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Joint Comments of Council on Intelligent Energy & Conservation Policy (CIECP) and Promoting Health and Sustainable Energy (PHASE) on Climate Action Council Draft Scoping Plan – Key Recommendation: NY Should Prioritize Rapid Scale-Up of Renewables, Demand Side, and Efficiency Energy Solutions and Cease Support of Nuclear and Fossil

To: Climate Action Council of New York
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Dear Climate Action Council

Preliminary Statement

Developments nationally and internationally in 2022 have presented new obstacles to countering climate change. Yet doing so is a pressing imperative.

The U.S. Supreme Court decision in *West Virginia v. Environmental Protection Agency*, issued on June 30, 2022, not only curtails the authority of the Environmental Protection Agency (EPA) to limit greenhouse gas emissions (GHGs) from power plants, it likely limits the power of other Federal agencies to enact regulations to protect the climate, the environment and public health.

That means state action is more critical than ever to helping the country achieve climate, environmental justice and sustainability goals.

The good news is that new renewable solar and wind generation is now cheaper than conventional dirty fossil and nuclear fuel based power. Storage and battery system technologies are advancing by leaps and bounds. Attainment of enormous efficiencies in buildings, equipment and transportation is no longer pie-in-the sky. The need to rapidly transform the global economy to a renewable-based energy system is now widely accepted as the highest decarbonization priority.

By virtue of its prominence on the world stage as an academic, architectural, cultural, economic and political powerhouse, policy promulgated by the Empire State has unique ability to be transformative. The State of New York has, right now, the ability to alter the course of human history. The Climate Leadership and Community Protection Act (CLCPA) establishes the vision. The Climate Action Council now has the chance to implement it and help direct America and the world towards a more secure and prosperous future.

This is not hyperbole. Energy is one of the few core realms that directly and powerfully connect to virtually all human endeavor. Energy policy will largely determine whether the planet remains habitable. Energy policy will affect whether future generations are sick or well. Energy policy directly ties to issues of global security and nuclear proliferation.

America is still the global superpower. New York State is a prime national economy engine. What New York does will matter. With vision and resolve, our State can be at the vanguard of a new global energy era.

There are many ways ideas advanced and smart models for decarbonization can be pulled together under a streamlined, user-friendly schema that is also versatile and adaptable.

Below we make three key recommendations.

RECOMMENDATION I: Direct Financial and Human Resources First and Foremost to Making Schools and Public Assets and System Sustainable – This Strategy Presents a Win-Win-Win Model

The transition to a cleaner, healthier, more equitable and low GHG emitting future should begin with our schools and public assets and systems. We submit that directing financial and human resources to schools and public assets would have the most benefit and promote the goals of the State most rapidly. Multiple benefits would flow. Money would be saved in state coffers, as well as at the institutional level. Schools and municipal buildings and the like are high use, highly visible infrastructure. Thus public acceptance and public education as to the value of greener systems would be enhanced. Community buy-in is also easier when communities can see the benefits first-hand. Critically, during extreme weather and other emergency events, schools and public buildings that function as shelters or provide essential services will have more power available.

Sustainability should guide the process in the broadest sense. This would include installation of renewables (e.g., solar PV with battery backup, micro wind turbines), energy-efficient HVAC systems (e.g., geothermal, heat pumps, solar heating, white roofs), but also natural carbon capture (trees, vegetation), and programs that promote nutrition (planting of organic vegetable gardens, purchase of produce from local farms). It would include promotion of walking and biking, where possible, and transition to use of electric vehicles (EVs). Sustainability, in this day and age, also means smart design. Use of passive solar, and passive air and ventilation which makes us better prepared for the next epidemic or pandemic.

Schools mean k-12, but also colleges, universities, and other educational and training institutions. Public assets and systems mean structures (e.g., town halls, community centers, and police, fire, EMS and service buildings), areas of the commons (e.g., parks and recreation)

Schools should be the highest priority for a number of reasons. For one thing, a Multiple benefits would result from putting these rioritizingThe reasons why we believe these should ber and services.

