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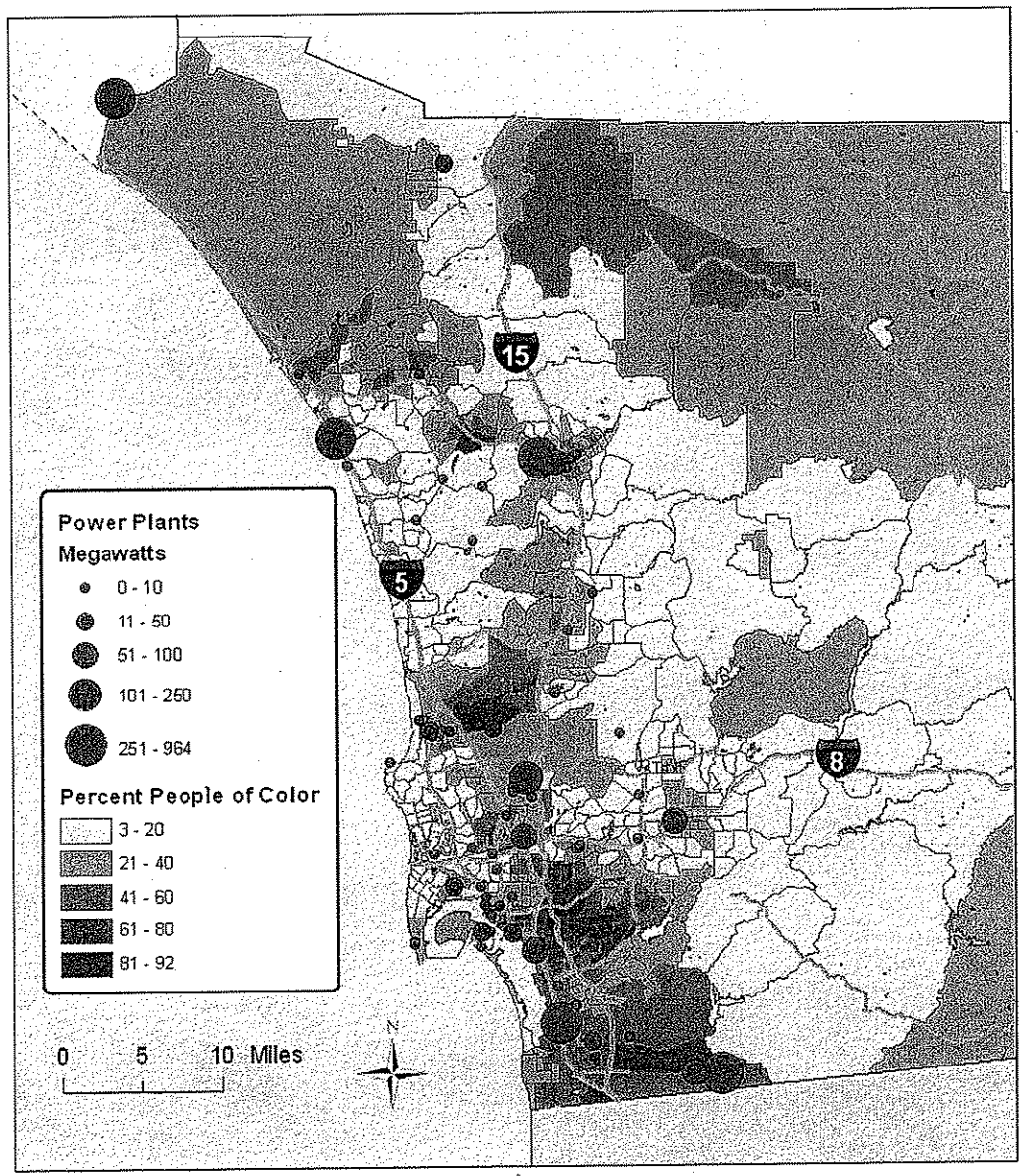
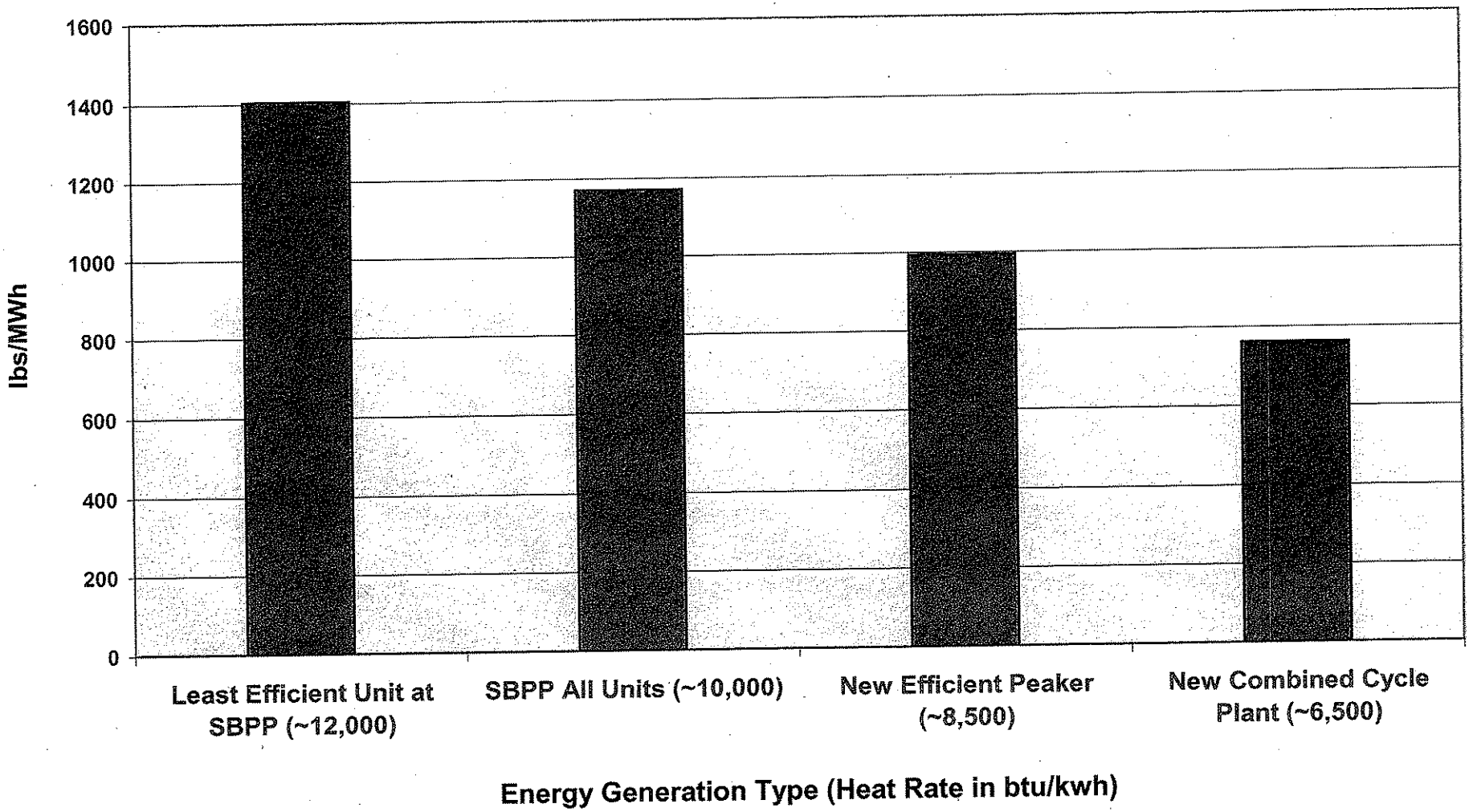
Race and Power Plants, San Diego County



