Singularity

June 17, 2022

Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549
rule-comments@sec.gov

File Number S7-10-22

RE: RIN 3235-AM87, The Enhancement and Standardization of Climate-Related Disclosures for Investors

TO: Securities and Exchange Commission

Introduction:

Singularity Energy appreciates the opportunity to provide input to the Securities and Exchange Commission ("SEC" or "Commission") regarding the March 21, 2022 draft of the Proposed Rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors ("Proposed Rule").

Singularity Energy believes that the rule makes important first steps towards the goal of "provid[ing] consistent, comparable, and reliable… information to investors to enable them to make informed judgments about the impact of climate-related risks on current and potential investments."[1] Furthermore, Singularity agrees that disclosure of climate-related data is necessary for investors to make responsible and informed investment decisions.

However, the Proposed Rule as written today would permit companies to use outdated and generalized greenhouse gas ("GHG") emissions data when calculating their Scope 2 GHG emissions, which may impact an investor's ability to make informed judgements about climate risks. We believe that it is critical for the SEC to modify the Proposed Rule in order to encourage companies to calculate and report their emissions inventories with the greatest possible accuracy.

To achieve this, Singularity Energy recommends a simple change to the proposed disclosure rule: **The SEC should adopt a "best available data" standard for registrants reporting Scope 2 carbon emissions, encouraging the use of measured electricity consumption data and the most reliable, granular, and up-to-date emissions intensity data.**

[1] See March 21, 2022 "Proposed Rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors", at p. 7.

As a provider of emissions intensity data for Scope 2 emissions calculations, Singularity's comments focus primarily on accuracy of emissions intensity data sources that are deemed acceptable to use for calculating company-level GHG emissions under current guidelines. However, accurate emissions intensity data alone will not result in the accurate reporting of company emissions. This emissions intensity data must be matched with an accurate measurement of a company's electricity consumption.

For a registrant to provide a robust and accurate picture of Scope 2 emissions for reporting purposes, the following key inputs are required:

1. Measured, as opposed to estimated, electricity consumption data (e.g. actual kWh consumed)
2. Time and location-based emissions intensity data, which can be matched accurately with consumption data.

Below, we expand on this recommendation further. Singularity has also provided a set of targeted redlines to address our recommendations as an appendix.

About Singularity Energy:

Founded in 2018, Singularity Energy is an intelligent grid decarbonization platform built by experienced power systems and software experts from Harvard, MIT, and Johns Hopkins. Singularity's platform provides high-quality, time and location-based grid emissions data, and a suite of innovative products such as developer APIs, and intelligent tools for grid operators, utilities, companies, and service providers to build data-driven decarbonization solutions. Singularity Energy is a winner of the Harvard Physical Science & Engineering Accelerator, the Greentown Labs Bold Idea Challenge in partnership with Schneider Electric, the National Science Foundation Small Business Innovation Research Grant, and an URBAN-X company.

Today, grid operators, utilities, and businesses have a limited understanding of their grid carbon emissions due to the lack of high-quality, time and location-based grid emissions data. Singularity's mission is to change that by providing transparent and accurate data to grid operators, utilities, and businesses about their grid carbon emissions, while supplying them with actionable decarbonization insights and automated decision making tools. Singularity works with Harvard, Sense[2], Measurabl[3], Eversource[4], and several yet to be disclosed grid operators and utilities on decarbonization efforts. Singularity was founded by Wenbo Shi, a postdoctoral

[2] See Sense and Singularity whitepaper on optimizing EV charging based on carbon intensity: https://sense.com/whitepapers/Sense-EV-Carbon-Research.pdf
[3] See Measurabl press release on Singularity's carbon compliance tool: https://www.measurabl.com/resources/product-spotlight-compliance-monitoring/
[4] See Eversource quote regarding Singularity's recently closed round of fundraising: https://techcrunch.com/2022/05/24/singularity-energy-raises-4-5-million-seed-round-to-decarbonize-the-grid/

researcher at Harvard University and expert in Smart Grid technology and management. Dr Shi has published more than 20 peer-reviewed papers, which have received over 1,000 citations.[5]

Full Comments of Singularity Energy:

<u>The SEC should adopt a "best available data" standard for registrants reporting Scope 2 carbon emissions, encouraging use of measured electricity consumption data and the most reliable, granular, and up-to-date emissions intensity data.</u>

The carbon intensity of the grid is highly dynamic, and varies significantly by time and region. **Figure 1** showcases the carbon intensity of four grid operators/ISOs over two weeks from 2/14/2022 to 2/27/2022.

