



**Joint Comments of the Solar and Storage Industries Institute and  
the Solar Energy Industries Association  
7/14/22**

Thank you for the opportunity to submit comments on the proposed three-year extension and changes to the Electric Power and Renewable Electricity Surveys (“EPRES”). We thank the U.S. Energy Information Administration (“EIA”) for its continued commitment to providing high-quality statistics and information about the electricity sector. These comments respond to the proposed changes to the EPRES published in the Federal Register Notice on May 23, 2022.<sup>1</sup>

In brief, these updates are useful, are unlikely to add significantly to any reporting burden to survey respondents, and will provide needed information about the operation of planned and existing energy storage projects around the country. The proposed changes should be adopted.

However, additional changes to EPRES should be made to provide the data to help encourage the faster adoption of renewable energy resources and to help meet federal and state climate goals. In addition to adopting the changes proposed by EIA, we recommend adding questions and publishing more data around 1) transmission and distribution utility interconnection queues, costs and timelines, 2) transmission and distribution grid operations and constraints, 3) the occurrence of utility system outages, and 4) more detailed information on solar and storage manufacturing, including the production of components and materials.

In these comments we a) explain our interest in this matter, b) describe the four key areas for collecting additional information from survey respondents, and c) make specific comments on the forms themselves.

**a) About SI2 and SEIA & Our Interest in this Matter**

The Solar and Storage Industries Institute (“SI2” or the “Institute”) is a newly created not-for-profit that seeks to accelerate the transition to carbon free electricity through clean energy research and analysis. Based in Washington, D.C., SI2 is the charitable and education arm of the Solar Energy Industries Association (“SEIA”), the national trade association for the solar and storage industries with more than a thousand member companies nationwide.

SEIA’s members include solar and battery manufacturers, project developers, construction firms, and companies that engage at every level of the industry and at the retail and wholesale levels of electricity markets.

The Institute, SEIA, and its member companies are not only users of EIA reports, but member companies are respondents to forms 63b, 860, 860m, 861, 861m and 923. Given the large volume of solar and energy storage activity in recent years and expected going forward, our members likely represent a significant majority of reporting burden on all but forms 861 and 861m. And, on forms 861 and 861m, our member

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<sup>1</sup> SI2’s and SEIA’s May 17, 2022 joint letter to EIA Administrator DeCarolis regarding increasing data collection includes a number of suggestions for consideration for future survey updates.

companies responding based on their reporting of third-party ownership (“TPO”) of customer-sited solar and storage systems likely have the highest reporting burden of all respondents.<sup>2</sup> As a result, our organizations have strong interests in the products of EIA reports and in the way survey data is collected. Importantly, as representatives of these survey respondents, we believe any increase in reporting burden resulting from our recommended expansions to data collection are both reasonable and justified.

## **b) Additional EPRES Updates for Consideration**

### **1) Transmission and distribution interconnection queues, timelines, and upgrade costs**

Interconnection delays for large-scale and distributed projects are a major roadblock for the solar and storage industries, increasing transaction and financing costs, resulting in missed opportunities, and stymieing progress toward federal and state clean energy goals. Therefore, we strongly recommend that EIA collects more information about interconnection issues in EPRES.

Specifically, we recommend that EIA collects more information from balancing authorities and distribution utilities on interconnection queues, timelines, and costs, and verifies aspects of these reported data with solar and storage plant owners. EIA should collect and publish detailed information on the size of balancing authority and distribution utility interconnection queues, and the time it takes balancing authorities and utilities to interconnect solar and storage projects of all sizes. Furthermore, EIA should collect and publish detailed information on infrastructure upgrade costs for projects that have reached completion and connected to the grid, as well as for projects that did not reach completion and subsequently dropped out of the queue.<sup>3</sup>

In many cases, the high costs of infrastructure upgrades needed to connect a project result in many solar and storage projects becoming uneconomic and quantifying how often this happens is of great interest to industry. These data would also further inform a new effort by the U.S. Department of Energy – the Interconnection Innovation e-Xchange – to enable more efficient interconnection processes while enhancing the resilience of grid networks.

Lastly, we recommend EIA standardizes and aggregates interconnection queue reporting from balancing authorities. This standardization would help stakeholders better understand interconnection challenges, and aid federal and state regulators in their attempts at streamlining application and approval processes.

