MEETING NOTICE AND AGENDA

REGIONAL ENERGY WORKING GROUP
The Regional Energy Working Group may take action on any item appearing on this agenda.

Thursday, February 28, 2013
11:30 a.m. to 1 p.m.

SANDAG 7th Floor Conference Room
401 B Street, 7th Floor
San Diego, CA 92101-4231

Staff Contact: Allison King
(619) 699-1973
Allison.King@sandag.org

AGENDA HIGHLIGHTS

• CLEAN ENERGY ECONOMY
• REGIONAL ENERGY STRATEGY TECHNICAL UPDATE - EXISTING CONDITIONS

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To request this document or related reports in an alternative format, please call (619) 699-1900, (619) 699-1904 (TTY), or fax (619) 699-1905.
1. WELCOME AND INTRODUCTIONS

2. APPROVAL OF MEETING SUMMARY

The Regional Energy Working Group (EWG) is asked to approve the January 24, 2013, meeting summary.

3. PUBLIC COMMENTS/MEMBER COMMENTS

Members of the public shall have the opportunity to address the EWG on any issue within the jurisdiction of SANDAG that is not on this agenda. Public speakers are limited to three minutes or less per person. EWG members also may provide information and announcements under this agenda item.

4. CHAIR’S REPORT

4. REPORTS ON MEETINGS AND EVENTS ATTENDED ON BEHALF OF SANDAG REGIONAL ENERGY WORKING GROUP

EWG members appointed to represent the EWG outside of SANDAG will provide brief reports orally or in writing on external meetings and events attended on behalf of the working group since the last EWG meeting.

5. REPORTS

5. CLEAN ENERGY ECONOMY

The Regional Energy Strategy (RES) includes a clean energy economy goal that identifies national economic indicators. Jason Anderson, CleanTECH San Diego, will present information on local economic indicators for the clean tech sector. The EWG is asked to discuss how local clean tech data could be incorporated into the RES technical update. Attachments include the clean energy economy section of the RES and clean tech sector economic analyses.

6. REGIONAL ENERGY STRATEGY WORKPLAN

A technical update to the RES will be completed to coincide with preparation of SANDAG’s comprehensive land use and transportation plan, “San Diego Forward: The Regional Plan.” Staff will provide a suggested workplan for completing the RES technical update.

7. REGIONAL ENERGY STRATEGY TECHNICAL UPDATE - EXISTING CONDITIONS

The 2030 RES includes chapters on existing conditions, key policy drivers, and goals. Staff will present suggested data and sources to update the region’s existing conditions (e.g., electricity, natural gas, transportation fuels, and greenhouse gases). The EWG is asked to review and discuss the attachment.
PROPOSITION 39: TAX TREATMENT FOR MULTISTATE BUSINESSES, CLEAN ENERGY AND ENERGY EFFICIENCY FUNDING, AND INITIATIVE STATUTE

Proposition 39 was passed by California voters in 2012, calling for K-12 schools and other public agencies to receive funds to perform energy upgrades. Several legislative bills have been introduced as ways to implement this ballot initiative. For your information, Senate and Assembly Bills 39, and the ballot measure, are attached.

9. UPCOMING MEETINGS

The next meeting of the EWG is scheduled from 11:30 a.m. to 1 p.m. on Thursday, March 28, 2013.

Agenda items planned for March include a discussion on alternative fuels, SANDAG legislative priorities, and the cap-and-trade investment plan. A discussion of regional Property Assessed Clean Energy (PACE) programs is planned for April.

+ next to an agenda item indicates an attachment
January 24, 2013, Meeting Summary

File Number 3200300

Item #1: Welcome and Introductions

Vice Chair Scott Anders, Energy Policy Initiatives Center (EPIC) at the University of San Diego, called the meeting to order at 11:39 a.m.

Mr. Anders welcomed the new Regional Energy Working Group (EWG) members Len Hering, Executive Director of the California Center for Sustainable Energy (CCSE), and Julie Yunker, San Diego Gas and Electric (SDG&E).

Item #2: November 21, 2012 Meeting Summary

Pamela Bensoussan, City of Chula Vista, South County Economic Development Council, motioned to approve the meeting summary from November 21, 2012, and Don Mosier, City of Del Mar, seconded the motion. The motion carried without opposition.

Item #3: Public Comments/Member Comments

John Wotzka, member of the public, discussed energy-related news and provided written comments that are summarized here: the Nuclear Regulatory Commission workers are still touring San Onofre Nuclear Generation Station to try to find a solution to the problems that the station has been having; Mixed oxide (MOX) Fuel Fabrication Facility in South Carolina will convert depleted uranium and weapons grade plutonium from the Strategic Arms Reductions Treaty (START) into MOX fuel; Google executive Eric Schmidt and former New Mexico governor Bill Richardson visited North Korea to urge the country to open itself up to the internet; the Keystone Pipeline is moving ahead with construction on southern leg; the Bureau of Land Management is auctioning off drilling rights off the coast of Monterey, California in the Monterey Formation's shale resources; Soitec, a solar-tech plant is opening up in Rancho Bernardo; Stock market has been taken over by London's Intercontinental Exchanges (ICE) Futures market; California Public Utilities Commission (CPUC) will be revising its thirteen year old Rule 21 for the 15% threshold; Greenland and Antarctica have new articles in the book The Arctic.

Brendan Reed, City of Chula Vista, shared that a Senate Appropriations Committee Informational Hearing will be held on Friday, January 25, 2013, to seek input on implementation of Proposition 39, which was passed in November 2012 to close a tax loophole and provide funds for schools and energy efficiency and clean energy programs. Mr. Reed encouraged members to attend the meeting and support allocation of funds for public agencies.
Susan Freedman, SANDAG, shared that Chair Carrie Downey finished her term as councilmember for the City of Coronado last year. Jack Dale, SANDAG Board of Directors Chair, indicated that appointments to working groups will not be made until after January 31. Ms. Freedman urged EWG members who were interested in continuing as a member to share that with their Board representative soon since sub-regional appointments to working groups are generally determined during the Board Retreat, schedules for February 6-8, 2013. The EWG Chair is selected by the Regional Planning Committee and should be rotated on a periodic basis unless otherwise determined by the Chair of the Board of Directors.

Ms. Bensoussan announced that the City of Chula Vista is holding an Energy/Environmental workshop Wednesday, January 30, to discuss a Request for Proposals (RFP) for a residential and commercial Property Assessed Clean Energy (PACE) program.

Michelle White, Unified Port District of San Diego, announced that the implosion of the South Bay Power Plant is scheduled for February 2, 2013, at 7 a.m.

**ITEM #4: REGIONAL PLAN: PUBLIC INVOLVEMENT PLAN**

The Draft Public Involvement Plan outlines the public engagement techniques for the 2050 Regional Plan. Comments on the draft can be submitted via e-mail to David Hicks, SANDAG, at David.Hicks@sandag.org.

Chair Carrie Downey encouraged members to give both positive and critical feedback on the working groups to David Hicks. This information will help SANDAG make the working group and committees better in the future.

**ITEM #5: REPORTS ON MEETINGS AND EVENTS ATTENDED ON BEHALF OF SANDAG REGIONAL ENERGY WORKING GROUP**

Chair Downey commented that many EWG members have been participating in the San Diego Distributed Solar Photovoltaic (PV) Stakeholder meetings, and explained that the group has been providing input on refining the objectives and methodologies for the study.

Mr. Anders added that on January 14, 2013, SDG&E held the second stakeholders’ meeting. The first stakeholders’ meeting, held on November 29, 2012, centered on the focus and objectives of the study. After that initial meeting, the technical consultants met to refine the study’s approach. The study was initially called the net energy metering study, but has now evolved into a cost of service study centered on distributed solar PV.

Pete Hasapopoulos asked why there was a change in focus in the study. Mr. Anders replied that the stakeholders decided to take a step back and study the underlying costs and benefits of distributed solar PV and use the results to inform questions surrounding specific policies, such as net energy metering. Mr. Anders invited EWG members to participate in a webinar on Friday, January 25, 2013, and to visit the EPIC Web site for more information: http://www.sandiego.edu/epic/research_reports/other.php.
ITEM #6: ENERGY ROADMAP PROGRAM AND COLLABORATIONS

Ms. Freedman presented on the Energy Roadmap Program, SANDAG’s energy-saving program for local governments. At the end of 2012, ten roadmaps were completed and the cities of El Cajon and Carlsbad had roadmaps in progress. She announced that the program has been extended for two years, and the focus moving forward will be to complete Roadmaps for the remaining cities and work on implementing energy conservation measures identified.

Anna Lowe, SANDAG, presented on the extension of the Roadmap Program. Over the next two years, SANDAG will be completing roadmaps and will begin focusing on the implementation of completed roadmaps. Implementation includes offering additional services, including: energy training, engineering support, and project management assistance. Additionally, SANDAG will be working with the City of Chula Vista to pilot the South Bay Energy Action Collaborative (SoBEAC) to help promote energy efficiency opportunities at municipal facilities and in the community in Chula Vista’s neighboring South Bay cities (Cities of Imperial Beach, Coronado, and National City). Ms. Lowe also presented on the San Diego Regional Climate Collaborative, which will be further developed as a tool for regional collaboration.

Ms. Lowe are presented on the Regional Energy Mapping Project (REMP), which is a GIS mapping tool that uses many data sources to identify neighborhoods with high potential for energy efficiency retrofits. The tool is currently being used by CCSE to identify areas to target marketing of Energy Upgrade California and available incentives to homeowners that would benefit from upgrades.

EWG members asked questions and provided comments in response to the presentation:

• Chair Downey requested that staff provide an update to the EWG on how REMP is being used for outreach moving forward.

• Mike Evans, San Diego Regional Chamber of Commerce, commented that it was great to see a presentation on a preliminary report of the REMP and advised that the users of the tool double-check the data and methodology to see if the results make sense for all neighborhoods.

• Ms. Freedman commented that the tool is meant to be updated as more information is available.

• Josh Brock, SDG&E, commented that REMP was developed from the customer’s point of view with regards to energy costs, and that the tool will be available to local governments and not contractors.

• Kayla Race, Environmental Health Coalition, agreed with Mr. Evans’ comments that users of REMP should see if the results match with what they would expect for certain neighborhoods. Ms. Race also asked why contractors would not have access to REMP.

• Allison King, SANDAG, responded that outreach to homeowners would be done in a coordinated effort between CCSE and local governments and contractors in order to avoid over-marketing from many contractors to homeowners.
• Ms. Freedman added that the Retrofit Advisory Council is a forum for coordinating the outreach approach with contractors.

ITEM #7: REGIONAL PLAN WHITE PAPERS: ENERGY AND CLIMATE CHANGE

Ms. King presented on the energy and climate change white papers to be prepared during the development of the regional plan. She explained that the white papers are to detail background on the key policy areas, highlight emerging issues, and describe interrelationships between policy areas. Ms. King described the timeline for completing the white papers and explained that staff would be coming to the EWG regularly for input on the energy and climate change white papers as well as other policy areas of interest.

Ms. King solicited input from EWG members on other policy areas of interest and initial policy questions specific to energy and climate change:

• Chair Downey commented that the regional plan should show how electric vehicle (EV) charging stations are linked to other components of planning and help cities plan for an increase in EV drivers. She added that the public should be able to find alternative fueling stations in the region and would like a user friendly way for the public to find these locations.

• Ms. White commented that almost all policy areas of the plan can be linked to energy and climate change issues, and the interconnectedness should be highlighted in the regional plan.

• Kayla Race added to Ms. White’s comments that climate change is a large component of all issues represented by the regional plan policy areas. She also suggested effort going towards getting people out of their cars and walking through land use changes rather in addition to efforts to promote alternative fuels.

• Ms. Bensoussan commented that she was pleased to see social equity and environmental equity were on the list of regional plan policy areas, and suggested that the plan include a section describing the crossover between policy areas.

• Jennifer Case, San Diego Clean Cities Coalition, was interested to see how electric vehicles and other alternative transportation fuels had evolved over forty years and how they will contribute to the overall regional plan.

• Len Hering, CCSE, shared that CCSE is heavily involved in creating the tools for zoning to include EV infrastructure. He emphasized the importance of infrastructure to the adoption of EVs.

• Dr. Mosier suggested using quality of life to link together several of the policy areas identified in order to gain buy-in from the public.

• Mr. Evans suggested that the plan include economic measures to highlight the cost savings of various measures. He also suggested that the EWG use local cities’ climate plans and find areas for integration with what SANDAG is doing.
• Mr. Hering described San Diego’s water issues and asked where water conservation would be addressed in the regional plan. Ms. King explained that water supply, including conservation and reclamation, would be included in the infrastructure and public facilities policy area. Chair Downey suggested that water supply (including conservation, reclamation, and reuse) have its own section because it is such a vital issue for this region, particularly in terms of energy use.

