Evolution of Residential Loan Programs:
Building Markets by Reducing Risk & Fostering Collaboration

ACEEE Finance Forum

May 22, 2018

Connecticut Green Bank

Delivering Results for Connecticut

- **Investment** – mobilized nearly **$1.2 billion** of investment into Connecticut's clean energy economy so far
- **Energy Burden** – reduced the energy burden on over **26,600 households and businesses**
- **Jobs** – created over an estimated **14,000 total job-years** – 5,500 direct and 8,700 indirect and induced*
- **Clean Energy** – deployed more than **250 MW** of clean renewable energy helping to reduce over 4.0 million tons of greenhouse gas emissions that cause climate change

Mobilized $200 Million in Residential Financing

Since 2013, $137 million across 5,600 projects in single family.

REFERENCES

CT Green Bank data warehouse report from July 1, 2011 through February 28, 2018

*62,500 private non-farm jobs created in the state over 5 years since Green Bank creation mid-2011. Green Bank statistics are in job-years; "total jobs" include direct, indirect and induced. CT DOL statistics are aggregated from monthly point-in-time estimates. CT Department of Labor - http://www1.ctdol.state.ct.us/lmi/privatesectoremployment.asp

Smart-E Loan *Quick, Easy, Affordable*

CONNECTICUT GREEN BANK

- Unsecured personal loan that encourages **bundling energy measures**
- **40+** energy improvements can be financed
  - Boilers, Furnaces, Heat Pumps, Central Air, Insulation, Solar, EV chargers and more!
- **12** local lenders, **315** eligible contractors
- 25% of the loan can be used to address **health and safety**
- **Special Offer** Interest rate buydowns when available

Loan Terms

5-yr	7-yr	10-yr	12-20-yr
4.49%	4.99%	5.99%	6.99%

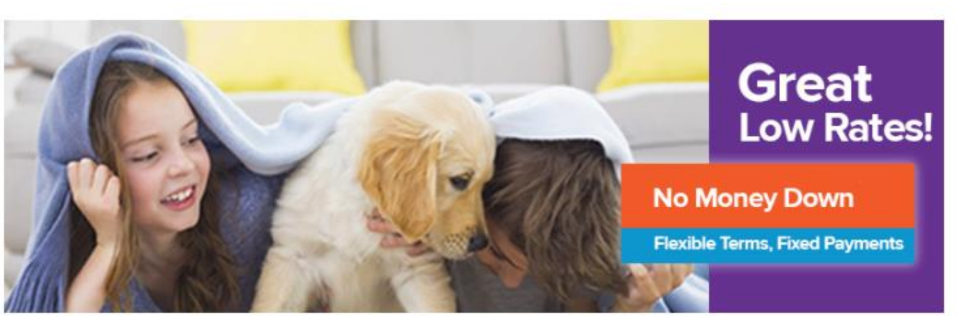
- **Standard:** **640+ FICO**, 40-45% DTI
- **Credit-Challenged:** **580+ FICO**, 50% DTI

smart-e loan

Smart-E Results

CONNECTICUT GREEN BANK

- **2,700** closed loans totaling **$48 million** of investment
  - 1,500 financed with .99% special offer ($28M)
  - 425 financed with 2.99% special offer ($10M)
- **38,000 MMBTUs** saved**, 7.6MW** of solar PV
- **$18,000** average amount financed
- Average FICO is **739**, trending down, DTI 30%
- Superior portfolio performance



TOP SMART-E MEASURES	
Measure Category	**Percent of Projects**
Solar PV	18%
Boiler	17%
Insulation	13%
Other*	10%
Ductless Heat Pump	10%
Furnace	10%
Central AC	9%
Hot Water Heater	5%
Windows	3%
Air Source Heat Pump	3%
Electric Heat Pump Water Heater	2%
Geothermal Heat Pump	1%

*Other may include doors, appliances, or health and safety remediations

Using Special Promotions with Market Transformation in Mind

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Goal: Use a 7 month 0.99% interest rate buydown to achieve lasting impacts on the market and

1. **Support state policies** to drive customer awareness of specific technologies/packages
   - Heat pumps, solar +, going deeper, natural gas conversions
2. Create **customer "pull" with contractors** to recruit new companies to Smart-E
3. **Deepen contractor engagement** with Smart-E

