



MEETING MINUTES

Thursday, September 8, 2016 | 3:30 - 5:30 PM

Conference Room B, 2nd Floor, Department of Administration, One Capitol Hill, Providence, RI

Members in Attendance: Abigail Anthony, Bob Bacon, Joe Cirillo, Roberta Fagan, Carol Grant, Tom Magliocchetti, Michael McAteer, Shigeru Osada, Chris Powell, Betsy Stubblefield Loucks, Karen Verrengia, Diane Williamson

Members Absent: Anthony Hubbard, Jennifer Hutchinson

Others Present: Michael Baer, Brian Buckley, Vito Buonano, Priscilla De La Cruz, Lindsey Foley, Mike Guerard, Alex Hill, Alice Hourihan, Courtney Lane, Danny Musher, Jeremy Newberger, Scudder Parker, Matthew Ray, Ben Rivers, Laura Rodormer, Brigid Ryan, Paul Ryan, Rachel Sholly, Puja Vohra, Belinda Wong, Chon Meng Wong, Muxi Yang

1. Call to Order

Chairman Chris Powell called the meeting to order at 3:31 PM.

2. Approval of Meeting Minutes

Joe Cirillo made a motion to approve the August meeting minutes. Tom Magliocchetti seconded and all approved.

3. Executive Director Report

Commissioner Carol Grant reported that the Office of Energy Resources (OER) has been making great progress on the Governor's Lead By Example (LBE) Executive Order, which was issued last year. The first LBE annual progress report will be issued on October 1st. OER is also hosting a "Drive Electric" public outreach event on Saturday at Garden City.

4. Executive Committee Report

Chairman Powell reported that the Executive Committee discussed savings targets development and standards revision and the first draft of National Grid's 2017 Energy Efficiency Program Plan including key financing issues. Mike Guerard of the consultant team added that there has been good progress on the system reliability standards and the efficiency standards are the next area of focus. There will be some more substantive updates on both at the Council next meeting.

5. Energy Efficiency Programs and System Reliability Procurement Issues

a) Presentation and Discussion of Draft 2017 Energy Efficiency Program Plan

Scudder Parker reported that the consultant team has provided detailed comments and edits on all components of the 2017 Energy Efficiency Program Plan draft and offered to share them with Council members. Representatives from National Grid provided Council members with an overview of the first draft content and key numbers (*see attached*). Shigeru Osada asked how capacity price is forecasted. Jeremy Newberger of National Grid explained that the capacity price comes from an avoided cost study,

which includes a forecast of energy and capacity avoided costs. All the program administrators in New England get together to sponsor this study every three years. The consultants model the entire electric and gas system for the region and forecast capacity additions and retirements for generation. Mr. Parker added that the consultant team also reviews and confirms the cost-effectiveness of each Plan.

Regarding the income eligible heating program, Betsy Stubblefield Loucks asked what percentage of the income eligible population is expected to be covered by the 30 heating system allocation. Matthew Ray of National Grid said that this equates to about \$1 million and the emphasis will be on commercial multifamily systems which should reach more people. Mr. Guerard asked for clarification on what the \$500,000 delivered fuels allocation would support. Mr. Ray listed air sealing, weatherization, thermostats, aerators and pipe wrap, but not tune-ups or heating equipment.

Abigail Anthony asked for clarification on the calculation of the 4% shareholder incentive for delivered fuels. Mr. Parker noted that the consultant team would like to take a look at this. Mr. Guerard added that there is no fundamental change in what National Grid or the vendor is expected to do, so there may not be justification for a new shareholder incentive. Mr. Newberger said that Grid would be accepting a target for delivered fuels savings. Ms. Anthony asked what the Company hopes would change as a result of the incentive. Mr. Newberger replied that, given that demand for delivered fuels efficiency services is anticipated to increase, it would be good to see how a target and incentive would work toward achieving savings. Mr. Parker said that an overall benefits target that included delivered fuels could be an alternative option. Ms. Anthony asked the consultant team to define how the performance incentive fits into the EERMC's long-term priorities.

Chairman Powell expressed concern about the lifetime cost/MMBtu for gas programs being high and asked if there is a risk of hitting the cost-effectiveness threshold. Ms. Lane said that Grid shares that concern and explained that recent EnergyWise evaluation results have lowered the amount of savings that can be claimed for each measure, so it costs more to get the same savings. To address this, the Plan shifts more of the savings goal to C&I which is able to obtain savings more cost-effectively. Mr. Osada asked, since the cost of electric supply is less than the cost of the program, if there is data on how many customers have already taken advantage of low-hanging fruit in the large C&I sector. Ms. Anthony felt that Mr. Osada's suggestion would lead to higher costs over time. Mr. Parker reminded the Council that success in this field means that there are less savings for the Company to claim and deeper savings get more expensive.

EERMC finance consultant, Alex Hill, provided an overview and recommendation related to the Plan's finance proposal (*see attached*). Chairman Powell asked how the \$5 million system benefit charge (SBC) allocation to the Rhode Island Infrastructure Bank (RIIB) would revolve to fund future loans. Mr. Hill said that RIIB's plan for the next round of EBF financing is to use the ratepayer funds to create a first loss position allocation of bonds, which would be attached to a set of privately sold bonds, and with time those first loss position bonds the bank holds for itself would become freed up as the overall investments are repaid by the borrower, so it does operate as a revolving loan fund. These are up to 15-year terms though, so it takes longer for the funds to come back than with National Grid's on-bill repayment program. Chairman Powell expressed concerns about RIIB needing ongoing fund injections and the impact on the SBC. Mr. Hill said that the long-term goal is for the financing programs to begin to fund themselves. Michael McAteer emphasized the importance of evaluating the value and effectiveness of financing and how it can be applied to different markets in the same way that incentives are evaluated.

b) Presentation and Discussion of Draft 2017 System Reliability Plan

Lindsay Foley of National Grid thanked the Collaborative members who provided comments on the first draft System Reliability Plan. She reviewed the first draft (*see attached*).

6. Council Business

a) Vote on Consultant Team Budget Request

Chairman Powell said that the consultant team has requested a supplemental budget of \$55,000 for 300 hours of additional work in 2016 (*see attached*). Ms. Sholly reported that the Council has approximately \$219,000 in unallocated funds. **Karen Verrengia made a motion to approve the consultant team's request. Joe Cirillo seconded and all approved.**

b) Member Retreat Planning and Meeting Calendar

Ms. Stubblefield Loucks suggested holding both the member retreat and a short business meeting on the same day in October. The Council agreed and directed Ms. Sholly to poll members to find the best date.

7. Public Comment

Mr. Newberger informed the Council that he has accepted a new position at National Grid, which will essentially be the Michael McAteer of Massachusetts. He will be continuing his current role through the end of September. He also expressed gratitude for the Council's work and contributions to Rhode Island's leadership in energy efficiency.

8. Adjournment

Ms. Verrengia made a motion to adjourn the meeting. Mr. Bacon seconded and all approved. The meeting was adjourned at 5:42 PM.

