

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

| | | |
|--|---|--------------------|
| NORTH SHORE GAS COMPANY |) | |
| Proposed General Increase in |) | Docket No. 23-0068 |
| Rates for Gas Delivery Service |) | |
| |) | |
| THE PEOPLES GAS LIGHT AND COKE COMPANY |) | |
| Proposed General Increase in |) | Docket No. 23-0069 |
| Rates for Gas Delivery Service |) | (cons.) |
| _____ |) | |

REBUTTAL TESTIMONY OF DR. SOL DELEON

ON BEHALF OF

THE CITY OF CHICAGO

CITY OF CHICAGO EXHIBIT 3.0

July 17, 2023

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CITY EXHIBITS

City Exhibit 3.01: The Brattle Group, “Future of Gas Utilities” Presentation (Nov. 2021)

City Exhibit 3.02: Company response to Data Request COC 3.14 Supp and Attach02

City Exhibit 3.03: PGL’s May 15, 2023 “Safety Modernization Report” filed in compliance
with the ICC’s order in Docket No. 16-0376

City Exhibit 3.04: Company response to Data Request AG 12.03

1 **I. INTRODUCTION AND PURPOSE OF TESTIMONY**

2 **Q Please provide your name, title, and business address.**

3 A My name is Dr. Sol Deleon. I am a Principal Associate at Synapse Energy Economics
4 (“Synapse”), located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

5 **Q Are you the same Dr. Sol Deleon who provided direct testimony on behalf of the**
6 **City of Chicago (“City” or “COC”) on May 9, 2023 in this consolidated proceeding?**

7 A Yes.

8 **Q What is the purpose of your rebuttal testimony?**

9 A My rebuttal testimony addresses the following issues: (1) recommendations to ensure
10 careful scrutiny of capital investments by The Peoples Gas Light and Coke Company
11 (“PGL” or “Company”),¹ including analyses related to Non-Pipeline Alternatives
12 (“NPAs”) and Greenhouse Gas (“GHG”) emissions; (2) the need to reevaluate PGL’s
13 Safety Modernization Program (“SMP”) to address affordability concerns in light of the
14 state’s public policy goals and the City’s Climate Action Plan and other policy initiatives;
15 and (3) support for the Illinois Commerce Commission (“Commission”) to open a “future
16 of gas” proceeding and recommendations to inform that proceeding.

¹ Although this consolidated proceeding involves both PGL and North Shore Gas Company (“North Shore”), my testimony responds exclusively to PGL’s rebuttal testimony, as North Shore does not operate within the City. To the extent my testimony does not specifically address an issue raised by PGL or any other party, my silence should not be interpreted as agreement.

17 **II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

18 **Q Do you have any general reactions to the testimony filed to date in this proceeding?**

19 **A** The issues raised in this proceeding make clear the need for Commission action on
20 several fronts. First, in this rate case and all rate cases going forward, the Commission
21 should carefully scrutinize capital investments to assess alternatives and GHG emission
22 impacts and to understand and protect against stranded asset risk, all within the context of
23 the energy transition underway. Second, in light of the policy and legal developments in
24 Illinois and the City since the SMP was last reviewed, the Commission should open a
25 proceeding to reevaluate the Company's SMP under currently relevant factors, which
26 largely were not considered before. Finally, consistent with the recommendations of other
27 witnesses in this proceeding, including PGL's expert witness, I recommend that the
28 Commission open a "future of gas" proceeding.

29 **Q Are you sponsoring any exhibits with your rebuttal testimony?**

30 **A** Yes, I am sponsoring the following exhibits:

31 City Exhibit 3.01: The Brattle Group, "Future of Gas Utilities" Presentation (Nov. 2021)
32 City Exhibit 3.02: Company response to Data Request COC 3.14 Supp and Attach02
33 City Exhibit 3.03: PGL's May 15, 2023 "Safety Modernization Report" filed in
34 compliance with the ICC's order in Docket No. 16-0376
35 City Exhibit 3.04: Company response to Data Request AG 12.03
36

37 **Q Please describe each of your specific recommendations.**

38 **A** I make the following recommendations in my rebuttal testimony, responding to the
39 Company's rebuttal testimony on each of these issues:

40 1. The Commission should direct PGL to file a GHG emissions analysis of its scope 1,
41 2, and 3 emissions, supported by a verification statement from a third-party consultant

- 42 no later than two years from the Commission’s order in this rate case or by PGL’s
43 next rate case filing, whichever comes first.
- 44 2. The Commission should direct PGL to file an analysis of NPAs for investments in
45 major capital projects no later than two years from the Commission’s order in this
46 rate case or by its next rate case filing, whichever comes first.
- 47 3. The Commission should open a new proceeding to reevaluate the SMP. The SMP is
48 the largest driver of PGL’s rate increase in this proceeding and will need to evolve to
49 address affordability concerns in light of the State’s public policy goals and the City’s
50 Climate Action Plan and other policy initiatives. As part of that reevaluation, the
51 Commission should direct PGL to conduct a Joint Feasibility Assessment of a portion
52 of its service territory, working with the City and other interested and affected
53 stakeholders to assess the potential for strategic electrification and retirement of leak-
54 prone pipe. The new proceeding should also analyze the costs and benefits associated
55 with the SMP and analyze whether all aspects of the SMP, such as the pace and cost
56 of moving meters from the inside of customers’ premises to the outside, are still
57 warranted.
- 58 4. The Commission should open a state-wide “future of gas” proceeding. This
59 proceeding should address new filing requirements for gas utilities, a state-wide
60 scenario pathways analysis, a clear articulation of the highest and most valued use for
61 alternative fuels, and joint gas-electric planning.

62 **III. THE COMMISSION SHOULD CAREFULLY SCRUTINIZE CAPITAL**
63 **INVESTMENTS BY REQUIRING AN ANALYSIS OF EMISSIONS AND NON-**
64 **PIPELINE ALTERNATIVES**

65 **Q You mentioned above the need for the Commission to carefully scrutinize new**
66 **capital investments in light of the energy transition. Can you elaborate on this**
67 **point?**

68 **A** The City’s Climate Action Plan, as well as state and federal policies, are accelerating
69 electrification.² This will reduce demand for gas and have profound implications for
70 PGL’s gas system infrastructure. As more and more customers leave the gas system,
71 costs for remaining customers will increase. This in turn increases stranded cost risk for
72 PGL. To protect against such an outcome, the Commission must carefully scrutinize all
73 of PGL’s capital investments in this rate proceeding and going forward.

74 **Q Have there been any recent developments since the Climate Action Plan was issued**
75 **that further elucidate the City’s priorities with respect to building decarbonization**
76 **that could impact this proceeding?**

77 **A** Yes. Chicago’s recently released Transition Team Report to Major Brandon Johnson
78 further demonstrates the City’s and many stakeholders’ continued demand for a
79 “balanced transition of public, residential and commercial buildings to decarbonized

² See DeLeon direct testimony, City Ex. 1.0 at 4:89 to 12:229 (describing federal, state, and city initiatives that are driving electrification).

