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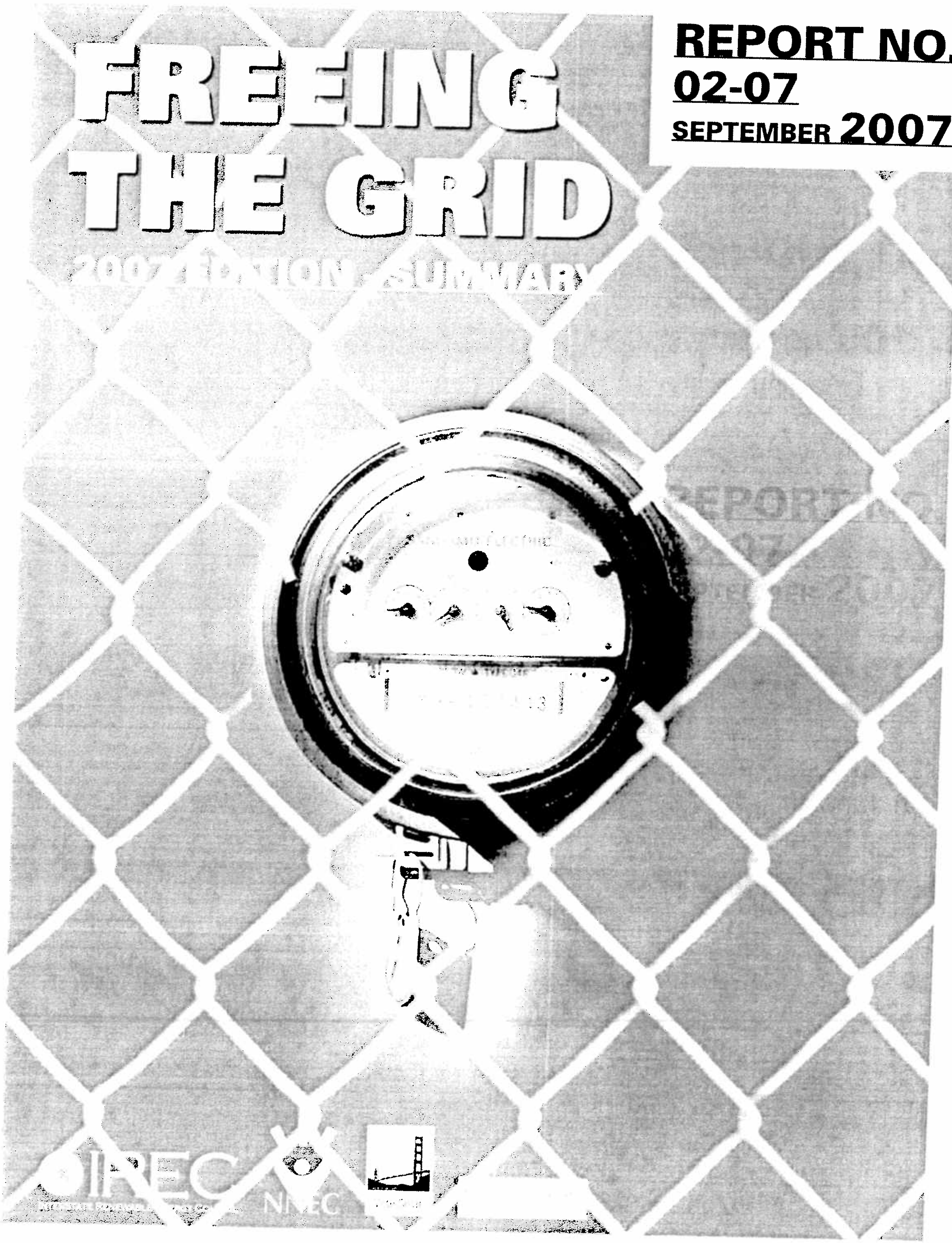

2007 Edition

This document is in advance of a larger update to **Freeing the Grid**. The full updated report will be released at the National Association of Regulatory Utility Commissioners' (NARUC) annual convention, November 11 - 14, 2007.

