TSC Meeting #3: Framework Follow-up

Non-Gas Pipeline Alternatives Stakeholder Process

January 22nd, 2025

Energy+Environmental Economics

APEX ANALYTICS

Proposed Meeting Schedule

#	Date	Topic
1	November 18th, 2024	NPA project identification • What makes a good NPA • Project attributes including type, cost, and timeline
2	December 17th, 2024	Cost test pt. 1 • BCA framework, including discussion on benefit/cost categories
3	January 22nd, 2025	Framework follow-up • Technical questions from the Working Group framework discussion
4	February 11th, 2025	Framework follow-up & City of Somerville • City of Somerville presentation on networked geothermal's feasibility in the city • Review of TSC feedback on framework; Project Authorization to Implementation
5	February 25th, 2025	Framework read out • Read out of final framework • Review how TSC feedback was leveraged in framework

Goals of today's discussion

1. Provide technical input on questions raised during the Working Group's NPA Framework review on 1/15
2. Review and close out open questions from TSC #1 and TSC #2

Agenda

Time	Topic
2:00-2:05	Welcome
2:05-3:20	Open items from TSC #1 – TSC #2
3:20-3:50	Other BCA questions from Working Group on 1/15
3:50-4:00	Wrap up and next steps

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Review and close out open questions from TSC #1 and TSC #2

Closing out topics from prior TSCs

The goal of this exercise is to ensure that the TSC has fully addressed technical questions generated in the TSC by reviewing the draft framework.

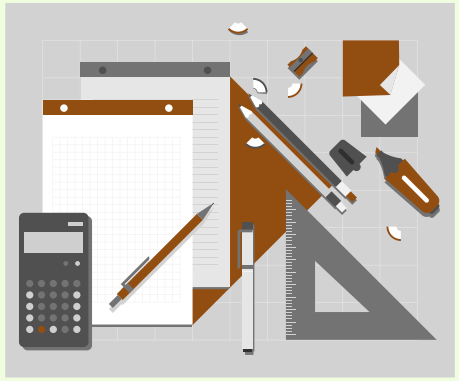
Questions	
TSC 1- Project ID	▪ How should the framework consider different scales of projects such as project cost and number of customers? ▪ What is the timing of NPAs and how do they interact with planning processes?
TSC 2- **Benefits and Costs of NPAs**	▪ What are the benefits and costs that should be considered within the framework? ▪ Should a Participant Cost Test be evaluated? ▪ How should carbon be treated? ▪ Should environmental justice impacts be considered within the benefit cost analysis? ▪ How do we account for customer stranded assets?

TSC #1: NPA Project Identification

Working Group Question	How should the framework consider different scales of projects such as project cost and number of customers?
TSC Feedback	• Support for cost, timing and other thresholds as a part of the NPA process. • TSC suggests need for nuance in how thresholds are established.

NPA Identification Process

- Project Identification
- Initial Viability Testing
- System Feasibility Review
- Electric System Review
- Benefit Cost Analysis
- Project Authorization
- Project Prioritization
- Project Execution



- Defines the Step-by-Step process which the Companies will use to identify likely NPA Candidates
- Each step in the NPA Identification Process is accompanied with requirements the Companies must fulfill when reviewing their projects
- Ensures optimal use of resources by avoiding time and resource expenditures for projects that are not high likelihood candidates

Project Identification (1/4)

Project Identification

Initial Viability Testing

System Feasibility Review

Electric System Review

Benefit Cost Analysis

Project Authorization

Project Prioritization

Project Execution

The Companies shall initiate the NPA Identification Process as defined in this NPA Framework for all projects identified as requiring such review.

- Understanding which capital investments by the LDCs are suitable for NPA review and which are not is an essential first step in ensuring an efficient NPA Process.
- Not all program types are conducive to an NPA review.

