

CONNECTING TO THE GRID

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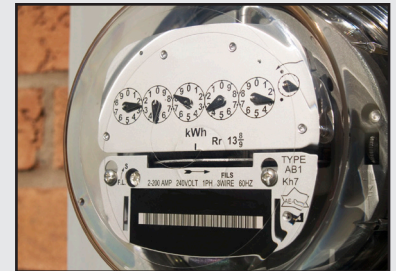
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Editor: Laurel Varnado

NC Solar Center, NC State University



ABOUT THIS NEWSLETTER

While customer-sited net metering and interconnection policies are primarily addressed at the state level, they are also becoming important on a regional basis. This newsletter has been designed to provide state-level policy updates and capture emerging regional trends. *Connecting to the Grid* is a free, electronic newsletter published each month by the Interstate Renewable Energy Council (IREC) and the North Carolina Solar Center at North Carolina State University. [Click here to subscribe.](#)

Please direct comments and questions about the newsletter to Laurel Varnado at lvarnad@ncsu.edu.





TIMELINES ARE OF THE ESSENCE

	Acknowledgement	Completion Allowance	Actual
Level 1 (25 kW)	3 days	10 days	3 days
Level 2 (2 MW)	3 days	10 days	3 days
Level 3 (Non-Exporting)	3 days	10 days	3 days
Level 4 (All Others)	3 days	20 days	3 days
	Not complete	Application	Application is considered withdrawn.

Forgive the cliché but it's true. Timelines are an important part of distributed generation interconnection procedures because they dictate how quickly the process moves along and ultimately, how quickly a customer or developer can get a renewable energy system up and running (and starting to pay for itself). They also help the utility by requiring interconnection applicants to meet deadlines so that the utility's time is not wasted.

Timelines are often specified for a number of processes within state interconnection procedures, such as evaluating technical screening criteria, executing an interconnection agreement and inspecting the facility. The Federal Energy Regulatory Commission's Small Generator Interconnection Procedures (FERC SGIP) form the basis for many state interconnection procedures, so it's not surprising that many states have adopted the FERC timelines. In fact, the 2010 edition of *Freeing the Grid* indicates that 13 states plus the District of Columbia have adopted the FERC SGIP timelines and five states (ME, MA, NJ, NY and OR) have even shorter timelines. While the FERC timelines provide a good starting point, they are somewhat dated, especially considering how the availability of online interconnection applications have made the process so much more efficient for everyone involved.

[IREC's model interconnection rules](#) provide what many consider to be a "best practices" approach to timelines. Because there are so many different deadlines that may be applicable, depending on system size, I condensed them down into one [graph](#) for easier viewing. At the top of the graph, you'll find the general type of deadline required by the IREC model interconnection procedures. Below that you'll see the number of days, months or years in which the action happens and the bottom row explains in more detail who needs to do what at each level.

Not only are timelines important for keeping the interconnection process moving along, they are also important for states or regions that may have an active interconnection queue. It is important to have a timeline that specifies how long a customer has to complete an application before it is withdrawn, so that customers farther down the queue do not have to wait an indefinite period of time (which can seem like eons when money's involved). Several states are starting to sit up and take notice of these issues. The Massachusetts DOER just published a lengthy [report](#) that they commissioned to investigate the current interconnection queuing and other challenges and to craft innovative solutions. The New Jersey OCE just added an interconnection complaint [tracking form](#) to their website, to help them understand any problems on the ground and identify areas for improvement. And Rhode Island recently passed a bill that includes provisions for interconnection timelines and fees. We will certainly be hearing more about these timeline and queuing issues in the future, especially if the solar market continues to be so upwardly mobile in the next few years.

Lastly, mark your calendar for this year's [IREC annual meeting](#) in Dallas, TX on October 17; it's going to be a great one. For all of you commitment-phobes and procrastinators there are some spaces left but hurry up and register—we'll see you there!

Best,
Laurel Varnado

NORTHEAST STATES

MASSACHUSETTS

On July 22, 2011, the Massachusetts Department of Public Utilities (DPU) issued an [order opening a rulemaking proceeding](#) and issued [proposed rules](#) to implement the net metering provisions of [Chapter 359 of the Acts of 2010](#). The act requires the DPU to adopt rules and regulations implementing changes created by the act, notably allowing municipal or governmental entities to net meter systems up to 10 MW, so long as the aggregate participation of these government customers does not exceed 2% of the distribution company's highest historical peak load. Non-governmental customers are allowed to net meter systems up to 2 MW, with a cap of 1% for aggregate participation.