80 solutions.”³ Of the 400 Chicagoan participants who contributed to the report,⁴ an
81 “overwhelming majority agreed that moving away from fossil fuels in buildings is
82 essential to climate action given 68% of Chicago’s GHG emissions come from
83 buildings[.]”⁵ Specific recommendations include, among others:

- 84 • Require all new buildings and major renovations to use efficient, all-electric
85 equipment and build rooftop solar-ready infrastructure starting in July 2025 to
86 align with the building code update, and incentivize the adoption of heat pumps,
87 all-electric equipment, and renewable energy technologies;⁶
88
- 89 • Establish energy performance targets for reduced energy use and on-site GHG
90 emissions standards for buildings over 25k sq/ft. and require that buildings meet
91 the standard by 2040 with interim emissions reductions targets;⁷
92
- 93 • Update the City’s Climate Action Plan to achieve a full transition away from
94 fossil fuels by 2040 including robust job creation and business incubation for
95 priority groups;⁸
96
- 97 • Explore additional opportunities to accelerate decarbonization, including a
98 municipal aggregation agreement to procure 100 percent renewable energy and
99 establishing a geothermal utility;⁹
100

³ Chicago for the People, *Building Bridges and Growing the Soul of Chicago: A Blueprint for Creating a More Just and Vibrant City for All*, 79 (July 2023), <https://www.chicago.gov/content/dam/city/depts/mayor/TransitionReport/TransitionReport.07.2023.pdf> (“Transition Team Report”); *see also* Chicago Plan Commission, *We Will Chicago: A framework plan for the city’s future* (2023), <https://wewillchicago.com/plan>; Chicago Building Decarbonization Working Group, *Developing an Equitable Building Decarbonization Strategy for Chicago: Recommendations Report of the Chicago Building Decarbonization Policy Working Group* (Oct. 2022), <https://www.chicago.gov/content/dam/city/progs/env/2022/Final-2022-Building-Decarb-City-Document.pdf>.

⁴ Torrence Hinton, President of PGL and North Shore, is a member of the Environmental Justice subcommittee to the Transition Team. Transition Team Report at 213.

⁵ Transition Team Report at 83.

⁶ *Id.* at 80.

⁷ *Id.*

⁸ *Id.* at 81.

⁹ *Id.*

- 101 • Periodic measurement of GHG emissions from these sectors: electricity,
102 commercial, residential, transportation, industry, agriculture, and agriculture/land
103 use and forestry;¹⁰ and
104
105 • Address the rising cost of gas and electric bills, reduce impacts of fossil fuel
106 emissions on indoor air quality, and reach climate goals by supporting
107 electrification transition.¹¹

108 **Q In your direct testimony, you recommended that the Commission direct PGL to**
109 **provide a GHG emissions analysis of its scope 1, 2, and 3 emissions, supported by a**
110 **verification statement from a third-party consultant.¹² How did the Company**
111 **respond?**

112 **A** PGL inaccurately summarizes my proposal, stating that the request was to “prepare an
113 emissions analysis for its distribution assets.”¹³

114 **Q Why is this an inaccurate summary of your proposal?**

115 **A** An emissions analysis for PGL’s distribution assets is merely a subset of what I am
116 recommending. My proposal would encompass the Company’s entire GHG inventory
117 including scope 1, 2, and 3 emissions, as well as a baseline emissions analysis and a
118 description of how the baseline was developed. It would then require the Company to
119 assess how new investments in the gas system will impact the Company’s total GHG
120 emissions. The analysis would then be verified by a third-party consultant.¹⁴

¹⁰ *Id.* at 82.

¹¹ *Id.* at 84.

¹² *See* DeLeon direct testimony, City Ex. 1.0 at 4:79-81.

¹³ Eidukas revised rebuttal testimony, PGL Ex. 12.0 REV at 11:211-212.

¹⁴ *See* DeLeon direct testimony, City Ex. 1.0 at 31:583-588.

121 **Q Please explain what you mean by scope 1, 2, and 3 emissions.**

122 **A** The Greenhouse Gas Protocol classifies a company's emissions into three categories.¹⁵

123 Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2

124 emissions are indirect emissions from the generation of purchased energy. Scope 3

125 emissions are all indirect emissions (not included in scope 2) that occur in the value chain

126 of the reporting company, including both upstream and downstream emissions.

127 **Q Are gas utilities already conducting such assessments of their systems?**

128 **A** Yes. Gas utilities are already providing such emissions assessments, which demonstrates

129 that PGL is now lagging behind the industry norm.¹⁶ I also note that a study prepared by

130 ICF International Inc. for the American Gas Association provides recommendations for

131 gas utilities to reduce emissions in three categories (direct gas utility emissions, customer

132 emissions, and upstream gas emissions), which align with scopes 1, 2, and 3.¹⁷

¹⁵ World Business Council for Sustainable Development & World Resources Institute, *Greenhouse Gas Protocol FAQ*, https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf.

¹⁶ See, e.g., Graves rebuttal testimony, PGL Ex. 22.0 at 22, n. 51 (citing Southern California Gas' analysis which sets a goal to achieve carbon neutrality for scope 1, 2, and 3 emissions no later than 2045). PGL's parent company, WEC Energy Group, indicates in its 2022 Climate Report that the Company has already engaged in some level of this analysis. WEC Energy Group, *Pathway to a Clean Energy Future: 2022 Climate Report*, 46, <https://www.wecenergygroup.com/csr/climate-report2022.pdf> (specifying scope 1, 2, and 3 emissions and noting WEC's effort to develop a decarbonization report with ERM).

¹⁷ American Gas Association, *Net-Zero Emissions Opportunities for Gas Utilities*, 7, n.2 (Feb. 2022), <https://www.aga.org/wp-content/uploads/2022/02/aga-net-zero-emissions-opportunities-for-gas-utilities.pdf>.

133 **Q Is it appropriate to defer starting any GHG assessment until the Commission opens**
134 **a “future of gas” proceeding?**

135 **A** No. As PGL witness Mr. Graves admits, many of the “future of gas” proceedings that are
136 currently pending have been ongoing for years.¹⁸ Deferring the start of such an
137 assessment for years is highly problematic in light of the City’s Climate Action Plan and
138 other electrification initiatives being pursued by Commonwealth Edison Company
139 (“ComEd”). The City is in the midst of taking action to achieve the objectives in this
140 plan, which aims to equitably reduce Chicago’s GHG emissions by a minimum of 62
141 percent by 2040. Understanding PGL’s contribution to the City’s emissions is an
142 important first step that needs to be undertaken now in order to meet those objectives.