Reference: Table 1a) Types of Capital Projects

Program	High Level Descriptions (may vary by LDC)	Part of NPA review
GSEP	Replacement of leak-prone infrastructure	**Yes**
Reliability - Capacity	Projects to increase the capacity of the system such as system reinforcements, new gate stations and new regulator stations	**Yes**
Reliability - Replacement	Replacement projects such as Low-Pressure Conversion and Flood Hardening Projects, MAOP Compliance	**Yes**
Gate Stations & Regulator Stations	Replacement of equipment in poor condition to improve system reliability	**Yes**
LNG/LPGA	Provide critical gas supply that supports the system	**Yes**
Resiliency	Projects that increase the overall ability of the natural gas system's ability to withstand and recover from significant disruptions such as natural disasters and extreme weather events	**Yes**
New Customer Request	New Customer services and main extensions	**Yes**
DOT/Municipal Relocations	Address gas main conflicts related to the state DOT or Municipal reconstruction	**Yes**
Master Meter Compliance	Replacement of customer owned piping beyond the meter set to bring it up to compliance	**Yes**
Emergent	Unplanned work that addresses immediate safety concerns	**No**
Other Reliability	Projects that support the gas system (Stub Cut-offs, Corrosion Control, Tools and Equipment, etc.)	**No**
Metering	Work on Residential and C&I meters (i.e., meter exchanges), improvements to complex meter installations	**No**
Facilities	Work to facilities such as fencing, building maintenance, painting, security.	**No**
Information Technology	Investments in IT equipment and systems such as those used for pressure regulation, gas dispatch, customer billing cybersecurity, etc.	**No**

Project Identification (2/4)

- **Project Identification**
- Initial Viability Testing
- System Feasibility Review
- Electric System Review
- Benefit Cost Analysis
- Project Authorization
- Project Prioritization
- Project Execution

The Companies shall initiate the NPA Identification Process as defined in this NPA Framework for all projects identified as requiring such review.

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- Not all program types are conducive to an NPA review.

Reference: Table 1b) Excluded Programs

Program	Reason for Exclusion	Part of NPA review
Emergent	Immediate action is required to maintain safe operation of the system. These projects require immediate action to maintain the safety and reliability of the gas system and therefore do not afford the time to conduct the NPA Identification Process.	**No**
Other Reliability	The work that is classified under this program may vary by company. In general, this is a bucket of work that does not fit into traditional programs but still maintains safety and reliability of the gas system. Projects like stub cut offs (which shorten stubs in the street) or corrosion control (which repairs and enhances the systems protecting steel pipelines) are vital to the system safety and not possible to replace with an NPA.	**No**
Metering	Metering involves meter purchases and replacements on the gas system for both residential and C&I customers. Most of the work in this program is to comply with statutory obligations to replace gas meters every 7 years. This program is not suitable for NPA review as the work is required compliance, date driven by individual location, identified at a program level rather than at a project level and is low cost compared to other programs.	**No**
Facilities	The work to repair aging facilities, enhance security and general maintenance of facilities (such as painting or roof repairs) is minor work that is not directly related to pipeline infrastructure and is not suitable for NPA review.	**No**
Information Technology	This work involves software purchases, updates, work on telemetry and helps the overall safety and functionality of the system. This program is used to make purchases and upgrades that keep the system operating, allowing the Company identify issues and maintain a reliability service.	**No**

