

CONNECTING TO THE GRID

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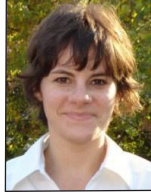


ABOUT THIS NEWSLETTER

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) 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.





MICROGRIDS: SOCIAL NETWORKING FOR RENEWABLES?



The University of California at San Diego, working on a [high-penetration PV microgrid](#), in collaboration with the Department of Energy

What do the recent San Diego power outage; hurricanes, tornados and earthquakes; and the ever-increasing congestion on the transmission grid, all have in common? For me, they all make a pretty compelling case for policymakers to encourage the development of microgrids. While microgrids (also known as μ Grids, community grids, milligrids or nanogrids, depending on their size and structure) aren't a new concept by any stretch, they've definitely been gaining in relevance of late.

They've also been gaining ground in their capabilities, much as a result of smart grid technologies. I've heard them referred to as peer-to-peer power networks (hence the title of this article) because they have the ability to share a variety distributed resources across a network of high-use buildings (such as hospitals, office and industrial complexes and data centers). The buildings in a microgrid remain connected to the (macro) utility grid but, by generating their own power, they reduce reliance on the macro grid and can even send back surplus power through net metering or another type of arrangement. (Aside: Pennsylvania includes a higher system size cap for microgrids in its net metering policy, allowing those up to 5 MW to net meter, while non-microgrid systems may net meter systems up to 3 MW.)

One of the more compelling facets of a microgrid is that, in the event of a power outage or disturbance, a microgrid can separate from the utility grid, an event known as intentional islanding. Members of the microgrid retain power availability, sometimes without even a power flicker, avoiding blackouts and lost productivity. That can mean big money for industrial customers and continuity of care for a hospital on such a network. Hospitals have long had back-up generators in case of a power loss but microgrids allow them to install more efficient, renewable sources of energy that operate in parallel with the grid (decreasing the power they need to purchase on a regular basis) and operate autonomously as needed. A good example can be seen at Baptist Medical Center in Jackson, MS, which operated at full capacity for 52 hours after Katrina, until power was restored. Military bases are also undergoing a [concerted energy security push](#) to implement microgrids combined with "net-zero" energy installation strategies. Another big advantage is that microgrids can free up generation on the centralized transmission and distribution network and help create a more reliable grid for the rest of us.

Microgrids also have the ability to integrate various renewable energy power sources with super-efficient combined heat and power facilities, which can accommodate a variety of fuel sources (including renewable biomass and biogas) and allow the waste heat from the generation source to be used onsite. With smart grid technology, we have the ability to connect several onsite generation systems to talk to each other and self-regulate their collective output to match the needs of the host customer. The end result? A collaborative, highly efficient and reliable grid that produces energy at the point of use.

So what does this mean on the interconnection front? Interconnection policies are generally designed to avoid islanding, especially of the unintentional kind. Microgrids, by their very nature however, are designed to act as an island in the case of an emergency. Will future policies then be more apt to incorporate provisions that can help facilitate microgrids?

NOTE FROM THE EDITOR



GRU owns and operates the microgrid at Shands Hospital in Gainesville, FL.

There are many additional considerations that must be taken into account for microgrid interconnection, including:

- Interconnection across public thoroughfares and rights of way (which normally isn't permitted even for net metered systems under one owner);
- Multiple, rather than single, points of common coupling;
- Reactive power requirements (systems need to support both real and reactive requirements at acceptable voltage levels);
- Black start capabilities (the ability to start local generation with no external source of power); and
- Bumpless transfers, which can facilitate a smooth transition to island mode and back without causing a power disturbance (important for hospitals and many industrial applications), while maintaining the safety of the grid operator.

I would be remiss, however, if I didn't also mention some of the potential risks involved with poorly planned microgrid interconnections. These include a risk of reconnection that is out of phase with the macrogrid, load imbalances and other technical issues that may potentially cause harm to system operators or equipment. That's why we need to get the interconnection right in the first place. With plenty of fore-thought, equipment controls and trained staff in place, fault conditions become less and less of a possibility.