Sources:
Race and Ethnicity Information- US Census 2000
Power Plants - CA Energy Commission Database of CA Power Plants 2006

Environmental Health Coalition
March 2007

CO_2 Emissions per Megawatt Hour from the Aging South Bay Power Plant (SBPP) Compared to New Power Plants

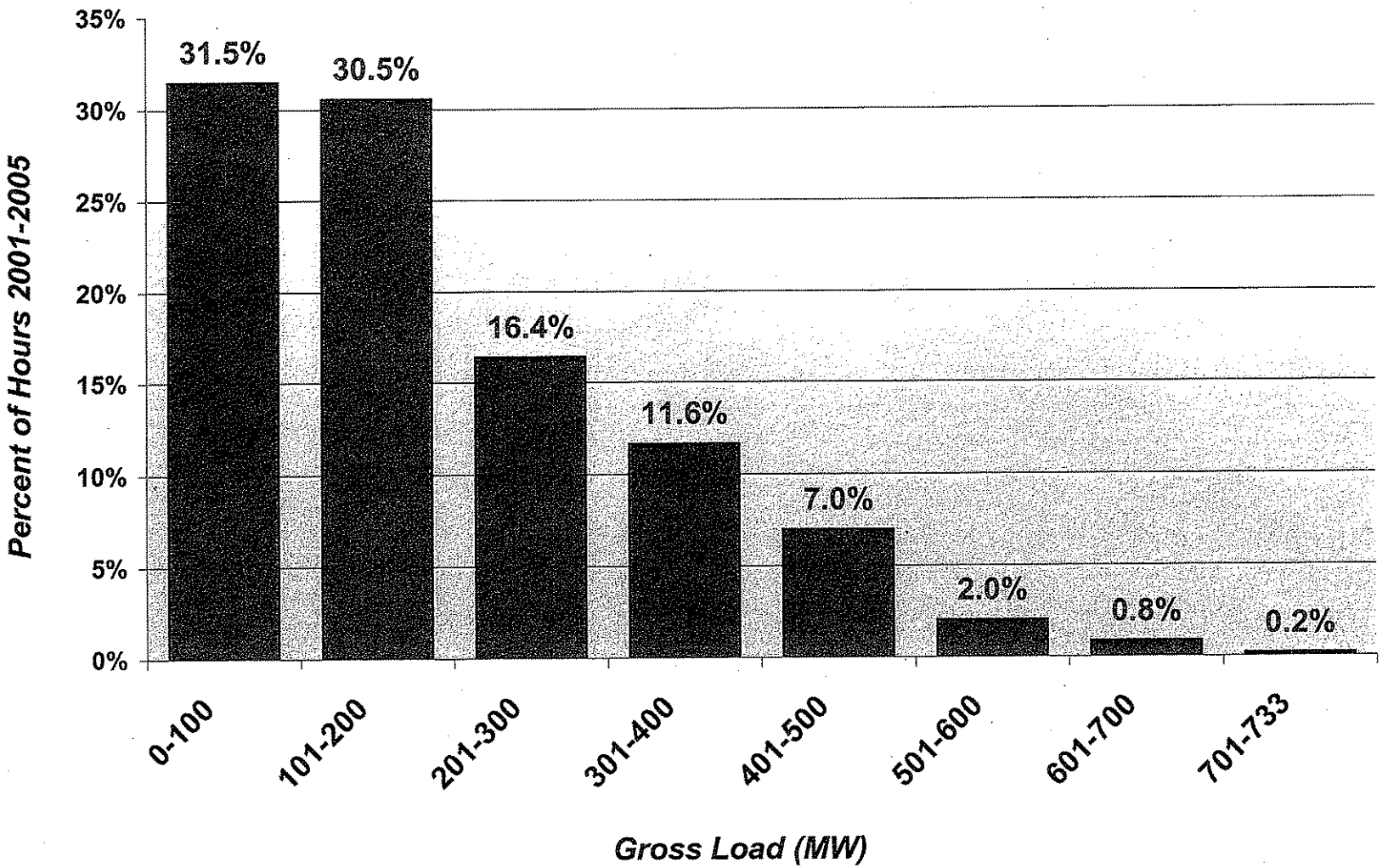


Sources: Heat rate of the South Bay Power Plant from CA Energy Comission *Resource, Reliability, and Environmental Concerns of Aging Power Plants* August 13, 2004 100-01-005D. Heat rates for new generation from General Electric Gas Turbine and Combined Cycle Products Brochure. New efficient peaker assumed to use LM 6000 trubines. New CC plant assumed to use FA class turbines.

Environmental Health Coalition April 2007

Final Chart

Percent of time the South Bay Power Plant Operated at a Given Capacity Over the Years 2001-2005



