MEETING NOTICE AND AGENDA

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

Thursday, June 26, 2014
11:30 a.m. to 1 p.m.
SANDAG, 7th Floor Conference Room
401 B Street, Suite 800
San Diego, CA 92101

Staff Contact: Allison Wood
(619) 699-1973
allison.wood@sandag.org

AGENDA HIGHLIGHTS

• REGIONAL ENERGY STRATEGY TECHNICAL UPDATE
• PROPERTY ASSESSED CLEAN ENERGY
• SAN DIEGO, 2050 IS CALLING: HOW WILL WE ANSWER?

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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 MINUTES

   The Regional Energy Working Group (EWG) is asked to review and approve the minutes from its May 22, 2014, meeting.

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.

REPORTS

4. REGIONAL ENERGY STRATEGY TECHNICAL UPDATE

   Based on feedback from previous EWG meetings on the Regional Energy Strategy (RES) Technical Update, edits have been made to the Key Policy Drivers Chapter and Existing Conditions and Future Projections Chapter. EWG members are asked to review the attached documents for discussion.

5. PROPERTY ASSESSED CLEAN ENERGY

   This report describes the participation in Property Assessed Clean Energy programs by local jurisdictions in the San Diego region.

6. SAN DIEGO, 2050 IS CALLING: HOW WILL WE ANSWER?

   "2050 is Calling" is part of an effort by the Climate Education Partners (CEP) to develop and implement a climate change education plan for the San Diego region. Through CEP, The San Diego Foundation’s Climate Initiative led the development of this report, which is an update of a prior report from 2008, “San Diego’s Changing Climate: A Regional Wake-Up Call.” The report is available for download at: sandiego.edu/2050.

7. ENERGY-RELATED STATE LEGISLATION

   A summary of the investment of cap-and-trade revenue and relevant energy legislation is included. Staff will provide an overview of the bills. The EWG is asked to comment on the legislation and suggest other bills that may help implement the RES.

8. UPCOMING MEETINGS

   The next meeting of the EWG is scheduled from 11:30 a.m. to 1 p.m. on Thursday, July 24, 2014.

+ next to an agenda item indicates an attachment
June 26, 2014

APPROVAL OF MAY 22, 2014, MEETING MINUTES

The meeting of the Energy Working Group (EWG) was called to order by Chair Chris Orlando (City of San Marcos) at 11:33 a.m.

1. WELCOME AND INTRODUCTIONS

Attendance sheet is attached.

2. APPROVAL OF MEETING MINUTES (APPROVE)

Action: Don Mosier (City of Del Mar) made one change to the meeting minutes regarding a comment on population growth in San Diego County. That change was made and the corrected minutes are posted online. Dave Roberts (County of San Diego) motioned to approve the minutes, and Greg Newhouse (San Diego Clean Cities Coalition) seconded the motion. The motion passed without opposition.

Yes: Chris Orlando (City of San Marcos), Don Mosier (City of Del Mar), Dave Roberts (County of San Diego), Paul Manasjan (San Diego County Regional Airport Authority), Michelle White (Unified Port District of San Diego), Eric Wolff (University of California, San Diego), Greg Newhouse (San Diego Clean Cities Coalition), Thomas Brill (San Diego Gas and Electric), Len Hering (California Center for Sustainable Energy), Laura Shingles (San Diego Regional Chamber of Commerce).


3. PUBLIC COMMENTS/MEMBER COMMENTS

John Wotzka (member of the public) discussed energy-related news and provided written comments that are summarized here: the Japanese government approved a plan to revive and reconstruct the Fukushima Daiichi Power plant; ultraviolet flashes given off by high-voltage transmission lines and their pylons are scaring wildlife; the California Independent Systems Operators approved a $1.83E9 transmission infrastructure plan; the California Public Utilities Commission (CPUC) voted to authorize San Diego Gas and Electric (SDG&E) to contract an additional 500 megawatts of electrical generating capacity; the increased use of natural gas in place of coal for electricity generation has reduced greenhouse gases (GHGs); a new power plant designed as a mix between a geothermal plant and a large hadron collider developed by Lawrence Livermore National Laboratory, the University of Minnesota, and Ohio State University could sequester carbon dioxide while boosting power generation by ten times compared to the existing geothermal approaches; to raise the bottom line, coal power plants are looking to reuse and sell coal
combustion byproducts; Greenland’s Zachariae Glacier began shrinking in 2003 and has lost $10.0E9$ tons of ice/year; Escondido is getting an electric school bus to protect children from diesel emissions; hydrogen powered electric fuel cell vehicles were introduced in Los Angeles and Tokyo by Hyundai, Honda, and Toyota; a $36.24$ credit will be applied to rate payers’ bills for April 2014 from the twice-annual climate credit for the purchase of appliances that lower utility bills.

Hon. Chris Orlando (City of San Marcos), Chair, extended a personal thank you from the City of San Marcos to SDG&E for their hard work during the large fire event in May.

CONSENT

4. STATEWIDE ENERGY EFFICIENCY BEST PRACTICES FORUM (INFORMATION)

Chair Orlando introduced the Statewide Energy Efficiency Best Practices Forum held Thursday, June 19 at the Four Points by Sheraton Hotel in San Diego. Allison Wood (SANDAG) added that attendance is free for public agencies.

REPORTS

5. UPDATE ON CALIFORNIA ENERGY COMMISSION GRANT FOR ALTERNATIVE FUELS READINESS PLANNING (INFORMATION)

Anna Lowe (SANDAG) briefed the EWG on key items discussed at prior EWG meetings regarding alternative fuel readiness planning. The 2050 Regional Transportation Plan and its Sustainable Communities Strategy includes an action that SANDAG support planning for alternative fuel infrastructure throughout the region.

SANDAG pursued a California Energy Commission (CEC) grant in 2012 for electric vehicle infrastructure readiness planning. Through the grant, SANDAG worked with the California Center for Sustainable Energy (CCSE) and stakeholders to identify best practices for the region and areas where there are gaps that still need work. On January 24, 2014, the SANDAG Board of Directors accepted the San Diego Regional Electric Vehicle Readiness Plan.

In 2013, SANDAG applied for an alternative fuels readiness planning grant with support and partnership from the San Diego Regional Clean Cities Coalition (SDRCC) and the San Diego County Air Pollution Control District. In April 2014, the CEC approved the two-year award for $300,000, with in-kind matches from SANDAG and SDRCC for $30,000 each, for a total project budget of $360,000. SANDAG staff will establish a coordinating council that will kick off in early to mid-summer. They hope to create solid toolkits for the different industries. Anyone interested in the working group should contact SANDAG staff. A general timeline is included in the agenda packet.

Dr. Mosier commented that electrified hybrid cars, small trucks, and vans are going on sale soon from VIA Motors. They are modified Chevy vehicles that will run about forty miles on battery power. Paul Manasjan (San Diego County Regional Airport Authority [Airport]) asked if the cars are going to be after-market conversion. Dr. Mosier answered that they would be after-market conversions. They are all General Motors vehicles that are assembled just north of Las Vegas. Mr. Manasjan asked if they are going for California Air Resources Board (CARB) certification.
Kevin Wood (CCSE) voiced that his understanding was that they were going for certification through CARB and the Hybrid Voucher Incentive Program.

6. ELECTRIC VEHICLE CHARGING AT SAN DIEGO INTERNATIONAL AIRPORT (INFORMATION)

Mr. Manasjan presented information to the EWG on the electric vehicle (EV) charging infrastructure at the San Diego International Airport. He shared the operational, financial, and community strategies of the program. Mr. Manasjan gave the EWG an overview of the $1 billion terminal expansion, called Green Build, which received a Leadership in Energy and Environmental Design Platinum certification. The EV chargers at Green Build include ten Charge Point charging stations that can charge 20 vehicles. The commuter terminal has four stations, and the airport is working on installing four stations at the new cellphone lot. The final 12 chargers will go into terminal one. They are looking at opportunities for EVs and EV charging infrastructure at the rental car facilities. The airport also sees a market for EV valet parking where travelers can have their car charged and detailed while they are gone.

Mr. Manasjan shared the online tracking tool for EV charger usage, which shows chargers use, energy use, and GHG emissions and gasoline saved at the Airport and the citywide network.