2017 EE Annual Plan First Draft

nationalgrid



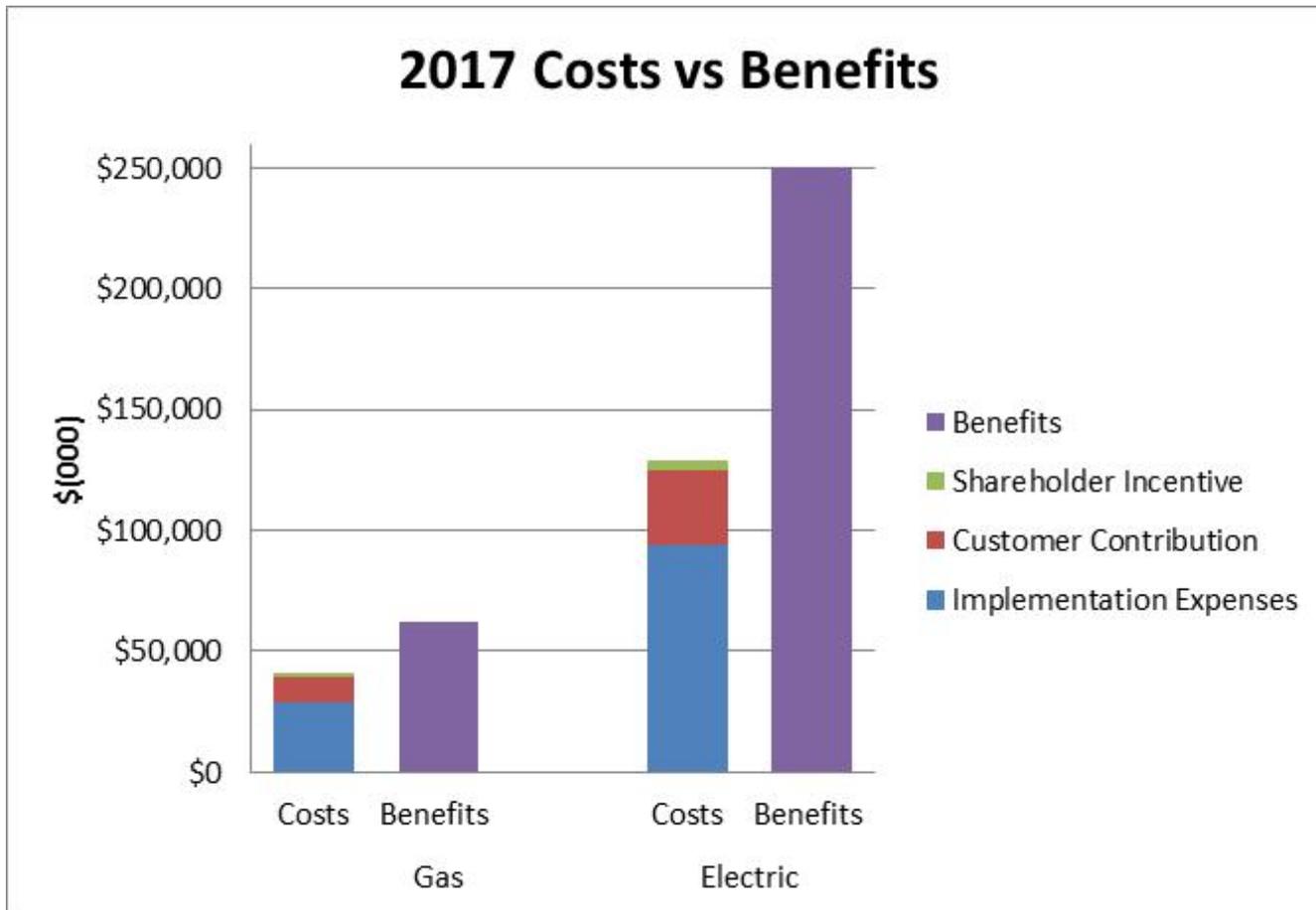
RI EERMC

September 8, 2016

- I. High level overview
- II. Residential topics
- III. Commercial topics
- IV. Finance
- V. Main Text Highlights
- VI. Electric SBC Charge & Numbers
- VII. SBC Charge & Numbers
- VIII. Feedback and next steps

- 2017 Plan is consistent with the savings targets of 3 Year Plan (3YP) and the Least Cost Procurement law
 - Reduce electric sales 2.60% and gas sales 1.10% from 2012 base load
 - Cost-effective and less expensive than supply
- Savings targets will generate \$312+ million in direct benefits over life of projects
 - Additional broader GSP benefits of \$447 million from respending and job creation
- Continues similar customer services as previous years, with some enhancements

2017 Plan will continue to offer cost-effective benefits to RI electric and gas customers.



- Program lineup
 - Single Family - Income Eligible Services
 - Income Eligible Multifamily
 - Residential New Construction
 - ENERGY STAR® HVAC
 - EnergyWise
 - EnergyWise Multifamily
 - ENERGY STAR® Lighting (Electric Only)
 - Residential Consumer Products (Electric Only)
 - Home Energy Reports
 - Energy Efficiency Educational Programs (Electric Only)
 - Residential Demonstration and R&D
 - Community Based Initiatives - Residential

- Multifamily
 - Monitoring and Optimization, Heating Systems for Income Eligible, and Delivered Fuels
- Pilots
 - Battery Storage, Wi-Fi appliances, Water Heater Behavioral Controls, Lighting Controls
- Residential New Construction
 - Zero Energy Challenge
- Residential Lighting
- Electronically Commutated Motors (ECM)

- 2016 weatherization incentives spend anticipated to be \$1.3 million (RGGI funded) with an additional \$150,000 used for deliverable fuel Heat Loan participants
- 2017 plan allocates \$1.3 million for oil weatherization and Heat Loan from system benefit charge funds
 - Limits ability to increase weatherization funding to be aligned with other fuels
 - Opportunities for other stakeholders to fund oil weatherization and systems
- 2017 proposal adds \$0.5 million for weatherization services to multifamily customers.
- Income Eligible weatherization and emergency heating system replacement funding will continue in 2017 with over \$3.2 million. Funding is leveraged with Weatherization Assistance Program funds from the Department of Energy

- Program lineup
 - Large Commercial New Construction
 - Large Commercial Retrofit
 - Small Business Direct Install
 - Community Based Initiatives - C&I
 - Commercial Demonstration and R&D
 - Commercial & Industrial Multifamily (Gas Only)

- Continues with 2015-16 successful strategies
- Innovation is a hallmark of 2017
 - Demo projects include: Zero Energy, Demand Response, Lighting, Industrial Systems
- Enhancements:
 - Go-to market strategies for restaurants, real estate, nursing homes
 - Retro-commissioning
 - Additional lighting initiatives
 - Additional Upstream offerings – Kitchen, Upgraded HVAC
 - C-PACE integration with our programs and sales process
 - LED street lighting incentives for company-owned, if tariff is approved

- Modifications to shareholder incentive
 - Introducing a new performance incentive for Deliverable Fuels, with a potential value of \$250k.
 - Supports growing importance of delivered fuels savings, and a desire to dedicate appropriate attention to achieving delivered fuels savings through electric energy efficiency program funds in 2017; sets stage for future enlargement of delivered fuel implementation.
 - Proposal is to establish an oil savings target in gallons or MMBtu, and an “oil spending budget” which is a component of the electric spending budget
 - The Company will receive 4% of the oil spending budget as an incentive for achieving 100% of the oil savings target. The incentive curve will be the same as it is for electric or gas energy savings.
 - Finance funds will be included in the calculation of the spending budget since they are leading to energy savings.

- Updated electric sales forecast
- Incorporating feedback and comments on programs
- Updated finance and budget projections
- Updated fund balance projections
- Ongoing QA/QC and TRM & BC model consultant review
- Outline for bill impacts analysis

Plan Overview



Table 1: 2017 Energy Efficiency Program Plan Summary

Electric Programs by Sector	Implementation Spending in 2017 (\$000)	Customer Contribution (\$000)	Annual MWh Savings	Annual kW Savings	Lifetime MWh Savings	Total Benefits (\$000)	TRC B/C Ratio	TRC ¢/lifetime kWh	Participants
Non-Income Eligible Residential	\$32,133.8	\$9,584.3	89,890	10,214	628,369	\$75,837.5	1.75	6.6	720,255
Income Eligible Residential	\$11,975.6	\$0.0	7,520	820	79,081	\$37,452.9	2.98	15.1	5,519
Commercial and Industrial	\$45,331.5	\$21,712.4	103,937	17,500	1,291,781	\$137,098.4	1.98	5.2	3,296
Regulatory	\$1,703.8								
RI Infrastructure Bank	\$2,400.0								
Subtotal	\$93,544.8	\$31,296.7	201,347	28,534	1,999,231	\$250,388.9	1.94	6.2	729,070
Gas Programs by Sector	Implementation Spending in 2017 (\$000)	Customer Contribution (\$000)	Annual MMBtu Savings		Lifetime MMBtu Savings	Total Benefits (\$000)	TRC B/C Ratio	TRC \$/lifetime MMBtu	Participants
Non-Income Eligible Residential	\$12,275.7	\$7,573.8	135,768		1,562,162	\$24,477.9	1.20	12.71	140,687
Income Eligible Residential	\$5,988.7	\$0.0	28,635		535,638	\$10,046.2	1.68	11.18	3,299
Commercial and Industrial	\$9,526.8	\$3,288.5	250,203		2,863,154	\$27,742.5	2.09	4.48	1,189
Regulatory	\$610.9								
RI Infrastructure Bank	\$100.0								
Subtotal	\$28,502.1	\$10,862.3	414,606		4,960,953	\$62,266.6	1.53	7.93	145,174
Total for Plan	\$122,046.9	\$42,159.0				\$312,655.5	1.84		874,244