Also, as mentioned briefly in the focus article on page two, the Massachusetts DPU has been working to facilitate certain aspects of the net metering and interconnection process for the state's distributed generation customers. In 2010, legislation was enacted that requires the DPU to adopt rules and regulations necessary to implement certain changes to net metering, including the adoption of a

system that provides proposed facilities with an assurance of net metering eligibility (which also has been referred to as a net metering queue). On September 13, 2011, the DPU issued an [order](#) detailing a proposed system of assurance of net metering eligibility. Given that there is a statutory cap on net metering capacity, assurance of net metering eligibility (termed a Cap Allocation in the proposal) would provide adequate certainty for host customers that they will be able to net meter when they are ready to interconnect their facilities.

According to the proposal, each business day, a process administrator (chosen by the DPU) will calculate the remaining available capacity under each of the public (for government facilities) and private (for commercial and residential) caps for each distribution company as the difference between: (1) the capacity of the applicable cap; and (2) the sum of: (a) the aggregate capacity of all host customers receiving net metering services, as reported by each distribution company each day; (b) the capacity of host customers that have been granted a cap allocation; and (c) for the private cap only, the 10% of the available capacity reserved for host customers with small class I net metering facilities. The administrator will make this information available on the internet.

A few notes from the [proposal](#):

- The proposed system is a voluntary process available to all host customers and it is not a prerequisite to net meter.
- A host customer may lose a cap allocation or place on the waiting list if it fails to meet applicable deadlines, makes any major changes to the facility plan (solar to wind, public to private cap change, etc...) or submits an ap-

plication that contains material misrepresentations.

- To calculate capacity, a solar net metering facility's capacity will be 80% of the Facility's direct current rating at standard test conditions, and all other Facilities will be the alternating current nameplate rating.

- As net metering capacity becomes available (e.g., as a result of an increase to a Distribution Company's peak load, loss of a cap allocation, legislative changes, etc.), a process administrator can offer it to host customers on the applicable waiting list, in order of priority.

On August 18, the Massachusetts DOER also issued a lengthy [distributed generation study](#) that it had commissioned to improve the interconnection process. Some of the more important findings triggered recommendations such as:

- Revise the tariff to mandate the creation of a uniform on-line interconnection application system;
- Require the utilities to establish transparent criteria for what triggers the requirement of various system upgrades paid for by interconnecting customers, and a formal process by which the utilities update the criteria;
- Hire at DPU an ombudsperson who will hear and quickly resolve interconnection disputes between developers and utilities;
- Require the utilities to increase collection of certain interconnection project tracking data; and
- Revise the tariff to require utilities to address area networks.

Thanks for doing all this groundbreaking work, Massachusetts. All of

this work is sure to pay off in leaps and bounds for the renewable energy industry.

NEW YORK

On August 17, 2011 New York enacted legislation ([A.B. 5525](#)) directing the Long Island Power Authority (LIPA) to comply with a provision of the the New York Standard Interconnection Requirements (SIR), which exempt inverter-based facilities of 25 kW or less from having a utility external disconnect switch (UEDS).

RHODE ISLAND

Rhode Island has been abuzz with legislative activity this summer.

In late June, Rhode Island enacted net metering bill [S.B. 457](#), which became effective in July. Previously system-size caps were 1.65 megawatts (MW) for privately-owned systems and 3.5 MW for those owned by government agencies.

With the passage of S.B. 457, Rhode Island now allows net metering for systems up to 5 MW in capacity, provided that they are designed to generate no more than 100% of the electricity needs of a customer. The aggregate limit of net-metered systems was also increased from 2% to 3% of a utility's peak load, and 2 MW is reserved for systems less than 50 kW.

Facilities owned by municipalities or multi-municipal collaboratives or those owned and operated by a developer on behalf of a municipality or collaborative may net meter through a "municipal net metering financing arrangement". Meter aggregation is generally allowed, and special provisions exist

to accommodate meter aggregation for farm-based systems that serve facilities in close proximity to each other.

