TSC Meeting #1: Introduction

Non-Gas Pipeline Alternatives Stakeholder Process

November 18th, 2024

Energy+Environmental Economics

APEX ANALYTICS

DRAFT AND CONFIDENTIAL

Agenda

Time	Topic
11-11:20	Introductions & Logistics (E3)
11:20-11:30	Ground Rules and Subcommittee Purpose (E3)
11:30-11:50	Discussion Questions from Working Group 1 & 2 (E3)
11:50-12:50	Discussion on NPA Project Identification in MA (E3 & LDC)
12:50-1:00	Wrap Up

Goal of today's discussion

- Understand the role of the TSC
- Align on agenda items for future TSC meetings
- Answer technical questions raised during Working Group #1 and #2
- Begin NPA discussion, focused on project identification

Introduction: Logistics & Agenda Items

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Technical Subcommittee Members

Name	Organization/Company
Ben Butterworth	Acadia Center
Brian Beote	Action Inc (LEANs Consultant)
Kat Burnham	Advanced Energy United
Dong Le	Berkshire Gas
Brian Jacobs	Berkshire Gas
Dean Murphy	Brattle Group (AGs Consultant)
Josh Figueroa	Brattle Group (AGs Consultant)
Samantha Squailia	City of Fitchburg
Alexander Vera	City of Fitchburg
Ben Weil	City of Northampton
Gerhard Walker	Eversource
Seth Krueger	Eversource
Mike Walsh	Groundwork Data (Mass CEC)

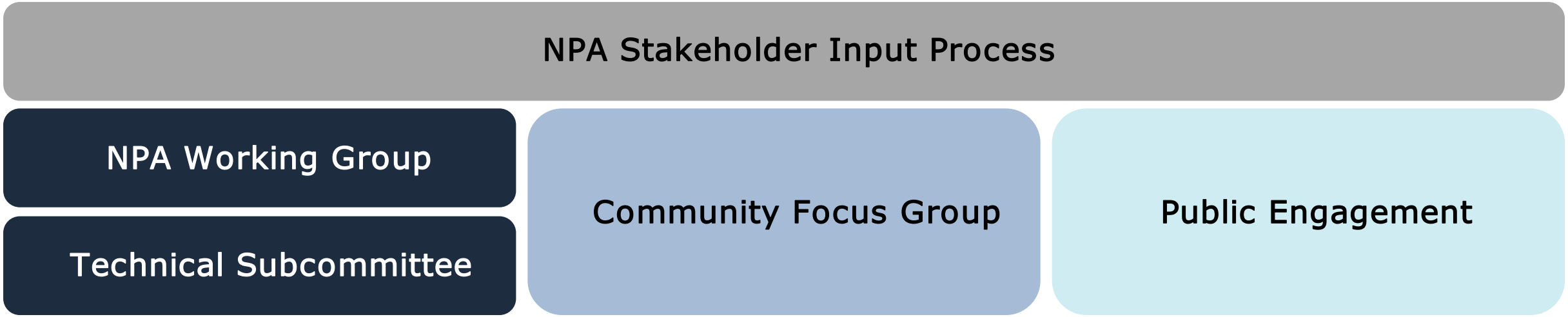
Name	Organization/Company
Audrey Schulman	HEETlabs
Miguel Rodriguez	Liberty
Faye Brown	National Grid
Elton Prifti	National Grid
Mike Henchen	RMI
Brad Cebulko	Sierra Club/CLF/EDF Joint Consultant
Sol Deleon	Synapse (DOERs Consultant)
Tim Bickford	Unitil
Jake Dusling	Unitil
Elijah Ercolino	Boston University

+ **Introductions: Name & organization**

Logistics

- +/- 5 monthly meetings, 2 hours per meeting, following Working Group meetings
- Led & facilitated by E3
- All meetings are virtual – please raise hand  to ask questions or provide commentary
- Meeting materials will be provided 3 days in advance of the meeting
- Notes will be provided after each meeting and a readout at the next Working Group
- TSC members may share written feedback on TSC materials via email

Roles of Working Group vs. Technical Sub-Committee vs. Community Focus Group



+ **Working Group**
  - Group of expert stakeholders that will provide input on the LDC's NPA framework
+ **Technical Subcommittee (Today's Group)**
  - Group of SMEs that can offer expertise on technical issues related to the framework, respond to technical issues raised in the Working Group
+ **Community Focus Group**
  - This group will examine the potential impacts of NPAs on communities in Massachusetts, with an emphasis on historically overburdened and marginalized populations.
+ **Public Engagement**
  - Public listening sessions, electronic public comment

Scope of the Technical Subcommittee

The Technical Subcommittee will provide answers to the technical questions raised by the Working Group. The scope of the TSC mirrors that of the Working Group, providing an additional layer of detail, and applying the same boundaries.

Focus Areas

(will be adjusted based on WG priorities)

Design of Benefit Cost Analysis
- Cost test used
- Benefit and cost categories

Approach to Project Identification
- Type of capital projects
- Cost tiers
- Timeline for projects and interaction with existing planning

Technical Feasibility Considerations
- Hydraulic feasibility
- Attributes of a good NPA
- Customer renovation and installation challenges

Additional Topics Identified by Working Group

Low Priority or Out-of-Scope Items

Gas System Policies and Programs
- Gas Supply procurement; Relitigating 20-80 or other cases; GSEP existence (avoided GSEP cost in scope)

Financial Mechanisms and Rates
- NPA Cost recovery
- Utility PIMs
- Customer Compensation

Safety and Reliability Standards
- What counts as a “leaky pipe”
- What projects are designated as needed to be completed for safety compliance

Development of the IEP Process
- Changes to Electrical and gas planning standards

Proposed Meeting Schedule

#	Date	Topic
1	November 28th, 2024	NPA project identification • What makes a good NPA • Project attributes including type, cost, and timeline
2	December 17th, 2024	Cost pt. 1 • BCA framework, including discussion on benefit/cost categories
3	January 14th, 2025	Cost pt. 2 • Continuation of BCA framework discussion
4	February 11th, 2025	Technical feasibility pt. 1 (utility) • Hydraulic feasibility • Engineering process/challenges faced by engineers
5	February 25th, 2025	Technical feasibility pt. 2 (customer) & bike rack • *Technical* challenges arising from customer participation • Decommissioning process • Customer renovation and installation experience; technical challenges; panel upgrades; weatherization • Open items from NPA Working Group process

NPA Framework

Background

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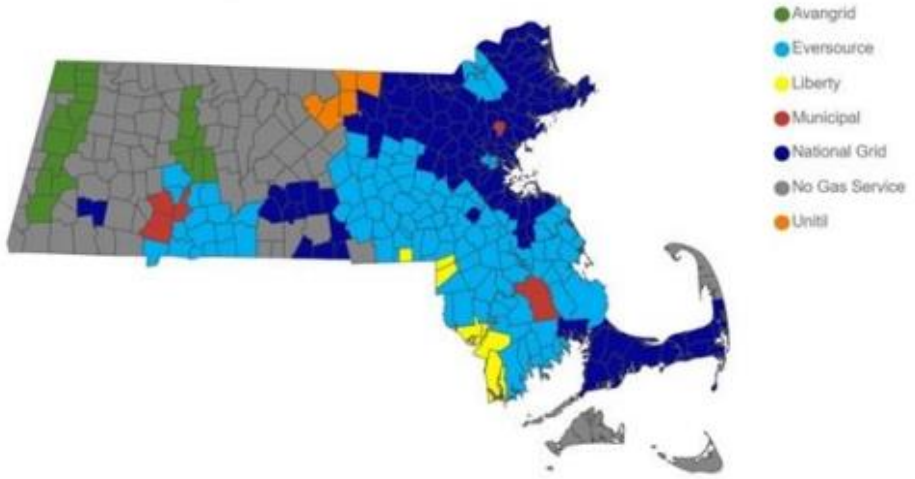
Context for Non-Gas Pipeline Alternatives in the Commonwealth of Massachusetts

- DPU Order 20-80 examines the role of local distribution companies (LDCs) in helping the Commonwealth achieve its climate goals.
- NPAs could offer a unique opportunity to decarbonize buildings and capture savings on the gas distribution system, but key uncertainties remain:
  - Balancing investments in safe and reliable service
  - Developing workable and practical solutions
  - Refining site selection
  - Selecting the right data and aligning modeling capabilities
  - Incorporating environmental justice considerations
  - Considering customer affordability
  - Understanding customer and community priorities

Natural gas service territory by LDC



"Each LDC is distinct and has different capabilities and limitations within its own service territory." -DPU

What does DPU's 20-80 Order say about incorporating NPAs into LDC gas infrastructure planning?

