

Climate-Forward Efficiency Symposium

February 24, 2022

2:30–4:00 PM ET



American Council for an Energy-Efficient Economy

Edward Yim

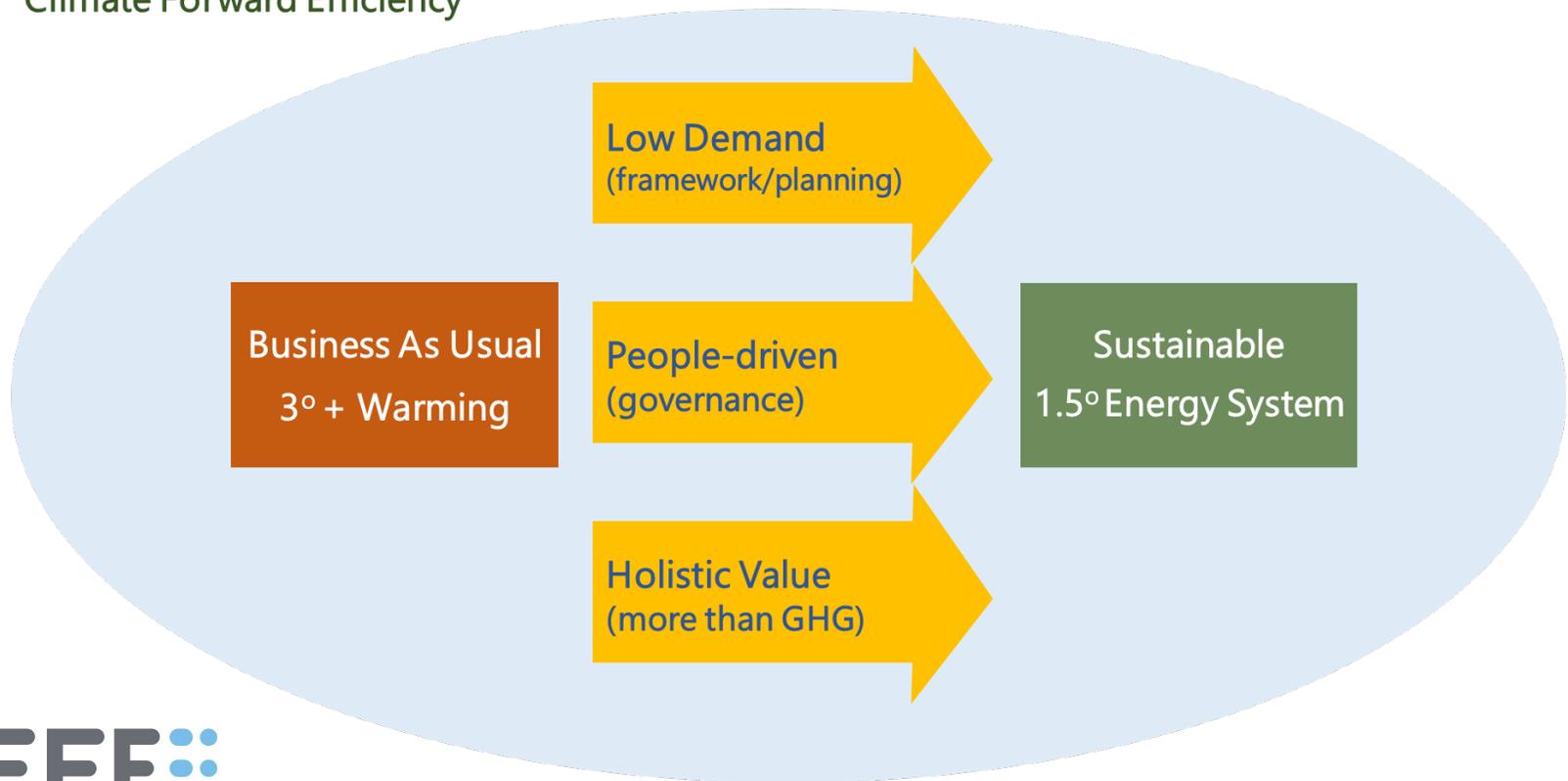
Utilities Program Director, ACEEE



Agenda

- 2:30 Welcome and Introduction
- 2:35 Opening Remarks
- 2:40 Summary of *A Roadmap for Climate-Forward Efficiency Report*
- 2:55 Moderated Q&A
- 3:00 Climate-Forward Efficiency Lightning Round
- 3:30 Moderated Q&A
- 3:55 Closing and Next Steps

Climate Forward Efficiency

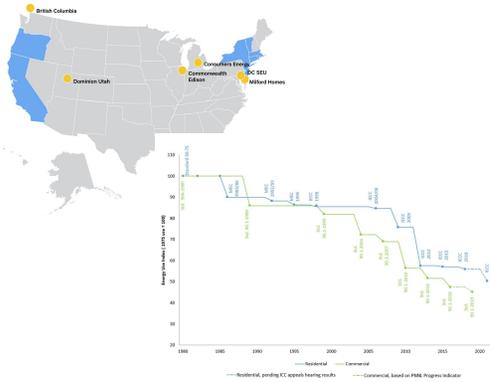


Steven Nadel

Executive Director, ACEEE



ACEEE



Research

**Program and policy
TA and advocacy**



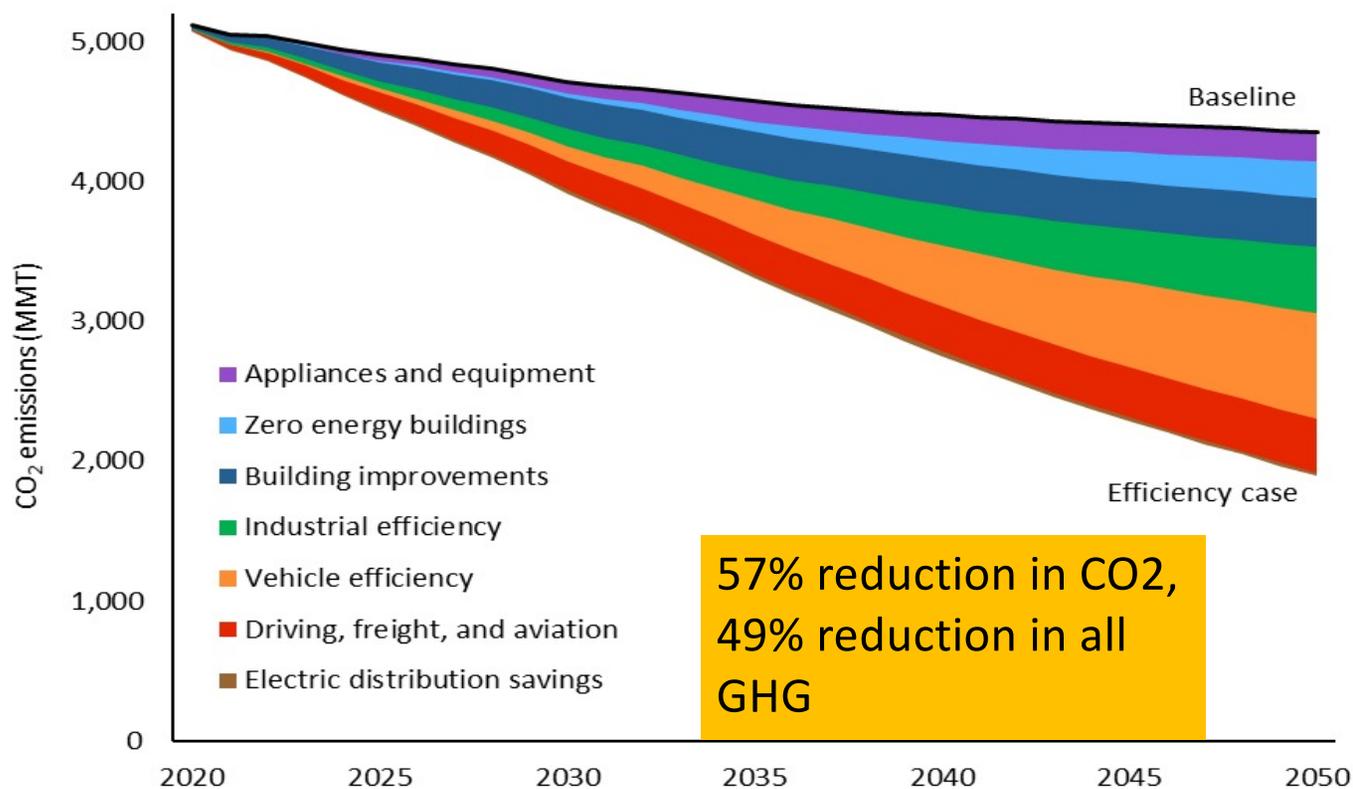
2020

ACEEE Summer Study
On Energy Efficiency
In Buildings
Efficiency:
The Core of a
Clean Energy Future



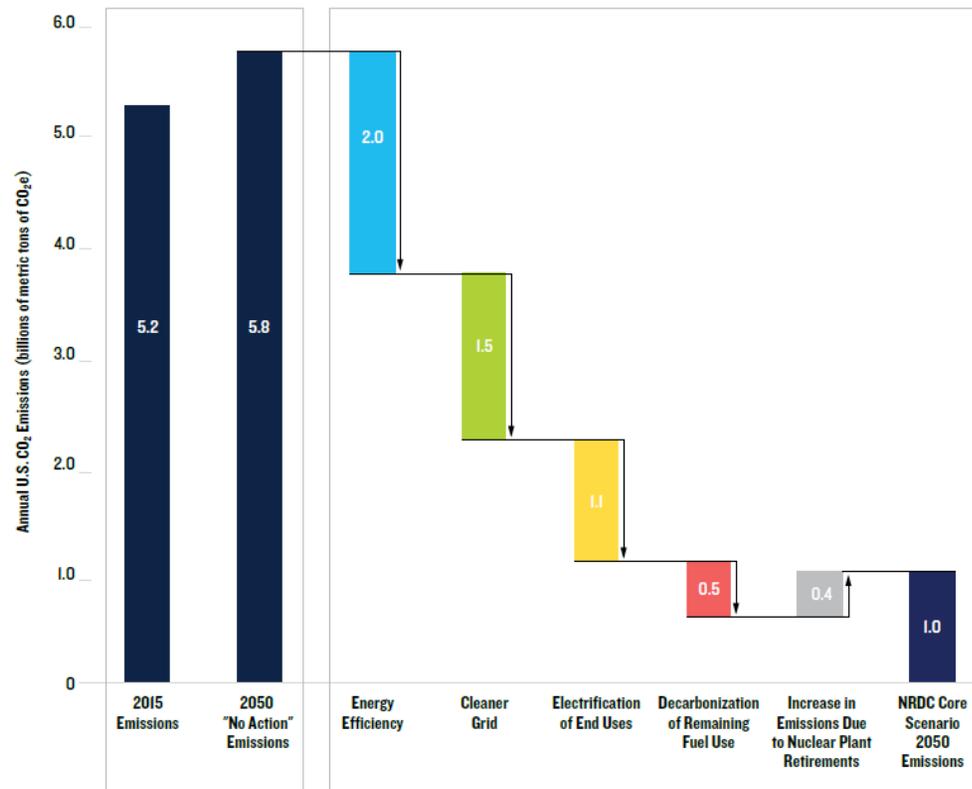
Education

Energy efficiency can get us halfway to decarbonization...



