Christopher Raup
Vice President, Energy Policy & Regulatory Affairs

July 1, 2022

VIA ELECTRONIC MAIL
Doreen Harris
President and Chief Executive Officer
New York State Energy Research and Development Authority
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Basil Seggos
Commissioner
New York State Department of Environmental Conservation
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Sarah Osgood
Executive Director
Climate Action Council
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RE: Con Edison and Orange & Rockland Comments on the Climate Action Council's Draft Scoping Plan

Dear President Harris, Commissioner Seggos, and Executive Director Osgood:

On behalf of Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc., please see enclosed our overall comments on the draft Scoping Plan, and also appending specific position papers on our steam system, the important role that customers play in the clean energy transition, and the need to endorse grid planning and investments to support transportation electrification.

Sincerely,

/s/ *Christopher Raup*

Christopher Raup
Vice President, Energy Policy & Regulatory Affairs

cc: Climate Action Council members

Con Edison and O&R Comments on the Climate Action Council's Draft Scoping Plan

Introduction

Consolidated Edison Company of New York, Inc. ("Con Edison") and Orange and Rockland Utilities, Inc. ("O&R"; collectively, "the Companies") provide these comments on the draft Scoping Plan issued by New York State Climate Action Council ("Council") on December 30, 2021. Our goal in commenting is to assist the Council in issuing a final Scoping Plan that is practical, implementable, and supports the continued reliability of energy service in the State. Our feedback is based on our deep understanding of our customers' energy needs, our knowledge of the challenges of providing a necessary public service around-the-clock, and our experience building both conventional and renewable energy infrastructure in our region. The Companies include recommendations in these comments for consideration by the Climate Action Council as it moves to finalize the Scoping Plan. Some of recommendations directly support the Council's own recommendations.

The Companies enthusiastically support the goals of the Climate Leadership and Community Protection Act ("the Climate Act" or "CLCPA"). We believe that our commitment to providing clean, safe, reliable and cost-effective service to our customers and to advancing clean energy will be strengthened with successful implementation.

The Companies are also participating in joint comments with other utilities in the State, known as the Utility Consultation Group ("UCG"). The UCG was formed in December 2020 to provide utility expertise to the Climate Action Council and be a resource for its Advisory Panels. The participating utilities are: Consolidated Edison Company of New York, Inc.; Central Hudson Gas and Electric, Inc., The Municipal Electric Utilities Association of New York State; National Fuel Gas Distribution Corporation; National Grid; New York State Electric and Gas, Inc.; Orange and Rockland Utilities, Inc.; and Rochester Gas and Electric, Inc. UCG comments, along with several position papers on critical topics related to the draft Scoping Plan, represent the expertise and views of the State's major electric and gas utilities.[1]

About Con Edison, O&R and the Customers We Serve

The Companies are providers of electric, natural gas and steam service in the New York metropolitan region. We have served the New York metro region for almost 200 years, currently providing service to about 9 million residents in our distribution area. This includes electric service to the five boroughs of New York City, and the Counties of Westchester, Rockland, Orange and Sullivan. We provide gas service in Manhattan, the Bronx, portions of Queens, and the Counties of Westchester, Rockland, and Orange. Our steam business serves about 1,600 customers in Manhattan and is the largest steam distribution business in the Western Hemisphere.

[1] UCG comments are being submitted to the Climate Action Council and can also be accessed at this website: https://jointutilitiesofny.org/ucg_clcpa

Our core focus is on the safety and reliability of our delivery services. Our electric system provides world-class reliability—approximately eight times more reliable than the New York State and national average. The Companies have a risk-based approach to investing in the reliability of the electric grid, identifying every year the portions of our system with lower reliability levels and making investments to enhance reliability in those areas. We are also augmenting our current practices to address the impacts of climate change on our system, including the potential for more intense and frequent storms and higher average temperatures. We currently replace more than 100 miles of leak-prone pipe every year, investments that both increase public safety and avoid emissions of methane, a potent greenhouse gas. Our focus on reliability and safety is enhanced through home-grown innovation. For example, the Companies have installed thousands of remotely monitored methane detectors to alert our gas control center of leaks inside homes or businesses, using our smart meter communications system to collect those alerts—a first-in-the-nation approach to enhancing the safety of our gas system.

The Climate Act and our Clean Energy Commitment

We support achievement of the goals of the Climate Act, including the emissions reduction targets and the requirement to deliver benefits to disadvantaged communities. Our Clean Energy Commitment is our pledge to transform our business and meet the State's goals.[2] The Clean Energy Commitment has five pillars:

- Building an electric grid to meet the growing demand for clean energy;
- Empowering customers to adopt energy efficiency, electric vehicles and heat pumps;
- Substantially lowering the gas systems' greenhouse gas impact;
- Reaching net zero GHG at our own facilities by 2040; and
- Partnering with stakeholders to achieve this transformation.

Reliability and the Climate Act

The draft Scoping Plan's focus on energy reliability is essential and required by the CLPCA.[3] Electrification of heating and transportation, key strategies that play a role in all the scenarios in the draft Scoping Plan to achieve the Climate Act's emissions targets, will likely make electric system reliability even more critical than it is today. Fortunately, the State already has robust processes and institutions that it can rely on to examine reliability throughout the clean energy transition. In addition to electric and gas utilities, the New York Independent System Operator ("NYISO") and the New York State Reliability Council ("NYSRC") monitor bulk power system reliability trends and update reliability requirements to adjust to current conditions. The New

[2] Additional detail on the Companies' Clean Energy Commitment can be accessed at this website: https://www.coned.com/en/our-energy-future/our-energy-vision/our-energy-future-commitment

[3] Public Service Law §66-p.

York State Public Service Commission ("PSC") also works closely with NYISO, NYSRC, and the State's utilities to monitor reliability performance.

New entities are now joining the discussion of energy system reliability, including the New York State Department of Environmental Conservation ("DEC") and stakeholders supporting the ambitious changes to the bulk power system's resource mix needed to achieve Climate Act emissions targets. All of these voices must work in concert to achieve an orderly and comprehensive clean energy transition. "Facility by facility" decisions on licensing and permits will be inefficient and could have the unintended consequence of negatively impacting overall system reliability. As noted by the Council, a template for future action is the recent DEC regulation (6 NYCRR Subpart 227-3) updating NOx rules for peaker electric generators and the steps that occurred to support reliability while achieving the rules' goals. This included local and bulk power analysis of the impact of the rule on reliability by both the NYISO and Con Edison, out of which developed plans for transmission additions needed to help facilitate the retirement of those units. Con Edison proposed these additions, the Reliable Clean City Projects, to the PSC, which then authorized Con Edison to build them. The first of these projects is already under construction and is anticipated to enter operations in a timely fashion. These proactive planning steps will help facilitate compliance with the peaker rule while maintaining system reliability.

Going forward, the State should continue to sequence actions so clean resources are integrated with existing supply resources in a way that does not negatively impact reliability, in order to promote an orderly transition. The timing and sequencing of both additions and subtractions from the generation portfolio mix is critical. The State should also consider potential load growth resulting from electrification. Importantly, the draft Scoping Plan itself recommends a more holistic, coordinated approach to the retirement of conventional generation, modeled on the process described above to implement the 'DEC Peaker Rule'.[4] Additionally, a recent PSC order noted that Department of Public Service Staff ("DPS Staff"), the New York State Energy Research and Development Authority ("NYSERDA") and the DEC were developing a blueprint for the retirement of the oldest and most polluting fossil-fueled generators.[5] The State should expeditiously implement its recommendation to have a reliability planning process for the CLCPA that includes electric utilities and the NYISO that would develop a blueprint for the timing and sequencing of the retirement of older peaking generation facilities. The State should also consider a 'build in advance' approach for infrastructure needed both to help enable the reliable retirement of existing fossil generation, as well as to prepare for electrification. Building

[4] *New York State Climate Action Council Draft Scoping Plan*, issued by the Climate Action Council on December 30, 2021; pp. 156-157.

