STATE OF RHODE ISLAND
ENERGY EFFICIENCY & RESOURCE MANAGEMENT COUNCIL

MEETING MINUTES

Thursday, July 17, 2014

3:30 - 5:30 PM

Conference Room B
Department of Administration
One Capitol Hill, Providence, RI

Members Present:	Abigail Anthony, Joe Cirillo, Marion Gold, Jennifer Hutchinson, Dan Justynski, Michael McAteer, Chris Powell, Paul Ryan
Members Absent:	Marsha Garcia, Julie Gill, Joe Newsome
Consultants Present:	Rebecca Foster, Mike Guerard, Sam Huntington, Scudder Parker
OER Staff Present:	Sue AnderBois, Danny Musher, Rachel Sholly, Nick Ucci
Others Present:	Lindsay Foley, Courtney Lane, Kaitlin Johnson, Hannah Morini, Jeremy Newberger, Brigid Ryan, Ian Springsteel, Belinda Wong, Chon Wong

1. Call to Order

Chairman Paul Ryan called the meeting to order at 3:30 PM.

2. Approval of June Meeting Minutes

Dan Justynski made a motion to add approval of May and April meeting minutes to the agenda. Joe Cirillo seconded and the motion passed unanimously. Mr. Cirillo made a motion to approve the April meeting minutes. Mr. Justynski seconded and the motion passed unanimously. Chris Powell made a motion to approve the May meeting minutes. Mr. Cirillo seconded and the motion passed unanimously. Abigail Anthony pointed out that the June meeting minutes say that Chris Powell seconded a motion but he was not present at the meeting. Rachel Sholly will correct the mistake. Mr. Cirillo made a motion to approve the June meeting minutes as amended. Mr. Justynski seconded and the motion passed unanimously.

3. Executive Director Report

Commissioner Gold reported that the Office of Energy Resources (OER) staff has been working with National Grid on the 3-Year Energy Efficiency Program Plan, the energy efficiency marketing research, and the system reliability plan integrating distributed generation. The thermal renewable energy working group has also been working hard to assess the market potential for energy efficiency for delivered fuels for customers across the state. Julie Gill is the EERMC representative on the thermal working group.

On July 2nd, the OER held a public hearing on the Regional Greenhouse Gas Initiative (RGGI) 2014 Allocation Plan. Letters of support were received from the New England Clean Energy Council, RI Department of Transportation, Pascoag Utility District, and Block Island Power Company. The OER is reviewing comments and will have a final Plan released shortly.

The OER recently received a Community Development Block Grant intended for Hurricane Sandy relief for $150,000 to look at high-priority critical locations suitable for microgrids, including analyzing configurations and cost-effectiveness frameworks and designing a pilot for priority sites in RI. The OER has also applied for a grant from the U.S. Department of Energy's State Energy Program competitive grant program in partnership with National Grid and the State of Massachusetts. The proposal is to look at the viability of using natural gas demand response and renewable thermal technologies to mitigate winter peaking. The grant would fund a report and a pilot project to deploy technologies and analyze real-life contributions of those technologies.

Commissioner Gold then recommended that the EERMC direct the Consultant Team to work with the OER and National Grid to explore integrating the energy efficiency system benefit charge into the supply component of the ratepayer bill so that efficiency is viewed consistently with other supply sources as opposed to an extra cost with no benefits. Abigail Anthony was concerned that the system benefit fund would lose revenue from people who do not pay supply through National Grid. Nick Ucci clarified that the idea is to figure out how to better communicate the value of energy efficiency through the utility bill so that consumers understand that it is not that different from purchasing supply from a power plant. Jennifer Hutchinson noted that a bill message has gone out regarding the energy efficiency charge to create awareness around efficiency programs and what that charge represents. Mr. Ucci noted that the timing is good, with the 3-Year Plan coming out and the new billing and rate cycle starting January 1st, to figure out the right structure. This topic is on the Public Utility Commission's (PUC) radar and there seems to be interest there. Ms. Anthony said that this could be unprecedented in terms of putting efficiency on a level playing field and a much bigger deal than this conversation.

Ms. Anthony made a motion to authorize the Consultant Team to undertake this effort in partnership with Council members and the OER and National Grid. Michael McAteer noted that Grid had a conversation with the PUC on this and made some changes to the language as a result. He offered to provide that new language to the group. **Mr. Justynski seconded and the motion passed unanimously.**

Mr. Cirillo made a motion to move agenda item #4 to #8 so that the Consultant Team and any potential bidders can be excused. Mr. Justynski seconded and the motion passed unanimously.

4. Presentation by Peregrine Energy Group on "Solar PV for Distribution Grid Support: The RI System Reliability Procurement Solar Distributed Generation Pilot Project"

Ian Springsteel of National Grid introduced Fran Cummings of the Peregrine Energy Group. Mr. Springsteel thanked OER and EERMC for providing the resources for this effort and noted that this work is important in that it coordinates energy efficiency and renewable energy. This study provides the utility with a widely applicable and scalable methodology around system reliability. Mr. Cummings presented an overview of the current work *(see attached)*. Peregrine's task was to identify 250 kW of load relief in Tiverton and Little Compton to help mitigate electric load constraints in that area.

Chairman Ryan asked if they would be asking the bidder to reorient their system from 180 degrees (south-facing) to 220 degrees (west-facing). Mr. Cummings said yes if it were a new system because the goal is to reduce peak demand, not consumption, so the system should be oriented to optimize peak production.

Scudder Parker noted that a dual-access ground-mounted system does not give up total production but it has a higher cost and asked if the incentive covers this incremental cost. Mr. Cummings replied that because tracking systems produce more power, they would probably bid at relatively low numbers because they generate plenty of revenue. The variation between two developers that bid on tracking systems is probably greater than the variation between two different trackers. Going out to bid seems to be a good way of addressing these variations and it is a nice way of incorporating all other incentive structures and financing options. Mr. Scudder pointed out that this should help to move the market because the people who bid see a different market value that they can bring to the customer. Mr. Cummings agreed and added that this should work anywhere, not necessarily just in load-constrained areas.

Chairman Ryan asked who would provide the solar coach. Mr. Cummings replied that ideally a local community representative would volunteer. Mr. Musher added that the Solarize campaign would be run through the OER and Renewable Energy Fund (REF), using community outreach based solar purchasing program to help drive down prices. The more customers enroll, the lower the cost will be for everyone. Mr. McAteer said that in MA many affinity groups and leaders are emerging to do this kind of coaching work.

Mr. Springsteel noted that this effort is going on in coordination with the SRP plan and program, and we are coordinating marketing. The Renewable Energy Growth Act includes a clause for locational incentives, so this process will help inform where to use those locational incentives. Additionally, the incentive values are not fixed, but will decrease as the cost of solar continues to decrease.

Hannah Morini of the REF asked Mr. Cummings to elaborate on additional rebates, explaining that a one-time payment of $950 seems low to motivate a customer to implement a solar project. Mr. Cummings explained that this $950 rebate would be extra as an instant rebate when a customer is ready to do a solar project with traditional rebate (REF). This rebate is intended to make a project whole. It would be possible to offer customers another incentive that would go beyond the total project cost versus compensation.

Mr. Parker felt that this was a very impressive presentation. He pointed out that this work is transferring the tools that have been developed on the energy efficiency side – a least cost market barriers analysis of costs and benefits – to a more sophisticated tool on the renewable energy side. Mr. Ucci asked recommend that Peregrine present to the PUC and the Division on this effort soon. This is the kind of innovative work that entities like that should see.

Jeremy Newberger asked if the team has given any thought to how the methods you have used could be repeatable so that this becomes a tool for future deployment of solar throughout the state and what that effort might be. Mr. Cummings replied that they have considered the replicability, and all you would need

is a few hours of load data from a feeder. Then you use a solar analysis tool like “PV Anywhere” to generate hourly data. The spreadsheets have been designed to be replicable.

5. Presentation by VEIC on *"Energy Branding & Marketing Study"*

Rebecca Foster of VEIC presented an update on the Energy Branding and Marketing Study including initial high-level results *(see attached).* Regarding the statistic on satisfaction with National Grid, Mr. Newberger asked if it was with respect to energy efficiency or overall. Ms. Foster replied that it refers to satisfaction with National Grid overall. The conclusion was that a major rebranding is not necessary, but some tweaking could improve perceptions and participation. In particular, a stronger presence for the state within the brand could be helpful to provide assurance of oversight.

Commissioner Gold commented that she had the opportunity to listen in on some of the focus groups and felt it was a powerful experience. After two of the sessions, she went out and introduced herself to the groups, becoming the face of energy in Rhode Island. She noted that people always respond better when they hear a message from multiple sources, so going out and engaging with customers one-on-one is important. She also reported that there seems to be a lot of misinformation out there, which Ms. Foster confirmed.

Ms. Anthony wondered if it matters whether or not customers understand how the energy efficiency fund works as long as they are participating in the programs. Ms. Foster replied that it does not matter unless it prevents them from participating. We want to avoid introducing any doubt or slowing down participation.

Chairman Ryan asked if the recent promotion of power from third party marketers has been creating confusion. Ms. Foster said it seems that customers do have their guards up a bit. Chris Powell pointed out that large commercial and industrial (C&I) customers either call their National Grid account executive or the account executive calls them. Ms. Anthony added that many points of entry are needed that get the customer to the same place. Mr. Cirillo agreed with Ms. Anthony but noted that things have changed in the marketing of energy efficiency from smaller hardware stores to larger big-box stores where there are many options that can get confusing.

The surveys did not specifically ask if people think that the energy efficiency program funds come from National Grid, but they did ask why they thought National Grid offers efficiency incentives. If customers understand that they are paying for it, they may be more likely to participate.

6. Policy/Planning Issues

3-Year Energy Efficiency Plan First Draft Review

Mr. Newberger and Courtney Lane of National Grid (the Company) presented an overview of the 3-Year Energy Efficiency Program Plan first draft *(see attached)*. A first draft was distributed to the Council last week and the Company is looking for feedback on it from Council members. In the beginning of August, the Company will be sending the final draft for approval at the August Council meeting. The savings targets presented here either meet or exceed the targets approved by the PUC.

