Corp.	(10A)
Difko (US), Inc.	(15A-C)	Toyo Power Corporation	(32B-C)
EUI Management PH, Inc.	(16A)	Viking-Energy 83 Ltd.	(9E)
Energy Conversion Technology	(28A,D)	Westwind Association	(21A)
FloWind Corp.	(3A-B) (29A-B)	Western Windfarms	(9F)
Grant Line Energy Corp.	(1A)	Windland, Inc.	(35A-B)
Howden Wind Parks, Inc.	(4A)	WindMaster	(11A)
International Turb. Research	(13A)	Wintec, Ltd.	(22A-C)
Kenetech Windpower	(5A) (17A) (24A) (30A)	Zond Systems, Inc.	(12A) (23A-B) (37A-S)
LFC No. 51 Corporation	(6A)		

WIND DATA SECTION NOTES

The following notes explain methods used to report and calculate performance data. Definitions for most wind data categories used in this section are contained in WPRS regulations (*Appendix D*).

Data missing. Some operators submitted incomplete reporting forms. Items not completed are designated by a dash (---) to distinguish missing data from values of “0”. It should be noted that operators who submit reports with missing data are in violation of WPRS regulations.

Failed to File. Commission staff identified wind project operators who did not submit performance data but according to utility reports should have participated in the WPRS program. Subsequently, Commission staff notified non-reporting operators by mail of the WPRS requirements. Non-reporting operators who were notified but did not respond or provide an explanation of why they should be exempted were noted as “failed to file.”

Electricity Produced. Individual turbine model outputs submitted by wind operators are included for each quarter along with an annual total. An annual total for the entire project follows. Individual turbine model outputs may not always equal total project output because individual turbine production is usually read

from meters owned by project operators, while total project output is measured from utility substation meters. Line losses and calibration differences between meters should account for these differences.

The validation status of output data submitted by operators is noted in parentheses next to the quarterly output reported for each turbine model. The designation “V” indicates operator data has been validated either by a match to utility billings submitted by the operator or output reported to the Commission by the utility; “NV” indicates operator data has not been validated because it does not match utility billings submitted by the operator or output reported by the utility; and “UD” indicates output data has been derived solely from reports to the Commission by the utility in the absence of any reported data from the operator.

Other Participant(s). In some cases, participants in addition to the listed project operator may be involved in a project. These participants could include project managers, joint venture partners, wind developers using another developer’s site, etc.

Projected Quarterly Production Per Turbine. The total quarterly projected production for a specific turbine model is determined by multiplying the “Projected Quarterly Production Per Turbine” times the “Cumulative Number of Turbines” for that turbine model. The total

quarterly projected production for an entire project is calculated by adding the projected production totals for all turbine models in a project. A comparison of total projected production with total project “Electricity Produced” can indicate how closely a specific project came to achieving projected output. When making this comparison, note that any new capacity would not benefit from a full operational quarter during the quarter it was installed.

Rotor (M²). The diameter of the rotor-swept area for each wind turbine allows different wind systems to be compared independently of wind resource area. Theoretically, the power available for any wind turbine is proportional to the square of the diameter of the rotor-swept area. Thus, doubling the size of the rotor diameter should increase the power output by a factor of four.

Size (kW). For each turbine model listed, the kW size rating is followed by a miles per hour (mph) specification. Because there is no standardized rating method, these mph specifications vary widely for different turbine models.

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)
		Model	Axis Rotor (M2)	Size (kW)			
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>							
1	ALTAMONT ENERGY CORP. 5625 Brisa St., Suite F Livermore, CA 94550						
	Other Participant:	A. Jess and Souza Ranches	FAILED TO FILE		1		1,160,463 (UD)
	Grant Line Energy		FAILED TO FILE		2		5,061,041 (UD)
			FAILED TO FILE		3		5,839,590 (UD)
			FAILED TO FILE		4		917,757 (UD)
PROJECT TOTAL							12,978,851
<hr/>							
2	ARCADIAN RENEWABLE POWER CORP. c/o New World Grid Power Company 63-665 19th Avenue N. Palm Springs, CA 92258						
		A. Fayette Wind Farms	FAILED TO FILE		1		0 (UD)
			FAILED TO FILE		2		0 (UD)
			FAILED TO FILE		3		0 (UD)
			FAILED TO FILE		4		0 (UD)
PROJECT TOTAL							0

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum.	(kWh)
		Model	Axis	Rotor Size (M2)	kW@					
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>										
3 FLOWIND CORPORATION										
990 A Street, Suite 300										
San Rafael, CA 94901										
A. FloWind I (Dyer Road)										
	Flowind 17	(V)	260	143 kW@	44 mph	1	8,710	0	75	320,689 (V)
						2	42,584	0	75	1,978,769 (V)
						3	43,359	0	75	2,412,766 (V)
						4	0	0	75	432,304 (V)
						Annual	94,653			5,144,528
	Flowind 19	(V)	340	250 kW@	38 mph	1	16,667	0	1	1,111 (V)
						2	141,153	0	1	108,545 (V)
						3	165,553	0	1	68,730 (V)
						4	0	0	1	9,729 (V)
						Annual	323,373			188,115
PROJECT TOTAL										5,332,643
B. FloWind II (Elworthy)										
	Danwin D 110	(H)	284	110 kW@	30 mph	1	20,192	0	25	279,398 (V)
						2	87,559	0	25	1,669,921 (V)
						3	104,493	0	25	2,238,609 (V)
						4	0	0	25	531,860 (V)
						Annual	212,244			4,719,788
	Flowind F17	(V)	260	143 kW@	44 mph	1	9,200	0	73	386,637 (V)
						2	69,099	0	73	3,319,702 (V)
						3	82,775	0	73	4,936,582 (V)
						4	0	0	73	911,373 (V)
						Annual	161,074			9,554,294

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Model	Axis	Rotor	Size	Projected		Turbines		Electricity
		(M2)	(kW)	Qtr.					Prod./Turbine	New	Cum.	Produced	
								(kWh)			(kWh)		
<i>ALTAMONT PASS (Alameda & Contra Costa)</i>													
3 FLOWIND CORPORATION (Cont'd)													
B. FloWind II (Elworthy) (Cont'd)													
		Flowind F19	(V)	340	250 kW@	38 mph	1		16,277	0	19	148,395	(V)
							2		132,821	0	19	1,575,206	(V)
							3		149,752	0	19	1,803,367	(V)
							4		0	0	19	357,203	(V)
							Annual		298,850			3,884,171	
		Bonus Mark II H 23	(H)	302	119 kW@	29 mph	1		19,896	0	225	3,313,771	(V)
							2		111,368	0	225	17,737,136	(V)
							3		127,840	0	225	24,518,237	(V)
							4		0	0	225	6,122,038	(V)
							Annual		259,104			51,691,182	
		Bonus Mark III H 24	(H)	415	150 kW@	29 mph	1		3,038	0	100	2,130,004	(V)
							2		14,672	0	100	10,548,555	(V)
							3		16,815	0	100	13,956,929	(V)
							4		0	0	100	3,901,509	(V)
							Annual		34,525			30,536,997	
PROJECT TOTAL											100,386,432		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)	
		Model	Axis	Rotor (M2)	Size (kW)					
<i>ALTAMONT PASS (Alameda & Contra Costa)</i>										
4	HOWDEN WIND PARKS, INC. 6400 Village Parkway Dublin, CA 94549									
	A. Howden Wind Park I	Howden 330/33	(H)	756	330 kW@	34 mph	1	0	82	2,596,752 (V)
							2	0	82	14,915,232 (V)
							3	0	82	18,211,920 (V)
							4	0	82	3,711,216 (V)
							Annual	0	322	39,435,120
		Howden 60/15	(H)	177	60 kW@	34 mph	1	0	8	24,288 (V)
							2	0	8	206,496 (V)
							3	0	8	292,848 (V)
							4	0	8	58,368 (V)
							Annual	0	32	582,000
		Howden 750/45	(H)	1,590	750 kW@	34 mph	1	0	1	78,540 (V)
							2	0	1	180,600 (V)
							3	0	1	325,185 (V)
							4	0	1	106,890 (V)
							Annual	0	4	691,215
PROJECT TOTAL										40,708,335

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)	(V)	
		Model	Axis (M2)	Rotor Size (kW)						
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>										
5 KENETECH WINDPOWER										
6952 Preston Avenue										
Livermore, CA 94550										
	A. Altamont Windplant	USW 56-100	(H)	247	100 kW@	29 mph	1	0	0	3,430 24,708,450 (V)
							2	0	0	3,430 215,956,216 (V)
		KCS-56					3	0	0	3,430 273,631,057 (V)
							4	0	0	3,430 58,474,945 (V)
							Annual	0		572,770,668
		WEG MS-2	(H)	491	250 kW@	33 mph	1	0	0	20 765,795 (V)
							2	0	0	20 3,797,030 (V)
							3	0	0	20 4,250,544 (V)
							4	0	0	20 3,755,711 (V)
							Annual	0		12,569,080
		USW 33M-VS	(H)	855	300 kW@	variable	1	0	0	41 18,241,609 (V)
							2	0	0	41 9,796,799 (V)
		KVS-33					3	0	0	41 12,043,382 (V)
							4	0	0	41 3,107,916 (V)
							Annual	0		43,189,706
PROJECT TOTAL										628,529,454
6 LFC POWER SYSTEMS CORPORATION										
14680 Patterson Pass Rd.										
Tracy, CA 95376										
	A. Fields Ranch Wind Farm	FAILED TO FILE				1				2,842,029 (UD)
		FAILED TO FILE				2				13,440,194 (UD)
	Other Participant:	FAILED TO FILE				3				17,487,090 (UD)
	LFC No. 51 Corporation	FAILED TO FILE				4				3,510,000 (UD)
										37,279,313
PROJECT TOTAL										37,279,313

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)	
		Model	Axis	Rotor (M2)	Size (kW)				
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>									
7 LOS VAQUEROS POWER CORPORATION c/o New World Grid Power Company 63-665 19th Avenue N. Palm Springs, CA 92258									
	A. Los Vaqueros Wind Park					1		127,064 (UD)	
						2		4,458,114 (UD)	
						3		6,497,415 (UD)	
						4		957,888 (UD)	
								12,040,481	
PROJECT TOTAL								12,040,481	
8 NORTHWIND ENERGY INC. 19020 N. Indian Ave., Suite 1-K P.O. Box 457 North Palm Springs, CA 92258									
	A. Northwind Vaquero-Souza								
Other Participant:	Windpark	Nordtank 65	(H)	201	65 kW@ 34 mph	1	13,400	0 186	1,085,069 (V)
Meridian Trust Co. of Calif.						2	42,400	0 186	4,697,652 (V)
						3	41,700	0 186	5,225,997 (V)
						4	12,500	0 186	851,209 (V)
						Annual	110,000	0 186	11,859,927
PROJECT TOTAL								11,859,927	