[5] Case 15-E-0302, *Proceeding On Motion Of The Commission To Implement A Large-Scale Renewable Program And Clean Energy Standard*, Order Approving Contracts for The Purchase of Tier 4 Renewable Energy Certificates (issued on April 14, 2022), p. 80.

in advance will help provide flexibility in the event aging units fail, and help utilities more agilely meet future demand.

Recommendation: Electric utilities and the NYISO should be included in the development of the blueprint for the timing and sequencing of the retirement of older peaking generation facilities. Any such blueprint or framework should also consider the timing and uncertainty surrounding the development of new renewable resources and renewable generation facilities.

Numerous studies, including the draft Scoping Plan's integration analysis and the NYISO's Grid in Transition study, have concluded that there is a significant need for non-emitting, dispatchable, long duration energy resources. This type of resource could address situations where the State's future renewable generation portfolio experiences extended periods of low output, due to a lack of 'input fuel' (i.e., extended periods where there is low availability of sunshine and wind). The State recently experienced one such multi-day period in January 2022, and it is like to reoccur in the future. Unfortunately, non-emitting, dispatchable long duration energy resources like this are not yet readily available. Due to the key role these resources will play in supporting overall electric system reliability, the State should consider more coordinated actions to advance this critical resource type. The US DOE through its national laboratories and utilities are already supporting research and commercialization efforts of these resources.

The draft Scoping Plan acknowledges the need for non-emitting long duration storage, as well as the fact that these resources are not commercially available. It proposes that NYSERDA establish a 'Storage Center of Excellence,' and the Companies endorse this proposal as a good starting point.

Recommendation: The State should move expeditiously to flesh out the draft Scoping Plan proposal for a 'Storage Center of Excellence' into a full proposal, and include entities that are tasked with operating the grid reliably such as the NYISO and the State's electric utilities, as an integral part of the Storage Center of Excellence. The Center may also want to examine other means of supporting electric system reliability during extended low-generation periods, such as the use of hydrogen or RNG to fuel high-efficiency combined cycle generation that is already connected to the electric system.

Considering the uncertainty surrounding the development of long-duration storage, the State may also want to consider retaining, as a backstop, a certain level of the cleanest, most modern electric generation units, to serve as an additional safety net as the State increases its familiarity with the operating characteristics of a 100% non-emitting resource portfolio. These units typically have very sophisticated emissions treatment systems which mitigate any emissions impacts if they are dispatched. As long as the State achieves its overall renewable portfolio build out to meet the CLCPA's emissions targets, these units will run very infrequently, if at all, resulting in immaterial GHG and ambient air pollution emissions.

Costs, Cost-Effectiveness and the Climate Act

We understand the cost of our service to customers is an important consideration, and we work every year to increase our overall effectiveness and efficiency.[6] Between 2013 and 2020, the cost of delivered electricity for a typical customer increased at less than the inflation rate. During the same period, we made significant investments to enhance the reliability and resiliency of our energy networks, including our over $1 billion storm hardening plan. Our clean energy programs include a core focus on enhancing energy efficiency, and these efforts have borne fruit. Average residential energy usage fell by approximately seven percent over the last seven years. Consistent with the PSC's energy affordability policy, we provide bill discounts to our most vulnerable customers to limit the amount of income participating customers spend on utility energy to around six percent. These bill discounts have increased substantially over the last few years, and the bill discount programs are now designed to increase to offset increases in delivery rates. We have also expanded our outreach to customers to increase awareness of the availability of this program and have begun allowing customers to self-certify that they qualify to be enrolled. Under the program, a typical New York City electric customer receives a discount of $25 per month off an average bill amount of around $90 – though certain customers could see a monthly discount as high as $76 – and we will continue to develop these programs working with stakeholders and Department of Public Service Staff ("Staff") in alignment with Climate Act recommendations.

The Climate Action Council's draft Scoping Plan and the associated integration analysis contains a relatively brief discussion of costs and benefits of different scenarios that would achieve the Climate Act's emissions targets. The discussion of costs and benefits in the draft Scoping Plan notes that the benefits of achieving the emissions targets exceed the costs as compared to the base case. The analysis shows that customer electricity bills are projected to increase over time, while some costs, like total expenditures on natural gas and liquid fuel (gasoline and fuel oil), are projected to decrease. The net *benefits* identified, however, consist entirely of health benefits and the avoided cost of greenhouse gas emissions. Neither of these categories of benefits are currently captured on utility customer bills. Because the draft Scoping Plan shows utility-billed electricity costs increasing over time, while the benefits are 'externalities' that are not captured on utility bills, it appears likely that customers will observe rising electric costs and may not be fully informed that, from a cost-benefit perspective, net benefits are greater than costs. State educational efforts could help explain this benefit.

For the transition to be successful, New York State and the utilities need to engage customers on the projected cost increases through a number of actions. First, customers should be made aware that electricity costs will rise as we fully transform the electric generation sector, and the PSC's recent CLCPA order is a good first step in this regard. Cost increases will result from

[6] We also note that the PSC is required to consider cost as it implements the CLCPA. Public Service Law §66-p.

providing incentives to renewable generation facilities, building substantial amounts of electric transmission to interconnect new, renewable generation, and expanding electric distribution to deliver higher volumes of electricity to customers who will heat their homes and fuel their vehicles with electricity. In addition, electric distribution investments will include investments made to increase customers' ability to use clean, distributed generation like solar to control their costs. The State and utilities should also emphasize to customers that some other customer-paid energy costs are falling, such as for transportation fuels like gasoline or heating fuels like natural gas and fuel oil.

Second, while electric rates will rise, bill increases may be substantially smaller if we make the significant investments in energy efficiency contemplated by the draft Scoping Plan. This is because the volume of energy needed by each individual customer should fall. As discussed above, Con Edison has already witnessed a seven percent drop in average monthly energy consumption over the last seven years, due at least in part to energy efficiency investments. The State and utilities should emphasize for all customers that they will have the opportunity and ability to manage their energy costs through participating in energy efficiency programs.

Third, for some customers – the most economically vulnerable – any increase in costs should be mitigated so that their utility energy costs are reasonable compared to their overall income. Customers that participate in public assistance safety net programs are automatically enrolled in the energy affordability program through a periodic matching process and self-certify to be enrolled. These bill discounts are linked to delivery costs, with discounts adjusting higher if energy delivery costs increase, so these customers are buffered against rising utility delivery costs.

Fourth, we should continue taking steps to mitigate cost increases, including prioritizing 'multi-value' utility investments that achieve multiple goals, such as both reducing greenhouse gas emissions and increasing public safety (replacement of leak prone pipe is a good example of such investments). The State should also consider ways to mitigate bill increases by reducing both State and municipal taxes. For example, currently about 30% of a Con Edison customer's electric bill goes to federal, state and local taxes; about half of those taxes are for municipal 'special franchise' and property taxes.

