



Response to DOE's RFI on Zero Emissions Building Definition

February 5, 2024

INTRODUCTION

Thank you for the opportunity to provide comments in response to the U.S. Department of Energy's request for information ("RFI") on its draft National Definition of a zero emissions building.

Sustainable Investment Group, LLC, ("SIG") is an engineering, sustainability, and environmental, social, and governance ("ESG") consulting firm headquartered in Atlanta, GA, with staff across the U.S. and internationally. SIG is a LEED Proven Provider, USGBC Gold Level Member, WELL Enterprise Partner, IWBI Keystone Member, and ENERGY STAR Partner of the Year- Sustained Excellence. We have provided sustainability solutions for new and existing Class A office, mixed-use, residential, industrial, healthcare, educational, and retail properties-totaling over 80 million square feet. We have certified over 400 LEED projects collectively and help hundreds of buildings earn the ENERGY STAR certification each year.

We commend the federal government for drafting a standardized definition for zero emissions buildings as more property owners, certification programs, and local governments all seek to promote or require zero emissions or carbon neutrality.

Our overall feedback is as follows:

- We support the draft Definition's alignment with the ENERGY STAR program and ENERGY STAR Portfolio Manager for benchmarking and verifying energy use, greenhouse gas emissions, and renewable energy certificate ("REC") purchases and retirement.
- Since RECs are generally purchased by the megawatt-hour ("MWh"), there is not always a direct correlation between RECs purchased and Scope 2 greenhouse gas emissions. For example, if Building A is in a region with a carbon-intensive electric grid and Building B is in a region with a renewables-intensive electric grid, Building A will be responsible for more emissions than Building B per MWh but they can both achieve zero emissions under this Definition by purchasing the same REC product. This discrepancy should be addressed by allowing for carbon offsets to cover emissions by ton of carbon dioxide equivalent emissions ("tCO₂e").
- While the Definition encourages energy efficiency and electrification, it leaves substantial room for "business as usual" scenarios by allowing buildings to completely offset Scope 2 emissions with RECs. As this National Definition has the potential to affect market trends, certification programs, and local regulations, it may be worth including forward-looking performance standards for specific end uses (heating, cooling, cooking, etc.) in future versions of the Definition to encourage market transformation and implementation of more efficient electrification solutions, such as heat pumps, energy recovery, and energy storage.
- The proposed Definition may more accurately be considered a net zero emissions building or carbon neutral building definition rather than totally net zero because Scope 2 emissions are allowable under this draft. The Definition should call attention to this and recommend that future Definitions differentiate between complete zero emissions and net zero emissions.

RESPONSES TO RFI QUESTIONS

- A. *Are the draft criteria clear and appropriate for the definition for a zero emissions building? Should any other criteria be considered for Part 1? Please provide specific feedback about this draft definition.*

The draft criteria are clear and generally in line with our expectations for a zero emissions building.

- B. *Energy efficiency criteria.*

- *Should energy efficiency be considered a criteria for the definition of a zero emissions building?*

Yes, energy efficiency is a critical part of electrification and zero operational emissions. Through efficient design, insulation, and building systems, the amount of renewable energy required to offset emissions, and the load on the electric grid, decrease. That said, other factors such as energy sources, embodied carbon, and carbon offset strategies interact with zero emissions buildings and we support the Department of Energy in adopting a more holistic and broader definition of a zero emissions building.

- *If the efficiency of an existing building should be considered, do you agree that requiring energy performance in the top 25% of similar buildings is an appropriate measure of energy efficiency for this definition? (ENERGY STAR® score of 75 or above.) Should it be higher or lower?*

We agree that an ENERGY STAR score of 75, or an equivalent energy use intensity ("EUI"), is an appropriate standard of energy efficiency, but it may be best served as a prerequisite rather than the sole measure. We would encourage the adoption of performance standards for specific end uses to ensure resource-efficient electrification and electrification that is scalable for local and regional electric grids.

- *Are there other benchmarks or approaches that should be considered?*

We have mentioned performance standards above. It may also be worth considering peak load or demand (in kW) to measure performance and to incentivize load shifting and capacity strategies that support grid resiliency. It should also be clarified that the Definition is referring to source EUI (as opposed to site EUI).

- *For an existing building, is one year of measured energy performance an appropriate requirement for demonstrating efficiency or is another approach appropriate?*

Yes, one year is appropriate.

- *Are the draft criteria appropriate for single-family homes? Are there other benchmarks that should be considered for single-family homes?*

RECs are often only available per MWh, and single-family homes rarely use a MWh of electricity in a year, so other clean electricity options should be considered. The Home Energy Rating System ("HERS") Index may serve as an appropriate basis for a single-family home benchmark.

- *For new construction, are the draft criteria appropriate? The modeled building performance is at least 10% lower than the energy use according to the latest version of IECG or ASHRAE 90.1 (e.g., model energy code) and the building is designed to achieve an ENERGY STAR score of at least 90 (for eligible buildings). Are there other benchmarks that should be considered?*

It may be worth aligning the designed to earn ENERGY STAR score of 90 benchmark with the benchmark of 75 for existing buildings.