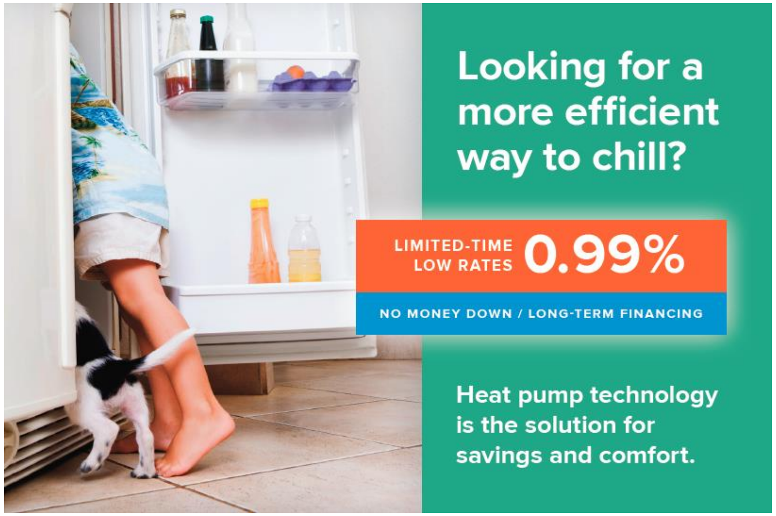
During Campaign	After Campaign

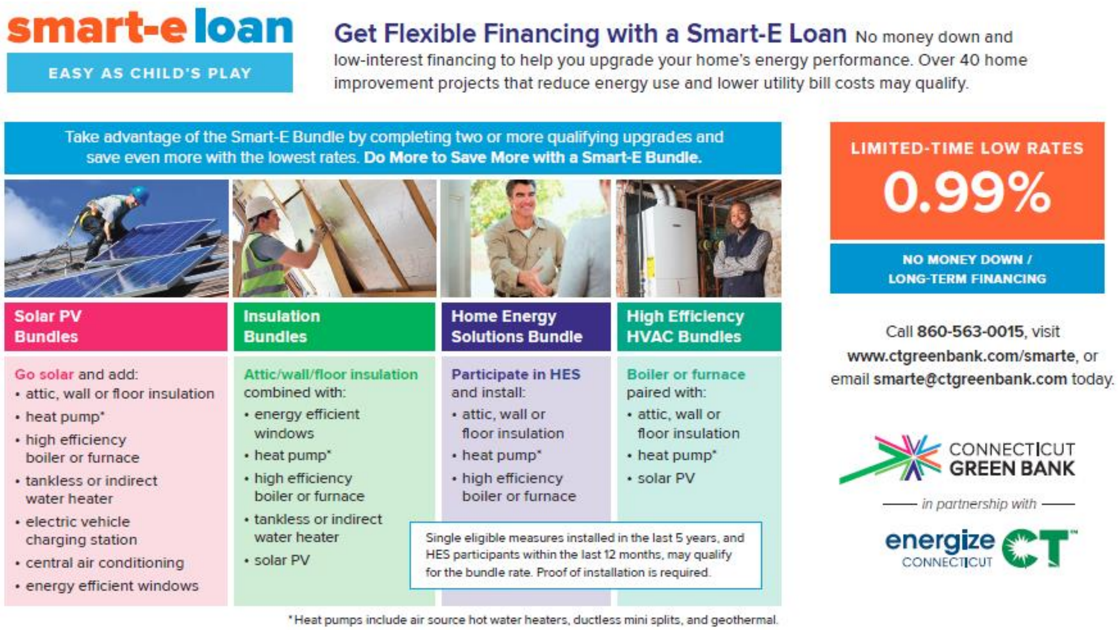
• 6x increase in volume
• 54 new contractors, bringing total to 300
• 85% of contractors used product during campaign
    • vs. 60% in the year before
	• Volume didn't collapse!
	    • Next quarter, did as much volume as the <u>*entire year*</u> before the campaign
	• Trained 15 new contractors
	• Contractors now funding their own interest rate buydowns with lenders

Contractor Engagement Strategies

Nurture contractors, show them love!

- Contractor matchmaking events and conferences
- Quarterly "Coffee and…" with utilities
- Recognition programs
- "Road shows"
- Be responsive!





Leveraging Stellar Portfolio/Reserve Performance into Expanded Terms

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Sophisticated Credit Enhancement

- Loan Loss Reserve (LLR), structured as 2nd loss after lender first loss of 1.5% of portfolio
- LLR account as a % of each loan issued:
  - Class A (680+ FICO) is 7.5%
  - Class B (<680 FICO) is 15%
- 100% of account for loss mitigation in excess of retained loss

LLR performance at end of 2016 – too good!

- Only 1 payout for $20K
- 0.25% charge-offs, 0.62% delinquencies
- Decline rate was high – 28%
- Average FICO 753

"Spent" the good performance on broader underwriting criteria → bring down declines and serve more customers

- Got longer terms too (up to 15/20 years)

Spring 2017 **Credit-Challenged Smart-E** Launched

- **580+ FICO** with a 50% DTI, DTI waived for 680+ FICO
- 6 lenders: CDFI, all credit unions, 1 bank

Last 15 months… 21% decline rate, 733 avg. FICO
Performance is similar (but still early)

Where Next?

Loan Loss Reserve 2.0?