Ms. King presented feedback received from the Regional Planning Technical Working Group (TWG) on SANDAG’s role in climate change planning, and requested input from the EWG on additional areas for regional coordination or key questions to be explored in the climate change white paper.

EWG members provided the following comments:

• Chair Downey commented that since SANDAG allocates money for projects, SANDAG could use evaluation criteria that require applicants to explain how their project will help reduce GHG emissions or vehicle use in order to receive funds.

• Mr. Anders emphasized data as the most important element of climate planning and monitoring. He suggested that SANDAG have an energy component to its data warehouse with city-level information on electricity and gas consumption, PV installations, and other relevant data for GHG emissions analyses. He added that CEQA issues should be addressed on a regional scale since many small cities embarking on climate planning need assistance with the complexities of CEQA and the threshold analysis. He suggested that a regional threshold analysis be something that SANDAG considers providing. Mr. Anders commented that developing regionally accepted models and methods for calculating mitigation inventory would be helpful for comparing across cities and calculating a regional inventory.

• Chair Downey commented that SANDAG could potentially help with calculating transportation emissions for individual jurisdiction in a way that would address concerns surrounding pass-through traffic.

Ms. King reminded the working group that when the last Regional Energy Strategy was adopted there were six early action items. Those items were mostly focused on building retrofits and financing, local government partnership (Energy Roadmap Program), land use and transportation planning, EV and alternative fuel infrastructure, and reclaimed water.

Ms. King then opened the working group up to thoughts and questions for the energy white paper:

• Chair Downey commented that SANDAG’s role should be providing information out to the local jurisdiction. She also suggested that SANDAG be involved with cross-county coordination for charging and fueling stations. She added that SANDAG coordinates with other counties for highway and rail planning, and the same should happen for fueling stations.

• Ms. Freedman commented that the state is in the early stages of a statewide electric vehicle infrastructure plan and has reached out to SANDAG and CCSE for input. Part of those discussions is how to best share information and best management practices across regions.
Ms. Bensoussan suggested that the Auto Club of Southern California and the American Automobile Association (AAA) might be interested in being pursuing an EV infrastructure mapping project.

Ms. King added that the Draft Public Involvement Plan has been released and includes techniques for involving the public in the preparation of the regional plan. She asked if there were any other ideas or groups that should be involved:

- Jamie Edmonds, San Diego Energy District, commented that EV drivers have a difficult time finding a single source for EV charging maps and suggested that SANDAG or another regional organization create a comprehensive EV charging map for the region that is updated regularly. He also added that interoperability among different brands of charging stations is another issue that needs to be addressed.

ITEM #8: UPCOMING MEETINGS

The next meeting of the EWG is scheduled from 11:30 a.m. to 1 p.m. on Thursday, February 28, 2013.

Chair Downey adjourned the meeting at 1:01 p.m.
<table>
<thead>
<tr>
<th>REPRESENTATION</th>
<th>JURISDICTION / ORGANIZATION</th>
<th>NAME</th>
<th>MEMBER / ALTERNATE</th>
<th>ATTENDING</th>
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<tr>
<td>Energy Working Group Chair</td>
<td>Carrie Downey</td>
<td>Member</td>
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<tr>
<td>South County Subregion</td>
<td>City of Chula Vista</td>
<td>Hon. Pamela Bensoussan</td>
<td>Member</td>
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<td>Vacant</td>
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<td>City of Del Mar</td>
<td>Hon. Don Mosier</td>
<td>Member</td>
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<td></td>
<td>City of Solana Beach</td>
<td>Hon. Lesa Heebner</td>
<td>Alternate</td>
<td>NO</td>
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<tr>
<td>North County Inland Subregion</td>
<td>City of Escondido</td>
<td>Hon. Ed Gallo</td>
<td>Member</td>
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<td>City of San Diego Subregion</td>
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<td>Hon. Sherri Lightner</td>
<td>Member</td>
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<td></td>
<td>Hon. David Alvarez</td>
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<td>County of San Diego Subregion</td>
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<td>Peter Livingston</td>
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<td>Public Transit Operators</td>
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<td>Sharon Cooney</td>
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<td>North County Transit District (NCTD)</td>
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<td>Other Public Agencies</td>
<td>San Diego County Regional Airport Authority</td>
<td>Paul Manasjan</td>
<td>Member</td>
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<td></td>
<td>Brett Caldwell</td>
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<td></td>
<td>Unified Port District of San Diego</td>
<td>Michelle White</td>
<td>Member</td>
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<td>Cody Hooven</td>
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<td>Universities</td>
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<td>Dave Weil</td>
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<td>San Diego State University</td>
<td>Dr. Heather Honea</td>
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<td>Energy Utility</td>
<td>San Diego Gas &amp; Electric</td>
<td>Matt Burkhart</td>
<td>Member</td>
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<td></td>
<td>Julie Yunker</td>
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<td>Energy Non-Profits</td>
<td>California Center for Sustainable Energy</td>
<td>Len Hering</td>
<td>Member</td>
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<td></td>
<td>Charlie Buck</td>
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<td>YES</td>
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<td></td>
<td>Energy Policy Initiatives Center, University of San Diego School of Law</td>
<td>Scott Anders, Vice Chair</td>
<td>Member</td>
<td>YES</td>
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<td></td>
<td>Nilmini Silva-Send</td>
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<td>Transportation Fuels</td>
<td>San Diego Clean Cities Coalition</td>
<td>Greg Newhouse</td>
<td>Member</td>
<td>NO</td>
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<td></td>
<td>Jennifer Case</td>
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<td>Environment/Social Justice</td>
<td>Environmental Health Coalition</td>
<td>Nicole Capretz</td>
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<td></td>
<td>Kayla Race</td>
<td>Alternate</td>
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<td></td>
<td>Sierra Club</td>
<td>Bill Powers</td>
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<td>Pete Hasapopoulous</td>
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<td>Business</td>
<td>San Diego Regional Chamber of Commerce</td>
<td>Mike Evans</td>
<td>Member</td>
<td>YES</td>
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<td></td>
<td>Michael Nagy</td>
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<td>Carmen Sandoval</td>
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<td>Economic Development</td>
<td>North County Economic Development Council</td>
<td>David Lloyd</td>
<td>Member</td>
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<td>South County Economic Development Council</td>
<td>Hon. Pamela Bensoussan</td>
<td>Alternate</td>
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OTHER ATTENDEES:

Jason Anderson, CleanTECH San Diego
Gary Bousquet, San Diego County Water Authority
Josh Brock, SDG&E
Crystal Crawford, Ygrene
Gretchen Crowson, City of Del Mar
Jamie Edmonds, San Diego Energy District
Steve Furguson, Honeywell
Jim McCollaw, Solar Turbines
Brendan Reed, City of Chula Vista
Julienne Summerford, HMG
Kathy Valverde, City of Santee
John Wotzka
Susan Freedman, SANDAG
David Hicks, SANDAG
Allison King, SANDAG
Anna Lowe, SANDAG
Sarah McCutcheon, SANDAG
Rob Rundle, SANDAG
5.11 Clean Energy Economy

Introduction

According to the California Economic Strategy Panel, green products and practices, including those in the Clean Energy Sector, can be found in the same industries as conventional products and practices. As such, an economic analysis of the type and amount of clean energy jobs (sometimes referred to as green jobs) and investment based primarily on tracking business and employment growth by industry is difficult to quantify. Table CEE-1 shows the types of industries and jobs that comprise the Clean Energy Sector:

- Clean Energy Sector jobs are defined as blue or white collar positions that:
- Preserve, restore, or improve the environment.
- Help save energy, advance new energy efficient technologies, or foster a more sustainable regional and national energy system.
- Have been updated to adopt sustainability as a core segment of the job description.
- Provide career pathway opportunities leading to sufficient income to support a household and potential for advancement.

Opportunities and advantages to the region from expanding the Clean Energy Sector:

- Creating new jobs or retraining the unemployed and under-employed in a time of economic downturn.
- Providing opportunities for career advancement in the sustainability fields.
- Reducing our dependence on foreign oil, and strengthening national security.
- Promoting the use of domestic renewable energy resources.
- Reducing high utility costs of energy-inefficient public buildings and public housing.
- Mitigating climate change by cutting GHG emissions.
## Table CEE-1: Sample Jobs and Industries in the Clean Energy Sector

<table>
<thead>
<tr>
<th>Strategies for Green Economic Investment</th>
<th>Representative Jobs</th>
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<tbody>
<tr>
<td>Building Retrofitting</td>
<td>Electricians, Heating/Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors</td>
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<tr>
<td>Mass Transit/Freight Rail</td>
<td>Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Bus Drivers, Dispatchers, Locomotive Engineers, Railroad Conductors</td>
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<tr>
<td>Smart Grid</td>
<td>Computer Software Engineers, Electrical Engineers, Electrical Equipment Assemblers, Electrical Equipment Technicians, Machinists, Team Assemblers, Construction Laborers, Operating Engineers, Electrical Power Line Installers and Repairers</td>
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<tr>
<td>Wind Power</td>
<td>Environmental Engineers, Iron and Steel Workers, Millwrights, Sheet Metal Workers, machinists, Electrical Equipment Assemblers, Construction Equipment Operators, Industrial Truck Drivers, Industrial Production Managers, First-Line Production Supervisors</td>
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<tr>
<td>Advanced Biofuels</td>
<td>Chemical Engineers, Chemists, Chemical Equipment Operators, Chemical Technicians, Mixing and Blending Machine Operators, Agricultural Workers, Industrial Truck Drivers, Farm Product Purchasers, Agricultural and Forestry Supervisors, Agricultural Inspectors</td>
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</tbody>
</table>

Source: Political Economy Research Institute, University of Massachusetts-Amherst, 2008

Through 2019, significant investment will be injected into the Clean Energy Sector through the American Recovery and Reinvestment Act (ARRA) of 2009. Nationally, ARRA will provide $787 billion of stimulus funding, with most made available in 2009-2011. As of June 2009, energy-related allocations to California are listed in Table CEE-2 below.
### Table CEE-2: California ARRA Energy Funding as of June 2009

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<td>State Energy Program</td>
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<td>Weatherization Assistance Program</td>
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<td>Biomass</td>
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<td>$111 million</td>
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### 5.11.1 Growing Investment in the Clean Energy Sector

Even without ARRA funds, the Clean Energy Sector is expected to grow. Clean Edge, which tracks the growth of clean-tech markets, reports that global revenues for solar photovoltaics, wind power, and biofuels expanded from $75.8 billion in 2007 to $115.9 billion in 2008, an increase of about 53 percent. Clean Edge’s 2009 energy trends study identified a 30 percent growth of clean energy venture capital investments as a percentage of total venture capital investments in U.S.-based companies from 2007 (9.1 percent) to 2008 (11.8 percent). In 2000, clean energy venture capital comprised only 0.6 percent of the total.

### 5.11.2 Job Creation by Clean Energy Sector

The influx of federal stimulus funding creates the potential for significant growth in the Clean Energy Sector. Various levels of job creation are identified in economic studies from the U.S. Environmental Protection Agency, American Council for an Energy-Efficient Economy (ACEEE), American Solar Energy Society (ASES), US Council of Mayors, University of California Berkeley, among others. In 2008, a comprehensive analysis of national energy efficiency and energy supply investments by ACEEE found that since 1970, energy efficiency and energy productivity gains have met 75 percent of new energy service demands in the U.S., while new energy supplies contributed 25 percent. A summary of revenues and job creation in the U.S. renewable energy and energy efficiency industries is provided in Table CEE-3.
Table CEE-3: Summary of U.S. Renewable Energy and Energy Efficiency Industries in 2006

<table>
<thead>
<tr>
<th>Industry</th>
<th>Revenues</th>
<th>Direct Jobs</th>
<th>Total Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy</td>
<td>$39.2 billion</td>
<td>196,000</td>
<td>452,000</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>$932.6 billion</td>
<td>3,498,000</td>
<td>8,046,000</td>
</tr>
<tr>
<td>Total</td>
<td>$971.8 billion</td>
<td>3,694,000</td>
<td>8,498,000</td>
</tr>
</tbody>
</table>

Source: Bezdek, Management Information Services, Inc. for ASES, 2007

Existing Building Retrofits and Green New Construction

Generally, green construction, retrofit, and conventional construction projects are bid and worked on by similar contractors. In construction, some of the differences between green and conventional renovations are the composition of materials used in the process, where and how the materials are produced and how waste is addressed. Continual training and continuing education programs can provide the knowledge needed about green construction for contractors, architects, inspectors, permitters, and marketers that communicate with customers.

