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April 24, 2023

VIA ELECTRONIC FILING
Sherri Golden
Secretary of the Board
44 South Clinton Ave, 1st Floor
PO Box 350
Trenton, NJ 08625-0350

RE: QO21010085 - Response to Request for Comments on Modernizing New Jersey's Interconnection Rules, Processes, and Metrics

Dear Secretary Golden,

Ecogy Energy, based in Brooklyn, NY and founded in 2010, is an experienced developer, financier, and owner-operator of distributed generation projects across the U.S. and Caribbean.

Ecogy's focus and niche is on the <1 MW arena, particularly on systems sited on rooftops, parking lots, and brownfields. Ecogy is committed to developing distributed energy resources, including battery storage both in front of the meter and behind the meter. Ecogy believes that with sound planning, proper development, and fair incentives for these types of projects, the State, its residents, and the clean energy industry as a whole will ultimately be more successful. Ecogy firmly believes that by focusing on such projects constructed in and on the built environment, the development community can preserve precious and limited natural resources while directing the benefits of local solar to small businesses, property owners, nonprofits, low-income individuals, and other organizations that need them most.

Ecogy appreciates and supports the New Jersey Board of Public Utilities ("NJBPU," "BPU," or "Board") in its leadership in modernizing and codifying updated interconnection rules and processes. We commend the Board for engaging with stakeholders on this important issue.

Please accept the document below as Ecogy Energy's response regarding docket No. QO21010085 entitled Modernizing New Jersey's Interconnection Rules, Processes, and Metrics.

Net Metering Definitions

Ecogy has no comment on this section.

Interconnection Definitions

Ecogy has no comment on this section.

General Interconnection Provisions

Ecogy is eager to see § 14:8-5.2 (e) come into effect by June 1, 2023. The Common Interconnection Agreement Process (CIAP) portal will be essential for consistency and standardization in the user interface and Customer-generator experience with interconnection requests across the Electric Distribution Companies (EDCs) in New Jersey.

In addition to the many important pieces of information and features the rules currently propose to be included in the portal-based application, Ecogy suggests that the Board also include two-way communication capabilities. Allowing the Customer-generator to ask questions, provide feedback, and engage in conversation relevant to the project application or otherwise with an EDC employee will help both the EDC and the Customer-generator. The EDC will learn in live time how their portal can be improved, both the EDC and Customer-generator will save time by eliminating back-and-forth emails or phone calls outside of the portal, allowing the project to be deployed in a more efficient fashion, and the Customer-generator will save on project economics by cutting down on the interconnection timeline.

> *"PAVE" is a Pre-Application Verification/Evaluation process designed to provide a prospective Customer-generator an opportunity to receive actionable feedback from the EDC about the technical aspects of an interconnection request, including electrical feasibility, timeline, and other technical and procedural matters at the beginning of the interconnection process.*

Ecogy Energy supports the PAVE initiative and believes that pre-application/evaluation services are critical to project success. Having resources available earlier on in the development process improves project maturity, timeliness, and accuracy. An example of success in neighboring markets is New York's Interconnection Ombudsman Effort.[1] The New York Department of Public Service ("DPS") drives this initiative for all New York utilities to have a contact person available to developers for site plan and electrical design technical assistance. New Jersey should also have the option for communication between the interconnection team and the development community.

> § 14:8-5.2 (f)
>
> *Each EDC shall designate an employee or office from which an Applicant can obtain basic application forms and information through an informal process. On request, this employee or office shall provide all relevant forms, documents, and technical requirements for submittal of a complete application for interconnection review under*

[1] Interconnection Ombudsman Effort
https://dps.ny.gov/interconnection-ombudsman-effort

this section, as well as specific information necessary to contact the EDC representatives assigned to review the application.

While the above description orders EDCs to designate one person as the interconnection liaison or ombudsman person of sorts, will they also be available to answer direct questions in the PAVE process, or before an application is submitted? Ecogy thinks this would be extremely helpful to developers, as having an open line of communication as early as possible in the process ensures efficiency and accuracy in the development process.

For the mission of truly modernizing the interconnection process, making all aspects of the process digitally capable is essential wherever possible. This includes payments, so we suggest that the rules include an explicit provision for accepting payments in a secure online portal within the CIAP portal.

Certification of Customer-generator Interconnection Equipment

Ecogy takes no issue with complying with the standards set forth for a Customer-generator's interconnection equipment.

Level 1 interconnection review

Ecogy has no comment on Level 1 as we do not develop solar projects with a capacity of 25 kW or less.