- Could we move to a model where we only cover loans that aren't super-prime?
- Is any change possible in a rising interest rate environment?
- Remember – the purpose of the LLR is to get lenders to drop rates, go out longer (fixed), and *not* risk price.

More contractors funding interest rate buydowns directly with lenders

More uptake in low-to-moderate income/Credit-Challenged – product *should* be a home run

- **35%** of projects in census tracts <100% AMI
- **75** credit-challenged loans since April 2017

CONNECTICUT GREEN BANK

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REGIONAL FINANCE ATTRIBUTION AND COST-EFFECTIVENESS STUDY

Market Insights

May 22nd, 2018

Alan Elliott, Principal Consultant

Opinion Dynamics

Opinion Dynamics

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PUBLIC UTILITIES COMMISSION EUREKA STATE OF CALIFORNIA

The evaluation team performed attribution and cost-effectiveness studies of three 2013-2015 Regional Finance Programs (RFPs)

- The emPower Central Coast, Golden State Financing Authority (GSFA) Residential Energy Retrofit, and Southern California Regional Energy Network (SoCalREN) Home Energy Loans programs
  - Provide reduced-interest rate term loans support Energy Upgrade California (EUC) home upgrade projects
- Key Question: What is the value of RFPs in achieving or increasing energy savings from whole home retrofits?
- Testing new methods:
  - Tested an experimental method to attribution—Latent Class Discrete Choice (LCDC)– and compared with traditional self-report attribution questions
  - Tested a financing-specific interpretation of the CA Standard Practice Manual (SPM) cost-effectiveness model

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The LCDC used a hypothetical shopping exercise to reveal preferences for financing and home upgrades

- Includes more than just regional financing participants who also received EUC rebate incentives
- 417 respondents representing **“market ready”** homeowners who have completed or seriously considered a home upgrade, with both incentives, either or neither
- Randomized combinations of 10 different project and financing attributes

Project Attributes

- Project Cost
- Monthly Energy Bill Savings
- Rebate Amount

Financing Attributes

- Payment Type
- Interest Rate
- Monthly Payment
- Minimum Cash Down
- FICO Considered
- Local Sponsorship
- Instant Qualification

Opinion Dynamics

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The shopping exercise data provide inputs into market simulations that represent a market with the RFPs and EUC rebates available

Conceptual Illustration of a Market Simulation

Attribute	Option #1	Option #2	Option #3	Option #4	Option #5	Option #6	None
Total Project Cost	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	Do Nothing
Rebate Amount	$2,500 Rebate	$2,500 Rebate	$2,500 Rebate	$2,500 Rebate	$2,500 Rebate	$2,500 Rebate	
Monthly Energy Bill Savings	$10	$10	$10	$10	$10	$10	
Payment Method Minimum Cash Down Interest Rate Your Monthly Payment Instant Qualification Possible Through Contractor FICO Score Considered to Qualify Loan Offered by Local Organization	RFP-Like Product	Home Energy Line of Credit (HELOC)-Like Product	Term Loan-Like Product	Property Assessed Clean Energy (PACE)-Like Product	Cash	Personal Credit Card	
Market Share	20%	10%	15%	20%	15%	5%	15%

- The change in % market share who “do nothing” when we remove the RFP and/or EUC Rebates are the basis for estimating program influence

