



November 27, 2002

Ms. Irene Stillings
Executive Director
San Diego Regional Energy Office
8520 Tech Way, Suite 110
San Diego, CA 92123

**Re: Environmental Health Coalition's Comments to the San Diego
Regional Energy Infrastructure Study**

Dear Ms. Stillings:

We file these comments on behalf of Environmental Health Coalition ("EHC"), its members, and the communities we represent throughout the San Diego/Tijuana region.

EHC applauds the San Diego Regional Energy Office, Utility Consumers Action Network, County of San Diego, City of San Diego, San Diego County Water Authority, San Diego Association of Governments, and Port of San Diego (the "Project Team") for taking the first important steps to plan and prepare for San Diego's future energy needs.

A Need for a Sound Regional Energy Strategy

In the wake of the energy crisis of 2000-2001, it was clear that the lack of a sound energy strategy in the region allowed energy companies to grossly manipulate energy supply and prices to their economic advantage. On top of excessive profits drained from the pockets of ratepayers and taxpayers, the energy crisis imposed costs on the environment and public health. Polluting peaker plants were fast-tracked and allowed to run in violation of their permits, existing plants were allowed to exceed air emission limits and threatened to exceed their water discharge limits, and we deepened our dependence on natural gas, a non-renewable resource subject to price and supply volatility.

Learning from our past mistakes, we now have an excellent opportunity to forge a brighter energy future. EHC believes that the economic and environmental turmoil that was made evident by the energy crisis call for an aggressive movement towards energy

efficiency and renewables. Economically, energy efficiency and renewables prevent an over-reliance on natural gas and energy imports, create more jobs, and keep energy dollars in our local economy. From an environmental and public health standpoint, efficiency and renewables are vital for reducing air and water pollution, and managing the risks posed by global warming. Finally, we believe it is crucial that the region move towards energy independence and security by minimizing the importation of energy from outside the region (unless it is a renewable resource) and ending the exportation of locally-created energy.

This letter will first begin by outlining EHC's policy recommendations for the Regional Energy Strategy ("RES"). Next the letter will list the key findings and recommendations made in the San Diego Regional Energy Infrastructure Study (the "Study") that EHC agrees with. Finally, the letter will outline EHC specific recommendations for strengthening the Study. Attached to the cover letter, you will find a more detailed discussion of our specific recommendations.

EHC's Policy Recommendations for a Regional Energy Strategy

As we move toward development of RES for the San Diego region, EHC believes the following recommendations should guide that strategy:

- All energy decisions must include an evaluation of the decision's environmental justice impacts.
- All energy decisions must be evaluated with a high priority on the meaningful inclusion of all communities. REPAC should initiate a series of workshops in conjunction with community grassroots and assistance organizations.
- Aggressive investment in solar power, energy efficiency, and other renewables should be the highest priority for the region.
- A wide range of alternatives sources and sites should be evaluated when determining the need and location for new or replacement power generation.
- All energy decisions must be made to ensure that we meet our local energy demand with local energy generation.
- All energy decisions must not develop an infrastructure that would allow our communities to bear the burden of energy production while exporting all of the energy elsewhere.
- The San Diego region should refuse power from companies that do not fully meet federal environmental laws and should refuse all energy transmission through its territories for sale elsewhere.

- Plants that are repowered should be repowered in a manner that ensures significantly less impact on human health and the environment, and includes provisions that expand our region's energy efficiency and renewable energy capabilities.
- “Must Run” status must only be placed on the most efficient plants, not on plants that operate with low efficiency.
- SONGS should be assumed to be closed at the end of the license period and the location should be considered for new significant, dry-cooled power plant development.
- If a regional energy entity is created, it must be democratically operated with Board members highly accountable to the public. It is important to clearly define what the region’s energy strategy is first, before discussing the purpose, powers, and function of a proposed entity to implement the strategy.
- The San Diego region should fully fund and expand weatherization energy efficiency programs such as the programs organized by the Metropolitan Area Advisory Committee (MAAC) and Campesinos Unidos.
- As our region moves toward clean, renewable energy resources, we should promote a "just transition" for workers employed in the energy sector by supporting training programs for renewable energy jobs. A model for such programs is one created by the International Brotherhood of Electrical Workers, that teaches electrical workers how to install and repair solar photovoltaic panels.

EHC Support for Key Findings of the Study

EHC agrees with some of the key findings supported by the San Diego Regional Energy Infrastructure Study (the “Study”). First, we agree that if San Diego does not restructure its energy capability into a sustainable model, the region is likely to face higher electric prices and reliability problems. Second, we agree with the finding that the region could deepen its dependence on natural gas for most of its energy needs if we do not aggressively diversify with cleaner, safer energy sources. In light of these two important findings, we strongly support the finding that San Diego will have to diversify our energy sources and invest more in energy efficiency and renewables.

EHC Support for Recommendations of the Study

EHC agrees with some of the Study’s short-, mid-, and long-term recommendations for San Diego’s energy future. We support the recommendations that our region should:

- aggressively promote energy efficiency and renewables to secure an economically and environmentally sustainable energy future for the region and to reduce our region's contribution to global climate change;
- coordinate with Mexico on regional energy infrastructure issues;
- prioritize the completion of the Otay Mesa power plant;
- position itself as the "Silicon Valley" of advanced clean energy technology development firms, especially those in the wind and photovoltaic markets;
- ensure that public benefit charges paid to the utilities are used for programs that are in the public interest and protect environmental quality; and
- vigorously promote time-of-use pricing, and maximize the benefit of resources that reduce peak demand.

EHC's Specific Recommendations for Strengthening the Study

While the Study provides much valuable information on our region's energy infrastructure and potential, it is our hope that the Study will present the Regional Planning Advisory Committee ("REPAC") and public with the necessary facts and statistics to develop the recipe for a RES. Unfortunately, we believe the Study is missing some key "ingredients," that include important issues of public interest and concern. These issues are outlined below and further discussed in the more detailed attachment that accompanies this letter.

