

From Savings to Solutions: How Non-Energy Impacts Can Transform Energy Efficiency Programs

IEPEC 2025 Session 6a

October 7, 2025

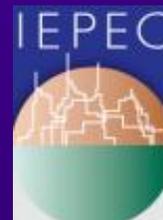
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Is evaluation at a crossroads? Energy savings alone don't explain why customers participate



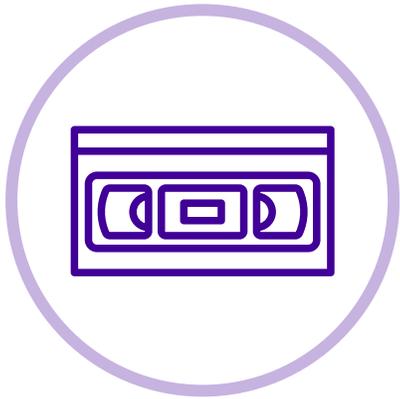
Traditional Programs
kWh and Therms



Non-energy Impacts
Productivity, throughput, employee
comfort, supply chain stability, resilience



If programs stay widget-focused, they risk irrelevance and miss transformative opportunities



Irrelevance

Disconnect between customer priorities and evaluation metrics erodes participation



Missed Opportunities

Lost savings and stunted impact results in missed opportunities



Transaction-Focused

Program experience is impersonal and transactional

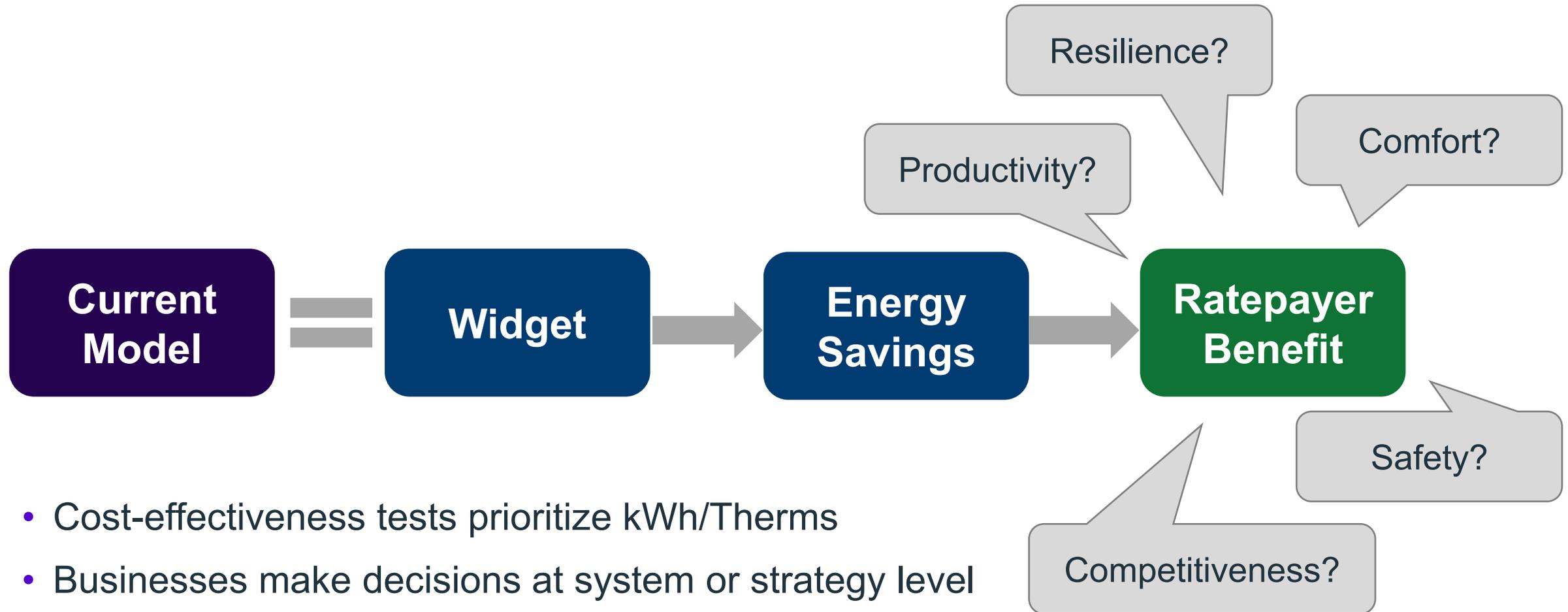


Inequitable

Misalignment with lived realities for disadvantaged communities



The Widget-Centric Paradigm: Programs are still built around measure-by-measure savings, not customer realities



- Cost-effectiveness tests prioritize kWh/Therms
- Businesses make decisions at system or strategy level
- Misalignment creates friction and limits participation

