



Comments of the Environmental Defense Fund

March 15, 2022

Environmental Defense Fund (“EDF”) appreciates the opportunity to submit comments regarding the Draft Pathways Study Report prepared by the Analysis Group (“AG”) dated February 2022 (“Report”). EDF recognizes that the Report represents a tremendous amount of effort and understands that the Report is still a work in progress. In that light, EDF offers the following comments and questions to help ensure that subsequent iterations of the Report consider all necessary factors.

I. Role of Combined Cycle Generation

The Report notes a reduction of almost 2,700 MW of combined cycle capacity between 2020 and 2040 under the Status Quo policy approach and an increase of almost 2,900 MW in gas turbine generation.¹ EDF agrees that with increasing market volatility due to penetration of intermittent generation, the need for fast ramping generation will increase. However, such need may be mostly addressed by battery storage due to its higher flexibility and additional benefits that battery storage provides. Under those circumstances, combined cycle (“CC”) gas fired generation may play a more prominent role compared to gas turbines (“GT”) and internal combustion (“IT”). In addition, CC has the added benefit of having lower emissions per MWH, higher efficiency, and the ability to provide baseload reliability. Therefore, EDF would like clarification as to whether AG’s analysis underestimates the role that CC gas fired generation may play in comparison to GT, IC, and simple cycle gas fired generation.

¹ Report Table V-1 at p. 40

II. Negative LMPs

EDF requests additional clarification regarding the negative LMPs that are observed with the Status Quo, FCEM, and Hybrid scenarios. Specifically, please provide clarification as to whether the negative LMPs are attributable to overproduction and the economic congestion and resulting mismatch between load and generation. If so, it's possible that generators may disconnect from the grid rather than continue to generate at negative LMPs and make payments. This may especially be true with lower CEC payments in the future as renewables mature further and subsidy payments reduce overtime. Were such likelihoods considered and modeled as part of the scenarios with negative LMPs?

III. Transmission

Transmission constraints are an important driver of cost of energy and LMPs. Though the study models place limits on key interfaces which captures congestion at a macro level along these key New England interfaces, it is EDF's understanding that copper plate modeling of transmission network does not consider more localized congestion which will drive up both congestion and curtailment. Higher congestion and curtailment results in higher social costs, one of the matrices that the Report evaluates. Arguably, this in turn will impact the results observed under various scenarios. For example, offshore wind (OSW) is very location specific and likely to be concentrated in terms of interconnection to the bulk transmission grid. All OSW interconnections to the ISO-NE transmission grid are likely to be concentrated along a narrow stretch of the onshore transmission network in closer proximity to the offshore lease areas. As a result, certain areas are likely to experience relatively high congestion and curtailment due to concentration of intermittent generation. Has this likelihood been factored into the scenarios in the Report? In addition, do costs associated with the transmission upgrades required to facilitate OSW interconnection align with costs cited in other recent OSW interconnection studies?²

IV. Additional Questions

In general, were gas pipeline or transportation cost considered as part of the analysis used in the Report?

The Report notes curtailment of OSW as being much lower than onshore wind which has the highest curtailment.³ However, as modeled in the analysis⁴ OSW capacity is

² For example, the System Impact Study for an OSW project in New Jersey, PJM queue position AE2-251(https://www.pjm.com/pub/planning/project-queues/impact_studies/ae2251_imp.pdf) at p.9 notes transmission grid upgrades costs as high as \$934.7 million for a 1,200 MW OSW project.

³ Report, Figure V-8 at p. 50

expected to be significantly higher than onshore wind capacity in the years 2027 through 2035 when highest curtailment across all intermittent technologies is observed. Can AG provide clarification regarding this point?

EDF appreciates the opportunity to comment on the Report and looks forward to working with stakeholders on these issues going forward.

Jollette Westbrook
Director & Senior Attorney, Energy Markets & Regulation
Environmental Defense Fund
16 Tremont Street, Suite 850
Boston, MA 02108
(617) 406-1838
jwestbrook@edf.org

⁴ Id. Figure V-1 at p. 39 and Table V-1 at p. 40