1. Environmental and Public Health Impacts of Energy

- Environmental Justice: The Study fails to consider the environmental justice impacts of energy production and transmission. We are concerned that the press to build power plants to offset our region's energy demand will disproportionately impact and burden low-income communities and people of color. It is important that no group of people should bear a disproportionate share of negative environmental impacts. The Study should recommend that any energy strategy consider environmental justice impacts.
- Air Quality and Public Health Impacts: The Study does not adequately describe the impacts of fossil-fuel based energy production and transmission on air quality and public health. Even the cleanest burning natural gas power plants have significant localized impacts on air quality and contribute to regional air quality problems, polluting the air with significant quantities of particulate matter (PM), nitrogen oxides (NO_x), other criteria pollutants, as well as toxic air contaminants (TACs). PM₁₀ aggravates and may cause asthma and other respiratory illnesses

and has been linked to premature death among the sick and elderly. NO_x is the primary precursor to ozone, a known cause of asthma, reduced lung development in children, and other adverse health impacts.

Air quality impacts are of particular concern for plants located in or near population centers. The South Bay Power Plant, for example, emits 1,600 pounds a day of PM and 6,200 pounds a day of NO_x at peak generation and is located within two miles from the nearest home. In the city of Chula Vista, which is located directly downwind of the plant, hospitalization rates for childhood asthma are 23 percent above the county average. Furthermore, San Diego is in a non-attainment of the federal ozone standard and exceeds state and federal standards for PM₁₀. The Study should alert decision makers and the public of the public health ramifications of San Diego's energy choices.

- Water Quality: The Study does not contain a full analysis of impacts of existing energy generation on our water resources. For example, three of the largest generators, SONGS, Cabrillo, and South Bay Power Plant all use massive amounts of biologically rich coastal waters to cool their plants. Although the Study does reference a problem with the South Bay Power Plant, it does not adequately raise water quality issues for any of the other proposals. Furthermore, the Study's policy recommendations fail to offer available remedies for this problem.
- Best Available Technology for Power Plant Cooling: The Study does not recognize dry cooling as an alternative to bay cooling technology for existing power plants. It is widely recognized that dry cooling is a preferred alternative to bay cooling technology, as it does not adversely impact coastal and estuary areas. In fact, the California Energy Commission staff has recommended dry cooling over bay cooling for plants. Dry cooling is advantageous because it allows a plant to be sited in the least damaging location for human health and the environment. The Study should list dry cooling as a preferred plant cooling technology.
- Non-Market Costs: The Study does not consider the non-market costs of energy production and transmission on public health and the environment. The REIS should at minimum *qualitatively* list costs associated with different energy production strategies. Where applicable, the REIS should also present well-documented *quantitative* costs associated with energy production that may help the public and decisionmakers understand the external costs associated with our energy choices.
- Cross-Border Pollution: The Study notes the importance of energy production in the Baja California region, but does not consider the cross-border impacts of power plants. EHC believes that any energy production in Mexico for consumers in California must adhere to the highest standards of United States environmental regulations, must comply with Mexican and international labor rights standards, and must follow comprehensive and community-approved plans to protect

affected communities in Mexico from the risk of accidents and other potential hazards involving water, soil and air contamination. Furthermore, any power plants in Mexico that supply California consumers must fully compensate Baja California state and municipal governments with resources to meet new needs resulting from the impact of increased truck and ship traffic through the region, the development of new workers' settlements near power plants, and other impacts that governmental bodies and communities identify.

- Coal-Burning Plants: The Study cites the possibility of furthering dependence on coal burning plants in the western states region going into 2020. EHC strongly opposes such a step backward due to the destruction to human health and the environment caused by coal-fired energy production.
- Global Warming: We appreciate the Study's recommendation to link local energy development decisions to a strategy to reduce our region's contribution to the risks of global climate change. We feel this recommendation, however, would be strengthened by a discussion of the effects of energy production and use on global warming, with a particular emphasis on reducing the emissions of greenhouse gases.

2. Public Involvement and Education

- The Study lists “more public involvement” as one of the crucial issues of concern for key stakeholder groups and leaders. We believe that public participation, as early as possible, is crucial for providing the necessary momentum and public support for elected officials and agencies to implement any regional energy strategy. To this point, however, all communities that will be affected have not been adequately involved.
- Baja California/Tijuana, Mexico Region: The Study does not consider the impacts of the region's energy on the people of Tijuana and Baja California. The study must be available for review and comments to people in both areas. As a result, EHC recommends that the study must be published in Spanish with public meetings held in Tijuana and Baja California for people to have the opportunity to participate appropriately.

3. Renewable and Distributed Generation (“DG”) Energy

- Polluting and Non-Polluting DG Technologies: The study's findings and recommendations should separately describe the potential for non-renewable and renewable DG resources because of the different environmental and economic impacts associated with pursuing renewable versus non-renewable DG technologies.
- Clear Distinction Between Impacts from Different DG Technologies: The distinct economic, environmental, and public health impacts associated with the particular

technologies used for DG should be outlined more clearly in the study. In particular, the Study should consider the fact that fossil-fuel-based DG technologies often emit pollution near population centers at or close to ground level, where emissions may do more damage to human health.

4. Energy Efficiency

- The Study should more clearly outline the assumptions used for estimating potential for energy efficiency measures to control energy demand in our region.

5. Natural Gas

- Natural Gas as a Transitional Technology, not a Dangerous Detour: The Study fails to clearly state that natural gas, a non-renewable resource, should only be used as a transitional technology in the region. For many years, natural gas power plants have been touted as a cleaner fossil fuel source that can serve as a "transitional" technology on the path to widespread deployment of clean, renewable energy sources. We are at risk of getting onto a "dangerous detour" by deepening our over-dependence on natural gas through the Study's proposal to import Liquefied Natural Gas (LNG) to our region and utilize energy from LNG plants along the border.