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor (M2)	Size (kW)					
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>										
9	SEAWEST ENERGY GROUP 1455 Frazee Road, 9th Fl. San Diego, CA 92108									
	A. Altech Energy, Ltd.	Enertech 44/40	(H)	140	40 kW@	30 mph	1			
Other Participant:							2	9,700	0	144
Altech Energy, Ltd.							3	30,900	0	144
							4	30,300	0	144
							4	9,100	0	144
							Annual	80,000		4,686,975
TaxVest Windfarms										
Western Windfarms										
										PROJECT TOTAL
										4,686,975
	B. C.W.E.S.	ESI 54	(H)	211	50 kW@	30 mph	1	9,800	0	30
Other Participant:							2	31,300	0	30
C.W.E.S.							3	30,700	0	30
							4	9,200	0	30
							4	9,200	0	30
							Annual	81,000		922,994
										PROJECT TOTAL
										922,994
	C. SeaWest Energy Group, Inc.	Micon 60/13	(H)	200	60 kW@	30 mph	1	15,100	0	1
							2	47,800	0	1
							3	47,000	0	1
							4	14,100	0	1
							4	14,100	0	1
							Annual	124,000		74,013
										PROJECT TOTAL
										74,013

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)		
		Model	Axis	Rotor (M2)	Size (kW)						
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>											
9 SEAWEST ENERGY GROUP (Cont'd)											
	D. SeaWest Windfarms, Inc.	Micon 60/13	(H)	200	60 kW@	30 mph	1	13,700	0	178	351,885 (V)
							2	43,600	0	178	5,130,834 (V)
Other Participant:							3	42,900	0	178	5,346,721 (V)
TaxVest Windfarms							4	12,800	0	178	70,190 (V)
							Annual	113,000			10,899,630
							PROJECT TOTAL				10,899,630
	E. Viking -Energy 83	Micon 60/13	(H)	200	60 kW@	30 mph	1	14,300	0	26	51,284 (V)
							2	43,600	0	26	815,089 (V)
							3	44,800	0	26	1,138,560 (V)
							4	13,400	0	26	187,682 (V)
							Annual	116,100			2,192,615
							PROJECT TOTAL				2,192,615
	F. SeaWest Energy Group, Inc.	Micon 60/13	(H)	200	60 kW@	30 mph	1	13,700	0	15	28,391 (V)
							2	43,600	0	15	372,226 (V)
Other Participant:							3	42,900	0	15	412,567 (V)
Western Windfarms							4	12,800	0	15	89,498 (V)
							Annual	113,000			902,682
							PROJECT TOTAL				902,682

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor (M2)	Size (kW)			
<u>ALTAMONT PASS (Alameda & Contra Costa)</u>								
10 TERA CORPORATION 177 Bovet Rd., Suite 520 San Mateo, CA 94402								
	A. Delta Energy Project I - III					FAILED TO FILE DATA NOT AVAILABLE	1 2 3 4	---- (NV) ---- (NV) ---- (NV) ----- (NV) 0
PROJECT TOTAL							0	

11 WINDMASTER P.O. Box 669 Byron, CA 94514											
Operator Comment: See Appendix A Comment 3	A. WindMaster	WindMaster 200/83	(H)	373	200 kW@	33 mph	1 2 3 4 ----- Annual	7,393 49,283 38,625 734 96,035	0 0 0 0 ----- 0	51 50 50 51 ----- 51	369,637 (V) 2,464,130 (V) 1,931,251 (V) 37,426 (V) 4,802,444
		WindMaster 200/84	(H)	373	200 kW@	33 mph	1 2 3 4 ----- Annual	14,387 48,830 55,286 3,144 121,647	0 0 0 0 ----- 0	52 53 53 52 ----- 52	762,503 (V) 2,587,993 (V) 2,930,184 (V) 163,487 (V) 6,444,167

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis (M2)	Rotor Size (kW)						
<i>ALTAMONT PASS (Alameda & Contra Costa)</i>										
11 WINDMASTER (Cont'd)										
	A. WindMaster (Cont'd)	WindMaster 200/85	(H)	373	200 kW@ 33 mph	1	13,049	0	23	300,135 (V)
						2	71,757	0	23	1,650,422 (V)
						3	56,727	0	23	1,304,720 (V)
						4	3,436	0	23	79,030 (V)
						Annual	144,969			3,334,307
		WindMaster 250	(H)	415	250 kW@ 33 mph	1	10,205	0	20	204,098 (V)
						2	81,729	0	20	81,729 (V)
						3	78,215	0	20	1,564,302 (V)
						4	6,752	0	20	135,045 (V)
						Annual	176,901			1,985,174
		WindMaster 300	(H)	483	300 kW@ 33 mph	1	22,253	0	15	333,790 (V)
						2	133,854	0	15	2,007,808 (V)
						3	143,552	0	15	2,153,277 (V)
						4	17,339	0	15	260,081 (V)
						Annual	316,998			4,754,956
PROJECT TOTAL										21,321,048

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed		Electricity Produced (kWh)
		Model	Axis	Rotor (M2)	Size (kW)			New	Cum.	
<i>ALTAMONT PASS (Alameda & Contra Costa)</i>										
12 ZOND SYSTEMS, INC. 13000 Jameson Rd. Tehachapi, CA 93581										
	A. 1985 Zond Windsystem Partners Series 85C	Vestas 17	(H)	227	90 kW@ 35 mph	1	23,089	0	200	1,485,571 (V)
						2	84,158	0	200	10,436,908 (V)
						3	100,818	0	200	13,679,255 (V)
						4	24,930	0	200	3,266,941 (V)
						Annual	232,995			28,868,675
PROJECT TOTAL										28,868,675

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected	Turbines		Electricity	
		Model	Axis	Rotor	Size		Prod./Turbine	New	Cum.	Produced	
						(kWh)			(kWh)		
<u>PACHECO PASS (Merced County)</u>											
13 INTERNATIONAL TURBINE RESEARCH											
P.O. Box 96											
Hollister, CA 95023											
A. ITR											
		Nordtank 500	(H)	1,320	500 kW@	29 mph	1	installed second quarter			
							2	250,000	1	1	214,590 (V)
							3	400,000	0	1	368,335 (V)
							4	250,000	0	1	144,397 (V)
							Annual	900,000			727,322
		Wincon W200	(H)	452	200 kW@	29 mph	1	34,000	0	4	62,320 (V)
							2	146,000	0	4	506,042 (V)
							3	198,000	0	4	545,915 (V)
							4	40,000	0	4	202,739 (V)
							Annual	418,000			1,317,016
		Wincon W99XT	(H)	346	100 kW@	27 mph	1	13,000	0	95	949,874 (V)
							2	44,000	0	95	4,706,762 (V)
							3	60,000	0	95	4,357,010 (V)
							4	12,500	0	95	1,466,744 (V)
							Annual	129,500			11,480,390
		Vestas 17E	(H)	283	100 kW@	33 mph	1	18,000	0	20	161,443 (V)
							2	68,000	0	20	1,183,388 (V)
							3	94,000	0	20	1,236,868 (V)
							4	19,000	0	20	422,644 (V)
							Annual	199,000			3,004,343
		Vestas V17	(H)	277	90 kW@	33 mph	1	10,000	0	22	111,863 (V)
							2	27,000	0	22	753,781 (V)
							3	52,000	0	22	753,781 (V)
							4	9,000	0	22	222,087 (V)
							Annual	98,000			1,841,512

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected	Turbines		Electricity	
		Model	Axis	Rotor	Size		Prod./Turbine	Installed	Produced		
				(M2)	(kW)		(kWh)	New	Cum.	(kWh)	
<u>PACHECO PASS (Merced County)</u>											
13 INTERNATIONAL TURBINE RESEARCH (Cont'd)											
	A. ITR (Cont'd)	Nordtank NKT65	(H)	216	65 kW@	31 mph	1	8,000	0	25	172,867 (V)
							2	36,000	0	25	1,110,743 (V)
							3	36,000	0	25	1,110,743 (V)
							4	11,500	0	25	422,148 (V)
							Annual	91,500			2,816,501
							PROJECT TOTAL	21,187,084			

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected	Turbines		Electricity	
		Model	Axis	Rotor Size		Prod./Turbine	Installed	Produced		
						(kWh)	New	Cum.	(kWh)	
<u>SAN GORGONIO PASS (Riverside)</u>										
14 AMERICAN POWER SYSTEMS										
P.O. Box 2007										
Rancho Mirage, CA 92270										
	A. WECS 33	Jacobs 26-17.5@120'	(H)	49	18 kW@ 27 mph	1	10,346	0	16	54,105 (NV)
						2	20,777	0	16	34,948 (NV)
		FAILED TO FILE				3				547,000 (UD)
		FAILED TO FILE				4				173,000 (UD)
					Annual	-----	31,123		-----	809,053
		Jacobs 26-17.5@80'	(H)	49	18 kW@ 27 mph	1	9,491	0	134	402,147 (NV)
						2	19,836	0	134	416,837 (NV)
		FAILED TO FILE				3				547,000 (UD)
		FAILED TO FILE				4				173,000 (UD)
					Annual	-----	29,327		-----	1,538,984
		Jacobs 29-20	(H)	61	20 kW@ 27 mph	1	12,277	0	54	129,098 (V)
						2	25,565	0	54	68,006 (V)
		FAILED TO FILE				3				547,000 (UD)
		FAILED TO FILE				4				173,000 (UD)
					Annual	-----	37,842		-----	917,104
PROJECT TOTAL										3,265,141

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)		
		Model	Axis	Rotor Size (M2) (kW)						
<u>SAN GORGONIO PASS (Riverside)</u>										
15 DIFKO ADMINISTRATION (US), INC. 19020 N. Indian Ave. Suite 2A P. O. Box 177 N. Palm Springs, CA 92258	A. Difwind Farms, Ltd.V Section 20	Micon 108	(H)	294	108 kW@ 30 mph	1	0	16	615,472 (NV)	
						2	33,000	0	16	2,130,590 (NV)
						3	113,000	0	16	1,462,370 (NV)
						4	77,000	0	16	472,220 (NV)
						Annual	25,000	0	16	4,680,652
						Annual	248,000			4,680,652
						PROJECT TOTAL				4,680,652
Other Participant: Phoenix Energy Ltd.	B. Difwind Partners	Micon 65	(H)	201	65 kW@ 30 mph	1	0	0	39	454,084 (NV)
						2	0	0	39	2,144,472 (NV)
						3	0	0	39	1,076,251 (NV)
						4	0	0	39	297,542 (NV)
						Annual	0	0	39	3,972,349
						Annual	0			3,972,349
						PROJECT TOTAL				28,876,662
	C. Difwind Farms Ltd.V	Micon 108	(H)	294	108 kW@ 30 mph	1	0	0	73	1,932,000 (NV)
						2	33,000	0	73	8,286,000 (NV)
						3	113,000	0	73	4,890,000 (NV)
						4	77,000	0	73	1,332,000 (NV)
						Annual	25,000	0	73	16,440,000
						Annual	248,000			16,440,000
						PROJECT TOTAL				16,440,000

