



**BUREAU OF ENERGY AND
TECHNOLOGY POLICY**

November 16, 2021

2022-2024 Conservation and Load Management Plan

Technical Meeting
Department of Energy and Environmental Protection



Meeting Logistics

During the Meeting:

- This meeting will be recorded. Recordings and slides will be available on DEEP's C&LM webpage after the meeting.
- Please remain on mute.
- Refrain from using the chat function for side conversations.

Public Comments and Questions

- There will be opportunity for public comments at the beginning and end of each day.
- We will begin with those that pre-registered to comment, then open the floor for additional comments.
- If you did not register but would like to make a comment, please raise your hand and we will recognize you, in order, as time allows.
- Please keep comments to no more than three minutes.
- Attendees can ask questions of presenters using the chat function. DEEP will facilitate these questions.

Conservation and Load Management Plan Review

Completed:

- The Utilities worked to develop the 2022-2024 Conservation and Load Management Plan with guidance from the Energy Efficiency Board, Consultants, and DEEP.
- The Energy Efficiency Board held public input sessions on the draft 2022-2024 Plan, most recently in August.
- The Energy Efficiency Board approved the 2022-2024 Plan text in September and the budgets and savings tables in October.
- The Utilities filed the 2022-2024 Plan with DEEP on November 1, 2021.
- DEEP issued Requests for Information regarding the 2022-2024 Plan to the Utilities on November 4, 2021. The Utilities began issuing responses to these Requests on November 12, 2021.

In Progress:

- DEEP is holding three public meetings to inform its review of the 2022-2024 Plan:
 - November 16 Technical Meeting
 - November 17 Public Input Session
 - November 18 Technical Meeting
- DEEP will issue a Draft Determination on the 2022-2024 Plan. At that time, there will be an opportunity for written comments.
- DEEP will issue a Final Determination on the 2022-2024 Plan that considers information received during this process.

Where can I find C&LM planning documents?

[DEEP C&LM webpage:](#)

- News and information about upcoming DEEP meetings
- Current and approved C&LM plans, including the proposed [2022-2024 Plan](#)
- Archived C&LM planning documents
- Related DEEP initiatives, including the Equitable Energy Efficiency Proceeding and Weatherization Barrier Remediation Program.

[DEEP Energy Filings:](#)

- Filed C&LM Plans and annual updates
- DEEP Determinations, including compliance conditions
- Utility responses to compliance conditions, requests for information, annual reporting, and other items
- Records of ongoing DEEP proceedings

[Energy Efficiency Board Website:](#)

- C&LM planning documents
- Schedules of Board and Committee meetings
- Presentations from Board and Committee meetings, including quarterly and annual reporting from the Utilities
- Program evaluation report and annual legislative reports
- [Statewide Energy Efficiency Dashboard](#) of program activity

[Energize CT Website:](#)

- Customer-facing information on solutions, incentives, programs, and events
- Electric Supplier Rate Board

Today's Schedule – November 16

9:00-9:30	Opening remarks and public comment
9:30-12:30	<p>Cross-Sector Topics</p> <p>Presentations</p> <ul style="list-style-type: none"> • Cost-effectiveness testing: Chris Neme, Energy Futures Group • 2022-2024 Plan overview and cross-sector topic: Utilities • Performance management incentives: Glenn Reed, Energy Futures Group
12:30-1:30	Break
1:30-2:30	<p>Evaluations</p> <p>Presentations</p> <ul style="list-style-type: none"> • 2022-2024 Evaluation Planning: Lisa Skumatz (SERA) • EM&V applications: Utilities
2:30-4:30	<p>Commercial and Industrial Portfolio</p> <p>Presentations</p> <ul style="list-style-type: none"> • Portfolio overview: Utilities • C&I vendor perspective: Dan Robertson and Randy Vagnini, Commercial Contractor Consortium • Connecticut Industrial Energy Consumers: Jay Goodman, CIEC
4:30-5:00	Public comment and closing remarks

Public Comment

- We will begin with those that pre-registered to comment, then open the floor for additional comments.
- If you did not register but would like to make a comment, please raise your hand and we will recognize you, in order, as time allows.
- Please keep comments to no more than three minutes.
- Please unmute yourself when recognized and return to mute when you are finished.



**Empowering you to make
smart energy choices**

November 16, 2021

DEEP C&LM Technical Hearing EEB Presentation on Cost- Effectiveness Analysis

EEB Technical Consultants

Cost-Effectiveness Tests Used In CT

Test	Question Answered	CT Application
Utility Cost Test	For electric: Do total electric utility system costs go down? For gas: Do total gas utility system costs go down?	Primary test when only utility's regulated fuel is saved
Modified Utility Cost Test	Do total energy system costs go down? An "all fuels" version of the UCT.	Used when electric utility programs also save delivered fuels (e.g., oil, propane)
Total Resource Cost Test	Does the sum of energy system and program participant costs go down?	Primary test for low income programs; also secondary perspective on other programs

What is in Each Test Today (Electric Utility Programs)

Benefits

Benefit Type	Utility Cost Test	Modified Utility Cost Test	Total Resource Cost Test	Source
Electric System Benefits				
Energy	X	X	X	2021 AESC
Capacity	X	X	X	2021 AESC
Energy DRIPE	X	X	X	2021 AESC
Capacity DRIPE	X	X	X	2021 AESC
Reliability	X	X	X	2021 AESC
Pooled Transmission Facilities	X	X	X	2021 AESC
Transmission	X	X	X	EDCs (2018)
Distribution	X	X	X	EDCs (2018)
Gas System Benefits				
Gas		X	X	2021 AESC
DRIPE		X	X	2021 AESC
Other Benefits				
Oil		X	X	2021 AESC
Oil DRIPE		X	X	2021 AESC
Propane			X	2021 AESC
Water			X	CT rates
Participant Non-Energy Benefits			X	Various
Non-Embedded GHG Emissions			X	2021 AESC
Non-Embedded NOx Emissions			X	2021 AESC

Costs

Cost Type	Utility Cost Test	Modified Utility Cost Test	Total Resource Cost Test	Source
Costs				
Utility Non-Rebate Costs	X	X	X	Utility Progs
Utility Rebate Costs	X	X		Utility Progs
Total Efficiency Measure Cost			X	Various
Increase in Other Fuel Costs (if any)		X	X	2021 AESC

For gas utility programs:

- only gas system benefits in UCT;
- gas system + electric system + other fuel benefits in Modified UCT;
- All benefits for TRC

Changes in Electric Avoided Costs

- ~10% decline since 2018
- ~25% decline excluding non-embedded GHG costs

	AESC 2018	AESC 2018	AESC 2021	AESC 2021, relative to AESC 2018		Notes
	2018 cents/kWh	2021 cents/kWh	2021 cents/kWh	2021 cents/kWh	% Difference	
Avoided Retail Capacity Costs	2.00	2.11	1.18	-0.93	-44%	3,4,5,6
Avoided Retail Energy Costs	5.05	5.32	3.85	-1.48	-28%	5,7,8
Avoided RPS Compliance	0.39	0.41	1.28	0.86	208%	5,7,9
Subtotal: Capacity and Energy	7.48	7.85	6.30	-1.55	-20%	
GHG non-embedded	2.69	2.83	4.74	1.91	67%	5,10
NO _x non-embedded	0.18	0.19	0.08	-0.11	-55%	5
Transmission & Distribution (PTF)	2.26	2.38	2.02	-0.36	-15%	3,5,11
Value of Reliability	0.02	0.02	0.01	-0.01	-32%	3,5,6,12
Electric capacity DRIPE	0.97	1.03	0.41	-0.62	-60%	5,6
Electric energy and cross-DRIPE	2.08	2.19	1.20	-0.99	-45%	5,7,13
Subtotal: DRIPE	3.05	3.22	1.61	-1.60	-50%	-
Total	15.68	16.49	14.77	-1.72	-10%	-

Changes in Gas Avoided Costs

	Units	Southern New England	Northern New England
AESC 2018 (2018–2032)	2021 \$/MMBtu	\$7.91	\$7.57
AESC 2021 (2021–2035)	2021 \$/MMBtu	\$6.48	\$6.39
Percent change	%	-18%	-16%

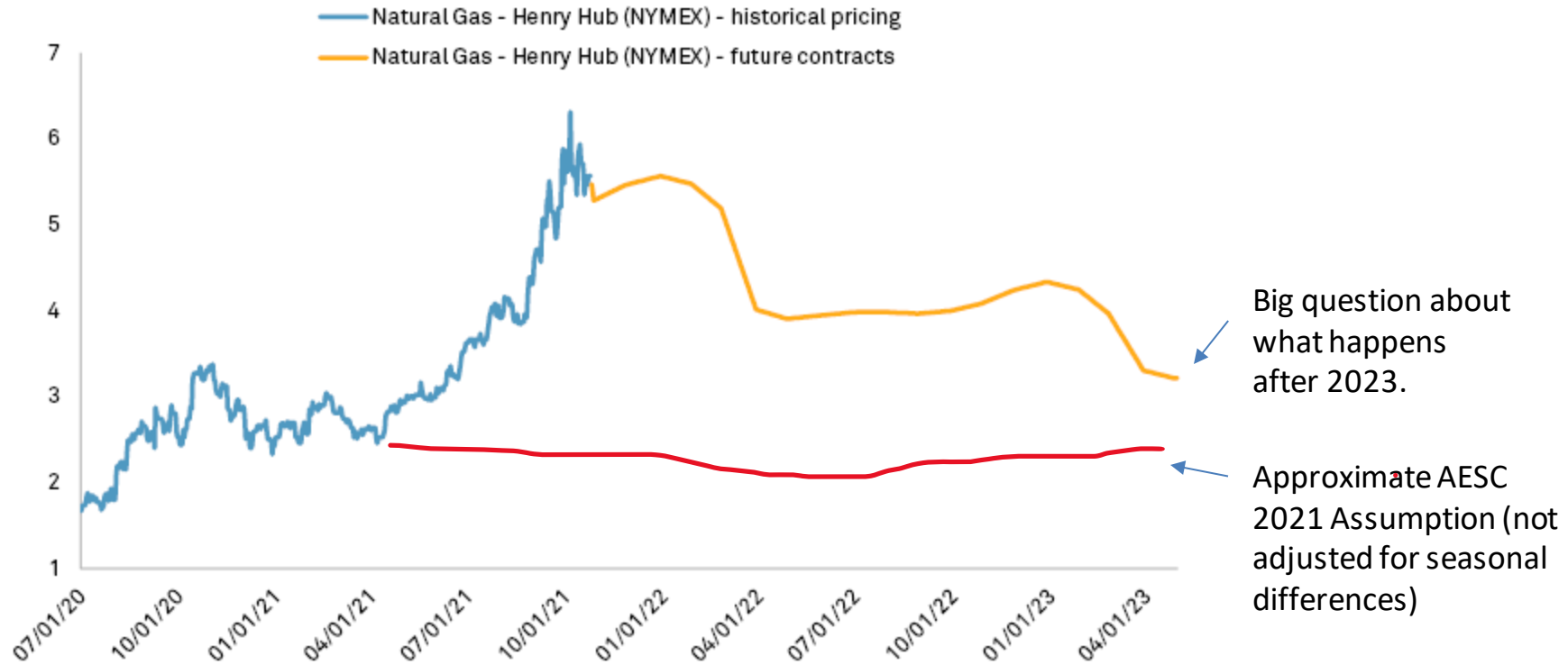
Source: 2021 AESC, Table ES-6 (15-year levelized values)

Estimates made before recent spike in gas costs.