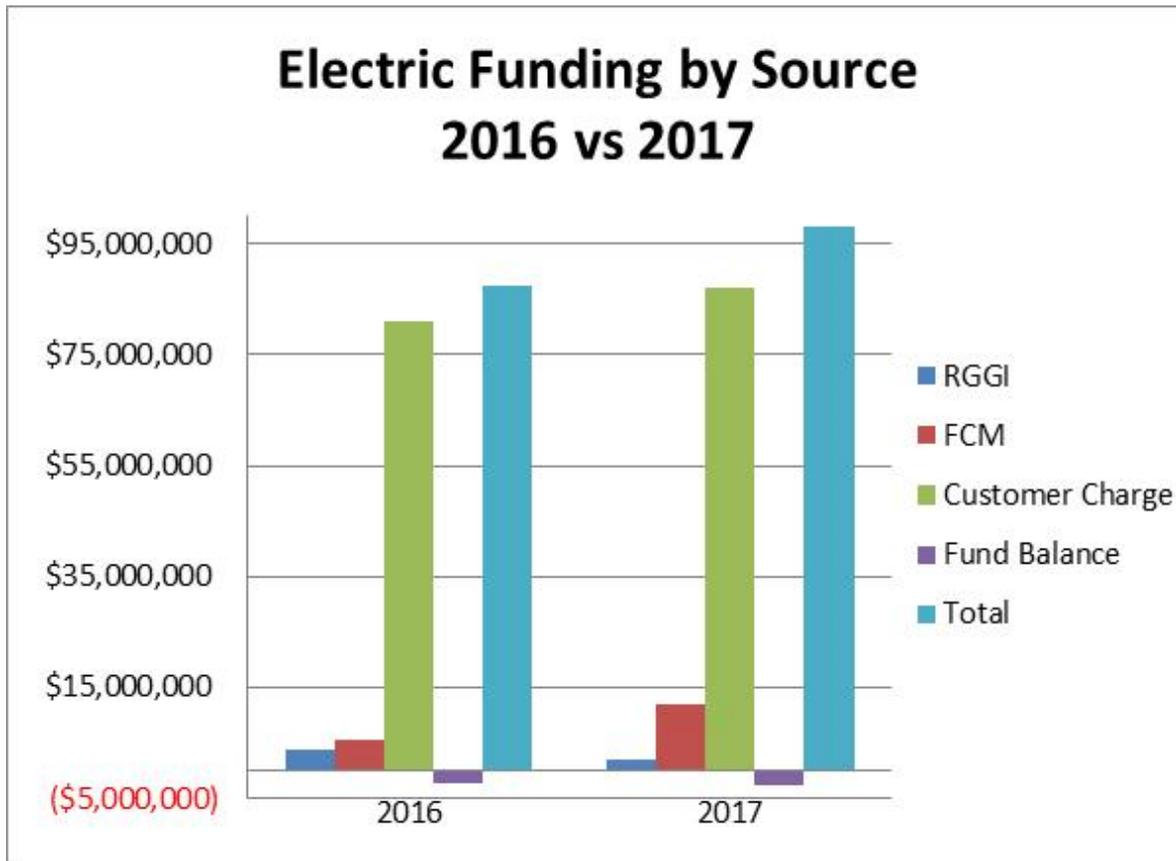
(1) Implementation spending does not include customer contributions, shareholder incentive, or commitments.

(2) Regulatory Includes contributions to OER and EERMC

Electric SBC Charge



	2016 Actual	2017 3YP	2017 Annual Plan Draft
EE Program Charge per kWh	\$ 0.01077	\$ 0.00941	\$ 0.01153



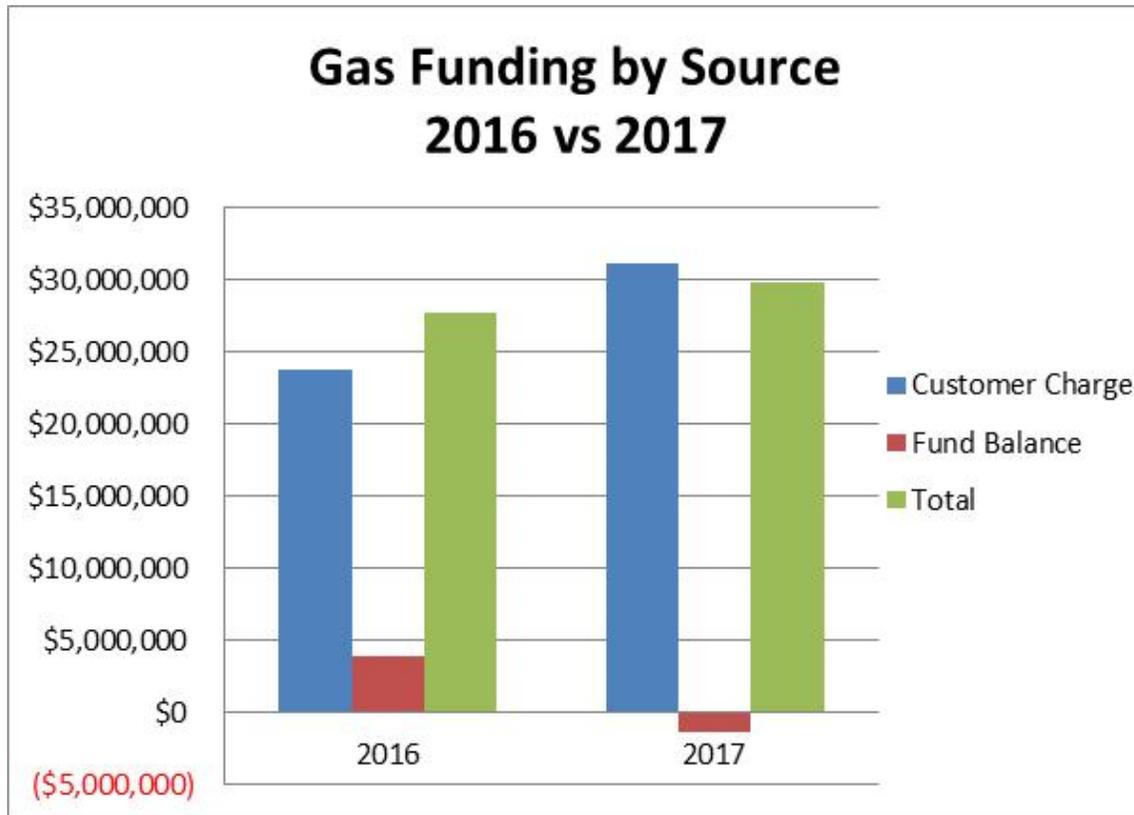
- Charge differs due to lower actual sales, lower projected sales than in 3YP
- Negative Fund Balance
- Less RGGI Funding than in 3YP
- Full support of Oil Wx
- Higher cost of energy saved than 3YP

- Savings:
 - Company increased savings in the C&I sector and Income Eligible sector due to lower savings in the EnergyWise Single Family and Multi-Family programs as a result of evaluations.
- Costs:
 - The budget increases relative to 2016 due to higher costs in Residential Lighting of LEDs compared to CFLs, added costs from RIIB and Deliverable Fuels, increases in demonstrations and OBR.
 - The electric charge is increasing due to the budget increases described above, a negative fund balance due to lower than anticipated sales, and decreased funding from RGGI compared to 2016.
- Benefits
 - Lifetime savings increase by 11% compared to 2016 due to more C&I savings
 - Benefits increase by 25% compared to 2016 due to more C&I savings, increased non-energy impacts (NEIs) and oil savings

Gas SBC Charge

EE Program Charge per Dth	2016 Actual	2017 3YP	2017 Annual Plan Draft
C&I	\$ 0.487	\$ 0.629	\$ 0.711
Residential	\$ 0.748	\$ 0.768	\$ 0.910

- Charge differs due to lower actual sales, lower projected sales than in 3YP
- Higher cost of saved energy than 3YP
- Projected 2016 YE Fund Balance is negative due to a warm winter in 2015/2016 leading to lower than projected gas sales
- Reconciliation works both ways – 2016 SBC benefited from a positive fund balance



- Savings
 - Company increased savings in the C&I sector and Income Eligible Single Family due to lower savings in the EnergyWise Single Family and Multi-Family programs as a result of evaluations.
 - Lifetime savings increasing over 2016 and 3YP due to more C&I savings.
- Costs
 - The Company worked hard to keep budgets low as possible given these obstacles. As a whole, Gas portfolio savings increase by 5% over 2016 and the budget increases by 8%.
 - Gas charge increasing due to a negative fund balance of \$1.5M which is due to an abnormally warm winter resulting in lower gas sales and EE collections.
- Benefits
 - Increase over 2016
 - Lower than 3-year plan due to lower commodity prices from updated avoided cost study.