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected	Turbines		Electricity	
		Model	Axis	Rotor	Size		Prod./Turbine	New	Cum.	Produced	
				(M2)	(kW)		(kWh)			(kWh)	
<u>SAN GORGONIO PASS (Riverside)</u>											
16	EUI MANAGEMENT PH, INC./ENERGY UNLIMITED 1 Aldwyn Center Villanova, PA 19085										
	A. Mountain Pass 85 Ltd. & Management Program 85	Bonus 120	(H)	302	120 kW@	40 mph	1	46,300	0	64	2,401,971 (V)
							2	108,800	0	64	7,592,980 (V)
							3	70,300	0	64	4,341,464 (V)
							4	29,500	0	64	1,360,992 (V)
							Annual	254,900			15,697,407
		Bonus 65	(H)	181	65 kW@	40 mph	1	20,500	0	65	1,347,081 (V)
							2	72,000	0	65	4,411,329 (V)
							3	43,000	0	65	2,525,407 (V)
							4	24,500	0	65	850,368 (V)
							Annual	160,000			9,134,185
		Delta 150	(H)	302	150 kW@	34 mph	1	86,400	0	5	271,125 (V)
						34	2	201,000	0	5	694,728 (V)
							40	127,500	0	5	509,161 (V)
						34	4	58,300	0	5	135,319 (V)
							Annual	473,200			1,610,333
		Micon 108	(H)	284	108 kW@	32 mph	1	63,100	0	22	1,442,876 (V)
							2	148,100	0	26	3,715,669 (V)
							3	95,600	0	26	2,641,151 (V)
							4	40,100	0	26	818,303 (V)
							Annual	346,900			8,617,999

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)	(V)
		Model	Axis	Rotor (M2)	Size (kW)					
<u>SAN GORGONIO PASS (Riverside)</u>										
16 EUI MANAGEMENT PH, INC./ENERGY UNLIMITED (Cont'd)										
	A. Mountain Pass 85 Ltd. & Mgmt. Program 85 (Cont'd)	Bonus 250	(H)	573	250 kW@ 32 mph	1	108,800	0	1	99,846
						2	255,500	0	1	268,953
						3	165,000	0	1	150,818
						4	69,100	0	1	45,418
					Annual		598,400			565,035
PROJECT TOTAL										35,624,959
17 KENETECH WINDPOWEE										
6952 Preston Avenue Livermore, CA 94550										
	A. San Gorgonio Windplant	USW 56-100	(H)	247	100 kW@ 29 mph	1	0	0	74	2,669,910
						2	0	0	74	7,343,837
		KCS-56				3	0	0	74	6,762,114
						4	0	0	74	2,251,088
					Annual		0			19,026,949
		Bonus	(H)	415	150 kW@ 34 mph	1	0	0	1	73,273
						2	0	0	1	171,556
						3	0	0	1	92,984
						4	0	0	1	51,071
					Annual		0			388,884
		USW 33M-VS	(H)	855	300 kW@ variable	1	0	0	115	19,148,478
						2	0	0	115	52,425,593
		KVS-33				3	0	0	115	41,930,130
						4	0	0	115	13,247,431
					Annual		0			126,751,632
PROJECT TOTAL										146,167,465

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)				
		Model	Axis	Rotor Size (M2) (kW)	Speed							
<u>SAN GORGONIO PASS (Riverside)</u>												
18 SAN GORGONIO FARMS												
21515 Hawthorne Blvd., Suite 1059												
Torrance, CA 90503												
A. San Gorgonio Farms												
Wind Park												
		Bonus 100	(H)	294	100 kW@	28 mph	1	56,000	0	55	3,094,630 (V)	
								2	150,000	0	55	8,261,760 (V)
								3	102,000	0	55	5,622,440 (V)
								4	31,000	0	55	1,686,590 (V)
								Annual	339,000			18,665,420
		Bonus 120	(H)	294	120 kW@	40 mph	1	64,000	0	1	64,255 (V)	
								2	155,000	0	1	155,320 (V)
								3	120,000	0	1	55,098 (V)
								4	25,000	0	1	25,581 (V)
								Annual	364,000			300,254
		Bonus 450	(H)	961	450 kW@	30 mph	1	219,000	0	1	219,400 (V)	
								2	565,000	0	1	564,520 (V)
								3	419,000	0	1	418,560 (V)
								4	141,000	0	1	141,760 (V)
								Annual	1,344,000			1,344,240
		Bonus 65	(H)	177	65 kW@	33 mph	1	20,000	0	81	1,609,760 (V)	
								2	39,000	0	81	3,145,080 (V)
								3	39,000	0	81	3,179,570 (V)
								4	15,000	0	81	1,193,270 (V)
								Annual	113,000			9,127,680

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected	Turbines		Electricity	
		Model	Axis	Rotor	Size		Prod./Turbine	Installed	Produced		
				(M2)	(kW)		(kWh)	New	Cum.	(kWh)	
<u>SAN GORGONIO PASS (Riverside)</u>											
18 SAN GORGONIO FARMS (Cont'd)											
	A. San Gorgonio Farms Wind Park (Cont'd)	Micon 65	(H)	177	65 kW@	33 mph	1	26,000	0	50	1,317,158 (V)
							2	72,000	0	50	3,593,189 (V)
							3	48,000	0	50	2,415,064 (V)
							4	17,000	0	50	846,822 (V)
						Annual		163,000			8,172,233
		Windane 34	(H)	908	400 kW@	30 mph	1	232,000	0	34	7,901,120 (V)
							2	230,200	0	34	17,665,320 (V)
							3	453,000	0	34	15,390,280 (V)
							4	139,000	0	34	4,733,600 (V)
						Annual		1,054,200			45,690,320
		Vestas V39	(H)	1,195	500 kW@	30 mph	1	224,000	0	11	2,460,617 (V)
							2	268,800	0	11	6,194,667 (V)
							3	390,000	0	11	4,286,971 (V)
							4	124,000	0	11	1,366,005 (V)
						Annual		1,006,800			14,308,260
PROJECT TOTAL										97,608,407	

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Model	Axis	Rotor	Size	Projected		Turbines		Electricity
		Qtr.	Prod./Turbine	(kWh)					New	Cum.	Installed	Produced	
<u>SAN GORGONIO PASS (Riverside)</u>													
19 SEAWEST ENERGY GROUP													
1455 Frazee Rd. ,Suite 900													
San Diego, CA 92108													
A. Altech Energy Ltd. II Venture Pacific - East		Enertech 44/40	(H)	141	40 kW@	30 mph	1	24,300	0	85	859,392	(V)	
							2	56,100	0	85	3,318,000	(V)	
							3	38,200	0	85	2,081,400	(V)	
							4	15,500	0	85	526,200	(V)	
							Annual	134,100			6,784,992		
PROJECT TOTAL										6,784,992			
B. Altech Energy Ltd. III		Micon 100/US	(H)	283	108 kW@	30 mph	1	53,500	0	268	6,898,310	(V)	
							2	160,200	0	268	28,017,577	(V)	
							3	108,900	0	268	14,598,178	(V)	
							4	41,400	0	268	4,939,804	(V)	
							Annual	364,000			54,453,869		
PROJECT TOTAL										60,415,941			
		Micon 60	(H)	201	60 kW@	30 mph	1	32,200	0	53	719,290	(V)	
							2	79,900	0	53	3,335,078	(V)	
							3	52,700	0	53	1,495,136	(V)	
							4	22,200	0	53	412,568	(V)	
							Annual	187,000			5,962,072		
PROJECT TOTAL										60,415,941			

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)				
		Model	Axis	Rotor Size (M2) (kW)							
<u>SAN GORGONIO PASS (Riverside)</u>											
19 SEAWEST ENERGY GROUP (Cont'd)											
Other Participant: Phoenix Energy, Ltd.	C. Phoenix Energy Associates Venture Pacific - West	Enertech 44/40	(H)	140	40 kW@	30 mph	1	27,283	0	90	1,269,813 (V)
							2	59,388	0	90	4,050,410 (V)
							3	42,998	0	90	2,614,314 (V)
							4	17,331	0	90	680,787 (V)
							Annual	147,000			8,615,324
	D. Swanmill Farms I/Farms II	Danwin 23	(H)	415	160 kW@	29 mph	1	110,440	0	117	8,537,079 (V)
							2	170,680	0	117	21,432,008 (V)
							3	125,500	0	117	13,475,732 (V)
							4	95,380	0	117	5,279,419 (V)
							Annual	502,000			48,724,238
		PROJECT TOTAL				29,387,290					
Other Participant: Alta Mesa	E. SWWF II, Inc. Venture Pacific - Windustries	Enertech 44/40	(H)	141	40 kW@	30 mph	1	17,000	0	138	2,344,800 (V)
							2	48,200	0	138	7,267,200 (V)
							3	38,200	0	138	5,014,800 (V)
							4	17,700	0	138	1,568,400 (V)
							Annual	121,100			16,195,200
		PROJECT TOTAL				16,195,200					

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis	Rotor (M2)	Size (kW)						
<u>SAN GORGONIO PASS (Riverside)</u>											
20 SOUTHERN CALIFORNIA SUNBELT 4501 East La Palma Ave. #200 Anaheim, CA 92807											
	A. Palm Springs Wind Park (Edom Hill)	Windmatic 15S	(H)	189	65 kW@	32 mph	1	12,421	0	77	956,439 (NV)
							2	57,176	0	77	4,402,573 (NV)
							3	26,736	0	77	2,058,677 (NV)
							4	7,452	0	77	573,846 (NV)
							Annual	103,785			7,991,535
		Windmatic 17S	(H)	227	95 kW@	34 mph	1	16,979	0	62	1,052,684 (NV)
							2	72,158	0	62	4,473,771 (NV)
							3	36,283	0	62	2,249,560 (NV)
							4	9,939	0	62	616,208 (NV)
							Annual	135,359			8,392,223
PROJECT TOTAL											16,383,758

21 WESTWIND ASSOCIATION
P.O. Box 457
19020 North Indian Avenue
North Palm Springs, CA 92258

	A. Westwind Assn. Windpark	Micon 108	(H)	293	108 kW@	33 mph	1	50,893	0	13	293,079 (V)
							2	112,031	0	13	1,064,646 (V)
							3	91,002	0	13	557,086 (V)
							4	7,450	0	13	202,071 (V)
							Annual	261,376			2,116,882
		Micon 65	(H)	200	65 kW@	33 mph	1	38,170	0	46	881,586 (V)
							2	84,023	0	46	2,986,812 (V)
							3	68,252	0	46	1,896,234 (V)
							4	19,555	0	46	776,408 (V)
							Annual	210,000			6,541,040