We used case studies to document how NEIs shape business investment decisions



**Customer
Interviews**



**Literature
Review**



**Case
Studies**

- Focused on manufacturing & agriculture sectors
- Methods: customer interviews + literature review
- Explored motivations behind project choices and decision-making drivers
- Documented NEIs alongside savings



Energy savings were rarely the driver; NEIs and incentives enabled larger, transformative projects



Plastics Manufacturer

Improved their competitive edge by upgrading their production line

- Increased **production speed** (6%)
- Increased **annual sales** (+\$1 million)
- Avoided costly **downtime** (156 hours)
- Reduced **maintenance costs** (\$195k)



Greenhouse

Improved consistency in crop quality and worker conditions

- Increased **crop yield** (34% yield value)
- Improved **staff productivity** (25%)
- Reduced **inputs costs** (up to 50%)
- Reduced **maintenance costs** (\$85k)



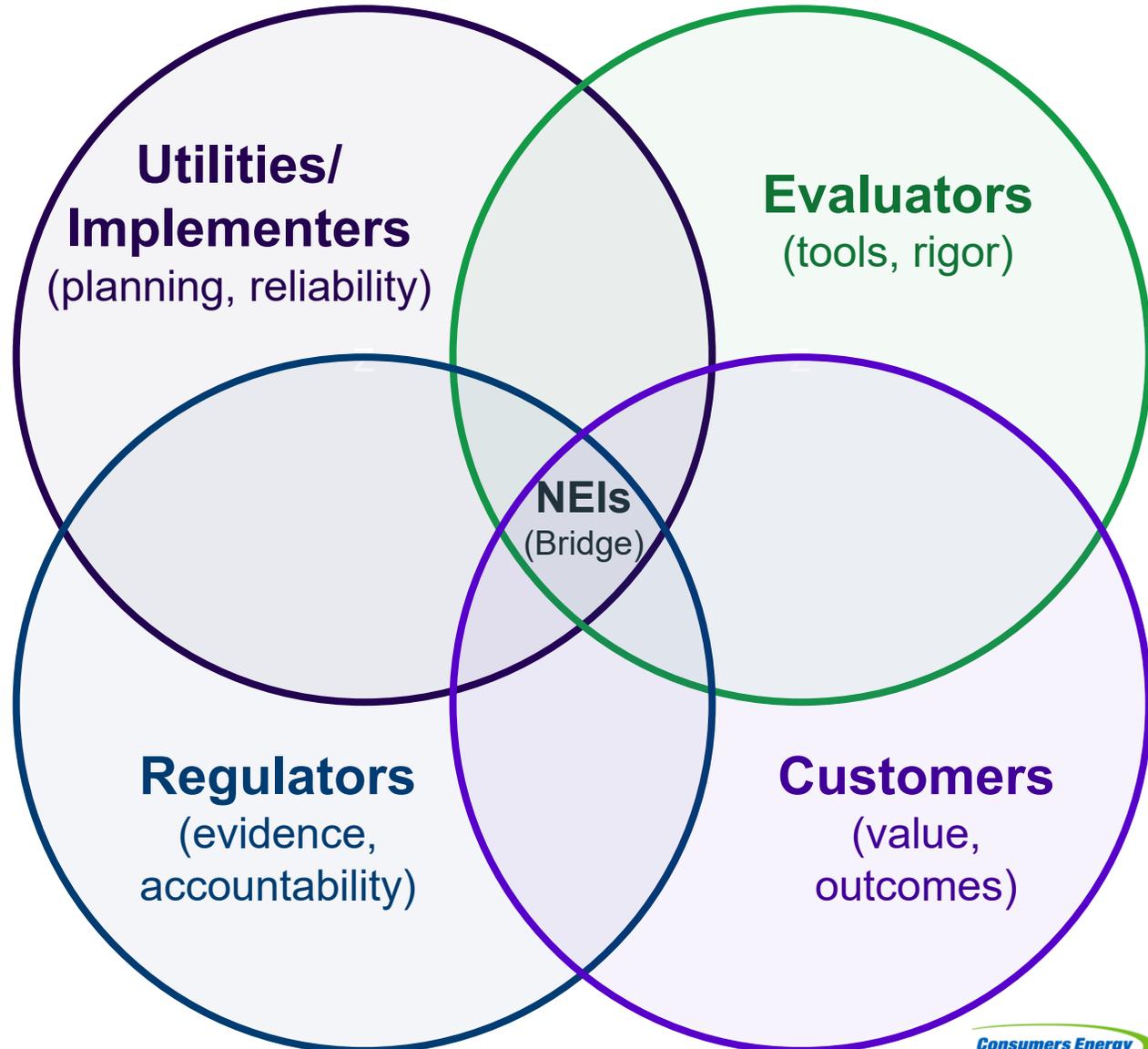
Programs act as catalysts, and NEIs reveal the true drivers of customer decisions

