

DOCKETED

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The IID Conservation and Demand-Side Management report is the Chapter 7 of IID 2014 Integrated Resource Plan, which was prepared by IID Energy Department work groups, and was approved by IID Board of Directors in November of 2014. Now the report is used by IID as Form 6 Incremental Demand-Side Program Methodology to meet the 2015 IEPR submittal requests. The report describes how IID implemented each of the conservation and demand-side management programs, and how the effects of the programs on load impact and costs were evaluated.

Conservation and Demand-Side Management

California has long been a leader in the areas of energy efficiency and renewable energy. Energy agencies within the state adopted an Energy Action Plan (EAP) that has been a catalyst for numerous energy-related policies. The EAP includes a “loading order” for the acquisition of new resources that prioritizes energy efficiency. Since that time, a number of state-mandated regulations have been enacted to support this policy, such as Senate Bill (SB) 1037. SB 1037 requires public and private gas and electric utilities to first acquire all available energy efficiency and demand reduction resources that are cost effective, reliable and feasible before conventional generation or other resources.

IID is committed to investing in all available energy efficiency and demand reduction as a supply resource. The IID offers a variety of conservation and DSM programs intended, in part, to alleviate electric generation requirements and avoid expensive peak purchases of power on the market. Conservation programs are designed to reduce the total amount of energy used while DSM programs are designed to shift energy use from high cost periods to low cost periods and reduce the cost of supplying customers.

Exhibit 66: Conservation and Daily Load

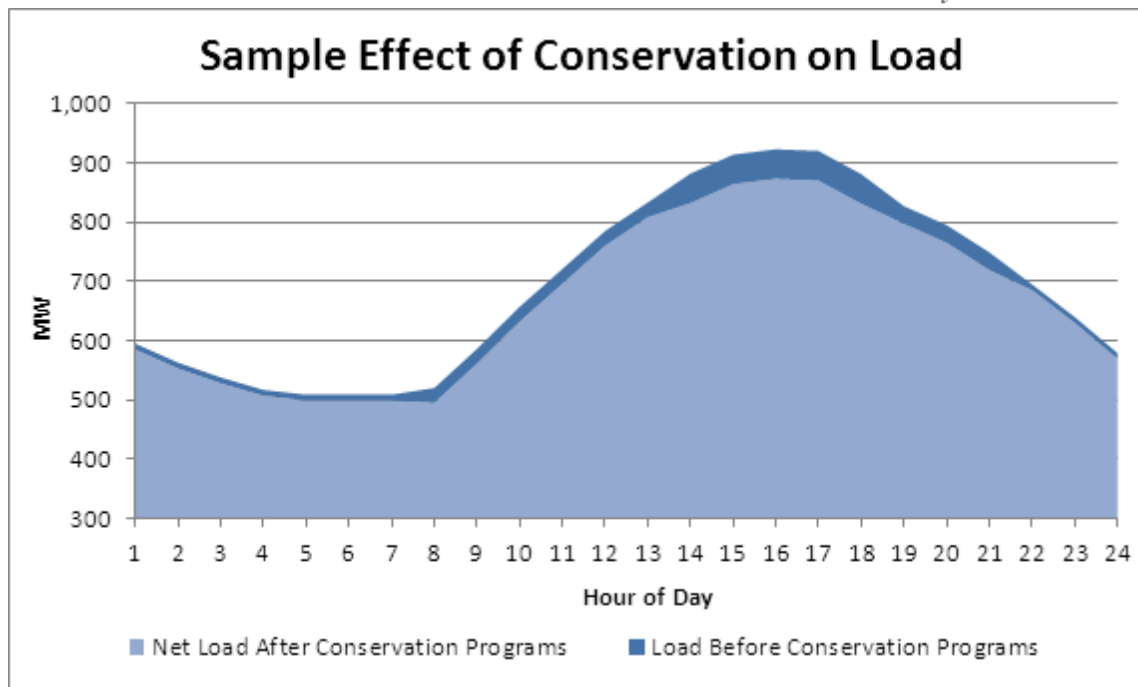
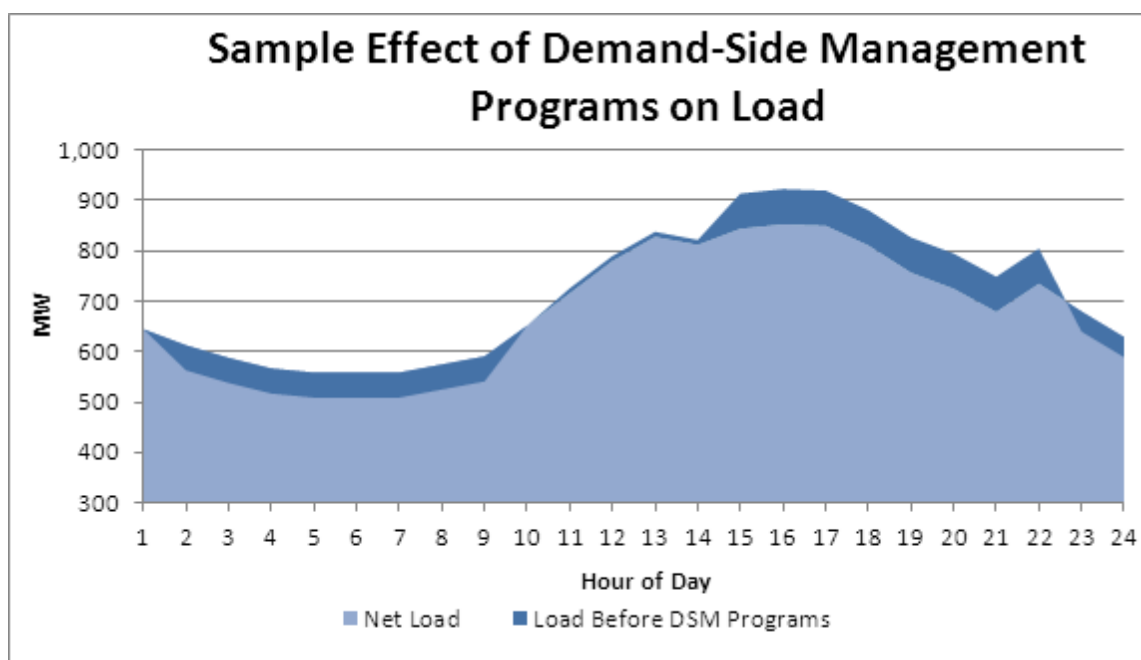