Available for Online Download

Report Summary

Full Report

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Freeing The Grid
How Effective State Net Metering Laws Can Revolutionize U.S. Energy policy

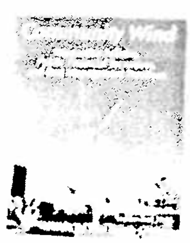
NO 01-06 Nov. 2006
Forward By Michael Dworkin
Professor of Law and Director of the Institute for Energy & the Environment
Vermont Law School

Renewing America:
The Case for Federal Leadership on a National RPS

NO 01-07 Jun. 2007
Christopher Cooper,
Senior Policy Strategist
Dr. Benjamin Sovacool,
Senior Research Fellow
Forward By Marilyn Brown
National Commission on Energy Policy

The Rush to Ethanol:
Not All Biofuels Are Created Equal

July 2007
A report by Food & Water Watch, the Network for New Energy Choices, and the Institute for Energy and the Environment at Vermont Law School provides comprehensive analysis and recommendations for U.S. biofuels and transportation policies.



Community Wind
Supportive Policies, Public Financial Incentives, and Best Management Practices
September 2006

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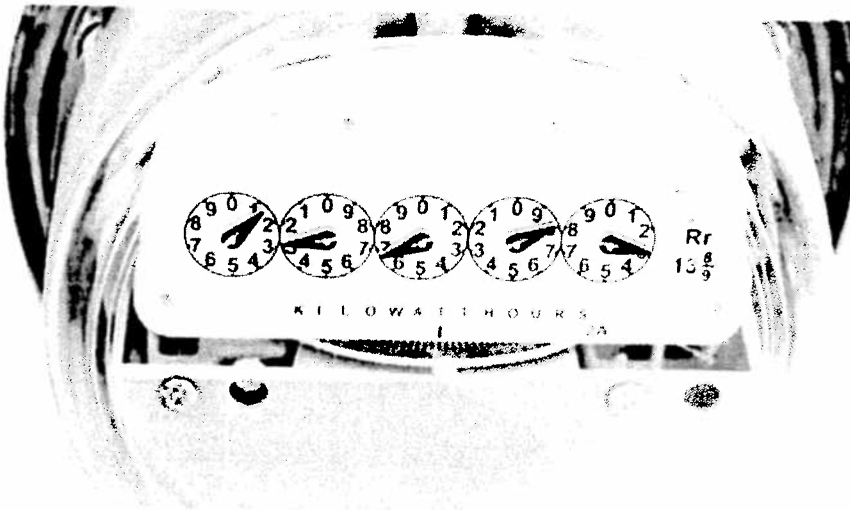


Since the 2006 edition of **Freeing the Grid**, there have been great strides in bringing more clean energy to the grid. Many states have taken the lead by reforming their clean energy policies and goals. But we are still far from conquering the "Energy Trilemma" – an energy world constrained by the three forces of financial goals, environmental concerns and security risks. In this 2007 edition, the Network for New Energy Choices teamed up with the Solar Alliance, the Vote Solar Initiative, and the Interstate Renewable Energy Council to bring the most up to date analysis of statewide interconnection and net metering rules. In our study, we graded each state based on its progress towards the goals of smoother interconnection and favorable net metering standards.

What Is Interconnection?

An interconnection standard is the set of rules under which a customer-generator interfaces with the electricity grid. Generally, the distribution utility must study and approve the generator within a framework established by the state utilities commission. Therein lays the conflict. Utilities that may perceive customer-generators as a threat to their financial bottom line have the authority to decide how many systems may connect to the grid, and under what circumstances. This situation can result in a significant barrier, as utilities either apply to a two-kilowatt (kW) residential solar generator a set of procedures better suited to a two-gigawatt nuclear power plant; or impose steep fees, redundant safety requirements, or other preventative measures.

While the underlying engineering standards and requirements are well-known (generally, the Institute for Electrical and Electronics Engineers' (IEEE) 1547 standard covers all the bases), an engineering standard is not a complete procedure. A full procedure must address fees, timelines, insurance requirements and indemnification, forms and certain other issues, to provide a comprehensive procedure that supports investment in small generation – either by individuals or by project development investors.

Wherever the standard is unclear, or where redundant or unnecessary tests or steps are piled on the existing national standards, the results can be costly. The impact of these costs on small generators can be significant.

Sunshine Solar Inc. INVOICE

Solar Panels (2,500 Watts)	$	11,700
Racks, Wiring, and Hardware	$	1,250
Inverter	$	1,950
Installation Labor	$	1,650
Redundant Disconnect + Labor	$	400
Interconnection Forms & Fees + Labor	$	1,000
Total Cost	$	17,950

Consider the example above, assume Ray McSolar purchases a 2.5-kW solar s ystem – more expensive per watt than a larger solar roof, but enough for his needs. His state's interconnection rules force him to endure lots of testing, pay big fees to the electric company, and install an external disconnect switch.

