



NC SUSTAINABLE
ENERGY ASSOCIATION

10 January 2014

To: Chief Clerk Gail Mount
The North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

FILED
JAN 10 2014
Clerk's Office
N.C. Utilities Commission

From: The North Carolina Sustainable Energy Association
P.O. Box 6465
Raleigh, NC 27628

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Re: Letter in Lieu of Formal Comments on North Carolina Advanced Energy's
Proposal
(Docket Nos. E-2, Sub 1023 & E-7, Sub 1026)

Honorable Clerk and Commissioners:

In their most recent base rate cases, Duke Energy Carolinas, LLC ("Duke") and Duke Energy Progress, Inc. ("Progress") were ordered to distribute an aggregate \$30 million for the benefit of ratepayers. On 31 October 2013, North Carolina Advanced Energy ("NCAE") filed a request seeking to have \$3 million of the aggregate \$30 million allocated to fund grants for the installation of rooftop solar facilities on low-income housing built by Habitat for Humanity and the North Carolina Housing Finance Agency. On 8 November 2013, North Carolina Sustainable Energy Association ("NCSEA") filed a letter supporting NCAE's proposal. On 15 November 2013, Duke and Progress indicated in a filing that (a) they do not agree with NCAE's request but (b) if the Commission approves NCAE's request, the Commission should only approve it in part and limit the allocation of funds to \$1 million of the aggregate \$30 million. On 25 November 2013, the Commission issued an order permitting intervenors such as NCSEA to file comments on Duke's and Progress' proposals for distribution of the \$30 million and on NCAE's request. NCSEA submits this letter in lieu of more formal comments.

NCSEA hereby reiterates its support for NCAE's proposal with the following clarification: NCAE's request should be granted with no less than \$1 million of the

aggregate \$30 million being allocated to fund grants for the installation of rooftop solar facilities on low-income housing.

NCSEA's support is based on the following:

Duke and Progress (collectively "Duke Energy") have represented that they are committed to providing solar options to their customers, including presumably their low-income customers. Duke Energy states on its website:

We are involved in solar energy in a number of ways [including, for example, the SunSense program and the Green Source Rider] These efforts are a good start, but there is more to do. Our customers want more renewable energy choices, and we are committed to providing those in an affordable and reliable way. We look forward to an opportunity to work with North Carolina leaders to make solar policies fair for all customers, encourage the use of solar energy and help us bring jobs to North Carolina.¹

At the same time Duke Energy is making such representations, it is taking/preparing to take steps that will discourage the near-term use of rooftop solar in North Carolina. Duke Energy is taking/preparing to take these steps based on an irrational fear that rooftop solar will explode in North Carolina, where third party sales are "not allow[ed,]"² as it has in jurisdictions like California, Colorado, and Arizona where third party sales are allowed. By requiring Duke Energy to fund NCAE's proposal, the Commission would essentially be saying to Duke Energy, "We're not going to let you say you're for solar and for giving your customers – including your low-income customers – choices, if you're not actually taking steps to back up your messaging." In short, by requiring Duke Energy to fund NCAE's proposal, the Commission has an opportunity on the rooftop solar front to direct Duke Energy to "put its money where its mouth is."

¹ *Frequently Asked Questions - North Carolina*, "Does Duke Energy provide solar energy to its customers?" (accessed on 4 January 2014 at http://www.duke-energy.com/pdfs/FAQs_10.21.pdf) (copy attached as **Exhibit A**).

² "Third-party sales occur when a non-utility owner of a solar facility sells electricity directly to a retail customer, whether it's a homeowner, business or industry. North Carolina does not allow third-party sales of electricity and neither do several other jurisdictions." *Frequently Asked Questions - North Carolina*, "What are third-party solar sales?" (accessed on 4 January 2014 at http://www.duke-energy.com/pdfs/FAQs_10.21.pdf) (copy attached as **Exhibit A**).

Duke Energy fears an explosion of rooftop solar in North Carolina. Right now, however, it need not fear rooftop solar in general or NCAE's proposal in particular. To understand why, it is important to put rooftop solar in perspective. Duke Energy has over 3 million customers in North Carolina.³ Duke Energy indicates on its website that "[w]e have about 1,000 customers using rooftop solar panels in the state."⁴ Recent Duke Energy data responses confirm the website statement. See **Exhibit B** attached hereto. Consequently, a miniscule 0.00033% of Duke Energy's North Carolina customers are currently using rooftop solar. Going forward, Duke Energy expects about 6,000 additional customers will be using net-metered rooftop solar by the end of 2017. See **Exhibit C** attached hereto. Thus, assuming Duke Energy's customer numbers stay the same and do not increase, Duke Energy currently expects that a similarly miniscule 0.0023% of its customers will be using net-metered rooftop solar by the end of 2017. If Duke Energy's customer numbers increase, as they are likely to, then the 2017 percentage becomes even smaller. Consequently, Duke Energy is very different from California, Colorado, and Arizona.⁵ Duke Energy does not face a West Coast-style explosion of rooftop solar.

Despite the miniscule percentages of Duke Energy customers currently using rooftop or expected to use rooftop solar through 2017, those customers who are in a position to use rooftop solar often pay lower overall electricity-related bills each month.

