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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Develop A Successor to Existing Net Energy Metering Tariffs Pursuant to Public Utilities Code Section 2827.1, and to Address Other Issues Related to Net Energy Metering.	**Rulemaking 14-07-002 (Filed July 10, 2014)**

SUBMITTAL OF THE FEDERAL EXECUTIVE AGENCIES IN RESPONSE TO THE ADMINISTRATIVE LAW JUDGE'S RULING (1) ACCEPTING INTO THE RECORD ENERGY DIVISION STAFF PAPERS ON THE AB 327 SUCCESSOR TARIFF OR CONTRACT; (2) SEEKING PARTY PROPOSALS FOR THE SUCCESSOR TARIFF OR CONTRACT; (3) SETTING A PARTIAL SCHEDULE FOR FURTHER ACTIVITIES IN THIS PROCEEDING

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August 3, 2015

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OF THE STATE OF CALIFORNIA

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I. EXECUTIVE SUMMARY

Consistent with the objectives of Assembly Bill 327 ("AB 327"), The Federal Executive Agencies ("FEA") propose a net energy metering ("NEM") successor tariff compensation structure that is based on a full retail rate credit to the eligible customer-generator. The FEA believes that this compensation structure would ensure that there is sustainable growth of renewable resources in California under the successor tariff, as required by AB 327.

To avoid creating new barriers to the growth of on-site renewable generation in California, and to be consistent with the goal of AB 327, interconnection fees, new fixed grid charges, standby charges, and new nonbypassable charges should not be imposed on eligible customer-generators, irrespective of the size of the on-site renewable system. If the California Public Utilities Commission ("CPUC") nevertheless determines that new nonbypassable charges, fixed charges or standby charges should be applied to eligible customer-generators under the

NEM successor tariff, any such charges should be phased in on a very gradual basis (e.g., over 10 to 15 years).

For the reasons explained in this filing, the FEA ran its Public Tool scenarios only for the SCE service territory, using the six model scenarios required by the ALJ's July 20, 2015 ruling in this proceeding. The FEA's model runs were based on a full retail rate credit compensation structure with no new fixed charges or grid charges for NEM customers. The FEA's modeling results show that a full retail rate credit compensation structure will support sustainable growth of DER, as evidenced by robust projected DER deployment levels through 2025. In addition, this compensation structure passes the Total Resource Cost test and the Societal Benefits test when one assumes broader state policies that are supportive of DER development, thereby demonstrating that the benefits of the FEA's DER proposal are greater than or equivalent to the associated costs.

In this proceeding, the FEA's major areas of concern include reducing burdensome or unnecessary interconnection requirements and related costs for the installation of on-site renewable facilities, particularly facilities in excess of 1 MW in size. The FEA makes the following principal recommendations to address its concerns with respect to NEM policy in California:

1. On-site renewable systems larger than 1 MW should be eligible to enroll in any NEM successor tariff/contract design;

2. Accounts taking either direct access or bundled service should be eligible on an equal footing for the NEM successor tariff;

3. System interconnection issues should be addressed by giving utilities a 30-day limit to study an interconnection request, which limit can only be extended by the Commission. The cost of appropriate distribution upgrades should be borne by the customer-generator; and

4. Separate installations on a single premise such as a military facility can be designated as separate eligible customer-generators under the NEM successor tariff/contract,

regardless of whether such installations are associated with a single customer account or are located behind a single utility delivery point.

II. INTRODUCTION AND OVERVIEW OF COMMENTS

The FEA appreciates the opportunity to make this filing in response to the ALJ's June 4, 2015 and July 20, 2015 rulings seeking proposals from the parties for the NEM successor tariff or contract. As explained in our April 28, 2015 comments in this proceeding, the FEA supports renewable energy development and has been and will, to the extent feasible under CPUC rates, rules and regulations, continue to add renewable generation at its facilities in California. Moreover, the FEA is very interested in accelerating the deployment of renewable generation resources at its facilities in California, and is therefore interested in the adoption of an NEM successor tariff that will minimize the regulatory and cost impediments to the installation of renewable generation resources in California. In this regard, the FEA's major areas of concern include reducing burdensome or unnecessary interconnection requirements and related costs for the installation of on-site renewable facilities in excess of 1 MW in size.

On April 28, 2015, in response to the ALJ's April 15, 2015 request, the FEA submitted comments regarding the functionality provided by the Public Tool. In those comments, the FEA detailed its concerns that the Public Tool does not provide sufficient functionality to address the circumstances of direct access accounts wishing to install on-site renewable generation in excess of 1 MW in size, and also does not adequately address issues related to interconnection requirements for on-site renewable generation. Specifically, the FEA's April 28, 2015 comments urged the CPUC to require added functionality in three specific areas:

- Allow model users to specify NEM successor tariff/contract options for direct access customers;

- Enhance the model's functionality with respect to the impact of interconnection requirements and related interconnection costs on both direct access and bundled service customers; and

- Allow model users to explore the viability of installing larger renewable projects at a single site with multiple facilities on several parcels of land, based on their aggregated load.

Unfortunately, the added functionality requested by the FEA was not incorporated into the final version of the Public Tool, and no explanation of this decision was provided. As a result, it is not possible to use the Public Tool in a manner that adequately evaluates FEA's primary concern about developing a NEM successor tariff/contract. Consequently, the FEA has elected primarily to focus its August 3, 2015 filing on Sections C and D of the ALJ's June 4, 2015 ruling, which address the treatment of systems larger than 1 megawatt and additional elements of a NEM proposal (the FEA has specifically addressed exemptions from interconnection fees, upgrade fees, standby charges and nonbypassable charges). These aspects of the ALJ's ruling more directly address the areas of concern to the FEA in this proceeding.

While a substantial amount of the FEA's load in California takes direct access service, the FEA does have considerable load in the Southern California Edison ("SCE") service area that takes bundled service. Therefore, to address the requirement in the ALJ's ruling that the Public Tool be used as the basis for developing NEM successor tariff proposals for the August 3, 2015 filings of the parties, the FEA has prepared a Public Tool model run for SCE that sets the NEM compensation structure for bundled service customers at the full retail rate, with no new fixed or grid charges imposed on DER customers. We believe that this rate structure provides the best means of ensuring the continued robust expansion of on-site renewable generation in California. In compliance with the ALJ's July 20, 2015 ruling, the FEA's model run was conducted for all six of the "bookend" cases that were developed by the Staff of the CPUC's Energy Division.

III. SECTION ADDRESSING STANDARD NEM SUCCESSOR TARIFF/CONTRACT

FEA'S RESPONSE

To ensure that there is sustainable growth of renewable resources in California under the successor tariff, as required by Assembly Bill ("AB") 327, it is important to ensure continuity in the NEM compensation structure between the existing and successor NEM tariffs. The FEA therefore supports a NEM successor tariff compensation structure for bundled service customers that is based on a full retail rate offset for the eligible customer-generator. Any significant changes to the compensation structure could have unforeseen detrimental impacts on the incentives facing potential on-site customer-generators and thereby significantly reduce future on-site renewable generation deployment to an extent that may be difficult to reverse. Maximizing continuity in the NEM successor tariff relative to the existing NEM tariff, particularly with respect to the rate structure, is the best means of avoiding such detrimental impacts.

As explained in more detail in response to Section D of the ALJ's June 4, 2015 ruling in this proceeding, the FEA believes that the NEM successor tariff should not impose interconnection fees, new fixed charges, standby charges, or any new nonbypassable charges on eligible customer-generators, irrespective of the size of the on-site renewable system. This approach aligns with California's expressed renewable energy and environmental policies by minimizing the cost barriers to continued expansion of on-site generation in California. It also minimizes the disruption to customer incentives that could result from the transition to the NEM successor tariff.

Based on these considerations, the FEA has developed Public Tool model runs using the six model scenarios required by the ALJ's July 20, 2015 ruling,[1] based on a full retail rate credit, or offset, for the NEM successor tariff compensation structure for bundled service customers. In addition, the FEA's model runs exclude any new grid charges or fixed charges that would be imposed on eligible customer-generators under the NEM successor tariff. As the FEA explained in the introductory section of this filing, the relevance of the Public Tool to the FEA's accounts is limited to the SCE service area where the FEA has significant bundled service. For this reason, the FEA ran its Public Tool scenarios only for the SCE service territory.

The FEA's NEM successor tariff proposal meets the requirement that the successor tariff structure should support the sustainable growth of DER in California, as that term is used in Public Utilities Code Section 2827.1(b)(1). This conclusion is supported by the fact that cumulative DER installations are projected to increase robustly under each of the six required scenarios modeled by the FEA, with DER deployments projected to more than double from approximately 4,000 MW in 2017 to over 10,000 MW in 2025. (See attached summary tables.)

To fully capture the benefits that DER provide to California, the Commission should measure the costs and benefits of DER installations, as addressed in Public Utilities Code Section 2827.1(b)(3), using the Total Resource Cost ("TRC") test. The Ratepayer Impact Measure ("RIM") test also should be run in order to ensure that the accompanying rate impacts are not too severe. For the same reasons stated above, it is also appropriate to use the TRC test to determine whether the total benefits of the NEM successor tariff to all customers and to the electrical system are approximately equal to total costs, as specified in Public Utilities Code Section 2827.1(b)(4).

[1]The six required model scenarios under the ALJ's Order are 2 Tiered High, 2 Tiered Low, TOU Bookend 1 High, TOU Bookend 1 Low, TOU Bookend 2 High and TOU Bookend 2 Low.

The FEA's Public Tool model runs demonstrate that a full retail rate credit compensation structure for DER under the NEM successor tariff will generate benefits in excess of the associated costs under the scenarios developed by the CPUC Energy Division Staff that assume the implementation of broader state policies, such as renewable portfolio standard ("RPS") requirements for distributed generation, that are supportive of robust DER development (the Energy Division Staff's "High" bookend scenarios). These results show that when the full benefits of DER are appropriately recognized in analyzing the costs and benefits of DER deployment and broader state policies support such deployments, a full retail rate credit compensation structure with no new grid charges or fixed charges under the NEM successor tariff is consistent with the requirement that the benefits of DER deployment should be greater than or equivalent to the associated costs.

IV. SECTION C. SYSTEMS LARGER THAN ONE MEGAWATT

FEA'S RESPONSE

In its paper demonstrating how to use the Public Tool that was included as Attachment 1 to the ALJ's June 4, 2015 ruling, the CPUC Energy Division Staff assumed that renewable systems larger than 1 MW would be eligible to enroll in any NEM successor tariff/contract that is approved by the CPUC. (Attachment 1 to the ALJ's ruling, p. 1-13) The FEA strongly supports the concept that systems sized over 1 MW should be designated as eligible customer-generators under any approved NEM successor tariff or contract. This approach is reasonable because it would open the door for the installation of larger sized, generally more economical, on-site renewable systems, while avoiding the imposition of any special hurdles or conditions on larger renewable systems that may lead to discriminatory treatment of larger systems in the NEM application process. Such discriminatory treatment could result from the designation of systems

larger than 1 MW as a special class of customer-generator that must qualify for NEM under a distinct tariff or contract.

The NEM successor tariff also should address clearly the eligibility of direct access accounts for NEM service, including for eligible customer-generators sized over 1 MW. Specifically, accounts taking either direct access or bundled service, regardless of the size of the eligible customer-generator, should be designated as eligible customer-generators and should be treated on an equal footing under the NEM successor tariff. However, in recognition of the fact that direct access accounts take generation service from a third party provider, the NEM successor tariff should specify that direct access customers are free to independently negotiate NEM generation compensation issues directly with their generation provider.

The NEM successor tariff should also include specific provisions to facilitate the prompt resolution of system interconnection requests for all customer-generators, including systems larger than 1 MW. Specifically, system interconnection issues for eligible customer-generators should be addressed by giving utilities a 30-day time limit to study an interconnection request, which limit could only be extended by the CPUC for good cause shown. If the interconnection study shows that transmission and distribution ("T&D") upgrades are needed solely as a result of the interconnection of the customer-generator, the electric utility would be afforded a reasonable period of time, approved by the CPUC, to complete the upgrades. The cost of the upgrades would be borne by the customer-generator. Putting the CPUC in control of the timeline for the interconnection study process would ensure that system interconnection procedures cannot be used to unreasonably impede or delay the access of eligible-customer generators to NEM service. At the same time, the imposition of legitimate distribution upgrade costs on eligible customer-generators would ensure that large systems sized over 1 MW comply with the statutory

requirement to be subject to reasonable interconnection charges, where such charges are directly attributable to the interconnection of the eligible customer-generator.

The NEM successor tariff should also specifically address the eligibility of installations for NEM service when such installations are located on a single premise, such as a military base. This can be accomplished by inserting language into the NEM successor tariff stating that various installations located on a single premise such as a military facility can be designated as separate eligible customer-generators under the NEM tariff, regardless of whether such installations are associated with a single customer account or are located behind a single utility delivery point. The inclusion of such language in the NEM successor tariff would help to remove some of the obstacles that military facilities have encountered in the past when they have attempted to establish eligibility for NEM service in California.

Finally, to ensure compliance with the statutory requirement that on-site renewable systems sized larger than 1 MW must not exceed the size of the on-site load, it is reasonable to include provisions in the NEM successor tariff specifying that such large systems cannot be sized in a manner that creates net exports of energy to the grid.

V. SECTION D. ADDITIONAL ELEMENTS

1.b. Exemptions from interconnection application fees, interconnection study fees, and distribution upgrade fees

1.c. Exemptions from standby charges

1.d. Payment of nonbypassable charges

FEA'S RESPONSE

To encourage sustainable growth of renewable energy under the NEM successor tariff, as required by California legislation, eligible customer-generators (including customer-generators over 1 MW in size) should be exempted from interconnection application fees, interconnection

study fees and standby charges. The FEA does not oppose the continued imposition of certain nonbypassable charges (such as Public Purpose Program charges and the Cost Responsibility Surcharge) on eligible customer-generators under the NEM successor tariff to the extent that such charges are currently applied to customer-generators under the existing Schedule NEM. However, the NEM successor tariff should not impose new nonbypassable charges that do not currently apply to eligible customer-generators, nor should it introduce new fixed grid charges for such customers. The imposition of such new fees or charges would create additional cost barriers to the deployment of on-site renewable generation, which would hinder California's efforts to comply with its renewable portfolio standard and compromise efforts to achieve the emissions reduction goals established by state policy.

If the CPUC nevertheless determines that new nonbypassable charges or fixed grid charges should be applied to eligible customer-generators under the NEM successor tariff, any such charges should be phased in on a very gradual basis (e.g., over 10 to 15 years). This phase-in period would give potential NEM customers and the renewable energy industry adequate time to adjust to the new charges and hopefully to achieve benefit from reductions in the installed cost of renewable energy systems that could offset the additional customer costs associated with the imposition of new charges under the NEM successor tariff. This approach would therefore reduce the chance that these new charges would significantly undermine the economics of on-site renewable generation deployment for a wide range of customers.

As discussed in its response to Section C of the ALJ's June 4, 2015 ruling, the FEA does not oppose the imposition of distribution system upgrade fees on eligible customer-generators, including on systems sized over 1 MW, but only to the extent that the utility's interconnection study shows that such upgrades are required solely due to the interconnection of the eligible

customer-generator. The imposition of appropriate distribution upgrade charges on eligible customer-generators should significantly alleviate any concerns regarding cross subsidization of eligible customer-generators by other customers on the utility's distribution system.

VI. CONCLUSION

The FEA appreciates the opportunity to submit this filing and looks forward to working with the CPUC and the other stakeholders in this proceeding to ensure that the NEM successor tariff effectively encourages the robust deployment of on-site renewable energy resources in California.

Date: August 3, 2015

Respectfully submitted,

/s/ Rita Liotta

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Model Execution

Save	<enter scenario name here>	see box to right
Load	2 Tiered High	see box to right

Calc Adoptions Through Year
2025

	Calc DER Adoptions for (utility)
☐	PG&E
☑	SCE
☐	SDG&E

	Calc DER Adoptions for (class)
☑	Residential
☑	Small Commercial
☑	Medium Commercial
☑	Large Commercial
☑	Industrial
☑	Agricultural

☑	Run Grandfathered Results

see box to right

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time

2.4 hours

F9 to update

Save Inputs

This feature allows the user to save all user inputs in the public tool (i.e. all yellow input cells) in order to re-load them at a later time. To use this feature, make sure all input cells are set appropriately, enter a name into the white cell next to the "Save Inputs" button, and then press the button.

CAUTION: this feature does NOT save results . To save outputs after the model has run, save the entire workbook under a different file name.

Load Inputs

This feature allows the user to load a previously saved input scenario. If the input scenario is saved, it will appear in the white dropdown box next to the "Load Inputs" button. To use this feature, select the desired case and then press the button.

CAUTION: loading a inputs will overwrite all current inputs. To avoid losing inputs, save the current inputs under a different name.

Executing Model

Ensure that the three (3) files

- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

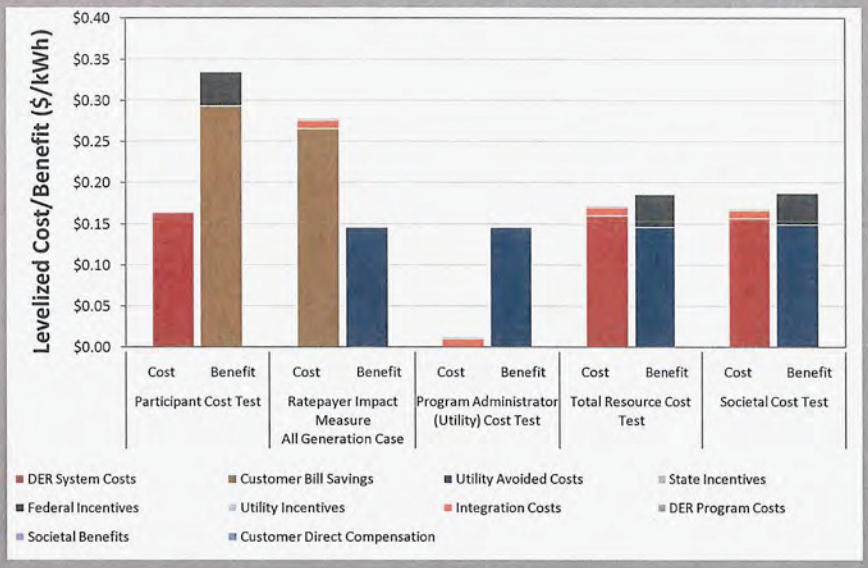
Utility
☑ PG&E
☑ SCE
☑ SDG&E

Rate Class
☑ Residential
☑ Small Commercial
☑ Medium Commercial
☑ Large Commercial
☑ Industrial
☑ Agricultural

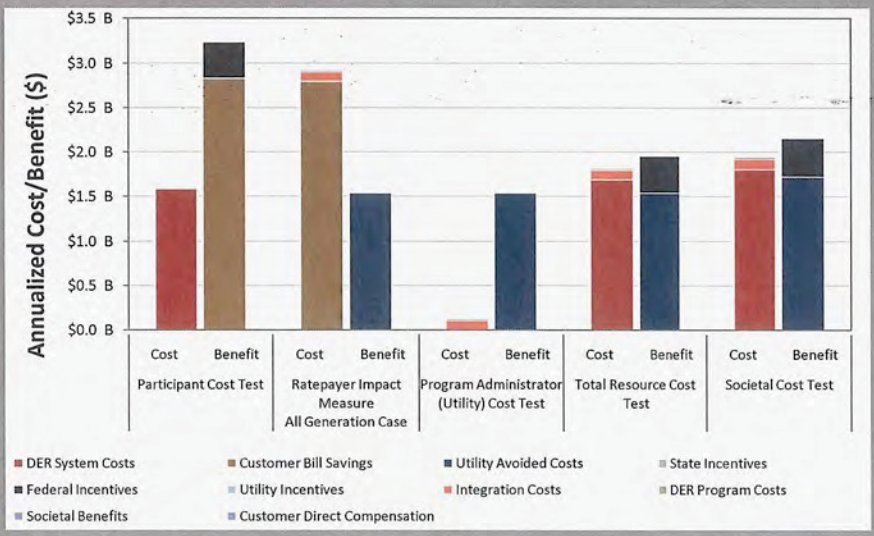
Technology Type
☑ Solar
☑ Solar + Storage (Grid Benefits)
☑ Solar + Storage (Demand Min)
☑ Solar + Storage (TOU Arb)
☑ Wind
☑ Biomass
☑ Biogas
☑ Fuel Cell

DER Vintages	
Grandfathered NEM Systems	☑ Pre-2009 Installations
	☑ 2009 Installations
	☑ 2010 Installations
	☑ 2011 Installations
	☑ 2012 Installations
	☑ 2013 Installations
	☑ 2014 Installations
	☑ 2015 Installations
	☑ 2016 Installations
Non-Grandfathered Systems	☑ 2017 Installations
	☑ 2018 Installations
	☑ 2019 Installations
	☑ 2020 Installations
	☑ 2021 Installations
	☑ 2022 Installations
	☑ 2023 Installations
	☑ 2024 Installations
	☑ 2025 Installations

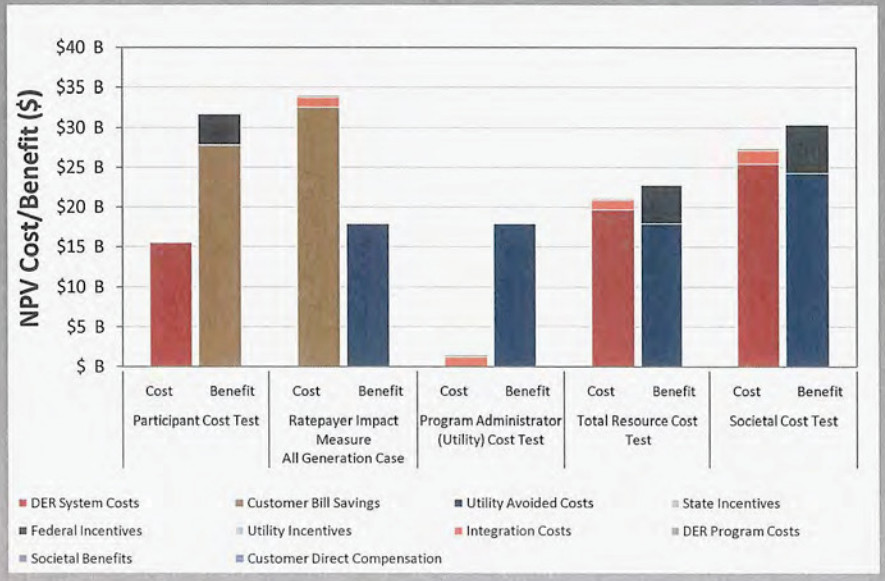
	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$0.17	-$0.13	$0.13	$0.01	$0.02
Benefit/Cost Ratio	2.04	0.53	12.10	1.08	1.11