With $48.50 earned for electricity produced each month, he'll be running that system for more than two years just to pay off the red tape!

Imagine the simplest possible metering arrangement: a single, 1950s-standard electromechanical meter. Now imagine that a residential customer, Ray McSolar, added a rooftop solar-electric system to his home, on his side of this meter.

Ray wakes up pretty early for his job; on most days, he's up and out of the house before the sun rises. In these dark morning hours Ray makes his coffee and breakfast, while watching some morning news on the TV. In this case, the meter spins forward as Ray is consuming electricity from the grid.

As the sun rises, Ray heads off to work. Making sure not to waste a drop of electricity, he shuts off all his appliances. The meter spins in reverse as the solar panels churn out electricity - electricity Ray sends back to the overstressed grid.

When Ray returns at night to cook dinner and relax in front of the TV, the meter spins forward again while he consumes electricity.

The result? Ray's bill will show only his net consumption of electricity from the grid. Should it be a hot sunny month (the sort of months when the grid needs the most help), or a month in which Ray's electricity use is low, he can carry any excess electricity his system generated to the next bill, just as he might roll over excess cell phone minutes.

The result of net metering is to allow for the production of electricity that a strained grid did not have to produce. This is, in fact, exactly the same result Ray would get if he had installed a more efficient refrigerator. The only way his utility would know the difference between the use of more efficient technologies (like that refrigerator) and the use of on-site generation (e.g. solar panels) is if it installed a costly additional meter at Ray's home and underwent the expense of reading both meters and billing Ray for the results.

In effect, net metering is the simplest possible billing arrangement for customer-sited distributed generation. Without exception, significant deployment of clean, customer-sited distributed generation occurs only in states with modern interconnection and net metering policies.

Interconnection and Net Metering: *What's the Difference?*

Interconnection – the technical rules for customers to "plug in" to the grid.

Net Metering – the billing arrangement by which customers realize savings from their systems, where one kilowatt-hour (kWh) generated by the customer has the exact same value as one kWh consumed by the customer.

In our evaluation of statewide interconnection and net metering programs, we developed an index that rewards program elements that promote participation, expand renewable energy generation, or otherwise advance the goals sought by net metering. Conversely, the index assigns demerits to program components that discourage participation or limit renewable energy generation.

We measured program components and assigned numerical values to each. Negative values represent factors that undermine the effectiveness of the net metering program. Positive values represent additional incentives that contribute to program effectiveness.

Applying these numerical values to program components allows us to plot (separately) the effectiveness of each interconnection and net metering program, and to assign a letter grade to each.

An analysis of the provisions of many state programs demonstrates a distinctive distribution: perhaps a dozen "best practices" states where the framework is more or less standardized and small-scale generation is already flourishing or about to begin surging; a large undifferentiated middle where development is limited; and a few states where customer generation is actively discouraged or impossible outside of isolated demonstration projects.

Policy Points: Net Metering

Individual System Capacity

In certain cases, statutory limitations on the size of eligible technologies prevent customer-generators from correctly sizing a system to meet their own demand.

Uniform size limits reduce regulatory confusion while promoting the broadest population of renewable energy generating systems. Increasing the eligible facility size for non-residential systems also could encourage participation in net metering programs by large investors. It is no longer uncommon to see renewable energy systems in the 100 kW to 2 megawatts (MW) range. Several project developers in Oregon, for example, argued that the transactional cost of systems less than 100 kW are too great to interest large investment partners.

There is no policy justification for limiting system size to an arbitrary level. Customer load and demand should determine the system design parameters, and it is simple to prevent "oversizing" without recourse to arbitrary distinctions that may exclude the most cost-effective projects.

While the most progressive state standards embrace this concept, many are converging on a consensus level of 2 MW.

Points	Largest
+5	Greater than 1 MW
+4	Between 750 kW and 1 MW
+3	Between 500 kW and 750 kW
+2	Between 100 kW and 500 kW
+1	Between 50 kW and 100 kW
0	Not greater than 50 kW
-1	Residential systems capped below 20 kW
Notes	Some permit up to 80 MW on very large loads (such as a military base or corporate headquarters campus)

Total Program Capacity Limits

In a nod to utility concerns that on-site generation represents lost revenues (an intuitive but short-sighted view of the arrangement), many states have limited the total capacity eligible for net metering either statewide or for any given utility.

It makes little sense to limit the total amount of clean energy that customers may generate and contribute to the electricity grid. Utilities do not have an inherent right to charge for electricity that customers could otherwise generate more efficiently and more cleanly on their own. Capacity limits artificially restrict the expansion of on-site renewable generation and curtail the market for new renewable energy distributed generation (DG) systems. They may also prove incompatible with aggressive targets for renewable energy deployment set by several states.

