

Upstate and Downstate CLCPA Studies

Stakeholder Meeting – Draft Report

January 9, 2023

nationalgrid



Today's Agenda

- Review CLCPA Study schedule (5 min)
- Considerations from Final Scoping Plan (10 min)
- Questions and Feedback on Draft Report (90 minutes)
 - Executive Summary, then Section by Section
- Update on Billed Gas Demand Usage report (5 min)

We appreciate your feedback and questions on the draft report. To ensure a productive discussion we ask that you:

- *Please keep comments/questions focused on the section being discussed.*
- *If possible, identify specific page numbers or figures relevant to comment/question.*
- *We request written comments by January 17 to best enable consideration in the final report.*

Review of Stakeholder Engagement Schedule

Key Activity	Date
Stakeholder Meeting #1 – Study Workplan	July 13
Stakeholder Meeting #2 – Study Assumptions	August 9
Draft Study Outputs to Stakeholders	November 21
Stakeholder Meeting #3 – Draft Study Outputs	November 28
Draft Report to Stakeholders	December 22
Stakeholder Meeting #4 – Review Draft Report	January 9
• <i>Stakeholder Comments Due on Draft Report</i>	January 17
Submission of Final Report	Targeting early February

Climate Action Council Final Scoping Plan: Implications for this Study

The Final Scoping Plan does not recommend a specific pathway for decarbonization or identify specific GHG reduction targets for either the buildings or industrial sectors.

- The Final Scoping Plan includes visions for 2030 and 2050, policy recommendations, and a high-level framework for gas system transition.

Considerations in the Final Scoping Plan align with many findings of this study and include:

- Emphasizes electrification and energy efficiency, with a “diverse mix of energy efficient heat pump technologies and thermal energy networks.”
 - Includes recognition of the role for dual-fuel/hybrid heating solutions, particularly to limit electric system constraints and in cold climates.
- Recognition of the need for “substantial reduction of fossil natural gas use and strategic downsizing and decarbonization of the gas system.”
- Recognition of the strategic role renewable fuels may play where electrification is not feasible or to decarbonize gas system; emphasis on life-cycle emissions.
- Recognition that the pace of gas network transition will depend on the pace of customer adoption of alternative heating technologies, and that gas utilities retain an obligation to provide safe and reliable service.
- Emphasizes need to maintain limit cost burdens, including consideration of “whether full electrification of heating load in the near-term is the most cost-effective and technically feasible solution for all customers.”
- Emphasizes need to prioritize benefits to Disadvantaged Communities.

Final Scoping Plan 2030 and 2050 visions relative to analyzed pathways

Buildings Sector:

2030: 1-2 million homes and 10-20% of commercial building space install heat pumps by 2030.

- CAC #2, CAC#3, and CEV.NY scenarios all exceed 1 million ASHPs by 2030
- Heat pumps installed in >20% of commercial building space by 2030 in all scenarios

2050: 85% of homes and commercial building space electrified.

Percent of buildings sector electrification in modeled scenarios

	Residential	Commercial
CAC #2	92%	99%
CAC #3	92%	99%
CEV.NY	83%	78%

CAC #2 and CEV.NY totals include hybrid heat customers. CEV.NY totals include networked geothermal

Note: all scenarios rely on RNG blending by 2030 (4% in CAC #3, 9% in CAC #2, and 10% in CEV.NY).

Industrial Sector:

2030: Energy efficiency as main strategy, with limited electrification.

- All scenarios assume efficiency investments reduce consumption 40% between 2020 and 2050.

2050: References electrification where feasible, green hydrogen, alternative fuels, carbon capture, use, and storage.

- CAC #2 and CEV.NY assume 33% of gas use electrified by 2050; CAC #3 assumes 83%. Remainder is served by green hydrogen in all scenarios.