143 **Q What do you recommend to the Commission in this proceeding?**

144 **A** The Commission should direct PGL in this proceeding to conduct and file a GHG
145 emissions assessment for its scope 1, 2, and 3 emissions, supported by a verification
146 statement from a third-party independent consultant, no later than two years from the
147 Commission’s order in this rate case or by its next rate case filing, whichever comes first.
148 The analysis should include a baseline assessment, as well as how the baseline was
149 developed. The analysis should also include an assessment of the impact that new
150 investments in the gas system will have on the Company’s total GHG emissions.

¹⁸ Graves rebuttal testimony, PGL Ex. 22.0 at 13, fig. 2.

151 **Q Regarding your recommendation in your direct testimony that the Commission**
152 **should direct PGL to provide an analysis of Non-Pipeline Alternatives for**
153 **investments in major capital projects, how did the Company respond to this**
154 **proposal?**

155 **A** PGL witness Mr. Graves states that “[m]ost of [the intervenor-cited] NPA requirements
156 are directed at avoiding growth, rather than at meeting safety standards for existing pipes
157 and services.”¹⁹ Mr. Graves explains that “[i]t is easier to envision conservation or
158 distributed resources or electrification alleviating expansion than eliminating the need for
159 safe residual service. Even if a lot of electrification were to occur on the same street, any
160 remaining load would have to be served, as well as load on the next street farther
161 downstream.... Absent a sophisticated study of distribution geography, pipe redundancy,
162 and NPA attainment, it is glib to say that NPAs are a credible substitute for the SMP.”²⁰

163 **Q How do you respond to this criticism?**

164 **A** Mr. Graves takes an overly restrictive and unnecessarily defeatist position on NPAs—a
165 position that contradicts his prior work on the topic. Mr. Graves is the senior author of a
166 presentation released as part of Brattle’s “Future of Gas Utilities” series.²¹ This
167 presentation proposes a three-step action plan for gas utilities. The first short-term step is
168 labeled “Pilot Projects and Experimentation” and recommends that “utilities should
169 request that regulators approve pilot projects for demand-side programs and
170 demonstrations of emerging alternative gas technologies.”²² Brattle’s recommendation

¹⁹ Graves rebuttal testimony, PGL Ex. 22.0 at 30:635-636.

²⁰ *Id.* at 30:636-643.

²¹ The Brattle Group, *The Future of Gas Utilities Series*, (Nov. 2021), attached as City Ex. 3.01.

²² *Id.* at slide 3.

171 for pilot projects and experimentation includes, among other items, “non-pipeline
172 solutions” and a recommendation to “[e]xplore and pursue complementary demand-side
173 solutions that help avoid the major infrastructure upgrades that would be otherwise
174 needed to meet demand.”²³ Mr. Graves also overlooks the fact that I specifically cited
175 examples of utilities using NPAs to address leak-prone pipe replacement.²⁴ Moreover,
176 given the benefits that NPAs provide, including cost savings and GHG emissions
177 reductions, they should be explored to the maximum extent possible.²⁵

178 **Q How do you respond to Mr. Graves’ assertion that NPAs are not a credible**
179 **substitute for the SMP “absent a sophisticated study of distribution geography, pipe**
180 **redundancy, and NPA attainment”?**²⁶

181 **A** This “sophisticated study” is precisely the action I recommended in my direct testimony.
182 There I explained the need for a Joint Feasibility Assessment to analyze the opportunities
183 for electrification and strategic retirement of leak-prone pipe.²⁷ Mr. Graves failed to
184 provide any meaningful response to that recommendation. Other state commissions and

²³ *Id.* at slide 4.

²⁴ See DeLeon direct testimony, City Ex. 1.0 at 17:318-322 (explaining that Central Hudson Gas & Electric Corporation “proposed transportation mode alternatives projects that are designed for strategic abandonment of leak-prone pipe through electrification where it is more cost effective than replacement and system reliability is not negatively impacted”); see *id.* at 35:670-683 (citing the New York Public Service Commission’s order encouraging Local Distribution Companies to work collaboratively on a program that simultaneously removes leak-prone infrastructure and employs non-pipeline alternatives).

²⁵ Given these important benefits, other state commissions have recommended that NPAs be “explored as a universal practice as an alternative to traditional investments.” Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan, NYPSC Case Nos. 17-E-0459, 17-G-0460 (June 14, 2018) at 75.

²⁶ Graves rebuttal testimony, PGL Ex. 22.0 at 30:641-643.

²⁷ DeLeon direct testimony, City Ex. 1.0 at 33:640-642.

185 individual utilities are studying this issue today, and it is appropriate for the Commission
186 to similarly direct PGL to perform such an analysis.²⁸

187 **Q PGL already provides an analysis of alternatives pursuant to Title 83 Section**
188 **285.6100 of the Illinois Administrative Code. Why is this not sufficient?**

189 **A** It is true that for this rate case, in PGL Exhibit 3.1, PGL provided a description of
190 additions to plant in service since the last rate case. That exhibit includes a column
191 entitled “Alternatives Considered and the Reason(s) for Rejecting Each Alternative.”
192 However, PGL’s exhibit includes only a cursory summary of “alternatives” considered.
193 In most cases, the purported alternatives assessment is merely one sentence, with no
194 supporting quantitative analysis. For example, with regard to the SMP, PGL states:
195 “maintain safety and reliability. Accelerated program approved in PGL 2009 Rate Case,
196 Final Order (1/21/10).”²⁹ There is no meaningful cost comparison, assessment of
197 emissions, or study of alternatives.

198 **Q Do the “business case authorizations” provide a meaningful comparison of**
199 **alternatives?**

200 **A** No. The “business case authorizations” also fail to provide a thorough comparison of
201 alternatives. As one example, the Project Authorization Request for the “Cragin Phase 6”
202 project merely states: “This project is part of the Cragin Neighborhood and is ranked 9th
203 as of the second quarter of 2020. This is the 6th phase of the 33 phase neighborhood

²⁸ *Id.* at 17:318-322 (describing Central Hudson’s efforts); *id.* at 35:670-683 (citing the New York Public Service Commission’s order encouraging Local Distribution Companies to work collaboratively on a program that simultaneously removes leak-prone infrastructure and employs programs such as weatherization and demand response along with electrification).

²⁹ PGL Ex. 3.1, line 1.

204 project. This phase will be retiring cast iron dating back to the 1900s.”³⁰ PGL provided
205 no further information regarding alternatives or emissions.