	Location in DPU Order
+ <u>All</u> future LDC cost recovery proposals must demonstrate that NPAs were adequately considered to receive full cost recovery.	*20-80-C at 27*
• This includes categories such as GSEP, growth-related, and non-GSEP safety and reliability projects	*20-80-C at 21*
• DPU expects the LDCs to develop NPA analysis frameworks in consultation with stakeholders such as community officials, community-based organizations, and other interested residents	*20-80-B at 87*
• LDCs must demonstrate that they have analyzed the "true costs and the true benefits of additional investments in the gas system" in the context of achieving the Commonwealth's 2050 net-zero GHG emissions target	*20-80-C at 20*
• NPA analysis must be applied to new investments at a project level, rather than at a program or segment level	*20-80-C at 23*
+ LDCs must develop an NPA analysis framework that is consistent with DPU priorities*:	*20-80-C at 22*
• Safeguarding ratepayer interests and maintaining affordability for customers;	
• Ensuring safe, reliable, and cost-effective natural gas service;	
• Minimizing the burden on low- and moderate-income households as the transition proceeds; and	
• Facilitating a just workforce and energy infrastructure transition.	
+ NPA analysis sufficiency to demonstrate prudence will evolve along with available technologies and their costs, among other factors	*20-80-C at 1*

Working Group Topics

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Working Group questions

Questions	Status
Timing:	
• What is the timing of NPAs and how do they interact with planning processes?	Addressed in TSC #1
• Can permitting and other planning processes be combined or completed in parallel?	Addressed in TSC #1
Project identification and screening:	
• How does that framework consider different scales of projects such as project cost and number of customers?	Addressed in TSC #1
• How should framework considerations be weighted?	Addressed in TSC #1
Benefit-cost analysis:	
• What are the benefits and costs that should be considered within the framework?	Addressed in TSC #2
• How should the carbon be treated?	Addressed in TSC #2
• Should a Participant Cost Test be evaluated? How do we account for customer stranded assets?	Addressed in TSC #2

Additional topics from today's discussion will be added to this running list

NPA Framework

Project Identification

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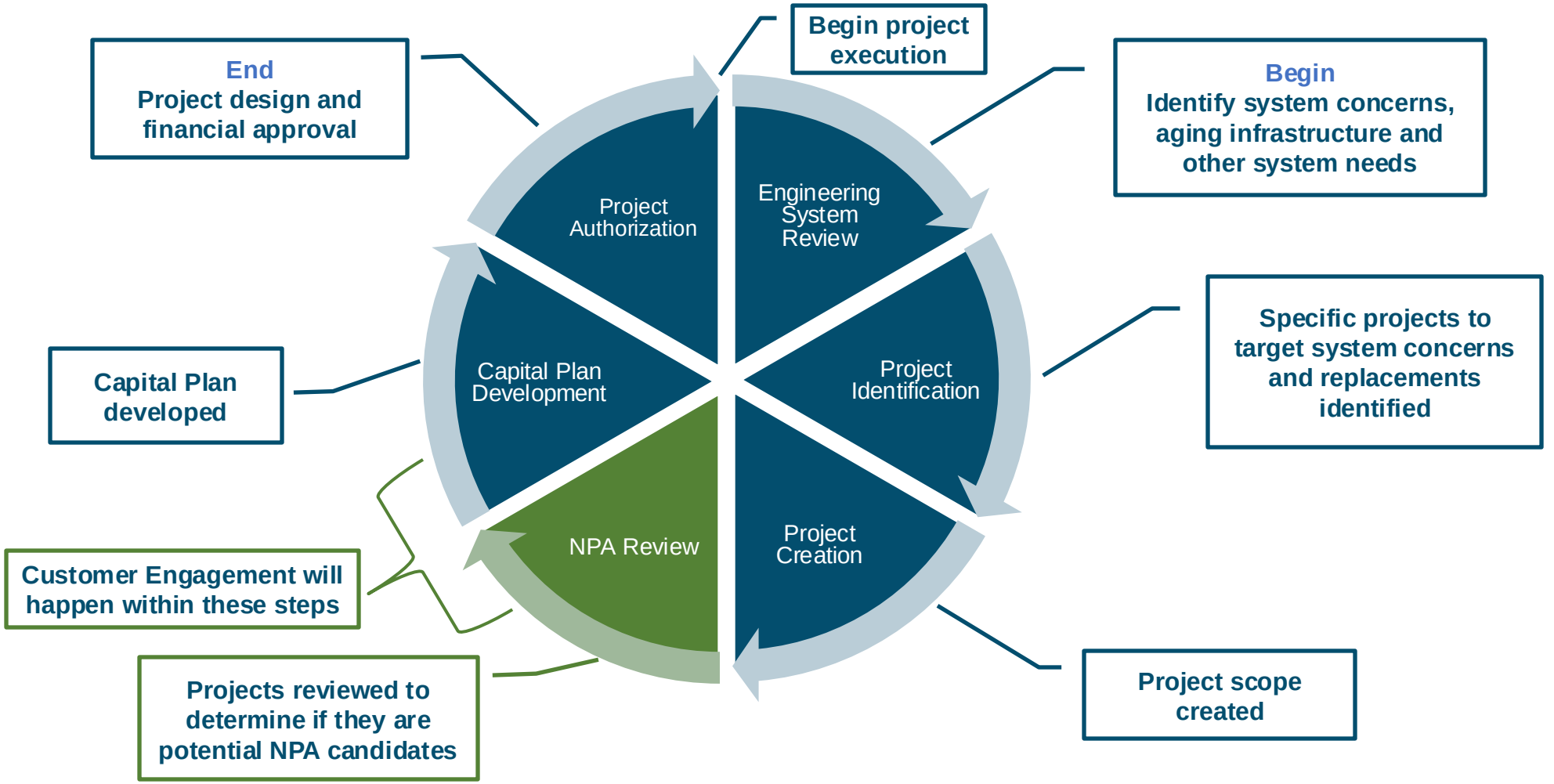
Sample gas planning cycle and the NPA review process



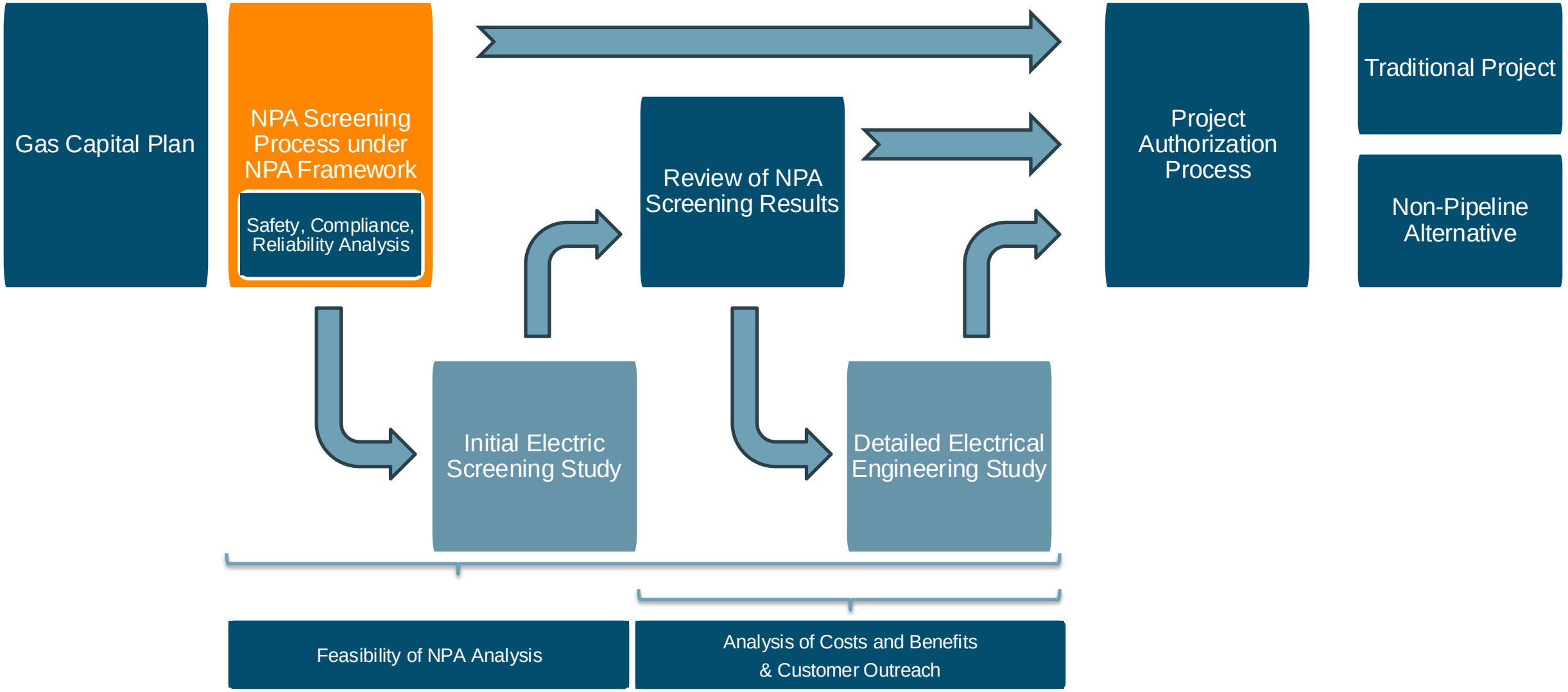
Aspects of promising NPA candidates proposed by the LDCs