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Model	Axis (M2)	Rotor (kW)	Size	Projected		Turbines		Electricity Produced (kWh)
		Qtr.	Prod./Turbine (kWh)	Installed New					Cum.				
<u>SAN GORGONIO PASS (Riverside)</u>													
21 WESTWIND ASSOCIATION (Cont'd)													
	A. Westwind Assn. Windpark (Cont'd)	Nordtank 65	(H)	201	65 kW@	34 mph	1	38,170	0	13	228,167	(V)	
							2	84,023	0	13	729,498	(V)	
							3	68,252	0	13	497,786	(V)	
							4	19,555	0	13	185,526	(V)	
							Annual	210,000			1,640,977		
		Wincon 108	(H)	293	108 kW@	33 mph	1	47,940	0	16	528,006	(V)	
							2	124,080	0	16	1,744,610	(V)	
							3	64,860	0	16	991,166	(V)	
							4	45,120	0	16	201,011	(V)	
							Annual	282,000			3,464,793		
		Wincon 110	(H)	295	110kW @	33 mph	1	47,940	0	84	2,545,162	(V)	
							2	124,080	0	84	8,750,434	(V)	
							3	64,860	0	84	5,021,728	(V)	
							4	45,120	0	84	1,286,958	(V)	
							Annual	282,000			17,604,282		
PROJECT TOTAL											31,367,974		
22 WINTEC, LTD. 19020 N. Indian Ave. P.O. Box 457 N. Palm Springs, CA 92258													
	A. Wintec Cahuilla Windpark	Nordtank 65	(H)	201	65 kW @	34 mph	1	45,326	0	72	1,535,129	(V)	
							2	84,871	0	72	4,969,036	(V)	
							3	65,071	0	72	3,619,625	(V)	
							4	14,732	0	72	1,107,811	(V)	
							Annual	210,000			11,231,601		
PROJECT TOTAL											11,231,601		
Other Participant: Meridian Trust Co. of California													

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)	
		Model	Axis	Rotor Size (M2) (kW)					
<u>SAN GORGONIO PASS (Riverside)</u>									
22	WINTEC, LTD. (Cont'd)								
	B. Wintec I Windpark	Carter 25	(H)	75 25kW @	26 mph	1	0	375,943 (V)	
Other Participant:						2	0	1,287,293 (V)	
Meridian Trust Co. of California						3	0	861,736 (V)	
						4	0	234,999 (V)	
						Annual	80,000	2,759,971	
		Micon 60/13	(H)	200 60kW @	33 mph	1	0	399,437 (V)	
						2	0	1,255,761 (V)	
						3	0	1,010,076 (V)	
						4	0	282,931 (V)	
						Annual	210,000	2,948,205	
		PROJECT TOTAL							5,708,176
	C. Wintec Palm Windpark	Micon 65	(H)	200 65kW @	33 mph	1	0	386,154 (V)	
Other Participant:						2	0	1,197,686 (V)	
Meridian Trust Co. of California						3	0	732,598 (V)	
						4	0	191,036 (V)	
						Annual	210,000	2,507,474	
		Nordtank 65	(H)	201 65 kW @	34 mph	1	0	52,717 (V)	
						2	0	241,277 (V)	
						3	0	159,777 (V)	
						4	0	45,122 (V)	
						Annual	159,661	498,893	
		PROJECT TOTAL							3,006,367

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)		
		Model	Axis	Rotor (M2)	Size (kW)					
<u>SAN GORGONIO PASS (Riverside)</u>										
23 ZOND SYSTEMS, INC. 13000 Jameson Rd. Tehachapi, CA 93581	A. Painted Hills "B" & "C"	Vestas 15	(H)	184	65kW @ 35 mph	1	0	61	1,309,565 (V)	
						2	0	61	3,743,527 (V)	
						3	0	61	2,309,340 (V)	
						4	0	61	745,898 (V)	
						Annual			8,108,330	
		Vestas 17	(H)	227	90kW @ 35 mph	1	0	170	4,918,504 (V)	
						2	0	170	13,803,043 (V)	
						3	0	170	7,920,944 (V)	
						4	0	170	2,543,219 (V)	
						Annual			29,185,710	
		PROJECT TOTAL								37,294,040
	B. Zond-PanAero Windsystems	Vestas 15	(H)	184	65kW @ 35 mph	1	0	460	7,635,789 (V)	
						2	0	460	29,781,681 (V)	
						3	0	460	19,813,207 (V)	
						4	0	460	7,695,528 (V)	
						Annual			64,926,205	
		PROJECT TOTAL								64,926,205

Other Participant:
Mesa Wind Developers

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum. Produced (kWh)	Electricity Produced (kWh)
		Model	Axis	Rotor Size (M2) (kW)					
<u>SOLANO (Solano)</u>									
24 KENETECH WINDPOWER									
6952 Preston Ave.									
Livermore, CA 94550									
	A. Montezuma Hills Windplant	KCS-56	(H)	247	100 kW@ 29 mph	1	0	0	600 7,198,869 (V)
						2	0	0	600 28,546,046 (V)
						3	0	0	600 42,562,180 (V)
						4	0	0	600 10,680,742 (V)
						Annual	0	0	88,987,837
Operator Comment:									
See Appendix A									
Comment 7		KVS-33	(H)	855	300 kW@ variable	1	0	0	17 1,345,731 (V)
						2	0	0	17 4,041,226 (V)
						3	0	0	17 6,063,260 (V)
						4	0	0	17 1,645,418 (V)
						Annual	0	0	13,095,635
PROJECT TOTAL									102,083,472

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Model	Axis	Rotor (M2)	Size (kW)	Projected		Turbines		Electricity Produced (kWh)
		Qtr.	Prod./Turbine (kWh)	New					Cum.				
<u>TEHACHAPI PASS (Kern)</u>													
25 AB ENERGY, INC. 10 Mission Bay Dr. Corona Del Mar, CA 92625													
	A. AB Energy	Vestas V27	(H)	573	225 kW@	35 mph	1	0	0	31	3,238,000	(V)	
							2	0	0	31	7,100,000	(V)	
							3	0	0	31	5,390,000	(V)	
							4	0	0	31	3,809,000	(V)	
Other Participant: CTV Power Purchase Trust							Annual	0	0		19,537,000		
PROJECT TOTAL											19,537,000		
<hr/>													
26 CALWIND RESOURCES, INC. 2659 Townsgate Rd. #122 Westlake Village, CA 91361													
	A. Natural Resource Ventures (Wind Resource I)	Nordtank 65/13	(H)	201	65kW @	35 mph	1	24,500	0	20	265,913	(V)	
							2	36,500	0	20	643,299	(V)	
							3	21,200	0	20	327,036	(V)	
							4	17,800	0	20	291,113	(V)	
							Annual	100,000			1,527,361		
PROJECT TOTAL											1,527,361		
	B. Calwind Resources Inc. (Wind Resource I)	Nordtank 65/13	(H)	201	65kW @	35 mph	1	28,440	0	114	2,285,287	(V)	
							2	41,760	0	114	5,197,501	(V)	
							3	28,320	0	114	2,747,364	(V)	
							4	21,480	0	114	2,422,487	(V)	
							Annual	120,000			12,652,639		
PROJECT TOTAL											12,652,639		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Model	Axis	Rotor	Size	Projected		Turbines		Electricity
		Qtr.	Prod./Turbine	Installed					Produced				
								(kWh)	New	Cum.	(kWh)		
<u>TEHACHAPI PASS (Kern)</u>													
27 CANNON ENERGY CORPORATION													
P.O. Box 1457													
Tehachapi, CA 93581													
A. Cameron Ridge Windpark													
Phase 3, 4A, 4B													
		Micon 108	(H)	283	108 kW @	33 mph	1	0	0	3	119,665	(V)	
							2	0	0	3	329,966	(V)	
							3	0	0	3	264,332	(V)	
							4	0	0	3	212,893	(V)	
							Annual	0	0		807,191		
		Nordtank 150	(H)	330	150 kW @	42 mph	1	0	0	102	5,006,819	(V)	
							2	0	0	102	13,510,731	(V)	
							3	0	0	102	7,243,063	(V)	
							4	0	0	102	5,707,533	(V)	
							Annual	0	0		26,461,327		
		Nordtank 65	(H)	201	65 kW @	35 mph	1	0	0	50	829,248	(V)	
							2	0	0	50	1,978,091	(V)	
							3	0	0	50	945,446	(V)	
							4	0	0	50	952,498	(V)	
							Annual	0	0		4,705,283		
		Nordtank 90/16.6	(H)	215	74 kW @	42 mph	1	0	0	339	6,531,746	(V)	
							2	0	0	339	17,402,924	(V)	
							3	0	0	340	10,174,630	(V)	
							4	0	0	339	9,189,167	(V)	
							Annual	0	0		43,298,467		
		Micon 250	(H)	452	250 kW@	33 mph	1	0	0	3	271,336	(V)	
							2	0	0	3	718,692	(V)	
							3	0	0	3	414,505	(V)	
							4	0	0	3	350,428	(V)	
							Annual	0	0		1,754,961		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)		
		Model	Axis	Rotor Size (M2) (kW)					
<u>TEHACHAPI PASS (Kern)</u>									
27 CANNON ENERGY CORPORATION (Cont'd)									
A. Cameron Ridge Windpark Phase 3, 4A, 4B (Cont'd)	Cannon CEC-250	(H)	531	250 kW@ 32 mph	1	0	0	2	95,248 (V)
					2	0	0	2	154,895 (V)
					3	0	0	2	152,744 (V)
					4	0	0	2	75,314 (V)
					Annual	0	0		478,201
PROJECT TOTAL							77,505,430		
B. Cannon Phase V	Micon 108	(H)	283	108 kW @ 33 mph	1	0	0	138	4,612,228 (V)
					2	0	0	138	15,989,728 (V)
					3	0	0	138	8,281,724 (V)
					4	0	0	138	6,864,759 (V)
					Annual	0	0		35,748,439
	Vestas V39	(H)	1,194	450 kW@ 30 mph	1	0	0	28	7,774,682 (V)
					2	0	0	28	14,616,100 (V)
					3	0	0	28	10,590,436 (V)
					4	0	0	28	8,348,029 (V)
					Annual	0	0		41,329,247
	Cannon CEC 26	(H)	531	200 kW@ 28 mph	1	0	0	3	328,025 (V)
					2	0	0	3	584,893 (V)
					3	0	0	3	366,523 (V)
					4	0	0	3	200,032 (V)
					Annual	0	0		1,479,473
PROJECT TOTAL							78,557,159		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis	Rotor (M2)	Size (kW)						
<u>TEHACHAPI PASS (Kern)</u>											
28 CORAM ENERGY GROUP 25500 Hawthorne Blvd., Suite 2120 Torrance, CA 90505	A. Coram TaxVest Windfarms	Aeroman 12.5 Series II	(H)	123	40kW @	27 mph	1	0	0	100	1,007,299 (V)
							2	0	0	100	2,666,981 (V)
Other Participant:							3	0	0	100	1,592,781 (V)
Energy Conversion Technology, Inc.							4	0	0	100	1,215,490 (V)
							Annual	0			6,482,551
							PROJECT TOTAL				6,482,551
	B. Coram TaxVest Windfarms	Aeroman 12.5 Series II	(H)	123	40kW @	27 mph	1	0	0	47	386,488 (V)
							2	0	0	47	1,154,412 (V)
Other Participant:							3	0	0	47	584,533 (V)
Coram Energy Group							4	0	0	47	495,057 (V)
							Annual	0			2,620,490
							PROJECT TOTAL				2,620,490
	C. Coram TaxVest Windfarms	Aeroman 12.5 Series II	(H)	123	40kW @	27 mph	1	0	0	109	1,060,632 (V)
							2	0	0	109	2,559,769 (V)
Other Participant:							3	0	0	109	1,526,067 (V)
CTV Power Purchase Trust							4	0	0	109	1,238,634 (V)
							Annual	0			6,385,102
							PROJECT TOTAL				6,385,102
	D. Coram Energy Group	Aeroman 12.5 Series I	(H)	123	40kW @	27 mph	1	0	0	27	286,660 (V)
							2	0	0	27	722,465 (V)
Other Participant:							3	0	0	27	447,306 (V)
Energy Conversion Technology							4	0	0	27	338,915 (V)
							Annual	0			1,795,346
							PROJECT TOTAL				1,795,346