Capacity limits, based on a percentage of peak demand, create uncertainty for new customers considering net metering. Since customers have no way of knowing when capacity limits will be met, they cannot effectively plan for future DG installations.[7] This regulatory uncertainty inhibits renewable energy investment.

Points	Total Program Limit as Percentage of Peak Demand
+2.5	> 5% or no limit
+2	Between 2% and 5%
+1.5	Between 1% and 2%
+1	Between 0.5% and 1%
+0.5	Between 0.2% and 0.5%
0	Between 0.1% and 0.2%
-0.5	Less than 0.1%
Bonus +1	For excluding generators that don't export electricity, or measuring based on energy produced instead of total capacity.

Restrictions on "Rollover"

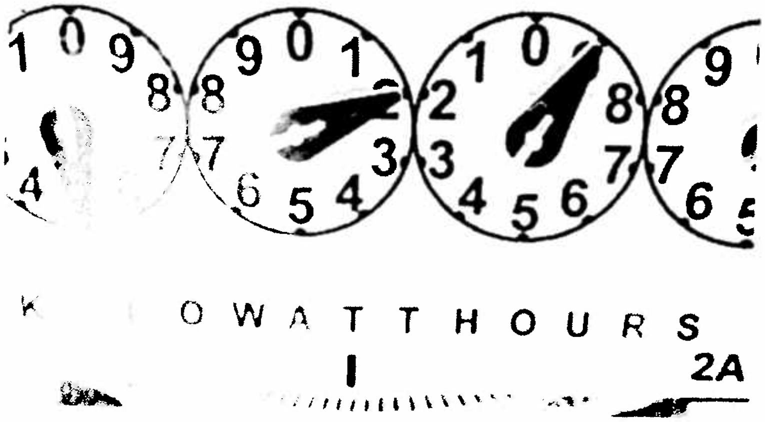
When customers generate more electricity during a monthly billing period than they consume, some states allow customers to "roll over" the excess generation. The utility carries forward any excess generation until it is used up. Some of the least effective programs allow zero rollover, granting the utility excess electricity generated by customers each month. In these states, customers undersize their systems so that the system is less than the customer's monthly minimum load. Other states limit the time over which rollover can be used.

Restricting rollover to a single month is more a function of utility billing cycles than public policy. In fact, it is very easy for the administrative costs associated with paying for small amounts of excess generation (withdrawing bills, hand-billing, etc.) to overwhelm any saved revenue for the utility. To be successful, a net metering program must facilitate rollover so that customer-generators can receive credit for excess energy generated during the seasons when renewable output is highest and apply it toward their consumption when output is lowest, striving towards a zero bill.

In the worst possible case, a so-called net metering tariff could actually require customers to pay utility transmission and distribution fees even on generation they never rolled over – paying the utility a fee in exchange for not using their services.

Remember Ray McSolar and his 1950s meter? That's the best implementation of rollover – to read this meter annually is to provide the lowest administrative cost and best equity for the customer.

Points	Rollover Provisions
+1.5	Indefinite rollover at retail rates.
+1	Monthly rollover for one year, annual payment at retail rates. (It is key to limit payout in this case so that customers do not oversize their generator beyond their own needs. Indefinite rollover is easier.)
+0.5	Monthly rollover for one year; annual payment at wholesale or avoided cost.
0	Monthly rollover for one year; excess energy donated to utility annually.
-2	Monthly payment at wholesale or avoided cost.
-4	No rollover permitted; excess energy donated to utility monthly.



Metering Issues

Requiring customer-generators to pay for additional meters adds no value to the customer-generator or the utility. Once again, if a customer could save 20% of their usage with a better air conditioner, would it be reasonable to meter the savings and compensate them differently?

Some states compel customers that choose to net meter to switch to a time-of-use (TOU) rate, where they pay differing amounts depending on the time of day. This can either reflect the reality of the grid (and reward generators who produce during constrained peaks), or disadvantage customers.