- AESC 2021 forecast Henry Hub prices fall from \$3.23/MMBtu in 2021 to \$2.78 in 2023.
- Current Henry Hub prices ~\$5.50/MMBtu
- NYMEX Henry Hub futures ~\$4.40/MMBtu for January 2023

Avoided Costs Assumptions – Especially Gas – Now Likely to be Low (at least in near term)

Benchmark natural gas price has more than tripled since Q3'20 (\$/MMBtu)



As of Oct. 22, 2021, market close.
Source: S&P Global Market Intelligence

Valuing GHG Emission Reductions

	AESC 2018	AESC 2021	Difference	% Difference
Social cost of carbon (SCC or “damage cost”) at 2% discount rate	Not quantified	\$128	-	-
Global marginal abatement cost	\$105	\$92	-\$13	-12%
New England-based marginal abatement cost, derived from the electric sector	\$72	\$125	\$53	75%
New England-based marginal abatement cost, derived from multiple sectors	Not calculated	\$493	-	-

Source: 2021 AESC, Table 76 (15-year levelized values)

- Value used by CT Utilities
 - for TRC only
 - for both electricity and gas
- Based on 2% real discount rate
 - Very sensitive to discount rate
 - At 1% disc. rate, value is ~\$400/ton

Program Benefit-Cost Ratios

2022 Electric Programs

Sector	Eversource Electric			UI Electric		
	UCT	MUCT	TRC	UCT	MUCT	TRC
Res EE	0.98	2.17	2.41	1.22	2.36	2.12
C&I EE	2.02	2.01	1.69	1.86	1.86	1.41
DR	1.77	1.77	1.77	1.42	1.42	1.42
Total	1.36	1.78	1.80	1.33	1.70	1.50

Programs Cost-Effective

- Despite lower AESC 2021 avoided costs
- Without consideration of GHG benefits under UCT/MUCT

2022 Gas Programs

Sector	Eversource Gas		CT Natural Gas		Southern CT Gas	
	UCT	TRC	UCT	TRC	UCT	TRC
Res EE	1.32	1.99	1.24	2.25	1.44	2.29
C&I EE	1.16	1.65	1.28	1.49	1.32	1.50
Total	1.12	1.69	1.05	1.71	1.14	1.73



Part of the AVANGRID Family

November 16, 2021, 9:30 AM-12:30 PM

2022-2024 Energy Efficiency Plan Cross-Sector Topics

Agenda

- Priorities
- New for 2022-2024
- Decarbonization and electrification
- Cost-effectiveness testing
- Coordination with PURA dockets
- Performance management incentives

Priorities

Equity

Equitable distribution of benefits of energy efficiency and active demand response programs across state, communities, market segments, and customer types

Decarbonization

Reducing greenhouse gas emissions from building sector to meet legislative/regulatory goals re: air pollutants and climate change

Energy Affordability

Promoting economic development through lower energy bills, enhanced energy security, and increased reliability

Equity

Residential	Commercial & Industrial	Education, Workforce & Community Outreach
<ul style="list-style-type: none"> • Use DEEP’s new Energy Efficiency Equity baseline (E3b) to identify areas of the state with lower participation and to inform new targeted customer outreach efforts • Market to customers in non-English languages to increase audience engagement • Continue to analyze customer data and target customers in distressed and environmental justice communities and market sectors with untapped potential • Include extra weighting for certified minority-owned, women-owned, and veteran-owned businesses when evaluating and scoring competitive requests for proposals for program vendors 	<ul style="list-style-type: none"> • Continue to analyze customer data and target customers in distressed and environmental justice communities and market sectors with untapped potential • Market to customers in non-English languages to increase audience engagement • Include extra weighting for certified minority-owned, women-owned, and veteran-owned businesses when evaluating and scoring competitive requests for proposals for program vendors 	<ul style="list-style-type: none"> • Use Community Partnership Initiative to reach more customers, particularly those in distressed, environmental justice, and non-English speaking communities • Introduce <i>Energize CT Energy in Action</i> mobile exhibit. Sixty percent of school tours and community events will be in distressed and environmental justice communities • Implement proactive Workforce Development Strategy focusing on growing energy efficiency workforce and recruiting/training workers from underrepresented communities, such as ethnic and racial minorities, and women

Decarbonization

Residential	Commercial & Industrial	Education, Workforce & Community Outreach
<ul style="list-style-type: none"> Promote sustainable building practices (e.g., Zero Energy Homes, Leadership in Energy and Environmental Design, and Passive House) to residential new construction market actors Expand active demand response offerings to support electrification and carbon neutrality, including smart thermostats, air conditioning load control, battery storage, and electric vehicle chargers Educate consumers on benefits of heat pump technologies and develop contractor locator tool to direct customers to qualified installers Maintain Qualified Products List to standardize efficiency and qualifying criteria for heat pump technologies in Northeast 	<ul style="list-style-type: none"> Promote sustainable building practices (e.g., Net Zero Energy Buildings) Enhance weatherization efforts and use building energy management control strategies for commercial and municipal buildings Educate contractors and customers on heat pump technologies and benefits Expand active demand response offerings to support electrification and carbon neutrality, including smart thermostats, air conditioner load control, lighting/dimming, battery storage, industrial load shifting, and electric vehicle chargers Claim savings for delivered fuels (oil and propane) resulting from the installation of energy efficiency measures 	<ul style="list-style-type: none"> Leverage manufacturer and distributor education and training efforts to promote heat pump technologies Encourage contractors to attend and complete manufacturer-led heat pump trainings to broaden base of qualified installers Coach contractors to recognize prime opportunities such as replacement of end-of-life air conditioning systems with heat pumps

Priority No. 3: Energy Affordability

Residential	Commercial & Industrial	Education, Workforce & Community Outreach
<ul style="list-style-type: none"> • Leverage funding from Low-Income Heating Energy Assistance Program and American Rescue Plan Act to address weatherization health and safety barriers • Increase stocking and sale of efficient equipment at retailers • Enhance and deploy web-based resources to educate customers about low-carbon technologies, high-efficiency products, and active demand response offerings • Continue to offer virtual pre-assessments through HES/HES-IE programs to support installation of energy efficiency and active demand response measures • Introduce Census Tract Tool to streamline customer outreach efforts for contractors 	<ul style="list-style-type: none"> • Enhance promotion of existing loan products, such as CPACE, and increase financing options to C&I customers to support long-term energy efficiency investments that provide immediate energy savings with little to no upfront capital costs • Offer virtual, pre-assessments through the Small Business Energy Advantage program to support the installation of energy efficiency and active demand reduction measures • Conduct additional education and outreach to businesses to increase participation in energy efficiency and active demand response across market segments and customer classes • Increase small business participation in weatherization measures, including targeting businesses in converted residences 	<ul style="list-style-type: none"> • Provide energy efficiency seminars to schools and community-based organizations to help educate students and educators on various careers/paths in energy efficiency available to students • Target residential and small business customers in distressed, environmental justice, and non-English speaking communities through community and direct outreach campaigns

New for 2022-2024 Plan

- **Retail Products**

- Introduce induction cooktops to ENERGY STAR® Retail Products Platform
- Add dehumidifiers to online marketplace

- **HVAC and Water Heating Equipment**

- Promote heat pumps
- Add room A/Cs to Appliance Recycling
- Explore heat pump water heater standards, increase Uniform Energy Factor requirements (as appropriate)
- Investigate eliminating natural gas incentives where condensing equipment previously in place

- **Residential New Construction**

- Offer permanent Major Renovations & Additions pathway
- Increase Passive House design and certification
- Increase promotion of all-electric offering for new construction projects

New for 2022-2024 Plan

- **Home Energy Solutions and HES-Income Eligible**
 - Introduce DOE Home Energy Score to HES-IE
 - Offer “Final DOE Home Energy Score” to customers
 - Develop Virtual Concierge service, promote add-on measures recommended during HES assessment
 - Work with DEEP’s selected vendor for Weatherization Barrier Program
 - Launch HES pay-for-performance pilot
- **Multifamily Initiative**
 - Host additional landlord roundtables to understand barriers to participation/diversity
 - Develop landlord testimonials
- **Behavioral Strategies**
 - Offer customized energy usage insights to customers through natural digital touchpoints
 - Companies have separate interactive platforms

New for 2022-2024 Plan

- **Commercial & Industrial New Construction, New Equipment & Major Renovations**
 - Increase adoption of Net Zero Energy, Zero Net Energy Ready, and Passive House
 - Support integration of renewable energy, grid interactive buildings, and ADR offerings
 - Provide packaged offerings for all-electric new construction projects
 - Offer more midstream incentives (heat pumps, natural gas measures, HVAC/commercial kitchen equipment)
- **Energy Opportunities**
 - Launch Benchmarking Initiative, encourage C&I customers to benchmark and potentially derive savings attribution
 - Transition learnings from HVAC Modernization pilot to full program
 - Increase weatherization efforts, development of CT weatherization contractor network
 - Improve mechanical & ventilation systems for K-12 school buildings
 - Explore new market segments (agriculture, cannabis, grocery, telecom, unmanned telecom shelters/cabinets)
 - Explore opportunities for refrigerant leak detection and remediation measures

New for 2022-2024 Plan

- **Small Business**

- Increase heat pump installations, additional training for contractors
- Offer (potentially) enhanced incentives for microbusinesses that install non-lighting/comprehensive measures
- Focus on weatherization, targeting businesses in converted residences
- Package industrial EE programs for small manufacturers
- Establish simplified concierge service to leverage outreach efforts to manufacturers
- Integrate workforce efforts for small businesses and manufacturers through Industrial Assessment Center

- **Business & Energy Sustainability**

- Transition United Illuminating's Virtual-Based Commissioning pilot to a program
- Add Operations & Maintenance measures, including refrigerant leak detection, repair, and charging
- Add Strategic Energy Management offering for virtual treasure hunts, engage customers with SEM Lite options

New for 2022-2024 Plan

- **Education**

- Implement tracking survey/evaluation for educators
- Conversion of all K-12 lessons into online format (web-based or App platform)
- Integrate educator-developed lessons/learning sequence plans into curriculum and workshops

- **Workforce Development**

- Administer Workforce Study to understand role of diversity/geography in the workforce, as well as barriers
- Invest in upskilling current/future EE workforce through trainings, contractor education, and outreach
- Increase outreach to schools, community colleges and community-based organizations to promote technical trainings and certifications as pathways into workforce
- Establish metrics to track progression and success for Learning Laboratories Initiative
- Industrial Assessment Center

- **Community Outreach**

- Community Partnership Initiative
- Energize CT Energy in Action mobile exhibit

Decarbonization and Heat Pumps

- Maintain online learning center
- Create “All Things Heat Pumps” webpage on EnergizeCT.com
- Establish contractor tool to help customers identify qualified contractors
- Collaborate with manufacturers and distributors to identify trained/untrained contractors
- Maintain regional Qualified Products List for air source heat pumps
- Host collaborative channel partnership trainings
- Integrate heat pumps with ADR offerings
- Promote heat pump integrated controls
- Work with International Ground Source Heat Pump Association to support trainings
- Establish incentives for air-to-water heat pumps based on performance and criteria standpoint
- Align CT ground source heat pump efficiency requirements with MA Program Administrators

Cost-Effectiveness Testing

- Most of electric and fossil fuel avoided costs based on 2021 Avoided Energy Supply Cost (AESC) study
- Three tests used:
 - Utility Cost Test: Includes value of utility-specific benefits and program costs associated with those benefits
 - Modified Utility Cost Test: Includes all benefits/costs of UCT and includes oil and propane-avoided costs and program costs associated with acquiring oil and propane savings
 - Total Resource Cost Test: All energy and non-energy benefits (water savings, non-embedded emissions, environmental attributes, and non-energy impacts) and all costs associated with acquiring these savings (program and customer out-of-pocket)
- Includes ADR benefits and costs in screening models

Savings & Benefits

Year	Budgets (\$000)			Annual Savings							Lifetime Savings	
	Electric	Natural Gas	Total	Electric (GWh)*	Peak (MW)**	Natural Gas (MMcf)	Oil (gallons)	Propane (gallons)	Annual Savings (MMBtus)*	CO ₂ Emissions (tons)	Lifetime Benefit (\$000)	Lifetime Savings (MMBtus)***
2022	\$189,054	\$54,231	\$243,284	190	125	528	1,448,963	277,276	1.4	133,066	\$606,205	18.3
2023	\$178,385	\$55,179	\$233,564	169	131	541	1,378,837	258,524	1.3	125,098	\$569,530	17.5
2024	\$173,895	\$55,836	\$229,731	156	139	540	1,363,332	254,614	1.3	119,724	\$549,406	17.1
Total	\$541,333	\$165,246	\$706,579	516	395	1,609	4,191,132	790,415	4.1	377,889	\$1,725,141	53.0

*Abbreviation for Gigawatt hours.