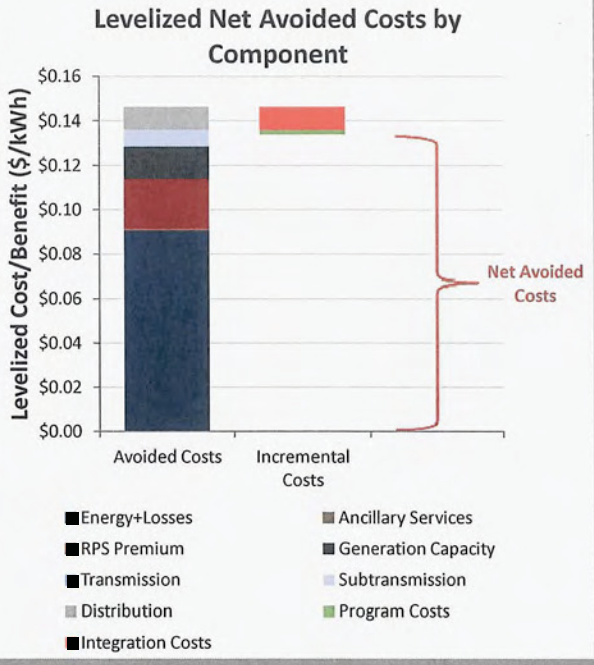
	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$1648 M	-$1383 M	$1411 M	$141 M	$213 M
Benefit/Cost Ratio	2.04	0.53	12.10	1.08	1.11



	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$16 B	-$16 B	$16 B	$2 B	$3 B
Benefit/Cost Ratio	2.04	0.53	12.10	1.08	1.11

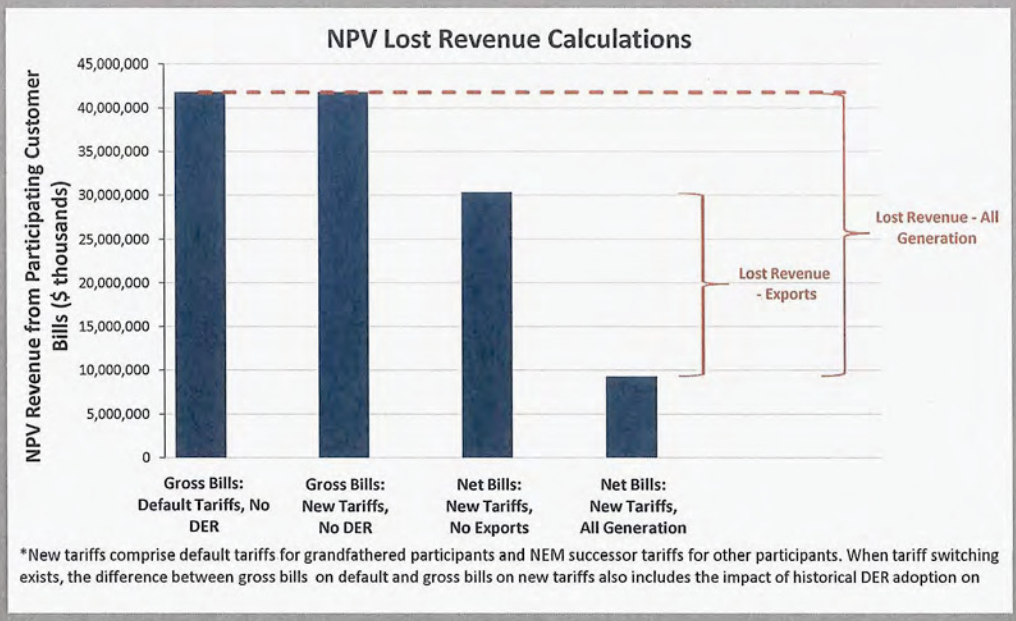


NPV Ratepayer Impact as a % of Revenue Requirement:	3.49%



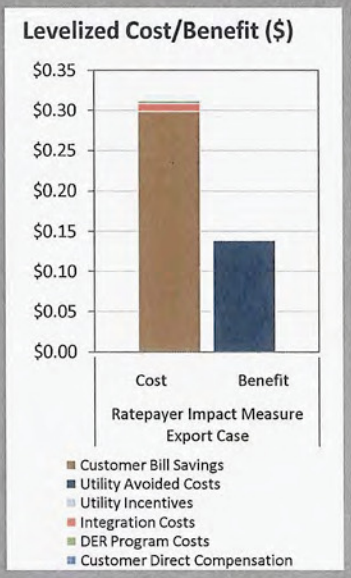
Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	4.8	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	2.04	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	6,895	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	3.49%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

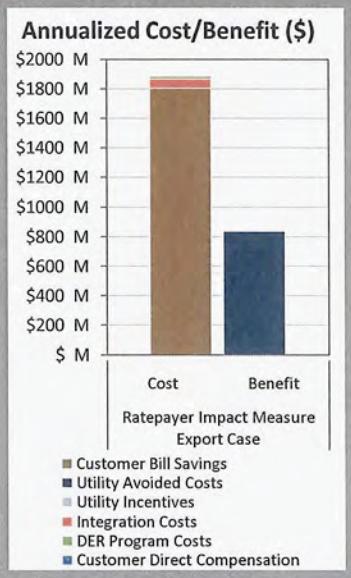
Export Only RIM Results

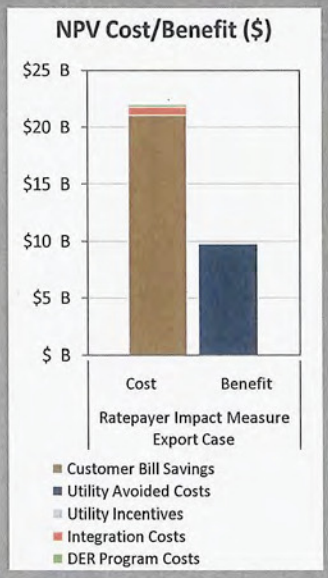


*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER adoption on

Net Benefit (Cost)	-$0.17	-$1051 MM	-$12 B
Benefit/Cost Ratio	0.44	0.44	0.44

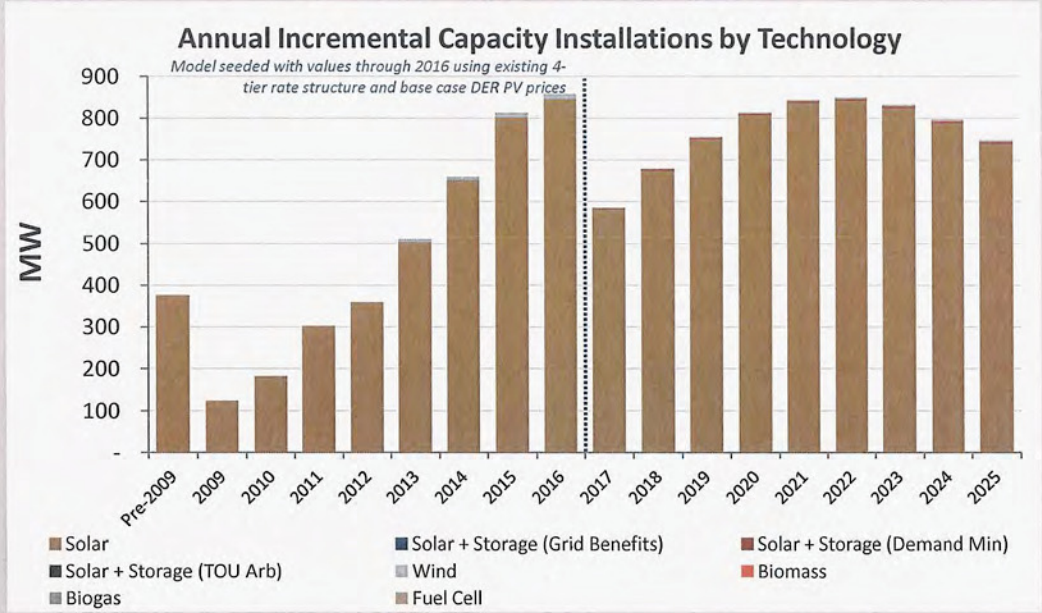


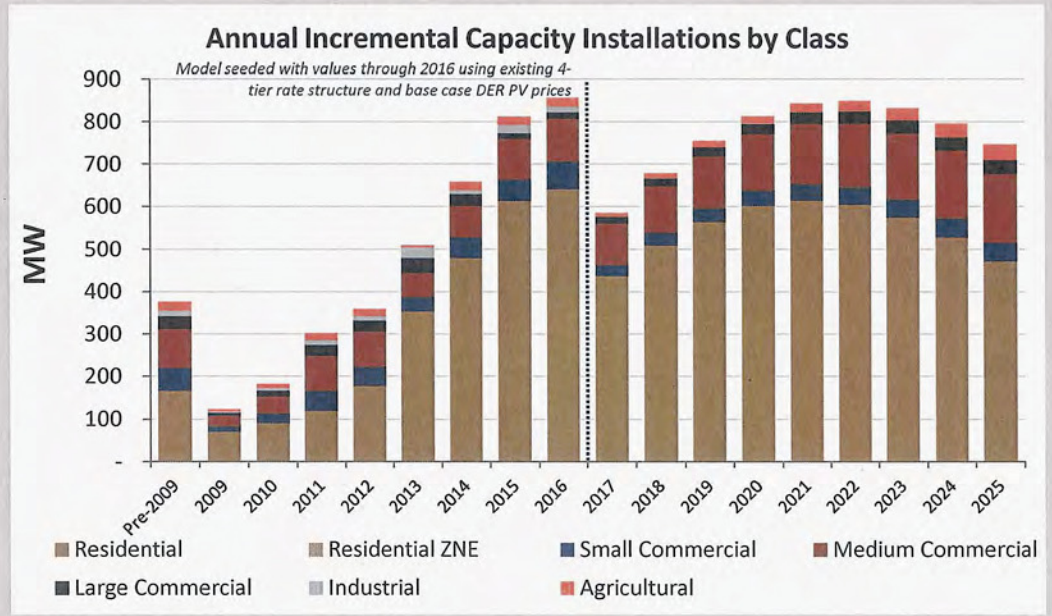


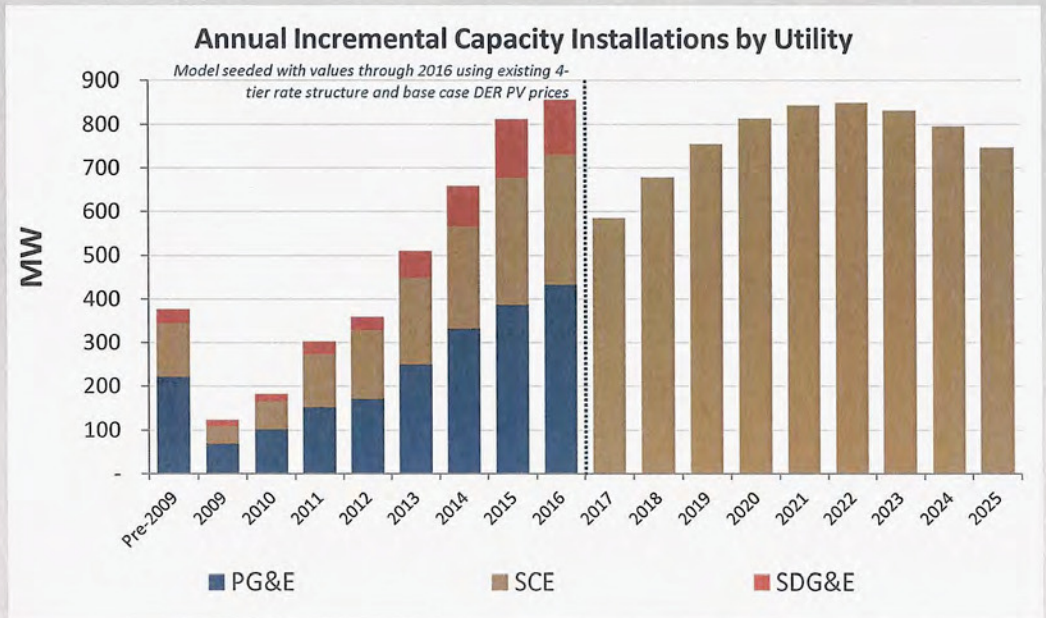


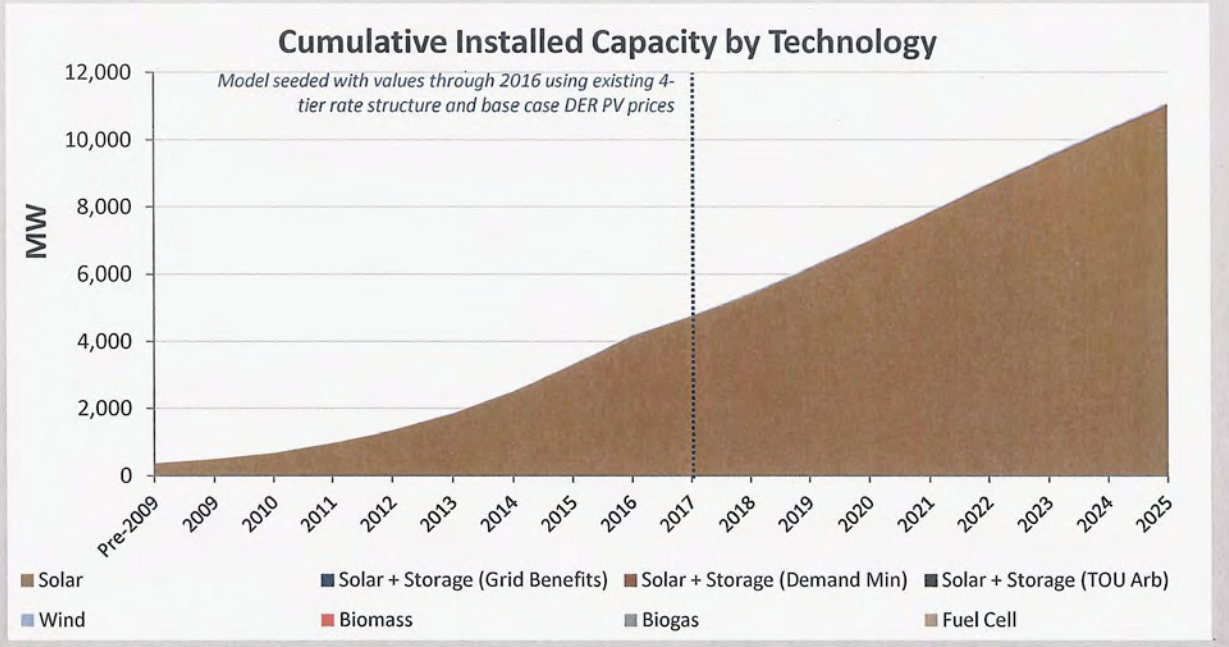
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	2.65%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	286,702
Medium Systems	DER system produces 67% of customer annual gross usage	731,704
Large Systems	DER system produces 100% of customer annual gross usage	995,438

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	123%	48%	N/A	N/A	123%	48%
Small Commercial	N/A	N/A	92%	30%	N/A	N/A	92%	30%
Medium Commercial	N/A	N/A	101%	60%	N/A	N/A	101%	60%
Large Commercial	N/A	N/A	119%	99%	N/A	N/A	119%	99%
Industrial	N/A	N/A	67%	42%	N/A	N/A	67%	42%
Agricultural	N/A	N/A	115%	56%	N/A	N/A	115%	56%
Total	N/A	N/A	115%	50%	N/A	N/A	115%	50%
Non-Res	N/A	N/A	101%	55%	N/A	N/A	101%	55%

*CARE cross-subsidies are embedded in residential cost of service

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

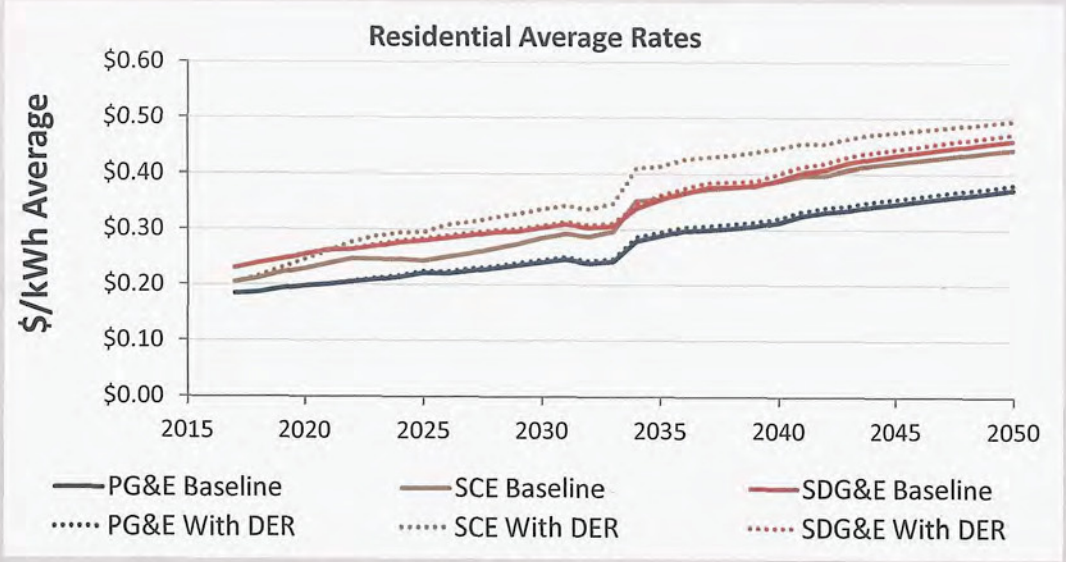
	Value	Units
Cumulative Renewable Generation	2,648,888	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	2,401,214	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	247,673	GWh

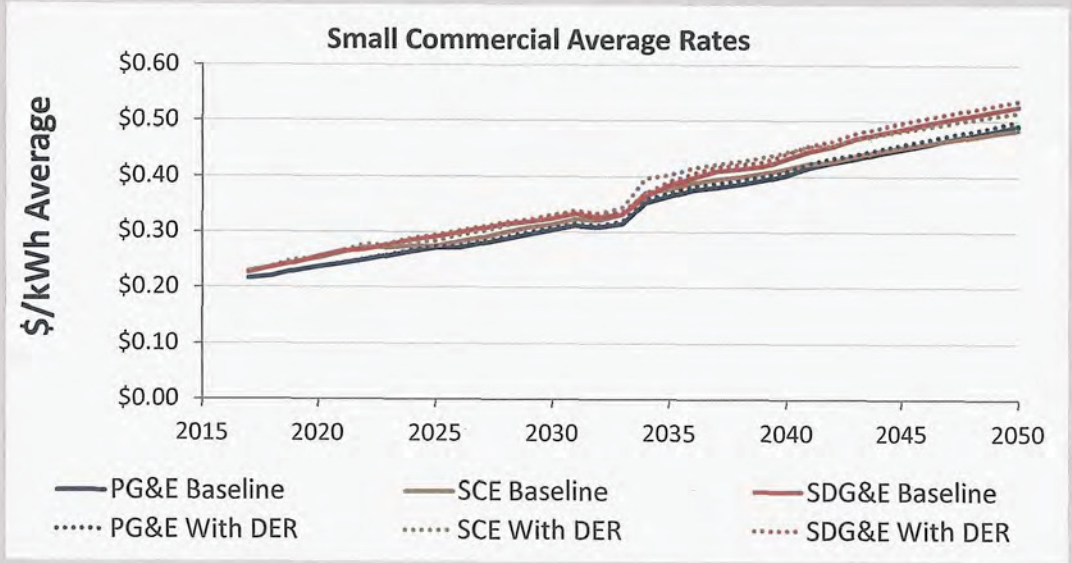
NPV GHG Reduction (through 2050)*

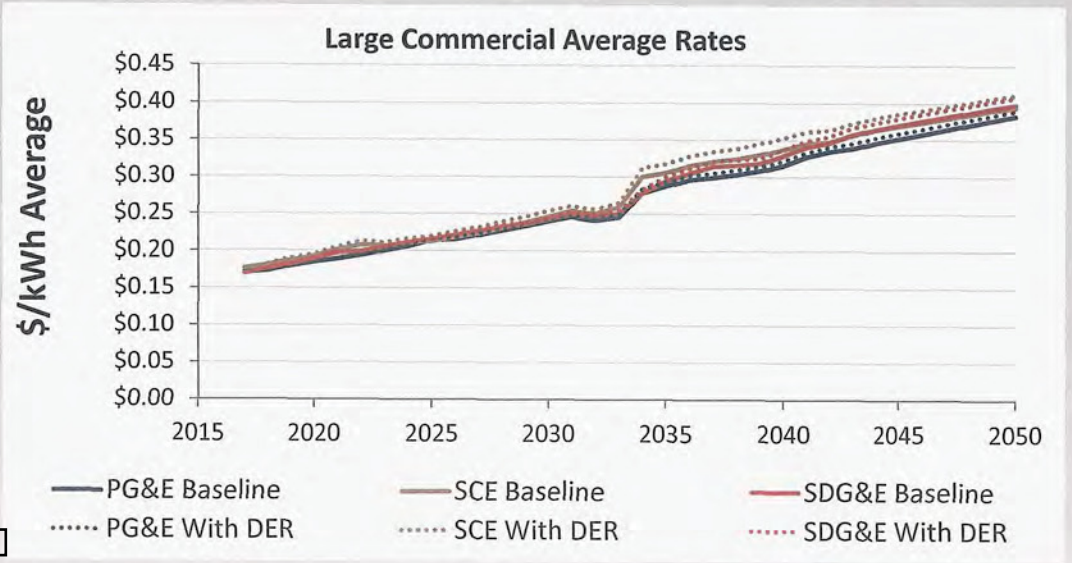
	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	9,079,405	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	34,829,731	tonnes

*This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.