Comparison to 3 Year Plan Illustration

Electric Programs	2017 3 Year Plan	2017 Annual Plan	% Change
Annual MWh Savings	201,347	201,347	0%
Lifetime MWh Savings	2,164,927	1,999,231	-8%
Annual Peak kW Savings	32,181	28,534	-13%
Total Benefits	\$ 316,528,156	\$ 250,388,885	-26%
Total Spending	\$ 90,867,248	\$ 98,268,302	8%
Benefit Cost Ratio	2.76	1.94	-43%
TRC Dollars per lifetime kWh	\$ 0.053	\$ 0.062	15%
EE Program Charge per kWh	\$ 0.00941	\$ 0.01153	18%

Gas Programs	2017 3 Year Plan	2017 Annual Plan	% Change
Annual MMBtu Savings	414,606	414,606	0%
Lifetime MMBtu Savings	4,536,303	4,960,953	9%
TRC \$/Lifetime MMBtu	\$ 7.28	\$ 7.93	8%
Total Benefits	\$ 67,758,168	\$ 62,266,566	-9%
Total Spending	\$ 27,388,832	\$ 29,891,661	8%
Benefit Cost Ratio	2.05	1.53	-34%
C&I EE Program Charge per Dth	\$ 0.629	\$ 0.711	12%
Residential EE Program Charge per Dth	\$ 0.768	\$ 0.910	16%

- 3YP illustration filed in 2014
- Savings and spending illustrations updated based on evaluation results, implementation and actuals.
- EnergyWise evaluation results and EISA Lighting Standards have large impact
- Avoided costs updated with the 2015 study results

- Finance is gaining more popularity as a mechanism for incenting investment in energy efficiency
- Several options will soon exist for RI customers
- Each finance option reaches a different market segment, enabling a mix of customers to participate.

Finance Option	Market Sector Served	Eligible Improvements
National Grid LC&I OBR	Large Commercial & Industrial	EE
National Grid SBS OBR	Small Business	EE
RIIB – EBF	Municipal and quasi-governmental	EE and RE
C-PACE	Commercial & Industrial	EE, RE, water, roofs, asbestos, lead

Success of On-Bill Repayment



- National Grid LC&I OBR Program long track record of proven success.
 - Since 2012, OBR has served 372 applicants with \$17.4M in finance that incented over 502,000 MWh of lifetime savings.
- OBR remains one of the most cost-effective use of ratepayer dollars to serve all C&I customer segments.

	SBC Dollars Lent for Finance/OBR	Gross Annual MWh	Finance \$ per Annual kWh Savings
Grid 2014	\$3,869,215	10,878	\$0.36
Grid 2015	\$4,930,123	16,691	\$0.30
Grid Projected YE 2016	\$6,403,754	18,490	\$0.35
RIIB Round 1	\$1,870,447	5,321	\$0.35
RIIB Round 2	\$5,000,000	11,976	\$0.42

2017 Finance Budget



Revolving Loan Fund	2017 Fund Injection	2017 Projected Lending	Annual Net Savings Enabled (MWh or Therms)	Lifetime Net Savings Enabled (MWh or Therms)
LC&I Electric	\$ 1,500,000	\$ 7,000,000	15,500	183,570
Small C&I Electric	\$ 300,000	\$ 4,000,000	12,000	145,000
LC&I Gas	\$ 500,000	\$ 1,000,000	548,000	7,528,000

Notes: 2017 Lending will be assessed and budgeted at the beginning of 2017, after year-end actuals; Annual Net Savings projected based on 2016 paid and committed projects; Small C&I Lending includes all installments types

- EE Plan proposes to optimize finance through OBR, RIIB-EBF and C-PACE in 2017 while long-term strategy is developed. Proposed injection to OBR modified from 1st draft.
- Additional OBR funds needed in 2017 as budget pressures may limit future fund injections to meet anticipated demand – including RI state Strategic Energy Management Plan (SEMP) - and track record of other vehicles is still being established.
 - Future budget pressures include: \$5M to RIIB each year; oil funding; higher savings goals.
- Company plans to support RIIB request of \$5M in funding in 2017.
 - Have begun to develop framework for mutual expectations about savings, delivery of results, timelines, customer experience and transparency.
 - Framework critical for tracking impact of ratepayer dollars and allowing Company the certainty it needs to create a plan to meet savings goals in 2017 and beyond.

- Important Dates
 - Sept. 8th – EERMC meeting
 - Sept. 19th – Second and final draft circulated
 - Sept. 21st – Collaborative meeting
 - Sept. 29th – EERMC meeting and vote
 - Sept. 30th – Collaborative call to review EERMC vote
 - October 7th – Final version circulated for signature
 - October 17th – Plan filed with PUC
- Discuss Next Steps

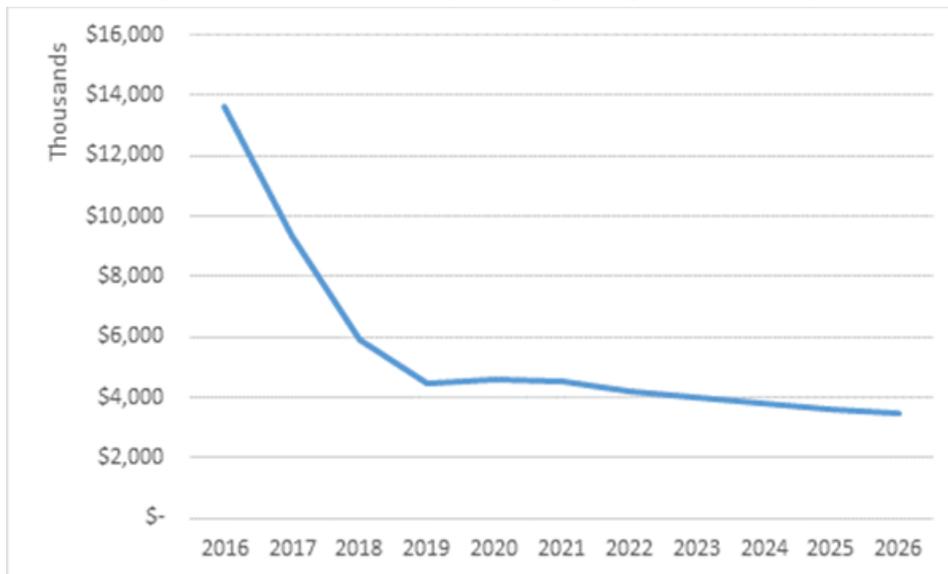
National Grid 2017 EE Plan Finance Strategy

- Various finance mechanisms exist in the state and each serves a different market segment, enabling a mix of customers to participate. With high demand for finance it's important to ensure the long-term stability of all finance mechanisms.

Finance Option	Market Sector Served	Eligible Improvements
National Grid LC&I OBR	Large Commercial & Industrial	EE
National Grid SBS OBR	Small Business	EE
RIIB – EBF	Municipal and quasi-governmental	EE and RE
C-PACE	Commercial & Industrial	EE, RE, water, roofs, asbestos, lead

- National Grid proposes to inject a small portion of the total electric portfolio budget into its Large Commercial & Industrial Loan Fund and Small Business Loan Fund.
 - Large C&I Injection = \$1.5M and Small C&I Injection = \$300K (1.9% of total budget)
 - RIIB = \$5M
 - Total Electric Budget = \$93.5M
- The Company forecasts increasing demand of \$9M to \$13M per year in new Large C&I Loans
 - The Company anticipates \$3-5M per year in loan demand for RI State Strategic Energy Management Plan (SEMP) projects and an additional demand of \$6-8M for non-SEMP C&I Customers annually over the next several years.
 - This is an increase over the \$7M per year used in the Dunskey analysis.
- Budget pressures in 2018 and 2019 will likely limit the ability of the Company to inject needed new funding into the loan fund if no funds added in 2017. Such pressures include:
 - \$5M to RIIB in 2018 and 2019
 - Funding for Oil EE to make up for no RGGI or other state funds
 - Cost of savings for savings targets for 2018-2020
- Draft findings from the Cadmus evaluation of National Grid's Large C&I Loan Fund conclude that the loan fund requires substantial future allocations to the fund to fulfill its potential for increased participation.
 - Cadmus recommends establishing a formal fund injection schedule to provide program managers with more certainty to grow participation and market the fund to more customers. Funding uncertainty has held back participation levels.
 - A fund injection in 2017 would fall within this recommendation.

- The Large C&I Loan Fund is critical to obtaining participation. The Cadmus evaluation draft findings show that 78% of participants would not have completed the same project scope if it weren't for financing.
- The cash flow graph from the Cadmus Draft evaluation indicates that with no new funds injected into the loan fund, and \$9M in loans being lent out in future years (which we anticipate with growth of state projects and savings targets), the loan fund will dip below \$6M in 2018 and could not meet customer demand. In order to keep level participation and maintain the fund, the loan fund will need an injection of \$5M in 2018 to maintain stable participation rates.
 - With other 2018 budget pressures impacting the EE Charge, we cannot count on a request for an injection of \$5M in 2018 to be fully supported.
 - Modest fund injection in 2017 will help manage long term viability of OBR loan fund.