Source: ACEEE, 2019, *Halfway There*

NRDC's Clean Energy Frontier: Reducing U.S. CO2 Emissions 80% by 2050

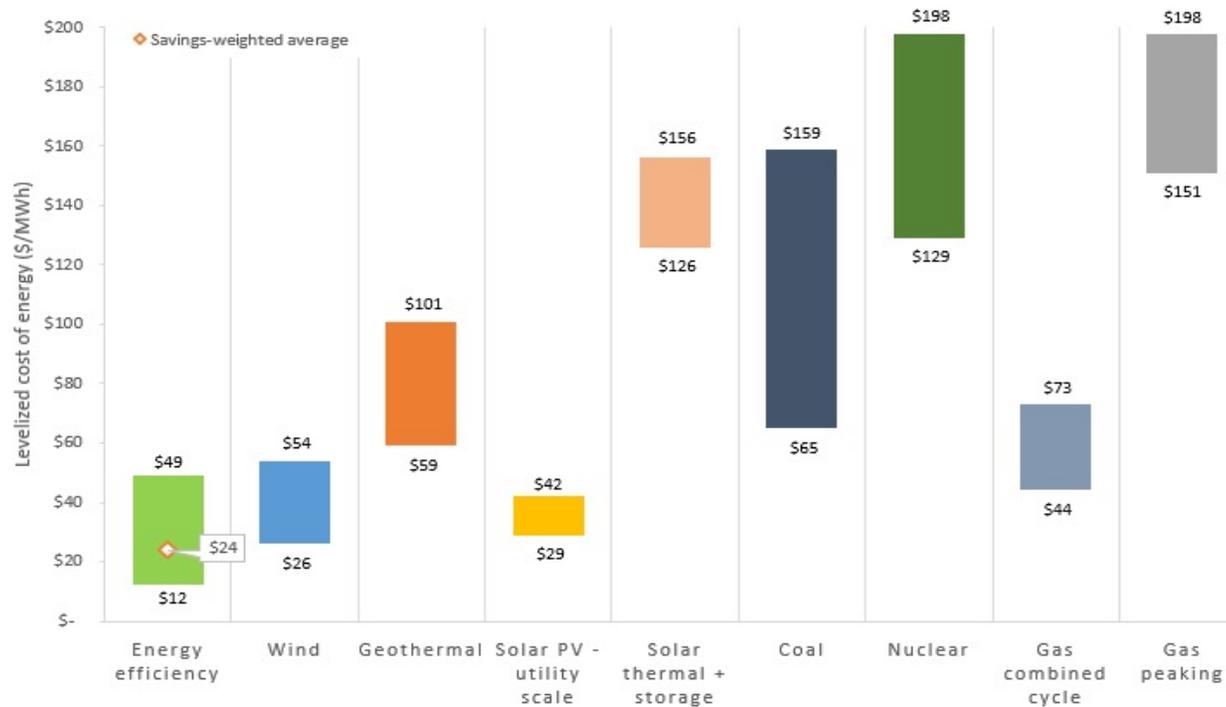


Many Reasons to Pursue Energy Efficiency

- Saves money
- Creates jobs
- Reduces environmental harms
 - **Climate change**
 - Other air pollutants (SO_x, NO_x, mercury, PM_{2.5})
 - Land use and water



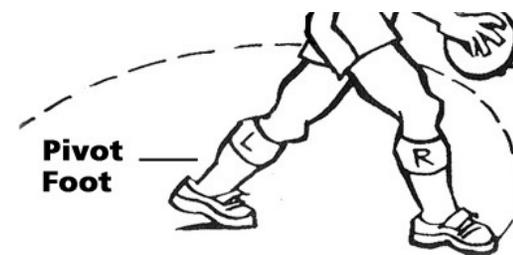
Levelized Cost per kWh



Source: ACEEE, 2021, *The Cost of Saving Electricity for the Largest U.S. Utilities*. Supply-side costs from Lazard 2020.

Decarbonization Components Complement Each Other

- Efficiency
- Electrification
- Renewables
- Carbon-free fuels
- New ways of doing things (e.g. structural wood instead of steel and concrete)

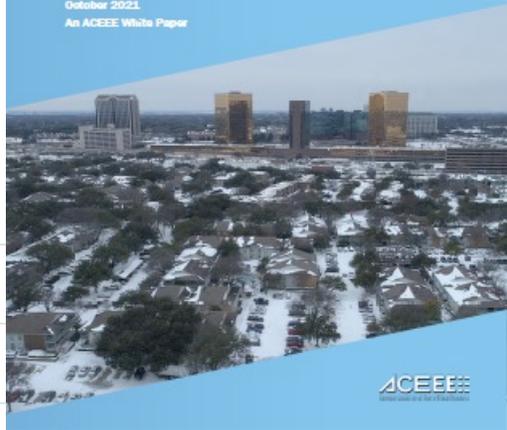


ENERGY EFFICIENCY AND DEMAND-RESPONSE: TOOLS TO ADDRESS TEXAS' RELIABILITY CHALLENGES

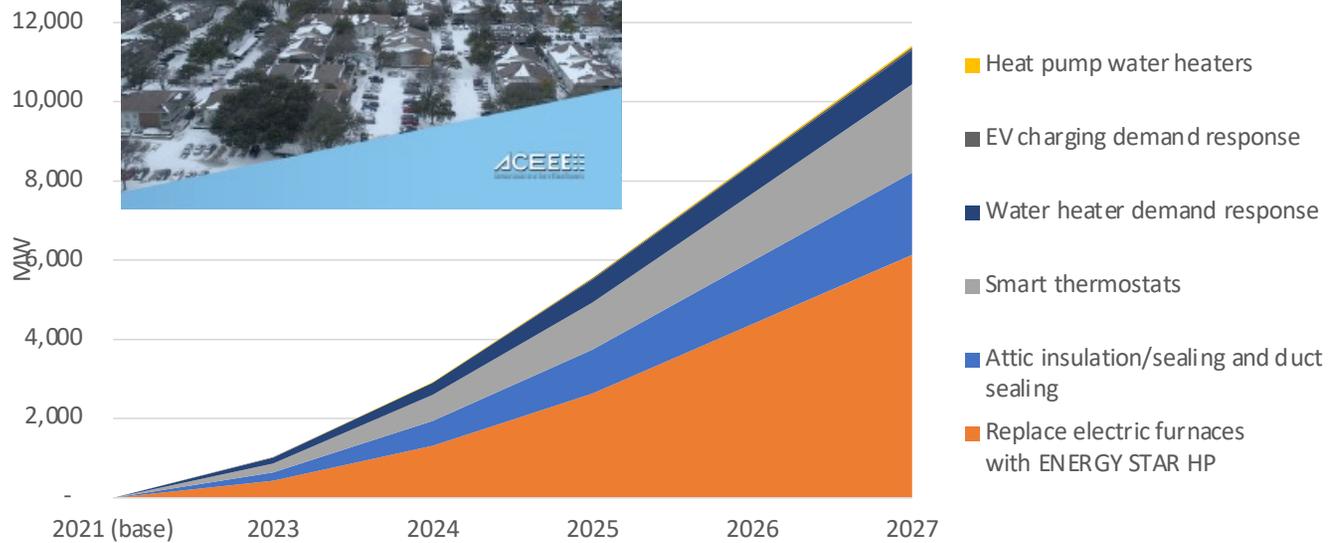
Steven Nadel, Christina Garboda, and Jennifer Amann

October 2021

An ACEEE White Paper



ACEEE



Contact Information

Steven Nadel

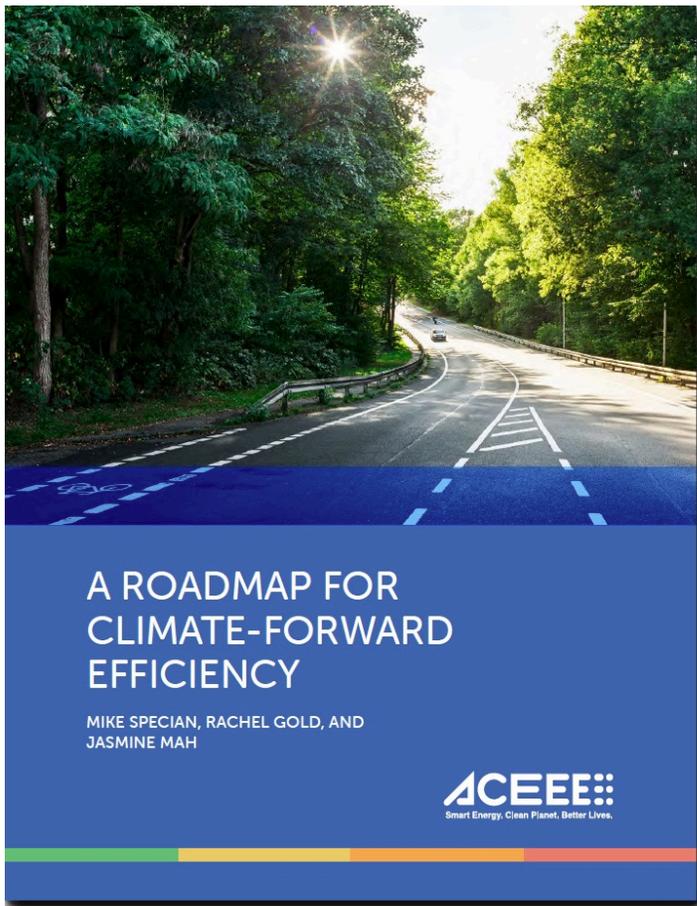
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Mike Specian