**Savings include demand response programs.

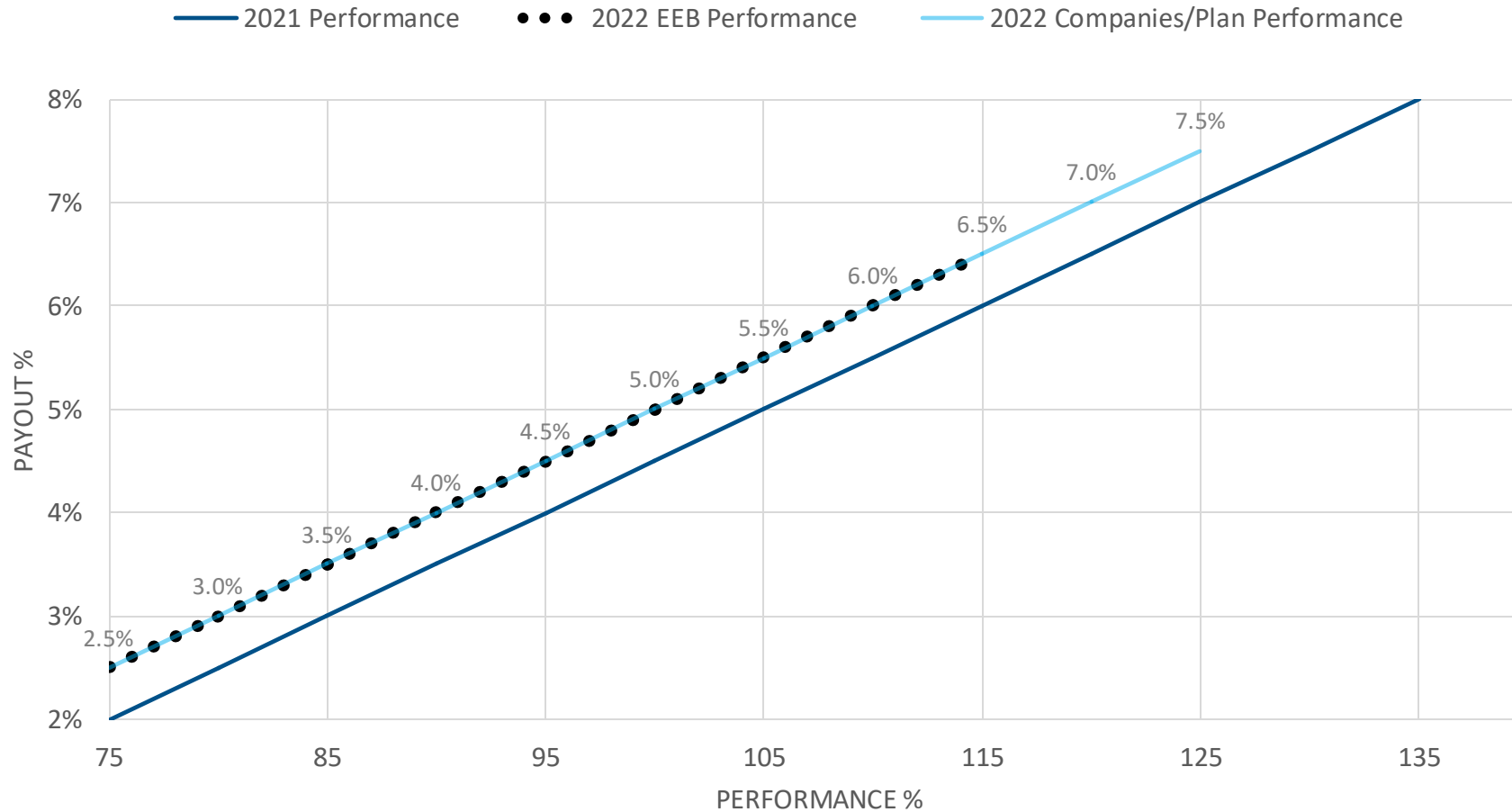
***In millions of MMBtu (one million British Thermal Units). Figures listed are site MMBtus and address only the energy saved at the meter level.

Coordination with PURA Dockets

- **Docket No. 17-12-03RE03, Electric Storage Program (January 1, 2022)**
 - Includes declining block upfront incentive and performance-based incentive structure for 580 MW by 2030
 - Connecticut Green Bank will administer upfront incentive and marketing/communications
 - Electric Distribution Companies will administer performance-based incentive
 - Upfront incentive adder to prioritize electric storage deployment in environmental and distressed communities
 - 50% Residential customers and 50% C&I customers
 - Eversource will monitor PURA program to determine how to integrate its battery storage offerings
- **Docket No. 17-12-03RE04, Electric Vehicle Charging (January 1, 2022)**
 - Establishes nine-year statewide program to develop self-sustaining zero emission vehicle market
 - Electric Distribution Companies to administer program in respective service territories
 - Five program areas to optimize deployment of electric vehicle supply equipment
 - Eversource will monitor PURA program to determine how to integrate its electric vehicle offerings

Performance Management Incentive

PMI PAYOUT





**Empowering you to make
smart energy choices**

November 16, 2021

DEEP C&LM Technical Hearing EEB Presentation on Performance Management Incentives (PMIs)

Glenn Reed - EEB Technical Consultant

Overview

- What are PMIs and Why do we have them?
- Summary of Recent Changes to PMIs
- Current PMI Structure in CT
 - Primary and Secondary metrics
 - Payout vs. Performance
- Comparison of CT Payout structure to other New England states

What are PMIs?

From the Three-Year Plan:

- *...the Companies earn an annual performance management incentive for managing Connecticut's energy efficiency and demand management programs and budgets. The incentive is tied to program specific-oriented metrics, such as energy savings and net economic benefits.*
- *Performance management incentive earnings using a sliding scale are based on a percentage of Company spending (2.5 percent to 6.5 percent) corresponding with the level of performance (75 percent to 115 percent) dependent on if goals and/or targets are met or exceeded.*
 - **Base 5.0% PMI payment @100% of goal**

What Do PMIs Accomplish?

Focus and reward Company efforts in attaining key goals of the C&LM Plan

- Help achieve savings goals (Benefits)
- Balance spending vs. savings (Net benefits)
- Focus Company efforts on new and expanded program or sector level activities (Secondary metrics)
- Ensure provision of required data for EM&V efforts (Evaluation data metric)

Attributes of Good Performance Incentives

- Tied to and support policy goals
- Clearly defined and easily interpreted
- Able to be quantified from reasonably available data and easily verified
- Sufficiently objective and free from external influences
- No higher than necessary to achieve the desired outcomes

Recent Changes in PMIs

For 2021 Plan Update added:

- Evaluation data secondary metric
 - 1% of electric and 1% of gas total available PMI \$
- Residential and C&I Equitable Distribution secondary metrics
 - 3.5% of total available electric PMI \$ (2.0% Residential + 1.5% C&I)

For 2022-2024 Three-Year Plan

- Include all fuels savings in Primary Metrics
 - Inclusion of delivered fuel (oil and propane) savings consistent with use of MUC and TRC tests and current program goals
 - Previously, only gas and electric savings were included

Recent Changes in PMIs (cont.)

- **Revised Residential and C&I Sector weights**
 - Sector-specific allocations for electric and gas based on average portfolio Plan MUCT benefits
- **Added Demand Response primary metrics**
 - Directly targets C&LM demand reduction efforts
 - Previously only passive kW demand reductions associated with EE efforts were included in Primary metrics
- **Removed HES-IE Penalty metric**
- **Revised Payout vs. Performance % and goals**

Structure of CT PMIs

2022 Eversource Electric example

- PMI payment is prorated to Annual Expenditures
- 5.0% incentive at 100% of goal increased from 4.5% and PMI now capped at 6.5% incentive at 115% of goal**
 - Cap had previously been 8.0% at 135% of goal

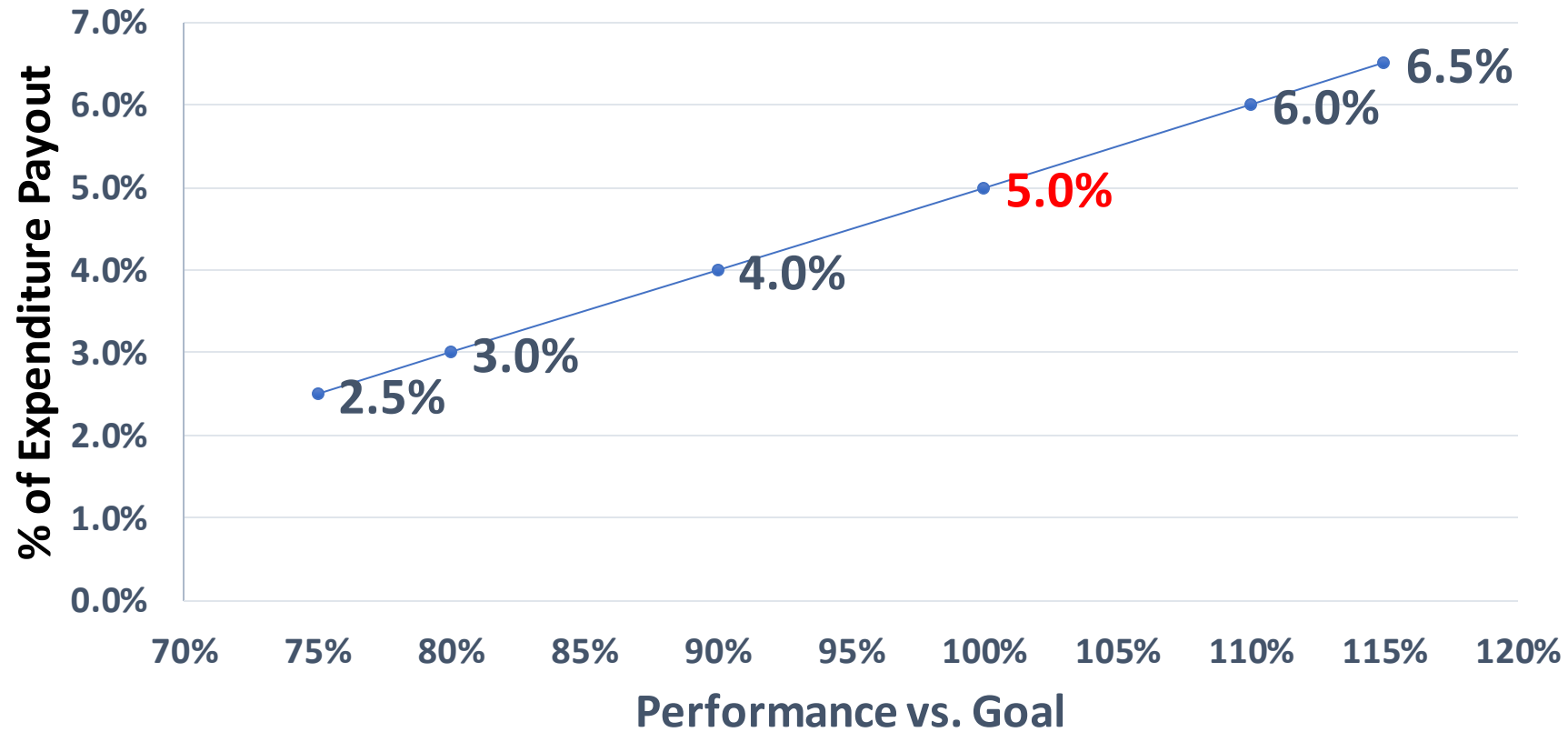
<u>Performance %</u> <u>Minimum</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.5%	\$3,650,311
85	3.5%	\$5,110,435
95	4.5%	\$6,570,560
100	5.0%	\$7,300,622
105	5.5%	\$8,030,684
115	6.5%	\$9,490,809
Incentive Basis Budget	\$146,012,442	

Structure of CT PMIs (cont.)

- Budget/Expenditure basis for PMIs *excludes*:
 - Performance Management Incentives (PMI)
 - Audits - Financial and Operational
 - Energy Efficiency Board Consultants
 - Evaluation Administrator
- No PMI payment at less than 75% of performance (*Threshold*)
- No additional PMI payment at more than 115% of performance (*Cap*)
 - Previously at 135%
- Goals are prorated based on Actual Expenditures

2022-2024 Plan Payout vs. Performance % and Goals

PMI Payout vs. Performance



Eversource 2022 Electric Plan PMIs

	Incentive Metric	Weight	Incentive
Residential	EE Benefits	20.99%	\$1,532,401
	EE Net Benefits	20.99%	\$1,532,401
	ADR Benefits	0.45%	\$32,853
	ADR Net Benefits	0.45%	\$32,853
	Secondary Metrics	9.00%	\$657,054
	Residential Total	51.88%	\$3,787,562
C&I	EE Benefits	17.45%	\$1,273,959
	EE Net Benefits	17.45%	\$1,273,959
	ADR Benefits	1.11%	\$81,037
	ADR Net Benefits	1.11%	\$81,037
	Secondary Metrics	10.00%	\$730,061
	C&I Total	47.12%	\$3,440,053
	Evaluation Data	1.00%	\$73,006
	TOTAL	100.00%	\$7,300,622

2022 Electric Secondary Metrics Eversource Example

Residential			C&I		
	Weight	Incentive		Weight	Incentive
HES MMBtu/SF ducted Home	1.0%	\$73,006	Energy Opportunities Comprehensiveness	2.5%	\$182,516
HES MMBtu/SF non-ducted Home	1.0%	\$73,006	New Construction Deep savings Projects	2.0%	\$146,012
% of HES Homes insulated	1.0%	\$73,006	SBEA Comprehensiveness	2.5%	\$182,516
RNC: % of Homes w/HERS of 50 or less	1.0%	\$73,006	Equitable Distribution	1.5%	\$109,508
HES-IE MMBtu/SF ducted Home	1.0%	\$73,006	Promote SEM Initiative	1.5%	\$109,509
HES-IE MMBtu/SF non-ducted Home	1.0%	\$73,006	C&I Total	10.0%	\$730,061
% of HES-IE Homes insulated	1.0%	\$73,006			
Equitable Distribution	2.0%	\$146,012			
Residential Total	9.0%	\$657,054			