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis	Rotor Size (M2) (kW)							
<u>TEHACHAPI PASS (Kern)</u>											
29 FLOWIND CORPORATION 990 A Street, Suite 300 Pleasanton, CA 94901	A. FloWind III (Meraz)	Flowind 17	(V)	260	142kW @ 44 mph	1	29,014	0	161	3,112,620 (V)	
						2	58,408	0	161	7,827,166 (V)	
Operator Comment: See Appendix A Comment 8						3	32,421	0	161	4,173,818 (V)	
						4	0	0	161	3,426,069 (V)	
						Annual	119,843			18,539,673	
		Flowind 19	(V)	340	250kW @ 38 mph	1	48,131	0	122	3,649,964 (V)	
						2	94,500	0	122	10,260,686 (V)	
						3	54,659	0	122	5,430,982 (V)	
						4	0	0	122	4,083,531 (V)	
						Annual	197,290			23,425,163	
		PROJECT TOTAL									41,964,836
	B. FloWind IV (Irell)	Flowind 19	(V)	340	250kW @ 38 mph	1	45,407	0	58	1,679,727 (V)	
						2	67,564	0	58	5,441,501 (V)	
Operator Comment: See Appendix A Comment 9						3	49,906	0	58	2,387,623 (V)	
						4	0	0	58	2,042,864 (V)	
						Annual	162,877			11,551,715	
		AWT 26	(H)	539	data not available	1	41,454	0	2	166,848 (V)	
						2	140,646	0	2	415,351 (V)	
						3	118,718	0	2	216,377 (V)	
						4	0	0	2	249,136 (V)	
						Annual	300,818			1,047,712	
		PROJECT TOTAL									12,599,427

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum.	Electricity Produced (kWh)	(V)
		Model	Axis (M2)	Rotor (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
30 KENETECH WINDPOWER										
6952 Preston Avenue										
Livermore, CA 94550										
	A. Tehachapi Windplant	Bonus	(H)	225	65 kW@ 45 mph	1	0	0	229	5,109,600 (V)
						2	0	0	229	9,931,200 (V)
						3	0	0	229	5,541,600 (V)
						4	0	0	229	5,371,200 (V)
									25,953,600	
PROJECT TOTAL									25,953,600	
31 MOGUL ENERGY CORPORATION										
5204 Lansdale										
Bakersfield, CA 93306										
	A. Liberty Wind Park	FAILED TO FILE				1				83,000 (UD)
		FAILED TO FILE				2				369,000 (UD)
		FAILED TO FILE				3				224,000 (UD)
		FAILED TO FILE				4				117,000 (UD)
						Annual			793,000	
PROJECT TOTAL									793,000	
32 SEAWEST ENERGY GROUP										
1455 Frazee Road, 9th Fl.										
San Diego, CA 92108										
	A. Difwind VI/Viking I/Viking II									
	ToyoWest	Danwin 23/160	(H)	423	160 kW @ 34 mph	1	120,000	0	91	3,933,998 (V)
						2	204,000	0	91	12,973,861 (V)
						3	162,000	0	91	8,215,064 (V)
						4	114,000	0	91	5,549,915 (V)
						Annual	600,000		30,672,838	

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected	Turbines		Electricity
		Model	Axis	Rotor Size		Prod./Turbine	Installed	Produced	
						(kWh)	New	Cum.	(kWh)
<u>TEHACHAPI PASS (Kern)</u>									
32 SEAWEST ENERGY GROUP (Cont'd)									
A. Difwind VI/Viking I/Viking II									
ToyoWest (Cont'd)									
	Micon 110	(H)	300	108 kW @ 30 mph	1	70,700	0	251	6,673,528 (V)
					2	137,800	0	251	22,232,874 (V)
					3	85,700	0	251	14,359,547 (V)
					4	78,200	0	251	9,478,516 (V)
					Annual	372,400			52,744,465
	MWT-250	(H)	491	250 kW @ 29 mph	1	130,000	0	20	1,338,379 (V)
					2	240,500	0	20	4,282,424 (V)
					3	149,500	0	20	2,748,682 (V)
					4	130,000	0	20	1,942,984 (V)
					Annual	650,000			10,312,469
	Nordtank 150S	(H)	330	150 kW @ 35 mph	1	77,300	0	62	2,112,094 (V)
					2	150,400	0	62	7,040,840 (V)
					3	93,500	0	62	4,772,707 (V)
					4	85,400	0	62	3,206,584 (V)
					Annual	406,600			17,132,225
PROJECT TOTAL								110,861,997	
B. Seawest 17, Inc./Toyo Power									
Mojave 17/16/18									
	MWT-250	(H)	610	250 kW @ 29 mph	1	156,450	0	340	17,942,508 (V)
					2	260,750	0	340	60,036,588 (V)
					3	178,800	0	340	37,621,428 (V)
					4	149,000	0	340	25,615,232 (V)
					Annual	745,000			141,215,756
PROJECT TOTAL								141,215,756	
Other Participant: Toyo Power Corp.									

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)	(V)		
		Model	Axis (M2)	Rotor Size (kW)							
<u>TEHACHAPI PASS (Kern)</u>											
32 SEAWEST ENERGY GROUP (Cont'd)											
Other Participant: Toyo Power Corp.	C. Seawest 4, Inc./Toyo Power Mojave 4/3/5	MWT-250	(H)	610	250 kW@ 29 mph	1	156,450	0	300	27,225,432	(V)
						2	260,750	0	300	71,555,880	(V)
						3	178,800	0	300	63,473,137	(V)
						4	149,000	0	300	39,666,781	(V)
						Annual	745,000			201,921,230	
PROJECT TOTAL								201,921,230			
	D. Oak Creek Energy Systems	FloWind 17	(V)	260	85 kW@ 27 mph	1	24,000	0	1	38,541	(V)
						2	40,000	0	1	0	(V)
						3	21,000	0	1	0	(V)
						4	15,000	0	0	0	(V)
						Annual	100,000			38,541	
	Oak 5	(H)	80	15 kW@ 27 mph	1	9,000	0	1	0	(V)	
					2	15,000	0	1	0	(V)	
					3	8,000	0	1	0	(V)	
					4	5,000	0	0	0	(V)	
					Annual	37,000			0		
	Oak 7A	(H)	184	55 kW@ 27 mph	1	21,000	0	79	1,556,138	(V)	
					2	35,000	0	79	2,211,201	(V)	
					3	18,000	0	79	1,076,795	(V)	
					4	15,000	0	71	848,037	(V)	
					Annual	89,000			5,692,171		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum.	Electricity Produced (kWh)	
		Model	Axis	Rotor Size (M2) (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
32 SEAWEST ENERGY GROUP (Cont'd)										
	D. Oak Creek Energy Systems (Cont'd)	Oak 7B	(H)	199	55 kW@ 27 mph	1	23,000	0	132	1,405,504 (V)
						2	39,000	0	132	4,805,096 (V)
						3	20,000	0	132	2,764,223 (V)
						4	15,000	0	125	2,034,848 (V)
						Annual	97,000			11,009,671
		Oak 9	(H)	296	90 kW@ 27 mph	1	45,000	0	100	1,368,687 (V)
						2	75,000	0	100	7,803,920 (V)
						3	39,000	0	100	4,911,245 (V)
						4	28,000	0	99	3,541,038 (V)
						Annual	187,000			17,624,890
									PROJECT TOTAL	34,365,273
33 SOUTHERN CALIFORNIA SUNBELT										
4501 East La Palma Ave. #200										
Anaheim, CA 92807										
	A. Mojave Wind Park	Windmatic 17S	(H)	227	95kW @ 34 mph	1	2,443	0	2	4,886 (NV)
						2	1,487	0	2	2,973 (NV)
						3	14,300	0	2	28,599 (NV)
						4	13,682	0	2	27,364 (NV)
						Annual	31,912			63,822
									PROJECT TOTAL	63,822

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor Size (M2) (kW)					
<u>TEHACHAPI PASS (Kern)</u>									
34 WINDFARMS MANAGEMENT 2509 Thousand Oaks Blvd., Suite 197 Thousand Oaks, CA 91362									
	A. Cache Creek Wind Farm								
					1				18,000 (UD)
					2				24,000 (UD)
					3				0 (UD)
					4				32,000 (UD)
PROJECT TOTAL									74,000
35 WINDLAND, INC. 10448 Garverdale Ct., Suite 606 Boise, Idaho 83704									
	A. Windland Wind Park (Boxcar I)	Bonus 120/20	(H)	296	120 kW @ 40 mph	1	56,000	0	11 493,556 (V)
						2	98,000	0	11 1,188,291 (V)
						3	70,000	0	11 644,528 (V)
						4	56,000	0	11 556,029 (V)
					Annual		280,000		2,882,404
		Carter 25	(H)	77	25 kW @ 30 mph	1	10,000	0	39 254,187 (V)
						2	17,500	0	39 548,629 (V)
						3	12,500	0	39 343,219 (V)
						4	10,000	0	39 286,496 (V)
					Annual		50,000		1,432,531
		Carter 250	(H)	332	250 kW @ 38 mph	1	80,000	0	11 194,637 (V)
						2	140,000	0	11 583,571 (V)
						3	100,000	0	11 482,343 (V)
						4	80,000	0	11 574,881 (V)
					Annual		400,000		1,835,432

