

**NATIONAL GRID MONITORSHIP: THIRD QUARTERLY REPORT**  
**(May 26, 2020)**<sup>1</sup>

**Pursuant to the Settlement Agreement of November 24, 2019 (the “Settlement”)**  
**between the New York State Department of Public Service (“DPS”) and National Grid**  
**USA, The Brooklyn Union Gas Company d/b/a National Grid NY and KeySpan Gas**  
**East Corporation d/b/a National Grid (collectively, “National Grid”)**

**I. Executive Summary**

On May 8, 2020, National Grid released to the public its Supplemental LT Report, which is intended to build upon its LT Report issued on February 24, 2020, and to address more than 7,500 comments provided by the public in written submissions to the PSC and in six public meetings conducted by National Grid. Pursuant to National Grid’s Settlement with New York State in November 2019, National Grid has sought in the LT Report and the Supplemental LT Report to provide long-term planning and solutions for natural gas capacity to meet customer demand into the future.

The Monitor attended the six public meetings and reviewed the public comments submitted in writing to the PSC, including several analytical papers prepared by third-party organizations regarding the LT Report. While offering varied views, the Monitor found these comments as a whole to provide significant insight into how the public evaluates the ten options identified by National Grid in the LT Report. In the Second Quarterly Report issued after the public meetings, the Monitor specifically recommended that the Supplemental LT Report address concerns expressed by the public regarding National Grid’s demand forecast, including at a minimum (a) climate change and the suitability of the current Design Day standard, (b) economic changes resulting from Covid-19, and (c) the third-party analysis cited in written comments by the public.

The Monitor has continued to conduct a substantial review of National Grid’s compliance with the Settlement. To date, the Monitor has conducted approximately 50 interviews and has issued nearly 90 requests for documents. In March 2020 after the conclusion of the public meetings, the Monitor also began monitoring the key executive meetings conducted internally at National Grid to address its compliance with the Settlement, including its Downstate NY Settlement Steering Committee Meeting, its Weekly Future Winter Supply Meeting, its Portable Pipeline Performance Management Meeting, its Gas Risk and Compliance Committee Meeting, and its Gas Forecasting and Planning Governance Board Meeting.

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<sup>1</sup> A draft of this Third Quarterly Report was provided for comment to National Grid and to DPS on May 11, 2020. Insofar as the Monitor independently deemed appropriate, their comments have been incorporated herein. Unless a later time is indicated, the Third Quarterly Report contains the Monitor’s findings as of May 11, 2020. Of particular note, on May 15, 2020, the DEC and the New Jersey Department of Environmental Protection denied (again) the WQC and related permit applications for the NESE project.

The discussion in this Third Quarterly Report<sup>2</sup> is focused largely on a further assessment of National Grid's ongoing development of long-term solutions pursuant to Settlement ¶ IV. Given that the LT Report and the Supplemental LT Report both discuss at length no-infrastructure options, this Report also reviews the status of National Grid's implementation of energy efficiency ("EE") and demand response ("DR") measures under Settlement ¶ VI.a. As to both these items, this Report makes no formal findings or recommendations but provides observations regarding National Grid's progress and positions.

## **II. Energy Efficiency Measures**

In the LT Report and the Supplemental LT Report, three categories of programs arise which each include EE, DR and other gas conservation measures. The manner in which these programs are implemented and forecasted to reduce gas demand are distinct in important ways. First, National Grid operates EE and DR programs that pre-date the Settlement, and National Grid routinely subsumes into its demand forecast range the historic levels of demand reduction achieved by them. In other words, insofar as demand in a prior year may have been reduced by EE and DR efforts, National Grid assumes that this reduction is implicitly reflected in the actual usage recorded for that prior year, and forecasts its future baseline demand range in reliance upon that historical data. Second, under the Settlement and as described further immediately below, National Grid agreed to implement additional, incremental gas conservation measures, and these efforts remain underway and their progress is limited to date insofar as it currently can be calculated.<sup>3</sup> Third, the LT Report and the Supplemental LT Report identify three potential options -- EE, DR and electrification (the "No-Infrastructure Options") -- that encompass much more extensive energy conservation efforts that could be pursued in an effort to close the gap between future gas demand and supply capacity.<sup>4</sup>

Pursuant to Settlement ¶ VI.a, National Grid developed an Efficiency Plan to deliver a package of EE, DR and other gas conservation measures designed to reduce peak-day gas usage among current customers. National Grid agreed to spend an additional \$8 million to fund the

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<sup>2</sup> This Third Quarterly Report follows the First and Second Quarterly Reports dated March 13, 2020 and April 17, 2020, respectively, familiarity with which is assumed. Although the Monitor's reports issue more frequently than a quarterly basis, they are numbered consecutively.