Source: CA Energy Commission through EPA Clean Air Markets Emission Reporting System
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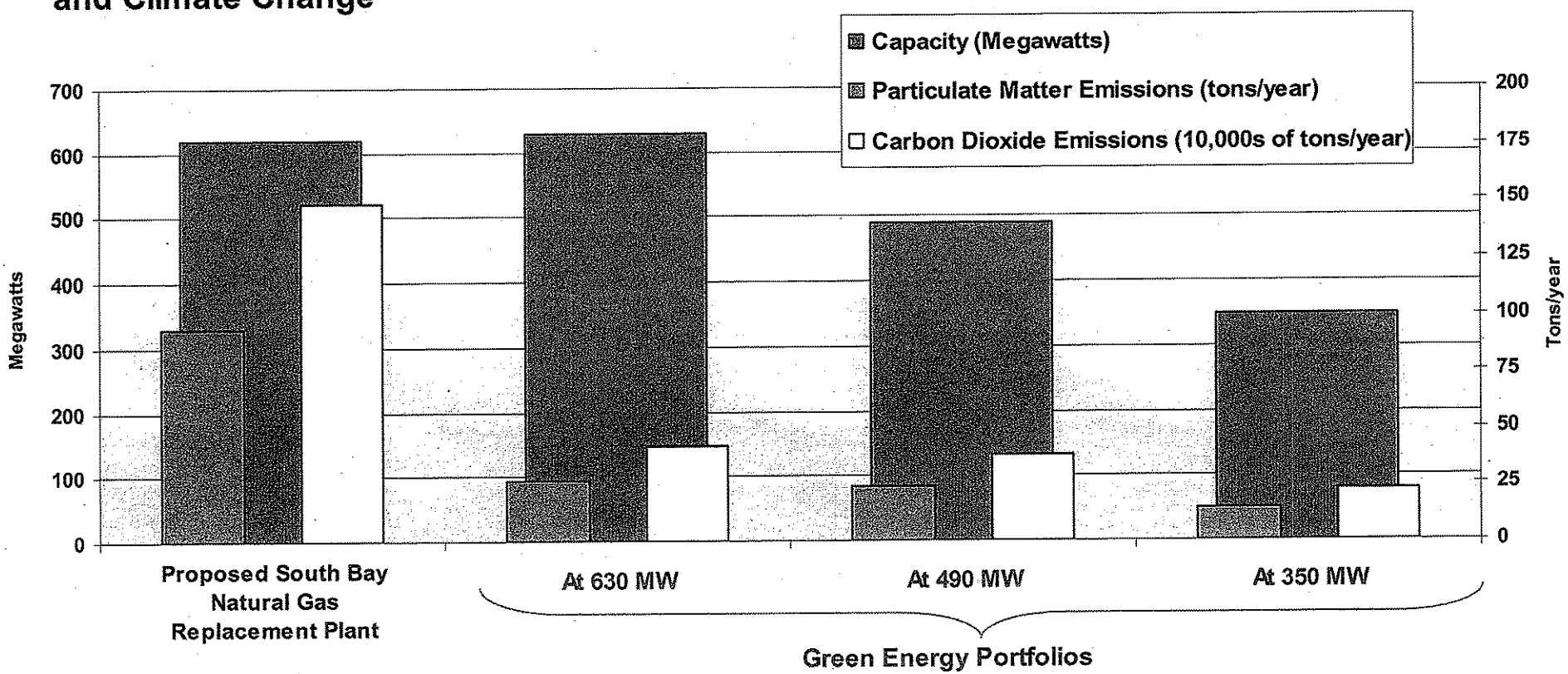
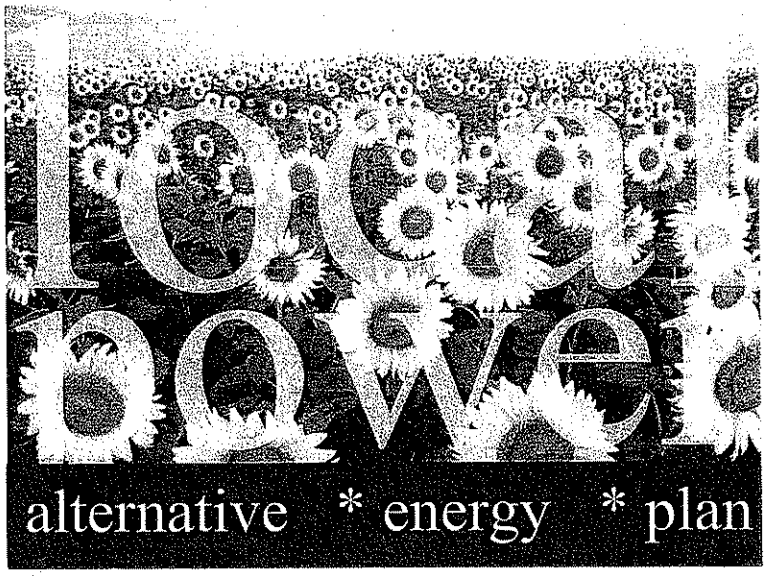
Green Energy Options Substantially Reduce Air Pollution and Climate Change



Source: Local Power *Green Energy Options to Replace the South Bay Power Plant* February 2007.

Graph by Environmental Health Coalition Feb 2007



Green Energy Options

to Replace the South Bay Power Plant

Alternative Energy Plan on the Feasibility and Cost-Effectiveness of Replacing the South Bay Power Plant by 2010 With Local, Competitively Priced Green Energy Sources

Prepared By

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Prepared for

Environmental HEALTH COALITION

February 15, 2007

1. Executive Summary

Background and Purpose

The existing South Bay Power Plant, over 40 years old, is outdated, inefficient to run, devastates the South San Diego Bay ecosystem and pollutes the air. The power company LS Power, all of whose merchant power plants (including the South Bay Power Plant) were recently acquired by Houston-based Dynegy[1], is in the permitting process for a South Bay Replacement Project (SBRP) which includes the demolition of the current South Bay Power Plant and the construction of a new gas-fired power plant near the current site. There is little disagreement that the existing plant needs to be shut down. There is debate, however, about how the energy capacity provided by the existing plant should be replaced. This decision will shape the region's energy future, the health of Chula Vista residents, and the character of the Chula Vista Bayfront for decades to come.

The SBRP decision will have global impacts. Climate Crisis is upon us. Power plants are the largest cause of greenhouse gas pollution in the United States, which as a nation is the world's largest greenhouse gas polluter – and California's greenhouse gas emissions have continued to increase for the past fifteen years. A major opportunity to answer the Climate challenge is in our front yard, and will shortly present itself for local decision-making. In the Chula Vista region, by far the largest single cause of climate pollution is the South Bay Power Plant. While Dynegy's acquisition of the plant has increased pressure to approve a larger power plant replacement, green power alternatives – and the means to develop them cost-effectively – now exist, which if developed by Chula Vista and potential local partners will render power generation at the South Bay Power Plant site unnecessary for the regional transmission grid. Recognition of urgency and opportunity is essential to solving the Climate Crisis. The SBRP decision may be the community's only major chance to do something about this mounting catastrophe.

While the existing plant runs at a relatively low capacity most of the time, it does provide 700 Megawatts (MW) (reduced to 515 MW for 2007) of "Reliability Must Run" (RMR) capacity to the grid, a special designation instituted to ensure grid stability. A number of options exist to provide the energy and capacity that the San Diego region will need into the future, including demand response, renewable energy, natural gas plants in other parts of the County, and other options. For a number of reasons – to protect public health and promote environmental justice, to protect our economy from over dependence on natural gas with its price volatility, to reduce greenhouse gas emissions, and to meet state-mandated requirements for renewable energy – the replacement of the existing South Bay Power Plant should include a major commitment to green energy options. This report identifies and analyzes local opportunities for more sustainable, secure energy development in San Diego County in order to reduce the need for, or the scale of, a natural gas generation facility to replace the South Bay Power Plant (SBPP).

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[1] On September 15, 2006, Independent Power Producer Dynegy announced it has agreed to pay more than $2B in stock and cash for the merchant plant portfolio of private equity fund LS power Group, including SBPP and eight other power plants acquired from Duke Energy for $1.6B in May. LS Power Group will retain a 40 percent stake in the combined company. Dynegy's management team, including CEO Bruce Williamson, will run the company.

The "Green Energy Options" (GEO) outlined in this report, demonstrate how Chula Vista and neighboring communities can now move to develop solar, wind and other green power technologies at market prices, stabilize local electricity rates, win energy independence, and eliminate a major contributor of pollution and greenhouse gases. The City of Chula Vista has already taken a leadership role in promoting energy sustainability and taking responsibility for reducing the hazards associated with the global climate crisis. By investing in energy development described in this Green Energy Options report, the City of Chula Vista can take a major step toward ensuring energy and economic security for Chula Vista and the region, and can set an example for the region, state, and beyond.

Summary of the Green Energy Option Portfolios

The Green Energy Options (GEOs) described in the report are viable, and the technologies are readily available. The GEOs are three electric energy portfolios designed to meet three different levels of capacity replacement for the South Bay Power Plant. They address a range of possible regional needs and provide a range of investment options. The current power plant supplies electricity in the period of high demand during the day and early evenings, and the GEO portfolios are designed to meet that same requirement. Each GEO portfolio includes diverse technologies in order to avoid "putting all eggs in one basket".

The hazards of going to a 100 percent natural gas portfolio are numerous. Natural gas has a high level of price volatility, and when the fuel price shoots up, electricity prices are sure to follow soon. Residents of San Diego County have seen what happens when they put too much trust in natural gas. Natural gas also has other problems. It is a limited resource that is bound to become more difficult to obtain over time. It is also a fossil fuel that emits or creates many tons of pollutants annually, including lung-clogging particulates, nitrous oxides, corrosive ozone, as well as carbon dioxide and methane that are destabilizing the global climate.