³ *North Carolina's Public Utility Infrastructure & Regulatory Climate Presented by North Carolina Utilities Commission*, slide 16 (July 2013) (accessed on 4 January 2014 at <http://www.ncuc.net/overview/Overview.pdf>).

⁴ *Frequently Asked Questions - North Carolina*, "How much solar is currently in place in North Carolina?" (accessed on 4 January 2014 at http://www.duke-energy.com/pdfs/FAQs_10.21.pdf) (copy attached as **Exhibit A**).

⁵ By way of comparison, in 2010 – several years before the rooftop solar markets really exploded in California, Colorado, and Arizona – California already had 86,495 net-metering customers, Colorado had 9,776 net-metering customers, and Arizona had 8,559 net-metering customers. *Participation in electric net-metering programs increased sharply in recent years*, U.S. Energy Information Administration (EIA) (15 May 2012) (accessed on 7 January 2014 at <http://www.eia.gov/todayinenergy/detail.cfm?id=6270#>) (copy attached as **Exhibit F**). By summer 2013, the number of net-metered systems in Arizona exploded to over 16,000. Trabish, Herman K., "APS Responds to Sunrun CEO Ed Fenster on Net Metering" (17 June 2013) (accessed on 7 January 2014 at <http://www.greentechmedia.com/articles/read/APS-Responds-to-Sunruns-CEO-Ed-Fenster-on-Net-Metering>).

Unfortunately, the number of low-income customer-adopters is negligible to non-existent⁶ because low-income customers frequently do not have the financial resources to pay for systems, nor do they have the tax liabilities necessary to make use of tax credits that can help make systems more affordable. However, as NCAE wrote in its 31 October 2013 filing, funding its proposal would “extend the promise of roof top solar and the corresponding lower electric bills to North Carolina citizens whose incomes and financial assets are too low for them to even consider its possibility under present opportunities” (p. 3). Similarly, ElectriCities, in its 1 November 2013 letter of support, wrote: “ElectriCities believes that this targeted approach to install roof top solar panels on newly built Habitat homes and multi-family Supportive Homes will have a direct and positive impact on lowering electric bills to the individuals involved” (p. 1).

Directing Duke Energy to “put its money where its mouth is,” would be particularly fitting in this instance because Duke Energy is among the subset of electric utilities in the country that are now using “reverse Robin Hood” messaging – *i.e.*, communicating that rooftop solar is currently unfair because low-income customers are not in a position to adopt solar but higher-income customers are and these higher-income customers are essentially “‘robbing the poor’ to pay for [their] fancy solar systems.”⁷ In

⁶ See *Motivations and Behaviors of Solar PV and Geothermal System Owners in North Carolina*, UNC Kenan-Flagler Business School and NCSEA (December 2013) (accessed on 4 January 2014 at [http://energync.org/assets/files/Solar%20PV%20and%20Geothermal%20System%20Owners%20Report-FINAL%20\(2\).pdf](http://energync.org/assets/files/Solar%20PV%20and%20Geothermal%20System%20Owners%20Report-FINAL%20(2).pdf)).

⁷ Burr, Michael T., “Frontlines,” *Public Utilities Fortnightly* (July 2013) (copy attached as **Exhibit D**); see *Net Energy Metering and Solar Power – North Carolina* (accessed on 6 January 2014 at http://www.duke-energy.com/pdfs/NetMetering_10.17.pdf) (a subtle example of Duke Energy’s “reverse Robin Hood” messaging) and Newton, Paul, “Duke Energy in North Carolina,” slides 1, 13, Joint Legislative Commission on Energy Policy (7 January 2014) (accessed on 8 January 2014 at <http://www.ncleg.net/documentsites/committees/BCCI-6576/4%20-%20Jan.%207,%202014/Presentations%20and%20Handouts/3%20-%20Newton%20-%20Duke%20Energy%20Overview.pdf>) (copies attached as **Exhibit E**). By using this messaging and advocating for changes to the net-metering rules, Duke Energy is really just pushing a solution in search of a problem – especially given the current and expected number of net-metering customers in their service area. As the Commission has noted: “[C]ross-subsidies exist throughout utility tariffs in support of various State policies . . . [where] the Commission has determined that certain policy benefits outweigh the cost of

other words, Duke Energy is painting itself as a champion of its low-income customers. And yet, here, where Duke Energy has an opportunity to offer some of its low-income customers a solar choice, it is balking. NCAE's proposal would put low-income customers in a position to adopt solar and it would do it now and, because these are shareholder funds, it would do it without all the analyses that will become necessary if the proposal is somehow run through SunSense or the DEP Collaborative as Duke Energy suggests.