Mr. Powell asked about the large C&I efforts. Mr. Newberger explained that, in terms of markets, the Company has just begun the new "channel sales" model, which will target large C&I. Mr. Powell elaborated that Brown University is one of the large C&I customers that has picked a lot of the low-hanging fruit and is now on the next level. They are getting some push-back from National Grid on some

of their proposed projects, not because of technology issues but because the current programs do not always fit evolving needs. There needs to be more input from large C&I customers to help them participate in programs. Mr. McAteer commented that the Company is working to understand the needs of the large C&I sector, including asset management, building analytics, capital, financing, etc. Mr. Parker observed that sometimes the market opportunities move faster than program design. The regulatory structure may also have features that do not reflect new technologies and opportunities, and we need to continue making the structure more dynamic in response to changes in market opportunities. Mr. Newberger agreed, noting that the bottom line is passing the cost-effectiveness test but, other than that, they can be flexible.

The company has asked for written comments from the Demand Collaborative by tomorrow. They will produce a second draft a week from tomorrow, which will be distributed to the Collaborative. Then everyone, including the Council, will see the third draft.

The reason the cost goes down over the three years is because of additional forward capacity market revenue and an assumed increase in RGGI allocation, which needs to be confirmed. The value of demand savings is also increasing, which helps cost-effectiveness. Ms. Anthony expressed concern regarding the utility cost per unit of energy saved and said that she has asked the Company for an analysis of cost drivers. Mr. Parker noted that the winter peaks are driving costs up and so maybe the marketing strategy should be to invest now in efficiency because higher prices are coming. Mr. Powell felt that there should also be internal messaging that the programs are getting more effective.

Planning Schedule Update

This was covered in the previous agenda sub-item.

System Reliability Procurement Plan Update

Lindsay Foley of National Grid reported that the System Reliability Procurement (SRP) Plan is in its second round of updates and the next draft will be circulated tomorrow. SRP is the primary method of promoting and implementing non-wires alternatives (NWAs) in Rhode Island. The current SRP pilot in Tiverton and Little Compton is in its third year and is scheduled to go through 2017, the end of the next 3-Year Plan. The new Plan being developed focuses on new and different projects. Themes for the upcoming plan may include: 1) exploring market-based solutions by using competitive bidding to procure NWAs; 2) looking at NWAs as one component in an overall transmission and distribution solution; 3) integration and coordination with other least cost procurement initiatives; 4) additional research on funding mechanisms. The Company will implement the Plan using a suite of technologies in energy efficiency, demand response, and the coordination of both. The Company is also looking at utility-side technologies and initiatives as well as an increased focus on renewables and pairing that with thermal or traditional storage.

Ms. Anthony pointed out that the Company's internal SRP process and guidelines, which were first developed in RI, are now also being used in NY and MA. The associated screening criteria from the RI standards are used in all of National Grid's territory. Mr. Parker asked if Council members would like to see the redline version. The Council members said they would like to see this.

In August, the Council will vote on the SRP Plan so it can be submitted to the PUC by September 1st. In October, the PUC will schedule a hearing on the SRP Plan. The first draft of the 2015 Annual Energy Efficiency Program Plan will be presented to the Council in September. The Council will vote on the final draft in October and the Company will submit it to the PUC by November 1st. Finally, the letter of cost-effectiveness from the Consultant Team will also need to be voted on.

7. Executive Committee Report

Chairman Ryan excused the consultant team and any others who might have a conflict. We can make a closed session when we discuss the selection of the consultant. Chairman Ryan reported on last week's Executive Committee report. The Committee discussed the proposed ad hoc committees, and decided to stick with the originally proposed committees for the time being and if we need to add or subtract one, we can do that in the future. The Committee also discussed the desire to have regular financial reports. Regarding the Council's legal services, Chairman Ryan described that there has been. AA, Rachel, Mike will meet with Dan Prentiss next week to discuss the schedule. We used to be in more regular contact with him.

Review and Vote on Consultant Team Request for Proposals

A draft Request for Proposals (RFP) for consulting services was distributed to Council members. Mr. Powell felt that the Council should review the ranking criteria used and decide who will be reviewing proposals ahead of time. The OER will develop ranking criteria. The Executive Committee, including National Grid, will be the primary reviewers. Mr. Newberger noted that there is language in the current RFP that may preclude VEIC from bidding. The Council received three bids in the last round and this will be the third solicitation. The Council discussed the desire to use a transparent, fair and equitable process that ensures that qualified candidates will bid. The OER will distribute the RFP on behalf of the EERMC through an extensive company list, the EERMC website and other relevant avenues.

Ms. Anthony made a motion to authorize OER to finalize the consultant RFP and issue it. Mr. Justynski seconded and the motion passed unanimously.

Mr. Cirillo felt that the redevelopment effort at Rocky Point could be a good opportunity for solar power.

8. Public Comment

There was no public comment.

9. Adjournment

Mr. Powell made a motion to adjourn. Mr. Justynski seconded and the motion passed unanimously. The meeting was adjourned at 5:54 PM.

Next Meeting: Thursday, August 14th 3:30-5:30 PM; Conference Room B

Rhode Island Energy Efficiency and Resource Management Council (EERMC)

Request for Proposal
Policy & Program Planning Consultant

The Rhode Island Energy Efficiency and Resource Management Council ("EERMC") is seeking the assistance of a technical consultant ("Consultant") beginning January 1, 2012 to provide planning and policy support to the EERMC in its review and oversight of the energy efficiency and system reliability programs and initiatives which are proposed and administered by the electric and gas utility distribution company as required by R.I.G.L.§ 39-1-27.7.

The EERMC, an eleven-member council appointed by the Governor with advice and consent of the Senate, includes seven voting representatives from large and small commercial and industrial customers, residential customers, low income customers, environmental interests, energy design and codes, and energy law and policy. The four non-voting members include representatives from the electric and gas utilities, home heating oil industry, and the Commissioner of the Office of Energy Resources ("OER").The EERMC reports annually to the Public Utilities Commission ("PUC") and to the General Assembly and works closely with the OER.

The Policy & Program Planning Consultant will be a crucial partner and resource to the EERMC in achieving its objectives as defined in R.I.G.L. § 42-120.1-3, including:

1. Evaluate and make recommendations, including, but not limited to the development and implementation of utility plans and programs for the least cost procurement of energy efficiency and system reliability resources that are cost-effective compared to traditional supply options; and
2. Provide consistent, comprehensive, informed, and publicly accountable stakeholder involvement in energy efficiency and system reliability resources; and,
3. Monitor and evaluate the effectiveness of programs to achieve the procurement of and investment in energy efficiency and system reliability resources; and
4. Promote public understanding of energy issues and of ways in which energy efficiency and system reliability resource procurement and investments can be effectuated.

The primary responsibility of the Consultant is to be a partner and project manager to help ensure all goals are met and tasks are accomplished for the EERMC to meet its statutory objectives and duties. The Consultant will provide critical services and support for EERMC priorities through the following roles and responsibilities:

- Coordinate EERMC member interpretation and understanding of utility efficiency, distributed generation, and system reliability program planning, policy development and implementation, and facilitate EERMC member participation in the planning and oversight process.
- Fully participate in the development of EERMC priorities and provide technical inputs, analysis, and other efforts as necessary to advance the EERMC's priorities.
- Assume overall responsibility for managing and coordinating the work of any additional consultants hired by the EERMC to support its objectives.
- Provide support and expert assistance on relevant PUC dockets, including direct testimony on behalf of the EERMC upon its request.
- Develop and review policies on a range of issues including, but not limited to, triennial and annual efficiency and system reliability plan development and implementation; efficiency and system reliability standards development; energy efficiency savings targets; program budget and financing; cost-effectiveness; evaluation, monitoring, and verification; financing; and performance incentives.

Regular responsibilities of the Consultant will include:

- Identify innovative approaches and improvements to efficiency program delivery, including: (1) gas/electric integration; (2) infrastructure development; (3) best practices and emerging technologies; (4) statewide education and marketing; (4) program designs that are both deeper (more savings per customer) and broader (reaching more customers); (6) evaluation, measurement, and verification; (7) financing; (8) innovative delivery mechanisms and partnerships; and (9) performance metrics.
- Develop and review policies on a range of issues germane to the EERMC and provide summaries of policy analyses conducted so that stakeholder representatives can make decisions based on sound information.
- Provide technical support and representation with respect to relevant state and regional entities and policies, including the Rhode Island General Assembly and Executive branch, ISO-New England, the Regional Greenhouse Gas Initiative (RGGI), and the Forward Capacity Market (FCM).
- Support the development of, and draft, the required Annual Report to the General Assembly on EERMC activities due on April 15 of each year.
- Draft recommendations and reports on energy issues as needed.
- Actively participate and provide expertise in regular monthly EERMC meetings, Collaborative Subcommittee meetings, System Reliability Subcommittee meetings, other related subcommittees that may be formed, and at technical sessions and hearings before the PUC.
- Provide independent assessment of utility reports and information, such as Energy Efficiency Plan quarterly and annual reports and program tracking data and make recommendation for improvements.
- Keep the EERMC apprised of developments in other states that could improve the quality of energy efficiency programs and system reliability investments in Rhode Island.
- Monitor, facilitate, and report on the implementation and progress towards the goals of the annual Energy Efficiency Program Plan. This includes regular meetings with National Grid program managers, evaluation of pilot programs, participating in the low-income best practices working group, other working groups as may be established, and conducting specific program area research and reporting.
- Conduct a detailed annual review and report on the cost-effectiveness of the annual natural gas and electric efficiency plans for submittal to the PUC.
- Monitoring and reporting on developments in innovative financing strategies.
- Evaluating the impacts of decoupling and other recent legislation on energy efficiency and system reliability.
- Support the development of state legislation or other strategies needed to ensure funding and coordination of energy efficiency offerings for delivered fuels.
- Monitor all energy efficiency funding available in Rhode Island, such as RGGI and FCM funds.

Candidate qualifications include:

- A team of professionals with energy efficiency and system reliability/customer-side resource expertise, stakeholder and collaborative process experience, and a capacity and track record of implementing tried-and-true and innovative approaches to meeting aggressive energy efficiency targets and system reliability investments.
- Demonstrated technical expertise, including experience in energy efficiency and system reliability program planning, budgeting, implementation, oversight, and evaluation and verification.
- Demonstrated knowledge and understanding of energy efficiency and system reliability programs nationwide. The ability to leverage similar work in neighboring states to offer some cost mitigation and efficiencies is preferred.
- Technical degrees are preferred but not required.

The EERMC reserves the right, in its sole discretion, to reject any or all proposals, to waive any minor irregularities or informalities in a proposal, and to enter into any agreement deemed by EERMC to be in the best interest of the ratepayers of the State of Rhode Island. The EERMC may decide to enter into agreements with one or more of the applicants with a contract between the applicants and the electric and natural gas distribution utility. Selected applicants will report directly and solely to the EERMC.[1] The EERMC reserves the right to discuss with the selected applicant(s) any terms and conditions, including financial issues, for any proposed project.