/ (e.g., providing g(s (including police, the commons (recreational areas), and, parks, replayt and transportaion andpromotes bu , and smart design as soon as possible. For new structures and developments, It eed choudlsts emissionsdecarbonizationThere are

RECOMMENDATION II: New York Must Prioritize Renewable, Efficiency, and Demand-Side Energy Options and End Support for Nuclear Power and Natural Gas via Subsidies and Market Design Preferences.

What is most important is to keep in mind the question: What kind of world do we want?

There is no supportable rationale for continuing to prop up nuclear power or fossil fuel. Indeed, false equivalence of these dirty toxic industries – which are, to a sizable degree, interconnected

– will seriously jeopardize growth of solar, wind, and other new technologies which are truly sustainable and renewable.

Nuclear power is a highly polluting exorbitantly expensive form of energy generation. Natural gas has enormous price volatility and is likewise highly polluting. Both shackle the State to an outmoded, inflexible regulatory scheme. Both technologies, in different ways, are also dangerous, risky, and threatening to the life and wellbeing of millions. These forms of power should no longer be supported by the State of New York. New York Should Plan For an Energy Future Without Heavily Polluting, Dangerous Power.

The Stone Age did not end for lack of stone, and the Oil Age will end long before the world runs out of oil.

This observation, interestingly, was made by a Saudi Arabian oil minister decades ago. Yet it serves to illustrate an important point. Energy is largely a product of what is promoted.

Government has long used its money and power to promote nuclear power and fossil fuels. This has been done through massive subsidies and tax incentives, building codes and infrastructure, municipal and education expenditure, regulatory schemes and energy market design.

There is no longer any defensible argument for continuing to prop up extractive toxic forms of power. The burden they impose – upon the environment, human health, and the climate – is now and will increasingly be untenable. How many more radiation leaks and chemicals do we want streaming into our water supplies? How much more fission products and micro-particulates do we want our children to draw into their lungs and bloodstreams? How many more nuclear waste dumps, fracking-despoiled lands, Superfund sites, brownfields and hazard zones do we need? How many more cancers and neurological problems and developmental disorders and immune diseases are enough?

New York must cease all manner of support for highly-polluting forms of power.

Make the decisions needed and marshal the resources available to accelerate the development of clean energy, distributed generation, smart end use, and efficiency.

A crucial step is to send a strong signal to the energy markets that New York will no longer shackle itself to nuclear plants and natural gas pipelines. These dirty dangerous lumbering giants are ill-suited to a future energy system which must be agile and efficient. “Baseload” is a concept that is now recognized as obsolete. A mix of renewable, energy efficiency, storage and more flexible demand is what is needed for reducing GHG emissions overall and coping with peaks and troughs in energy supply. In a modernized system, with an updated smart grid, New York’s hydropower resource, for example, would function more as storage to supplant wind and solar generation. Outmoded big power plants and giant dangerous gas pipelines now stand as major obstacles blocking transformation to a sustainable way of living. This opportunity cost is untenable.

New York could redirect the course of energy policy in a way that will invigorate our economy today and keep New York safe, clean and prosperous for generations to come.

As the pollutant and climate impacts of fossil fuel are well publicized, the remainder of these Comments will address the less understood realities of nuclear power.

RECOMMENDATION III: Promulgate Policy that Phases Out Use of Nuclear Generation by 2029

Nuclear power is a highly-polluting form of power, producing prodigious amounts of long-lived radioactive waste, heat, and greenhouse gases throughout its entire full fuel cycle

A. Nuclear Power is Not a “Clean” Form of Energy, as that Term is Reasonably Construed.

Nuclear power is about as “clean” as tobacco is “healthy.”

Query, would anybody reasonably deem a Superfund Site with radioactive contamination to be “clean”? New York, of course, is the unhappy host to the West Valley Superfund radioactive waste site, a legacy of a commercial uranium reprocessing facility that shut in 1972.

Even in the absence of accidents, New York’s nuclear power plants will generate more high-level nuclear waste and release more long-lived radionuclides into the state’s waters and air, and contribute massive quantities of thermal pollution to waters every single day they continue to operate.