EIA understands the interest the industry has in the interconnection processes and its possible effect on projects. Interconnection agreements vary across the industry. The EIA-861 survey collects data from electric distribution companies (EDCs) in summary or aggregate form for their customers’ end use. EIA is concerned about the additional respondent burden that would be required to collect data from these EDCs at the specific or individual customer level. EIA is interested in exploring other ways that some of these concerns could be addressed without imposing a high burden on EDCs.

EIA appreciates the importance of informing the industry of planned capacity additions. EIA has researched the interconnection queues and found that respondents are generally not able to report the data necessary to meet survey requirements for completeness and accuracy. EIA attempts to provide the best possible inventory of capacity additions. Since so many of the projects in the interconnection queues are not sufficiently advanced to support the needs of survey reporting, EIA is currently not inclined to add this burden to the survey. EIA is also concerned that adding interconnection queue data to the surveys would duplicate a publicly available resource.

## 2) Transmission and distribution grid operations and constraints

Closely related to interconnection, the following data should be collected and published whether in other forms or in new and separate forms. Transmission system owners or balancing authorities should submit GIS files on at least a monthly basis showing the location and characteristics of all transmission lines and substations. These data could greatly enhance the ability to perform headroom or hosting capacity analysis for additional grid resources and enable solutions providers to find ways to cost-effectively accelerate the energy transition. Moreover, these data seem necessary to meet requirements of the Infrastructure

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<sup>2</sup> Most respondents to forms 861 and 861m are distribution utilities that operate in a couple territories and typically not in more than a couple states. In contrast, SEIA's members that respond to these forms based on their third-party ownership of customer-sited solar and energy storage systems respond separately for every state in which they operate, with each of these respondents submitting, on average, nearly 15 forms submitted per month plus 15 annual submissions, far more than any traditional utility respondent.

<sup>3</sup> We understand EIA used to compile interconnection costs in EIA-860 for completed projects (2003-2012) and it should return to this practice.

Investment and Jobs Act including understanding how the grid will facilitate and adapt to the energy transition.

Relatedly, distribution system owners should submit GIS files on at least a monthly basis showing the location and characteristics of all distribution lines and substations. These data could greatly enhance the ability to perform hosting capacity analysis for additional grid resources and enable solutions providers to find ways to cost-effectively accelerate the energy transition.

EIA understands the interest that the industry has in this information and the potential benefit that may be derived from its use. EIA also understands that this information is at some level considered Critical Infrastructure Information and is not available to the public.

### 3) Utility system outage data

With respect to system resilience, EIA should also require distribution utilities to report on system outages including where the outage occurred, the number of customers affected, the cause of and duration of the outage, and response times for restoring system operations. In most states, this information is collected by state public utility commissions and should be readily available.

EIA refers SEIA to Table B.1 in the EPM that reports on OE-417 data concerning the number of customers interrupted and the cause, duration, and size.

In addition to reporting outages, market participants – especially storage resources – would benefit from understanding “close calls” on the system, when demand response calls or other measures prevented system outages due to potential overloading. EIA already is proposing collecting some information on demand response calls as part of the proposed changes to form 930, but explicitly reporting and publishing this information would be of interest to regulators, policymakers and other stakeholders. Furthermore, the information would be useful for policymakers and is likely to have implications for executing the Federal Energy Regulatory Commission’s (“FERC”) Order 2222.

EIA is currently working on a project that will provide information on some system conditions from the seven organized RTOs. Information related to system reliability and operations may be more suitable for NERC to address as they are responsible for monitoring system reliability issues.

### 4) More complete solar manufacturing data

With respect to information on solar manufacturing, EIA currently collects data on shipments of cells and modules but so much of the information is redacted in the final published reports that the product of the survey sheds very little light on the key issues. Instead, EIA should publish more of these data and ensure that its data is consistent with import statistics gathered by U.S. Customs and Border Protection and U.S. Census Bureau.

EIA reports on data collected on EIA-63B Monthly and Annual based on its OMB authorization. The form has information that is protected and not disclosed to the public to the extent that it satisfies the criteria for exemption under the Freedom of Information Act (FOIA), 5 U.S.C. §552, the Department of Energy regulations, 10 C.F.R. §1004.11, implementing the FOIA, and the Trade Secrets Act, 18 U.S.C. §1905.