Luckily, we just gained another great resource for microgrid islands that helps us with the ever-important interconnection piece. In July of this year, IEEE published their Standard 1547.4 Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems as part of the further development of IEEE 1547-2003 Standard for Interconnecting Distributed Resources with Electric Power Systems (available [here](#) for \$75). This standard was designed to "provide alternative approaches and good practices for the design, operation, and integration of distributed resource island systems with electric power systems." If you want further information on microgrids, the Lawrence Berkeley National Laboratory has produced a large volume of [research reports](#) on this topic. Chris Marnay, one of LBNL's scientists, also gave a great [Google Tech Talk](#) on this subject (available on YouTube).

We know that expanding our centralized generation model is becoming increasingly untenable and, as a result, the proverbial winds are beginning to shift in favor of a more reliable, decentralized model. While they can be technically challenging, the potential benefits of microgrids are incalculable and definitely help us achieve this goal. I look forward to seeing this happen over the next few...decades?

I hope to see you at our upcoming [IREC annual meeting](#) next week! It's always an inspiring and educational meeting and this year, we're pulling out all the stops. Talk to you then.

Best,

Laurel Varnado

STATE NEWS IN DETAIL

NORTHEAST STATES

CONNECTICUT

The Connecticut Public Utilities Regulatory Authority (PURA), formerly known as the Department of Public Utility Control, has established [Docket No. 11-07-05](#), to develop the administrative processes and program specifications for virtual net metering. On August 17, 2011, PURA convened a technical meeting to discuss the virtual net metering provisions in Section 121 of Public Act 11-80, [An Act Concerning The Establishment Of The Department Of Energy And Environmental Protection And Planning For Connecticut's Energy Future](#).

Public Act 11-80, enacted in July of this year, allows municipal utility customers to virtually net meter Class I renewable energy generation facilities. During the August 17 Technical Session, PURA proposed extending eligibility for the virtual net metering program to the State of Connecticut customers. The utilities had no objection to this change, but suggested that the language be clarified to explicitly state that both the "customer host" and "beneficial accounts" must be municipal or State of Connecticut accounts.

Shortly after the August 17 meeting, PURA directed the state's two investor-

owned utilities, The Connecticut Light and Power Company and The United Illuminating Company, to submit initial filings and a draft net metering Rider. The filings were required to provide an explanation of virtual net metering and issues regarding the administrative process, including billing, credits and logistics, as well as the overall subsidy cap of \$1 million. As of this writing, the draft is not yet available in the PURA docket. The involved parties convened on September 22 for a technical meeting to discuss the issue further.

MASSACHUSETTS

On September 28, the Massachusetts Department of Public Utilities (DPU) [opened a formal investigation](#) which intends to review the current standards and procedures by which distributed generation projects are interconnected to the electric distribution system.

On August 18, 2011, the Massachusetts Department of Energy Resources (DOER) filed a petition with the DPU requesting that the DPU open a proceeding on interconnection. DOER's petition was accompanied by the [Massachusetts Distributed Generation Interconnection Report](#) prepared by KEMA, Inc. on behalf of DOER and the Massachusetts Clean Energy Center. The DG Report identifies various issues associated with the current distributed generation interconnection standards and application procedure

The DG Report proposes a redesign of the interconnection process in order to facilitate the growth of distributed generation in Massachusetts.

The DPU now seeks comment on the appropriate scope of this proceed-

ing, including distributed generation interconnection issues that should be addressed, including, but not limited to, those contained in the DG Report and the DOER Petition. In addition, the Department seeks comments on what procedural mechanisms are best suited to investigate such issues. Initial written comments must be filed no later than the close of business on October 28, 2011. Reply comments must be filed no later than the close of business on November 14, 2011.

NEW HAMPSHIRE

On September 19, the Chairman of the New Hampshire PUC [filed a net metering letter](#) that included final version of the recent net metering rules. The Joint Legislative Committee on Administrative Rules had voted to conditionally approve these rules at its meeting on September 15, 2011. These rules allow systems up to 1 MW net meter (previously the limit had been 100 kW) and include CHP as an eligible technology.

