July 1, 2022

Via electronic mail at scopingplan@nyserda.ny.gov

NYSERDA
17 Columbia Circle
Albany, NY 12203-6399

Re: Riverkeeper, Inc. comments on the Draft Scoping Plan for New York State's Climate Leadership and Community Protection Act ("CLCPA")

Dear NYSERDA:

Riverkeeper, Inc. ("Riverkeeper") greatly appreciates this opportunity to submit comments to the New York State Energy Research and Development Authority ("NYSERDA") regarding the Draft Scoping Plan ("Scoping Plan") for New York State's Climate Leadership and Community Protection Act ("CLCPA").

Riverkeeper is a member supported 501(c)(3) non-profit organization whose mission is to protect and restore the Hudson River from source to sea and safeguard drinking water supplies, through advocacy rooted in community partnerships, science and law.

The landmark Climate Leadership and Community Protection Act sets forth the ambitious but necessary goal of achieving zero-emissions electricity by 2040 in New York. The Draft Scoping Plan provides a roadmap for New York to achieve a sustainable future through the implementation of various strategies and methods, with special considerations given to climate justice, job creation, cost reductions, public health benefits, and minimizing emission leakage. Riverkeeper urges New York to use this opportunity to also improve water quality and balance the protection of our water resources, while moving forward on our energy goals, particularly focusing on the Land Use and Electricity chapters.

I. Consider water co-benefits in developing land use plans

Riverkeeper applauds the scoping plan's recognition of land use's impact on New York's carbon emissions, sequestration, and storage.[1] We agree that carbon sequestration in our natural and working lands should be a key component to realizing the CLCPA goals. The scoping plan identifies various land use strategies to sequester carbon. Riverkeeper urges for the consideration of water co-benefits within the land use strategy, to maximize the effectiveness and positive impacts of this framework. As set forth below, there are a number of areas where the CLCPA

[1] New York State Climate Action Council, Draft Scoping Plan 272 (December 30, 2021) (hereinafter Scoping Plan).

land use strategies and water protection would complement each other, and achievement of one would provide co-benefits to the other.

A. Prioritize afforestation/reforestation that also contribute to watershed protection and restoration

Riverkeeper recommends that the Afforestation and Reforestation strategy in the CLCPA place more emphasis on prioritizing locations that also contribute to watershed protection and restoration. The scoping plan notes, "As urban and community forest cover decreases, so do the critical benefits that these trees provide, such as [. . .] air and water quality improvement, and flood mitigation."[2] This is critical as about 75% of New Yorkers rely on surface drinking water sources.[3] Afforestation, reforestation, and forest preservation creates important buffers that provide significant benefits to watersheds of these sources waters, contributing to a more resilient and sustainable drinking water system. In a 2002 survey conducted by the Trust for Public Land and the American Water Works Association, it was found that more forest cover in a watershed results in lower treatment costs.[4] According to the study, for every 10 percent increase in forest cover in the source area, treatment and chemical costs decreased approximately 20 percent, and approximately 50 to 55 percent of the variation in treatment costs can be explained by the percentage of forest cover in the source area.[5]

The threat of increased development of watershed properties is heightened by population growth of the State. The U.S. Forest Service estimates that nearly 10.3 million acres of forest were converted to developed uses from 1982 to 1997, and continue to accelerate due to pressures of population growth and housing development.[6] Areas most at risk for forest loss are often suburban and urbanizing communities.[7] To ensure to long-term viability of New York's drinking water, source water protection strategies are needed to reduce risk of pollution and degradation of these sources. Therefore, the land use plan should incorporate prioritization of sites critical to watershed protection in its land use strategy.

B. CLCPA should incorporate various strategies to achieve prioritization of watershed protection and restoration

To prioritize watershed protection within the CLCPA land use strategies, New York must first ensure that there is adequate information and research available to use as a basis for prioritizing watershed protection.