Investment Avoided	✓	**To be discussed today**
Safety Risk is Not Introduced	✓	**To be discussed today**
Compliance Obligations Met	✓	To be discussed at TSC #4
Timing Allows for Planning/Implementation	✓	**To be discussed today**
Environmental Justice Benefits	✓	To be discussed within the Community Focus Group

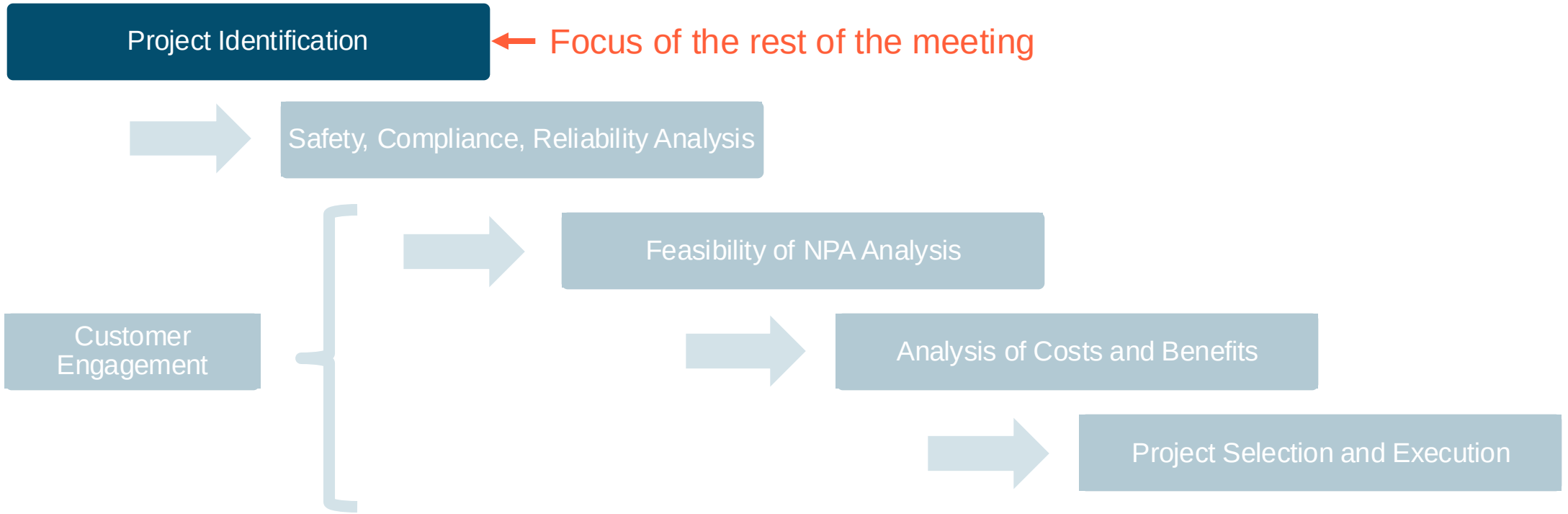
Discussion questions:

- Is this the right set of criteria? Is anything missing?
- For an NPA to be approved should be benefits outweigh costs?

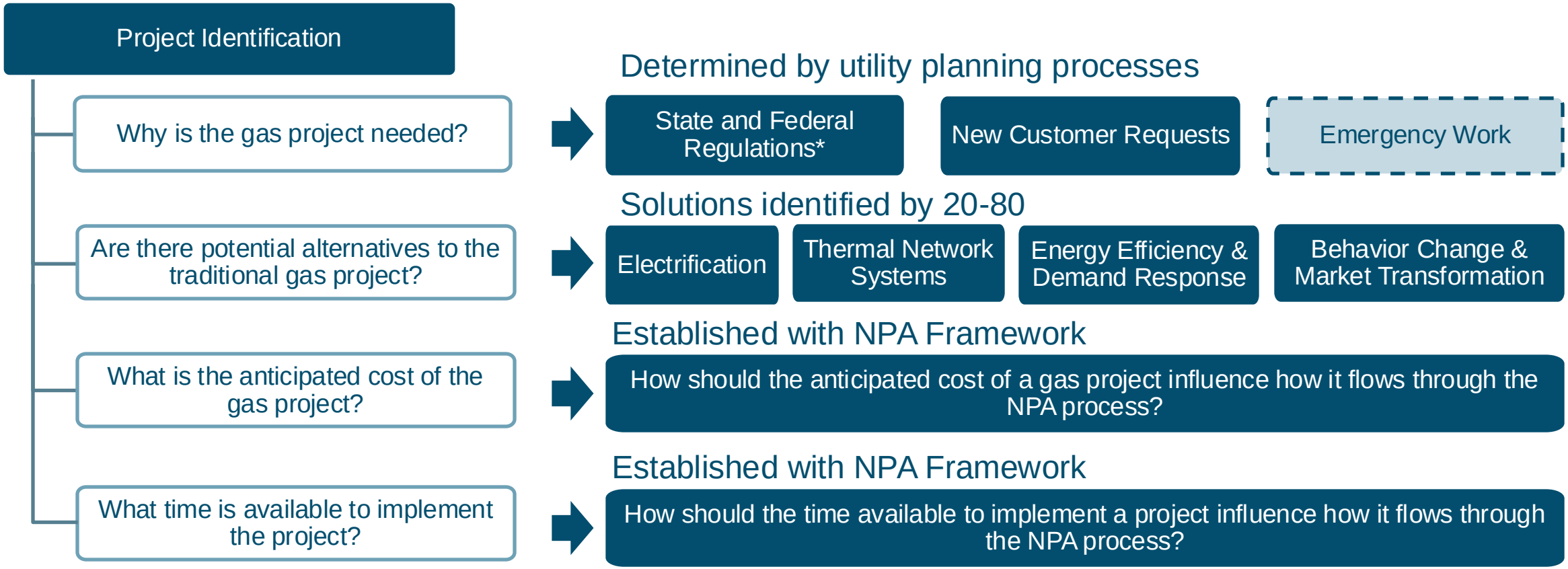
Key steps within the MA LDC Non-Gas Pipeline Alternatives Framework



Key steps within the MA LDC Non-Gas Pipeline Alternatives Framework

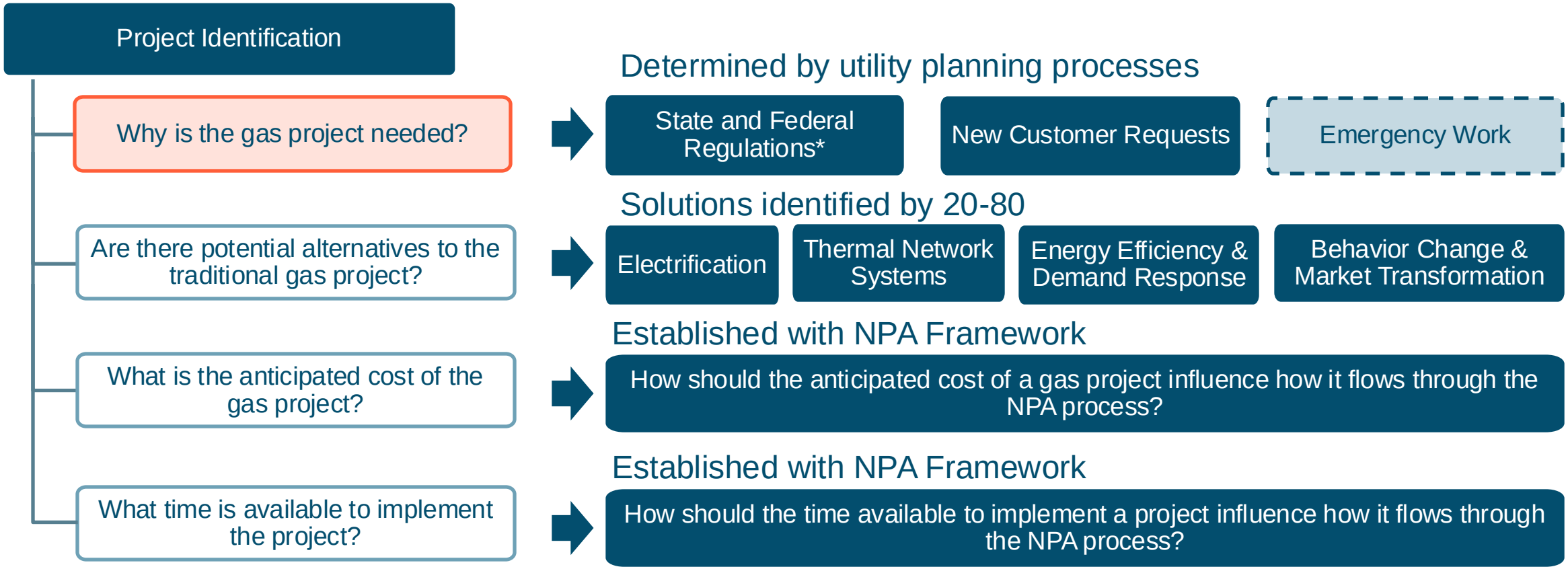


Key aspects of project identification include project type, cost, and timeline



*Safety, Reliability and Compliance

Key aspects of project identification include project type, cost, and timeline



*Safety, Reliability and Compliance

Safety Considerations

Why is the gas project needed?

