

CONNECTING TO THE GRID

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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). [Click here to subscribe.](#)

Please direct comments and questions about the newsletter to Laurel Varnado at laurelv@irecusa.org





NET METERING FOR \$200?

If you were to pit a smart meter against an electro-mechanical meter in a game of Jeopardy, I imagine the smart meter would probably win the game. But would it win in every category? Since there has been so much in the news about smart meters in the last few years, I decided to do a little reading on the topic and see what studies have been done on “smart” net metering.

First, I started with a quick refresher on how meters work. Electricity meters measure the instantaneous voltage and current (in amps, or I) and use the product of these to provide readings of instantaneous electrical power (watts). Remember Ohm’s Law from high school physics class ($V \times I = W$)? Electro-mechanical meters operate by counting the revolutions of an aluminum disc, designed to rotate at a speed proportional to the power being pulled from (or pushed to) the grid. Smart meters record this same information through electronic means and transmit the data back to the utility via a dedicated radio frequency and/or cellular network. (Aside: I also discovered that Samuel Gardiner was the first person to take out a patent on an electricity meter, a DC lamp-hour meter, in 1872.)

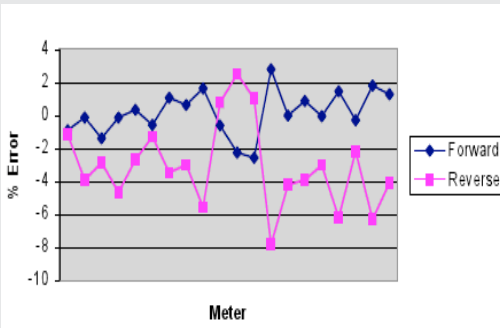
Next, I did some digging into meter accuracy studies. Measurement Canada performed a study on electromechanical meters operating in the reverse direction (indicating an excess of onsite renewable energy generation), which indicated that, at low currents, the accuracy taken from a small sample of meters showed errors may be as high as 8 percent slow. That’s a pretty sizable margin of error working against net metering customers. On the flip side, independent studies commissioned by the [Texas](#), [Ohio](#) and [California](#) Public Utility Commissions all revealed that smart meters are far more accurate than the meters being replaced. The Texas study showed a smart meter accuracy rate of 99.96 percent and the Ohio study found all new meters to be accurate to the American National Standards Institute (ANSI C12.1-2008) standards.

While reports and studies seem to unanimously prove that smart meters rank superior on the accuracy front, PG&E did admit that 43,000 of their smart meters installed since 2007 have had other problems, including installation errors or transmission failures. You may also remember the [story](#) from San Diego Gas and Electric when the utility had to swap out net metering customers’ smart meters for older electromechanical ones. Because of how utilities had configured the new meters and their back-office systems, the meters couldn’t effectively “spin backward” to carry out the task of net metering. It seems however that these software bugs have largely all been worked out and smart meters are now back in business for net metering.

So, despite the technical glitches and bumps in the road that smart meters have had in some areas of the country, it seems that the accuracy that smart meters afford would still be financially beneficial for net metering customers in the long run (and win the net metering category of a Jeopardy game). One way smart meters help is by allowing more customers to take advantage of Time of Use (TOU) rates. As one [article](#) recently put it, “Where smart meters are deployed, TOU rate structures soon follow.” With a little extra work in energy management, smart meters will be able to help solar and other renewable customers make better energy use decisions so they can get the most financial benefit from their systems. Which, ultimately, might be worth that \$200.

Best,

Laurel Varnado



STATE NEWS IN DETAIL

NORTHEAST STATES

MASSACHUSETTS

At the end of October, the Massachusetts Department of Energy Resources filed [joint comments](#) with 15 DG Stakeholders recommending the creation of a Distributed Generation Working Group to improve the process for connecting on-site clean energy projects. The filing was in response to Department of Public Utility's investigation triggered by the [MA DG Interconnection Report](#) filed by DOER on August 18. The filings for this docket can be found by entering "11-75" at the [DPU File Room website](#).

The DOER joint comments advocated for a working group process that would encompass more streamlined, simplified, and uniform interconnection standards without sacrificing safe or reliable electric service. The joint comments also requested that the DPU ensure utilities meet the timelines in the interconnection tariff, possibly improve them, provide a mechanism for tracking compliance with the tariff, and address an appropriate incentive and enforcement structure in alignment with these requirements.