Utility Average Rates







Model Execution

Save	<enter scenario name here>
Load	2 Tiered Low

see box to right

see box to right

Calc Adoptions Through Year
2025

	Calc DER Adoptions for (utility)
☐	PG&E
☑	SCE
☐	SDG&E

	Calc DER Adoptions for (class)
☑	Residential
☑	Small Commercial
☑	Medium Commercial
☑	Large Commercial
☑	Industrial
☑	Agricultural

☑	Run Grandfathered Results

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time

2.4 **hours**

F9 to update

see box to right

Save Inputs

This feature allows the user to save all user inputs in the public tool (i.e. all yellow input cells) in order to re-load them at a later time. To use this feature, make sure all input cells are set appropriately, enter a name into the white cell next to the "Save Inputs" button, and then press the button.

CAUTION: this feature does NOT save results . To save outputs after the model has run, save the entire workbook under a different file name.

Load Inputs

This feature allows the user to load a previously saved input scenario. If the input scenario is saved, it will appear in the white dropdown box next to the "Load Inputs" button. To use this feature, select the desired case and then press the button.

CAUTION: loading a inputs will overwrite all current inputs. To avoid losing inputs, save the current inputs under a different name.

Executing Model

Ensure that the three (3) files

- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

Utility
☑ PG&E
☑ SCE
☑ SDG&E

Rate Class
☑ Residential
☑ Small Commercial
☑ Medium Commercial
☑ Large Commercial
☑ Industrial
☑ Agricultural

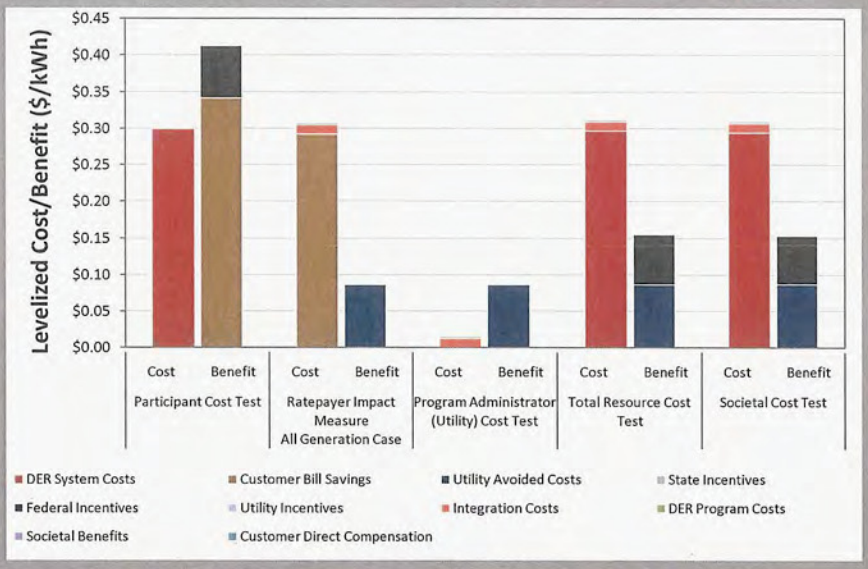
Technology Type
☑ Solar
☑ Solar + Storage (Grid Benefits)
☑ Solar + Storage (Demand Min)
☑ Solar + Storage (TOU Arb)
☑ Wind
☑ Biomass
☑ Biogas
☑ Fuel Cell

DER Vintages	
	☑ Pre-2009 Installations
	☑ 2009 Installations
	☑ 2010 Installations
	☑ 2011 Installations
	☑ 2012 Installations
	☑ 2013 Installations
	☑ 2014 Installations
	☑ 2015 Installations
	☑ 2016 Installations
	☑ 2017 Installations
	☑ 2018 Installations
	☑ 2019 Installations
	☑ 2020 Installations
	☑ 2021 Installations
	☑ 2022 Installations
	☑ 2023 Installations
	☑ 2024 Installations
	☑ 2025 Installations

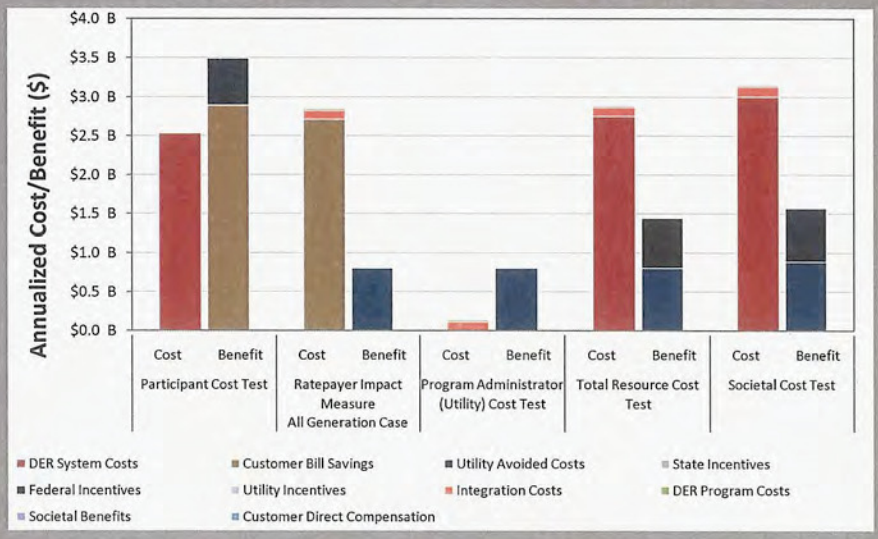
Grandfathered NEM Systems

Non-Grandfathered Systems

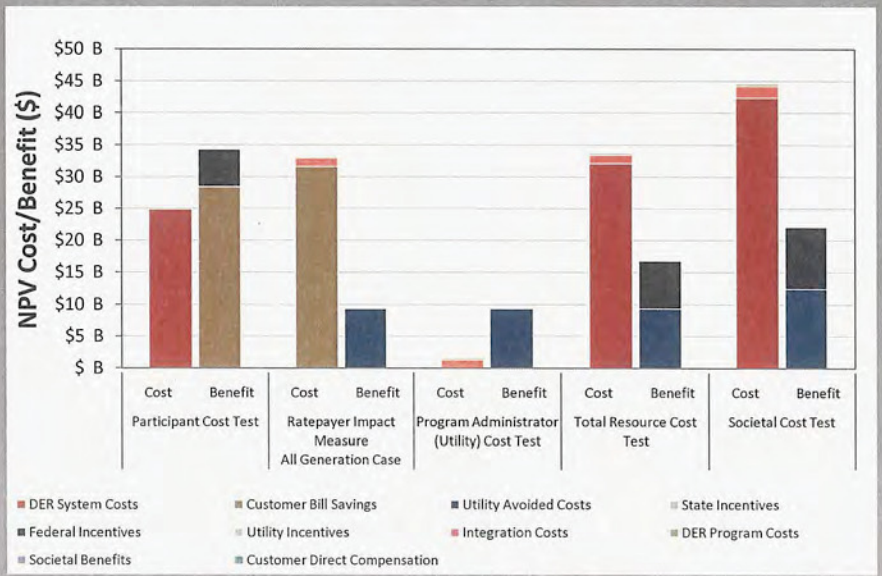
Net Benefit (Cost)	$0.11	-$0.22	$0.07	-$0.16	-$0.16
Benefit/Cost Ratio	1.38	0.28	5.86	0.50	0.50



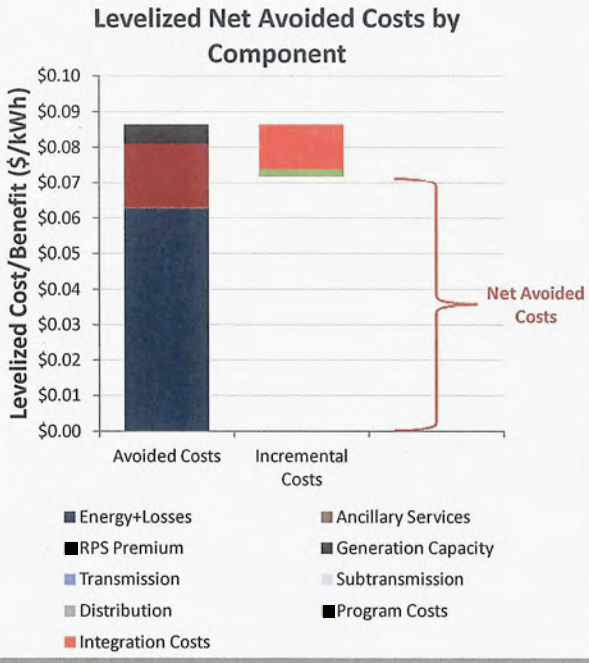
Net Benefit (Cost)	$958 M	-$2044 M	$665 M	-$1450 M	-$1590 M
Benefit/Cost Ratio	1.38	0.28	5.86	0.50	0.50



Net Benefit (Cost)	$9 B	-$24 B	$8 B	-$17 B	-$22 B
Benefit/Cost Ratio	1.38	0.28	5.86	0.50	0.50

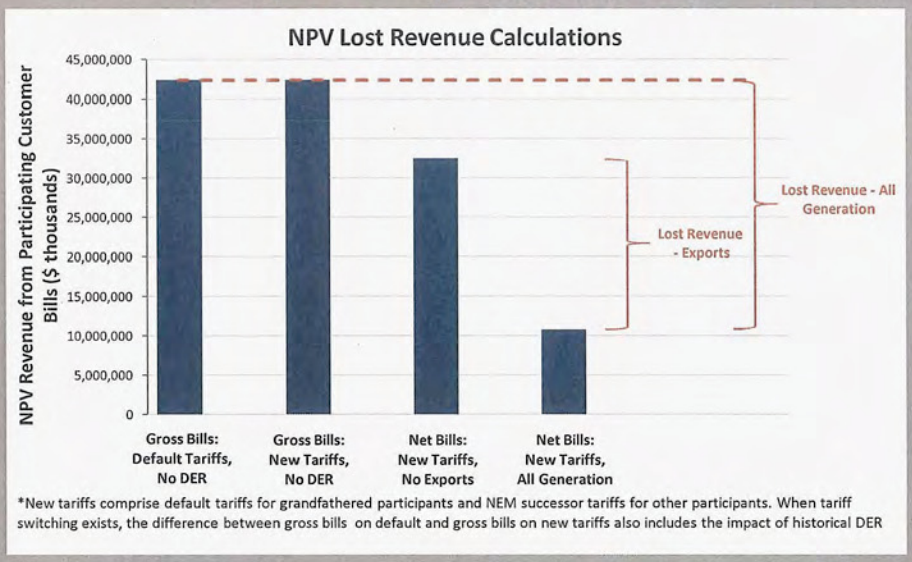


NPV Ratepayer Impact as a % of Revenue Requirement:	5.22%



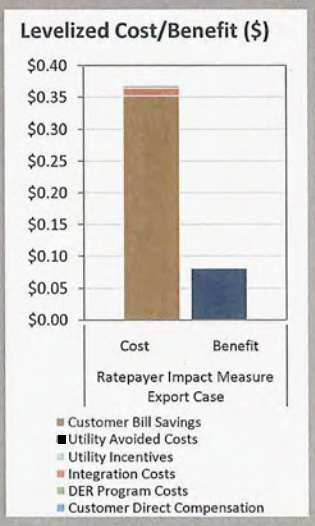
Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	7.1	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	1.38	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	5,877	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	5.22%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

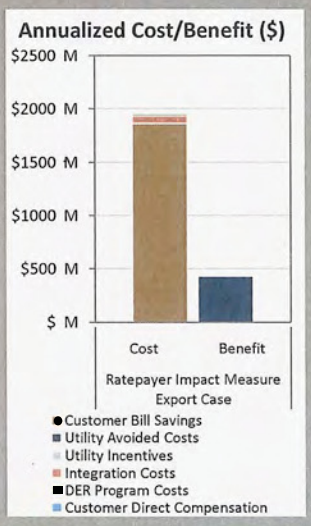
Export Only RIM Results

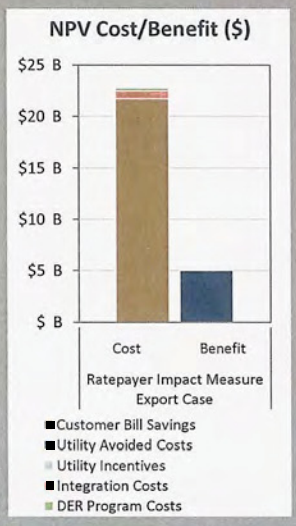


*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER

Net Benefit (Cost)	-$0.29	-$1522 MM	-$18 B
Benefit/Cost Ratio	0.22	0.22	0.22

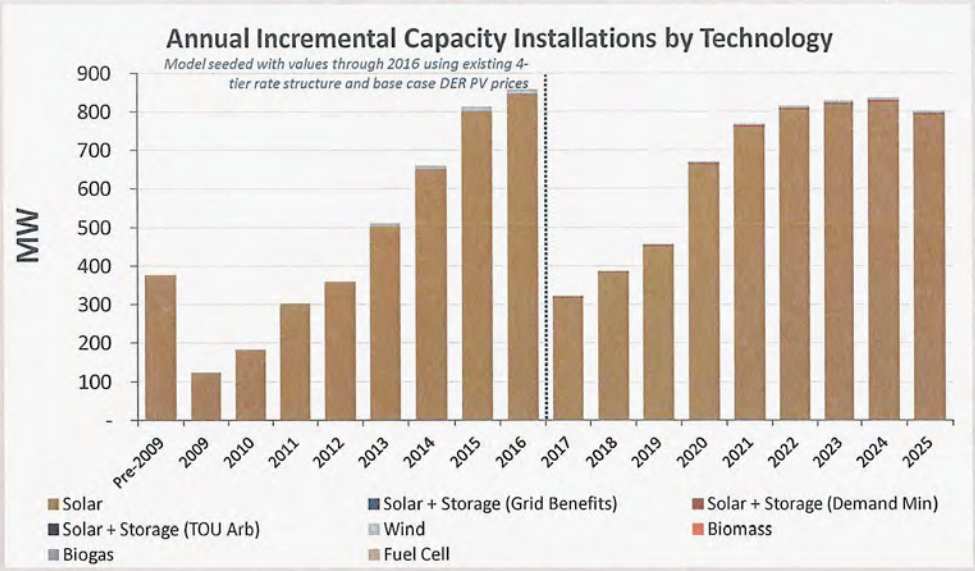


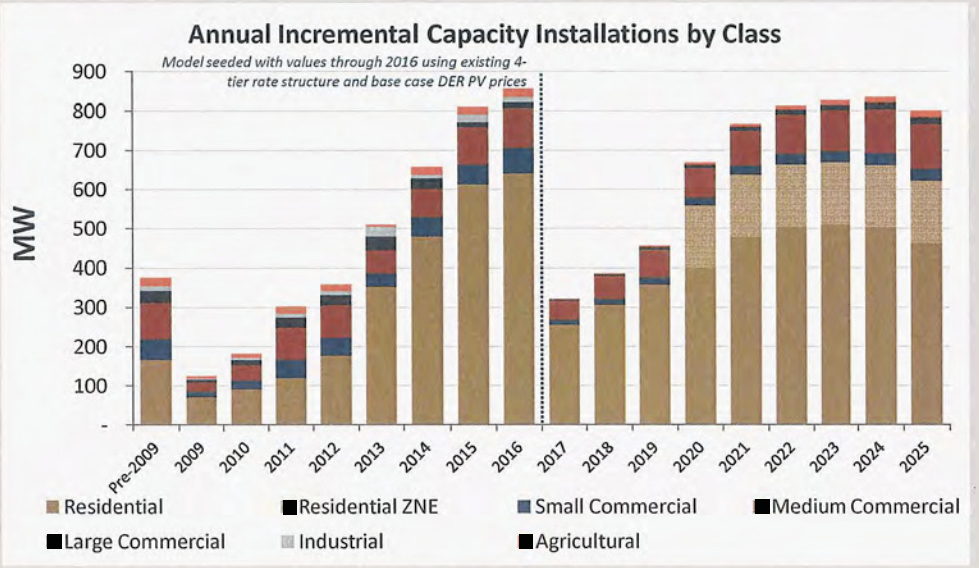


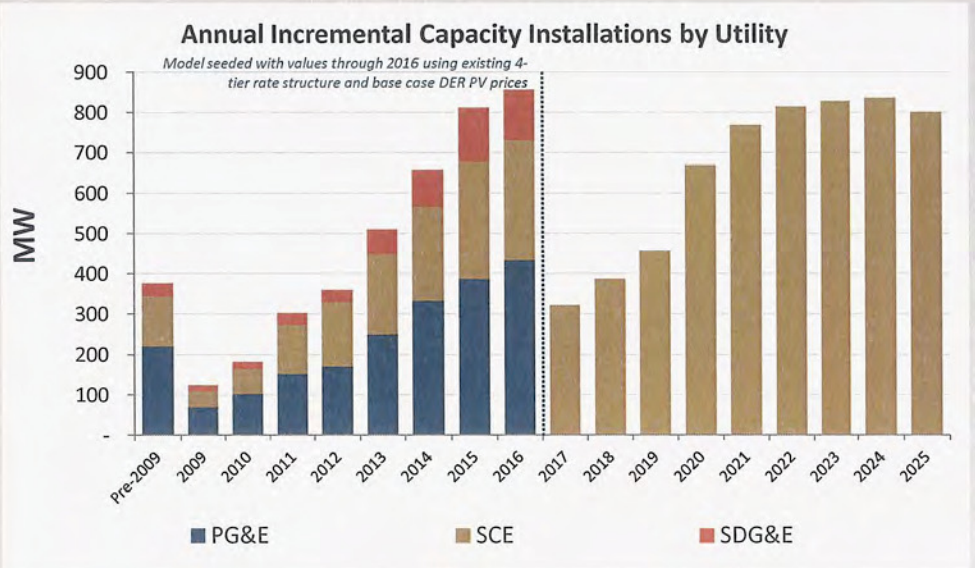


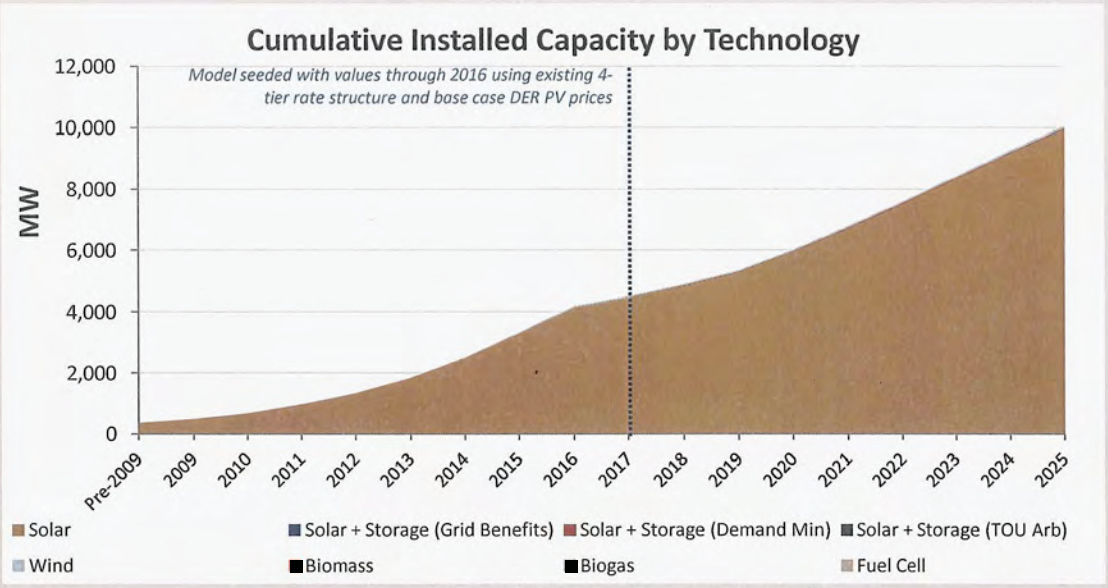
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	3.89%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	306,435
Medium Systems	DER system produces 67% of customer annual gross usage	791,579
Large Systems	DER system produces 100% of customer annual gross usage	981,303

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	117%	41%	N/A	N/A	117%	41%
Small Commercial	N/A	N/A	92%	29%	N/A	N/A	92%	29%
Medium Commercial	N/A	N/A	98%	55%	N/A	N/A	98%	55%
Large Commercial	N/A	N/A	120%	101%	N/A	N/A	120%	101%
Industrial	N/A	N/A	66%	49%	N/A	N/A	66%	49%
Agricultural	N/A	N/A	112%	44%	N/A	N/A	112%	44%
Total	N/A	N/A	113%	43%	N/A	N/A	113%	43%
Non-Res	N/A	N/A	99%	51%	N/A	N/A	99%	51%