Points	Metering Provisions
+2	Single meter
+1	Dual meters or dual registers – utility pays for the additional meter
0	Dual meters or dual registers – customer pays for the additional meter
Points	**Metering Provisions Under Time of Use**
+2	TOU meters with time bin carryover
+1	TOU meters with segregated time periods
-1	Fixed TOU rate disadvantages small generators

Renewable Energy Credit Ownership

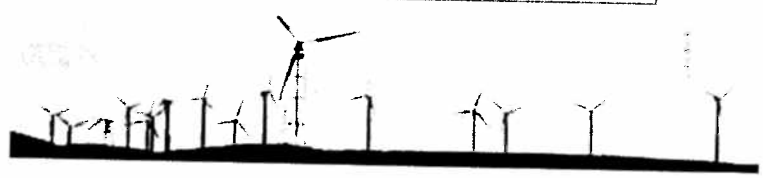
Customer-generators that install renewable resources have done so with their own investment of money and effort. Often these generators qualify for renewable energy credits (RECs) that can be used for marketing purposes or to meet legal renewable energy targets. Utilities that have simply permitted these customers to reduce their net usage from the grid should not be permitted to seize these credits without paying for them.

Points	REC Ownership
+1	Owned by customer
-5	Transferred to utility

Eligible Technologies

Subject to appropriate interconnection standards, there is no reason to exclude any type of renewable customer-generators from net metering; some states even permit non-renewable generators to address particular local concerns.

Points	Eligible Technologies
+1	All renewable and zero-emission technologies
+0.5	Solar and wind included, one or more other renewables excluded
+0.5	All renewables, plus one or more non-renewable technologies
0	Solar only
-0.5	Solar excluded from standard



Eligible Customers

Some state net metering rules restrict the customer classes that are eligible to participate. Some state rules exclude commercial customers who may have the most substantial effect on reducing demand on the strained grid, and who often enjoy the lowest costs for installed systems.

The Texas State Energy Conservation Office has noted, "It would make more sense to limit the eligibility of a technology for a period of time, say five or ten years, in order to give the technology a period in which it has the opportunity to become commercially viable, than to limit the size of the initial market, when the goal is creating a critical mass of market demand."

Allowing commercial and industrial customers to be eligible for net metering is essential to jump-starting new renewable energy markets.

Points	Largest Permissible Customer-Generator
+2	No eligible class restrictions
+1	Commercial at overall net metering limits, and residential larger than 10 kW permitted
0	Residential only, larger than 10 kW permitted
0	Commercial only
-1	All other restrictions

Bonuses for additional net metering provisions

Points	Reason for Bonus
+1	One customer can aggregate net meter within contiguous property.
+1	Utility provides a meter change if needed at utility cost.
+3	"Safe harbor language" protects customers from unspecified additional equipment, fees, requirements to change tariffs, etc.

Standby Charges or Other Fees

Many utilities claim that, in the event that net metered systems fail, the utility is required to meet the resulting customer demand. As a result, many states allow utilities to impose a "standby charge" on net metered customers.

Standby charges are illogical. Some researchers have noted that they are "analogous to assigning standby fees to residential customers who purchase high efficiency air conditioning units,"[4] because, in theory, utilities would be required to meet increased demand should the air conditioners fail and need to be replaced by more conventional units.

In some cases, standby charges are equal to or even exceed rates for full electrical service, in effect creating an economic disincentive for customers to install renewable energy systems.

Standby charges are particularly burdensome to small generators. Utilities only need to provide a negligible amount of back-up power for these customers. Nevertheless, standby fees may be so costly that they diminish most, if not all, of the economic incentive net metering was intended to offer smaller generators.

There are a variety of other idiosyncratic fees and charges that can render net metering unworkable.

Points	Fees
-1	Minor additional fees for net metering
-5	Significant additional charges or fees[5]
-5	Per kWh fee on all production (in addition to other fees)[6]

Policy Points: Interconnection

Eligible Technologies

While public policy may suggest an emphasis on renewable energy, the system and engineering impacts of a system should be evaluated solely on their own merits. To do otherwise introduces complexity and may restrict innovation. If a generator complies fully with the relevant technical standards, there is no operational or safety justification to deny it interconnection.

Points	Customers that Qualify
0	All customer generators qualify.
-1	Only renewable generators permitted.

Individual System Capacity

Technical standards can and should become significantly more stringent as system sizes increase. However, they should also permit systems that are sized to meet even large onsite loads. Office parks, prisons, or college campuses can potentially accommodate installations of two megawatts or more just to serve a portion of native load, and increasingly, forward-thinking states facilitate this option.

Points	System Capacity
0	Generators from 2 MW to 20 MW permitted
-1	1 MW to 2 MW
-2	500 kW to 1 MW
-3	100 kW to 500 kW
-4	Less than 100 kW
Notes	Larger generators generally fall under federal jurisdiction and don't need to be considered here.