The GEO portfolios are designed to meet all of these challenges, to cut pollutants dramatically, reduce reliance on fossil fuel, and serve as a hedge strategy against future price swings in natural gas. The GEOs provide three levels of capacity replacement relative to the current 700 megawatt power plants. The nominal capacity of the GEO options range between 500 megawatts and 970 megawatts, but this translates into a smaller equivalent capacity for the purposes of replacing the existing plant. This is because some renewable technologies, mainly wind power, only produce electricity part of the time. But the wind resource is given a boost relative to its otherwise intermittent nature, since one portion of the wind power is delivered to pump water uphill into a reservoir during the evening so it is available the next day to power generators when demand for electricity is high. Nearly all the rest of the portfolio's generation capacity is considered to be able to carry its weight in electrical system support, without any greater degree of help than other types of electrical generation routinely receive. This rating, called the Effective Load Carrying Capacity, is a product of the full capacity of the power generation equipment and the availability of the energy resource. In the case of wind, studies have shown that the *lowest* "carrying capacity" for actual major California wind farms is about 25 percent. We have been even more conservative, and assumed that only 20 percent would "count".

To confuse matters somewhat, yet another measure of reliable capacity is used by the state grid operator, the California ISO. This measure is exceedingly restrictive and actually has never established satisfactory rules for renewables like wind and solar power. With the increased legal mandate for renewable energy in the state, such rules will become increasingly necessary, and the ISO will not be able to ignore the contribution of renewables to the state's electric grid reliability, as they have in the past. This issue is not academic. During the 2000 to 2001 California "Energy Crisis", many commercial vendors of electricity took their conventional generators off-line. This caused serious problems that threatened grid stability, and resulted in greatly increased prices for their product. While these and other rather overt manipulations were going on, California's renewable generators continued to operate and they helped significantly to maintain the state's electric grid, and even to avoid blackouts. Thus, there is historical evidence, as well as ongoing demonstrated performance, to show how wind and solar power contribute greatly to the reliability of California's energy supply.

We established the size of the three green energy portfolios to meet 50%, 70% and 90% of the current South Bay Power Plant's capacity for supplying power during the hours of peak demand. Thus the portfolios are designed to meet the same needs and have similar functionality to the existing plant, though with a number of extended capabilities that the current plant does not have. For instance, the pumped storage plant can respond nearly instantly to changes in demand for electricity, a factor that can be critical during a power emergency. Other features will be described in this report. This report also shows how any capacity shortfalls can be replaced in other ways without resorting to adding new transmission lines leading out of the region.

A Range of Options

The GEO options contain a variety of portfolio elements, design sizes, and potential for siting of energy facilities, that allows for flexibility to meet different system needs and market conditions. There is really very little that is constrained about this portfolio, and in fact the GEO options show general strategies, as well as how to apply these strategies in very specific and practical ways. It is certainly possible to change these elements to respond to changes in the cost of renewables and of conventional power sources. Thus there is an adaptability that is completely lacking in the current plan to build another power plant on the same site as the existing power plant.

90% Replacement Option

Facility	MW	Est. Annual GWh
Wind Farm	400	1200
Pumped Water Storage Facility	150	420
Concentrating Solar Thermal Peaker with Natural Gas Backup	160	450
Natural Gas Peaker	220	620
Photovoltaics	20	30
Peak Demand Reduction	20	35
Transmission	---	---

RMR Replacement Target: 630 MW

Electricity Generation: 2220 GWh/year

Portfolio Average Peak Power Cost: 8.4-10.3 cents/kwh

70% Replacement Option

Facility	MW	Est. Annual GWh
Wind Farm	325	990
Pumped Water Storage Facility	90	250
Solar Thermal Concentrator Plant Powering a Peaker Plant with 30% Natural Gas Backup	160	450
Natural Gas Peaker	190	530
Photovoltaics	20	30
Peak Demand Reduction	20	35
Transmission	----	----

RMR Replacement Target: 490 MW

Electricity Generation: 1960 GWh/year

Portfolio Average Peak Power Cost: 8.3-10.4 cents/kwh

50% Replacement Option

Facility	MW	Est. Annual GWh
Wind Farm	150	460
Pumped Water Storage Facility	60	170
Solar Thermal Concentrator Plant Powering a Peaker Plant with 30% Natural Gas Backup	160	450
Natural Gas Peaker	90	250
Photovoltaics	20	30
Peak Demand Reduction	20	35
Transmission	----	----

RMR Replacement Target: 350 MW

Electricity Generation: 1170 GWh/year

Portfolio Average Peak Power Cost: 8.6-10.0 cents/kwh

Findings

The Green Energy Options (GEO) portfolios presented in this alternative energy plan are economically sound. The low-interest municipal bonds available to cities like Chula Vista can achieve significantly lower financing costs for renewable generation. Also, the largely fixed cost of the renewable GEO portfolios provides a hedge against substantial risk of increasing natural gas prices over the next 20 to 30 years.

The GEO Portfolios offer a number of benefits over a future commitment to a 100% natural gas-fired plant on the bay front. One benefit is cleaner air – the GEO portfolios would result in 60-80% lower emissions of particulate pollution and carbon dioxide every year when compared to a new "all natural gas" plant. Pursuing the GEO options would also get us firmly down the road of a more secure and sustainable energy future: they would produce more local jobs, decrease the region's over-reliance on natural gas, and keep more money in the local economy.

Community Choice Aggregation (CCA) is the best approach to eliminating the need for power generation on the South Bay. CCA would enable a full range of options, including transmission of power. If Chula Vista forms a CCA or builds a power generation facility, it may elect to obtain transmission services within or outside Chula Vista, by acquiring access to existing transmission capacity, arranging with SDG&E to provide transmission access, pursuant to Federal Energy Regulatory Commission (FERC) Order 888, or arranging to purchase transmission services from another party such as a tribal government. No option would require adding transmission lines leading outside the county, and all would make use of existing transmission pathways.

This Plan finds that the initiative would be best led by Chula Vista. Over the past four years, the City of Chula Vista has prepared extensively for the implementation of Community Choice Aggregation ("CCA") and/or development of a power generation facility. CCA would allow Chula Vista to find an alternative electricity supplier to SDG&E, and to decide what kinds of electricity to purchase. In addition, Chula Vista and a number of potential public partners may issue municipal revenue bonds ("H Bonds") to finance renewable energy and conservation facilities. These mechanisms are analyzed in this Plan.

The GEO Plan shows how CCA in conjunction with H Bonds can be used to develop a cost-effective, cleaner and more sustainable replacement of the South Bay Power Plant ("SBPP").

This report identifies several specific opportunities available to Chula Vista, allowing a variety of locally feasible technologies and partnerships. However, even if CCA is not pursued by Chula Vista, other governance structures and initiative options are available for the City to pursue some or all of the green energy options outlined in this report. Financial analysis of the energy options has been performed with this in mind, to demonstrate the cost of electricity by considering the portfolios as independent investments.

A critical facet of the GEO options is to include local power resources that require little or no transmission facilities to deliver the power to customers. Chula Vista and the San Diego County region offer opportunities to develop a variety of green energy resources. These opportunities

include solar energy, energy conservation, and cogeneration, in coordination with parties interested in participating in the development of the facilities and/or the purchase of power from such facilities. Where transmission of electricity is required, the GEO options have sought to insure that existing transmission corridors can be used, to avoid most of the expense and environmental impact of any new facilities. The GEO options are also designed to reduce the need for importing renewable power, and natural gas, from outside the county.

