NARUC
National Association of Regulatory Utility Commissioners

NARUC TASK FORCE ON NATURAL GAS RESOURCE PLANNING

EXPERT LEARNING SERIES:
Coordination Between the Gas and Electric Sectors at the Distribution Level

June 26, 2024

Today's Agenda

Expert Learning Series:

Part 1: Expert speaker presentations *(recorded for website library)*

Moderator: Task Force Co-Chair Cordova, Public Utilities Commission of Nevada

- **Chris DiGiovanni,** Gas Strategy Program Manager, Pacific Gas & Electric Company
- **Gerhard Walker,** Manager, Advanced Forecasting and Modelling, Eversource Energy

Part 2: Q&A with expert speakers *(not recorded)*

Part 3: Lessons learned from Task Force members *(not recorded)*

Other Task Force Items:

- Update on Task Force Phase 2
- Announcements

EXPERT SPEAKER PRESENTATIONS

Pacific Gas & Electric Company

Chris DiGiovanni
June 26, 2024

About us

We are focused on providing safe, reliable, clean and affordable natural gas and electricity to our customers.

Service Area

70,000

SQUARE MILES

Service area population

16 million

CALIFORNIANS

(That's 1 in 20 Americans!)

27,000

EMPLOYEES WHO LIVE AND WORK

in the communities we serve

MORE THAN

715,000

SOLAR CUSTOMERS

representing **>6,900 MW** of solar energy generated

MORE THAN

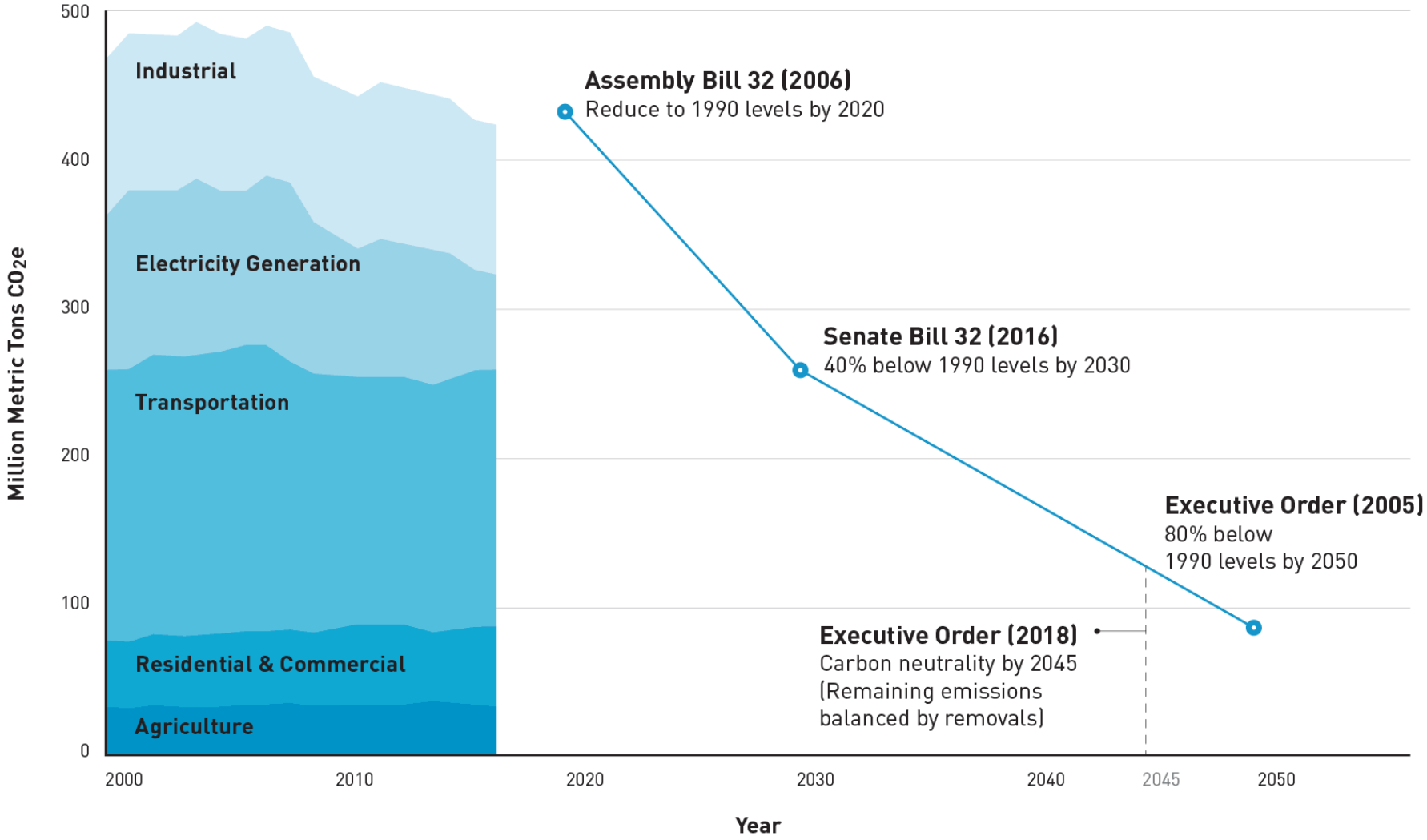
560,000

ELECTRIC VEHICLES

registered in our service area

CALIFORNIA'S AMBITIOUS GHG POLICY GOALS

- *The state's aggressive policy goals target substantial reductions in GHG emissions in the coming decades.*



Source: Statewide emissions data from the California Air Resources Board's greenhouse gas emissions

PG&E Climate Strategy Report

2030

Reduce Carbon Emissions

- 50% Scope 1 & 2
- 25% Scope 3

2040

Net Zero Energy System

2045

California Reaches Carbon Neutrality

2050

Climate- & Nature-Positive Energy System

2030 Climate Goals

Cleaner Energy

- ↑ 70% Renewable electricity
- ↑ 15% Renewable natural gas

Helping Customers Reduce Their Carbon Footprint

- ↑ 3 million Electric vehicles fueled
- ↑ 6 million Homes' annual emissions worth of energy efficiency
- ↑ 50% Workforce education & training classes on electrification
- ↑ at least 3 Zonal electrification pilots (targeting disadvantaged communities)

Scope 1: Direct emissions from PG&E's operations.
Scope 2: Indirect emissions from facility electricity use and electric line losses.
Scope 3: Emissions resulting from value chain activities not owned or controlled by PG&E but that can be indirectly impacted by PG&E actions.

pge.com/climate

Gas Investments for the Future

Stand: Prudently invest in PG&E's natural gas system and reduce costs through asset retirements and downrates.