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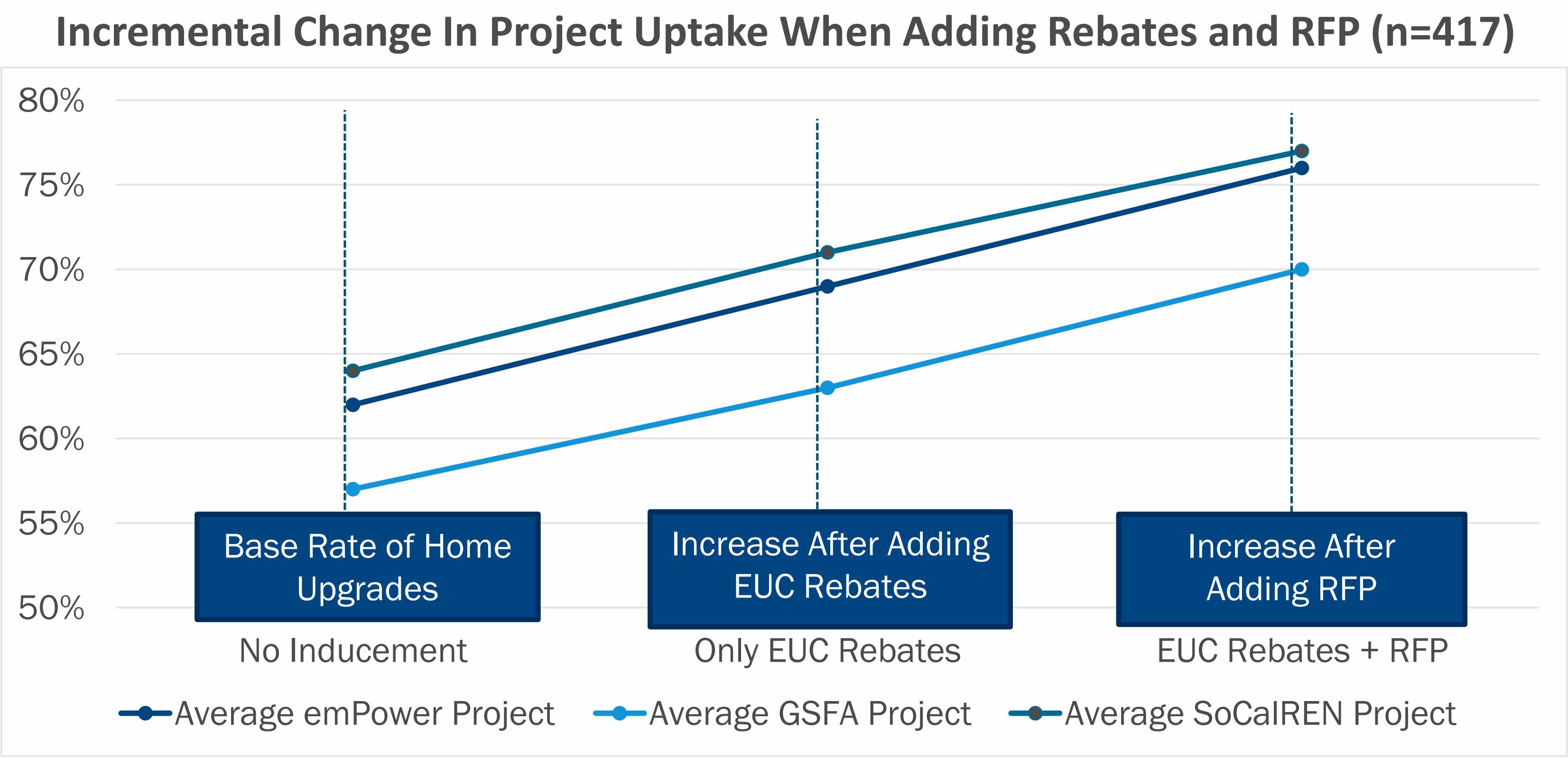
The impact of the rebates and RFPs was small when looking at overall change in the market of "market ready" homeowners

- Reflects the plethora of financing options already available
- Also reflects the small portion of project cost covered by the rebate



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The self-report attribution questions illuminated the important role of financing on the scope and timing of energy-related projects.

- The RFP influenced 57% to do a larger project (n=76)
- The RFP enabled almost all (92%) of them to complete a home upgrade project sooner than they would have otherwise; most would have waited at least one year to do the project (n=76)

Efficiency	*“Without the loan, I would have been forced to do a band-aid fix of my A/C and keep the older, less efficient unit.”*
Size/Timing	*“We would have likely done a much smaller portion of the project at a later time with cash.”*
Timing	*“With out the loan I would not have done the project to its entirety. It would have been broken into two different projects and different times. The loan helped me complete everything and more in one shot.”*

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The LCDC analysis identified four segments

- **Segment 1: Financially Savvy (37% of market ready customers):**
  - Not concerned about the cost of the upgrade project
  - Sensitive to interest rates.
  - They are oriented to traditional loans or HELOCs
  - They are not looking for convenience

- **Segment 2: Motivated Savers (25%):**
  - Very motivated to do an upgrade, they care a lot about energy savings
  - They only want to do smaller projects.
  - They are not concerned about monthly payments or convenience.

The LCDC analysis identified four segments (cont’d)

- **Segment 3: Unmotivated Convenience Seekers (25%):**
  - Have to be convinced to do an upgrade.
  - They want convenience, low monthly payments, and no cash down.
  - They want rebates

- **Segment 4: Financially Solid, Locally Oriented (13%):**
  - Expecting to pay cash for an upgrade project, maybe with some credit card help.
  - They care about the connection of the program to local sources.
  - They want good rebates, but don’t care about energy savings.

Unmotivated convenience seekers were the most influenced by the Regional Finance Programs.

Change in Home Upgrade Decision When RFP Added to Market, by Segment

Segment	emPower	GSFA	SoCalREN
Unmotivated Convenience Seekers	14 pts.	12 pts.	13 pts.
Financially Solid, Locally Oriented	5 pts.	4 pts.	4 pts.
Financially Savvy	4 pts.	5 pts.	3 pts.
Motivated Savers	4 pts.	5 pts.	3 pts.