These proposals are more local in nature than the renewable power supply now being proposed by SDG&E for residents and businesses in its service territory. The options presented are financially feasible at competitive wholesale and retail prices, with either a CCA or a city-owned merchant facility, or both, being the structuring principle of the project.

Photovoltaics (PV) on Chula Vista rooftops, energy efficiency, demand response may be fundable with existing ratepayer revenue if a CCA is formed and would be facilitated by submitting a request to administer the funds to the California Public Utilities Commission.

Other distributed generation may be undertaken within the City under a CCA or a revenue bond funded ("H Bond") program, and Chula Vista may invest General Funds in renewable energy projects for non-CCA customers if the City wishes to operate the plant as a public enterprise. Because a range of project sizes may be necessary to eliminate or meet hundreds of megawatts of regional demand in order for the Independent System Operator (CAISO) to accept a downscaling of new power generation on the South Bay site, this report identifies several physically viable, legally developable and economically competitive green power facilities, estimates facility costs, schedules for payback and power pricing. The range of facility scales in each Scenario are also based on a variety of potential market and financing structures, including Community Choice Aggregation (CCA) the use of H Bonds, rebates for photovoltaics under the California Solar Initiative, and state funding for energy efficiency programs pursuant to the Community Choice law, AB117.

This report finds that a significant level of public sector investment is essential to replace any potential need for power at the South Bay site. The ability to eliminate or reduce the need for power generation at the South Bay Power Plant site depends on the municipality's degree of public investment, as well as investment by potential strategic partners in the region. This investment may be structured as a municipal enterprise using municipal bonds, and/or as a CCA to add even larger-scale private sector purchasing power to public financing.

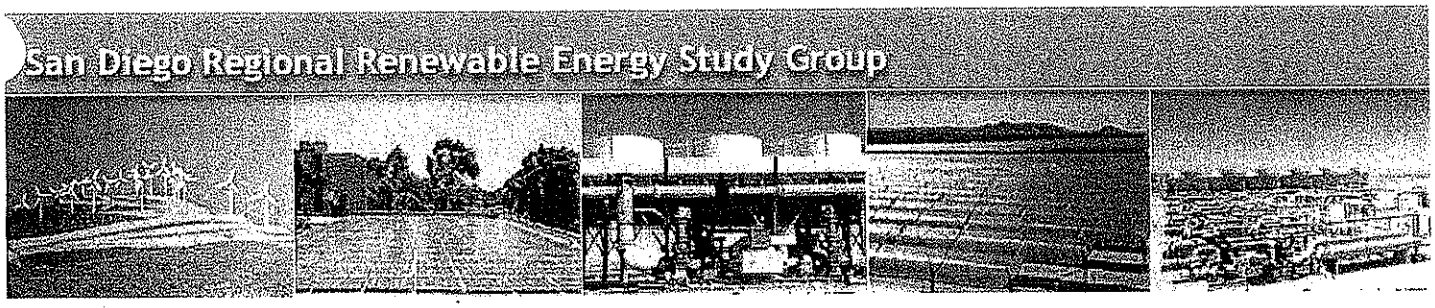
This report finds that a Chula Vista investment in renewable energy and conservation facilities involves a lower degree of municipal risk than investment in a 100% natural gas generation power plant, because of reduced exposure to the highly volatile price of natural gas. Fuel usually constitutes from 50% to 80% of the life cycle cost of a natural gas-fired power plant. This Plan identifies benefits from the GEO portfolios, including:

- Profits realized from renewable energy or conservation facilities, could benefit taxpayers by contributing funds to the City of Chula Vista General Fund
- Should the City initiate a Community Choice Aggregation (CCA) the portfolios can be used as insurance to protect the ratepayers from escalating electricity prices

- Renewable and conservation facility assets will retain their market value and generate revenue after H Bonds or other financing are repaid, in some cases for decades, offering both returns on public investment and very low cost energy for local government, residents and businesses.

This Plan finds that the GEO Portfolios are consistent with existing local, state and federal policy, regulations and law, and meet the stated project objectives in the AFC for the South Bay Replacement Project:

- Commercially viable and capable of supplying economical electrical services – capacity, reliability, ancillary services, and energy supply – to the San Diego Region.
- Capable of ensuring the timely removal of the existing South Bay Power Plant and that fulfills the obligation found in Article 7.1.a of the Cooperation agreement, which states, "use commercially reasonable efforts to develop, finance, construct and place into commercial operation a new generation plant replacing the South Bay Power Plant...which shall have a generating capability at lease (sic) sufficient to cause the ISO to terminate (or fail to renew) the must run designation application to the South Bay Power Plant on or before termination of the lease" and upon which the size of replacement power is based.
- Meets applicable laws, ordinances, regulations, and standard (LORS) of the California energy Commission, Chula Vista, the Unified Port of San Diego and other agencies, and complies with the Applicant's Environmental Policy
- Consistent with the objects, guidelines and timing goals of the emerging Bay Front Master Plan.
- Assists in maintaining and/or increasing the regional electrical systems' efficiency and reliability.
- Supports implementation of the state-mandated 20 percent Renewable Portfolio Standard (RPS) requirements for renewable energy.



Potential for Renewable Energy in the San Diego Region
August 2005

Executive Summary

For Full Report

http://www.renewablesg.org/

Chapter 1: Executive Summary

The results of a collaborative, 18-month study by a group of local energy experts confirm that there is significant technical potential in the Region for development of several types of renewable energy sources. This conclusion is supported by a rigorous technical examination of data and can be the foundation of the Region's renewable energy policy and implementation strategies. The participants and methodology of this study are discussed in the Preface.

Although the actual amount and pace of development of renewable energy resources will be determined by factors such as cost, incentives, regulatory policy, economics, and individual customer decisions, the message of this report is clear. Technical potential exists to serve a substantial amount of the Region's capacity and energy needs with renewable power. The approximate locations for major renewable resources in the Region are illustrated in Figure 1.1.

Technical potential exists to serve a substantial amount of the Region's capacity and energy needs with renewable power.