206 **Q What do you recommend to the Commission in this proceeding?**

207 **A** Consistent with my direct testimony, I recommend the Commission direct PGL to
208 provide an analysis of NPAs for investments in major capital projects as defined in Title
209 83 Section 285.6100 of the Illinois Administrative Code. An alternatives analysis should
210 include, for all alternatives considered: expected service life of any new infrastructure; an
211 evaluation of the risk that the investments become stranded assets; the impact of each
212 alternative on the gas system (*e.g.*, pressure relief or leak reduction); an evaluation of
213 estimated customer bill impacts; and a full cost-benefit analysis, including an assessment
214 of the GHG emissions impact of any new infrastructure. With regard to NPAs associated
215 with PGL’s SMP, as I explain further in Section IV below, the Commission should
216 require a Joint Feasibility Study as part of its reevaluation of the SMP to test the
217 feasibility of NPA attainment.

218 **IV. THE COMMISSION SHOULD REEVALUATE THE SMP**

219 **Q What is the largest driver of PGL’s proposed rate increase?**

220 **A** The largest driver of PGL’s proposed rate increase is the SMP. PGL forecasts \$280
221 million of investment through the SMP in 2024, of which approximately \$265 million is
222 forecast to be in service during the test year.³¹ PGL witness Mr. Eidukas explains that the
223 program “will ultimately replace over 2,000 miles of pipe and improve the long-term

³⁰ Company response to COC 3.14 Attach02, attached as City Ex. 3.02.

³¹ Eidukas revised direct testimony, PGL Ex. 1.0 REV at 13:267-269.

224 safety and reliability of the natural gas delivery system by converting the system from
225 low to medium pressure, moving meters outside, and installing safety equipment.”³²

226 **Q Please summarize the concerns intervenors have raised regarding PGL’s SMP.**

227 **A** Intervenor witnesses have raised concerns regarding the SMP budget, PGL’s leak
228 abatement and tracking, and PGL’s failure to provide cost control measures.³³ Others
229 have noted that the SMP has not been particularly effective or implemented efficiently.³⁴

230 **Q How does PGL respond to these criticisms?**

231 **A** PGL witness Mr. Eidukas states that “[m]anagement of the SMP has been extensively
232 litigated and audited over the past eight years.”³⁵ He also cites the Kiefner Study’s
233 recommendation that “all cast iron and ductile iron pipes in Peoples Gas’s system be
234 replaced by 2030.”³⁶ PGL witness Ms. Eldringhoff details a “variety of practical
235 challenges that would occur as a result of continuously changing the design, pace, and
236 budget of the SMP.”³⁷

237 **Q Is Mr. Eidukas correct that the SMP has been litigated and audited in the past?**

238 **A** Yes, the Commission assessed the SMP in ICC Docket No. 16-0376 and ICC Docket No.
239 18-1092. In ICC Docket No. 18-092, Kiefner and Associates, Inc. conducted an
240 engineering review of PGL’s SMP. However, it is important to note that the scope of

³² *Id.* at 8:170 to 9:173.

³³ *See, e.g.*, Walker direct testimony, AG Ex. 3.0 at 30:497 to 33:563.

³⁴ *See, e.g.*, Cebulko direct testimony, PIO Ex. 1.0 at 27:14 to 28:5.

³⁵ Eidukas revised rebuttal testimony, PGL Ex. 12.0 REV at 21:430-431.

³⁶ *Id.* at 20:402-403.

³⁷ Eldringhoff revised rebuttal testimony, PGL Ex. 14.0 REV at 23:463-464; *see also id.* at 23:467-471 (explaining that the SMP process is well-synchronized with the 27 other member entities of the Chicago Office of Underground Coordination and an overhaul of that process could have far-reaching, disruptive consequences).

241 review in those proceedings was targeted to safety, reliability, and at-risk facilities. No
242 party raised issues pertaining to the energy transition, and the City’s Climate Action Plan
243 had not yet been issued. Nearly seven years have elapsed since the initial SMP docket.
244 Since then, the City has updated and is in the midst of achieving the ambitious GHG
245 reductions targets in its Climate Action Plan. These significant changes in circumstances
246 warrants revisiting the SMP.

247 **Q Are other states reevaluating pipeline replacement and system modernization**
248 **programs in light of GHG reduction goals?**

249 **A** Yes. As Mr. Graves acknowledges, “[m]any states also re-examine gas utilities’ capital
250 investment and/or pipeline replacement programs, in light of each state’s GHG emission
251 reduction goals.”³⁸ He notes the following states are currently engaging in such an
252 assessment: Massachusetts, Rhode Island, New York, New Jersey, District of Columbia,
253 Minnesota, Colorado, Nevada, California, and Washington.³⁹

254 **Q Mr. Eidukas seems to suggest that the prior litigation renders any further review**
255 **unnecessary. Do you agree?**

256 **A** No. While I do not dispute that the SMP was evaluated in ICC Docket No. 16-0376 and
257 ICC Docket No. 18-1092, that litigation does not preclude the Commission from
258 assessing the program going forward.

³⁸ Graves rebuttal testimony, PGL Ex. 22.0 at 12:288 to 13:290.

³⁹ *Id.* at 12, fig. 1.

259 **Q Are new affordability concerns present at this time that were not of concern in the**
260 **prior SMP dockets?**

261 **A** Yes, the City is in the midst of an energy transition as set forth in its Climate Action Plan.
262 The Climate Action Plan demonstrates how building electrification will transform the
263 way that Chicagoans heat their residences and highlights the need for careful planning to
264 ensure that low-income customers are not subject to higher gas rates as the City
265 transitions to a low-carbon future.