Level 2 interconnection review

Ecogy understands the screening requirements necessary for level 2 interconnection approval, and we appreciate the outline provided of the process EDCs must follow depending on the outcome of the interconnection application: requirements were not met, requirements were met, and initial review does or doesn't indicate that additional review may enable the EDC to approve an interconnection request. It would also be helpful if this written "if, then" scheme could be displayed as a flow chart through the interconnection process, as Eversource, an EDC in Connecticut provides.

Figure 1: Interconnection Process Flow Chart

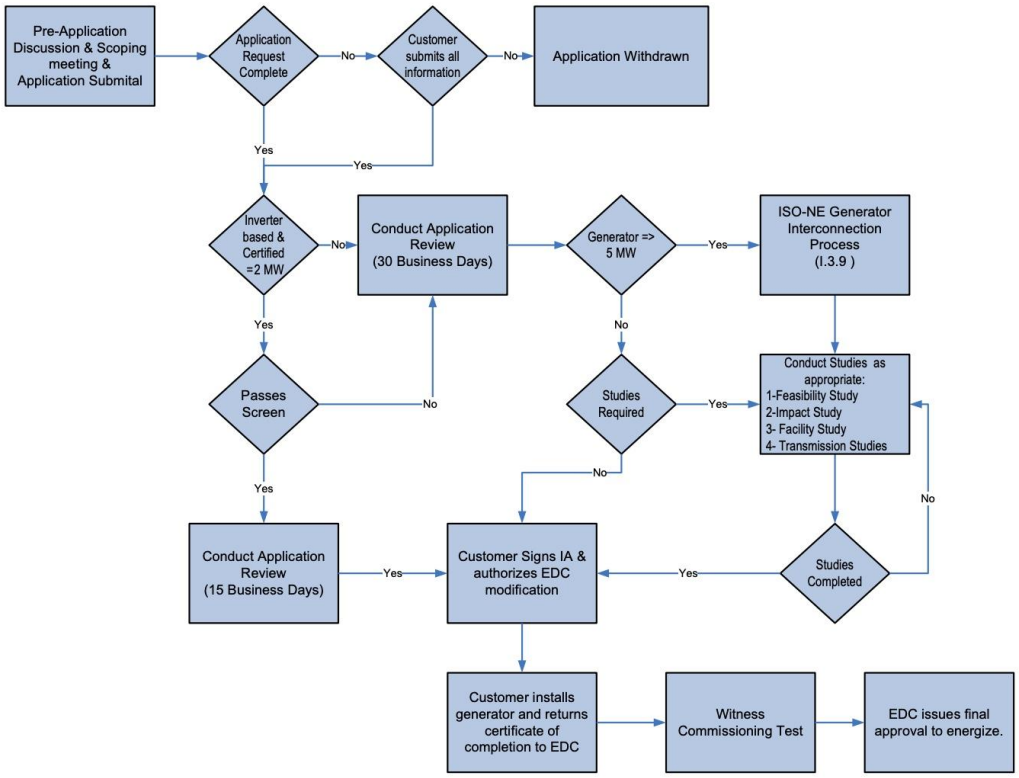

Figure 1. Interconnection Process Flow Chart which provides an overview of the steps necessary for a successful interconnection.[2]

However, we believe the categorization of Level 2 is inefficient. Larger interconnection requests in level 2 could look like a 1.5 MW solar rooftop plus carport/canopy project. The smaller end of level 2 requests might be a modest 200 kW AC rooftop-only solar system. These hypothetical instances point to an oversight in the interconnection levels. A larger system would likely have greater impacts on the electrical circuit to which it's trying to interconnect, whereas a smaller system would likely have minimal grid impacts. For example, in Massachusetts, systems below 200 kW AC enjoy an expedited review, and the cost of completing interconnection studies for such system size is significantly lower.

Ultimately, streamlined interconnection processes and better distribution system planning remain ambiguous, and the industry increasingly requires improvements to the ways in which interconnection upgrade costs are assigned to developers, utilities and ratepayers. It is Ecogy's recommendation to standardize and streamline the permitting process for distributed energy

[2] Eversource Guidelines for Generator Interconnection
https://www.eversource.com/content/docs/default-source/builders-contractors/guidelines-generator-inter-fast-track.pdf?sfvrsn=73766d57_2

resources across the State of New Jersey including improvements to hosting capacity, and aligning agencies that are critical to ensuring the safety of New Jersey residents.