As mentioned in the scoping plan, DEC should update wetland and natural resource mapping and DEC should develop a statewide conservation framework that incorporates current

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[2] Scoping Plan, at 280.
[3] *Drinking Water Program: Facts and Figures*, NEW YORK STATE DEPARTMENT OF HEALTH (last revised Feb 2019), https://www.health.ny.gov/environmental/water/drinking/facts_figures.htm.
[4] Caryn Ernst et al., *Conserving Forests to Protect Water*, 30-5 OPTUM 1 (2004).
[5] *Id.*
[6] SUSAN M. STEIN ET AL., FORESTS ON THE EDGE: HOUSING DEVELOPMENT ON AMERICAN'S PRIVATE FORESTS 5 (2005), https://www.fs.fed.us/pnw/pubs/pnw_gtr636.pdf.
[7] *Forests and Drinking Water*, CENTER FOR WATERSHED PROTECTION (last visited July 1, 2022), https://www.cwp.org/forests-and-drinking-water/.

accurate data and climate adaptation needs, such as source water areas.[8] To develop this framework, it is necessary to include mapping of source watersheds as part of updated natural resource mapping effort for use in prioritizing co-benefits within the other various strategies identified, such as forest retention, afforestation/reforestation, mitigating impacts from renewable energy development, development of statewide conservation framework. The map should also integrate New York's 303(d) list of impaired waters into the framework to prioritize co-benefits of sequestration and restoration where feasible.

Along with updating mapping, the scoping plan should dedicate resources to include source waters as part of its research of carbon storage and sequestration potential. Source waters should be listed as a priority conservation area under this and other components throughout the land use strategy, such as for regional and county planning.[9]

In addition, resources and support must be dedicated to enable prioritization of watershed protection on a local and regional level, giving agency to the communities reliant on the various drinking water sources. As part of this, the scoping plan should identify revised Watershed Rules and Regulations part of the LU6 component to develop additional opportunities for local prioritization of conservation/restoration for co-benefits of sequestration/water protection. This is especially important for those communities whose water source lies outside of their geographic bounds. Watershed rules and regulations are one of the few methods in which these communities can gain some control over how their watershed is managed due to New York's Home Rule Law, which generally prohibits local regulation outside of a municipality's geographic bounds. Similarly, the scoping plan should identify Drinking Water Source Protection Program in the portfolio of state technical assistance programs to be expanded and coordinated in LU9 setting forth state support for regional and county planning.

II. Limit the use of hydropower within New York's plan for reducing greenhouse gases

A. Riverkeeper disfavors the implementation of new hydropower across the state.

Hydropower has often been mistakenly thought of as a sustainable "clean" electric generation option, but that is just not true. While the scoping plan does not focus on hydropower specifically, Riverkeeper calls for the plan to explicitly minimize the use of new hydropower. The implementation of new hydropower throughout the state of New York would introduce unnecessary carbon dioxide discharges throughout the state. With new hydro power comes new concerns, specifically CO_2 discharges. Unnecessary CO_2 discharges introduces additional pollution, and any and all mitigation efforts to reduce this mass pollution must be considered. In addition to the climate impacts, hydroelectric dams have significant negative impacts to ecology and aquatic life. Therefore, the electricity chapter and other portions of the draft scoping plan should specify that any usage of hydropower must be done minimally and most importantly, carefully.

[8] Scoping Plan, at 287-288.
[9] Scoping Plan, at 288-289.

Currently, the Climate Leadership and Community Protection Act ("CLCPA") lacks clarification on hydroelectric dams versus diversions. The differentiation between the two terms is necessary for the CLCPA and should be carefully done. The redirection of water, a diversion, has differing impacts and benefits than that of new hydropower for a waterway. It is Riverkeeper's stance to disfavor any and all new hydropower introduction across New York State as compared to other types of sustainable energy such as wind and solar.