Some of the potential issues to be considered during this next round of updates include:

- Timelines- Establishing how long it should take the utilities to process an interconnection application in the best of circumstances, with adequate staffing, and then establishing binding timelines for the interconnection process;
- On-Line Application- Revising the tariff to mandate the creation of a uniform on-line interconnection application system;
- Upgrade Standards- Requiring 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; and
- Area Networks- Revising the tariff to require utilities to address area networks.

For a more extensive list of the issues raised by participants in this proceeding, see pages 7-8 of the [DOER joint comments](#).

MID-ATLANTIC STATES

NEW JERSEY

The New Jersey Board of Public Utilities (NJBPU) has proposed new regulations that will require all solar energy systems to utilize a revenue-grade meter to accurately measure electric output for the creation of SRECs eligible in New Jersey's Renewable Portfolio Standard. This meter is in addition to the electric meter installed by the utility to measure a system's electric consumption for purposes of net

metering. If this rule passes, all NJ systems without revenue-grade meters will need to report actual production and will no longer be eligible for production estimates on GATS.

All systems that do not have a revenue-grade meters that meet the American National Standards Institute (ANSI) Standard C12.1-2008 must have one installed within 6 months from the rule adoption. Following that date, SRECs will only be issued to systems based upon readings reported from a revenue grade meter measuring the system output.

This rule proposal is expected to be adopted by the NJBPU in December 2011, in which case a revenue-grade meter would be required to be installed no later than June 30, 2012. Readings based on the meters will need to begin on the 1st day of the month following installation (i.e., if your meter is installed on May 10, 2012 then you will be required to begin reporting your generation from the meter as of June 1, 2012).

This rule will not really affect newer systems but it is however an issue for systems that went in under the old REIP and CORE programs since these systems were permitted to use production estimates for SREC creation.

The proposal can be found [here](#).

Source: [Renewable Energy World](#), Justin Barnes, NC Solar Center

VIRGINIA

Any residential customer of Dominion Virginia Power who owns and operates certain net-metered electric generation systems of 10 kilowatts or larger will pay a monthly standby charge

as authorized by state law during the 2011 session of the General Assembly. The State Corporation Commission (SCC) has approved a standby charge methodology that allows the company to recover its transmission and distribution costs since those customers still make use of electric grid.

Through Case number [PUE-2011-00088](#), Dominion Power sought approval of a standby charge consisting of a \$2.79 per kilowatt distribution-related component, a \$1.40 per kilowatt transmission-related component, and a \$0.00 per kilowatt generation-related “placeholder” component. In approving the methodology, the Commission stated in its final order that, “the evidence in this record indicates that any avoided cost benefits provided by customer-generators, at least in terms of the transmission and distribution grid, are insufficient to pay for their proportionate share of the grid.”

The Commission did not approve the company’s request for a generation component of the standby charge. Although the company wanted that component to be set at \$0 for now, the Commission directed the company file a future request that evaluates both the generation costs and benefits associated with serving eligible customer-generators.

The Commission also encourages the consideration and adoption of alternative methodologies in subsequent proceedings that could mitigate the standby charge by weighing the potential avoided costs and benefits to Dominion from having net-metered customer-generators selling energy and capacity back into the company’s system.

Source: [Virginia SCC Press Release](#)

WEST VIRGINIA

It has had to be resolved in states across the nation and, on Nov. 22, the Public Service Commission of West Virginia decided to grant PURPA-based renewable energy credits in favor of the utility. The “credits” are Alternative and Renewable Energy Resource Credits established, in West Virginia, by the state’s 2009 Alternative and Renewable Energy Portfolio Act, or AREP Act.

Starting in 2015, the state’s utilities — AEP’s Appalachian Power Co. and Wheeling Power Co. and FirstEnergy’s Monongahela Power Co. and Potomac Edison Co., as well as the New Martinsville and Philippi municipal utilities, the Craig-Botetourt Electric Cooperative and the Harrison Rural Electrification Association — will each year have to own and retire credits equal to the mandated percentage of total retail power sales for the year (10 percent by 2015, 15 percent by 2020 and 25 percent by 2025).