Target Programs and Drivers

Current

- TIMP
- MAOP Reconfirmation
- Stations
- Dist mains & services (reactive)

Future (Near-term)

- DIMP
- Dist services
- Underutilized and idle pipe
- Cost-effective zonal equity

Future (Long-term)

- All gas assets

Outcomes

GIF Process Overview

Opportunity Identification

- Gather data from engineering teams
- Identify cost avoidance opportunities
- Perform high-level hydraulic review

Alternatives Assessment

- Perform detailed hydraulic analysis
- Perform financial analysis and select preferred alternative
- AFO pre-approval

Work Initiation & Funding

- Develop engineering scoping package
- Prioritize project funding through BPD
- Initiate and fund project

Project Execution

- Perform detailed engineering
- Construct and deliver the planned project
- Evaluate project performance

Gas Investments for the Future

Stand: Prudently invest in PG&E's natural gas system and reduce costs through asset retirements and downrates.

Alternative Energy Program (AEP)

- Delivers alternative energy to customers in lieu of continued gas asset spending
- Supports customer choice and meets PG&E's obligation to serve
- Ensures prudent system investments by reducing costs, asset risk, and GHG emissions
- Most effective for assets that serve a small number of customers (e.g. HPRs, radial lines)

$32.8M
2023 GRC authorized annual funding

$50k
Median residential incentive cost

$55k
Median commercial incentive cost

114
Conversions completed since 2018

~100
HPRs with conversion potential

45%
Conversion success rate

Energy Delivery Options

Current			Future (Near-term)	Future (Long-term)	
Electricity	Solar	Propane	Long-term CNG	Hydrogen	RNG

Our collective electric system faces accelerating, multi-dimensional needs that we must address to deliver for our communities

Wildfire Risk

Our system is in areas with high wildfire risk, which is exacerbated by our changing climate

Capacity

California is electrifying at a rapid pace, putting unique stress on our grid infrastructure

Asset Health

Our system is aging, which could create safety issues and worsen reliability

Reliability

Our sprawling system has reliability issues that must be addressed for our customers

Equity

We serve a diverse customer base that relies on us to deliver for them, day in and day out

Climate Risk

Our hometowns are increasingly impacted by the adverse effects of climate change

We must evolve our approach to grid planning to efficiently address our complex needs

Integrated Grid Planning builds on our current approach to planning to maximize impact on our system