Candidates should submit a proposal including qualifications, prior experience, references, and proposed quarterly compensation, and a brief response (not to exceed ten pages) to the objectives and responsibilities detailed above. Applicants are not to have current contracts with National Grid and also must not have had any recent contracts with National Grid to avoid any real or perceived conflicts of interest. The consultant work is expected to require a commitment of approximately 4,000 hours during the course of 2012 starting on January 1, 2012, with an option for the EERMC to decide whether to renew and continue the selected consultant's work for 2013 and 2014. All questions and proposals should be submitted via email before close of business on September 1, 2011 to eermc.rfp@gmail.com.

[1] The Consultant will provide monthly verbal and written reports of issues and work tasks from previous months at monthly open meetings of the EERMC. The Consultants will also provide verbal and written summaries of upcoming issues to be resolved. All reports will be provided electronically and archived at www.rieermc.ri.gov.

Overview of Branding Research for EERMC

July 17, 2014

Vermont Energy Investment Corporation

Purpose and Methodology

- Purpose
  - Determine understanding of current brand used to promote energy efficiency in RI
  - If it's generally effective, identify how it can be improved
  - If it's not effective, identify why not

- Methodology
  - 5 focus groups (3 sponsored by National Grid)
  - Internet survey of 403 residents
  - Phone survey of 202 business leaders

Key Findings

- Over 80% of those surveyed say it is important to have EE programs
- Awareness of EE programs is high; over half are familiar with them
- On issues of trust, ease of use, likelihood of saving money, and willingness to participate, National Grid led the State of RI
- 57% of residents and 82% of businesses thought that private sector companies would do a better job running programs than government
- Majority could not name the "one overall efficiency program," with some confusion about National Grid, RISE, E*, and others
- Satisfaction with National Grid was 52% among residents and 65% among business leaders
- Approx. 65% of all those surveyed indicated that both National Grid and the State of RI should sponsor EE programs
    - "If the state is involved, they should make it known," and "Would be less worried about National Grid trying to sell me something"

Recommendations

- Results provide a valuable point in time snapshot of how residents and business leaders view the programs and the brand
- They do not suggest the need for a complete re-branding at this time
- Rather, a stronger presence for the state would be beneficial:
  - "Oversight, assurances and access – not management, operations or branding"
- Recommended next steps:
  - Use this study as a baseline
  - Map out a vision of where the programs should be
  - Engage with marketing experts to consider specific options for communicating the involvement of the State of RI

PEREGRINE ENERGY GROUP

Solar PV for Distribution Grid Support:

The Rhode Island System Reliability Procurement Solar Distributed Generation Pilot Project

Report prepared by

Peregrine Energy Group, Inc.

2 Oliver Street, Boston MA 02109

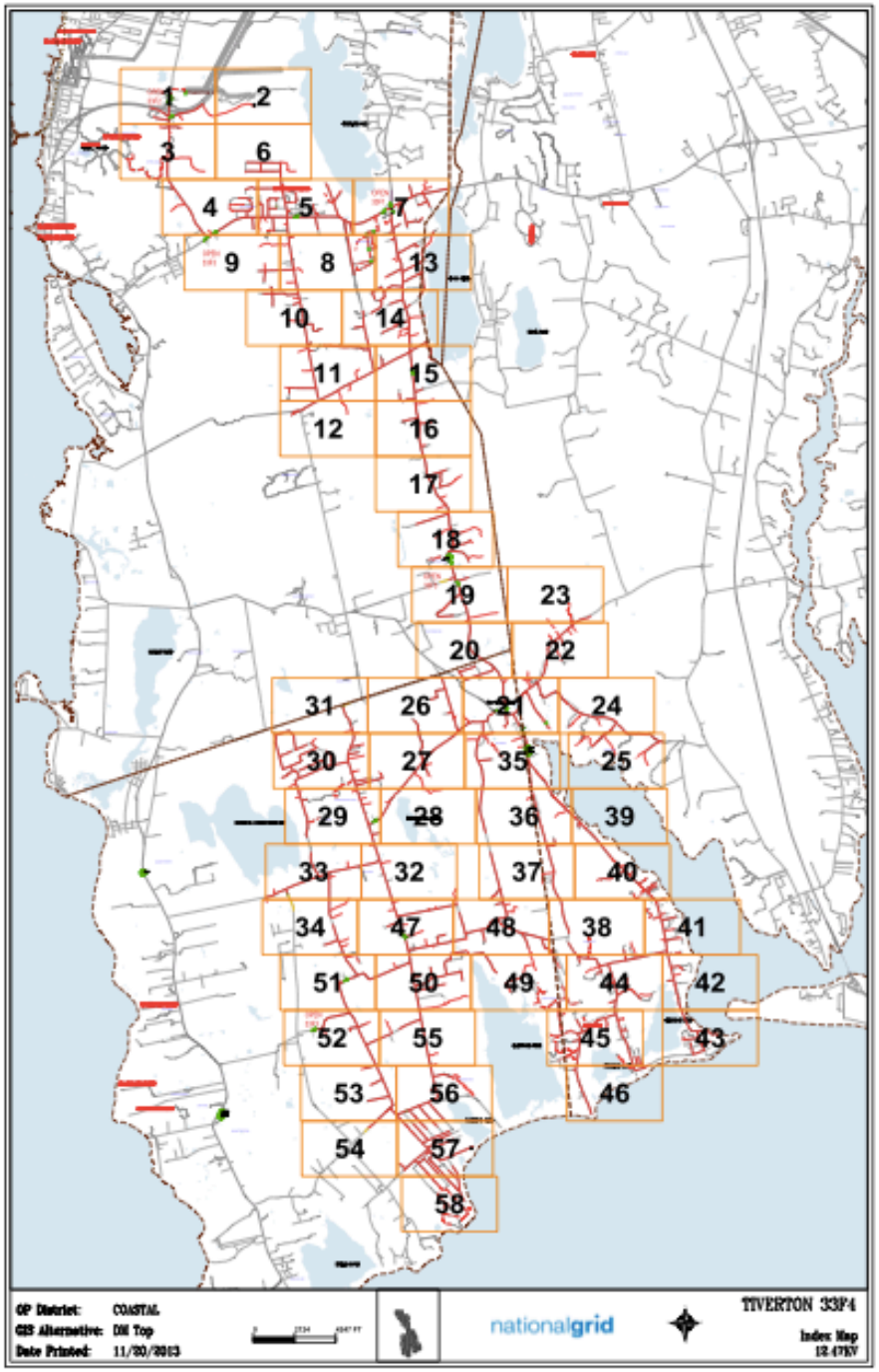
Francis Cummings, Project Manager

with

Charles P. Salamone, PE, Cape Power Systems

Mark Farber

Richard C. Gross, PE



Three years of hourly peak loads on Feeder 4 in the SRP Pilot area

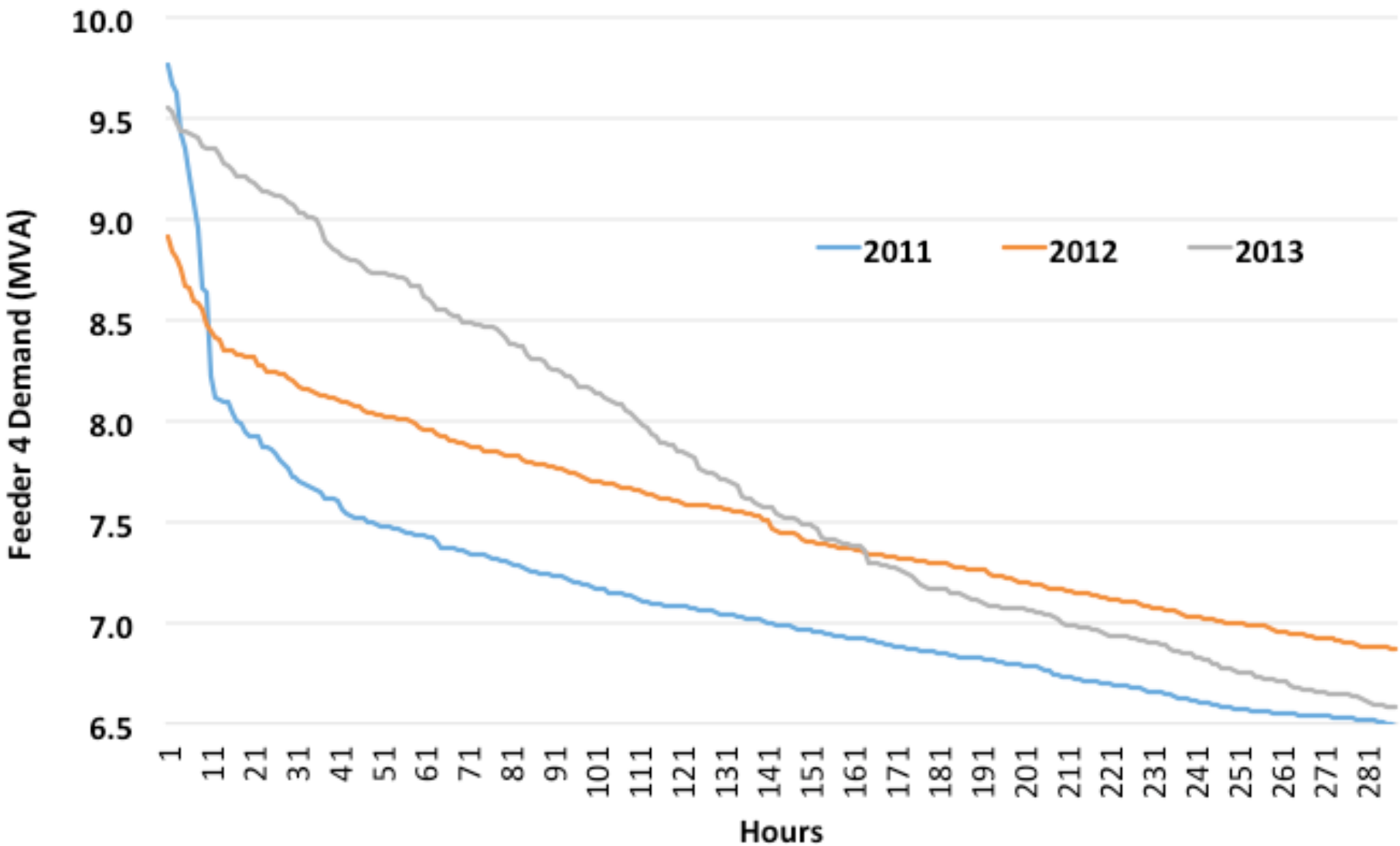


Figure 2: Feeder 4 Load for Top 10% of Summer Hours

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Data: load on feeder 4 vs. PV output for each hour of 3-year period 2011 - 2013

- The capability of PV to generate power in the Pilot area is essentially known for each hour of the day during the summer under optimal conditions.
- The main factors subject to uncertainty for distribution planning are:
  - the time of day at which the relevant load will reach its highest peak of the summer, and
  - the reduction in PV output that can be expected at that time, primarily due to cloud cover.
- This study therefore analyzed the hourly load on feeder 4 for each hour of the 3-year period for which hourly load data was available: 2011 through 2013.
- For each of these hours we compared the load with the solar output that would have been achieved given historical conditions.
- Based on this historical data, we developed a method to calculate the Distribution Contribution Percentage or "DCP" of solar PV, to determine the level of solar capacity that can be expected in order to meet the 250 kW deferral need could for the few highest-load summer hours when it is actually required.
- We used these DCP values to evaluate potential distribution grid support from multiple solar DG configurations for each of the 3 years.