For alternative and renewable power the utilities generate themselves, it’s straightforward: They own the associated credits. The AEP companies will create and own credits from several qualifying generators.

For utilities that don’t generate any such power, it’s straightforward, too: They’ll buy the credits. Craig-Botetourt, for example, anticipates buying 315 credits for 2015 compliance at an estimated cost of \$15 each.

And if utilities contracted recently to purchase such power, the disposition of the associated credits would have been negotiated.

But Mon Power has been under long-term contract since the 1980s with three independent power producers

under PURPA contracts. Power from each of these PURPA sources creates credits under the AREP Act: an estimated 1.5 million credits altogether every year, \$22.5 million worth if they’re valued at \$15 each.

Because the city of New Martinsville is both a power producer and a municipal utility, it claimed the Hannibal credits in its compliance plan — as did Mon Power. In February, the FirstEnergy companies petitioned the PSC to decide who owns them.

Mon Power and Potomac Edison pointed to similar recent cases in Connecticut, New Jersey, and Pennsylvania, which followed the majority of earlier states’ rulings the came out in favor of utilities.

In these old federally mandated contracts, Connecticut and New Jersey reasoned, the non-utility generators were given favorable rates. The utilities’ customers shouldn’t be required to pay further to obtain the credits, they found. Pennsylvania considered the credits a measure of the power purchased, a bookkeeping device, and for that reason saw them as following the power.

MEA looked to Minnesota, which found that these old power purchase agreements are for energy and capacity and nothing more.

The commission determined that the Mon Power and Potomac Edison case was more compelling and, on Nov. 22, ordered that the credits belong to them.

What credits will actually be worth can only be speculation until the compliance period starts. “The price ultimately will be determined by how the Renewable Energy Credit markets evolve in the future,” said FirstEnergy spokesman Mark Durbin. “However,

as part of our filing with the PSC, we estimated the ratepayer impact of not having the ... credits could be approximately \$60 million from 2015 to 2025," Durbin said.

Source: [The State Journal](#)

MIDWESTERN STATES

INDIANA

Northern Indiana Public Service Company (NIPSCO) and the Sierra Club, a national environmental service organization, are working together on a new clean energy initiative.

Sierra Club members commended NIPSCO on December 1, 2011, for the company's efforts to improve a new feed-in tariff program, where customers who generate their own eco-friendly energy receive paybacks in the form of checks from NIPSCO.

The new feed-in tariff program comes in the wake of NIPSCO's existing net-metering program, which currently provides those clean energy-generating customers with utility bill credits.

Sierra Club Organizer Virginia Shannon said the partnership between the Sierra Club and NIPSCO started in April 2011 when the two groups collaboratively wrote the program's original proposal.

"We are excited to see they (NIPSCO) filed to resolve the issues with it (the program)," Shannon said. "This means the program can come through and the concept can become a reality."

NIPSCO's 30-day filing to the Indiana

Utility Regulatory Commission (IURC) was submitted to help NIPSCO fix technical issues with the feed-in tariff program and make it more accessible to customers.

The program was designed to connect customers with solar, wind, hydro or biomass systems and make renewable energy a financially viable investment.

Nick Meyer, director of external communications for NIPSCO, said residential and small business customers can benefit greatly from the net-metering program and even from the feed-in tariff program, which was specifically designed to cater to industrial and large business customers.

Meyer said just because the feed-in tariff model was designed for larger energy consumers doesn't mean that small businesses or even residential customers can't take advantage of its rewards. Both programs are open to all NIPSCO customers.

Customers can register to participate in either program by going to www.nipSCO.com and clicking on "Connecting to the Grid" under the "Our Services" tab, Meyer said.

There are about 30 participants currently using the net-metering program, Meyer added, and about a half-dozen large businesses interested in the feed-in tariff program at this point in time.

Source: [The Herald Argus](#)

MICHIGAN

As of December 1, 2011 residential electric customers served by Consumers Energy can submit applications to participate in the utility's Experimental Advanced Renewable Program (EARP).

This program allows electric customers to sell the output of customer-owned solar generating systems to Consumers Energy for a fixed price over a contract length of 15 years. Applications for this next phase of the EARP must be submitted by Jan. 12, 2012.

A new website was launched to provide information on this renewable energy program. That address is: www.consumersenergy.com/EARP.