Utilities Manager - ACEEE





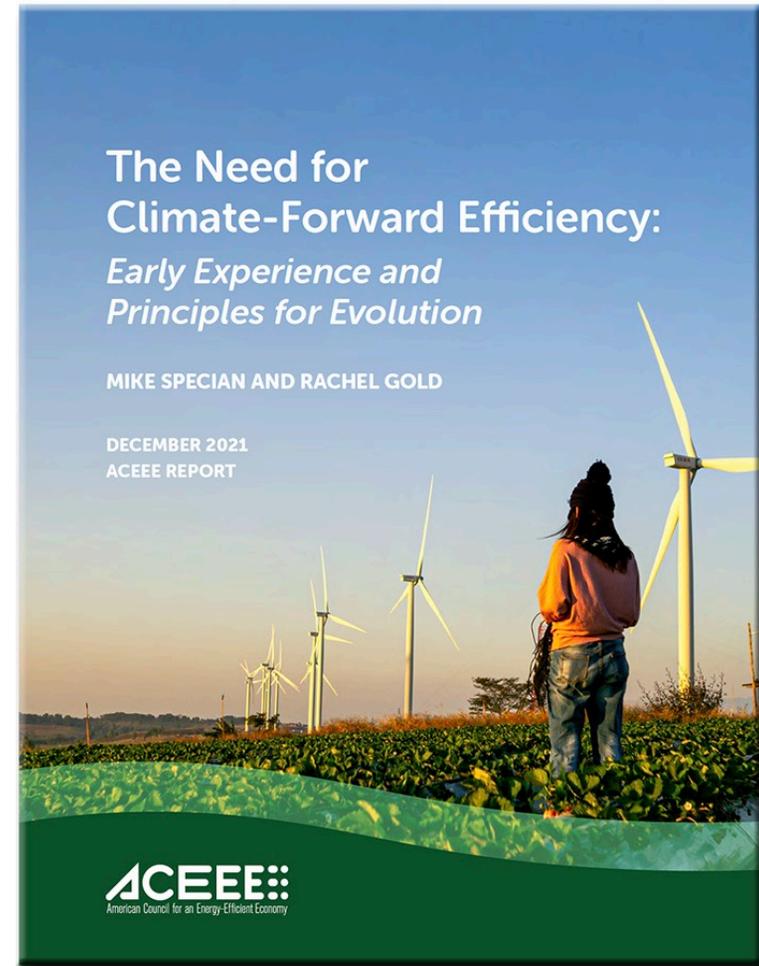
A Roadmap for Climate-Forward Efficiency

<https://www.aceee.org/research-report/research-report/u2202>



The Need for Climate-Forward Efficiency: Early Experience and Principles for Evolution

<https://www.aceee.org/research-report/u2106>



What is climate-forward efficiency?

We define climate-forward efforts as those that:

- Treat energy efficiency as an intentional driver of GHG reductions;
- Scale to meet the magnitude of the decarbonization goals in policy and utility corporate commitments;
- Leverage energy efficiency as a tool to mitigate and adapt to the impacts of climate change on customers by advancing equity, enhancing resilience, and improving health outcomes;
- Prioritize energy efficiency investments based on their time, seasonal, and geographic impacts; and
- Enable prioritization of investments across fuels, systems, and sectors, particularly from electrification.

We conducted expert interviews and facilitated 3 climate-forward efficiency workshops



ACEE Climate-Forward Efficiency Workshop #1	
Friday, June 25, 2021	2:00pm - 4:00pm EST
Utility energy efficiency programs have a track record of saving customers energy and money, but the vast majority are not yet meeting their potential to mitigate climate change. Amid a rapid rise in renewable power generation and in technology enabling demand flexibility, it's time to restructure efficiency efforts to focus them on doing their critical part to reduce greenhouse gas emissions.	
This workshop, part of ACEE's Climate-Forward Efficiency Initiative, will engage stakeholders drawn from leading utilities, program administrators and implementors, state regulators, government, advocacy organizations, and the modeling/analysts communities to create a roadmap for this transformation and support those stakeholders with the research, tools, and technical assistance to make these changes.	
Desired Outcomes:	
<ul style="list-style-type: none"> Surface the potential needs and challenges with the shift to climate-forward efficiency from the perspectives of key stakeholders, across regions and roles Understand, test, and collaboratively refine a roadmap framework for advancing climate-forward efficiency 	
Agenda	
2:00 - 2:20	Welcome / Introductions / Check-In <ul style="list-style-type: none"> Establish ground rules, norms, and mutual agreements for workshop series
2:20 - 2:30	Motivation for Climate-Forward Efficiency <ul style="list-style-type: none"> Working draft of energy efficiency (greenhouse gas alignment framework) <ul style="list-style-type: none"> Motivating the need for alignment of energy efficiency portfolios with GHG emissions Potential framework's challenges, and concerns associated with alignment Panel: Grid, Director Utilities Program, ACEE
2:30 - 2:50	Breakout Session 1 <ul style="list-style-type: none"> Reactions to Climate-Forward Efficiency motivation <ul style="list-style-type: none"> Is your motivation for climate-forward efficiency included in our working draft? Other challenges might you see from 100% alignment of energy efficiency with climate?
2:50 - 3:00	Break
3:00 - 3:10	Presentation: Draft Roadmap Framework for Climate-Forward Efficiency Mike Specian, Utilities Program, ACEE
3:10 - 3:35	Breakout Session 2 <ul style="list-style-type: none"> Discuss reactions to roadmap framework in groups: <ul style="list-style-type: none"> Is this framework in line with your current thinking? What might be missing? What should be reorganized? How could the framework be most helpful to you?
3:35 - 3:45	Breakout Session Shareout
3:45 - 4:00	Prioritization Exercise <ul style="list-style-type: none"> Identify which framework strategies participants would like to dive deeper into during Workshop #2 on July 8.
4:00	Adjourn

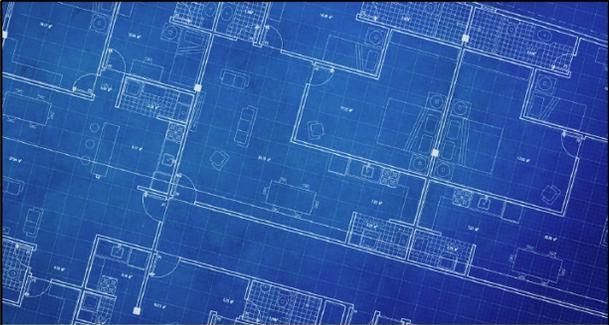
Climate-Forward Efficiency Workshop #2	
Friday, July 2, 2021	1:00pm - 4:00pm EST
Utilities have a track record of saving customers energy and money, but the vast majority are not yet meeting their potential to mitigate climate change. Amid a rapid rise in renewable power generation and in technology enabling demand flexibility, it's time to restructure efficiency efforts to focus them on doing their critical part to reduce greenhouse gas emissions.	
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Agenda	
1:00 - 1:15	Introductions / Agenda Overview
1:15 - 1:30	Climate-Forward Efficiency Framework A roadmap framework based on feedback from Workshop #1 Mike Specian, Utilities Program, ACEE
1:30 - 1:45	Session 1 Small group breakouts to dive deeper on specific strategy elements of the roadmap framework.
1:45 - 2:00	What are the barriers to progress for this strategy? and are there emerging examples? What are the opportunities for new solutions for this strategy, and what needs to do it? What needs to happen in the next 15-10 years to make progress, and what needs to do it? What information do we not have now that is needed to make progress? What are our unanswered questions?
2:00 - 2:15	Session 2 Small group breakouts to dive deeper on specific strategy elements of the roadmap framework.
2:15 - 2:30	What are the barriers to progress for this strategy? and are there emerging examples? What are the opportunities for new solutions for this strategy, and what needs to do it? What needs to happen in the next 15-10 years to make progress, and what needs to do it? What information do we not have now that is needed to make progress? What are our unanswered questions?
2:30 - 2:45	Clustering of Notes
2:45 - 3:00	Guided Discussion from Breakout Sessions
3:00 - 3:15	Requests Opportunity for participants to identify requests of others to accelerate their work on climate-forward efficiency, and to offer support for other participants.

Climate-Forward Efficiency Workshop: Workforce	
Friday, July 2, 2021	5:30pm - 8:00pm EST
Utilities have a track record of saving customers energy and money, but the vast majority are not yet meeting their potential to mitigate climate change. Amid a rapid rise in renewable power generation and in technology enabling demand flexibility, it's time to restructure efficiency efforts to focus them on doing their critical part to reduce greenhouse gas emissions.	
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<ul style="list-style-type: none"> Surface the potential needs and challenges with the shift to climate-forward efficiency from the perspectives of key stakeholders, across regions and roles Understand, test, and collaboratively refine a roadmap framework for advancing climate-forward efficiency 	
Agenda	
5:30 - 5:45	Agenda Overview
5:45 - 6:00	Climate-Forward Efficiency Framework A roadmap framework based on feedback from Workshop #1 Mike Specian, Utilities Program, ACEE
6:00 - 6:15	Session 1 Small group breakouts to dive deeper on specific strategy elements of the roadmap framework.
6:15 - 6:30	What are the barriers to progress for this strategy? and are there emerging examples? What are the opportunities for new solutions for this strategy, and what needs to do it? What needs to happen in the next 15-10 years to make progress, and what needs to do it? What information do we not have now that is needed to make progress? What are our unanswered questions?
6:30 - 6:45	Session 2 Small group breakouts to dive deeper on specific strategy elements of the roadmap framework.
6:45 - 7:00	What are the barriers to progress for this strategy? and are there emerging examples? What are the opportunities for new solutions for this strategy, and what needs to do it? What needs to happen in the next 15-10 years to make progress, and what needs to do it? What information do we not have now that is needed to make progress? What are our unanswered questions?
7:00 - 7:15	Clustering of Notes
7:15 - 7:30	Guided Discussion from Breakout Sessions
7:30 - 7:45	Requests Opportunity for participants to identify requests of others to accelerate their work on climate-forward efficiency, and to offer support for other participants.