Interestingly, an electric distribution company (EDC) may elect to aggregate consumption of a customer's net metered accounts and establish a monthly billing plan that reflects the expected credits that would be applied to the net metered accounts over a 12-month period. The billing plan would be designed to even out monthly billings, regardless of actual production and usage. If this option is chosen, an EDC would reconcile payments and credits under the billing plan to actual production and consumption at the end of the annual period and apply any credits or charges to the net metered accounts for any positive or negative difference, as applicable.

The EDC may also elect to issue checks to any net metering customer in lieu of billing credits or carry forward credits or charges to the next billing period. For residential eligible net metering systems 25 kW or smaller, the EDC may administer renewable net metering credits month to month allowing unused credits to carry forward into following billing period. The rate credited for kWh generated that do not exceed the customer's kWh consumption for that billing period is equal to the utility's retail rate (minus a very small conservation charge per kWh). Any excess kWh that do not exceed 125% of the customer's kWh consumption for that billing period are credited at the utility's avoided cost rate. Excess credit may be carried forward to the next bill or purchased by the utility (at its discretion).

Utilities may not impose any other charges on net-metered customers. Net-metered customers are exempt from back-up or standby rates com-

mensurate with the size of the net-metered system. Utilities may recover through rates any revenue shortfall caused by this exemption.

Also in late June Rhode Island enacted [House Bill 6222](#), which aims to institute an application process for interconnecting renewable distributed generation resources. The bill stops short of establishing comprehensive, standardized set of interconnection procedures as it only addresses interconnection timelines and fees. Additionally, while the bill specifies that it applies to electric distribution companies in Rhode Island, it also mandates that these timeline and fee updates be incorporated into the "Standards for Interconnection of Distributed Generation," which is the name for National Grid's interconnection procedures.

The legislation includes two notable deadlines:

- Upon receipt of a completed application requesting a feasibility study and receipt of the feasibility study fee, the electric distribution company must provide a feasibility study to the applicant within 30 days;
- Upon receipt of a completed application requesting an impact study and receipt of the applicable impact study fee, the electric distribution company must provide an impact study within 90 days.

The bill also includes the following fee schedule for interconnection applications, which are subject to increase each year at the PUC's discretion (Feasibility study fees / Impact study fees):

- Residential applicants of UL 1741.1-approved renewable facilities that are 25 kW or less: \$0 / \$0

- Residential applicants of UL 1741.1 approved renewable facilities that are greater than 25 kW: \$50 / \$100
- Non-residential applicants of UL 1741.1 approved renewable facilities that are 100 kW or less: \$100 / \$500
- Non-residential applicants of UL 1741.1 approved renewable facilities that are 250 kW or less: \$300 / \$1,500
- Non-residential applicants of renewable facilities that are 250 kW – 1 MW: \$1,000 / \$5,000
- Non-residential applicants of renewable facilities greater than 1 MW: \$2,500 / \$10,000

Notably, the bill also allows utilities to recover their incurred costs that are over and above the impact study fee established by this legislation and paid by a non-residential customer. They may recover this amount by billing the customer after the project is online or through offsetting net metering credits.

The bill also authorizes the electric distribution company to add up to two incremental employees to serve Rhode Island net metering and interconnection customers, recoverable through rate increases.

MID-ATLANTIC STATES

VIRGINIA

Virginia's Dominion Power is preparing to request approval for a new Solar Distributed Generation Program in which it will lease large commercial rooftops to host solar panels.

The company revealed its intentions as it filed a long-term Integrated Resource Plan with the Virginia State Corporation Commission.

The Plan details its long-term intent for electricity generation, which includes generating 15% of its power from renewable resources by 2025.

In the plan, the company said despite energy conservation efforts, it was expecting electricity demand to soar by nearly 30% by 2026.

The company currently has more than 400 MW of renewable generation in its portfolio. Among its plans to expand this, the company is seeking permission to convert three of its coal power stations to use biomass as a fuel, and its new Virginia City Hybrid Energy Center, set to start up during summer 2012, will use up to 20% biomass fuel.

Its solar plans build on enabling legislation passed by the Virginia General Assembly earlier this year.

"The company supports the state's desire to understand the additional benefits that distributed solar systems may have beyond their renewable attributes," said Dominion, which is also pursuing plans for a 4-megawatt solar power plant in Halifax, Virginia.