Safety, Reliability & Compliance

New Customer Requests

Emergency Work

- **The LDCs are responsible and accountable for maintaining a safe and reliable system**
- **History of leaks**
  - A pipe showing a history of leaks is an indication that it is degrading and requires replacement
- **Pipe material**
  - Different pipe materials present different risk levels
- **Asset Condition**
  - Is there an opportunity to address other distribution assets on the system? (e.g., regulator stations)
  - Are there safety layers that shall be implemented? (e.g., over pressure protection)

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

GSEP

- Replacement of the leak-prone gas infrastructure in the interest of public safety, reliability, and the reduction of methane emissions.
- The prioritization of leak-prone pipes for replacement is based on the risk scores pursuant to the Company's Distribution Integrity Management Plan ("DIMP").

Gas System Compliance

- Local Distribution Companies are subject to both Federal and State Pipeline Safety Regulations
- Pipeline safety code currently is promulgated and enforced by the Department of Transportation – **Pipeline and Hazardous Materials Safety Administration (USDOT – PHMSA)**, and by state public utility commissions such as the **MA Department of Public Utilities**.
- Together the Federal code – 192 CFR and 193 CFR, and Commonwealth of MA code 220 CMR Sections 100 and 101, establish hundreds of pipeline safety compliance obligations, including obligations which specify:
  - How work on gas assets must be performed
  - How frequently gas assets must be inspected
  - How frequently gas assets maintenance must be performed
  - How quickly repairs or replacements of assets must occur following a failure
- In addition to Federal and State Pipeline Safety Regulations, in consideration of serious or significant pipeline incidents, oversight organizations, such as the **National Transportation Safety Board**, may issue recommendations for code change based on their findings from an incident investigation. The US Congress periodically re-establishes funding and mandates for the PHMSA administration
- Standards organizations such as **ASME** and **ASTM**, may update their standards based on engineering or material reviews, and the federal government may mandate the adoption of the most recently published standards.
- All LDCs have Operating and Maintenance Procedures, which are filed with the MA DPU. LDCs are required per Federal and State code to perform all work in accordance with their O&M procedures.

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

Maximum Allowable Operating Pressure (MAOP)

- The MAOP of a system, established in 49 CFR 192, cannot be exceeded during normal operations, including during the operations required to set the regulator pressure.
- New regulations (220 CMR 101,) require the Company to ensure all overpressure protection is set below MAOP of the downstream system three years after the regulations go into effect.

Master Meter Compliance

- At some locations, a customer may have customer piping beyond the customer meter set which falls under the requirements of 49 CFR 192 and Massachusetts Building Code (780 CMR).
- While this piping is the responsibility of the customer, if the customer does not properly maintain it, it could present a threat beyond that of typical service piping.

Department of Transportation (DOT)

- Projects that address gas main conflicts related to the state DOT projects and Municipal Road reconstruction, water, sewer, drain and paving work.

Reliability Considerations

Why is the gas project needed?

Safety, Reliability & Compliance

New Customer Requests

Emergency Work

Maintaining system pressures and adequate supply flow

- Determined by the LDCs to ensure adequate pressure to customers to maintain reliable supply to their home or business

Prevent pressure “drooping” at gate and regulator stations

- Stations are built to handle a certain amount of load, as demand increases and stations start to approach that load, the pressures will start to “droop”

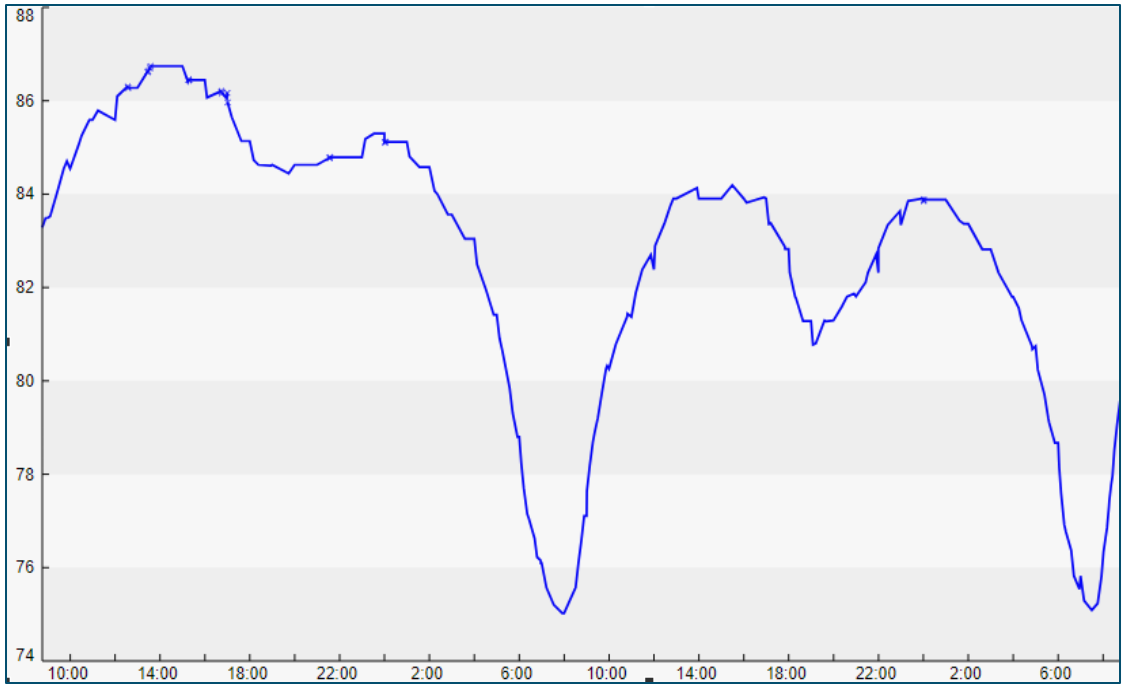
Identifying scenarios with a single source of supply

- Single sources lack redundancy and lead to a larger number of customers affected by a supply issue

Recognizing constraints to supply flow

- More gas can move through larger pipe diameters than smaller ones

Gas system pressure change over a day



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Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

Flood Hardening

- The ability to protect facilities against weather events by making them more resilient.

System Resiliency

- Improves the system's ability to adapt to changing conditions, withstand threats, and quickly recover from incidents by increasing distribution and transmission system level redundancy.

LNG/LPGA

- The LNG and LPG facilities are uniquely situated to provide both critical and reliable gas supply that supports the daily, and increasingly critical, hourly flow rates that are required throughout the year, given challenges in procuring additional gas supply from interstate transmission pipelines.

Low Pressure Conversion

- Replaces existing low-pressure gas mains with higher pressure mains to ensure system reliability and safety.

Gate and Regulator Station Work

- Designed to replace aged equipment or equipment in poor condition, bring the station up to current design standards, improve system reliability, increase safety, and/or improve security.

Other Reliability

- These projects include requirements such relocating pressure regulators from inside buildings to the outside, stub cut offs, pipeline projects that allow system over pressure protection devices to be set below the system MAOP, installation of a second overpressure device, and safety enhancements to District Regulator stations.

Why is the gas project needed?

Why is the gas project needed? → Safety, Reliability & Compliance | **New Customer Requests** | Emergency Work

Residential Single Service

- LDC provides installation of gas service line to new or existing home from existing gas main on street.

Small Commercial Single Service

- LDC provides installation of gas service line to new or existing small commercial building from existing gas main on street.

Existing Service Upgrades

- LDC installs a new, larger gas service to an existing customer's home or business driven by the customer choosing to increase gas load at that location.

Main Extension with Service

- LDC provides installation of new gas main and service lateral to new or existing home or business.

Subdivision

- LDC provides installation of new gas main and service laterals to new or existing homes or businesses.

Large Commercial & Industrial

- LDC provides either gas main, gas service lateral or combination of both gas main and gas service lateral to new or existing large commercial or industrial facility or facilities.