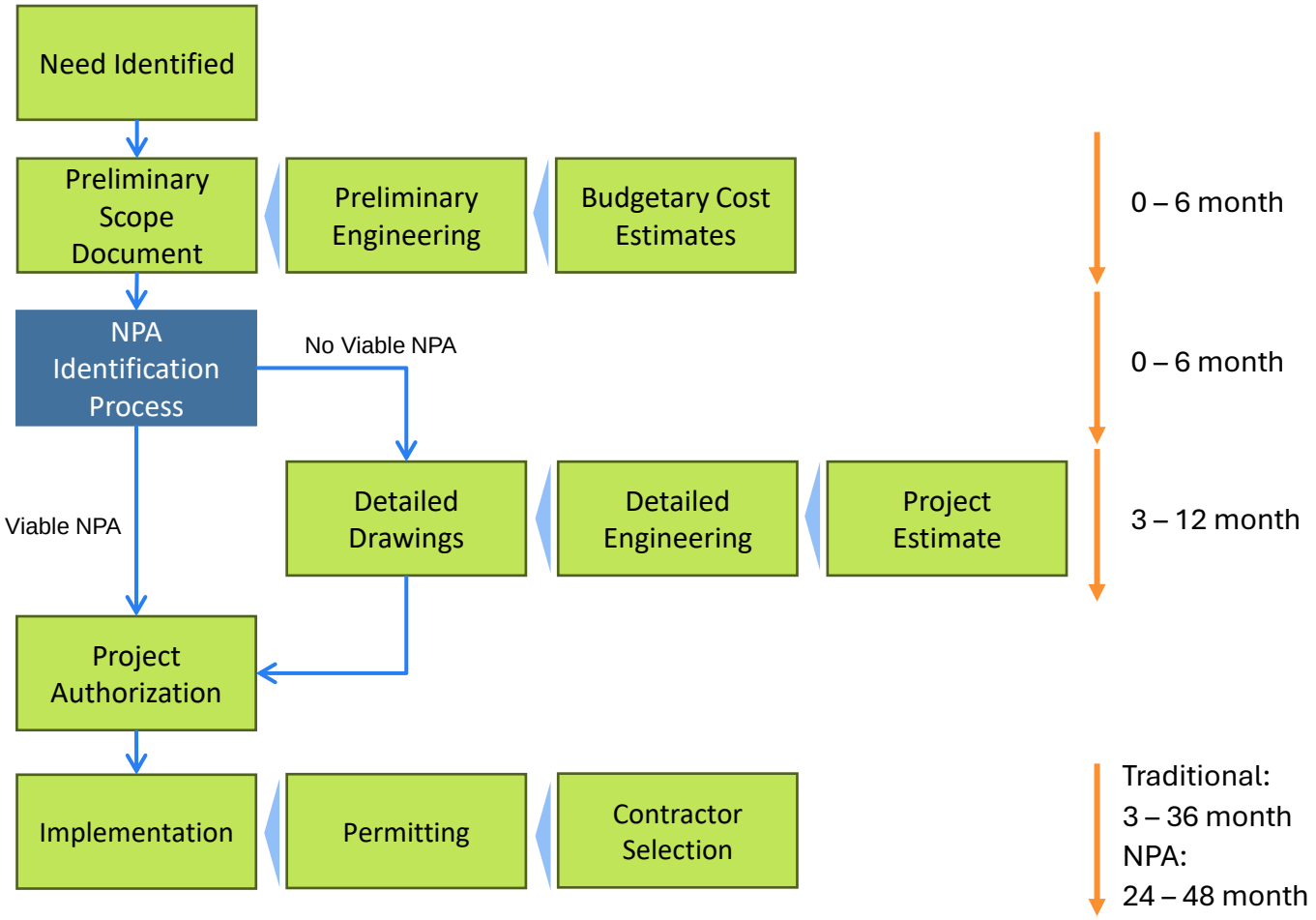
Total project volume in excluded programs represents a very small percentage of work and dollars (varying by LDC and year) of the annual capital plan

Project Identification (3/4)

- **Project Identification**
- Initial Viability Testing
- System Feasibility Review
- Electric System Review
- Benefit Cost Analysis
- Project Authorization
- Project Prioritization
- Project Execution

The Companies shall initiate the NPA Identification Process as defined in this NPA Framework for all projects identified as requiring such review.

- Long-term plans are a long-range outlook on system needs.
- Individual projects are developed in consideration with site-specific and system-specific conditions to advance the long-term plans.
- Long-term and individual projects are assessed at regular intervals.
  - Typically, yearly during capital budget development.
- Where possible, each LDC shall incorporate consideration of NPAs and NPA assessments into its long-term system planning and goal development.



Timelines highly dependent on project type and size and experience with the NPA Process

Project Identification (4/4)

- **Project Identification**
- Initial Viability Testing
- System Feasibility Review
- Electric System Review
- Benefit Cost Analysis
- Project Authorization
- Project Prioritization
- Project Execution

The Companies shall initiate the NPA Identification Process as defined in this NPA Framework for all projects identified as requiring such review.

The Companies shall review viable NPA candidates with the following NPA technologies and solutions, or combination of solutions, as defined in Table 2 and provide results of said evaluation.