Dominion Virginia Power has a portfolio of approximately 28,200 megawatts of generation, is also studying the possibility of adding onshore and offshore wind farms, it said.

Source: [Brighter Energy](#)

MIDWESTERN STATES

MICHIGAN

On July 26, the Michigan Public Service Commission (MPSC) approved an expanded Experimental Advanced Renewable Program (EARP) proposed by Consumers Energy Company.

The MPSC on May 10 conditionally approved Consumers Energy Company's amended renewable energy plan (REP) that expanded its EARP. The Commission directed the utility to submit a detailed plan for implementation of an expanded EARP for approval by the MPSC within 60 days.

On July 8, Consumers submitted an application describing the expanded EARP and requesting approval of the program. In that filing, the company proposed to add \$16.5 million to the solar photovoltaic program with an additional \$3.5 million for use in developing a methane digester program and potentially one or more provider-owned solar projects, such as projects developed in conjunction with Michigan manufacturers of solar generation materials and Michigan universities or secondary school systems. The utility said it expects the expanded solar PV program to provide approximately 3 MW of additional solar installations over the next four years with contract terms of 15 years.

In approving the expanded EARP program, the MPSC noted it will create opportunities for new entrants to participate on an equal basis and the offer prices will encourage innovation and continue to drive costs to lower levels.

Source: [MPSC press release](#)

OHIO

Ohio's FirstEnergy Corp. will issue a Request for Proposals (RFP) to secure 10-year Renewable Energy Credits (RECs) and Solar Renewable Energy Credits (SRECs) for customers of its Ohio utilities.

The energy company said it will be seeking 5,000 SRECs and 20,000 RECs produced by generating facilities in Ohio for each calendar year beginning in 2011 and continuing through 2020.

The credits will be needed for utility subsidiaries Ohio Edison, Cleveland Electric Illuminating and Toledo Edison to help them meet the renewable energy benchmarks established under Ohio's energy law.

No energy or capacity will be purchased under the RFP, but the purchase of RECs and SRECs will support the production of renewable energy, since the credits represent the environmental attributes of renewable and solar renewable electricity generation, respectively.

Source: [Brighter Energy](#)

SOUTHERN STATES

GEORGIA

The response to the Georgia Public Service Commission's announcement to submit a notice of intent to participate in Georgia Power Company's Large Scale Solar (LSS) offering has been outstanding. Nearly 150 applications were submitted through the Commission's website which would provide

approximately 67 million kilowatt hours of clean solar energy to Georgia Power customers. According to the Commission's order of August 2, 2011, the LSS will provide up to 50 Megawatts of total generation capacity.

It is estimated these projects, if fully implemented, will bring in \$15 to \$20 million in tax revenues to the state. Georgia Power will review all applications for adequate financing and technical specifications. The projects must be underway this year in order to qualify for a 30 percent federal cash grant. Under the Commission order, the project must also be physically located in Georgia.

Source: [Georgia PSC press release](#)

MISSISSIPPI

The Mississippi Public Service Commission has been continuing to work on their net metering and interconnection docket ([2011-AD-2](#)) over the summer. On July 22, the commission held a day-long informational seminar on net metering and interconnection ([presentations available here](#)) and in August, the PSC issued a Request for Proposals for technical consulting services to the Commission in these two subject areas. The PSC is slated to announce the recipient on September 15 and commence work the following day.

WESTERN STATES

CALIFORNIA

California is offering another opportunity for renewable energy developers to

participate in the state's electricity market. On August 18, the California Public Utilities Commission ("CPUC") adopted rules for the Renewable Auction Mechanism ("RAM") program, which enables smaller projects to sell power to the state's largest electric utilities. To participate in the first RAM auction this fall, developers should be aware that they will need to have made substantial progress with the California Independent System Operator ("CAISO"), an organization whose processes can be difficult to navigate.

The RAM program was established late last year when the CPUC ordered California's three investor-owned utilities ("IOUs") to procure up to 1,000 megawatts of system-wide renewable distributed generation through a reverse auction using a standard contract. The new rules implement the RAM program by establishing bidding protocols for the auctions and adopting a standard power purchase agreement for each of the IOUs.