To that end, Ecogy recommends expediting smaller projects (250 kW AC or less) through the interconnection queue so that the less impactful and potentially less harmful interconnection requests can be deployed faster, bringing New Jersey closer to achieving its clean energy goals. Expedition can be aided by reserving a large percentage (over 50%) of capacity per substation for these smaller projects. Smaller projects create more jobs per kW or MW of capacity, help diversify an EDCs portfolio, and have greater chances of reaching operation which will ultimately help New Jersey reach its clean energy goals faster.

Local Solar Creates Local Jobs

There is no doubt that in the years to come, solar energy will be a key driver of employment growth. Statistics from the United States Energy & Employment Report 2021 (USEER) show that nationwide, solar electric jobs totaled 316,675 by Q4 2020 with the vast majority (123,375) being installation and construction jobs.[3] For comparison, oil and natural gas jobs totaled 705,180 jobs (495,210 for Petroleum, 209,970 for Natural Gas), a 21% decrease from 2019. Solar employers were reported to be on track to increase their employment by 11.7 percent in 2021, which provides much needed job opportunities amid the COVID-19 crisis that profoundly and permanently impacted the employment landscape within the U.S. **Of these solar jobs, 80.6% (USEER) are outside of the utility-scale, even though 67.8% of total solar generation (MW) is utility-scale - emphasizing the importance of supporting non-utility scale jobs in New Jersey.**

This tells us that the jobs per MW for utility-scale are lower than that of the small and medium commercial scale. For this reason, Ecogy believes that if the state of New Jersey and the NJBPU want to advance economic growth through solar development, they must adopt policies, like expedited interconnection, that will help small-to-medium-scale commercial solar developers rather than make it harder to develop projects in-state and at a local scale that benefits communities the most.

<u>Local Solar Will Boast The Local Economy</u>

On a national scale, a 2019 U.S. Small Business Association (SBA) report found that small businesses accounted for 44% of U.S. economic activity, making them a significant driver of jobs, innovation and economic growth.[4] Further, studies have shown that compared to large corporations, small businesses recirculate a larger share of every dollar within the local economy, since they create “locally owned supply chains” and invest in their employees. Research

[3] United States Energy & Employment Report 2021 (USEER)
[4] https://advocacy.sba.gov/2019/01/30/small-businesses-generate-44-percent-of-u-s-economic-activity/

conducted in Salt Lake City, Utah, found that local retailers returned 52% of their revenue back into the local economy compared to just 14% by national chain retailers.[5] Additionally, small-scale businesses spend more money on local labor and locally produced services such as construction, electrical work, tree trimming, and roof repair. As a result, even modest increases in revenue can have a big impact on the local economy. Local solar, which is typically built on the roofs of small businesses, enhances these economic benefits since it provides small businesses with an additional revenue stream that they then circulate within their respective local economy.

The COVID-19 pandemic has had a devastating impact on small businesses which are the backbone of America. Small, local scale solar presents an opportunity to provide revenue for local businesses during this economic crisis while moving the country towards a cleaner economy. Additionally, building local solar projects in communities that have been hit hard by the pandemic, will circulate more money within the local community compared to utility-scale solar and will provide much needed local jobs.

Level 3 interconnection review

Ecogy understands that there should be longer interconnection timelines for larger projects, however, costs and timelines should be transparent and easily accessible to support developer certainty.

Interconnection fees

Ecogy understands the necessity of fees in applying for interconnection and the thoughtful review that follows; the fee is fair.

Testing, maintenance and inspection after interconnection approval

Ecogy has no issue with the maintenance and inspection requirements set forth for a Customer-generator's facility.

Interconnection reporting requirements for EDCs

Transparency is of the utmost importance as it relates to the relationship between developers and EDCs. It would be of great benefit to the general public and developers to publish up-to-date interconnection information including the number of interconnection applications and each of the project's system type and size when the public queue reporting as described in § 14:8-5.9 (e) takes place.

[5] https://archive.sltrib.com/article.php?id=54702970&itype=CMSID

The number and generating capacity of Customer-generators that dropped out at each stage of the process.

Ecogy appreciates the inclusion of failed projects in the EDCs' reporting requirements, and we suggest that the interconnection reporting also includes the interconnection costs for projects that drop out at each stage of the process. This extra variable will increase the EDCs' transparency and aid both the BPU and developers in understanding the flows of money related to interconnection that each EDC experiences.

Pre-application Verification/Evaluation Process

As was stated earlier under the General Interconnection Provisions section of this document, Ecogy supports this standardized pre-application verification process. In addition to the proposed rules, Ecogy suggests including the amount of queued kW or MW capacity to ensure that developers more knowledgeably understand the interconnection timeline that lies ahead.