Climate-Forward Efficiency Roadmap Framework



Structure of the Report



POLICY ALIGNMENT STRATEGY

UPDATE GUIDELINES FOR RESOURCE ELIGIBILITY AND VALUATION

Many utilities face barriers that impede access to customer decarbonization solutions. These barriers include limits on the resources eligible for ratepayer-funded utility support and challenges in capturing the full range of benefits from climate-forward efficiency (including climate mitigation and adaptation).

Most states limit the definitions of eligible EE resources to a set that excludes viable decarbonization options. Other states explicitly prohibit utilities from deploying certain energy conservation measures. These restrictions are often the result of longstanding state rules. Examples of excluded options include those that replace fossil-fueled technologies with more-efficient electric technologies such as heat pump water heaters and electric heat pumps.

In addition to expanding the definitions of eligible measures, states and utilities should consider whether and how to incentivize new efficiency appliances such as furnaces, boilers, and water heaters that use fossil fuels (e.g., natural gas, fuel oil, and propane). While these measures may produce immediate reductions in fossil fuel use—and attendant GHG reductions—those savings will need to be compared against the potential to “lock in” the emissions stream over the device’s lifetime where lower-carbon options for electrification are available (Billmorira and Henchen 2020).

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CLIMATE-FORWARD EFFICIENCY ROADMAP • 25

POLICY ALIGNMENT STRATEGIES

Advancing climate-forward efficiency will also require reform to CETs, which often fail to fully capture beneficial program impacts¹⁹ and can thus prevent technologies or program approaches from being included in a utility’s portfolio of offerings. ACEEE surveys have found that existing tests are inconsistently applied across states, which motivated the publication of a recommended set of benefit-cost analysis principles in the *National Standard Practice Manual for Benefit-Cost Analysis of DERs (NSPM) (NESP 2021)*. The NSPM lays out a general process that states and others can follow to incorporate their policy goals into CETs.²⁰ Its publication has sparked valuation conversations in multiple states, resulting in revamped tests. States interested in pursuing climate-forward efficiency can use the NSPM process to develop jurisdiction-specific tests that align with their policy goals.

Fully valuing EE faces some headwinds. In many regions, traditional system benefits are falling along with growing renewable energy generation and low natural gas prices. Some consumer advocates are concerned about rising costs of DSM and rate impacts, even as EE remains the least-cost resource on average (Cohn 2021). Moreover, for many communities, cost-effectiveness conversations tend to be inaccessible, which compromises their robust representation in reform discussions. In addition, some commissions and intervenors have historically expressed skepticism about evaluators’ ability to measure nonenergy impacts with the same “accuracy” level as other impacts. As a result, many regulators consider it inappropriate to use valuations of nonenergy impacts in system planning.

¹⁹ Cost-effectiveness testing primarily establishes a “go/no-go” criterion for energy efficiency programs or portfolios. This is distinct from the crucial task of establishing the objectives around which utilities optimize their portfolios.

²⁰ Many standard cost tests—including the total resource cost (TRC) test, utility cost test (UCT), participant cost test (PCT), and ratepayer impact measure (RIM) test—fail to account for the impacts EE offers in the form of reduced emissions. A societal cost test (SCT) can account for these impacts, but only if the state requires the proper inputs.

²¹ This includes accounting for EE’s nonenergy benefits, such as decarbonization. About two-fifths of U.S. states have included the value of carbon emissions in their CETs, though often not at a high enough level to drive appropriate screening and selection of decarbonization measures.

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Structure of the Report

Option

REFORM COST-EFFECTIVENESS TESTING

Regulators can reform cost-effectiveness testing to update how utilities value climate-forward efficiency. Such reforms can also ensure that valuation uses best practices and supports state climate goals by delivering the most cost-effective, fuel-neutral decarbonization measures available. Cost-effectiveness tests (CETs) should account for the value that EE provides in the form of reduced GHG emissions, health benefits, and climate change resilience. In states where a robust accounting is not possible, an alternative step might include replacing the most common total resource cost (TRC) test, which often fails to fully account for the benefits efficiency delivers to program participants, to a utility cost test (UCT) that more fairly compares efficiency programs' costs and benefits (albeit only to the utility system).⁸

Another option is to offer cost-effectiveness testing flexibility or exemptions for low-income programs, as 42 states have done (Berg et al. 2020). States could, for example, choose to replicate California's decision to separate its EE portfolio into segments and lift the cost-effectiveness requirement for segments that deliver non-GHG climate-forward efficiency benefits, such as equity.

Deeper reforms can use the UCT to account for the avoided costs of state policy goals (e.g., climate change mitigation and adaptation through avoided CO₂ and methane emissions, and climate change resilience) to include the test. With further changes to program and market designs, valuation can move from a go/no-go CET filter to a more robust market signal.

Actions to advance the update guidelines for resource eligibility and valuation strategy reform cost-effectiveness testing:

Short term (0-2 years)	Medium term (2-5 years)
<ul style="list-style-type: none">→ Advocates develop and share best practices and studies of states that have modified CET to reflect their policies and apply consistent benefit-cost analyses across all DERs→ Regulators require utilities in IRPs and DSM proceedings to make their key avoided-cost input data transparent→ Legislators or regulators initiate proceedings or legislation to revisit avoided-cost assumptions and processes→ Utilities propose new forms of valuation to PUCs and support relevant legislative action	<ul style="list-style-type: none">→ Regulators and regulators integrate regulatory proceedings to focus on common valuation end points (e.g., system value plus the social goals of decarbonization)→ Regulators set new benefit-cost analysis rules that fully capture the benefits of EE programs→ Utilities expand potential studies to address electrification and DERs without being constrained by outdated assumptions that exclude or undervalue GHG reductions and other nonenergy benefits

⁸ In many cases, the UCT permits more EE than the TRC, particularly if the TRC is asymmetrical (i.e., counting all participant costs, but not participant benefits). In these cases, even though the UCT looks only at utility system costs, its simplicity makes it easier to defend to regulators, and therefore allows for more EE to occur.

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Actions

Structure of the Report

CLIMATE-FORWARD EFFICIENCY ROADMAP • 29

POLICY ALIGNMENT STRATEGIES

Examples

EXPANDING THE DEFINITION OF EFFICIENCY IN MINNESOTA

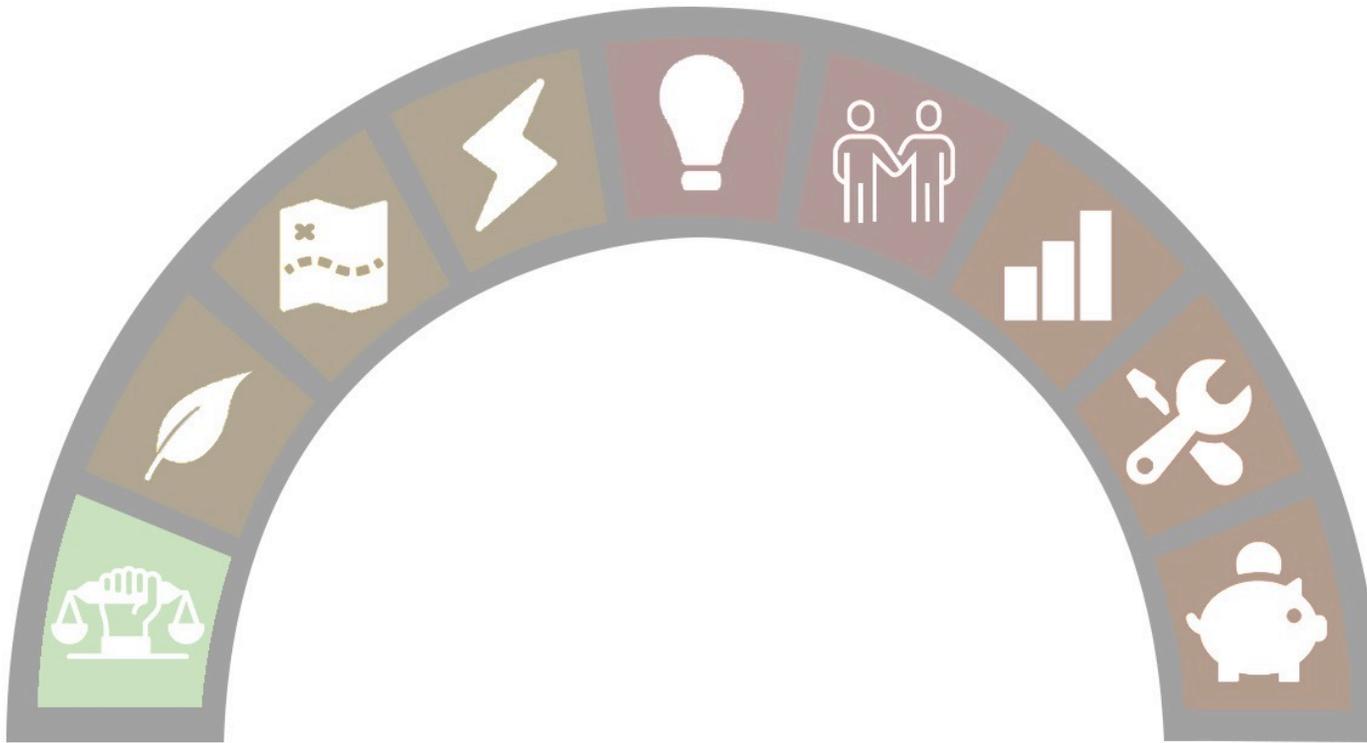
To address barriers to efficient fuel switching in its existing statute and practices, Minnesota passed the Energy Conservation and Optimization (ECO) Act, which expanded the set of measures utilities could support through ratepayer-funded efficiency offerings (Minnesota House of Representatives 2021). The ECO Act allows cost-effective load management and fuel switching measures when they result in a net decrease in source energy consumption. To address concerns regarding the bill's impact on propane interests, the law includes limits through 2026 on the degree to which fuel switching can count toward savings goals and be funded by ratepayer dollars. The Minnesota Department of Commerce will promulgate rules for implementing the new statutory requirements.