Exhibit 67: DSM and Daily Load

Currently, most programs within the IID’s portfolio are conservation programs with the goal of reducing the customer’s consumption and cost of energy. However, future programs may be designed to shift customer on-peak use to off-peak hours.

EVALUATION OF PROGRAMS

Conservation and DSM programs can be evaluated in a number of ways. Prior to implementation, and periodically throughout an existing program, cost-effectiveness tests are applied to determine if the investments are comparable to, or better than, the range of other available resource options. There are five industry-standard cost-effectiveness tests used to compare the benefits of energy efficiency with the costs to invest in implementation of the efficiency measures.

As a general rule, California utilities deem a total resource cost of “1” or greater as an indicator of a cost-effective program. However, comprehensive evaluation using a combination of the various tests provides for more definitive assessment of impacts and effects the program will have. Benefits and costs used to evaluate cost effectiveness of energy efficiency and DSM programs and services are identified in Figure 6.3. The following is a summary of the five approaches to evaluation:

1. Participant Cost Test (PCT) – This approach provides an assessment of the costs and benefits from the perspective of the customer installing the measure(s). PCT of 1 or

above indicates that the customer will see net savings over the expected useful life of the measure.

2. Utility/Program Administrator Cost Test (PAC) – Opposite of the PCT, this approach assesses the costs and benefits from the perspective of the utility implementing a program. A positive PAC result indicates that the costs to save energy are less than the utility’s cost to deliver the same power. Additionally, the customer’s average bill should reduce once the measures are implemented.
3. Ratepayer Impact Measure Test (RIM) – This test evaluates the potential impact the program may have on the overall electric rates. As RIM results tend to be negative, many utilities, including IID, emphasize the results of PAC tests over RIM to balance the distribution of rate impacts.
4. Total Resource Cost Test (TRC) – As the primary evaluation approach, the TRC illustrates the total benefits and costs to both participating and nonparticipating customers. This test shows the net benefits of the program as a whole without regard as to who (utility or customer) pays the cost of the measure(s) installed.
5. Societal Cost Test (SCT) – The SCT includes both costs and benefits that are not captured monetarily in the TRC such as greenhouse gas reductions or other environmental benefits.

Exhibit 68: Cost/Benefits of Conservation and DSM

Benefits and Costs from the Perspective of All Utility Customer (Participants and Non-Participants) in the Utility Service Territory	
Benefits	Costs
<ul style="list-style-type: none"> • Energy-related costs avoided by the utility • Capacity-related costs avoided by the utility, including generation, transmission and distribution • Additional resource savings (e.g. gas and water if utility is electric) • Monetized environmental and non-energy benefits (see Section 4.9) • Applicable tax credits (see text) 	<ul style="list-style-type: none"> • Program overhead costs • Program installation costs • Incremental measure costs (whether paid by the customer or the utility)

California Assembly Bill 2021 (Levine) that was signed into law in 2006 expanded upon several existing energy efficiency policies, including SB 1037. Among other mandates, it requires all publicly-owned utilities to perform third-party measurement and verification studies of their conservation and DSM programs. These independent program evaluations, commonly referred to as EM&V, are performed by third parties to provide an unbiased assessment of programs as well as measurement and verification of energy, demand and peak savings generated through the portfolio. IID’s EM&V plan consists of evaluation of its programs on a bi-annual basis, covering programs for a two-year cycle. Not all programs will be evaluated in each evaluation cycle.

