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July 1, 2022

NYSERDA  
17 Columbia Circle  
Albany, NY 12203-6399

**Re: Draft Scoping Plan**

To Whom It May Concern:

Mainspring Energy, Inc., (“Mainspring”) applauds the significant efforts of the New York State Climate Action Council (“Council”) in developing this comprehensive Draft Scoping Plan (“Scoping Plan”) and we appreciate the opportunity to provide comments.

The Scoping Plan identifies a multitude of challenges associated with decarbonization of the electricity sector and endeavors to provide a strategic roadmap to address the impacts of climate change and the resulting extreme weather events in the context of achieving the objectives set forth in the Climate Leadership & Community Protection Act (“CLCPA”).

Mainspring offers the following comments and recommendations on Chapter 13 of the Scoping Plan.

[About Mainspring](#)

Driven by its vision of the affordable, reliable, net-zero carbon grid of the future, Mainspring has developed and commercialized a new distributed power generation technology — the linear generator — that delivers dispatchable, fuel-flexible electric power at low cost. Mainspring’s linear generator offers a unique and highly flexible energy and capacity expansion solution that can

simultaneously address the critical need for greenhouse gas and criteria pollutant emissions reductions while also maintaining reliability and resilience.

Modular and scalable, Mainspring's linear generators can be deployed where demand exists, either at a local level or at utility scale. Full dispatchability also allows linear generators to consistently match power output with demand, while integrating with and firming variable renewables such as solar and wind, thereby supporting the continued rapid adoption of renewable energy while bolstering resilience and avoiding unnecessary curtailment.<sup>1</sup>

### Chapter 13: Electricity

The CLCPA established ambitious goals for the electricity sector and the Scoping Plan correctly acknowledges the need for renewable energy technologies to meet these goals. A variety of zero-carbon resources will be needed to meet the State's 2030 and 2050 targets.

A whitepaper published by the Environmental Defense Fund and the Clean Air Task Force, titled "California needs clean firm power, and so does the rest of the world" ("Whitepaper"), modeled the future of California's power system and projected the mix of resources that would be required to meet the state's carbon reduction goals.<sup>2</sup> In addition to widespread transportation electrification and deployment of wind, solar, and energy storage, the Whitepaper identified a significant need for investment in clean firm power — i.e., an "alternative source of clean electricity that is available on demand, for as long as it is needed, whenever it is needed."<sup>3</sup>

Like California, New York has established aggressive targets to combat the climate crisis and clean firm power resources, such as Mainspring's linear generator, which has the flexibility to utilize a variety of zero-carbon fuels, are essential to ensuring that greenhouse gas emissions reductions can be achieved without sacrificing affordability, year-round reliability, and multi-day resilience.

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<sup>1</sup> For additional information on technical specifications and performance benefits, visit <https://www.mainspringenergy.com/technology/>.

<sup>2</sup> "California needs clean firm power, and so does the rest of the world", Authored by the Environmental Defense Fund, Stanford University, Princeton University, Energy & Environmental Economics, Clean Air Task Force, UC San Diego and the Brookings Institution, September 2021. Available at: <https://www.edf.org/sites/default/files/documents/SB100%20clean%20firm%20power%20report%20plus%20SI.pdf>.

<sup>3</sup> Id. at p. 1

## Sector Strategies

Mainspring strongly agrees with the Scoping Plan that it is imperative to “...decrease the use of emitting fuels in the electricity sector, New York must deploy clean energy resources...”<sup>4</sup> As such, we respectfully urge the Council to advance technology inclusive, performance-based standards, in order to encourage innovation and prioritize whichever clean energy solutions simultaneously optimize for emissions reductions, resilience and affordability.

The Scoping Plan indicates that peaking generators, although “typically the most expensive and polluting units on the system (on an emission rate basis)”, may need to be relied upon for some period of time “...where energy delivery into the load pocket may become congested, requiring electricity to be produced and delivered locally”.<sup>5</sup> Modular and scalable, Mainspring’s linear generators can be deployed in load pockets as a flexible capacity expansion solution with the ability to immediately run on a multitude of renewable fuels. This means that peaker replacement needn’t be delayed for localized reliability or resilience purposes and, instead, linear generator technology should be considered as a solution to meet this need. As discussed in the Whitepaper, “...(s)olar and wind do not need to do the job alone...Clean firm resources do not depend on the weather like solar and wind do, and these resources do not have limitations in how long they can produce power, as batteries do.”<sup>6</sup> Linear generators are a clean firm resource that can increase reliability in grid-constrained load pockets, and moreover complement existing and forthcoming deployment of renewable energy through firming intermittent load.

The Council’s own analysis notes that “A zero-carbon firm resource will be required in extended periods of high load and low solar and wind generation. Significant overbuild of Li-Ion batteries, solar and wind would be required in its absence”.<sup>7</sup> This highlights critical facets of the need for firming resources in meeting grid demand. Clean firm power is essential to support existing and future intermittent renewable resources; this point is well-recognized in the Council’s analysis. Overbuilding batteries and intermittent resources has enormous ramifications in terms of actual costs –both monetary and otherwise– that the state and ratepayers will incur to transition to a decarbonized economy.