266 **Q Do you have any specific concerns regarding affordability?**

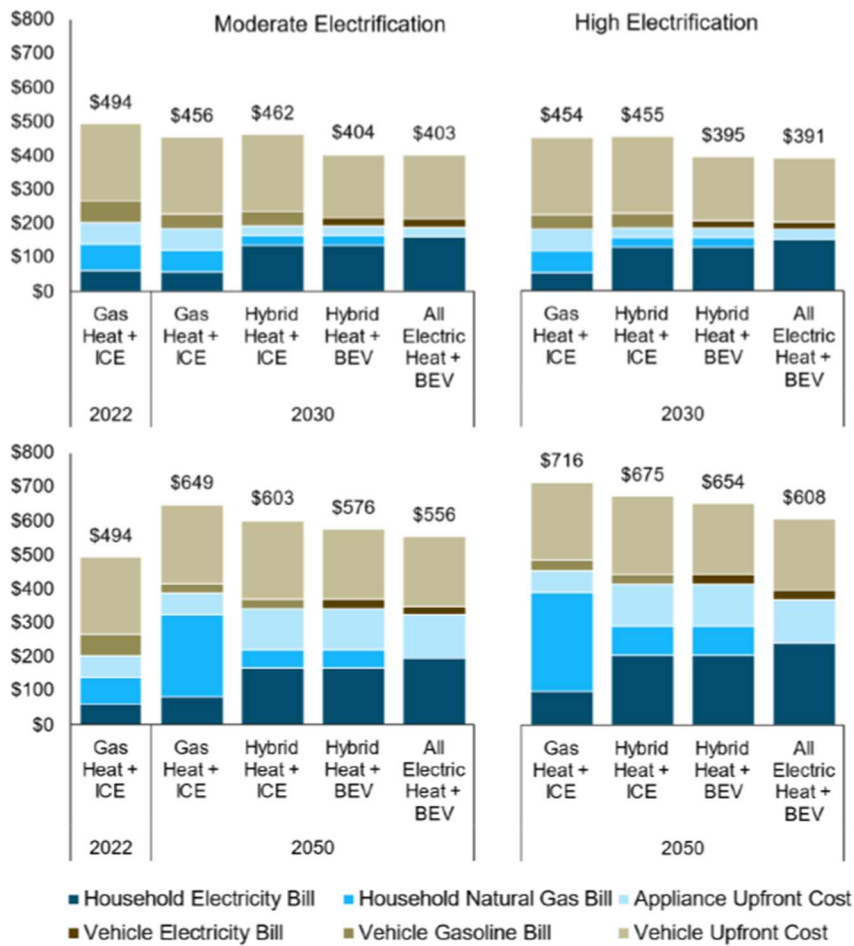
267 **A** The Illinois Decarbonization Study⁴⁰ provides a breakdown of energy costs and
268 amortized equipment cost by technology under two electrification scenarios. Notably, gas
269 rates escalate as the fixed costs of the gas system are spread across fewer customers. This
270 is shown in the blue bar graph labeled “household natural gas bill.” In 2050, household
271 natural gas bills increase in both the moderate and high electrification scenarios. As noted
272 in the study, “Customers who electrify see a shift in their expenses from natural gas bills
273 and gasoline to electricity. Still, those customers see lower costs than a customer with
274 natural gas and a conventional gasoline car in both 2030 and 2050.... [T]he advantage in
275 2050 is driven by the fact that gas rates escalate more rapidly than electric rates in these
276 scenarios. Gas rates escalate as the fixed costs of the gas system are spread across fewer
277 remaining customers.”⁴¹

278

⁴⁰ The Illinois Decarbonization Study was marked City Ex. 1.03 to DeLeon direct testimony.

⁴¹ City Ex. 1.03 (Illinois Decarbonization Study) at 38.

Figure 27: Monthly ComEd Moderate-Income Residential Customer Costs: Gas and Electric Energy Bills and Amortized Equipment Costs



279

280 **Q What conclusions do you draw from this figure?**

281 **A** Those customers who remain on the gas system are projected to see an increase in rates
 282 by 2050 in both a moderate and high electrification scenario. The Commission must take
 283 steps today to protect customers from these unaffordable rate increases. These steps
 284 include: an analysis of planned and future capital expenditures on the system, assessing
 285 stranded asset risk, thoroughly considering costs and benefits of new infrastructure, and
 286 providing a credible assessment of GHG emissions associated with new infrastructure.
 287 These issues must be assessed as PGL continues to implement its SMP.

288 **Q Do you have any response to the practical considerations raised by PGL witness**

289 **Ms. Eldringhoff?**

290 **A** I recognize the number of practical challenges that must be balanced to effectively
291 execute the SMP. For instance, even if one were to agree with Ms. Eldringhoff that the
292 neighborhood approach minimizes disruption for Chicago residents by ensuring that their
293 streets are not being disturbed multiple times,⁴² the Commission could retain the
294 neighborhood approach of the SMP while still evaluating other aspects of the program.
295 For instance, the Commission could require a Joint Feasibility Assessment of one
296 neighborhood with high expected replacement costs. It could also assess whether certain
297 aspects of the program, such as moving meters from the inside of customers' premises to
298 the outside, are still warranted.

299 **Q Can you further detail why reevaluation of the SMP is necessary?**

300 **A** PGL's Safety Modernization Report⁴³ for the quarter ending March 31, 2023 helps
301 illustrate my concern. In Appendix A of that report, PGL includes neighborhood metrics,
302 including construction status, install miles, services, meters, costs, start and end years,
303 and risk rank. An excerpt of Appendix A is shown below:

⁴² Eldringhoff revised rebuttal testimony, PGL Ex. 14.0 REV at 22:439-441.

⁴³ This report is attached as City Ex. 3.03.