6. Emphasizing Solar Power and Energy Efficiency Strategies that Reduce Peak Demand

- EHC appreciates that the Study describes the benefits of strategies that are targeted specifically at addressing our region's peak electricity demand. The potential for strategies such as time-of-use pricing, demand response programs, and solar power to provide capacity at times of peak demand is an important point that should be more explicitly stated in the Study's findings and recommendations.

7. United States Military:

- The Study states that the military is the largest energy user in the region. No further descriptions, however, of their use or generation can be found in the Study. The Study should fully analyze the use, generation, projections, and opportunities for clean generation and conservation for the military in the region.

8. Exporting Sustainable Energy Solutions, Not Problems

- The proposed development of a structure to import LNG from Indonesia, Bolivia, or other sources abroad, and construct deep port facilities, LNG conversion plants, and trans-shipment systems in Baja California to serve the United States market for energy will have a major impact on the Baja California region. EHC is concerned that the project will adversely affect local communities' health and

welfare in Baja California, as well as in LNG source communities. EHC believes that less damaging and more sustainable energy options must be developed and presented as options to the affected communities.

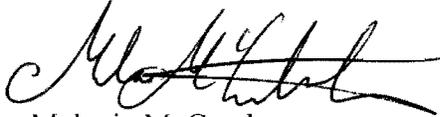
Conclusion

EHC appreciates the opportunity to comment on this important and historic study. We look forward to working with REPAC to effectively plan our region's energy future. In particular, we encourage REPAC to involve the public, impacted communities in particular, in all stages of this process and at every level of decisionmaking. If you need more information regarding the comments, please do not hesitate to contact us.

Sincerely,



Albert Huang,
Policy Advocate
Clean Bay Campaign



Melanie McCutchan,
Research Associate

cc: REPAC
City Council of San Diego
City Council of Chula Vista
San Diego Bay Council
South Bay Greens
South Bay Forum

Senator Barbara Boxer
Congressman Bob Fillner
Congresswoman Susan Davis
Supervisor Greg Cox, City of San Diego
Supervisor Ron Roberts, City of San Diego
International Brotherhood of Electrical
Workers (IBEW)



ATTACHMENT TO EHC COVER LETTER

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I. EHC's Policy Recommendations for a Regional Energy Strategy

As we move toward development of a Regional Energy Strategy for the San Diego region, EHC believes the following recommendations should guide that strategy:

- All energy decisions must be evaluated with a high priority on the meaningful inclusion of all communities and environmental justice impacts. REPAC should initiate a series of workshops in conjunction with community grassroots and assistance organizations.
- Aggressive investment in solar power, energy efficiency, and other renewables should be the highest priority for the region.
- A wide range of alternative sources and sites should be evaluated when determining the need and location for new or replacement power generation.
- All energy decisions must be made to ensure that we meet our local energy demand with local energy generation and that we do not develop infrastructure that would allow our communities to be exploited in the future.
- The San Diego region should refuse power from companies that do not fully meet federal environmental laws and should refuse all energy transmission through its territories for sale elsewhere.
- Plants that are repowered should be repowered in a manner that ensures significantly less impact on human health and the environment, and includes provisions that expand our region's energy efficiency and renewable energy capabilities.
- "Must Run" status must only be placed on the most efficient plants, not on plants that operate with low efficiency.
- SONGS should be assumed to be closed at the end of the license period and the location should be considered for new significant, dry-cooled power plant development.
- If a regional energy entity is created, it must be democratically operated with Board members highly accountable to the public. It is important to clearly define what the region's energy strategy is first, before discussing the purpose, powers, and function of a proposed entity to implement the strategy.
- The San Diego region should fully fund and expand weatherization energy efficiency programs such as the programs organized by the Metropolitan Area Advisory Committee (MAAC) and Campesinos Unidos.
- As our region moves toward clean, renewable energy resources, we should promote a "just transition" for people employed in the conventional energy

supporting training programs for renewable energy jobs. A model for such programs is one created by the International Brotherhood of Electrical Workers, that teaches electrical workers how to install and repair solar photovoltaic panels.

II. Environmental and Public Health Impacts of Energy

A. Study Does Not Consider Environmental Justice Impacts

The Study fails to consider the environmental justice impacts of energy production and transmission. Chapter 2.4 of the REIS discusses a host of potential environmental impacts, but does not recognize the impact of energy issues on environmental justice in the region. California state law defines environmental justice as the “fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, or policies.”¹ Furthermore, the United States Environmental Protection Agency states, “Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, and local policies.”²

EHC believes that in order to develop a Regional Energy Strategy (“RES”) that receives robust support from communities and environmental groups, environmental justice issues must be considered and weighed when making siting decisions for the repowering, replacement, or construction of new power plants in the San Diego Region.

1. Study Finding Stating the Need For Two or More 500-MW Base Generating Plants Will Impact Low-Income Communities of Color

EHC is concerned that the press to build power plants to offset our region’s energy demand disproportionately impacts and burdens low income communities and people of color. A study that examined the siting of power plants in California during the energy crisis of the summer of 2001, found that 89% of plants were proposed to be sited in areas that contained over 50% people of color within six miles of the plant.³ Moreover, over 80% of the plants were located within a six-mile radius of communities where the average household income was less than \$25,000 per annum.⁴

Reflecting that state trend, of power plants where construction has begun or been completed over the past year in San Diego County, many are located in the South Bay

¹ Senate Bill 115, Solis, 1999; California Government Code § 65040.12(c).

² US EPA. <http://www.epa.gov/compliance/environmentaljustice> (last checked on 11/26/02).

³ Latino Issues Forum. *Power Against the People?: Moving Beyond Crisis Planning in California Energy Policy*. November 13, 2001. p. 5.