Finally, there are at least two intangible but very real benefits that will likely inure to North Carolina ratepayers as a result of funding of NCAE's proposal, both of which would have a "value multiplier effect." First, through Duke Energy's study of its residential SunSense systems⁸ and its study of the systems used to serve its Green Source Rider,⁹ Duke Energy has cultivated and/or will cultivate a knowledge base that enables it to better understand and operate its grid for its ratepayers' benefit. Studying any systems installed under NCAE's proposal will yield similar but distinct knowledge that will likewise help Duke Energy better understand and operate its grid. Second, and perhaps more importantly, funding NCAE's proposal could leverage additional funds in non-Duke Energy service areas that would help increase the number of low-income customers

cross-subsidies." *Order Amending Net Metering Policy*, p. 11 n. 3, Commission Docket No. E-100, Sub 83 (31 March 2009). Duke Energy has not quantified the "subsidy" being received by the 1000 or so current net-metering customers, nor the per-customer cost of the "subsidy" to its non-net-metering customers, nor has it identified why eliminating this "subsidy" is more critical than eliminating, for example, the subsidy of rural customers by urban customers, the subsidy of opted-out customers by other customers under Progress' Distribution System Demand Response program, the subsidy of low-income customers by higher-income customers under Duke Energy's non-cost-effective low-income DSM/EE programs. The Commission is well aware that achieving fairness in rates requires a holistic balancing approach, not the myopic "whack-a-mole" approach Duke Energy is indicating it will pursue to address the exaggerated "reverse Robin Hood" problem it is messaging about.

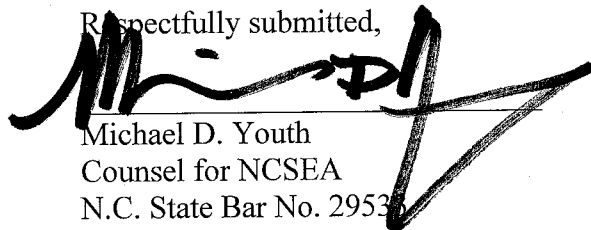
⁸ See, e.g., *Transcript of Testimony Volume 1 (Heard September 17, 2013)*, p. 46, Commission Docket No. E-2, Sub 1032 (25 September 2013) (Progress Witness Byrd testified that the SunSense program "provides the Company valuable insights").

⁹ See, e.g., *Staff Conference Transcript for December 16, 2013*, pp. 28-29, Commission Docket No. M-1, Sub 7 (2 January 2014) (regarding the Green Source Rider, Duke attorney Castle and Public Staff attorney Dodge both represented to the Commission that the pilot was designed as it was, at least in part, to better enable "study" and derivation of "meaningful information").

in our State who realize bill savings. ElectriCities, in its 1 November 2013 letter of support, wrote: "While [funding NCAE's request] may be limited to the service areas of DEP and DEC, we believe that a certain number of our member cities would look favorably upon this way of helping some of their less fortunate customers and, consequently, participate with Advanced Energy, NCHFA, and the Habitat organizations in their own service territories" (p. 1). Thus, there is reason to believe Commission funding of NCAE's proposal will bring other "force multiplier" funds to bear that will magnify the beneficial impact of NCAE's program to low-income electric customers in the State.

For the foregoing reasons, NCSEA reiterates its support for NCAE's proposal and requests that NCAE's proposal be funded with no less than \$1 million of the aggregate \$30 million.

Respectfully submitted,

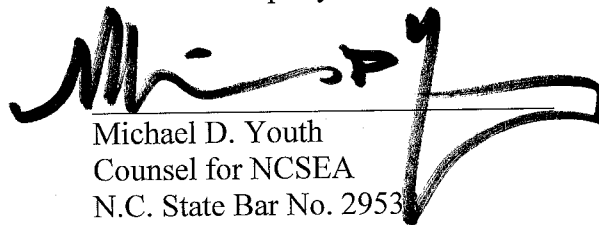


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CERTIFICATE OF SERVICE

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing Letter by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 10 day of January, 2014.



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Frequently Asked Questions North Carolina

How much solar is currently in place in North Carolina?

North Carolina is fourth in the nation in solar installed capacity. Duke Energy has approximately 200 megawatts of total installed capacity today. We expect that number to grow. North Carolina also has more than 2,000 megawatts of utility-scale projects proposed in the state.

The company has seen residential rooftop solar adoption increase by almost 50 percent each year since 2011. We have about 1,000 customers using rooftop solar panels in the state.

Does Duke Energy provide solar energy to its customers?

We are involved in solar energy in a number of ways. Duke Energy Carolinas is piloting a rooftop solar program. Through that program, we own 10 MWs of distributed solar power. Twenty-five homes, schools and businesses are part of the pilot. Duke Energy owns and maintains the solar components, as well as the electricity generated.

Duke Energy also offers incentives to qualifying residential customers who install solar panels. The company is a sponsor of NC GreenPower, a nonprofit organization connecting individuals and organizations to renewable energy projects. In North Carolina, our regulated utilities purchase more than 200 MWs of solar energy.

We also are working to provide a renewable energy rate for large customers in the state – for example, manufacturers, data centers, college campuses and big-box retailers – who wish to offset some or all of their new load requirements with new renewable energy, including solar and wind.

These efforts are a good start, but there is more to do. Our customers want more renewable energy choices, and we are committed to providing those in an affordable and reliable way. We look forward to an opportunity to work with North Carolina leaders to make solar policies fair for all customers, encourage the use of solar energy and help us bring jobs to North Carolina.

What issues could we potentially face regarding solar activity in North Carolina, for both customers and utilities?

The use of solar power is affecting utility customers. For example, current net energy metering policies in North Carolina credit solar customers for the full retail value of the energy they generate and send back to the grid. As this occurs, those customers avoid paying a portion of the costs necessary to provide power, including more than 80 percent of the time when their solar panels can't produce enough electricity. Those costs will be shifted to non-solar customers, and this is simply not fair.