Eversource 2022 Gas Plan PMIs

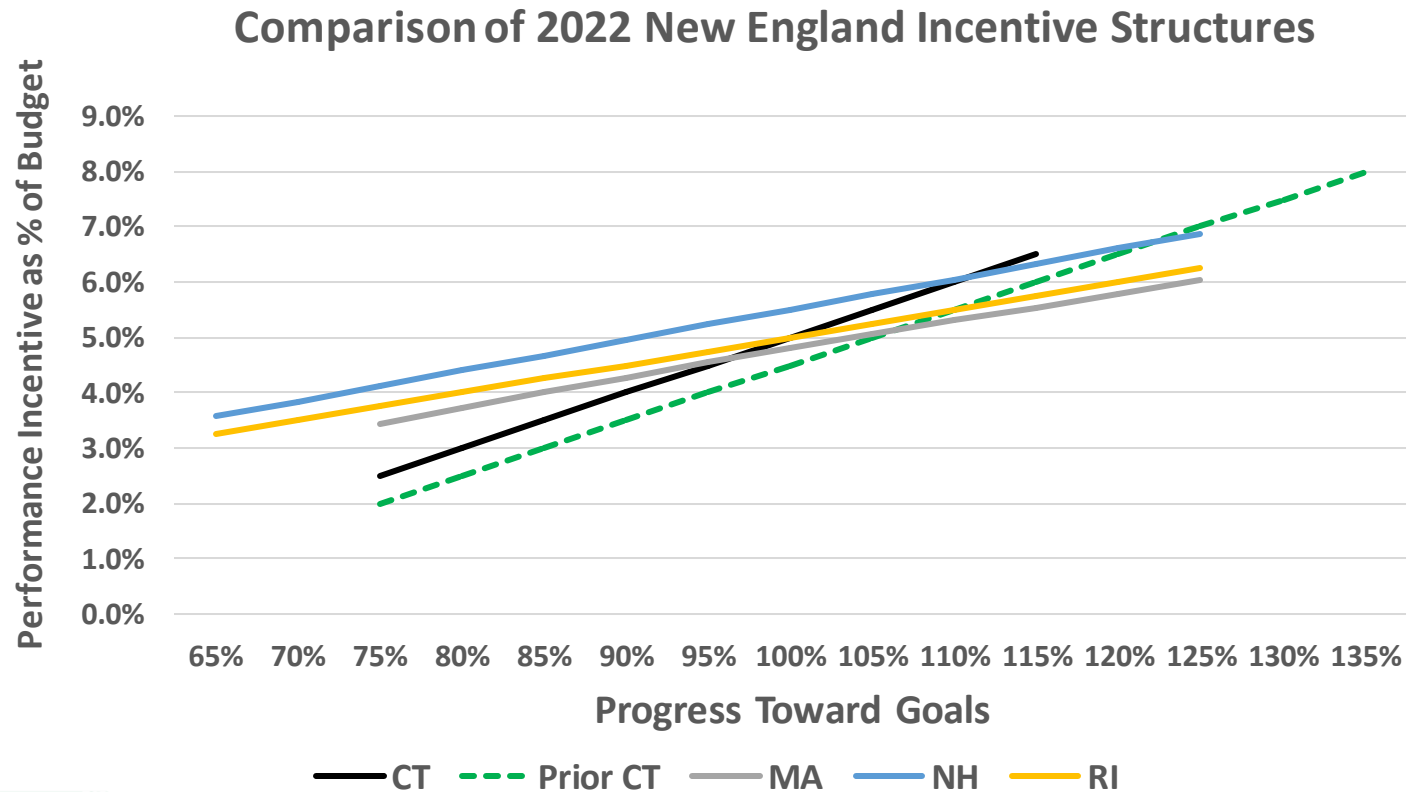
	Incentive Metric	Weight	Incentive
Residential	Benefits	21.44%	\$238,053
	Net Benefits	21.44%	\$238,053
	Secondary Metrics	9.00%	\$99,930
	Residential Total	51.88%	\$576,036
C&I	Benefits	18.56%	\$206,076
	Net Benefits	18.56%	\$206,076
	Secondary Metrics	10.00%	\$111,032
	C&I Total	47.12%	\$523,184
	Evaluation Data	1.00%	\$11,103
	TOTAL	100.0%	\$1,110,323

2022 Gas Secondary Metrics Eversource Example

Residential			C&I		
	Weight	Incentive		Weight	Incentive
HES ccf/SF non-barriered Home	4.50%	\$49,965	ECB/EO Comprehensiveness	5.00%	\$55,516
HES-IE ccf/SF non-barriered Home	4.50%	\$49,965	Small Business Comprehensiveness	5.00%	\$55,516
Residential Total	9.0%	\$99,930	C&I Total	10.0%	\$111,032

Comparison of Prior and 2022-2024 Plan Payout vs. Performance vs. Other NE States

- Other New England Program Administrators have *similar* payout structures, with some notable differences



Meeting Break

This meeting will reconvene at 1:30 p.m.

BUREAU OF ENERGY AND
TECHNOLOGY POLICY



Meeting Logistics

During the Meeting:

- This meeting will be recorded. Recordings and slides will be available on DEEP's C&LM webpage after the meeting.
- Please remain on mute.
- Refrain from using the chat function for side conversations.

Public Comments and Questions

- There will be opportunity for public comments at the beginning and end of each day.
- We will begin with those that pre-registered to comment, then open the floor for additional comments.
- Please keep comments to no more than three minutes.
- Attendees can ask questions of presenters using the chat function. DEEP will facilitate these questions.

Today's Schedule – November 16

9:00-9:30	Opening remarks and public comment
9:30-12:30	<p>Cross-Sector Topics</p> <p>Presentations</p> <ul style="list-style-type: none"> • Cost-effectiveness testing: Chris Neme, Energy Futures Group • 2022-2024 Plan overview and cross-sector topic: Utilities • Performance management incentives: Glenn Reed, Energy Futures Group <p>Facilitated Q&A</p>
12:30-1:30	Break
1:30-2:30	<p>Evaluations</p> <p>Presentations</p> <ul style="list-style-type: none"> • 2022-2024 Evaluation Planning: Lisa Skumatz (SERA) • EM&V applications: Utilities <p>Facilitated Q&A</p>
2:30-4:30	<p>Commercial and Industrial Portfolio</p> <p>Presentations</p> <ul style="list-style-type: none"> • Portfolio overview: Utilities • C&I vendor perspective: Dan Robertson and Randy Vagnini, Commercial Contractor Consortium • Connecticut Industrial Energy Consumers: Jay Goodman, CIEC <p>Facilitated Q&A</p>
4:30-5:00	Public comment and closing remarks



Bob Wirtshafer
Res & XC

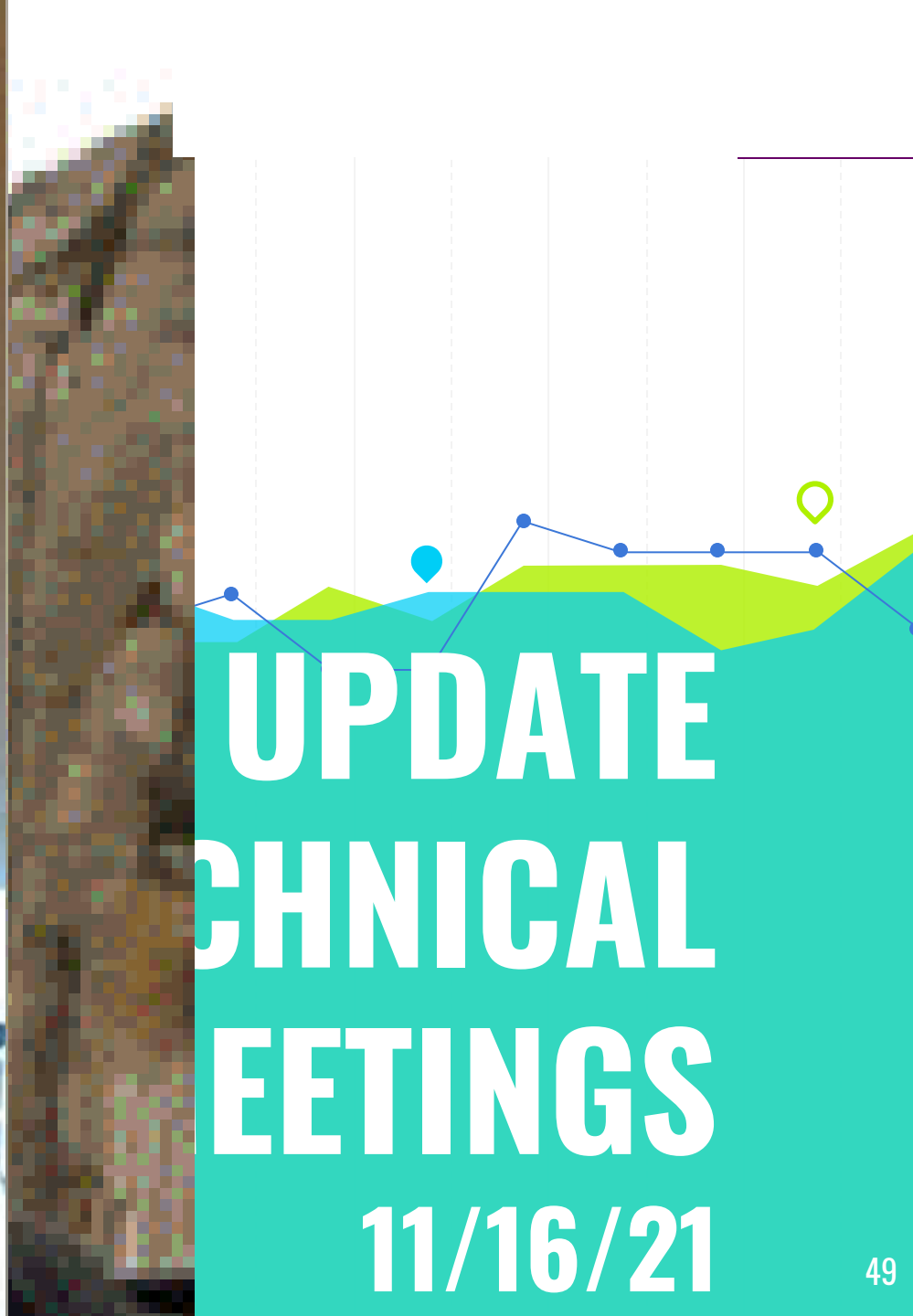


Dakers Gowans
C&I, XC

***Committee: Amy McLean,
Kate Donatelli, John Viglione
Utilities, Tech Consultants***

Pete Jacobs
C&I, XC

Skumatz@serainc.com 360-261-3069



UPDATE TECHNICAL MEETINGS 11/16/21

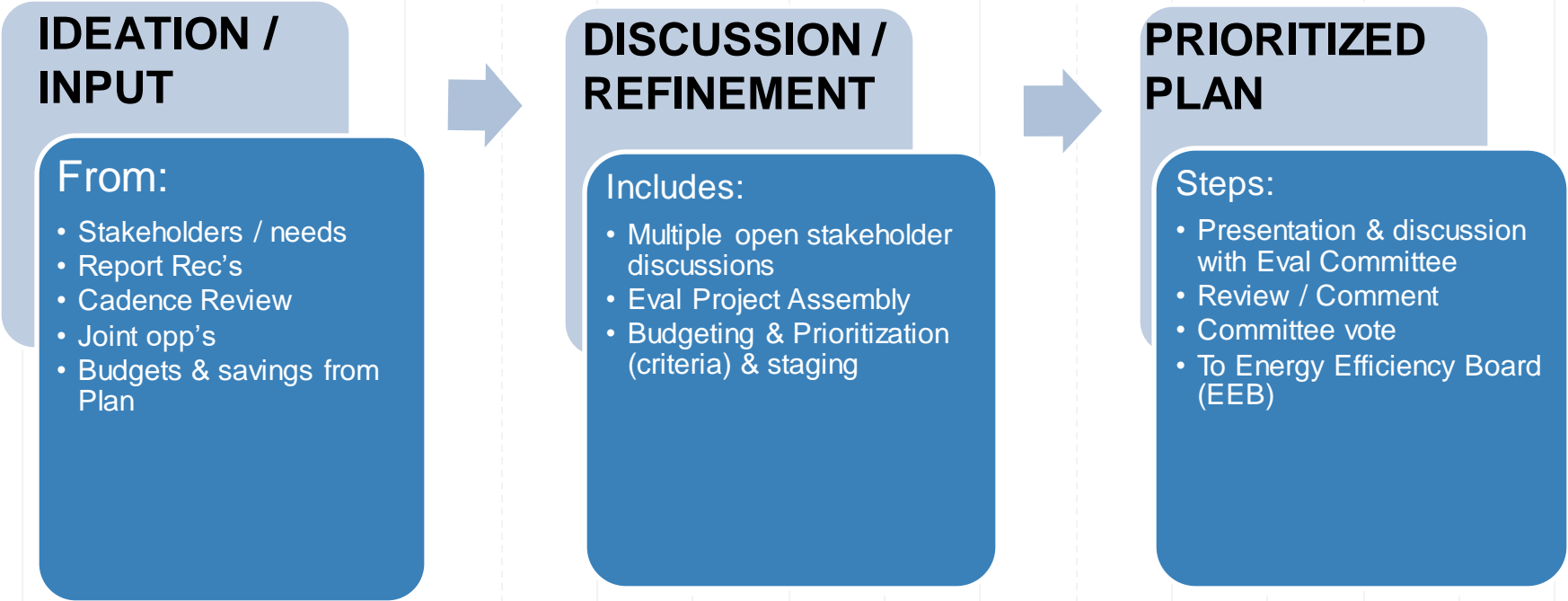
EVALUATION 3-YEAR PLAN

Evaluation

- Populate Program Savings Document (PSD) with updated values for prospective application – ex ante
- Conduct evaluations for ex post evidence of savings and Energy Efficiency (EE) and demand reduction (DR) improvements (programs & measures) for prospective use
 - Gross savings, impact, PSD values, factors (hours, degree days)
 - Baselines, Industry Standard Practice (ISP), Net-to-Gross (NTG), market studies for attributing savings
 - Process, equity, profiles for delivery improvements
 - NEI, EUL/AML*, persistence and other factors for PSD and cost-effectiveness (C/E)
 - (Engagement), other issues

