Energy Transformation Advisory Board: Third Quarterly Meeting

OFFICE OF ENERGY TRANSFORMATION

April 3, 2025

New Advisory Board Member

Representative Mark Cusack

House Chair, Joint Committee on
Telecommunications, Utilities and Energy

Reminder of OET Mission and Structure and Focus of April 3rd Advisory Board Meeting

Energy Transformation Advisory Board

To provide guidance and recommendations on strategic direction to the OET and focus areas work groups to execute the energy transition, including gas-to-electric transition, electric grid readiness, and the just and equitable transition for workers, business, and communities.

Transitioning Away from EMT

To develop a coordinated strategy to reduce or ultimately eliminate the local gas distribution companies' reliance on the Everett Marine Terminal (EMT) Liquefied Natural Gas (LNG) facility aligned with DPU Order 20-80 and the state's climate and clean energy mandates, including those established in the *Global Warming Solutions Act*.

Decarbonizing the Peak

To demonstrate pathways to reduce reliance on and expeditiously eliminate fossil fuels from peaking power plants and combined heat and power facilities and deploy alternative demand and supply side options to meeting peak load needs in the Commonwealth, in alignment with the electric sector sublimit and clean energy goals established in the *2050 Clean Energy and Climate Plan*.

Financing the Transition

To identify alternative mechanisms for financing/funding electricity distribution system infrastructure upgrades necessary to achieve the Commonwealth's clean energy and climate mandates that minimizes impacts on consumers' electricity bills, while providing an affordable, sustainable and timely source of revenue to support investments.

Enabling Sustainable Economic Development

To advance clean energy-ready economic development zones that enable key business sectors to grow in Massachusetts, in alignment with the state's interconnection, land use planning, environmental justice and equity, housing, and economic development initiatives.

Welcome and Introductions

Executive Director
Melissa Lavinson

Office of Energy Transformation

Toby Berkman

Consensus Building Institute

Catherine Morris

Consensus Building Institute

Agenda

Timing	Topic	Lead(s)
1:00 – 1:15	**Welcome, Agenda Review, "Table Discussion" Approach, Ground Rules, Outreach and Engagement Update**	Melissa Lavinson, OET Toby Berkman, CBI
1:15 – 1:25	**Healey-Driscoll Administration's Energy Affordability Agenda**	Secretary Rebecca Tepper
1:25 – 1:55 1:55 – 2:15 2:15 – 2:35	**Presentation and Discussion on Financing the Transition (FTT) Focus Area Work Group (FAWG) Assessment Framework – Inform/Decide** • Presentation on FTT FAWG progress and financing alternatives discussed • Small group discussions on alternatives and assessment framework • Discussion report-out and voting	Paul Hibbard and Sue Tierney, Analysis Group Toby Berkman, CBI
2:35 – 2:45	**10-MINUTE BREAK**	
2:45 – 3:15 3:15 – 3:35 3:35 – 3:55	**Presentation and Discussion on Decarbonizing the Peak (DTP) Focus Area Work Group (FAWG) Assessment Framework – Inform/Decide** • Presentation on DTP FAWG progress and technology and policy options discussed • Small group discussions on alternatives and assessment framework • Discussion report-out and voting	Jonathan Blair, E3 Abby Husselbee, Harvard Energy & Environment Law Program Catherine Morris, CBI
3:55 – 4:00	**Next Steps**	Melissa Lavinson, OET Toby Berkman, CBI

Advisory Board Meeting: What to Expect

Energy Transformation Advisory Board

Transitioning Away from EMT

No formal discussion at Advisory Board meeting.

Materials were included in pre-read for inform only.

Decarbonizing the Peak

Financing the Transition

Advisory Board Members will be split into groups of ~8-10 for small group discussions (both in-person and remote), which will be moderated by a facilitator.

Small groups discussions will seek feedback on the alternatives and assessment framework for use by the DTP and FTT FAWGs in their respective Phase 2 work.

The facilitator will ask everyone in the small group to briefly share feedback, which the facilitator will report out to the full Advisory Board. Votes will occur on whether the alternatives and assessment frameworks are appropriate starting points.

Enabling Sustainable Economic Development

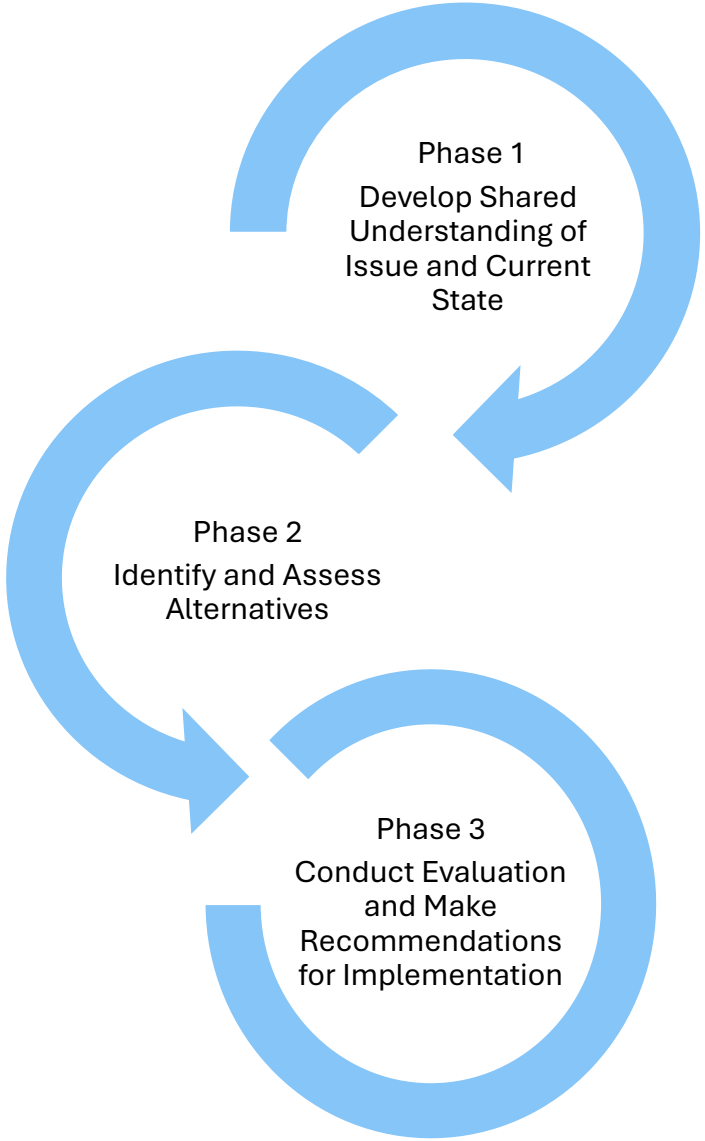
No pre-read materials provided and no formal discussion at Advisory Board meeting.

Webinar launching FAWG held March 31st. Sign-up for FAWG participation is open. First formal FAWG meeting will be held end of April 2025.

Meeting objectives: 1) Update the Advisory Board on status of FAWGs and 2) Gain alignment from Advisory Board for the DTP and FTT FAWGs to move forward with Phase 2 work, using the proposed alternatives and assessment framework and criteria as a starting point.