- The NPA Identification Process will consider a wide array of NPA technologies and solutions, depending on the program type.
- The LDCs will review the viable NPA candidates with the following technologies and measures:
  - **Electrification such as Air Source or Ground Source Heating Pump**
  - **Thermal Network Systems**
  - **Energy Efficiency & Demand Response**
  - **Behavior Change and Market Transformation**
  - **Supply Side Solutions**
- The Companies will also evaluate any combination of technologies listed
- Technologies and solutions will be updated with the Framework as they evolve

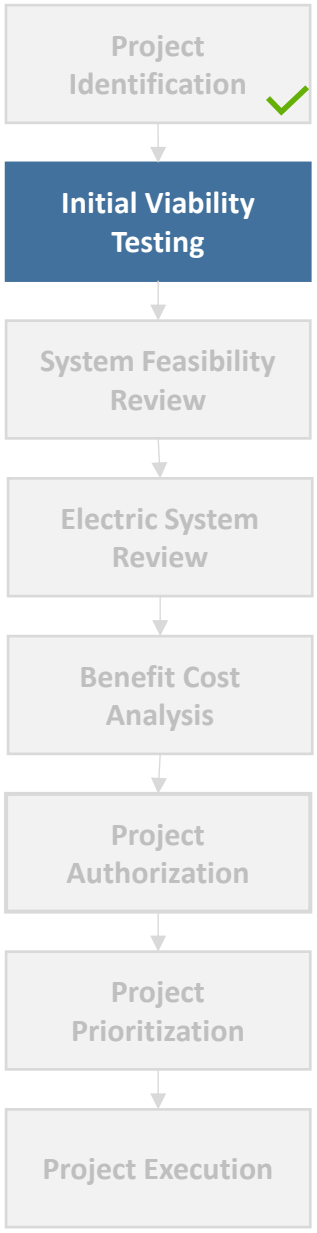
Reference: Table 2) NPA Technologies and Solutions

Program	Electrification	Thermal Network Systems	Energy Efficiency & Demand Response	Behavior Change and Market Trans-formation	Supply Side Solution	Asset Rehabilitation	Traditional Gas System Investment
GSEP	✓	✓	NA	NA	NA	✓	✓
Reliability - Capacity	✓	✓	✓	✓	✓	✓	✓
Reliability - Replacement	✓	✓	NA	NA	NA	✓	✓
Gate & Regulator Stations	✓	✓	✓	✓	✓	✓	✓
LNG/LPGA	✓	✓	✓	✓	✓	✓	✓
Resiliency	✓	✓	NA	NA	NA	NA	✓
New Customer Request	✓	✓	NA	NA	NA	NA	✓
DOT/Municipal Relocations	✓	✓	NA	NA	NA	NA	✓
Master Meter Compliance	✓	✓	NA	NA	NA	NA	✓

TSC #1: NPA Project Identification

Working Group Question	What is the timing of NPAs and how do they interact with planning processes?
TSC Feedback	Concern gas capital plans not conducive to NPAs due to high-risk and short project timelines. **Recommendation to establish proactive NPA identification process.** Need for flexibility to respond to external factors, like city permitting.

Initial Viability Testing (1/2)



All projects within the applicable programs will be run through an initial viability test to evaluate if projects are viable NPAs candidates.

- The LDCs shall proactively identify and evaluate projects to increase the likelihood of identifying viable NPAs.
- Testing is based on a variety of factors, including:
  - The safety and reliability concerns tied to the project
  - Timing of project need
  - Customer composition
  - Total project cost relative to customers impacted