Figure 1.1: Approximate Locations for Major Renewable Resources in the Region

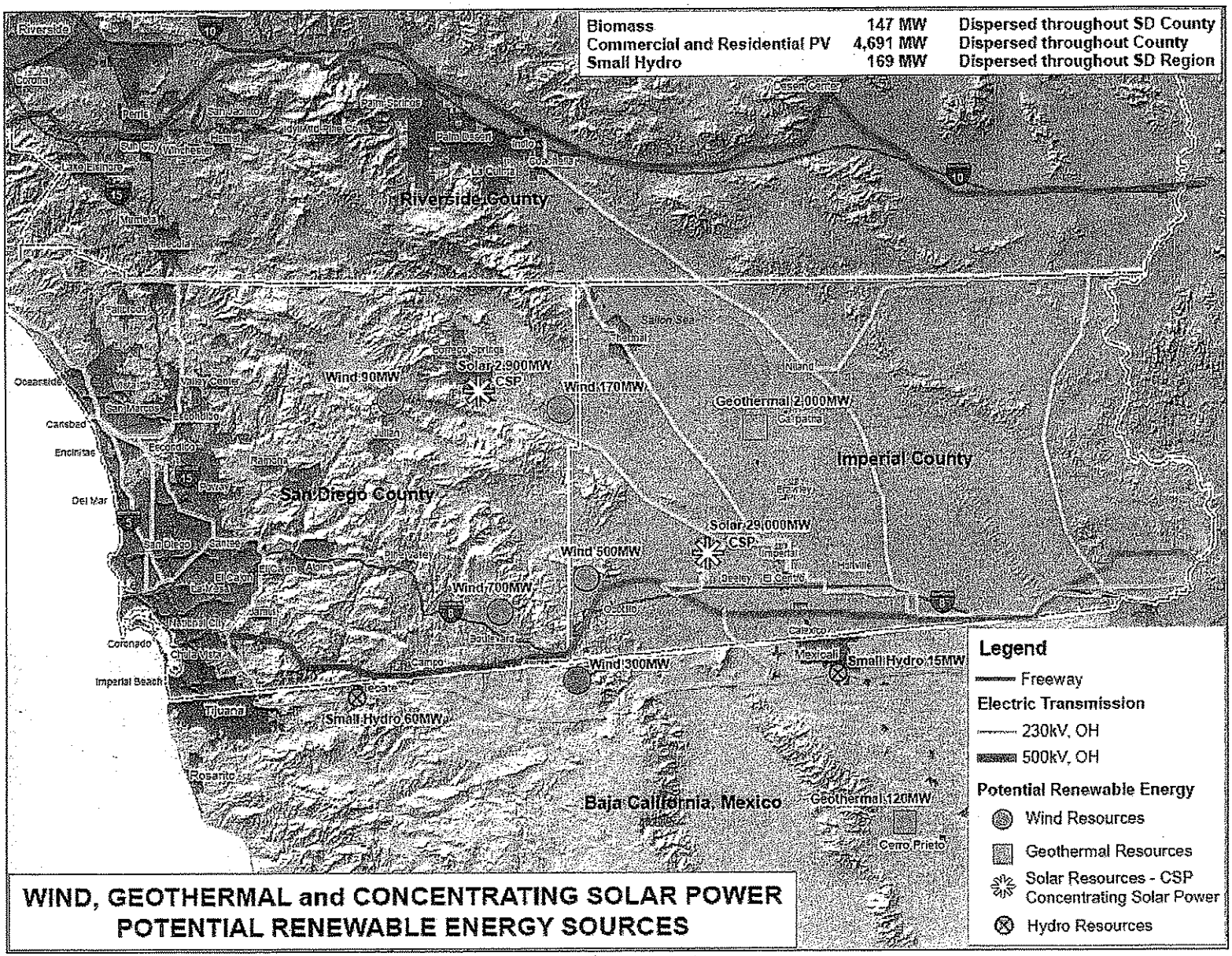


Table 1.1 summarizes renewable resources that are deployed in the Region in 2005. Table 1.2 summarizes the technical potential for renewable resources in 2020. That table includes both existing and developable resources.

As a point of reference, the system peak demand for 2004 was 4,065 MW, and total energy requirements in the Region were 20,578 GWh. These figures include customers served by SDG&E, as well as other energy providers.

The Study Group used a multi-step process to determine a resource's technical potential, beginning with an estimate of the gross, or maximum, amount of a given resource available to the Region. For example, the amount of solar energy falling on the Region was determined using solar insolation data obtained from the California Department of Water Resource's California Irrigation Management Information System (CIMIS), and the amount of wind energy potentially available for harvest was based on data from the California Energy Commission.

The next step involved applying a series of "screens" or filters to the available data to derive the technical potential for renewable energy in the Region. These refinements represent a significant advance in the state of analysis and knowledge for our Region and are described in detail in each chapter. As examples, a summary of the approaches for solar and wind resources is presented below.

To determine the technical potential for residential solar electric, estimates of solar insolation were screened through data and forecasts of available single and multi-family dwelling units from the San Diego Association of Government's (SANDAG) database, estimates of available residential rooftop area per dwelling, average roof size, amount of roof available for a photovoltaic installation, roof orientation, shading, and pitch.

Technical potential for commercial solar was determined through a GIS-based study that used satellite images to digitize all large buildings (roof area over 3,000 square feet), including industrial, commercial, educational, hospital, and hotel spaces in the City of San Diego. These rooftops were then analyzed to provide estimates of their likely available roof space for photovoltaic equipment. Estimates of average output per square foot were then applied to derive technical potential. Figures for the remainder of San Diego County were derived by calculating the ratio of total useable roof area in the City of San Diego to its total usable land (roughly 12 percent), and the applying that ratio (rounded down to 10 percent for simplicity) to the total usable land in the County outside of the City of San Diego.

Solar technical potential for both residential and commercial sectors was further refined by deriving its on-peak capacity using hourly energy output shapes from existing solar installations in the Region. Along with the solar contribution to overall energy production, this on-peak component adds value to the Region's electric infrastructure at times of peak system demand.

Table 1.1: Renewable Resources Deployed in the Region in 2005

SOLAR PV - Commercial and Residential			SOLAR - Concentrating Solar Power (CSP)			WIND	
	Capacity (MW AC)	Energy (GWh)		Capacity (MW AC)	Energy (GWh)	Capacity (MW)	Energy (GWh)
SD County	12.6	27.3	SD County	0	0	SD County & Parts of Imperial County and Northern Baja California, Mexico	
			Imperial County	0	0	0	0

BIOMASS (SD County)			SMALL HYDRO			GEOTHERMAL		
	Capacity (MW)	Energy (GWh)		Capacity (MW)	Energy (GWh)		Capacity (MW)	Energy (GWh)
Landfill Gas	18	126	SD County	8.32	15	Imperial County	537	4,700
Other Biomass	0	0	Imperial County	86.5	152	Northern Baja CA, Mexico	720	5,000

Table 1.2: Region's Renewable Energy Technical Potential in 2020

SOLAR PV - Commercial and Residential			SOLAR - Concentrating Solar Power (CSP)			WIND	
	Capacity (MW AC)	Energy (GWh)		Capacity (MW AC)	Energy (GWh)	Capacity (MW)	Energy (GWh)
SD County	4,691	10,224	SD County	2,900	5,080	SD County & Parts of Imperial County and Northern Baja California, Mexico	
			Imperial County	29,000	50,808	1,650 - 1,830	4,530 - 5,020

BIOMASS (SD County)			SMALL HYDRO			GEOTHERMAL		
	Capacity (MW)	Energy (GWh)		Capacity (MW)	Energy (GWh)		Capacity (MW)	Energy (GWh)
Landfill Gas	72	505	SD County	8.32	15	Imperial County	2,500	22,000
Other Biomass	75	525	Imperial County	86.5	152			
			Northern Baja CA, Mexico	75	131	Northern Baja CA, Mexico	840	6,000

Concentrating Solar Power (CSP) was estimated by the National Renewable Energy Laboratory (a major contributor to the Study Group) using data and information available from national sources as well as specific performance from the nearby CSP units[1] serving Southern California Edison. Filters were applied to derive technical potential from the overall available solar insolation in the Borrego Springs and Imperial County regions. These include estimates of land availability, ownership, current use, and slope, as well as prevailing state and federal incentives.

This report provides a starting point for the next logical steps in renewable energy development for the San Diego region, including policy formulation and implementation.