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor Size (M2) (kW)			
<u>TEHACHAPI PASS (Kern)</u>							
35 WINDLAND, INC. (Cont'd)							
	A. Windland Wind Park (Boxcar I) (Cont'd)						
		Storm Master 12	(H)	113 40 kW @ 42 mph	1 9,000	0 10	51,826 (V)
					2 15,750	0 10	106,462 (V)
					3 11,250	0 10	58,567 (V)
					4 9,000	0 10	50,544 (V)
					Annual 45,000		267,399
		Bonus 65/13	(H)	181 65 kW @ 40 mph	1 24,000	0 4	72,177 (V)
					2 42,000	0 4	183,612 (V)
					3 30,000	0 4	94,969 (V)
					4 24,000	0 4	89,268 (V)
					Annual 120,000		440,026
		Vestas 27	(H)	573 225 kW@ 30 mph	1 126,000	0 12	1,032,018 (V)
					2 220,500	0 12	2,174,338 (V)
					3 157,500	0 12	1,200,026 (V)
					4 126,000	0 12	1,019,564 (V)
					Annual 630,000		5,425,946
		ESI 54-S	(H)	211 60 kW@ 35 mph	1 18,000	3 5	30,625 (V)
					2 31,500	0 5	70,269 (V)
					3 22,500	0 5	46,278 (V)
					4 18,000	0 5	21,794 (V)
					Annual 90,000		168,966
		Vestas 25	(H)	491 200 kW@ 30 mph	1 100,000	2 2	130,174 (V)
					2 175,000	0 2	146,426 (V)
					3 125,000	0 2	172,466 (V)
					4 100,000	0 2	142,226 (V)
					Annual 500,000		591,292
PROJECT TOTAL							13,043,996

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor Size (M2) (kW)			
<u>TEHACHAPI PASS (Kern)</u>							
35	WINDLAND, INC. (Cont'd)						
	B. Windland Wind Park Boxcar II	Vestas 27	(H)	573 225 kW@ 30 mph	1 126,000	0 15	1,302,178 (V)
					2 220,500	0 15	3,069,804 (V)
					3 157,500	0 15	1,772,130 (V)
					4 126,000	0 15	1,485,475 (V)
					Annual 630,000		7,629,587
		Enertech 44/60	(H)	180 60 kW @ 35 mph	1 14,000	0 12	114,677 (V)
					2 24,500	0 12	248,965 (V)
					3 17,500	0 12	152,628 (V)
					4 14,000	0 12	133,159 (V)
					Annual 70,000		649,429
		Vestas 25	(H)	491 200 kW @ 30 mph	1 100,000	0 20	1,763,146 (V)
					2 175,000	0 20	3,609,231 (V)
					3 125,000	0 20	2,171,083 (V)
					4 100,000	0 20	1,842,766 (V)
					Annual 500,000		9,386,226
PROJECT TOTAL							17,665,242
36	WINDRIDGE 406 East Tehachapi Blvd. Tehachapi, CA 93561						
	A. Willowind			FAILED TO FILE	1		532,000 (UD)
				FAILED TO FILE	2		1,168,000 (UD)
				FAILED TO FILE	3		678,000 (UD)
				FAILED TO FILE	4		412,000 (UD)
PROJECT TOTAL							2,790,000

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification				Qtr.	Projected	Turbines		Electricity
		Model	Axis	Rotor	Size		Prod./Turbine	Installed	Produced	
				(M2)	(kW)		(kWh)	New	Cum.	(kWh)
<u>TEHACHAPI PASS (Kern)</u>										
37 ZOND SYSTEMS, INC. 13000 Jameson Rd. Tehachapi, CA 93581										
	A. Project '82 Pool VO1, 1983 Pool VO2	Vestas 15	(H)	184	65 kW @ 35 mph	1	3,264	0	64	27,579 (V)
						2	5,375	0	64	167,444 (V)
						3	48,144	0	4	77,006 (V)
						4	41,159	0	4	71,900 (V)
						Annual	97,942			343,929
						PROJECT TOTAL				343,929
	B. Project '83 Pool VO2, ZO1, ZO2, '84 Pool VO4	Vestas 15	(H)	184	65 kW @ 35 mph	1	54,275	0	85	838,333 (V)
						2	89,395	0	85	3,048,544 (V)
						3	50,042	0	85	1,342,372 (V)
						4	42,781	0	85	1,279,470 (V)
						Annual	236,493			6,508,719
						PROJECT TOTAL				6,508,719
	C. Project '84 Pool VO4, '85 Pool VZ1	Vestas 15	(H)	184	65 kW @ 35 mph	1	45,429	0	97	1,008,140 (V)
						2	74,825	0	97	3,586,559 (V)
						3	41,885	0	97	1,638,667 (V)
						4	35,808	0	97	1,622,211 (V)
						Annual	197,947			7,855,577
						PROJECT TOTAL				7,855,577
	D. Project '84 Pool VO4, VO5, '85 Pool VO7, '85 VZ1	Vestas 15	(H)	184	65 kW @ 35 mph	1	42,983	0	86	872,048 (V)
						2	70,796	0	86	3,432,888 (V)
						3	39,630	0	86	1,453,070 (V)
						4	33,880	0	86	1,389,521 (V)
						Annual	187,289			7,147,527
						PROJECT TOTAL				7,147,527

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum. (kWh)		
		Model	Axis (M2)	Rotor Size (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
	E. Project '84 Pool VO6	Vestas 17	(H)	227	90 kW @ 35 mph	1	56,225	0	4	73,691 (V)
						2	92,607	0	4	205,344 (V)
						3	51,840	0	4	93,014 (V)
						4	44,318	0	4	86,873 (V)
						Annual	244,990			458,922
						PROJECT TOTAL				458,922
	F. Project '85 Pool V13	Vestas 15	(H)	184	65 kW @ 35 mph	1	16,341	0	8	49,285 (V)
						2	27,557	0	8	286,762 (V)
						3	15,166	0	8	131,584 (V)
						4	14,381	0	8	108,265 (V)
						Annual	73,445			575,896
						PROJECT TOTAL				575,896
	G. Project '85 Pool V14, V18, V20	Vestas 15	(H)	184	65 kW @ 35 mph	1	34,598	0	40	685,768 (V)
						2	57,928	0	40	1,475,587 (V)
						3	33,182	0	40	709,710 (V)
						4	28,270	0	40	669,443 (V)
						Annual	153,978			3,540,508
						PROJECT TOTAL				3,540,508
	H. Project '85 Pool V19, V21, V26	Vestas 17	(H)	227	90 kW @ 35 mph	1	44,080	0	41	1,229,637 (V)
						2	73,801	0	41	2,634,677 (V)
						3	42,275	0	41	1,233,386 (V)
						4	36,017	0	41	1,164,927 (V)
						Annual	196,173			6,262,627
						PROJECT TOTAL				6,262,627

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis	Rotor Size (M2) (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
I.	Project '85 Pool V22 '86 Pool V25, '87 Pool V26	Vestas 17	(H)	227	90 kW @ 35 mph	1	51,825	0	34	679,976 (V)
						2	83,713	0	34	2,380,304 (V)
						3	46,861	0	34	1,204,862 (V)
						4	40,062	0	34	1,185,608 (V)
						Annual	222,461			5,450,750
						PROJECT TOTAL		5,450,750		
J.	Project '85 Windsystems Partners, "A" and "B"	Vestas 17/6043	(H)	227	90 kW @ 35 mph	1	53,065	0	165	2,101,379 (V)
						2	89,483	0	165	8,324,331 (V)
						3	49,249	0	165	4,385,758 (V)
						4	46,697	0	165	4,239,727 (V)
						Annual	238,494			19,051,195
						PROJECT TOTAL		53,749,215		
		Vestas 17/6044	(H)	227	90 kW @ 35 mph	1	53,065	0	235	3,407,342 (V)
						2	89,483	0	235	12,663,134 (V)
						3	49,249	0	235	12,663,134 (V)
						4	46,697	0	235	5,964,410 (V)
						Annual	238,494			34,698,020
						PROJECT TOTAL		53,749,215		
K.	Project '86 Pool V23	Vestas 23	(H)	415	200 kW @ 35 mph	1	64,861	0	1	0 (V)
						2	106,832	0	1	59,976 (V)
						3	59,802	0	1	40,533 (V)
						4	51,126	0	1	56,056 (V)
						Annual	282,621			156,565
						PROJECT TOTAL		156,565		

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)
		Model	Axis	Rotor Size (M2) (kW)			
<u>TEHACHAPI PASS (Kern)</u>							
40 ZOND SYSTEMS, INC. (Cont'd)							
	L. Project '87 Pool V26	Vestas 17E	(H)	260 90 kW @ 35 mph	1 45,925	0 1	40,595 (V)
					2 76,891	0 1	92,802 (V)
					3 44,045	0 1	51,596 (V)
					4 37,524	0 1	44,534 (V)
					Annual 204,385		229,527
					PROJECT TOTAL		229,527
	M. Project Victory Garden Phase IV	Vestas 27/6102	(H)	572 225 kW @ 35 mph	1 110,562	0 31	3,702,521 (V)
					2 201,206	0 31	7,016,365 (V)
					3 134,958	0 31	3,680,998 (V)
					4 112,800	0 31	3,489,309 (V)
					Annual 559,526		17,889,193
		Vestas 27/6103	(H)	572 225 kW @ 35 mph	1 104,832	0 31	2,673,640 (V)
					2 190,779	0 31	5,410,891 (V)
					3 127,964	0 31	2,615,071 (V)
					4 106,955	0 31	2,761,249 (V)
					Annual 530,530		13,460,851
		Vestas 27/6104	(H)	572 225 kW @ 35 mph	1 112,409	0 31	3,039,486 (V)
					2 204,567	0 31	6,023,472 (V)
					3 137,212	0 31	3,535,763 (V)
					4 114,684	0 31	3,290,803 (V)
					Annual 568,872		15,889,524

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum. Produced (kWh)	Electricity Produced (kWh)	
		Model	Axis	Rotor Size (M2) (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
	M. Project Victory Garden Phase IV (Cont'd)	Vestas 27/6107	(H)	572	225 kW@ 35 mph	1	111,849	0	5	524,850 (V)
						2	203,549	0	5	1,090,975 (V)
						3	136,529	0	5	598,821 (V)
						4	114,113	0	5	547,192 (V)
						Annual	566,040			2,761,838
						PROJECT TOTAL				50,001,406
	N. Project Zond '87 Pool V26	Vestas 15	(H)	184	65 kW @ 35 mph	1	40,386	0	2	32,543 (V)
						2	73,498	0	2	123,750 (V)
						3	49,299	0	2	68,212 (V)
						4	41,204	0	2	49,095 (V)
						Annual	204,387			273,600
		Vestas 17	(H)	227	90 kW @ 35 mph	1	40,992	0	56	1,689,573 (V)
						2	74,600	0	56	3,851,318 (V)
						3	50,038	0	56	1,973,453 (V)
						4	41,822	0	56	1,855,985 (V)
						Annual	207,452			9,370,329
						PROJECT TOTAL				9,643,929