Solar energy receives federal and North Carolina tax incentives. As solar costs are rapidly declining and usage is increasing, it may be time to evaluate whether the incentives are still needed.

What about job growth and economic development? Is that a priority?

Duke Energy takes an active role in attracting and retaining jobs and investment in our state. In North Carolina in 2012, we helped recruit more than \$1.6 billion in capital investment and approximately 6,000 new jobs. Economic development and the creation of jobs are vitally important to the communities we serve.

Solar policies and regulations need to be updated. Without changes, increased solar use will result in higher electricity prices for all customers, including non-solar customers. This will affect North Carolina's ability to compete for jobs and economic development.

EXHIBIT

tables

A

Frequently Asked Questions (continued)

What is net energy metering?

In North Carolina, net energy metering (NEM) is a billing option that credits customers with solar panels for the full retail value of the energy they generate and send back to the grid. The customer remains connected to the electric grid and uses the utility to supply electricity when their solar panels can't produce enough power, which is more than 80 percent of the time.

What are third-party solar sales?

Third-party sales occur when a non-utility owner of a solar facility sells electricity directly to a retail customer, whether it's a homeowner, business or industry. North Carolina does not allow third-party sales of electricity and neither do several other jurisdictions.

What is third-party leasing? What's the difference?

Third-party leasing allows the customer to lease solar generating equipment from a vendor rather than having to spend the upfront costs to purchase it. Though the customer doesn't own the equipment that is installed on their rooftop, they operate and maintain the system, and use the electricity the system produces to meet their energy needs.

Third-party sales and leasing could increase the adoption of solar, underscoring the importance of new policies and regulations to afford fair pricing for all customers.

What are Qualifying Facilities (QFs)?

In 1978, Congress enacted the Public Utility Regulatory Policy Act (PURPA), which requires electric utilities to purchase the output from Qualifying Facilities (QFs) at the utility's avoided cost.

PURPA provides that state utility commissions are the appropriate entities to determine avoided cost rates at which the jurisdictional utilities (such as Duke Energy) must purchase the power from QFs. QFs are defined as:

- Cogenerators: generating units that produce electricity and useful steam.
- Small power producers: generating units that produce a maximum 80 megawatts of power using biomass, waste or a renewable energy source.

In North Carolina, solar QF energy may not be recovered in a timely fashion unless the solar QF sells a Renewable Energy Credit (REC) or the utility presents a base rate case. Accordingly, a significant and rapid increase in the number of solar QFs can lead to more frequent rate cases, which are costly to customers. Other states allow for the pass through of purchased power costs via a fuel clause without any restrictions specifically for QF purchases.

DUKE ENERGY CAROLINAS AND DUKE ENERGY PROGRESS

Request:

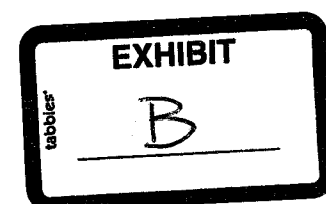
Please provide data on the number of net-metered solar customers and the total capacity (MW-AC) of the solar systems of net-metered solar customers, broken down by the rate schedule under which the net-metered customer takes service.

DEC Response:

Rate Schedule	As of June 30, 2013	
	Cumulative Number of Net Metered Solar Customers	Total MW (ac)
HP-SC Hourly Pricing	1	0.10
NM-SC Net Metering	97	0.64
SCG-NC Small Customer Generator Rider	114	0.85
NM-NC Net Metering	293	3.90
TOTAL	505	5.49

DEP Response:

Rate Schedule	As of June 30, 2013	
	Cumulative Number of Net Metered Solar Customers	Total MW (ac)
NC NM-Net Metering for Renewable Energy Facilities	145	0.46
NM - MGS	7	0.25
NM - Non NM Rider	1	0.02
NM - RES	1	0.01
NM - SGS	5	0.59
NM - SGS TOU	2	0.12
NM - SS LGSTOU	1	0.80
NM - SS SGSTOU	2	0.56
NM-NC Net Metering	7	0.03
NM-SC Net Metering	1	0.00
SC NM-Net Metering for Renewable Energy Facilities	4	0.01
TOU_D	405	1.64
TOTAL	581	4.50



DUKE ENERGY CAROLINAS AND DUKE ENERGY PROGRESS

Request:

Please provide data on the number of net-metered solar customers and the total capacity (MW-AC) of the solar systems of net-metered solar customers that have been added to DEC's and PEC's (now DEP's) systems in each of the last five years (2008 – 2012).

DEC Response:

Year	Number of Annual Additions of Net Metered Solar Customers	Annual Additions MW (ac)
2008	18	0.09
2009	30	0.19
2010	45	0.37
2011	104	1.64
2012	183	1.61
TOTAL	380	3.90

DEP Response:

Year	Number of Annual Additions of Net Metered Solar Customers	Annual Additions MW (ac)
2008	5	0.01
2009	4	0.02
2010	25	0.08
2011	145	1.97
2012	240	1.50
TOTAL	419	3.58

DUKE ENERGY CAROLINAS AND DUKE ENERGY PROGRESS

Request:

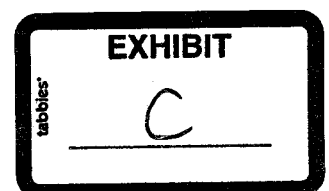
Please provide data on the number of net-metered solar customers and the total capacity (MW-AC) of the solar systems of net-metered solar customers that DEC and PEC (now DEP) expect to add to their systems in each of the next five years (2013-2017).