Finally, the draft Scoping Plan calls for a just transition while maintaining safety and reliability for customers who will still depend on the gas system. As customers dramatically increase their energy efficiency, volumes transported on gas systems are likely to fall in the future. And as customers who can electrify their energy consumption exit the gas system, the total number of gas customers may fall. In the case of higher gas efficiency or heating electrification, the cost of maintaining the gas system will be spread over less gas volume, and potentially across a smaller number of customers. The Companies recommend that the Scoping Plan endorse PSC authorization of reduced depreciation lives for gas assets.

Recommendations: The State should consider taking action to mitigate the impact of taxes on utility costs. Two approaches are worth considering: the State could limit increases in utility property taxes to no more than 2 percent in any given year; or the State could exempt utility infrastructure built to support the CLCPA effort from any property or special franchise taxes. Either approach (or both) would mitigate future cost increases for customers and reduce the regressive collection of property taxes via utility bills. The Scoping Plan should also endorse PSC approval of gas utility requests to depreciate and shorten the service lives of certain gas assets.

Finally, we should take a historical and holistic perspective on the costs of utility service. A recent trade journal article[7] noted that nationally in February 2022 about 1.3% of consumer spending was for utility service; in 1985, that figure was 2.3%. The draft Scoping Plan highlights that net direct costs of implementing the Climate Act will be about 0.7% of gross state product in 2030, and 1.4% of gross state product in 2050. And, as noted above we, support focusing on policies and programs to mitigate costs for our most vulnerable customers using bill discount programs so that they have a reasonable energy cost burden.

Con Edison looks forward to working with the State and stakeholders to develop an appropriately staged investment plan that enables the clean energy transition, climate resilience and continues safe and reliable service while keeping year-to-year rate increases reasonable.

Recommendation: The PSC should join with utilities and other stakeholders to collaborate on consistent messaging around the cost of the clean energy transition, emphasizing the external benefits of the transition, and continue to mitigate the costs of the transition for the most economically vulnerable New Yorkers.

The Future of the Gas System

We see four key actions to achieve the gas transition:

- Reducing fossil gas consumption;
- Slowing and then reversing growth of the gas system;
- Decarbonizing the gas that we deliver; and
- Addressing cost impacts of a smaller system, while sustaining safety and reliability.

Reducing the consumption of fossil gas can be achieved through three methods: transitioning customers from fossil gas to electricity and thereby eliminating direct fossil gas use, increasing the efficiency of customer usage of gas, and transitioning to renewable natural gas or hydrogen. The PSC and the Companies have already deployed robust heat pump programs under the

[7] Public Utilities Fortnightly, "Electric's Share of Expenditures All-Time Low", published February 8, 2022, accessed on June 23, 2022. https://www.fortnightly.com/today-from-puf/electrics-share-expenditures-all-time-low

State's Clean Heat effort. Con Edison has pioneered work to test customer willingness to completely disconnect from the natural gas system. The Companies' gas efficiency efforts currently focus on equipment tune-ups and weatherization. Deeper energy savings can be achieved through more substantial building envelope investments.

Building envelope improvements (such as insulation and air sealing) are important in reducing GHG emissions from buildings across the State and should be supported in the Climate Action Council's final scoping plan, as they are in the draft plan. These improvements enable more efficient heating and cooling of homes and businesses, resulting in lower overall energy use and reduced impacts on our State's energy systems, especially during the hottest and coldest days of the year. This is particularly important for home- and business-owners considering heating electrification: a home that has been well-insulated needs a smaller heat pump system, reducing upfront costs, and will use less energy over the life of that equipment, reducing ongoing costs.

Utility-run energy efficiency programs currently encourage customers to pursue building envelope improvements by reducing the cost of installation and materials, but are not currently large enough to achieve State goals.

Recommendation: Building envelope improvement programs should be expanded and provided with more funding to reach CLCPA goals. Building envelope improvements remain expensive – and often require in-unit work – which can limit customer interest in pursuing them. Well-funded utility programs can help to turn the tide and accelerate adoption of this important measure.

The Role of the Customer in the Clean Energy Transformation

Customer adoption of clean energy and engagement throughout the clean energy transition is fundamental to achieving Climate Act goals. Electric vehicles are an example: we need to solve customer range anxiety to unlock customer demand for EVs. In other areas like electrification and distributed energy resources, it is pivotal that customers are given the opportunity to actively make choices that help the State meet its CLCPA goals. The UCG supports the Scoping Plan's acknowledgement of the breadth of customer engagement that is critical to realize the State's goals and urges the State to endorse necessary programs to continue or enhance customer education and engagement. The Scoping Plan should also reinforce the need for robust customer programs to incentivize customers, while recognizing the need for program flexibility throughout the State to tailor programs based on regional and/or demographic differences.

Moreover, because serving disadvantaged communities ("DACs") is an important aspect of achieving Con Edison's Clean Energy Commitment, we strongly support the Climate Justice Working Group's finalizing the designation of disadvantaged communities so that we can apply them to our clean energy plans.

Recommendation: The State should 1) continue support for robust customer education and engagement to achieve customer adoption of technologies and behaviors consistent with the clean energy transition, 2) authorize robust incentive programs, and 3) allow flexibility in program design to account for regional differences.

The Role of the Utility and Our Actions to Achieve Climate Act Outcomes

Utilities like Con Edison and O&R are on the front-line of the clean energy transition; integrating utilities more directly into some elements of the Climate Action Council's work and the clean energy transition more broadly will increase the likelihood of successfully achieving the Climate Act's goals. The Companies are already undertaking a variety of activities in this regard:

- We are building utility infrastructure today to achieve CLCPA goals, for example advancing transmission projects to facilitate reduction of emissions in disadvantaged communities. Con Edison's Reliable Clean City Projects and the proposed Brooklyn Clean Energy Hub are two examples.
- The Companies and other utilities are working with the NYISO, the PSC and other stakeholders to develop a Comprehensive Grid Planning process that will align local transmission planning efforts with transmission planning activity at the NYISO.

The State could further leverage the considerable knowledge and expertise of the utilities to support the buildout of bulk transmission needed to integrate renewable energy and move it throughout the electric grid. The utilities have decades of experience building transmission in their service territories that could be harnessed, potentially in partnership with other entities, to develop feasible and cost-effective solutions that can be timely constructed to meet the CLCPA goals.

Recommendation: The State should continue to support the development of local projects that will integrate bulk power renewable energy into local transmission and distribution systems, and consider a more prominent role for utilities in the development of the needed bulk transmission.

And we can do more. Previous analysis has shown that utility-deployed renewables are low cost for our customers. Utilities' have high credit ratings, can ensure that benefits are flowed

directly to the most vulnerable customers, and can continue to operate the asset for customer benefit for the life of the asset and potentially longer, if repowered. With this residual value, our customers will potentially pay less than the cost of obtaining the renewable power from a third party for the full life of the asset. We have the managerial and industry expertise to take on a meaningful portion of the State's renewable generation development: our affiliate Con Edison Clean Energy Businesses is the 2nd largest provider of solar generation in North America, but we aren't allowed to bring that expertise to New York. The legislature has recently considered allowing utilities to build renewables with the benefits flowing directly back to low-income customers, and the PSC is also considering whether utilities can own renewables and distributed energy resources. The State, and the PSC in particular, should support and authorize utilities to own renewable generation and DERs.

We will continue to review and update our Clean Energy Commitment, which will be informed by the final Scoping Plan and DAC criteria to help the State achieve its goals. To that end, the Companies have formed an Environmental Justice Working Group internally to accelerate cross-departmental efforts and investments to enable an equitable and clean energy transition.

Recommendation: the State should authorize utilities to build and own large scale renewable generation and distributed energy resources.