Overall Status of EMT, DTP, and FTT: Preparing for Phase 2 in Focus Area Work Groups

- ✓ **Phase 1:** FAWG built a shared understanding of the issues that need to be addressed and identified a preliminary list of potential alternatives to consider.
- **Phase 2:** Each FAWG is moving into Phase 2 and determining *how* its members will assess potential alternatives. Objectives for Phase 2 include:
  1. Develop an agreed upon assessment framework and associated criteria.
  2. Use the framework to examine the list of potential alternatives.
  3. Determine which alternatives warrant further, detailed evaluation in Phase 3.
- The list that emerges from Phase 2 should include an appropriate level of detail for each solution to enable the FAWG to make recommendations during Phase 3.



Reminders – Ground Rules and Remote Participation

Ground Rules

Assume positive intent.

Engage in constructive dialogue and actively seek agreement.

Stay on topic and within time (3 min or less).

Be respectful and forthright.

Speak one at a time, when called on by the moderator.

Raise concerns with the Chair or designee, who will act accordingly.

Be able to substantiate assertions or claims in support of comments and positions.

Provide any additional written materials to share with the Advisory Board to the Chair prior to a meeting and OET will circulate.

Remote Participation

Raise your “hand” to be recognized by the Chair or designee.

Identify yourself and affiliation prior to any comments.

Refrain from side conversations in the room out of respect for remote participants.

OET will provide all meeting materials and agendas to Advisory Board Members at least seven days in advance of meetings. Meetings will have a virtual option. All Advisory Board meeting materials are posted to the OET website by the day-of the meeting. Concurrent translation services will be made available at the request of a Member.

Updates on Outreach and Engagement

Lowell Community Meeting

Hosted a community meeting on March 31st in Lowell. Provided an overview of the state's climate and clean energy goals and efforts underway to transform the energy system. Received input and feedback from local community members. This was the first in a series of community engagement meetings, which will occur quarterly around the state.

Enabling Sustainable Economic Development (ESED) Webinar

Held an informational webinar on March 31st to launch the ESED FAWG. OET, Executive Office of Energy and Environmental Affairs, and Executive Office of Economic Development presented.

Join the FAWG on the OET website.

The Healey-Driscoll Administration's Energy Affordability Agenda – Inform

Secretary Rebecca Tepper

Executive Office of Energy and Environmental Affairs

Healey-Driscoll Administration's Energy Affordability Agenda Overview

Get Immediate Relief to Customers

Saves $220M

- We'll deliver a $50 credit to every electric customer ($125M)
- Governor Healey called on the DPU to lower gas rates ($95M)

Stabilize Prices

Saves $190M over 5 years

- Long-term, fixed price contracts like the NECEC are a better deal than volatile commodities ($190M)
- Rates shouldn't create bill shocks, so we'll find ways to smooth those out

Expand Discount and Money Saving Rates

Saves $2.5B over 5 years

- We're making it easier to get discounted rates by moving toward auto-enrollment ($967M)
- Tiered income discount rates can help more people access savings ($500M)
- We're working to expand heat pump rates ($863M)
- ConnectedSolutions incentives will help you control your energy use ($140M)

Keep Costs Off Bills

Saves $2.9B over 5 years

- We'll remove unnecessary charges on your bill ($1.5B)
- It's time to rein in residential competitive suppliers ($335M)
- By reducing electricity demand, we reduce the need for electric infrastructure ($105M)
- Distributed solar will lower energy prices for all customers ($920M)

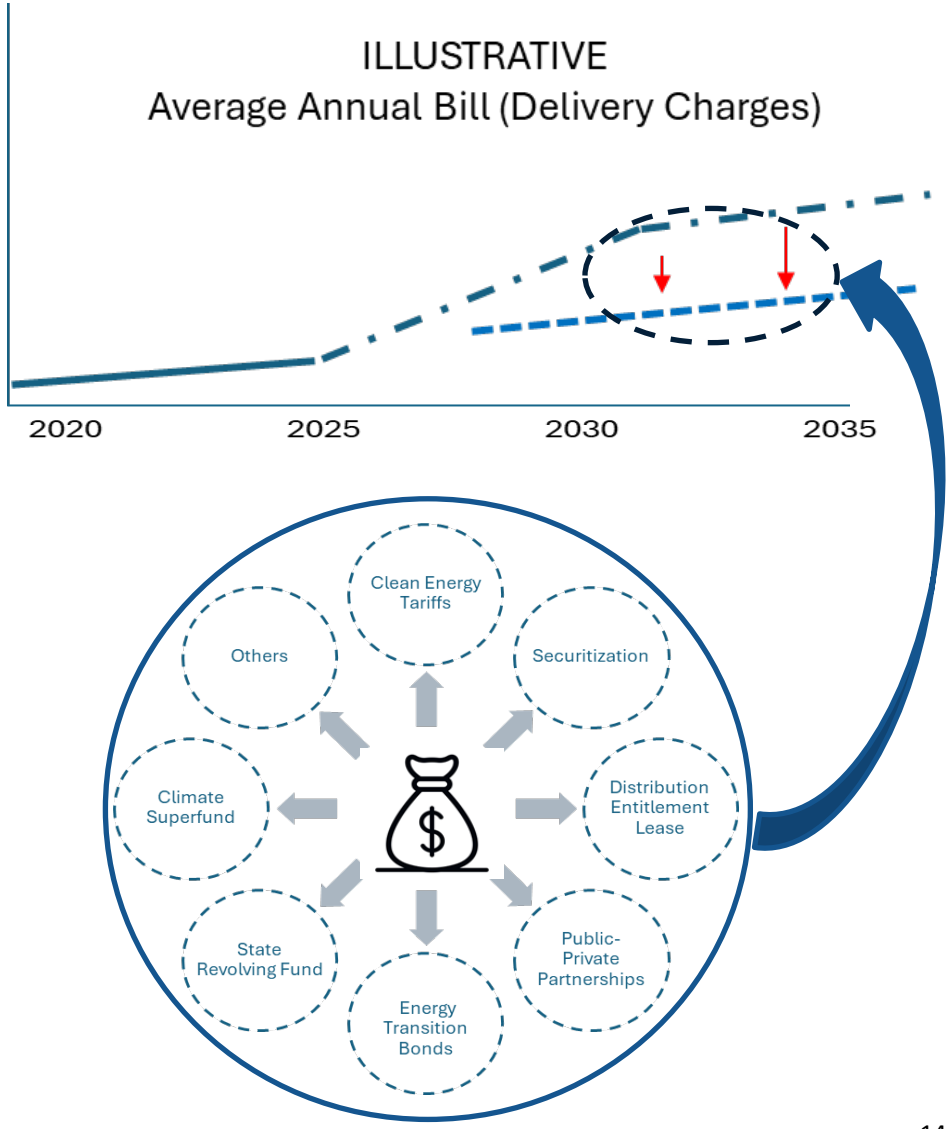
Presentation and Discussion on FTT FAWG Alternatives and Assessment Framework – Inform/Decide