Renewable Energy and Smart Grid Workers

Similar to construction, many workers in renewable energy also fall under the traditional job classifications of the construction trades. Increasing demand for energy efficiency and renewable energy systems can be expected to generate new employment opportunities for electricians, HVAC technicians, carpenters, inspectors and permitters, plumbers, roofers, laborers, and insulation workers, among others. Comprehensive home and commercial building programs also would increase demand for green building materials, and would stimulate associated manufacturing industries. Training and retraining of existing workers is integral to expanding the region’s clean energy sector. Table CEE-4 shows show the job creation potential of investments in clean energy industries.
### Table CEE-4: Clean Energy Investment and Resulting Job Creation

<table>
<thead>
<tr>
<th>Level of Investment</th>
<th>Job Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 million in renewable energy systems</td>
<td>5 full time employment component manufacturing jobs</td>
</tr>
<tr>
<td>$1 million in energy efficiency programs</td>
<td>3-4 building material manufacturing jobs</td>
</tr>
<tr>
<td></td>
<td>5 energy efficient appliance manufacturing jobs</td>
</tr>
<tr>
<td>1 direct manufacturing job</td>
<td>2.9 indirect jobs (finance, transportation, supply chains, installers, and other related businesses) (EPI 2003)</td>
</tr>
</tbody>
</table>

Sources: Apollo Alliance Green Manufacturing Action Plan, 2009, Economic Policy Institute

### Clean Transportation

Continuing and rapid changes in transportation technology to improve vehicle or system operation efficiency, to switch from petroleum based to alternative fuels, to reduce environmental emissions, and to effectively integrate transportation systems have also resulted in major changes in skill requirements. Some of these skills are enhancements of existing ones; however there is a substantial difference between working on a diesel powered vehicle and one powered by natural gas. Hybrid vehicles require advanced electrical training and biodiesel requires a working knowledge of chemistry. Training and retraining of existing workers is critical to reducing petroleum use and limiting adverse environmental emissions.

#### 5.11.3 Regional Clean Energy Job Development Opportunities

Leverage state and federal resources such as California’s Green Collar Jobs Council (formed by passage of Assembly Bill (AB) 3018) and Clean Energy Workforce Training Partnership, which was formed to best utilize ARRA funding to stimulate quality job growth.

The Green Jobs Guidebook prepared by the Environmental Defense Fund provides detailed job descriptions for renewable energy and energy efficiency related jobs in California for employment year 2008-2009. Links to apprenticeship programs and job placement programs are included.

Job training and assistance are also available through the California Clean Energy Workforce Training Program, a partnership between the Energy Commission and a number of state agencies, educational institutions, local workforce investment boards, community organizations, and employers to deliver 21st century training programs for workers with all levels of experience. The goal of the CEWTP is to promote the use of industry sector strategies as the framework for addressing the need for skilled workers...
in the industries related to energy efficiency, water efficiency, renewable energy (distributed generation and utility-scale), and alternative and renewable transportation technologies.

5.11.4 **Recommended Actions for Clean Energy Economy**

SANDAG, local governments, or other regional entities can undertake the following actions to expand the clean energy economy. In some cases, active collaboration among multiple jurisdictions will be needed to implement the recommended actions. The following recommended actions will contribute to other energy goals, and likewise be enhanced by recommended actions identified in other topic areas, as described below.

<table>
<thead>
<tr>
<th>Recommended Actions for Clean Energy Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SANDAG, Local Governments, or other Regional Entities</strong></td>
</tr>
<tr>
<td>CE-1</td>
</tr>
<tr>
<td>CE-2</td>
</tr>
<tr>
<td>CE-3</td>
</tr>
<tr>
<td>CE-4</td>
</tr>
<tr>
<td>CE-5</td>
</tr>
<tr>
<td>CE-6</td>
</tr>
</tbody>
</table>
June 1, 2011

Mr. Jason Anderson, Vice President
CleanTECH San Diego
9191 Towne Center Drive, Suite 410
San Diego, CA 92122

Dear Mr. Anderson:

SUBJECT: Economic Impact of Clean Transportation in San Diego

As requested, the SANDAG Service Bureau has estimated the economic impact of Clean Transportation on the regional economy during the course of one year.

Clean Transportation includes transportation technologies that improve fuel efficiency, reduce air pollution, reduce oil consumption, or reduce vehicle travel (not limited to automobiles). Technologies can be applied directly to transportation systems or vehicles.

This impact analysis is based upon 1,050 employees, across 29 companies that work in the Clean Transportation sector, as identified in the CleanTECH San Diego company database.

Company information from the CleanTECH database was augmented with data from a variety of sources including the SANDAG Employment Inventory (2009), a telephone survey of businesses in the database, and other supplemental sources such as news reports and business directories. The analysis was conducted using the IMPLAN economic impact model with data for 2009.

Research in and implementation of Clean Transportation may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.

The analysis describes the direct, indirect, and induced impacts of Clean Transportation on the San Diego region’s economy. The direct impacts reflect jobs and expenditures that are directly related to Clean Transportation. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of Clean Transportation. The induced impacts are the local household expenditures of workers employed in Clean Transportation and in supplier industries.

From an economic perspective, Clean Transportation employs approximately 1,050 workers in San Diego and provides nearly $92.6 million in payroll and $311.3 million in economic activity for the San Diego region per year.
This activity is spread across a wide variety of companies, ranging from large firms to small startups, and from manufacturing, to research and development, to design and sales, including the following industry sectors:

<table>
<thead>
<tr>
<th>INDUSTRY SECTOR (IMPLAN CODES)</th>
<th>Est. Number of Jobs</th>
<th>Est. Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic capacitor, resistor, coil, transformer; and semiconductor and related device manufacturing</td>
<td>231</td>
<td>**</td>
</tr>
<tr>
<td>Motor vehicle parts manufacturing</td>
<td>204</td>
<td>4</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>121</td>
<td>4</td>
</tr>
<tr>
<td>Automotive repair &amp; maintenance, excl. car washes</td>
<td>115</td>
<td>**</td>
</tr>
<tr>
<td>Other communications equipment manufacturing</td>
<td>102</td>
<td>**</td>
</tr>
<tr>
<td>Motor and generator manufacturing</td>
<td>76</td>
<td>**</td>
</tr>
<tr>
<td>Specialized design services</td>
<td>62</td>
<td>**</td>
</tr>
<tr>
<td>Boat building</td>
<td>42</td>
<td>**</td>
</tr>
<tr>
<td>Custom computer programming services</td>
<td>37</td>
<td>**</td>
</tr>
<tr>
<td>Environmental &amp; other technical consulting services</td>
<td>22</td>
<td>**</td>
</tr>
<tr>
<td>Scientific research and development services</td>
<td>19</td>
<td>**</td>
</tr>
<tr>
<td>Motorcycle, bicycle, and parts manufacturing</td>
<td>--</td>
<td>**</td>
</tr>
<tr>
<td>Retail - Gasoline stations</td>
<td>--</td>
<td>**</td>
</tr>
<tr>
<td>Petroleum refineries</td>
<td>--</td>
<td>**</td>
</tr>
</tbody>
</table>

- - 10 or fewer jobs
** 3 or fewer companies.

The $311.3 million in economic activity of Clean Transportation supports other local industries. As a result of its day-to-day operations, Clean Transportation generates $32.6 million in annual payroll and approximately $90.1 million in additional economic activity at other local companies. This $90.1 million can be considered the result of the goods and services that companies engaged in Clean Transportation purchase from local vendors. The top three industries affected by Clean Transportation's business are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale trade</td>
<td>78</td>
</tr>
<tr>
<td>Management of companies</td>
<td>52</td>
</tr>
<tr>
<td>Real estate</td>
<td>28</td>
</tr>
</tbody>
</table>

Overall, an estimated 506 jobs are generated by the economic activity of companies supporting Clean Transportation.

In addition to these impacts, Clean Transportation also has an impact on the region through the expenditures of its employees and of workers at supplier companies. The combined payroll of Clean Transportation and its suppliers generates an additional $101.0 million in economic activity in the region. This induced effect generates 745 jobs and an additional $34.4 million in payroll for the
region. The top three industries affected by the expenditures of employees engaged in Clean Transportation are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurants (food services &amp; drinking places)</td>
<td>87</td>
</tr>
<tr>
<td>Offices of physicians, dentists, etc.</td>
<td>45</td>
</tr>
<tr>
<td>Real estate</td>
<td>44</td>
</tr>
</tbody>
</table>

A summary of Clean Transportation’s overall impact is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>1,050</td>
<td>506</td>
<td>745</td>
<td>2,301</td>
</tr>
<tr>
<td>Wages*</td>
<td>$92,600,000</td>
<td>$32,600,000</td>
<td>$34,400,000</td>
<td>$159,600,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$311,300,000</td>
<td>$90,100,000</td>
<td>$101,000,000</td>
<td>$502,400,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 100,000

Furthermore, additional investment of venture capital into cleantech research and development (R&D) has the ability to generate additional impact to the regional economy. During the year the investment is spent, for every $10 million of venture capital funding, private sector R&D directly generates $1.5 million in economic activity and nearly three-quarters of a million dollars in payroll for 10 employees. In turn, the funded company and its employees make local purchases which combined generate an additional $1.4 million in economic activity and $412,000 in payroll for 11 employees.

A summary of the effects of $10 million in venture capital investment toward private sector R&D is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Wages*</td>
<td>$772,000</td>
<td>$162,000</td>
<td>$250,000</td>
<td>$1,184,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$1,509,000</td>
<td>$514,000</td>
<td>$884,000</td>
<td>$2,907,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 1,000

It should be noted that a handful of companies work in more than one cleantech sector, and some cleantech companies may have been missed. While care was taken to have as comprehensive an inventory, with as little overlap as possible, the results listed here should be considered an impact assessment for the businesses listed here only, and should not be summed with other impact reports to estimate a total across all cleantech industries.

Sincerely,

[Signature]

BETH JAROSZ
Senior Economic Analyst

BJA/ais
Mr. Jason Anderson, Vice President  
CleanTECH San Diego  
9191 Towne Center Drive, Suite 410  
San Diego, CA 92122

Dear Mr. Anderson:

SUBJECT: Economic Impact of Solar Energy Generation in San Diego

As requested, the San Diego Association of Governments (SANDAG) Service Bureau has estimated the economic impact of Solar Energy Generation on the regional economy during the course of one year.

Solar Energy Generation technologies convert sunlight into electricity and include both centralized (large-scale) and distributed (on-site) installations. This includes photovoltaic (PV) panels, concentrated PV, solar thermal, and concentrated solar thermal.

This impact analysis is based upon 1,133 employees, across 29 companies, that work in the Solar Energy Generation sector, as identified in the CleanTECH San Diego company database. Of these jobs, roughly half (650 workers across 10 companies) specialize in solar manufacturing, including the development and manufacture of solar panels and other innovative solar energy technologies.

Company information from the CleanTECH database was augmented with data from a variety of sources, including the SANDAG Employment Inventory (2009), a telephone survey of businesses in the database, and other supplemental sources, such as news reports and business directories. The analysis was conducted using the IMPLAN economic impact model with data for 2009.

Research in and implementation of Solar Energy Generation may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.

The analysis describes the direct, indirect, and induced impacts of Solar Energy Generation on the San Diego region economy. The direct impacts reflect jobs and expenditures that are directly related to Solar Energy Generation. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of Solar Energy Generation. The induced impacts are the local household expenditures of workers employed in Solar Energy Generation and in supplier industries.