Hosting Capacity Maps

In response to the written rule changes, Ecogy believes that hosting capacity maps should be updated at least when there is a significant change to the grid with the installation of a system that occupies 8% or more of the feeder capacity or produces 1 MW or more.

In general, Ecogy suggests that the Board adopt a dynamic hosting capacity (DHC) approach to keep maps up to date in real time.

DHC represents the concept of calculating the hosting capacity for a specific location in the distribution grid in real time at given time intervals. It can be further expanded to include the ability to calculate hosting capacity across all grid levels and can be applied to any given time frame for a specific location in the grid. This observed time frame can stretch from years (analysis of data) to just a single event (real-time) depending on the utility's use case.[6] According to NREL, DHC is '...based on quasi-static time-series simulation,' which:

- Considers the behavior of distributed photovoltaics ("DPV"), loads, and grid devices over time
- Accounts for the fact that some over-voltages and thermal overloading are acceptable for short periods of time and during a limited number of time points during the year.'[7]

DHC is not based on worst-case snapshot power flows, so it requires probabilistic screens that consider the uncertainty around the time-series input variables, like hourly PV productions and building loads.

[6] OpusOne Solutions, Dynamic Hosting Capacity A dialogue on Extracting Distribution Maximum Value from Interconnected Distributed Energy Resources for Distribution Utilities and Customers 2017. Available at: Dynamic Hosting Capacity
[7] NREL, Advanced Hosting Capacity Analysis - Solar Research

There is a huge opportunity for distributed energy resources to unblock hosting capacity constraints, releasing private capital to deliver projects that provide flexibility for both distribution and transmission systems. For example, Hawaii has developed schemes that are part of a wider flexible interconnection framework that have been working for 5 years. This was discussed in a report on Advanced Inverter Voltage Controls, Simulation and Field Pilot Findings by NREL and Hawaii Electric Company ("HECO").[8] In Hawaii, HECO now manages consenting of new solar in a manner that has effectively unleashed a DER connection solution that delivers dynamic hosting capacity.[9] In particular using this "Quick Connect" approach that HECO customers can now leverage when connecting solar to the grid, new solar systems that meet basic requirements can be installed and energized without full prior approval from Hawaiian Electric:

> In March 2021, the Companies expanded Quick Connect to all circuits, such that, even on circuits with 30% or less circuit hosting capacity, **customers can now install and energize their systems prior to application submittal** so long as the system is operating in a non-export mode until conditional approval is granted by the Companies. One of the conditions to utilize the Quick Connect process is for the customer to **activate Volt-Watt** so that the Companies can mitigate high-voltage risk in allowing customers to **"install first, get approval later."**[10]

Every utility in the USA should be offering a DER connection solution similar to what HECO already offers with the goal to deliver an optimally economic and vastly cleaner grid. This is evidenced by a study from Switzerland that shows how an aggressive DER approach can be economically optimal given certain conditions and assumptions.[11] In summary, the Swiss study states, "Our analyses show that firm PV power is an enabler of the energy transition and can ease the energy trilemma – regarding security of supply, sustainability and affordability."

Proactive System Upgrade Planning

Ecogy greatly appreciates the inclusion of a Proactive System Upgrade Planning (PSUP) filing requirement for each of the EDCs. It is crucial to get ahead of future grid upgrades and dedicate time in the present to save time, money, and effort down the line. However, we implore you to also consider equity as a factor in the PSUP.

We encourage the Board to conduct a study similar to one done in California which analyzed populations' access to distributed energy resources based on various demographics and the grid

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[8] Giraldez Miner, J. I., Hoke, A. F., Gotseff, P., Wunder, N. D., Emmanuel, M., Latif, A., ... & Blonsky, M. (2018). Advanced inverter voltage controls: simulation and field pilot findings (No. NREL/TP-5D00-72298). National Renewable Energy Lab.(NREL), Golden, CO (United States).
[9] See Advanced Inverter Voltage Controls: Simulation and Field Pilot Findings. This will likely result in a similar overall outcome on the grid to that advocated for by the Swiss study in note 9.
[10] Steven Rhymsa, New Jersey Interconnection Stakeholder Workshop, January 28, 2022. Available at: Sunrun 2202-28- New Jersey Interconnection Working Group.pptx
[11] Remund, J., Perez, M., & Perez, R. (2022, June). Firm PV Power Generation in Switzerland. In 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC) (pp. 0661-0666). IEEE.

infrastructure in those populations' regions.[12] Variables analyzed include race and ethnicity (Figure 2), pollution burden in the environment and one's exposure levels, linguistic isolation and sensitive populations, income, and owner-occupied households compared with single-unit households.