Objective: reduce the load by 250 kW below the peak, which was 5 to 6 pm on July 22, 2011

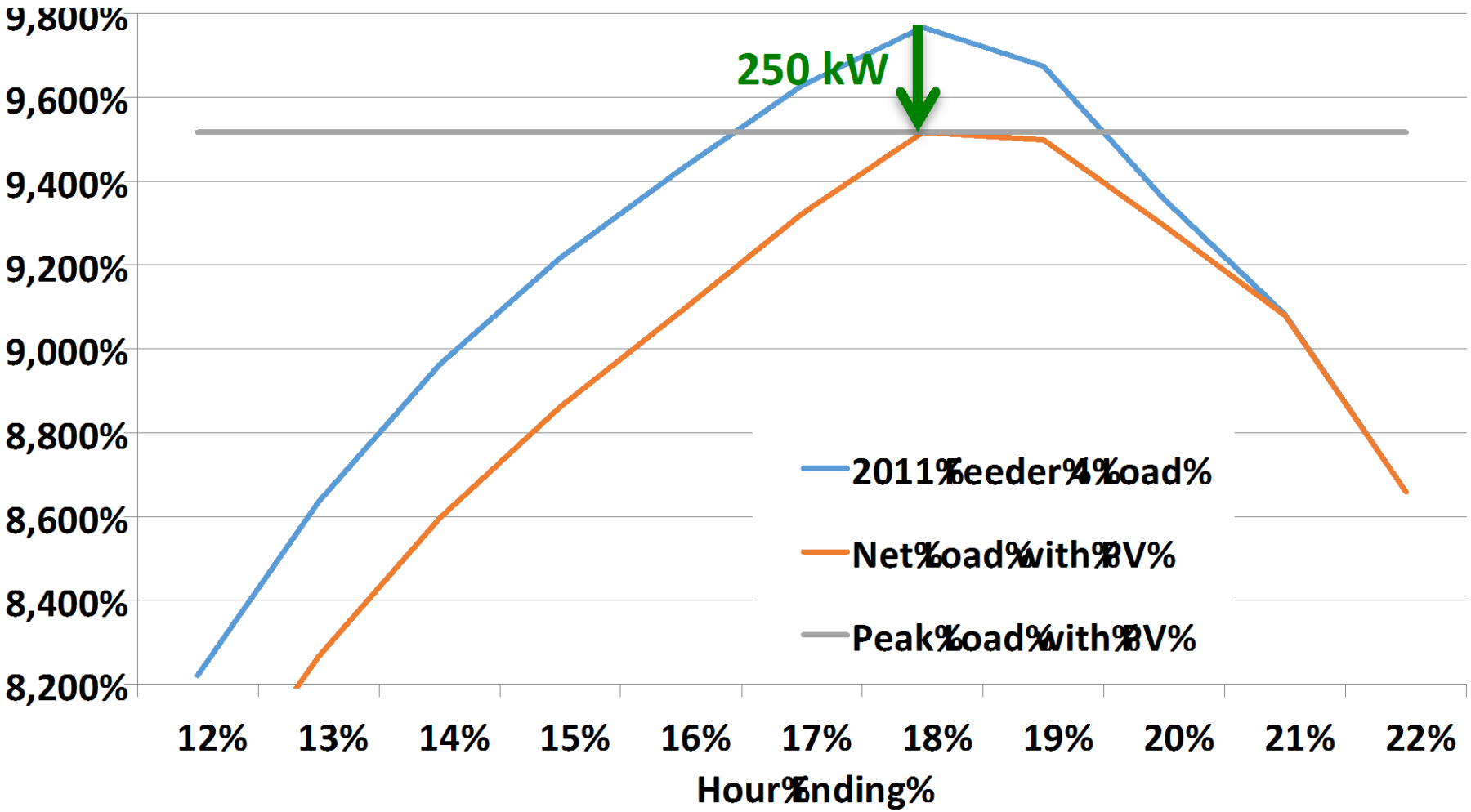

Figure 6: PV required on July 22, 2011 peak day to provide 250 kW load relief

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On that same peak day, solar PV output would have been at these levels:

~25% to ~55% in the peak hour from 5 to 6 pm, depending on PV configuration

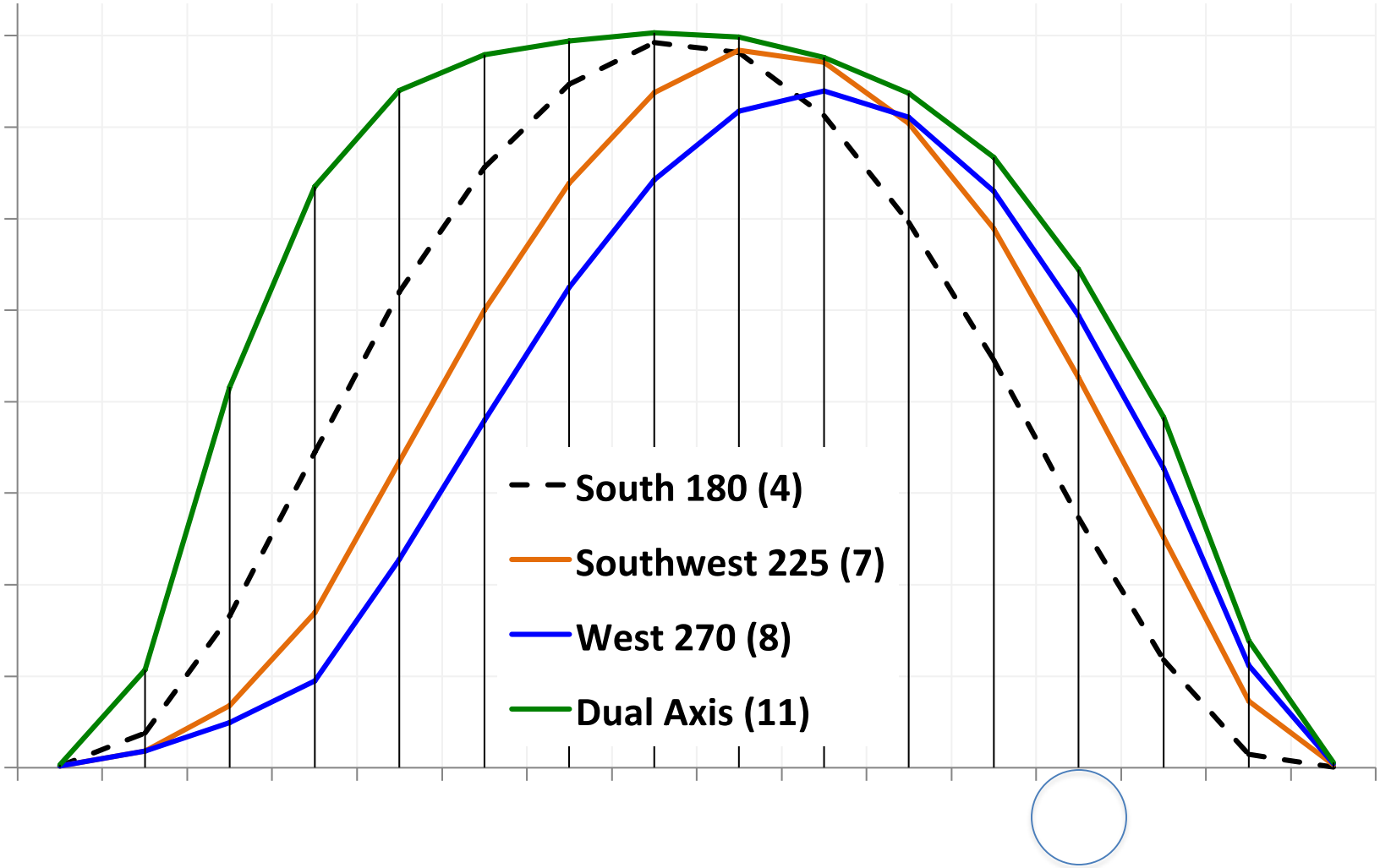

Figure 4: Output of Solar Configurations on July 22, 2011

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To reduce load by 250 kW at the peak hour, more than 250 kW of PV capacity would have to be installed