B. New hydropower is not a "clean" power source

The current Climate Leadership and Community Protection Act (CLCPA) refers to "low-cost" and "clean" hydropower sources.[10] Hydropower, in general, is not a clean energy source as it is not low carbon and has multifaceted impacts. Dams transform what would otherwise be a natural landscape into a reservoir. Natural landscapes often perform as carbon sinks, absorbing more carbon from our atmosphere than it releases back into it.[11] The need to preserve our natural and working lands for carbon sequestration is recognized within the Land Use section of the scoping plan.[12] Transforming these natural landscapes into an energy source purges the natural landscape of its ability to harness carbon and turns the area into an energy source emitting both carbon dioxide and methane. The emission of both carbon dioxide and methane occurs where organic matter decomposes in the presence of oxygen and where decomposition occurs with limited oxygen. The creation of such reservoirs would therefore be in direct contradiction to the key strategies identified in the land use section of the scoping plan, namely to protect, restore, and monitor natural and working lands.[13]

Multiple studies have challenged the notion that hydropower is a low-carbon resource. In 2013, a published study confirmed global average hydropower emissions were 85 gCO2/kWh and 3 gCH4/kWh, with a multiplicative uncertainty factor of two.[14] In 2016, a study further confirmed these emissions to be even higher than previously assumed, with global averages at 173 kg CO2 and 2.95 kg CH4 emitted per MWh of electricity produced, resulting in a combined average carbon footprint of 273 kg CO2e/MWh when using the global warming potential over a time horizon of 100 years (GWP100).[15] Most recently, in 2019, it was found that some hydro impoundments even exceed greenhouse gas emission impacts that surpass coal on both short and

[10] Scoping Plan, at 184 (referring to leveraging "NYPA's low-cost clean hydropower" as part of financial and technical assistance to the industrial sector); see also, Scoping Plan, at 191 (discussing the ReCharge New York program in which NYPA provides low-cost hydropower to certain businesses and not-for-profit organizations).
[11] *What is a Carbon Sink?*, CLIENTEARTH (Dec 22, 2020), https://www.clientearth.org/latest/latest-updates/stories/what-is-a-carbon-sink/.
[12] Scoping Plan, at 272 (land use overview).
[13] Scoping Plan, at 275-289.
[14] E.G. Hertwich, *Addressing Biogenic Greenhouse Gas Emissions from Hydropower in LCA*, ENVTL. SCI.& TECH. 9604-11 (Aug. 2, 2013) (global average emissions from hydropower are estimated to be 85 gCO2/kWh and 3 gCH4/kWh, with a multiplicative uncertainty factor of 2).
[15] L. Scherer & S. Phister, *Hydropower's Biogenic Carbon Footprint*, PLOS ONE (Sept. 14, 2016) (carbon footprint of hydropower is far higher than previously assumed, with a global average of 173 kg CO2 and 2.95 kg CH4 emitted per MWh of electricity produced, resulting in a combined average carbon footprint of 273 kg CO2e/MWh when using the global warming potential over a time horizon of 100 years (GWP100)).

long timeframes.[16] The impact hydropower has to greenhouse gas emissions must be recognized when assessing strategies for New York's sustainable future.

C. Hydropower has significant negative impacts to ecology and aquatic life

In addition, to hydropower's emission contributions, hydroelectric dams can cause immense damage to the natural flow and ecology of our waterways, harming water quality and aquatic life in those areas. The impoundments created behind dams block the natural flow of waterways, allowing build up of nutrients, silt/sediment, and pathogens impairing water quality.

Hydroelectric dams also create physical barriers that block the migratory pattern of various fishes and aquatic life. These barriers not only limit the habitat available to these fishes, but also contribute significantly to fish mortality for those that are entrapped or impinged in attempt to pass through the dams. Safe passage to and from rivers, and protection of freshwater habitats are critical for the conservation of native and diadromous fishes. Hydroelectric dams have been constructed in many rivers that historically had high densities of eels and other species, and these fish have been severely impacted by these in-water structures.

