

# Renewable Energy in Indiana

The new net metering regulation and other  
areas to address

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# Natalie Owens

I am a graduate student and assistant at Ball State University. I work for the Center for Information and Communication Sciences and will have an MS in information and communication science this July. I have a passion for renewable energy and have studied various areas of the topic in my undergrad. I volunteered to work with Laura Arnold which led to the development of this project.



# Laura Ann Arnold


Laura is the Founder of Indiana Distributed Energy Advocates, Inc. (IDEA). She is the owner of The Arnold Group and is a past president and current board member of the Indiana Renewable Energy Association. She has supervised the creation of this project.



# The Basics

- »» Indiana's new regulation and what it all means

# Net Metering Versus Net Billing


- ▶ Many people confuse the two.
  - ▶ Intentional Deceptive Marketing Campaign: “Wolf in sheep’s clothing.”
  - ▶ Some REMC’s have adopted this phrase.
  - ▶ Nothing “NET” about it.
  - ▶ Uses Avoided Cost or lower than retail cost.
  - ▶ With Net Billing, there is no net metering of kilowatts; Kilowatts generated by the customer are counted and credited to the customers account at Avoided Cost or other set rate.
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# Net Metering

- ▶ Net metering is a billing arrangement between a customer and their providing electric company.
- ▶ Net metering applies to a person or group who is generating their own renewable energy on a system that is tied into the electric grid.



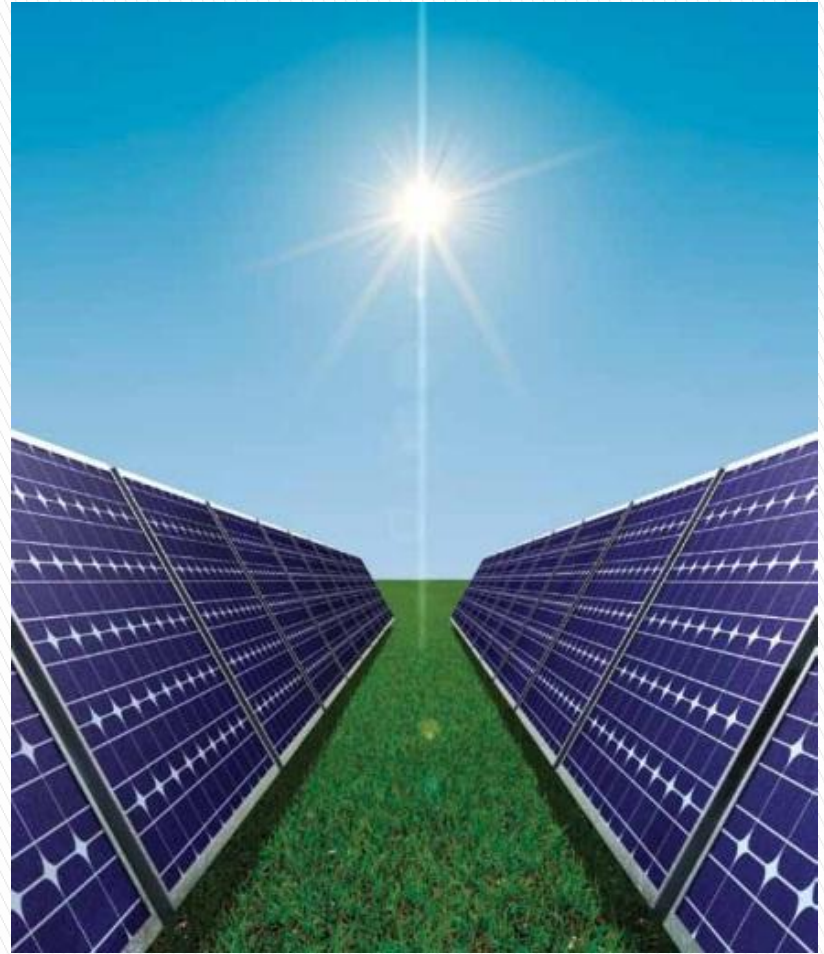
# How Does Net Metering Work?

- ▶ If an energy customer with a renewable energy system that is tied into the grid doesn't produce as much as they need, they can still buy the rest of the energy they need as usual.
  - ▶ If a customer produces more energy than they use at any given time, that electricity leaves their system and goes to another location. This excess electricity is metered by the customer's electricity provider and they are given credit for each unit of electricity they do not use.
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# Feed-in Tariffs

- ▶ Feed-in tariffs allow for the purchase of all renewable energy generated from an eligible renewable energy facility by the utility.
- ▶ This is usually for a longer contracted time period and at a designated payment rate.




# Feed-in Tariff Vs. Net Metering

Feed-in tariffs are designed so that systems can be installed at sites with no load, and generate electricity that is purchased, under contract, by the local utility.\*


Net metering enables renewable energy generation systems that may not cover the facility's full load to purchase power on low-generation or peak-usage times of day. It also ensures that valuable renewable energy will not be wasted if the facility is consuming less than the generated amount.

\* Harris, Glen. "Net-metering or Feed-in Tariff? Can They Co-exist?." *Renewable Energy World*. 25 Sept. 2011. Web. 29 Sept. (Pg. 26)

# Why Have Feed-in Tariff and Net Metering Programs?

- ▶ These programs will increase opportunities for the expansion of renewable resources.
  - ▶ They help to expand the availability of renewable energy throughout Indiana.
  - ▶ They encourage customers to invest in renewable energy so as to reduce the customer's energy independence and to increase the amount of energy produced and used from clean, sustainable sources.
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# Simply Put...