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Projected Qtr. Prod./Turbine (kWh)	Turbines Installed New Cum.	Electricity Produced (kWh)			
		Model	Axis	Rotor Size (M2) (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
	O. Project Zond '87 (H&S 20) V27	Vestas 17	(H)	227	90 kW @ 35 mph	1	41,852	0	54	1,919,247 (V)
						2	76,165	0	54	4,521,286 (V)
						3	51,088	0	54	2,408,124 (V)
						4	42,699	0	54	2,222,308 (V)
						Annual	211,804			11,070,965
						PROJECT TOTAL				11,070,965
	P. Project Zond '87 Pool V26	Vestas 15	(H)	184	65 kW @ 35 mph	1	40,386	0	3	58,332 (V)
						2	73,498	0	3	151,031 (V)
						3	49,299	0	3	91,552 (V)
						4	41,204	0	3	73,839 (V)
						Annual	204,387			374,754
		Vestas 17	(H)	227	90 kW @ 35 mph	1	40,386	0	47	1,658,680 (V)
						2	73,498	0	47	3,599,740 (V)
						3	49,299	0	47	2,058,918 (V)
						4	41,204	0	47	1,940,013 (V)
						Annual	204,387			9,257,351
		Vestas 17E	(H)	260	90 kW @ 35 mph	1	40,386	0	13	500,339 (V)
						2	73,498	0	13	811,840 (V)
						3	49,299	0	13	438,879 (V)
						4	41,204	0	13	528,073 (V)
						Annual	204,387			2,279,131
						PROJECT TOTAL				11,911,236

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Electricity Produced Cum.	(kWh)	
		Model	Axis	Rotor Size (M2) (kW)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
	Q. Project Zond '87 Pool V26	Vestas 17	(H)	227	90 kW @ 35 mph	1	40,386	0	62	1,885,576 (V)
						2	73,498	0	62	4,071,443 (V)
						3	49,299	0	62	2,290,309 (V)
						4	41,204	0	62	2,321,126 (V)
						Annual	204,387			10,568,454
						PROJECT TOTAL				10,568,454
	R. Project Zond '84, Pool V04 1985 Pool V07	Vestas 15	(H)	184	65 kW@ 35 mph	1	41,461	0	44	517,701 (V)
						2	68,290	0	44	1,948,022 (V)
						3	38,277	0	44	971,023 (V)
						4	32,681	0	44	883,212 (V)
						Annual	180,709			4,319,958
						PROJECT TOTAL				4,319,958
	S. Sky River	Vestas 27/6067	(H)	573	225 kW@ 35 mph	1	126,404	0	93	7,095,234 (V)
						2	199,770	0	93	18,175,884 (V)
						3	131,585	0	93	11,607,477 (V)
						4	105,290	0	93	11,800,080 (V)
						Annual	563,049			48,678,675
		Vestas 27/6066	(H)	573	225 kW@ 35 mph	1	136,375	0	88	5,521,897 (V)
						2	136,675	0	88	5,521,897 (V)
						3	141,964	0	88	12,225,786 (V)
						4	113,595	0	88	10,646,581 (V)
						Annual	528,609			33,916,161

1995 ANNUAL WIND PROJECT PERFORMANCE REPORTING DATA

Location/Operator	Project	Turbine Specification			Qtr.	Projected Prod./Turbine (kWh)	Turbines Installed New	Cum.	Electricity Produced (kWh)	
		Model	Axis	Rotor (M2)						
<u>TEHACHAPI PASS (Kern)</u>										
40 ZOND SYSTEMS, INC. (Cont'd)										
	S. Sky River (Cont'd)	Vestas 27/6065	(H)	573	225 kW@ 35 mph	1				
						2				
						3				
						4				
						Annual				
		Vestas 39	(H)	1,195	500 kW@ 35 mph	1				
						2				
						3				
						4				
						Annual				
									PROJECT TOTAL	192,953,298

APPENDIX A: OPERATOR COMMENTS

Comment Number	Operator/Project Number	Project	Comment
1.	SeaWest Energy Group (9B)	C.W.E.S.	As of first quarter, SeaWest, Inc., acquired the C.W.E.S. Project early this year and is being reported as "SeaWest Windfarms - ESI."
2.	SeaWest Energy Group (9D)	SeaWest Windfarms, Inc.	As of third quarter, Venture Pacific, Inc. acquired all the SeaWest Windfarms projects.
3.	WindMaster (11A)	WindMaster	The Los Vaqueros Reservoir and the relocation of Vasco Road, by the Contra Costa Water District, has reduced the number of operating 200 kW turbines that were installed in 1985. The adverse effect of the Byron Airport expansion on this windpark is unquantified and, thus, is undetermined as of third quarter.
4.	American Power Sys.'s (14A)		As of third quarter, American Power Systems, Inc. is no longer reporting operating turbines.
5.	EUI Mngmt. PH, Inc. (16A)	Mtn. Pass '85 Ltd. &	Southern California Edison (SCE) lost their meter from Mngmt. Program which they determine the revenue payments. Production reported on this report is based on EUI's metering which historically has been within one percent (1%) of SCE's data.
6.	SeaWest Energy Group (19E)	S.W.W.F. II	During second quarter, Venture Pacific, Inc. acquired all the S.W.W.F. II projects.

Comment Number	Operator/Project Number	Project	Comment																		
7.	Kenetech Windpower (24A)	Montezuma Hills Windplant	Malfunctioning cap banks used by SMUD are causing inaccuracies; we believe PG&E's data to be correct. The same applies to Altamont Windplant's Ralph substation.																		
8.	FloWind Corp. (29A)	FloWind III (Meraz)	<p>Curtailed hours are included in the energy-produced figures for the 17M and 19M turbines as follows:</p> <table border="1"> <thead> <tr> <th></th> <th><u>17M</u></th> <th><u>19M</u></th> </tr> </thead> <tbody> <tr> <td>Qtr. 1</td> <td>516,512</td> <td>3,672</td> </tr> <tr> <td>Qtr. 2</td> <td>1,049,280</td> <td>579,372</td> </tr> <tr> <td>Qtr. 3</td> <td>0</td> <td>0</td> </tr> <tr> <td>Qtr. 4</td> <td><u>0</u></td> <td><u>0</u></td> </tr> <tr> <td></td> <td>1,565,792</td> <td>583,044</td> </tr> </tbody> </table>		<u>17M</u>	<u>19M</u>	Qtr. 1	516,512	3,672	Qtr. 2	1,049,280	579,372	Qtr. 3	0	0	Qtr. 4	<u>0</u>	<u>0</u>		1,565,792	583,044
	<u>17M</u>	<u>19M</u>																			
Qtr. 1	516,512	3,672																			
Qtr. 2	1,049,280	579,372																			
Qtr. 3	0	0																			
Qtr. 4	<u>0</u>	<u>0</u>																			
	1,565,792	583,044																			
9.	FloWind Corp. (29B)	FloWind IV (Irell)	<p>Curtailed hours are included in the energy-produced figures for F-19 turbines as follows:</p> <table border="1"> <thead> <tr> <th></th> <th><u>F-19</u></th> </tr> </thead> <tbody> <tr> <td>Qtr. 1</td> <td>658,575</td> </tr> <tr> <td>Qtr. 2</td> <td>1,992,852</td> </tr> <tr> <td>Qtr. 3</td> <td>0</td> </tr> <tr> <td>Qtr. 4</td> <td><u>0</u></td> </tr> <tr> <td></td> <td>2,651,427</td> </tr> </tbody> </table>		<u>F-19</u>	Qtr. 1	658,575	Qtr. 2	1,992,852	Qtr. 3	0	Qtr. 4	<u>0</u>		2,651,427						
	<u>F-19</u>																				
Qtr. 1	658,575																				
Qtr. 2	1,992,852																				
Qtr. 3	0																				
Qtr. 4	<u>0</u>																				
	2,651,427																				
10.	So. Calif. Sunbelt (33A)	Mojave Wind Park	At the end of 1994, all but two turbines have been removed. These two turbines have been on-line January through December 1, 1995. No production reported for December, and they remain off-line since that date.																		

APPENDIX B: WIND TURBINE MANUFACTURERS/DISTRIBUTORS

TURBINE BRAND NAMES	COUNTRY OF ORIGIN	MANUFACTURER/DISTRIBUTOR	PROJECT(S) WHERE TURBINE IS INSTALLED
1. Aeroman	West Germany	American M.A.N. Munich, West Germany	(28A-D)
2. AWT	U.S.	Advanced Wind Turbines 425 Pontius Avenue North, Suite 150 Seattle, Washington 98109	(29B)
3. Blue Max	U.S.	Hall Machinery 1401 Airport Drive Bakersfield, CA 93308 "No Longer Active"	(---
4. Bonus	Denmark	Bonus Wind Turbines, Inc. Danregn Vindkraft Fabriksvej 4 DK 7330, Brande Denmark	(3B) (16A) (17A) (18A) (30A) (35A)
5. Cannon	U.S.	Cannon Energy Corporation 10315 Oak Creek Rd. Mojave, CA 93501	(27A-B)
6. Carter	U.S.	Carter Wind Systems, Inc. Route 1, Box 405A Burkburnett, TX 76354	(22B) (35A)
7. Danwin	Denmark	Danwin A/S Industrivej 12 DK-3000, Helsingor Denmark	(3B) (19D) (32A)
8. Delta	Unknown	Delta Address Unknown "No Longer Active"	(16A)

	TURBINE BRAND NAMES	COUNTRY OF ORIGIN	MANUFACTURER/DISTRIBUTOR	PROJECT(S) WHERE TURBINE IS INSTALLED
9.	ESI	U.S.	Energy Sciences, Inc. 7791 Fitch Irvine, CA 92714 "No Longer Active"	(9B) (35A)
10.	Enertech	U.S.	Enertech Corporation P.O. Box 420 Norwich, VT 05055 "No Longer Active"	(9A) (19A,C,E) (35B)
11.	Fayette	U.S.	Fayette Energy Corporation "No Longer Active" For information, contact: Arcadian Renewable Power Corporation c/o New World Grid Power Company 63-665 19th Avenue N. Palm Springs, CA 92258	(---)
12.	FloWind	U.S.	FloWind Corporation 990 A Street, Suite 300 San Rafael, CA 94901	(3A-B) (29A,B) (32D)
13.	Howden	Scotland	James Howden and Company Old Govan Rd. Renfrew, Scotland PA4 8XJ	(4A)
14.	Jacobs	U.S.	Earth Energy Systems, Inc. PO Box 742 North Palm Springs, CA 92258	(14A)
15.	Kenetech	U.S.	Kenetech Windpower 6952 Preston Ave. Livermore, CA 94550	(5A) (17A) (24A)