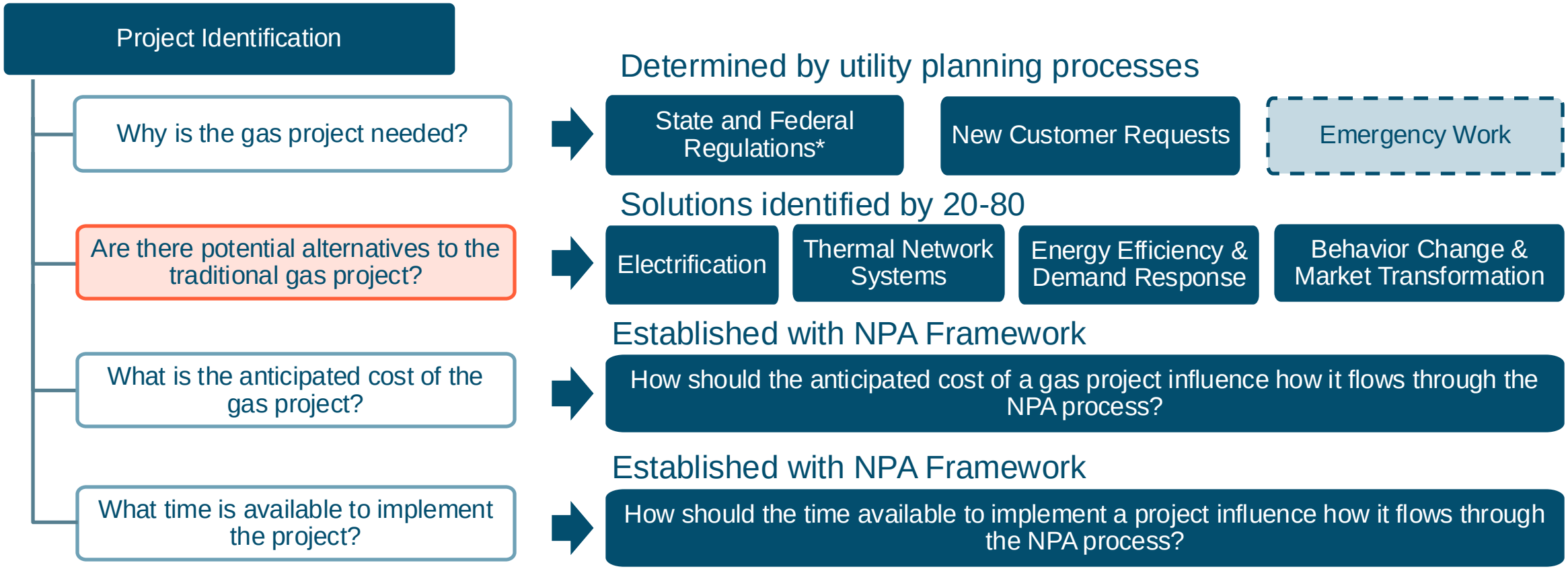
Why is the gas project needed?

Why is the gas project needed? → Safety, Reliability & Compliance | Growth | Emergency Work

Emergent

- This work captures:
  - Unplanned work conducted on an emergent or emergency basis to address immediate safety concerns where typical project planning is not possible due to urgent field conditions.
  - Immediate action required to maintain safe operation of the system.
  - Typically addresses leaks or other issues, such as third-party damage, water in the main, or poor supply to customers, which need immediate correction.

Key aspects of project identification include project type, cost, and timeline



*Safety, Reliability and Compliance

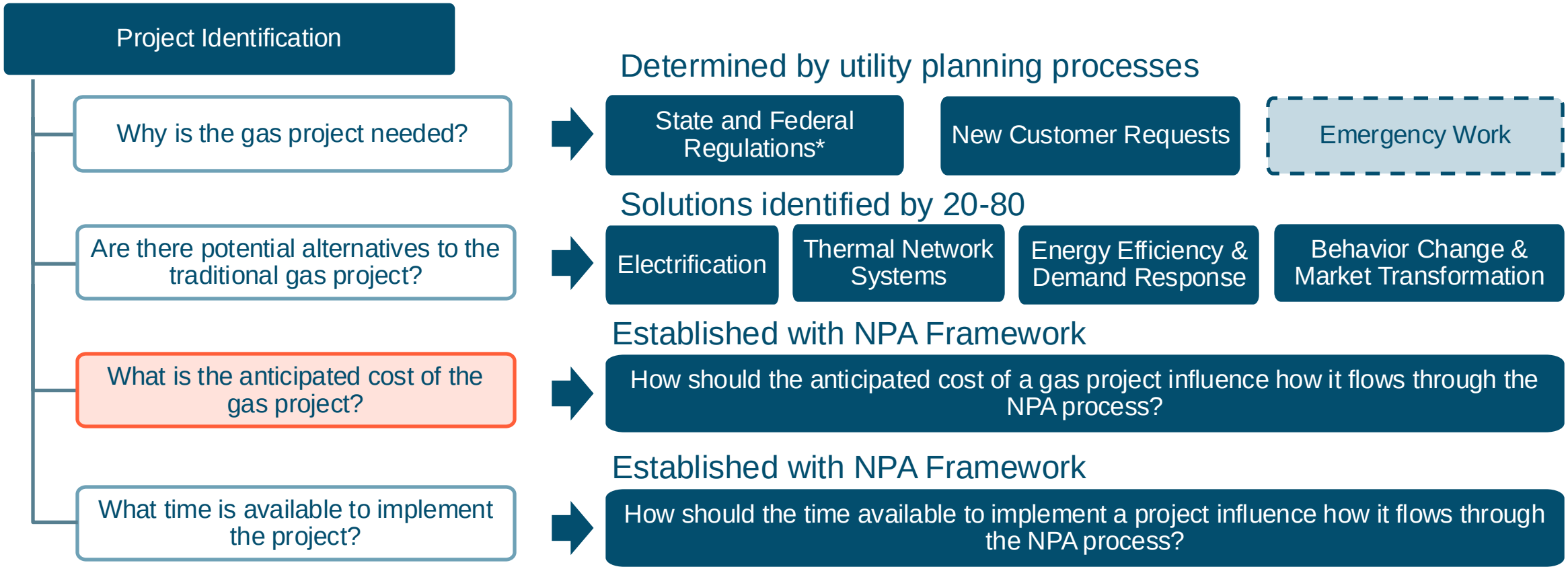
Are there potential alternatives to the traditional gas project?

	Safety, Reliability & Compliance						New Customer Requests			Emergency
	GSEP	Capacity	Stations	LNG/ LPGA	Reliability/ Resiliency	DOT	New Service	Main Extension + Service	Service Upgrade	Emergency Work
Electrification	✓	✓	✓	✓	✓	✓	✓	✓	✓	**N/A**
Thermal Network Systems	✓	✓	✓	✓	✓	✓	✓	✓	✓	**N/A**
Energy Efficiency & Demand Response	**N/A**	✓	✓	✓	✓	**N/A**	**N/A**	**N/A**	✓	**N/A**
Behavior Change & Market Transformation	**N/A**	✓	✓	✓	✓	**N/A**	**N/A**	**N/A**	✓	**N/A**

Discussion questions:

- Which NPA solutions address the system/customer requirements of traditional gas projects?

Key aspects of project identification include project type, cost, and timeline



*Safety, Reliability and Compliance

What is the anticipated cost of the gas project?