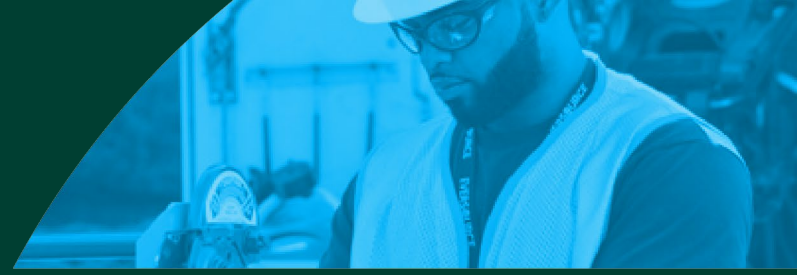
Integrated Grid Planning allows us to…	Resulting in…
Solve for multiple needs: Pursue wildfire risk mitigation alongside other important objectives to deliver on our communities' needs	**Risk-informed** capital plans that **integrate other objectives**, delivering on our multi-faceted goals for the system
Transparently track impact: Clearly understand how work on the system will impact system need	Make informed decisions about **tradeoffs** and prioritize work that will deliver on our **shared objectives**
Build stable plans: Create long-term visibility into what work will be done when	**Multi-year capital plans** that enable advanced resource and operational planning and respond to our communities' needs
Efficiently use resources: Maximize the impact of every dollar spent on the system	To maximize efficiency, consider a **range of possible solutions** to address multiple needs and **bundle work** at the circuit and substation level