APPENDIX A - NEIGHBORHOOD METRICS

| Neighborhood | Construction Status | REMAINING | | | | | Start Year | End Year | Jan 2023 Risk Rank | Mean UMRI |
|-----------------------|---------------------|---------------|------------------|----------|--------|------------|------------|----------|--------------------|-----------|
| | | Install Miles | Retirement Miles | Services | Meters | Cost (\$M) | | | | |
| Humboldt Park | Not Started | 45.31 | 29.23 | 4167 | 11560 | 113.27 | 2032 | 2037 | 76 | 0.11 |
| North Austin | Not Started | 19.04 | 12.29 | 1680 | 2930 | 47.60 | 2033 | 2036 | 42 | 0.07 |
| Kelvin Park | Not Started | 4.26 | 2.75 | 346 | 368 | 10.64 | 2033 | 2033 | 43 | 0.09 |
| Hermosa | Not Started | 4.90 | 3.16 | 430 | 763 | 12.26 | 2033 | 2034 | 45 | 0.04 |
| Park West | Not Started | 9.11 | 5.88 | 730 | 2278 | 22.77 | 2033 | 2035 | 47 | 0.15 |
| Grand Crossing | Not Started | 30.82 | 19.88 | 2189 | 3711 | 77.05 | 2033 | 2037 | 67 | 0.13 |
| Scottsdale | Not Started | 39.40 | 25.42 | 4025 | 4160 | 98.51 | 2033 | 2037 | 81 | 0.19 |
| Edgebrook | Not Started | 1.97 | 1.27 | 54 | 87 | 4.93 | 2034 | 2034 | 49 | 0.01 |
| Peterson Park | Not Started | 4.05 | 2.61 | 416 | 632 | 10.13 | 2034 | 2034 | 50 | 0.37 |
| Logan Square | Not Started | 60.63 | 39.12 | 5855 | 14759 | 151.57 | 2034 | 2038 | 51 | 0.09 |
| Arcadia Terrace | Not Started | 8.35 | 5.39 | 928 | 1989 | 20.88 | 2034 | 2036 | 55 | 0.23 |
| Pulaski Park | Not Started | 10.67 | 6.89 | 1087 | 1130 | 26.68 | 2034 | 2035 | 56 | 0.29 |
| Back of the Yards | Not Started | 15.14 | 9.76 | 1525 | 2983 | 37.84 | 2034 | 2036 | 68 | 0.04 |
| Gresham | Not Started | 62.66 | 40.42 | 5465 | 7493 | 156.64 | 2034 | 2038 | 71 | 0.10 |
| Mount Greenwood | Not Started | 0.00 | 0.00 | 0 | 0 | 0.00 | 2034 | 2034 | 73 | 0.02 |
| Morgan Park E | Not Started | 25.67 | 16.56 | 2508 | 2488 | 64.18 | 2034 | 2037 | 75 | 0.08 |
| Archer Heights | Not Started | 20.28 | 13.09 | 1605 | 2159 | 50.71 | 2034 | 2036 | 78 | 0.07 |
| Edison Park | Not Started | 1.21 | 0.78 | 32 | 45 | 3.02 | 2035 | 2035 | 63 | 0.02 |
| Lathrop Homes | Not Started | 2.98 | 1.92 | 118 | 532 | 7.45 | 2035 | 2035 | 64 | 0.03 |
| Forest Glen | Not Started | 4.64 | 3.00 | 447 | 476 | 11.61 | 2035 | 2035 | 66 | 0.23 |
| Gladstone Park | Not Started | 5.01 | 3.23 | 455 | 712 | 12.51 | 2035 | 2036 | 69 | 0.44 |
| West Pullman | Not Started | 48.17 | 31.07 | 4005 | 4027 | 120.41 | 2035 | 2037 | 77 | 0.09 |
| Heart of Italy | Not Started | 0.86 | 0.55 | 0 | 0 | 2.15 | 2035 | 2035 | 87 | 0.12 |
| Noble Square | Not Started | 10.32 | 6.66 | 1017 | 3511 | 25.80 | 2035 | 2038 | 89 | 0.07 |
| O'Hare | Not Started | 0.00 | 0.00 | 92 | 329 | 0.00 | 2036 | 2036 | 72 | 0.02 |
| Uptown | Not Started | 14.03 | 9.05 | 680 | 3852 | 35.08 | 2036 | 2039 | 74 | 0.11 |
| Wrigleyville | Not Started | 3.55 | 2.29 | 375 | 1368 | 8.88 | 2036 | 2037 | 79 | 0.13 |
| Montclare | Not Started | 31.74 | 20.47 | 3219 | 4406 | 79.34 | 2036 | 2040 | 80 | 0.10 |
| Cottage Grove Heights | Not Started | 7.76 | 5.01 | 876 | 864 | 19.40 | 2036 | 2037 | 82 | 0.12 |
| Bronzeville | Not Started | 22.86 | 14.75 | 685 | 1882 | 57.14 | 2036 | 2039 | 83 | 0.05 |
| Hanson Park | Not Started | 2.30 | 1.49 | 272 | 506 | 5.76 | 2036 | 2036 | 86 | 0.27 |
| North Park | Not Started | 7.84 | 5.06 | 795 | 1644 | 19.60 | 2036 | 2037 | 88 | 0.11 |
| Old Town | Not Started | 7.26 | 4.68 | 464 | 2048 | 18.15 | 2036 | 2038 | 92 | 0.09 |
| River North | Not Started | 1.70 | 1.10 | 32 | 119 | 4.25 | 2036 | 2036 | 93 | 0.03 |
| Sauganash | Not Started | 23.66 | 15.26 | 1900 | 2089 | 59.15 | 2036 | 2038 | 94 | 0.15 |
| West Loop Gate | Not Started | 0.47 | 0.30 | 3 | 69 | 1.17 | 2036 | 2036 | 96 | 0.05 |
| South Old Irving Park | Not Started | 0.64 | 0.41 | 30 | 104 | 1.60 | 2036 | 2036 | 97 | 0.08 |
| Pilsen | Not Started | 18.40 | 11.87 | 1216 | 3536 | 45.99 | 2036 | 2039 | 99 | 0.04 |
| Englewood | Not Started | 70.04 | 45.19 | 5262 | 6631 | 175.11 | 2036 | 2040 | 111 | 0.08 |
| Lincoln Park | Not Started | 21.43 | 13.82 | 1564 | 4167 | 53.56 | 2036 | 2040 | 118 | 0.16 |
| East Garfield Park | Not Started | 30.41 | 19.62 | 1870 | 3605 | 76.03 | 2036 | 2040 | 152 | 0.08 |
| The Bush | Not Started | 5.68 | 3.66 | 469 | 687 | 14.19 | 2037 | 2038 | 84 | 0.20 |
| Buena Park | Not Started | 8.18 | 5.27 | 390 | 2285 | 20.44 | 2037 | 2039 | 100 | 0.10 |

304

305 **Q What is the significance of this data?**

306 **A** I highlight this information for the Commission to demonstrate the importance of
 307 reevaluating the SMP in the short term, in light of affordability concerns. First, I would
 308 note that construction will not begin in many of these neighborhoods for over a decade.
 309 The time is now to assess the feasibility of NPAs. Second, there are several Equity
 310 Investment Eligible Communities with significant replacement costs. As one example,

311 PGL plans to install 70 miles of pipe and 6,631 meters in Englewood,⁴⁴ with a total cost
312 of \$175 million. Installing new gas infrastructure in this particular neighborhood in 2036
313 will present significant roadblocks for customers within this community to transition to
314 cleaner alternatives. Customers' needs and perspectives should be evaluated now
315 regarding the feasibility of alternatives, with particular focus on rate impacts.

316 **Q Do you have any recommendations for the Commission?**

317 **A** As a first step, I recommend the Commission open a separate proceeding to reevaluate
318 the SMP. Given that SMP in its current form anticipates construction more than 15 years
319 into the future, it would be problematic to not revisit the program within this lengthy time
320 period. This reevaluation should include a requirement that PGL conduct a Joint
321 Feasibility Assessment of a portion of its service territory, working with interested and
322 affected stakeholders, including the City, to assess the potential for strategic
323 electrification and retirement of leak-prone pipe. I also recommend that, as part of the
324 reevaluation, PGL demonstrate that all aspects of the SMP, including moving meters
325 from the inside of customers' premises to the outside, are still warranted.

326 **V. THE COMMISSION SHOULD INITIATE A ROBUST "FUTURE OF GAS"**
327 **PROCEEDING**

328 **Q Please explain what is meant by "future of gas."**

329 **A** PGL witness Mr. Eidukas refers to intervenors' policy proposals as "future of gas"
330 proposals.⁴⁵ Broadly speaking, the "future of gas" proposals recognize that

⁴⁴ Englewood is an Equity Investment Eligible Community. See Energy Equity Illinois, *Equity Investment Eligible Community Map*, <https://energyequity.illinois.gov/resources/equity-investment-eligible-community-map.html>.

⁴⁵ Eidukas revised rebuttal testimony, PGL Ex. 12.0 REV at 2:35-36.

331 decarbonization of the building and industrial sectors will necessitate changes in
332 regulation and gas utility business models.