<sup>3</sup> National Grid has taken efforts to incorporate into its future demand forecast expected contributions from the Settlement, as well as from efforts to meet Local Law 97 and NENY. As described in the LT Report (at 32-39), the variance between National Grid's "High Demand" and "Low Demand" forecast scenarios turns on the extent to which several incremental gas conservation targets are achieved in the future.

<sup>4</sup> National Grid worked with Navigant/Guidehouse to outline next steps that would be needed to design and deploy the energy conservation efforts in the No-Infrastructure Options, including new and enhanced EE, DR and electrification programs. The outline contemplates initial deployment before the 2020/2021 heating season with a ramp-up period extending into 2021. Each of the EE and electrification programs would require a minimum of two full-time employees for program design and at least one full-time employee for support and assistance with research, technical analyses, regulatory approval, etc. The DR program would require one full-time employee for product development and implementation with support and assistance from others, and National Grid could use recently-launched full-scale electric DR programs in Massachusetts and Rhode Island as a template. The timeline includes a two-month period for research and preparation of these programs; between one and three months for program design; three to six months to prepare for implementation; and six months and beyond for actual implementation.

Efficiency Plan for the 2019/2020 and 2020/2021 winter heating seasons, to be paid by National Grid's shareholders and not its customers. As noted above, National Grid historically has operated EE and DR programs, and the Settlement accordingly requires National Grid to spend the \$8 million to enhance the existing EE and DR programs with new efforts. According to the Protocol Agreement between National Grid and DPS, the scope of the Monitor's review regarding the Efficiency Plan includes assessing "[w]hether the Efficiency Plan complies with the Settlement," "National Grid's progress in implementing the Efficiency Plan in a timely manner," "[t]hat shareholder funds are used for projects or programs incremental to energy efficiency projects or programs National Grid deploys pursuant to current or future Commission orders and supported ratepayer funds," "[t]he actual realized peak-day (and annual) gas reduction resulting from the implementation of the Efficiency Plan," and "National Grid's accounting for the expenses of implementing the Efficiency Plan."

As of May 15, 2020, National Grid had spent almost \$520,000 for new EE efforts and over \$2.9 million for DR efforts in the Service Territory under the Efficiency Plan. Customers received most of those monies as incentives to participate in the EE and DR programs. Given that National Grid's efforts to implement the Efficiency Plan remain at an early stage, this Third Quarterly Report makes no ultimate findings regarding the elements of required compliance identified in the paragraph above but reviews National Grid's progress to date in implementing the EE and DR components of the Efficiency Plan.

#### A. Enhanced EE

The new EE programs include an enhanced EE incentive for commercial and industrial ("C&I") customers and various incentive programs for residential customers. These EE programs include intense weatherization measures for buildings and homes such as air-sealing and maximized insulation that reduce customer heating needs.

C&I Customers. Under the enhanced C&I customer program, National Grid took steps to increase the payments offered to C&I customers in order to get them to participate in EE. The incentive level was increased by \$1.00/therm for installations to be completed by March 31, 2020, as well as for installations to be completed by September 30, 2020, all subject to a limit that the incentive be not more than 50% of the total project cost. As of May 15, 2020, there were 81 participants in the C&I enhanced EE program.

Residential Customers. For residential customers, the EE programs included a heating initiative which offers incentives for replacing natural gas heating equipment with high efficiency equipment such as hot water boilers, furnaces and water heaters as well as a marketplace bundles program which aggregated a variety of products from the National Grid "Marketplace," an online store that facilitates the purchase of energy-saving products (e.g., thermostats, low-flow shower heads) and services while offering instant rebates at the point of sale for certain products.

The residential heating EE initiative was launched on the National Grid and vendor websites on November 15, 2019, and consumer marketing started in early December 2019.

Customers began taking advantage of the enhanced incentive by December 6, 2019 and the initiative continued to grow through March 2020. As of May 15, 2020, National Grid customers had purchased over 1,800 pieces of energy efficiency equipment through the residential heating programs.

Of the EE product bundles offered in the Marketplace, National Grid increased by \$25 its incentive for energy saving thermostats that can be operated remotely (i.e., wi-fi thermostats) and it increased by \$5 its discount for water saving measures such as energy efficient shower heads or faucet aerators. Manufacturers have also offered additional discounts on Marketplace products. As of May 15, 2020, National Grid customers had purchased over 9,600 energy efficient products through the marketplace bundles program.

#### B. Enhanced DR

The enhanced DR program focuses on load (demand) shedding to reduce the amount of gas needed over a 24-hour period. As described below, this program seeks to eliminate gas load altogether for a period of time, and thereby contrasts with the existing DR program which only shifts load away from peak hours.

The enhanced C&I program involves 6-hour events during which participating customers would switch to back-up fuel, change their process, or disable gas-fired equipment. For residential customers, National Grid offered a behavioral (no-incentive) residential and small-medium business (“residential/SMB”) program whereby National Grid would send email messages to customers prior to days forecasted for cold weather, alert them that the system would be experiencing high levels of use, and provide tips on how they could manage (reduce) their energy use. National Grid also offered a residential bring-your-own-thermostat (“BYOT”) program, whereby customers who had wi-fi thermostats connected to a gas heating system could allow National Grid to turn down the temperature set point by 4 degrees for a 4-hour period in the morning or afternoon.