***CARE cross-subsidies are embedded in residential cost of service**

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

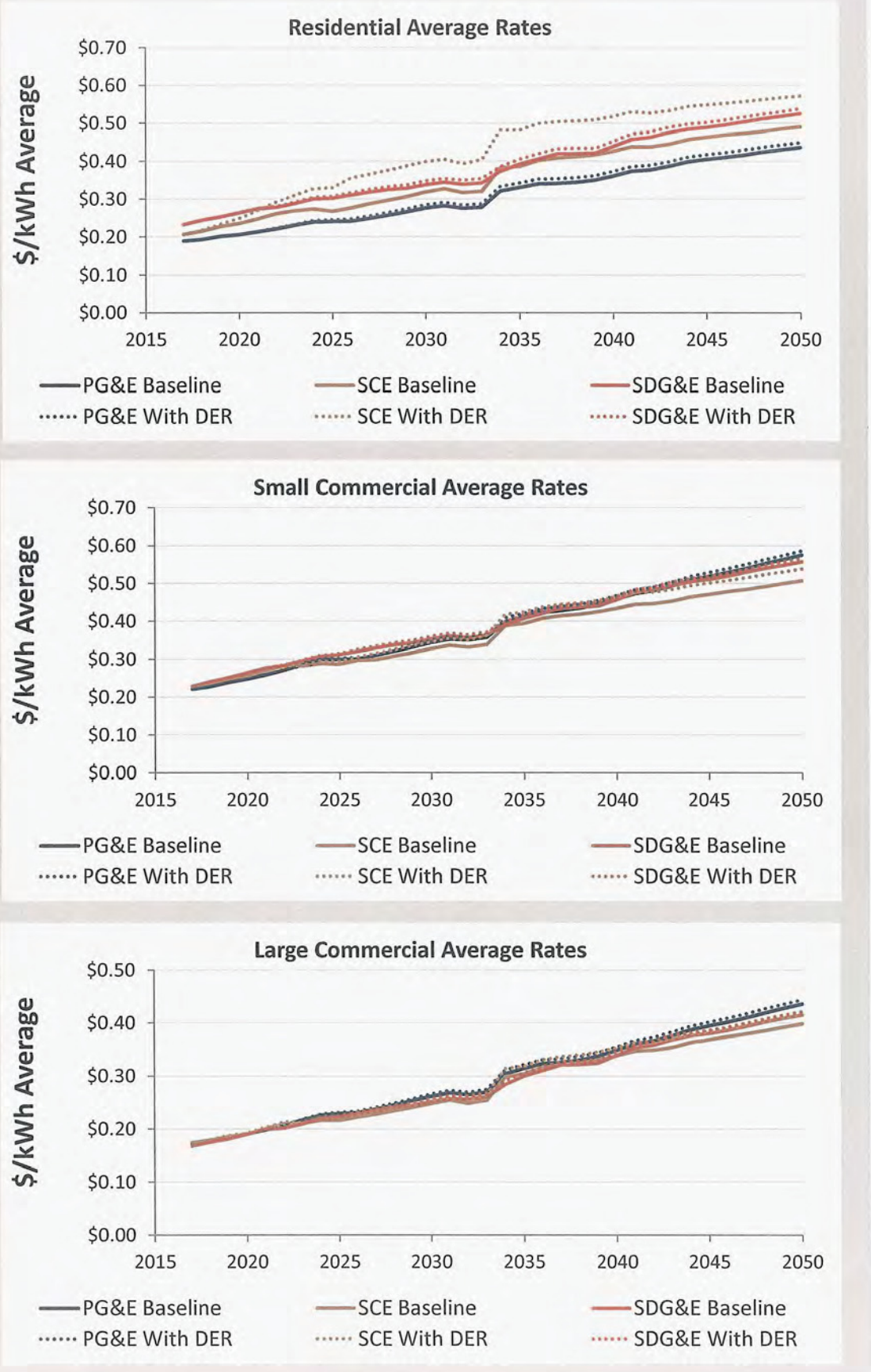
	Value	Units
Cumulative Renewable Generation	3,175,310	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	3,007,884	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	167,426	GWh

NPV GHG Reduction (through 2050)*

	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	7,380,781	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	21,015,871	tonnes

***This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.**

Utility Average Rates



Model Execution

Save	<enter scenario name here>
Load	TOU Bookend 1 High

see box to right

see box to right

Calc Adoptions Through Year
2025

	Calc DER Adoptions for (utility)
☐	PG&E
☑	SCE
☐	SDG&E

	Calc DER Adoptions for (class)
☑	Residential
☑	Small Commercial
☑	Medium Commercial
☑	Large Commercial
☑	Industrial
☑	Agricultural

☑	Run Grandfathered Results

see box to right

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time

2.4 hours

F9 to update

Save Inputs

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Executing Model

Ensure that the three (3) files

- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

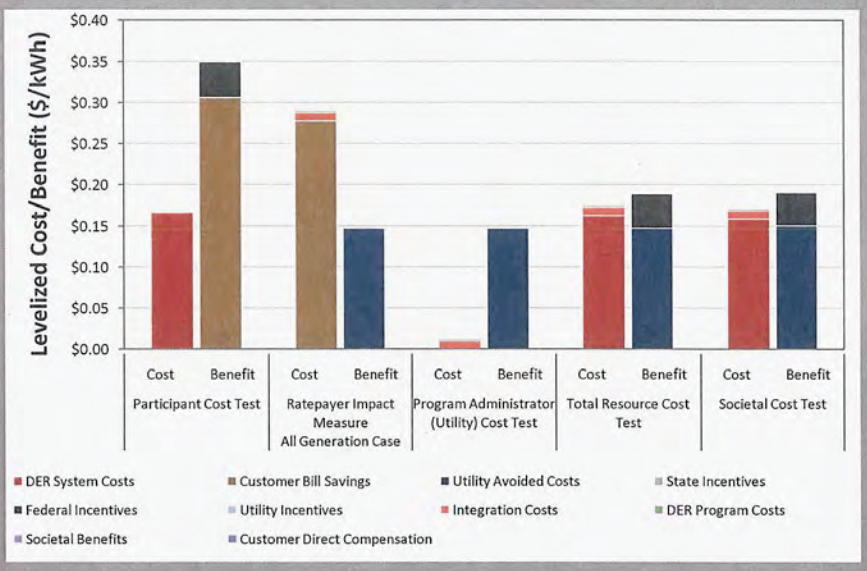
Utility
☑ PG&E
☑ SCE
☑ SDG&E

Rate Class
☑ Residential
☑ Small Commercial
☑ Medium Commercial
☑ Large Commercial
☑ Industrial
☑ Agricultural

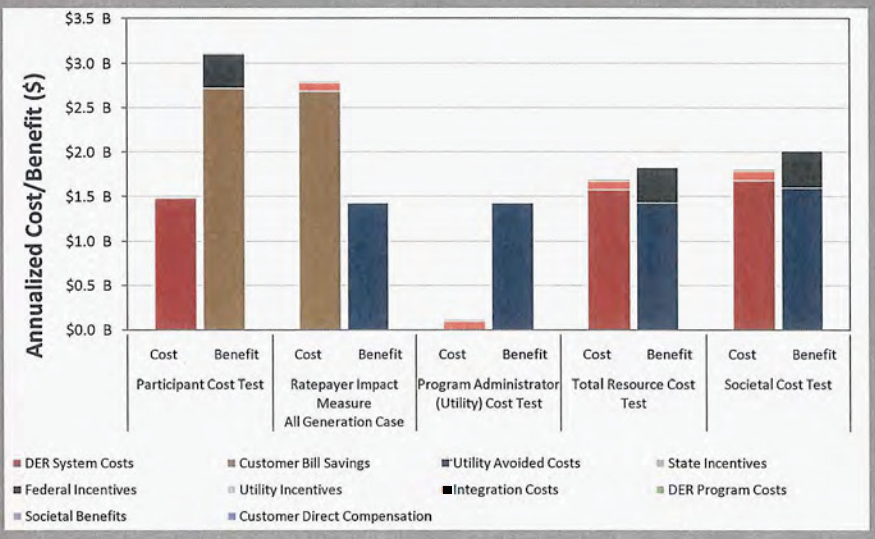
Technology Type
☑ Solar
☑ Solar + Storage (Grid Benefits)
☑ Solar + Storage (Demand Min)
☑ Solar + Storage (TOU Arb)
☑ Wind
☑ Biomass
☑ Biogas
☑ Fuel Cell

DER Vintages	
Grandfathered NEM Systems	☑ Pre-2009 Installations
	☑ 2009 Installations
	☑ 2010 Installations
	☑ 2011 Installations
	☑ 2012 Installations
	☑ 2013 Installations
	☑ 2014 Installations
	☑ 2015 Installations
	☑ 2016 Installations
Non-Grandfathered Systems	☑ 2017 Installations
	☑ 2018 Installations
	☑ 2019 Installations
	☑ 2020 Installations
	☑ 2021 Installations
	☑ 2022 Installations
	☑ 2023 Installations
	☑ 2024 Installations
	☑ 2025 Installations

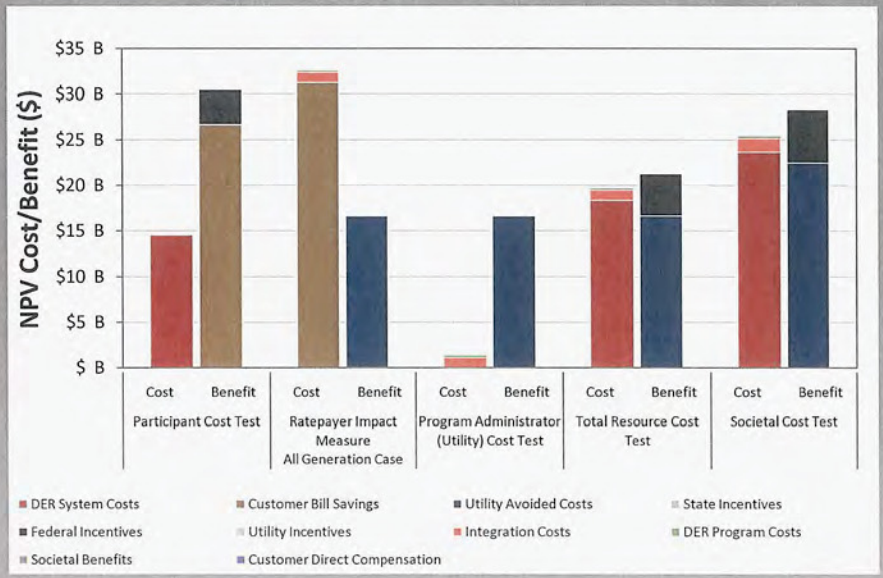
Net Benefit (Cost)	$0.18	-$0.14	$0.14	$0.01	$0.02
Benefit/Cost Ratio	2.10	0.51	12.21	1.08	1.11



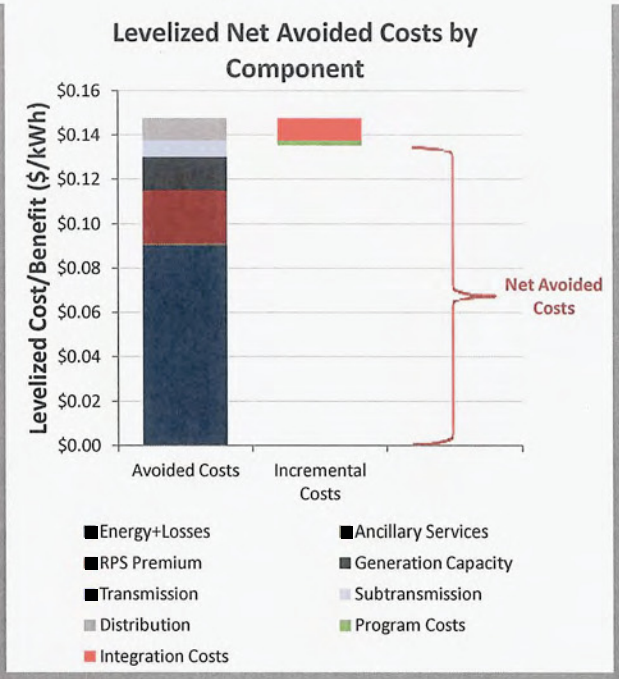
Net Benefit (Cost)	$1624 M	-$1374 M	$1308 M	$135 M	$204 M
Benefit/Cost Ratio	2.10	0.51	12.21	1.08	1.11



Net Benefit (Cost)	$16 B	-$16 B	$15 B	$2 B	$3 B
Benefit/Cost Ratio	2.10	0.51	12.21	1.08	1.11

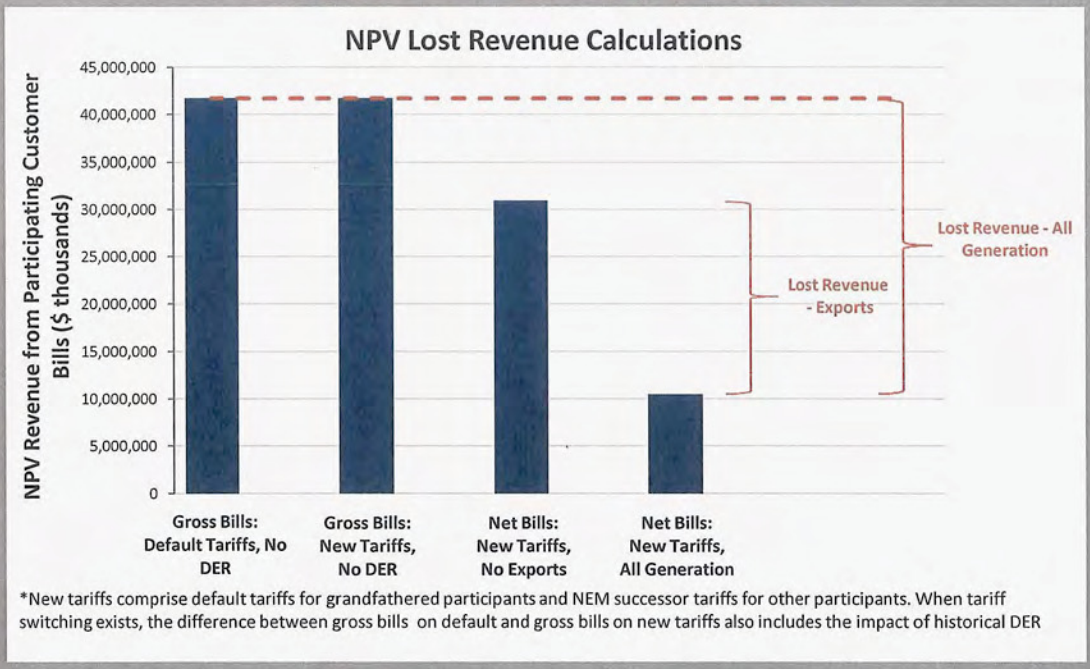


NPV Ratepayer Impact as a % of Revenue Requirement:	3.46%



Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	4.7	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	2.10	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	6,136	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	3.46%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Export Only RIM Results

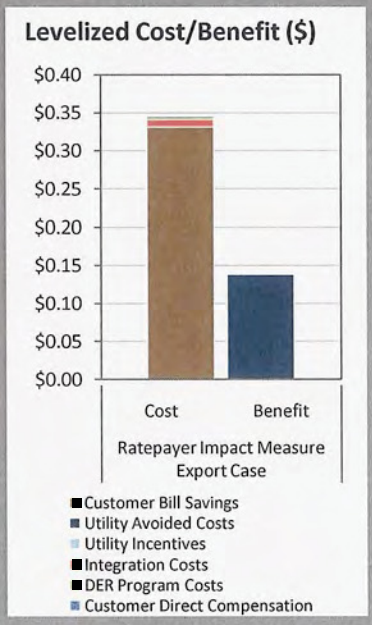


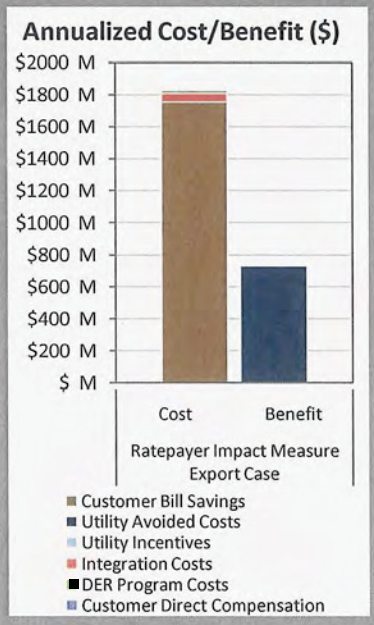
*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER

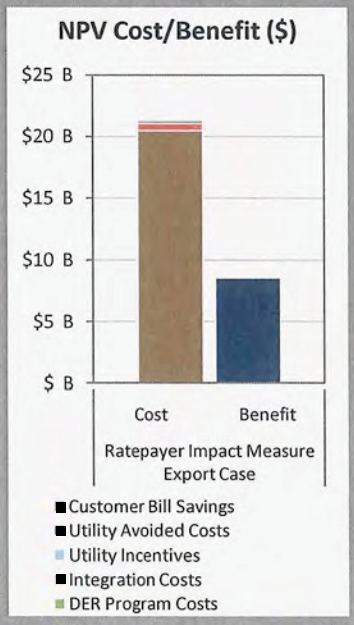
Net Benefit (Cost)	-$0.21
Benefit/Cost Ratio	0.40