Financing the Transition FAWG: Topics to be Covered and Discussed

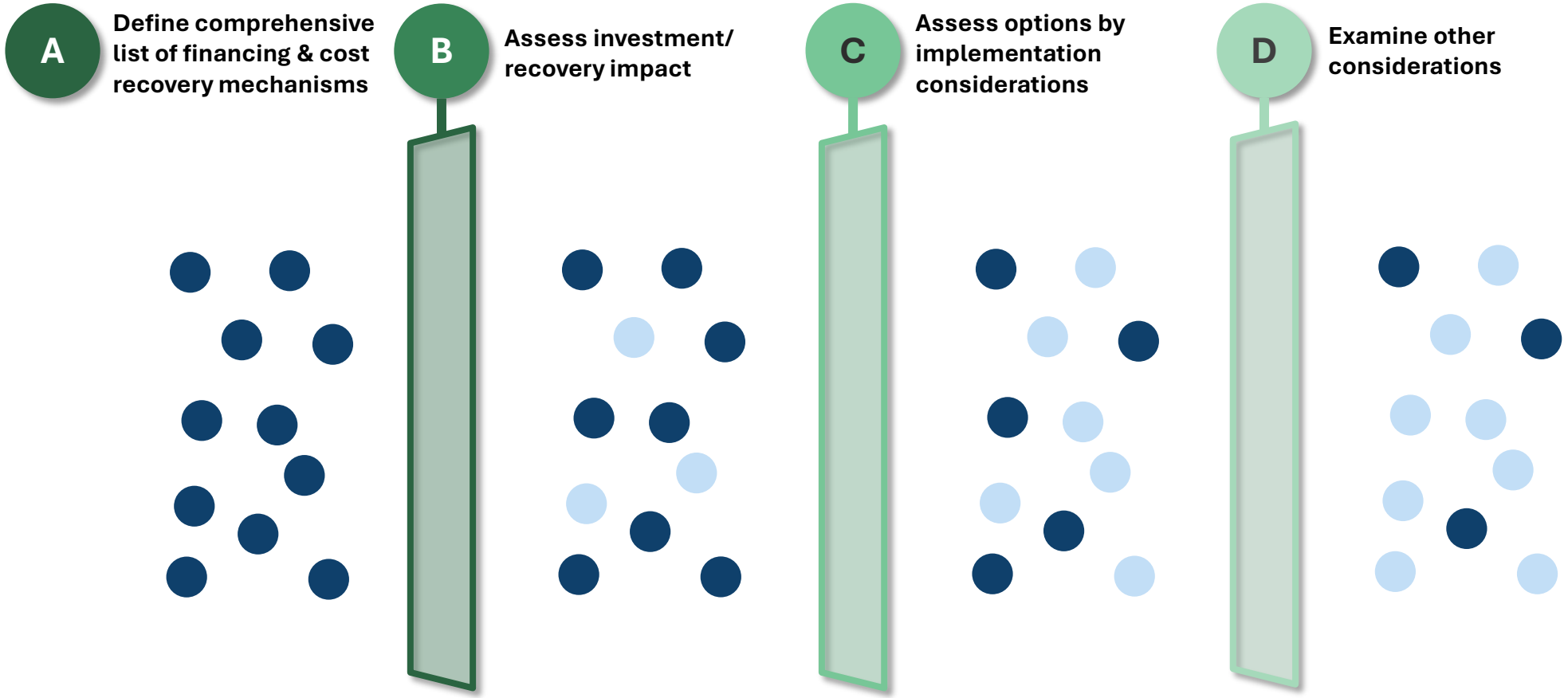
Topic	ETAB Request or Discussion Point
1. Progress Report	Inform (pre-read only)
2. Overview of Financing Alternatives and Evaluation Framework	Review
3. Small Group Discussions	Are there recommendations for adding to or further clarifying the list of alternatives, and/or the assessment framework and criteria?
4. Discussion and Vote	The Advisory Board affirms that the proposed list [as amended] of alternatives and assessment framework [as amended] is an appropriate starting point for the FAWG to proceed with its deliberations in Phase 2.

Financing the Transition FAWG: Focus on Mitigating Future Costs/Bill Impacts

- Future costs of the distribution system are likely to rise faster than in the past.
  - Distribution grid investment is needed to support anticipated demand growth, in general, and the energy transition (e.g., distributed energy resource (DER) deployment, transportation electrification, heating electrification).
  - Energy efficiency and demand management will reduce needed infrastructure build, but new investment (particularly in the next decade) will be needed to enhance the capabilities, capacity, and resilience of the local electric grid.
- The goal of investigating innovative financing and recovery mechanisms is to mitigate impacts on customer bills by:
  - Reducing or avoiding the overall amount of costs to be recovered from electric customers (e.g., reducing cost of capital).
  - Smoothing rate adjustments(e.g., "avoid the hockey stick effect").
  - More directly assigning costs to beneficiaries.