C&I Customers. Under the expanded DR program for C&I customers, DR events will be called when the temperature is forecasted to be at or below 10° F. For each event, participating customers receive an incentive based on the reduction in usage they produce during the peak hours of the gas system (4 AM to 10 AM) that results in a reduction in total gas consumption, relative to their expected baseline over the course of a day.<sup>5</sup> National Grid initially targeted a reduction of 1,500 Dth per event with an estimated \$1.75 million budget. The targets were increased to a reduction of 3,000 Dth per event with a \$3.6 million budget. Due to the relatively mild winter, the temperature did not reach the level required to call an event. National Grid called a test event on January 22, 2020 and had an overall customer compliance of approximately

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<sup>5</sup> Were National Grid to trigger the program at a temperature higher than 10° F, then one would expect more frequent employment of this program in a given winter and, as a further result, more Dth savings, unless fewer customers would decide to sign on because they do not want to commit to participate in the requisite number of potential events in a winter.

94%. The total consumption during the period was 229 Dth as compared to predicted usage of 4,632 Dth by those same customers if an event had not been called.

Residential Customers. National Grid called a test event for the non-incentivized residential/SMB program on February 19, 2020. National Grid sent email messages on February 18 to 443,547 customers asking them to turn back their thermostats on the morning of February 19. Although 134,580 of those customers opened their emails, National Grid was unable to determine an amount of load reduction from the event.

Under the BYOT program, customers are encouraged to allow National Grid to reduce their thermostat settings on peak days. The BYOT program was launched on February 26, 2020 and marketing by thermostat vendors started on February 28. National Grid estimated the total number of potential participants at 15,000 on Long Island and set a target of 2,500 participants. Due to Covid-19, National Grid decided not to call a test event for the BYOT program.

The Monitor will continue to review National Grid's progress and results for its enhanced EE and DR efforts for winter 2019/2020 as well as the upcoming winter 2020/2021.

### **III. Gas Planning and Forecasting**

As described in the Monitor's First Quarterly Report (at 15-16), several internal groups hold responsibility at National Grid for the forecasting of gas demand and supply capacity. The Monitor recommended in that Report that National Grid pursue reviews -- with the help of outside management consultants -- of how best to structure related roles and responsibilities. Evidence obtained since that Report reveals that National Grid, prior to the Settlement, had identified this significant organizational issue as constituting a "problem,"<sup>6</sup> but internal efforts to address it had been suspended and only resumed after being independently raised by the Monitor in the Report.

In April 2020, National Grid retained Ernst & Young to assist with reviewing "the Company's business processes, roles and responsibilities, decision-making, and accountability related to the development of natural gas demand scenarios and the identification and selection of options to meet demand." According to National Grid, this project "will analyze the existing operating model, including the interactions of the demand forecasting, energy procurement, network engineering, and demand-side customer energy management groups, with the goal of aligning accountabilities, clarifying decision-making rights, and streamlining end-to-end processes and controls." National Grid estimates that the project will be completed in June 2020.

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<sup>6</sup> To this point, an internal presentation in November 2019 describes the gas model/process as "convoluted" and lacking clear executive accountability "for the assumptions/scenarios and the numbers," e.g., "Demand: 'given the inputs and our model, here is the forecast' ... but nobody asked me to run a scenario on deeper conservation programs and other more forward-looking?" As recommended in the Monitor's First Quarterly Report, the structure, processes and tools used in gas planning efforts at National Grid need to be reviewed and strengthened in key respects.

National Grid's ongoing struggle to obtain clarity, accountability and excellence in this area can have significant consequences, as detailed previously in the First Quarterly Report. While National Grid's historical demand forecasts looking one year forward have proven correct within a 2% margin of error (see LT Report at 10; Supplemental LT Report at 39), these forecasts generally are based on an econometric model that projects forward based on historical demand trends, and therefore require out-of-model adjustments to be incorporated for new variables anticipated in the future. Thus, National Grid's executives have greater difficulty incorporating into their analysis newer and important options such as enhanced EE and DR programs or other conservation measures, which has caused National Grid to utilize for the first time its "High Demand" and "Low Demand" range (see fn. 3 above). Viewed in the context of this more complex and dynamic environment, National Grid's forecasting approach represents a "conservative forecast methodology," as recognized by National Grid's Gas Planning and Forecasting Board as recently as February 2020. As described there, "[f]or everything we want to add to the forecast (ex. EE), we are adding uncertainty."

In a proactive effort to resolve such matters across the gas utility industry in New York State, on March 19, 2020, the PSC launched a proceeding in Case 20-G-0131 (the "PSC Proceeding") that will review gas planning processes at the utilities and ultimately produce proposals to modernize the system. In this way, many of the same issues and considerations under review and development at National Grid in connection with the Settlement will fold into the PSC's broader analysis of the industry.