-$1096 MM
0.40

-$13 B
0.40

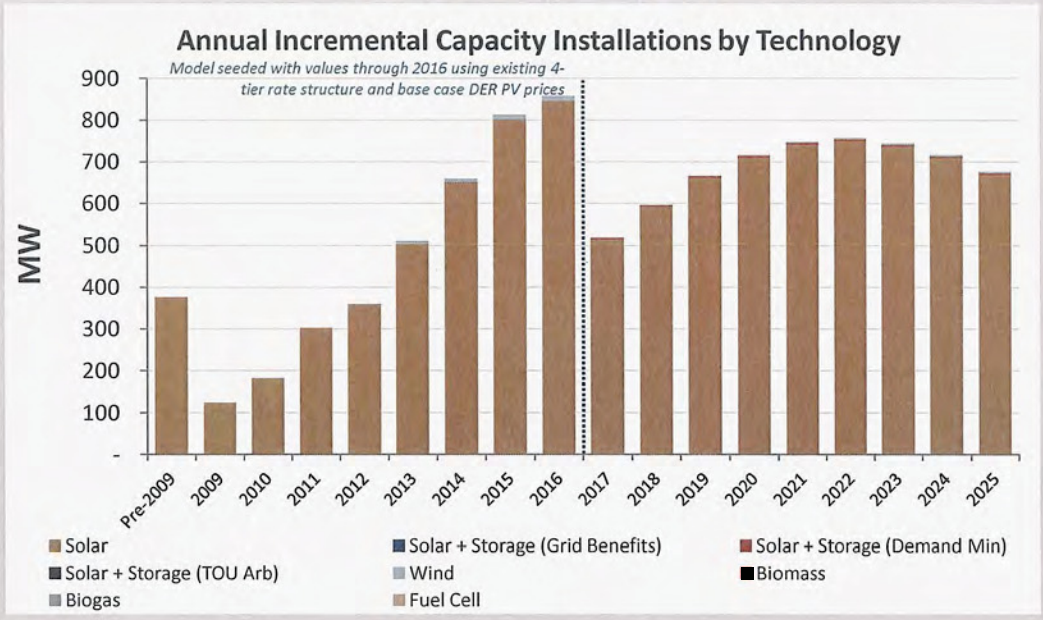


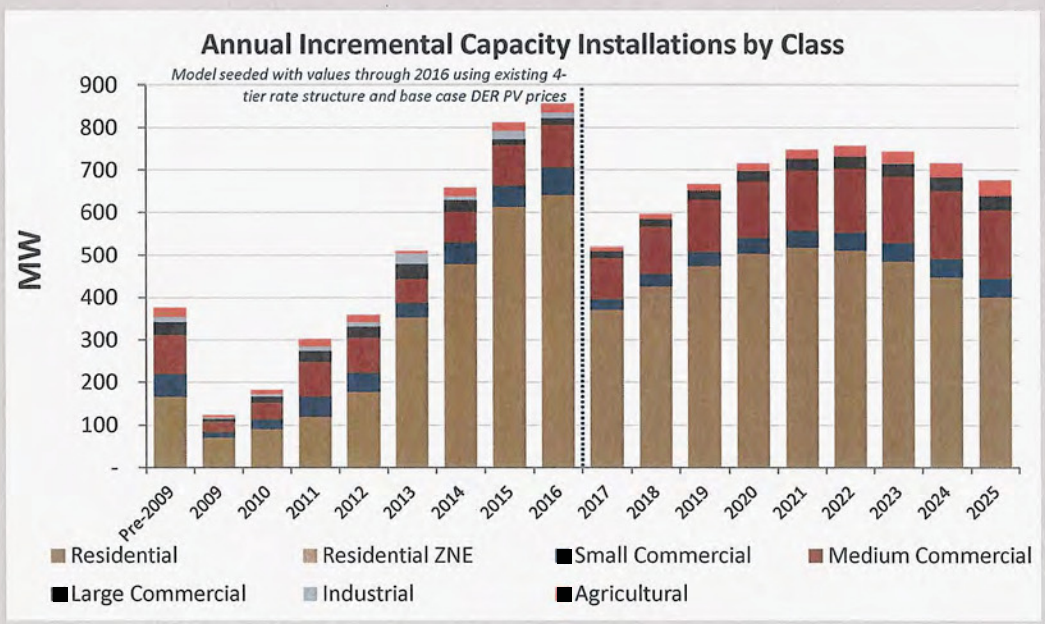


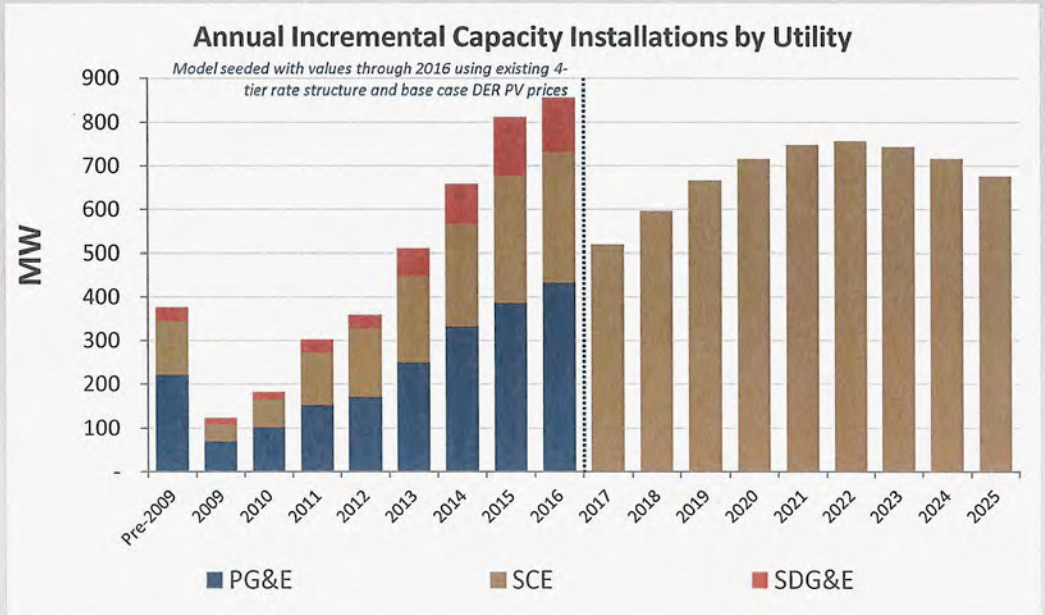


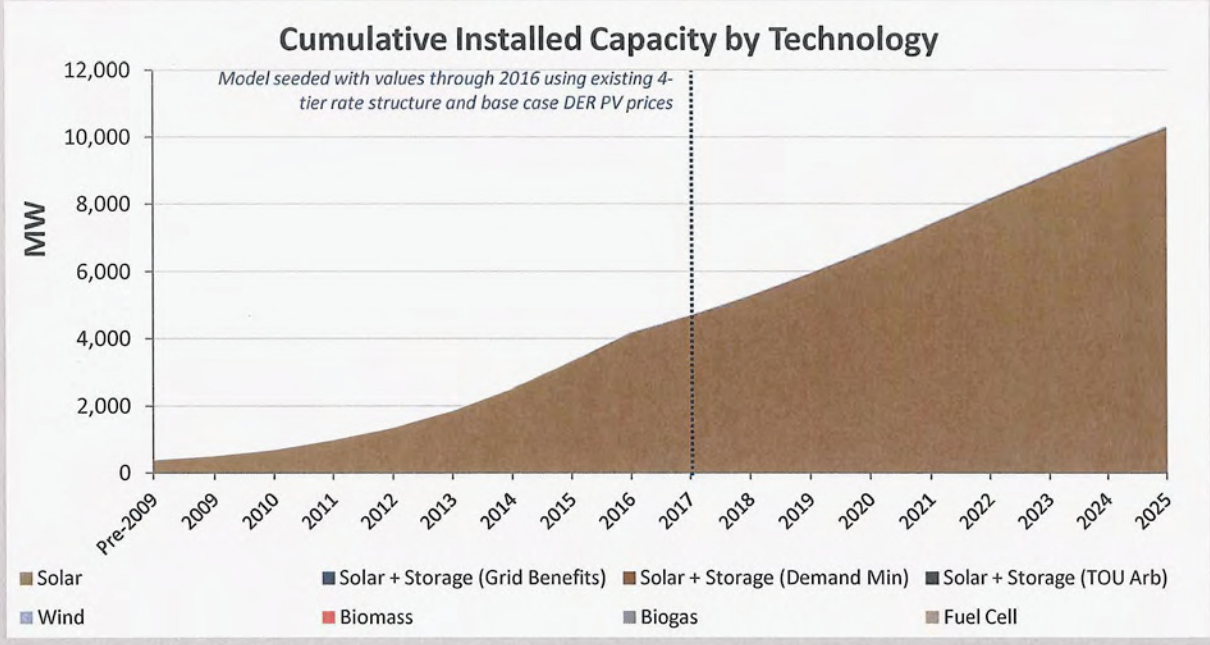
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	2.76%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	286,566
Medium Systems	DER system produces 67% of customer annual gross usage	1,160,755
Large Systems	DER system produces 100% of customer annual gross usage	573,807

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	122%	51%	N/A	N/A	122%	51%
Small Commercial	N/A	N/A	92%	30%	N/A	N/A	92%	30%
Medium Commercial	N/A	N/A	101%	60%	N/A	N/A	101%	60%
Large Commercial	N/A	N/A	119%	99%	N/A	N/A	119%	99%
Industrial	N/A	N/A	67%	41%	N/A	N/A	67%	41%
Agricultural	N/A	N/A	115%	56%	N/A	N/A	115%	56%
Total	N/A	N/A	115%	52%	N/A	N/A	115%	52%
Non-Res	N/A	N/A	101%	55%	N/A	N/A	101%	55%

*CARE cross-subsidies are embedded in residential cost of service

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

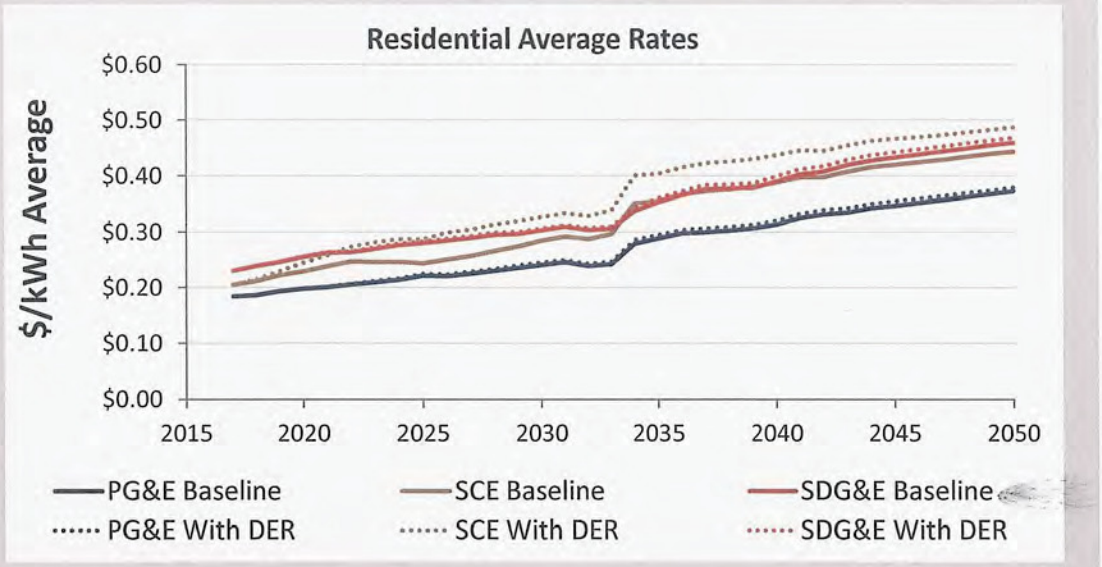
	Value	Units
Cumulative Renewable Generation	2,623,096	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	2,401,214	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	221,881	GWh

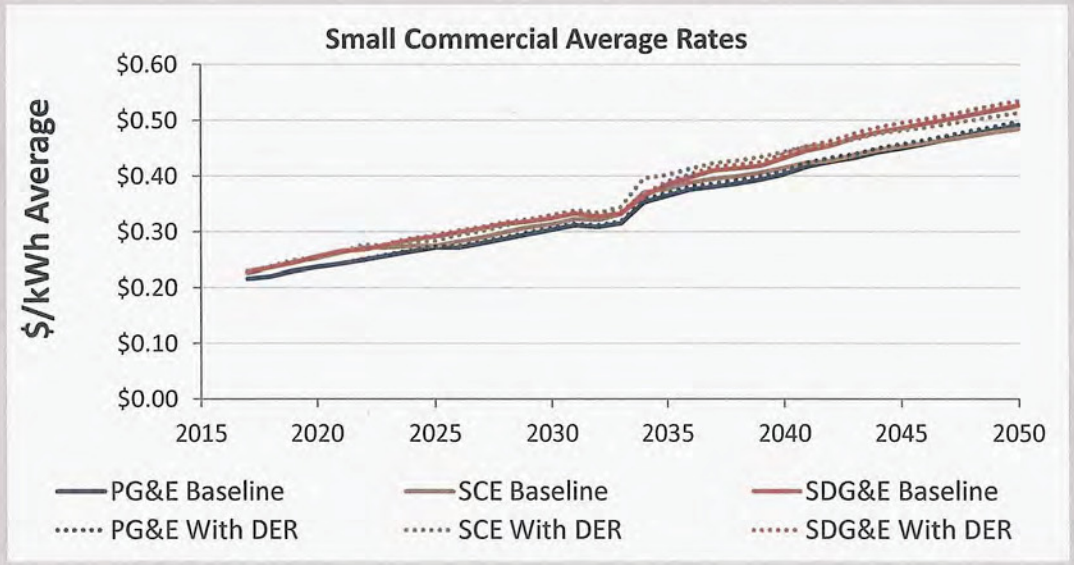
NPV GHG Reduction (through 2050)*

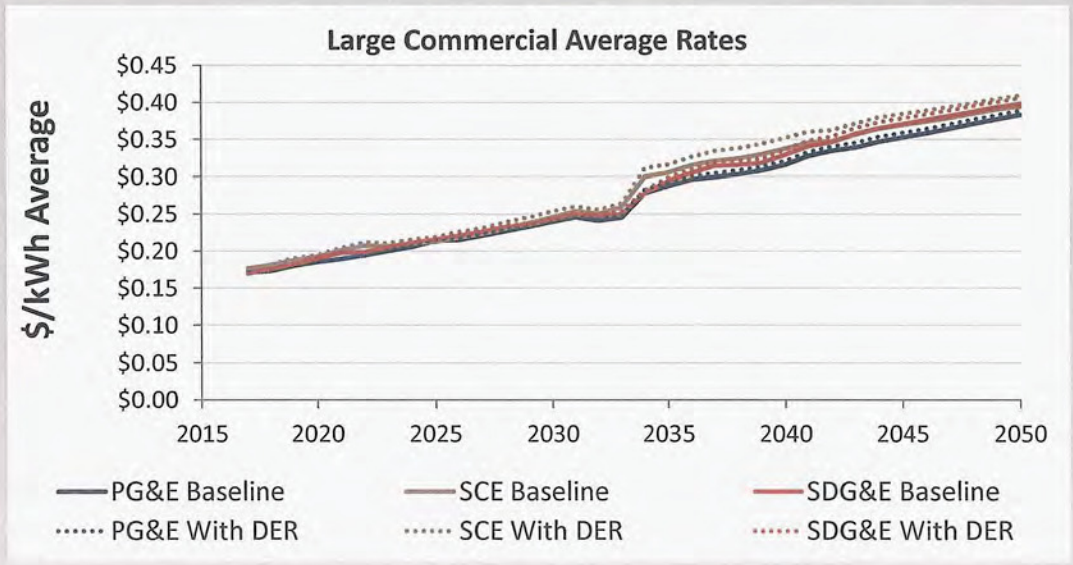
	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	9,079,405	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	31,259,824	tonnes

*This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.

Utility Average Rates







Model Execution

Save <enter scenario name here> see box to right

Load TOU Bookend 1 Low see box to right

Calc Adoptions Through Year
2025

Calc DER Adoptions for (utility)
- [ ] PG&E
- [x] SCE
- [ ] SDG&E

Calc DER Adoptions for (class)
- [x] Residential
- [x] Small Commercial
- [x] Medium Commercial
- [x] Large Commercial
- [x] Industrial
- [x] Agricultural

- [x] Run Grandfathered Results see box to right

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time
2.4 hours
F9 to update

Save Inputs
This feature allows the user to save all user inputs in the public tool (i.e. all yellow input cells) in order to re-load them at a later time. To use this feature, make sure all input cells are set appropriately, enter a name into the white cell next to the "Save Inputs" button, and then press the button.

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Load Inputs
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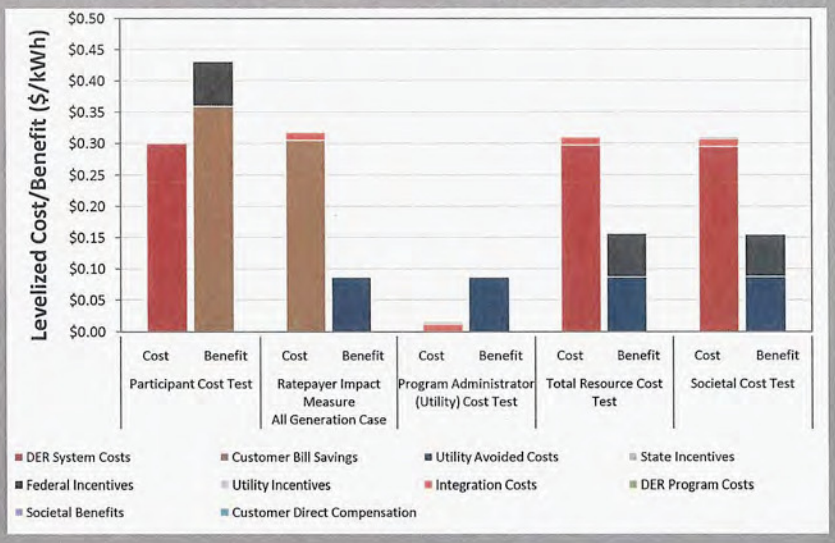
CAUTION: loading a inputs will overwrite all current inputs. To avoid losing inputs, save the current inputs under a different name.

Executing Model
Ensure that the three (3) files
- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

Net Benefit (Cost)	$0.13	-$0.23	$0.07	-$0.16	-$0.15
Benefit/Cost Ratio	1.44	0.27	5.85	0.50	0.50



Utility
- PG&E
- SCE
- SDG&E

Rate Class
- Residential
- Small Commercial
- Medium Commercial
- Large Commercial
- Industrial
- Agricultural

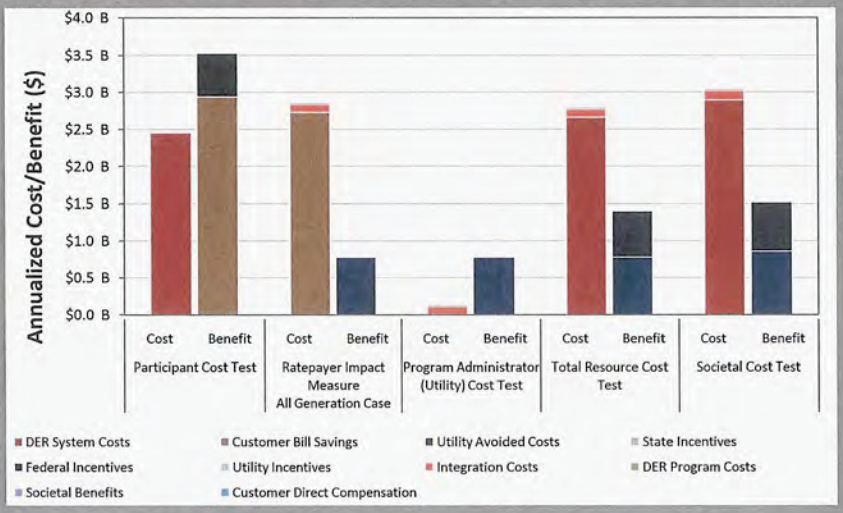
Technology Type
- Solar
- Solar + Storage (Grid Benefits)
- Solar + Storage (Demand Min)
- Solar + Storage (TOU Arb)
- Wind
- Biomass
- Biogas
- Fuel Cell

DER Vintages

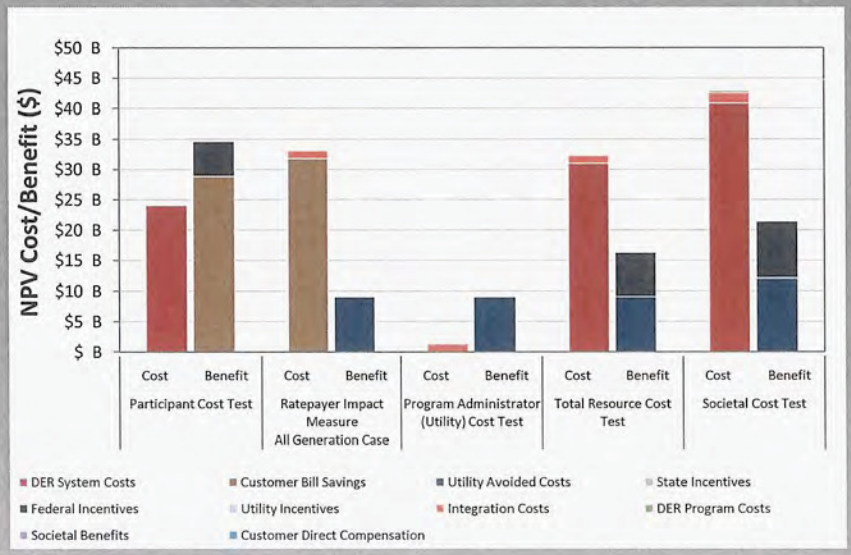
Grandfathered NEM Systems
- Pre-2009 Installations
- 2009 Installations
- 2010 Installations
- 2011 Installations
- 2012 Installations
- 2013 Installations
- 2014 Installations
- 2015 Installations
- 2016 Installations

Non-Grandfathered Systems
- 2017 Installations
- 2018 Installations
- 2019 Installations
- 2020 Installations
- 2021 Installations
- 2022 Installations
- 2023 Installations
- 2024 Installations
- 2025 Installations

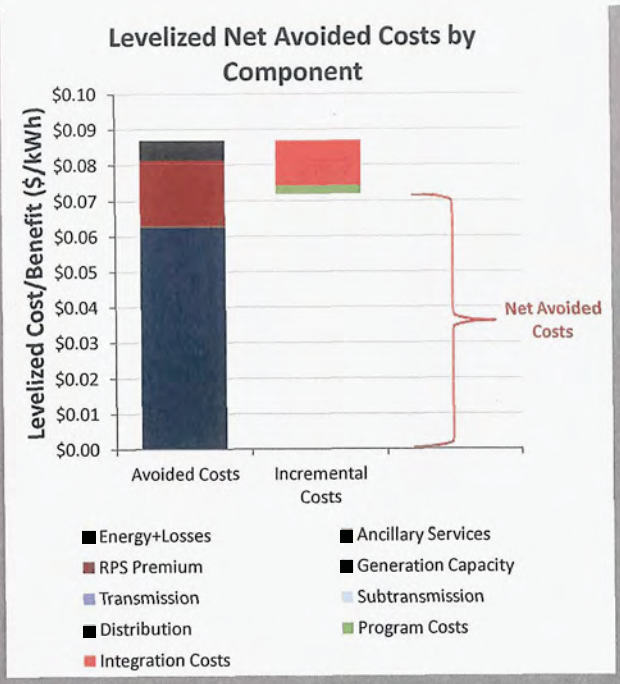
Net Benefit (Cost)	$1075 M	-$2082 M	$644 M	-$1391 M	-$1521 M
Benefit/Cost Ratio	1.44	0.27	5.85	0.50	0.50



Net Benefit (Cost)	$11 B	-$24 B	$8 B	-$16 B	-$21 B
Benefit/Cost Ratio	1.44	0.27	5.85	0.50	0.50

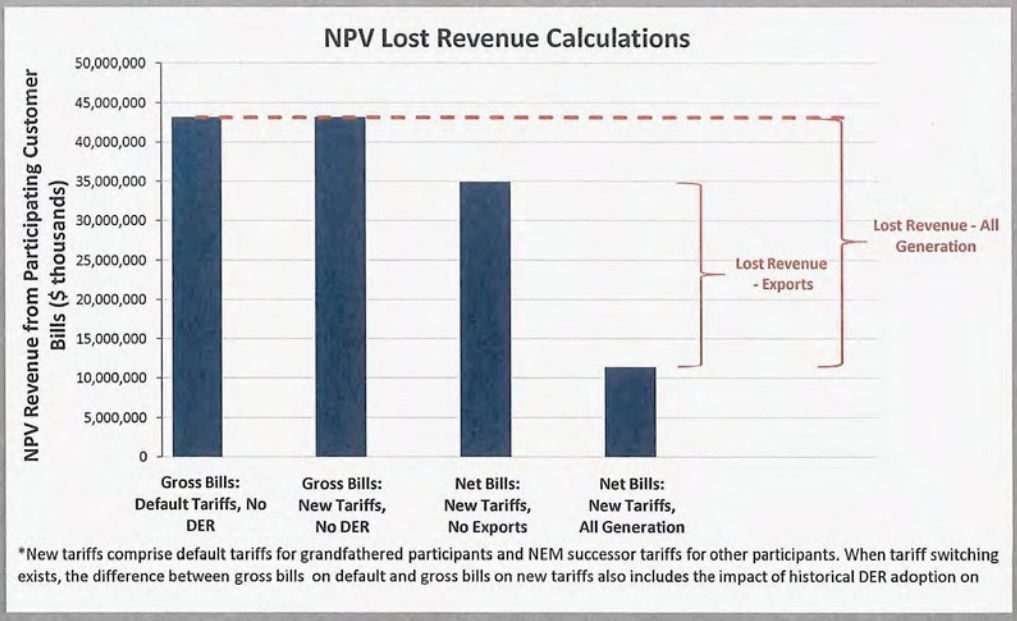


NPV Ratepayer Impact as a % of Revenue Requirement:	5.32%



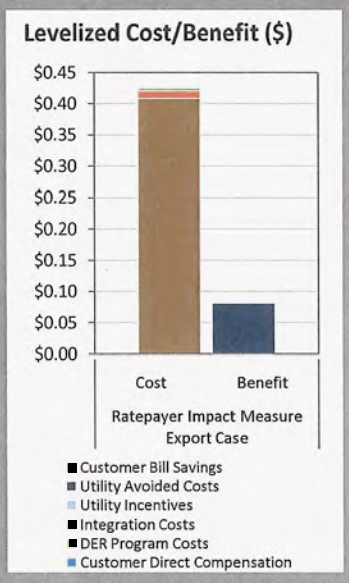
Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	6.8	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	1.44	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	5,547	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	5.32%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