Decarbonized Steam System

Con Edison operates the largest district heat system in the Western Hemisphere, providing reliable steam to approximately 1,600 buildings in Manhattan. We have already made substantial progress in reducing the greenhouse gas footprint associated with the system; indeed, under New York City's Local Law 97 – City legislation that encourages building owners to reduce their carbon footprint – Con Edison-provided steam currently has the lowest GHG emissions per unit of energy of any source of heating energy, including electricity. We are actively exploring methods to align our steam system's GHG profile with CLCPA, and strongly believe the system can comply with the emissions reductions targets established in CLCPA through a combination of energy efficiency investment and decarbonizing of the steam systems fuel sources with electricity, hydrogen, and heat pumps.

Additional information regarding Con Edison's plan to decarbonize its steam system is available in the attached whitepaper: "Green Steam and Hard to Electrify Buildings: Achieving CLCPA Goals through Decarbonization of District Heating Systems."

Recommendation: the State should recognize and address the role district energy systems will play in the clean energy future as these systems provide inherent value and can be leveraged to help achieve the City and State emissions reduction goals in a rapid and efficient manner. Con Edison will continue utilizing our steam system to focus on providing energy where it offers a cost-effective, low carbon solution for customers by implementing various decarbonization strategies.

Green Steam and Hard to Electrify Buildings: Achieving CLCPA Goals through Decarbonization of District Heating Systems

Green Steam and Hard to Electrify Buildings: Achieving CLCPA Goals through Decarbonization of District Heating Systems

Report Date: July 1, 2022

By Con Edison

Key Insights:

- Since 1990, Con Edison reduced its district steam greenhouse gas emissions by 61% and continues to actively explore ways to modify our customer's steam usage and the steam production process so that the steam system can reduce its GHG footprint by 85% by 2050. These efforts will rely on energy efficiency, advanced fuels like hydrogen, and different steam generation technologies to substantially reduce the carbon associated with generating and using steam.

- Although Con Edison's district steam distribution system is the largest in the western hemisphere, serving about 1,600 customers with efficient, reliable steam heat, district energy systems, like our steam system, exist across the state and provide inherent value. These systems can be leveraged to help achieve the city and state emissions reduction goals in a rapid and efficient manner.

- The draft Scoping Plan projection of approximately 66% demand reduction of the steam system is well above the company's current evaluation. Based on assumptions on customer energy efficiency, customer electrification, climate change, and anticipated new business, annual steam sales could see a reduction of 20% to 40%. The associated steam system peak demand could see a reduction of 18% or up to an increase of 3%. While our projections indicate overall decreases in sales, we anticipate a significant portion of that reduction will be associated with our current customer base implementing numerous energy efficiency measures in lieu of completely leaving the system. The system currently provides a critical service to approximately 500 million square feet of Manhattan real estate and our best projections do not indicate that value significantly changing.

- The State should recognize and address the role district energy systems will play in the clean energy future, specifically the importance and benefits of centralized investments to decarbonize these systems.

- Our system could create a more energy diverse portfolio through centralized investments that immediately benefit all connected buildings, as it may be a more cost-effective option to meet CLCPA and local emissions compliance as opposed to substantial investment in converting their building to electric heating. Depending on the building type, age, and class, individual building electrification modifications may not be cost competitive within a congested city landscape and may be prohibitive due to specific business models. The steam system can be a potential solution for these buildings.

- We will continue utilizing our system to focus on providing energy where it offers a cost-effective low carbon solution for customers. To do so, we are evaluating various decarbonization strategies including low-to-zero carbon gaseous fuels, electric boilers, and industrial heat pumps.

- It is critical that our steam service remains reliable. Today, this need is met through several strategies, including the use of a backup fuel oil (approximately 3% of our fuel use). As we move toward the clean energy future, we will need to position our assets, fuels, and energy inputs in a way that will provide our customers with high levels of reliability and service while meeting CLCPA emissions reduction targets. We will be investigating the potential strategic use of renewable diesel, advanced biofuels, or other lower-carbon fuels as a replacement for our current backup fuel oil.

District Energy Systems provides substantial value to customers

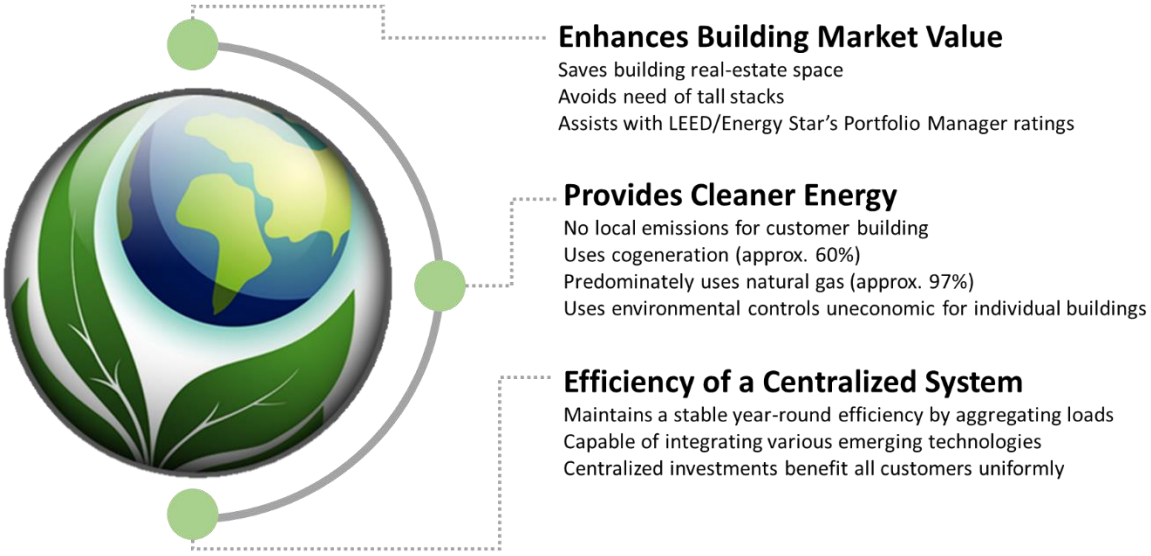
A district energy system produces thermal energy in the form of hot water, steam, and/or chilled water using centralized facilities. This energy is then distributed through a network of pipes to neighboring buildings. This thermal energy production could also be supported by a geothermal loop.

Typically, district energy systems serve large, multi-building complexes such as college campuses, healthcare facilities, airports, military bases, and industrial complexes. Several major cities currently have large district energy systems including Boston, Philadelphia, Indianapolis, Detroit, San Francisco, Denver, Minneapolis, and New York. District energy systems vary in size and are capable of being scaled to meet the changing needs of the areas they serve.[1] In New York State, there are approximately 47 district energy systems (mostly educational and healthcare campuses).

District energy systems have certain inherent advantages due to their design. Centralized systems like a district energy system facilitate economies of scale. By aggregating loads, these systems take advantage of load diversity among the types of buildings that depend on the system, which improves the overall load factor.[2] These economies of scale also reduce the per-customer cost of investments in sophisticated emissions control technologies. District energy systems like the Con Edison steam system can distribute large volumes of energy in areas that are typically more densely settled and have space constraints.

[1] For more information on district energy systems, Combined Heat and Power Technology Fact Sheet Series: District Energy

[2] Load Factor is the ratio of average load to the maximum demand during a given period, and measures the efficiency of the utilization of the fixed assets in the system.