To participate in the RAM program, renewable energy sellers submit price bids to the IOUs during the auctions. The IOUs select the projects with the lowest price first. Once a bid is selected, the seller and the IOU execute a standard power purchase agreement with a term of 10, 15, or 20 years. The price and terms are non-negotiable.

New and existing projects from 1 to 20 megawatts are eligible to participate. The seller must demonstrate that it meets certain project viability requirements along with its bid. These include site control, development experience with at least one other project of similar technology and capacity, and commercialized technology.

The RAM program aligns procurement with grid interconnection by requiring that sellers have their interconnection studies from the CAISO in hand before

bidding. Sellers must have filed an interconnection application with the CAISO, and they must have completed a System Impact Study or Phase I Interconnection Study or passed the Fast Track screens (which are an option in both the Wholesale Distribution Access Tariff (“WDAT”) and the Generator Interconnection Procedures (“GIP”).

RAM will be a two-year program with auctions held twice per year. The IOUs must close the first auction by November 15, 2011, and the second auction by May 31, 2012. Projects participating in the RAM program must achieve commercial operation within 18 months of CPUC approval, with one 6-month extension allowed for regulatory delays.

The proposal voted on is available at this [link](#) and the DSIRE entry is available [here](#).

Source: [Morrison Foerster](#)

COLORADO

Let’s all welcome Fort Morgan, Colorado, as the newest net metering muni on the block. A state law enacted in 2008 requires municipal utilities, such as Fort Morgan’s, to start allowing its customers to engage in net metering. But “there really hadn’t been those needs in Fort Morgan” before, Municipal Engineer Brad Curtis told The Fort Morgan Times.

Now, there are at least two city power customers using net metering and three Fort Morgan buildings taking advantage of renewable-energy systems.

These include solar panels at one residence and Morgan Community College, which are both net metered, and the geothermal system at the new Salud Family Health Center.

“If you buy some solar panels and want to install them, come to the city. We have

an application for net metering,” Light & Power Superintendent Doug Linton said.

Curtis pointed out that building permits similar to those for plumbing or structural work would also be necessary for installation of such projects.

And that application and those permits are very important, Curtis and Linton stressed, because that’s how the customers, their contractors and the city utility communicate and make everything work together.

Source: [Fort Morgan Times](#)

OTHER STATES

HAWAII

Hawaii regulators are starting a process that may lead to the creation of a system where residents could finance expensive up-front costs of solar power installations through their electric bills.

The Public Utilities Commission opened a docket for the program, called on-bill financing, this week. Blue Planet Foundation Executive Director Jeff Mikulina says on-bill financing has the potential to bring renewable energy into many more homes in Hawaii.

He says the program could cut energy costs while accelerating the state’s clean energy production. Blue Planet is a group dedicated to making Hawaii energy independent.

Gov. Neil Abercrombie [recently signed a law](#) calling for an investigation of on-bill financing and starting the program if regulators deem it to be feasible.

Source: [Chron.com](#)

UPCOMING EVENTS

[AWEA Small & Community WIND-POWER 2011 \(with DWEA\)](#)

September 15-17
Des Moines, IA

[Solar Exchange East](#)

September 21
Raleigh, NC

[Renewable Energy Finance Forum \(REFF\)-West](#)

September 26-27
San Francisco, CA

[IREC Annual Meeting](#)

October 17
Dallas, TX

[Solar Power International 2011](#)

October 17 - 20
Dallas, TX

Visit [IREC’s online calendar](#) for more details and events. If you have events you’d like to include in this newsletter, [contact us](#).

IREC NEWS

IREC's Annual Meetings always zero in on pivotal issues that affect IREC members, state and industry audiences. The day-long gathering of friends, colleagues and well-known influencers will discuss compelling trends and share best practices in the renewable energy and energy efficiency space. [Find the Preliminary Agenda here.](#)

"IREC has been at this for nearly 30 years," said IREC's Executive Director, Jane Weissman. "Success in the regulatory arena, creating an infrastructure to build and train the clean energy workforce, publishing in-depth PV market data—this kind of work is endemic to the IREC culture. The entire IREC team is one passionately, dedicated group."

2011 marks the fifth year in a row that IREC has co-located its annual meeting at Solar Power International, because the depth and content of our work harmonizes well with the SPI audience.