Thank You

Chris DiGiovanni
Chris.DiGiovanni@pge.com

INTEGRATED ENERGY PLANNING

EVERSOURCE



Eversource serves approximately

4.4 million

customers

in more than

600 communities

Nearly

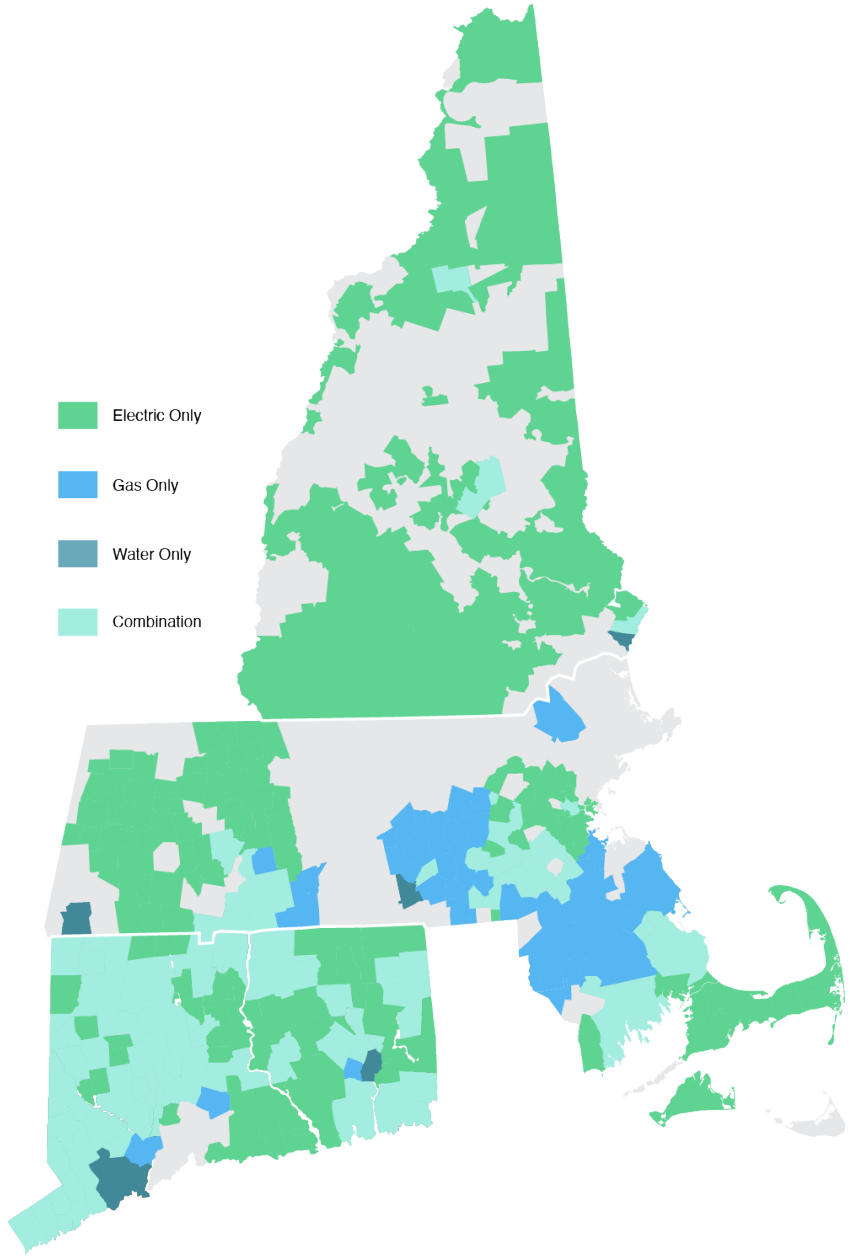
10,000

employees

3,309,000 … electric

895,000 …… gas

241,000 …… water



*2023Annual Report

Integrated Energy Planning

Agenda

- MA D.P.U 24-10 – The Electric Sector Modernization Plan
- MA D.P.U. Order 20-80 B – The Future of Gas
- Concepts of Integrated Energy Planning
- Integrated Energy Planning at Eversource
- Process Prioritization of Pilots
- Early Experiences and Lessons Learned

KNOW WHAT'S COMING

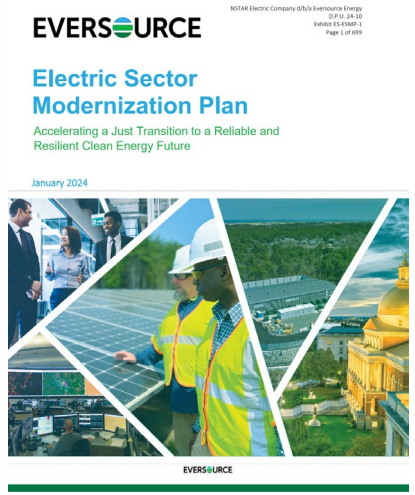
Integrated Energy Planning

MA D.P.U. 24-10 – The Electric Sector Modernization Plan

- With its **Clean Energy Climate Plans**, the Commonwealth of Massachusetts has established aggressive clean energy targets aimed at transitioning to a decarbonized future.

- 2022 Massachusetts passed H. 5060, **An Act Driving Clean Energy and Offshore Wind**, (Climate Law). The Climate Law requires each Electric Distribution Company to prepare an Electric Sector Modernization Plan (ESMP) that is transparent, proactively upgrades the distribution system, modernizes the grid and integrates more clean energy.

- The Company filed its plan in January of 2024 with the MA DPU and is expecting a decision by the department by end of Summer



Increases available electrification hosting capacity by 180% over the next decade

Supports the **adoption of 2.5 million electric vehicles statewide,** 60% of the state's 2050 goals

Allows for the **adoption of 1 million heat pumps,** 70% state's 2050 goal in the Company's service territory

Enables **5.8 GW of solar, exceeding the state's 2040 goals,** and reaching over 60% of the state's 2050 goals

Integrated Energy Planning

MA D.P.U. Order 20-80 B – The Future of Gas

Timing

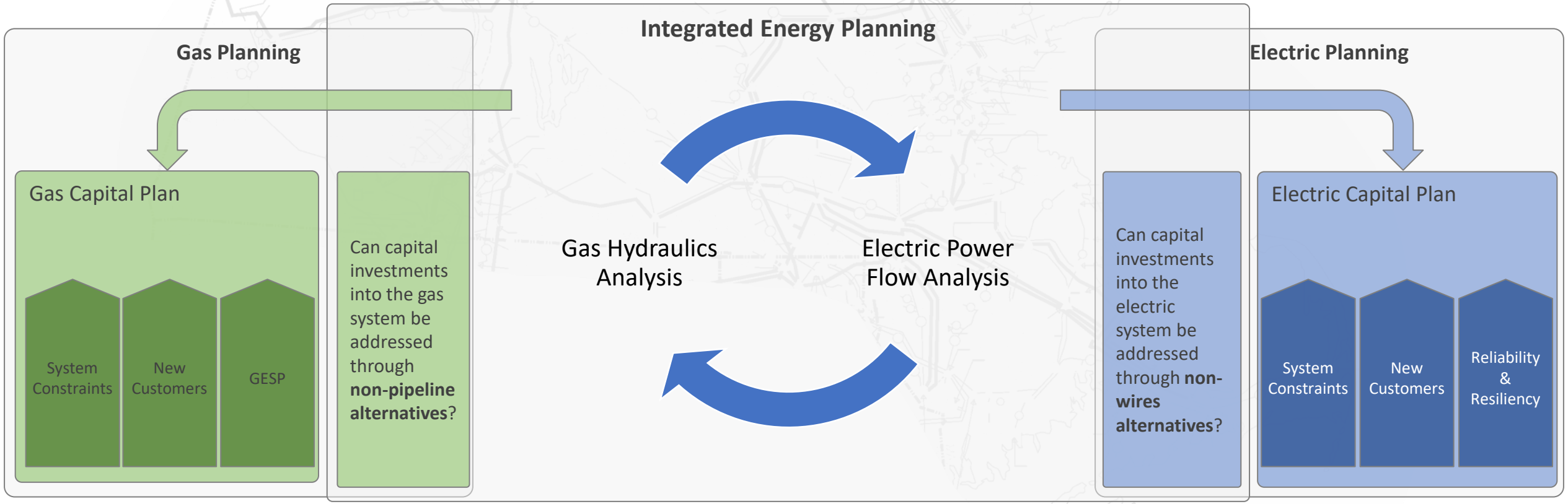
- Issued December 6th 2023
- Due April 1st, 2025, and every five years thereafter
- Include plans 5 and 10 years ahead