Area, which has raised concerns about this area bearing a disproportionate burden of new power plant development in San Diego.⁵

a. Repowering or Replacing the South Bay Power Plant Will Impact Low-Income People of Color

EHC is concerned about the significant environmental justice impacts of repowering the South Bay Power Plant (“SBPP”). In the “Summary of Major Findings” section of the REIS, the South Bay Power Plant is listed as a plant that “must be repowered as quickly as feasible.” EHC opposes any repowering or replacement of the SBPP unless cleaner and safer technology, such as dry cooling, is used.

Currently, the community living within a six-mile radius of the SBPP is 77% Latino and people of color, with 14.6% living below the poverty level.⁶ SBPP also uses, stores, and transports large amounts of dangerous toxic chemicals. The San Diego County Hazardous Materials Database indicates that the SBPP uses 89,000 gallons a year of sodium hypochlorite (chlorine bleach) storing 6,500 gallons at a time in above ground storage tanks.⁷ Sodium hypochlorite is listed as an Immediate Health Hazard and is dangerous in storage, use, and during transportation through communities.⁸

b. Environmental Justice Impacts of Baja California/Mexico Power Plants

EHC is also concerned about the environmental justice impacts of power plants south of the border. The REIS states that the San Diego region “should recognize the valuable contribution that energy infrastructure resources in North Baja California, Mexico provides.” EHC believes that air pollution will most certainly cross the border and impact the San Diego/Tijuana border region, where many low-income communities of color reside. In fact, recent census data for San Diego County shows that 63% of the households within 5 miles of the border have household incomes less than the county median.⁹ Since the REIS endorses plans to build and utilize existing power plants south of the border, the Study must consider cross-border environmental justice issues.

EHC also believes that any energy production in Mexico for consumers in California must adhere to the highest standards of United States environmental regulations, must comply with Mexican and international labor rights standards, and must

⁵ City of Chula Vista. *Comments on RAMCO Chula Vista II Peaker Generation Station (01-EP-3)*, Comment letter to the California Energy Commission (CEC), June 11, 2001, p. 1.

⁶ 2000 United States Census Data (ethnicity); 1990 Census Data (poverty level). This % compares with 11.3% poverty level for the county. The 2000 census data for poverty levels were not available.

⁷ County of San Diego Hazardous Waste Inventory, search conducted November 5, 2001. Establishment #H 13939. A check of this number against usage reported to the Regional Board revealed lower use estimates of 57,000 gallons.

⁸ GPA Industries Material Safety Data Sheet, Sodium Hypochlorite, taken from the Application for renewal of the NPDES permit for Duke Energy’s South Bay Power Plant, EPA Form 2C. Appendix A. May 4, 2001.

⁹ San Diego County Census Data, 2000, Table 100-01, San Diego County, California, 2000.

follow comprehensive and community-approved plans to protect affected communities in Mexico from the risk of accidents and other potential hazards involving water, soil and air contamination. In addition, any power plants in Mexico that supply California consumers must fully compensate Baja California state and municipal governments with resources to meet new needs resulting from the impact of increased truck and ship traffic through the region, the development of new workers' settlements near power plants, and other impacts that governmental bodies and communities identify.

B. Impacts of Energy on Air Quality and Public Health

The Study does not adequately describe the impacts of fossil-fuel based energy production on air quality and public health. Even the cleanest burning natural gas power plants have significant localized impacts on air quality and contribute to regional air quality problems.¹⁰ While natural gas certainly burns cleaner than oil and coal, natural gas plants still pollute the air with significant quantities of particulate matter (PM), nitrogen oxides (NO_x), other criteria pollutants, as well as toxic air contaminants (TACs). PM₁₀ aggravates and may cause asthma and other respiratory illnesses and has been linked to premature death among the sick and elderly. NO_x is the primary precursor to ozone, a known cause of asthma, reduced lung development in children, and other adverse health impacts.

Air quality impacts are of particular concern for plants located in or near population centers. The South Bay Power Plant, for example, emits 1,600 pounds a day of particulate matter and 6,200 pounds a day of nitrogen oxides at peak generation.¹¹ In the city of Chula Vista, which is located directly downwind of the plant, hospitalization rates for childhood asthma are far above the county average.¹² Furthermore, San Diego is in non-attainment of the federal ozone standard and exceeds state and federal standards for PM₁₀. The Study should alert decision makers and the public of the public health ramifications of San Diego's energy choices.

C. Impacts of Energy Generation on Water Resources

A full description of impacts of existing energy generation on our water resources is a glaring omission of the Study. Three of the largest generators, SONGS, Cabrillo, and South Bay Power Plant all use massive amounts of biologically rich coastal waters to cool their plants. The Study does reference a problem with the South Bay Power Plant where the impacts to marine life could be the most severe given the shallow estuarine nature of the South Bay. Much more, however, should be said about these impacts at the other plants as well.

¹⁰ California Energy Commission. *Preliminary Staff Assessment for the Palomar Energy Project August 2002*, and *Final Staff Assessment for the Otay Mesa Generating Project*. October 2000.

¹¹ Steven Moore, San Diego County Air Pollution Control District. Testimony on behalf of APCD before the CA Public Utilities Commission per an "Order Investigation into the adequacy of the So Cal Gas and SDG&E's gas transmission systems to serve the present and future requirements of SDG&E's core and non-core customers" April 25, 2001. p. 8.

¹² "Clinic has kids breathing easier, Chula Vista part of asthma study." San Diego Union-Tribune August 22, 2002.

If the attempt of Sempra to permit a new power plant with cooling towers using reclaimed water is any indication of a future direction for power plant creation, the RES must have a strong policy mandate that this waste of water should not be allowed. It is highly ironic that at the same time the mass use of reclaimed water is being considered for power plant cooling, plans for the desalination of ocean water and for stealing river water from Northern California and transporting it in bags are being considered to bring more fresh water into the region.