#### **IV. The LT Report and the Supplemental LT Report**

As reflected in the Monitor's First and Second Quarterly Reports, as well as conveyed to National Grid in correspondence and oral conversations, a central obligation under the Settlement (at ¶ IV.a.) requires National Grid to "present and analyze comprehensively and clearly all reasonably available options for meeting long-term demand." The Monitor has repeatedly urged National Grid to ensure that these options are stated to the public clearly as to their respective feasibility, cost and risk/benefit choices, and the timeline and efforts required to pursue them. The importance of the issues at hand demand such transparency and rigor, particularly in the context that National Grid's prior reliance on the potential construction of NESE to meet future demand led to National Grid's improvident moratorium in 2018 and 2019 and, in November 2019, prompted Governor Cuomo to state his intention to revoke National Grid's certificate to operate in the Service Territory. National Grid must avoid its mistakes of the past and ensure that alternative options are fully explored for closing the forecasted gap between demand and supply capacity in a manner that best serves the public interest.<sup>7</sup>

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<sup>7</sup> Since the discussion in the First Quarterly Report (at 3-6) regarding the events leading to the moratorium, the Monitor obtained additional evidence illustrating National Grid's blunt and narrow approach to meeting future gas demand and implementing the moratorium. Following the denial of the WQC application for NESE in May 2019, for example, the minutes of an internal meeting in July 2019 regarding long-term supply matters included the stark agenda item: "Future without NESE and perpetual moratium [sic]?" As subsequent events have demonstrated, institution of the moratorium could have been avoided and, as to future planning, several options exist beyond NESE to address future demand and avert a moratorium.

Set out below are several observations intended to assist in evaluating the Supplemental LT Report and National Grid's analysis of the alternative options. Consistent with the Protocol Agreement between National Grid and DPS, this discussion is not intended to provide a separate examination of those options or to offer a recommendation as to any options. However, the matters below have been raised repeatedly -- by some combination of the public, DPS, National Grid and the Monitor -- and the Monitor's independent assessment of these topics follows. While this Third Quarterly Report identifies limitations in the Supplemental LT Report, the Supplemental LT Report does expand meaningfully upon the LT Report and, as noted, no findings are made at this time regarding National Grid's compliance with Settlement ¶ IV.a.

#### A. LNG Vaporizers 13 and 14

The LT Report identified ten options for meeting long-term demand, and the Supplemental LT Report (at 50-53) now adds a further option of "LNG Vaporization," i.e., the installation of vaporizers 13 and 14 at its existing LNG facility in Greenpoint, Brooklyn. According to the Supplemental LT Report (at 10), this option "could increase supply by 60 MDth/day and be available by November 30, 2021, with a construction cost of \$59M." Previously, submissions by National Grid to the PSC in December 2019 expressed a need to construct vaporizers 13 and 14 by fiscal year 2023, and internal documents from National Grid reflect that planning for the construction had commenced at least as early as December 2019. In late April 2020, National Grid issued construction notification letters to the PSC, and National Grid also has undertaken various process safety-related steps, such as completing a "process hazard analysis." Although the project has been moving forward, National Grid does not explain in the Supplemental LT Report why LNG Vaporization had not been included as an option or otherwise incorporated in the LT Report issued on February 24, 2020 (and, if included, available for public feedback during the comment period and at the public meetings).<sup>8</sup> Like CNG trucking described previously in the Monitor's First Quarterly Report (at 16-17), utilization of LNG Vaporization is contemplated only for Design Day events and other peak days as needed.

In the Supplemental LT Report, National Grid makes two alternative recommendations to address long-term demand under the Settlement ¶ IV. First, National Grid proposes the construction of both (a) LNG Vaporization and (b) the ExC project, combined with incremental EE, DR and electrification. As discussed above, plans for LNG Vaporization and the ExC project had been underway prior to the LT Report, and their continued pursuit has not depended upon National Grid and New York State reaching an agreement to select them as part of a long-term solution under Settlement ¶ IV. Second, National Grid identifies NESE as a potential solution, which is consistent with National Grid's position pre-dating the Settlement.

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<sup>8</sup> Similarly, efforts have long been underway for the construction of the Iroquois Enhancement by Compression ("ExC") option identified in the LT Report and the Supplemental LT Report. National Grid entered into a confidentiality agreement concerning ExC in June 2019 with Iroquois Gas Transmission System, L.P. ("Iroquois"), and National Grid and Iroquois executed a binding precedent agreement in July 2019 concerning additional transportation service on capacity created by the ExC project. In December 2019, National Grid and Iroquois further executed a contract for firm reserved transportation service. In addition, Iroquois filed a formal application for the ExC project with FERC in January 2020, and FERC has begun to process the application.