Technical potential for wind was determined through a two-step process. First, GIS information was used to identify all sites with wind speeds of Class 4 or higher that are not located in national parks and monuments, state parks and recreation areas, on Bureau of Land Management Wilderness or Wilderness Study Areas, on bodies of water, on grades steeper than 14 percent, in urban areas or other hard to access areas such as mountaintops. Analysis of the technical potential for the remaining high-promise areas was conducted using a state-of-the art analytical methodology developed for this study. This model takes into account wind speed frequency distribution, direction, terrain roughness, availability factors, wind turbine hub diameter, rotor diameter, and power curves using a representative turbine selected to optimize annual energy output rather than peak power output or capacity factor. Other variables accounted for include aerodynamic turbulence, rotor diameters, and losses due to the Park Effect.[2] As with solar resources, data were developed showing the seasonable and hourly availability of wind resources to enable consideration of wind's fit with the Region's overall and on-peak capacity and energy requirement.

The large-scale renewable technologies (in particular concentrating solar, wind, and geothermal) will require adequate transmission infrastructure to bring their benefits to all customers on the grid. While ability to deliver resources to load is a key driver of the technology's ultimate development, the Study Group did not use transmission availability as a constraint in its assessments of technical potential. Decisions regarding transmission and many other key drivers are part of the next step: bringing these technologies to market.

The Study Group believes that this report provides a starting point for the next logical steps in renewable energy development for the San Diego region, including policy formulation and implementation. The Study Group looks forward to a thorough discussion of the current report, possible refinements, expansion of the report as new perspectives and information emerge, and completion of work for the remaining study/resource areas.

[1] These units are located at Kramer Junction, CA.
[2] The Park Effect creates losses or decreases in electrical production due to aerodynamic turbulence created by the wake of the rotors in a wind farm with multiple wind turbines.

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May 2, 2007

Secretary Linda Adams
California Environmental Protection Agency
1001 I Street
Sacramento, CA 95812

Chairman Robert J. Sawyer
Air Resources Board
1001 I Street
Sacramento, CA 95812

RE: ENVIRONMENTAL HEALTH COALTION COMMENTS ON AB32 EARLY ACTIONS

Dear Secretary Adams and Chairman Sawyer:

Environmental Health Coalition is a 27-year old environmental justice organization working to protect public health in the environment in the San Diego/Tijuana region. EHC serves on the AB32 Environmental Justice Advisory Committee and as a member has a keen interest in the early action measures adopted by the Air Resources Board (ARB). We are hopeful about the promise they provide to help alleviate some of the worst sources of air pollution that often impact our environmental justice neighborhoods and to arrest the devastating impacts of global climate change.

EHC testified at the second Early Actions workshop in order to alert the ARB to a major source of greenhouse gases that need action early attention. According to the CEC, aging power plants constitute 22 million tons a year of CO2 or 6% of the state's global climate change emissions[1]. These aging power plants such as South Bay Power Plant in Chula Vista on San Diego Bay are begging for an early regulatory action from ARB to reduce greenhouse gases and improve community health and to set us on a new path to meet our energy needs. These old plants need to be phased out.

To understand our position, some background may be helpful. For over 40 years the community downwind of the SBPP has endured the burden of a facility that serves the

[1] Resource, Reliability and Environmental Concerns of Aging Power Plant Operations and Retirement, Draft Staff White Paper, CEC, August 13, 2004, 100-04-005D, Table 6-2, p. 74

energy needs of a broader region. The downwind community suffering the impacts is 77% Latino and 21% of the residents closest to the plant live below the federal poverty level. The presence of the SBPP has frustrated attempts for economic development in our South Bay region for decades. Too expensive and inefficient to be used as a baseload plant, it continues to operate as a large peaking plant.

While we understand that rules developed under SB1368 did address some interim ghg measures for baseload power plants seeking long-term contracts, there are significant old polluters falling through the cracks. In the case of SBPP, the power plant, constructed in 1960, has heat rates in some units as high as 12,000 (btu/kwh) and is a major polluter of our community.

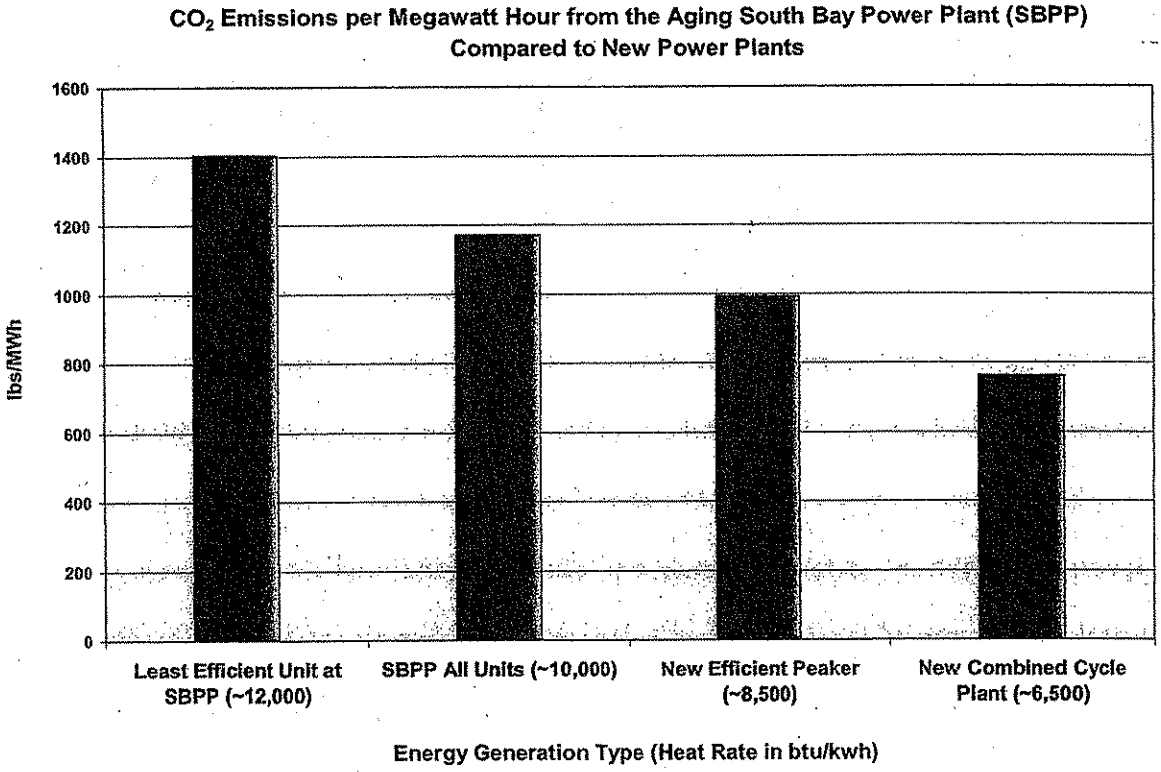
But, since the SBPP does not have a long-term contract of 5 years or more, it is not covered under SB 1368. In spite of virtually unanimous community and elected official support for getting rid of the power plant, it appears that the current rules and regulations continue to conspire against our local and global interests and threaten to keep the plant operating-or available to operate- into the future. To avoid this continued reliance on it, we need a phase out plan by 2010.

We believe that there are two primary reasons that this plant may continue to exist in our community, **even if we build replacement generation.** The first is the continued RMR designation by ISO and the second is the ability of some of this old plant to burn fuel oil in addition to natural gas, or its 'dual fuel' capability.

We wish to stress the point that this highly inefficient, greenhouse gas emitting plant is in danger of remaining available for use even if replacement generation is constructed. We have two of these obsolete power plants and even though we have brought over 700 MW of new generation on-line in the last few years, not one MW of RMR has been removed from the old plants. Even though another 560 MW base load power plant, Otay Mesa Generating Station, is permitted, contracted and will go on –line in 2009, ISO will not commit to reductions in RMR on the old SBPP.