1. South Bay Power Plant, City of Chula Vista

The South Bay Power Plant is a steam electric power generating facility located at the far southeast shore of San Diego Bay, surrounded by sensitive mudflat habitat. The plant uses what is called a once-through wet-cooling system that draws cooling water from San Diego Bay. This heated cooling water is then discharged back into the Bay. At full capacity, 601 million gallons of water are discharged back into the Bay each day. Other California power plants use this cooling method, but draw from and release water to the open ocean, where the volume of the water body greatly exceeds the amount being used and where the heated water is more quickly dissipated.

South San Diego Bay is a sensitive marine environment, highly vulnerable to thermal, chemical and other pollution sources. The south bay environment is most vulnerable in summer, the time of year that the SBPP releases the most thermal pollution because of increased summer energy demands. Water discharged from the plant can reach temperatures over 100°F, a lethal temperature for fishes and other marine life.¹³ The plant also releases toxic chemicals in discharged water, including copper, nickel, zinc, chromium and chlorine. The high temperatures exacerbate the effects of chemical pollution on marine life.¹⁴

D. Dry Cooling as Best Available Technology for Power Plant Cooling

The Study does not recognize dry cooling as an alternative to bay cooling technology for existing power plants. It is widely recognized that dry cooling is a preferred alternative to bay cooling technology, as it does not adversely impact coastal and estuary areas.¹⁵ Dry cooling technology makes it possible to site even the largest power plants in all climate zones and far away from navigable U.S. waterways.¹⁶ In addition, dry cooling systems are effective and reliable for installation at every power plant in the country.¹⁷

¹³ Environmental Health Coalition. *Deadly Power*. December 3, 2001, p. 17.

¹⁴ *Id.* at p. 17.

¹⁵ *Comments on the EPA's Proposed Regulations on Cooling Water Intake Structures for New Facilities*, prepared by William Dougherty, Ph.D., Stephen Bernow, Ph.D, and Tom Page, Tellus Institute, November 6, 2000 (the "Tellus Report"), p.9; *Comparison of Alternative Cooling Technologies for California Power Plants*, prepared for the California Energy Commission by John S. Maulbetsch, Electric Power Research Institute, and Public Interest Energy Research Program, 2002.

¹⁶ Tellus Report, p.17.

¹⁷ *Id.* at p. 17.

E. Non-Market Costs of Fossil Fuels

Fossil fuels – coal, oil, and natural gas – are America’s primary source of energy, accounting for 85 percent of current fuel use. Some of the costs of using these fuels are obvious, such as the cost of labor to mine for coal or drill for oil, of labor and materials to build energy-generating plants, and of transportation of coal and oil to the plants. These costs are included in our electricity bills or in the purchase price of gasoline for cars.

But some energy costs are not included in consumer utility or gas bills, nor are they paid for by the companies that produce or sell the energy. These include human health problems caused by air pollution from the burning of fossil fuels; damage to land from coal mining, natural gas exploration, and oil drilling; environmental degradation caused by global warming, acid rain, and water pollution; and national security costs, such as protecting foreign sources of oil.

Since such costs are indirect and difficult to determine, they have traditionally remained external to the energy pricing system, and are thus often referred to as externalities. Since the producers and the users of energy do not pay for these costs, society as a whole must pay for them. This pricing system, however, masks the true costs of fossil fuels and results in damage to human health, the environment, and the economy.

Some negative externalities of energy production may be relatively easy to quantify, such as the lost revenue from a fishery forced to cease operation due to mercury contamination from a coal plant. Other costs, however, are impossible to quantify, such as loss of human life caused by air pollution. The Study should at minimum *qualitatively* list costs associated with different energy production strategies. Where applicable, the Study should also present well-documented *quantitative* costs associated with energy production that may help the public and decision-makers understand the external costs associated with our energy choices.

F. Cross-Border Pollution (See Section I.A.1.b)

G. Coal-Burning Power Plants Are Significantly Destructive to Public Health and the Environment

The Study cites in Chapter 6.1.3 the possibility of furthering our region's dependence on coal burning plants in the western states region going into 2020. EHC vehemently opposes such a step backward as coal is extremely destructive to public health and the environment.

Burning coal is a leading cause of smog, acid rain, mercury contamination, global warming, and risks from air toxics. In an average year, a typical coal plant generates: ¹⁸

¹⁸ Clean Air Task Force. *Death, Disease, and Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants*. (October 2000): "The Dilemma of Fossil Fuel Use and Global Climate

- 3,700,000 tons of carbon dioxide (CO₂), the primary human cause of global warming--as much carbon dioxide as cutting down 161 million trees.
- 10,000 tons of sulfur dioxide (SO₂), which causes acid rain that damages forests, lakes, and buildings, and forms small airborne particles that can penetrate deep into lungs.
- 500 tons of particulate matter (PM) which can cause chronic bronchitis, aggravated asthma, and premature death, as well as haze obstructing visibility.
- 10,200 tons of nitrogen oxide (NO_x), as much as would be emitted by half a million late-model cars. NO_x leads to formation of ozone (smog) which inflames the lungs, damages lung tissue, and makes people more susceptible to respiratory illnesses.
- 720 tons of carbon monoxide (CO), which causes headaches and place additional stress on people with heart disease.
- 220 tons of hydrocarbons, volatile organic compounds (VOC), which form ozone.
- 170 pounds of mercury, where just 1/70th of a teaspoon deposited on a 25-acre lake can make the fish unsafe to eat.
- 225 pounds of arsenic, which will cause cancer in one out of 100 people who drink water containing 50 parts per billion.
- 114 pounds of lead, 4 pounds of cadmium, other toxic heavy metals, and trace amounts of uranium. All but 16 of the 92 naturally occurring elements have been detected in coal, mostly as trace elements below 0.1 percent (1,000 parts per million, or ppm).