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The LCDC results suggest that payment method, monthly payment and interest rate are the most important financing attributes

- Respondents strongly prefer financing over cash or credit card
- Term loans were the most popular, suggesting the RFP is a good model for energy efficiency financing

Importance Ranking of Financing and Project Attributes (n=417)

Attribute	Weighted %; Relative importance (n=417)
Payment Method	18%
Your Monthly Payment	15%
Total Project Cost	14%
Interest Rate	13%
Monthly Energy Bill Savings	8%
Option To Do Nothing at All	7%
Rebate Amount	6%
Instant Qualification Possible Through Contractor	5%
FICO Score Considered to Qualify	5%
Loan Offered by Local Organization	5%
Minimum Cash Down	5%

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Self-report data indicates that local sponsorship and convenience are also very important

Self-Reported Importance of Financing Attributes (n=76)

Please rate the importance of each of these features in your decision to finance the project through the RFP: Where "0" is "not important at all" and "10" is "very important")	Average Score
The interest rate	8.6
The connection of the loan program to a rebate program	8.5
Minimum cash down required to close the loan	8.5
The convenience of the loan qualification process	8.4
The convenience of the loan application process	8.3
The loan term, in years	8.2
The relationship between your contractor and the loan program	7.8
What qualified you for the loan (e.g., credit score, financial history)	7.4

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Questions?

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PRESENTATION FOR

ACEEE

ENERGY EFFICIENCY FINANCE FORUM

Tarrytown NY, May 2018

COST EFFECTIVENESS TESTING OF FINANCING PROGRAMS

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DUNSKY OVERVIEW

EXPERTISE

EFFICIENCY — RENEWABLES — MOBILITY

SERVICES

ASSESS opportunities — **DESIGN** strategies — **EVALUATE** performance

Governments ▪ Utilities ▪ **CLIENTELE*** ▪ Private firms ▪ Non-profits

* selection of clients

WHAT IS IT, AND WHY DO I CARE?

- **Cost-Effectiveness Tests** assess the ratio of: $\frac{\text{Present Value of } \textbf{Benefits}}{\text{Present Value of } \textbf{Costs}}$

- **Three test, three perspectives**
  - **Global:** Total Resources Costs Test or Societal Cost Test (TRC or SCT)
  - **Utility:** Program Administrators Cost (PAC)
  - **Participant** Cost Test (PCT)

- **Why its important for Financing programs?**
  - Used to measure the economic merits of a program
  - Applied as screens for rate-payer supported programs

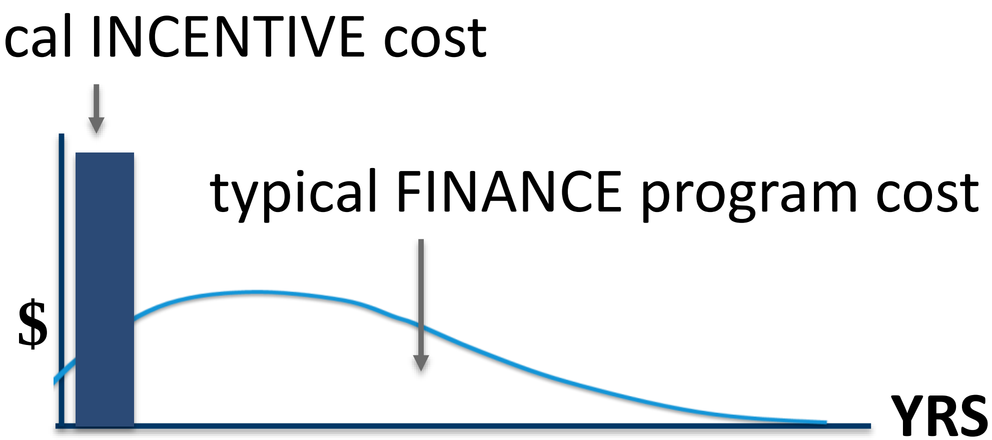
- **Today's Question:** can cost-effectiveness test fairly be applied to financing, and if so under what circumstances and by what methods?

FINANCING COST-EFFECTIVENESS

THE CHALLENGES

Fundamental differences between finance and incentives

1. TIME



2. SCOPE: Includes additional factors such as participant interest rate reductions and non-energy investments.

To help the CPUC address this challenge, in 2014 Dunsky prepared an CE framework tailored for financing