"Breakpoints" for Interconnection Process

Many technical considerations and studies become relevant only for relatively large generators. It is most efficient to break a single overall interconnection process into separate "tracks" based on generator capacity, relieving complexity for the smallest systems while preserving conservative and thorough studies for larger installations.

The emerging consensus is to fragment applicants at 4 breakpoints: 10 kW, 2 MW, 10 MW (non-export), and 20 MW.

Points	Levels
1	Four levels
0	Three levels
-1	Two levels
-2	No breakpoints; one process for all generators regardless of size.
Bonus +1	Progressive standards that allow larger systems in any category.

Timelines

Time is money, and for a device like a rooftop solar generator, (where physical installation may take just two working days) paperwork and permits represent the single largest obstacle to quick installation.

The Federal Energy Regulatory Commission (FERC) adopted a model interconnection standard (Order 2006) establishing a timeline for each step of the application process, for each type of generator. There is room for improvement in these guidelines, and some states have elected to trim the amount of time allowed – for instance, for the read-through of the application of the very simplest small generators using pre-certified equipment.

Points	Timelines
+1	Timelines Quicker than FERC's
0	Timelines the Same as FERC's
-1	Timelines Longer than FERC's

Interconnection Charges

Interconnection processing and study fees can easily add up to "death by a thousand cuts." Fees of $100 here and $250 there quickly add up for small systems. What's more, uncapped or unknown fees can make it impossible to obtain financing for larger projects, as their total cost may be under the control of a hostile utility.

Again, we refer to the FERC process, which established reasonable fee levels through an extensive compromise and negotiation process.

Points	Fees
+1	Fees lower than FERC's
0	Fees the same as FERC's
-1	Fees greater than FERC's

Engineering Charges

An interconnection standard may require engineering review; where it does, it is key that the fees associated with that review are known beforehand.

Points	Fees
+1	Engineering Fees Fixed
0	Engineering Fees Not Fixed

External Disconnect Switch

In theory, a customer-generator presents a safety hazard if the grid goes down and an interconnected system continues to produce power without the utility's knowledge (a situation utilities call "islanding"). Potentially, line workers could come into contact with an unexpectedly energized line. Many utilities cite these safety concerns to require that net metered customers install and test external disconnect switches on any interconnected system. However, the practical effect is that, like hidden interconnection fees, requiring additional external disconnect switches only adds unnecessary costs and discourages customers from investing in renewable energy systems.[2]

It is important to note that not one accident resulting from the islanding of net metered renewable energy systems has been reported.[3] More importantly, utility workers are trained to treat all lines as live, and a variety of other safety precautions are required as part of standard operating procedures. An external disconnect switch represents a fourth or fifth level of redundancy that is only relevant if a utility worker ignores his or her training. If a worker is following proper protocol, none of the levels of safety preceding an external disconnect switch will ever be needed, much less the switch itself.

Requiring additional external disconnect switches is made unnecessary since all inverters that meet IEEE standards have automatic shut-off capabilities integrated with the systems. All modern inverters shut down interconnected systems automatically in the event of grid failure.

Points	Requirement
+1	Redundant External Disconnect Switch Prohibited
0	Redundant External Disconnect Switch Not Addressed
-1	Redundant External Disconnect at Utility's Discretion
-2	Redundant External Disconnect Switch Required

Certification

The electrical safety and operation of the grid must be a primary concern in the development of any interconnection procedure, and must remain an engineering standard, not a policy determination.

The relevant standards have been developed jointly by utilities, equipment manufacturers, national laboratories and testing facilities, and governmental representatives.

While some states have provided for additional options (e.g. the reuse of certification on equipment individually type-tested by utilities), others have used conflicting technical standards – a critical flaw that may in fact impact the safety and security of the grid. Still others have added idiosyncratic or unspecified "blanket" clauses that introduce uncertainties. Potential purchasers or investors in these systems do not know when such a clause might arise to disqualify them.

Points	Standard
+1	UL 1741 / IEEE 1547 standards used in addition to other options (e.g. self-certification)
0	UL 1741 / IEEE 1547 used
-1	UL 1741 / IEEE 1547 not used, or modified elements of IEEE 1547
-4	Standard used in conflict with or in excess of IEEE 1547

Technical Screens

Every interconnection is different, but all interconnections share some fundamental characteristics. These relate to, among other things, the size of the generator relative to the section of the grid to which the generator connects, and the ratings of the protective equipment installed. These factors determine how complex the interconnection process needs to be.