These rules come as a result of [HB 1353](#), enacted in 2010.

According to the rules, small generators must have a single meter capable of recording the customer's net energy usage and which measures both the customer's use from the utility and the production from the customer's generation facility (but small customers are not required to pay for the meter). Large customers must have a bi-directional metering system that records the total amount of electricity that the customer takes from the distribution utility and the production from the customer's generation facility. These meters must record measurements instantaneously or over intervals of an hour or less (and large

customers must pay for the installation of the meter).

For small generators, if net excess generation exceeds 600 kWh, the customer-generator may elect to receive an annual payment from the utility equal to the economic value of accumulated surplus (essentially the avoided cost plus the capacity value), otherwise the credits will roll over to the next month. Large customers may elect to roll credits over to the next month or receive the avoided cost and capacity value payment if they have experienced at least one billing cycle with surplus kWh during the year.

NEW YORK

New York Governor Cuomo signed two net metering bills on September 23, 2011, both of which expand eligibility for net metering technologies.

The first, [NY SB 1149](#), includes micro-hydroelectric systems up to 25 kW for residential customers and 2 MW for non-residential customers. The second bill, [AB 7765](#), allows non-residential customers to net meter fuel cell technologies up to 1.5 MW. Previously, only residential customers could net meter small fuel cell facilities.

MID-ATLANTIC STATES

VIRGINIA

The Virginia State Corporation Commission, as requested by the MDV-SEIA, will hold a hearing on November 3rd, on the stand by rates proposed by Dominion in July of this year. The

MDV-SEIA is the regional chapter of the national trade association for solar energy, the Solar Energy Industries Association.

Legislation passed by the General Assembly allows utilities to collect stand-by charges from owners of residential solar generation systems ranging from 10kW to 20kW. However, the law only allows the utility to assess charges “on electrical generating facilities that exceed 10 kilowatts” and Dominion can only set the charges to “recover infrastructure costs that are properly associated with serving” these systems.

“The Company’s standby rates as proposed are inherently flawed and can be punitive for residential customers using or considering the use of a photovoltaic (PV) solar system,” MDV-SEIA’s Executive Director, Francis Hodsoll stated in his testimony to the commission. “These costs will severely reduce or eliminate the economic value of these systems.”

The MDV-SEIA case focuses on irregularities between the new law and Dominion’s rate proposal. First, MDV-SEIA believes that Dominion has not provided sufficient data or a proven methodology to show that their proposed rates accurately represent their infrastructure costs caused by 10kW to 20kW solar energy systems.

Second, and more broadly, solar photovoltaic (PV) systems actually reduce a utility’s infrastructure costs. MDV-SEIA asserts that Dominion fails to consider the benefits of distributed generation (DG), which offset the distribution infrastructure costs. PV systems generate electricity at the location where it is used and during the “peak” cost periods. These systems displace the need for power generation that is both high cost as well as a source of carcinogenic and other pol-

luting toxins in the air, thereby, reducing the need for construction of new power plants, new electricity lines and related infrastructure.

Furthermore, Dominion’s stand-by charge structure results in higher charges for a net-metered customer than a regular customer with a similar load profile. Hodsoll added that these rates appear to be a “violation of the Virginia statute requiring utilities to provide uniform rates to similarly-situated customers.” Further, the Commission is currently evaluating the impact of these systems on infrastructure costs and additional information and analysis on net metering in Virginia will be available in the near future.

Source: [Market Watch](#)

MIDWESTERN STATES

ILLINOIS

On October 13, the Illinois Commerce Commission held an organizational meeting for the next phase of the ICC’s Initiative on Plug-In Electric Vehicles. To date, the Initiative has received assessments from Ameren, ComEd, and MidAmerican on the impact of the introduction of Plug-In Electric Vehicles (PEVs), comments on those assessments from a wide range of stakeholders, and a subsequent set of comments from utilities and stakeholders to follow-up questions asked by the Commission. The Initiative has also held two Policy Committee meetings to discuss the issues discussed in those comments. See: <http://www.icc.illinois.gov/electricity/pev.aspx> for more information on these activities.