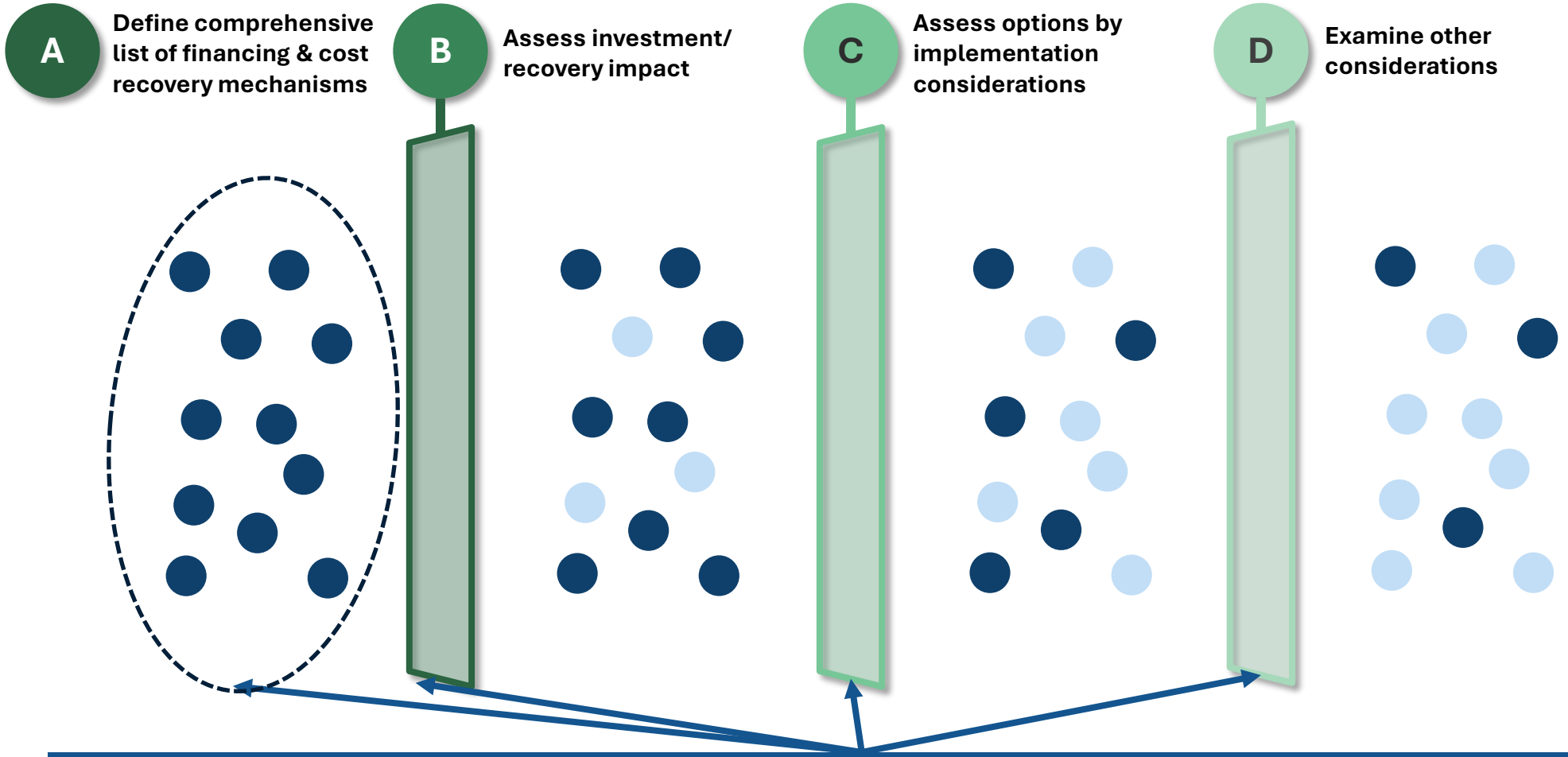


Financing the Transition FAWG: Overall Approach for Screening Financing Alternatives



Assessment process narrows the pool of prospective alternatives through a series of steps, culminating with a finite set of options to consider further in Phase 3.

Financing the Transition FAWG:
Where is the FAWG in Applying this Approach



FAWG has focused on identifying and understanding financing and cost recovery alternatives and developing screening gates/criteria to be used in assessment framework.

Financing the Transition FAWG: Process for Developing Alternatives and Framework

- Alternatives
  - Analysis Group identified and shared financing mechanisms used to finance infrastructure in utility and non-utility sectors, which were shared with the FAWG.
  - FAWG provided feedback and aligned around alternatives presented for further assessment; FAWG also recommended three other mechanisms be reviewed concurrent with the launch of Phase 2 assessment work to determine if they warrant consideration:
    - Public ownership of utility infrastructure, greenhouse gas fee, carbon tax.
- Assessment Framework
  - Analysis Group developed a proposed framework to assess each alternative against a set of criteria, based on initial FAWG input and feedback, which were bucketed into three categories:
    - Investment and cost recovery: For example, who pays and how, how are bills potentially impacted, overall cost impacts.
    - Implementation pathway: For example, are legislative authorities needed, what is the timeframe to implement, what is extent of administrative needs.
    - Other intangibles: For example, is there a broader impact on a utility's cost of capital, is there potential to attract private funding, can this mechanism be applied to other bill cost elements.

Financing the Transition FAWG:
Key Takeaways and Next Steps for FAWG

- Future distribution infrastructure investment need is growing but ultimate magnitude by 2050 is unclear; the state should focus on advancing policies to reduce peak demand growth thereby limiting the need for infrastructure build out, **in addition** to identifying alternative financing mechanisms.
  - Recognition that the DTP FAWG is focused on reducing peak demand and, therefore, investment needs.
  - Agreement that it is important to understand and have authorities in place today to pursue alternative financing mechanisms in the future. Should not wait given the time it will likely take to implement various mechanisms.
- Alternatives for FAWG review should include a broad range of options and not prematurely exclude any.
- Assessment criteria should initially be high-level and allow for comparisons across alternatives and for FAWG to gain further understanding of implications of the various options.
  - Phase 2 will be used to "down select" alternatives for more detailed evaluation in Phase 3.
- Need to determine how to "weight" assessment criteria.
  - FAWG determined this would best be done in smaller workgroups after initial assessment.
    - For example: should more weight be given to lowering near term rate impacts versus overall costs; should more weight be given to approaches that target recovery from a specific group of customers.

The FAWG affirmed the that list of alternatives and assessment framework and criteria are reasonable starting points for Phase 2.

Financing the Transition FAWG: Overview of Financing Alternatives Discussed*

Clean Energy Tariffs	Enables customer-funded grid upgrades. Utilities create targeted tariffs/surcharges for customers requesting upgrades, while maintaining equipment ownership and operational control. (Could pair with other mechanisms to secure initial investment dollars needed.)
Securitization	Enables a lower cost of capital via 100% high-quality debt financing and levelizes cost recovery by spreading amount customers pay back over an extended period. Utilities maintain asset ownership and operational control; securitized investment does not go into utility rate base (on which the utility is allowed a return on equity). Financing done through a legislatively-backed special purpose entity, which can be within the utility.
Distribution Entitlement Lease	Enables supplemental ratepayer benefit from third-party financing of investment. The third party (e.g., nonprofits) leases a portion of utility project capacity, providing lease payment to the utility as an upfront lump sum and issues its own bond to finance the payments. Ratepayers pay a charge for using the leaseholder's capacity entitlement (rather than paying the utility itself), with the charge recovering the leaseholder's cost to finance and pay for the investment. The leaseholder is required to return a portion of its recovered costs (i.e. profits) to ratepayers through, for example, direct credits, support for low-income programs, energy efficiency programs, etc. Utilities maintain ownership and operational control.
Public-Private Partnerships	Involves collaboration between public entities and utilities to fund infrastructure projects. The DC Power Line Undergrounding (DC PLUG) initiative ($500 million) serves as a prime example, combining: a) ratepayer-funded utility investments, b) low-cost public bonds repaid through customer fees, and c) DC transportation department contributions. This model could support, for example, targeted distribution-system expansion, targeted grid development for economic growth, EV charging infrastructure, etc. Utility only puts utility-financed aspects of project in rate base and maintains operational control.

***Additional detail on financing alternatives included in Attachment D**

Financing the Transition FAWG: Overview of Financing Alternatives Discussed*

Energy Transition Bonds	Bonds issued by some public authority that provides low-cost financing of infrastructure projects that may otherwise be funded by the utility. The bonds are repaid by users of the projects. Examples: DC Water Agency Green Infrastructure performance bonds, Private Activity bonds (tax-exempt and issued by local governments). Utility maintains operational control; reduces amount that goes into utility rate base.
State Revolving Fund (SRF)	Provides low-cost loans for infrastructure projects, with repayment of principal and interest recycled to fund additional projects. For example, MA currently participates in a water project SRF through the Department of Environmental Protection, with initial seed funding from federal grants (initial seed funding could come from state or third-party, private financing). Under current model, community water agencies borrow from the SRF for drinking water projects and repay the loans through water user fees. Repaid funds are used for subsequent loans from the SRF. In theory, a comparable program could be created and seed-funded by the state for a Distribution-System SRF. Utility could maintain asset ownership and operational control. Would reduce amount that goes into rate base. (May pair well with Clean Energy Tariff.)
Climate Superfund	Recently adopted in Vermont and New York (2024), this approach collects fees from entities responsible for historical GHG emissions to fund climate infrastructure. New York's law imposes retroactive fees on companies for GHG emissions during 2000-2018. Responsible parties collectively pay into a fund for climate adaptation projects. This approach could be used to fund distribution grid upgrades via a grant, so no repayment required. Utility maintains ownership and operational control. Amount funded by a grant does not go into the utility's rate base.