Con Edison's district steam system provides substantial value to buildings. By being a steam customer, buildings maximize usable real-estate space that otherwise would have been dedicated to on-site, larger-scale heating equipment. There is also no need for tall exhaust stacks, which saves additional space and results in no local emissions for the building.

Environmental stewardship is a long-standing focus of the steam system. Con Edison Steam has been reducing emissions from its steam generation process for decades and has made significant improvements over that time. Most of our steam is produced through cogeneration (approximately 60%) which offsets a significant amount of emissions that would otherwise be emitted by simple-cycle units generating steam and electricity independently and concurrently. We also predominantly use natural gas (approximately 97%) and have environmental controls in place on exhaust stacks that would not be economic for individual buildings to install. This has resulted in lower greenhouse gases and air pollutants emitted than there would have been if our customers were on other energy sources.

Our steam system was recognized in Local Law 97 (LL97) as the energy source with the lowest amount of greenhouse gases emitted per unit of energy delivered in the city today.[3] The system has achieved 61% and 53% GHG reductions in our steam combustion emissions, respectively, since 1990 and 2005. These reductions are due to various changes including increase in cogeneration, conversion of fuel oil to natural gas, right-sizing of the system, and operational strategy improvements.

Through preventative maintenance, Con Edison can operate its steam units efficiently and reliably and have staff working 24/7/365 to optimize the dispatch of the steam production units. The steam distribution system is controlled from a central location at Con Edison's Energy Control Center and is constantly monitored. Steam production units are dispatched to meet customer demand using an economic ranking to decide which assets to use while maintaining

[3] The current emissions coefficient for district steam is 0.00004493 ton CO2e/kBTU.

system pressures within operating criteria. The system is a completely interconnected grid, which means that any customer can receive steam from any generating station at any time.

The Con Edison Steam System has been providing reliable and efficient service since 1882

The Con Edison Steam System, which is the largest district energy system in the western hemisphere, recently celebrated its 140th anniversary in March 2022. The system currently serves roughly 1,600 customers using 105 miles of steam main in Manhattan from 96th street on the west side and 89th street on the east side down to Battery Park. It supports a building stock of over 500 million square feet and impacts approximately 3 million people that work in, live in, and visit NYC.

Steam is produced at 6 generating stations across the city from 37 units. These units include conventional steam boilers, steam boilers coupled with steam turbines, and gas turbines coupled with heat recovery steam generators which increase the overall efficiency of the steam/electric cogeneration process. Operation of the cogeneration units results in the production of both steam and electricity and accounts for approximately 60% of our steam production. Our steam system peak, which occurs in the winter, could heat the equivalent of about 150 large office buildings like the 94-story One World Trade Center (which has been a customer since its opening in 2014).

The system serves some of the most historic and iconic buildings in NYC. Most Con Edison steam customers are large commercial and residential properties. The primary uses for our steam are heating and domestic hot water. About 250 customers utilize steam for air conditioning, and we also have specialty uses like sterilization of equipment at hospitals, humidity control for museums, food processing and dish cleaning at restaurants, and dry-cleaning services.

District Energy Systems can play a significant role in achieving the City and State's environmental goals

By leveraging existing steam infrastructure and the significant investments made by customers in distributing steam within their buildings, expanding these systems, and installing new low-carbon district systems, decarbonization of a large portion of existing steam customer base can be achieved. In order to decarbonize in the timeframes required by the CLCPA, in a cost-effective manner and with minimal customer impact, the state should strongly consider decarbonized district thermal energy as one of the major solutions leveraged by the State.

If heating electrification were the only allowed decarbonization strategy for buildings, achieving CLCPA's interim GHG reduction target of 40% by 2030 between would require that between 210,000 and 340,000 buildings have their heating systems converted to electric. This equates to converting 26,500 to 42,500 buildings per year, approximately three to five times more than the 2020 Clean Heat Program results. This program is currently capturing those buildings that have the least technical barriers to heating electrification; the remaining buildings will be more difficult to electrify. Leveraging district heat systems can ease the transition to cleaner alternatives.

Through our outreach efforts, many building owners and large portfolio customers have expressed that they would face large economic, technical, and logistical challenges when considering significant building modifications needed for electrification, primarily due to space limitations, poor payback periods, and logistical tenant challenges. Moreover, there is a significant population of buildings within our service territory that would face similar challenges when considering the removal of their existing fossil fuel fired equipment, especially those buildings that have steam distribution throughout their buildings. A decarbonized district energy option would offer these potential customers a low capital cost, low customer impact path to meet their environmental goals. Incremental investment in the steam system could immediately benefit those buildings connected to our system in their pursuit of preparing their locations for the clean energy future. Strong customer interest in a decarbonized district energy system has been expressed during extensive customer and stakeholder outreach, where customers have expressed a desire for detailed, concrete information that they can use to inform their long-range plans for the buildings, including investment efforts and timelines. Many customers expressed a desire to remain a steam customer and are hoping they can meet LL97 requirements for their buildings through the decarbonization of centrally-produced steam. They are concerned about electrifying their buildings and the capital investment necessary.

Con Edison is actively pursuing ways district steam can meet CLCPA goals

Con Edison recently released its Clean Energy Commitment, a corporate-wide effort to lead on delivering a clean energy future. Included in this commitment is a pledge to reduce its carbon footprint, with a major focus on decarbonizing the steam operations.

Appendix A of the draft Scoping Plan includes an Advisory Panel Recommendation to "Undertake analysis and planning for decarbonization of the Con Edison district steam system", with PSC, DPS, and Con Edison listed as leads. Con Edison Steam is ready to work with PSC and DPS on this effort and has already begun evaluating the decarbonization of the steam system.

In contrast to the draft Scoping Plan Integration Analysis, which assumes a 66% reduction of the steam system, Con Edison's extensive analysis in the most recent steam long-range plan concludes that the steam system will exist in some capacity in 2050, with higher levels of throughput than assumed in the draft Scoping Plan. Overall, based on three potential scenarios for 2050, while we anticipate a reduction in annual sales because of energy efficiency, electrification, a generally warmer climate, and varying changes in peak demand due to

anticipated extreme warm or cold spells, our analyses indicate a decarbonized steam system peak could see a reduction of 18% or up to an increase of 3%. Steam sales could see a reduction of 20% to 42%. We are further investigating peak mitigation strategies to better align the trajectory between our peak and sales forecasts, which will help optimize the use of the future system.

It should be noted that although we are anticipating a decline, that does not diminish the value provided and future opportunities for the system to continue supporting an energy dense metro area. The decline in sales is largely due to projected building energy efficiency adoption and climate change impact. Reduction in sales is not reflective of a reduction in total space served. In addition, we are making conservative assumptions regarding new business acquired, which already considers a reduction in new sales due to the incorporation of energy efficiency.
As we implement optimization efforts and decarbonize the system in support of the City and State clean energy goals, the system will serve as a clean heating solution to current customers and neighboring buildings within the system's footprint that may find it difficult to electrify.