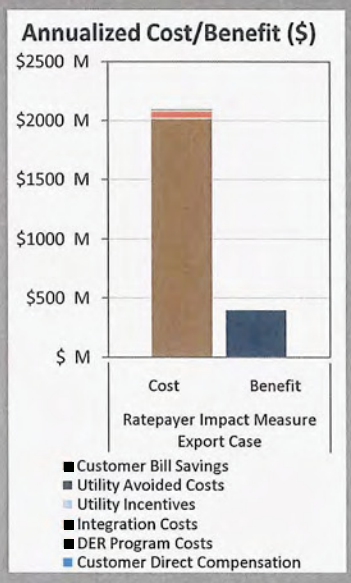
Export Only RIM Results

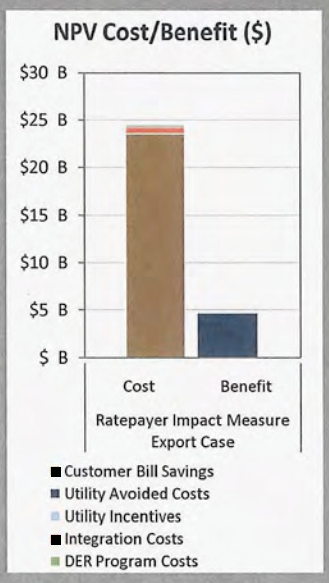


*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER adoption on

Net Benefit (Cost)	-$0.34	-$1702 MM	-$20 B
Benefit/Cost Ratio	0.19	0.19	0.19

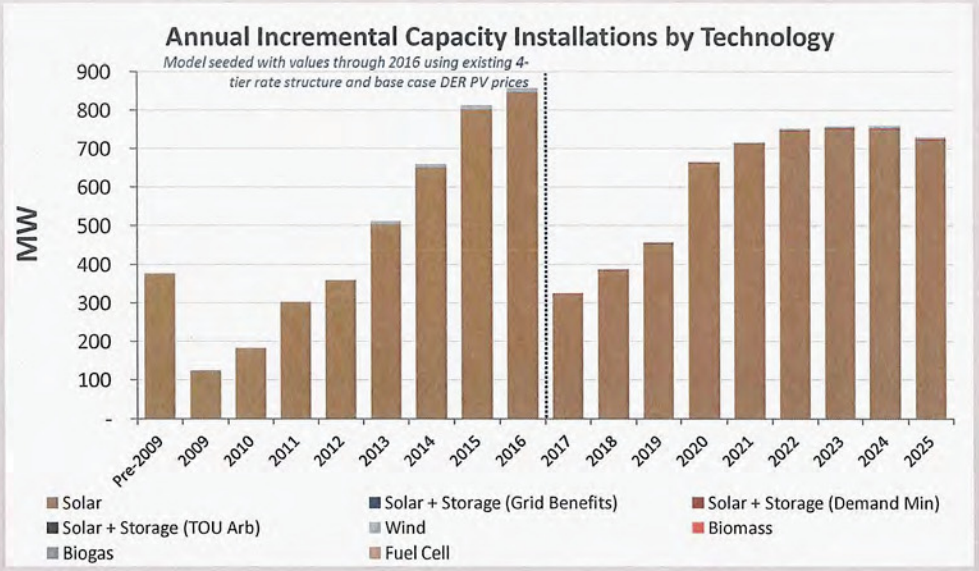


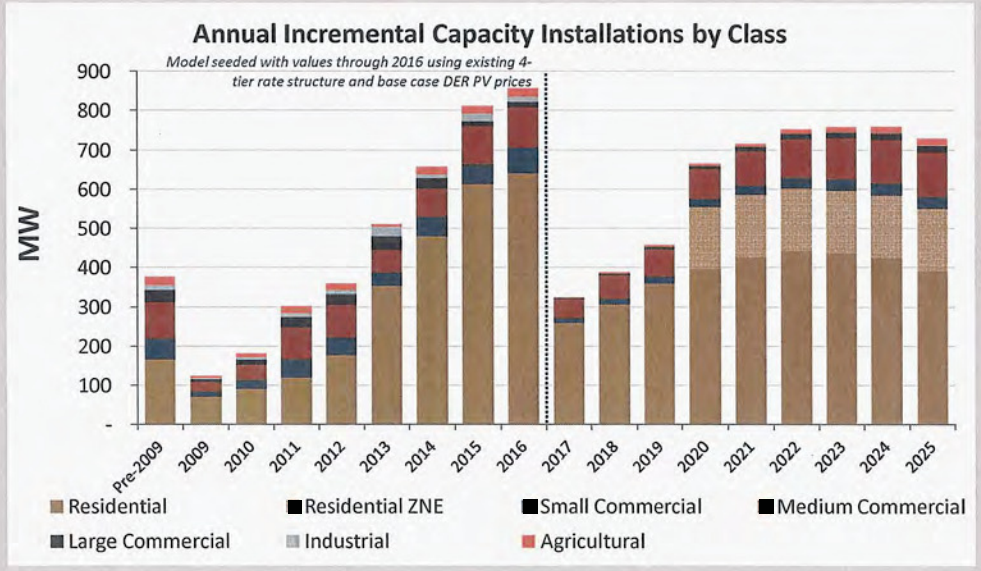


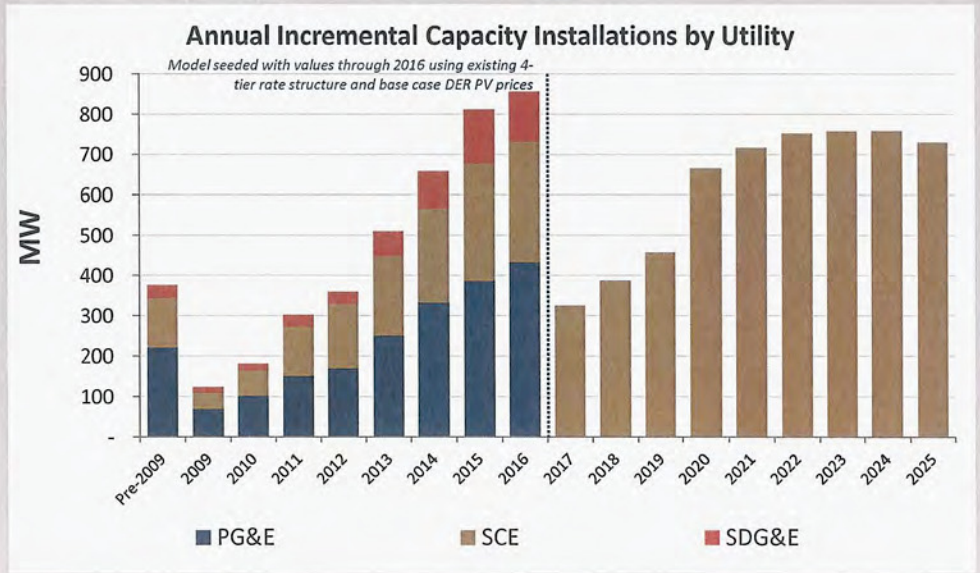


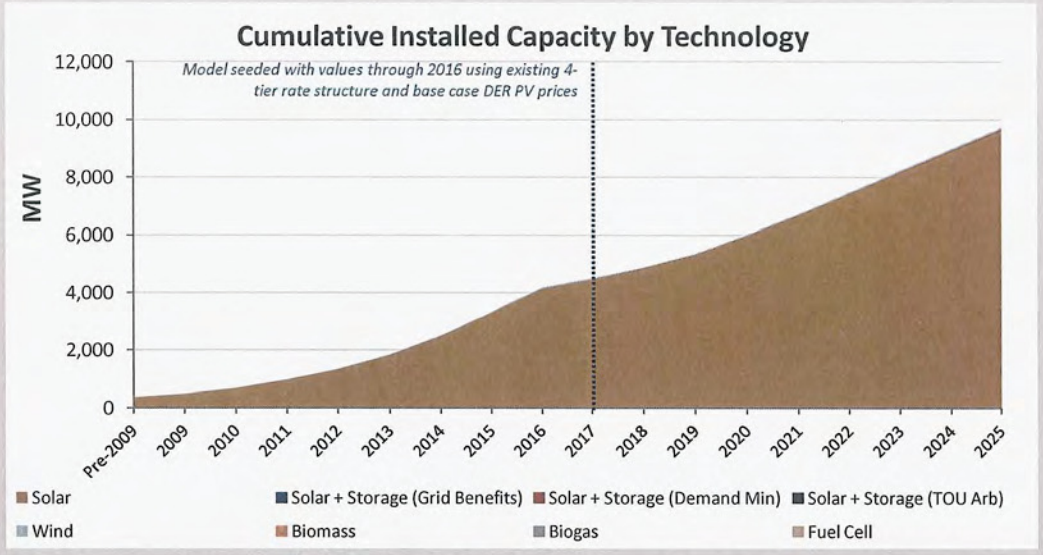
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	4.34%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	302,973
Medium Systems	DER system produces 67% of customer annual gross usage	1,074,277
Large Systems	DER system produces 100% of customer annual gross usage	740,044

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	117%	42%	N/A	N/A	117%	42%
Small Commercial	N/A	N/A	92%	29%	N/A	N/A	92%	29%
Medium Commercial	N/A	N/A	98%	55%	N/A	N/A	98%	55%
Large Commercial	N/A	N/A	119%	101%	N/A	N/A	119%	101%
Industrial	N/A	N/A	66%	49%	N/A	N/A	66%	49%
Agricultural	N/A	N/A	112%	44%	N/A	N/A	112%	44%
Total	N/A	N/A	113%	44%	N/A	N/A	113%	44%
Non-Res	N/A	N/A	99%	51%	N/A	N/A	99%	51%

*CARE cross-subsidies are embedded in residential cost of service

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

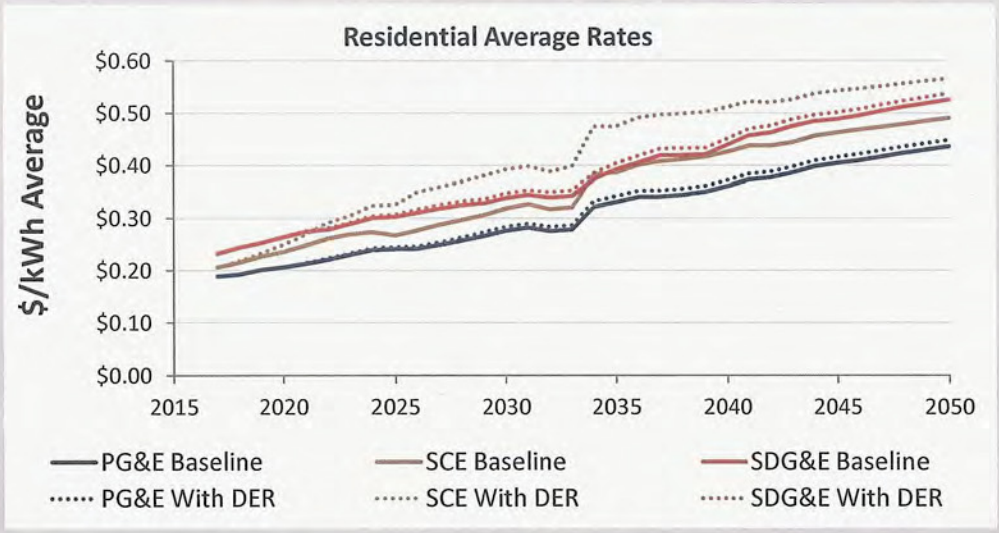
	Value	Units
Cumulative Renewable Generation	3,167,131	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	3,007,884	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	159,247	GWh

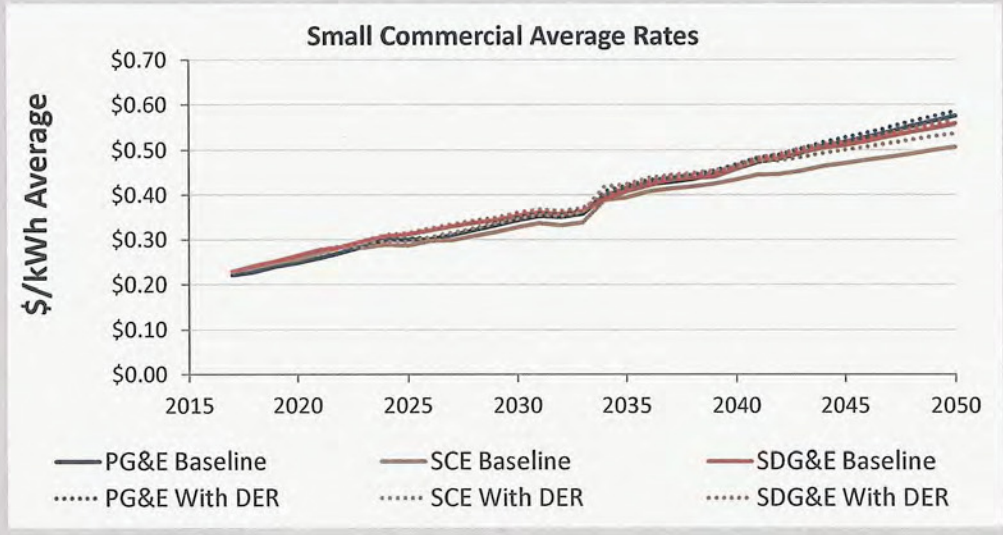
NPV GHG Reduction (through 2050)*

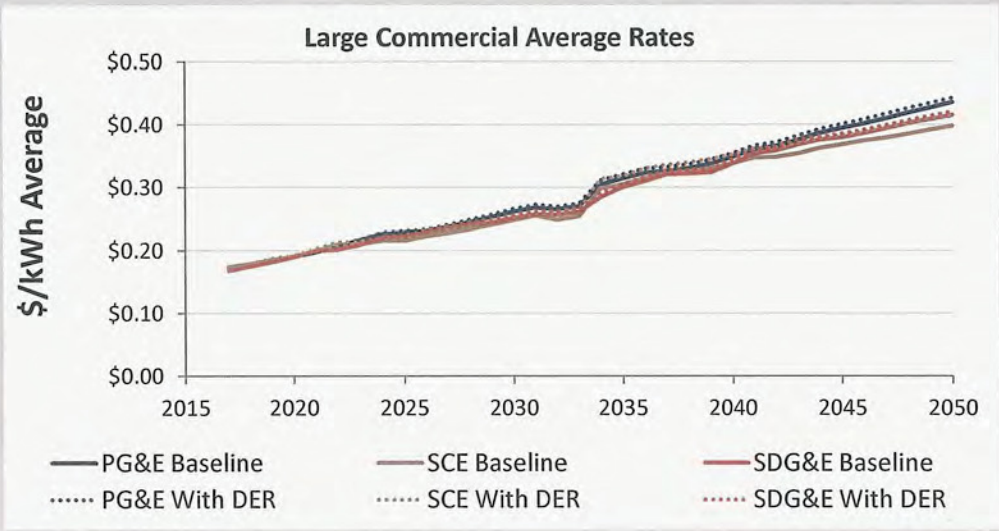
	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	7,380,781	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	20,065,309	tonnes

*This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.

Utility Average Rates







Model Execution

Save <enter scenario name here> — see box to right

Load TOU Bookend 2 High — see box to right

Calc Adoptions Through Year
2025

Calc DER Adoptions for (utility)
- [ ] PG&E
- [x] SCE
- [ ] SDG&E

Calc DER Adoptions for (class)
- [x] Residential
- [x] Small Commercial
- [x] Medium Commercial
- [x] Large Commercial
- [x] Industrial
- [x] Agricultural

- [x] Run Grandfathered Results — see box to right

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time
2.4 hours
F9 to update

Save Inputs
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Executing Model
Ensure that the three (3) files
- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

Utility
☑ PG&E
☑ SCE
☑ SDG&E

Rate Class
☑ Residential
☑ Small Commercial
☑ Medium Commercial
☑ Large Commercial
☑ Industrial
☑ Agricultural

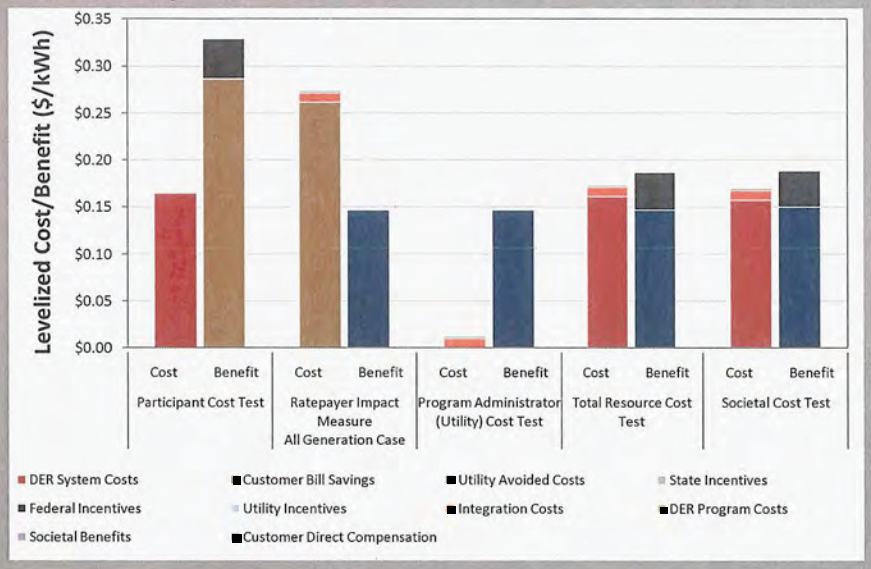
Technology Type
☑ Solar
☑ Solar + Storage (Grid Benefits)
☑ Solar + Storage (Demand Min)
☑ Solar + Storage (TOU Arb)
☑ Wind
☑ Biomass
☑ Biogas
☑ Fuel Cell

DER Vintages	
	☑ Pre-2009 Installations
	☑ 2009 Installations
	☑ 2010 Installations
	☑ 2011 Installations
	☑ 2012 Installations
	☑ 2013 Installations
	☑ 2014 Installations
	☑ 2015 Installations
	☑ 2016 Installations
	☑ 2017 Installations
	☑ 2018 Installations
	☑ 2019 Installations
	☑ 2020 Installations
	☑ 2021 Installations
	☑ 2022 Installations
	☑ 2023 Installations
	☑ 2024 Installations
	☑ 2025 Installations

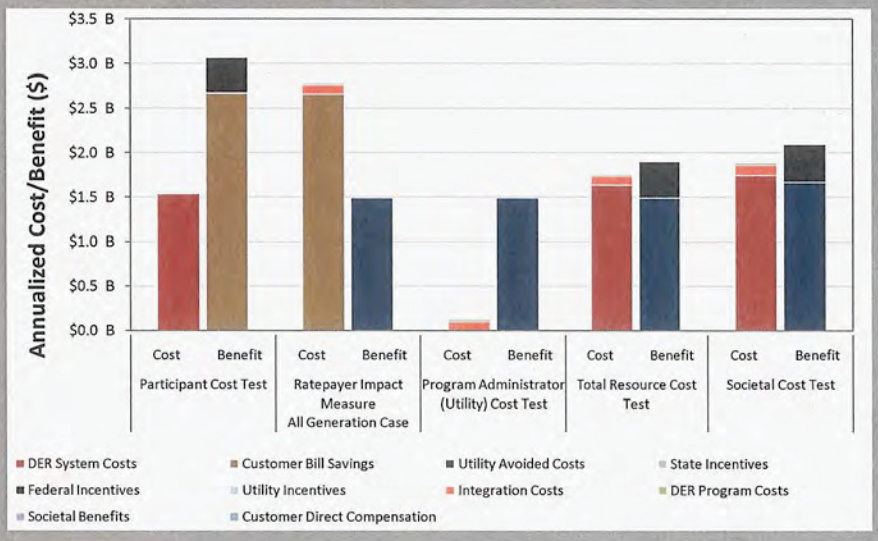
Grandfathered NEM Systems

Non-Grandfathered Systems

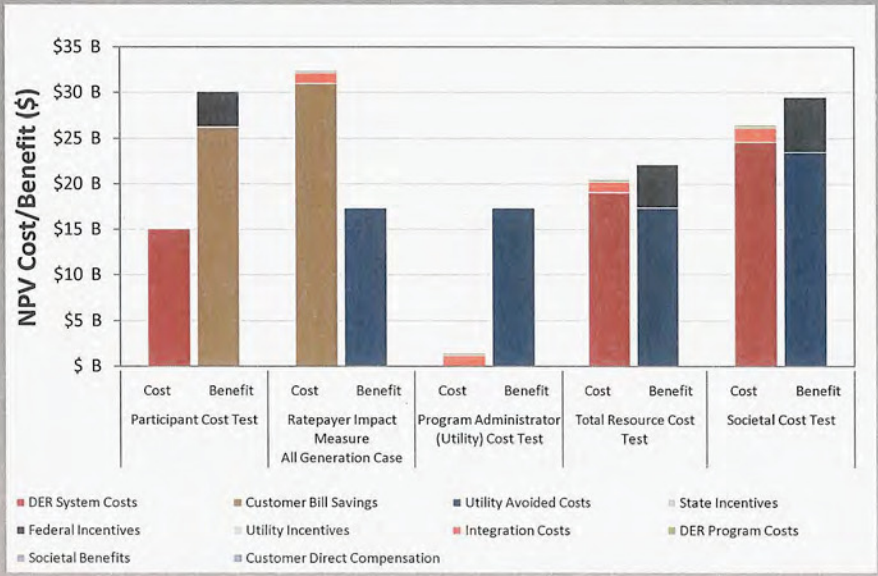
Net Benefit (Cost)	$0.16	-$0.13	$0.13	$0.01	$0.02
Benefit/Cost Ratio	2.00	0.54	12.15	1.08	1.11



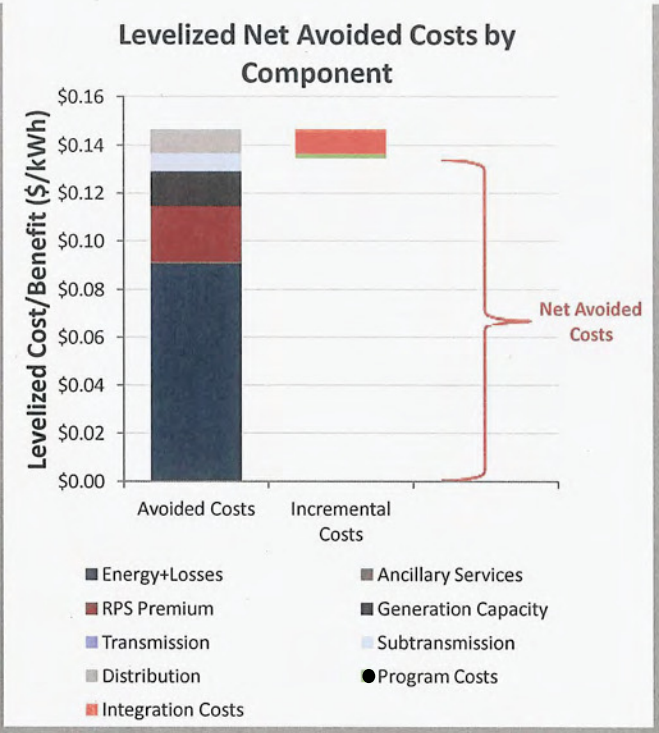
Net Benefit (Cost)	$1530 M	-$1291 M	$1367 M	$142 M	$213 M
Benefit/Cost Ratio	2.00	0.54	12.15	1.08	1.11