The Initiative is requesting that interested parties participate in informal workshops to aid the Commission on five specific issues: (1) Defining the scope of what waivers (if any) to the IDC rules would facilitate utilities' role in facilitating the adoption of PEVs and related services; (2) Developing customer education & outreach plans; (3) Modeling and assessment of potential localized reliability impacts; (4) Expanding PEV rate options in order to improve current distribution, transmission and generation asset utilization, and to prevent unnecessary and duplicative investment in infrastructure for on-peak charging; and (5) Developing a petition to the Commission to clarify the legal status of public charging stations.

The Commission requests a report on each topic by December 31st. While the Commission hopes that participants can reach consensus on these issues, if consensus is not reached, the Commission requests that the reports outline and summarize the differing positions.

Source: [ICC press release](#)

MICHIGAN

Consumers Energy electric customers will see an almost 70 percent reduction in their renewable energy charges this month.

The utility is implementing its updated renewable energy plan in September, saving its 1.8 million electric customers \$54 million per year in lower costs.

A residential customer will see yearly savings of more than \$22 as a result of this reduction.

Consumers Energy is Michigan's largest supplier of renewable energy. The utility previously updated its renew-

able energy plan to reflect its latest cost estimates and proposed reducing a renewable energy surcharge for electric customers. Consumers Energy received approval for its updated plan from the Michigan Public Service Commission.

Source: [White Lake Beacon](#)

SOUTHERN STATES

TEXAS

Back in June of this year, the Texas Assembly passed [SB 1910](#), which just became effective in September. This bill essentially re-establishes the net metering requirements of the investor-owned utility in the Western Electricity Coordinating Council service area of Texas (El Paso Electric) as they existed before deregulation.

Customers eligible for net metering with a bi-directional meter include those who install systems up to 50 kW, or owners of buildings occupied by low-income elderly tenants that qualify for master metering, (who install a system that is expected to generate at least 50% of the apartment house's annual electricity use). The production of net metering facilities should not exceed the customer's expected annual demand.

Any net excess generation is credited to the customer's bill at what appears will be the utility's avoided cost rate, up to \$50 per month. It also appears that any qualifying facility or renewable, distributed generation system is eligible for net metering. Renewable energy is defined as energy derived directly from the sun, on wind, geother-

mal, hydroelectric, wave, or tidal energy, or on biomass or biomass-based waste products, including landfill gas. Qualifying facilities also include combined heat and power facilities.

The bill also provides for some inter-connection procedures, and refers to the definitions and requirements in [Statute 39.916](#), which specifies inter-connection procedures for renewable systems with a capacity of up to 2 MW.

Beginning in October, the city of Austin, Texas, moved to 100 percent clean and renewable energy, produced at wind farms in west Texas and purchased from a publicly owned utility company.

The city now is subscribing to approximately 400 million kilowatt-hours of renewable energy, according to an announcement by the city, and officials believe Austin has become the largest U.S. city that's consuming 100 percent renewables.

Austin Energy is acquiring the renewable energy for the city under the utility company's voluntary green-pricing program. The renewable energy is approximately 5.7 cents per kilowatt-hour, and 2.5 cents more than the standard charge for residential customers. Austin will be locked into the green rate for 10 years, the city said.

"These subscriptions provide stability in electric costs for city of Austin operations and also take a leadership step forward in climate responsibility," said Mayor Lee Leffingwell, who co-sponsored the 2007 Climate Protection Plan. "We are setting an important standard for U.S. cities. We hope other American communities will join us soon."

But the program will come at a price: Projections estimate it will cost Aus-

tin city government about \$6.9 million more annually, The Austin Chronicle reported late last month. The Austin American-Statesman newspaper put the cost even higher, at \$8.5 million in added charges during the first year for the 12,000-person municipal government.

By transitioning to 100 percent renewable energy, the city will comply with one goal of the Austin Climate Protection Program, adopted four years ago by the City Council to reduce pollution. Prior to October, the city government was consuming a mix that included 20 percent renewables, according to The Austin Chronicle.