B. The Public Interest is Not Served By Diverting Even More Public Money Away from Sustainable Options to New York’s Nuclear Power Operator

Cheaper, cleaner, safer, more sustainable and broadly supported and desirable alternatives to both nuclear and fossil fuel generation exist today. (Barnaby; Bradford; Brown; Cooper; Diesendorf; Dunai; Jacobson 2022; Jacobson 2021; Lovins, 2022; Lovins 2020; Lovins 2018; Makhijani; Mez; Perez; Ramana; Sovacool)

Truly, the largest obstacles to their implementation are not technical. Cut off the spigot of subsidies and end the market design preferences given nuclear and fossil. Provide renewables and efficiency an even playing field and let them go. If New York aims to lead the world towards decarbonization and a sustainable future, that is the way to do it.

It should be emphasized that New York could blink off the map entirely as an energy user and greenhouse gas emitter. The climate impact would be too miniscule to measure. This is because, geographically and industrially, New York State’s carbon production is miniscule compared to that of the world. Where New York could make a measurable, and, if done soon, a potentially monumental contribution to global decarbonization – the only metric scientifically relevant – is by sending strong signals to investors the global capital markets: **New York is Promoting Green.**

In 2014, with its Reforming the Energy Vision – or REV – framework, New York floated the promise to do just that. We urge the Climate Action Council to dust off that vision. The 2015 New York Energy Plan was also bold in word and proposal. But then the State faltered. Support for change was fractured, fraught with bureaucratic red tape, and proffered through uncoordinated temporary and uncertain financial support. Even customer choice – vigorously advocated in the REV and 2015 Energy Plan – was abandoned in favor of ensuring provision of

ratepayer money to uncompetitive upstate reactors. Policy promoting efficiency and demand side measures was sidelined.

New York, through an ill-advised August 1, 2016 Public Service Commission (PSC) administrative decision, diverted some **\$7.6 billion** of public money from support of new renewables and energy efficiency to support aging upstate nuclear reactors. (Grossman; Jacobson 2016)

This funding has effectively added over a decade of additional nuclear waste inventory buildup, thermal pollution, and radioactive emissions to New York environs.

Notably, that 2016 PSC decision funneled \$7.6 billion into the coffers of the nuclear and fossil distribution giant Exelon, without even conducting an analysis of whether funding directed towards spurring renewable, efficiency, and demand side alternatives might reduce in-state generated greenhouse gas emissions sooner and at less cost.

At the time, we and other environmental and public policy groups were befuddled as to why the New York's laudable Large Scale Renewables Proceeding morphed into a massive bailout of aging nuclear plants.

That mystery may have been partially solved by reporting of the New York State Joint Commission on Public Ethics (JCOPE), which detailed prodigious lobbying expenditures by Exelon and noted: "Some of the largest retainers paid to lobbyists in 2017 related to nuclear energy, zoning, and development. However, the largest single retainer, \$593,853, from the Nuclear Energy Institute, Inc., a nuclear industry trade group, to APCO Worldwide LLC (F/K/A APCO Worldwide Inc.) primarily reimbursed the lobbyist for a media buy. The ads were placed in an effort to support zero emission credits for nuclear plants." (New York State Joint Commission on Public Ethics)

And where did some of that New York ratepayer largess go? To a \$33.5 billion conglomerate. (Exelon Form 10-K) Before, as, and after it was seeking subsidies from New York, Exelon and its subsidiaries were aggressively opposing support for renewable and acquiring natural gas distribution assets. (Alexander; Constellation; Elsner; Geiger; Lydersen; Passary; Polson) In fact, on its web pages, Exelon proclaimed: "Clean energy plus relatively low prices put natural gas in demand. Clean burning natural gas has become an attractive fuel for serving increased demand.... Exelon Generation is also expanding our gas fleet through development. Two new 1,000 MW CCGT units are now in operation in Texas at existing sites, using new General Electric technology that make them among the cleanest, most efficient CCGTs in the state and the nation. Exelon Generation has also begun construction of a 195 MW simple cycle plant in Massachusetts." (Exelon web 2020; See also Power Technology)

One might also note the obvious point that the undue influence of big energy has not contributed to public faith in the integrity of the political system. (See, e.g., Center for Responsive Politics; Gearino; Gillispie; Jeffrey; Kasper.)

C. Nuclear Waste: Communities, Ratepayers and Taxpayers Have Had Enough

Nuclear power generates huge quantities of high level nuclear waste. Despite over 70-years of effort, funded by many billions of taxpayer dollars, there's still no solution in sight to the disposal problem. Thanks to the infinite wisdom of Congress, taxpayers are financially responsible.