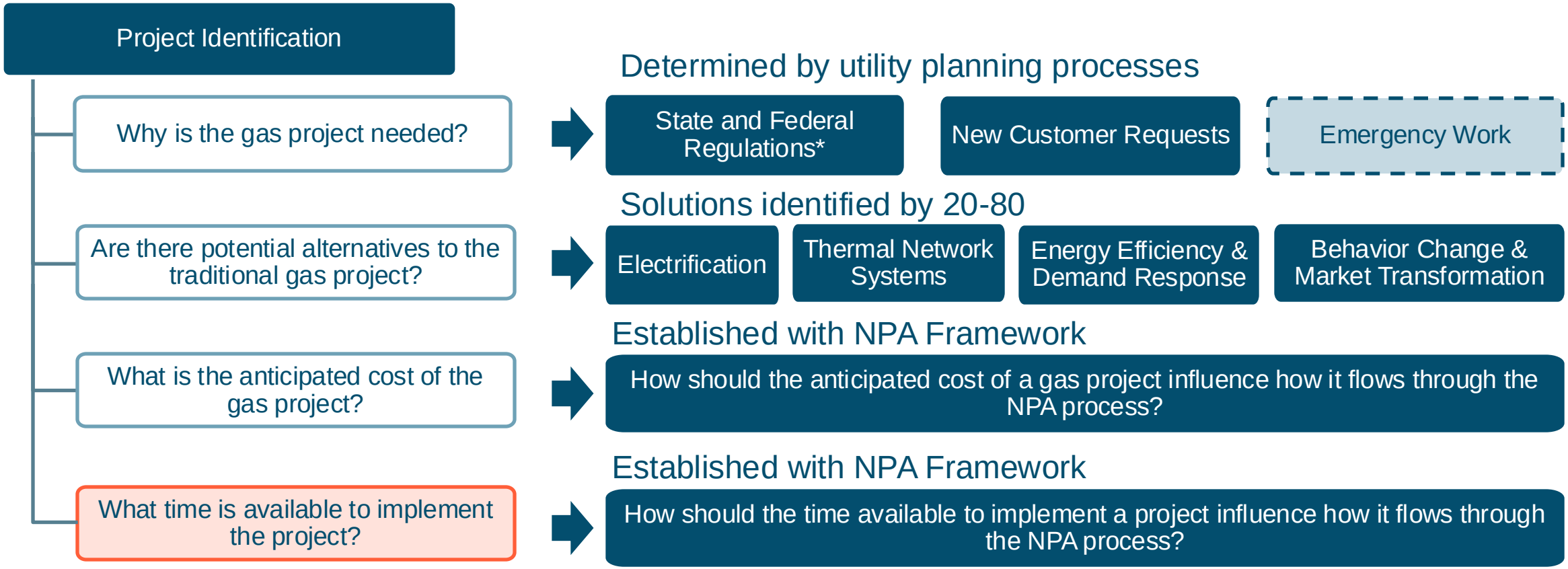
+ **Cost is used as a NPA identification criteria within other jurisdictions including California, New York, and Rhode Island. In New York, cost determines the level of NPA evaluation undertaken.**
  - **Case Study - New York LDCs NPA framework:** Each LDC filed a cost threshold for whether to consider gas investments as large vs. small projects. Large projects will undergo a full-scale NPA solicitation with a BCA of potential solutions, whereas small projects will go through an expedited NPA review of "known alternative solutions with identifiable costs"

LDC	Cost Threshold	
	Small project	Large project
Central Hudson	<$2M	>$2M
ConEdison / O&R	<$2M	>2$M
Liberty SLG	$100k-$500k	>$500K
KEDLI (NG)	$500k-$2M	>$2M
KEDNY (NG)	$750k-$3M	>$3M
NMPC (NG)	$500k-$2M	>$2M
NFGDC	<$2M	>$2M
NYSEG	<$2M	>$2M
RG&E	<$2M	>$2M

Discussion questions:

- Should cost be considered as a factor within the NPA framework?
- Are there suitable cost tiers for fast-tracking an NPA evaluation vs conducting a comprehensive evaluation?

Key aspects of project identification include project type, cost, and timeline



*Safety, Reliability and Compliance

What is the timeline available to implement the project?

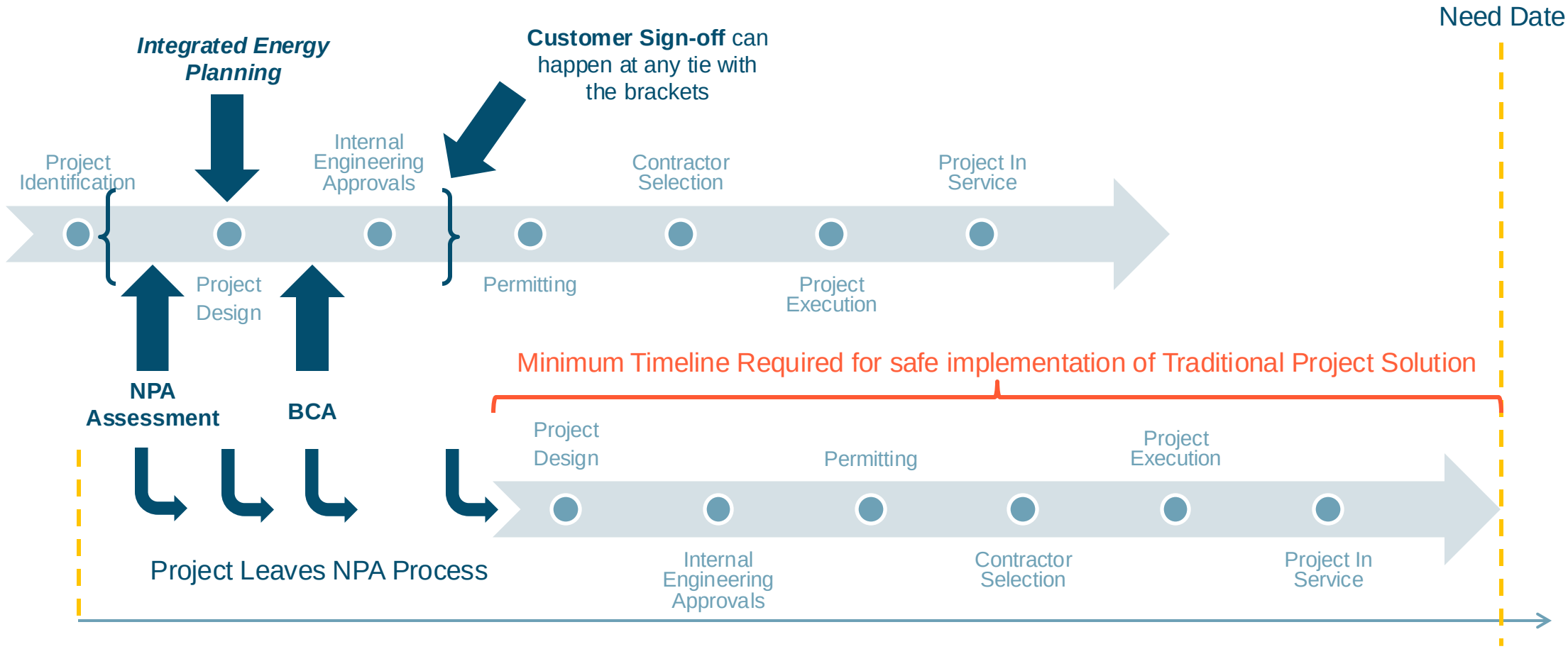
+ **Lead time is used as a NPA identification criteria within other jurisdictions including New York, and Rhode Island. In New York, lead time determines the level of NPA evaluation undertaken.**
  - **Case Study - New York LDCs NPA Framework:** Each LDC filed a project timeline threshold for whether to consider gas investments as large vs. small projects. Large projects will undergo a full-scale NPA solicitation with a BCA of potential solutions, whereas small projects will go through an expedited NPA review of "known alternative solutions with identifiable costs"

LDC	Timeline Threshold	
	Small project	Large project
Central Hudson	12-24 Months	>24 Months
ConEdison / O&R	24-36 Months	>36 Months
Liberty SLG	24-36 months	36-60 Months
KEDLI (NG)	24-36 months	36-60 Months
KEDNY (NG)	24-36 months	36-60 Months
NMPC (NG)	24-36 Months	>36 Months
NFGDC	24-36 Months	>36 Months
NYSEG	24-36 Months	>36 Months
RG&E	24-36 Months	>36 Months

Discussion questions:

- Are there minimum time thresholds that should be incorporated into the NPA process?

What is the timeline available to implement the project?



Discussion questions:

- How should the minimum timeline required to safely implement a traditional gas project be accounted for within the NPA framework?

Next Steps

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Next steps and follow-up items

- E3 to share slides & meeting notes within 3 business days
- TSC members to provide written feedback via email within 1 week
- E3 to report out on discussion at the next Working Group on December 4th
- Any additional follow-ups?