***Additional detail on financing alternatives included in Attachment D**

Financing the Transition FAWG: Proposed Assessment Framework and Criteria

ISSUE			DATA/ DESCRIPTION	COLOR CODING
Investment / cost recovery (dollar benefits)	*Ratepayer impacts*	Reduces cost of capital		
		Levelizes cost recovery over time		
		Mitigates rate base growth		
		Total Net Present Value (NPV) impacts		
		Near- vs. long-term rate (and/or bill) impacts/Intertemporal equity of cost recovery		
		Enables direct assignment of cost recovery to project beneficiaries		
	Taxpayer impacts			
	Potential to scale			
	Low- and Moderate-Income (LMI) / Environmental Justice (EJ) impacts			
	Other investment / cost recovery impacts (e.g., based on how costs are recovered, who repays the investment, and/or other factors)			
Implementation pathway (challenges)	Expected timeline (e.g., time to implementation)			
	Governance, legal, and stakeholder considerations (e.g., DPU familiarity, legislative needs, political support vs. opposition, legal risks, stakeholder buy-in)			
	Overall feasibility/maturity (readiness of approach)			
	Administrative and operational needs / costs			
	Need for initial scale of amount financed			
Other intangibles	Compatibility between approach & type of investment (e.g., ability to match lifetime of underlying assets with cost-recovery period and/or other factors)			
	Ability of repayment approach to be non-bypassable			
	Broader impact on utility (e.g., utility credit rating, cash flow, cost of capital, incentives for distribution system investments, potential for mitigating impacts, asset ownership/operational responsibility)			
	Potential applicability to costs other than distribution investments (e.g. transmission, generation, energy efficiency)			
	Other notable/unique elements (e.g., potential for attracting/utilizing outside funding, sustainability, interaction with other programs, additional impacts on pace of energy transition not already captured, etc.)			

Financing the Transition FAWG: Illustrative Example by Analysis Group* (Securitization)

*This table is for illustrative purposes only. It does not reflect the opinions or outcome of any deliberations by the Advisory Board or its members.

ISSUE			DATA/DESCRIPTION	COLOR CODING
Investment / cost recovery (dollar benefits)	*Ratepayer impacts*	Reduces cost of capital	Legislatively-authorized securitization reduces cost of capital from utility WACC (~8%?) to debt at or near highest-rated municipal bonds (~4%?)	
		Levelizes cost recovery over time	Levelizing costs decreases revenue recovered in early years and increases the revenue recovered in later years, relative to status quo	
		Mitigates rate base growth	Securitized amounts are not included in rate base	
		Total Net Present Value (NPV) impacts	Lower cost of capital will lower NPV of investment costs, all else equal	
		Near- vs. long-term rate (and/or bill) impacts	Levelization of cost recovery and reduction in cost of capital generate meaningful near-term reductions in rate impacts; however, levelization will increase impacts in later years, potentially offset by the lower cost of capital	
		Enables direct assignment of cost recovery to project beneficiaries	TBD as a function of rate design	
	Taxpayer impacts		N/A	
	Potential to scale		Scalable; limited only by amounts that the Commonwealth may reasonably choose to securitize, though each category of costs securitized would need to be defined in legislation	
	Low- and Moderate-Income (LMI) / Environmental Justice (EJ) impacts		Lowering costs reduces impact to all customer groups; securitization would not preclude or reduce ability of DPU to require additional discounts to LMI customers, including tiered rates	
	Other investment / cost recovery impacts		TBD	
Implementation pathway (challenges)	Expected timeline (e.g., time to implementation)		Legislation and subsequent DPU approval needed, so potentially 2-3 years from introduction of legislation, which is sufficient for most categories of future investment	
	Governance, legal, and stakeholder considerations		Would need to consider limits to amounts backed by state through securitization, and impact on future utility investment/earnings growth	
	Overall feasibility/maturity (readiness of approach)		Feasible and mature, with experience in the Commonwealth and in other states	
	Administrative and operational needs / costs		Would require DPU review and approval and would need to create a special purpose entity	
	Need for initial scale of amount financed		Magnitude of securitized investments would need to have a meaningful impact and be worth the legislative, DPU, and financing efforts	
Other intangibles	Compatibility between approach & type of investment		TBD	
	Ability of repayment approach to be non-bypassable		Collection on bill ensures similar level of non-bypassability as other electric bill components; however, commitment of state to back amounts securitized increases the importance of ensuring that load can not avoid payment through exit	
	Broader impact on utility		Securitization reduces utility rate base, all else equal; this can impact utility cost of capital, cash flow, and incentives for distribution system investment, if the amount securitized is large relative to utility rate base	
	Potential applicability to costs other than distribution investments		Generally applicable only to state-jurisdictional regulated utility investments	
	Other notable/unique elements		Rate mitigation can facilitate more rapid investments	

Financing the Transition FAWG: Small Group Discussions

- Advisory Board Members will be split into groups of ~8-10 for small group discussions (both in-person and remote). Each group will have a facilitator.
- The small groups will discuss both the list of alternatives and the assessment framework and criteria. These **discussions will be used to seek feedback** for the FAWG.
- **The purpose is not to debate the merits** of any individual alternative; rather **the purpose is to ensure the FAWG has identified a broad range of options to consider and develop an appropriate range of criteria by which to assess each alternative** at a high level for comparison purposes, e.g., will the framework and criteria allow the FAWG to answer the right questions to determine which options to move to Phase 3, based on the FAWG's mission and purpose.
- The facilitator will ask everyone in the small group to briefly share any feedback on the alternatives and framework. [Please stay on topic and be respectful of your allotted time and the facilitator's directions to ensure everyone has an opportunity to speak.]
- The facilitator will report out to the full Advisory Board for each group.

Financing the Transition FAWG:
Small Group Discussion Prompt

Discussion Question:

Are there recommendations for adding to or further clarifying the list of alternatives, and/or the assessment framework and criteria?

Breakout Rooms for FTT Discussion

We are currently in breakout rooms to discuss the Financing the Transition (FTT) list of alternatives and assessment framework in small groups.

We will return at approximately 2:15PM for a large group discussion.

Financing the Transition FAWG: Discussion and Vote

Vote

The Advisory Board affirms that the proposed list [as amended] of alternatives and assessment framework [as amended] is an appropriate starting point for the FAWG to proceed with its deliberations in Phase 2.