Mr. Manasjan also shared the new EV-ARC project by Envision Solar. The pilot project is for modular, photovoltaic powered charging stations. During a pilot period, an EV-ARC was in the Airport cellphone lot and the Airport received positive publicity from those.

He shared that the Airport is currently exploring the ideas of sponsorship from EV manufacturers for branding rights, cost-recovery concepts, incentives for EV taxis, and solar-powered direct current (DC) fast chargers in the taxi hold lot.

EWG members had the following questions and comments:

- Brendan Reed (City of Chula Vista) asked how the EV-ARC is moved. Mr. Hering answered that they are moved with a forklift since each charger weighs almost 7,000 pounds.
- Michelle White (Unified Port District of San Diego) asked if the EV-ARC provides all of the needed energy. Mr. Manasjan answered that it does and is completely off the grid.
- Susan Freedman (SANDAG) shared that Caltrans and SANDAG are looking into the EV-ARC for rest areas and transit station areas that do not have access to sufficient power.
- Jeff Wyner (City of Escondido) shared that the EV-ARCs were at the SDG&E Energy Showcase in May, and that the company representative informed him that there are 9 and 12-panel models. The 9-panel model runs about $40,000, but Envision is working on a leasing program. Mr. Manasjan added that the price goes down if you buy several units.
- Laura Shingles (San Diego Chamber of Commerce) asked how Car2Go would fit in. Mr. Manasjan answered that the cellphone lot is a possible location for Car2Go. The Airport still needs to work out the details, but they are definitely considering that.
7. SAN DIEGO GAS & ELECTRIC VEHICLE GRID INTEGRATION PILOT PROGRAM (INFORMATION)

Greg Haddow (SDG&E) provided information on the SDG&E Vehicle Grid Integration Pilot Program. He briefed the EWG on how the state and the region are doing, informing that 40 percent of California's GHG emissions are from transportation. He went on to describe Governor Brown’s “Zero Emission Vehicle Action Plan,” and the Department of Energy Workplace Charging Challenge. Mr. Haddow shared that SDG&E is a partner in that program, and the goal is to achieve a tenfold increase in U.S. employers offering workplace charging in five years. Mr. Haddow added that SDG&E’s Renewable Portfolio Standard requires that 33 percent of energy for the region be from renewables by 2020.

Mr. Haddow described the increasing EV growth in San Diego from September 2012 to March 2014. There are close to 650 public charging stations. There are currently about 18 DC fast chargers, but there could be close to 30 by the end of 2014. The Car2Go program also is growing.

Mr. Haddow introduced the Vehicle Grid Integration Pilot that SDG&E filed with the CPUC in April. This pilot is seeking:

- CPUC approval to introduce an hourly day-ahead rate and EV charging infrastructure to efficiently integrate and manage charging loads with the grid
- To get EV customers the electricity they need at the best price possible
  - Optimize charging by giving people a special rate with an opportunity to save money by charging off of peak hours
- CPUC approval to allow SDG&E to install chargers in multifamily housing and places of work
- Third parties to build, install, operate, and maintain charging equipment to SDG&E specifications
- To have EV charging billed to an EV driver’s SDG&E bill at home, regardless of where they have charged (at work) so that they can compare their bills

Mr. Haddow shared the pilot benefits to all customers:

- Reduces harmful air emissions from gasoline and diesel fuels
- Reduces on-peak charging and the need to build power plants
- Helps charge EVs when energy is low cost and supply is plentiful
- Increases EV sales and reduces risk of market stalling
- Doubles zero-emission miles for plug-in hybrids
- Creates green jobs and attracts EV-related businesses to the region
- Educates customers about dynamic pricing
- Provides data to guide CPUC policy
- Provides stepping stone toward “Vehicle-to-Grid”
- Increases U.S. energy independence
EWG members had the following questions and comments:

- Rich Grudman (County of San Diego) thought that it was interesting that customers could pay for EV charging on their home energy bill. He asked if that technology exists today. Mr. Haddow answered that it does, but SDG&E does not have the program in use right now.

- Eric Wolff (University of California, San Diego) asked if customers with solar panels on the net energy metering program were subject to different rates. Mr. Haddow explained that their home may be billed by one rate, but their vehicle is charged by the vehicle grid integration rate. Mr. Brill explained that Assembly Bill 327 (Perea, 2013) (AB 327) considers rate design changes both for overall residential customers and for net-energy metering. He believes that the proceeding will start soon.

- Mr. Wolff asked about battery efficiency. He shared that the advanced battery storage at UC San Diego is 90 percent or 86 percent. He explained that as they charge, batteries lose 5-7 percent going in and 5-7 percent going out, and he assumed that energy loss is even worse for cars. He added that all of that efficiency loss is behind the meter, meaning that it will be on the customers end. Mr. Brill explained that it is up to the customer if they want to provide that service. SDG&E is not requiring an action on consumers. They are giving them the option to participate and reduce the costs that they incur.

- Elizabeth McCollum (TRC) asked Mr. Haddow what the projected timeline was, assuming the CPUC approves the pilot program. Mr. Haddow answered that SDG&E has asked the CPUC to expedite their review of the program. They expect it to start the first quarter of 2015.

- Ms. McCollum asked who pays the installation costs. Mr. Haddow answered that all equipment costs will be in rate pay, so all customers will be paying for it.

- Ms. McCollum informed that TRC implements the energy efficiency retrofit program for multifamily housing for SDG&E. TRC would like to coordinate with SDG&E on this pilot program. Mr. Haddow commented that SDG&E would like to take TRC up on that offer.

- Ms. McCollum asked if there was a minimum family multifamily unit size. Mr. Haddow informed that they are keeping that open right now.

- Mr. Manasjan asked if this could be applied to existing infrastructure. Mr. Haddow answered that right now it is proposed for new systems. He added that this is the direction the future of charging should go.

- Chair Orlando asked if there is a number that, if met, means that the region has the EV infrastructure that it needs. He asked if that number would be the number of stations or the distance from one station to the next. Mr. Haddow voiced that there is no magic number, but the ideal situation would be if a charger was available at every place an EV owner went during your day. However, the ultimate goal is to have a longer battery range. He added that the best option is the blend of the right kind of charging stations at the right locations.

- Chair Orlando asked when the Request for Proposals would go out. Mr. Haddow informed that it will go out once SDG&E gets approval from the CPUC.

- Mr. Wyner asked if there was any discussion with the oil companies that own gas stations to turn them into energy stations. Mr. Haddow informed him that there were some stations at strategic locations that were looking into DC chargers.
• Thomas Sepulvado, Representative Vargas’s Office, asked about on-peak charging. Mr. Haddow commented that SDG&E feels that they are making good progress right now with residential and family units. Close to 91 percent of vehicle charging is occurring in the off-peak times.

• Mr. Sepulvado asked at what level of use for the chargers the program will be considered a success. Mr. Haddow answered that they anticipate that every one of the charging stations will be 100 percent full by 2019 or shortly after.

• Ms. Wood asked if SDG&E is the first investor-owned utility to propose a program like this. Mr. Haddow informed that SDG&E is the first in California.

Mr. Haddow asked the EWG members to contact him with any questions or comments.

8. ENERGY-RELATED LEGISLATION (INFORMATION)

Ms. Wood informed that the agenda packet includes information on Governor Brown’s proposed budget and where he recommends the allocation of the cap-and-trade revenues should go. Senate President pro Tem Darrell Steinberg’s plan was introduced in April and included a proposal for spending the cap-and-trade revenue as well. The plan, which has not been formally introduced in the senate, has been getting a lot of attention.

She added that several bills in the staff report describe specific programs where the legislature has proposed a funding allocation. SANDAG staff is monitoring the plan. Most of the pending bills were scheduled to be heard May 23, 2014, at the appropriations committees.

On behalf of Dave Weil (City of San Diego), Ms. Wood mentioned that on May 21, 2014, the City of San Diego’s Council on the Environment submitted a resolution to the City Council opposing AB 2145 (Bradford, 2014) as it relates to community choice aggregation. He expects the resolution to pass at the next City Council meeting. Dr. Mosier added that the City of Del Mar will also oppose the bill.

9. UPCOMING MEETINGS (INFORMATION)

The next meeting of the EWG is scheduled for Thursday, June 26, 2014, from 11:30 a.m. to 1 p.m.