California has few coal-burning plants, in large part because we have recognized the dangers coal burning imposes on human health and the environment. Nonetheless, certain parts of the State depend on coal burning in other western states to supply their energy, thus creating adverse impacts in the communities that host the plants. As a result, EHC believes that the San Diego region should not look to coal-fired power plants in any region to meet its energy needs. EHC also believes that the region should not support the degradation of distant communities to feed our own energy appetites.

H. Global Warming

The Study does not adequately discuss the effects of energy production and use on global warming. Fossil fuel-based energy production emits large amounts of CO₂, NO_x, SO_x, as well as other greenhouse gases, the primary causes of global warming.

1991: "The Future for Coal." *New Scientist*, January 23, 1993, pp. 20-41; and *Powerful Solutions*, Union of Concerned Scientists, January 1999.

The Intergovernmental Panel on Climate Change (“IPCC”), a panel of the world’s preeminent atmospheric scientists, project that during our children's lifetimes, manmade global warming will raise the average temperature of the planet by 2.7 to 11 degrees Fahrenheit and the levels of our seas by two feet or more.¹⁹ According to the IPCC, seven of the ten warmest years in the 20th century occurred in the 1990s, and 1998, with global temperatures spiking due to one of the strongest El Niños on record, was the hottest year since reliable instrumental temperature measurements began.²⁰ In addition, according to the IPCC, changes in the natural environment support the evidence from temperature records: mountain glaciers around the world are receding; the Arctic ice pack has lost about 40% of its thickness over the past four decades; the global sea level is rising about three times faster over the past 100 years compared to the previous 3,000 years; and there are a growing number of studies that show plants and animals changing their range and behavior in response to shifts in climate.²¹

As the Earth continues to warm, there is a growing risk that the climate will change in ways that will seriously disrupt our lives. While on average the globe will get warmer and receive more precipitation, individual regions will experience different climatic changes and environmental impacts. Among the most severe consequences of global warming are:²² a faster rise in sea level, more heat waves and droughts, resulting in more and more conflicts for water resources; more extreme weather events, producing floods and property destruction; and a greater potential for heat-related illnesses and deaths as well as the wider spread of infectious diseases carried by insects and rodents into areas previously free from them.

If climatic trends continue unabated, global warming will threaten our health, our cities, our farms and forests, beaches and wetlands, and other natural habitats. In fact, a recent study conducted by the Scripps Institution of Oceanography in San Diego concluded that global warming was a major threat to the water supply of this region and the west, generally.²³ As a result, EHC believes that global warming must be considered in the long-term energy planning for our region.

¹⁹ *Climate Change 2001: Impacts, Adaptation & Vulnerability*, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), edited by James J. McCarthy, Osvaldo F. Canziani, Neil A. Leary, David J. Dokken and Kasey S. White, Cambridge University Press, UK. (2001). Documents Supporting IPCC Findings: The Science of Climate Change, International National Academies of Science Statement, May 17, 2001; *Climate Change Science*, National Academies of Science Committee on the Science of Climate Change and National Research Council (2001); and *Climate Change and Greenhouse Gases*, American Geophysical Union (1999).

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ “Global warming seen as a major threat to West’s water supply.” San Diego Union-Tribune. November

III. Need For More Public Involvement and Education

In defining regional issues and evaluating alternative infrastructure solutions for the San Diego region's energy needs, the Study lists "more public involvement" as one of the crucial issues of concern for key stakeholder groups and leaders. In addition, the Draft RES states, "greater public education and involvement is needed."

EHC believes that public participation, as early as possible, is crucial for providing the necessary momentum and public support for elected officials and agencies to implement any regional energy strategy. In addition, when decisions may disproportionately affect people of low income and color, it is imperative to encourage the maximum level of meaningful public participation from the affected communities. Without a higher level of scrutiny for public participation activities that affect these communities, there is no way to be sure that those who are traditionally disadvantaged and left out of the decision-making process are included.

Many victims of the last energy "crisis" were members of the general public who saw prices skyrocket, rolling blackouts, and their investments disappear. The crisis created an atmosphere of mistrust and suspicion regarding the people who control and make decisions on energy production and distribution. As a result, in order to guarantee full public approval and support of a regional energy strategy, the process for achieving that strategy must be open to all, meaningful, and clear.

The United States Environmental Protection Agency ("EPA") defines meaningful public participation as: (1) allowing potentially affected community residents to have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) ensuring that the public's contribution can influence the decision-making process; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.²⁴ We believe this is a good foundation in which to address the issue of public participation.

REPAC, however, has made public involvement difficult by creating a process that is not open to public participation, ambiguous, and rushed. Although REPAC is not an official decision-making body, EHC believes that maximizing public participation is advantageous because the recommendations that REPAC make will be influential and important in developing a regional energy strategy.²⁵

A. Process Is Not Visible or Understandable

One key to effective public participation is a visible and understandable process.

²⁴ US EPA. <http://www.epa.gov/compliance/environmentaljustice/> (11/22/02).

²⁵ These comments also apply to any processes or future meetings that are held prior to the formation of a

With a clear timeline of events, the public can actively participate and weigh in on issues of public concern. Nowhere on the SDREO website²⁶ or in REPAC meeting documents, however, is there any timeline or description of the process in which the Regional Energy Strategy (“RES”) will be developed and implemented.

SDREO and REPAC should publicly circulate or post on their website a calendar of events documenting the process in which REPAC will develop a RES. In addition, there should be information soliciting opportunities for public involvement. Without any clear articulation or presentation of the process, members of the public will find it difficult to effectively participate. Moreover, without a clear calendar spelling out a process, members of REPAC themselves will not be able to effectively participate.

B. Timeline For The Formation of RES Is Too Short for Meaningful Public Input

The REIS covers a wealth of information, arrives at some key findings, makes specific recommendations, and lays the groundwork for which the RES will be based on. As a result, EHC believes it important that the public have the ability to meaningfully comment and weigh-in on issues that affect them.