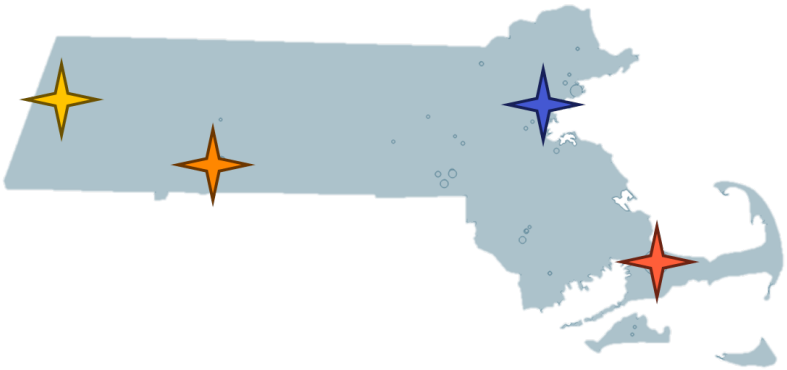
Presentation and Discussion on DTP FAWG Alternatives and Assessment Framework – Inform/Decide

Decarbonizing the Peak FAWG: Topics to be Covered and Discussed

Topic	ETAB Request or Discussion Point
1. Progress Report	Inform (pre-read only)
2. Overview of Technology and Policy Options and Evaluation Framework	Review
3. Small Group Discussions	Are there recommendations for adding to or further clarifying the list of alternatives and/or the assessment framework and criteria?
4. Discussion and Vote	The Advisory Board affirms that the proposed list [as amended] of alternatives and assessment framework [as amended] is an appropriate starting point for the FAWG to proceed with its deliberations in Phase 2.

Decarbonizing the Peak FAWG: Four Participating Facilities

Metric	Canal	West Springfield	Pittsfield	Tufts
Status	Active	Retired	Active	Active
Capacity (MW)	1578	229	181	4
Fuel	RFO / NG	NG, DFO, KER	NG, DFO	NG
Interconnection	SEMA (345kV)	WCMA (115kV)	WCMA	NEMA (Limited)
Site Area (Acres)	130	50	6 (leased)	0.5
Emissions (5-yr Avg CO2)	192,300	N/A	27,790	11,500
Average Capacity Factor	<5%	N/A	~5%	~70%



- FAWG will take both a top-down and bottom-up approach to assessing alternatives.
  - Top-down: FAWG will conduct a system-wide assessment of the technology and policy alternatives.
  - Bottom-up: FAWG will apply assessment framework for both technology and policies to the four participating facilities.

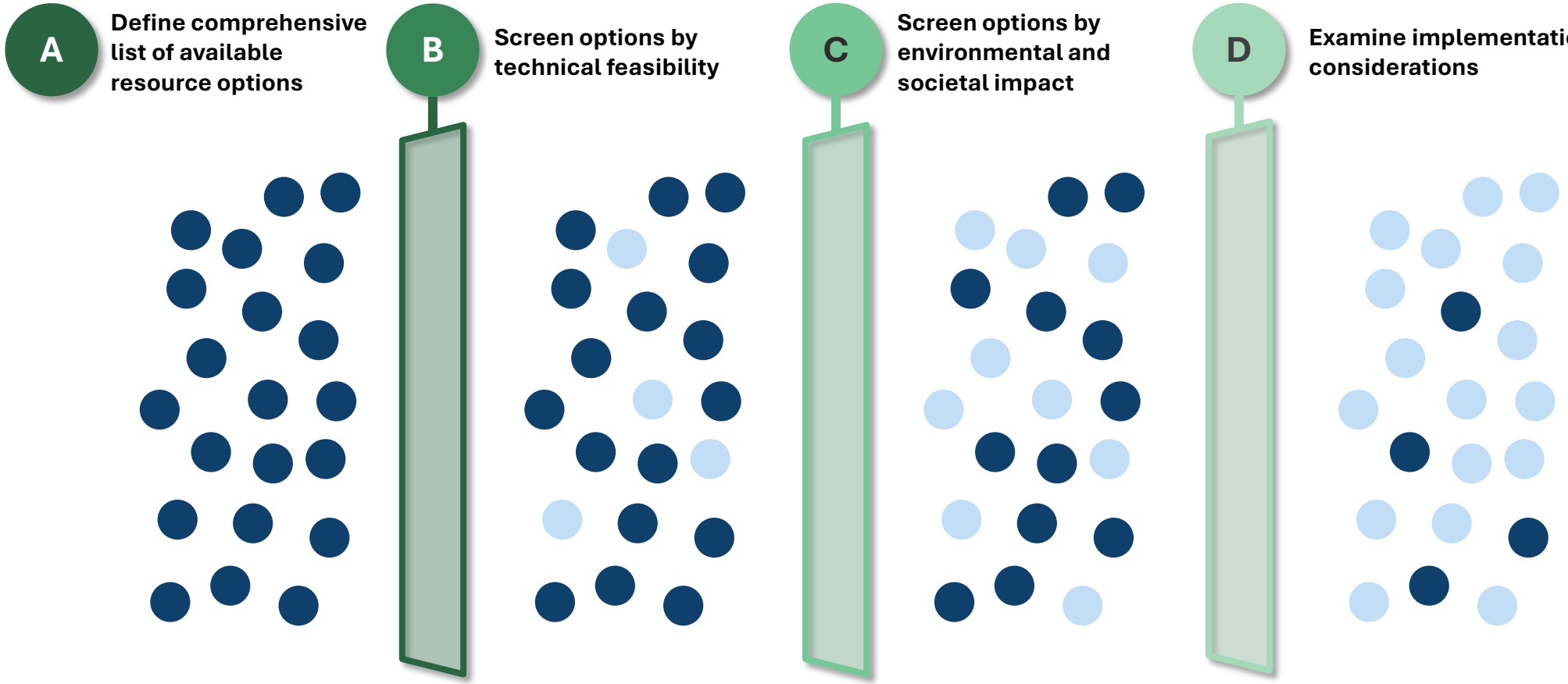
https://www.epa.gov/egrid/historical-egrid-data

Decarbonizing the Peak FAWG: Process for Developing Alternatives and Framework

- Alternatives
  - E3, Georgetown Climate Center (GCC), and Harvard Energy & Environment Law Program (EELP) identified and shared an initial list of technology and policy alternatives based on FAWG member input from previous meetings.
  - FAWG provided feedback and aligned around alternatives for further assessment; FAWG recommended that technology options be very specific and that additional work to refine some policy options may need to occur in smaller work groups as the assessment phase launches.
- Assessment Framework
  - E3, GCC, and Harvard EELP developed a proposed framework to assess each technology and policy alternative against a set of criteria, based on FAWG input and feedback, which were bucketed into the following categories:

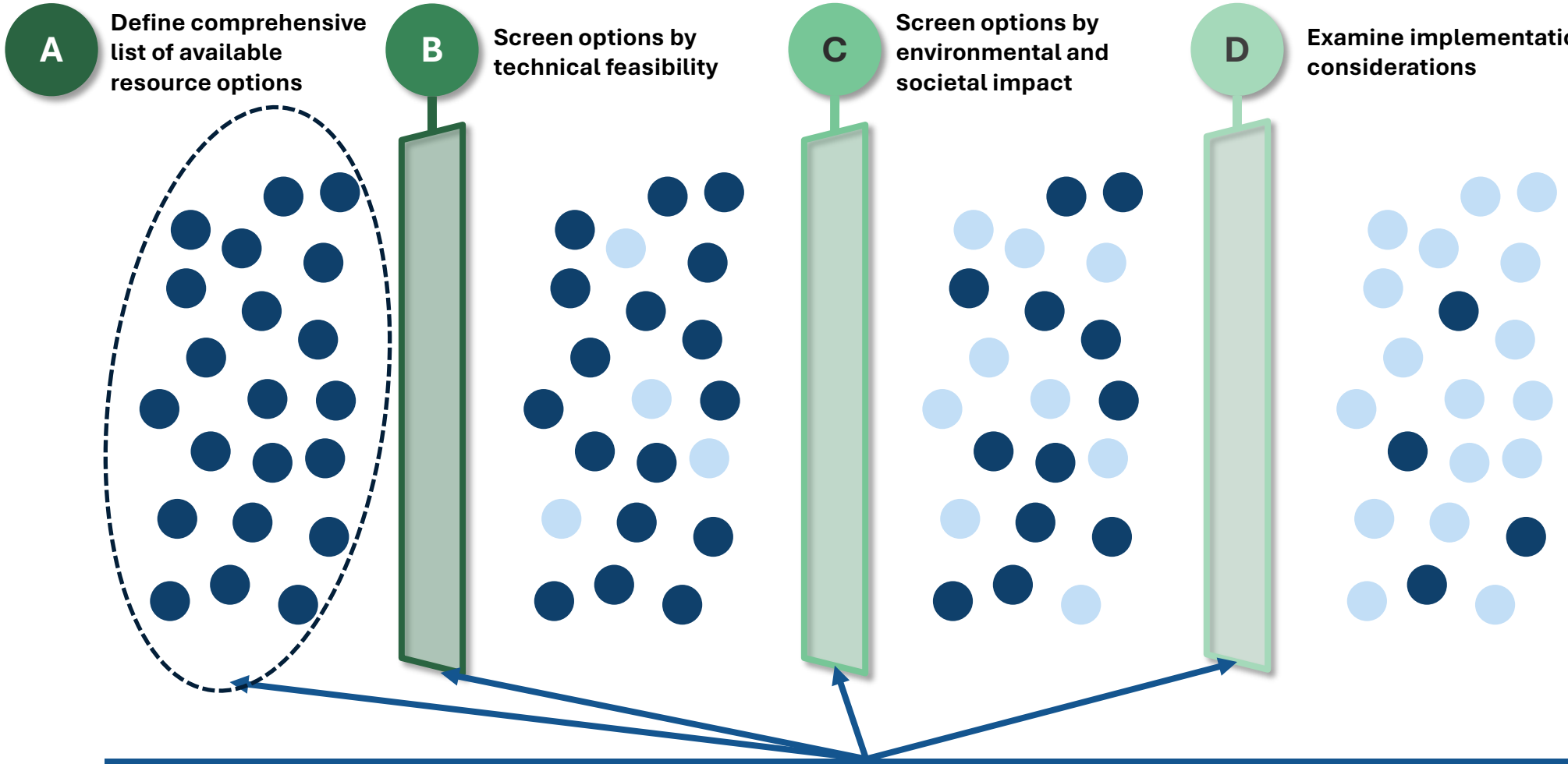
Technology	Policy
• Environmental Impacts • Feasibility • Community and Economic Impacts • Suitability for Fossil Fuel-Fired Peaker Replacement • Cost • Availability/Stage of Commercialization • Other Considerations (e.g., consistency with existing state policy, legal risks, federal policy risk)	• Impact on peak demand • Impact on increasing availability of decarbonized supplies • Equity • Customer Cost Impacts • System Cost Impacts • Implementation Needs/Risks • Timing • State Authority

Decarbonizing the Peak FAWG: Overall Approach for Screening Alternative Options



Assessment process narrows the pool of prospective alternatives through a series of steps, culminating with a set of finite options to consider further in Phase 3.

Decarbonizing the Peak FAWG: Where is the FAWG in Applying this Approach



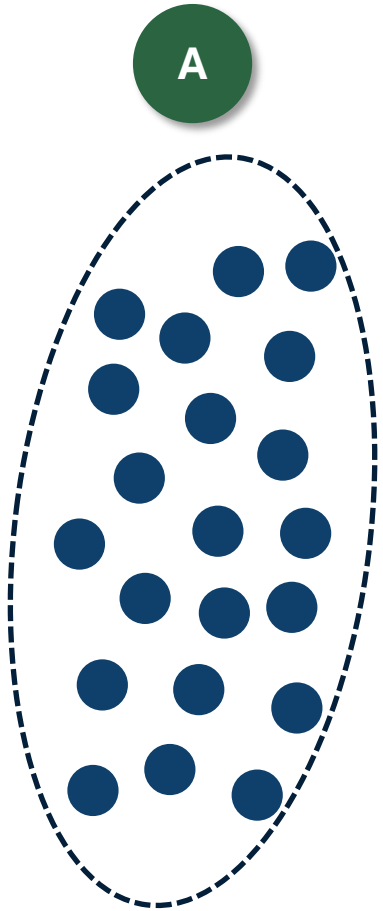
FAWG has focused on identifying and developing alternatives and developing screening gates/criteria to be used in assessment framework.

Decarbonizing the Peak FAWG: Key Takeaways from Developing Assessment Framework

- The list of alternatives for assessment should be comprehensive, at this juncture.
  - While there was disagreement as to the efficacy of some alternatives, there was agreement that alternatives should not be prematurely excluded; all alternatives should be consistently assessed.
  - Technology options focused on both demand and supply-side alternatives, particularly given need to reduce load at constrained sites, such as campuses.
- Assessment criteria included in the framework should consider broad impacts and implications of technology or policy alternatives, including quantitative and qualitative.
  - Some criteria are quantifiable, such as emissions, while others are more qualitative, such as community acceptability (i.e., for a technology alternative) or implementation feasibility (i.e., for a policy alternative).
- Recognition that criteria for measuring emissions or costs, for example, requires additional discussion to define and apply consistently across alternatives.
  - A subgroup of FAWG members will convene in April to help develop a proposal to be shared with the larger FAWG for feedback and approval. This will be completed prior to conducting the assessments.

FAWG affirmed that the alterative options and assessment framework and criteria are reasonable starting points, noting that the exact approach for measuring some criteria is under development.

Decarbonizing the Peak FAWG: List of Technology Options Identified



+ Alternative Fuels

- Renewable diesel
- Biodiesel
- Methanol
- Ethanol
- Hydrogen (green)
- Ammonia
- Renewable natural gas
- LNG/CNG
- Biomass

+ Energy Storage

- Li-ion Battery
- Na-ion Battery
- Flow Battery
- Iron-air Battery
- Pumped Hydro
- Compressed air energy storage
- Compressed gas energy storage
- Thermal Storage

+ Energy Generation

- Solar Photovoltaic
- Offshore Wind
- Onshore Wind
- Enhanced Geothermal
- Deep geothermal
- Run-of-River Hydroelectric
- Reservoir Hydroelectric
- Hydrogen Combustion Turbine (CT)
- Hydrogen Fuel Cell
- Linear Generator
- Wastewater Heat Recovery
- Nuclear SMR
- Fusion

+ Transmission/Imports

- Expansion
- Optimization, e.g. GETS
- Surplus Interconnection

+ Thermal Network Conversion

- Geothermal
- Steam

+ Distributed Energy Resources

- Virtual Power Plant (VPP)
- Microgrids

+ Carbon Abatement

- Carbon Capture and Storage (CCS)

+ Demand-Side Resources

- Energy Efficiency, e.g., smart electrification
- Demand Response (DR), e.g., managed charging

Decarbonizing the Peak FAWG: Overview of Technology Assessment Framework

Technology*	Environmental Impacts (considering production of fuel and use)					Feasibility					Community and economic impacts			
	Carbon Dioxide	Air Quality	Toxics	Water quality and use	Land	Power density (MW/acre) and other land features	Timeline	Deliver-ability (i.e. transmission access)	Technological maturity	Supply chain and availability of raw materials	Cumulative health impacts	Workforce development needs and impacts	Construction and operational workforce	Related community economic impacts and tax
Fuels														
Storage														
Generation														
Etc.														