The city's public utility, Austin Energy, services nearly 1 million people in Austin, Travis County and part of Williamson County.

Source: [Government Technology Online](#)

WESTERN STATES

CALIFORNIA

On Oct. 8, Gov. Jerry Brown signed into law the Renewable Energy Equity Act ([SB 489](#)), authored by Senator Lois Wolk. The Renewable Energy Equity Act will remove unnecessary barriers to small-scale renewable energy projects by allowing all renewable energy types, including biomass and biogas, to participate in the state's Net Energy Metering (NEM) program. SB 489 will make it easier for small-scale bioenergy projects to get connected to the grid and help the state meet its renewable energy goals.

"Governor Brown recognized the value

of SB 489 for jobs, our environment and our state's farmers," stated Senator Lois Wolk. "Today, California made it easier to turn agricultural waste products like wine pumice and nut shells into clean energy. And that will help us reach the state's renewable energy and greenhouse gas emissions goals while spurring needed economic development."

Currently, only wind, solar, and fuel cell generators are able to take advantage of the NEM program's streamlined process of getting energy online. Connecting all other forms of renewable energy to the electric grid requires going through the longer, more arduous, and very expensive Feed-In-Tariff process. Small-scale renewable energy projects that attempt to qualify under the FIT can take months and even years to connect to the grid, severely curtailing small-scale renewable energy development in California.

"California farmers lead the country in producing on-farm renewable energy," said Jeanne Merrill, Policy Director, the California Climate and Agriculture Network. "The Renewable Energy Equity Act now makes it easier for farmers and food processors to develop more renewable energy projects and get credit for moving California away from fossil fuels."

The Renewable Energy Equity Act would allow innovative farmers like Russ Lester of Dixon Ridge Farms in Winters to get their small-scale bioenergy projects connected to the grid. Mr. Lester, an organic walnut producer and processor, converts his organic bio-waste to energy, producing heat and power to help run his operation. He utilizes the byproduct of this process as a soil amendment in his orchards and to increase soil carbon sequestration, an added climate benefit.

"We want to do our part to produce re-

newable energy, increase sustainability and address climate change," said Russ Lester. "Gov. Brown just made that a lot easier. We can finally get renewable energy projects like ours connected to the grid."

SB 489, sponsored by the California Climate and Agriculture Network (CalCAN), is supported by a diverse group of California farm organizations, including California Certified Organic Farmers, California Farm Bureau, the California Rice Commission, the Almond Hullers & Processors Association, Community Alliance with Family Farmers and the Ecological Farming Association. It is also supported by many environmental organizations, including the Environmental Defense Fund, Planning and Conservation League, Sustainable Conservation, and Californians Against Waste and local governments, including the Board of Supervisors from Yolo and Solano counties.

Source: [Western Farm Press](#)

On September 22, the California Public Utilities Commission launched a rule-making designed to streamline rules governing the interconnection of distribution systems.

The proceeding also aims to expand the reach of the PUC's overall regulation, known as Rule 21, to help spur development of renewable resources, energy storage and distributed generation.

"Success of many of our programs to support distributed generation and combined heat and power depends on effective interconnection policy. As such, the commission has, and will continue to dedicate significant resources to this rulemaking," said PUC member Mike Florio.

Currently, generators seeking to export generation to utilities' distribution systems lack a clear interconnection process, the commission said.

For instance, since 2008, one utility has received about 176 interconnection requests from generators seeking to export power, but only two have been interconnected.

As renewable and CHP programs are fully implemented, this problem may worsen, the commission said.

The rulemaking will, among other things, evaluate ways to establish distribution-level interconnection queues, create interconnection procedures for storage technologies, and evaluate ways to better gauge costs of infrastructure upgrades throughout the interconnection study process.

Source: [Platts](#)

WASHINGTON

On October 7, 2011, the Washington Utilities and Transportation Commission (UTC) recommended to the state Legislature several steps to encourage the cost-effective use of more small-scale renewable energy generation.