This activity is spread across a wide variety of companies ranging from large firms to small startups, and from manufacturing to research and development, to design and sales, including the following industry sectors:
<table>
<thead>
<tr>
<th>INDUSTRY SECTOR (IMPLAN CODES)</th>
<th>Est. Number of Jobs</th>
<th>Est. Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductor and related device manufacturing</td>
<td>648</td>
<td>7</td>
</tr>
<tr>
<td>Environmental and other technical consulting services</td>
<td>174</td>
<td>5</td>
</tr>
<tr>
<td>Electric power generation, transmission, and distribution</td>
<td>164</td>
<td>**</td>
</tr>
<tr>
<td>Architectural, engineering, and related services</td>
<td>40</td>
<td>**</td>
</tr>
<tr>
<td>Construction</td>
<td>39</td>
<td>**</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>24</td>
<td>**</td>
</tr>
<tr>
<td>Heating equipment (except warm air furnaces) manufacturing</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Pump and pumping equipment manufacturing</td>
<td>17</td>
<td>**</td>
</tr>
<tr>
<td>All other miscellaneous electrical equipment and component manufacturing</td>
<td>--</td>
<td>**</td>
</tr>
<tr>
<td>Other general purpose machinery manufacturing</td>
<td>--</td>
<td>**</td>
</tr>
</tbody>
</table>

- - 10 or fewer jobs
** 3 or fewer companies

The $517.6 million in economic activity of Solar Energy Generation supports other local industries. As a result of its day-to-day operations, the Solar Energy Generation sector generates $74.9 million in annual payroll and approximately $196.1 million in additional economic activity at other local companies. This $196.1 million can be considered the result of the goods and services that companies engaged in Solar Energy Generation purchase from local vendors. The top three industries affected by Solar Energy Generation’s business are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale trade</td>
<td>157</td>
</tr>
<tr>
<td>Management of companies</td>
<td>118</td>
</tr>
<tr>
<td>Employment Services</td>
<td>61</td>
</tr>
</tbody>
</table>

Overall, an estimated 1,116 jobs are generated by the economic activity of companies supporting Solar Energy Generation.

In addition to these impacts, Solar Energy Generation also has an impact on the region through the expenditures of its employees and of workers at supplier companies. The combined payroll of Solar Energy Generation and its suppliers generates an additional $168.5 million in economic activity in the region. This induced effect generates 1,243 jobs and an additional $57.4 million in payroll for the region. The top three industries affected by the expenditures of employees engaged in Solar Energy Generation are:
Industry

| Restaurants (food services and drinking places) | 146 |
| Offices of physicians, dentists, etc. | 75 |
| Real estate | 74 |

A summary of Solar Energy Generation’s overall impact is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>1,133</td>
<td>1,116</td>
<td>1,243</td>
<td>3,492</td>
</tr>
<tr>
<td>Wages*</td>
<td>$134,200,000</td>
<td>$74,900,000</td>
<td>$57,400,000</td>
<td>$266,500,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$517,600,000</td>
<td>$196,100,000</td>
<td>$168,500,000</td>
<td>$882,200,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 100,000

Furthermore, additional investment of venture capital into cleantech research and development (R&D) has the ability to generate additional impact to the regional economy. During the year the investment is spent, for every $10 million of venture capital funding, private sector R&D directly generates $1.5 million in economic activity and nearly three-quarters of a million dollars in payroll for 10 employees. In turn, the funded company and its employees make local purchases which combined generate an additional $1.4 million in economic activity and $412,000 in payroll for 11 employees.

A summary of the effects of $10 million in venture capital investment toward private sector R&D is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Wages*</td>
<td>$772,000</td>
<td>$162,000</td>
<td>$250,000</td>
<td>$1,184,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$1,509,000</td>
<td>$514,000</td>
<td>$884,000</td>
<td>$2,907,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 1,000

It should be noted that a handful of companies work in more than one cleantech sector, and some cleantech companies may have been missed. While care was taken to have as comprehensive an inventory, with as little overlap as possible, the results listed here should be considered an impact assessment for the businesses listed here only, and should not be summed with other impact reports to estimate a total across all cleantech industries.

Sincerely,

\[signature\]

BETH JAROSZ
Senior Economic Analyst

BJA/kca
Mr. Jason Anderson, Vice President  
CleanTECH San Diego  
9191 Towne Center Drive, Suite 410  
San Diego, CA 92122  

Dear Mr. Anderson:  

SUBJECT: Economic Impact of the Energy Efficiency Sector in San Diego  

As requested, the San Diego Association of Governments (SANDAG) Service Bureau has estimated the economic impact of the Energy Efficiency sector on the regional economy during the course of one year.  

Energy Efficiency technologies enable the same or more work (output or productivity) using less energy. Examples include advanced light sources and controls, smart/user-friendly energy management systems, energy-efficient water heaters and other appliances, high-efficiency industrial process systems, motors, pumps, and advanced space heating and cooling systems.  

This impact analysis is based upon 1,013 employees, across 38 companies, that work in the Energy Efficiency sector, as identified in the CleanTECH San Diego company database.  

Company information from the CleanTECH database was augmented with data from a variety of sources, including the SANDAG Employment Inventory (2009), a telephone survey of businesses in the database (2011), and other supplemental sources such as news reports and business directories. The analysis was conducted using the IMPLAN economic impact model with data for 2009.  

Research in and implementation of the Energy Efficiency sector may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.  

The analysis describes the direct, indirect, and induced impacts of the Energy Efficiency sector on the San Diego region’s economy. The direct impacts reflect jobs and expenditures that are directly related to the Energy Efficiency sector. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of the Energy Efficiency sector. The induced impacts are the local household expenditures of workers employed in the Energy Efficiency sector and in supplier industries.  

From an economic perspective, the Energy Efficiency sector employs approximately 1,013 workers in San Diego and provides nearly $89.6 million in payroll and $299.8 million in economic activity for the San Diego region per year.
This activity is spread across a wide variety of companies ranging from large firms to small startups, and from manufacturing to research and development, to design and sales, including the following industry sectors:

<table>
<thead>
<tr>
<th>INDUSTRY SECTOR (IMPLAN CODES)</th>
<th>Est. Number of Jobs</th>
<th>Est. Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale trade</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>Industrial process variable instruments manufacturing</td>
<td>182</td>
<td>**</td>
</tr>
<tr>
<td>Semiconductor and related device manufacturing</td>
<td>82</td>
<td>8</td>
</tr>
<tr>
<td>Heating equipment (except warm air furnaces) manufacturing</td>
<td>80</td>
<td>**</td>
</tr>
<tr>
<td>Architectural, engineering, and related services</td>
<td>75</td>
<td>7</td>
</tr>
<tr>
<td>Office administrative services</td>
<td>66</td>
<td>**</td>
</tr>
<tr>
<td>Copper rolling, drawing, extruding and alloying</td>
<td>64</td>
<td>**</td>
</tr>
<tr>
<td>Scientific research and development services</td>
<td>59</td>
<td>4</td>
</tr>
<tr>
<td>Environmental and other technical consulting services</td>
<td>53</td>
<td>**</td>
</tr>
<tr>
<td>Custom computer programming services</td>
<td>48</td>
<td>**</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>**</td>
</tr>
<tr>
<td>Motor vehicle parts manufacturing</td>
<td>15</td>
<td>**</td>
</tr>
<tr>
<td>Power, distribution, and specialty transformer manufacturing</td>
<td>--</td>
<td>**</td>
</tr>
<tr>
<td>Other plastics product manufacturing</td>
<td>--</td>
<td>**</td>
</tr>
</tbody>
</table>

- - 10 or fewer jobs
** 3 or fewer companies

The $299.8 million in economic activity of Energy Efficiency supports other local industries. As a result of its day-to-day operations, Energy Efficiency generates $37.4 million in annual payroll and approximately $103.6 million in additional economic activity at other local companies. This $103.6 million can be considered the result of the goods and services that companies engaged in Clean Energy Efficiency purchase from local vendors. The top three industries affected by Clean Energy Efficiency’s business are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale trade</td>
<td>70</td>
</tr>
<tr>
<td>Management of companies</td>
<td>44</td>
</tr>
<tr>
<td>Real estate</td>
<td>38</td>
</tr>
</tbody>
</table>

Overall, an estimated 595 jobs are generated by the economic activity of companies supporting Energy Efficiency.

In addition to these impacts, Energy Efficiency also has an impact on the region through the expenditures of its employees and of workers at supplier companies. The combined payroll of Energy Efficiency and its suppliers generates an additional $102.4 million in economic activity in
the region. This induced effect generates 756 jobs and an additional $34.9 million in payroll for the region. The top three industries affected by the expenditures of employees engaged in Clean Energy Efficiency are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurants (food services and drinking places)</td>
<td>89</td>
</tr>
<tr>
<td>Offices of physicians, dentists, etc.</td>
<td>46</td>
</tr>
<tr>
<td>Real estate</td>
<td>45</td>
</tr>
</tbody>
</table>

A summary of Energy Efficiency’s overall impact is shown below:

<table>
<thead>
<tr>
<th>Employment</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages*</td>
<td>$89,600,000</td>
<td>$37,400,000</td>
<td>$34,900,000</td>
<td>$161,900,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$299,800,000</td>
<td>$103,600,000</td>
<td>$102,400,000</td>
<td>$505,800,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 100,000

Furthermore, additional investment of venture capital into cleantech research and development (R&D) has the ability to generate additional impact to the regional economy. During the year the investment is spent, for every $10 million of venture capital funding, private sector R&D directly generates $1.5 million in economic activity and nearly three-quarters of a million dollars in payroll for 10 employees. In turn, the funded company and its employees make local purchases which combined generate an additional $1.4 million in economic activity and $412,000 in payroll for 11 employees.

A summary of the effects of $10 million in venture capital investment towards private sector R&D is shown below:

<table>
<thead>
<tr>
<th>Employment</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages*</td>
<td>$772,000</td>
<td>$162,000</td>
<td>$250,000</td>
<td>$1,184,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$1,509,000</td>
<td>$514,000</td>
<td>$884,000</td>
<td>$2,907,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 1,000

It should be noted that a handful of companies work in more than one cleantech sector, and some cleantech companies may have been missed. While care was taken to have as comprehensive an inventory with as little overlap as possible, the results listed here should be considered an impact assessment for the businesses listed here only, and should not be summed with other impact reports to estimate a total across all cleantech industries.

Sincerely,

[Signature]

Beth Jarosz
Senior Economic Analyst

BJA/kca
July 22, 2011

Mr. Jason Anderson, Vice President
CleanTECH San Diego
9191 Towne Center Drive, Suite 410
San Diego, CA 92122

Dear Mr. Anderson:

SUBJECT: Economic Impact of Clean Energy Storage in San Diego

As requested, the San Diego Association of Governments (SANDAG) Service Bureau has estimated the economic impact of Clean Energy Storage on the regional economy during the course of one year.

Clean Energy Storage technologies include technologies that improve all forms of energy storage, from battery technology for consumer-scale products to large chemical, metal, biological or other approaches to storage of utility-scale energy, as well as methods for controlling or increasing the efficiency of energy storage or energy transmission.

This impact analysis is based upon 561 employees, across seven companies that work in the Clean Energy Storage sector, as identified in the CleanTECH San Diego company database.

Company information from the CleanTECH database was augmented with data from a variety of sources, including the SANDAG Employment Inventory (2009), a telephone survey of businesses in the database, and other supplemental sources, such as news reports and business directories. The analysis was conducted using the IMPLAN economic impact model with data for 2009.

Research in and implementation of Clean Energy Storage may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.

The analysis describes the direct, indirect, and induced impacts of Clean Energy Storage on the San Diego region’s economy. The direct impacts reflect jobs and expenditures that are directly related to Clean Energy Storage. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of Clean Energy Storage. The induced impacts are the local household expenditures of workers employed in Clean Energy Storage and in supplier industries.

From an economic perspective, Clean Energy Storage employs approximately 561 workers in San Diego and provides nearly $56.3 million in payroll and $133.9 million in economic activity for the San Diego region per year.
This activity is spread across a wide variety of companies ranging from large firms to small startups, and from manufacturing to research and development, architectural and engineering services, and design and sales including the following industry sectors:

<table>
<thead>
<tr>
<th>INDUSTRY SECTOR (IMPLAN CODES)</th>
<th>Est. Number of Jobs</th>
<th>Est. Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial process variable instruments manufacturing</td>
<td>240</td>
<td>**</td>
</tr>
<tr>
<td>Electronic capacitor, resistor, coil, transformer, and other inductor manufacturing</td>
<td>221</td>
<td>**</td>
</tr>
<tr>
<td>Architectural, engineering, and related services</td>
<td>61</td>
<td>**</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>32</td>
<td>**</td>
</tr>
<tr>
<td>Retail - Motor vehicle and parts</td>
<td>- -</td>
<td>**</td>
</tr>
</tbody>
</table>

- - 10 or fewer jobs
** 3 or fewer companies

The $133.9 million in economic activity of Clean Energy Storage supports other local industries. As a result of its day-to-day operations, Clean Energy Storage generates $17.5 million in annual payroll and approximately $46.3 million in additional economic activity at other local companies. This $46.3 million can be considered the result of the goods and services that companies engaged in Clean Energy Storage purchase from local vendors. The top three industries affected by Clean Energy Storage’s business are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale</td>
<td>33</td>
</tr>
<tr>
<td>Management of Companies</td>
<td>30</td>
</tr>
<tr>
<td>Food services</td>
<td>14</td>
</tr>
<tr>
<td>Real estate</td>
<td>14</td>
</tr>
<tr>
<td>Scientific R&amp;D</td>
<td>14</td>
</tr>
</tbody>
</table>

Overall, an estimated 263 jobs are generated by the economic activity of companies supporting Clean Energy Storage.