And the waste keeps piling up. U.S. nuclear plants churn out **2,000 metric tons** of high level nuclear waste (spent fuel) every single year and New York is among the 5 states with the largest total amount of nuclear waste. (Kent; Matheny; US GAO; Werner) New York's billions of funding to Exelon's New York nuclear reactors (as of February 2022, spun off into Constellation Energy Corp.) has effectively ensured over a decade of additional thermal pollution, radioactive emissions and nuclear waste inventory buildup. That is more than enough, is it not?

The risk and health impacts will endure for generations to come for New Yorkers and other communities which may, at some point in the future, be compelled to hold New York's toxic radioactive waste. It is a matter of egregious environmental injustice that minority, indigenous and low-income communities already bearing the pollution burden of heavy nuclear, oil & gas, and mining operations are the ones being targeted for nuclear waste disposal. (Kamps; Mermelstein; Morgan; Sierra Club)

D. Radioactive Emissions and Leaks

Nuclear power continuously releases radiation into the environment as part of routine operation.

Virtually every nuclear plant site in the U.S. has also had accidental radiation leaks. (Beyond Nuclear; Chase; Ferkenhoff; GZA; Richards) Unplanned radioactive releases into the groundwater, site soil, and Hudson River from Indian Point was one of the reasons the New York State Department of State refused to grant the plant coastal consistency certification. (Perales) While the public spotlight long-favored exposure of the dangers attendant to the emissions from Indian Point, the other reactors in New York also imperil public health and pollute the environment, most critically Lake Ontario.

It must be understood, the damage done by New York nuclear plants is not limited to New York. Uranium mining and enrichment activities have despoiled and devastated Environmental Justice communities – particularly Native American reservation areas – for decades. Continued use of nuclear means continued mining and adding to the environmental injustice imposed upon indigenous and marginalized populations. (AP; Hoover; Kamptner; Moore-Nall; US BLM; US DHHS)

Continuing to look the other way and continue exploitation of their lands is simply unconscionable.

E. River Ecosystem Destruction and Thermal Pollution

Water resources are a serious and growing concern. And nuclear power plants impose a heavy burden on river systems. (This is *aside from* their radioactive discharges into rivers and groundwater.) (UCS)

As the New York State Department of State noted in its November 6, 2015 determination not to grant Entergy's request for a Coastal Consistency Determination for Indian Point, that site's intake structures, while its units 2 and 3 reactors were operating, withdrew up to 2.5 billion gallons of water per day for cooling, heating the Hudson River water and killing at least a billion fish, fish eggs and other organisms each year.

Thermal pollution represents an especially negative impact in a warming world.

The Great Lakes are heating up and are at especially elevated risk from thermal pollution from nuclear and fossil thermoelectric facilities. (DelSontro; Gustin; Wuebbles) Eutrophication and harmful algal blooms threaten water quality, fisheries, and recreational use essential to upstate tourism. For comparison, the 2 reactors at Indian Point dumped billions of BTUs of heat into the Hudson River each day – approximately equivalent to a Hiroshima-sized bomb. Lake Ontario's waters continue to be heated by 4 operating reactors; i.e., the heat load equivalent of detonation of multiple Hiroshima-sized bombs.

New York ratepayers, forced to pay subsidies to keep these upstate reactors operating, are literally underwriting the despoliation of Lake Ontario.

F. Nuclear's Substantial Greenhouse Gas Contribution

Nuclear power contributes substantially to global warming. Unfortunately, the promotional literature and greenwashing of the industry (like energy industry PR underpinning "clean coal" and "low-carbon" gas) have been swallowed by many without considered thought.

Other kinds of pollution (like chemical spills) stay more or less within a geographic region. Greenhouse gasses, however, pollute not because of where they sit, but because they rise into the atmosphere and alter atmospheric conditions. **From a climate change perspective, it is entirely irrelevant where an emitter is located.**

Therefore climate change analysis of every form of energy generation – and even every energy efficiency technology – must take into consideration all emissions generated throughout the *entire* fuel cycle. If one stage of a particular cycle produces minimal carbon, but every other stage produces prodigious amounts, that industry is a big climate change polluter.