Thank you

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Appendix

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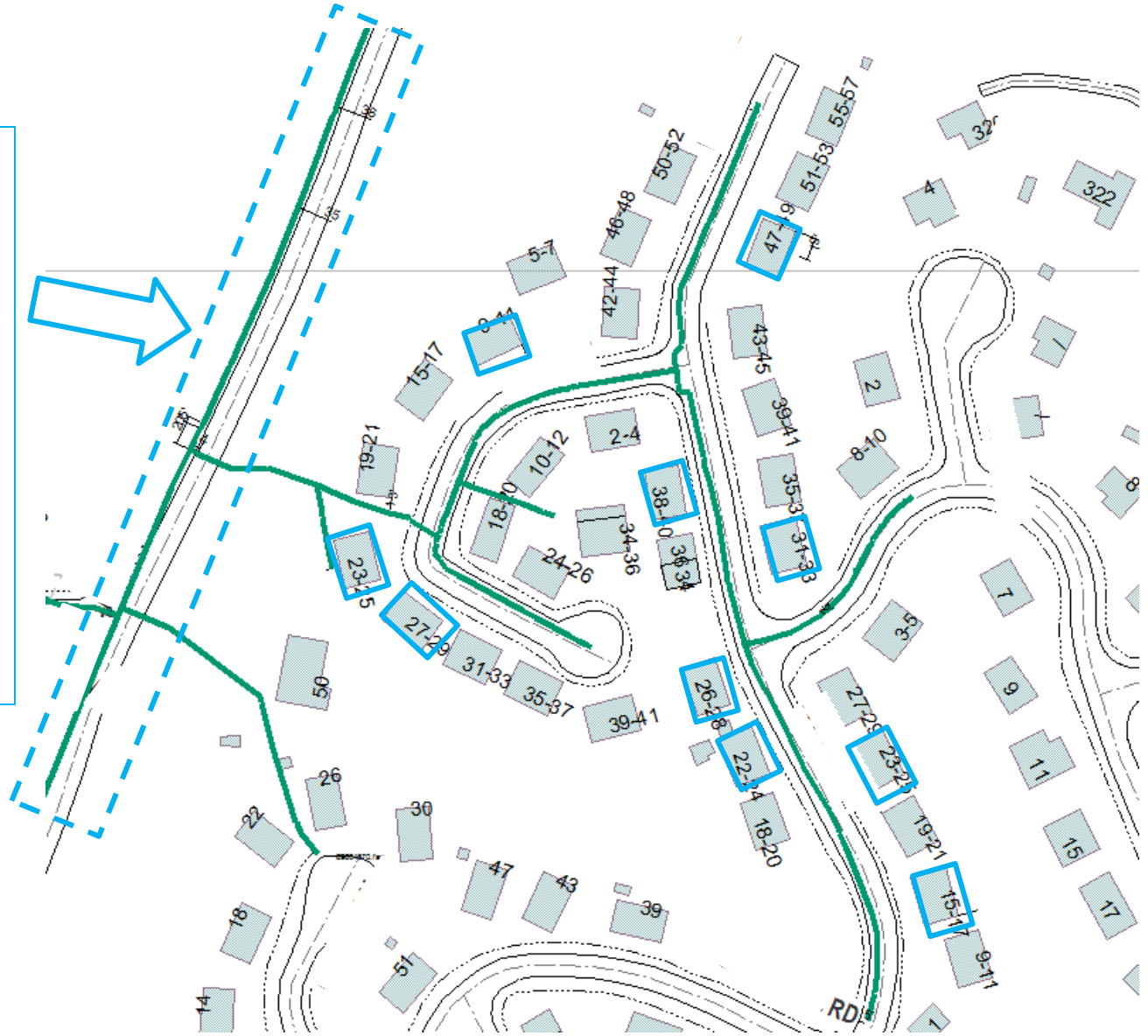
Case Study 1 – Capacity Project

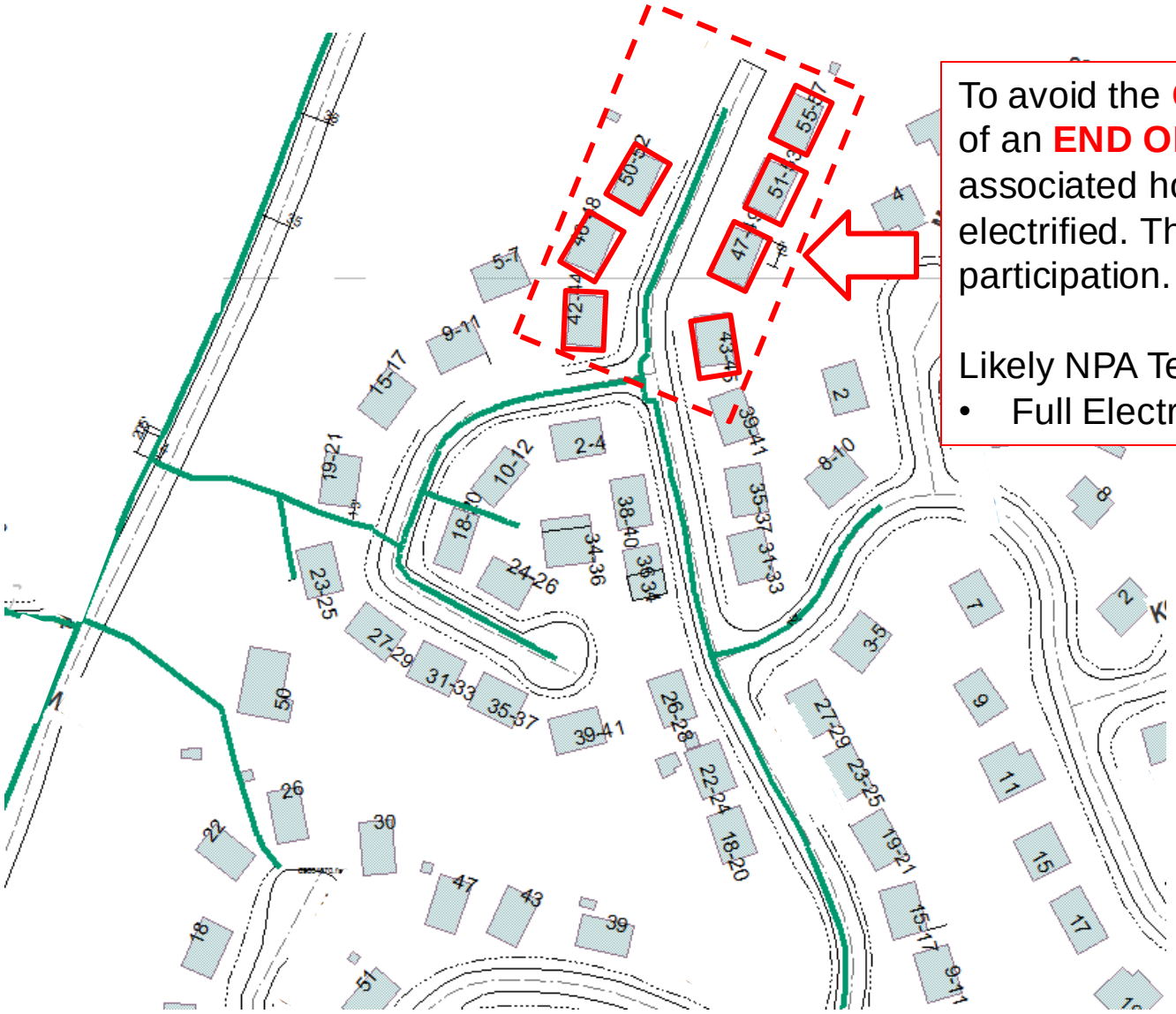
To avoid a **CAPACITY PROJECT** on this pipeline, the houses downstream of this pipeline need to reduce gas demand. This can be done by electrifying some houses or demand reductions across the neighborhood. This does not require 100% participation.

Likely NPA Technologies:

- Electrification
- Energy Efficiency and technology modernization
- Peak Shaving