ADJUSTING THE ROLE OF EFFICIENT FOSSIL-FUEL-BASED APPLIANCE INCENTIVES IN MASSACHUSETTS

In its recent 2022–2024 proposed plan, Massachusetts program administrators attempted to balance analysis of both cost effectiveness and GHG concerns associated with efficient gas, fuel oil, and propane appliances. Over the three year period, their plan proposes to phase out incentives for some measures, such as central air-conditioning systems that are not heat pumps, and to immediately eliminate incentives for replacing condensing natural gas and propane heating systems with new condensing systems. However, the plan will continue offering residential incentives for condensing and efficient condensing oil furnaces as long as baseline data continue to show there are still material cost-effective savings and benefits to be realized (MA EEAC 2021).

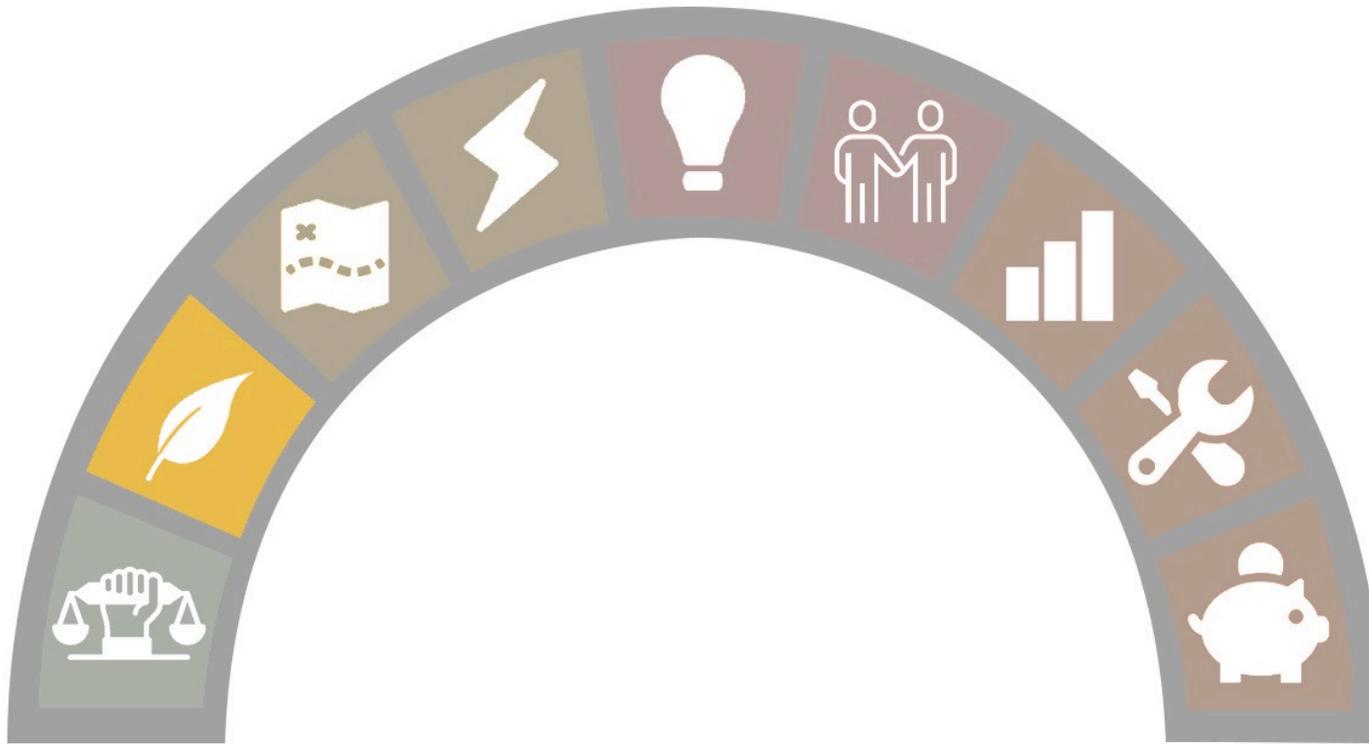
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Center Equity



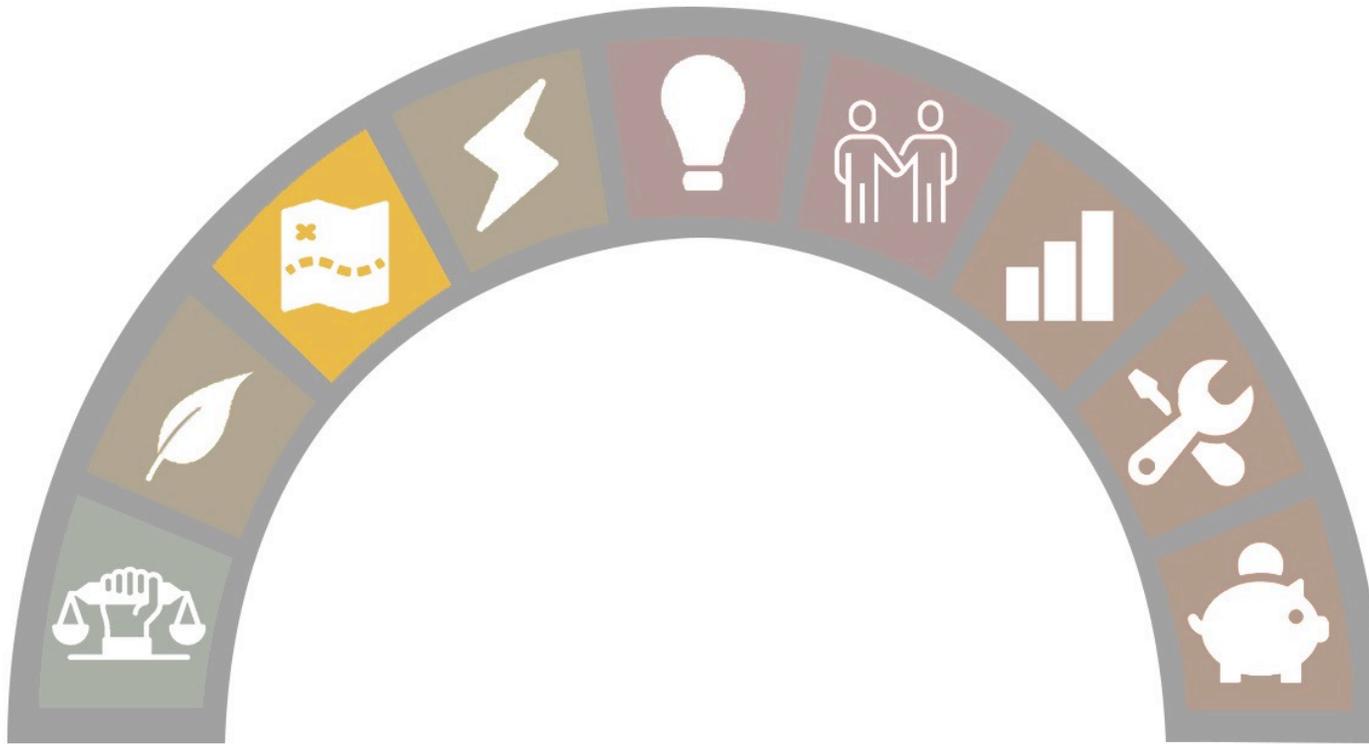
- Engage Communities and Stakeholders in Planning and Decision-Making
- Establish Equity Accountability Standards
- Collect Needed Equity Data

Set Climate Commitments



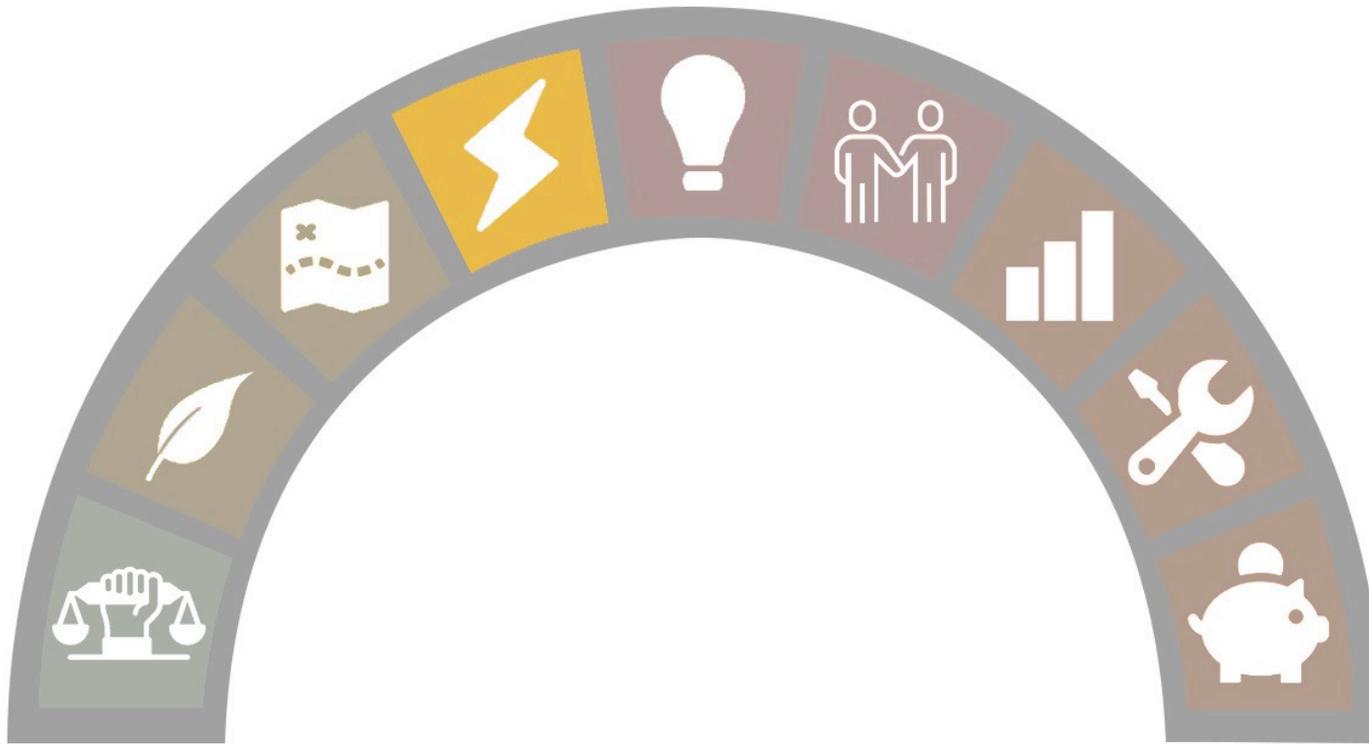
- Establish Climate Targets
- Clarify Regulatory Responsibilities
- Set EE Program Goals and Investment Plans That Align with Climate Commitments