The full fuel cycle shows why nuclear is a poor choice for the planet. Nuclear power is actually a chain of highly energy-intensive industrial processes which – combined – consume large amounts of fossil fuels and generate potent warming gases. These include:

- Uranium mining
- Milling
- Enrichment
- Fuel fabrication
- Transport
- Construction and maintenance of the heavy concrete nuclear reactors and all the other massive industrial structures
- Emissions of new man-made radioactive carbon and methane atoms, released into atmosphere
- Environmental remediation of closed nuclear facilities
- Disposal and burial of voluminous amounts of so-called "low-level" nuclear waste (all the structures and components and materials which are radioactive and contaminated, but not spent fuel)
- Long-term on-site containment of high-level nuclear waste (spent fuel)
- Permanent disposal of high-level nuclear waste, including the construction and maintenance of all waste depositories

With regard to the mining component of the fuel cycle, it is noteworthy that the fissile form of uranium – U-235 – is found in less than 1% of natural ore. Uranium ore is a finite resource which is expected to become increasingly energy intensive to obtain because most of the globe's easy to access high quality uranium reserves have already been excavated.

It is worthy of emphasis that, whereas the burning of fossil fuels releases *sequestered* carbon, nuclear fission creates *new carbon* – carbon that never existed in nature.

Nuclear plant carbon generation is described in a 2010 Electric Power Research Institute (EPRI) technical report titled “Estimation of Carbon-14 (C-14) in Nuclear Power Plant Gaseous Effluents.” (EPRI) In Boiling Water Reactors (BWRs) like FitzPatrick and Nine Mile Point, radioactive carbon is released from the core in volatile form such as CO-14, CO²-14. In Pressurized Water Reactors (PWRs) like RE Ginna, EPRI states: “Carbon-14 is produced in the reactor coolant during power operation, and its production rate increases during the fuel cycle due to increasing neutron flux and ingress of nitrogen. ... Analyses of pressurized PWR reactor coolant samples shows that the ¹⁴C species are essentially 100% organic, and ~50% of the coolant activity is a volatile species (most likely methane).” (EPRI, Chapter 4, p 1.) Most of the C-14 – or methane – is released to the atmosphere via plant venting.

What the EPRI does not address is something which – to our knowledge – is utterly unanalyzed by anyone, and that is the additional gas effluent composition created by recent (and increasing) use of high burnup nuclear fuel. Such fuel is hotter and far more radioactive than traditional fuel. (Alvarez)

Notably C-14 has a half-life of 5,700±30 years. Also relevant to the climate analysis is the fact that methane is 86 times more powerful a heat-trapper than CO-2 over a 20 year timeframe.

Germane to human health is the fact C-14 is readily incorporated into human tissue where its beta decay can destructively target cells. As noted by a National Academies panel: “Most of the activity produced is released into the atmosphere. Effluent releases of carbon-14 have not been required to be reported to the USNRC in the past. However, starting in 2010, plant licenses are required to estimate and report releases of this radionuclide to the USNRC. It has been estimated by some that the atmospheric releases of carbon-14 result in a relatively large contribution to population dose.” (NAS)

The International Atomic Energy Agency has observed that Carbon-14 can be easily concentrated in the food chain. Additionally, “Carbon-14 is easily transferred during biological processes and soil-plant interactions involving carbon compounds. The metabolism and kinetics of ¹⁴C in the human body follow those of ordinary carbon. Inhaled ¹⁴CO₂ rapidly equilibrates with the air in the lungs and enters many components of body tissue. The biological half-life of ¹⁴C is approximately 40 days.” (IAEA)

Further, the huge energy debt left by nuclear power continues long, long after the reactors have stopped generating electricity.

Conclusion

What is needed from policy makers is an examination of the full consequences of proposed regimes, including examination of the broad ways continuing operation of New York's nuclear

reactors and furthering continued dependence upon natural gas may exacerbate climate change, contribute to the State's nation's and world's toxic legacy, further environmental injustice, and divert attention and resources away from the efforts needed to rapidly transform our energy system.

We urge objective assessment absent of the hidden agendas of the nuclear and fossil fuel industries and a judicious application of market mechanisms.

Respectfully,

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On behalf of the Council on Intelligent Energy & Conservation Policy and Promoting Health and Sustainable Energy

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