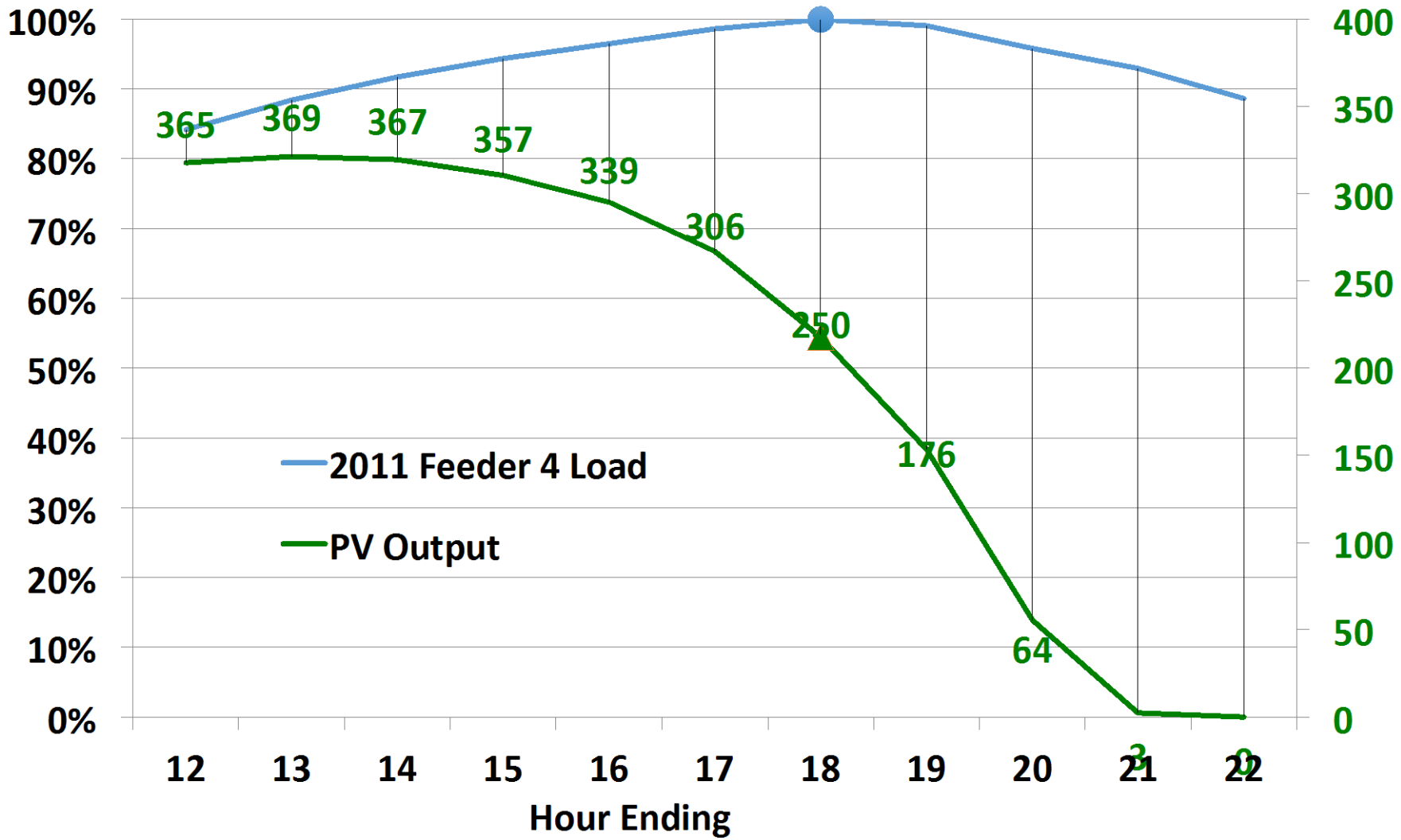

Figure 6: PV required on July 22, 2011 peak day to provide 250 kW load relief

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Distribution Contribution Percentage (DCP) indicates how much peak reduction can be expected from a solar installation -- based on solar output and load for historical hours

	DCP-N (Need)			
	2011	2012	2013	Average of 2 Lowest Years
South 180 (4)	26%	67%	27%	**26%**
SW 225 (7)	46%	80%	49%	**48%**
West 270 (8)	53%	70%	57%	**55%**
Single Axis (9)	56%	72%	60%	**58%**
Dual Axis (9)	59%	83%	63%	**61%**

Figure 8: Distribution Contribution Percentages (DCP) for Selected PV Configurations

This solar portfolio includes targets for 3 types of solar installation to contribute 250 kW

		1 Grid Support Solar Field(s)	2 Solarize Residential	3 Small Commercial	4 Total
1	Gross Capacity (kW)	280	160	80	520
2	Average Distribution Contribution Percentage (DCP)	50%	45%	45%	
3	Distribution Contribution (kW)	142	72	36	250
4	Portfolio Allocation	57%	29%	14%	100%

Figure 1: Solar / Storage Resource Portfolio

Penetration scenario for residential and small commercial or institutional:

2,450 residential customers x 1.25% = 31 PV systems @ 5 kW = 155 kW

188 commercial customers: assume 3 PV systems @ 25 kW = 75 kW

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For fixed solar arrays, increasing the distribution contribution (DCP) results in lower annual generation. Incremental rebates could compensate homeowners.

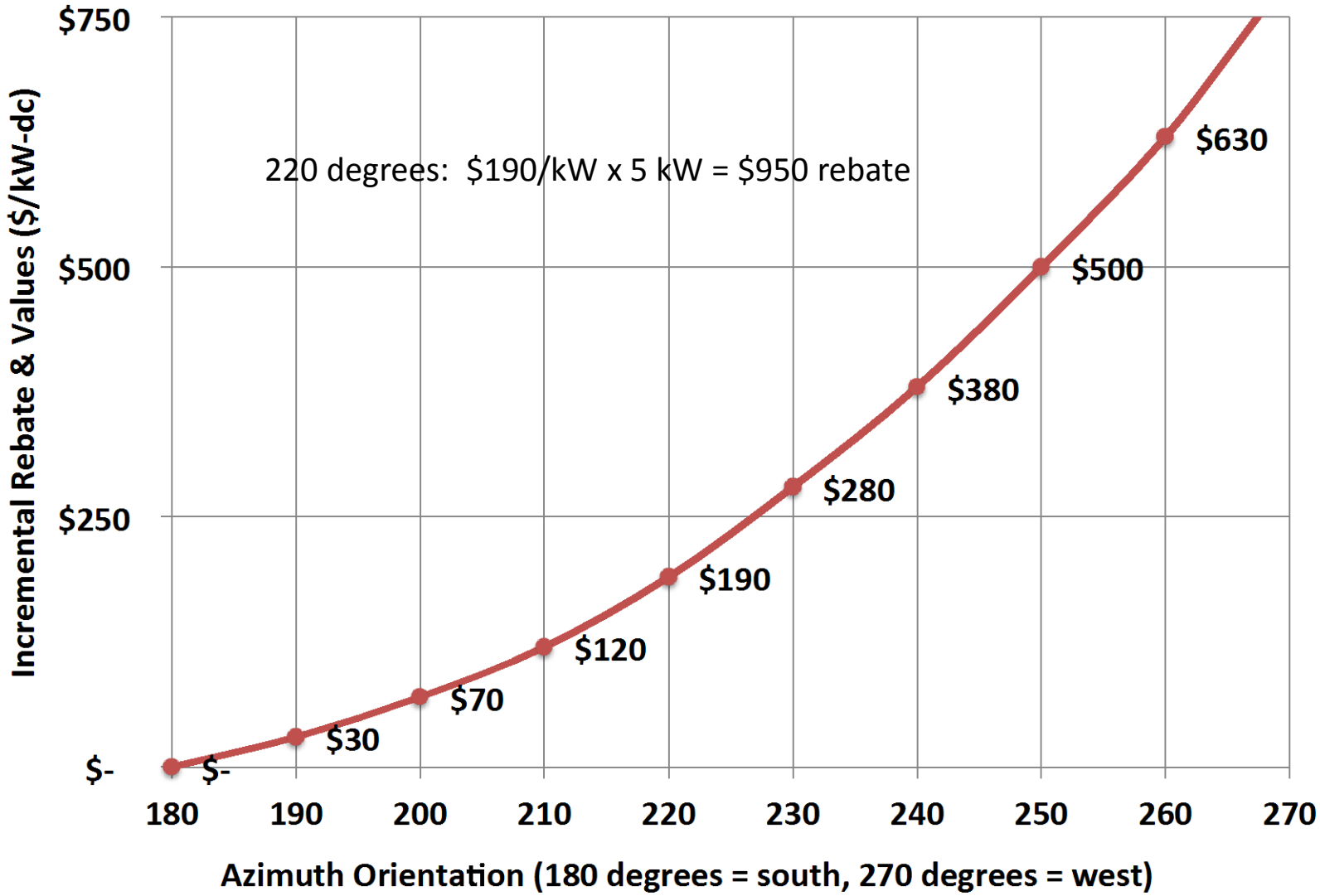

Figure 16: Incremental Costs and Benefits for Residential Fixed Arrays ($/kW-dc)

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For fixed solar arrays, the incremental rebates would be less than the incremental distribution value

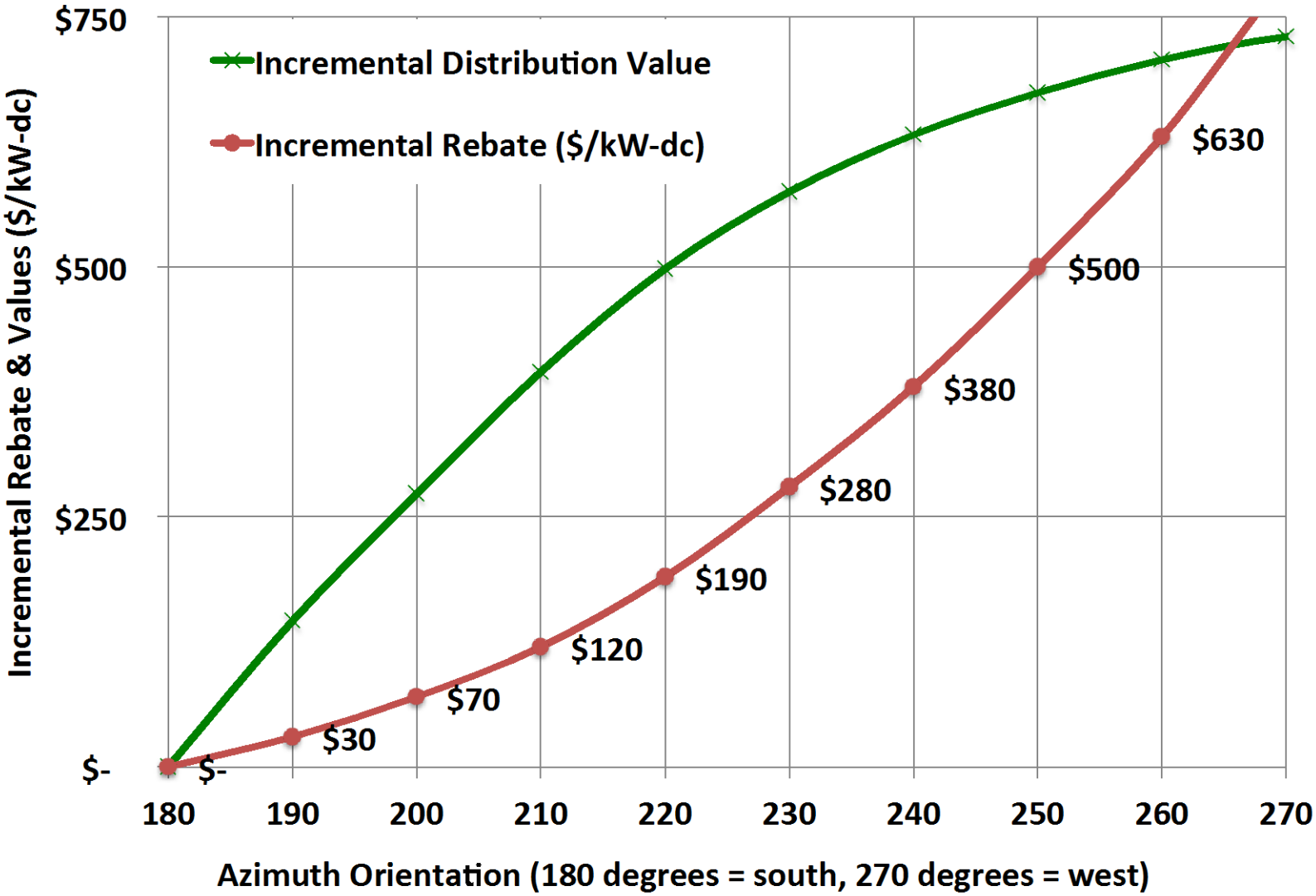

Figure 16: Incremental Costs and Benefits for Residential Fixed Arrays ($/kW-dc)