DEC and DEP Response:

See attached.



Forecasted NEM
additions for 2013 - 2



Estimated Annual MW-ac Additions

	2013	2014	2015	2016	2017
DEC	2.88	4.97	10.80	4.37	5.19
DEP	2.14	3.21	12.61	3.35	3.87

Estimated Annual Solar Customer Additions

	2013	2014	2015	2016	2017
	310	517	1,072	427	504
	347	520	2,039	544	627

PUBLIC UTILITIES
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Published on *Fortnightly* (<http://www.fortnightly.com>)

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Recently I've been hearing some utility executives use a new catchphrase: "reverse Robin Hood." The phrase is shorthand for policies on net metering and green incentives that support rooftop photovoltaics (PV) at the expense of low-income customers. We're "robbing the poor" to pay for rich people's fancy solar systems.

A California legislator has taken this phrase a step further. During floor debate on energy legislation, Sen. Roderick Wright (D-Inglewood) referred to rooftop solar policies as "robbin' the 'hood" – metaphorically holding up utility customers in low-income neighborhoods to finance PV panels on mansion roofs.

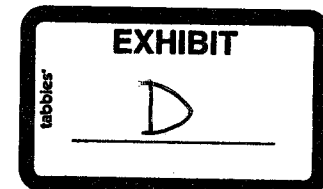
Such metaphors describe a populist backlash against rooftop PV, driven by concerns about income disparities, rising utility costs, and aggressive green policies. At the same time, however, these metaphors also might indicate something else entirely. They might indicate that by ramping up efforts to sway public opinion, the utility industry has declared a not-so-subtle war on rooftop solar and other distributed energy resources (DER). Or to be more precise, we've declared war on DER that we don't own.

That distinction is important, because it says something about the industry's motives – and long-term expectations for how we'll get paid for service over the rest of the 21st century.

In several states utilities are advocating policy changes that reduce solar incentives and net-metering provisions. Also, they're trying to limit third-party financing for DER installations.

Whether behind-the-meter systems can be financed by third parties is an important question, because such financing could be the key to ensuring a measure of fairness in the rooftop PV market. It minimizes the potential reverse-Robin Hood effect.

About half of the states in the U.S. either forbid or complicate third-party financing of rooftop PV. But where it's available, third-party financing lowers the cost of entry so that lower-income customers can afford to go solar. Already some rooftop solar companies are offering systems for no money down, with 25-year warranties. Leasing arrangements seem to be the most popular form of third-party financing, because they provide immediate payback for customers. According to the Solar Energy Industries Association, last year about 70 percent of new solar systems in California, Colorado, and Arizona were leased, as opposed to purchased outright.



In "Rooftop Tsunami," I reported on maneuvers against DER in California and Georgia. Since then utilities have taken similar steps in other states, such as Texas, Minnesota, Iowa, and Idaho. Policymakers' responses to these efforts have been mixed, but the trend so far seems to be to support solar.

In Texas, CPS Energy, the municipal utility that serves San Antonio, announced this past spring that it would eliminate its voluntary net-metering tariff and replace it with a new credit that pays half as much for rooftop PV generation. But then, after facing pushback from customers and solar companies, CPS Energy agreed to delay its plan for one year to allow further dialogue with stakeholders.

In Minnesota, the legislature in May 2013 enacted a solar mandate for the first time, requiring 1.5 percent of the state's power to come from solar by 2020. Opponents secured exemptions for mining operations, paper mills, cooperatives, and municipals, and eliminated language that would have clarified the legality of third-party financing in the state.

Across Minnesota's southern border, a district court in Iowa reversed an earlier decision by the Iowa Utilities Board (IUB) that had prevented a third-party developer from selling PV power to a rooftop host. The court roundly disagreed with the IUB's reasoning and rejected the arguments of Interstate Power & Light and MidAmerican Energy, opening the door to third-party financing in Iowa. (*SZ Enterprises dba Eagle Point Solar v. Iowa Utilities Board*, Case No. CVCV009166, decided March 29, 2013.)

Further westward in Idaho, a state that already was considered one of the country's least friendly to rooftop solar, Idaho Power moved to make it even less attractive. Although the utility proposed to raise the cap on total net metering capacity that it would accommodate (from a paltry 2.9 MW to a still-insignificant 5.8 MW), it also said it would slash net-metering credits and quadruple the fees it charges for the service.

Rather than garnering public support vis-à-vis the reverse-Robin Hood effect that it described, the company's filing elicited criticism from a wide range of stakeholders. Several cities called for Idaho Power to remove its net-metering cap entirely. And IPUC staff rejected most elements of the proposal, including the reverse-Robin Hood claims: "The potential impact of net metering on the rest of customers is *de minimis*, and may be less than a rounding error." (*See IPUC Case No. IPC-E-12-27*).