10. ADJOURNMENT

Chair Orlando adjourned the meeting at 12:39 a.m.
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<td>Len Hering</td>
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<td>Economic Development</td>
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<td>Jason Anderson</td>
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<td>Marty Turock</td>
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<td>Josh Harman</td>
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OTHER ATTENDEES:

April Bolduc, SDG&E
Greg Haddow, SDG&E
Sachiko Kohatsu, County of San Diego, Board of Supervisors 3
Cheryl Laskowski, Atkins
Elizabeth McCollum, TRC
Parina Parikh, SDG&E
Brendan Reed, City of Chula Vista
Thomas Sepulvado, Representative Vargas's Office
Kevin Wood, CCSE
John Wotzka, public
Jeff Wyner, City of Escondido
Susan Freedman, SANDAG
Anna Lowe, SANDAG
Michelle Martinez, SANDAG
Sarah McCutcheon, SANDAG
Rob Rundle, SANDAG
Sarah Strand, SANDAG
Allison Wood, SANDAG
REGIONAL ENERGY STRATEGY TECHNICAL UPDATE

Introduction

For the last several months, the Regional Energy Working Group (EWG) has been overseeing a Technical Update to the Regional Energy Strategy (RES). The update will demonstrate progress toward RES goals, extend the energy and climate forecasts to 2050, and be used in development of San Diego Forward: The Regional Plan. Based on feedback from EWG members, staff has edited portions of two RES chapters. Attachment 1 is the revised 2014 draft RES chapter on Key Policy Drivers, and Attachment 2 is the revised 2014 draft RES chapter on Existing Conditions and Future Projections.

Summary of Revisions

Key Policy Drivers

This policy chapter focuses on the largest drivers for clean energy supplies, energy efficiency, and reductions to greenhouse gas (GHG) emissions. Based on feedback from EWG members at the February meeting, this chapter has been edited to include additional information on the first update to the Climate Change Scoping Plan, Property Assessed Clean Energy financing programs, Low Carbon Fuel Standard and Advanced Clean Cars Program, and the appropriations of cap-and-trade auction revenues.

Existing Conditions and Future Projections

At the April EWG meeting, staff presented the updated Existing Conditions and Future Projections chapter. This chapter presents existing conditions with 2012 baseline data and future projections to 2050 for electricity, natural gas use, transportation fuel, and GHG emissions. Based on EWG comments, several figures have been edited.

Next Steps

At a future meeting, EWG will be presented with the finalized versions of the goal summary reports and updated chapters of the RES Technical Update. All components of the RES Technical Update will be used to inform the energy policies of the Regional Plan.

Attachments: 1. Revised RES Chapter on Key Policy Drivers
2. Revised RES Chapter on Existing Conditions and Future Projections

Key Staff Contact: Allison Wood, (619) 699-1973, allison.wood@sandag.org
Key Policy Drivers

California has promoted energy efficiency, clean energy supplies and alternative fuels through policies and programs since the 1970s. These policies and programs have made California a leader in the nation and helped keep per capita electricity consumption\(^1\) flat over decades. SANDAG has taken an active role in regional energy planning since 2000 when problems with state electricity restructuring arose.

The RES recognizes that the state and federal governments and utilities have significant control over certain energy policy areas. The RES focuses on the opportunities and authorities that SANDAG and its member agencies could take advantage of to achieve both local and regional goals related to energy and climate change.


Since 2003, the California Energy Commission (Energy Commission) adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year (SB 1389, Chapter 568, Statutes of 2002). The IEPR serves as the state’s energy policy blueprint, similar to the RES for the San Diego region. Over the years, the region has provided input into the state’s process and utilized the IEPR in regional policymaking decisions. The IEPR provides energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. Through the IEPR, the Energy Commission also performs an independent analysis of each utilities electricity demand forecast, which is used in RES energy forecasting and existing conditions.

3.2 California Preferred Loading Order for Electricity Resources

The California Public Utilities Commission (CPUC) and Energy Commission follow a “preferred loading order” to meet goals for satisfying the state’s growing demand for electricity and significantly reducing the level of GHG emissions. The loading order calls for achieving these goals by placing top priority on first increasing energy efficiency and demand response, as shown below. Energy policies that the region chooses to support should be consistent with the “preferred loading order.”

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\(^1\) Electricity consumption is the amount of energy consumed in a process or system, or by an organization or society. As population continues to grow, the per capita (or per person) amount of energy used in California has remained flat through extensive energy efficiency and conservation measures.
3.3 California Long-Term Energy Efficiency Strategic Plan

In 2008, the CPUC led the development of the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan) to achieve maximum energy efficiency savings across all sectors, including local government. Updated in 2011, this Strategic Plan identifies four “Big Bold Energy Efficiency Strategies” to help meet AB 32 GHG reduction targets.

1. All new residential construction in CA will be zero net energy (ZNE) by 2020;
2. All new commercial construction in CA will be ZNE by 2030;
3. Heating, ventilation, and air conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California’s climate; and
4. All eligible low-income customers will be given the opportunity to participate in the low income energy efficiency program by 2020.

The Strategic Plan specifically calls on local governments to do the following:

- At least 5 percent of California’s local governments (representing at least 5 percent of CA total population) each year adopt “reach” (enhanced energy efficiency) codes.
- By 2020, the majority of local governments have adopted incentives or mandates to achieve above-code levels of energy efficiency in their communities, or have led statewide adoption of these higher codes.
- The current rate of non-compliance with codes and standards is halved by 2012, halved again by 2016, and full compliance is achieved by 2020.
- By 2015, 50 percent of local governments have adopted energy efficiency/sustainability/ climate change action plans for their communities and 100 percent by 2020.
The Strategic Plan identifies the following areas where local government authority can reduce energy use in new and existing buildings:

1. Ensuring compliance and enforcement of the Title 24 energy code for residential and commercial buildings.
2. Adopting building codes beyond Title 24’s energy requirements (and potentially other “green” requirements).
3. Supporting highly efficient projects that voluntarily exceed minimum energy codes through favorable fee structures, fast-tracked permitting and other innovative and locally appropriate approaches.
4. Enacting ordinances with point-of-sale or other approaches that spur efficiency actions in existing, privately-owned buildings.
5. Applying efficiency-related “carrots” and “sticks” using local zoning and development authority.

3.4 California Global Warming Solutions Act (Assembly Bill 32)

The California Global Warming Solutions Act (AB 32, Chapter 488, Statutes of 2006) established the 1990 GHG emissions level as the statewide limit for 2020; an approximately 15 percent reduction from the baseline 2006 level. AB 32 called for regulatory and market mechanisms to achieve the GHG reduction target. Many of the state’s energy policies and programs are now shaped, at least in part, by the requirements and spirit of AB 32.

AB 32 codified then Governor Schwarzenegger’s Executive Order (EO) S-03-05 that established the statewide target for reduction of GHG emissions to 1990 levels by 2020. The EO also called for long term GHG reductions to 80 percent below the 1990 level by 2050. Although not required by AB 32 or the EO, the 2013 Scoping Plan update (described below) begins to explore ways to reduce emissions beyond the 2020 target by continuing to pursue the maximum technologically feasible and cost-effective actions across several economic sectors.

3.4.1 AB 32 Climate Change Scoping Plan

In May 2014, CARB released the First Update to the Climate Change Scoping Plan that builds upon the initial Scoping Plan from 2008, shows progress to date across all economic sectors, and calls for a mid-term target between 2020 and 2050. The Scoping Plan outlines the main strategies for meeting the 2020 target, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions and market-based mechanisms. The majority of GHG emissions to be reduced derive from three categories: energy, transportation, and cap-and-trade, as shown in the following table. The biggest policy drivers for these measures are identified below the table.