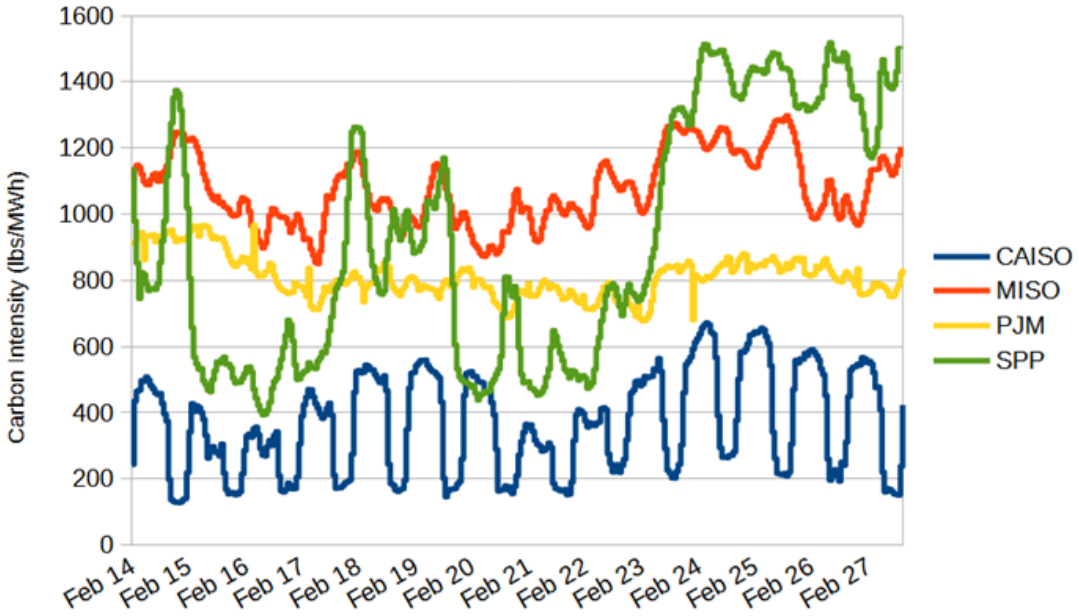

Figure 1. 5-minute carbon intensity in four major electricity markets in the United States provided by Singularity Energy.

According to the proposed rule, registrants must report methodologies for calculating GHG emissions or adopt commonly-accepted reporting methodologies such as those specified within the GHG Protocol or Task Force on Climate-Related Financial Disclosures ("TCFD") frameworks.[6] Unfortunately, many of the sources of GHG emissions intensity data permitted under these frameworks use average, annual estimates, which provide a generalized and

[5] Citations measured by Google Scholar, for more see page for "Wenbo Shi": https://scholar.google.com/citations?user=-rSKSXsAAAAJ&hl=en

[6] See March 21, 2022 "Proposed Rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors", at p. 34 and p. 40.

incomplete picture of a registrant's GHG emissions intensity profile – and thus, an incomplete picture of a registrant's true GHG emissions profile.[7] As the GHG Protocol notes:

> Grid-average emission factors in particular may face challenges with temporal representativeness due to time delayed between the year in which energy generation and resulting emissions occurred. For U.S. eGRID or IEA, these delays can be 2–3 years. This delay can make grid average emissions factors a less relevant indication of corporate performance or risk assessment when analyzed in the inventory year.[8]

Moreover, emissions intensity data is often presented at a regional level, leading to additional deviations between calculated emissions and real emissions. As research from U.C. Davis has demonstrated, when averaged regionally across a longer time span, emissions intensity data may differ from actual emissions by as much as 35%, even when the data from the latest available year.[9] Clearly, estimating GHG emissions intensity based on outdated and averaged data has a material effect on the reported emissions of a company, and consequently a material effect on investor decisions.

To avoid inaccurate or outdated reporting of emissions data for Scope 2 emissions, the SEC should adopt a "best available data" standard for registrants that encourages the use of granular, up-to-date emissions intensity data. Given the investment by organizations such as utility providers in capturing granular consumption data, and the proliferation of companies offering granular emissions intensity data, we believe that such a change would result in meaningful improvements to the accuracy of data provided to investors without burdening registrants.