About 85 Michigan residents have installed their own solar energy systems during previous phases of this program.

Consumers Energy, the principal subsidiary of CMS Energy, provides natural gas and electricity to 6.8 million of Michigan's 10 million residents in all 68 Lower Peninsula counties.

Source: [PR Newswire](#)

SOUTHERN STATES

FLORIDA

The solar capital of the United States might be in California, but Gainesville is producing more solar energy per capita than the Golden State.

"After only three years of development, a small town in Florida has moved into the ranks of the solar big leagues worldwide," Paul Gipe, a renewable-energy industry analyst, wrote on his website, Wind-Works, last month.

Gipe included a ranking showing that per-capita solar production is higher in Gainesville than in California and Japan and 260 percent higher than the

United States as a whole.

Actually, it's more like 330 percent.

Gipe's numbers included only one of two solar programs sponsored by GRU. His numbers included only the figures from Gainesville Regional Utilities' feed-in tariff program, which pays property owners a premium for the energy their photovoltaic installations produce.

Before that program started, GRU had established a net-metering program in which properties would get their electricity from their own installations, with the city-owned utility purchasing any excess production and sending to the grid to power other homes and businesses.

Currently, there are 7.3 megawatts of solar being produced in the feed-in tariff program and 1.14 megawatts in the net-metering program.

According to figures from GRU and Gipe, 0.043 kilowatts of solar are produced by GRU for every person in the service area.

California has 0.032 kilowatts, while the world leader, the German state of Bavaria, has 0.604 kilowatts.

Source: [Gainesville Sun](#)

WESTERN STATES

CALIFORNIA

The California Energy Commission has released a preliminary draft of its 2011 Integrated Energy Policy Report (IEPR). The report, the state's main energy planning document, discusses the wide variety of issues facing California's energy sector. The draft report provides recommendations to ensure reliable, affordable, and environmentally sound supplies of electricity, natural gas, and transportation fuels to meet the needs of the state's economy and growing population.

One of those mandates is California's Renewable Portfolio Standards in which Governor Brown signed legislation (SBX1 2 (Simitian, Chapter 1, Statutes of 2011-12, First Extraordinary Session)). The law states the intent of generating 33 percent of the state's electricity from renewable sources by 2020. "As California adds more renewable energy to its mix, accurate, long-term planning to ensure a reliable energy system becomes more important - and more difficult - than ever before," said Energy Commission Chair Dr. Robert Weisenmiller.

Governor Brown's Clean Energy Jobs Plan sets a goal of achieving "zero net energy" homes and businesses by increasing the energy efficiency in existing structures built prior to Title 24 building standards, adopting stronger appliance standards, installing renewable distributed generation, and adding efficient combined heat and power capacity.

To achieve these goals, the 2011 IEPR calls for improved coordination between the state's major energy agen-

cies. This includes a coordinated and open transmission planning process and continued research and development into more efficient energy technologies, including low-carbon transportation systems.

Interested parties have until December 23, 2011 to provide written comments on the draft. Comments will be considered in the final document scheduled for release on January 24, 2012. Final adoption of the IEPR by the Energy Commission is expected in February 2012.

Source: [California Energy Commission Press Release](#)

OTHER STATES

HAWAII

On November 29, 2011, the Hawaii Public Utilities Commission issued an order that significantly improves Hawaii's interconnection procedures, known as Rule 14H. For almost two years, IREC has worked collaboratively with parties in Hawaii to reform Hawaii's existing Rule 14H and move Hawaii's interconnection process toward best practices. The PUC's November 29 order approves stipulated revisions to Rule 14H that parties submitted to the Commission in October. The Commission's order adopts the stipulated revisions but defers determination on two issues related to supervisory control provisions and frequency regulation for a later order.

IREC played a central role in drafting revisions to Rule 14H, including updating the technical review screens, introducing a supplemental review process, and improving the intercon-

nection study process. With the Commission's approval of these features, Hawaii dramatically improves its interconnection standards. In the 2011 edition of Freeing the Grid, which went to print before the Commission approved these changes, Hawaii received an "F" for its interconnection policies. After the Commission's order, Hawaii's will now earn a "B" for interconnection.

The key reasons for Hawaii's dramatic grade improvement are discussed briefly below.