13 SANDAG Regional Energy Strategy
### Meeting the 2020 Emissions Target for California

<table>
<thead>
<tr>
<th>Category</th>
<th>2020 MMTCO₂e*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB32 Baseline 2020 Forecast Emissions (2020 BAU)</td>
<td>509</td>
</tr>
<tr>
<td>Expected Reductions from Sector-Based Measures</td>
<td>78</td>
</tr>
<tr>
<td>Energy</td>
<td>25</td>
</tr>
<tr>
<td>Transportation</td>
<td>23</td>
</tr>
<tr>
<td>High-GWP (Global Warming Potential)</td>
<td>5</td>
</tr>
<tr>
<td>Waste</td>
<td>2</td>
</tr>
<tr>
<td>Cap-and-Trade Reductions</td>
<td>23**</td>
</tr>
<tr>
<td>2020 Limit</td>
<td>431</td>
</tr>
</tbody>
</table>

Source: CARB First Update to the Climate Change Scoping Plan, May 2014

*Million metric tons carbon dioxide equivalent (MMTCO₂e) is based on the AR4 Global Warming Potential (GWP) values.²

**Cap-and-Trade emission reductions depend on the emission forecast.

### 3.4.2 Energy

The State’s strategy to reduce GHG emissions from electricity and natural gas involves the coordination of several State agencies including the CPUC, Energy Commission, and CARB. To improve energy efficiency, the AB 32 Scoping Plan calls for maximizing building and appliance standards, pursuing new technologies and policy mechanisms, and continuing investments from electricity providers in energy efficiency programs. To reduce the carbon content of electricity supplies, the State requires significant increases in utility scale renewable energy supplies, as well as smaller scale distributed generation (DG) including combined heat and power (CHP), fuel cells and solar photovoltaics (PV). A few of the predominant policy drivers are identified below.

**Efficiency: Zero Net Energy Goals**

Achieving the State’s zero net energy (ZNE) building goals is important to achieve climate targets. In 2008, the CPUC set forth ZNE goals in the Long-Term Energy Efficiency Strategic Plan discussed earlier in this section. The Strategic Plan called for all new residential buildings to be ZNE by 2020, new commercial buildings shall be ZNE by 2030, and half of existing commercial buildings shall be retrofitted to ZNE by 2030.

In 2009, AB 758 (Skinner, Chapter 470) created the Comprehensive Energy Efficiency Program to achieve greater energy efficiency in all of California’s existing buildings. The Energy Commission was directed to develop an Action Plan for 758, which identifies solutions for energy efficiency issues in California’s existing buildings.

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Efficiency: Proposition 39 Funding

In 2012 California voters approved the California Clean Energy Jobs Act (Prop 39). Subsequently through Senate Bill 73 (Skinner, Chapter 29, Statutes of 2013), the Prop 39 tax mechanism will provide a significant source of new revenue (an estimated 2.75 billion over five years) to support energy efficiency and clean energy projects in California’s public schools (K–12) and community colleges.

Efficiency and Renewable: Property Assessed Clean Energy Financing Programs

One of the six RES priority early actions is to “create financing programs to pay for projects and improvements that save energy.” Property assessed clean energy (PACE) programs are a financing mechanism that allow property owners to pay for energy and water efficiency upgrades and renewable energy improvements without having to pay the costs upfront. PACE affords a qualifying home or business owner a loan for eligible upgrades or improvements, which is paid back via their tax bill. Assembly Bill 811 (Levine, 2008) and Senate Bill 555 (Hancock, 2011) provide state legislative authority for commercial and residential PACE programs.

PACE programs are adopted by a local government, thus enabling local residents and/or businesses to apply for project financing. As of June 2014, eighteen of the nineteen local jurisdictions have adopted at least one PACE program and the remaining jurisdiction is currently assessing the various program options. Renewable Portfolio Standard

Established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107 and expanded in 2011 under Senate Bill 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities (IOUs), electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020. CARB established the Renewable Electricity Standard (Resolution 10-23) in 2010 to require renewable electricity targets for all retail sellers of electricity, including publicly-owned utilities (POUs).

3.4.3 Transportation

The AB 32 Scoping Plan outlines three key strategies for reducing emissions from the transportation sector:

- Reduce the carbon content of the fuels used in the vehicles,
- Increase the efficiency of the vehicles used, and
- Reduce the miles driven by vehicles.
The State’s three strategies for reducing transportation emissions are supported by three main policies:

- Low Carbon Fuel Standard (LCFS),
- Pavley Standard and Advanced Clean Cars program, and
- Sustainable Communities Strategies: Senate Bill 375.

**Low Carbon Fuel Standard**

The Low Carbon Fuel Standard (LCFS) calls for a reduction of at least 10 percent in the carbon intensity of California’s transportation fuels by 2020. It was established in 2007 through EO S-01-07 and requires producers of petroleum-based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011 culminating in a 10 percent total reduction in 2020. The LCFS program is performance-based and allows fuel providers and regulated parties to choose from a mix of strategies to achieve compliance. Strategies include investing in production of low carbon-intensity (low-CI) fuels, purchasing low-CI fuels for blending, purchasing credits from other regulated parties, and banking credits for use in future years.

**Pavley Standard and Advanced Clean Cars Program**


In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and GHG emissions and requirements for greater numbers of ZEVs into a single package of standards called “Advanced Clean Cars.”

The Advanced Clean Cars program works to increase vehicle efficiency by combining the control of GHG emissions and other air pollution requirements into a single package of
The program, by 2025, 1.5 million zero-emission vehicles (ZEVs) will be operating in California and 15 percent of new car sales will be ZEVs (EO B-16-2012). ZEVs include hydrogen and plug-in electric vehicles. The chart above demonstrates how California’s on-road passenger vehicle fleet is planned to change overtime. In order for the State to meet its clean vehicle goals, new fueling infrastructure to power ZEVs and alternative fuel vehicles must be deployed where little to none exists today. In 2013 the state released a ZEV Action Plan with specific strategies to assist in meeting ZEV goals.

**Alternative and Renewable Fuel and Vehicle Technology Program**

The Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) was established in 2007 through passage of AB 118 (Núñez, Chapter 750, Statutes of 2007) and reauthorized in 2013 by AB 8 (Perea, Chapter 401, Statutes of 2013) through January 1, 2024. It provides funding to develop and deploy alternative and renewable fuels and technologies, and helps meet California’s climate change and petroleum dependence policies. The Energy Commission will invest a total $1.5 billion between 2009 and 2024 to support development and deployment of zero- and low-emission vehicles and low-carbon fuels.

**Senate Bill 375 – Sustainable Communities Strategy**

SB 375 (Statutes of 2008) requires Metropolitan Planning Organizations (MPOs) like SANDAG to create a Sustainable Communities Strategy (SCS) that integrates the transportation network with development patterns in a way that achieves GHG emissions reduction targets from passenger cars and light-duty trucks while meeting housing needs and other regional planning objectives. The SCS must demonstrate how changes to land use patterns, transportation infrastructure investments, funding allocations, policies, or any other measures will achieve the per capita GHG reduction targets established by CARB.

In October 2011, the 2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) laid out a plan for investing $214 billion in local, state, and federal transportation funds expected to come into the region over the next 40 years. The 2050 RTP/SCS includes recommended actions that support energy efficiency, alternative fuels and GHG reductions. The RES Technical Update will help inform future regional plans including San Diego Forward: The Regional Plan.

**3.4.4 Cap-and-Trade Regulation**

The Scoping Plan recommended development of a state Cap-and-Trade program that links with other Western Climate Initiative partner programs to create a regional market system. The Cap-and-Trade regulation established a declining cap on approximately 85 percent of total statewide GHG emissions. Under the regulation, CARB issues allowances
equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. One allowance equals one metric ton of GHG emissions. Each regulated entity must hold allowances equal to its emissions.

Electric generating utilities, electricity importers and large industrial facilities became subject to the program beginning in 2013, and fuel distributors are added to the program in 2015. The Cap-and-Trade program works in concert with direct regulatory measures to provide an additional economic incentive to reduce emissions. Cap-and-Trade revenues are to provide a significant source of new revenue to support GHG reduction measures. One of the SANDAG legislative priorities is to pursue resources and funding mechanisms consistent with financial strategies adopted in the RTP and Regional Comprehensive Plan (RCP), including but not limited to cap-and-trade or equivalent revenues.