The dams in general fragment rivers and vitiate habitat integrity, which combine to cause one of the largest problems facing freshwater species. Consequently, freshwater dependent species are now considered the imperiled taxa on the planet, largely because dams and their attendant impacts that have been shown to impair the flow and function of river systems, which in turn harms these aquatic organisms because of: (1) fragmented habitat; (2) restricted gene flow; (3) altered hydrologic cycles; (4) reduced sediment and nutrient transport; (5) increased downstream scour from clear water releases; (6) altered chemical and thermal regimes (impoundment); (7) altered chemical and thermal regimes (downstream); (8) converting lotic systems into lentic systems; (9) supersaturation of downstream waters from high-velocity waterfalls and discharges, which can cause emboli in the gills and tissues of fish causing death; (10) adversely affect downstream streambeds through loss of sediment transportation that can compromises habitat quality and complexity; (11) altered hyporheic zones; (12) lateral disconnection to floodplains (13) altered river hydrology and hydraulic action; (14) channelization; (15) inducement of HABs; all of which collectively or independently can drastically alter aquatic community assemblages or induce species extirpations and even lead to extinctions.

North America is the epicenter for freshwater biodiversity, possessing the highest species richness for freshwater fishes, mollusks, crustaceans, amphibians, and aquatic insects such as stoneflies, mayflies, and caddisflies. However, the global extinction rate for freshwater species is 900 times greater than the background extinction rate, and five times greater than the extinction rate of terrestrial species. Freshwater mussels may be the most sensitive of the species to dams and fragmented habitat and represent the most imperiled of all the taxa. In North America alone, 70 percent of freshwater mussels are at risk of extinction mostly due to human domination and alteration of our rivers and streams.

[16] I.B. Ocko & S.P. Hamburg, *Climate Impacts of Hydropower: Enormous Differences among Facilities and over Time*, ENVTL. SCI.& TECH. (2019) (finding some hydro impoundments have GHG emission impacts greater than gas and even coal on both short and long timeframes).

Hydropower dams are a particular concern to migratory diadromous fishes, blocking access to significant portions of critical habitat. In addition, the machinery associated with electricity generation (turbines), and the water intake systems can cause significant mortality. Injury or mortality to fish are often the result of passage at hydroelectric facilities from the following: (1) turbines and mechanical components; (2) entrainment; (3) impingement of fish, larvae, or eggs against screens/trash racks; (4) falling from spillways; (5) turbulence and shear forces; (6) hyper-oxygenated water; (7) extreme pressure changes; (8) disorientation leading delayed migrations patterns.

These negative impacts on ecology and aquatic life must be seriously considered whenever any new hydropower is proposed and minimized whenever possible.

III. Ensure sensible energy storage

The scoping plan correctly identifies energy storage as essential part of the shift to sustainable energy. With today's technology, pumped storage is considered the most viable large-scale solution for energy storage. But pumped storage requires large bodies of water from which water may be transferred. Riverkeeper urges the state to ensure that no new pumped storage is proposed for existing green spaces within the CLCPA scoping plan, which often comes with similar negative impacts as those of dams as discussed above. Instead, siting of pumped storage should be considered for lower impact sites, such as existing man-made reservoirs or impoundments, remediated industrial sites, or former power plant locations.

IV. No new electric cables in the Hudson River

While Riverkeeper agrees with the scoping plan that transmission lines in general are necessary to the CLCPA goals, no new transmission lines should be sited within the Hudson River unless it is absolutely unavoidable. The Hudson River Estuary is the second largest spawning ground and fish nursery on the East Coast of the United States and is considered critically important habitat for a wide variety of species for all or part of their life history. The Hudson River currently holds the ignominious distinction as the country's largest Superfund site, and as a result of industrial pollution the fish in the river are no longer suitable for human consumption. Even worse, the populations of every iconic Hudson River fish or fishery are in desperate states of decline. Using the Hudson as a conduit for electric cables threatens to stir up PCB laden sediments and pose risks to fish, aquatic life, drinking water supplies and negative impacts to the maritime shipping industry. These lines must be kept on land to the full extent possible using existing right-of-ways or bridge crossings. The impact of imported energy should be also assessed as a whole, considering all impacts at the energy source, transmission lines, and the receiving communities.