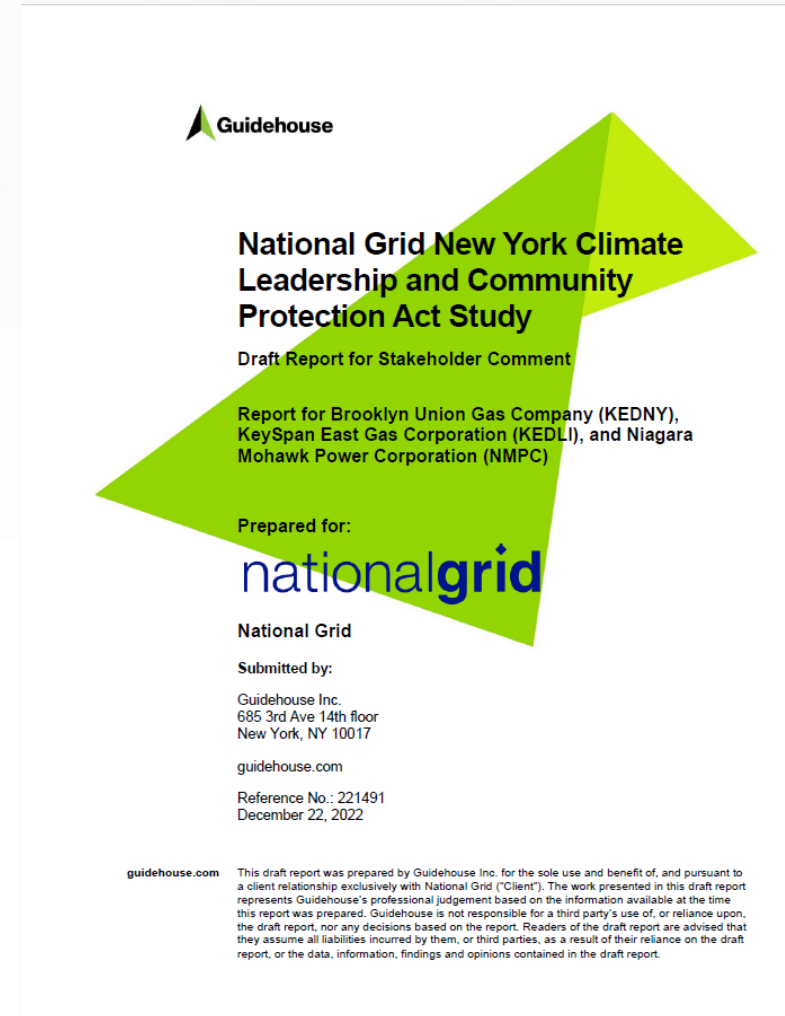
Draft Report Feedback

Draft Study Report

Outline of Report Sections

Executive Summary (30 min)

1. Introduction (10 min)
2. Study Approach (10 min)
3. Analytical Results (15 min)
4. Findings and Implications (20 min)
5. Conclusion (5 min)



Draft Report Feedback

Executive Summary (30 minutes)

- Executive Summary 1**
- Background..... 1
- Stakeholder Engagement2
- Approach..... 3
- Analysis Scenarios and Modeling Assumptions4
- Cost Modeling Approach.....7
- Findings and Considerations 8
- Analytical Results..... 11
- Building Heating System Adoption 12
- Gas Supply Development 13
- Electric Peak Demand and Electricity Supply Development..... 14
- Costs..... 15
- Statewide Energy System Costs..... 15
- Customer Costs 17
- Customer Equipment Investment Costs 17
- Indicative Customer Bill Impacts 17
- Total Customer Costs 18
- Operating Company Summary Findings..... 18
- Pathway Challenges, Risks, and Options to Address 22
- Next Steps for National Grid 23
- Conclusion 24

Draft Report Feedback

1. Introduction (10 minutes)

- 1. Introduction 25**
 - 1.1 Study Background 25
 - 1.1.1 Study Objectives 26
 - 1.2 Stakeholder Engagement 26
 - 1.3 National Grid New York’s Natural Gas System 27
 - 1.3.1 Reducing Gas Demand 28
 - 1.3.2 Decarbonizing the Gas Supply 28
 - 1.4 Policy Context 29
 - 1.4.1 New York Policy Context 29
 - 1.4.2 Recent Federal Policy Context 33
 - 1.4.3 Local and Regional Policies 35
 - 1.4.4 Ongoing Regulatory Proceedings 35