**Cap-and-Trade Investment Plan and Appropriations**

CARB provided its first investment plan for cap-and-trade auction proceeds to the Legislature in May 2013. The first investment plan encompasses fiscal years 2013-14 through 2015-16 and identifies priority State investments to help achieve GHG reductions. For 2013-14, California’s budget included a one-time loan of $500 million from cap-and-trade revenues to the State’s General Fund. The State’s 2014-15 budget allocates the $872 million in cap-and-trade revenues to High-Speed Rail, Low Carbon Transportation, Affordable Housing and Sustainable Communities, Transit Capital and Operations, and other programs related to energy efficiency, water efficiency, sustainable forestry, and waste diversion.

The 2014-15 budget also directs that future years include 35 percent to Sustainable Communities Program, 25 percent for High Speed Rail, and 40 percent (with specific amounts to be decided each year) to Low Carbon Transportation, Energy Efficiency, Urban Forestry, Water, and Waste.

Through 2020 there will be hundreds of millions of dollars made available to undertake GHG reduction measures that target the energy and transportation sectors. It is expected that the State will extend the cap-and-trade program to a mid-term date or to 2050. If so, auction revenues may provide long term funding to local government, university and other regional stakeholder climate programs.
Existing Conditions and Future Projections

This section presents existing conditions and future projections to 2050 for electricity, natural gas use, transportation fuel, and greenhouse gas (GHG) emissions.

4.1 Electricity

4.1.1 Statewide and Regional Electricity Supply

Figure 4-1 illustrates the types of resources that make up the total electricity production for California in 2009 and 2012. Over the last 3 years, electricity generation from natural gas and renewables has increased while coal has declined significantly, due to the California Energy Commission (CEC) banning utilities from signing new contracts with out-of-state coal fired power plants in 2007, and nuclear has declined due to the shutdown of the San Onofre Nuclear Generating Station (SONGS). The percentage of generation from renewable sources has increased from 12 percent in 2009 to 17 percent in 2012. Figure 4-2 shows the Statewide mix of renewable resources, which are largely geothermal, followed by wind, biomass, small hydroelectric, and solar.

Figure 4-1: Statewide Total Electricity System Power Mix, 2009 and 2012

Source: California Energy Commission
Figure 4-2: Statewide Renewable Power Mix, 2009 and 2012

Source: California Energy Commission

Figure 4-3 shows 2009 and 2012 electricity production for the SDG&E service area, which includes all of San Diego County and a small portion of southern Orange County. (San Diego County accounts for approximately 91 percent of the SDG&E service area.) Much like statewide figures, the SDG&E power mix is dominated by natural gas. In 2012, renewable resources comprised about nineteen percent of supply, with wind as the largest component of the renewable portfolio, as illustrated in Figure 4-4.

Figure 4-3: SDG&E Power Mix, 2009 and 2012

Source: San Diego Gas and Electric

Note: The Power Source Disclosure Program was modified in 2009 to allow for “unspecified power,” which is generally comprised of short-term market purchases from out-of-state power plants that do not have a contract with the utility.

2 SANDAG Regional Energy Strategy
4.1.2 Regional Electricity Consumption Forecast

In 2012, total system power for California was 302,000 Gigawatt-hours (GWh), which is up from 298,000 GWh in 2009. In the San Diego region, total annual system power for the SDG&E service territory has remained relatively constant at around 20,000 GWh, which accounts for about 7 percent of the State’s total system power. One Gigawatt-hour is enough electricity to power about 95 homes for one year. Under a business-as-usual scenario (i.e., no change in existing policy, programs, or behavior), the region’s total actual electricity consumption in 2010 (20,297 GWh) is expected to increase by about 14 percent by 2020 (to 23,203 GWh) and 55 percent by 2050 (to 31,583 GWh). This increase in total consumption assumes that existing levels of funding for energy efficiency programs administered by the utility continue. Figure 4-5 shows actual electricity consumption for 2005 and 2010 and forecasted consumption for the region by sector through 2050. Residential and commercial sectors are expected to continue to use the most electricity in the San Diego region (and the State). The electricity used to power electric vehicles is accounted for in the electricity end use categories for residential and commercial consumption. For information on the factors that contribute to electricity consumption, refer to the energy efficiency section of Chapter 5 on RES Goals.
Figure 4-5: Existing and Projected Electricity Consumption for SDG&E Service Territory (GWh), 2005-2050

Source: Energy Policy Initiatives Center, University of San Diego, 2014.

Though current trends indicate that total regional electricity consumption will grow by up to 55 percent by 2050, per capita consumption is projected to remain flat through 2020, then grow by approximately 15 percent by 2050 (as shown in Figure 4-6). Consumers are using more electronic products and appliances today, but energy-saving measures like conservation and energy efficiency standards have been effective in maintaining per capita consumption. The main reason for overall growth in electricity consumption is population growth, anticipated to be on the order of nearly one million additional people between now and 2050 according to the SANDAG regional growth forecast. The region will need sufficient energy supply resources to accommodate this future growth.
Figure 4-6: Existing and Projected Per Capita Electricity Consumption for SDG&E Service Territory (kWh), 2005-2050

Source: California Energy Commission and SANDAG Series 13 Regional Growth Forecast

The RES uses the California Energy Commission 2013 Integrated Energy Policy Report (IEPR) as the basis for electricity and natural gas consumption figures. SDG&E also relies on the Energy Commission IEPR forecast for resource planning. Table 4-1 demonstrates the energy reductions derived by various energy saving measures.

<table>
<thead>
<tr>
<th>Year</th>
<th>Appliance Standards</th>
<th>Energy Efficiency Programs/Price and Other</th>
<th>2013 Building Standards</th>
<th>Non-PV Self Generation</th>
<th>Photovoltaics (PV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>348</td>
<td>545</td>
<td>399</td>
<td>460</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>964</td>
<td>1,388</td>
<td>676</td>
<td>359</td>
<td>0.1</td>
</tr>
<tr>
<td>2010</td>
<td>1,894</td>
<td>1,990</td>
<td>1,025</td>
<td>705</td>
<td>106.3</td>
</tr>
<tr>
<td>2012</td>
<td>2,158</td>
<td>2,033</td>
<td>1,103</td>
<td>700</td>
<td>213.6</td>
</tr>
</tbody>
</table>


4.2 Natural Gas

The San Diego region consumed approximately 560 million therms (MMTh) of natural gas in 2010 (not including gas used for electricity generation, which is accounted for in the electricity section above). At present, California imports 85 percent of its natural gas needs from out state. Figure 4-8 shows natural gas consumption delineated by end use sector and similar to electricity consumption, the majority of natural gas end-use

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consumption is in the residential and commercial sectors. The natural gas used to power alternative fuel vehicles is accounted for in the natural gas end use category.

Under a business-as-usual scenario, regional natural gas consumption is not expected to grow significantly over the next several decades as shown in Figure 4-7.

Figure 4-7: Existing and Projected Natural Gas Consumption by Sector (Million Therms), 2005-2050

Source: Energy Policy Initiatives Center, University of San Diego, 2014.

4.3 Transportation

4.3.1 On-Road Transportation

The on-road transportation sector is a large consumer of energy, and is almost entirely dependent on petroleum-based fuels (gasoline and diesel). As shown in Figure 4-8, passenger cars and light-duty trucks are by far the largest consumers of transportation fuel, accounting for about 1.6 billion gallons of gasoline and diesel per year, or 85 percent of total consumption by on-road vehicles. Wherever possible, data known about alternative transportation fuels is displayed in the transportation fuels section of Chapter 5: Regional Energy Goals; but the existing conditions and projections only pertain to gasoline and diesel. SANDAG will try to track alternative fuels consumed in the San Diego region to the extent possible.
Light-duty trucks represent only about 35 percent of vehicle miles traveled, but due to their relatively low efficiency, account for about half of fuel consumption.

Heavy-duty trucks and buses account for most of the remaining consumption by on-road vehicles, about 170 million gallons or about 11 percent of total on-road fuel consumption. While heavy-duty trucks mostly use diesel fuel, the region’s transit agencies operate a substantial number of CNG buses, including CNG-electric hybrids. Passenger cars and light-duty trucks are the largest contributors, generating about 91 percent of emissions from on-road vehicles, while heavy-duty vehicles account for the remainder.
4.3.2 Other Transportation: Aviation, Rail, Watercraft, and Off-Road Equipment

Although small relative to fuel use by passenger cars and heavy-duty vehicles, energy consumed by the civil aviation, rail transportation, water-borne equipment, and off-road sectors is significant. Fuel consumption in these sectors accounts for about 7 percent of GHG emissions in the San Diego region and is primarily petroleum-based.