Update Guidelines for Resource Eligibility and Valuation



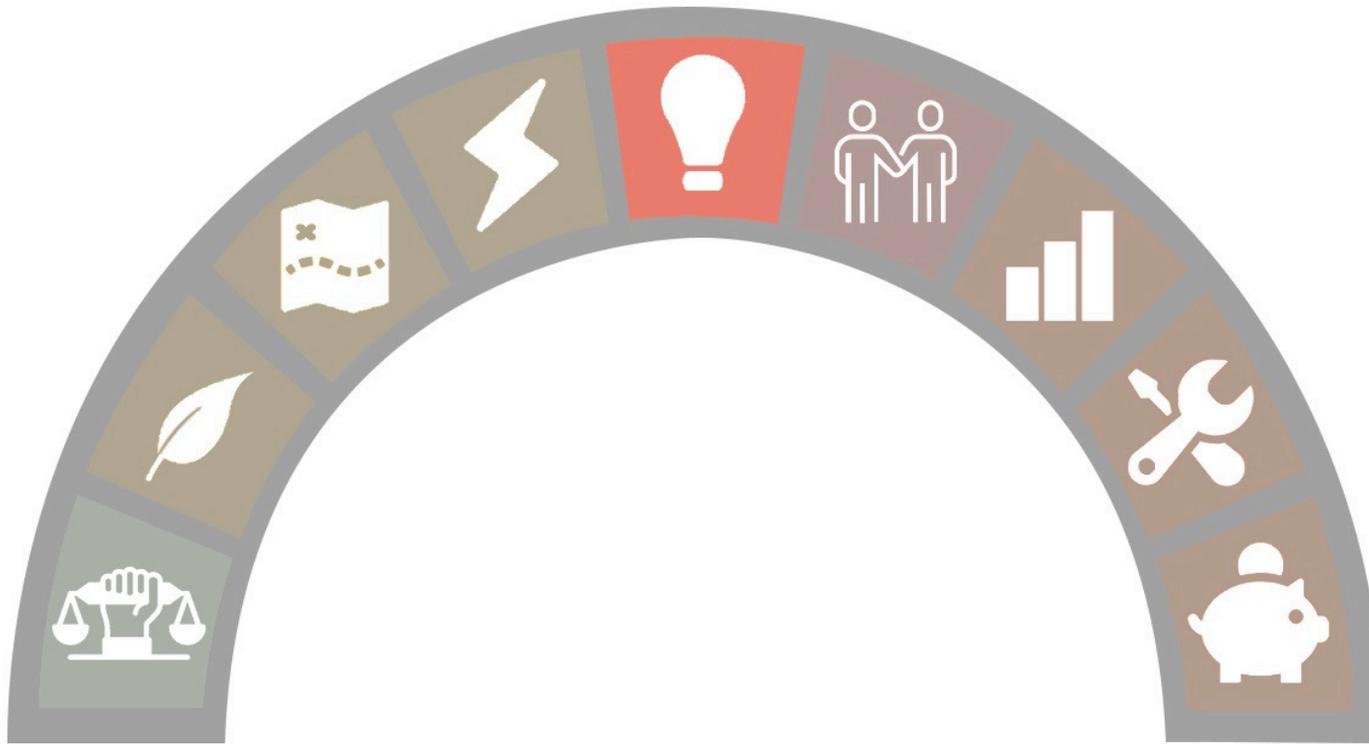
- Redefine the Efficiency Measures That Ratepayers Can Support
- Reform Cost-Effectiveness Testing
- Analyze the Role of Efficient Gas Appliance Incentives in Decarbonization

Reform Utility Business Models



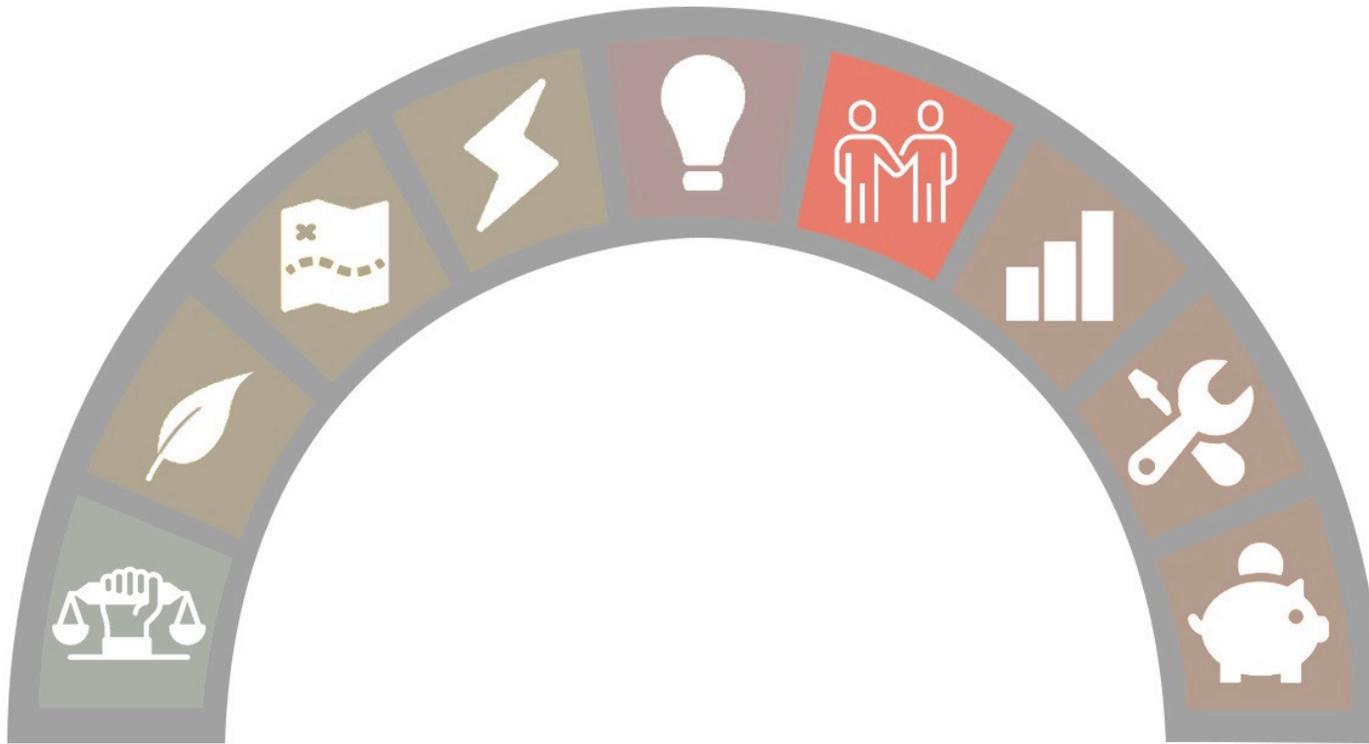
- Establish or Update Revenue Decoupling
- Consider Performance Incentive Mechanisms That Align Performance with GHG
- Reform Rate Design to Benefit Customers and Grid Decarbonization
- Adopt New Procurement Models

Design Effective, Scalable Programs



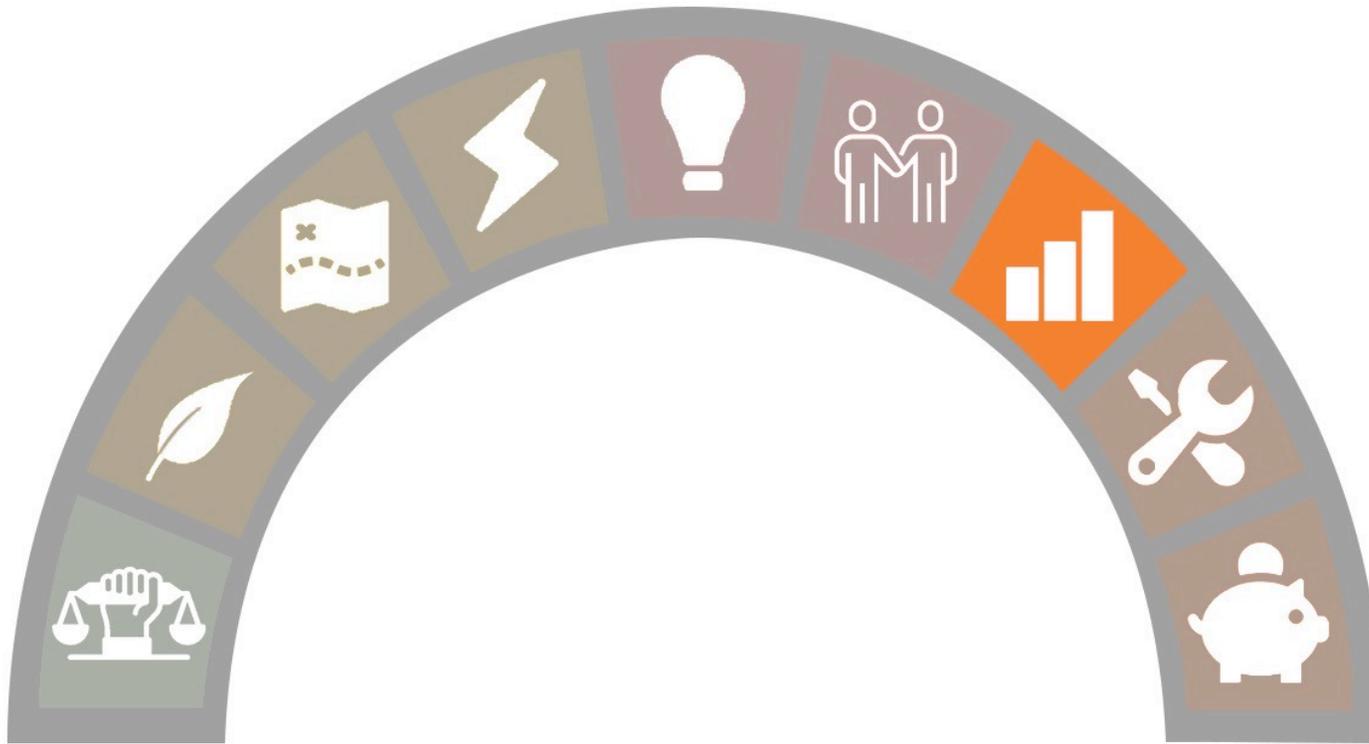
- Make Programs Easy for Customers
- Test and Adjust Marketing Messages to Smaller Customer Segments
- Support Market Development and Transformation