Draft Report Feedback

2. Study Approach (10 minutes)

- 2. Study Approach..... 37**
 - 2.1 Scenario Definition 37
 - 2.2 Integration Analysis Scenarios 41
 - 2.3 National Grid Clean Energy Vision-New York..... 41
 - 2.4 Demand Forecast..... 42
 - 2.4.1 Buildings Sector42
 - 2.4.2 Industry and Transportation Sectors45
 - 2.5 Energy System Modeling..... 45
 - 2.5.1 Statewide and Regional Analysis45
 - 2.5.2 Modeling Assumptions46
 - 2.6 Cost Modeling 52
 - 2.6.1 Upstream (Wholesale Supply) Energy Network Costs53
 - 2.6.2 Downstream (Retail Delivery) Energy Network Costs54
 - 2.6.3 Customer Costs55
 - 2.6.4 Waste & Agriculture Costs55

Draft Report Feedback

3. Analytical Results (15 minutes)

- 3. Analytical Results 56**
 - 3.1 GHG Emissions Reductions 56
 - 3.2 Building Heating System Adoption 58
 - 3.3 Customer Count Forecasts 59
 - 3.4 Scenario Demand Forecasts 63
 - 3.4.1 Statewide Energy Demand Forecast 63
 - 3.4.2 Operating Company Gas Demand Forecasts 64
 - 3.4.3 Electricity Peak Demand Forecast 68
 - 3.5 Gas Supply Development 69
 - 3.6 Electricity Supply Development 71
 - 3.7 Costs 73
 - 3.7.1 Statewide Energy System Costs 73
 - 3.7.2 Thermal System Revenue Requirements by Operating Company 74
 - 3.7.3 Customer Costs 78
 - 3.7.4 Waste & Agriculture Costs 81
 - 3.8 Sensitivities 81
 - 3.8.1 Total Cost Sensitivity 82
 - 3.8.2 Hybrid Heating Sensitivity 84
 - 3.9 Other Impacts 86

Draft Report Feedback

4. Findings and Implications and 5. Conclusion (25 minutes)

- 4. Findings and Implications 89**
 - 4.1 Study Findings 89
 - 4.2 Challenges, Risks, and Options to Address 91
 - 4.2.1 Demand-Side Feasibility 93
 - 4.2.2 Supply Side Feasibility 95
 - 4.2.3 Customer Affordability & Equity 97
 - 4.2.4 Energy System Considerations 100
 - 4.2.5 Technology Readiness & Scalability 103
 - 4.3 Next Steps for National Grid 105

- 5. Conclusion 107**

Actions to Reduce Billed Gas Usage

Under the UNY and DNY Joint Proposals National Grid committed to “file a report that assesses the energy efficiency and other non-infrastructure programs necessary to achieve climate appropriate reductions in billed gas usage in future years” and “convene a meeting of Staff and other interested parties to discuss this report and potential actions to support the Company’s billed gas usage reduction targets.”

Given the overlap with the CLCPA study, the Companies believe it makes sense to address this obligation within the CLCPA Study Report. Key strategies include:

- 1 | Energy Efficiency** – National Grid has been achieving historic levels of energy efficiency in its downstate region, including 1.8 million MMBtu of reductions in 2021 and 2022, and 2.5 much times as much in 2021 as we did just five years ago. We also recently launched weatherization programs in downstate New York, have been devoting significant resources to ensure those programs overcome headwinds and build to scale, and are developing weatherization programs for our upstate New York territory with a potential 2024 launch date. We will be playing an active role in the New Efficiency: New York interim review process recently initiated by the Public Service Commission. Energy efficiency will continue to be a primary means to reduce our customers’ consumption of natural gas and to achieve the deep industrial and buildings sector emissions reductions envisioned in all three scenarios.
- 2 | Electrification** – In UNY, National Grid continues to work to scale its Clean Heat programs, improve program design and marketing, and overcome market barriers. In DNY, National Grid continues to refer prospective new customers to Con Edison and PSEG-LI’s heat pump programs and to collaborate with those utilities where feasible and appropriate.
- 3 | Non-pipeline alternatives (NPAs)** – Although a nascent contracting mechanism, we continue to refine our approach to NPAs, which hold promise as a means of promoting alternative energy solutions, providing localized demand reductions to support reliable service, and avoiding the need for new infrastructure.
- 4 | Thermal energy networks** – In October 2022, we proposed up to four pilots in compliance with the requirements of the Utility Thermal Energy Networks and Jobs Act; if approved, the pilots will explore thermal energy network opportunities across customers classes, densities, and ownership models. Based on the results of those pilots, we will seek to deploy or enable networks where feasible, cost-effective, and beneficial to customers.