MEMO ON PROPOSED FINANCING PROGRAM ALLOCATIONS

September 2, 2016

PROPOSED 2017 FINANCING ALLOCATIONS: CONTEXT

The Rhode Island Draft Energy Efficiency (EE) Program Plan for 2017¹ proposes ratepayer fund allocations to support and expand financing program revolving funds. This includes allocations to the National Grid On-Bill Repayment (OBR) programs, that are each resourced from a dedicated revolving fund to offer short-term, 0% interest financing for electricity and gas savings in Large Commercial and Industrial (LCI) facilities, electricity savings in Small Businesses (SB), and electricity savings in public buildings. It also includes an allocation to support the Rhode Island Infrastructure Bank's (RIIB's) Efficient Building Fund (EBF) which provides long-term financing (up to 15 years) to support electricity, gas, and delivered fuel savings in public buildings (municipal and quasi-governmental facilities).

The analysis below assesses each of the proposed allocations laid out in the Draft 2017 EE Plan, considering the needs in each funds' target sector, the new savings that each allocation would support in 2017, the costs and benefits of the financing offered, and finally the longer term perspective on each fund.

While this memo considers the proposed allocations for both OBR and EBF, it is important to consider that:

- 1) Each financing program services a different market segment, and;
- 2) The OBR and EBF are structurally different and target different energy saving opportunities (one offering short-term loans, the other offering long-term financing).

Thus these funds should not be viewed as competing programs, but instead each plays a complementary role in supporting EE savings within its own target market sector, working, for the most part, in conjunction with National Grid's existing incentive programs.

¹ The Draft plan was released on August 17, 2016, hereinafter referred to as the 2017 EE Plan

NATIONAL GRID OBR REVOLVING FUNDS

National Grid has included the following allocations in the Draft 2017 EE plan:

- LCI Electric OBR Revolving Fund New Allocations: \$3.5M
- SB Electric OBR Revolving Fund New Allocations: \$0.5M
- LCI Gas OBR Revolving Fund New Allocations: \$0.5M

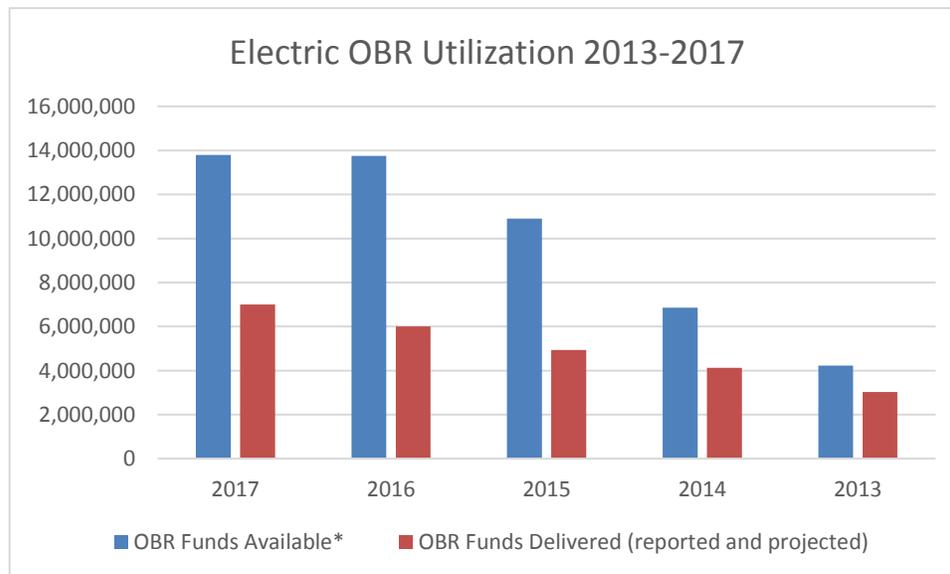
Additionally, the 2017 EE Plan indicates a budget of \$300,000 for the residential HEAT loan program.

ASSESSING THE NEEDS IN 2017

Large C&I - Electric

The Draft 2017 EE Plan indicates (table E-10) that at the start of 2017 there will be a balance of \$9,783,753 (line 5) in the LCI electricity OBR revolving fund, and that there is a projected intake during 2017 of \$ 4,015,606 (line 8) from repayment of past loans. Thus the OBR funds available to support electric savings will be \$13,799,413 for 2017 and early 2018.

National Grid has communicated that they predict a demand of \$7,000,000 of loans from the electricity OBR fund in 2017, with a further \$2,000,000 to be committed for projects carried out in early 2018 (\$9M in total). From National Grid's reported and projected numbers, it appears that the OBR revolving fund currently contains sufficient funds to cover the OBR needs in 2017 and early 2018.

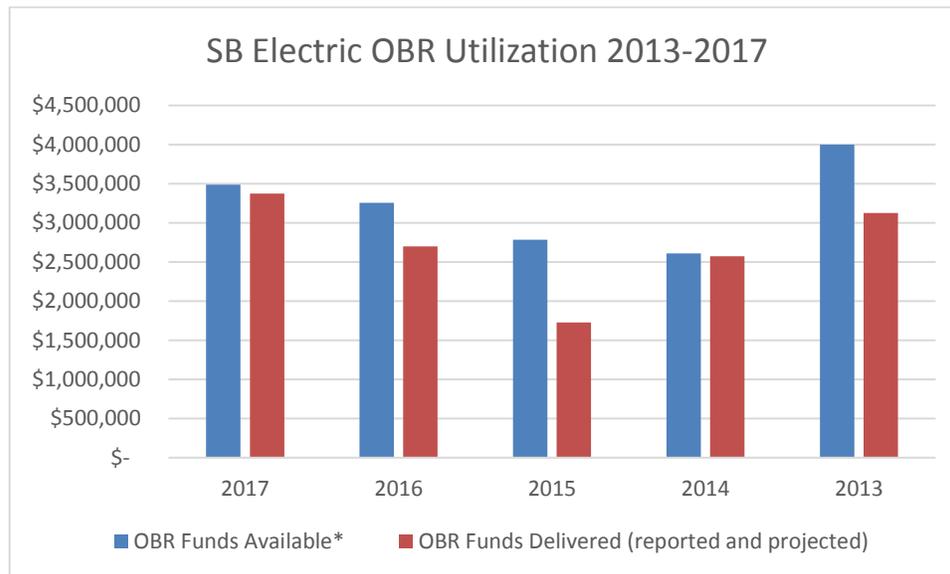


* Note: Funds available in the table above does not include new ratepayer fund injections requested for 2017.

Small Business Electric OBR Revolving Loan Fund

Similarly, for the Small Business OBR revolving fund, table E-10 indicates a fund balance of \$2,078,819 in January 2017, with \$1,410,301 in repayments projected in 2017, which results in a total of \$3,489,120 funds available in 2017. National Grid did provide an estimate of expected

OBR demand for Small Businesses in 2017 to be \$4M. However, it should be noted that the average annual loan volume from this fund from 2013-2016 is \$2.5M, with a projected total of \$2.7M in 2016, as indicated in National Grids annual reports, direct communications and the Draft 2017 EE Plan². The chart below shows that the 2017 fund balance would support a 25% increase in loan volume, as compared to 2016 (\$3.4M in total for 2017), which may provide an alternative projection of the likely fund utilization in 2017.



* Note: Funds available in the table above does not include new ratepayer fund injections requested for 2017.

LCI Gas OBR Revolving Fund

Table G-10 in the draft 2017 EE Plan indicates that at the start of 2017 there will be \$330,178 remaining in the revolving fun, with expected repayments of \$615,000 throughout 2017, totalling \$945,178 in available funds. However, if the demand for this fund remains similar to the projected 2016 year-end loan volume of \$862,000, it is apparent that the LCI gas fund could experience some cash flow pressures to meet the 2017 demand, while waiting for repayments to accrue. The proposed injection of \$500,000 would likely be effective in ensuring that the fund can meet demand throughout 2017.

NEW SAVING SUPPORTED IN 2017

Based on the above assessment of the OBR revolving fund balances, there is no evidence to suggest that injections into the LCI and SB electricity revolving funds would result in new supported savings as the currently available funds appear to be sufficient to meet the projected demand in 2017 and early 2018.

² In the 2016 EE Plan National Grid removed \$1,000,000 from the Sb OBR Revolving loan fund, presumably because it did not see a need to begin the year with a balance of more than \$1.5M in 2016.

The requested injection to the LCI gas OBR revolving fund, would appear to support savings in 2017 by allowing National Grid to meet demand throughout the year, regardless as to when repayments are accrued from past loans.

THE COSTS AND BENEFITS

Based on the past five years LCI OBR lending the average amount of rate payer funds used to support loans per gross annual electricity savings supported is presented in the table below.

Year	Net MWh Supported	Gross MWh Supported	LCI OBR Loans	Ratepayer loan value (\$/Gross MWh)
2012	9,604	9,850	\$2,833,498	\$288
2013	9,065	9,558	\$3,392,512	\$355
2014	9,022	10,878	\$4,069,000	\$374
2015	12,761	16,691	\$4,930,123	\$295
2016	3,274	4,251	\$915,823	\$215
Average (2012-2016)				\$315

The \$4.0M in electricity OBR revolving fund (LCI and SB) allocations requested by National Grid represents a charge to ratepayers in 2017 of \$0.000523 per kWh.