Due to consolidation in the industry and our OMB authorization, we currently withhold at the detailed

company level and only report at the aggregate level in a manner that provides timely information concerning the changes to the industry.

In addition, we recommend expanding data collection on solar and storage manufacturing beyond simply photovoltaic (“PV”) modules to include significantly more detail about manufacturing components and outputs. Collecting additional data would provide a more complete picture of the manufacturing process, assembly and supply chains, and as noted above EIA could coordinate with other federal agencies that track these statistics and should explore coordination with the U.S. Geological Survey to track reserves and production of key raw materials.

EIA previously collected data on cells and modules on the EIA-63B Annual survey. EIA changed that practice and collects data on modules only when we created a Monthly survey for the EIA-63B. This allowed us to provide information more frequently on the industry while limiting the burden imposed on the respondents.

### **c) Comments on Specific Forms**

#### **EIA-63B, Photovoltaic Cell/Module Shipments Report**

Although EIA did not propose changes to form 63B, SI2 and SEIA recommend that the EIA consider revisions to the form as well as publishing more of the data. This form currently collects data on shipments of cells and modules but much of the published material is redacted limiting its utility on key issues. EIA should publish more data and ensure that its data is consistent with import statistics gathered by the U.S. Customs and Border Protection and U.S. Census Bureau. It would also be valuable to begin collection of additional data on other key manufactured goods critical to the energy transition and components used to make those goods in coordination with the U.S. Department of Commerce’s data collection for the Producer Price Index calculations.

Specifically, for all manufactured components covered in EIA's surveys, for each domestic facility, EIA should collect data and publish on:

- 1) Production volume;
- 2) Production capacity;
- 3) Sales revenue (if relevant, i.e. product is not just transferred to another company facility before final assembly and sale); and
- 4) Number of employees associated with the solar components and attributable overhead staff.

In addition to data EIA currently collects on solar cell and module production, EIA should collect capacity and production data on the following components from domestic producers at the granularity described above:

- 1) Silicon metal (measured in metric tons);
- 2) Polysilicon (measured in metric tons);
- 3) Ingots (measured in metric tons);
- 4) Wafers (measured in pieces for each reported wafer size);
- 5) Inverters (by number and capacity); and
- 6) Rechargeable battery cell production (useful for tracking battery production for both stationary electricity storage and for electric vehicles) (measured in MWh).

Due to consolidation in the industry and based on existing EIA experience, this information if collected most likely could not be published in detail. The proposal also would require a significant increase in respondent burden. EIA is interested in finding third party data that could help inform this industry.

### **EIA-860, Annual Electric Generator Report**

EIA has proposed several changes to form 860, almost exclusively relating to the operation of existing and the proposed operation of planned storage resources. SI2 and SEIA support these additions and the proposed questions will provide useful information about storage resources and the questions should be incorporated as proposed.

However, in addition to these changes, EIA should collect and publish detailed information on interconnection issues for both balancing authorities and distribution utilities. This information should include:

- 1) The number and proposed capacity of projects listed in each balancing authority or distribution utility's interconnection queue;

EIA would need to justify the additional burden of collecting data that is already publicly available.

- 2) The time it takes from a project submitting an interconnection application to the balancing authority or utility issuing the equivalent of permission to operate ("PTO"), or the time it takes from submitting an application to when the project is withdrawn from their respective queue; and
- 3) The cost of the infrastructure upgrade needed to interconnect the project. This information should be provided for projects that reach PTO, as well as for projects that drop out of the queue.

As Footnote 3 explains, EIA collected interconnection costs from 2003 through 2012. In the 2013 data collection cycle, EIA repurposed that cost schedule to collect costs of the generating unit, rather than the cost of interconnecting the generating unit. EIA considers the further breakout of interconnection cost from the generator cost to be a burden that outweighs the benefits of re-establishing the discontinued interconnection cost series.

Further, EIA should collect and publish data on the number of employees at all plants, not simply renewables projects, during both construction and operations phases. And EIA should collect *and publish* data on plant costs, with a detailed breakdown of component costs. Given that EIA already collects these

data, publishing the information would greatly improve transparency and utility accountability in regulatory proceedings.