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<sup>4</sup> New York State Climate Action Council, Draft Scoping Plan, at p. 154.

<sup>5</sup> Id, at p. 155.

<sup>6</sup> “California needs clean firm power, and so does the rest of the world”, at p. 5.

<sup>7</sup> New York State Climate Action Council, “October 14, 2021 – Meeting 16”, slide 47.

Available at:

<https://climate.ny.gov/-/media/Migrated/CLCPA/Files/2021-10-14-CAC-Meeting-presentation.pdf>.

The Council’s analysis notes intermittency issues could be met with 31 gigawatts of new 100-hour long duration energy storage, but this approach presents two key hurdles.<sup>8</sup> First, both the current<sup>9</sup> and near-term future state of energy storage likely will not be able to cost-effectively meet this duration requirement. The Department of Energy noted in their May 2022 Energy Storage Demonstration Projects Request For Information, “At least 1 project must be designed to further the development of technologies...which have the capacity to discharge energy for 10 to 100 hours.”<sup>10</sup>

Further, the Clean Air Task Force’s whitepaper’s modeling found that “...without clean firm power, 3-10 times as much land would be required...” to meet the needs of a decarbonized grid.<sup>11</sup> To be clear, this is in no way intended to minimize the immense role of intermittent renewables and energy storage in decarbonizing the grid, particularly as energy storage costs decrease and storage duration increases. However, certain clean fuels have the potential to provide an important source of seasonal energy that will be increasingly important in areas with vast amounts of retiring capacity of conventional generators and climates with energy demand seasonality like New York. Deploying zero-carbon clean firm resources at scale will cost-effectively maximize the output of intermittent renewables when the sun is not shining, the wind is not blowing and/or a battery fleet doesn’t have an adequate state of charge, representing the most efficacious path forward for the State’s ratepayers, communities, and the environment.

Mainspring supports the Scoping Plan recommendation to consider the creation of Clean Dispatch Credits (“CDCs”) that compensates flexible assets that dispatch during peak load times.<sup>12</sup> Mainspring recommends that such a program should be technology agnostic when establishing which resources would be eligible to receive CDCs and instead focus on technology attributes that would contribute most to grid reliability. This approach ensures the State does not inadvertently exclude any flexible resources that support reliability.

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<sup>8</sup> Id. at slide 48.

<sup>9</sup> Wesley Cole, A. Will Frazier, and Chad Augustine, National Renewable Energy Laboratory, “Cost Projections for Utility-Scale Battery Storage: 2021 Update”. June 2021. Available at: <https://www.nrel.gov/docs/fy21osti/79236.pdf>.

<sup>10</sup> US Department of Energy, “Office of Clean Energy Demonstrations, Request for Information #DE-FOA-0002777BIL Section 41001: Energy Storage Demonstration Projects”, May 12, 2022. Available at: [https://www.energy.gov/sites/default/files/2022-05/41001%20RFI%205.2.22\\_EOP\\_v2%20CLEAN%20No%20Watermark%20PDF.pdf](https://www.energy.gov/sites/default/files/2022-05/41001%20RFI%205.2.22_EOP_v2%20CLEAN%20No%20Watermark%20PDF.pdf)

<sup>11</sup> “California needs clean firm power, and so does the rest of the world”, at p. 11.

<sup>12</sup> New York State Climate Action Council Draft Scoping Plan, at p. 158.

Mainspring strongly supports the recommendation to accelerate interconnection application processing timeframes to facilitate the deployment of distributed energy resources (“DERs”).<sup>13</sup> The Scoping Plan correctly states that “...(i)ncreases in distribution system hosting capacity and the pace of interconnection will be in important factors in facilitating deployment of DG/DER.”<sup>14</sup> Linear generators are flexible assets that can provide that capacity and support the integration of renewables. As such, Mainspring recommends linear generators be included as a key DER in addition to solar, storage and other technologies.

The Scoping Plan acknowledges the need to consider the role of new technologies such as long-duration storage, renewable natural gas (“RNG”), green hydrogen, nuclear and other emerging technologies in decarbonizing the grid. The Scoping Plan also states the “...prospects are not so clear...” for advanced fuels.<sup>15</sup> While Mainspring agrees additional research and analysis of advanced fuels is beneficial for long-term grid planning, there are real world examples of power generators using advanced fuels that are on the ground now or will be in the near future. State policymakers should leverage the experience gained by existing generation projects using advanced fuels such as hydrogen, RNG and ammonia and use that to inform future advanced fuel policies in addition to investing in further research and development.

Power generation using zero-carbon fuels provides benefits that are critical in ensuring that the electricity grid remains reliable and resilient, and investments in these technologies should be made as soon as practicable.

### Conclusion

Mainspring appreciates the opportunity to comment on the Draft Scoping Plan and looks forward to collaborating in the future.

Sincerely,

/s/ Melicia Charles

Melicia Charles,  
Director of Regulatory Affairs

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<sup>13</sup> Id, at p. 160.

<sup>14</sup> Id, at p. 160.

<sup>15</sup> Id, at p. 176.