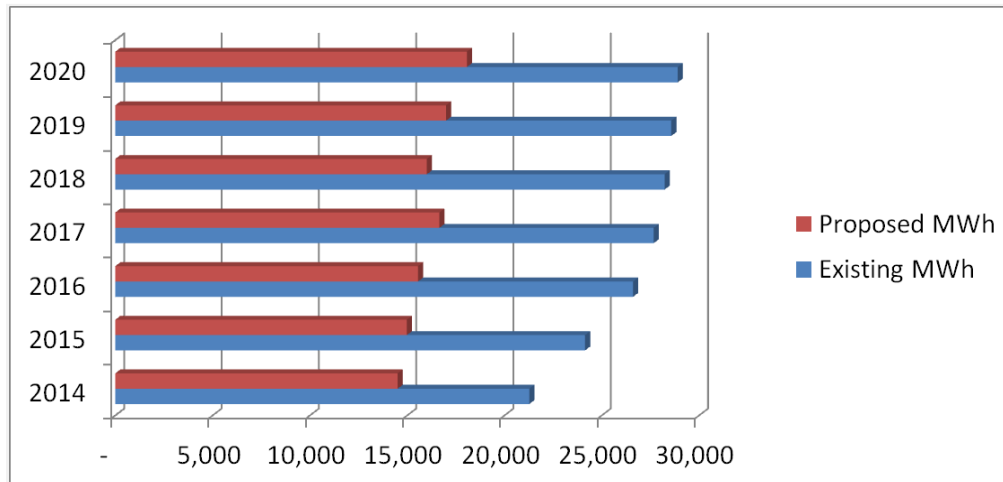
Programs that generate the most energy savings will be routinely assessed while others will be included on an as-needed basis.

Evaluation results allow the IID to determine if its programs are effectively reducing energy use by its residential and commercial customers. Using information from this report, local demographics and the IID's overall strategic goals, existing programs are assessed to determine if more cost-effective programs should be expanded at the expense of some of the less effective programs. Programs that only benefit participating customers may be scaled back or eliminated unless they have significant environmental or other societal benefits to the IID that cannot be quantified for customers. At times, the IID, at its sole discretion, may invest in programs or projects with lower TRC values if they align with specific strategic or policy-driven goals.

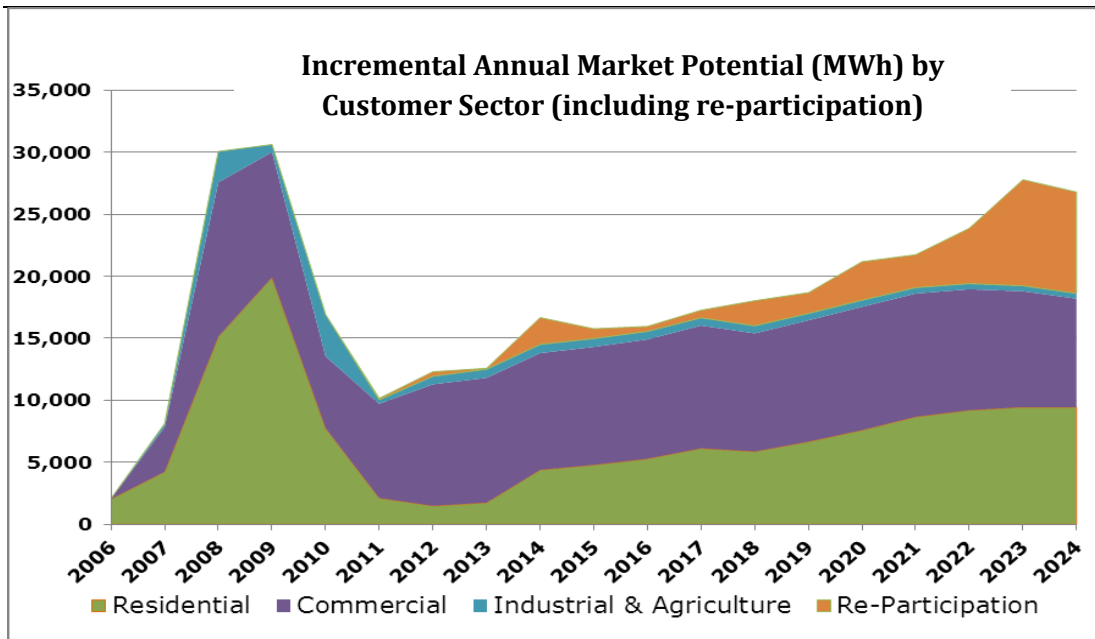
ENERGY EFFICIENCY PORTFOLIO TARGETS

Assembly Bill (AB) 2021 also requires each publicly owned utility to identify all potentially achievable cost effective electricity efficiency savings and shall establish annual targets for energy efficiency savings and demand reduction for the next 10-year period. IID has joined together with California Municipal Utilities Association (CMUA) in partnership with Northern California Power Agency (NCPA) and the Southern California Public Power Authority (SCPPA) to collaborate on the development of individual utility energy efficiency and demand-reduction targets. The targets are re-evaluated every three years and are based on a methodology developed by the Rocky Mountain Institute (RMI), an independent organization with well-accepted energy efficiency expertise in the industry. The RMI model is designed to estimate the technical (full extent of energy efficiency potential without regard to practicality or costs), cost effective and feasible energy efficiency potential.