## B. Potential Future Moratoria

As reviewed in the First Quarterly Report, National Grid previously instituted the moratorium based upon its projection that supply capacity could not meet future demand in the absence of NESE. As a result of steps taken by Governor Cuomo and the PSC to challenge National Grid's conduct, National Grid entered the Settlement with New York State, identified "new developments" allowing it to lift the moratorium and, among other obligations undertaken pursuant to the Settlement, proceeded to explore resolving the forecasted demand/supply gap through alternative measures rather than simply implementing another moratorium.

As laid out by National Grid in the LT Report and the Supplemental LT Report, several of the options identified by National Grid for closing the demand/supply gap contemplate a potential moratorium at some future date under National Grid's analysis should efforts toward implementing incremental EE, DR and electrification fall short of targets. In terms of delivering greater reliability and best reducing the risk of a future moratorium, National Grid therefore ranks highly an infrastructure option like NESE. Punctuating this point, the Supplemental LT Report (at 65) shows NESE as not requiring any incremental EE, DR and electrification in order to meet future demand in either a "High Demand" or "Low Demand" scenario, unlike each of the other options it identifies.<sup>9</sup> Rather than reflecting a positive attribute, however, one could view the absence of an investment in incremental EE, DR and electrification accompanying the NESE option to clash with public policy goals under the Climate Leadership and Community Protection Act ("CLCPA") and other relevant laws. Indeed, National Grid acknowledges (Supplemental LT Report at 75) that continued gas use is consistent with the CLCPA "**provided that it is coupled with energy efficiency and dramatic reductions in fuel oil utilization**" (bold in original), but National Grid makes no such provision in its NESE option and, unlike every other option National Grid identifies, includes no incremental investment in any of EE, DR or electrification in its NESE proposal (Supplemental LT Report at 76-78).

As reviewed further below, a key contrast painted by National Grid between infrastructure, distributed infrastructure, and the No-Infrastructure Options arises in some material part from National Grid's limited ability to forecast the extent to which efforts under the No-Infrastructure Options can be pursued successfully. Indeed, the very Design Day framework posed by National Grid with its "High Demand" and "Low Demand" scenarios -- grounded in National Grid's difficulty in modelling the future success of no-infrastructure efforts -- raises questions: What value does the "Low Demand" scenario hold for future planning if a "High Demand" scenario could potentially arise? If the "Low Demand" scenario were used for future planning but a "High Demand" reality later occurred, would National Grid seek to impose a moratorium? Given the limited risk metrics produced by National Grid (as discussed below), and its limited ability to incorporate demand-side solutions in its forecasting methods and assumptions, National Grid's two alternate "demand" forecast scenarios leave open a broad

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<sup>9</sup> As to National Grid's alternative recommendation to NESE -- LNG Vaporization and ExC with incremental no-infrastructure efforts -- the Supplemental LT Report indicates (at 65, 86 and 102) that no incremental electrification is contemplated but only EE and DR. Were incremental electrification also pursued, then this option might be more achievable to address any gap between future demand and supply capacity and better align with public policy.



swath of possibilities regarding its forecasted future gap between gas demand and supply capacity. Epitomizing the conundrum, the Supplemental LT Report (at 12-13) provides distinct cost estimates premised on either a “High Demand” or “Low Demand” scenario, generating vastly different results. NESE (which, as noted above, National Grid describes without any accompanying incremental no-infrastructure efforts) costs approximately \$900 million less than the No-Infrastructure Options in the “High Demand” scenario, but costs approximately \$300 million more than the No-Infrastructure Options in the “Low Demand” scenario.

National Grid sets out in the Supplemental LT Report (at 17, 79-83) a “risk” assessment that reveals the number of customer restrictions (i.e., a moratorium) that could result from multiple scenarios, which scenarios posit how alternative long-term options would deliver varying amounts of supply capacity to meet forecasted demand. Most of these scenarios show thousands upon thousands of new or existing customers being denied service should an option not achieve targets or be delayed or disrupted. National Grid recognizes the premise that a future moratorium should be avoided, which National Grid failed to consider and address with requisite care when it imposed a moratorium in 2018 and 2019.<sup>10</sup> In this regard, the Monitor makes two observations regarding National Grid’s risk assessment.

First, National Grid’s analysis does not encompass factors typically addressed in a risk assessment. For example, National Grid focuses on the raw numbers of customers who might be subject to a supply restriction, without any corresponding calculation of the likelihood that such harm may occur depending on whether an infrastructure option, a distributed infrastructure option, a No-Infrastructure Option, or some combination of them is pursued. In addition, by simply providing the number of customers subject to restriction, National Grid does not evaluate and explain the actual impact that might result. Depending on the kind of moratorium, for example, some restrictions might be imposed upon existing customers and some only on new customers, some only upon customers of a certain kind (i.e., residential or commercial), some only for a limited time period, some only upon customers in certain geographic subregions of the Service Territory, etc.