Content – Key Items for Today's Discussion

- Must include alternatives and pricing for both the preferred option and the alternative
- EDCs are required to participate in planning with LDCs in overlapping footprint
- Describe Pilot and Demonstration Projects
- Satisfy customer gas/heat demand safely, reliably, affordably, and equitably

Integrated Energy Planning

Concept



Optimization of Gas Infrastructure Investments with Electric T&D Infrastructure Expansion Requires Coordinated Gas-Electric Planning

Integrated Energy Planning

An Implementation Overview at Eversource

Integrated Energy Planning Function

Data Solutions	System Modeling	Integrated Energy Planning	Advanced Forecasting	Regulatory
Team of data engineers and software developers that develop customized software solutions to support the IEP Team	Team of engineers that own and maintain all digital models of the system to support the IEP Team	Team of gas and electric planning engineers that conduct the IEP studies	Team of Data Scientists and Analysts that create adoption forecasts, load profiles, and customer analytics to support the IEP team	Team of Regulatory Specialists which provide regulatory guidance and ensure compliance with all orders in support of the IEP Team

Key Contributing Teams

Gas and Electric Distribution Engineering	Energy Efficiency	Community and Regulatory Relations	Rates	Gas and Electric Distribution and Transmission Planning

Overview of Pilot Prioritization Process

1,000,000s of Pipes

Prioritization Matrix

Mix of prioritization requirements from 20-80, electric systems, and Energy Efficiency

Full ranking of all pipes/projects

Prioritized Pipes/projects

Top 10 Pipes/Projects

Integrated Energy Planning Process

1. Iterative Distribution Analysis
2. Iterative Hydraulic Analysis
3. Iterative Transmission Power Flow Analysis
4. Iterative Electrification Technology Analysis
5. Iterative Non-Wires Evaluation
6. Iterative Cost Analysis Distribution, Transmission, Gas, and Electrification
7. Iterative Deployment Strategy