In March of 2011, IID's Board of Directors adopted energy savings targets through 2021. Consistent with provisions of AB 2021, these targets were re-evaluated. Figure 6.4 reflects a comparison of the IID's MWh targets by program year. Proposed targets derived from the most recent target-setting process have yet to be adopted; however, they have been provided for comparative purposes. A modified RMI modeling framework allows for customized options such as IID's service territory size, growth rate, climate zone and customer base. Model results are also highly dependent on prior reported savings, which are reflected in the significant decrease in proposed targets from those adopted in 2011.

Exhibit 69: Existing and Proposed Energy Savings Targets

These targets consist of energy savings and demand-reduction potential in existing buildings and new construction for residential, commercial and industrial sectors. Figures reported to the state for 2012 will reflect energy savings more in line with previous years. In late 2009, the department was reorganized and the section responsible for development, implementation and administration of the energy efficiency programs was disbanded and a new section was created. As a result, much of 2010 and 2011 were dedicated to forming the strategy for program goals and objectives. Subsequently, an energy efficiency portfolio was developed to align with the new strategy and target the incremental annual energy and demand market potential.

Exhibit 70: Incremental Annual Market Potential for Energy Savings

EFFECTS OF EXISTING PROGRAMS

To support the state's long-term energy goals, a number of mandates have been implemented to not only encourage but to prioritize investments in all available energy efficiency and demand-reduction resources that are cost effective, reliable and feasible. As such, California utilities are to first meet load with these investments prior to procurement of other resources. On an annual basis, IID and other utilities report investment funding, cost-effectiveness methodologies and independent evaluations to the board, the state and our customers.

From 2010 through 2012, conservation programs implemented by the IID saved participating customers approximately 52,000 MWh in energy savings and 14.5MW in demand savings. The most successful programs, in terms of energy saved, have been the Custom Energy Solutions Program (CESP) and Open-for-Business Direct Install. Overall reported savings were a result of various measures within the residential and commercial sections and as illustrated in Figure 6.6.

Exhibit 71: Summary of 2010-2012 Energy Savings

Program Sector	Category	2010-2012 Resource Savings Summary					
		Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Total Utility Cost (\$)
HVAC	Residential	20,852	4,372	6,700	14,568,57	12,051,710	\$ 8,213,036
Lighting	Residential	30,115	1,333	189	1,238,58	1,165,069	\$ 544,134
Other	Residential	6,641	357	357	2,343,54	1,918,057	\$ 990,290
HVAC	Non-Residential	6,208	2,909	2,004	10,511,33	8,910,378	\$ 3,751,618
Lighting	Non-Residential	147,501	4,662	2,334	24,096,72	21,578,731	\$ 6,983,899
Other	Non-Residential	1,737	824	77	7,957,71	6,632,231	\$ 1,386,957
Totals		213,054	14,458	11,661	60,716,47	52,256,176	\$ 21,869,934

In July, the lighting load incentive offered through CESP increased from \$0.07 to \$0.11 in an effort to increase program participation by enticing customers to move forward with a number of pending projects that seemed to have stalled in the process. As a result, the IID realized a significant increase in energy savings generated from these projects.

The IID also increased the incentive for attic insulation offered through the Energy Rewards prescriptive rebate program in an effort to target residential structures with little to no attic insulation. This measure proved to be extremely popular with both customers and local contractors. The IID experienced heavy participation as a direct result of aggressive marketing efforts by contractors. Funding for this measure was increased through board direction.

DESCRIPTION OF EXISTING PROGRAMS

The 2013 program portfolio is structured to allow IID to meet their annual target of 18,381 MWh. An overview of each program is provided below.

RESIDENTIAL PROGRAMS

Residential Energy Audits - This program allows residential customers to quantify energy consumption and to determine measures that can be applied to make the customer's home more energy efficient.

Energy Rewards Rebate Program - This program offers residential prescriptive rebates for qualified energy efficient measures such as air conditioners, attic insulation and pool pumps.

Refrigerator Recycling - The IID offers a \$50 incentive and free refrigerator pickup with proper

recycling services to our customers. This program targets older, less efficient units and those kept in basements or garages.

Weatherization - This program offers comprehensive low-cost energy education and weatherization services for residential customers. Participating customers will receive up to \$1,000 in energy-saving equipment for a nominal fee while customers enrolled in IID's income-qualified program may participate at no cost.

Quality AC Maintenance - This program provides maintenance services designed to improve the operating efficiency of existing central air conditioners or heat pumps.