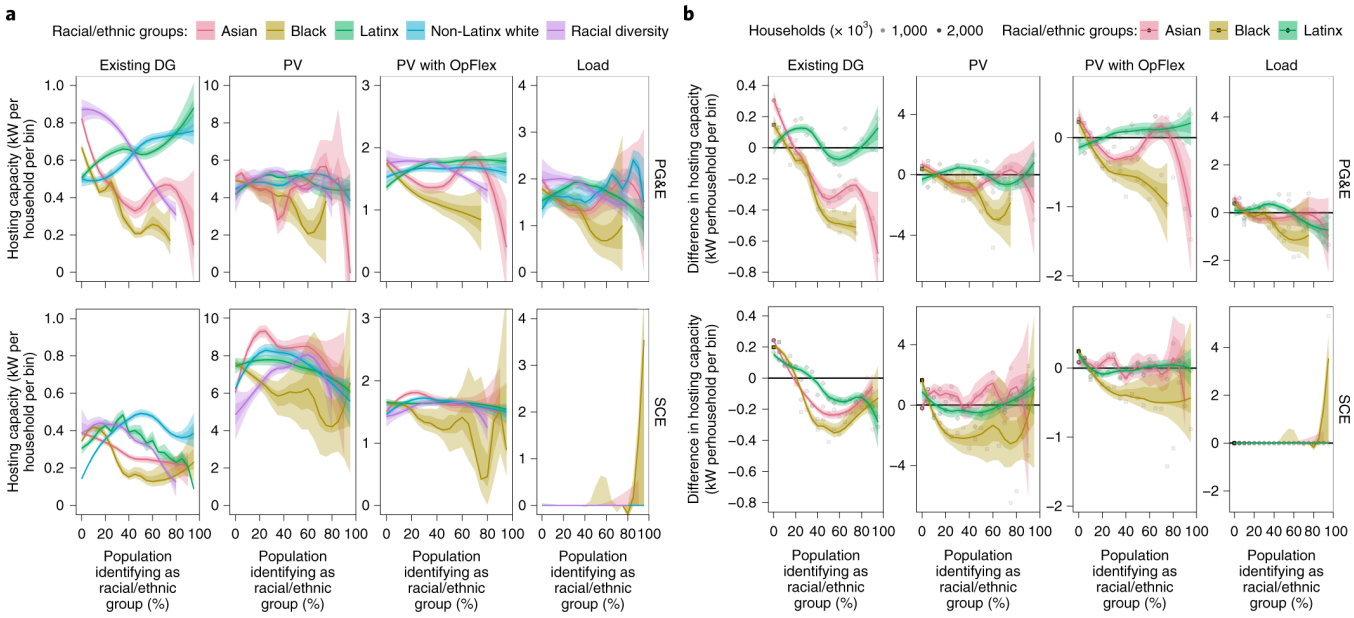

Figure 2. Hosting capacity results for race and ethnicity variables. (A) Median existing generation or hosting capacity by race and ethnicity. (B) Difference in median existing generation or hosting capacity between different racial and ethnic groups and the non-Latinx white population. The confidence intervals shown are 50% (darker band) and 90% (lighter band).

The study found that the total circuit capacity for generation decreases with increasing percentages of Black-identifying residents, and is disproportionately lower for Census Block Groups (CBGs) with Black-identifying populations than for other racial and ethnic groups. Specifically, the trends in total circuit capacity for PV, with and without OpFlex constraints, show a notably lower capacity in Black-identifying CBGs than in non-Latinx white-, Latinx- and Asian-identifying CBGs for both utilities in the study, Pacific Gas and Electric (PG&E) and Southern California Edison (SCE).

We cannot speculate as to the results of a similar experimental design and analytical approach to New Jersey, so we ask the Board to implement a similar study as part of the PSUP. Equity should be central to deciding where and when to plan electric grid upgrades.

[12] Brockway A.M., Conde J., & Callaway D. (2021, September). Inequitable access to distributed energy resources due to grid infrastructure limits in California. Nat Energy 6, 892–903 (2021). https://doi.org/10.1038/s41560-021-00887-6

Dispute Resolution

Ecogy has no issue with the dispute resolution protocol described in § 14:8-5.13.

Respectfully submitted,

/s/

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