In 2007, the civil aviation sector, which comprises commercial flights and ground operations at San Diego International Airport (SDIA), consumed about 210 million gallons of jet fuel, 28,000 gallons of aviation gasoline, and 53 million cubic feet of natural gas. International flights and aviation at other airports and military facilities are not included in this analysis because data could not be obtained. Fuel use in this sector combined to account for about four percent of total GHG emissions in the region. The off-road vehicle and equipment category is the next largest consumer of fuel in this sector (primarily gasoline and diesel), accounting for about 3 percent of total GHG emissions. The largest fuel users in this category are construction and mining, industrial, pleasure craft, and agricultural.

The rail transportation category consumes diesel fuel for freight and goods movement, the Coaster commuter rail line, and the Sprinter light-rail line. The light-rail San Diego Trolley is powered by electricity. The diesel consumption accounts for about one percent of the region’s carbon footprint, while electricity to power the Trolley accounts for a very small amount of GHG emissions from the region’s electricity consumption.

There are many types of water-borne navigation in the San Diego region, but the largest sources of fuel consumption are ocean going vessels (OGVs) and harbor operating within San Diego Harbor. It should be noted that like rail, OGVs are among the most efficient mode of goods movement. The majority of fuel use from OGVs is due to automobile shipments, refrigerated vessels, and passenger cruise ships. The majority of harbor craft fuel use is due to commercial and charter fishing boats. Water-borne navigation accounts for less than one percent of total GHG emissions.
4.4 Greenhouse Gas Emissions

4.4.1 Greenhouse Gas Emissions in the San Diego Region

Energy use (including electricity, natural gas, and transportation fuels) in the San Diego region is the largest source of GHG emissions. Table 4-2 shows emissions in the four principal categories established by the United Nations Intergovernmental Panel on Climate Change (IPCC). As it shows, 90 percent of all GHG emissions in the region are related to the production and consumption of energy.

Table 4-2: San Diego County GHG Emissions by IPCC Category

<table>
<thead>
<tr>
<th>Intergovernmental Panel on Climate Change Category</th>
<th>2012 Emissions (MMT CO₂e)</th>
<th>Percentage of Total</th>
</tr>
</thead>
</table>
| Energy
1 | 29.84 | 90% |
| Industrial (non-fuel) | 1.46 | 4% |
| Waste | 1.63 | 5% |
| Agriculture, Forestry, Land Use | 0.24 | 1% |
| Total | 33.17 | 100% |

Source: Energy Policy Initiatives Center, University of San Diego, 2014.

1 Note: “Energy” includes electricity, natural gas, and transportation fuels.

Greenhouse Gas Emissions by End-Use Category

Although many activities consume energy, most of the region’s energy consumption and related GHG emissions are caused by three end-use categories of energy consumption: the movement of people and goods in the on-road transportation sector, electricity generation that provides power to homes and businesses, and natural gas for end uses like space heating and cooking (Figure 4-9).
Figure 4-9: Summary of Greenhouse Gas Emissions by Category, 2012

Source: Energy Policy Initiatives Center, University of San Diego, 2014.
Note: Examples of Light Duty Vehicles includes sport-utility vehicles, minivans, and pick-up trucks.

Transportation Fuels

The largest GHG emissions category in the region is on-road transportation, which accounts for nearly half of emissions (42 percent). Moreover, energy consumed by passenger cars and light-duty vehicles (pick-up trucks, sport utility vehicles), primarily gasoline for personal automobile transportation, accounts for about 90 percent of on-road transportation emissions, and about 39 percent of total emissions in the region.

The high level of GHG emissions from on-road transportation is due to the region’s dependence on petroleum-based gasoline and diesel fuel, average vehicle efficiency, and levels of driving. On-road transportation also comprises a significant proportion of GHG emissions statewide. In response, the state has enacted several transportation-related laws and regulations calling for petroleum reduction, development of low-
carbon and alternative fuels, increased vehicle fuel efficiency, and improved land use and transportation planning to reduce vehicle miles traveled (VMT).

**Electricity and Natural Gas End-Use Sectors**

Electricity and natural gas end-uses account for about one-third (32 percent) of GHG emissions in the region. The GHG emissions from electricity generation are influenced by both overall consumption and sources of generation. About two-thirds (63 percent) of the fuel used to generate the electricity consumed in the region is natural gas. Older and relatively inefficient natural gas power plants, buildings, and end-use equipment also are factors that contribute to the level of emissions from electricity and natural gas.

### 4.4.2 Greenhouse Gas Emission Projections

Under a business-as-usual scenario in which current energy use trends and policies do not change, total GHG emissions in the region will be approximately 35.8 MMTCO$_2$e in 2020, approximately 8 percent greater than the 2012 level.

While the near-term goal of reducing statewide GHG emissions to the 1990 level by 2020 is ambitious but likely achievable with available policy measures and technology options, the long-term goal described in Executive Order S-3-05 to reduce statewide GHG emissions to 80 percent below the 1990 level by 2050 will require fundamental changes in policy, technology, and behavior.

The projected increases in GHG emissions for on-road transportation, natural gas, and electricity are shown in Figures 4-10, 4-11, and 4-12. Because the following figures are business-as-usual projections depicting the consequences of not taking action, the effect of new federal, state, and local policies is not shown.
Figure 4-10: Total Projected Regional Greenhouse Gas Emissions from Transportation under Business-as-Usual Scenario, 2010-2050

Source: Energy Policy Initiatives Center, University of San Diego, 2014.
Note: Business-as-usual scenario does not include the effect of new federal, state, and local policies.

Figure 4-12: Total Projected Regional Greenhouse Gas Emissions from Natural Gas End-Uses under Business-as-Usual Scenario, 2010-2050

Source: Energy Policy Initiatives Center, University of San Diego, 2014.
Note: Business-as-usual scenario does not include the effect of new federal, state, and local policies.
Figure 4-13: Total Projected Regional Greenhouse Gas Emissions from Electricity Generation under Business-as-Usual Scenario, 2010-2050

Source: Energy Policy Initiatives Center, University of San Diego, 2014.
Note: Business-as-usual scenario does not include the effect of new federal, state, and local policies.

4.4.4 The Effect of Climate Change on Energy Needs

Environmental changes caused by climate change are expected to impact energy production and demand. In the San Diego region and statewide, climate change is projected to increase the risk of drought or water shortages during summer months. In addition, winter runoff may increase resulting in heightened risk of flooding. As a result of precipitation changes, hydroelectric power generation may be adversely affected. Lower runoff flows would decrease hydropower generation while higher flows often must be spilled past dams without generating any electricity.

In addition, increased average temperatures and longer and more extreme heat events associated with climate change are expected to increase peak demand for electricity. As a result, demand response strategies will become an even more important part of the region’s energy strategy as a result of climate change.

More discussion of the connection between how we use energy, the deep GHG reductions required to address climate change, and the regional impacts of climate change is included in Chapter 3: Key Policy Drivers and in the Climate Change Mitigation and Adaptation White prepared for San Diego Forward: The Regional Plan.
INTRODUCTION

The Executive Committee had a discussion about Property Assessed Clean Energy (PACE) at its November 1, 2013, meeting. At that time, staff was asked to return to the Executive Committee with an overview of PACE programs and an update on how PACE was being implemented in the region.

DISCUSSION

What is PACE?

PACE is a financing mechanism that allows property owners to pay for energy and water efficiency upgrades and renewable energy improvements without having to pay the costs upfront. PACE affords a qualifying home or business owner a loan for eligible upgrades or improvements, which is paid back via their tax bill.