Recognizing the importance and nuance of procedures around potential moratoria, the PSC Proceeding intends to address the specific standards for imposing a moratorium, the ability to impose a moratorium in a manner that recognizes alternatives to an “all-or-nothing” effort, and planning for the lifting of a moratorium if and when one is instituted. In contrast, National Grid’s analysis lists bare figures of possible customers that might be subject to a moratorium.

Second, National Grid’s analysis conveys a perspective of the potential impact of a moratorium at only a high level when considering alternative supply options. At one extreme,

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<sup>10</sup> The Supplemental LT Report (at 32) cites to a survey it conducted which purports to show the unsurprising view that the public wishes to avoid a future moratorium. The survey also concludes that NESE is the public’s preferred option, which appears to be inconsistent with the views expressed by persons submitting comments to the PSC (compare Supplemental LT Report at 33 with 25-26, 29-30). In any case, the survey merits little weight given that: (1) the number of survey participants is dwarfed by others holding opinions (e.g., 200 survey submissions versus more than 7,500 submissions to the PSC and more than 800 people attending the public meetings); (2) no combinations of options were offered in the survey; and (3) the LNG Vaporization option was omitted.

National Grid describes how implementing the NESE option allows for an increase of supply capacity by 400 MDth in the Service Territory at a total cost of approximately \$2.29 billion in the “High Demand” scenario (Supplemental LT Report at 56), without requiring any benefits from incremental no-infrastructure efforts, and effectively eliminates the risk of a moratorium during any year through 2035. On the other end of the spectrum, pursuit of a comparable amount of supply capacity through the No-Infrastructure Options, according to the Supplemental LT Report (at 62), could cost a total of \$3.54 billion in a “High Demand” scenario, and a moratorium would remain possible given uncertainties regarding the ability to achieve targeted incremental EE, DR or electrification goals.<sup>11</sup>

Based on forecast figures provided by National Grid to the Monitor, several more middle-ground approaches -- involving the combination of distributed infrastructure options identified by National Grid and incremental EE, DR and electrification from the No-Infrastructure Options -- indicate possible opportunities to move forward that are less stark than simply choosing between NESE or the No-Infrastructure Options. Looking more closely at National Grid’s recommendation of implementing LNG Vaporization and the ExC project, combined with incremental EE, DR and electrification, for example, were these two distributed infrastructure options combined with the full portfolio of No-Infrastructure Options (albeit at a higher cost), National Grid’s data shows that no moratorium will take place through 2035 as long as at least 70% of targets are met for the No-Infrastructure Options -- even in the more exacting “High Demand” scenario. A similar analysis can be conducted when combining the ExC and Clove Lakes options with the full portfolio of No-Infrastructure Options. For that combination of solutions, National Grid’s forecast data reveals that no moratorium will take place through 2035 as long as approximately 60% of targets are met for the No-Infrastructure Options in the “High Demand” scenario. Of course, the targets would be more easily achieved were the less stressful “Low Demand” scenario to occur.

### C. Design Day Suitability

As discussed in both the First and Second Quarterly Reports, National Grid’s analysis turns on a Design Day standard, i.e., National Grid measures its demand and designs its supply plan in order to provide gas in the Service Territory during a 24-hour period with an average temperature of 0° F in Central Park. The last Design Day was in 1934, and many public comments to the LT Report have questioned the suitability of this standard today.<sup>12</sup> To illustrate the point, National Grid has determined that the 24-hour period with the coldest average

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<sup>11</sup> In the Supplemental LT Report, National Grid reduced to 375 MDth (from 400 MDth in the LT Report) the amount of supply that it projects the No-Infrastructure Options might be required to achieve -- i.e., a level just large enough to close the gap between supply and demand under National Grid’s revised “High Demand” forecast. As a general matter, the Supplemental LT Report thereby makes the targets for the No-Infrastructure Options relatively more achievable than previously presented in the LT Report.

<sup>12</sup> The Monitor has determined that National Grid, even prior to the Settlement, had separately recognized that the occurrence of its Design Day standard in the Service Territory was “much less frequent” than the standard applied by it in Massachusetts and in Rhode Island, and began to consider proposing an adjustment to it.

temperature in Central Park over the last 30 years was approximately 4° F and took place in 1994.

In the Supplemental LT Report (at 38-40), National Grid suggests that, if the Design Day standard is adjusted -- for example, to utilize the 30-year standard above of 4° F -- two features should be included in the analysis which to date have been absent. First, National Grid takes into account hourly weather data for LaGuardia Airport, tries to calculate the probability of a 1-in-30-year weather event, and concludes that a 3° F Design Day standard might be more appropriate than 4° F in the Service Territory. Second, because this approach increases the risk of a Design Day actually occurring (i.e., a 1-in-30-year event will be more frequent than the existing Design Day standard last met in 1934), National Grid adds a 2% contingency (a) for potential error in forecasting demand and supply capacity and (b) to address a Design Hour (when gas needs are greatest during a Design Day); no such margin of error is used by National Grid today with the Design Day standard. Having made the two adjustments above to its analysis -- which effectively change the way Design Day has been defined in fundamental ways -- National Grid concludes that changing the Design Day standard from 0° F to 3° F or 4° F would have no material impact on its long-term planning under the current Design Day standard and effectively ends its discussion there.