In addition to these impacts, Clean Energy Storage also has an impact on the region through the expenditures of its employees and of workers at supplier companies. The combined payroll of Clean Energy Storage and its suppliers generates an additional $59.4 million in economic activity in the region. This induced effect generates 439 jobs and an additional $20.2 million in payroll for the region. The top three industries affected by the expenditures of employees engaged in Clean Energy Storage are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurants (food services and drinking places)</td>
<td>51</td>
</tr>
<tr>
<td>Offices of physicians, dentists, etc.</td>
<td>27</td>
</tr>
<tr>
<td>Real estate</td>
<td>26</td>
</tr>
</tbody>
</table>
A summary of Clean Energy Storage’s overall impact is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>561</td>
<td>263</td>
<td>439</td>
<td>1263</td>
</tr>
<tr>
<td>Wages*</td>
<td>$56,300,000</td>
<td>$17,500,000</td>
<td>$20,200,000</td>
<td>$94,000,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$133,900,000</td>
<td>$46,300,000</td>
<td>$59,400,000</td>
<td>$239,600,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 100,000

Furthermore, additional investment of venture capital into cleantech research and development (R&D) has the ability to generate additional impact to the regional economy. During the year the investment is spent, for every $10 million of venture capital funding, private sector R&D directly generates $1.5 million in economic activity and nearly three-quarters of a million dollars in payroll for 10 employees. In turn, the funded company and its employees make local purchases which combined generate an additional $1.4 million in economic activity and $412,000 in payroll for 11 employees.

A summary of the effects of $10 million in venture capital investment toward private sector R&D is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Wages*</td>
<td>$772,000</td>
<td>$162,000</td>
<td>$250,000</td>
<td>$1,184,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$1,509,000</td>
<td>$514,000</td>
<td>$884,000</td>
<td>$2,907,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 1,000

It should be noted that a handful of companies work in more than one cleantech sector, and some cleantech companies may have been missed. While care was taken to have as comprehensive an inventory, with as little overlap as possible, the results listed here should be considered an impact assessment for the businesses listed here only, and should not be summed with other impact reports to estimate a total across all cleantech industries.

Sincerely,

[Signature]

BETH JAROSZ
Senior Economic Analyst

BJA/kca
Mr. Jason Anderson, Vice President  
CleanTECH San Diego  
9191 Towne Center Drive, Suite 410  
San Diego, CA 92122  

Dear Mr. Anderson:

SUBJECT:  Economic Impact of the Smart Grid Sector in San Diego

As requested, the SANDAG Service Bureau has estimated the economic impact of the Smart Grid sector on the regional economy during the course of one year.

Smart Grid technologies add intelligence to the existing grid network through new communications and computer controls. These technologies give industrial, commercial, and residential consumers greater control over when and how their energy is delivered and used.

This impact analysis is based upon 460 employees, across nearly 20 companies that work in the Smart Grid sector, as identified in the CleanTECH San Diego company database.

Company information from the CleanTECH database was augmented with data from a variety of sources including the SANDAG Employment Inventory (2009), a telephone survey of businesses in the database, and other supplemental sources such as news reports and business directories. The analysis was conducted using the IMPLAN economic impact model with data for 2009.

Research in and implementation of Smart Grid may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.

The analysis describes the direct, indirect, and induced impacts of the Smart Grid sector on the San Diego region’s economy. The direct impacts reflect jobs and expenditures that are directly related to the Smart Grid sector. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of the Smart Grid sector. The induced impacts are the local household expenditures of workers employed in Smart Grid and in supplier industries.

From an economic perspective, the Smart Grid sector employs approximately 460 workers in San Diego and provides more than $37.2 million in payroll and $91.5 million in economic activity for the San Diego region per year.
This activity is spread across a wide variety of companies, ranging from large firms to small startups, and from manufacturing, to research and development, consulting services, and design and sales, including the following industry sectors:

<table>
<thead>
<tr>
<th>INDUSTRY SECTOR (IMPLAN CODES)</th>
<th>Est. Number of Jobs</th>
<th>Est. Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch, clock, and other measuring and controlling device manufacturing</td>
<td>130</td>
<td>**</td>
</tr>
<tr>
<td>Custom computer programming services</td>
<td>105</td>
<td>5</td>
</tr>
<tr>
<td>Wholesale and retail trade and other services</td>
<td>82</td>
<td>4</td>
</tr>
<tr>
<td>Environmental and other technical consulting services</td>
<td>68</td>
<td>4</td>
</tr>
<tr>
<td>All other miscellaneous professional, scientific, and technical services</td>
<td>35</td>
<td>**</td>
</tr>
<tr>
<td>Management, scientific, and technical consulting services</td>
<td>27</td>
<td>**</td>
</tr>
<tr>
<td>Scientific research and development services</td>
<td>13</td>
<td>**</td>
</tr>
</tbody>
</table>

- 10 or fewer jobs
** 3 or fewer companies

The $91.5 million in economic activity of the Smart Grid sector supports other local industries. As a result of its day-to-day operations, the Smart Grid sector generates $11.4 million in annual payroll and approximately $31.3 million in additional economic activity at other local companies. This $31.3 million can be considered the result of the goods and services that companies engaged in this sector purchase from local vendors. The top three industries affected by the Smart Grid sector's business are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate</td>
<td>20</td>
</tr>
<tr>
<td>Employment Services</td>
<td>20</td>
</tr>
<tr>
<td>Management of Companies</td>
<td>13</td>
</tr>
</tbody>
</table>

Overall, an estimated 193 jobs are generated by the economic activity of companies supporting the Smart Grid sector.

In addition to these impacts, the Smart Grid sector also has an impact on the region through the expenditures of its employees and of workers at supplier companies. The combined payroll of the Smart Grid sector and its suppliers generates an additional $39.3 million in economic activity in the region. This induced effect generates 290 jobs and an additional $13.4 million in payroll for the region. The top three industries affected by the expenditures of employees engaged in the Smart Grid sector are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurants (food services &amp; drinking places)</td>
<td>34</td>
</tr>
<tr>
<td>Offices of physicians, dentists, etc.</td>
<td>17</td>
</tr>
<tr>
<td>Real estate</td>
<td>17</td>
</tr>
</tbody>
</table>
A summary of the Smart Grid sector’s overall impact is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>460</td>
<td>193</td>
<td>290</td>
<td>943</td>
</tr>
<tr>
<td>Wages*</td>
<td>$37,200,000</td>
<td>$11,400,000</td>
<td>$13,400,000</td>
<td>$62,000,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$91,500,000</td>
<td>$31,300,000</td>
<td>$39,300,000</td>
<td>$162,100,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 100,000

Furthermore, additional investment of venture capital into cleantech research and development (R&D) has the ability to generate additional impact to the regional economy. During the year the investment is spent, for every $10 million of venture capital funding, private sector R&D directly generates $1.5 million in economic activity and nearly three-quarters of a million dollars in payroll for ten employees. In turn, the funded company and its employees make local purchases which combined generate an additional $1.4 million in economic activity and $412,000 in payroll for 11 employees.

A summary of the effects of $10 million in venture capital investment toward private sector R&D is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Wages*</td>
<td>$772,000</td>
<td>$162,000</td>
<td>$250,000</td>
<td>$1,184,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$1,509,000</td>
<td>$514,000</td>
<td>$884,000</td>
<td>$2,907,000</td>
</tr>
</tbody>
</table>

*rounded to the nearest 1,000

It should be noted that a handful of companies work in more than one cleantech sector, and some cleantech companies may have been missed. While care was taken to have as comprehensive an inventory, with as little overlap as possible, the results listed here should be considered an impact assessment for the businesses listed here only, and should not be summed with other impact reports to estimate a total across all cleantech industries.

Sincerely,

[Signature]

BETH JAROSZ
Senior Economic Analyst

BJA/cma/ais
January 4, 2012

Dr. Stephen Mayfield
Director, San Diego Center for Algae Biotechnology
John Dove Isaacs Chair of Natural Philosophy
Division of Biological Sciences
University of California, San Diego
2150C Bonner Hall, MC: 0368
9500 Gilman Drive, La Jolla, CA 92093-0368

Dear Dr. Mayfield:

SUBJECT: Economic Impact of Algal Biofuel Research

As requested, the San Diego Association of Governments has estimated the anticipated economic impact of algal biofuel research on the regional economy during the course of one year. This impact analysis is based upon 366 employees engaged in private sector research in algal biofuels and financing for biofuels research, and 100 academic faculty and research assistants, for a total of 466 workers in algal biofuels. The analysis was conducted using the 2009 IMPLAN economic impact model and focuses on the work occurring in San Diego, which is concentrated in research and development. All dollar values are reported in 2011 dollars.

Future production of biofuel from algae has the potential to produce a sustainable and easily produced fuel source for the nation. This may result in advantages such as a cleaner environment, lower fuel costs, and other benefits. Those benefits are in addition to, not included in, the economic impact analysis below.

The analysis describes the direct, indirect, and induced impacts of algal biofuel research on the San Diego region economy. The direct impacts reflect jobs and expenditures that are directly related to research in algal biofuels. The indirect impacts are the numerous business products, materials, and services required and supplied locally to support the direct activities of algal biofuel research. The induced impacts are the local household expenditures of employees involved in the research.

From an economic perspective, based on current funding levels, research in algal biofuels employed 466 workers in San Diego and provided more than $41.0 million in payroll and $80.9 million in economic activity for the San Diego region in 2011. Algal biofuels continues to show strong growth in the region, despite the sluggish economy. The number of jobs in 2011 is an increase over the 410 jobs identified in 2010 and is more than double the number of workers (215) in 2009.

The $80.9 million in economic activity of algal biofuel research supports other local industries. As a result of its day-to-day operations, research in algal biofuels is expected to generate nearly $12.5 million in annual payroll and approximately $32.9 million in additional economic activity at other local companies. This $32.9 million can be considered the result of the goods and services that companies engaged in algal biofuel research purchase from local vendors. The top industries affected by algal biofuel research’s business are shown in the table below.
Industry                      Jobs Generated
Services to buildings and dwellings  22.7
Real estate                        21.7
Employment services                17.7
Food services and drinking places  11.9
Management, scientific, and technical consulting  11.8
Wholesale trade                    10.1

Overall, an estimated 219 jobs are generated by the economic activity of companies supporting algal biofuel research.

In addition to these impacts, research in algal biofuels also has an impact on the region through the expenditures of its employees and the employees of local supplier companies. That payroll generates an additional $43.3 million in economic activity in the region. This induced effect generates 320 jobs and an additional $14.7 million in payroll for the region. The top industries affected by the expenditures of employees engaged in algal biofuel research are shown in the table below.

Industry                      Jobs Generated
Food services and drinking places  37.4
Offices of physicians, dentists, and other healthcare  19.2
Real estate                      18.6
Retail - food and beverage       11.1
Private hospitals                10.2
Retail - general merchandise      10.2

A summary of algal biofuel research’s impacts is shown below:

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>466</td>
<td>219</td>
<td>320</td>
<td>1,005</td>
</tr>
<tr>
<td>Wages*</td>
<td>$41,050,000</td>
<td>$12,488,000</td>
<td>$14,729,000</td>
<td>$68,267,000</td>
</tr>
<tr>
<td>Output*</td>
<td>$80,929,000</td>
<td>$32,883,000</td>
<td>$43,263,000</td>
<td>$157,075,000</td>
</tr>
</tbody>
</table>

*rrounded to the nearest 100,000

Sincerely,

BETH JAROSZ
Senior Economic Analyst

BJA/kca/ais
CleanTECH San Diego

Background

CleanTECH San Diego was created in 2007 to:

• Support Job Creation. Advance and diversify the San Diego region’s economic development goals

• Build a Common Agenda. Bring together the region’s diverse clean technology Stakeholders around a common agenda

• Prepare for the New Economy. Help San Diego prepare for and benefit from California’s proactive regulatory policies

• Mission: Accelerate the San Diego region as a world leader in the clean technology economy
CleanTECH San Diego Reached Its 100th Member Milestone in 2011

Why San Diego?