CASE STUDY

CALIFORNIA REGIONAL PILOTS

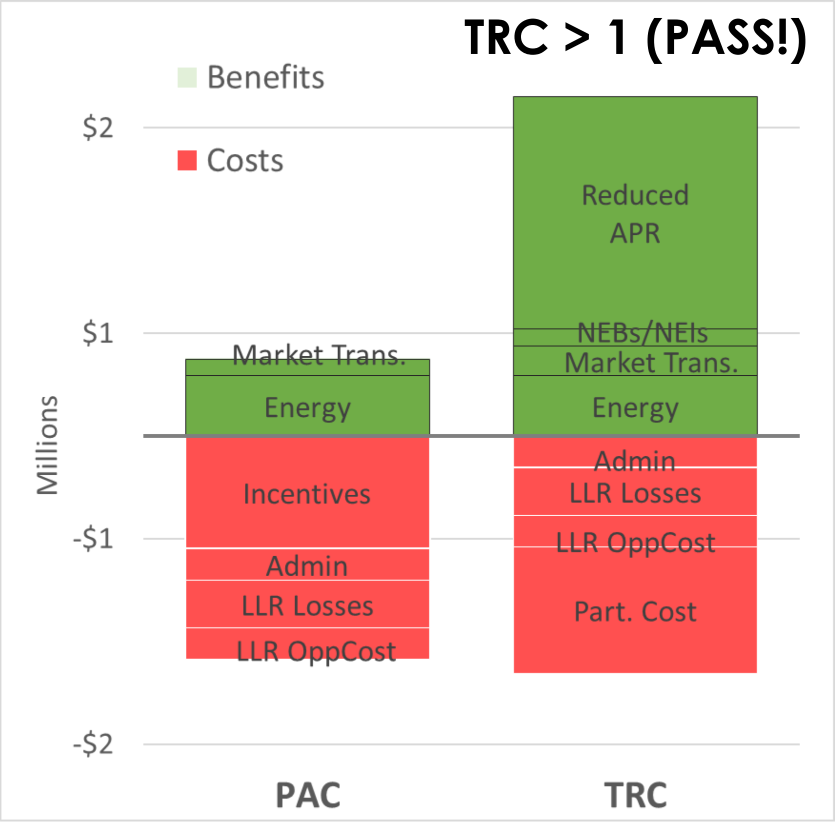
OBJECTIVES

- **Apply financing-specific CE framework** and compare with current Standard Practice Manual (SPM) interpretation
  - Non-energy investments (benefits)
  - Reduced interest rates (APR benefits)
  - Loan Loss Reserve costs/losses
  - Applied TRC and PAC
- **Compare cost-effectiveness of financing + incentives** versus the incentive alone.
- **Test cost-effectiveness sensitivity** to key metrics that may change over time (post program year) or require interpretation.
- **Identify implications for other financing programs** determining when and how cost-effectiveness testing may be appropriately applied.

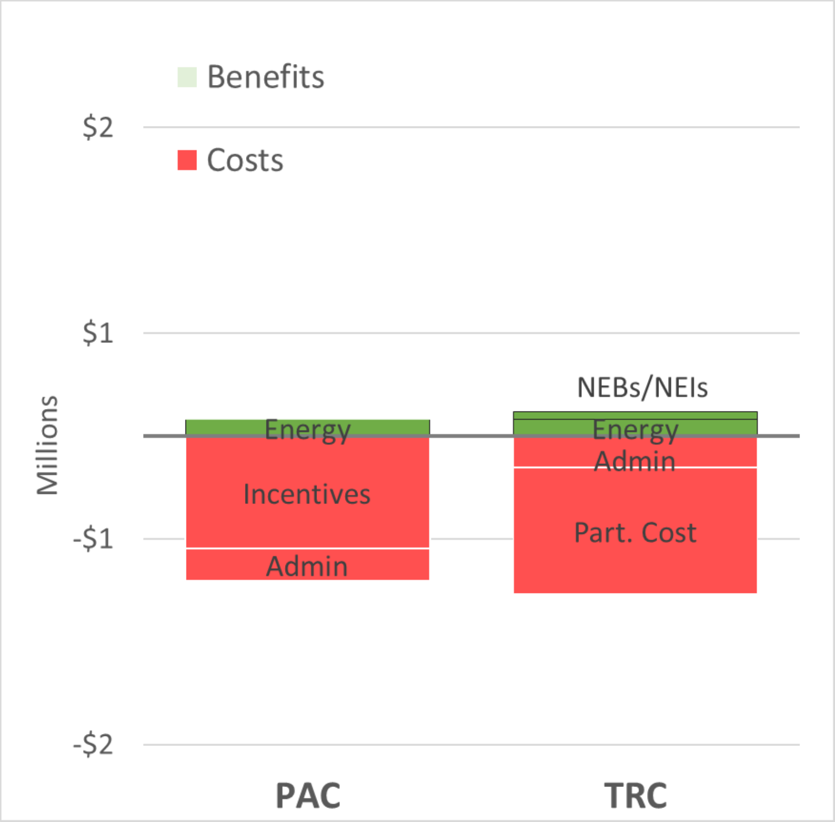
CASE STUDY: REGIONAL FINANCING PILOTS

FINANCING VS INCENTIVES

Financing + Incentives proved to be much more cost effective than incentives alone for the Regional Financing Pilot participants.