*acronyms: NEI-non-energy impacts; EUL-estimated useful lifetime; AML-Adjusted measure life

STAGES IN DEVELOPING THE PLAN



EVALUATION STUDIES 2011-2021

Programs, Key Measures, Key Topics	Impact	Process	NTG	Stock/Eqpt Characteriz	Baseline/R ASS/Sats	ISP	Code Compliance	Measure /Market	Equity	Other PSD	Potential	EUL/Lifetime/Retention/Persistence	Special Topics
Residential Sector-wide		2015		2018	Wx2013			2013					NEI 2018, Best practices / issues 2015, Consumer Electronics Quant Lit Review 2014, HOU 2013
Res New Construction	2011	2017	2018		2021, 2012, 2011		2021						2021 Low Load ZNE; Add'l Measures (2014)
HES	2021												Financing Evaluations 2014
HES-IE	2021, 2017, 2014, WRAP 2011	2021, 2013, 2012, 2011	2021					2012, 2014					Real Time Surveys 2013, Financing Focus Groups 2012
HVAC & DHW											2021		
Res Behavior (new pgm)													
HER	2017, 2012 (2), 2011	Duct 2015, 2011										2017, 2014 (2), 2013, 2012	
Early Retirement		2021											Study
ESRPP	excl lighting 2020	excl lighting 2020											2021 Refrig/Fr Recyc
Lighting			2017, LED 2013	2019 Shelf	2018 SF, 2015 Sat			2020					Sales 2019, Interactive effects 2014, LED (NEEP?) HOU 2013
Heat Pumps / DHP / GSHP	2017, 2016?	2016, 2013			2021			2019, 2013			2021		HP/HPWH Reliability 2021
Air Conditioning (CAC)	2014	2014											
Air Sealing / Duct Sealing, insul		2015, 2011					2015						In-field - industry practices; potetial, savings
DHW / HPWH	2017												Electronics Potential (2015)
SF					Lighting & All 2018, 2013			2013					
MF	2021, 2020	2015			2018					2021			
Commercial Sector-wide	Lgst Savers 2018, 2012, BSC 2012	2021, 2013	2012					2013					HOU 2021
Energy Conscious Blueprint	2020, 2013, 2011	2011	2021		2021								
Energy Opportunities	2020, 2013	2013	2018										
Business & Energy Sustainability	2018				Lighting 2012			Lighting 2012					
O&M	2021 Persist; 2012												ACOP 2021
RCX													
CSP/SEM		2021											
Small Business/SBEA	2013	2017, 2013		2013	2013								
(Com'l New Construction)	2020				2014		2014						

Programs, Key Measures, Key Topics	Impact	Process	NTG	Stock/Eqpt Characteriz	Baseline/R ASS/Sats	ISP	Code Compliance	Measure /Market	Equity	Other PSD	Potential	EUL/Lifetime/Retention/Persistence	Special Topics
HVAC										2021			HOU 2021
Com'l Boiler					2021	2021							
Com'l Furnace					2021	2021							
Lighting					2021, SBEA 2012			SBEA 2012			2021		
Refrig										2021			ACOP 2021
Com'l T-stat										2021			
Air Compressor								2021					
X-Cutting								2021		2020		2021	EUL 2021, NEI 2021, CZ 2021
Early Retirement													Analysis Design Evaluability 2020
Residential DR													
Commercial DR													
X-Cutting DR										2021			Pilot 2021, Coincident Factor 2021
Energy Education	2021	2021											evaluability /design 2021
Workforce Development	2021	2021											evaluability /design 2021
Community Outreach	2021	2021, 2015											evaluability /design 2021
Community Engagement	2021	2021											evaluability /design 2021
Residential Loan Pgm (ECLF&OBR)	2014												Financing Evaluations 2014
C&I Financing Support													
RD&D													
Methods	2015												
Databases						2020, 2018							Res DB Issues 2015



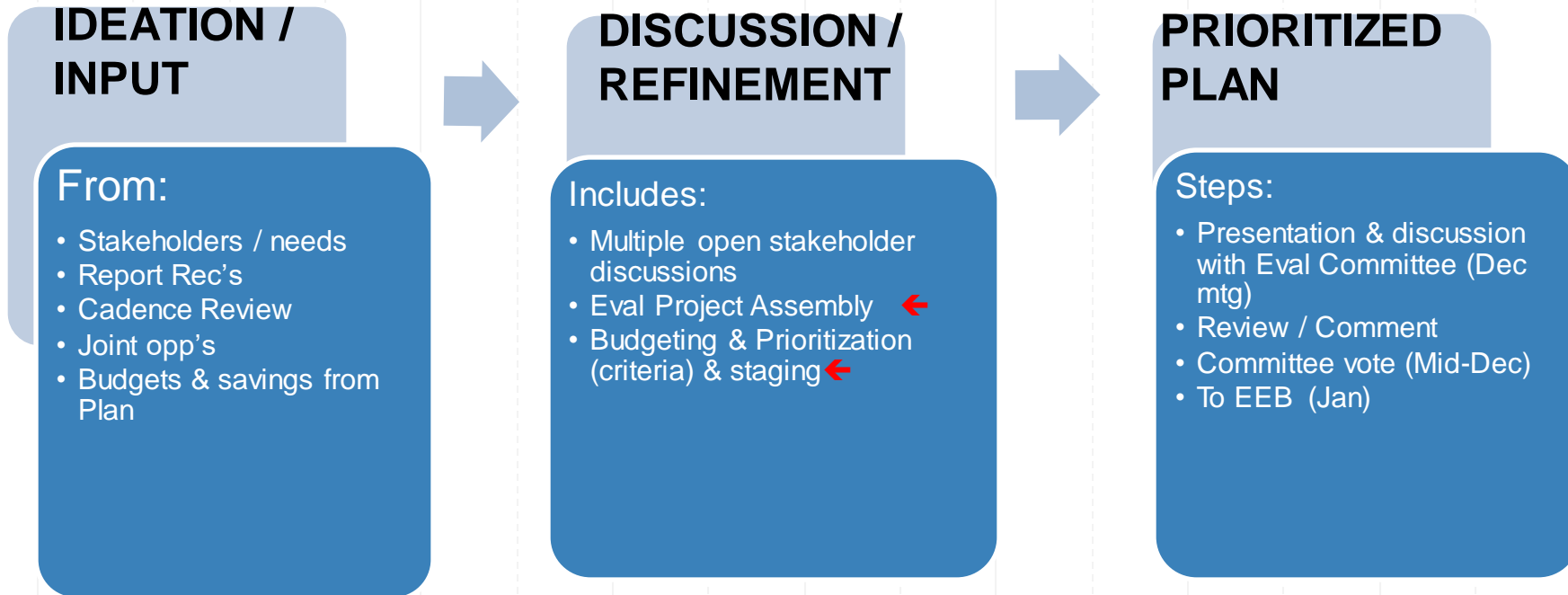
CT-EEB PROJECTS PROGRESS SUMMARY - GANTT CHART

	2021											
	1	2	3	4	5	6	7	8	9	10	11	12
Project (and initials of lead EA /draft assignments)	J	F	M	A	M	J	J	A	S	O	N	D
C1901 - C&I Sector-Wide Process Evaluation (non-SBEA)(DG)												
C1906 SEM Design and Evaluation(PJ)												
C2014 C&I Lighting Saturation and Remaining Potential(DG)												
C1902 ECB NTG and Baseline, (PJ)												
X1931-1 ISP Comm Boiler & Furnace Study(DG/RP)												
X1931-2 Coincidence Factor and Loadshape Study(DG/RP)												
X1931-5 Comm Refrigeration Efficiency Update Study(PJ)												
X1931-6 Hours of Use Documentation(PJ)												
R1959 Single-Family Renovations & Additions Potential Analysis, (LS)												
R1965 HP/HPWH Baseline and Potential Assessment, (RW)												
R1982.HVAC/DHW Performance and Potential Evaluation, (RW)												
R2023. RASS Enhancement (R1965 add-on) (LS)												
R2027 HP/HPWH Reliability(RW)												
R1983 HES/HES-IE Impact and Process Evaluation(RW)												
Update(LS)	/	/	/	/	/	/						
R2120 Refrig Recycling Incentives Analysis(LS)	/	/	/	/	/	/						

CURRENT EVALUATION PROJECTS

Project (and initials of lead EA /draft assignments)	J	F	M	A	M	J	J	A	S	O	N	D
X1931 In-Depth PSD Review, (LS/PJ)												
X1939 Early Retirement, (LS/RP)												
CT X2022 - Education and Engagement Evaluation												
X2001 - EUL, (LS)												
X1932 DR EM&V Support, (RW)	/	/	/	/	/							
X1942 NEIs , (LS)												
X1931-7 Degree Days Update Study(PJ)												
X1931-3 New Measure Compressed Air Systems(PJ)												
X1931-4 New Measure Advanced Lighting Controls(DG/LS/RP)												
X1931-8 New Measure Advanced Commercial Thermostats(xx/LS)												
R2015. Low Load and All-Electric Residential New Construction(RW)												
C2117 - RCx Persistence Study(PJ/DG)												
R1968 RNC Baseline and Code Compliance(RW/LS)												

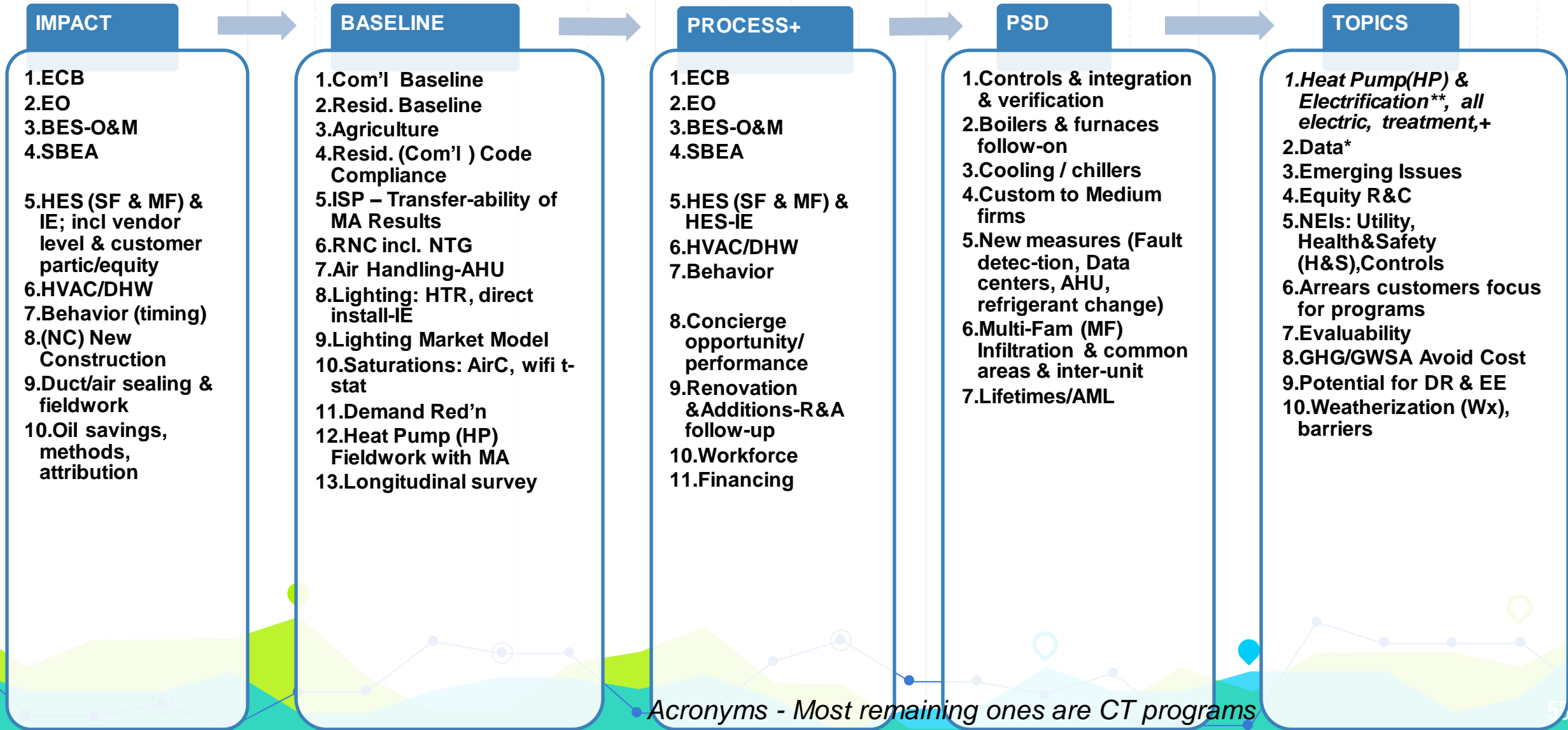
STAGES IN DEVELOPING THE PLAN



Changing timing of process for future...