Hawaii's score for "Technical Screens" in FTG jumps from "-2" to "1" point

One of the most significant shortcomings of Rule 14H was the fact that it did not feature objective technical screens for evaluating fast track interconnections. Revised Rule 14H includes nine technical screens that are based closely on California's Rule 21 interconnection process, with an improvement to the "penetration" screen that constitutes a new best practice. Although Rule 14H employs the standard "penetration" screen that allows a generator to interconnect on a more expedited basis so long as aggregate generating capacity is equal to or less than 15% of the line section peak load, a supplemental review process that has been incorporated into Rule 14H will allow a generator to avoid more intensive study if the "aggregate capacity per Line Section is below 50% of the Line Section minimum kW load during the period when the proposed generation is available (including noon on Sunday for solar photovoltaic systems)." This approach is far less restrictive than FERC's pro forma SGIP and results in awarding a bonus point.

Revised Rule 14H Timelines improve upon the SGIP to earn "1" point

Previously, Rule 14H had few definite timeframes for completion of the inter-

connection process. Revised Rule 14H has clear timelines for when an application must be deemed complete, examined through initial review, processed through supplemental review, or moved on to a more intensive interconnection requirements study (IRS). Under the revised rules, an IRS must be completed within 150 calendar days of the time a customer agrees to proceed with the IRS and pays for the study. The maximum time under Rule 14H to complete the IRS is significantly shorter than the maximum time that may be required under the SGIP, which is calculated in business days.

Revised Rule 14H features several breakpoints

Although revised Rule 14H does not feature distinct levels of review like SGIP—demarcated by generator size—the Rule 14H technical screens make two distinctions based on generator size that reduce the scrutiny of the initial review process for smaller generators. For inverter-based generators 10 kW or less, Rule 14H will allow these generators to skip screens 7-9 and proceed directly to simplified interconnection. For inverter-based generators less than 250 kW that meet both IEEE 1547 and UL 1741 standards, revised Rule 14H will allow these generators to skip screen 8, which addresses short circuit contribution ratios.

Sources: Kevin Fox, Thad Culley, Keyes and Fox, LLP

UPCOMING EVENTS

Energy, Utility and Environment Conference

**January 30-February 1
Phoenix, AZ**

Solar Power-Gen Conference & Expo

**February 14-16
Long Beach, CA**

**PV America West
March 18-20, 2012
Jose, CA**

**Have a renewable energy event
you'd like us to list? [Let us know.](#)**

MISCELLANEOUS NEWS

DOE announces Solar Roof Challenge recipients

On December 1, as part of the U.S. Department of Energy's SunShot Initiative, Energy Secretary Steven Chu was joined by Lynn Jurich, the president and co-founder of the solar power company SunRun, and Saint Paul Mayor Chris Coleman to announce \$12 million in funding for the awardees of the Rooftop Solar Challenge. The Challenge supports 22 regional teams to spur solar power deployment by cutting red tape—streamlining and standardizing permitting, zoning, metering, and connection processes—and improving finance options to reduce barriers and lower costs for residential and small commercial rooftop solar systems. This project is part of the Department's larger effort to make solar energy more accessible and affordable, increase domestic solar deployment, and position the United States as a leader in the rapidly-growing global solar market.

"Through this competition, the Energy Department is helping to unleash America's solar potential by investing in projects that will make it faster, easier, and cheaper to finance and deploy solar power in communities across the country," said Secretary Chu. "These awards will reduce the cost homeowners and businesses pay to install solar energy systems, while at the same time saving money and time for local governments faced with tight budgets."

The DOE SunShot Initiative is a collaborative national effort to make solar cost-competitive with other forms of energy by the end of the decade. Reducing the installed cost of solar energy systems by about 75% will drive widespread large-

scale adoption of solar—fortifying U.S. leadership in the global clean energy race while spurring new industries and job creation across the nation.

Non-hardware, or "soft," costs like permitting, installation, design, and maintenance currently account for up to 40% of the total cost of installed rooftop photovoltaic (PV) systems in the United States. Across the nation today, there are more than 18,000 local jurisdictions with their own PV permitting requirements, land use codes and zoning ordinances; more than 5,000 utilities that are implementing standards for connecting and selling energy back to the energy grid; and all 50 states are developing their own connection standards and processes for supplying and pricing energy sold back to the grid. According to a report released earlier this year by SunRun, local permitting and inspection processes alone add about \$0.50 per watt, or \$2,500 per residential installation nation-wide.