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RFP to seek bids for the incremental costs required to optimize Distribution Contribution

- Each proposal would consist of the $/kW cost bid, the solar configuration, the kW capacity and the total grant requested.
  - Selection could also be based in part on experience.
- The evaluation of bids would be based in part on a metric of the pre-calculated $/kW distribution deferral benefit for each solar configuration minus the $/kW incremental cost bid by the PV developer:

A Configuration / Azimuth	B DCP	C Distribution Value	D Bid Example ($/kW)	E Unit Score (C - D)	F kW (140 / B)	G Award (D x F)
2-axis	**61.2%**	**$ 1,140**	**$ 360**	**$ 780**	**232**	**$ 83,551**
1-axis	57.9%	$ 1,030	$ 330	$ 700	245	$ 80,997
2-axis	61.2%	$ 1,140	$ 450	$ 690	232	$ 104,439
240	51.5%	$ 826	$ 325	$ 501	276	$ 89,612
1-axis	57.9%	$ 1,030	$ 550	$ 480	245	$ 134,996
220	46.1%	$ 652	$ 200	$ 452	308	$ 61,605
240	51.5%	$ 826	$ 400	$ 426	276	$ 110,291
260	54.5%	$ 923	$ 500	$ 423	261	$ 130,275
200	37.1%	$ 360	$ 100	$ 260	383	$ 38,275

Figure 14: Potential Bids to Optimize Distribution Contribution

For solar fields, incremental rebates would be based on competitive bids

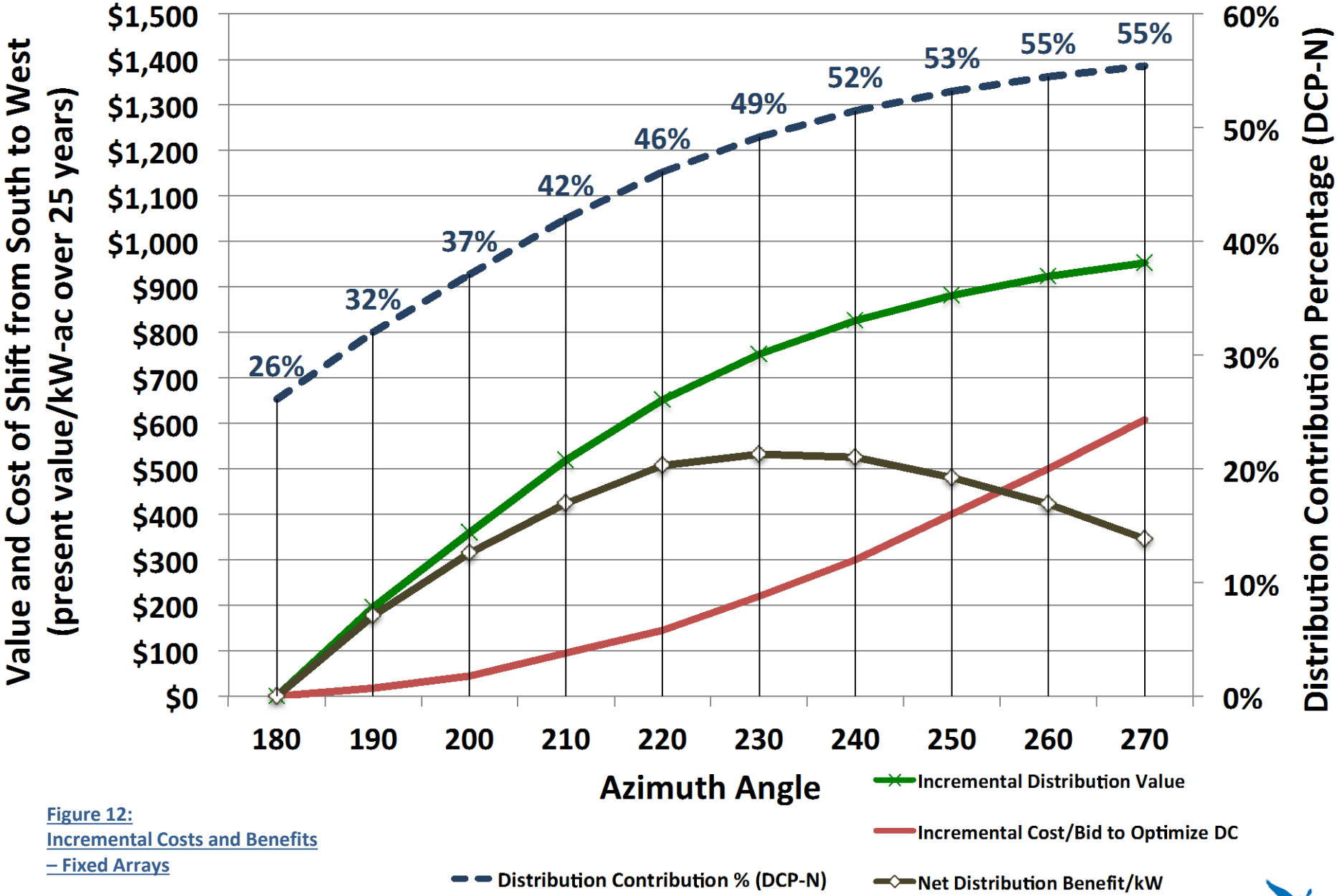

Figure 12:
Incremental Costs and Benefits
– Fixed Arrays

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For solar fields, incremental rebates would be based on competitive bids

A	B	C	D	E	F	G	H
Azimuth Orientation	Distribution Contribution (DCP-N)	Avoided Distribution $/kW	Incremental Distribution Value	Reduced Generation (kWh/year)	Incremental Cost/Bid to Optimize DC	Cost as % of Value (Col. F/D)	Net Distribution Benefit/kW
180	26%	$ 840	$ -	0	$0	0%	$ -
190	32%	$ 1,035	$ 195	9	$18	9%	$ 177
200	37%	$ 1,200	$ 360	23	$45	13%	$ 315
210	42%	$ 1,359	$ 519	48	$95	18%	$ 424
220	46%	$ 1,492	$ 652	74	$145	22%	$ 507
230	49%	$ 1,592	$ 752	112	$220	29%	$ 532
240	52%	$ 1,666	$ 826	153	$300	36%	$ 526

Figure 13: Incremental Costs and Benefits per kW-ac

Incremental economic value also includes generation capacity

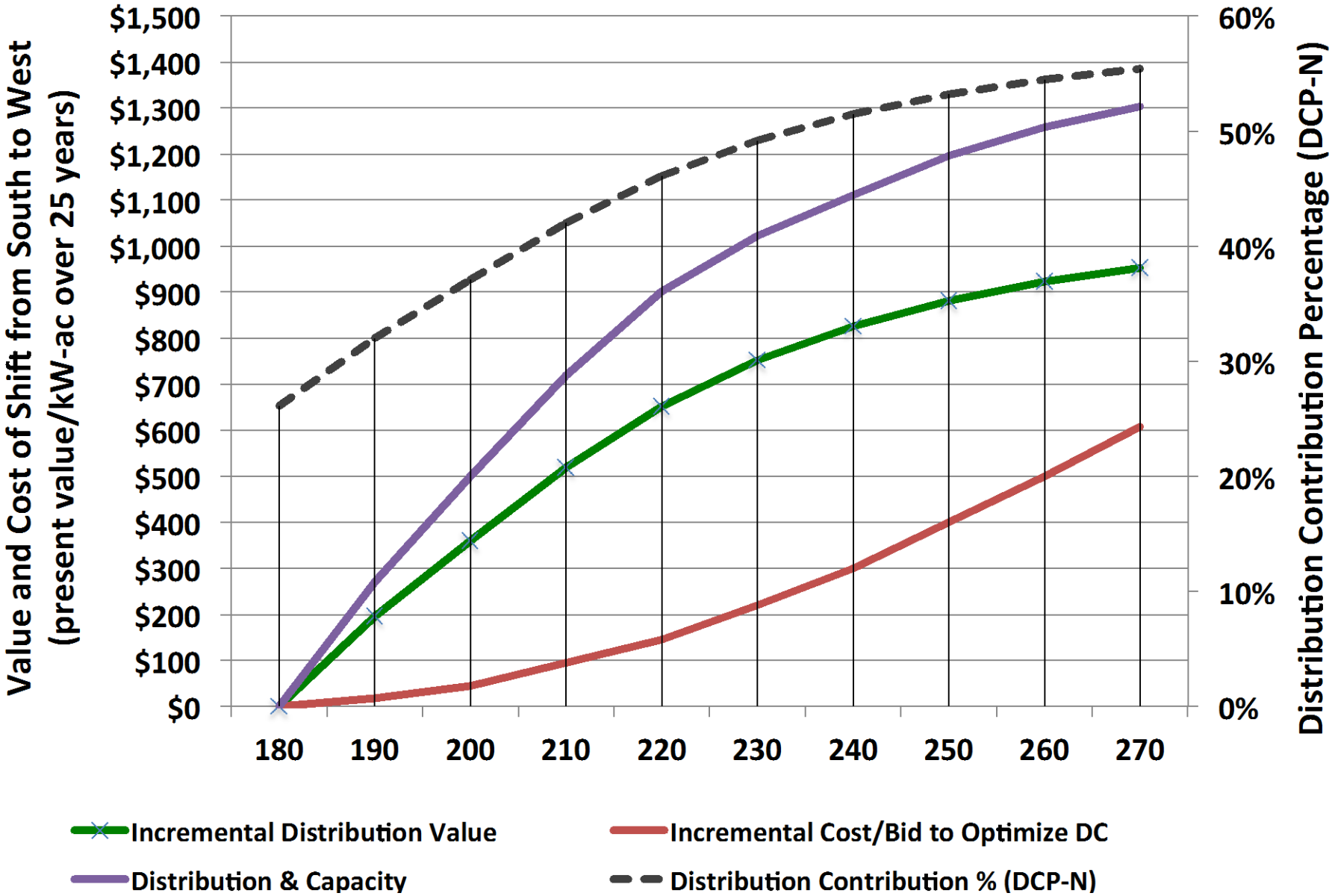

Figure 15: Adding Benefits of Generation Capacity – Fixed Arrays

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Schedule: complete 520 kW resource portfolio before summer 2016 peak load