FERC Order 2006 provides a thorough set of technical screens that has been copied by many jurisdictions; any significant revision of these guidelines introduces difficulties to the process (and may increase system expense, as configurations or programming must be changed to differ from these widely-used benchmarks).

Points	Screen
0	FERC screens used
-1	Partial adoption of screens
-2	No screens used or utility discretion
Penalties:	Used more conservative screen than FERC = -1 for each
Bonus:	Dropped one or more FERC screens that do not affect safety or used more liberal screen element that does not affect safety = +1 for each

Spot Network Interconnection / Area Network Interconnection

A "spot network" might be designed to serve a large single location (such as a corporate campus or high-rise building); an "area network" describes the power distribution system in an area dense with users (such as a downtown area).

Either increases reliability by creating more potential paths from generation to load. However, the types of systems that can be connected are usually restricted, as these networks are much less tolerant of any export.

Some jurisdictions have extended this concern to ban these types of interconnections completely. However, the very area networks that jurisdictions aim to protect are those most in need of the relief that distributed generation can bring. More appropriate is to create more stringent technical standards for these types of systems, or simply require that they install specified high-speed equipment that disconnects systems in case of any outage.

Spot Network Interconnection

Points	Terms
1	Allowed for all systems with a single customer, or systems above 50 kW allowed
0	Allowed, but limited to 50 kW
-1	Not allowed
Bonus:	Separate standards for one customer vs. multi-customer spot networks – with single customer more liberal than FERC standard = +1
Bonus:	Systems allowed provided they install high-speed network protectors = +1

Area Network Interconnection

Points	Terms
1	Allowed for systems 500 kW or greater and 10% minimum load
0	Not addressed or allowed but at utility discretion or only after study
-1	Not allowed
Bonus:	Allowed for systems that do not export power = 1

Standard Form Agreement

The point where the "rubber meets the road" in any interconnection framework is the agreement. Without a standard agreement, the interconnection process is immediately more complex. If the standard is overly complicated, or includes clauses hostile to the customer – such as requiring the customer to indemnify the utility for a broad list of potential liabilities, with no equivalent protection from the utility – then the standard loses much of its value.

Points	Form Style
+1	Standard agreement with friendly clauses
0	Standard agreement with standard clauses
-0.5	No standard agreement
-1	Standard agreement with excessively complex or hostile clauses

Insurance Requirements

Because of potential personal injury and property damage liability risks associated with interconnection, many states allow utilities to impose liability insurance requirements on customer-generators. Some states want customer-generators to carry $100,000 or more in coverage to protect utilities from being held financially responsible for problems caused by interconnected systems.

However, to our knowledge there has never been a documented case of a small-scale net metered system causing electrical failure or creating potential personal injury or property damage liabilities for a utility.[13] Renewable energy technologies manufactured and installed in compliance with interconnection standards significantly reduce the risk of potential safety issues.[14] Product liability insurance carried by equipment manufacturers, as well as the ability of these manufacturers to indemnify customers or utilities, further negates the need for additional insurance.[15]

Excessive insurance requirements only serve to discourage customers from investing in renewable energy systems and participating in net metering programs. Requiring customer-generators – especially those with relatively small systems – to obtain and maintain million-dollar insurance policies is impractical. The high premiums associated with these policies will likely exceed the economic benefits of participating in net metering programs.

Points	Requirements
+1	Insurance requirements prohibited
+0.5	Insurance required, but not more than typical customer would carry
0	Not addressed
-2	Additional insurance required

Dispute Resolution

Inevitably, some requests for interconnection will result in disputes. The best standards provide a low-cost means of accessing an expert judgment (for instance, through a telephone call to a technical master employed by the state utility commission). Others are more administratively burdensome or complex.

Of course, if the standard explicitly states that all disputes will be resolved through or by a utility's discretion, the standard becomes less reliable in the eyes of counter-parties.

Points	Dispute Process
+2	Process in place (low or no cost, quick)
0	Not addressed or costly or administratively burdensome
-1	Utility discretion

Miscellaneous

Adverse system impact check needed on 2-MW expedited interconnections = -1 (This study addresses the potential impact of a customer-generator on the transmission network. It should not be applied to very small generators.)

Certificate of completion required without addressing local code official refusal = -1 (Some states require that a local code official sign or certify documentation associated with the interconnection process. Since these officials do not generally certify documents other than their own inspections, they can be resistant to do so, delaying or complicating the process.)

Interconnection process is significantly different from FERC standards = -1 (The overall framework of the FERC process is well-understood and should be the basic underpinning of any standard.)