EIA does not concur with the proposal to collect employment count data. EIA's previous consideration of this proposal found that there was significant uncertainty regarding labor time allocation among full-time employees and contractor employees. In general, EIA defers to the Bureau of Labor Statistics for the collection of labor data.

For ground-mounted PV systems, EIA should require respondents to submit a GIS shape file (KML or similar) showing both the total land area and array boundaries for solar power plants. This information would help aid in understanding the actual land area taken up by solar projects.

EIA currently collects latitude and longitude coordinates which provide an indication of plant location and which support our quality assurance processes. EIA considers the reporting burden of providing coordinate data to be justified by the value this data has in validating the accuracy of other data. Expanding this reporting requirement to include a shape file is a significant burden increase. EIA will evaluate whether this increase is justified by informative benefit.

Lastly, instead of asking for solar and storage plant sizes in megawatts alternating current ("MWac") and megawatts direct current ("MWdc") (for inverter and array sizes, respectively), EIA can take the approach of state data reporting by asking respondents to report the number of each make and model of PV module used. This could be used to calculate plant dc capacity and reduce data entry errors. The same approach for inverters and batteries should also be used and would reduce errors and better calculate plant ac capacity. There are several approaches to providing lookup database to reduce data entry errors and SI2 and SEIA can facilitate.

EIA currently collects manufacturer data for wind turbines as a means of reducing reporting burden. Knowing a representative manufacturer and the model number reduces the need to individually report other data elements such as unit capacity and blade length. EIA added the model/manufacturer data for wind turbines after researching the additional burden impact against the value of the reported data. While it is possible that a similar burden reduction for other technologies can be realized, EIA would need to assemble the details of this proposal in order to make the assessment.

### **EIA-860M, Monthly Update to the Annual Electric Generator Report**

No changes were proposed to this form and SI2 and SEIA recommend that the questions posed for form 860, should also be posed for form 860M. These data would provide a more complete picture of storage project configurations as they come online.

### **EIA-861, Annual Electric Power Industry Report**

As mentioned previously, EIA should ask of both TPO solar firms and distribution utilities to report detailed data on a system level (that is individual, project-by-project basis) on interconnection timelines. The structure for reporting this can be adapted from the National Renewable Energy Laboratory's ("NREL") Solar TRACE tool. This information is critical to benchmarking interconnection timelines and is already



collected by utilities in some states (notably those with the largest customer-sited solar markets).

See EIA's response in b.1 above.

EIA should collect data on actual retail rate structures using the structure set up in NREL's Utility Rate Database. This would be very easy for EIA to require but is very difficult for NREL to maintain manually. Moreover, EIA should collect data on the number of customers using each tariff, sales in MWh and revenue by tariff line item. This would offer a much more precise picture of the way customers choose and respond to real retail price signals than is available under 861's current frame of only collecting sales and revenue by customer class.

See EIA's response in b.1 above. However EIA collects some summary data on dynamic pricing programs on schedule 6.C of the EIA-861 Annual.

EIA should also require utilities to provide a random sample of 100 customers' load profiles, for all tariffs with more than 200 customers. For some utilities this may be possible to automate via an API and/or through the use of Green Button data. For distributed solar/storage customers, some data may be reportable via API from the inverter.

EIA understands the interest in this type of data and the likelihood that it will change with the installation of customer sited equipment. EIA is interested in utilizing third party data for this information.

EIA should require utilities to report the number of accounts on each tariff that are on assistance plans and number of accounts on each tariff that are late on payments to help track energy affordability. And EIA should require utilities to report the number of customers shutoff from service due to non-payment, again for each tariff.

EIA collects data on the number of customers served and this data can provide some insight into the issue by following the trend over time.

EIA has collected data on electricity sales for the transportation sector but this seems to mostly be for street lights. EIA should add a category specifically for electric vehicle direct current ("DC") fast chargers. Data collection here should include both rates and sales volumes, ideally, this should be reported by location. Understanding cost structure and use by location will be valuable for building out electric vehicle infrastructure. Forms should indicate number of each connector (CCS, Tesla, other) available at each site

and capacity for each connector in volts, amps and kilowatts. Some of this data may be better developed under a separate form but requiring the interconnecting utility to report on the existence, owner and location of DC fast chargers will help EIA identify potential respondents for other forms.