333 **Q Is there agreement that a “future of gas” proceeding is needed in Illinois?**

334 **A** Yes, both PGL and several intervenors recommend or do not oppose a state-wide “future
335 of gas” proceeding in Illinois.⁴⁶ Although the Illinois Attorney General did not explicitly
336 call for a future of gas proceeding to be opened, Mr. Dismukes advocates for new gas
337 infrastructure planning rules.⁴⁷

338 **Q How does Illinois compare to other states that are addressing this issue?**

339 **A** Illinois has yet to take any action on this issue and is far behind other states, many of
340 which have already updated their planning frameworks or are in the midst of analyzing
341 this issue. As PGL witness Mr. Graves notes, at least 12 states have initiated “future of
342 gas” proceedings.⁴⁸

343 **Q Are there risks for Chicago in failing to sufficiently analyze and plan for the “future
344 of gas”?**

345 **A** Yes. Both the City and the electric utility that serves the City—ComEd—have identified
346 building electrification as a key pillar to reduce GHG emissions. The City is moving

⁴⁶ See Eidukas revised rebuttal testimony, PGL Ex. 12.0 REV at 11:228-229; Graves rebuttal testimony, PGL Ex. 22.0 at 2:44-52; DeLeon direct testimony, City Ex 1.0 at 28:528 to 30:567; Cebulko direct testimony, PIO Ex. 1.0 at 5:20-22; Neme direct testimony, PIO Ex. 2.0 at 7:7-9.

⁴⁷ See Dismukes direct testimony, AG Ex. 2.0 at 29:1-3 (explaining the need for Illinois to carefully balance infrastructure spending proposals with long-term clean energy objectives that call into question the long-term future of natural gas service); *id.* at 29:17-20 (recommending that the Commission implement reporting rules modeled after the Gas Infrastructure Planning Rules adopted by the Colorado Public Utilities Commission, which Colorado has used to evaluate “future of gas” and other issues in that state).

⁴⁸ Graves rebuttal testimony, PGL Ex. 22.0 at 11:266-267.

347 forward to implement the targets in its Climate Action Plan. As one example, the City
348 Department of Housing’s (“DOH”) 2023 Architectural Technical Standards Manual
349 requires that all new construction funded by DOH must comply with the following: (1)
350 residential units and residential common spaces must be “all-electric,” and no tenant gas
351 hookups; (2) development must be “all-electric-ready,” meaning all building electrical
352 service must be sized large enough to accommodate all electric appliances, and physical
353 building design must provide sufficient space and capacity for all-electric systems; and
354 (3) all building utilities and appliances shall be electric where the technology to do so
355 efficiently and cost-effectively exists and is readily available.⁴⁹ As the City achieves the
356 objectives in its Climate Action Plan, this will require an increased reliance on the
357 electric system and a decreased reliance on the existing gas system. In addition to the
358 City’s efforts, ComEd is in the midst of studying decarbonization pathways as it
359 implements vehicle and building electrification on its system.⁵⁰ It is a prudent course of
360 action to begin planning for these changes now to understand the opportunities and
361 challenges associated with the transition.

362 **Q Have you identified any other risks?**

363 **A** Yes. PGL’s own planning of its system may be delayed without Commission guidance in
364 a future of gas proceeding. PGL has stated that:

⁴⁹ Chicago Department of Housing, *2023 Architectural Standards Manual*, 35,
https://www.chicago.gov/content/dam/city/depts/doh/qap/qap_2023/ATS%202023_FINAL3.pdf.

⁵⁰ See City Ex. 1.03 (Illinois Decarbonization Study). ComEd has also indicated its willingness for a Commission-initiated proceeding to study the transition to a broader decarbonized economy. ICC Docket Nos. 22-0486 and 23-0055, Quiniones rebuttal testimony, ComEd Ex. 21.0 at 9:193-195.

365 The Company anticipates that decarbonization may require reconfiguration
366 and upgrading of infrastructure to support hydrogen use and district heating
367 redeployments of existing infrastructure. No specific studies have been
368 conducted of how, when or where to do this, in part because there has been
369 no Illinois “Future of Gas” proceeding to clarify the scope of possibilities
370 and the regulatory policies that will accompany them.⁵¹
371

372 I am concerned that without Commission guidance in a “future of gas” proceeding a
373 PGL-specific analysis will be further delayed.

374 **Q What is your takeaway from this testimony?**

375 **A** The Commission needs to be planning today for a decarbonized energy future. The threat
376 of stranded assets and increased costs to consumers is real. This speaks directly to the
377 Commission’s obligation to ensure just and reasonable rates under the Public Utilities
378 Act.

379 **Q If the Commission opens a “future of gas” proceeding, does that eliminate the need**
380 **for the Commission to address issues that pertain specifically to PGL’s system in**
381 **this rate case and beyond?**

382 **A** No. A “future of gas” proceeding addresses issues on a state-wide basis. It is often rooted
383 in an analysis of scenarios and pathways that impact the economy of the entire state.
384 Many proceedings also address new filing requirements for all gas utilities in the state.
385 While such a proceeding is needed, it does not allow for an in-depth analysis of a specific
386 gas utility system. A “future of gas” proceeding should not be used as a way to delay the
387 analysis and implementation of decarbonization and other significant market and

⁵¹ Company response to AG 12.03, attached as City Ex. 3.04.

388 technological changes on PGL’s system. As other state commissions have shown, there is
389 room for action in both specific rate proceedings as well as in a state-wide level inquiry.⁵²

390 **Q Do you have any recommendations regarding the scope of a future of gas**
391 **proceeding?**

392 **A** Any proceeding opened by the Commission would benefit from a clear schedule,
393 delineated phases, and robust stakeholder participation—including input from electric
394 utilities in the state. Issues that can be resolved more quickly should be prioritized first.

395 **Q Do you have any recommendations for issues that should be addressed as part of the**
396 **future of gas proceeding?**

397 **A** I recommend that the Commission address the following issues: (1) enhanced reporting
398 requirements for gas infrastructure and gas supply planning; (2) a state-wide
399 decarbonization analysis that builds upon the work already completed in ComEd’s
400 Illinois Decarbonization Study; (3) a determination regarding the highest and most valued
401 use of alternative fuels such as hydrogen;⁵³ and (4) joint gas-electric system planning.

⁵² See DeLeon direct testimony, City Ex. 1.0 at 16:314 to 19:353 (demonstrating that state commissions are initiating state-wide proceedings and utilities are taking specific action to advance “future of gas” issues in rate or individual proceedings).

⁵³ As I explain below, the federal government recently took this step in releasing its “U.S. National Clean Hydrogen Strategy and Roadmap,” which notes that one of the guiding principles is to use targeted deployments of clean hydrogen in sectors where its use has the most impact. U.S. Dep’t of Energy, *U.S. National Clean Hydrogen Strategy and Roadmap*, 58, <https://www.hydrogen.energy.gov/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf>. High priority sectors include industrial processes, heavy-duty transport, and long duration storage. *Id.* at 13.