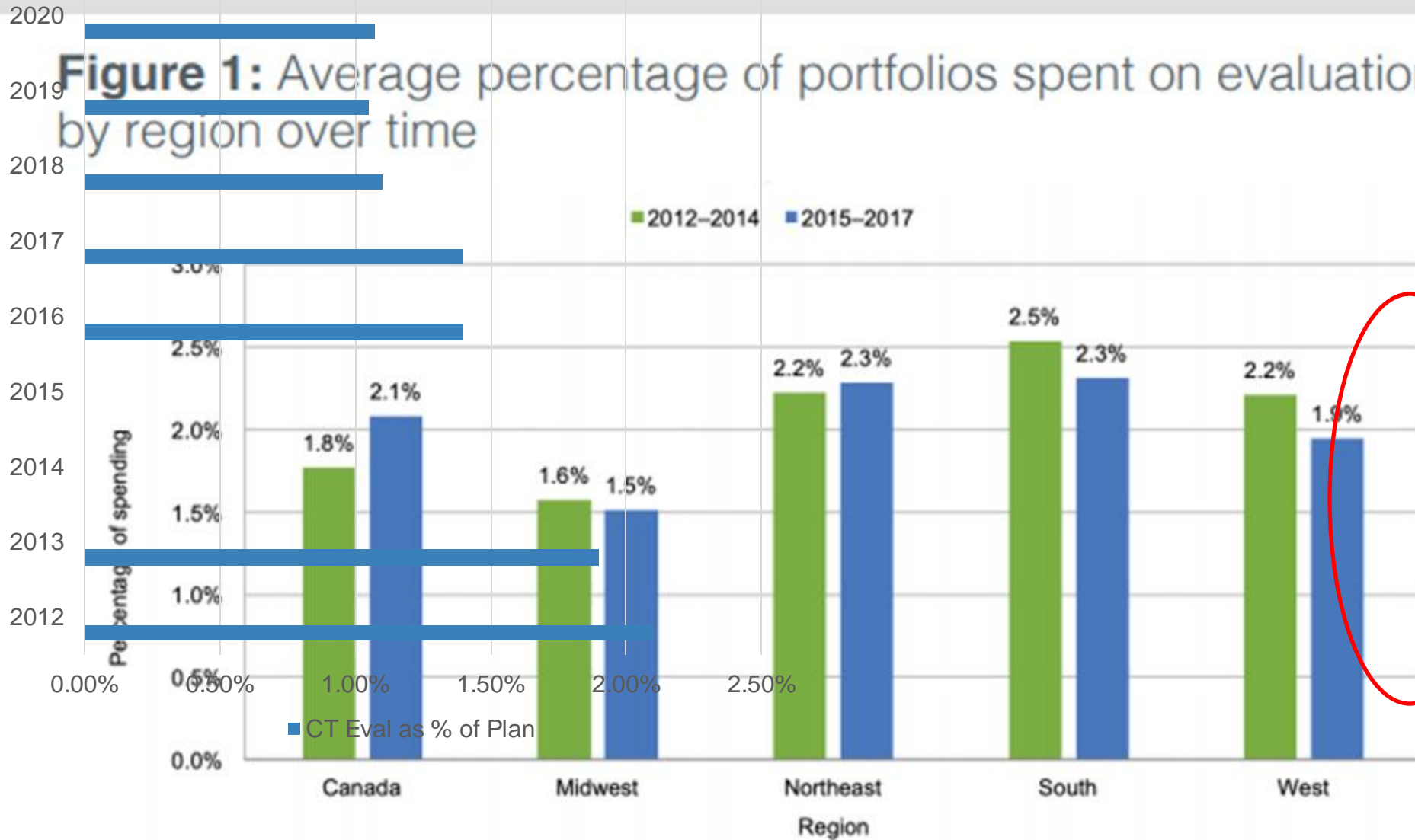
EVALUATION PLANNING - 3-YEAR PLAN IN PROGRESS



Utilities aren't spending much more or much less of their DSM budget on evaluation, but we're seeing less variation by region as the industry moves closer to a 2% average over time

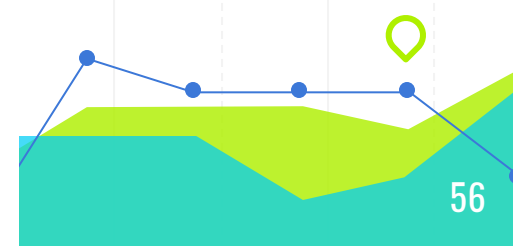
CT Eval as % of Plan Over Time

E Source National Figures



Notes: a varies by region by year range. Data represents actual spending

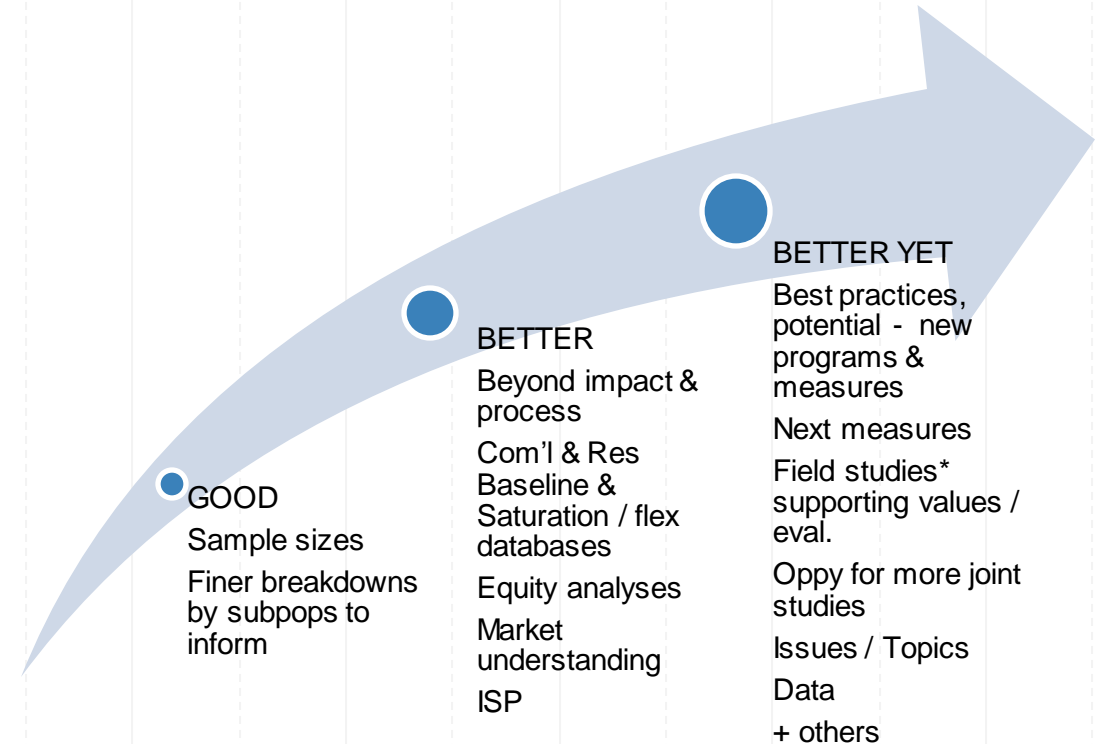
© E Source (DSM Insights)



2022-24 BUDGET AUGMENTATION

OPPORTUNITIES

- CT Evaluation spend fell from 2.1% to 1.07%. Dollars fixed for some years
- Averages: National ~2%, NE ~2.3%, Leaders ~2.6%
- EA 2% request; agreement in general; to start at 1.5% for 2022
- Budget increase from \$3 million/yr to \$4.5 million/yr starting. Further ramping TBD
- 3 Year Plan with Annual Updates
- Helped by new Roadmap / Research Areas



THANKS!

QUESTIONS / DISCUSSION?

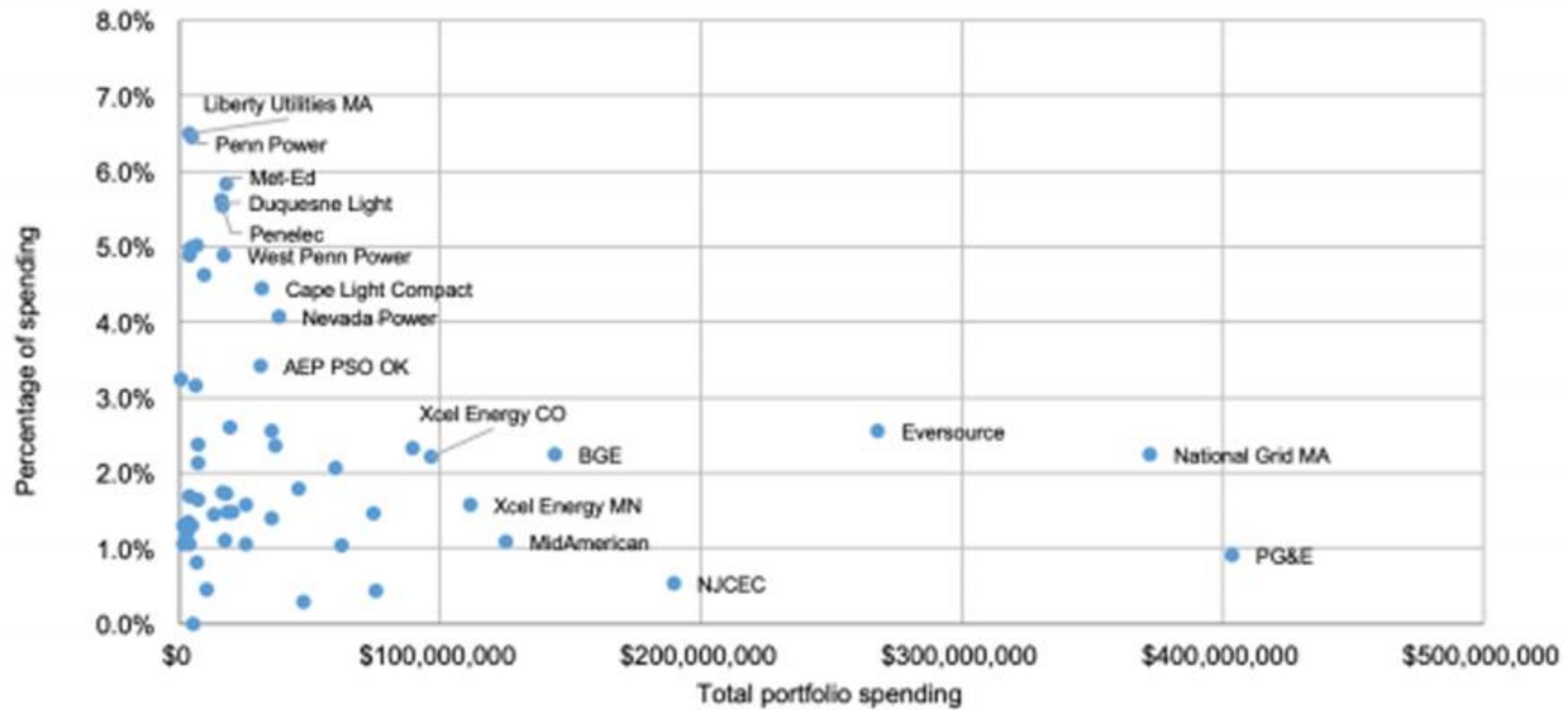
Lisa Skumatz

Skumatz@serainc.com

360-261-3069

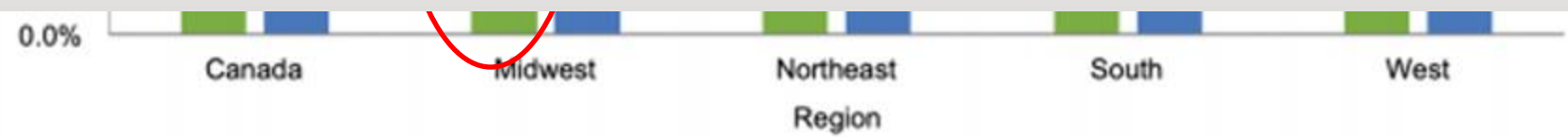
*Ralph Prah, Robert Wirtshafter,
Peter Jacobs, Dakers Gowans*

Figure 3: Administrator evaluation spending as a percentage of average annual portfolio spend (2015–2017)



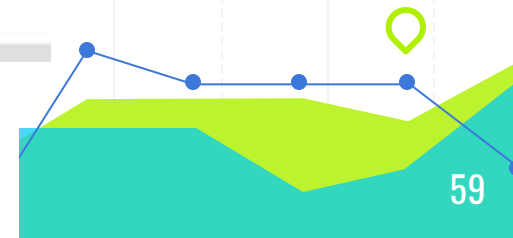
Notes: n = 56. Data represents actual spending values for administrators that reported evaluation spending in at least two of the three years between 2015 and 2017.