On the next slide: Substitutability for peaker and additional considerations

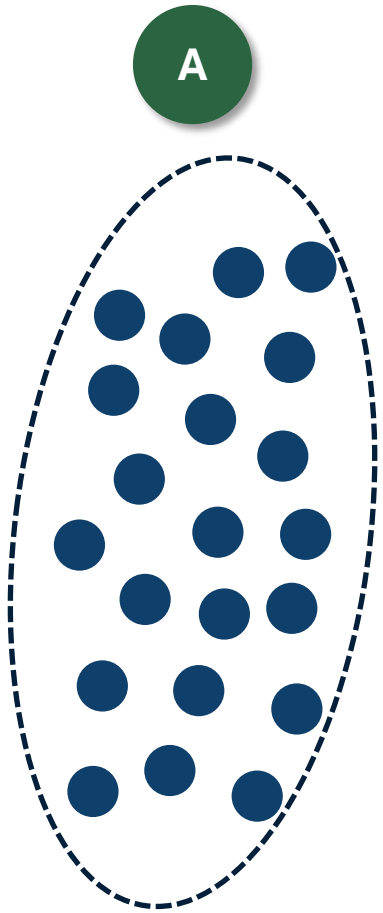
*could lead to a combination of technologies

Decarbonizing the Peak FAWG: Overview of Technology Assessment Framework

Technology*	Substitutability for peaker										Additional considerations (where they apply)			
	Capacity - Ability to dispatch during net peak hours	Capacity factor	Duration	10-minute reserves	30-minute reserves	Frequency regulation	Voltage support	Local reliability	Winter fuel security	Does it require pairing with another resource to make it dispatchable/ increase its ELCC?	Is consistent with state laws and policies?	What are potential legal and policy risks?	What is the neighboring community sentiment?	Other
Fuels														
Storage														
Generation														
Etc.														

*could lead to a combination of technologies

Decarbonizing the Peak FAWG: List of Policy Options Identified



+ Consumer Facing Policies

- Retail rate design
  - Time of Use (TOU) rates
  - Default dynamic pricing
  - Heat Pump Rate
- Demand response incentives
  - ConnectedSolutions
  - Other residential storage incentives
  - Commercial and industrial storage incentives
- Smart Electrification Strategies
  - Managed charging
  - Promote more efficient electric heating
- Aggregated demand response
  - Microgrids
  - Virtual Power Plants
  - ISO visibility/wholesale market opportunities
- Energy efficiency measures
  - Home weatherization
  - Incentives for mechanical insulation
  - Building codes requirements
- A performance-based approach to utility incentives
- More robust licensures, disclosures, or other policies to ensure quality contractors

+ Supply Side Policies

- Clean Peak Standard reforms
- Storage incentives
  - Enhanced fire and safety codes
- Transmission reforms
  - Reform of state procurement rules for use of surplus interconnection in transmission bids
  - Incentives for new transmission
- Interconnection
  - Flexible interconnection
  - Surplus Interconnection Standard reform
- Emissions Limits
  - Facility-specific emissions limits
  - Limitations on new fossil fuel generation
- Low carbon fuel incentives
- Carbon price
  - Regional Greenhouse Gas Initiative (RGGI) reforms
  - Carbon tax
  - Fossil fuel fee

Decarbonizing the Peak FAWG: Overview of Policy Assessment Framework

Policy	Policy Definition		Impact on peak demand	Impact alternatives to meet peak supply	Equity Considerations				Cost Impacts		
	Policy Objective	Status and Potential Reforms			Benefits for local EJ communities	Effect on existing fossil fuel workforce	Effect on local pollution and air quality	Agency of local community	Wholesale electricity prices	Customer bill impacts	Taxpayer impacts
Consumer-Facing Policies											
Supply Side Policies											
Etc.											

On the next slide: Interactions with other jurisdictions, implementation pathway, timescale, and policy mechanism

Decarbonizing the Peak FAWG: Overview of Policy Assessment Framework

Policy	Interaction with Other Jurisdictions			Implementation Pathway					Timescale	Policy Mechanism		Other considerations (as needed)
	Interaction with federal policy	Adopted by other states	Potential for regional collaboration	Key stakeholders	State authority or influence	Program administrative and enforcement needs	Technical or operational needs	Operational costs and additional authorities needed to implement		Incentive, law, or regulation	Regulated/ Incented Party	
Consumer-Facing Policies												
Supply Side Policies												
Etc.												

Decarbonizing the Peak FAWG: Small Group Discussions

- Advisory Board Members will be split into groups of ~8-10 for small group discussions (both in-person and remote). Each group will have a facilitator.
- The small groups will discuss both the list of alternatives and the assessment framework and criteria. These **discussions will be used to seek feedback** for the FAWG.
- **The purpose is not to debate the merits** of any individual alternative; rather **the purpose is to ensure the FAWG has identified a broad range of options to consider and developed an appropriate range of criteria by which to assess each alternative** at a high level for comparison purposes, e.g., will the framework and criteria allow the FAWG to answer the right questions to determine which options to move to Phase 3, based on the FAWG's mission and purpose.
- The facilitator will ask everyone in the small group to briefly share any feedback on the alternatives and framework. [Please stay on topic and be respectful of your allotted time and the facilitator's directions to ensure everyone has an opportunity to speak.]
- The facilitator will report out to the full Advisory Board for each group.

Decarbonizing the Peak FAWG:
Small Group Discussion Prompt

Discussion Question:

Are there recommendations for adding to or further clarifying the list of alternatives and/or the assessment framework and criteria?

Breakout Rooms for DTP Discussion

We are currently in breakout rooms to discuss the Decarbonizing the Peak (DTP) list of alternatives and assessment framework in small groups.

We will return at approximately 3:35PM for a large group discussion.

Decarbonizing the Peak FAWG: Discussion and Vote

Vote

The Advisory Board affirms that the proposed list [as amended] of alternatives and assessment framework [as amended] is an appropriate starting point for the FAWG to proceed with its deliberations in Phase 2.

Next Steps

- **Takeaways and reminders**
- **Next Advisory Board meeting will be in September 2025**
  - The meeting will focus on discussion of the initial alternative assessment outcomes for the DTP and FTT FAWGs and provide updates on progress of the ESED and EMT FAWGs.

Adjourn

Thank you!