LONGER TERM PERSPECTIVE

National Grid has provided a breakdown of how the LCI electricity OBR funds have been disbursed in the first half of 2016. It shows a significant move to medium-term lending (36-60 month loan tenors). This promising trend indicates that National Grid may be able to use the OBR funds to support measures with longer paybacks (i.e. deeper savings), and possibly to reduce the incentives on shorter payback measures (such as lighting) by balancing the incentive payments to meet a 5-year payback term rather than a 2-year payback.

If this trend continues for the remainder of 2016 and 2017 an increasing portion of the OBR fund balance will be allocated to medium-term loans, which in turn will reduce annual loan repayments to the revolving fund in each year during this transition period. Thus, while the LCI electricity OBR fund appears to have sufficient funds to meet the 2017 demand, the move to medium-term lending supports National Grid's assessment that the OBR fund could be depleted in 2019, if current trends continue over the next 2-3 years (see note from Rachel Henschel below)

It is thus worth noting, that extending OBR loan tenors may lead to a need for significant allocations to the OBR revolving funds in 2019 or possibly in 2018. Once the 36-60 month loan tenors become the norm for the program, an attribution and combined impact study between the LCI electricity loans and incentives would be of significant value to determine the degree to which the OBR program supports savings that would not be possible with incentives alone, the degree to which financing can be used to reduce incentives on specific project types and measures, and the appropriate size and use of the OBR revolving funds.

From Rachel Henschel's email to the collaborative, August 23, 2016:

Q: Does National Grid have any results from the OBF program process evaluation that has been carried out over the past months that can be shared to help provide context into the 2017 Plan?

*The first draft is anticipated in September. Preliminary cash flow analysis shows that if new funds are not injected in 2017, and participation remains the same, **the fund will be depleted by 2019.***

For the \$1.4M in loans for electric projects that became active on bills between January 1st and June 1st 2016, 92% are 36 months or greater.

Months	Loan Amount	Percent
24	\$113,821.25	8%
36	\$570,778.00	40%
48	\$512,824.00	36%
60	\$222,712.26	16%
<i>Grand Total</i>	<i>\$1,420,135.51</i>	

RIIB EFFICIENT BUILDING FUND (EBF)

RIIB requested \$5M in SBC allocations to support the EBF lending in 2017 (Round 2). National Grid included an allocation of \$2.5M in SBC in the Draft 2017 EE Plan.

ASSESSING THE NEEDS IN 2017

RIIB has estimated that it can generate a demand of \$40M-\$50M for EBF Round 2 during 2017. RIIB expects a similar portion of the overall demand being attributable to efficiency projects in Round 2 as was delivered in Round 1, which would result in a demand of **\$25M-\$30M for energy efficiency projects** (60% was lent for EE projects in Round 1). In support of its projected demand for Round 2, RIIB estimates the total market demand in the municipal buildings sector to be as much as \$500M.

RIIB believes that it can leverage ratepayer funds on a 4:1 to 6:1 basis through establishing a first loss position to attract low-cost private capital (by issuing AAA rated bonds), which appears to be consistent with other program experience such the Connecticut Green Bank bond issues which similarly took a first loss position of up to 20%. For the remainder of this analysis the middle value of a 5:1 leveraging ratio for 2017 EBF lending is assumed.

RIIB currently has access to \$2.0M in RGGI funds and will have access to \$0.5M in OER RIPEP funds that can be allocated to support energy efficiency or renewable energy projects. Thus the proposed \$2.5M of ratepayer money in the Draft 2017 EE Plan, combined with the RIPEP and RGGI funds, would result in \$5M total in the EBF fund for 2017. At a 5:1 leveraging ratio this would allow RIIB to provide \$25M of loans in Round 2, which represents a projected \$15M of financing for energy efficiency projects (60% of the total loan volume).

By a similar calculation RIIB's initial request for \$5M of ratepayer funds in 2017, combined with the RIPEP and RGGI funds, would result in \$7.5M total in the EBF fund for 2017. At a 5:1 leveraging ratio this would allow RIIB to provide \$37.5M of loans in Round 2, which represents a projected \$25M of financing for energy efficiency projects (67% of the total loan volume)³.

NEW SAVING SUPPORTED IN 2017

EBF is designed to support lending for energy upgrades in public facilities at the municipal level. Because it streamlines the decision-making process and capital budget planning from these facilities, RIIB has stated that it is supporting projects that would not have been possible in the absence of EBF. This position appears to be supported by the National Grid Public Buildings program administrators, based on the presentation made during the 2016 ACEEE Financing Forum. However, it should be noted, that as with National Grid's OBR funds, no savings attribution assessment of the loans and accompanying utility incentives has been performed.

³ If \$5M in ratepayer funds are allocated to EBF in 2017, the fund would be obligated, at a minimum, to use these funds to support EE projects, resulting \$25M total for EE project financing at a 5:1 leveraging ratio (this represents a minimum EE portion of 67% in Round 2).

Table: Gross Savings Projections for EBF Round 2

	Round 1 \$10M in EE	Round 2 \$15M in EE (\$2.5M SBC injection)	Round 2 \$25M in EE (\$5M SBC injection)
Electricity Annual Gross Savings	5,9878 MWh	8,700 MWh	14,500 MWh
Gas Annual Gross Savings	31,473 therms	46,000 therms	69,000 therms

RIIB is planning to begin solicitation of new projects for Round 2 in autumn 2016. Round 1 solicitation began in late 2016, and the financing approvals were finalized by August 2016. If RIIB can emulate the Round 1 project turn around, and efficiency proportion of the overall loan pool, then it is expected that the majority of the funds can be delivered in 2017. Moreover, EBF Round 1 had a 45-day application period, while Round 2 will have a 145-day application period, which may allow more projects to be identified and applications prepared during the Round 2 intake period.

THE COSTS AND BENEFITS

Based on the EBF Round 1 results, and applying a 5:1 leveraging ratio for Round 2 ratepayer funds⁴, the average amount of ratepayer money invested per MWh of gross savings supported is \$292. For benchmarking purposes, this can be compared to the ratepayer loan funds per MWh supported under the OBR program (\$315 per MWh of gross savings supported), keeping in mind that each program targets a different market segment and measure mix. In each case these are annual savings, and do not account for lifetime savings. It should also be noted that the OBR funds revolve on a 2-5 year basis for reinvestment in new projects, while the EBF funds revolve on a 10-15 year basis for reinvestment.

The \$2.5M in EBF ratepayer funds allocated by National Grid in the Draft 2017 EE Plan represents a charge to rate payers in 2017 of \$0.00033 per kWh.

LONGER TERM PERSPECTIVE

The EBF issues long term loans of up to 15 years, under which a portion of ratepayer funds allocated to the EBF in each year will return to the fund for new lending in subsequent years. However, given EBF's long-term lending structure, it will likely take a number of years of continued injections before the EBF can become a self-supporting revolving fund.

As a result, RIIB anticipates future SBC requests of \$5M in each of the next three years to help build the EBF first-loss position lending pool.

⁴ The calculation of ratepayer \$ per gross MWh assumes that 60% of EBF funds are used to finance EE projects, and that 85% of those funds are for electricity EE projects. It assumes that total annual savings will be proportional to financing provided as per the 2016 Round 1 results provided by RIIB, and accounts for all ratepayer contributions including RGGI, RIPEP and system benefit charges.

PRESENTATION FOR



Rhode Island Energy Efficiency
and Resource Management
Council

2017 EE PLAN: CURRENT STATUS AND VIEW TO THE FUTURE OF EE FINANCING



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CONTENT

Overview of Dunsky's Input to Date

2017 EE Plan – Financing Provisions

EE Financing Objectives for Rhode Island

Next Steps and Key Take-Aways: *Where is this all taking us?*



Dunsky's main work to date...