Net Benefit (Cost)	$15 B	-$15 B	$16 B	$2 B	$3 B
Benefit/Cost Ratio	2.00	0.54	12.15	1.08	1.11

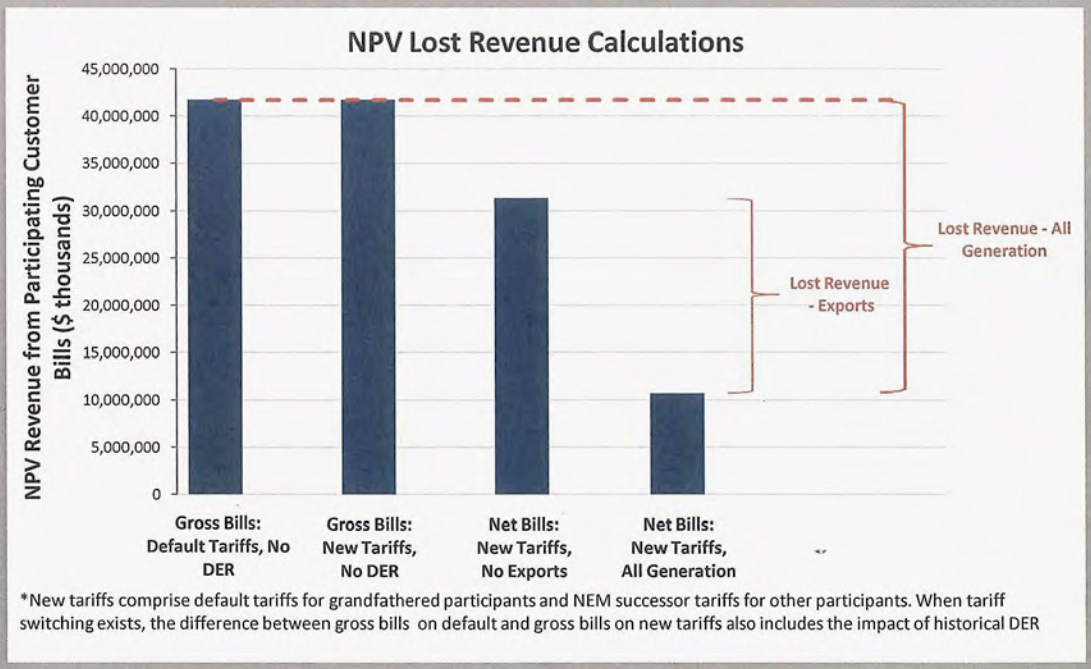


NPV Ratepayer Impact as a % of Revenue Requirement:	3.25%



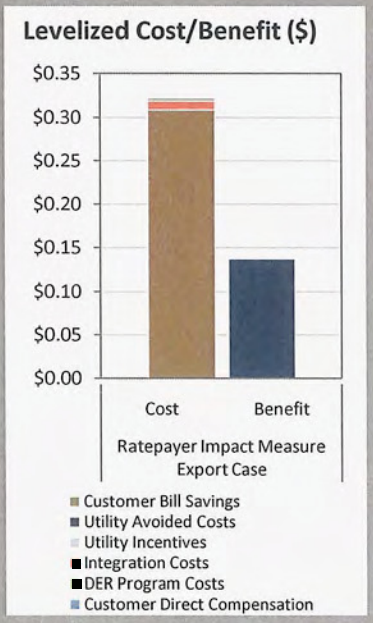
Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	4.9	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	2.00	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	6,552	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	3.25%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

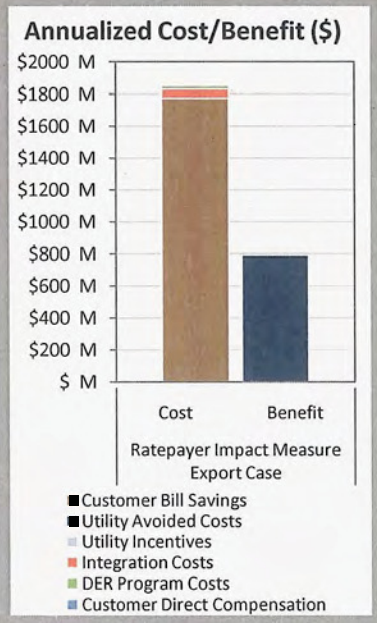
Export Only RIM Results

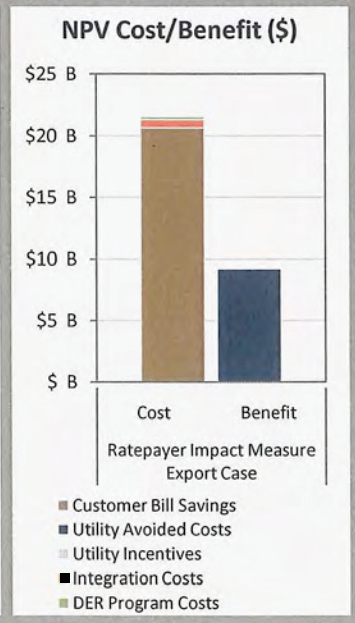


*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER

Net Benefit (Cost)	-$0.18	-$1059 MM	-$12 B
Benefit/Cost Ratio	0.43	0.43	0.43

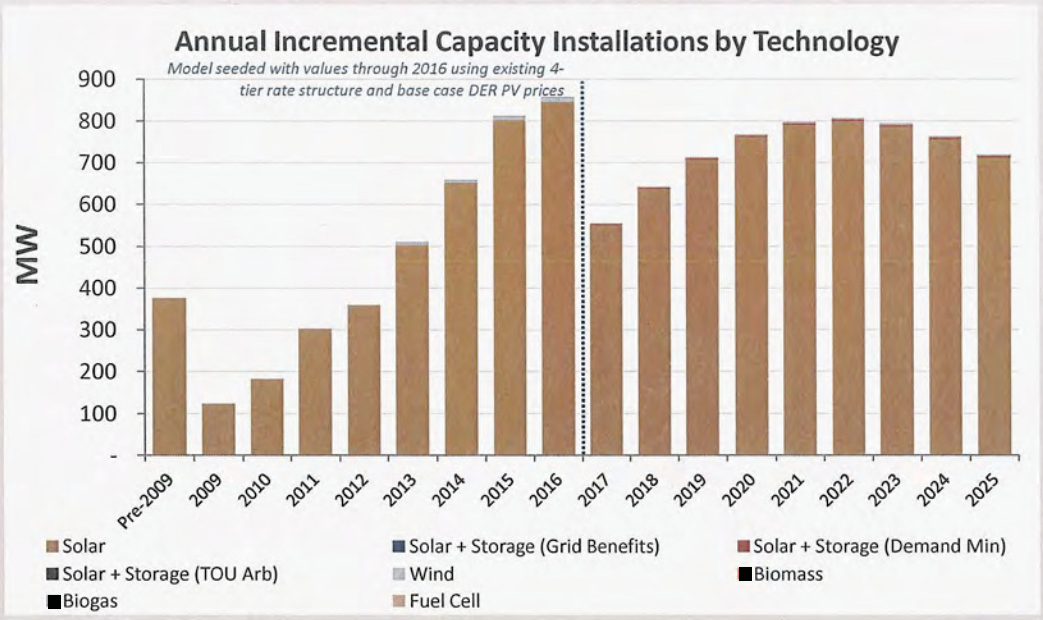


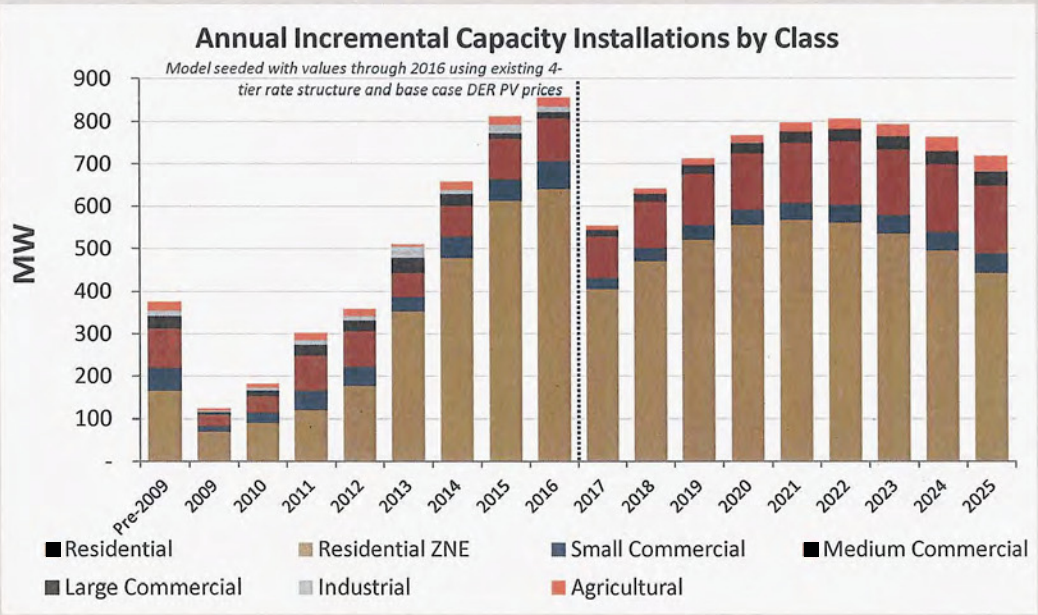


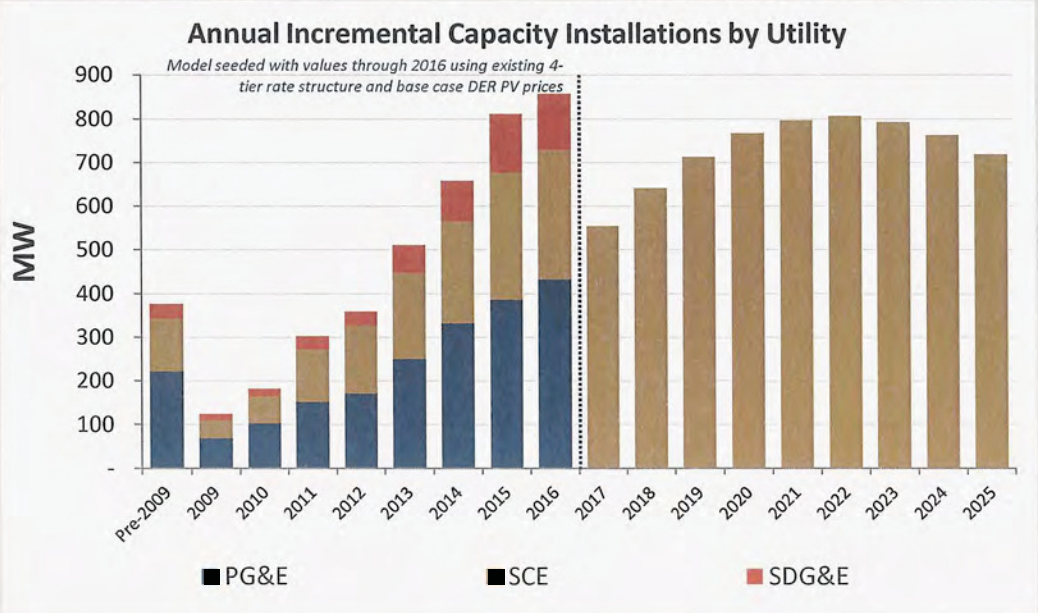


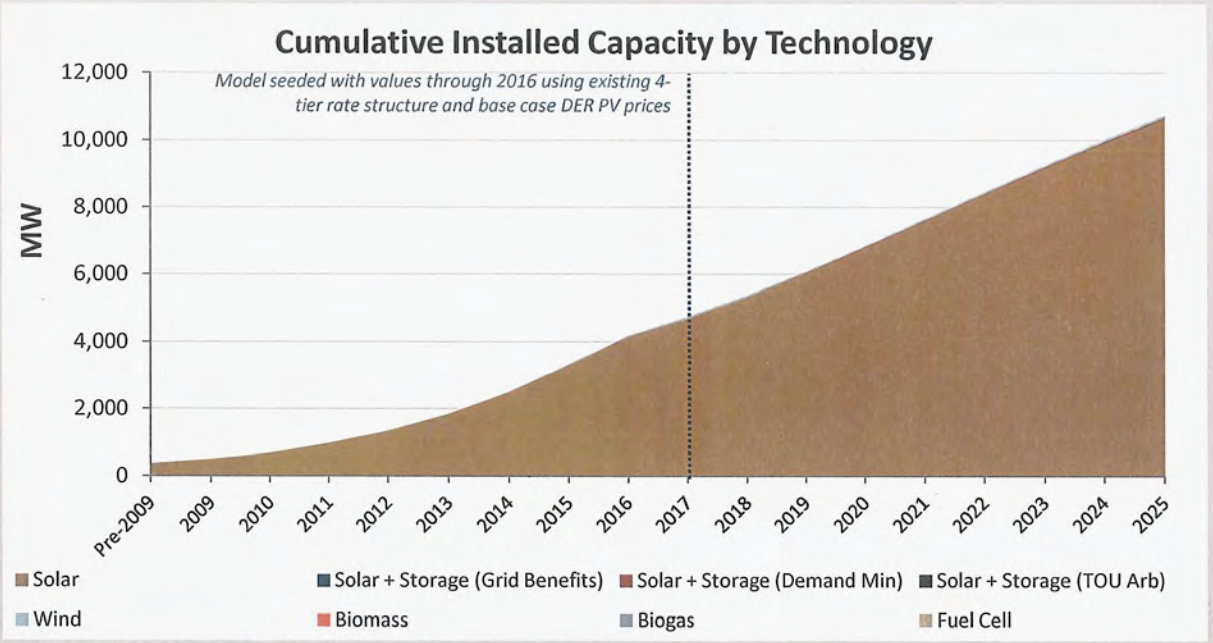
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	2.67%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	286,527
Medium Systems	DER system produces 67% of customer annual gross usage	841,418
Large Systems	DER system produces 100% of customer annual gross usage	883,192

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	122%	56%	N/A	N/A	122%	56%
Small Commercial	N/A	N/A	92%	30%	N/A	N/A	92%	30%
Medium Commercial	N/A	N/A	101%	60%	N/A	N/A	101%	60%
Large Commercial	N/A	N/A	119%	99%	N/A	N/A	119%	99%
Industrial	N/A	N/A	67%	42%	N/A	N/A	67%	42%
Agricultural	N/A	N/A	115%	56%	N/A	N/A	115%	56%
Total	N/A	N/A	115%	56%	N/A	N/A	115%	56%
Non-Res	N/A	N/A	101%	55%	N/A	N/A	101%	55%

*CARE cross-subsidies are embedded in residential cost of service

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

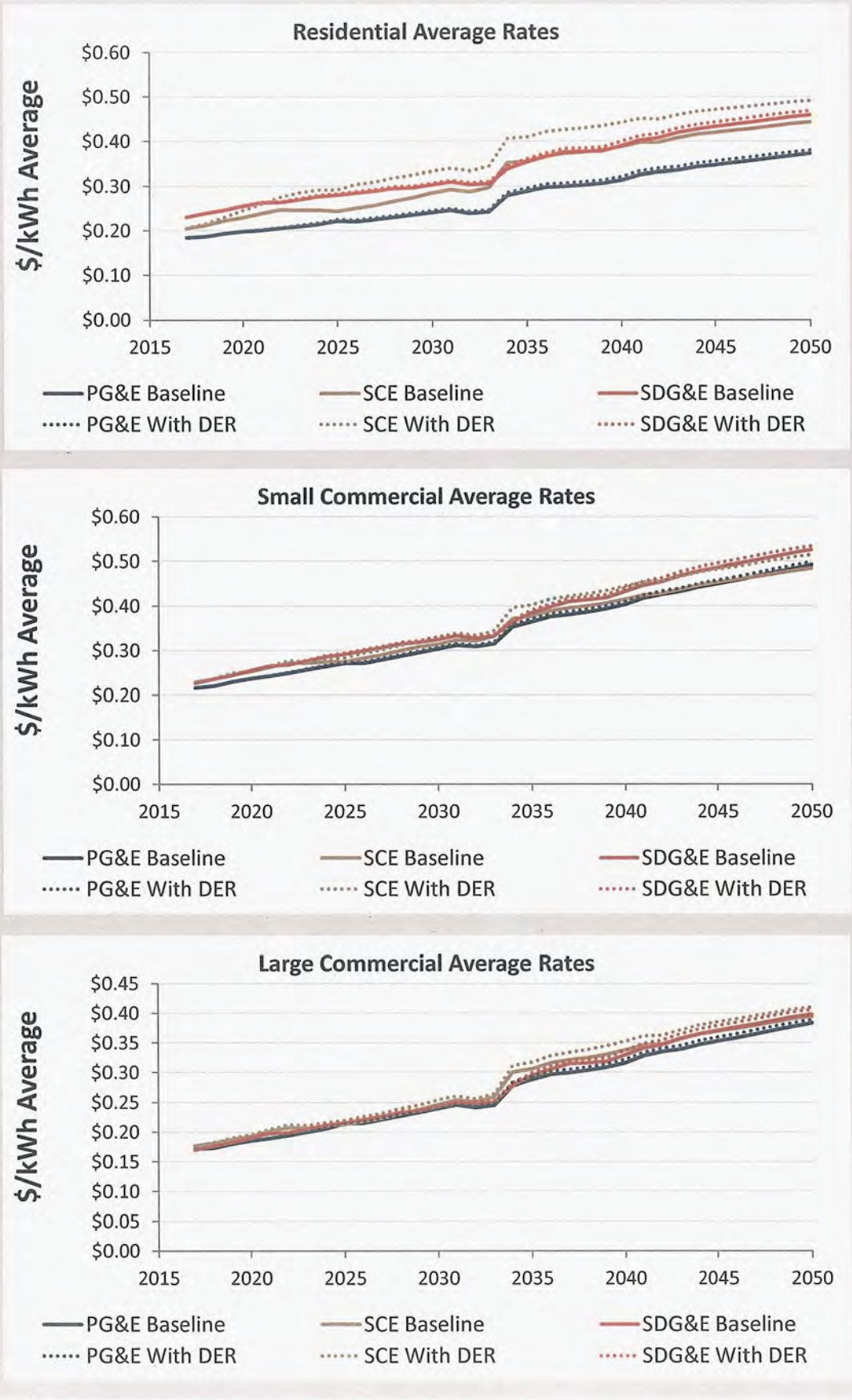
	Value	Units
Cumulative Renewable Generation	2,638,143	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	2,401,214	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	236,929	GWh

NPV GHG Reduction (through 2050)*

	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	9,079,405	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	33,368,445	tonnes

*This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.

Utility Average Rates



Model Execution

Save	<enter scenario name here>	see box to right
Load	TOU Bookend 2 Low	see box to right

Calc Adoptions Through Year
2025

	Calc DER Adoptions for (utility)
☐	PG&E
☑	SCE
☐	SDG&E

	Calc DER Adoptions for (class)
☑	Residential
☑	Small Commercial
☑	Medium Commercial
☑	Large Commercial
☑	Industrial
☑	Agricultural

☑	Run Grandfathered Results	see box to right

These options are all designed to allow users to run "sub-cases" in a shorter amount of time than the full model. Different computers may be faster or slower although these estimates should be proportionally accurate.

Estimated Run Time

2.4 hours

F9 to update

Save Inputs

This feature allows the user to save all user inputs in the public tool (i.e. all yellow input cells) in order to re-load them at a later time. To use this feature, make sure all input cells are set appropriately, enter a name into the white cell next to the "Save Inputs" button, and then press the button.

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Load Inputs

This feature allows the user to load a previously saved input scenario. If the input scenario is saved, it will appear in the white dropdown box next to the "Load Inputs" button. To use this feature, select the desired case and then press the button.

CAUTION: loading a inputs will overwrite all current inputs. To avoid losing inputs, save the current inputs under a different name.

Executing Model

Ensure that the three (3) files

- Public Tool (this file)
- Revenue Requirement
- Billing Determinants Database

are unzipped and located in the same folder.