National Grid suggests that the Design Day standard may best be reconsidered later in the context of the PSC Proceeding. Revisiting the Design Day standard in the Service Territory might well be addressed in the PSC Proceeding along with DPS and other utilities including Consolidated Edison Company of New York, Inc. (“ConEdison”), which uses the same Design Day standard for gas service it provides near the Service Territory. Nonetheless, National Grid offers no substantive analysis in the Supplemental LT Report of how raising the Design Day standard (even at a later date) might change its presentation of the respective merits of the several long-term options presented. The Monitor has obtained relevant data from National Grid and, at a summary level, provides below several observations.

Utilizing data provided by National Grid to the Monitor, one can roughly recalculate National Grid’s analysis of the possibility of a potential moratorium in the future under various planning options if the Design Day standard is adjusted. Were the Design Day standard increased from 0° F to 4° F, for example, then according to National Grid’s data for a “High Demand” scenario, no moratorium will take place through 2035 if the LNG Vaporization and ExC options are pursued together with the No-Infrastructure Options, even if only some 20% of the targets are met for the No-Infrastructure Options (75 MDth of the 375 MDth potential identified in the Supplemental LT Report). At the 20% level of achieving the No-Infrastructure Options, the combined cost of LNG Vaporization, ExC and the No-Infrastructure Options totals less than the cost of NESE according to National Grid’s data.<sup>13</sup> Were Design Day adjusted only

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<sup>13</sup> National Grid states that ExC costs \$0.43 billion, LNG Vaporization costs \$0.23 billion, and that the full set of No-Infrastructure Options costs up to \$3.54 billion (20% of which is \$0.71 billion). See LT Report at 73 (the total cost of ExC was calculated by adding National Grid’s share of the capital cost (\$136 million) to the annual demand charge (\$24.7 million) over 12 years (from in-service date of 2023 to 2035)); Supp. LT Report at 11 (the total cost of LNG Vaporization was calculated by adding the capital cost (\$59 million) to the estimated annual costs of \$12

to 3° F, similar results would be obtained in that the No-Infrastructure Options need only achieve 40% of the target (150 MDth) in order to avoid a moratorium, and the cost again would be less than NESE. These results obviously would be lower, more attainable and even less costly than NESE in a “Low Demand” scenario.

As another example, if the ExC and Clove Lakes options were pursued together with the No-Infrastructure Options in a “High Demand” scenario and the Design Day Standard increased to 4° F, no moratorium would take place through 2035 even if only 20% of the targets were met for the No-Infrastructure Options (75 MDth). At the 20% level, the combined cost of ExC, Clove Lakes and the No-Infrastructure Options totals less than the cost of NESE according to National Grid’s data.<sup>14</sup> And were Design Day adjusted only to 3° F with this combination, in a “High Demand” scenario the No-Infrastructure Options need only achieve about 30% of the target (113 MDth) in order to avoid a moratorium, and the cost would be approximately the same as NESE.

Furthermore, under a 4° F or 3° F Design Day standard, National Grid’s data indicates that it could avoid a moratorium with these less expensive options in a “High Demand” scenario even if it experienced a 2% supply disruption. For instance, with a 4° F Design Day, if National Grid pursued LNG Vaporization, ExC and the No-Infrastructure Options and there were a 2% supply disruption, no moratorium is predicted if only 40% of the targets for the No-Infrastructure Options were achieved (150 MDth). A moratorium also is avoided under a 3° F Design Day standard if only 50% of the targets were achieved (188 MDth). Similarly, if ExC, Clove Lakes and the No-Infrastructure Options were pursued, no moratorium would be necessary in the event of a 2% supply disruption if 40% (150 MDth) or 50% (188 MDth) of the target was achieved under 4° F and 3° F Design Days, respectively.<sup>15</sup>

In addition, were the Design Day standard in the Service Territory changed, this also would result in revisions to the forecasted demand outside the Service Territory for Con Edison which utilizes some of the same pipelines and supply resources as National Grid. Accordingly, if Con Edison’s need for supply capacity were reduced, some of its excess capacity resources could become available for National Grid to meet its customer demand in the Service Territory.

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million over 14 years (from in-service date of 2021 to 2035)); Supp. LT Report at 62 (the total cost of the No-Infrastructure Options in a high demand scenario is \$3.54 billion). While the cost of whatever alternative(s) is chosen will fall in part to customers in the Service Territory, notably the No-Infrastructure Options include the delivery of potential home improvement benefits to customers (e.g., weatherproofing, heat pumps), in contrast to implementing infrastructure and distributed infrastructure options.