Payment Assistance - The IID offers income-qualified assistance programs designed to help customers meet their energy needs. Rate discounts are offered to income-qualified customers and a special rate is offered for those using critical medical equipment. A financial assistance program is also offered to customers facing financial crisis that are at risk of disconnection for nonpayment.

Compact Fluorescent Light (CFL) Recycling Events - Throughout the year, IID hosts various events where customers are allowed to recycle up to five incandescent light bulbs in exchange for CFLs.

COMMERCIAL PROGRAMS

Custom Energy Solutions Program (CESP) - CESP offers financial incentives to commercial customers intended to offset the cost to purchase and install qualifying energy efficiency measures. The measures must retrofit, replace or upgrade old equipment with new, energy-efficient technologies that exceed the applicable Title 24 energy efficiency requirements.

New Construction Energy Efficiency Program (NCEEP) - NCEEP is a non-residential new construction and renovation energy efficiency program that combines an integrated design process with financial incentives for energy-saving design at least 10 percent above the current Title 24 requirements.

Learning Energy Awareness Program (LEAP) - Through LEAP, the IID issued a Call for Projects in 2012 that was open to all K-12 public schools within the service territory with awards up to \$35,000. Qualifying energy efficient upgrades included lighting and HVAC measures that exceed applicable Title 24 energy efficiency requirements.

Commercial Energy Audits - This program allows commercial customers to quantify energy consumption and evaluate measures that can be applied to make a facility more energy efficient.

Open for Business (Small Business Direct Install Program) -

This program provides customers with up to \$2,500 worth of lighting and refrigeration energy efficiency measures that will help small businesses overcome the financial barriers associated with purchase and installation of energy efficient upgrades.

Energy Rewards Rebate Program - IID offers nonresidential customers prescriptive rebates for qualified energy-efficient measures. Measures must retrofit, replace or upgrade old equipment with new, energy-efficient technologies that meet and exceed the Title 24 standards. Qualifying product categories include programmable thermostats, HVAC equipment, lighting and motors.

RATES

The IID also offers interruptible and high-voltage rates for its large commercial and industrial customers.

Key Customer Demand Response Program (Interruptible Load Program) - This program was developed in 2010 with a target participation of 25MW within three years. Program guidelines require enrolled large commercial and individual customers with on-site back up generation to curtail a minimum of 500kW upon timed notice by IID. Failure to curtail contracted reductions will result in a financial penalty. This generation can be used to reduce load during times of system stress either due to transmission or generation curtailments or if load exceeds forecasted demand. Presently, one large commercial customer is enrolled at a firm service level of 500kW with a five-year agreement.

High Voltage Rate Discount Program - Under this program, customers take electric services at 34.5 kilovolts or above at a single point of interconnection. The customer maintains all necessary step-down transformation and facilities beyond the transformer, which IID would normally own. In return, IID will provide a discount on the maximum demand energy charge and energy cost adjustment charge. The reduced electric rate offsets some of the customer's costs for the facilities, maintenance and necessary substation equipment.

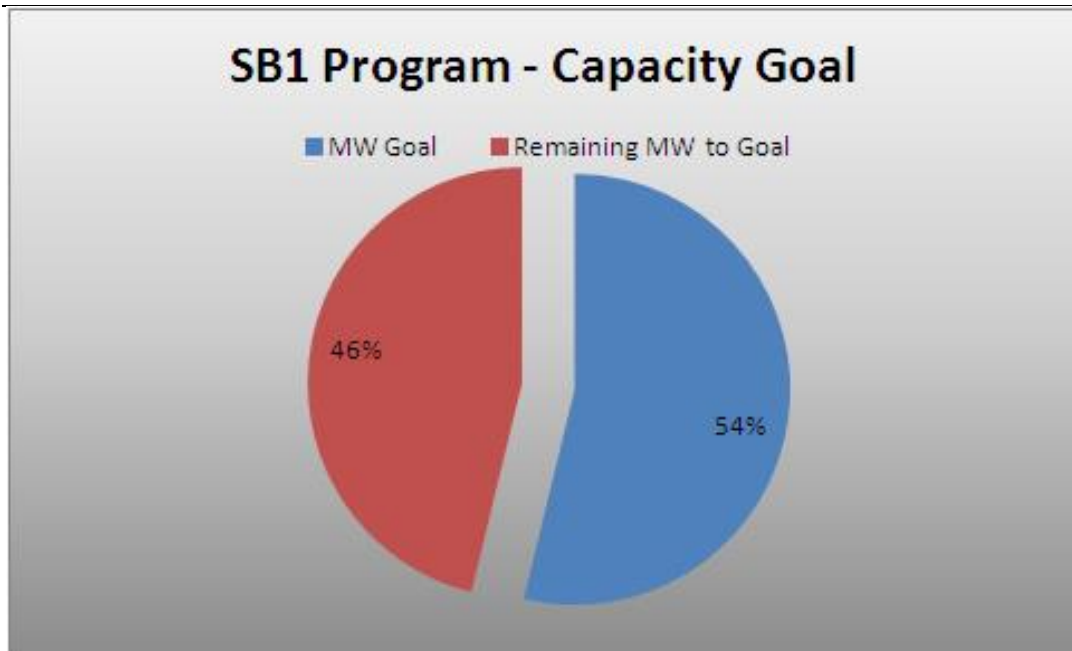
RENEWABLE-ENERGY PROGRAMS

To help customers fully benefit from investments in various renewable options, the IID offers a number of retail renewable programs.