- **World Class Research Institutes.** A track record for taking innovations out of the lab and creating companies and economic engines
  - More than 75 research institutes with five founded in the last two years
  - Scripps Institution of Oceanography (1903), UC San Diego (1960), Salk Institute (1960), San Diego Center for Algae Biotechnology (2009)

- **History of Building Economic Clusters.** San Diego’s clean tech cluster is a natural extension of our existing high tech, biotech and defense clusters. Its all about convergence.
  - **High Tech** – 3,000 IT and wireless companies
  - **Biotech** – 600 life science and biomedical companies
  - **Defense** – 260 defense and security companies

- **Strategic Partner Leadership.** The incumbent utility and public university each have best-in-class rankings which serve as anchors to the cleantech industry
  - SDG&E designated ‘Most Intelligent Utility in Country’ by IDC for three years running
  - UC San Diego is home to the most advanced microgrid in the country
San Diego shows higher growth in average number of patents published and granted than other regions in CA and Boston

- Over the past two years, the average number of patent applications published per quarter in San Diego increased by more than 8%.
- The average number of patents granted per quarter increased by 40%.

California Leads with 43% of Clean VC in U.S.

Q3 2011 Highlights
70 deals totaling $1220M, up from 65 deals totaling $781M in Q2

Top Five Deals
- Bloom Energy
- Boston-Power
- HelioVolt
- ClearEdge Power
- BridgeLux

Source: United States Patent and Trademark Office
All San Diego Summary: CONNECT
Military Leadership

Department of Defense clean energy investments increased 300% between 2006 and 2009, from $400 million to $1.2 billion, and are projected to eclipse $10 billion annually by 2030.

DoD Initiatives by Industry

Biofuels
• Air Force plans to use biofuels for 50% of domestic aviation needs by 2016.
• Navy plans to sail the “Great Green Fleet” and with the Marines, plan to use alternative energy sources to meet 50% of energy requirements by 2020.

Energy Efficiency
• Army’s “Net Zero” program aims to have each of 6 installations produce as much as they consume in energy, water or waste by 2020.

Energy Storage
• Army’s 10-pound Rucksack Enhanced Portable Power System is a portable battery recharging kit made up of a thin portable 62-watt solar mat.

Key Clean Energy Projects in the San Diego Region

Marine Corps
• Miramar: 3.2-MW landfill-gas project
• Camp Pendleton: 1.5-MW solar

Navy
• Naval Base Coronado: 500-kW building integrated photovoltaics

SPAWAR
• A prolific developer of clean technologies
• Navy’s largest contiguous rooftop solar array

Global Connectivity

San Diego Launches Global Cleantech Cluster Association
• 30 Countries participate worldwide
• Showcase 10,000 international companies and 500 universities and research institutions

CleanTECH San Diego Ranked Top 10 Cluster Organization in the World
• Only two other US Clusters Ranked

International Partners and CleanTECH Members:
• AUSTRADE
• Consulate of Canada
• German Consulate
• Swedish-American Chamber of Commerce
• Swisscleantech
• Toronto Stock Exchange
• United Kingdom Consulate
• World Trade Center
San Diego’s Cleantech Economy

837 Cleantech Companies and Counting

• Robust, upward trending new company growth
• Over 330 innovator companies and over 480 market enabler companies
• County-wide distribution. Dense formation around universities, research institutes and colleges
• Strong activity in solar, transportation, batteries, energy storage and biofuels

20,500 Green Economy Workers in San Diego County
Solar Energy: Leading Adoption, Innovation and Manufacturing

California’s #1 solar city
- San Diego has highest solar PV adoption rates in the state with 16,000 rooftop installations and 125 MW installed
- More than 200 solar companies in San Diego

Secured $154M in CREBS Allocation
- CleanTECH San Diego led a regional coalition enabling its 18 municipalities to install solar rooftops

iHUB Designation
- Solar, energy storage and biofuels

San Diego Welcomes Soitec
- Leader in CPV technology
- Economic development project with UC San Diego, City of San Diego, and San Diego Regional EDC

Economic Impact
- 450 direct jobs at the factory
- 1,000 indirect jobs
- Annual production capacity of 200 MW

Biofuels: Training the Next-Gen Workforce

Industry
- More than 30 biofuels companies in San Diego
- Strong research assets
- Imperial Valley link
- State iHUB designation

EDGE Initiative
- Workforce training for biofuels industry
- Partnership with BIOCOM, Regional EDC, UC San Diego and San Diego Workforce Partnership
- $4 million for workforce development; one of five DOL grant recipients
- 225 trainees, 43 employed, 4 programs accredited (to date)
Clean Transportation: Trailblazing Toward Emissions-Free Mobility

Industry
• Innovation from small and large companies on charging, metering, storage and fuel choice.
• Home to nearly 40 clean transportation companies

EV Adoption is Here: San Diego is Out Front
• 2,000 EVs expected to hit San Diego streets this year alone
• 10% of the 20,000 Nissan EVs ordered by San Diegans
• ECOTality deploying part of $220 million DOE grant to install charging stations nationwide; 2,500 dedicated to San Diego
• CPUC $120 million settlement with NRG to bring 200 fast charging stations to California

Region Preparing for Largest Deployment in History
• SDG&E preparing for grid impacts
• UC San Diego researching grid and storage scenarios
• City of San Diego and CleanTECH San Diego exploring regulatory strategies to support deployment

Energy Efficiency: Building ARRA Success Stories

Industry
• More than 50 energy efficiency companies in San Diego
• Majority of municipalities in the county awarded DOE EE CBG project grants

Street Light Working Group
• Consortium of CleanTECH San Diego, SDG&E and cities in San Diego County;
• 13 cities, 55,000 street light retrofits in progress
• 40% kwh reduction (average); 20 million kWh annual savings
• $3 million annual taxpayer savings; $30 million over 10 year light life
• $25 million in local economic development/job creation
Smart Grid: Converging Technologies for Sustainable Solutions

Regional Leadership
- SDG&E – proactive advanced meter installations; 20.8 percent of energy from renewables in 2011
- UC San Diego – microgrid test bed; solar forecasting and grid stability research

New Collaborative: Smart City San Diego
- GE, SDG&E, City of San Diego, UC San Diego and CleanTECH San Diego partnership designed to:
  • Prepare region for one of largest EV deployments
  • Test key energy efficiency and smart grid solutions
  • Set measurable standard for sustainability

San Diego Cleantech Sector’s Economic Impact

<table>
<thead>
<tr>
<th>Clean Transportation</th>
<th>Energy Efficiency</th>
<th>Energy Storage</th>
<th>Biofuels</th>
</tr>
</thead>
<tbody>
<tr>
<td>$311.3 million</td>
<td>$299.8 million</td>
<td>$56.3 million</td>
<td>$80.9 million</td>
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<tr>
<td>direct economic activity</td>
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<td>$90.1 million</td>
<td>$103.6 million</td>
<td>$46.3 million</td>
<td>$76.2 million</td>
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<tr>
<td>indirect economic activity</td>
<td>indirect economic activity</td>
<td>indirect economic activity</td>
<td>indirect economic activity</td>
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<tr>
<td>29 companies</td>
<td>38 companies</td>
<td>7 companies</td>
<td>31 companies</td>
</tr>
<tr>
<td>1050 direct jobs/506 indirect</td>
<td>1013 direct jobs/595 indirect</td>
<td>561 direct jobs/263 indirect</td>
<td>466 direct jobs/539 indirect</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Solar Energy Generation</th>
<th>Total Cleantech Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>$517.6 million</td>
<td>$3 billion direct, indirect and induced impact</td>
</tr>
<tr>
<td>direct economic activity</td>
<td>$750 million in combined annual payroll</td>
</tr>
<tr>
<td>$196.1 million</td>
<td>10,000+ jobs</td>
</tr>
<tr>
<td>indirect economic activity</td>
<td></td>
</tr>
<tr>
<td>29 companies</td>
<td></td>
</tr>
<tr>
<td>1133 direct jobs/1116 indirect</td>
<td></td>
</tr>
</tbody>
</table>

Source: TOTAL CLEANTECH IMPACT
- $3 billion direct, indirect and induced impact
- $750 million in combined annual payroll
- 10,000+ jobs

San Diego Cleantech Sector’s Economic Impact
Data Needed for Existing Conditions and Forecasts to 2050 for Regional Energy Strategy Technical Update *(not exhaustive list)*

The current RES forecasts to 2030. The technical update will extend forecasts to 2050.

<table>
<thead>
<tr>
<th>Data (units)</th>
<th>Possible Data Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electricity and natural gas</strong></td>
<td><strong>California Energy Commission (CEC) Almanac and current adopted CEC Integrated Energy Policy Report (IEPR) electricity forecast (includes independent analysis utility long term procurement plan forecasts)</strong></td>
</tr>
<tr>
<td>Statewide and regional - San Diego Gas &amp; Electric (SDG&amp;E) territory: Total Electricity System Power Mix (% GWh) Renewables Mix (% GWh)</td>
<td><strong>CEC IEPR, SDG&amp;E</strong></td>
</tr>
<tr>
<td>Statewide and regional electricity consumption: By sector (GWh), Household (MWh), Per capita (MWh)</td>
<td><strong>CEC IEPR, SDG&amp;E</strong></td>
</tr>
<tr>
<td>Statewide and regional existing and projected: Distributed generation (MW) Peak and average demand (MW), Load factor</td>
<td><strong>CEC IEPR, SDG&amp;E</strong></td>
</tr>
<tr>
<td>Statewide and regional natural gas consumption: By sector, by household, Per capita</td>
<td><strong>CEC IEPR, SDG&amp;E</strong></td>
</tr>
<tr>
<td>Statewide and SDG&amp;E Business as Usual (BAU) Electricity forecast (GWh) <em>(includes avoided consumption from energy efficiency (EE) and distributed generation (DG) measures)</em> Natural gas forecast (million therms) <em>(includes avoided consumption from EE and DG)</em></td>
<td><strong>CEC, SDG&amp;E, California Center for Sustainable Energy (CCSE), University of San Diego Energy Policy Initiatives Center (EPIC)</strong></td>
</tr>
<tr>
<td>Statewide and regional potential energy savings from aggressive energy efficiency measures <em>(e.g., deep retrofits, zero net energy buildings, etc.)</em></td>
<td><strong>EPIC, CCSE, CEC</strong></td>
</tr>
<tr>
<td>Smart Meter installation numbers/status</td>
<td><strong>SDG&amp;E</strong></td>
</tr>
<tr>
<td>Electricity and Natural Gas average customer cost ($/kWh, $/therm)</td>
<td><strong>CEC, SDG&amp;E</strong></td>
</tr>
<tr>
<td>Data (units)</td>
<td>Possible Data Source(s)</td>
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<td>----------------------------------------------------------------------------</td>
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<tr>
<td><strong>Water</strong></td>
<td></td>
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<tr>
<td>Energy intensity of water (kWh/acre-foot) by supply/use</td>
<td>CEC, US Department of Energy (DOE), San Diego County Water Authority (SDCWA)</td>
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<tr>
<td>Embedded Energy of Water End Uses in SD Region (% total, kWh/acre-foot)</td>
<td>CEC, DOE, SDCWA</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
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<tr>
<td>Existing and projected on-road fuel consumption (billion gallons)</td>
<td>SANDAG, CEC, CARB</td>
</tr>
<tr>
<td>Existing and projected alternative fuels (AF) consumption and AF vehicles</td>
<td>Department of Motor Vehicles (DMV), California Air Resources Board (CARB), Air Pollution Control District (APCD)</td>
</tr>
<tr>
<td>Existing and projected electric vehicle charging units installed</td>
<td>SDG&amp;E, CEC, DOE, CCSE</td>
</tr>
<tr>
<td>Regional vehicle-miles-traveled</td>
<td>SANDAG</td>
</tr>
<tr>
<td><strong>Economy</strong></td>
<td></td>
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<tr>
<td>Job Creation by energy sector and job multipliers</td>
<td>American Council for an Energy Efficient Economy (ACEEE), DOE, CEC and CleanTECH San Diego</td>
</tr>
<tr>
<td><strong>Climate Change</strong></td>
<td></td>
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<tr>
<td>SDG&amp;E and San Diego County GHG emissions by IPCC Category (%)</td>
<td>SDG&amp;E, CARB, EPIC, San Diego Foundation</td>
</tr>
<tr>
<td>Existing and forecasted GHG by End-Use Category</td>
<td>CARB, EPIC, SD Foundation</td>
</tr>
</tbody>
</table>

Units: GWh=gigawatt-hour, MWh=megawatt-hour, kWh=kilowatt-hour, MW=megawatt
SENATE BILL No. 39

Introduced by Senators De León and Steinberg
(Coauthors: Senators Beall, Block, Calderon, Corbett, DeSaulnier, Evans, Galgiani, Hancock, Hernandez, Hill, Jackson, Lara, Leno, Lieu, Liu, Negrete McLeod, Padilla, Pavley, Price, Roth, Rubio, Vargas, Wolk, and Yee)
(Coauthors: Assembly Members Skinner and Torres)

December 5, 2012

An act to add Chapter 5 (commencing with Section 26230) to Division 16.3 of the Public Resources Code, relating to energy.