- Rebates spark broader investments, not just widget swaps
- NEIs help evaluators diagnose real motivators
- Participation builds over time → cumulative value
- Alignment with customer priorities builds trust and equity



NEIs strengthen the case for rethinking programs, equity, and cost-effectiveness

- Expand business cases by documenting broader benefits
- Provide evidence to modernize cost-effectiveness tests
- Surface equity impacts by linking to underserved community needs



Programs don't need regulatory reform to start capturing NEIs now



Document NEIs in ongoing evaluations



Systematically capture customer outcomes



Pilot new incentive and reporting approaches



Share qualitative and quantitative findings with regulators



NEIs provide richer insights, stronger alignment, and compelling stories that resonate



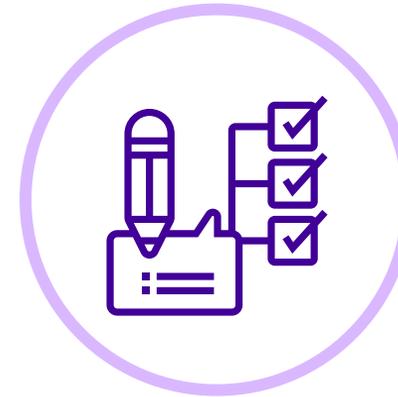
Aware

Understand customer behavior beyond savings



Compelling

Introduce metrics for resilience, workforce outcomes, and community benefits



Aligned

Tell stories that resonate with decision makers



Equitable

Align with institutional goals like decarbonization and equity



QUESTIONS?

Find and Use This Work

- Paper available in IEPEC proceedings
- Contact:
 - Evan Gutierrez PhD, TRC Egutierrez@TRCcompanies.com
 - Noel Stevens, TRC Nstevens@TRCcompanies.com
 - Matt Rife, Consumers Energy Matthew.Rife@cmsenergy.com
- Let's collaborate on NEI frameworks!



Evan Gutierrez Ph.D.
Consultant at TRC Companies



Appendix



Case Study: Plastics Manufacturing

THE CHALLENGE: Small manufacturer in an even smaller town deciding to **scale their business at the lowest first cost or design for the long term.**

THE SOLUTION:

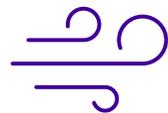
Secure multiple sources of funding for new production line and increase sophistication of operations to enhance competitive position.



VSD injection mold machine



Controls & monitoring



HVAC

THE RESULT:

In addition to energy savings and incentives, the company realized **more than \$1,000,000 in net benefits due to a 6% increase in production speed, 156 hours of avoided downtime and sizable reductions in maintenance costs.**



Transformational Impact

- Securing funding for new production line
- Increased sophistication of operations
- Enhanced competitive position

	Additive Impacts	Amount	Interactive Impacts	Description
VSD Injection Mold Machine	Production speed increase	\$504,000	Modern production facility instead of pole barn	Additional 20-year lifetime
	Downtime avoided	\$327,600	Monitoring system	5-day schedule
	Maintenance avoided	\$195,000	HVAC impacts on injection mold efficiency	Energy increased 30% less than expected
Total		\$1,026,600		



! Efficient equipment can improve plant structure and accelerate growing cycles, **boosting productivity.**

“ For us, **it's the yields...** the amount that we should be harvesting out of the greenhouse after a certain cycle of days.

- Field agriculture customer

EXAMPLE



Double-layer Infrared (IR) film and LED grow lights

0.5% to 5% → **\$52,250 to \$70,000**
delivery increase annual bedding crop yield increase



! Agriculture customers are concerned about how **working environments impact worker productivity**. Improved comfort meant less worker downtime due to cold.

“ We put the heaters in the barn so that the environment is a lot more pleasant. ... **The main [impact] would be worker productivity. Equipment doesn't care if it's cold or not. But we do.**

- Greenhouse customer

EXAMPLE

 **Infrared heater**

25% Tray delivery increase



\$218,563

Annual plug tray delivery increase

! Agriculture customers struggle with **high costs and material shipment delays**, which can impact yields.

“ The supply chain challenges have really run right up at the edge of **when those plants need to be put in and produced**.

- Greenhouse customer

EXAMPLE



Double-layer IR film

Up to **50%** growth regulator chemicals saved

Up to **\$400** Annual cost-savings



! **Reduced maintenance** needs of more efficient equipment can help lower overall cost.

One customer noted the longer equipment lifespan of **LEDs paired with daylight sensors**, resulting in equipment cost and installation savings.

EXAMPLE

 **LED Grow Lights & Daylight Sensor**

260 Fewer lights replaced

\$84,656 Annual cost-savings