IREC member and good friend, Karl Rabago, Vice President for Distributed Generation at Austin Energy, will be the keynote presenter. IREC team members, as well as key DOE program updates are on the agenda. We'll wrap up the day with an 'open-mike' interactive session, inviting input, conversation and comment from attendees.

IREC's Annual Updates & Trends Report will be distributed, and the winner of IREC's Innovation and Special Recognition Awards will be announced.

As always, registration is free for IREC members in good standing (as of July 1, 2011). Not sure of your IREC membership status? [Contact us.](#) Or find registration information [here.](#)

MISCELLANEOUS NEWS

FERC transmission line rule: Good news for solar projects

On July 21, 2011, the Federal Energy Regulatory Commission (FERC) issued a new rule that is expected to help bring more renewable energy projects online. [Order No. 1000](#), "Final Rule on Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities," contains several requirements that should make it easier to build and pay for transmission lines to solar installations.

The rule makes clear that public utility transmission providers must develop regional transmission plans that consider public policy goals established by state or federal laws and regulations (e.g., a renewable portfolio standards or RPS) in the region. Furthermore, it requires the public transmission providers to coordinate their plans with neighboring regional providers.

The rule also requires that the public transmission providers participate in planning processes that use cost allocation methods that follow six principles identified in the order. One of the most important cost allocation principles in the new rule is that the costs of new transmission facilities will be the burden of those that will benefit from the additional power, and not the responsibility of a few or those that will not benefit from the power. Moreover, the cost allocation methodology must be transparent, and the burden must be commensurate with the benefits. The order will take effect 60 days after publication in the Federal Register.

Utility-scale solar has been plagued

by insufficient transmission capacity in the U.S. While the industry has clearly seen transmission issues in Ontario, California utilities have begun to suggest favorable locations for interconnection, suggesting that they are anticipating similar issues. The ruling should enable U.S. utilities to be more flexible in granting interconnection. It is likely that these costs will be passed on to ratepayers; however, such a strategy has backfired in other environmentally friendly markets like Colorado. Nevertheless, this new rule is likely to benefit large-scale developers in the U.S. like First Solar, SunPower, Recurrent, NRG, etc., who have experienced project delays due to gaining permission to interconnect.

Source: [Smart Grid News](#)

Department of Energy Announces SunShot recipients

DOE announced on September 1 that it has awarded more than \$145 million for projects to help shape the next generation of solar energy technologies as part of its SunShot Initiative. Sixty-nine projects in 24 states will accelerate research and development to increase efficiency, lower costs, and advance cutting-edge technologies. The projects will also improve materials, manufacturing processes, and supply chains for a wide range of photovoltaic (PV) solar cells and components of solar energy systems. Some of these investments also support efforts that will shorten the overall timeline from prototype to production and streamline building codes, zoning laws, permitting rules, and business processes for installing solar energy systems.

Source: [SunShot Initiative](#)

NREL data shows clouds' effects on solar power

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) has produced and made available a rich data set showing what happens, second-by-second, when clouds pass over a solar power installation.

Seventeen measurement stations near Hawaii's Honolulu International Airport on the island of Oahu collected data at 1-second intervals over the course of a year.

The data set is of great interest to utilities, developers of large-scale photovoltaic (PV) systems, forecasters, system operators, laboratories and universities.

By understanding the characteristics of cloud shadows that pass across a large PV system, utility officials can devise strategies to better manage those fluctuations so the grid isn't adversely impacted.

The data set can model utility-scale systems up to 30 megawatts, Renne noted. "Clouds can cause pretty significant jumps or ramps over a very short period of time." Renne said that as solar power becomes a greater part of the energy mix, those jumps can cause fluctuations in the grid, which if unmitigated can cause surges, fluctuations, and headaches for the utility operator.

Storage of the electricity generated by the sun is one way to handle those fluctuations. Another is to stabilize the grid via infrastructure and software packages.

One new insight is that with very

large arrays of solar panels, there is a smoothing of the fluctuation, compared to the sharp spikes and plunges that can happen when a cloud passes by a single panel or small rooftop array.

The data collected for the Oahu Solar Energy Study belongs to the partners working on the HCEI, but NREL can share the knowledge about building a data set based on one-second intervals with others around the nation and the world. One year's worth of the data can be found on NREL's Measurement and Instrumentation Data Center (MIDC) website at www.nrel.gov/midc.

Source: [NREL](http://www.nrel.gov)

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