LEGISLATIVE COUNSEL’S DIGEST

SB 39, as introduced, De León. Energy: school facilities: energy efficiency upgrade projects.

The California Clean Energy Jobs Act, an initiative measure enacted by voters at the November 6, 2012, statewide general election, establishes the Clean Energy Job Creation Fund and requires moneys in the fund to be available for appropriation during specified fiscal years for, among other things, the purposes of funding energy efficiency projects in school facilities.

This bill would enact the Clean Energy Employment and Student Advancement Act of 2013 and would require the Office of Public School Construction to establish a school district assistance program to distribute grants, on a competitive basis, for energy efficiency upgrade projects pursuant to the California Clean Energy Jobs Act. The bill would require the office, upon the approval of the State Allocation Board, to award a school district grants for energy efficiency upgrade projects meeting specified criteria. The bill would require the office to give priority applications meeting specified criteria.
This bill would state the intent of the Legislature to appropriate moneys to the Office of Public School Construction from the fund for the purposes of awarding energy efficiency grants to the most disadvantaged schools in need of modernization for the purposes of energy efficiency upgrades.


The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature finds and declares all of the following:

(1) The people of the State of California voiced their strong support for the California Clean Energy Jobs Act by enacting Proposition 39 at the November 6, 2012, statewide general election. The voters closed an egregious corporate tax loophole that only benefitted out-of-state companies at the expense of expanded employment in our state.

(2) It is the duty of the Legislature to put these dollars to work in a manner that voters can see and experience the benefit. Proposition 39 enumerated the following key principles in guiding the expenditure of the revenues raised through the California Clean Energy Jobs Act (Division 16.3 (commencing with Section 26200) of the Public Resources Code):

(A) Maximize job creation.
(B) Shrink our carbon footprint.
(C) Minimize bureaucratic costs.
(D) Create full transparency.
(E) Demand rigorous accountability.
(F) Create measurable results.

(3) Since the recession began in late 2007, California has lost nearly 1.4 million jobs, including 400,000 in the construction industry alone. Investing in energy efficiency will maximize job creation and will help the state regain a sense of economic security and sustainability at a time when unemployment remains high. The state can further stimulate its economy by putting the industry segment back to work that is most in need – the construction trades.

(4) Studies show the continuing high cost of energy and utilities due to inefficient lighting, insulation, heating, ventilation, and air conditioning systems, plumbing, windows, and irrigation systems...
take local money away from educational programs. For example, the Los Angeles Unified School District spends $105,000,000 annually on electricity. Energy efficiency improvements for public schools will reduce long-term energy costs and the savings can be directed to the classroom.

(5) Substandard physical environments are strongly associated with truancy and other behavior problems in pupils. Lower pupil attendance leads to lower scores on standardized tests in English-language arts and math. Schools with better building conditions have up to 14 percent lower pupil suspension rates. Improving a school’s health and safety standards can lead to a 36-point increase in California Academic Performance Index scores.

(6) Several studies have determined that children suffer significant health consequences from excessive heat, inadequate heating, ventilation, and air conditioning systems, mold and other biological hazards, pest infestations, lead and other toxic hazards, and overcrowding beyond the stated capacity of the school structure. Research repeatedly shows the detrimental impact to the health of pupils due to poor indoor air quality in classrooms. Increasing energy efficiency will reduce air pollution that causes asthma and lung disease.

(7) Economically disadvantaged school communities are often the same areas that suffer most from high unemployment and destructive or unlawful conduct by youth. The program funded by revenues generated by the California Clean Energy Jobs Act will encourage community participation in, and a greater sense of responsibility toward, educational, environmental, and fiscal benefits of modernizing facilities, which will enhance community pride and sustain neighborhood vitality.

(b) It is the intent of the Legislature that:

(1) The funds made available through the California Clean Energy Jobs Act be used to award competitive grants statewide to economically disadvantaged school communities that are accomplished by delivering project funds to neighborhoods in areas of highest need, while offering technical assistance to all applicants and potential applicants for grant preparation to encourage full participation in the grant program.

(2) The grant program funded by revenues generated by the California Clean Energy Jobs Act will finance competitive grants
for energy efficiency upgrade projects that provide operational
cost-savings improvements in K-12 school facilities.
(3) Energy efficiency upgrade projects create long-term benefits
and cost savings for school districts by significantly reducing
energy operational costs, creating a healthy indoor environment
for our pupils and staff and reducing the impact that energy creation
and consumption has on our natural environment.
(4) Energy efficiency upgrade projects also provide short-term
benefits, including the creation of prevailing-wage paying jobs in
communities around the state, and stimulate local economies.
SEC. 2. It is the intent of the Legislature to make moneys
available to the Office of Public School Construction, upon
appropriation, from the Clean Energy Job Creation Fund to award
energy efficiency upgrade grants to the most disadvantaged schools
in need of modernization for the purposes of energy efficiency
upgrades pursuant to the California Clean Energy Jobs Act
(Division 16.3 (commencing with Section 26200) of the Public
Resources Code).
SEC. 3. Chapter 5 (commencing with Section 26230) is added
to Division 16.3 of the Public Resources Code, to read:

CHAPTER 5. CLEAN ENERGY EMPLOYMENT AND STUDENT
ADVANCEMENT ACT OF 2013

26230. This chapter shall be known, and may be cited, as the
Clean Energy Employment and Student Advancement Act of 2013.
26231. As used in this chapter, the following terms shall have
the following meanings:
(a) “Energy efficiency upgrade project” means a school facility
project that reduces energy consumption and operational costs
through means that include, but are not limited to, improvements
to one or a combination of the following:
(1) Ventilation.
(2) Lighting and other system controls.
(3) Air infiltration.
(4) Water use.
(5) Windows and doors (fenestration).
(6) Heating and Cooling (HVAC).
(7) Electrical System.
(8) Insulation.
(b) “Office” means the Office of Public School Construction.
(c) “School district” means a school district or a county office of education.

26232. The office shall establish a school district assistance program to distribute grants, on a competitive basis, prioritizing economically disadvantaged school communities for energy efficiency upgrade projects that offer the highest energy efficiency saving, pursuant to this division.

26233. (a) The office shall offer technical assistance to all applicants and potential applicants for grant preparation to encourage full participation in the grant program.
(b) The office shall use existing benchmarking tools to determine present average energy consumption for a school facility by size and type.

26234. Upon approval by the State Allocation Board, the office shall award to a school district a grant pursuant to this chapter only for an energy efficiency upgrade project that meets all of the following criteria:
(a) The proposed project meets the qualifications of an energy efficiency upgrade project.
(b) The school district complies with the required labor compliance and contractor qualification standards.
(c) The amount of the grant applied for, together with any matching contribution, will meet all of the costs of implementing the energy efficiency upgrade project.
(d) The school district allows the office to audit all expenditures made with grant funds.
(e) The school district agrees to track and report to the office the number of jobs created as a result of the energy efficiency upgrade project.
(f) The school district reports to the office the operational cost savings resulting from the energy efficiency upgrade project, both at the district level, in aggregate, and school facility site level.

26235. In evaluating applications for grants that meet the requirements of Section 26234, the office shall assign higher priority to applications that meet each of the following criteria:
(a) The energy efficiency upgrade project is located at a school facility with an above average energy consumption, as determined by the benchmark pursuant to subdivision (b) of Section 26233.
(b) The energy efficiency upgrade project is located in an economically disadvantaged school community, based on the percentage of pupils eligible for the federal free and reduced price lunch program.
(c) The energy efficiency project is located in an area with an above average unemployment rate as compared to the statewide unemployment rate.
(d) The school district has actively involved pupils at the school facility site in the planning and design of the energy efficiency upgrade project.
(e) The energy efficiency upgrade project will enhance workforce development and employment opportunities, utilize members of the California Conservation Corps or certified local conservation corps, if available, or accommodate learning opportunities for school pupils or at-risk youth in the community.
(f) The energy efficiency upgrade project is a joint partnership between two or more agencies, including, but not limited to, other school districts, nonprofit organizations, and local government agencies to maximize the investment and benefit to the public.
ASSEMBLY BILL No. 39

Introduced by Assembly Members Skinner and John A. Pérez

December 3, 2012

An act to add Division 16.4 (commencing with Section 26225) to the Public Resources Code, relating to energy efficiency, and making an appropriation therefor.

LEGISLATIVE COUNSEL’S DIGEST

AB 39, as introduced, Skinner. Proposition 39: implementation.

The California Clean Energy Jobs Act, an initiative approved by the voters as Proposition 39 at the November 6, 2012, statewide general election, made changes to corporate income taxes and, except as specified, provides for the transfer of $550,000,000 annually from the General Fund to the Clean Energy Job Creation Fund (Job Creation Fund) for 5 fiscal years beginning with the 2013–14 fiscal year. Moneys in the Job Creation Fund are available, upon appropriation by the Legislature, for purposes of funding eligible projects that create jobs in California improving energy efficiency and expanding clean energy generation. Existing law provides for the allocation of available funds to public school facilities, university and college facilities, other public buildings and facilities, as well as job training and workforce development, and public-private partnerships, for eligible projects, as specified. Existing law establishes prescribed criteria that apply to all expenditures from the Job Creation Fund. Existing law creates the Citizens Oversight Board with specified responsibilities relative to the review of expenditures from the Job Creation Fund, including the submission of an evaluation to the Legislature.
This bill would require the State Energy Resources Conservation and Development Commission (Energy Commission) to administer grants, no-interest loans, or other financial assistance to an eligible institution, defined as a public school providing instruction in kindergarten or grades 1 to 12, inclusive, for the purpose of projects that create jobs in California by reducing energy demand and consumption at eligible institutions. This bill would continuously appropriate for prescribed fiscal years an unspecified amount to the Energy Commission for this purpose in each year that at least that amount of money is transferred to the Job Creation Fund. This bill would require the Energy Commission to administer the grants, no-interest loans, or other financial assistance program to ensure that projects satisfy the prescribed criteria that apply to all expenditures from the Job Creation Fund. This bill would require an eligible institution that receives a grant, no-interest loan, or other financial assistance to report the amount of energy saved to the Energy Commission and to compute the cost of energy saved as a result of implementing projects funded by the grant, as prescribed.

This bill would set forth certain criteria to be used to prioritize projects to be funded from moneys in the Job Creation Fund relative to public schools, school districts, public colleges and universities, and other public buildings and facilities. This bill would require moneys for job training and workforce development to be available from the Job Creation Fund, upon appropriation by the Legislature, to the California Conservation Corps, Certified Community Conservation Corps, Youth Build, and other existing workforce development programs, as specified, consistent with the requirements of the California Clean Energy Jobs Act. This bill would require moneys for public-private partnerships to be available from the Job Creation Fund, upon appropriation by the Legislature, for assistance to certain local governments to establish and implement Property Assisted Clean Energy programs or similar financial and technical assistance consistent with the requirements of the California Clean Energy Jobs Act.

The bill would require a person or entity receiving financial assistance from the Job Creation Fund to report certain information to the Citizens Oversight Board. The bill would require this information to be included in an annual report by the board to the Legislature.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) With the passage of Proposition 39 at the November 6, 2012, statewide general election, the people of California declared their intent to have multistate businesses treated equally under the Revenue and Taxation Code and to establish a path forward for schools and clean energy jobs.

(b) Between the 2013–14 and 2017–18 fiscal years, Proposition 39 will dedicate up to $550,000,000 annually to the Clean Energy Job Creation Fund.

(c) Proposition 39 establishes objectives for clean energy job creation, including funding energy efficiency projects and renewable energy installations in public schools, universities, and other public facilities.

(d) Proposition 39 identifies energy efficiency retrofits and clean energy installations at public schools as one way to promote private-sector jobs to save energy and money.

(e) The United States Environmental Protection Agency estimates that schools waste 30 percent of their energy unnecessarily through inefficiencies. The financial savings from more efficient buildings would provide schools with the flexibility to pay for other upgrades and programs that enhance student learning.

(f) In California, more than 70 percent of the state’s kindergarten and grades 1 to 12, inclusive, public school classrooms are over 25 years old and schools account for approximately 12 percent of all commercial energy consumption. This represents a significant cost to public schools and to California taxpayers.

(g) With the passage of Proposition 39, the state will be able to reduce energy demand at public schools and provide long-term savings and budgetary flexibility so schools can concentrate their limited resources on education and not utility bills.