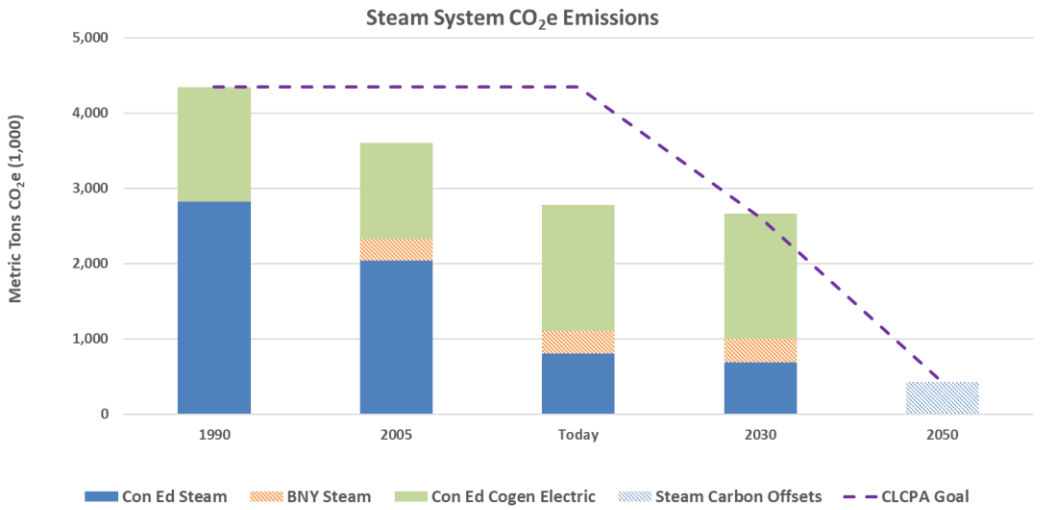
Given the important role our steam system will play in the energy future, it is important to decarbonize our steam system, which will require a diverse portfolio of solutions. Based on our long-range plans, our decarbonization efforts focus on the following areas:

- **Enabling a Fundamental Change in Energy Consumption:** supporting energy efficiency at our steam generating facilities, throughout our distribution system, and at customer locations.
- **Transforming the Energy Supply:** building a low-to-zero carbon gaseous fuels portfolio, investing in industrial-style heat pump technology, supporting the electrification of boilers with clean energy, and other methods of decarbonization.
- **Customer Engagement:** Encouraging new steam system connections for hard-to-electrify customers and facilitating customer energy choices by providing customers with the right data and tools.
- **Reliability**: maintaining smaller investments in options that remain accessible during periods of constraints to renewable energy access

The system's carbon footprint is approximately 2.77 million metric tons, including emissions associated with both steam and electric production on the steam system. The out-of-state GHG emissions associated with the extraction and transmission of natural gas and fuel oil are currently not reflected due to significant uncertainty on how to accurately calculate and account for these emissions. These emissions are still being calculated and this calculation requires further discussion with outside parties to ensure we are utilizing appropriate emission factors. It is important that we fully understand how to apply these emissions for consistency across all other economic sectors, so that we address these emissions appropriately within our company as we consider future investments.

Between now and 2030, we anticipate some additional emission reductions driven by energy efficiency improvements that our customers will likely make and some short-term initiatives that

we are looking into. By 2050, our goal is to reduce emissions by 85% from 1990 levels using several decarbonization strategies and the remaining 15% through carbon offsets. The solutions being explored for the decarbonization of our steam system are expected to significantly mitigate combustion emissions, upstream emissions, and air pollutants.



We plan to achieve consistency of continued operation of the steam system with CLCPA emissions reduction targets by exploring the viability of carbon mitigation strategies that are the most cost-effective and encouraging customers to make the energy choice that is best for them. Currently, the major anticipated methods of decarbonization for our steam system are low-to-zero carbon gaseous fuels, electric boilers, and industrial heat pumps.

We are focused on green hydrogen, which is produced using dedicated or otherwise curtailed renewable electricity, and will explore the use of hydrogen as a blend and as a complete replacement in our steam system. By converting our steam-electric generating units into non-GHG-emitting sources, we can continue to serve critical load pockets in NYC. Due to concerns that hydrogen combustion could potentially increase NOx, as noted in the draft Scoping Plan, Con Edison is engaging in a study to evaluate turbine and boiler performance when using hydrogen fuel. Based on our preliminary findings, we are confident that we will be able to mitigate most if not all the NOx impacts associated with this strategy.

Electric boilers, when paired with energy storage, could also be used to balance the electricity grid when there is excess electricity production from large amounts of renewables.
Industrial Heat Pumps would be used to harvest waste heat from various sources to preheat the feedwater to our steam generating units, significantly reducing the amount of fuel required to produce steam for distribution throughout our system.

We are investigating other methods to reduce our steam system GHG emissions including geothermal wells and carbon capture and sequestration. Geothermal wells could provide

heat to the steam plants to boost the temperature of incoming water. The increased water temperature would reduce the required heat input to generate steam.

There is also the potential to reclaim wasted energy throughout our system. We are evaluating the feasibility of installing hot water loops on the steam system. These closed-loop systems would use heat exchangers to take advantage of waste heat sources and supply energy to new customer buildings.

It is critical that our steam service remains just as reliable if not more reliable than it is today. Today, we depend on the use of a backup fuel oil (approximately 3% of our fuel use) to ensure that we continue to serve our customers even during natural gas constraints. As we move toward the clean energy future, we will need to position our assets and fuels in a way that will still provide our customers those high levels of reliability and service they expect while meeting CLCPA emissions reduction targets. This may or may not include onsite fuel storage. We will be investigating the potential strategic use of renewable diesel, advanced biofuels or other lower-carbon fuels as a replacement for our current backup fuel oil.

Decarbonized Steam is a Cost-Effective Solution for Customers

Regardless of the strategies implemented, there will be consequential bill impacts for customers in order to decarbonize the building heating sector. Centralized investments in district thermal systems such as the Con Edison district steam system can offer a more cost-effective solution for a large portion of buildings located in Manhattan when compared to individual building system investments and the electric distribution reinforcement needed to support it.

As we move towards greater efficiency and encouraging customers to reduce their consumption, we believe modifying our current business model to normalize the impact of fluctuations on our earnings and customer costs would allow us to best serve our customer base transitioning into the Clean Energy Future.

With future investments in the decarbonization of our system as well as preparations for the impact of weather, electrification, and energy efficiency, we need to also be mindful of bill impacts on customers. While the bill impacts due to these various changes are still uncertain, our decisions will need to ensure that our system remains a viable business model going forward.

Conclusion

As the largest district energy system in the western hemisphere, our district steam system can set an example through our decarbonization efforts. Many of the strategies or technologies that we can implement on our system can be implemented in district energy systems across the city,

the state, and the country. The lessons learned through these projects pertaining to technical feasibility, customer logistics, and regulatory requirements, would aid in the advancement of these technologies worldwide.

Customer Engagement is Integral to CLCPA's Success and Utilities are Experts in Interacting with Customers

Role of Customers in the Clean Energy Transition

Customer Engagement is Integral to CLCPA's Success and Utilities are Experts in Interacting with Customers

Achieving the Climate Leadership and Community Protection Act's emissions targets and focusing on delivering benefits to disadvantaged communities requires a holistic transformation of the State's energy systems, including production, delivery, and consumption. Success is dependent on the support, engagement and buy-in of customers.

As described below, Consolidated Edison Company of New York, Inc. ("Con Edison") and Orange and Rockland Utilities, Inc. ("O&R"; collectively, "the Companies") have deep knowledge regarding customer engagement. The Companies have tens-of-thousands of interactions with energy consumers every day, responding to customer energy-consumption related questions and interacting with customers applying for new or upgraded services. The Companies are also already working with customers on the energy transformation, through marketing clean energy resources like energy efficiency, electric vehicles, and heat pumps, and we have been providing customers with tools to better manage their energy use. We are dedicated to engaging and educating our customers as their trusted energy advisors to help them take action in adopting clean energy technologies. We are also adapting existing programs and developing new programs to consider the needs of disadvantaged communities and to deliver benefits from the clean energy transformation to these communities. Being skilled at customer engagement is a critical success factor for utilities because we operate complex energy systems that must reliably and cost-effectively deliver energy to our customers around the clock.