TURBINE BRAND NAMES	COUNTRY OF ORIGIN	MANUFACTURER/DISTRIBUTOR	PROJECT(S) WHERE TURBINE IS INSTALLED
16. MWT	Japan	Mitsubishi c/o SeaWest Industries, Inc. 1455 Frazee Rd., Suite 300 San Diego, CA 92108	(32A-C)
17. Micon	Denmark	Moerup Manufacturing Co. Micon A/S Milskovvej 8, Helstrup DK-8900 Randers Denmark	(9 C-F) (15A-C) (16A) (18A) (19B,C) (21A) (22B,C) (27A,B) (32A)
18. Nordtank	Denmark	Nordtank Energy Group Nyballevej 8 DK-8444 Balle Denmark	(8A) (13A) (21A) (22A,C) (26A,B) (27A) (32A)
19. Oak	U.S.	"No Longer Active" For information , contact: SeaWest Energy Group 1455 Frazee Rd., 9th Fl. San Diego, CA 92108	(32D)
20. Polenko	Netherlands	Holec Power Systems, Inc. P.O. Box 2227 Livermore, CA 94550	---
21. Storm Master	U.S.	Address Unknown "No Longer Active"	(35A)
22. Vestas	Denmark	Vestas Wind Systems A/S P.O. Box 42 Smed Hansens, Vej 27 DK 6940, Lem Denmark	(12A) (13A) (18A) (23A-B) (25A) (27B) (35A,B) (37A-S)

	TURBINE BRAND NAMES	COUNTRY OF ORIGIN	MANUFACTURER/DISTRIBUTOR	PROJECT(S) WHERE TURBINE IS INSTALLED
23.	WEG Wind Energy Group	England	Wind Energy Group, Ltd. 345 Ruislip Rd. Southall, Middlesex, UB1 2QX England	(5A)
24.	Wincon	U.S.	Wincon Energy Systems 3942 Valley Ave. Pleasanton, CA 94566 Wincon Energy Systems Hagenstrupvej 38 8860 Ulstrup Denmark	(13A) (21A)
25.	Windane	Denmark	Vestas-Danish Wind Tech A/S Smed Hansens Vej 27 DK-6940 Lem Denmark	(18A)
26.	WindMaster	U.S.	WindMaster P.O. Box 669 7601 Byron Hot Springs Rd. Byron, CA 94514-0669	(11A)
27.	Windmatic	Denmark	Windmatic Industrivej nord 15 Bir. 7400 herring Denmark	(20A) (33A)
28.	Zond	U.S.	Zond Systems, Inc. 13000 Jameson Rd. P.O. Box 1910 Tehachapi, CA 93561	(---)

APPENDIX C: SOURCES OF

California Energy Commission:

Catherine Siebensohn-Small
WPRS Program Manager
California Energy Commission
Energy Technology Assessments
1516 Ninth Street, MS-43
Sacramento, CA 95814
(916) 654-4663

Dick Anderson
Technical Coordinator, Avian
California Energy Commission
Energy Facilities Siting &
1516 Ninth Street, MS-40
Sacramento, CA 95814
(916) 654-4166

Tim Olson
International Program
California Energy
Energy Technology Export
1516 Ninth Street, MS-45
Sacramento, CA 95814
(916) 654-4528

News media, please contact:
Claudia Chandler, Assistant Director
Media and Public Communications
(916) 654-4989

American Wind Energy

American Wind Energy Association
122 C Street, NW, 4th Flr.
Washington, DC 20001
Main: (202) 383-2500
Publications: (202) 383-2520

U.S. Department of Energy:

Peter R. Goldman, Director
Office of PV and Wind
U.S. Department of Energy
1000 Independence Avenue,
Washington, DC 20585
(202) 586-1995

Electric Power Research

Chuck McGwin, Manager
Wind Power Integration
Electric Power Research
3412 Hillview Avenue
Palo Alto, CA 94303
(415) 855-2445

National Renewable Energy

Susan Hock
National Wind Technology Center
1617 Cole Blvd.
Golden, Colorado 80401
(303) 384-6950

Sandia National Laboratories:

Henry Dodd
Sandia National Laboratories
P.O. Box 5800, MS-0708
Albuquerque, New Mexico
(505) 844-5253

Internet Sites:

URL= Uniform Resource Locator

California Energy Commission "Access Energy "	URL: http://www.energy.ca.gov E-mail: energia@energy.ca.gov
American Wind Energy Association	URL: http://www.igc.apc.org/awea E-mail: windmail@mcimail.com
National Renewable Energy	URL: http://www.nrel.gov/research/wind/wind.html
Pacific Northwest Laboratory	URL: http://www.pnl.gov/
Sandia National Laboratories	URL: http://www.sandia.gov/Renewable_Energy/wind_
U.S. Department of Energy Wind Energy Program	URL: http://eren.doe.gov/wind
Wind Literature (listing of various other Web links by TU Berlin)	URL: http://keynes.fb12.tu-

**REGULATIONS
CALIFORNIA ADMINISTRATIVE CODE
TITLE 20, CHAPTER 2, SUBCHAPTER 3, ARTICLE 4**

WIND PROJECT PERFORMANCE REPORTING SYSTEM

Adopted
November 28, 1984

1381 Title and Purpose

The purpose of this article is to specify performance reporting requirements for operators of specified wind energy projects and for entities which purchase electricity from the projects and to identify requirements for the Commission to publish the information.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1382 Definitions

For the purposes of this article, the following definitions shall apply unless the Commission has clearly indicated otherwise in these regulations:

- (a) “Contingency Costs”: the costs which may be paid by investors after the initial investment, but which are not paid out of project revenues. Contingency costs may include such costs as turbine repairs or annual insurance fees paid during the reporting year.
- (b) “Cumulative Number of Turbines Installed”: the cumulative total number of turbines of a given model installed by the end of the reporting period.
- (c) “Electricity Produced (kWh)”: the total kilowatt hours actually produced by all of the turbines of a particular turbine model contained within the wind project where the electricity is delivered to a wind power purchaser for sale during the reporting period.
- (d) “Name of Wind Project”: the name used for the project in any prospectus, offering memorandum, or sales literature.
- (e) “Number of Turbines Installed During Reporting Period”: the number of additional turbines installed during the calendar quarter of the reporting period.
- (f) “Project Cost”: the total cost of the turbines installed during the reporting period. Project cost includes all debt and equity investment in the project (including nonrecourse notes) and should be comparable to the project cost shown in the offering memorandum, prospectus or sales literature published by the developer.
- (g) “Projected Annual Production Per Turbine (kWh)”: the annual average kWh production, by model, predicted by the developer in its prospectus, offering memorandum, or sales literature. This figure may be revised annually prior to the

first reporting quarter of each year and shall be based upon average site specific wind distributions and the wind turbine power curves.

- (h) “Projected Quarterly Production Per Turbines (kWh)”: the quarterly breakdown of the Projected Annual Production Per Turbine.

- (i) “Rotor (M^2)”: The rotor swept area in square meters for each turbine model.
- (j) “Size (kW)”: the turbine manufacturer’s published kW rating at a specific miles per hour (mph) with wind speed shown in parentheses.
- (k) “Turbine Model”: the common or manufacturer’s name for the turbine if that is a commonly used term for the model of a specific rotor (M^2) and size (kW).
- (l) “Wind Power Purchaser”: any electricity utility or other entity which purchases electricity from a wind project, as defined in this section.
- (m) “Wind Project”: one or more wind turbine generators installed in California with a combined rated capacity of 100 kW or more, the electricity from which is sold to another party.
- (n) “Wind Project Operator”: any developer or operator who directly receives payments for electricity from the wind power purchaser.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1383 Reporting Period

For the purpose of this article, and unless otherwise indicated, the reporting period shall be each calendar quarter, beginning with the first quarter following the effective date of this article. Quarterly reports filed pursuant to this article shall be submitted not later than the forty-fifth day following the close of each reporting period. Reports shall be deemed submitted as of the date of postmark, provided that the report is properly and legibly completed.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1384 Requirements to File

The information required by this article shall be submitted to the Commission by wind project operators and wind power purchasers. Reports shall be made on forms prescribed by order of the Commission and according to instructions accompanying the forms. A copy of the wind project prospectus, offering memorandum, and other sales literature shall accompany the initial report. All reports must be verified by a responsible official of the firm filing the report. Requests for confidentiality may be filed pursuant to 20 Cal. Admin. Code section 2501 et. seq.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1385 Information Requirements: Wind Project Operators

Each operator firm submitting information pursuant to the provisions of the article shall include the following:

- (1) Name of wind project
- (2) Name and address of operator
- (3) Name and phone number of contact person at operator's firm
- (4) Operator's name as shown on power purchase contract (if different than 2 above)
- (5) Name of wind power purchaser
- (6) Purchase contract number
- (7) Resource area and county
- (8) Dates of reporting period
- (9) Turbine model
- (10) Cumulative number of turbines installed
- (11) Number of turbines installed during reporting period
- (12) Rotor (M²)
- (13) Size (kW) at stated wind speed
- (14) Project cost
- (15) Additional project contingency costs for which investors may be responsible
- (16) Projected quarterly production per turbine (kWh)

- (17) Projected annual production per turbine (kWh)
- (18) Electricity produced (kWh)
- (19) Turbine manufacturer's name and address
- (20) Operator comments, if any

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1386 Information Requirement: Wind Power Purchase

Each wind power purchaser submitting information pursuant to the provisions of this article shall include the following:

- (1) Name of purchaser's firm
- (2) Name and phone number of contact person at purchaser's firm
- (3) Date of report
- (4) Name of wind project operator
- (5) Number of contract with wind project operator
- (6) kWh's produced during reporting period
- (7) Dates of reporting period
- (8) The maximum MW's which the operator can deliver to the purchaser as specified in the power sales agreement
- (9) Purchaser comments, if any

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1387 Publication of Data

The Commission staff shall compile and distribute, on a quarterly basis, the information reported by wind project operators and purchasers. Cost data will be published by the Commission in an aggregated form to the extent necessary to assure confidentiality. The final publication of each year shall combine the performance data for that year. The publication shall designate the name of any wind project operator from whom performance data is not received.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.

1388 Failure to Provide Information

The Commission may, after notifying any person of the failure to provide information pursuant to this article, take such action to secure the information as is authorized by any provision of law, including, but not limited to, Public Resources Code section 25900.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605 (e), and 25900, Public Resources Code.

1389 Exemptions

Operators of wind projects of less than 100 kW rated capacity or operators who do not offer electricity for sale are exempt from this article.

Authority cited: Sections 25213 and 25218 (e), Public Resources Code Reference: Sections 25216.5 (d), 25601 (c), and 25605, Public Resources Code.