History of PACE and Outstanding Issues

Assembly Bill 811 (Levine, 2008) (AB 811) and Senate Bill 555 (Hancock, 2011) (SB 555) provide state legislative authority for commercial and residential PACE programs. However, in July 2010, the Federal Housing Finance Agency (FHFA) objected to PACE senior lien status, issuing a statement advising Fannie Mae and Freddie Mac against buying mortgages with PACE assessments. This action significantly hampered the implementation of residential PACE programs in California because Fannie Mae and Freddie Mac are the primary residential mortgage lenders. The actions taken by the FHFA resulted in lawsuits filed by several plaintiffs, including the State of California, in four federal courts. In August 2011, the U.S. District Court for the Northern California district ordered the FHFA to begin a formal rulemaking process. In March 2013, the U.S. Court of Appeals for the Ninth Circuit reversed the lower district court, finding that the FHFA’s actions cannot be challenged in court. In September 2013, Governor Brown notified the FHFA of a new California reserve fund designed to protect the interest of Fannie Mae and Freddie Mac (Attachment 1) by providing funds to reimburse the first mortgage lender for PACE payments made due to foreclosure. This reserve fund has offered PACE providers and policy makers some assurances and is attributed to the substantial increase in adopted residential PACE programs. The FHFA subsequently released a statement on May 1, 2014 (Attachment 2), acknowledging the loss reserve fund, but not altering its position on PACE.
Commercial PACE programs have been minimally affected by the issues surrounding the FHFA. Most commercial mortgages are not held by Fannie Mae or Freddie Mac, and therefore, not affected by the FHFA statement and resulting court ruling.

**PACE in the San Diego Region**

PACE participation throughout the San Diego region varies by jurisdiction. The following table lists the active programs available throughout the region. There are four primary PACE finance program providers, which include CaliforniaFIRST, FigTree, HERO, and Ygrene. Both residential and commercial financing are available through these programs. Participation in available PACE programs in the San Diego region is growing rapidly since PACE became available in 2009. Of the 19 local jurisdictions, 18 are currently participating in at least one PACE Program.

Since its regional launch in February 2014, the HERO Program has approved more than 637 residential projects in the San Diego region’s participating jurisdictions, with more than $44 million worth of improvements in the queue. CaliforniaFIRST has 16 active commercial applications in the San Diego region, valued at more than $16.5 million, which should be funded by the end of June 2014. CaliforniaFIRST will be launching its residential PACE Program this August. Clean Energy Chula Vista, administered by Ygrene, is scheduled to launch this spring. Information for projects funded by FigTree was not available.

<table>
<thead>
<tr>
<th>PACE Program</th>
<th>CaliforniaFIRST</th>
<th>FigTree</th>
<th>HERO</th>
<th>Ygrene</th>
<th>Total Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlsbad</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>Chula Vista</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Coronado</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Del Mar</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>El Cajon</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Encinitas</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Escondido</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Imperial Beach</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>La Mesa</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Lemon Grove</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>National City</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Oceanside</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Poway</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>San Diego</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>San Marcos</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Santee</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Solana Beach</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Vista</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>County of San Diego</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Participants**: 14  14  13  1  42
As illustrated in the table above, PACE programs have been widely adopted by local jurisdictions throughout the region. At this time, SANDAG staff proposes to continue to monitor participation in PACE programs by member agencies, but refrain from taking an active role in the development and adoption of a regional PACE Program.

CHARLES “MUGGS” STOLL
Director of Land Use and Transportation Planning

Attachments:
2. Federal Housing and Finance Agency Letter Dated May 1, 2014

Key Staff Contact: Rob Rundle, (619) 699-6949, rob.rundle@sandag.org
OFFICE OF THE GOVERNOR

September 23, 2013

Edward DeMarco
Acting Director
Federal Housing Finance Agency
1700 G Street, NW
Washington, DC 20552-0003

Re: PACE Program in California; Resolution of Fannie Mae and Freddie Mac Issues

Dear Mr. DeMarco:

Last year, I asked President Obama to direct the Federal Housing Finance Agency to work with California to revive Property Assessed Clean Energy (PACE) programs, which provide homeowners with funding for energy-efficiency retrofits. The Federal Housing Finance Agency prohibited Fannie Mae and Freddie Mac from purchasing mortgages subject to PACE liens in certain types of PACE programs.

California has devised a mechanism that will address the concerns raised by FHFA and protect the interest of Fannie Mae and Freddie Mac, which I describe below.

The California Alternative Energy and Advanced Transportation Financing Authority (Authority), an existing state agency chaired by the California State Treasurer (Division 16 [commencing with Section 26000] of the Public Resources Code), will create a reserve fund for PACE programs. Any PACE program that wishes to use the reserve fund will enter an agreement that requires the PACE program to make Fannie Mae and Freddie Mac whole, as follows:

1. In any foreclosure, for any losses to Fannie Mae and Freddie Mac resulting from the payment of any PACE assessment paid while in possession of the property, and
2. In any forced sale for unpaid taxes or special assessments, for any losses to Fannie Mae and Freddie Mac that result from PACE assessments being paid before the outstanding mortgage.
PACE programs that enroll in the Authority reserve fund will meet basic structural criteria, comply with underwriting criteria set by the Authority, and pay an annual premium based on the size of their portfolio. In the event of foreclosure, Fannie Mae and Freddie Mac will be able to claim from the PACE program any amounts paid to keep the PACE assessment current until the property is sold to a new buyer. If the property is sold for back taxes or special assessments, and the sale results in insufficient funds to satisfy the outstanding mortgage because of PACE lien priority payments, Fannie Mae and Freddie Mac will be able to recover that amount from the PACE program. In both instances, upon a showing that Fannie Mae and Freddie Mac have been paid by the PACE program, the Authority will reimburse the PACE program.

This process addresses the issues raised by the Federal Housing Finance Agency and ensures that Fannie Mae and Freddie Mac will not be adversely impacted by the PACE first lien. The next step in moving this approach to fruition will be for the Authority to issue draft regulations for public comment, setting forth the requirements for PACE programs to participate in the reserve account. We will provide you with notice of that process and invite your participation.

I look forward to moving ahead on a much larger scale with PACE in California.

Sincerely,

Edmund G. Brown Jr.

cc: Valerie Jarrett, Senior Advisor to the President, The White House
    Alfred Pollard, General Counsel, Federal Housing Finance Agency
    Bill Lockyer, Treasurer, State of California
    Members of the California Congressional Delegation
May 1, 2014

The Honorable Edmund G. Brown Jr.
Governor, State of California
State Capitol
Sacramento, CA 95814

RE: California Property Assessed Clean Energy Program

Dear Governor Brown:

Thank you for your letter of April 28, 2014 about California’s Property Assessed Clean Energy (PACE) program. The Federal Housing Finance Agency’s (FHFA) General Counsel has been in touch with your staff, and I appreciate the time and materials they have provided concerning California’s PACE program and intentions in creating the Reserve Fund.

I am writing to inform you that FHFA is not prepared to change its position on California’s first-lien PACE program and will continue to prohibit the Enterprises from purchasing or refinancing mortgages that are encumbered with first-lien PACE loans. California’s PACE program would allow local governments to finance energy-related home improvement projects by placing an assessment on a homeowner’s property in a first lien position, resulting in the subordination of an existing Enterprise-backed mortgage to a second lien position. The effect of this is to increase the risks and possibility of losses to the Enterprises. Additionally, because these loans run with the land, the ongoing monthly assessments for PACE loans are passed on to any subsequent property owners – including after a foreclosure or other distressed sale – unless fully paid off beforehand.

In making this determination, FHFA has carefully reviewed the Reserve Fund created by the State of California and, while I appreciate that it is intended to mitigate these increased losses, it fails to offer full loss protection to the Enterprises. The Reserve Fund is not an adequate substitute for Enterprise mortgages maintaining a first lien position and FHFA also has concerns about the Reserve Fund’s ongoing sustainability.

Should you wish to discuss this matter further, I would be happy to discuss alternatives to first-lien PACE programs with you.

Sincerely,

Melvin L. Watt

xc: The Honorable Barbara Boxer
The Honorable Zoe Lofgren
ENERGY-RELATED STATE LEGISLATION

Introduction

The following report describes the legislature’s approved plan for the appropriation of cap-and-trade auction revenues and summarizes a number of bills that have been identified as relevant or of interest for the EWG. A short description and status of each bill is included. The EWG is asked to comment on the legislation and inform staff of additional bills to monitor. June 27 is the last day for policy committees to meet and report bills before summer recess. The last day for each house to pass bills is August 31.

Discussion

Cap-and-Trade Revenue

On June 15, the legislature approved a $156.4 billion state budget for 2014-15, including the appropriation of $872 million from cap-and-trade revenues. Governor Brown has until the end of June to sign the budget or veto items. The 2014-15 allocation of cap-and-trade revenue included in the legislature’s budget is outlined in the table below.