Each year, the Edison Electric Institute's Annual Convention provides a snapshot of current sentiment among investor-owned utilities. This year, in San Francisco, the program focused most sharply on the disruptive potential of DER. In prepared remarks, utility speakers covered a few key objectives for the industry: 1) rationalize direct subsidies for rooftop PV; 2) rationalize indirect subsidies like low standby rates and volumetric recovery of fixed costs; and 3) modernize T&D infrastructure to accommodate DER.

Most speakers also took pains to note that utilities aren't opposed to solar energy or DER in general, but that such resources must be implemented in a way that's fair to customers and doesn't threaten reliability.

“Distributed generation and utilities became antagonistic for a time, but that’s over now,” said Richard Rosenblum, CEO of Hawaiian Electric Co. “We have to figure out how to operate with each other.”

This optimistic tone notwithstanding, during coffee breaks – and over cocktails at EEI’s Grand Event at AT&T Park – utility executives were asking some profound and disturbing questions. To paraphrase a few:

What’s the role of an electric utility in a world where multi-junction, PV nanowire is extruded in plastic sheets, woven in bolts of fabric, and printed out with solar ink?

What happens when battery storage becomes cheaper than spinning reserve? What happens to the utility regulatory compact when WalMart starts selling microgrid-ready fuel cells?

“We’re seeing the tip of the iceberg,” said Peter Kind, executive director of Energy Infrastructure Advocates, and former Wall Street banker who in January prepared a report for EEI on disruptive trends. “DG is real. The lines of costs [for DER and central utility power] will cross at different times in different markets, but they are likely to cross. Meanwhile utilities are investing in 30-year assets. Will they be needed 30 years from now?”

The overarching question that seemed to be on everyone’s mind in San Francisco was this: if people are relying more on electricity, but using less utility service, how will the industry have to change?

“Disruptive technology is a challenge, and it does keep me awake at night. But I believe it has the potential to change the industry for the better,” said Michael Yackira, NV Energy president and CEO, and EEI’s incoming chairman. “It will change the way we work with customers. I hope it will lead to a change in the way customers value what we do.”

Source URL: <http://www.fortnightly.com/fortnightly/2013/07/reverse-robin-hood>

Net Energy Metering and Solar Power North Carolina

Background

In North Carolina, net energy metering (NEM) is a billing option that credits solar customers for the full retail value of the energy they generate and send back to the grid. The customer remains connected to the electric grid and uses the utility to supply electricity more than 80 percent of the time when their solar panels can't produce enough power.

- The electricity the customer generates using their solar panels and the electricity the customer purchases from the utility are netted against each other and reflected on the customer's monthly bill. As a result of that netting, a solar generating customer does not pay their fair share of the fixed costs necessary to build, operate and maintain the power system.

Problem

- With NEM, the customer remains connected to the electric grid and uses the utility to supply electricity more than 80 percent of the time when their solar panels can't produce enough power.
- While the NEM customer uses the same infrastructure as any other customer, they pay a significantly lower utility bill due to the credits they receive for the power their system produces. As a result of those credits, NEM customers do not pay their fair share for the infrastructure that enables their connection to the grid.
- Initially, the utility absorbs these unrecovered costs. But over time and as solar use grows, these unrecovered costs are distributed to all the utility's customers through their monthly bills. This means that those costs will be shifted to non-solar customers, and this is simply not fair.
- Maintaining a high level of electric reliability is important to customers. The electric grid system is comprised of a complex interconnected network of generation, transmission and distribution systems. The grid makes reliability possible, providing customers with electricity around the clock.
- While solar energy is an important energy resource, electric utility operations are impacted by the intermittent and variable nature of solar. They also are affected by unplanned and randomly placed solar that's connected to a utility's grid. Together, these place additional stress on our energy system that could impact the ability to deliver reliable service.
- Our interest is to ensure that this infrastructure provides reliable service to all customers 24/7. Additional investments will be needed to accomplish that.