Financing + Incentives

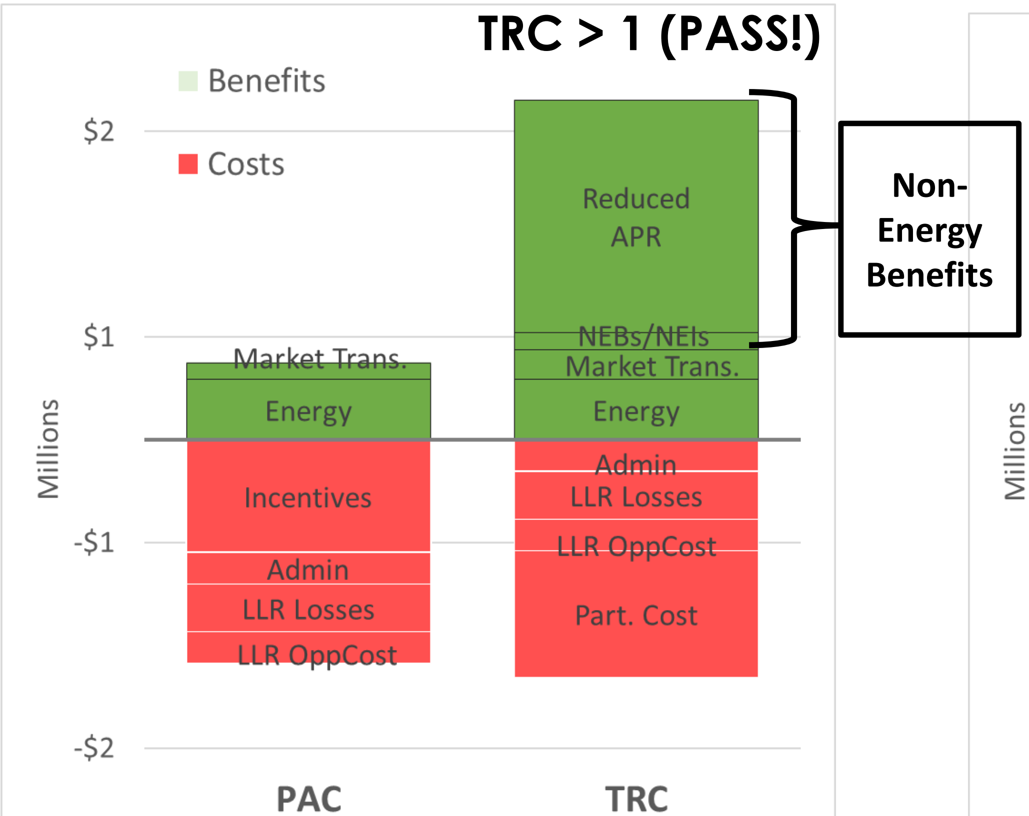


Incentives alone

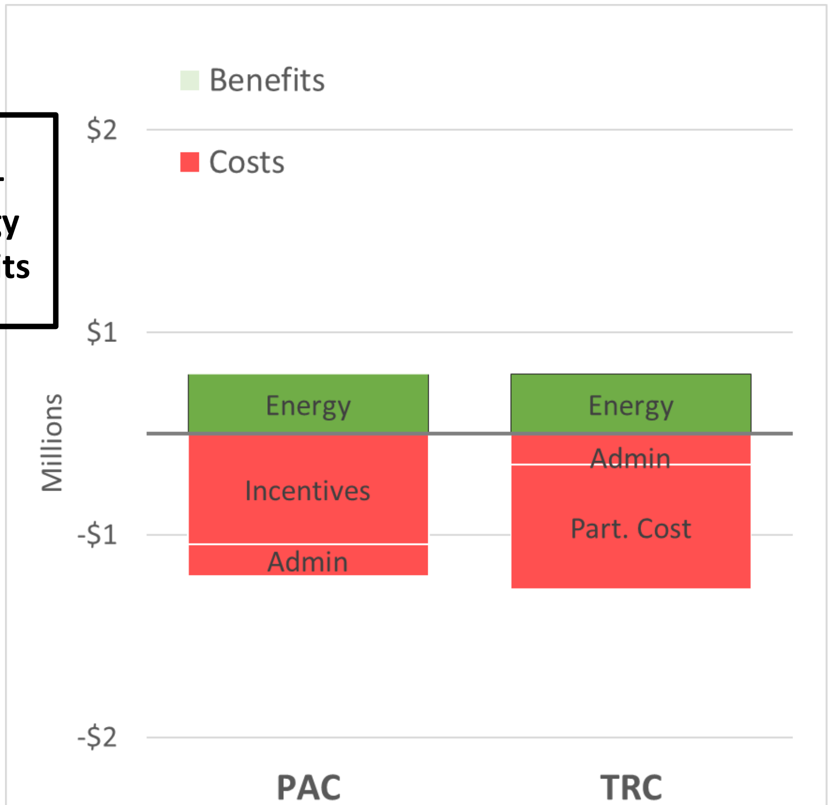
CASE STUDY: REGIONAL FINANCING PILOTS

FINANCING-SPECIFIC FRAMEWORK

Non-energy (financial) benefits far outweigh the energy benefits under TRC allowing Financing + Incentive program combination to Pass the CE test.