All scenarios under the draft Scoping Plan require transformative levels of energy efficiency and electrification by customers by 2050. The draft Scoping Plan's integration analysis indicates that to meet New York's greenhouse gas (GHG) emission reduction requirements, depending on the scenario, a significant number of housing units will need to be electrified each year. The level of transportation electrification outlined in the CLCPA is also ambitious, with a goal of approximately three million zero-emission Light-Duty Vehicles (LDV) in use by 2030 and approximately 10 million zero-emissions LDVs in use by 2050.

These measures do not just require significant investment into energy infrastructure but also require customers to make active choices to adopt measures that reduce emissions from their homes. These measures are likely to include energy efficiency, decarbonization of natural gas and fuel oils, some level of heating electrification and switching from gasoline to electric vehicles, or installing their own distributed energy resources.

The scale of this challenge requires an increase in incentive programs and targeted customer outreach and education to spur this level of customer engagement.

The Companies support the Scoping Plan's acknowledgment of the breadth of customer engagement, both more tailored and broad efforts, that is needed to realize the State's goals, and to endorse necessary programs to continue or enhance that engagement. For example, Con Edison and Orange & Rockland currently have high-touch, direct interaction with customers including specific outreach to larger customers or market participants on energy efficiency and electrification efforts. The future envisioned by the Draft Scope Plan will require a more comprehensive approach for all customers and market participants including those reaching

smaller, mass-market customers. This will require embedding and working with a broad contractor network, from electricians, plumbers, architects, engineers, property developers, real estate agents, community-based organizations, and contractors solely dedicated to awareness. This vast contractor network should be leveraged to raise awareness and education on programs and incentives, increasing the number of possible touchpoints a customer could be engaged on clean energy measures, reaching those customers we have not yet reached, and meeting them where they are. There should also be a dedicated effort to work with low-income and environmental justice groups to increase outreach to those customers they represent.

There will also need to be continued efforts to maximize the use of various channels to reach customers. For example, utilities can leverage their customer service representatives to not only be a touch point for billing questions but also as a resource on clean energy programs and incentives. These efforts can be supported by investments in customer relationship management and other customer data tools to be the most effective resource for customers. Further, the Companies have also conducted concerted customer outreach on clean energy initiatives and how customers benefit from these initiatives via multi-channel outreach and education efforts, including advertising, marketing, PR, and media. Finally, the Scoping Plan must recognize regional differences throughout the State when considering customer engagement in the clean energy transformation, including differences in climate, building stock, transportation methods, and economic drivers.

The Scoping Plan Should Support Significant Expansions of Utility-Based Clean Energy Programs, Building on Utility Success to Date

As noted above, addressing barriers to customer acceptance and adoption of clean energy technologies is imperative to accelerate the clean energy transition. Con Edison and O&R have seen significant progress to date with current programs and offerings, including those still in their nascent years, and have recommendations arising from their experience working with customers that should be included in the final Scoping Plan to continue to build on these successes and reach all customers.

Electric and Gas Energy Efficiency

Con Edison and O&R currently offer both non-LMI and LMI electric and gas energy efficiency programs. The Companies programs collectively achieved 157.4 million Lifetime mmBTU since 2016.[1] The State must support increasing program investment for these utility-run programs to aid in achieving the State's targets and conduct deeper energy efficiency measures. Programs should allow for implementation flexibility by the utilities to take advantage of program innovations, operational efficiencies, and learning and adjusting based on program operational experience. Programs should allow for customized energy efficiency solutions based on the building type and evolving technologies and equipment standards. And adequate data should be available for implementation partners to target the right customer segments at the right investment cycle.

Heating Electrification

[1] NYSERDA Clean Energy Dashboard.

Electric utilities currently offer incentives to customers for both cold climate air-source and ground-source heat pumps through the New York State Clean Heat Program, which reduces upfront costs to customers installing these technologies. The program also supports building envelope work, like insulation, prior to installation. The final Scoping Plan must include support for programs that further incentivize a customer's heating electrification journey, including funding for utility programs that cover behind-the-meter electrical upgrade costs, an additional significant cost challenge customers face.

EV Make Ready Program & Managed Charging

Established in 2020, the utilities have seen early success with the Electric Vehicle Make Ready Program, which provides incentives of up to 50, 90 or 100 percent of the infrastructure costs of making EV charging sites ready for installation of chargers intended to serve light-duty EVs. In 2021, the utilities supported the installation of 1,100 chargers across the state. Going forward, Con Edison and O&R will continue to provide, and will likely need to enhance, needed support for the nascent but growing light-duty EV charging station market that is also experiencing increased borrowing costs and persistent inflation. Concurrently, the Companies will also need to ramp up focus on providing incentives and the infrastructure to transition medium-and-heavy duty vehicles, which will reduce emissions and improve air quality by electrifying commercial vehicles like trucks and buses.

In addition to supporting infrastructure for vehicle charging, electric utilities are also designing incentives to reduce the cost of charging vehicles and promote grid beneficial behavior. Programs like Con Edison's SmartCharge provide cash rewards to drivers who avoid summer peak charging and instead charge their cars during off-peak hours. This puts the decision in the hands of drivers and helps reduce the stress on the electric grid.

Finally, the Companies are also providing advisory services to guide fleets in their electrification transition including guidance on projected electric fueling costs and grid capacity at potential sites. As more fleets move through this transition utilities can broaden their advisory services to provide more comprehensive guidance ranging from vehicle selection to optimizing operations.

Strategic Customer Experience

The Companies have researched and deployed digital solutions to meet the evolving customer and stakeholder expectations and support our customers through the clean energy transition. These strategic investments will support the delivery of customer value by driving cost efficiencies through improved service, providing customer real-time data and generating customer adoption of programs, and improving communications and education related to billing.

The Scoping Plan Must Support Flexibility in Program Designs and Incentives for All Customers

In addition to the recommendations above, the Scoping Plan should support tailoring programs and policies for all customers, not just early adopters. Success requires customers' buy-in and participation from all. The Scoping Plan should also support regionally-tailored approaches that recognize differences in climate, building stock, transportation methods, and economic drivers, and provide flexibility to meet the needs of nascent and dynamic markets. This includes:

Targeted Programs and Increased Incentives for LMI & Disadvantaged Communities for Energy Efficiency (EE), Electric Vehicles (EV), Distributed Energy Resource (DER)

To date, clean energy programs have tailored programs to LMI customers and those residing in DACs. Examples include the Statewide Affordable Multifamily Energy Efficiency Program (AMEEP) which supports energy efficiency upgrades in affordable housing and the Electric Vehicle Make Ready program which provides additional incentives for chargers built in or in the vicinity of DACs. Similar efforts should continue to receive regulatory support in the future.

The Scoping Plan should also support programs that increase access for distributed energy resources for these customer groups, in particular access to solar, including a make-ready program for distributed generation in DACs and utility-owned solar projects that allocate bill credits from revenue generated to LMI customers.

Hard to Electrify Customers

For hard-to-electrify customers[2], the utility's focus is to make it as easy and seamless for customers to engage in the clean energy future. For example, the building landscape in New York consists mainly of larger buildings (commercial and residential). Each of these buildings has its own story – from the various onsite uses, the process for upgrades approval, recent upgrades made, and where those upgrades are in their useful lives. As a result, there may be limited opportunities to electrify and challenges when a customer does try to electrify.