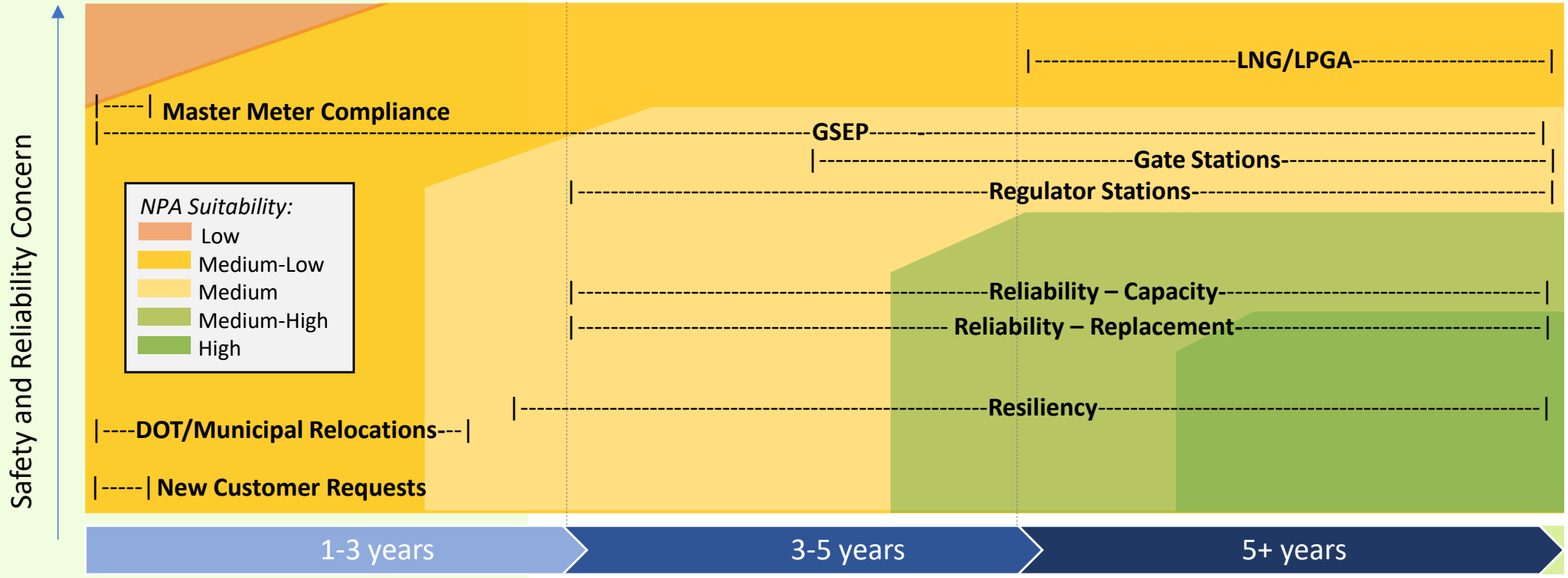
- Each LDC will propose certain thresholds to assist in identifying appropriate candidates with a high likelihood of success and ensure those are prioritized.
- The LDCs will provide their Initial Viability Testing Criteria as they evolve based on experiences gained as part of cost recovery filings to provide the Department with an avenue to continuously evaluate the Companies' Initial Viability Testing Criteria.

Initial Viability Testing (2/2)

- Project Identification ✓
- **Initial Viability Testing**
- System Feasibility Review
- Electric System Review
- Benefit Cost Analysis
- Project Authorization
- Project Prioritization
- Project Execution

All projects within the applicable programs will be run through an initial viability test to evaluate if projects are viable NPAs candidates.

- Certain programs (and projects within programs) will show a higher success rate for NPA development than others.
- The NPA Opportunity Matrix suggests how each program fits within the NPA Suitability Score specifically to impacts of timing and safety and reliability concerns.



TSC #2: Benefit Cost Analysis

Working Group Question 1	What are the benefits and costs that should be considered within the framework? Should a Participant Cost Test be evaluated?
TSC Feedback	• LDCs proposed 4 tests: TRC+, E-RIM, G-RIM and PCT. • Stakeholders concerned that all 4 tests may screen out too many NPA projects. RIM tests protect non-participants from rate increases. • There is a need for creative strategies to ensure affordability and participation. A score of >1 may be unnecessary for a PCT, due to customer choice.

Working Group Question 2	How should carbon be treated? Should environmental justice impacts be considered within the benefit cost analysis? How do we account for customer stranded assets?
TSC Feedback	• Social cost of carbon is accounted for within the established TRC+ test. • Environmental justice impacts are considered within the established TRC+ test. • Traditional equipment should be assumed for participants as the counterfactual.

Benefit Cost Analysis (1/2)

- Project Identification ✓
- Initial Viability Testing ✓
- System Feasibility Review ✓
- Electric System Review ✓
- **Benefit Cost Analysis**
- Project Authorization
- Project Prioritization
- Project Execution

- The Department's Order directs the Companies to conduct a benefit cost analysis (BCA) to evaluate NPAs. D.P.U. 20-80-B, at 98 n.66.

For every project which passes the initial viability test and the Electric System Impact Assessment, the Companies shall furnish a BCA that includes one or more of the following tests as appropriate - a gas and electric rate impact measure (RIM), a participant cost test (PCT), and a total resource cost test (TRC). For the TRC, the Companies shall use the most currently approved TRC in the 3-year Energy Efficiency Plan with all applicable values.