Administer Integrated Programs



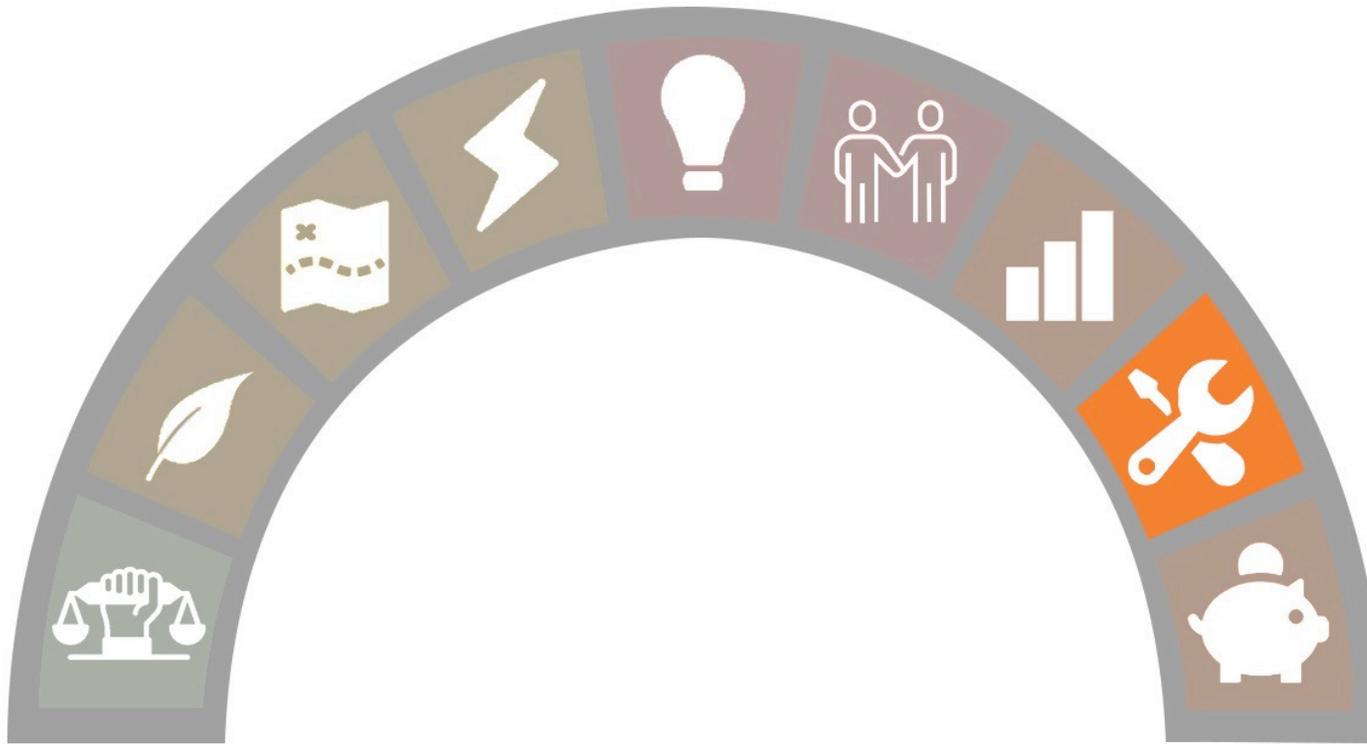
- Bundle Measures in Customer Offerings
- Offer Staged Upgrades
- Break Down Silos in Regulation and Utility Operations
- Unlock Real-Time Program Designs

Unlock Necessary Data



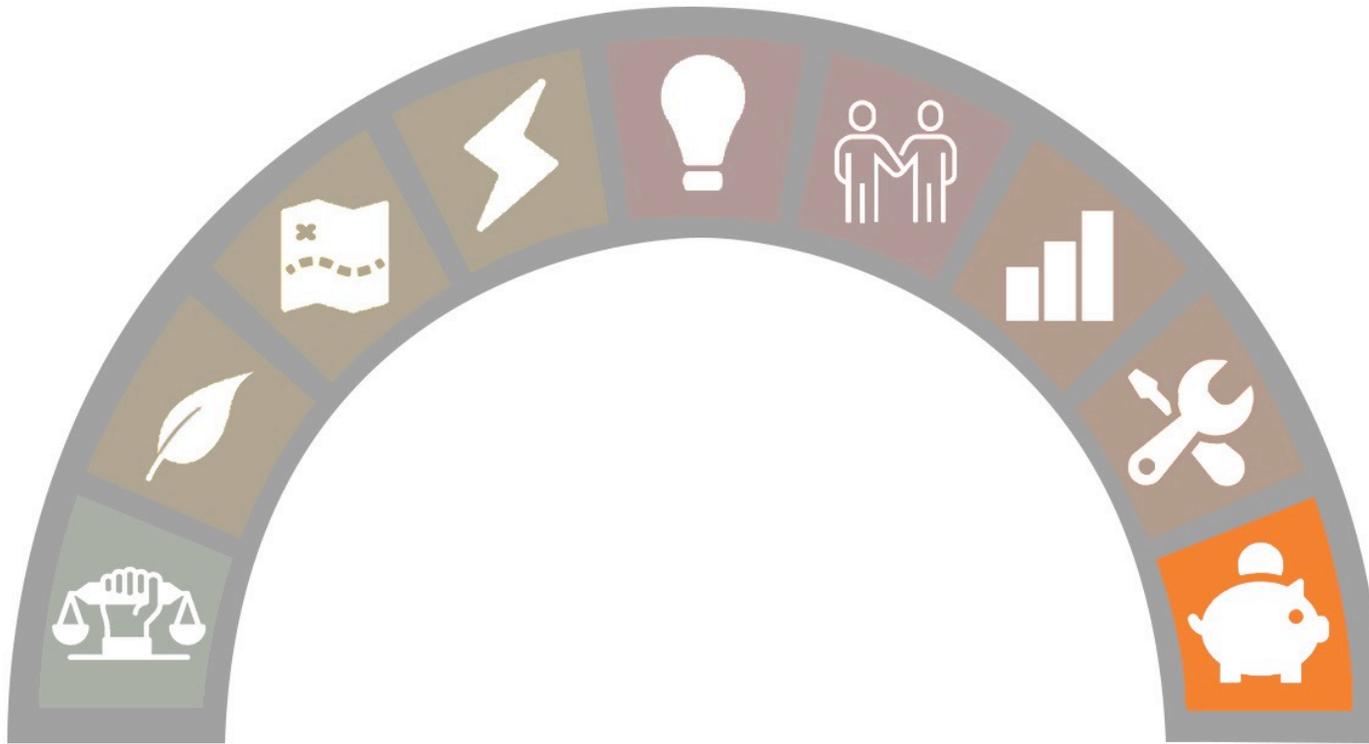
- Increase Secure Access to and Use of Energy Consumption Data
- Improve Measure Shape and Life Data
- Obtain High-Resolution Marginal Emissions Data
- Leverage Avoided-Cost Data

Prepare the Workforce

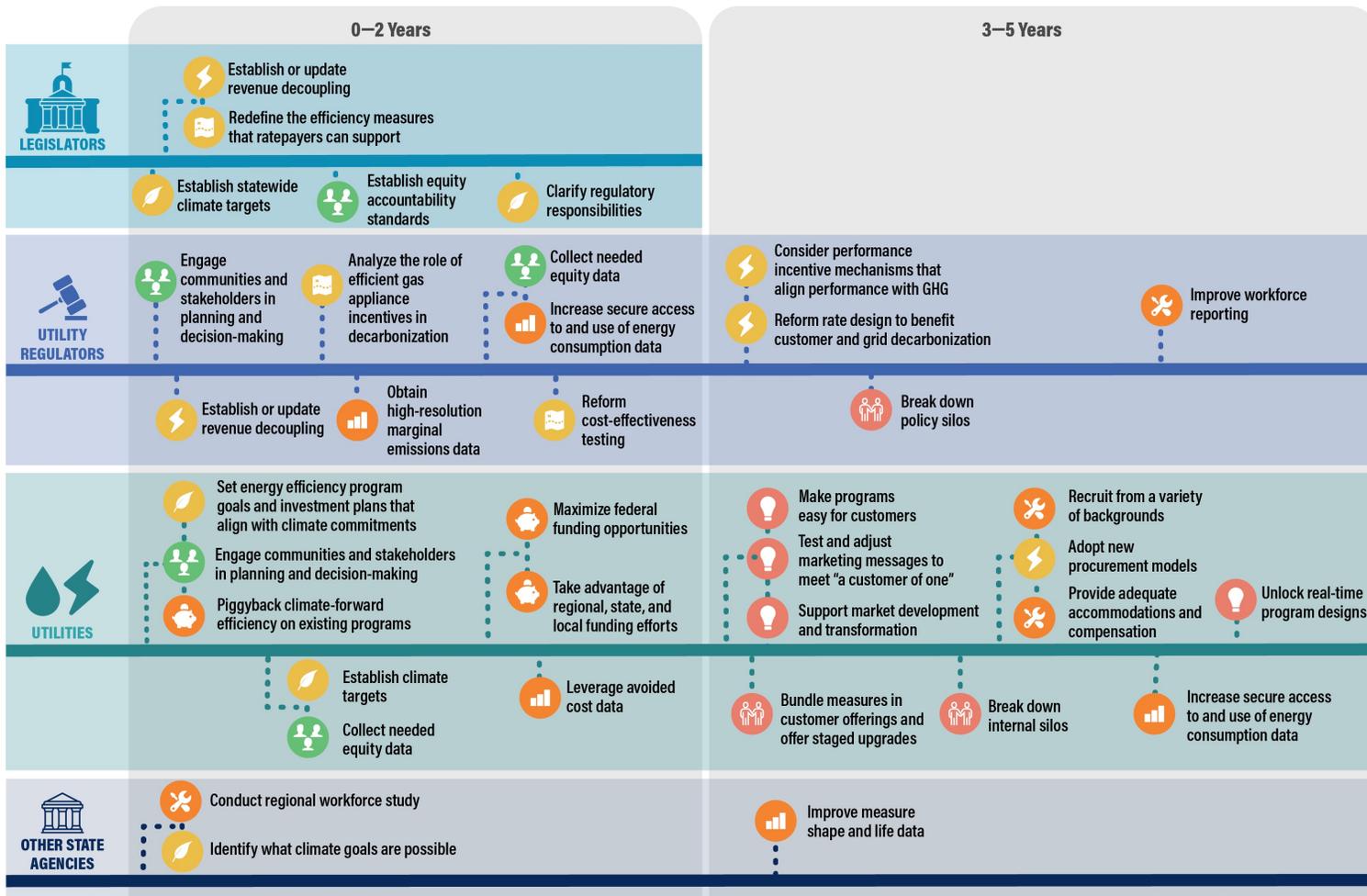


- Conduct Regional Workforce Study
- Improve Workforce Reporting
- Recruit from a Variety of Backgrounds
- Provide Adequate Accommodations and Compensation