<table>
<thead>
<tr>
<th>2014-15 Cap-and-Trade Revenue Appropriations</th>
<th>$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Speed Rail</td>
<td>$ 250</td>
</tr>
<tr>
<td>Transit and Intercity Rail Capital Program</td>
<td>$ 25</td>
</tr>
<tr>
<td>Low Carbon Transit Operations</td>
<td>$ 25</td>
</tr>
<tr>
<td>Affordable Housing and Sustainable Communities (Strategic Growth Council)</td>
<td>$ 130</td>
</tr>
<tr>
<td>Clean Vehicle Rebate Project Incentives</td>
<td>$ 200</td>
</tr>
<tr>
<td>Low-Income Home Energy Assistance Program</td>
<td>$ 75</td>
</tr>
<tr>
<td>Agricultural Energy and Operational Efficiency</td>
<td>$ 15</td>
</tr>
<tr>
<td>Energy Efficiency Retrofit State Revolving Fund</td>
<td>$ 20</td>
</tr>
<tr>
<td>Water-Energy Efficiency (Drought Response)</td>
<td>$ 40</td>
</tr>
<tr>
<td>Wetlands and Watershed Restoration</td>
<td>$ 25</td>
</tr>
<tr>
<td>Sustainable Forests</td>
<td>$ 25</td>
</tr>
<tr>
<td>Timberland Environmental Impact Report for Carbon Sequestration and Fuel Reduction Program</td>
<td>$ 17</td>
</tr>
<tr>
<td>Waste Diversion</td>
<td>$ 25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$ 872</strong></td>
</tr>
</tbody>
</table>
The budget also contains language to continuously appropriate ongoing cap-and-trade funding beginning in 2015-16. For 2015-16 and beyond, cap-and-trade funds are allocated accordingly:

- 35 percent for the new Transit, Affordable Housing, and Sustainable Communities program
  - 20 percent for Affordable Housing and Sustainable Communities program, a grant program administered by the Strategic Growth Council. Half of the funds must be used for affordable housing.
  - 10 percent for Transit and Intercity Rail Capital Program, a grant program administered by the State Transportation Agency and awarded by the California Transportation Commission
  - 5 percent for the Low Carbon Transit Operations Program through existing State Transit Assistance program to reduce greenhouse gas (GHG) emissions by supporting new or expanded intermodal transit facilities
- 25 percent for High-Speed Rail Authority
- The remaining 40 percent would be annually appropriated in the budget or legislation

**Transportation**

**SB 913 (DeSaulnier) Vehicular Air Pollution: Vehicle Retirement**
This bill would require the guidelines for the retirement of high polluting vehicles adopted by the State Air Resources Board to additionally include specific goals for retirement and replacement of passenger vehicles and light and medium-duty trucks that are high polluters. The bill also would require the Board and the Bureau of Automotive Repair to coordinate in the issuance of a specified number of replacement vouchers through the Enhanced Fleet Modernization Program for specified fiscal years and a specified number of retirement vouchers through the Consumer Assistance Program.
*Status: 6/23/14; Assembly Transportation Committee*

**SB 1077 (DeSaulnier) Vehicles: Mileage-Based Fee Pilot Program**
This bill would establish a Mileage-Based Fee (MBF) taskforce within the California Transportation Commission to study MBF alternatives to the gas tax and to make recommendations to the Department of Transportation on the design of a pilot program. The bill would require the Transportation Agency to develop a pilot program based on recommendations of the taskforce by January 1, 2016, to identify and evaluate issues related to the potential implementation of a MBF in California. The bill would require the agency to prepare and submit a specified report of its findings to the Legislature no later than June 30, 2017.
*Status: 6/23/14; Assembly Transportation Committee*

**SB 1204 (Lara) Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program**
This bill would create the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program to be funded from cap-and-trade revenues, to fund near-zero emission truck, bus, and off-road vehicle and equipment technology and related projects, with preference to be given to projects in disadvantaged communities.
*Status: Pending; Assembly Appropriations Committee*
SB 1275 (De León) Vehicle Retirement: Charge Ahead California Initiative
This bill would amend existing law that creates an enhanced fleet modernization program and require that the updated guidelines include a mobility option. The compensation for a mobility option would be no less than the combination of what the motor vehicle owner would have received as compensation toward a replacement vehicle and the amount of a specified incentive. This bill also would establish the Charge Ahead California Initiative to fund programs and projects and provide programs for electric transportation for certain communities.
Status: Pending; Assembly Natural Resources Committee

Electricity

AB 1935 (Campos) Electricity: Clean Distributed Energy Resources
This bill would require the California Public Utilities Commission (CPUC), on a biennial basis, to study and submit a report to the Legislature and the Governor on the impacts of clean distributed energy resources on the state’s distribution and transmission grid.
Status: 6/23/14; Senate Energy, Utilities and Communications Committee

AB 2145 (Bradford) Electricity: Community Choice Aggregation
This bill would require that a community choice aggregator provide each customer the opportunity to opt in to his or her community’s aggregation program and would require a positive declaration from a customer for participation in the community choice aggregation program.
Status: 6/23/14; Senate Energy, Utilities and Communications

SB 456 (Padilla) Disclosure of Sources of Electrical Generation
This bill would require that the information disclosed by retail suppliers of electricity include the total electricity purchases derived from generation sources within the state and total electricity purchases derived from generation sources that are located outside the state as well as annual sales of electricity from an energy storage system.
Status: 6/23/14; Assembly Utilities and Commerce Committee

SB 1090 (Fuller) Electricity Rates: Default Time-of-Use Pricing
This bill would require the CPUC to explicitly consider whether hardship will be caused to customers living in hot, inland areas, and residential customers living in areas with hot summer weather before it could require or authorize an electrical corporation to employ default time-of-use pricing to residential customers and to submit its findings to the Legislature not less than 12 months prior.
Status: 6/23/14; Assembly Utilities and Commerce Committee

Financing

AB 1624 (Gordon) Self-Generation Incentive Program
This bill would require the CPUC to require electrical corporations to continue the collection for the program for distributed energy resources originally established pursuant to the former law through and including December 31, 2020, and to administer the program through and including December 31, 2021.
Status: Pending; Senate Energy, Utilities and Communications Committee
AB 1953 (Skinner) Higher Education Energy Efficiency Act: Grants
This bill would enact the Higher Education Energy Efficiency Act and create the Higher Education Energy Efficiency Fund to make financial assistance, including no-interest or low-interest loans and load loss reserves, to University of California and California State University campuses for building retrofits to reduce the demand for energy.
Status: 6/23/14; Senate Energy, Utilities and Communications

AB 2137 (Quirk) Energy Efficiency Programs: Information for Small Businesses
This bill would require the Office of Small Business Advocates within the Governor’s Office of Business and Economic Development to develop and maintain on its website a section dedicated to all of the demand-side energy management programs that are available to small businesses within the state and require that the website for the Energy Upgrade California program be revised to include information related to demand-side management programs for nonresidential customers, with emphasis on small business.
Status: Pending; Senate Appropriations Committee

AB 2597 (Ting) Energy: Property Assessed Clean Energy Program
This bill would require the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to consider whether a Property Assessed Clean Energy (PACE) program provides financial assistance that is less than 15 percent of the value of the property, for up to the first $700,000, and less than 10 percent of the remaining value of the property above $700,000, and whether the PACE financing program limits the total mortgage-related debt and PACE financing from exceeding the value of the property.
Status: Pending; Senate Appropriations Committee

SB 1121 (De Leon) California Climate Technology and Infrastructure Financing Act
This bill would enact the California Climate Technology and Infrastructure Financing Act and would require the authority, in consultation with the State Air Resources Board, to develop the California Climate Technology and Infrastructure Financing Program to provide financial assistance to eligible GHG emissions reduction projects, as defined. The bill would establish the Climate Technology and Infrastructure Financing Fund and would, upon appropriation by the Legislature, require the authority to expend moneys in the fund for the purposes of the program.
Status: 6/23/14; Assembly Natural Resources Committee

Key Staff Contact: Allison Wood, (619) 699-1973, allison.wood@sandag.org