(h) Proposition 39 also establishes a Citizens Oversight Board to review expenditures, audit the Clean Energy Job Creation Fund, and maintain accountability of the fund.

(i) It is the intent of the Legislature to establish guidelines for clean energy expenditures from the Clean Energy Job Creation Fund.
It is further the intent of the Legislature, during the 2013–14 fiscal year, to ensure that expenditures from the Clean Energy Job Creation Fund go toward “shovel-ready” clean energy projects with guidelines for future expenditures to be developed thereafter.

SEC. 2. Division 16.4 (commencing with Section 26225) is added to the Public Resources Code, to read:

DIVISION 16.4. PROPOSITION 39 IMPLEMENTATION: UPGRADE OUR SCHOOLS AND CREATE CLEAN ENERGY JOBS

26225. For purposes of this division, the following terms have the following meanings:

(a) “Commission” means the State Energy Resources Conservation and Development Commission.

(b) “Eligible institution” means a public school or school district providing instruction in kindergarten or grades 1 to 12, inclusive.

(c) “Job Creation Fund” means the Clean Energy Job Creation Fund established in Section 26205.

(d) “Public buildings” has the same meaning as in subdivision (k) of Section 4217.11 of the Government Code.

26230. (a) The commission shall administer grants, no-interest loans, or other financial assistance to eligible institutions for the purpose of projects that create jobs in California by reducing energy demand and consumption at eligible institutions in accordance with this section.

(b) Notwithstanding Section 13340 of the Government Code, for the purposes of this section, ____ dollars ($____) is continuously appropriated for fiscal years 2013–14 through 2017–18, inclusive, from the Job Creation Fund to the commission in each year that money in at least that amount is transferred to the Job Creation Fund pursuant to Section 26205.

(c) To implement this section, the commission shall do all of the following:

(1) Administer the grants, no-interest loans, or other financial assistance to ensure that projects satisfy the criteria in Section 26206.

(2) Utilize existing resources, programs, and expertise to the extent possible.
(3) Establish a system to prioritize eligible institutions for grants, no-interest loans, and other financial assistance through this section in consultation with the Superintendent of Public Instruction. Prioritization shall take into consideration circumstances that shall include, but not be limited to, the following:

(A) The age of the school facilities.
(B) The proportion of students receiving free and reduced-price meals.
(C) Whether the facilities have been recently modernized.
(D) Whether the facilities are operated as a year-round school.
(E) The potential for demand reduction.
(F) The school’s score from an energy rating system such as the United States Environmental Protection Agency’s Energy Star system.

d) (1) Any eligible institution may submit an application to the commission for a grant, no-interest loan, or other financial assistance. The commission shall award moneys pursuant to this section only to eligible institutions.

(2) Each year, in accordance with a schedule established by the commission, an eligible institution that receives a grant, no-interest loan, or other financial assistance pursuant to this section shall report the amount of energy saved to the commission and compute the cost of energy saved as a result of implementing energy efficiency retrofit and clean energy installation projects funded by this section. The cost shall be calculated in a manner established by the commission.

e) The commission shall ensure that adequate energy audit, measurement, and verification procedures are employed to ensure that energy savings and greenhouse gas emissions reductions occur as a result of any grants, no-interest loans, or other financial assistance provided pursuant to this section.

(f) The commission shall use a net present value analysis or life cycle cost analysis when determining eligible measures for energy savings.

g) This section shall not affect the eligibility of any eligible entity awarded a grant, no-interest loan, or other financial assistance pursuant to this section to receive other incentives available from federal, state, and local government, or from public utilities or other sources, or to leverage the grant from this section with any other incentive.
(h) It is the intent of the Legislature that monetary savings at eligible institutions from retrofit and installation projects pursuant to this section be used to benefit students and learning at those institutions.

26235. (a) Moneys for eligible colleges and universities, and other public buildings and facilities shall be available from the Job Creation Fund, upon appropriation by the Legislature, for projects that meet the requirements of Division 16.3 (commencing with Section 26200). Eligible projects are projects that create jobs in California by improving energy efficiency, installing clean energy technologies, or making other energy system improvements.

(b) Eligible facilities shall be prioritized based on the requirements of Section 26206 and all of the following criteria:

(1) The potential for job creation within California.

(2) The potential for energy demand reduction.

(3) The extent to which the project is coordinated with the commission or the Public Utilities Commission, or both, to achieve the maximum amount of job creation within California and energy benefits from available funds.

26240. Moneys for job training and workforce development shall be available from the Job Creation Fund, upon appropriation by the Legislature, to the California Conservation Corps, Certified Community Conservation Corps, Youth Build, and other existing workforce development programs to train and employ disadvantaged youth, veterans, and others on energy efficiency and clean energy projects, consistent with the requirements of Division 16.3 (commencing with Section 26200).

26245. Moneys for public-private partnerships shall be available from the Job Creation Fund, upon appropriation by the Legislature, for assistance in establishing and implementing Property Assisted Clean Energy (PACE) programs or similar financial and technical assistance for cost-effective retrofits and installations that include repayment requirements, consistent with the requirements of Division 16.3 (commencing with Section 26200).

26250. (a) No later than one year after a person or entity receives a grant, loan, or other assistance from the Job Creation Fund, the person or entity shall submit a report to the Citizens Oversight Board created pursuant to Chapter 3 (commencing with
Section 26210) of Division 16.3 containing the following information, to the extent applicable:

(1) The number of jobs created.
(2) The amount of energy saved.
(3) The amount of new clean energy generation installed.
(4) The number of trainees.
(5) The portion of financial assistance provided that was used for administrative costs.
(6) The amount of time between awarding of the financial assistance and the completion of the project or training activities.

(b) The Citizens Oversight Board shall report the information it receives pursuant to subdivision (a) to the Legislature as part of its responsibilities pursuant to subdivision (d) of Section 26210.

The board’s report shall be submitted annually. The report shall also be posted on a publically accessible Internet Web site.

26255. Funding for clean energy, energy efficiency, or job creation programs from sources other than the Job Creation Fund shall not be reduced or eliminated as a result of the availability of moneys from the fund.
PROPOSITION 39
TAX TREATMENT FOR MULTISTATE BUSINESSES. CLEAN ENERGY AND ENERGY EFFICIENCY FUNDING. INITIATIVE STATUTE.

OFFICIAL TITLE AND SUMMARY

TAX TREATMENT FOR MULTISTATE BUSINESSES. CLEAN ENERGY AND ENERGY EFFICIENCY FUNDING. INITIATIVE STATUTE.

• Requires multistate businesses to calculate their California income tax liability based on the percentage of their sales in California.
• Repeals existing law giving multistate businesses an option to choose a tax liability formula that provides favorable tax treatment for businesses with property and payroll outside California.
• Dedicates $550 million annually for five years from anticipated increase in revenue for the purpose of funding projects that create energy efficiency and clean energy jobs in California.

Summary of Legislative Analyst’s Estimate of Net State and Local Government Fiscal Impact:

• Approximately $1 billion in additional annual state revenues—growing over time—from eliminating the ability of multistate businesses to choose how their California taxable income is determined. This would result in some multistate businesses paying more state taxes.
• Of the revenue raised by this measure over the next five years, about half would be dedicated to energy efficiency and alternative energy projects.
• Of the remaining revenues, a significant portion likely would be spent on public schools and community colleges.

ANALYSIS BY THE LEGISLATIVE ANALYST

BACKGROUND

State Corporate Income Taxes. The amount of money a business owes the state in corporate income taxes each year is based on the business’ taxable income. For a business that operates both in California and in other states or countries (a multistate business), the state taxes only the part of its income that was associated with California. While only a small portion of corporations are multistate in nature, multistate corporations pay the vast majority of the state’s corporate income taxes. This tax is the state’s third largest General Fund revenue source, raising $9.6 billion in 2010–11.

Multistate Businesses Choose How Their Taxable Income Is Determined. Currently, state law allows most multistate businesses to pick one of two methods to determine the amount of their income associated with California and taxable by the state:

• “Three-Factor Method” of Determining Taxable Income. One method uses the location of the company’s sales, property, and employees. When using this method, the more sales, property, or employees the multistate business has in California, the more of the business’ income is subject to state tax.
For text of Proposition 39, see page 125.

ANALYSIS BY THE LEGISLATIVE ANALYST CONTINUED

- **“Single Sales Factor Method” of Determining Taxable Income.** The other method uses only the location of the company’s sales. When using this method, the more sales the multistate business has in California, the more of the business’ income is taxed. (For example, if one-fourth of a company’s product was sold in California and the remainder in other states, one-fourth of the company’s total profits would be subject to California taxation.)

Multistate businesses generally are allowed to choose the method that is most advantageous to them for tax purposes.

**Energy Efficiency Programs.** There are currently numerous state programs established to reduce energy consumption. These efforts are intended to reduce the need to build new energy infrastructure (such as power plants and transmission lines) and help meet environmental quality standards. For example, the California Public Utilities Commission (CPUC) oversees various types of energy efficiency upgrade and appliance rebate programs that are funded by monies collected from utility ratepayers. In addition, the California Energy Commission (CEC) develops building and appliance standards that are intended to reduce energy consumption in the state.

**School Funding Formula.** Proposition 98, passed by voters in 1988 and modified in 1990, requires a minimum level of state and local funding each year for public schools and community colleges (hereafter referred to as schools). This funding level is commonly known as the Proposition 98 minimum guarantee. Though the Legislature can suspend the guarantee and fund at a lower level, it typically decides to provide funding equal to or greater than the guarantee. The Proposition 98 guarantee can grow with increases in state General Fund revenues (including those collected from state corporate income taxes). Accordingly, a measure—such as this one—that results in higher revenues also can result in a higher school funding guarantee. Proposition 98 expenditures are the largest category of spending in the state’s budget—totaling roughly 40 percent of state General Fund expenditures.

**PROPOSAL**

**Eliminates Ability of Multistate Businesses to Choose How Taxable Income Is Determined.** Under this measure, starting in 2013, multistate businesses would no longer be allowed to choose the method for determining their state taxable income that is most advantageous for them. Instead, most multistate businesses would have to determine their California taxable income using the single sales factor method. Businesses that operate only in California would be unaffected by this measure.

This measure also includes rules regarding how all multistate businesses calculate the portion of some sales that are allocated to California for state tax purposes. These include a set of specific rules for certain large cable companies.
Provides Funding for Energy Efficiency and Alternative Energy Projects. This measure establishes a new state fund, the Clean Energy Job Creation Fund, to support projects intended to improve energy efficiency and expand the use of alternative energy. The measure states that the fund could be used to support: (1) energy efficiency retrofits and alternative energy projects in public schools, colleges, universities, and other public facilities; (2) financial and technical assistance for energy retrofits; and (3) job training and workforce development programs related to energy efficiency and alternative energy. The Legislature would determine spending from the fund and be required to use the monies for cost-effective projects run by agencies with expertise in managing energy projects. The measure also (1) specifies that all funded projects must be coordinated with CEC and CPUC and (2) creates a new nine-member oversight board to annually review and evaluate spending from the fund.

The Clean Energy Job Creation Fund would be supported by some of the new revenue raised by moving to a mandatory single sales factor. Specifically, half of the revenues so raised—up to a maximum of $550 million—would be transferred annually to the Clean Energy Job Creation Fund. These transfers would occur for only five fiscal years—2013–14 through 2017–18.

FISCAL EFFECTS

Increase in State Revenues. As shown in the top line in Figure 1, this measure would increase state revenues by around $1 billion annually starting in 2013–14. (There would...
be a roughly half-year impact in 2012–13.) The increased revenues would come from some multistate businesses paying more taxes. The amounts generated by this measure would tend to grow over time.

**Some Revenues Used for Energy Projects.** For a five-year period (2013–14 through 2017–18), about half of the additional revenues—$500 million to $550 million annually—would be transferred to the Clean Energy Job Creation Fund to support energy efficiency and alternative energy projects.

**School Funding Likely to Rise Due to Additional Revenues.** Generally, the revenue raised by the measure would be considered in calculating the state’s annual Proposition 98 minimum guarantee. The funds transferred to the Clean Energy Job Creation Fund, however, would not be used in this calculation. As shown in the bottom part of Figure 1, the higher revenues likely would increase the minimum guarantee by at least $200 million for the 2012–13 through 2017–18 period. In some years during this period, however, the minimum guarantee could be significantly higher. For 2018–19 and beyond, the guarantee likely would be higher by at least $500 million. As during the initial period, the guarantee in some years could be significantly higher. The exact portion of the revenue raised that would go to schools in any particular year would depend upon various factors, including the overall growth in state revenues and the size of outstanding school funding obligations.