EXHIBIT

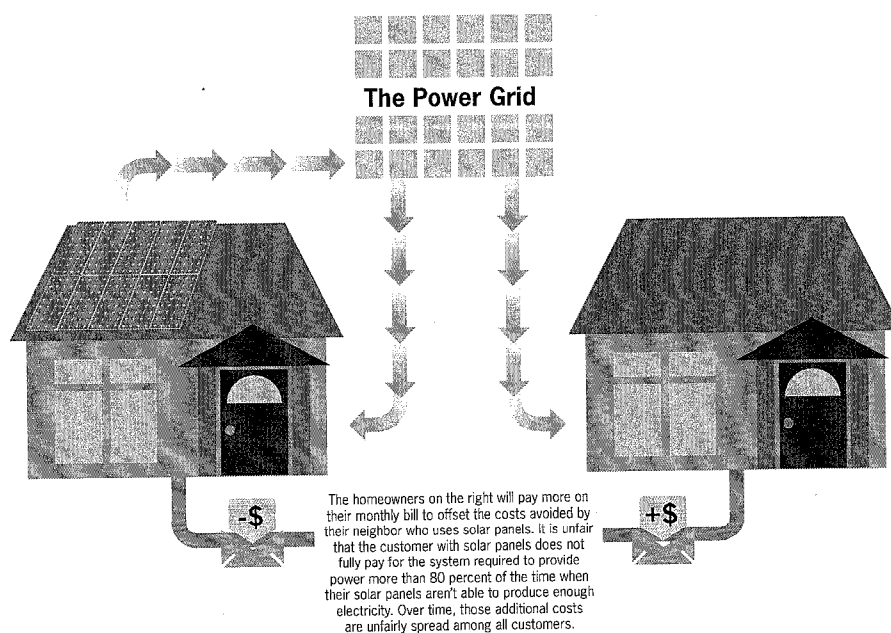
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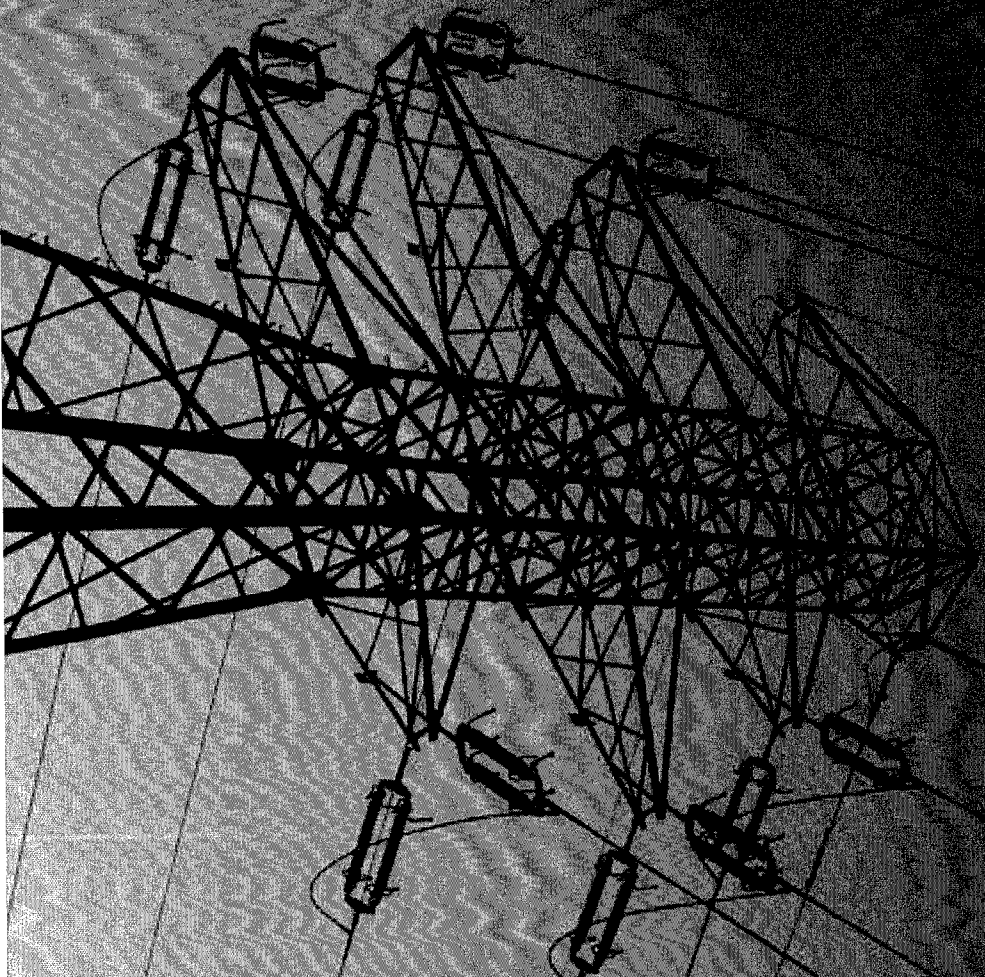
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Net Metering and Solar Power (continued)

Solution

- We have an opportunity to develop policies that are fair to all customers and ensure that solar can continue to be an important part of our state's energy future. NEM policies should ensure that solar customers pay their fair share of the costs to operate and maintain the electric grid infrastructure.





Duke Energy in North Carolina

Paul Newton | State president – North Carolina



Net metering customers

\$110,000

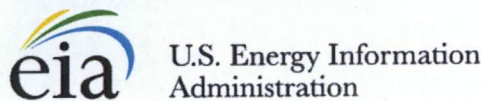
Average household income of net metering customers

\$67,000

Average household income for all NC customers

\$43,000

Income difference between solar and non-solar customers

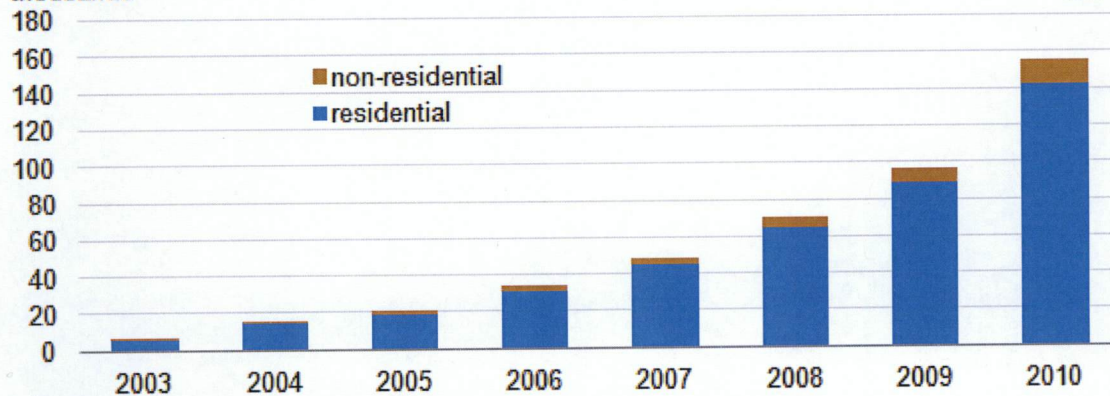


Today in Energy

May 15, 2012

Participation in electric net-metering programs increased sharply in recent years

Number of net-metered customers
thousands



Source: U.S. Energy Information Administration, [Electric Power Annual](#).