Using a "race to the top" model, the Rooftop Solar Challenge incentivizes the regional awardees to address the differing and expensive permitting, zoning, metering, and connection processes required to install and finance residential and small business solar systems. The 22 diverse teams bring together city, county, and state officials, regulatory entities, private industry, universities, local utilities, and other regional stakeholders to clear a path for rapid expansion of solar energy and serve as models for other communities across the country.

The teams will implement step-by-step actions to standardize permit processes, update planning and zoning codes, improve standards for connecting solar power to the electric grid and increase access to financing.

Source: [EERE Press Release](#)

Spain allows net metering for small solar facilities

Spain's government passed a decree on November 18, designed to make it easier for small power plants to connect to the grid and pave the way for their operators to become self-sufficient.

Government spokesman Jose Blanco told a weekly news conference the measure was aimed at renewable energy sources, particularly photovoltaic (PV) panels, which convert sunlight into electricity.

An Industry Ministry statement added that the government was working on regulations to accompany the decree covering "net metering", whereby producers of less than 10 kilowatts can feed surplus power to the grid or draw from it to offset shortfalls.

"The gradual entry of this type of small plants will modify the current model of centralized big power stations by promoting a new system of more and more widespread generation," the ministry said.

A 10 kW plant can supply about four households and can be mounted on rooftops, as opposed to ground-based PV plants covering several hectares which make up most of Spain's solar installations.

PV plants now supply 3 percent of Spain's electricity.

Source: [Reuters](#)

DOE Launches Initiative To Advance Clean Energy Development On Tribal Lands

Following on the heels of the U.S. Department of the Interior's (DOI) recently announced initiative aimed at facilitating renewable energy development on tribal lands, the U.S. Department of Energy (DOE) has also launched a new program designed to advance clean energy generation in Indian Country.

The new Strategic Technical Assistance Response Team (START) initiative will provide federally recognized Native American and Alaska Native governments with technical assistance to accelerate clean energy project deployment.

Through START, experts from the DOE and the National Renewable Energy Laboratory will work directly with community-based project teams to evaluate financial and technical feasibility and provide early development technical assistance to get these projects better positioned for financing and construction.

The START initiative will further serve to help Native American and Alaska Native communities increase local generation capacity, enhance energy efficiency and conservation measures, and create entrepreneurial and job opportunities in the new clean energy economy, the DOE explains.

Awards through this initiative will be provided through two programs:

START Program: Tribes selected for this program will be paired with DOE experts who have clean energy deployment experience relevant to the selected tribe's project development stage and technology.

Alaska START Program: Leveraging the combined technical expertise and resources of the DOE and the Denali Commission, this program will help selected Alaska Native communities conduct community-based planning and training and implement a variety of clean energy projects, such as energy-storage infrastructure, renewable energy deployment and housing energy efficiency.

Industrial DG expected to grow 46-85% in the coming years

Ten years ago, the market for industrial distributed energy generation – wherein industrial users choose to generate their own power requirements rather than rely on outside supply – was typified by end-user-owned combined heat and power (CHP) facilities that met the majority of electricity, heat, and cooling demands for a site. These CHP systems range between several megawatts and several hundred megawatts, provided by combustion-based prime movers, such as natural gas-fueled reciprocating engines and turbines, or by heat recovered from a plant process. For the most part, that definition still applies; over the last three to five years, however, a number of drivers and new contexts have emerged for the use of large-scale, user-sited generation. The industrial distributed generation (IDG) market landscape is evolving to include new technologies, systems, business models, and service providers that are altering how traditional transmission and distribution systems are controlled and operated.

As a result, according to a recent report from Pike Research, the IDG market is poised for significant growth over the next five years. Under a “low

growth” forecast scenario, the market intelligence firm forecasts that total IDG capacity in the United States will increase by 46% between 2011 and 2016, rising from 91 gigawatts (GW) to 133 GW during that period. A more optimistic forecast scenario, which assumes a more favorable regulatory environment for IDG and more robust U.S. economic growth, foresees the market expanding to as high as 168 GW of capacity during that period, an 85% increase over 2011 levels.

Source: [Business Wire](#)

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