Unfortunately, since the study was released 9 months late, REPAC only has a short amount of time to develop a RES before their funding runs out.²⁷ EHC believes it will be impossible for REPAC to have an opportunity to review the comments thoroughly and meaningfully consider them before drafting the final proposal of the RES.

Under this timeline, the comments will merely be appended to the study as an afterthought, as opposed to considered, discussed, and integrated into the drafting of the RES. In addition, this timeline also provides little, if any time for public comment once the RES is completed. As a result, this process undermines meaningful public participation and diminishes public support for the final product.

C. Meetings Are Not Accessible to the Public

Many members of the public may be unfairly left out of the public participation process due to the time of the meetings and language in which the meetings are conducted in. Meetings should be held after daily work hours (9am-5pm) so interested parties who have to work during the day may attend. Meetings should also have interpreters so that Spanish-speaking people can understand and participate. According to US Census data, 33% of the people in San Diego County alone, not including those in surrounding areas and the border region, speak a language other than English. As discussed above, the RES will affect many Spanish-speaking populations in the region. As a result, it is imperative that REPAC make the meetings accessible to these people.

²⁶ Website: <http://www.sdenergy.org> (last checked on 11/22/02).

IV. Clarifying the Impacts and Benefits of Different DG Technologies

Section 5 should be reworked so that the distinct economic, environmental, and public health impacts associated with the different distributed generation technologies described in this section are clear. An understanding of these varied impacts is necessary to make choices that lead to a sound energy future for our region.

Distributed generation as a means of delivering electricity certainly deserves a focused analysis due to its potential for major energy savings through reduced transmission line loss and costs, its ability to provide incremental energy supplies, and its potential effects on grid-based delivery systems. However, the distinct impacts associated with the particular technologies used for DG should be outlined more clearly in the study.

We appreciate that Section 5.5 (Distributed Generation Market Overview, p. 5-12) describes in more detail some of the most widely used DG technologies, but we feel that some important points are given too little attention in study:

A Risks of Natural Gas-Run DG technologies

While in the short-term, natural gas run microturbines and combined heat and power plants (CHPs) can provide benefits of increased reliability and more efficient use of natural gas, in the mid-long term, these technologies perpetuate our region's vulnerability to volatile natural gas supplies and prices. These technologies also continue to export energy dollars from our economy through natural gas purchases.

B. Solar Performs Best at Times of Peak Demand

Solar power performs at peak capacity when San Diegans need it most, on hot summer afternoons, and provides important load management opportunities for the region.²⁸

C. Varying Impacts of DG technologies

Different DG technologies have drastically different environmental and public health impacts associated with their use. These differences are not captured in Table 5-4, "Comparison of DG Technologies, or in section 5.17 that describes air permitting challenges associated with fossil-fuel based DG.

1. Polluting Fossil-Fuel-Run DG Technologies

In Table 5-4, microturbines, combustion turbines, and reciprocating turbines are characterized as having "low" air emissions, with little description of what is meant by

²⁸ Herig, Christy. *Using Photovoltaics to Preserve California's Electricity Capacity Reserves*. National Renewable Energy Laboratory. September 2001. <http://www.nrel.gov/docs/fy01osti/31179.pdf>

'low' emissions. A study commissioned by the California Air Resources Board ("ARB") examined the air emissions impacts that would occur if cost-effective deployment of combustion turbine, diesel engine, dual fuel engine, and fuel cell DG technologies in California were to occur. It found that compared to existing in-state generation, these technologies would have higher emissions per unit of energy produced as compared to in-state existing generation, even when line-loss is included. Only controlled Combined Heat Plants ("CHPs") that offset natural gas formerly used for heating could result in lower net air emissions.²⁹

The ARB study contradicts the finding put forth in section 5.17 of the draft REIS that states "Because DG displaces a mix of new and existing generators with higher average emissions, the environmental outcome for DG is always positive". This finding is based on a study that looked at impacts of siting DG on a *national* scale. Here in California, we have been willing to go further than the rest of country to protect public health from air pollution, so though DG may provide net emission reductions in states where the existing energy stock is relatively dirty, presenting this as the case for San Diego is highly misleading. The ARB study that focuses on California is much more relevant to a San Diego REIS.

The ARB study also outlines the concern that because most DG will only be economically viable as peaking units, their higher emissions will come at times when lungs in our state can least afford it, on hot summer afternoons when smog levels are at their highest.³⁰

Of additional concern is that fossil-fuel-based DG often emits pollution near population centers at or close to ground level. Exposure to pollution from fossil fuel burning that can have significant localized impacts (such as particulate matter) may be more severe with DG compared to equivalent emission from tall stacks of centralized power plants located farther from population centers.³¹ Furthermore, fossil-fuel based DG also perpetuates our contribution to the risks of global climate instability.

2. Diesel should NOT be a DG option

Diesel-fueled generators should only be considered for use during emergencies when public health would be threatened by blackouts, and wherever possible, cleaner emergency back up generators should be utilized. Diesel exhaust consists of a complex mixture of fine particles and thousands of different toxic chemical compounds, including cancer-causing substances such as formaldehyde, arsenic, and benzene to name a few. Links have also been found between diesel emissions and non-cancer lung damage.³²

²⁹ Distributed Utility Associates, Prepared for the California Air Resources Board. *Air Pollution Impacts Associated with Economic Market Potential of Distributed Generation in California*. June 2000.

³⁰ Ibid.

³¹ Electric Power Research Institute. Streamlining Deployment of Environment-Friendly Distributed Resources- Project Description <http://www.epri.com/journal/details.asp?id=258> (November 11, 2002)

While cleaner diesel fuel combined with controls such as particulate traps may mitigate some of the adverse health impacts from diesel generators, the degree to which health is protected by such measures is still unclear. Air quality specialists have raised concerns that diesel particulate traps may actually increase the number of ultra-fine particles emitted. These particles penetrate and carry toxic compounds deep into the lungs, where the body has more difficulty expelling the particles and where the particles can do more damage.