Some of the solarize rooftop installations should be online before next summer, but the schedule below is more aspirational for the grid support field(s)

		Responsibility	1 July	2 Aug	3 Sep	4 Oct	5 Nov	6 Dec	7 Jan	8 Feb	9 Mar	10 Apr	11 May	12 Jun
Solarize Campaign:														
A	**Community Solar Planning**	State & Towns												
B	**Solar Coach Outreach**	State & Towns		Δ										
D	**Solarize RFP Release, Selection**	RI OER			Δ		Δ							
E	**Contracting & Installation**	Solarize Contractor												
Grid Support Solar Field(s):														
F	**SRP PV RFP Release, Selection**	RI OER/NG		Δ	Δ									
G	**Preparation for DG Enrollment**	PV Developers												
H	**DG Contract Open Enrollment**	National Grid				Δ	Δ							
I	**PV Financing & Construction**	PV Developers												Δ

Figure 17: Potential Schedule for SRP Solar Pilot

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Recap: SRP Solar Resource Portfolio to meet 250 kW goal

		1 Grid Support Solar Field(s)	2 Solarize Residential	3 Small Commercial	4 Total
1	Gross Capacity (kW)	280	160	80	520
2	Average Distribution Contribution Percentage (DCP)	50%	45%	45%	
3	Distribution Contribution (kW)	142	72	36	250
4	Portfolio Allocation	57%	29%	14%	100%

Figure 1: Solar / Storage Resource Portfolio

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Overview of 2015-2017 EE Plan

Presentation to the EERMC

July 17, 2014

Presentation Overview

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- 2015-2017 Plan Summary
- Savings Targets
- Themes and implementation strategies
- Shareholder Incentive
- Discount rate
- Electric and Gas Funding Plans

2015-2017 Plan Summary

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- Plan is consistent with legislative/regulatory requirements
  - Cost effective
  - Less expensive than supply
  - Meets approved savings targets
- Builds upon strengths while delivering new and innovative services for customers.
- Plan incorporates recommendations from the Collaborative and Council.

Overview of Approved Targets

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Electric Targets	2015	2016	2017	Total
% of 2012 Electric Sales	2.50%	2.55%	2.60%	**7.65%**
Electricity (Annual MWh)	193,603	197,475	201,347	**592,425**
Summer Demand (kW)	27,268	27,813	28,359	**83,440**
Winter Demand (kW)	27,658	28,211	28,764	**84,633**
Natural Gas Targets	**2015**	**2016**	**2017**	**Total**
% of 2012 Natural Gas Sales	1.00%	1.05%	1.10%	**3.2%**
Natural Gas (Annual MMBtu)	376,915	395,760	414,606	**1,187,281**

Electric Savings Targets

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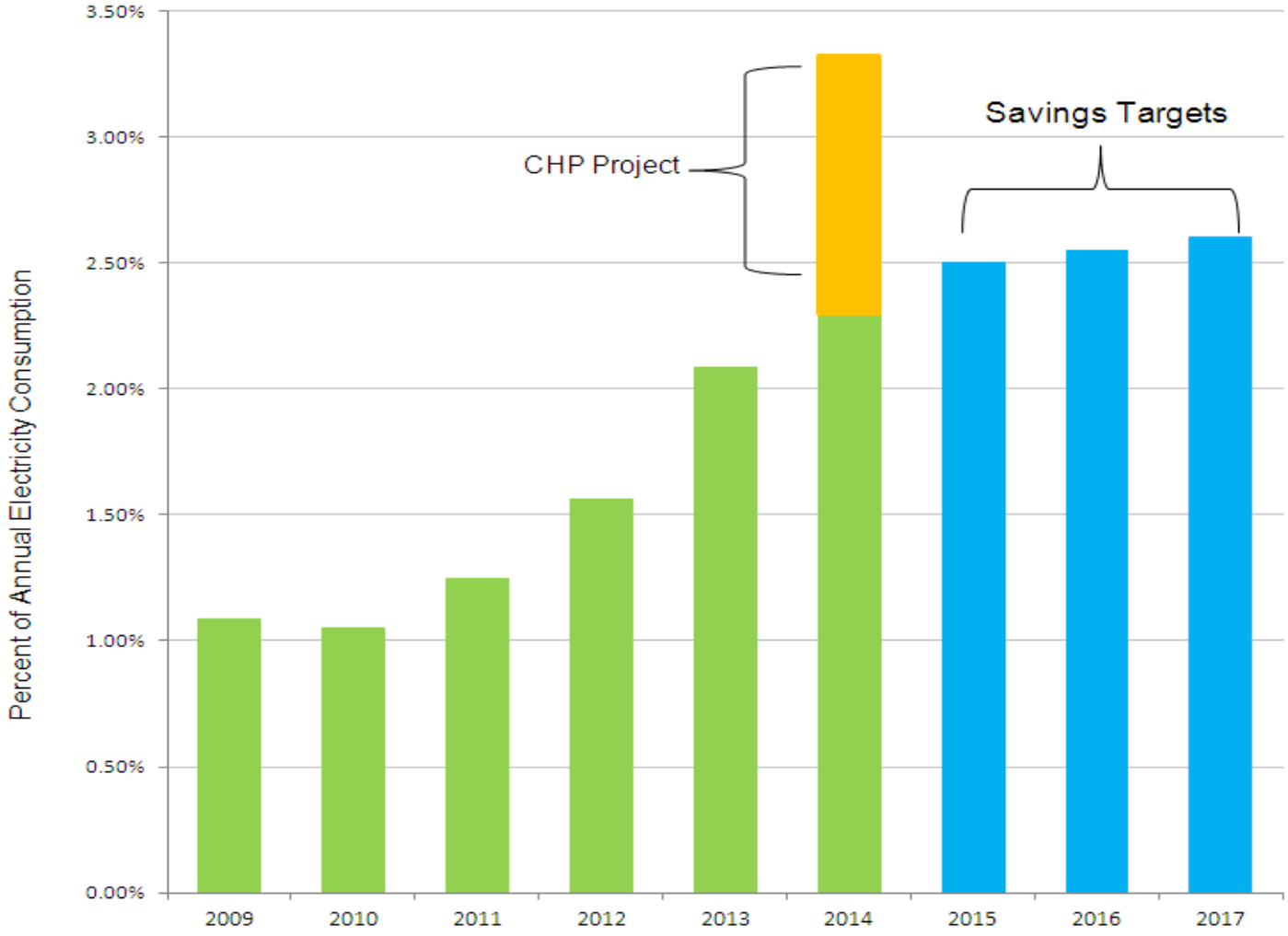

Demand Savings Targets

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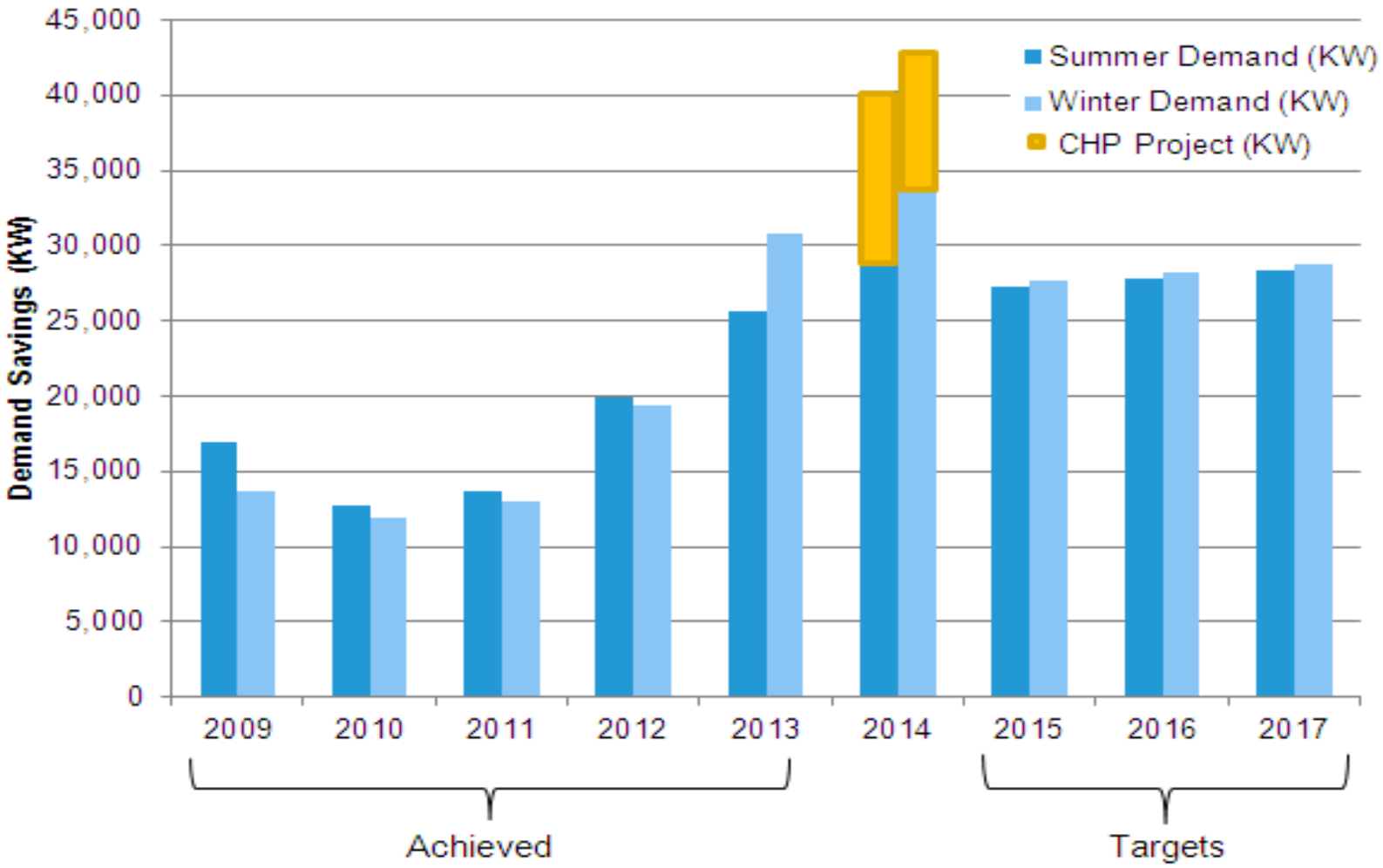