402 **Q Please explain why enhanced reporting requirements are needed for gas**
403 **infrastructure and gas supply planning.**

404 **A** This rate case has made clear the need for new reporting requirements involving gas
405 infrastructure. Increased scrutiny needs to be applied to future gas infrastructure
406 investment to protect against stranded assets and lock-in of GHG emissions. As gas
407 utilities explore use of alternative fuels, the Commission will also need to reevaluate how
408 it reviews annual gas reconciliation proceedings and gas portfolio planning. The
409 Commission can and should take action in this proceeding to address enhanced
410 infrastructure reporting for PGL specifically. In the event the Commission does not
411 require enhanced reporting requirements in this proceeding, it should incorporate this
412 issue into a future of gas process. In addition to enhanced reporting requirements for gas
413 infrastructure, the Commission will need to revisit its review of gas supply and gas
414 portfolio planning in light of PGL's plan to use alternative fuels to serve customers.

415 **Q Please explain why a state-wide decarbonization analysis is needed.**

416 **A** As Mr. Graves notes, a state-wide analysis evaluates how natural gas demand trends will
417 change over time.⁵⁴ It also can help inform the strategies, policies, and actions needed to
418 support decarbonization. I recommend that any decarbonization analysis build upon the
419 work that ComEd has already started with its Illinois Decarbonization Study.⁵⁵

⁵⁴ Graves rebuttal testimony, PGL Ex. 22.0 at 12:286-288.

⁵⁵ See City Ex. 1.03.

420 **Q Please explain why a determination regarding the highest and most valued use of**
421 **alternative fuels such as hydrogen is needed.**

422 **A** As PGL witness Graves explains, several states have identified the need to analyze
423 alternative gas supplies such as renewable natural gas and hydrogen, including
424 Massachusetts, Rhode Island, New Jersey, District of Columbia, Minnesota, Colorado,
425 Nevada, California, and Oregon.⁵⁶ That inquiry is important in Illinois as well,
426 particularly given that PGL’s primary decarbonization thinking appears to be centered on
427 continuing to implement the SMP and relying on alternative fuels such as renewable
428 natural gas or hydrogen.⁵⁷ Several concerns have been raised regarding hydrogen as a
429 fuel substitute, including compatibility with end-use appliances,⁵⁸ distribution and storage
430 costs,⁵⁹ leakage and environmental impact,⁶⁰ and hydrogen embrittlement of transmission
431 pipelines.⁶¹ Any plan to utilize hydrogen must address and resolve these concerns. In
432 light of these challenges, a pronouncement from the Commission regarding how limited
433 amounts of hydrogen should be deployed could help focus PGL on alternative solutions.

⁵⁶ Graves rebuttal testimony, PGL Ex. 22.0 at 12, fig. 1.

⁵⁷ See City Ex. 1.04 (Company response to COC 4.34) at 2.

⁵⁸ U.S. Dep’t of Energy, *Pathways to Commercial Liftoff: Clean Hydrogen*, 16 (Mar. 2023), <https://liftoff.energy.gov/wp-content/uploads/2023/03/20230320-Liftoff-Clean-H2-vPUB.pdf> (“When blending >5 – 10% hydrogen, appliances connected to the pipeline may have to be qualified or converted to the hydrogen blend, a challenging transitional effort[.]”).

⁵⁹ *Id.* at 57 (“Distribution and storage can more than double the delivered cost of hydrogen”).

⁶⁰ Ilissa B. Ocko and Steven P. Hamburg, *Climate consequences of hydrogen emissions*, 22 *Atmospheric Chemistry and Physics* 9349-9368 (2022), <https://doi.org/10.5194/acp-22-9349-2022> (explaining that hydrogen carries with it climate impacts through its role as an indirect greenhouse gas, and hydrogen leakage rates and solutions largely unknown to date).

⁶¹ U.S. Dep’t of Energy, *Pathways to Commercial Liftoff: Clean Hydrogen* at 50, n.122 (“[s]teel makes up more than a quarter-million miles of the U.S. natural gas transmission system, but at high temperatures or high pressure, hydrogen embrittlement (permeation of H₂ into steel) can crack steel pipes, leading to leakage or combustion”).

434 The federal government recently took this step in releasing its “U.S. National Clean
435 Hydrogen Strategy and Roadmap,” which notes that one of the guiding principles is to
436 use targeted deployments of clean hydrogen in sectors where its use has the most
437 impact.⁶² High priority sectors include industrial processes, heavy-duty transport, and
438 long-duration storage.⁶³ Notably, the Roadmap finds that “[m]ultiple competing
439 alternatives (e.g., electrification via heat pumps) leave hydrogen challenged for
440 residential and commercial heating in many regions.”⁶⁴ Given that PGL’s customer base
441 is primarily residential, its emphasis on the future use of hydrogen as an alternative to
442 methane gas should be carefully scrutinized.

443 **Q Please explain why joint gas and electric system planning is needed.**

444 **A** As PGL witness Mr. Graves has shown, several states have identified the need for joint
445 gas and electric system planning, including Massachusetts, New Jersey, Maryland,
446 Nevada, California, and Washington.⁶⁵ The Massachusetts’ Clean Heat Commission
447 Report recommends that gas and electric utilities develop a Joint Energy System Plan,
448 which would include:

449 mapping geographies where the accelerated deployment of clean heating
450 technologies can enable strategic retirement of gas infrastructure,
451 redirecting funding for additional and existing fossil fuel equipment to
452 decarbonized solutions. In addition, this type of planning should identify
453 areas where there may be electric system capacity constraints in the long-
454 term so that near-term preventative action can be taken to ensure adequate
455 electric supply and associated infrastructure can be built, or to help

⁶² U.S. Dep’t of Energy, *U.S. National Clean Hydrogen Strategy and Roadmap*, 58,
<https://www.hydrogen.energy.gov/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf>.

⁶³ *Id.*

⁶⁴ U.S. Dep’t of Energy, *Pathways to Commercial Liftoff: Clean Hydrogen* at 21.

⁶⁵ Graves rebuttal testimony, PGL Ex. 22.0 at 12, fig. 1.

456 customers pursue additional thermal load reduction or temporary
457 alternative technologies prior to the buildout of the electric system.⁶⁶

458 This type of advanced and coordinated planning will help reduce consumer costs and
459 ensure a more efficient transition. This also underscores the importance of including all
460 electric utilities in any future of gas proceeding.

461 **Q Does this conclude your rebuttal testimony?**

462 **A** Yes.

⁶⁶ Massachusetts Commission on Clean Heat, *Final Report*, 20-21 (Nov. 30, 2022), <https://www.mass.gov/doc/massachusetts-commission-on-clean-heat-final-report-november-30-2022/download>.