GRADING

Net Metering

A Full retail credit with no subtractions. Customers protected from fees and additional charges. Rules encourage use of Distributed Generation (DG).

B Generally good net metering rules with full retail credit but there may be certain fees or costs that detract from full retail equivalent value. There may be some obstacles to obtaining net metering.

C Adequate net metering rules, but there may be some significant fees or other obstacles that undercut the value or make the process of net metering more difficult.

D Poor net metering with substantial charges or other hindrances. Many customers will forgo an opportunity to install DG because net metering rules subtract substantial economic value from the DG system operation.

F Net metering rules that hamper customer use of DG.

Interconnection

A No restrictions on interconnection of distributed generation that meet safety standards. Rules "encourage" customer-generator interconnection and represent most or all state best practices.

B Good interconnection rules that incorporate many best practices adopted by states. Few to no customer-generators will be blocked by interconnection barriers. There may remain some defects in the rules, such as, lack of standardized interconnection agreements and expedited interconnection to networks.

C Adequate for interconnection although generators incur higher fees and longer delays than necessary. There are likely a few generators that will be precluded from interconnection because of remaining barriers in the interconnection rules.

D Poor interconnection rules that leave many needless barriers to interconnection in place. A few state best practices included but many best practices options excluded. A significant number of generators will experience delays and high fees to be interconnected and a sizable percentage may be blocked from using DG because of these rules.

F Interconnection rules retain many barriers to interconnection. Few to no generators will experience expedited interconnection and few to no state best practices are adopted. Many to most DG systems will be blocked from interconnecting because of the rules.

We observe that despite the developments and in some cases vast improvements in the interconnection and net metering rules and regulations in several notable states, New Jersey continues to maintain a leadership role among all states in both of these critical policy areas. This is not to say that the New Jersey rules cannot be improved upon or that there are not state rules that have indeed improved upon the New Jersey rules in certain discrete areas. In several areas the state has adopted policies that go beyond the simple removal of barriers to actual encouragement of the use of distributed generation by customers. In order to advance the use of clean and renewable distributed generation, we encourage states to improve upon the best practices in New Jersey that is, to incorporate those rules as a starting point and adopting the best practices developed in more recent state rulemaking proceedings.

As states continue to discuss and implement new interconnection and net metering rules there will invariably be improvements in standard practice that were not anticipated when the point and grading scale used for this report was developed. As those improvements arise, the grading and point scale we use will be modified to accommodate them. Conversely, the standard may also need to be revised to appropriately downgrade a limited number states that erect unforeseen new barriers. In sum, the grading and point scale is subject to ongoing revision to address evolutions and devolutions in the interconnection and net metering policy arena. Of course, best practices have a way of becoming commonplace, and this, too, will require a scoring adjustment. For example, as we approach more than a dozen states with a 2 MW system capacity limit, this once aggressive policy stance will be regarded as commonplace, and only larger limits will obtain maximum points.

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STATE	Grade
IREC Model	A
Colorado	A
New Jersey	A
Pennsylvania	A
Maryland	A
California	A
Oregon	B
Delaware	B
Iowa	B
Connecticut	B
Ohio	B
New Mexico	B
Arkansas	C
New Hampshire	C
Rhode Island	C
Hawaii	C
Maine	C
Louisiana	C
Virginia	C
Minnesota	C
North Dakota	C
Massachusetts	C
Montana	C
Vermont	C
Missouri	C
Washington	D
New York	D
Texas	D
Kentucky	D
Michigan	D
Wyoming	D
Oklahoma	D
Indiana	D
West Virginia	D
Utah	F
D.C.	F
Georgia	F
North Carolina	F
Wisconsin	F

STATE	Grade
IREC Model	A
New Jersey	B
Arizona	B
California	C
Ohio	C
Texas	C
New York	C
Colorado	C
Oregon*	C
Massachusetts	[illegible]
Georgia	[illegible]
New Mexico*	[illegible]
Vermont	C
Minnesota	[illegible]
Rhode Island	D
Wisconsin	D
West Virginia	D
Arkansas	D
New Hampshire	D
Virginia	D
Iowa	D
Maryland*	D
Montana	D
Michigan	D
Indiana	D
Pennsylvania	D
Connecticut	D
North Carolina	[illegible]
D.C.	[illegible]
Wyoming	[illegible]
Louisiana	[illegible]
Delaware	[illegible]
Hawaii	[illegible]
Utah	[illegible]
Washington	[illegible]
Missouri	[illegible]

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FREEING THE GRID

2007 EDITION - SUMMARY

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