Cost Test Results

Utility
- ☑ PG&E
- ☑ SCE
- ☑ SDG&E

Rate Class
- ☑ Residential
- ☑ Small Commercial
- ☑ Medium Commercial
- ☑ Large Commercial
- ☑ Industrial
- ☑ Agricultural

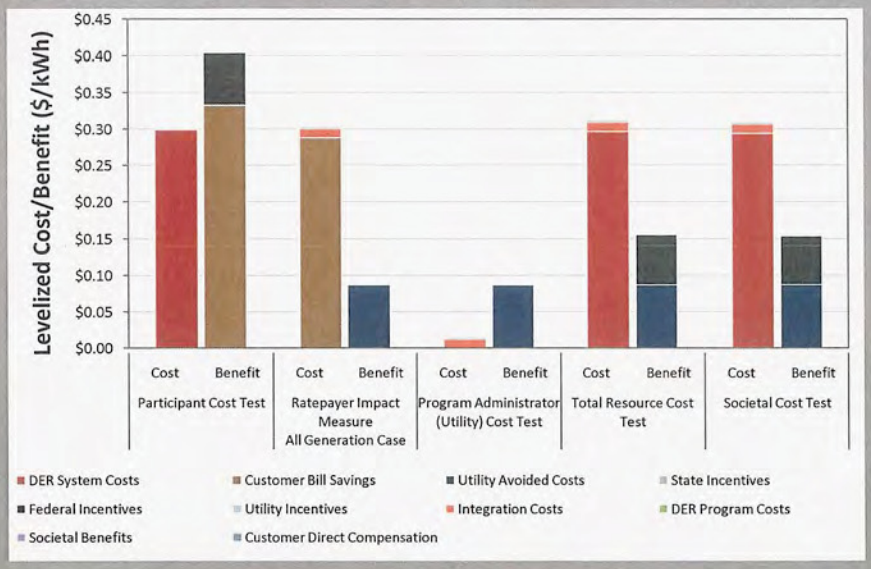
Technology Type
- ☑ Solar
- ☑ Solar + Storage (Grid Benefits)
- ☑ Solar + Storage (Demand Min)
- ☑ Solar + Storage (TOU Arb)
- ☑ Wind
- ☑ Biomass
- ☑ Biogas
- ☑ Fuel Cell

DER Vintages

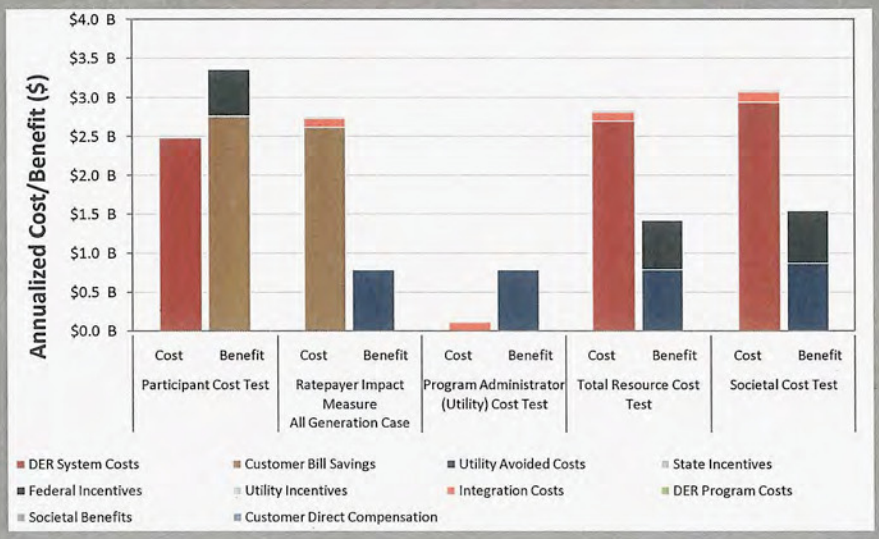
Grandfathered NEM Systems
- ☑ Pre-2009 Installations
- ☑ 2009 Installations
- ☑ 2010 Installations
- ☑ 2011 Installations
- ☑ 2012 Installations
- ☑ 2013 Installations
- ☑ 2014 Installations
- ☑ 2015 Installations
- ☑ 2016 Installations

Non-Grandfathered Systems
- ☑ 2017 Installations
- ☑ 2018 Installations
- ☑ 2019 Installations
- ☑ 2020 Installations
- ☑ 2021 Installations
- ☑ 2022 Installations
- ☑ 2023 Installations
- ☑ 2024 Installations
- ☑ 2025 Installations

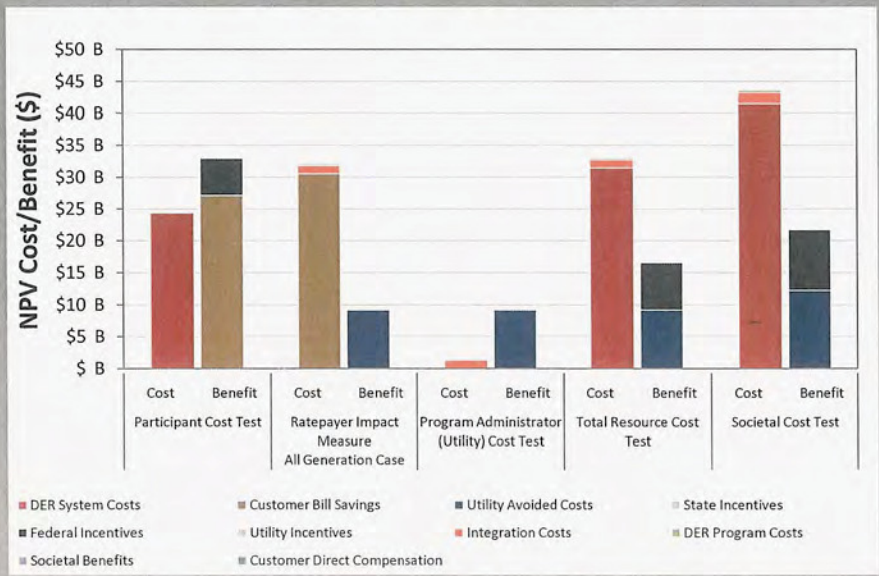
	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$0.10	-$0.22	$0.07	-$0.16	-$0.15
Benefit/Cost Ratio	1.35	0.29	5.88	0.50	0.50



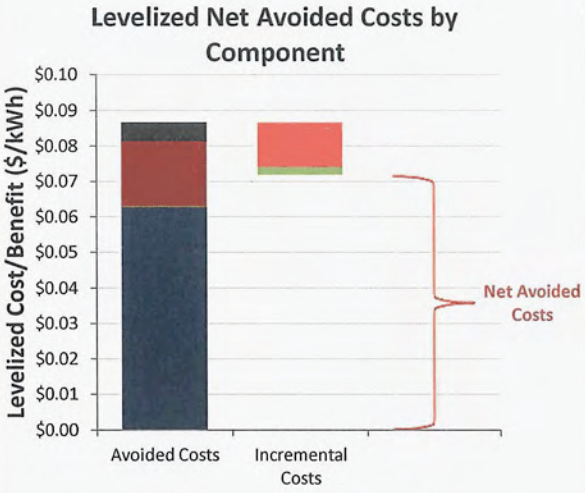
	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$870 M	-$1964 M	$654 M	-$1413 M	-$1547 M
Benefit/Cost Ratio	1.35	0.29	5.88	0.50	0.50



	Participant Cost Test	Ratepayer Impact Measure All Generation Case	Program Administrator (Utility) Cost Test	Total Resource Cost Test	Societal Cost Test
Net Benefit (Cost)	$9 B	-$23 B	$8 B	-$16 B	-$22 B
Benefit/Cost Ratio	1.35	0.29	5.88	0.50	0.50

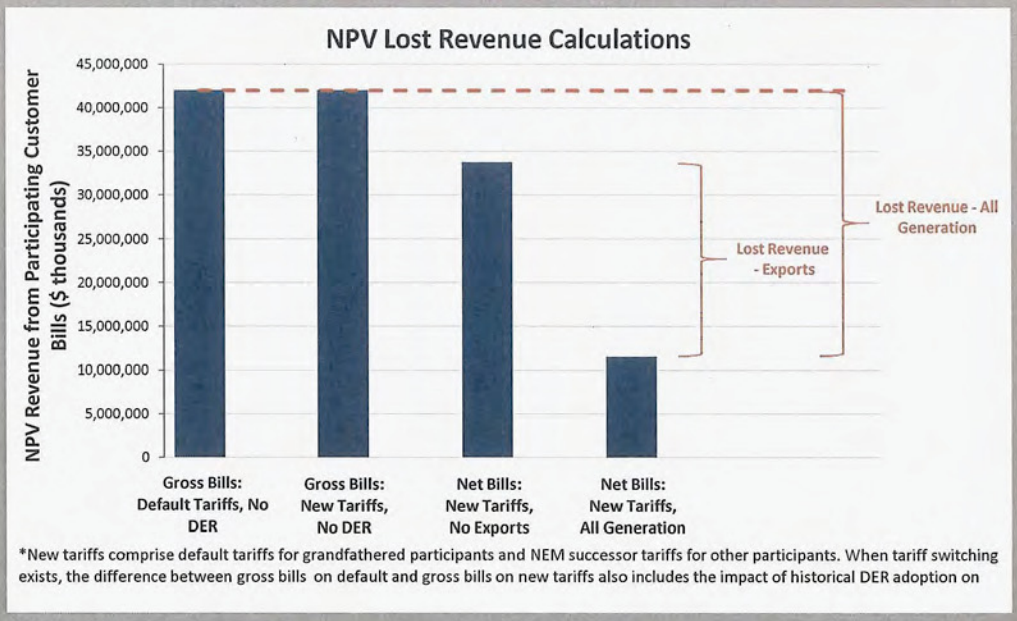


NPV Ratepayer Impact as a % of Revenue Requirement:	5.01%



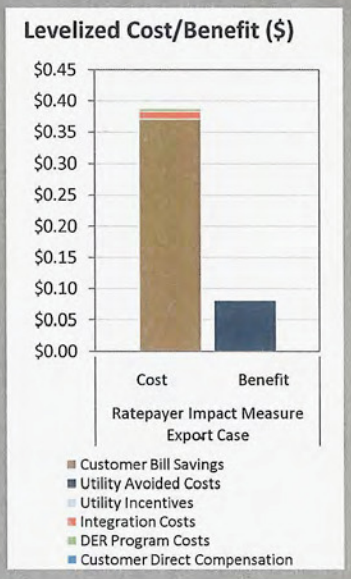
Summary Metrics		Notes
Average Implied Payback of DER Systems (Years)	7.3	Only shown for systems included in filters above
Average Participant Benefit/Cost Ratio	1.35	Only shown for systems included in filters above
Forecasted Installations Post-2017 (MW)	5,695	Includes capacity of all post-2017 systems regardless of filters
Ratepayer Impact/Bill Increase (% of Total RR)	5.01%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-res RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

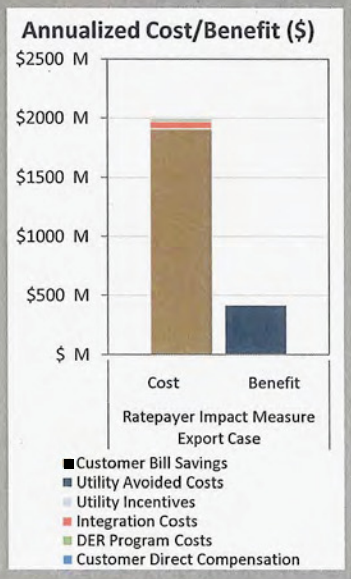
Export Only RIM Results

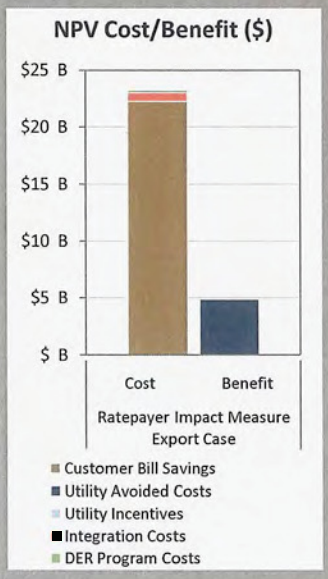


*New tariffs comprise default tariffs for grandfathered participants and NEM successor tariffs for other participants. When tariff switching exists, the difference between gross bills on default and gross bills on new tariffs also includes the impact of historical DER adoption on

Net Benefit (Cost)	-$0.31	-$1577 MM	-$18 B
Benefit/Cost Ratio	0.21	0.21	0.21

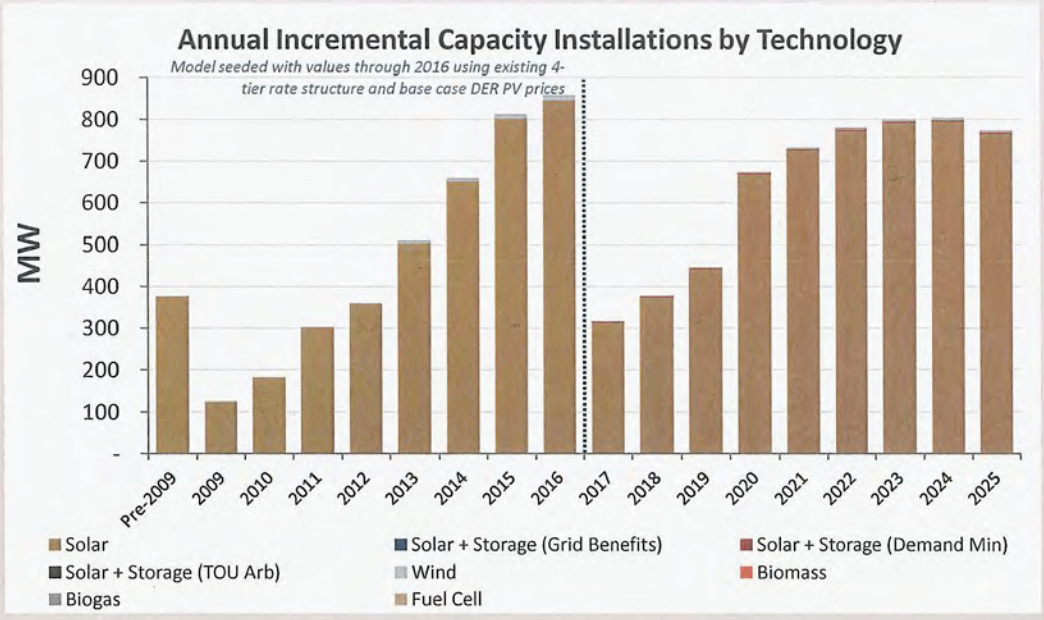


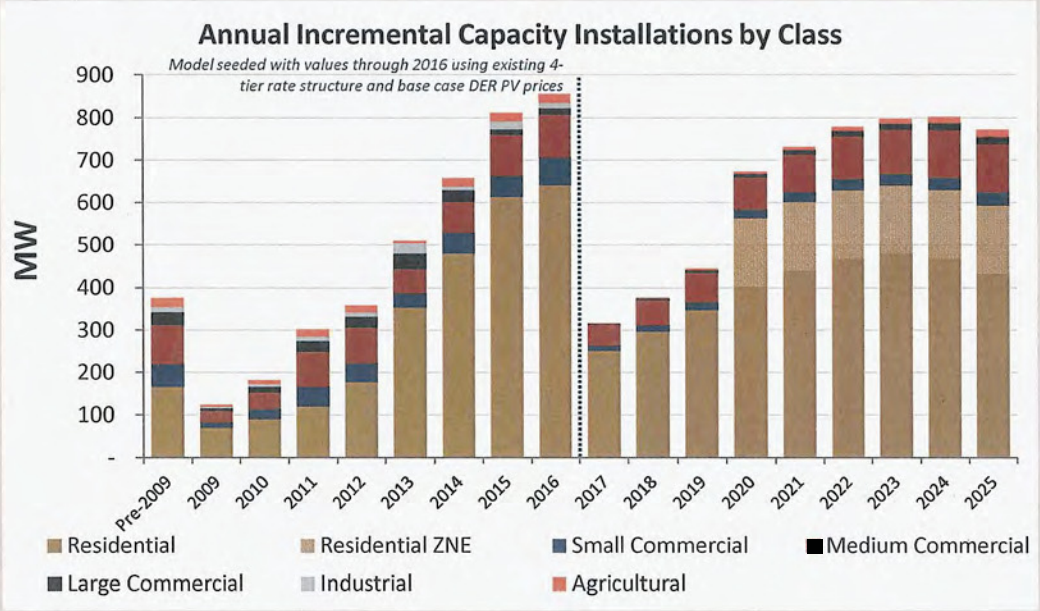


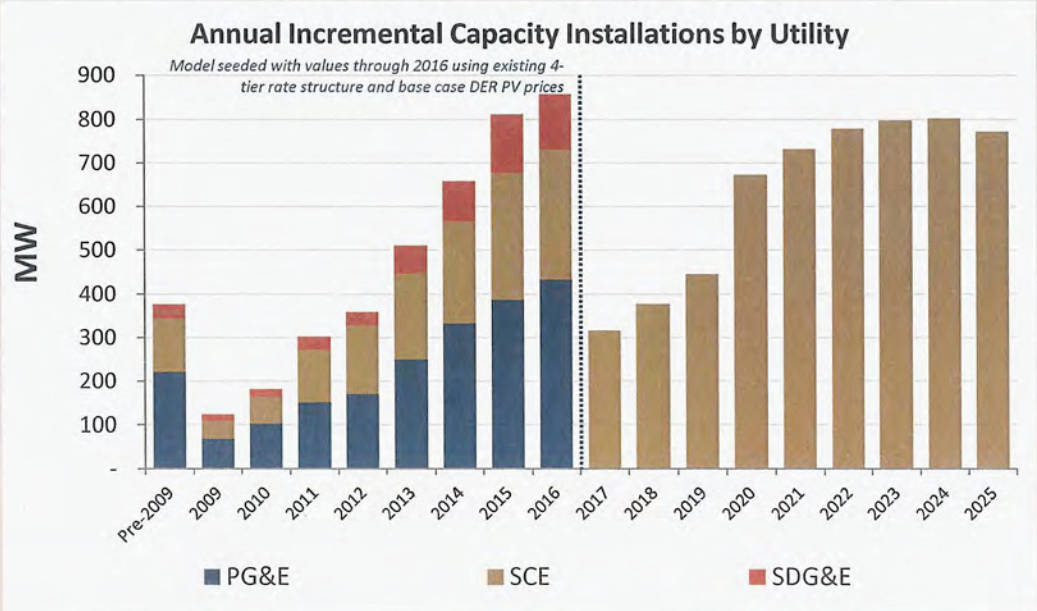


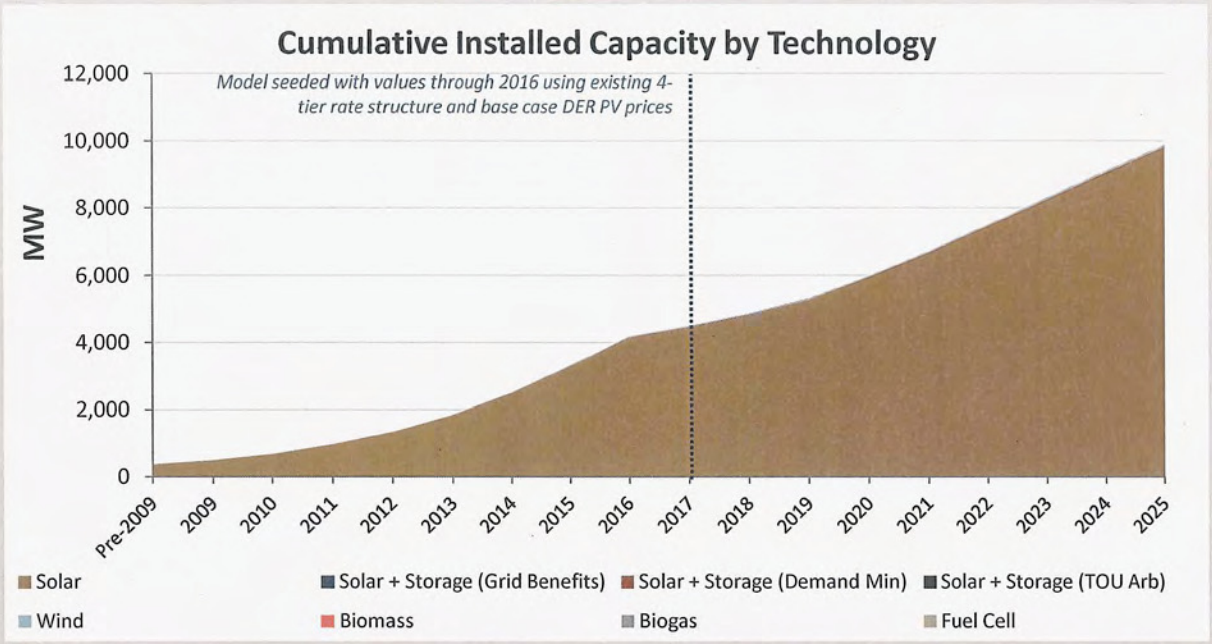
Export-only RIM as a % of Revenue Requirement		Notes
Ratepayer Impact/Bill Increase (% of Total RR)	4.03%	Only shown for systems included in filters above
Ratepayer Impact/Bill Increase (% of Residential RR)	N/A	Only shown for filtered systems; must check "Residential" ONLY
Ratepayer Impact/Bill Increase (% of Non-residential RR)	N/A	Only shown for filtered systems; must UN-filter "Residential"

Installation Results









DER Size Breakdown

Size	Description	# of Systems
Small Systems	DER system produces 33% of customer annual gross usage	314,635
Medium Systems	DER system produces 67% of customer annual gross usage	818,587
Large Systems	DER system produces 100% of customer annual gross usage	930,768

Cost of Service

- [x] Include Historical Participants (Through 2012)
- [x] Include Projected Grandfathered Participants (2013-2016)
- [x] Include NEM Successor Participants

F9 to Refresh

% Cost of Service Recovery*

	PG&E		SCE		SDG&E		All IOUs	
	Without DER	With DER	Without DER	With DER	Without DER	With DER	Without DER	With DER
Residential	N/A	N/A	117%	45%	N/A	N/A	117%	45%
Small Commercial	N/A	N/A	92%	29%	N/A	N/A	92%	29%
Medium Commercial	N/A	N/A	98%	55%	N/A	N/A	98%	55%
Large Commercial	N/A	N/A	119%	101%	N/A	N/A	119%	101%
Industrial	N/A	N/A	66%	49%	N/A	N/A	66%	49%
Agricultural	N/A	N/A	112%	44%	N/A	N/A	112%	44%
Total	N/A	N/A	113%	46%	N/A	N/A	113%	46%
Non-Res	N/A	N/A	99%	51%	N/A	N/A	99%	51%

*CARE cross-subsidies are embedded in residential cost of service

GHGs and Renewable Generation

Total Renewable Generation (2017-2050)

	Value	Units
Cumulative Renewable Generation	3,170,905	GWh
Baseline (No NEM Successor DER) Cumulative Renewable Generation	3,007,884	GWh
Change in Cumulative Renewable Generation due to NEM Successor DER	163,021	GWh

NPV GHG Reduction (through 2050)*

	Value	Units
Cumulative GHGs Avoided - Grandfathered Systems	7,380,781	tonnes
Cumulative GHGs Avoided - NEM Successor Systems	20,481,657	tonnes

*This output reflects timing shifts in renewable generation. It is possible for the total change in renewable generation and GHG emissions to be zero and the NPV of GHG reductions to be nonzero.

Utility Average Rates