© E Source (DSM Insights)



Notes: n varies by region by years range. Data represents actual spending

© E Source (DSM Insights)





Part of the AVANGRID Family

November 16, 2021, 1:30 PM-2:30 PM

2022-2024 Energy Efficiency Plan Evaluations

Agenda

- 2021 Evaluation studies
- For three key recent evaluation studies:
 - Key findings
 - Program changes in response to evaluation

2021 Evaluations

- R1973, *Retail Non-Lighting*
- X1941, *Multifamily Impact Evaluation*
- X1931-6, *Hours of Use Update and Documentation*
- X1931-7, *Cooling and Heating Degree Days Update*
- X1931-3, *C&I Air Compressors, New Measure for Program Savings Document (PSD)*
- X-1931-8, *Small Business Advanced Thermostat, New Measure for PSD*
- X1931-2, *Coincidence Factor & Load Shape*
- X1931-1, *Industry Standard Practice Commercial Boiler and Furnace Study*
- X1931-4, *Advanced Lighting and Controls, New Measure (Commercial)*
- X1939, *Early Retirement*

R1963 Short Term Residential Lighting Report

Key findings

- LED products are widely available in all retail channels.
- Discount stores, except Dollar stores, do not carry baseline products and primarily only carry LED products that are “brought in” by the Energize CT program
- Club stores do not carry baseline products of any type
- 40W equiv. Globe in Discount retailers and BR30 Directional bulbs in Hardware/Lumber are cheaper than baseline counterparts

R1963 Short Term Residential Lighting Report

Program changes in response to evaluation

- Directional LED replacement bulbs removed from retail promotional programs in 2021
- For 2022, all Non-Discount Stores have been removed from LED promotional programs for replacement bulbs
- To promote equity Discount Stores will continue to offer LED promotional incentives
- Program to be reviewed during 2022 to determine continuation

X1931-1 ISP for Boilers & Furnaces

Key findings

- Condensing equipment is most commonly installed for boilers; a mix of condensing and non-condensing equipment is most common for furnaces
- Baseline efficiencies should increase from IECC 2021 to industry standard practice (ISP)
- Evaluation recommends updating minimum program qualifying efficiency for C&I boilers and furnaces to reflect savings compared to new, higher efficiency ISP baselines

X1931-1 ISP for Boilers & Furnaces

Program changes in response to evaluation

Equipment Type		Current Program Qualifying Efficiency	Updated Program Qualifying Efficiency
Furnace	All sizes	>92% AFUE	>95% AFUE
Boilers	Small (<300,000 Btu/h)	Condensing, >92% AFUE Non-condensing, >85% AFUE	>95% AFUE
	Medium (300,000-2,500,000 Btu/h)	Condensing, >92% E _t Non- condensing, >82% E _t	>95% AFUE

X1939 Early Retirement (Draft Report)

Key findings

- Need to clarify protocols with respect to assigning event type
- Evaluation recommends expanding use of dual baseline for commercial retrofit measures

X1939 Early Retirement (Draft Report)

Program changes in response to evaluation (Pending Final Report)

- Implement dual baseline savings calculation for C&I retrofit measures including:
 - Energy-Efficient Motor
 - 2-Speed Motor Control in Rooftop Unit
 - Cooling Tower Alternates
 - Dehumidifier
 - Economizer - Air/Water
 - Energy-Efficient Motor
 - Variable Speed Drive
 - EMS/Linked HVAC Controls
 - Enthalpy Control Economizer
 - New/Additional EMS Points
 - Heat Recovery from Refrigeration System
 - Air Compressor
 - Energy-Efficient Transformer
 - Energy-Efficient Motor
 - Plastic Injection Molding Machine
 - Refrigerated Air Dryer
 - Variable Frequency Drive

**Certain lighting measures will be addressed by a separate study.*



Part of the AVANGRID Family

November 16, 2021, 2:30 PM-4:30 PM

2022-2024 Energy Efficiency Plan Commercial & Industrial Portfolio



Commercial & Industrial Offerings

**New Construction,
Equipment
Replacement &
Major Renovations**

Retrofit Services

Small Business

**Business and
Energy
Sustainability**

Priority 2: Decarbonization

- Promote sustainable building practices (e.g., Net Zero Energy Buildings)
- Enhance weatherization efforts and use building energy management control strategies for commercial and municipal buildings
- Educate contractors and customers on heat pump technologies and benefits
- Expand active demand response offerings to support electrification and carbon neutrality, including smart thermostats, air conditioner load control, lighting/dimming, battery storage, industrial load shifting, and electric vehicle chargers
- Claim savings for delivered fuels (oil and propane) resulting from the installation of energy efficiency measures

Priority 3: Energy Affordability

- Enhance promotion of existing loan products, such as CPACE, and increase financing options to C&I customers to support long-term EE investments that provide immediate energy savings with little to no upfront capital costs
- Offer virtual pre-assessments through Small Business Energy Advantage program to support installation of EE and ADR measures
- Conduct additional education/outreach to businesses to increase participation in EE and ADR across market segments and customer classes
- Increase small business participation in weatherization measures, including targeting businesses in converted residences

Decarbonization and Heat Pumps

- Maintain online learning center, trainings include Air Conditioner and Heat Pump Performance Tune-up, measureQuick Start to Finish, and Measuring Air Distribution
- Create “All Things Heat Pumps” webpage on EnergizeCT.com
- Establish contractor tool to help customers identify qualified contractors
- Collaborate with manufacturers and distributors to identify trained/untrained contractors
- Maintain regional Qualified Products List for air source heat pumps
- Host collaborative channel partnership trainings
- Integrate heat pumps with ADR offerings
- Promote heat pump integrated controls
- Work with International Ground Source Heat Pump Association to support trainings
- Establish incentives for air-to-water heat pumps based on performance and criteria standpoint
- Align CT ground source heat pump efficiency requirements with MA Program Administrators

New Construction, Equipment Replacement & Major Renovations

Transformative four-pathway offering drives new construction marketplace toward zero-energy buildings with low energy-use intensity ratings

- Increase adoption of Net Zero Energy, Zero Net Energy Ready, and Passive House
- Support integration of renewable energy, grid interactive buildings, and ADR offerings
- Provide packaged offerings for all-electric construction projects
- Offer more midstream incentives (heat pumps, natural gas measures, HVAC/commercial kitchen equipment)
- Work with State to modify offerings for state/municipalities to resolve existing funding cap for state-funded projects
- Provide strategic support to major renovation projects occurring as result of post-pandemic economy

2022-2024 Planned Results	Total
Number of Customers Served	802
Total Program Lifetime Savings, Electric (MWh)	1,137,069
Total Program Lifetime Savings, Natural Gas (ccf)	38,816,326
Total Program Lifetime Savings, Oil (Gal)	36,720
Total Program Lifetime Savings, Propane (Gal)	30,600
Total Program Lifetime Savings (MMBtu)	7,881,767
Lifetime CO ₂ Emissions Reduced (tons)*	721,019
Total Program Lifetime Benefits (\$000)	\$233,729
Total Program Costs (\$000)	\$71,387

**Please note that these are short tons.*

Retrofit Services

Incentives/ancillary technical services encourage existing C&I building owners to replace functioning, yet outdated/inefficient equipment with high-efficiency units

2022-2024 Planned Results	Total
Number of Customers Served	3,192
Total Program Lifetime Savings, Electric (MWh)	1,488,605
Total Program Lifetime Savings, Natural Gas (ccf)	29,736,213
Total Program Lifetime Savings, Oil (Gal)	73,008
Total Program Lifetime Savings, Propane (Gal)	65,403
Total Program Lifetime Savings (MMBtu)	8,155,075
Lifetime CO ₂ Emissions Reduced (tons)*	781,473
Total Program Lifetime Benefits (\$000)	\$306,986
Total Program Costs (\$000)	\$139,920

**Please note that these are short tons.*

- Remove barriers, increase benefit to customers installing electric heat fuel pumps and investing in building envelope improvements
- Launch Benchmarking Initiative, potentially derive savings attribution
- Transition learnings from HVAC Modernization pilot to full program
- Increase weatherization efforts, development of CT weatherization contractor network
- Improve mechanical & ventilation systems for K-12 school buildings
- Explore new market segments (agriculture, cannabis, grocery, telecom, unmanned telecom shelters/cabinets)
- Explore opportunities for refrigerant leak detection/remediation measures
- Simplify submission requirements, increase training on application processes to expand workforce for decarbonization measures (weatherization, refrigeration leaks, and industrial process equipment)

Small Business (2022-2024)

Cost-effective, turnkey EE service for small C&I customers who do not have the financial resources, in-house expertise, or time necessary to analyze and reduce their energy consumption

- Increase heat pump installations, additional training for contractors
- Offer (potentially) enhanced incentives to install non-lighting and comprehensive measures
- Focus on weatherization, target businesses in converted residences
- Work with associations and community groups to communicate savings benefits to their members
- Target businesses in environmental justice/distressed communities, explore providing enhanced incentive and lending offerings
- Integrate workforce efforts for small businesses and manufacturers through Industrial Assessment Center
- Package industrial EE programs for small manufacturers
- Establish simplified concierge service to leverage outreach efforts to manufacturers

Planned Results	Total
Number of Customers Served	3,084
Total Program Lifetime Savings, Electric (MWh)	657,653
Total Program Lifetime Savings, Natural Gas (ccf)	6,134,383
Total Program Lifetime Savings, Oil (Gal)	42,725
Total Program Lifetime Savings, Propane (Gal)	57,027
Total Program Lifetime Savings (MMBtu)	2,886,273
Lifetime CO ₂ Emissions Reduced (tons)	294,277
Total Program Lifetime Benefits (\$000)	\$127,515
Total Program Costs (\$000)	\$53,087

**Please note that these are short tons.*

Business and Energy Sustainability (2022-2024)

Helps C&I customers make continuous improvements in their business/facility operations that lead to sustainability and competitive business advantages

Planned Results	Total
Number of Customers Served	767
Total Program Lifetime Savings, Electric (MWh)	246,302
Total Program Lifetime Savings, Natural Gas (ccf)	13,791,786
Total Program Lifetime Savings, Oil (Gal)	29,051
Total Program Lifetime Savings, Propane (Gal)	18,987
Total Program Lifetime Savings (MMBtu)	2,265,320
Lifetime CO ₂ Emissions Reduced (tons)*	197,122
Total Program Lifetime Benefits (\$000)	\$65,709
Total Program Costs (\$000)	\$18,284

**Please note that these are short tons.*

- Optimize efforts to capture Strategic Energy Management savings
- Add SEM offering for virtual treasure hunts, engage customers with SEM Lite options
- Add Operations & Maintenance measures including refrigerant leak detection, repair, and charging
- Enhance industrial initiative marketing collateral for PRIME
- Expand marketing/outreach efforts for steam trap surveys/wraps and trap repair
- Transition UI's Virtual-Based Commissioning pilot to a program
- Pursue Internet of Things for manufacturing efficiency
- Expand Retro-commissioning vendor list



CL&M Technical Meeting

November 16, 2021

Commercial Contractor Consortium



Commercial Contractor Consortium (CCC)

Advanced Energy Group
Artis Energy Solutions
CMC Energy Services
D/E/F Services Group, Ltd
Earth Core Energy Services
Earthlight Technologies, LLC
Efficient Lighting & Maintenance
Efficient Lighting Consultants Inc.
Environmental Systems Corporation
Green Energy Solutions, Inc.
Efficient Lighting Consultants Inc.
Energy Resources USA
Energy Solutions
Energy Source
Facility Solutions Group
GEM, LLC.
Hanna Electric, Inc.
J&B Electrical
Lantern Energy, Inc.
Paquette Electric Company, Inc.
Possidento Therrien Electrical, LLC
Sarracco Mechanical Services
Titan LED
Total Energy Connections, LLC
Wattsaver Lighting Products, Inc.
World Energy Efficiency Services



The Priorities of the CCC's clean energy workforce and energy solutions companies are to support all variety of organizations and businesses in Connecticut in an equitable manner to decarbonize, reduce energy usage and demand, lower operating costs and enable a better environment for customers, guests and staff through implementation of the 2022 to 2024 Conservation and Load Management Plan (CL&M) as with work together as a Team with all Stakeholders and re-establish our business health.