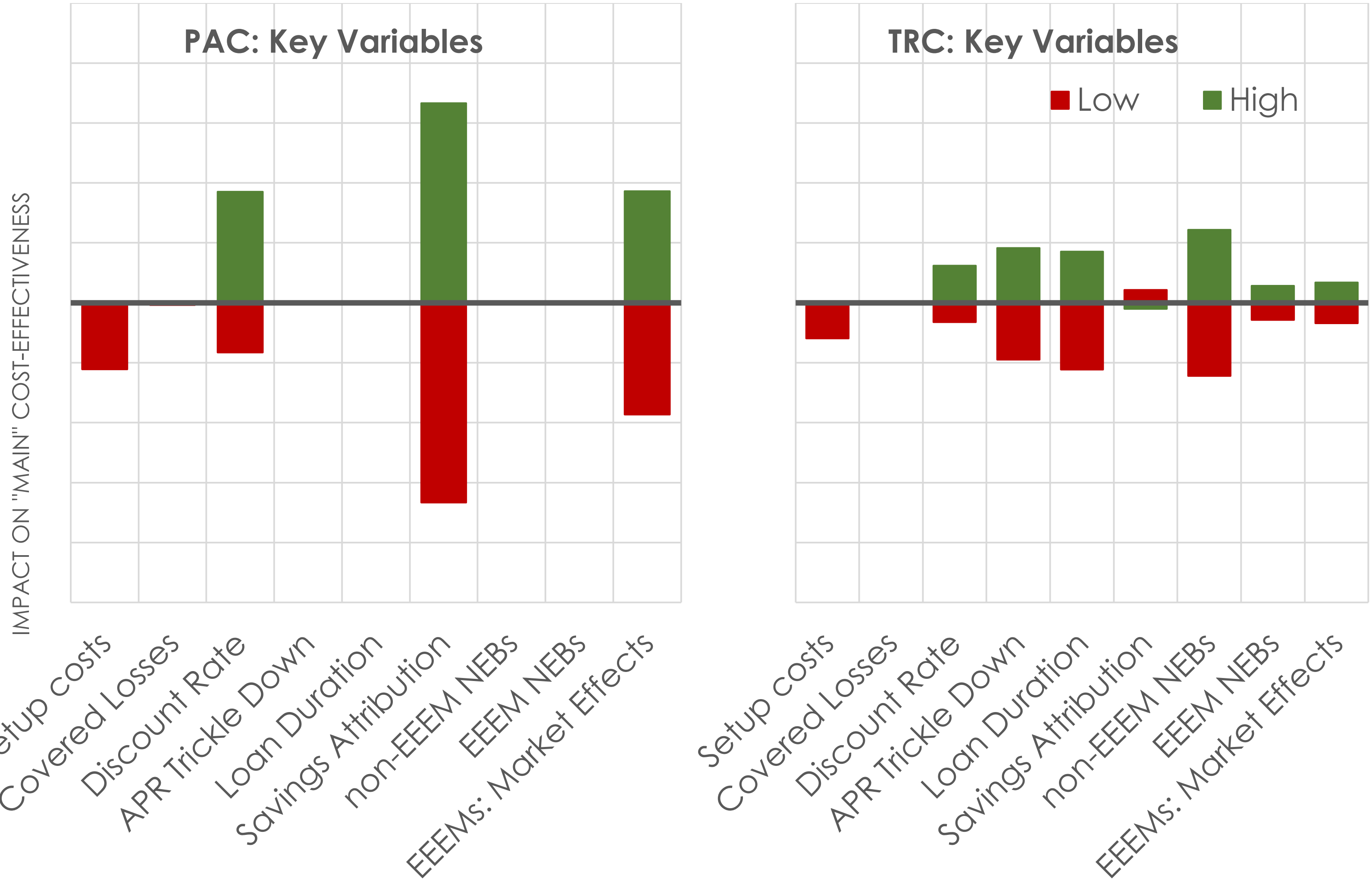
Financing-Specific CE Framework



Standard Framework (CA SPM)

FINANCING COST-EFFECTIVENESS

CE TEST SENSITIVITIES



KEY TAKE AWAYS

- **Whenever possible assess CE of Financing *together* with Incentives.**
- **Financing can be tested independently only when there are participants who took only financing but no incentives (e.g. no incentives offered)**
- **Where Financing is included in CE testing**

Program Type	Non-Energy Investments/Benefits	APR Reduction	Early or Non Repayment
Interest Rate Buydown	Yes	No	No
Direct lending (or co-lending)	Yes	Maybe	Yes
Loan Loss Reserve (Guarantees)	Yes	Yes	Yes

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