An Early Action measure by ARB is necessary to improve and reduce emissions of these plants and set them on a clear course for phase out. As part of AB 32, ARB is responsible for developing early actions to reduce greenhouse gas emissions and we think these plants are good candidates. Today we are offering a set of three proposals for these Early Actions we are requesting CARB to adopt that we believe will result in significant CO_2 reductions consistent with the protection of community health. Like the Department of Water Resources proposed cancellation of the Reid-Gardener coal-fired power plant contract, these actions will accomplish the desired phase out of the oldest power plants by 2010.

Our first proposal, recommends establishing a permitting system to limit, and gradually phase out, the emission of carbon dioxide by plants rated over 100 MW and built prior to 1980. Regulating and reducing carbon dioxide (CO_2) emissions through this permit system is consistent with ARB responsibilities under AB 32 and ARB is the right agency to do it. Under our concept, these plants would be given until 2010 to bring their emissions down to a level equivalent to the 2007 cleanest combined cycle plant operating at a heat rate of around 6500[2]. There would be **a scaled and planned annual reduction** in the limit between 2007 and 2010. If the plant could not meet the interim and final limits, it would have to stop operating. Below, you can see the reductions in CO2 that could be achieve just at the SBPP.



Sources: Heat rate of the South Bay Power Plant from CA Energy Comission *Resource, Reliability, and Environmental Concerns of Aging Power Plants* August 13, 2004 100-01-005D. Heat rates for new generation from General Electric Gas Turbine and Combined Cycle Products Brochure. New efficient peaker assumed to use LM 6000 trubines. New CC plant assumed to use FA class turbines.

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Our second proposal is that CARB prohibit the burning of fuel oil by base load plants over 100 MW and built before 1980. The burning of fuel oil greatly increases the health risks and pollutant loading from a power plant in the downwind community.

Our third proposal is preventative in nature and has to do with the fact that many of the new power plant proposals that have come forward with the inclusion of duct-firing. . While duct-firing makes more money for the plant owner in the peak periods

[2] New efficient combined cycle assumed to us FA class turbines.

when the peaking capability is used, it creates a less efficient power plant overall. It makes common sense that we should strive to make our base load generation as efficient as possible and duct-firing reduces efficiency in plants. So, we also suggest that ARB prohibit duct-firing on large base load plants over a certain size as an early action. If peaking capacity is needed in that location, we believe that it is a more efficient use of resources to construct a peaker in the same location.

ARB has the authority and responsibility to do this. These old power plants were never originally permitted by CEC. They are currently permitted by the state air permitting structure. Further, the Supreme Court recently ruled that you have the ability to regulate this air pollutant in our state. In *Massachusetts v. EPA* (2007), the court found that a state had the right to go to court to force the federal government to act on global warming and that the federal government, acting through the EPA has appeared to have "abdicated its responsibility under the Clean Air Act to regulate [greenhouse gas emissions]."

Therefore, in light of the court's decision, it is appropriate for the states to act and no longer depend on the federal government to fight this battle for us. It is imperative for ARB, as the air pollution control authority of the California state government, do its part to fight global warming through eliminating inefficient sources of greenhouse gas emissions. These old power plants are the perfect place to start.

We fully understand and agree that the energy these aging units generate needs to be replaced, but we have more options now. It is no longer pie-in-the-sky to look to cleaner, more sustainable ways to replace this old climate changing energy production. EHC recently released a report by Local Power on the feasibility of replacing the energy from the South Bay Power Plant with cleaner energy sources. Such options would significantly reduce pollution as much as 80%, improve air quality, create more jobs and provide energy that is more secure for the region. Other means, such as upgrades to the existing transmission grid, potential to use landfill methane to 'firm up' renewable generation, fuel cell and solar tracking peakers, and appropriately sited, efficient natural gas generation can all be part of the solution.

But first, we must stop the reliance on the use of the most inefficient use of natural gas to meet our peak demand which is happening now. We need ARB's help to press for more efficient and non-climate warming means to meet our peak and maximizing energy efficiency as a way to reduce the peak demand. Again, a 50- year old power plant should not be what we rely on beyond 2010.

We encourage the ARB to think of these recommendations as the basis of a paradigm shift. We will never get serious about cleaner more secure energy options as

long as we continue to rely on these old polluters. They served us well, but their time is up. We are asking you to take early action to put us on a new path.

Thank you for your attention to this issue and your consideration of our request. Please contact me or Laura Hunter with any questions at (619) 474-0220.

Sincerely,

Diane Takvorian

Diane Takvorian, Executive Director, Environmental Health Coalition
Member, AB32 Environmental Justice Advisory Committee

Environmental Health Coalition CARB Early Actions Proposals for Aging Power Plants

Based on AB 32, the California Air Resources Board is responsible for developing early actions to reduce greenhouse gas emissions. The following are a set of three proposals for these early actions EHC is requesting CARB to adopt. We believe these will result in significant CO_2 reductions consistent with the protection of community health.

1) **CARB shall establish the Early Action Carbon Dioxide Permit system for aging power plants.**
   a. CARB will be responsible for the issuance of permits limiting the emission of carbon dioxide by electricity generating power plants rated over 100 megawatts and built prior to 1980 for the purposes of regulating and reducing carbon dioxide (CO_2) emissions as stated in AB 32.
   b. In granting CO_2 permits for power plants, CARB must establish emission limits for CO_2 based on estimated CO_2 emissions per megawatt hour from state of the art natural gas turbine power plant built in CA in the year 2007.
   c. By 2010, all power plants of 100 megawatts or more must emit no more carbon dioxide per megawatt hour than the most efficient 2007 natural gas fired power plant of 100 megawatts or more.
      i. Power plants that fail to meet that standard in 2010 would not receive a Carbon Dioxide Permit from CARB.
      ii. No power plant of 100 megawatts or more would be allowed to operate in California without a Carbon Dioxide Permit from CARB.
   d. During the years between the adoption of this Early Action Carbon Dioxide Permit system and the enforcement of the 2010 standard the affected power plants are expected to decrease their carbon dioxide emissions in preparation for the establishment of final carbon dioxide standards in 2010 in the following manner:
      i. In 2007, the power plants may emit carbon dioxide equal to their 2006 levels.
      ii. In 2008, the power plants are required to emit at least 1/3 less CO2 than the difference between their 2007 CO_2 emissions and the 2010 standard.
      iii. In 2009, the power plants is required to emit at least 2/3 less CO2 than the difference between their 2007 CO_2 emissions and the 2010 standard.
      iv. The 2010, the power plants' carbon dioxide emissions must be equal to or less than the carbon dioxide emissions per megawatt hour of California's most efficient power plants built in 2007 that are rated of 100 megawatts or more estimated to be operating at 6,500 btu/kwh.
   e. CARB must communicate to California Independent Systems Operator (CAISO) that CARB will not allow any waiver or exception of these standards.
      i. CAISO will be alerted that it may not use Reliability Must Run (RMR) designations in order to keep power plants that are not conforming to the carbon dioxide standards as stated above and as consistent with current ISO policy of requiring compliance with environmental rules.
      ii. CARB's granting and revocation of Carbon Dioxide permits shall not be affected by any CAISO designation of the affected power plants at any time.

2) **The prohibition of fuel oil burning by base load electricity generating plants over 100 MW and built before 1980.**

3) **The prohibition of duct-firing of base load electricity generating plants in California.**