<sup>14</sup> According to National Grid, Clove Lakes costs \$0.80 billion, and 20% of the cost of the No-Infrastructure Options is \$0.71 billion. See LT Report at 69 (the total cost of Clove Lakes was calculated by adding the capital cost (\$320 million) to the annual demand charge (\$48 million) over 10 years (from in-service date of 2025 to 2035)).

<sup>15</sup> One can extrapolate even further with National Grid’s forecast data, in that the No-Infrastructure Options -- when combined with only one of LNG Vaporization, ExC, or Clove Lakes in a “High Demand” scenario -- would not result in a moratorium as long as approximately 50% of the targets are achieved, were Design Day shifted to 4° F or 3° F. If there were a 2% supply disruption, no moratorium would result with these combinations as long as approximately 70% of the targets are achieved, were Design Day shifted to 4° F or 3° F.

#### D. Economic Disruption from Covid-19

Another factor raised repeatedly by the public in response to the LT Report concerns the impact upon National Grid's demand forecast from economic disruption caused by Covid-19. In the Supplemental LT Report (at 41-44), National Grid describes its preliminary analysis of the impact upon demand of Covid-19 (as well as the impact of several sources of newly identified supply capacity) as materially reducing the gap between its forecasted demand and supply capacity. As compared to the LT Report's estimate of 2021/2022, for example, the Supplemental LT Report (at 9-10) does not predict demand to exceed supply until the Winter of 2022/2023.

While the Supplemental LT Report (at 87) describes NESE as the "preferred choice" if "heavier emphasis" is placed on deliverability and reliability factors, the reduced demand resulting from Covid-19 (as well as the additional supply capacity newly found by National Grid) may allow more time and greater flexibility for National Grid and its customers potentially to implement a combination of certain distributed infrastructure options and the No-Infrastructure Options.

#### E. CNG Trucking as an Element of a Long-Term Solution

As explained in the First Quarterly Report (at 16-17), the Action Plan relies heavily on CNG trucking as a source of peaking supply on potential Design Days. This solution requires CNG to be trucked from Pennsylvania to National Grid facilities in Glenwood and Riverhead, New York, and to a third CNG site that will be built for Winter 2020/2021. Beyond the Action Plan, National Grid intends to rely on CNG trucking in the long term and potentially will build a fourth CNG facility to meet peak demand. As reiterated by National Grid in the Supplemental LT Report (at 11-12), "[f]or the Distributed Infrastructure and No Infrastructure options [in contrast to NESE], we are assuming that CNG will continue through 2035 and will be included in the Supply stack as it currently stands." Yet CNG trucking raises risk, cost and reliability questions, and as described in the First Quarterly Report, "[e]ngineering executives at National Grid in particular voiced concern about the dependability and large-scale reliance upon CNG for meeting Design Day needs over the long term."

Given National Grid's suggestion that the Design Day standard may be revisited as part of the PSC Proceeding, and taking into account concern by National Grid about extended use of CNG trucking, one can make preliminary observations regarding the necessity of CNG trucking if Design Day were adjusted. If the Design Day standard were changed to 4° F or 3° F, National Grid could reduce or eliminate its reliance on CNG trucking as part of a long-term peak supply solution based upon its data.<sup>16</sup>

For example, if National Grid pursued LNG Vaporization, ExC and the No-Infrastructure Options, it could avoid a moratorium and eliminate CNG trucking in a "High Demand" scenario

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<sup>16</sup> These observations are made generally regarding the Service Territory overall and do not address particular system constraints that could require CNG trucking to provide peaking supply at certain locations.

if only 40% of the targets for the No-Infrastructure Options were met when applying a 4° F Design Day, and the same would be true if only 50% of the targets were met with a 3° F Design Day. Even if a 2% supply disruption occurred, CNG trucking still could be eliminated if approximately 50% of the targets for the No-Infrastructure Options were met with a 4° F Design Day, or as long as 70% of the targets were met with a 3° F Design Day.

Similarly, if the ExC and Clove Lakes options were pursued together with the No-Infrastructure Options, and the Design Day standard were changed to 4° F, National Grid could both avoid a moratorium and eliminate CNG trucking if approximately 30% of the targets were met for the No-Infrastructure Options in a “High Demand” scenario. Applying a 3° F Design Day, National Grid likewise could avoid a moratorium and eliminate CNG trucking by meeting only 50% of the targets for the No-Infrastructure Options. And if a 2% supply disruption occurred, CNG trucking still could be eliminated as long as 50% of the targets for the No-Infrastructure Options were met with a 4° F Design Day, or as long as 60% of the targets were met with a 3° F Design Day.

Thus, changing the Design Day standard would still allow for a very large margin of error in implementing the No-Infrastructure Options without resulting in a moratorium, even when removing CNG trucking as a peaking supply source and thereby eliminating related costs and reliability risks.