Solar Solutions Program

Electric corporations and publicly-owned utilities, including IID, are mandated by state law, specifically Senate Bill 1, to offer a solar initiate program for the purpose of investing in and encouraging the increased installation of residential and commercial energy systems. IID offers monetary incentives through its Solar Solutions Program for eligible systems up to the first 15kW (residential), 300kW (commercial) and 400kW (government/nonprofit) CEC-AC of generating capacity electric load. Incentives for solar energy systems must decline at a rate of no less than an average of 7 percent per year and must be reduced to zero by the end of the program.

IID's overall program budget totals \$40,219,809 over the course of the program, which is slated to sunset at the end of 2016. IID's expenditure level was based on IID's percentage of the total statewide load served by all local publicly-owned electric utilities or 5.13 percent. The program goal allocated to the IID totals 44MW. Alternative approaches, such as offering a lower incentive rate, are being considered in an effort to increase the number of systems interconnected to the electric distribution grid as a result of the program.

Exhibit 72: SB1 Capacity Goal

There are two acceptable performance-based approaches to incentive distribution: the expected performance-based incentive (EPBI) approach offered for projects less than 30kW and the performance-based incentive (PBI) approach for projects 30kW and above. The EPBI approach pays an upfront incentive while PBI is based on the solar energy system's actual production (kWh) over a five-year period. The PBI incentive payment is calculated by multiplying the incentive rate (\$/kWh) by the measured kWh output.

As of December 31, 2012, IID has paid 31 percent of its allocated expenditure level. Due to PBI, IID will continue to pay projects through 2021.

Exhibit 73: SB1 Program Funding

SB 1 Program Funding						
Total Program Funding	Total Incentives Paid	Funds Remaining	Total Incentives Reserved	MW Goal	Remaining MW to Goal	
\$ 40,219,809	\$ 12,320,556	\$ 27,899,253	\$ 20,100,405	44	37.8	

Exhibit 74: Solar Solutions Program Installation Summary

Systems Installed and Installed Capacity per Sector			
Category Type	Total Systems Installed	Installed Capacity (kW)	Total Generation (kWh/yr)
Residential	325	1,392	3,604,518
Commercial	26	3,081	5,717,467
Government	7	1,206	2,450,180
Total	358	5,679	11,772,165

Feed-In Tariff (FIT)

SB 32, enacted in 2009, required the IID to implement a FIT. This tariff is mandated to be offered on a first-come, first-served basis. IID is currently accepting applications for its FIT program that will launch in the second quarter of 2013. The tariff provides a simple mechanism for small renewable generators (less than 3MW) to sell power to the utility at predefined terms and conditions, without engaging in contract negotiations.

Senate Bill (SB) 1332 established program caps determined by the ratio of the utility's 2011 peak demand to the 2011 statewide peak demand. For IID, this cap is estimated to be approximately 13MW. Eligibility criteria for IID's FIT consists of the following:

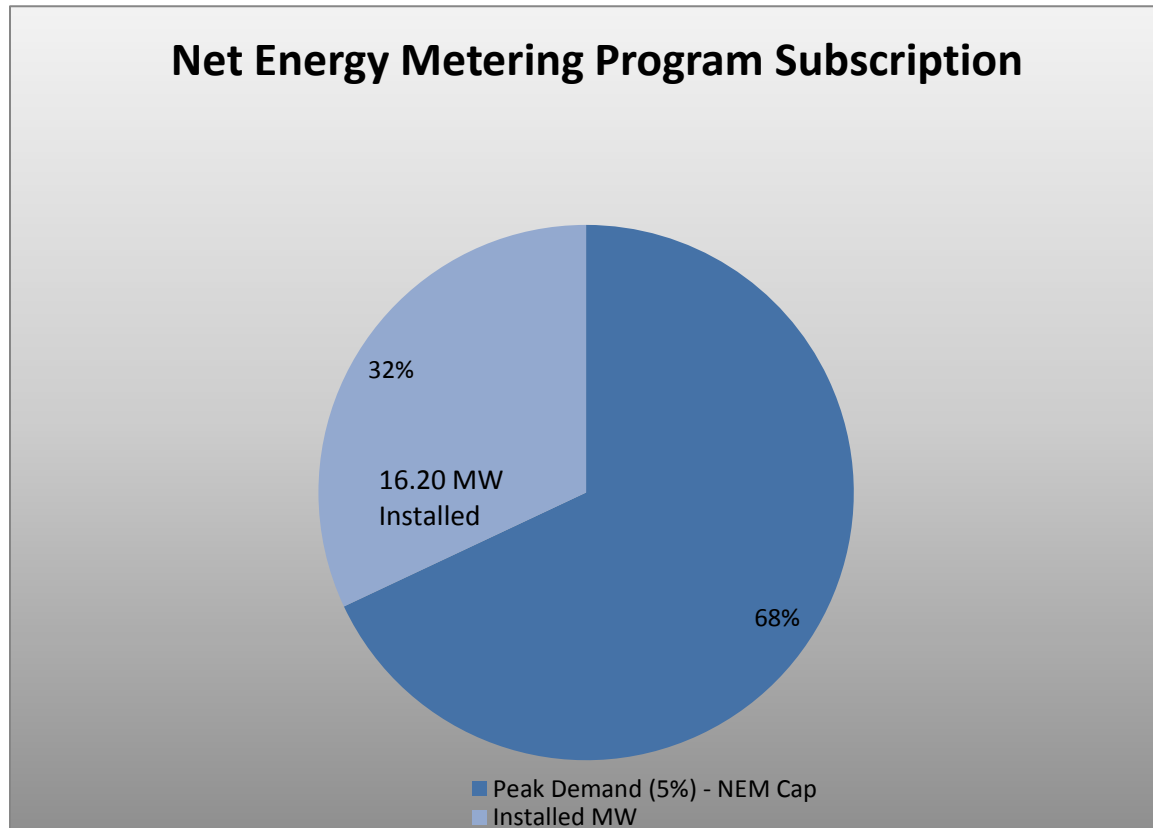
- 1) the project must be located within the IID service territory;
- 2) the project must be between 1kW and 3MW;
- 3) the project must be located and interconnected in a manner that optimizes deliverables of generation to load centers; and
- 4) The project must install eligible renewable generation.

Through the tariff, IID will purchase all generation from the facility and all Renewable-Energy Credits (REC) will belong to IID. Customers receiving the tariff may not offset load at the site/facility. Customers receiving the tariff are not eligible for any other IID tariff for renewable technologies (i.e., net metering rate, virtual net metering rate, etc.) nor may they receive rebates from IID's SB1 PV/Solar Solutions Program. Furthermore, the customer may not have another Power Purchase Agreement (PPA) for the same project.

Net Energy Metering

Net Energy Metering (NEM) is a program designed to benefit IID customers who generate their own electricity using solar, wind, biogas, fuel cell or a hybrid of these technologies. The program includes generating facilities up to 1MW and is offered on a first-come, first-served basis. IID's NEM program capacity is 50MW and reaches five percent of IID's peak demand, which equates to 50.2MW.

Exhibit 75: NEM's Program Subscription

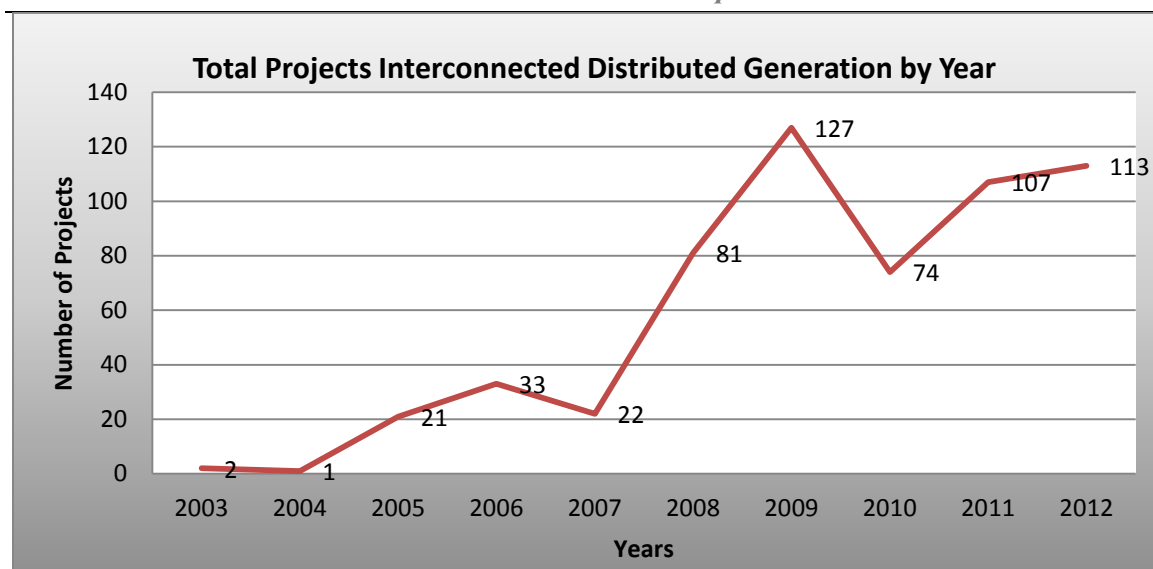


An installed bidirectional meter records the amount of energy (in kWh) delivered by the IID to the customer's premise, which is called net consumption. It also records the amount of energy (in kWh) generated by the customer's generating system, which was not consumed by the premise and thus returned to the IID's electrical grid. This is referred to as net generation. The net difference between these two amounts is what IID uses to create the participating customer's monthly bills.