Expansion and Contraction of Target Area

Up to 10 Projects IEP Evaluated

10-X Projects IEP Evaluated

Community Outreach

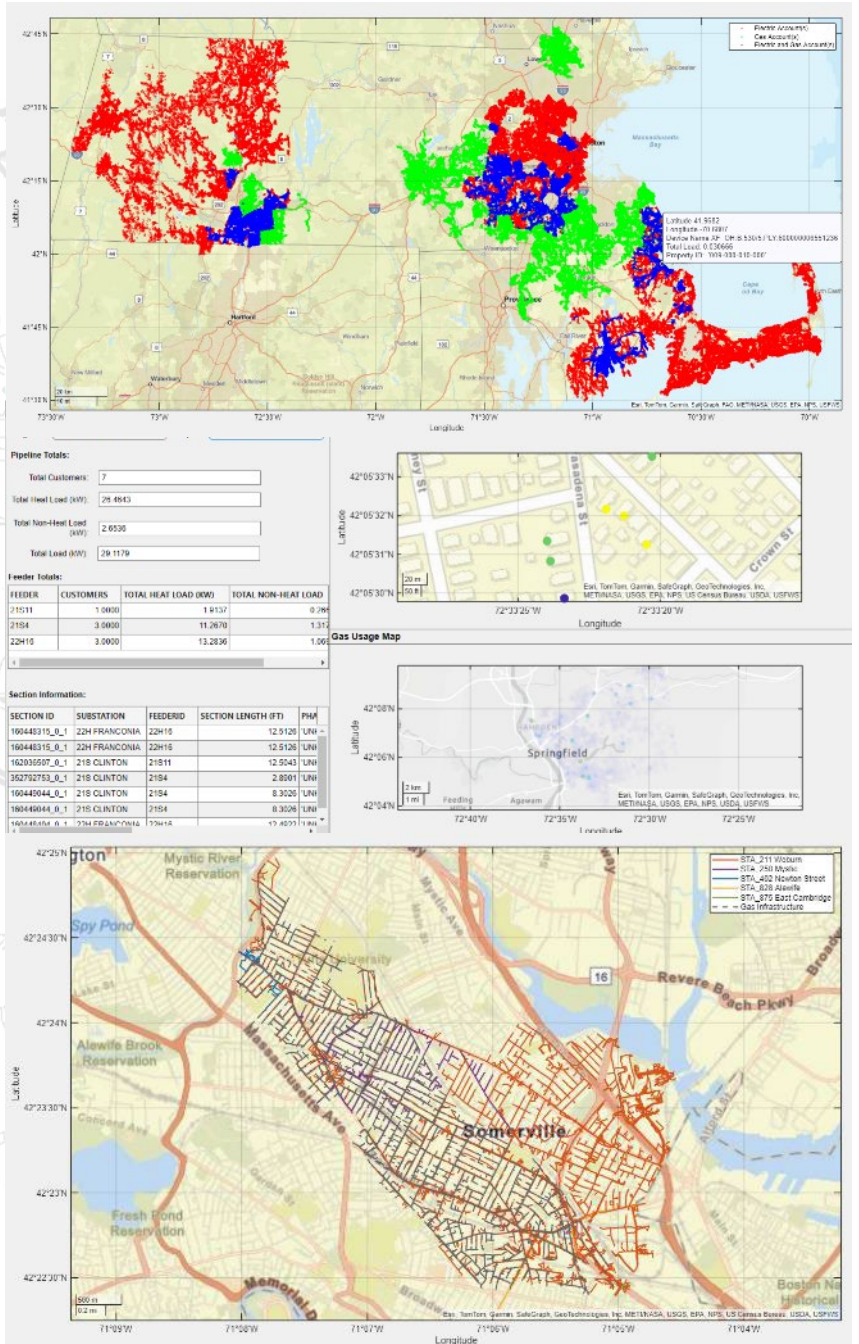
Starts with the highest priority project and moves down the list until a set minimum number of projects are agreed to with communities

Integrated Energy Planning

Early Experiences and Lessons Learned

No end-to-end analytical tools currently available

- Found only custom made solutions in the market and do not lend themselves to rapid evolution
- Essentially left with two options
  a) contract development or
  b) develop in-house
- Data Concerns exist about sharing customer data between affiliates and other Companies in shared territories to feed tools



Integrated Energy Planning

Early Experiences and Lessons Learned

Electric and Gas Supply Reliability are Paramount

- Gas and electric systems function differently and do not overlap perfectly
- Every targeted electrification, for pilots or NPAs, must undergo a joint study from both sides → joint IEP Team

Clarity on Data Sharing

- What are the governing rules for data exchange in each jurisdiction (PII and CII)?

Thank you for your Attention

Dr. Gerhard Walker – Eversource

EVERSOURCE

Q&A WITH SPEAKERS

Moderator: Task Force Co-Chair Cordova, Public Utilities Commission of Nevada

- **Chris DiGiovanni,** Gas Strategy Program Manager, Pacific Gas & Electric Company
- **Gerhard Walker,** Manager, Advanced Forecasting and Modelling, Eversource Energy

Lessons Learned from Task Force Members

1. Discuss any joint planning and forecasting that has taken place to inform decisions related to infrastructure investments, fuel procurement, and system operations, ensuring both systems are able to meet demand during peak periods and minimize the risk of disruptions
2. What are the avenues for information sharing, such as real-time data to improve situational awareness and facilitate better decision-making?
3. Describe the current process to conduct such coordination.
4. What are some of the ways your state has encouraged public education and outreach?

Expect member Q&A and individual Gas Task Force members following up directly for more details.

Volunteers: Commissioner Anthony (Rhode Island) and Commissioner Gilman (Colorado)

NARUC
National Association of Regulatory Utility Commissioners

NARUC TASK FORCE ON NATURAL GAS RESOURCE PLANNING: Entering Phase 2

Hon. Fitz Johnson
Hon. Tammy Cordova
Hon. Katie Zerfuss

June 26, 2024

Overall Purpose & Overview

Gas Task Force Mission

Through a two-year series of virtual educational sessions, in-person workshops, and virtual engagement, Gas TF members will contribute to the development of roadmaps with sets of potential questions, data needs and possible sources, process steps, and stakeholder engagement strategies for use by Commissions. In addition, the Gas TF will compile and share data and resources about technology and policy options to support achievement of state goals.