EIA is currently working on a research study to help inform what information is available from what sources and how that information can be collected and processed to understand this new change in the industry. EIA is currently in the preliminary stages on this research and final results will not be forthcoming this year.

In addition to asking utilities to report aggregate number of customers and capacity for distributed solar and storage (both net-metered and non-net-metered), utilities should report system/project-level detail for every system/projected interconnected to their distribution system. This level of detail is already published by many states using data reported by utilities and location is typically provided (and publicly released) at the zip-code level.

The EIA-861 survey collects data from electric distribution companies (EDCs) in summary or aggregate form for their customers' end use. EIA is concerned about the additional respondent burden that would be required to collect data from these EDCs at the specific or individual customer level. EIA is interested in exploring the use of third party data for this information.

Utilities have this information already and EIA's standardized and centralized reporting would greatly enhance usability and help policymakers better assess the evolution of the distributed energy system.

### **EIA-861M, Monthly Electric Utility Sales and Revenue Report with State Distributions**

See all comments for form 861. All those comments apply to the monthly time frame as well.

### **EIA-930, Balancing Authority Operations Report**

EIA should aggregate and standardize fields for all interconnection queue data. Including dates of last action and type of last action would help EIA identify active vs abandoned projects and cross reference with respondents to forms 860 and 860m. Certain interconnection queue data fields should match those collected in form 860 for comparison purposes to see if separate entities responses are consistent for the same projects. This will also help EIA identify projects that have not yet reported on forms 860 or 860m but should have. This is consistent with the direction of proposed form 930A.

EIA is proposing a new EIA-930A survey which will ask Balancing Authorities to report on planned facilities. This data collection will be reconciled with the data reported on the EIA-860 or EIA-860M to help inform that status of proposed projects.

In the long-term, EIA should add collection/aggregation of location based marginal pricing for all regional transmission operators/independent system operators for all five-minute intervals during the year, or the lowest level of sub-hourly reporting available. If five-minute interval data is not available, EIA should set a plan for the collection of such data in the next 2-3 years. In conjunction with these data, EIA should also begin planning to collect information on power quality from balancing authorities including significant fluctuations in frequency, voltage, apparent power, real power and reactive power.

EIA has underway a project to aggregate RTO data and provide information of this type as a single product.

Although not in this cycle, we strongly recommend EIA should require plants to submit hourly and sub-hourly data including information on the charging or discharging of batteries. (Or plant-level generation data could be passed through by balancing authorities via form 930.)

EIA has a proposal to begin collecting the hourly charging and discharging of batteries on the EIA-930.

**EIA-930A, Annual Balancing Authority Generator Inventory Report**

SI2 and SEIA strongly support the addition of this form, and the data to be collected on generators within each balancing authority, or plants dispatched by another balancing authority.

To facilitate the lookup of EIA plant and generator IDs, EIA should expedite publication of all data collected in forms 860 and 860m. See comments on forms 860 and 860m above. And for schedule 2 on pages 2 and 5 of the instructions, EIA specify data to reported in columns 5 through 12 if the balancing authority is unable to provide existing EIA plant and/or generator IDs.

We recommend that EIA also collect information on plant owner and contact information for plants that do not have existing EIA plant IDs. This should help EIA contact those owners to obtain required forms 860, 860m and 923 submissions. This recommendation applies to data collected on schedules 3, 4 and 5 as well.

EIA does not currently publish contact information for power plants. Because all data collected on form EIA-930A will be publically available EIA will refrain from collecting contact information for power plants.

**d) Conclusion**

We request a meeting with EIA Administrator DeCarolus to discuss these recommendations and the ways in which the SI2 and SEIA can be a resource to EIA. In the meantime, if you have any questions about this letter or seek further information, please do not hesitate to contact David Gahl at [dgahl@ssii.org](mailto:dgahl@ssii.org) or at (518) 487-1744 and Justin Baca at [jbaca@seia.org](mailto:jbaca@seia.org) or at (202) 641-1729.

Sincerely yours,



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