Consistent with AB 920, the IID established a rate to purchase surplus electricity. At the end of a 12-month period, customers who are net generators will be compensated for surplus energy returned to the grid at the rate stated in the current net metering rate schedule. At the end of the 12-month period, customers that are net consumers, but in any given month within the 12-month

period are a net generator, that monthly surplus energy will be tallied and credited to the customer at IID's current retail rate.

Exhibit 76: Number of Distributed Generation Installed per Year



Energy Storage Systems

As renewable-energy generation tends to be variable, intermittent and off peak, energy storage systems may optimize the use of significant additional generation that will be entering the grid on an accelerated basis as a result of California's energy goals. The state has declared that expanding the use of energy storage systems can reduce costs to ratepayers, reduce emissions from fossil fuel generation and enable and accelerate the implementation of more renewable generation and its integration in California's electrical system.

On September 29, 2010, the California Legislature enacted Assembly Bill (AB) 2514 directing the California Public Utility Commission and governing board of a local publicly-owned electric utility to initiate proceedings prior to March 1, 2012, to determine energy storage procurement targets, if any. This legislation, considered the foremost statute relating to utility procurement of energy storage systems, asserts a number of findings regarding the value of energy storage and barriers that hinder timely implementation.

As part of the proceeding, the board of directors can consider a variety of possible policies to encourage the cost-effective deployment of energy storage systems, including refinement of existing procurement methods to properly value energy storage systems. AB 2514 requires the IID Board of Directors, as the governing board of IID, to adopt an energy storage system procurement target, if determined to be appropriate, by October 1, 2014. The legislation further

mandates that adopted targets are achieved by the IID by December 31, 2016, with a second target to be achieved by December 31, 2021. In compliance with the provisions of this mandate, IID's Board of Directors adopted a resolution on February 14, 2012, initiating a process to determine appropriate targets, if any, for the procurement of energy storage.

Ice Bear Thermal Energy Storage Program (Ice Bear)

Currently, there are five Ice Energy Ice Bear Thermal Energy Storage (TES) units installed at the IID's La Quinta office located in Coachella Valley. The units are designed to reduce air-conditioning loads for small commercial and large residential air-conditioning systems. The units create ice during off-peak hours and use the ice during on-peak hours for air conditioning, allowing the air conditioner to turn off the compressor system.

TES units typically supplement and, in some cases, can replace A/C systems for large customers including hospitals and large office buildings. In an area as warm as the IID's service territory, TES systems tend to be larger than in more temperate climates as sufficient ice must be made during the off-peak hours to keep the compressors from having to be operated during the super-peak periods. Because TES systems must be oversized, the additional cost tends to provide the greatest benefits for customers that have high on-peak A/C load.

Moreover, the benefits of the TES system are dependent upon how many hours the unit must run to create ice necessary for on-peak cooling. In cooler parts of the country, the units can create enough ice off peak to allow the compressors to remain off during the eight on-peak hours. In the IID's two major load zones, El Centro and La Quinta, temperatures may be so high that the TES system must make ice for up to 20 hours, resulting in four hours daily load reduction.

These units were installed to determine how TES units would perform during seasonal extreme temperatures. Based on historical pricing, the IID would like to see sufficient load shifting to lower energy cost hours for such a project to be deemed cost effective.

Other Investments

From time to time, the IID invests in pilot projects to assess the impact, benefits and performance of new and emerging technologies or to test concepts for suitability. These pilots may result in implementation of full-scale programs if it meets cost effectiveness, qualifications or policy-driven goals. Examples of these investments may include:

- Development of emerging technologies for the market via a small-scale program designed to demonstrate the costs and benefits to decision makers and increase market penetration in the technology market.
- New combinations of existing and new technologies, control systems or software to dramatically increase the anticipated savings from each component of the system due to synergies between components, which may be implemented elsewhere.

IID, in its sole and absolute discretion, determines if funds shall be made available and what technologies and/or approach, if any, will be used to pilot a program. Projects that are typically deemed ineligible for funds consist of unproven new technology, tool development, research and development (R&D) or completion of product development as well as demonstration projects, R&D prototypes, and limited production technologies that cannot support an effective regional energy efficiency program.

The IID welcomes the opportunity to collaborate with other agencies on energy efficiency, renewable or other sustainable projects and programs. Collaborative efforts allow the agencies to share resources that benefit both the utility and our ratepayers while providing detailed information that helps determine whether the utility and its ratepayers will benefit from large scale investments.