Natural Gas Savings Targets

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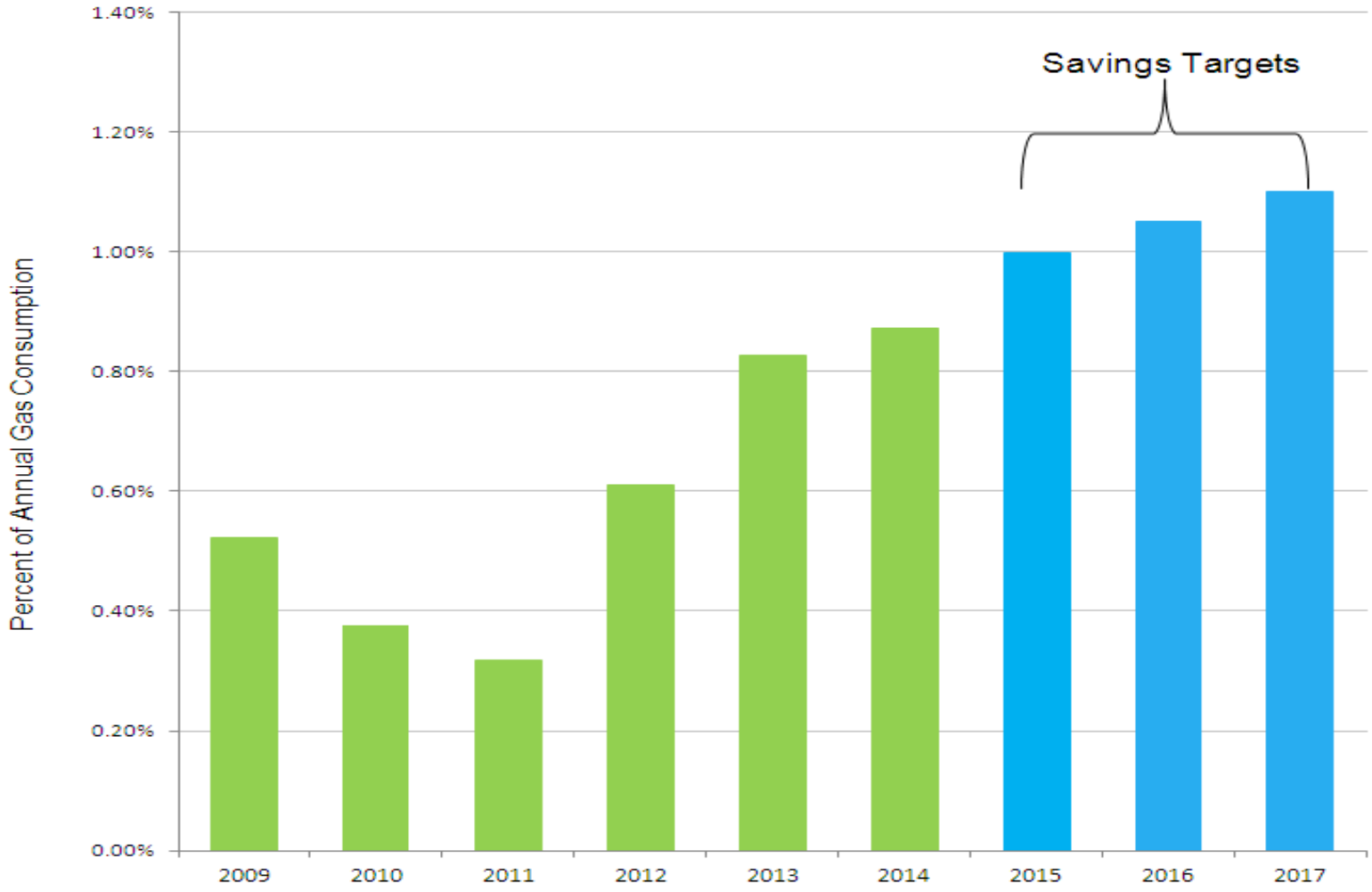

Themes and Strategies

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- Strategies focus around 4 themes:
  - Saving more with less
  - Embed energy efficiency in the communities and markets of Rhode Island
  - Promote innovation to capture untapped savings
  - Develop opportunities for system-level savings and integration

Themes and Strategies

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Saving more with less

- Stretch dollars through financing.
- Expand upstream and behavioral programs.
- Continue Codes and Standards efforts.
- Use data to lower marketing costs.

Themes and Strategies

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Embed EE in the communities and markets of RI

- Leverage cities, towns, and communities.
- Expand and create networks with RI energy stakeholders.
- Leverage existing contractor and retailer networks.
- Enhance current programs to increase participation and reach new markets.

Themes and Strategies

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Promote innovation to capture untapped savings

- Research new products, technology, and initiatives.
- Lay the foundation for Zero Energy Ready (ZER) buildings.
- Promoting the deployment of LED Street Lighting.
- Examine the potential for strategic electrification.

Themes and Strategies

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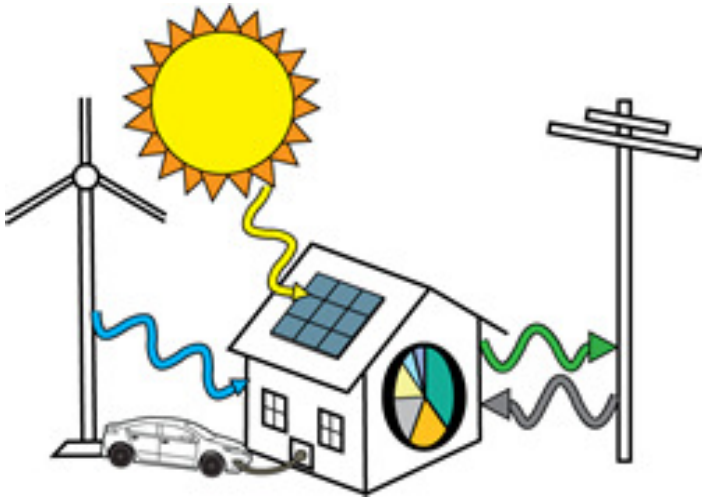
Develop opportunities for system-level savings and integration

- EE strategies include:
  - Promote CHP, integrate EE and RE, pilot behavioral demand response.
- Participate in Collaborative System Integration Working Group



Shareholder Incentive

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- Incentive mechanism will remain the same as the 2014 EE Program Plan except for a proposed performance metric to incent demand savings (kW).
- Target based-incentive rate split 70% kWh and 30% kW.
  - 3.5% of spending budget for achieving 100% of energy goals.
  - 1.5% of spending budget for meeting 100% of demand goals.
  - Does not increase overall incentive.
- Gas incentive rate remains at 5.0% of spending budget.

13

Discount Rate

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- Plan and the benefit-cost model are stated in present value terms.
- Discount rate equals the 12-month average of the historic yields from a twenty-year US Treasury note, using 2013 to determine the twelve-month average.
- Reflects revised Standards “a low-risk discount rate which would indicate that energy efficiency is a low-risk resource in terms of cost of capital risk, project risk, and portfolio risk”.
- The discount rate will be reviewed and updated for each EE Program Plan.

2015-2017 Electric Summary

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Electric Programs	2015	2016	2017
Annual MWh Savings	193,603	197,475	201,347
Lifetime MWh Savings	2,001,782	2,036,539	2,046,014
Savings as a Percent of 2012 sales	2.50%	2.55%	2.60%
Summer Peak kW Savings	33,427	34,075	34,350
Winter Peak kW Savings	35,549	36,910	37,027
Total Benefits	$293,953,410	$ 300,314,077	$304,677,734
Total Funding Required*	$ 87,307,644	$ 86,879,412	$ 86,913,184
Benefit Cost Ratio	2.67	2.74	2.77
TRC Cents per lifetime kWh	$ 0.055	$ 0.054	$ 0.054
Utility Cost per lifetime kWh	$ 0.044	$ 0.043	$ 0.042
EE Program Charge per kWh	$ 0.00995	$ 0.00987	$ 0.00865
Participants	TBD	TBD	TBD

*Total Funding Required includes implementation, evaluation, commitments, EERMC, and shareholder incentive; does not include any incremental funds for System Reliability Procurement

- Benefits will include potential future regulation of CO2 in second draft

2015-2017 Natural Gas Summary

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Natural Gas Programs	2015	2016	2017
Annual MMBtu Savings	376,915	395,760	414,606
Lifetime MMBtu Savings	4,963,980	5,237,133	5,535,318
Savings as a Percent of 2012 sales	1.00%	1.05%	1.10%
Total Benefits	$ 66,107,894	$ 70,016,848	$ 74,163,957
Total Funding Required*	$ 24,898,529	$ 25,419,525	$ 26,172,577
Benefit Cost Ratio	2.20	2.28	2.35
TRC Dollars per lifetime MMBtu	$ 6.05	$ 5.85	$ 5.70
Utility Cost per lifetime MMBtu	$ 4.92	$ 4.76	$ 4.64
Average EE Program Charge per Dth	$ 0.684	$ 0.630	$ 0.646
Participants	TBD	TBD	TBD

*Total Funding Required includes implementation, evaluation, commitments, EERMC, OER, and shareholder incentive.
**EE Program Charge will vary for the residential sector and C&I Sector in annual EE Program Plans.

- Discuss how to include potential future regulation of CO2 for gas in second draft