- 1) Follow up on the 2015 Dunsky Financing Report recommendations*
- 2) Input into National Grid process evaluations for OBR and HEAT loan programs*
- 3) Assistance assessing financing provisions in 2017 EE Plan development and 2018-2020 EE targets*



FINANCING TIMELINE

STUDIES	EERMC review	Dunsky Report	HEAT + OBR Evaluations		NEXT 3-YEAR TARGET CYCLE			2020-30 POTENTIAL STUDY
GRID	Large C&I OBR: \$4M	Large C&I OBR: \$5M	Large C&I OBR: \$6.5M	Large C&I OBR: \$13M	GROWING FUND NEEDS AND PROGRAM INTEGRATION			
RIIB			EBF Rnd 1: \$10/17M	EBF Rnd 2: \$25/40M				
	2014	2015	2016	2017	2018	2019	2020	2021+



5-year OBR ↑



Annual EE Financing ↑
 ~\$28M (2016)

~\$48M (2017 projected)

~\$13M (2014)



FINANCING PROVISIONS

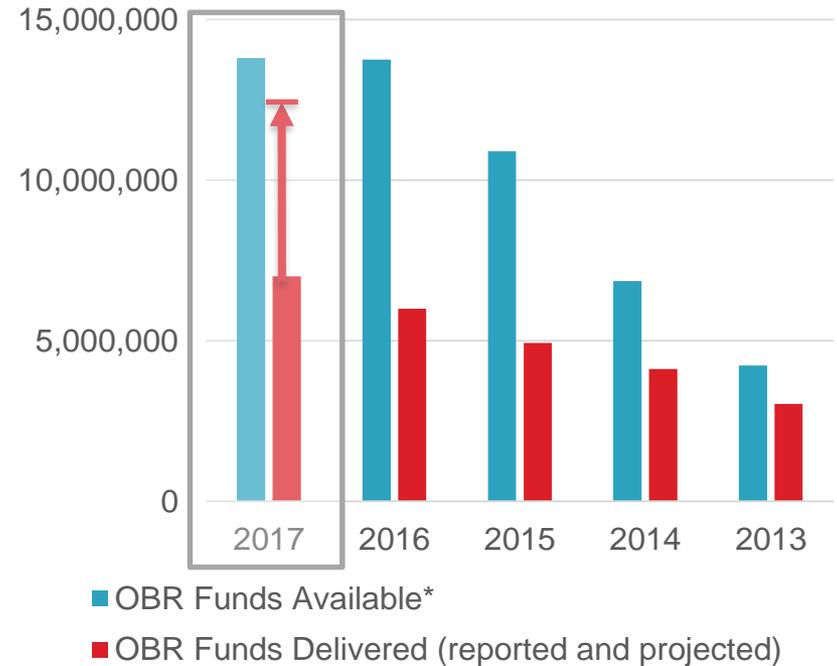
■ National Grid Programs: \$2.6M

- ▶ \$1.5M for LCI Electric OBR
- ▶ \$300K for LCI Gas OBR
- ▶ \$500K for SB Electric OBR
- ▶ \$300K to support HEAT Loans?

■ RIIB: \$5M for EBF

Consider provisions to the revolving funds as steps toward building a long-term tool balancing today's costs with ongoing needs and impacts

LCI Electric OBR Utilization 2013-2017



**Note: increase in 2017 LCI OBR projection for SEMP projects*

KEY CONSIDERATIONS



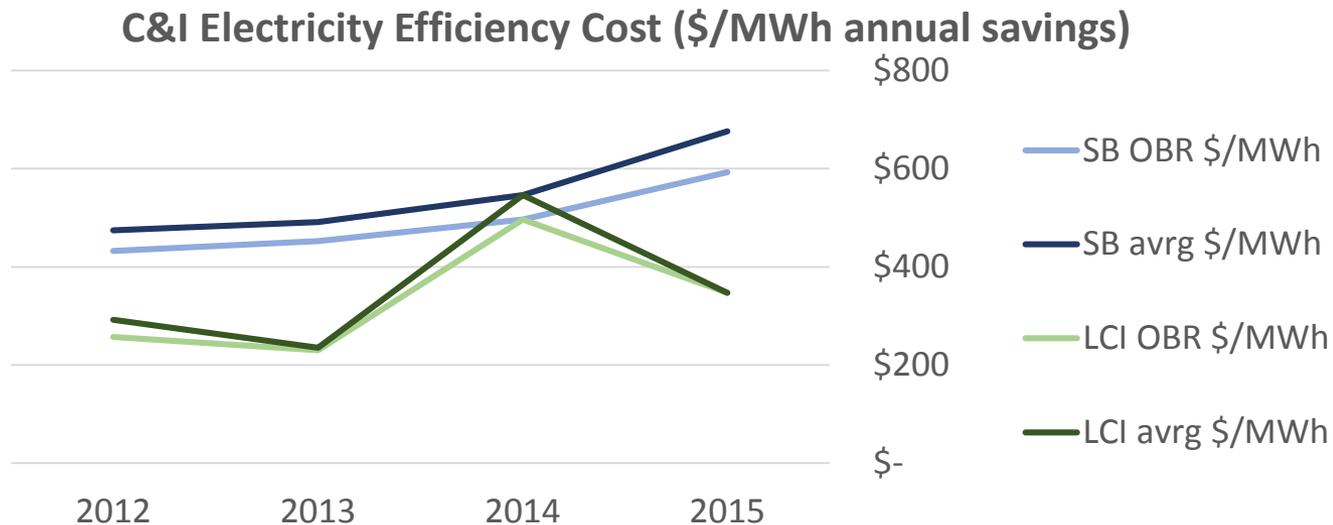
- **EBF/OBR are not competing programs:** meet different needs/sectors
- **LCI Electricity OBR:** Provision is not planned to support 2017 savings
 - ▶ OBR shifting from very short-term (max. 24 months) to medium-term lending (90% is now 36-60 months)
 - ▶ OBR Process Evaluation not yet released (or complete)
 - ▶ Is OBR best tool for SEMP needs, how can CPACE/EBF contribute?
- **Similar \$/savings for EBF and OBR**
 - ▶ EBF leverages private capital/represents new savings
 - ▶ OBR lends for shorter terms
- **Longer term needs:**
 - ▶ OBR injections 2018/2019
 - ▶ \$5M x 2-3 years for RIIB EBF

EE FINANCING OBJECTIVES

GOALS



- Support new demand / Least Cost Procurement
- Deliver financing alongside incentive programs
- Enable lower incentive levels (for same savings)
- Offset growing costs of efficiency
- Orient financing around lifetime savings





■ Benefits of 5-year vs 2-year OBR

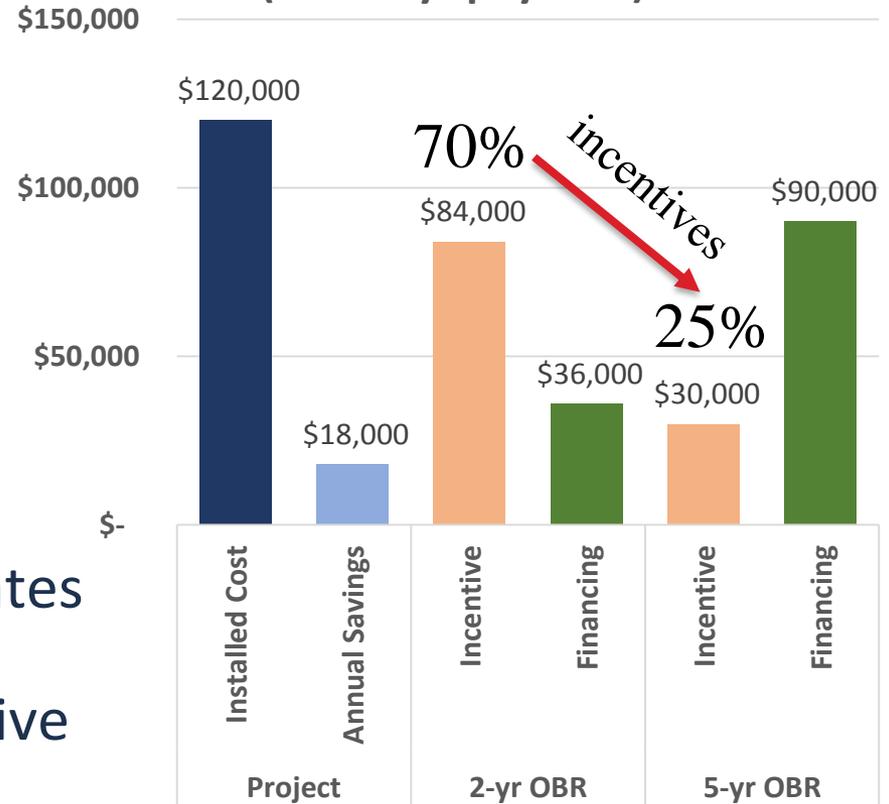
- ▶ Deeper savings measures
- ▶ Can reduce incentives on low hanging fruit
- ▶ Help offset rising EE costs

(-ve) Increases OBR needs/risk

■ EBF: Eases Public Building Finance Access, Competitive Rates

■ C-PACE / R-PACE: Comprehensive projects (deep savings)

Hypothetical LED Lighting Project
(with 7-yr payback)





■ GRID Financing Strengths (Accessing EE Opportunities)

- ▶ Project risk assessment
- ▶ Integrating incentives with financing

■ RIIB Financing Strengths (Long-Term Lending)