A. Transmission lines within the Hudson threatens harms to both human and aquatic life

The existing plans for transmission lines in the Hudson, such as the recently approved Champlain Hudson Power Express ("CHPE") cable, threaten both human and aquatic life. The Hudson River Estuary is the second largest spawning ground and fish nursery on the East Coast

of the United States and is considered critically important habitat for a wide variety of species for all or part of their life history. The Hudson River currently holds the ignominious distinction as the country's largest Superfund site, and as a result of industrial pollution the fish in the river are no longer suitable for human consumption. Even worse, the populations of every iconic Hudson River fish or fishery are in desperate states of decline. Most exist as mere shadows of their former abundance, with both species of sturgeon endemic to the Hudson classified as endangered.

The CHPE cable is slated to be buried 7 feet into the river sediments where possible. Where there are insufficient sediments it will rest on rock, covered by concrete tiles. There are a number of problems with this approach. First, the Hudson is contaminated by PCBs, coal tar, and a range of other contaminants that lie within its sediment. Stirring up those contaminants during construction could cause ecological harm and could contaminate drinking water intakes used by seven communities along the Hudson, serving over 100,000 people in all. Second, the marine industry is concerned that anchors deployed in an emergency could snag the cable. Third, it is well documented that many species of fish, including sturgeon, can detect magnetic fields caused by buried cables and change their behavior. As studies continue to expand with regard to the effects of fields, it is becoming readily apparent that fishes of such as the eels, lamprey, catfishes, sharks, rays, sturgeons, salmonids, tunas, herring, flatfishes, cods, and most bony fishes, as well as marine mammals and turtles are sensitive to electric fields, and some will shy away from electromagnetic pulses from conducting cables.

B. Transmission lines must be assessed as a whole, considering impacts from source to end users

Transmission lines should not be assessed in a vacuum and any proposed transmission line should be scrutinized from source to end user. Beyond the impacts of the transmission line itself and the benefits to the consumers of the transmitted electricity, New York should consider the impacts from the power generation. It would be contrary to the CLCPA goals to provide "clean" power to New York, while just shifting impacts to other geographic areas. This is recognized in the scoping plan's overall goal of mitigating risk of leakage.[17] The scoping plan should include provisions to reject any future proposals that are similar to the recently approved CHPE cable, which poses large ecological and environmental justice concerns at its generation source.

As discussed in the previous section, hydroelectric dams are far from carbon-free and CHPE's dams are no exception to the rule, contributing to the overall emissions load. As the scoping plan recognizes, leakage that merely shifts emission to out-of-state producers must still be calculated within in-State emissions. Similarly, it is contrary to the intent of the CLCPA to shift environmental burdens from local disadvantaged communities to those out-of-state. The scoping plan must include provision to prevent future projects like CHPE from being approved. CHPE's Canadian hydropower raises many environmental justice concerns. Land was taken without consent for dam building and the methylmercury bioaccumulation in fish that serve as a critical food source for indigenous peoples, leading to a risk of mercury poisoning. Such impacts in future projects must be avoided under the spirit of the CLCPA and the scoping plan must explicitly call out the holistic consideration of impacts for any future transmission lines.

[17] Scoping Plan, at 259-260.

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In conclusion, the CLCPA goals for zero emissions is both laudable and critical to the future of New York. Above, Riverkeeper provides a few recommendations to use this opportunity to also improve water quality and balance protection of our environmental and water resources, while moving forward on our energy goals. To this end, Riverkeeper urges the state to prioritize watershed protection co-benefits throughout its land use strategy. We further strongly recommend that the scoping plan recognizes and minimize the negative impacts of new hydropower, transmission lines in the Hudson River, and pumped energy storage on existing green spaces to the extent possible. While Riverkeeper acknowledges that total circumvention of these methods may not be possible, the scoping plan should seek to avoid such projects and these impacts whenever possible, and strictly scrutinize project proposals.

Riverkeeper is appreciative of New York's leadership on moving towards a sustainable future and looks forward to working with the State on its next steps. Thank you for your consideration.

Sincerely,

Victoria Leung
Staff Attorney
Riverkeeper, Inc.