Diesel-fueled generators should never be used for base-load or peak generation and should be phased out wherever possible for emergency back up generation.

3. Findings and Recommendations for Renewable and Non-Renewable DG Should Be Separated

Because of the varied impacts associated with pursuing renewable and non-renewable DG technologies, we applaud that Tables 5-10 and 6-4 separately outline renewable and non-renewable DG potential in our region. The study's findings and recommendations should also separately describe the potential for non-renewable and renewable DG resources.

The finding outlined in section 5.1.2 (DG and Renewable Resources, p. 5-1) that states "approximately 2,150 to 3,2560 MW of DG and renewable energy could be available between now and 2030" obscures important implications for San Diego's energy future that will be determined by what technologies are used to fulfill that potential.

Similarly, the first recommendation in Section 5.25.2 (DG/Renewables, p. 5-35) that states "The region should consider committing to achieving 30 percent available demand requirements through Distributed Resources ("DR") by 2030" should be changed so that distinct recommendations are made for non-renewable and renewable DG resources with a heavier reliance and support for renewables.

D. Other Section 5 Comments: Clearer Description of 'DG' and 'Renewables' Potential

1. Distributed Generation and Renewables as Demand-Side Options?

The title of Section 5 "Demand-Side Options: Energy Efficiency, Demand Response, Distributed Generation and Renewables," and certain text in the section implies that renewables and distributed generation technologies are demand-side options. This is confusing, as renewables and distributed generation don't save, but create energy. Grouping DG and renewables with demand-side options understates their value as supply-side energy strategies.

2. DG Renewables versus Grid-based Renewables

The Study should include separate findings to describe the potential for DG renewables and grid-based renewables to provide energy in and to our region.

V. Natural Gas as a Transitional Technology, not a Dangerous Detour

The energy crisis of 2000-01 has taught us that over-reliance on natural gas fired energy production controlled by a handful of companies is a dangerous road to be on. For many years, natural gas power plants have been touted as a cleaner fossil fuel source that can serve as a "transition technology" on the path to wide-spread deployment of clean, renewable energy sources. We are at risk of getting onto a "dangerous detour" by furthering our over-dependence on natural gas through the establishment of a vast infrastructure to import Liquefied Natural Gas (LNG) to our region and to dirty plants along the border.

The Study states that LNG may provide a "hedge" against volatile natural gas prices. In fact, an LNG supply system such as that being envisioned today – in which a handful of companies control a supply chain that begins in places as far away as the other side of the globe – is not sound risk management. The San Diego region must seize the opportunity to firmly set itself on the path to a transition to clean, renewable energy technologies.

VI. Emphasizing Solar Power and Energy Efficiency Strategies that Reduce Peak Demand

EHC appreciates that the Study describes the benefits of strategies that are targeted specifically at addressing our region's peak electricity demand. The potential for strategies such as time-of-use pricing, peak-load management programs, and solar power to provide capacity at times of peak demand is an important point that should be more explicitly stated in the Study's findings and recommendations.

Our region's peak energy demand is based on the day of highest electricity demand that usually occurs on the hottest summer day when air conditioning needs are greatest. In 2002, that peak was 3741 MW in San Diego.³³ The San Diego region, however, creates electricity demand that approaches such levels only a fraction of the time. For example, from 1999-2001, San Diego had an electricity demand of over 3500 MW for only 10 hours. The demand was over 3000 MW only less than 2 percent of the time.³⁴

³³ According to the REIS

³⁴ Based on CA Independent System Operator hourly load data for the SDG&E service area. Compiled from OASIS web-site by the California Energy Commission. <http://oasis.caiso.com> Analysis by

San Diego Electricity Demand 1999-2001
by Percent of Time Demand Exceeded Certain Levels

Percent of Time above:	
(MW)	(Percent)
3500	0.04
3000	1.90
2500	22.33
2000	63.07
1500	96.10

Source: CA Independent System Operator hourly load data for the SDG&E service area.
Compiled from OASIS web-site by the California Energy Commission

Because electricity needs rarely approach peak demand levels, the economics of meeting peak demand can be very different than the economics of meeting base-load energy needs. This has the potential to make solar power, and energy efficiency programs targeted at reducing peak demand, more economically attractive for addressing peak demand than capital-intensive infrastructure projects such as centralized power plants or transmission lines. The coincidence of best solar power performance at times of peak demand and higher real-time prices at peak demand, can make solar power much more cost-competitive. As is described in Section 5.2.1 of the Study, efficiency investments in air conditioning and commercial lighting- that make up 40 percent of peak demand statewide³⁵ - can also be more attractive at real-time prices.

The Study should underscore that as our region charts its energy future, we should pursue strategies that provide specific benefits of addressing peak demand, including time-of-use pricing, deployment of solar power, and peak-load management strategies such as cool-roofs programs, responsive buildings programs, commercial lighting retrofits, and the replacement of old air conditioners with more efficient models.

VII. United States Military Energy Use Not Factored Into Study

EHC believes that the military's energy use, costs, and opportunities for reduction are not discernible in the Study. The Study states that the military is the largest energy user in the region. However, no further description of their use or generation can be found in the report. The Study should fully analyze the energy use, generation, and projections for the military in the region. Additional policy recommendations should be added to identify energy savings on the part of the military such as the new photovoltaic

³⁵ Presentation by Terry Surles, Director, Public Interest Energy Research Program, California Energy

system installation at NASN which, once on-line, will be the largest of its type in the region. The military should be a strong partner in helping the region meet its energy needs in a clean and safe way.

The Navy has threatened our safety and security by locating multiple nuclear reactors in San Diego Bay and by constructing nuclear waste storage and repair facilities close to densely populated urban areas. All of this without adequate emergency plans in place in the event of an accident. Given the amount of military lands and the support this community has shown the military in spite of all of the negative impacts on the region, the military should be a major player and funder of renewable energy projects that benefit the region.