- ▶ Credit risk assessment/underwriting
- ▶ Accessing secondary (private) markets

■ Other GB-Utility Examples (NY, CT, MI, CA)

- ▶ In-fighting can create unnecessary hurdles
- ▶ Savings attribution and struggle for ratepayer funds

■ RIIB-GRID Can Set Example of Successful Cooperation

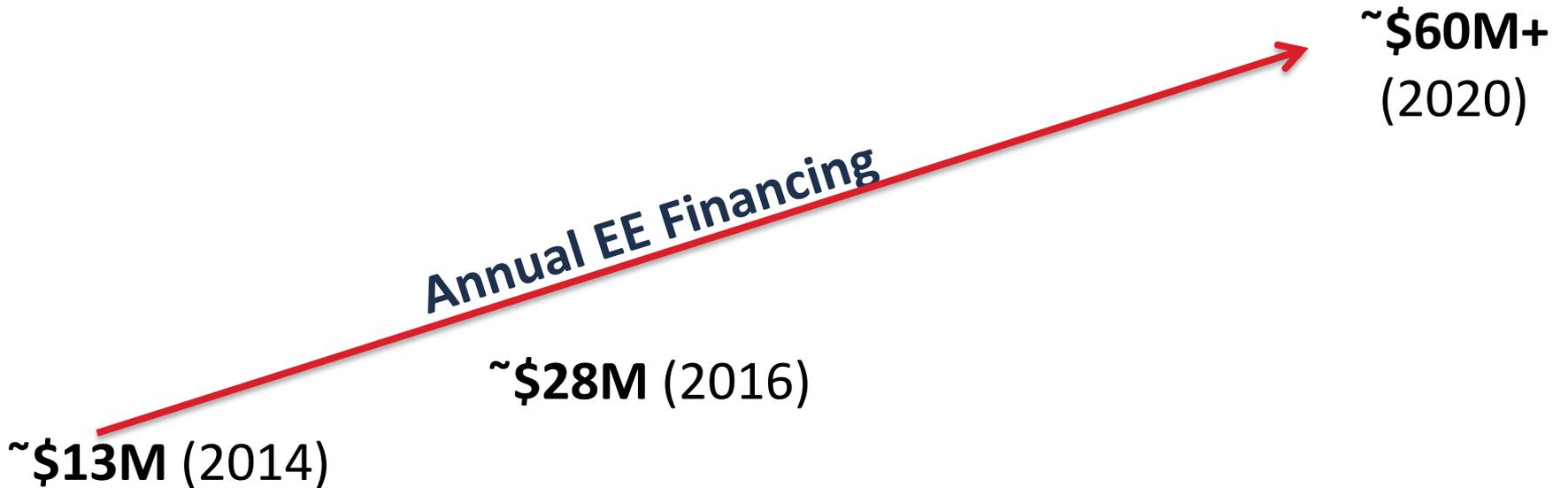
- ▶ If each plays to their strengths, supporting mutual objectives
- ▶ Allow GRID to claim savings, but be agnostic on who should manage funds



FINANCING TIMELINE



STUDIES	EERMC review	Dunsky Report	HEAT + OBR Evaluations		EVALUATE IMPACTS AND ATTRIBUTION (EBF, OBR, PACE)			INCLUDE FINANCING IN 2020-30 POTENTIAL STUDY
GRID	Large C&I OBR: \$4M	Large C&I OBR: \$5M	Large C&I OBR: \$6M	Large C&I OBR: \$13M	INTEGRATE FINANCING AND INCENTIVE PROGRAMS			
RIIB			EBF Rnd 1: \$10/17M	EBF Rnd 2: \$25/40M	CONTINUED EBF ROUNDS, CPACE, RPACE...			
	2014	2015	2016	2017	2018	2019	2020	2021+





■ Step 1: Continue to Build Financing Pools

- ▶ OBR transition to 5-year terms will likely require injections in 2018 and/or 2019
- ▶ EBF is building a fund to attract private capital

■ Step 2: Integrate Program Approaches

- ▶ **Short/long term lending:** GRID/RIIB
- ▶ **Incentives/Financing:** exploit opportunities to reduce incentives, keep SBC stable* and access new savings

**Success can allow OBR/EBF injections to come from incentive budgets*

■ Step 3: Evaluate Impacts and Attribution

- ▶ Confirm role/impact of financing to create new savings, offset increasing EE costs, or lower incentive costs
- ▶ **Supports justification for further financing investments**



- **National Grid and RIIB Programs are Complementary**
 - ▶ Each builds on different strengths, servicing different needs
 - ▶ Promote and reward GRID-RIIB cooperation
 - ▶ Consider longer-term perspective when making decisions

- **Consistent Reporting Needed for OBR/EBF, Each Year**
 - ▶ **Past year:** Revolving fund loan volume, defaults, balance
 - ▶ **Plan year:** Projected loans, repayments and year end balance
 - ▶ **Impact Report:** lifetime and annual savings, and measure mix

- **Follow Investments in OBR/EBF with Evaluations/Planning**
 - ▶ Assessment of funds' ability to generate new savings or offset incentives – incl. full cost analysis of financing and incentives
 - ▶ Include financing in long term planning: Next Potential Study

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2017 System Reliability Procurement Report First Draft

Presentation to the EERMC
September 8, 2016

2015/2016 Review of NWAs

- 19 distribution projects initiated
- 1 project passed initial screening criteria
 - ◆ Bristol/Warren substations required 11MW of load relief by 2022 (approx 18,000 customers)
 - ◆ Traditional solution cost only \$2Million
- Partial solutions process now part of SIRI/SRP Standards revisions discussions

Tiverton Pilot – Load Forecast

- Data available from 2015 indicates substation upgrade can be deferred by at least one more year.
- Growth rates have evolved
 - ◆ Tiverton (0.6%) and Little Compton (0.5%) are still higher than statewide (0.4%)
 - ◆ Initial forecast (2011) closer to 2.6%
- 2016 peak load hasn't yet been determined

Tiverton Pilot – Update on Implementation

➤ 2016 Plan

- ◆ Integrating with ConnectedSolutions DR pilot
- ◆ Testing on-the-ground outreach with Find Your Four
- ◆ 17 DR events called so far (9 in July, 8 in August)
- ◆ EW Leads continue to be strong, but not enhanced offers

➤ 2017 Plan

- ◆ Continue existing incentives for AC, water heating
- ◆ Advanced meter pilot
- ◆ Request for proposals

SRP 2017 - Quantitative Analysis

- With 2012 - 2015 actual results, 2016 projections and 2017 planned numbers:
 - ◆ Tiverton Pilot is still cost effective at 1.20.
 - 2016/2017 cost effectiveness are slightly lower (0.93/0.97)
 - ◆ Pilot still on track to meet deferral requirements with original goals
 - OER SRP Solar DG Pilot evaluation ongoing
- 2017 proposed budget: \$409,100
 - ◆ Bill charge projected to be ~\$0.00002 with incorporation of preliminary fund balance calculation

EERMC CONSULTANT TEAM



Memorandum

To: Energy Efficiency & Resource Management Council (EERMC)
From: VEIC/Optimal Energy Consultant Team (C-Team)
Date: September 8, 2016
Subject: 2016 Supplemental Budget Request

The C-Team requests the EERMC consider budget modifications to the C-Team's 2016 annual budget as we advance into the second half of the year. The request is driven by some significant out-of-scope activities that the C-Team has been directed to undertake.

The primary out-of-scope activities are:

- Acceleration of the update and filing of Energy Efficiency and System Reliability Standards
 - While the 2016 Scope of Work (SOW) included some consideration of covering the Standards as part of the 2018-2020 Targets development, it was anticipated that this would just be preliminary framing of issues in advance of the more substantive work to be conducted on finalizing the Standards update early in 2017. This was the cycle for the past two Standards updates.
- EERMC Council member Retreat
 - The Council Member Retreat to be held late summer was proposed and approved by the Council subsequent to the C-Team's SOW development. The C-Team has begun engagement with OER and the Retreat subgroup to support development of the objectives, agenda and materials, and will have key personnel at the retreat to support presentations and facilitate discussions.
- Docket 4600 and other regulatory issues
 - The 2016 SOW included support of PUC-related events, but tied to traditional events of the annual Plan filing and Savings Targets filing. Since it was ongoing, the SOW also included coverage of Docket 4568. However, once Docket 4568 led to the broader Docket 4600, the scale of engagement increased significantly beyond the core assumptions, and we anticipate ongoing activity through most of 2016.

Our estimate is that these activities would require up to 300 additional hours over the proposed 4,323 hours. This leads to a supplemental budget request of up to \$55,000. Since these hours are based on best estimates, we offer this request as a not-to-exceed and would only use the funds sufficient to support these additional items. We appreciate your consideration of this request.