C. *On-site emissions from energy use.*

- *Should there be an exemption allowed for emission producing emergency generation? Are any other exemptions needed?*

Yes, this exemption seems appropriate, but it should also be expanded to include other forms of emergency energy use such as temporary heat sources and low emission emergency generation (e.g., comparably capable thermal, electric, and air energy storage systems).

- *Should biofuels consumed on-site be allowed? If so, how?*

No, biofuels consumed on-site should not be allowed for zero emissions buildings. Biofuels, while generally more favorable to the environment than fossil fuels, still produce greenhouse gas emissions and other pollutants and many take up and consume land space that could otherwise be used for food production, carbon sequestration, wildlife habitat, and other co-benefits. This is antithetical to the spirit of a zero emissions building. Biofuels could, however, be included in a separate definition for a carbon-neutral building as the carbon emitted during their combustion can be offset by the regrowth of trees or other vegetation.

D. *Clean energy generation and procurement.*

- *Are the clean energy criteria provided appropriate for this definition? Are there other clean energy criteria that should be considered? Should community solar qualify for this requirement? If so, how?*

The criteria for clean energy should be expanded to include community solar, local power purchase agreements, and other clean energy procurement options. This can be verified with a contract between purchaser and supplier, enrollment agreement, or other document that demonstrates the procurement of clean electricity up to the amount the building consumes in a year.

- *Should there be a proximity requirement for off-site power used to meet the clean power criterion? If so, how should a proximity requirement be implemented (e.g., regional definition, phase-in, etc.)?*

No, there should not be a proximity requirement except that the off-site power should be located within the U.S. It may also be worth considering (1) variations in electric grid emissions rates for the purposes of equating a certain number of RECs with a building's emissions and (2) equity across local communities. Promoting clean power generation, especially within previously overlooked and disadvantaged communities, can stimulate local economies, create jobs, and increase investment in sustainable energy infrastructure that serves the whole country. The definition should also require that the clean energy products procured have demonstrated additionality, meaning that the energy would not have been produced if not for the purchase of the clean energy product.

E. Documentation is important for effective implementation.

- *Should organizations leveraging the definition be able to determine whether buildings have to meet it annually, one time, or on a different frequency?*

Yes, while it will be very helpful for there to be a National Definition, it should be up to organizations, local governments, etc. to determine how they want to require buildings within their jurisdictions to meet the Definition.

- *If the definition is extended to single-family homes, what documentation should be required?*

The documentation should generally be the same, though requirements may vary somewhat for clean energy procurement.

- *Are licensed professional and third-party certification bodies the appropriate parties to independently verify the documentation that a building has met the definition? Beyond existing government resources such as EPA's ENERGY STAR Portfolio Manager, are there other methods to verify meeting the zero emissions building definition?*

Yes, Portfolio Manager is the appropriate platform to report and verify data, especially with the modifications planned for the NextGen certification program and other platform improvements. Licensed professionals and third-party certification bodies are appropriate to verify the documentation, but it should be clarified which credentials/licenses are acceptable (e.g., whether limited to professional engineers and registered architects or if other credentialed professionals could qualify). Another method to verify meeting the zero emissions building definition is the LEED Zero program.

- *What time frame should be used for greenhouse gas (GHG) calculations (i.e., hourly, monthly by year, annually)? Explain how this would be implemented effectively across the market.*

While time of use calculations would be the most accurate, it would be impractical to require them across all buildings and markets at this point in time. Greenhouse gas calculations should be calculated annually, but if there is a component in future Definitions that incorporates degree-days and/or local variations in grid emissions factors, the requirement should be to report emissions monthly or more frequently.

- *What other verification criteria are necessary to make this definition useful for the marketplace?*

It should be clarified whether the Definition recommends that certifying bodies require that all criteria for an ENERGY STAR certification be met or only the score of at least 75. The Definition should also recommend a standard of data verification and property detail verification, especially for confirming that no onsite fuels were used.

- *Are there any issues regarding conflict or synergy with regional, state or local energy and climate programs that ought to be addressed?*

Some jurisdictions require that electric vehicle support equipment be included in electricity consumption data, but this Definition does not. This may present issues with data management in Portfolio Manager.

F. Use cases.

- *Is it important for a national definition to cover all building types, including commercial, multifamily, and single-family?*

Yes. The National Definition should be universal enough to cover all building types but flexible enough to allow for small variations in use, such as emergency/backup power or varying electric grid emissions factors.

- *Are there any other recommendations that would help clarify and improve the definition?*

Please see our feedback above.

- *While Part 1 of the definition focuses on operating emissions, what other areas should be considered in future parts of the definition, such as embodied carbon, refrigerant, and grid interactivity?*

Yes, embodied carbon, refrigerants, and grid interactivity should all be considered in future Definitions. Emissions from waste (landfills, transportation) and water (off-site pumping, processing) should also be considered. Future Definitions may want to confirm alignment with the Greenhouse Gas Protocol and/or International Organization for Standardization (ISO) for Scope 3 emissions.