Several Key Elements

Support the State's climate goals, our customers and ensure relevancy

Provide compelling and beneficial solutions to customers

Transform ourselves and provide constructive input to make us all better

CL&M Plan Delivers Results

Every \$1 invested in Energy Efficiency returns \$2.61 to the State of Connecticut's Economy
-CL&M '22-'24

Demonstrates our State's Innovation & Commitment in the fight against Climate Change and in support of our Communities

What is Working with CL&M Program and Team

Rapid response to the pandemic with programs that were developed collaboratively to support the rate-payers and keep the clean energy workforce viable

DEEP, EEB, Eversource, UI, Consultants, Clean Energy Workforce and Constituents took market input and evaluated circumstances and developed plan that was reflective of the crisis.

The Companies developed creative programs and approaches and worked closely with the Clean Energy Workforce

**Addressed Pandemic and Equity:
Distressed Incentives
Microbusiness Programs
Virtual Audits**

Rule Changes: Standard Lighting with Comprehensive, Qualification for small business, Wildcards for customers

Improved Collaboration with all Constituents

More consistent participation by Clean Energy Workforce with constructive input.

Stronger Teamwork with all Stakeholders

Payments

In majority of cases, after projects post inspect, the Companies' payments to Contractors was timely

Areas for Improvement

Issue	Impact	Recommendations	
High volume of projects resulted in project turnaround delays	<ul style="list-style-type: none"> Delays on comprehensive and straightforward lighting projects results in loss of momentum with customers. Some customers/contractors use upstream vs. SBEA and give up labor incentive and verifications for faster turnarounds that can result in 50% shorter project timelines. Materials pricing is also better. 	<ul style="list-style-type: none"> No engineering review for Tier 1 and Tier 2 lighting Provide Comprehensive workbook with formulas for contractors to submit Establish rules, so only more complex projects are reviewed by engineering 	
Variability in post-inspections	<ul style="list-style-type: none"> Clean energy workforce does duplicative work which delays projects and adds to the Companies' workload The number of documents and variability between utilities and the documentation hurts Clean Energy Workforce and Utility productivity and leads to confusion with Customers and errors. 	<ul style="list-style-type: none"> Better define processes and for post-inspections, reduce burden on clean energy workforce Incorporate DocuSign for contracts which will eliminate use of paper, reduce customer errors and result in faster turnarounds for all documents 	
Limited recognition of actual energy savings for HVAC Assets (See next slide)	<ul style="list-style-type: none"> The Companies and State cannot recognize true savings, so incentives are depressed, and financials don't work, especially for small businesses. Systems are not replaced and run well past end of life or are replaced with less efficient systems* <p>*This is especially critical for heat pump adoption that not only must be better incentivized but targeted.</p>	<ul style="list-style-type: none"> Encourage DEEP to revisit regulatory rules 	
Additional Comments	For SBEA, review and incorporate elements of Eversource MA small business.	Provide contractor discretion on set of projects or portfolio approach	Bi-annual meeting focused on processes with Companies and Contractors: Streamline Together

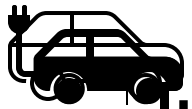


Illustration of HVAC Energy Calculations

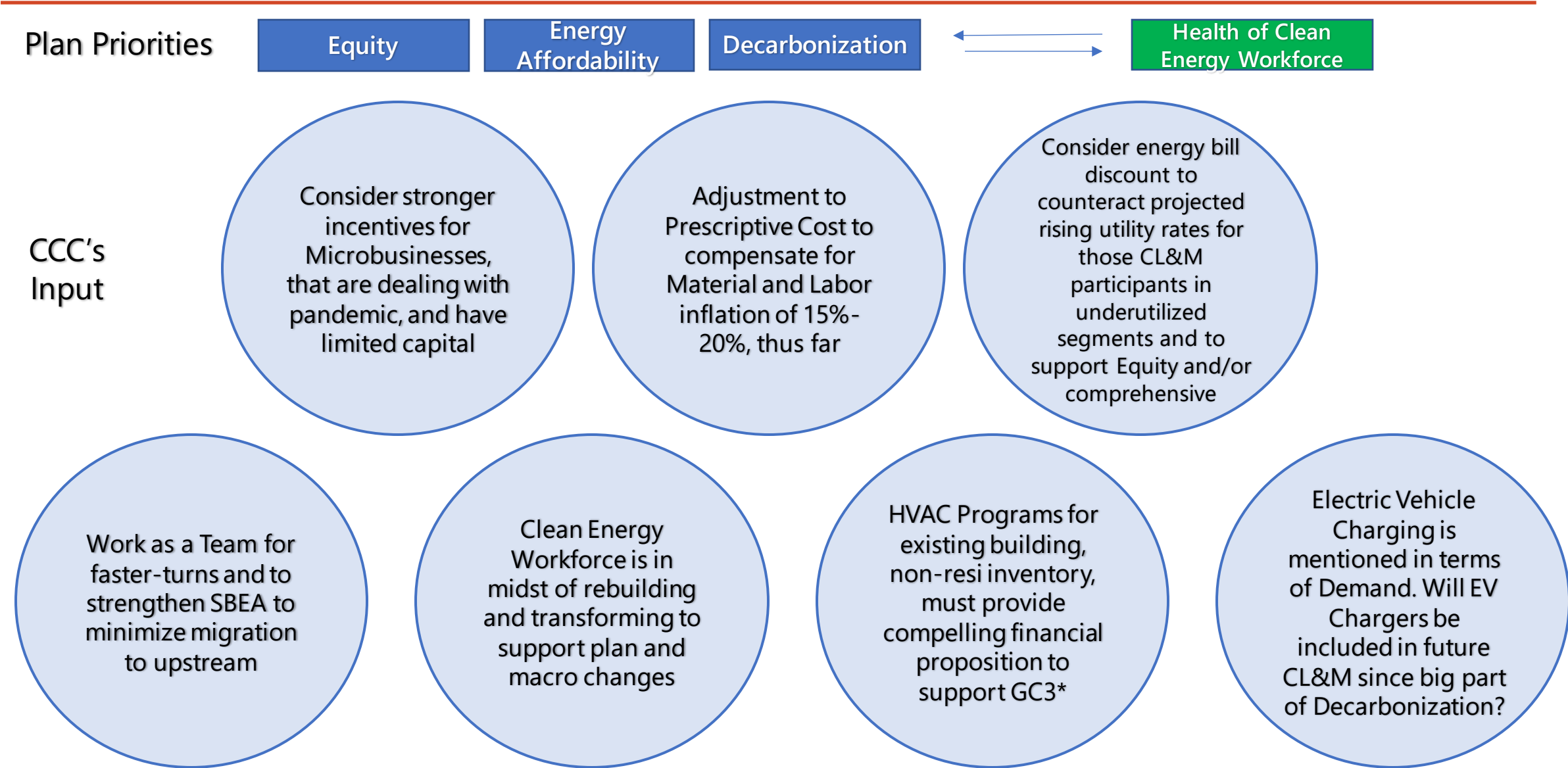
True HVAC equipment replacement savings are not realized, which appears to be a regulatory rule? In most cases, the new HVAC equipment is compared vs. Code when recognizing savings, so the Companies cannot recognize or incentivize the true savings, so many projects are not financially viable. This was done, so ratepayer money is not used to subsidize equipment at end-of-life, which directionally makes sense. In practice, customers run their systems well past published end-of-life or replace with new equipment that is not as efficient:

We must address this to maximize decarbonization of our existing building inventory, or make the decision that incremental improvements make more sense.



Hypothetically, a customer has an existing vehicle that is past end-of-useful life. It runs well, so customer can either keep vehicle, purchase another vehicle that has slightly better mileage or use incentives based on MPGe improvement for most efficient option. The customer has limited capital that could go towards other items and must evaluate options. For incentive purposes, the customer is only able to recognize incentives for most efficient vehicle at 30 MPGe improvement vs. the 80 MPGe actual improvement. The customer can't afford the more expensive option that has 2x higher initial cost and much higher simple payback due to lower incentives based on comparison vs Code. The customer continues to use inefficient vehicle or buys another that might be only 20% more fuel efficient than existing.

Areas to Evaluate for Successful Implementation of '22-'24 CL&M



*Governor's Council on Climate Change



Connecticut Industrial
Energy Consumers

2022 – 2024

Conservation & Load Management Plan

Presentation on Behalf of:

Connecticut Industrial Energy Consumer

Technical Meeting – November 16, 2021



BACKGROUND

- **CIEC comprised of large C&I companies**
- **Multiple motivations to reduce energy usage include:**
 - Lower operating expenses
 - Improve competitiveness
 - Sustainability objectives as responsible corporate citizens
 - Improved building/distribution infrastructure reliability
- **Members perpetually examine potential efficiency projects for internal sustainability objectives and continuous business improvement**



BACKGROUND

- **Mature energy efficiency programs, projects tend to be relatively complex, technical, and may address multiple utility inputs**
 - Easier, “low hanging fruit” projects completed
 - Now tend to focus on complex operational and industrial process improvements
 - These projects drive efficiency deep into corporate operations
- **Members have extensive internal processes to vet efficiency projects**
 - Projects developed and vetted by licensed Professional Engineers and/or Certified Energy Managers
 - Internal approval based on projected efficiency gains, ROI (Cost Savings & Incentives), and applicable sustainability objectives
 - Capital allocated for projects available for limited time; delays in project approval risk the availability of funding allocation



BACKGROUND

- **In 2019, a subset of CIEC members completed 38 projects at three sites:**
 - Projects yielded the following aggregate reductions:
 - 8,451,802 kWh electricity
 - 188,008 ccf natural gas
 - 3,187 mt greenhouse gas emissions
 - This example illustrates some, **not all**, of the CIEC member efficiency projects in 2019
- **Good working relationships with the utilities that administer C&LM programs**
 - Collaborative process beneficial to participating companies and overall program performance
 - Explore opportunities for C&LM program process improvements that can help to drive more energy savings and emissions reductions



RECOMMENDED PROCESS IMPROVEMENTS

- **Improve flexibility for custom project eligibility and incentives.**
 - The “Connecticut Program Savings Document” (PSD) framework does not allow effective evaluation of complex manufacturing processes
 - Revise PSD calculations to better account for custom projects
- **Member companies with Licensed Professional Engineers or Certified Energy Managers are willing to accept the responsibility in calculating and verifying savings**
 - Utility can reallocate resources to customers that do not have these technical capabilities



RECOMMENDED PROCESS IMPROVEMENTS

- **Improve program agility to accommodate new technologies in the C&LM Plan as they become commercially viable**
- **Greater eligibility for projects that address multiple fuel sources**
 - Clarify eligibility rules for projects with incidental impact on second fuel source
- **Enable energy savings from existing site conditions to be considered as baseline for savings estimates rather than the code**



RECOMMENDED PROCESS IMPROVEMENTS

- **Align incentive caps with annual contributions.**
 - Incentive opportunities should be roughly proportional to C&LM contributions

Public Comment

- We will begin with those that pre-registered to comment, then open the floor for additional comments.
- If you did not register but would like to make a comment, please raise your hand and we will recognize you, in order, as time allows.
- Please keep comments to no more than three minutes.
- Please unmute yourself when recognized and return to mute when you are finished.

Thank you for attending!

Upcoming meetings:

- November 17 Public Input Session: 6:00-7:30 p.m.
- November 18 Technical Meeting: 9:00 a.m. – 5:00 p.m.

9:00-9:30	Opening remarks and public comment
9:30-12:30	Residential Portfolio
12:30-1:30	Break
1:30-3:15	Education, Workforce Development, and Outreach
2:30-4:30	Demand Response
4:30-5:00	Public comment and closing remarks

Next Steps:

- DEEP will issue a Draft Determination on the 2022-2024 Plan. At that time, there will be an opportunity for written comments.
- DEEP will issue a Final Determination on the 2022-2024 Plan that considers information received during this process

Resources:

- [2022-2024 Conservation and Load Management Plan](#)
- [DEEP C&LM Webpage](#)
- [DEEP Bureau of Energy and Technology Policy Energy Filings](#)
- [Connecticut Energy Efficiency Board](#)
- [Energize CT](#)

BUREAU OF ENERGY AND
TECHNOLOGY POLICY