Participant Cost Test

Cost	Benefit
Behind the Meter Costs such as heating systems, appliances, weatherization, electrical upgrades	Funding availability through the state's EE program
Increase in electric energy bills	Federal and other non-EE related incentives, tax benefits, grants, or funding opportunities
	Behind the Meter investment
	Electric rate subsidies made available through the NPA Project

Gas Rate Impact Measure

Cost	Benefit
Lost Revenue from electrified customers	Avoided revenue requirements stemming from the avoided capital investments.
Remaining Capital Investments and the resulting net present value revenue requirements.	Avoided gas supply cost through a demand-reduction induced price effect (DRIPE)

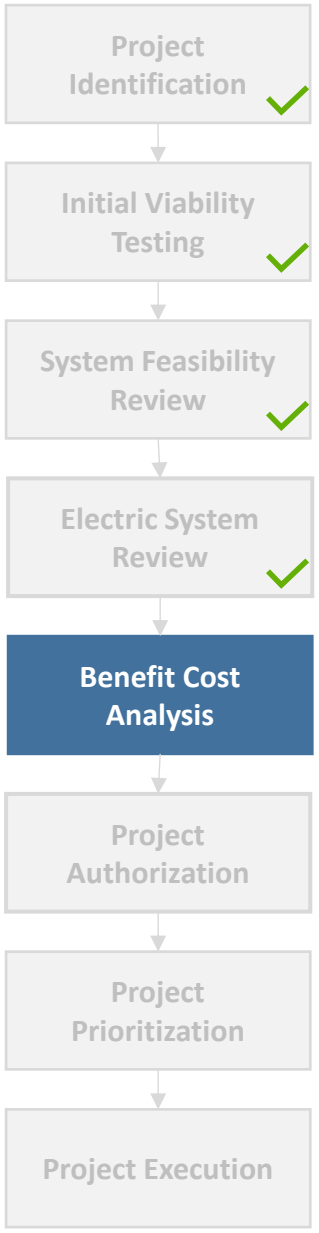
Electric Rate Impact Measure

Cost	Benefit
Net present value revenue requirements from incremental capital investments	Increased electric revenues from electrified customers
Negative electric supply cost impact from reverse demand-reduction induced price effect (DRIPE)	

Total Resource Cost Test

Cost	Benefit
Project Implementation Cost	Electric Avoided Costs
Performance Incentive Costs	Gas Avoided Costs
Project Participation Cost	Delivered Fuel Avoided Costs
	Other Resource Benefits
	Non-Energy Impacts
	Social Cost of Carbon

Benefit Cost Analysis (2/2)



The Companies shall consider all funding sources for any NPA undergoing BCA evaluation, including reallocation of funds from different value streams within the NPA, so long as it does not turn any BCA negative.

Companies will pursue a viable, cost-effective NPA with the BCA tests ≥ 1. If the Companies proceed with an NPA which has failed one or more of the BCA tests, the Companies shall document sufficient evidence in support of their decision to proceed.

- The Companies may offer incremental funding for NPA Projects to help offset the costs for customers. These incremental funds, which may include grants and other outside funding, must be accounted for in the appropriate BCA.

- Companies will pursue a viable, cost-effective NPA. A cost-effective NPA is defined as an NPA with BCA tests ≥1. However, the Companies may also consider proceeding with an NPA if one or more BCAs are negative as long as the remaining BCAs are positive, the project is not cost-prohibitive, and other external circumstances make the NPA the more favorable option.

BCA-related questions from Working Group #4

Questions
1. Is the TRC cost test the core test that will be performed in all cases? 2. How will the cost tests be layered? Will all four be conducted for every possible NPA (i.e., even for small projects)? 3. What is included in social cost of carbon? Are air quality benefits included in the tests?

Next Steps

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Next steps and follow-up items

+ **E3 will distribute full draft framework and template for providing comments. Comments on the draft NPA framework are due 1/29.**

+ **E3 to share meeting notes**

  - TSC members to provide written feedback via email within 1 week

+ **E3 to report out on the TSC process at the Working Group on February 5th**

Thank You

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APEX ANALYTICS