Among other things, the UTC recommended changes to the state's net metering law, which allows customers who have solar or wind facilities on their property, to sell excess power back to the utility to reduce their monthly bills. It called for raising the limit on the amount of electricity a customer may sell from 100 kilowatts up to the entire net load a customer may generate.

The UTC also called for amending the state requirements that utilities meet a percentage of their load with renewable energy resources such as wind and solar. The commission recommended allowing utilities to meet part of this require-

ment with combined heat and power resources, which use waste heat from industrial processes to power or heat an industrial facility.

In addition, the commission proposed amending its rules to streamline the process by which owners of distributed generation facilities can connect to the utility's distribution system.

The UTC made its recommendations in a report to the Technology, Energy and Communications Committee of the Washington House of Representatives. The committee requested the report to identify actions to promote the use of distributed energy generation in Washington. Distributed generation is electric generation, often from renewable resources, connected to a utility's distribution grid and located at or near where the electricity will be used.

In July, the commission held an energy industry stakeholder workshop to gain perspective on the opportunities and challenges facing regulated utilities and their ratepayers in developing these new technologies in our state.

The UTC limited its recommendations to actions that support distributed generation without unreasonably increasing costs to ratepayers or taxpayers, or requiring additional state financial support.

To read the full report, visit [Docket UE-110667](#), click on (no company name), then documents then 10/07/2011 and you will see the report at the bottom of the list of Electronic Documents.

Source: [UTC Press Release](#)

UPCOMING EVENTS

[IREC Annual Meeting](#)

October 17
Dallas, TX

[Solar Power International 2011](#)

October 17 - 20
Dallas, TX

[CHP and Microgrids Webinar](#)

October 26 at 2pm ET

[Minnesota Division of Energy Resources Net Metering Workshop](#)

November 1
St. Paul, MN
email DG.Energy@state.mn.us
for more info.

[Texas Renewables 2011 Conference](#)

November 6-9
Corpus Christi, TX

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

IREC NEWS

Please join us on Monday, October 24, 2011, at 3:00 p.m. (EDT) to learn about the purpose, value, and general requirements of the Interstate Renewable Energy Council's (IREC's) new Standard for renewable energy and energy efficiency certificate programs.

IREC's new standard does not replace IREC's ISPQ 01022 Standard. Rather, it will provide the framework for a specialty accreditation that will raise the bar for training the clean energy workforce. In focusing exclusively on certificate training programs, IREC's new Standard provides training programs an opportunity to be recognized for meeting a quality standard.

The new IREC Standard describes curriculum, administrative, personnel, facilities, and equipment requirements for credit or non-credit certificate programs training the energy efficiency/weatherization and renewable energy workforce. Assessment to this new Standard will provide third-party verification that certificate programs meet and document educational processes, specific energy content and requirements for design, delivery and assessment for issuance of a market-valued certificate.

Want to find out more? IREC will host a webinar on Monday, October 24, at 3:00 PM EDT to provide an overview of the new IREC Standard. The webinar is complimentary, but you must register to attend. [Click here to register.](#)

MISCELLANEOUS NEWS

LBNL releases Mass Market Demand Response and Variable Generation Integration Issues Report

The penetration of renewable generation technology is expected to dramatically increase in the United States during the next decade as many states are implementing policies to expand this sector (e.g., RPS). However, large-scale deployment of certain renewable energy sources (i.e., wind, solar), because of its variable and often times unpredictable production characteristics, poses integration challenges for bulk power system operators. Proponents of Smart Grid (of which Advanced Metering Infrastructure is an integral component) assert that system-wide implementation of advanced metering enables a significant increase in demand response capability which could help facilitate the integration of variable generation resources in the bulk power system.

This scoping study focuses on a key question posed by policymakers: what role could smart grid (and AMI) play over the next 5-10 years in helping to integrate greater penetration of variable generation resources by providing mass market customers with greater access to demand response opportunities?

Key findings include:

The largest variability and uncertainty in renewable generation power production is from wind and solar resources over time periods of 1 to 12 hours; time scales that are in synch with the operation of most demand response opportunities for mass market customers.