In order to reach these hard to electrify customers, the utilities make the following recommendations. First, leverage cost-effective, centralized upgrades on the utility system where feasible – continuing the use of existing infrastructure to further clean energy goals at a lower cost. In addition to decarbonizing the systems that currently serve customers, customers can also work with increasing green energy on the grid paired with energy efficiency to reduce the greenhouse gas impact of their building. Second, and similar to the recommendations above, we need to be able to reach these customers to provide them with the best information on rate options, the impact of various investments, and the most efficient timing of investments. This could include creating self-service platforms for these customers to provide their building inputs and see options available based on building economics.

The Scoping Plan Should Endorse Other Measures to Lower Overall Costs for Customers

Convincing customers to adopt clean energy solutions with higher up-front or operating costs will be a challenge, particularly during economically-turbulent times. Therefore, the final

[2]For example, large to electrify buildings can include larger pre-war style buildings with internal steam distribution networks, limited available building space, and/or mechanical spaces in deep basement areas or on the higher levels of the building will have significant obstacles associated with electrification of the heating loads and buildings that recently invested in new boiler or cogeneration equipment will want to ensure that their full run life and value are extracted from those investments.

Scoping Plan should also direct the State to support efforts that lower overall energy costs, such as modifying the property tax treatment of utility infrastructure investments

The final Scoping Plan should also endorse utility ownership of renewables and distributed energy resources as additional tools to help the State meet CLCPA goals – at lower costs. Utility ownership in these circumstances will allow customers to benefit from the assets for longer than a traditional REC contract allows. Moreover, utility renewable ownership models could steer direct benefits to low income customers or customers residing in DACs. Similarly, recent legislation has proposed allowing for utility ownership of shared thermal ground loops, and the draft scoping plan should support this concept.

The Scoping Plan Should Include Robust Support for Proactive Grid Planning to Support Transportation Electrification

The Scoping Plan Should Include Robust Support for Proactive Grid Planning to Support Transportation Electrification

Con Edison urges the Climate Action Council to include in the final Scoping Plan proactive preparation of the electric grid to support the load growth necessary to meet the State's transportation electrification goals, including for on-road and off-road medium- and heavy-duty (MHD) vehicles like trucks and buses, as well as marine and aviation vehicles.

Importantly, we commend the work the State, including the Public Service Commission, has already done to incentivize transportation electrification in both the light-duty (LD) and MHD vehicle segments, and look forward to continued coordination among relevant agencies through the various electric vehicle workstreams developing in parallel.

The early successes of the State's light-duty make-ready incentive program in jump-starting the LD charging market over the last two years and the State's ambitious policy goals and recent actions on all classes of vehicles are a leading indicator of the next wave of electrification in the MHD sector. MHD electrification will be an essential element of meeting the State's climate and equity goals, and it must accelerate quickly to meet the Draft Scoping Plan's interim 2030 targets.[1] Significant load growth will rapidly materialize in localized areas due to electrification of all vehicle classes, necessitating not only more robust and timely utility forecasting and planning practices, but importantly infrastructure investment to meet faster growing demand. If policy goals are to be met in a timely manner, these loads will appear with a shorter lead time than more traditional building loads. The final Scoping Plan should prioritize planning for and investing in infrastructure needed to support transportation electrification, which includes the need to recognize certain circumstances to build in advance of formalized applications for electric service for transport electrification.

Ambitious Transportation Sector Goals will lead to unprecedented load growth

Transportation accounts for 28 percent of New York's greenhouse gas emissions, while diesel fuel combustion emissions are the fastest growing source within the sector.[2] Over the past two years, New York has boosted light-duty vehicle electrification and worked to solve the "chicken and egg" problem for electric vehicle adoption by providing make-ready incentives for all infrastructure work up to the charger to encourage charger build-out. The Public Service Commission's Electric Vehicle Make Ready and Fleet Assessment Programs already indicate

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[1] MHD vehicles contribute disproportionately to greenhouse gas emissions. While MHD vehicles travel roughly 4% of the vehicle miles traveled across all vehicle classes, they contribute 15% of the transportation-related greenhouse gas emissions statewide.
New York City, "New York City's Roadmap to 80x50," accessed July 1, 2022, at https://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/New%20York%20City%27s%20Roadmap%20to%2080%20x%2050_Final.pdf
New York State Department of Transportation, Vehicle Miles of Travel, 2017, accessed July 1, 2022, at https://www.dot.ny.gov/divisions/engineering/technical-services/hds-respository/Tab/Vehicle_Miles_of_Travel_2017_revised_2018-07-24.zip.

[2] New York State Department of Environmental Conservation, 2021 Statewide GHG Emission Report: Summary Report, at v (2021), available at https://www.dec.ny.gov/docs/administration_pdf/ghgsumrpt21.pdf.

strong interest that could translate to significant growth in future electrical demand due to electric vehicle charging.

The Draft CLCPA Scoping Plan calls for close to 100% zero emission vehicles (ZEV) sales for LD vehicles and 50 percent sales for MHD vehicles by 2030, which will benefit fleet owners and communities that suffer from truck congestion, noise and local air pollution, as well as climate change impacts. Beyond the Draft Scoping Plan, New York's swift action to establish policy goals to electrify MHD vehicles together with the ability of market participants to install EV chargers in a matter of months (once adequate infrastructure to support them are available) has buttressed the need for compressed essential infrastructure buildout timelines. The 2022 State Budget requires all new school bus purchases be zero-emissions by 2027.[3] Additionally, the recently adopted Advanced Clean Truck Rule requires MHD vehicle manufacturers to sell ZEVs as an increasing percentage of their New York Sales between model years 2025 and 2035. Thus, as soon as 2024 the State could have 2,900 electric MHD vehicles on the road—more than 25 times more than the current MHD ZEVs in the State.

Meeting these goals is contingent on the availability of sufficient charging infrastructure, which will require not only a large-scale buildout of charger installations across the State, but also significant proactive planning and investments for upstream and system-level impacts of vehicle charging loads.

New York needs a 'build in advance' approach to prepare for transportation electrification

Unlike traditional new load sources and service requests, like requests to new buildings that typically take years to build and accept full electric service, high-powered transportation electrification projects are typically installed in a matter of months. The need to build in advance is required due to this shorter lead time. This rapid need for new electric service alone is an unprecedented change to typical utility infrastructure planning and building. And, the full suite of utility grid upgrades that may be necessary to accommodate the concentrated localized loads brought on in particular by MHD electrification in certain areas can take several years to build depending on the load and location. Necessary reinforcement work can range from several months for service upgrades at single sites, to a few years to build new distribution feeders, to longer multi-year expansions of substations or transmission lines to enable electrification of several depots along a single street or across a neighborhood.

The final Scoping Plan should include regulatory mechanisms to allow for advanced reinforcement of the grid from the service up to the substation to meet the needs of as many transportation electrification projects as possible in a timely and cost-effective manner.

Other changes to facilitate transportation electrifications

Beyond these advances in grid readiness, the State should ensure that characteristics required for successful transportation electrification are incorporated into future programs. These include

[3] 2022 New York State Budget, Education: Section 3638 at https://www.nysenate.gov/legislation/laws/EDN/3638.

charger type flexibility, determining eligible applicant pools more broadly, utility-and customer-side infrastructure incentives, targeting benefits equitably, providing guidance to fleets embarking on the electrification transition, and incentivizing grid beneficial charging behavior while providing operating cost relief to fleets.