Secure Funding



- Maximize Federal Funding Opportunities
- Take Advantage of Regional, State, and Local Funding Efforts
- Piggyback Climate-Forward Efficiency on Existing Programs



STRATEGIES

- Center equity
- Update guidelines for resource eligibility and valuation
- Unlock necessary data
- Secure funding
- Administer integrated programs
- Set climate commitments
- Reform utility business models
- Prepare workforce
- Design effective, scalable programs

Q&A

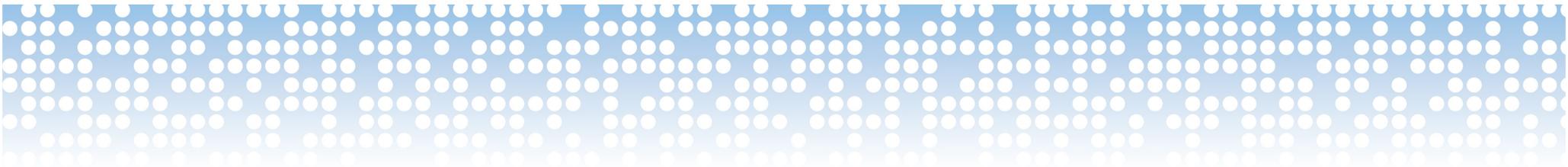
Please use the chat to submit questions about the *A Roadmap for Climate-Forward Efficiency* report!



Rachel Gold, Report Co-Author, RMI



Mike Specian, Report Co-Author, ACEEE



Climate-Forward Efficiency Lightning Round

Speakers

Moderator: Rachel Gold, Report Co-Author, RMI

- Jaime Fitzke, Director of Legislative Affairs, Center for Energy and Environment
- Anthony Fryer, Conservation Improvement Program Supervisor, Minnesota Department of Commerce
- Massachusetts State Senator Mike Barrett
- Rebecca Foster, Chief Executive Officer, VEIC
- Justin Brant, Utility Program Co-Director, Southwest Energy Efficiency Project (SWEET)
- Nick Mark, DSM Strategy and Policy, Xcel Energy
- Delmar Gillus, Chief Operating Officer, Excel
- Carmen Best, Vice President of Policy and Emerging Markets, Recurve
- Scott Hinson, Chief Technology Officer, Pecan Street Inc.

Please use the chat to submit questions!

ACEEE 2022 Climate-Forward Efficiency Symposium

Jamie Fitzke

Director of Legislative Affairs

jfitzke@mncee.org

cee^{••}
Center for Energy and Environment





At our core

PROGRAMS



We cut energy waste while improving comfort in homes, commercial buildings, and communities.

RESEARCH



We identify and explore cost-effective, efficient technologies and ideas through field analysis, modeling, and stakeholder engagement.

CONSULTING



We help building owners and entire communities achieve long-term, energy-saving solutions.

POLICY



We strive for high-impact, pragmatic solutions guided by a public interest ethic.

LENDING

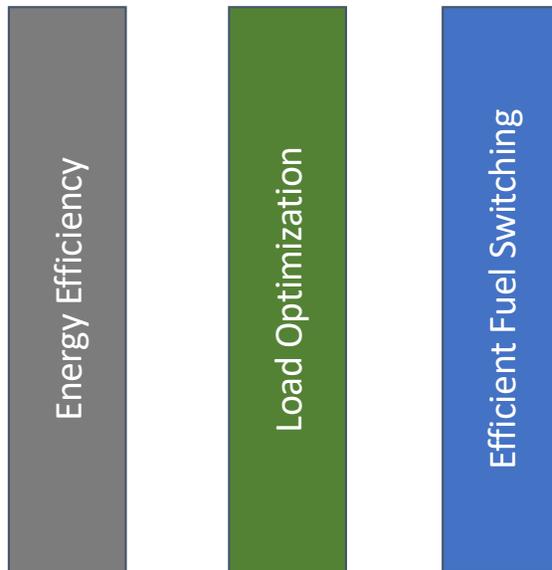


We empower people to make upgrades on energy efficiency and comfort in homes or businesses.

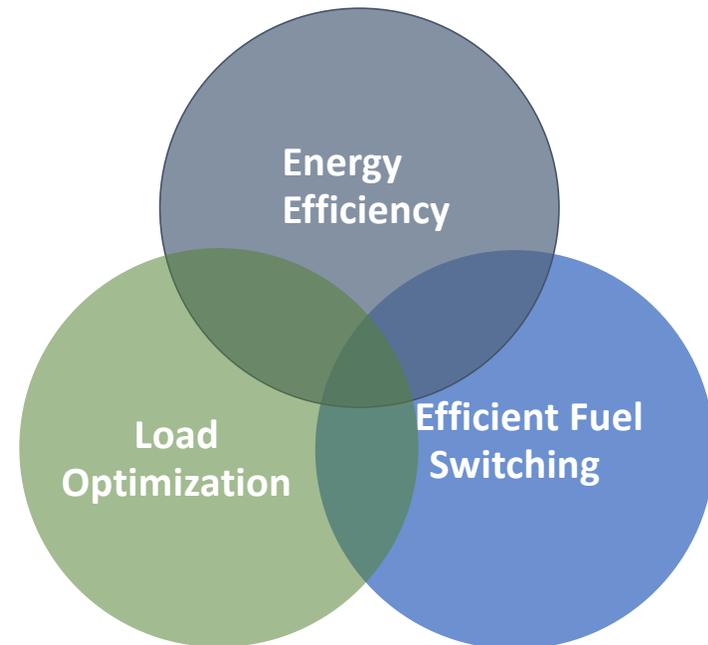


Energy Conservation and Optimization (ECO)

Silo



ECO Integration





Energy Conservation & Optimization (ECO) Act

ENERGY CONSERVATION & OPTIMIZATION

Modernizing the Conservation Improvement Program (CIP), by bringing innovation, options, and savings to Minnesota utilities and their customers.



UTILITY BENEFITS

- Streamlines regulatory process
- Spending requirement eliminated
- Fuel-neutral framework



CUSTOMER BENEFITS

- \$600/year saved for average Minnesota household
- More efficiency choices
- More fuel source choices



MINNESOTA BENEFITS

- More local jobs
- Jobs that CANNOT be outsourced
- Less reliance on fuel imports



LOAD MANAGEMENT

- More choice in when to use energy
- Further reductions in residential customer costs
- Avoids building excess infrastructure



EFFICIENT FUEL SWITCHING

- Limited by these criteria:
- ✓ Must reduce amount of energy used
 - ✓ Must be cost-effective
 - ✓ Must not add to utility peak demand
 - ✓ Must reduce greenhouse gas emissions



Anthony Fryer

Conservation Improvement Program
Supervisor, Minnesota Department of
Commerce



American Council for an Energy-Efficient Economy

Senator Mike Barrett

Massachusetts State Senator



American Council for an Energy-Efficient Economy

Rebecca Foster

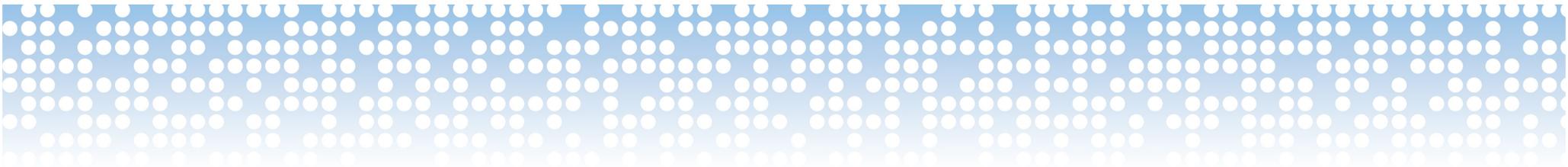
Chief Executive Officer, VEIC



Justin Brant

Utility Program Manager, Southwest
Energy Efficiency Project





Nick Mark

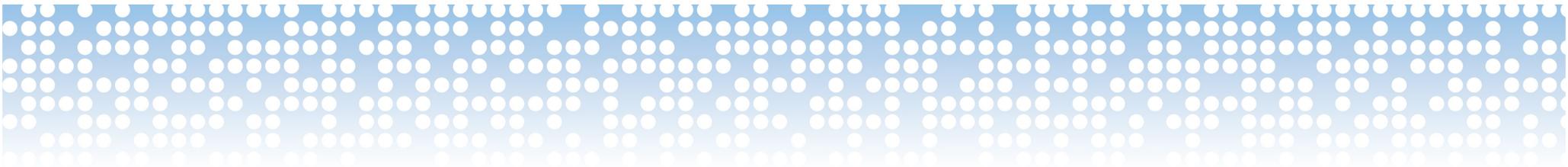
DSM Strategy and Policy, Xcel Energy



Delmar Gillus

Chief Operating Officer, Elevate





Carmen Best

Vice President of Policy and Emerging
Markets, Recurve



Scott Hinson

Chief Technology Officer, Pecan Street



Climate-Forward Efficiency Panel Discussion

Please use the chat to submit questions!



Jamie Fitzke



Anthony Fryer



Mike Barrett



Rebecca Foster



Justin Brant



Nick Mark



Delmar Gillus



Carmen Best



Scott Hinson



Rachel Gold (Moderator)

Next Steps

- Stay informed with the Climate-Forward Efficiency newsletter: bit.ly/newsletterCFE
- Explore *A Roadmap for Climate-Forward Efficiency* published this morning!
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