Case Study 2 – GSEP Project

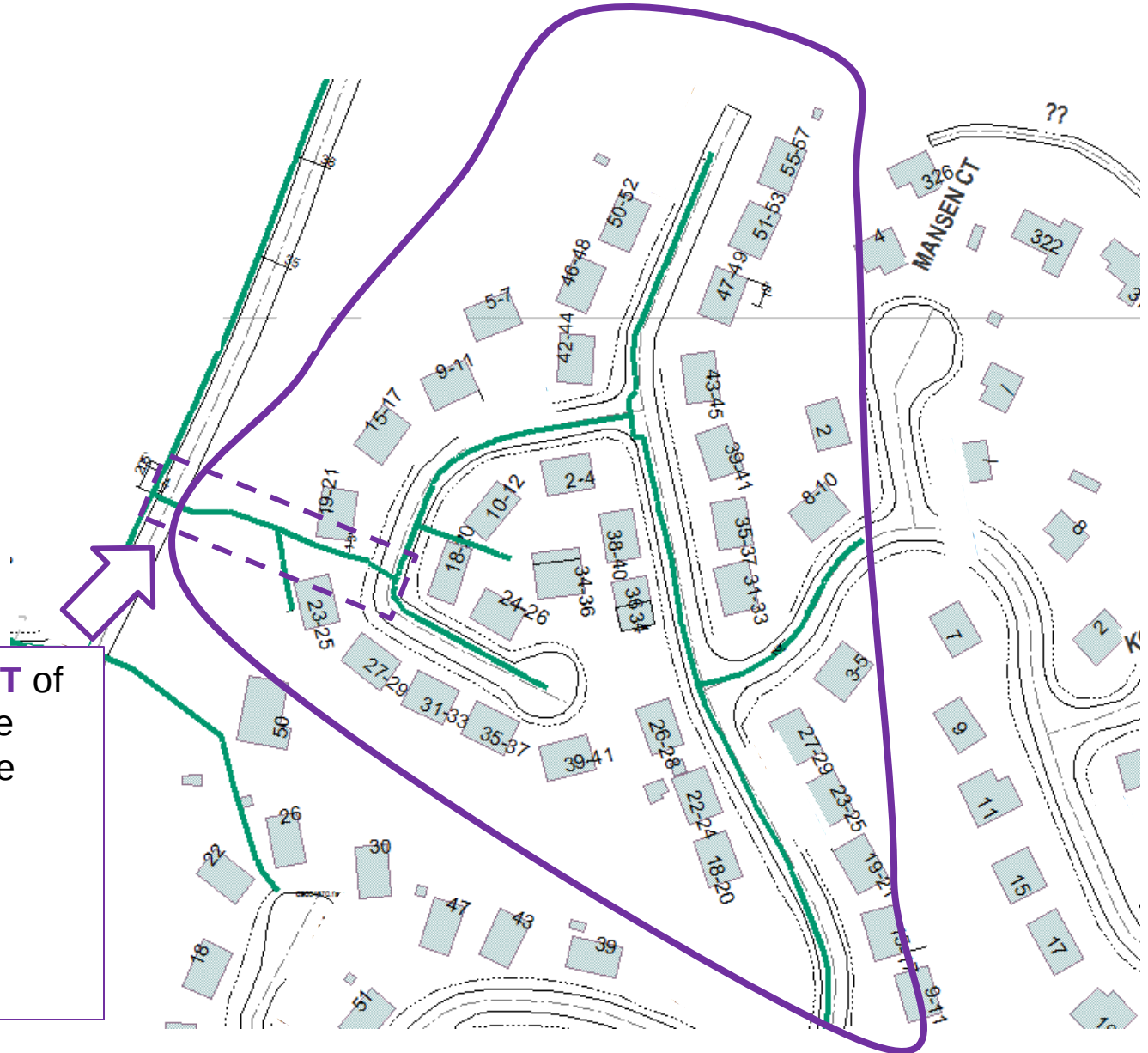


To avoid the **GSEP REPLACEMENT** of an **END OF SYSTSEM** pipe, all the associated houses would need to be electrified. This requires 100% participation.

Likely NPA Technologies:

- Full Electrification

Case Study 3 – GSEP Project



To avoid the **GSEP REPLACEMENT** of a **MIDDLE OF SYSTEM** pipe, all the associated houses would need to be electrified. This requires 100% participation.

Likely NPA Technologies:

- Full Electrification

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

This category includes projects which are designed to improve the safety and reliability of the distribution system and reduce risk. In some instances, other improvements to the system, such as replacements with larger size pipes or gap closures that provide additional flow paths, may be necessary to maintain safe operating pressure and the reliability of service. Sub-categories within this category are further described below:

- GSEP - Gas System Enhancement Plan projects replace the leak-prone gas infrastructure in the interest of public safety, reliability, and the reduction of methane emissions. The prioritization of leak-prone pipes for replacement is based on the risk scores pursuant to the Company's Distribution Integrity Management Plan ("DIMP"). The Company's DIMP program includes a risk-based assessment to prioritize the replacement of distribution piping, based on several known attributes of the pipeline facilities, including material, leak history, pressure, soil conditions, density of services and proximity to structures, public buildings, or business districts. The Company also coordinates work with the state and municipal paving schedule, permitting process and any other operational concerns.

- LNG/LPG - LNG and LPG facilities provide a critical and unique supply resource that has no viable alternative due to their configuration, capabilities, and location. The LNG and LPG facilities are uniquely situated to provide both critical and reliable gas supply that supports the daily, and increasingly critical, hourly flow rates that are required throughout the year, given challenges in procuring additional gas supply from interstate transmission pipelines. These LNG and LPG facilities have many benefits for customers including storage tanks refill during off-peak periods when supply is available and tend to be at lower cost, allowing flexibility and redundancy of supply options.

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

Safety, Reliability & Compliance (continued)

- Low Pressure Conversion ("LPC") - This program replaces existing low-pressure gas mains with higher pressure mains to ensure system reliability and safety. The low-pressure systems are a high-risk asset because there are no regulators at the customer premise to prevent an over-pressurization of the customer piping and gas appliances. Through the LPC program, large low-pressure systems will also be separated into smaller segments with the goal of eventually retiring all the low-pressure systems and associated regulator stations feeding them. The reduction and removal of all low-pressure pipelines not only makes the system more reliable by allowing the Company to safely meet customer demands on peak days, but also removes high-risk assets from the system.

- Other Reliability - These projects include requirements such relocating pressure regulators from inside buildings to the outside, stub cut offs, pipeline projects that allow system over pressure protection devices to be set below the system MAOP, installation of a second overpressure device, and safety enhancements to District Regulator stations. Delays in projects required for regulatory compliance to accommodate evaluation, design, and implementation of NPA will create conditions of non-compliance. This includes federal and state pipeline safety regulations and DPU Orders and consent agreements.

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | New Customer Requests | Emergency Work

Safety, Reliability & Compliance (continued)

- Department of Transportation ("DOT")- Projects that address gas main conflicts related to the state DOT projects and Municipal Road reconstruction, water, sewer, drain and paving work. The timing of these projects depends on the schedule of the government agency conducting the work. Small projects for paving, roadway or utility work by municipalities are not typically identified with more than a year's notice. Larger projects typically planned by the DOT, such as bridge rehabilitation, major roadway reconstruction and realignment are typically identified and planned several years in advance of construction.
- Master Meter System Compliance- At some locations, a customer may have customer piping beyond the customer meter set which falls under the requirements of 49 CFR 192 and Massachusetts Building Code (780 CMR). While this piping is the responsibility of the customer, if the customer does not properly maintain it, it could present a threat beyond that of typical service piping. For properties where the customer has agreed, the Company will replace the current customer owned system with new pipeline, services, meters, and regulators and integrate the system into the local distribution network.

Why is the gas project needed?

Why is the gas project needed? → **Safety, Reliability & Compliance** | Growth | Emergency Work

Safety, Reliability & Compliance (continued)

- Station Work - (Gate/District Regulator) Gate station and district regulator projects are designed to replace aged equipment or equipment in poor condition, bring the station up to current design standards, improve system reliability, increase safety, and/or improve security. These facilities regulate pressure into and throughout the distribution system and serve many customers.
- System Resiliency - The System Resiliency Program selects projects to improve the system's ability to adapt to changing conditions, withstand threats, and quickly recover from incidents by increasing distribution and transmission system level redundancy.
- MAOP Compliance - The MAOP of a system, established in 49 CFR 192, cannot be exceeded during normal operations, including during the operations required to set the regulator pressure. New regulations (220 CMR 101,) require the Company to ensure all overpressure protection is set below MAOP of the downstream system three years after the regulations go into effect. The Company has started to prepare the system for this regulation by designing projects that make the system stronger, such as gap closures and system looping, allowing stations to be set under the system MAOP even with the new regulating devices installed.
- Flood Hardening - The definition of hardening is the ability to protect facilities against weather events by making them more resilient. The Flood Hardening Program targets those issues by replacing or upgrading low-pressure pipes in the flood prone areas and relocating regulator stations within the 500-year flood zone to outside of the flood zone.

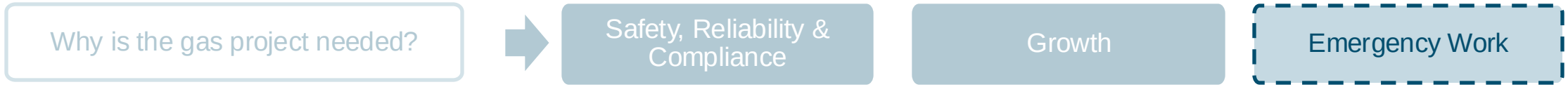
Why is the gas project needed?

Why is the gas project needed? → Safety, Reliability & Compliance | **New Customer Requests** | Emergency Work

Capital investments in this category are customer choice investments that provide service to new or existing customers as described below:

- **Residential Single Service** - LDC provides installation of gas service line to new or existing home from existing gas main on street.
- **Small Commercial Single Service** - LDC provides installation of gas service line to new or existing small commercial building from existing gas main on street.
- **Existing Service Upgrades** - LDC installs a new, larger gas service to an existing customer's home or business driven by the customer choosing to increase gas load at that location.
- **Main Extension with Service** - LDC provides installation of new gas main and service lateral to new or existing home or business.
- **Subdivision** - LDC provides installation of new gas main and service laterals to new or existing homes or businesses.
- **Large Commercial & Industrial** - LDC provides either gas main, gas service lateral or combination of both gas main and gas service lateral to new or existing large commercial or industrial facility or facilities.

Why is the gas project needed?



Capital investments in this category include emergency replacements to address leaks and other emergent issues, replacements to resolve conflicts between gas facilities and state/municipal infrastructure projects (typically road and paving projects), and Master Meter system compliance. Each of these categories of projects is further described below:

- Emergent- This work captures unplanned work conducted on an emergent or emergency basis to address immediate safety concerns where typical project planning is not possible due to urgent field conditions. Immediate action is required to maintain safe operation of the system. This work typically addresses leaks or other issues, such as third-party damage, water in the main, or poor supply to customers, which need immediate correction.