Singularity recommends four parameters for emissions intensity that should be defined and addressed by registrants as part of a "best available data" standard:

- Location: Location data refers to geographic parameters where emissions have occurred. More granular locational data corresponds to more accurate measurements of true emissions profiles. Examples of locational data, from least to most granular, include but are not limited to: national, regional, grid balancing authority ("BA"), nodal, and site-specific levels;
- Time-varying: Time-varying data refers to the duration for which measured GHG emissions are averaged. More temporally-granular emissions data corresponds directly to more accurate emissions measurements. Examples of time-varying data, from least to

[7] While public data sources or systems are required to calculate GHG emissions intensity, a registrant must use internal consumption data to calculate their reportable emissions.
[8] Ghgprotocol.org, "GHG Protocol Scope 2 Guidance", *World Resources Institute,* *https://ghgprotocol.org/sites/default/files/ghgp/standards/Scope%202%20Guidance_Final_0.pdf*
[9] Gregory J Miller et al 2022 Environ. Res. Lett. 17 044073

most granular, include but are not limited to: annual, monthly, hourly, sub-hourly, and 5-minute;

- Recency: Recency refers to how recently the GHG emission data was collected. Today, in many cases, while companies use electricity consumption data from the current year, they pair this with emissions intensity data that is 2 - 3 years old. Given year-to-year shifts in GHG emissions intensity, current year's data should be used where possible and paired with electricity consumption data from the same time period.
- Transparency: Transparency refers to the ability for emissions calculations to be independently traced and audited. While different estimation methods are justifiable under different use cases, all methodologies should be transparent regarding underlying assumptions, calculations, and data sources.

Conclusion

Singularity Energy strongly supports the intent of the SEC's proposed climate disclosure rule, but believes modifications are necessary to prevent companies from using outdated and generalized carbon data. By updating the Proposed Rule to include language that requires companies to adhere to a "best available data" standard, the SEC can ensure that registrants are providing investors with the ability to make informed judgments about the impact of climate-related risks on current and potential investments. We appreciate the SEC's consideration of our recommendations, and we look forward to further engagement with the SEC and relevant stakeholders on the topic.

Sincerely,

Wenbo Shi

Dr. Wenbo Shi
Founder & CEO, Singularity Energy

APPENDIX A
(Proposed Redlines)

Suggested changes to draft language - Priority
Suggested changes from draft proposal highlighted in red.

§ 229.1500 (Item 1500) Definitions.

(e) *Emission factor* means a multiplication factor allowing actual GHG emissions to be calculated from available activity data or, if no activity data is available, economic data, to derive absolute GHG emissions. Examples of activity data include kilowatt-hours of electricity used, quantity of fuel used, output of a process, hours of operation of equipment, distance traveled, and floor area of a building. Registrants shall use the best available data for the emission factor data, and strive to utilize hourly accounting wherever feasible.

§ 229.1500 (Item 1500) Definitions.

(*u*) *Best available data* is the level of available granularity for data across a set of dimensions, including:

1. Location (i.e., national, regional, grid balancing authority, nodal, and site-specific levels)
2. Time-varying (i.e., annual, monthly, hourly, sub-hourly, and 5-minute intervals)
3. Recency (i.e., previous years, actual year)
4. Transparency (i.e., traceability and ability to independently audit data sources and calculations)

§ 229.1504 (Item 1504) GHG emissions metrics.

(e) Methodology and related instructions.

(4) A registrant ~~may use reasonable estimates~~ should use the best available data when disclosing its GHG emissions; in situations where hourly emissions data is not available, registrants may use reasonable estimates as long as it also describes the assumptions underlying, and its reasons for using, the estimates.

(7) A registrant must disclose, to the extent material and as applicable, any gaps in the data required to calculate its GHG emissions as compared to a best available data standard (i.e., hourly emissions data). A registrant's GHG emissions disclosure should provide investors with a reasonably complete understanding of the registrant's GHG emissions in each scope of emissions. If a registrant discloses any data gaps encountered when calculating its GHG emissions, it must also discuss whether it used proxy data or another method to address such gaps, and how its accounting for any data gaps has affected the accuracy or completeness of its GHG emissions disclosure.