Among time-based rates, real-time pricing coupled with automation/control technology has the most potential for managing several variable generation integration issues, although the current lack of regulatory and stakeholder support is a key challenge.

Incentive-based DR programs have significant potential to manage many variable generation integration issues if residential customers are willing to participate in programs whose designs feature short duration and frequent DR events. Program designs that allow load aggregators to participate effectively and customer acceptance of control and/or automation technology are key factors that will determine the efficacy of these DR programs in managing variable generation integration issues.

Accessing demand response resources to facilitate integration of large-scale variable generation is likely to require additional changes in market rules and regulatory policies. For example, many jurisdictions may need to consider modifying existing retail market tariffs so that utilities or ARCs can treat customers as a portfolio of resources that can be differentially dispatched. Wholesale market product definitions may need to be expanded and/or market operations may need to be restructured to allow DR to offer and be paid for providing these services.

System operators and policymakers should give serious consideration to demand response as an additional strategy to facilitate integration of large-scale variable generation resources, which will require more systematic analysis of perceived risks, costs and benefits of the various strategies

The report and an associated presentation that summarizes our approach and key findings can be downloaded from the [LBNL site](#).

Jamaica adopts net metering rules

The Jamaica Office of Utilities Regulation (OUR), in a directive dated September 30, made their long-awaited net metering regulations official.

Producers can now apply to the OUR for a five-year license to participate in net metering, provided they generate power from solar or wind.

“The OUR has completed and made available a standard offer contract (SOC) for the purchase of as-available energy from intermittent renewable energy facilities up to 100kWh,” said the utilities regulator, in a release which later specified that small consumers can generally sell up to 10 kilowatt hour of power and commercial customers up to 100 kilowatt hour.

The JPS will purchase the power at a lower price than it sells, according to a formula set out in the determination document.

“The compensation for the energy exchanged between JPS and the customer under the SOC is determined via a net billing arrangement whereby the customer will pay the prevailing retail price for energy consumed from the national grid as is applicable to the customer’s rate and class,” said the OUR’s document.

Source: [The Jamaica Gleamer](#)

US Military aggressively investing in clean technology

The Department of Defense -- eager to reduce its dependence on oil in the battlefields of Afghanistan and Iraq

and keen to become energy-efficient at home -- is aggressively investing in clean technology, from advanced biofuels to electric vehicles, solar-powered batteries and blankets for soldiers in the field and bases that generate their own electricity.

“[From Barracks to Battlefield: Clean Energy Innovation and America’s Armed Forces](#),” a report released Wednesday by Pew Charitable Trusts, gives an overview of what each branch of the military is doing to reduce the use of fossil fuels and test new clean technologies.

Each branch has adopted ambitious energy goals. But Navy Secretary Ray Mabus, a former ambassador to Saudi Arabia, has made energy security and independence a cornerstone of his tenure.

“There are great strategic reasons for moving away from fossil fuels. It’s costly,” Mabus said at the National Clean Energy Summit in Las Vegas last month. “Every time the cost of a barrel of oil goes up a dollar, it costs the United States Navy \$31 million in extra fuel costs. But it’s costly in more ways than just money. For every 50 convoys of gasoline we bring in, we lose a Marine. We lose a Marine, killed or wounded. That is too high a price to pay for fuel.”

The military’s support of clean energy innovation is tied to the desire to save American lives, the report says. Today’s soldier requires 22 gallons of fuel per day on average, an increase of 175 percent since the Vietnam War. In Afghanistan alone, 20 million to 50 million gallons are delivered each month. Eighty percent of the convoys into Iraq and Afghanistan are for fuel, and last year there were 1,100 attacks on fuel convoys.

The Department of Defense is the

largest institutional energy user in the United States, and the sheer size of its footprint and purchasing power can help bring new technologies to scale. It manages more than 500,000 buildings and structures at 500 major bases and installations around the world, totaling 2.2 billion square feet. That’s three times the square footage operated by Wal-Mart.

Source: [Mercury News](#)

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