During **Phase 1**, members have spent more than 16 hours learning and sharing in Gas Task Force activities:

- In-person kickoff workshop at the November 2023 NARUC Annual Meeting in La Quinta, CA
- Six expert learning and discussion virtual meetings with diverse subject matter experts:

1. Integrated Resource Planning (Jan. 31)
2. Infrastructure Investments (March 6)
3. Volatility in Demand, Supply, and Price (April 3)
4. Emerging Technologies (April 24)
5. Ratemaking and Affordability (May 29)
6. Distribution-Level Gas-Electric Coordination (June 26)

Members and NARUC/Brattle populated a website of state policies and learning session resources:
www.naruc.org/committees/task-forces-working-groups/task-force-on-natural-gas-resource-planning/gas-task-force/

PUCs

Phase 1 | Phase 2

time	Workshop 1 (Nov 2023)	Virtual (Jan-Jun 24)	Workshop 2 (Fall 24)	Workshop 3 (Early 25)	Workshop 4 (Spring 25)	Materials Release
phase	In-person kick-off workshop to define status and needs	Intensive expert learning series (monthly)	In-person Pathway scoping workshop	In-person Roadmap development workshop	Virtual Roadmap refinement workshop	In-person event at NARUC meeting
forum						
activities	• Establish current status, projections, needs for states • Support peer sharing • Refine learning plan	• Enhance participants' knowledge of potential trajectories of technologies w/SMEs • Create resource catalog • Consider potential to divide into multiple paths	• Consolidate learning • Determine what final outputs will be and transition to Phase 2 • Support other needs identified in workshop 1	• Incorporate Phase 1 input into draft products • Cross-check info gathered in Phase 1 w/ state needs • Fill gaps w/ stakeholders and SMEs	• Finalize materials, discuss strategies, support peer exchange • Identify paths forward	• Share PUC strategies for decision-making • Publish resources summarizing PUC roles, technology options, financial strategies, and uncertainty

Problem: Regulators lack sufficient information about technology options and trade-offs to make gas dist'n investment decisions w/in current frameworks

Stakeholders
- State commissions
- Regulated utilities
- Consumer advocates
- Customers
- Technology advocates
- Pipeline safety groups
- Labor unions
- Environmental groups
- Investors
- Federal gov't

Key


In-person meeting, PUC participants


In-person meeting, PUC participants & stakeholders


Virtual meeting, PUC participants

Outputs:
- Roadmaps with sets of potential questions, data needs and possible sources, process steps, and stakeholder engagement strategies
- Data and resources about technology and policy options

Vision

PUCs will have an advanced understanding of technology options and tradeoffs, implementation pathways, and effective strategies to align gas distribution system planning and investments with state policy goals.

Overview of Phase 2

We will take a cohort-based approach to Phase 2 (Fall 2024 – Summer 2025)

- Each TF member (commissioner + any staff) will opt into one cohort for all Phase 2 activities
- Each cohort will focus on a particular area and work through the challenges and opportunities related to that topic as a team, producing a cohort-specific deliverable to be shared with others
- The cohort focus areas reflect diverse state policy goals of Gas TF members (usually established by the legislature)
- Cohort members will frame eventual deliverables as "if this (goal), then that (approach)" to produce relevant and useful materials to support all NARUC members; the Gas TF is not promoting any particular state policy goal

There will be four or five cohorts, depending on member interest:

- Gas-Based Economic Development
- Reliability
- Affordability
- Achieving State Clean Energy Policies
- Infrastructure Modernization for Safety

Cohort Focus Areas and Starting Point Questions

Gas TF members to spend their cohort time working in one focus area on a set of issues that is most relevant / important to them. All members will have visibility into progress across cohorts.

1. Gas-Based Economic Development

- What policies have states in your cohort pursued to enhance the role of natural gas in the past and the future? What is the motivation for these policies (e.g., use of in-state natural resources, economic development, anticipated load growth)?
- What regulatory tools and processes have been authorized, used, or considered to accomplish this policy objective?
- What are lessons learned? Where is more action needed?

2. Reliability

- How has your state modified policies to address reliability concerns, especially in winter months and under extreme weather conditions?
- What tools does your regulatory commission rely on to enhance reliability and mitigate commodity price volatility (e.g., storage, LNG, winterization, energy efficiency, and demand response)?
- How do you assess these tools and estimate the likelihood of success in achieving their design goals?

3. Affordability

- How do you consider and incorporate affordability into decision-making processes and evaluate ratemaking practices, rate designs, and tools to help improve customer affordability?
- What tools has your state explored or adopted to contain costs and improve customer affordability?
- Do you consider different approaches and pressures on customer affordability for current customers and future customers?