Note: The chart counts the number of net-metering customers and does not indicate the generator size or amount of generation. Non-residential includes the commercial and industrial sectors; net-metered generators in these sectors are typically larger than residential generators.

Electricity consumers are participating in net-metering programs in growing numbers. When individuals or businesses install small onsite generators (such as a rooftop solar system), they can usually enter into a net-metering agreement with their utility. Between 2003 and 2010, the average annual growth in customer participation was 56%, with a 61% increase between 2009 and 2010. While participation is increasing, electric customers with net metering represented only 0.1% of all customers in 2010.

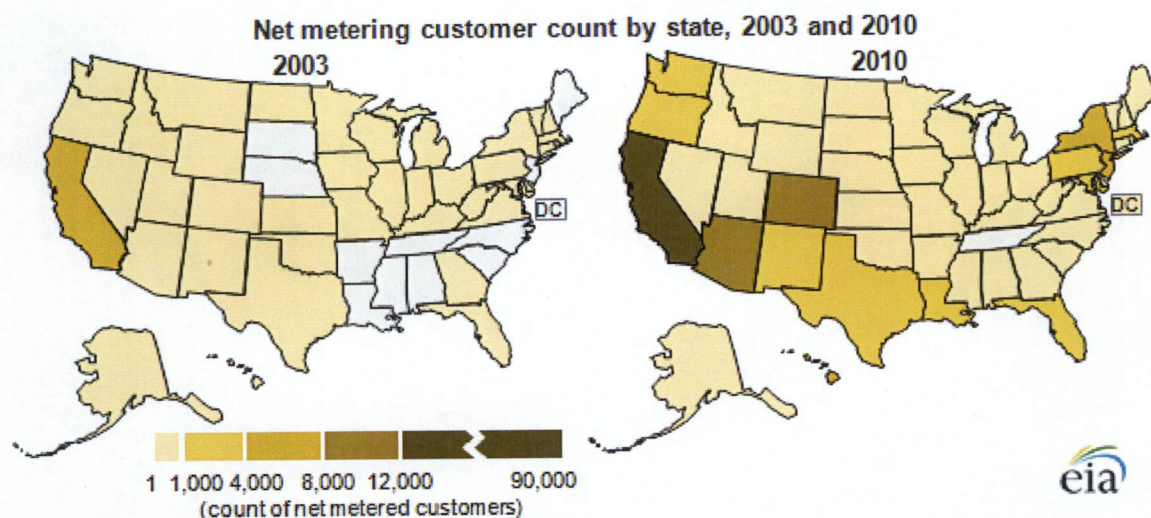
State policies and technological developments led to an increase in residential and business consumers installing small-scale, on-site generators. Starting around the late 1990s, many states began incentive programs to encourage the installation of renewable generation (such as rebate programs, performance-based incentives, tax incentives, or low-interest loans), as well as [Renewable Portfolio Standards](#). Tariffs standardizing aspects of net metering like compensation and interconnection rules—making it easier for consumers to participate—are also an important part of this state-based effort.

Since EIA began publishing data on the incidence of net metering in 2003, there has been growth in its application. In 2003, utilities in 38 states and the District of Columbia reported having a total of 6,813 net-metered customers. Over three quarters of those were in California with 5,242 customers; the next-largest state, Arizona, had only 330 customers.

In 2010, every state except for Tennessee reported net-metered customers. The total number of customers increased to 155,841, of which California accounted for 56% (86,495). The next largest states were Colorado (9,776), Arizona (8,559), New Jersey (7,526), and New York (5,638).

Net-metered installations were reported by 655 different investor-owned utilities, municipals, and cooperatives across the country, up from 127 in 2003. Residential applications made up 86% of total net-metered customers in 2003 and 91% in 2010.





Source: U.S. Energy Information Administration, [Electric Power Annual](#).

The combination of onsite generation with net metering has benefits for both consumers and utilities:

- **Consumer.** Consumers benefit from lower utility bills and increased stability in expenses (by replacing some portion of changing monthly utility bill with payments on their generator system). Also, connecting an onsite generator to the grid means no backup storage is required, decreasing the capital investment.
- **Utilities.** Utilities can benefit by having units located closer to the end users, known as distributed generation, potentially requiring less investment in transmission and distribution infrastructure. Further, onsite generation can remove or defer the need for infrastructure expansion.

A previous Today in Energy article described the [differences among state net-metering policies](#). Upcoming articles will examine some of the technologies used for, and the size of, net-metered installations in 2010, and take a closer look at States with particularly successful net-metering programs.