4. Achieving State Clean Energy Policies

- What clean energy / heat policies are represented in your cohort with respect to gas distribution systems? What process(es) has your regulatory commission used to work towards these state goals?
- What tools has your state explored, considered adopting, or adopted to manage an orderly transition to reduce reliance on natural gas?
- What technologies are being considered and deployed in your jurisdiction to achieve state goals?

5. Infrastructure Modernization for Safety

- What types of investments are utilities in your jurisdiction making to modernize natural gas infrastructure to improve safety?
- What emerging technologies to monitor and quantify natural gas leaks are being considered and deloyed?
- How does your commission consider and prioritize investments in gas infrastructure modernization?

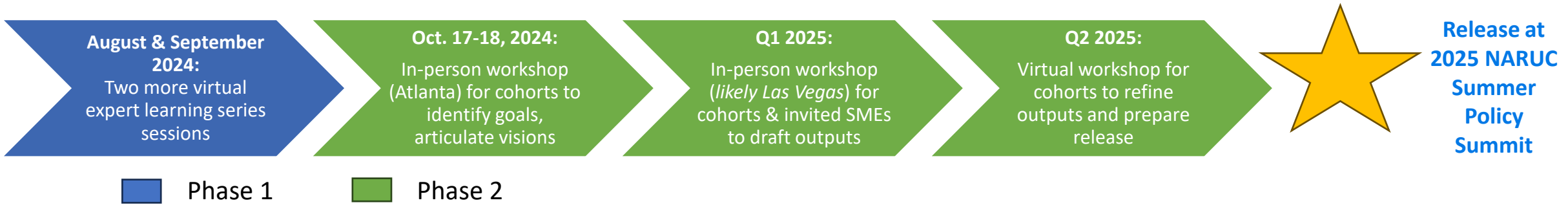
Cohort Formation and Outputs

- Each cohort will consist of 4–5 commissioner members and their support staff
  - By **July 22**, every commissioner should rank the cohorts based on their preferences
  - NARUC/Brattle will work to slot everyone into their 1st or 2nd choice (balancing #s)
- With support from NARUC/Brattle and commissioners' staff, each cohort will work to produce their roadmap deliverable over three workshops and the intervening time
  - The NARUC/Brattle team will design workshops expressly to help cohorts make progress, assign a facilitator to assist and take/process notes, and assist with outreach to experts for additional insights as the cohorts deliberate and develop their outputs
  - Cohorts will discuss a series of questions to lead to the roadmap outputs
  - Each cohort's roadmap should define an aspirational planning process under state public utility commission purview to achieve the defined state policy goal
  - Roadmaps may include definitions, challenges, state approaches, data and knowledge gaps, current or "wish list" resources, and other elements to be determined by cohorts with support from NARUC/Brattle
- The Gas Task Force core team will compile the cohorts' deliverables into a harmonized set of outputs that can represent a "toolkit" of resources
  - Brattle will also compile a summary appendix of analytical and regulatory tools that can aid commissions in their decision-making process

Key Dates and Next Steps

- Notify the NARUC/Brattle team of your cohort preference by July 22 here: https://forms.office.com/r/HUyisHFHai
  - If you are concerned that a key policy priority for your state is not represented, please contact Kiera ASAP
  - If you are interested in volunteering to lead a cohort, let NARUC/Brattle know
- Two additional virtual expert learning sessions (same time at 1PM ET)
  - Weds, August 28th: renewable natural gas
  - Weds, September 25th: gas storage or evaluating non-pipeline alternatives

Cohort Working Schedule



Appendix

High-Level Questions for Cohorts to Consider

- What is the context for the policy goal in question? To whom is it relevant?
- What existing regulatory tools or frameworks can help meet the policy in question? Under what conditions would they likely work well? Under what conditions would they fall short?
- In cases where existing regulatory tools are inadequate, what new or alternative tools could help achieve the policy objective? In what context might they be used?
- What jurisdictions have adopted these new and alternative tools? What are the lessons learned where those tools have been deployed? What have been the impacts on foundational priorities (e.g., utility performance, customer service) observed in those jurisdictions?

Announcements

- **Two additional virtual Expert Learning Series Sessions:**
  - Renewable Natural Gas: **Wednesday, August 28**
  - Evaluating Non-Pipeline Alternatives: **Wednesday, September 25**
  - Same time (1 p.m. ET / 10 a.m. PT); calendar invites to be sent soon
  - If you're interested in sharing lessons learned during these sessions, please reach out!

- **Phase 2 In-Person Workshop #2 will likely be held in Las Vegas in early 2025**
  - A survey will be shared via email to sign up to attend and select cohorts