- ▶ Why?—To allow renewable energy generation!
  - ▶ This is one of the best ways to support growth in renewable energy generation!
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# Indiana's New Renewable Energy Regulation

- Application and changes from the previous policy

# What it Means For Net Metering

- ▶ Investor owned utilities (IOUs) must provide net metering for any customer that generates renewable energy.
  - ▶ IOUs cannot impose any fees that a customer who was not net metering would not have; they must be fair in all pricing.
  - ▶ Net metering customers get paid for excess generation in credits. If the customer sells more energy than they purchase, their account is credited at retail rate.
  - ▶ Credits rollover indefinitely.
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# What it Means For Net Metering

- ▶ Nameplate capacity must be less than or equal to 1MW.
- ▶ The facility must be located on the customer's property.
- ▶ Net metering will only be applied if its primary use is to offset all or some of the customers own energy needs.




# Changes From the Previous Net Metering Policy

	<u>Previous Rule</u>	<u>Current Rule</u>
<b>Source of Energy Included:</b>	Wind, Solar, Hydroelectric	Any Recognized Renewable Energy Source
<b>Available To:</b>	Residential and K-12 Customers	All Customers
<b>Total Nameplate Capacity:</b>	.1% of Peak Summer Load	1% of Peak Summer Load
<b>Net Metering Customer Capacity:</b>	10kW	1 MW

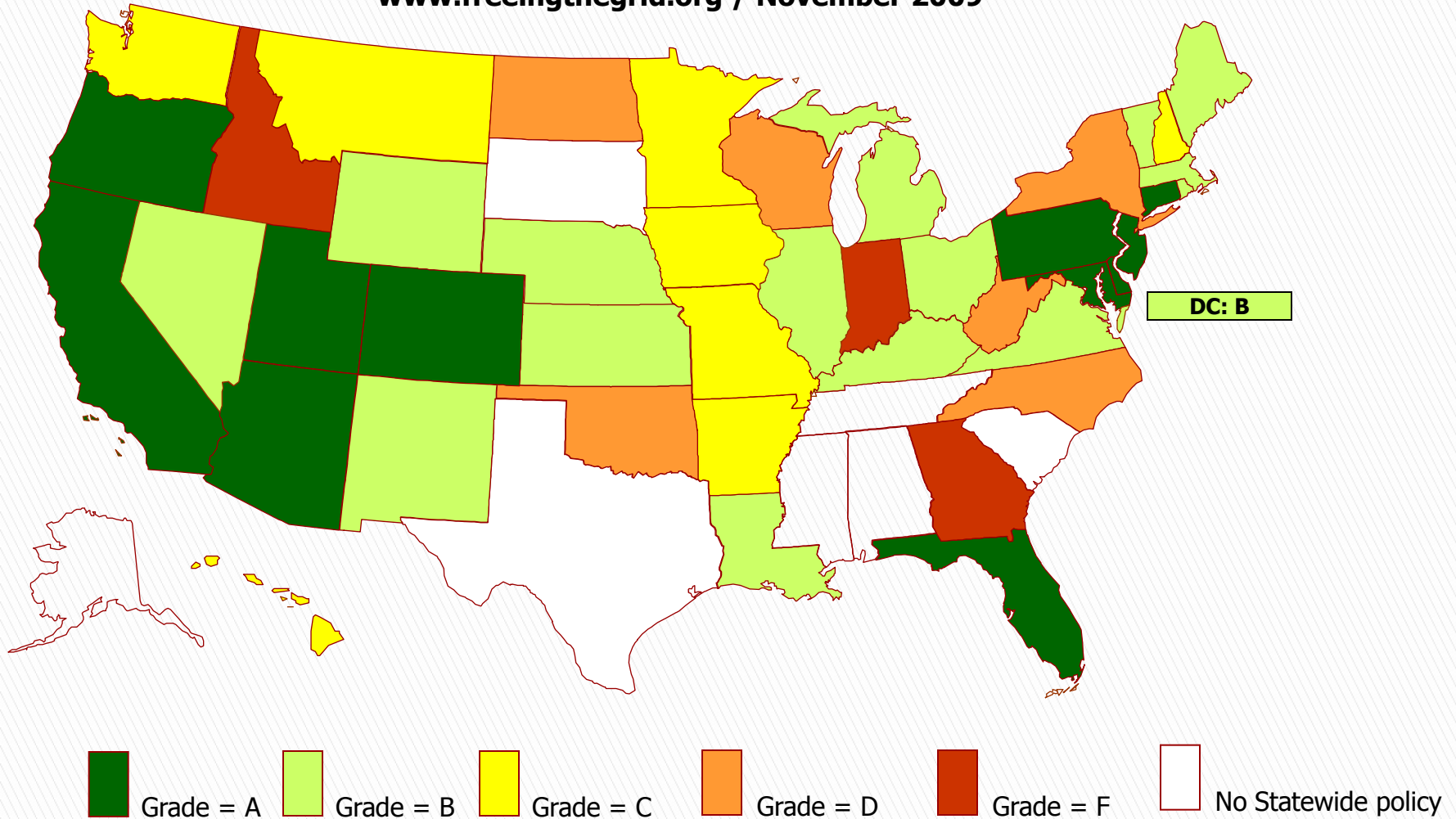


# How Indiana Compares

- ▶ The following slides show how Indiana ranked in net metering in 2009, and then Indiana in 2011
  - ▶ Before the regulation, Indiana had a much smaller individual capacity, total capacity and customers net metering was available to than other states.
  - ▶ Since the new regulation, Indiana matches up against other states for net metering.
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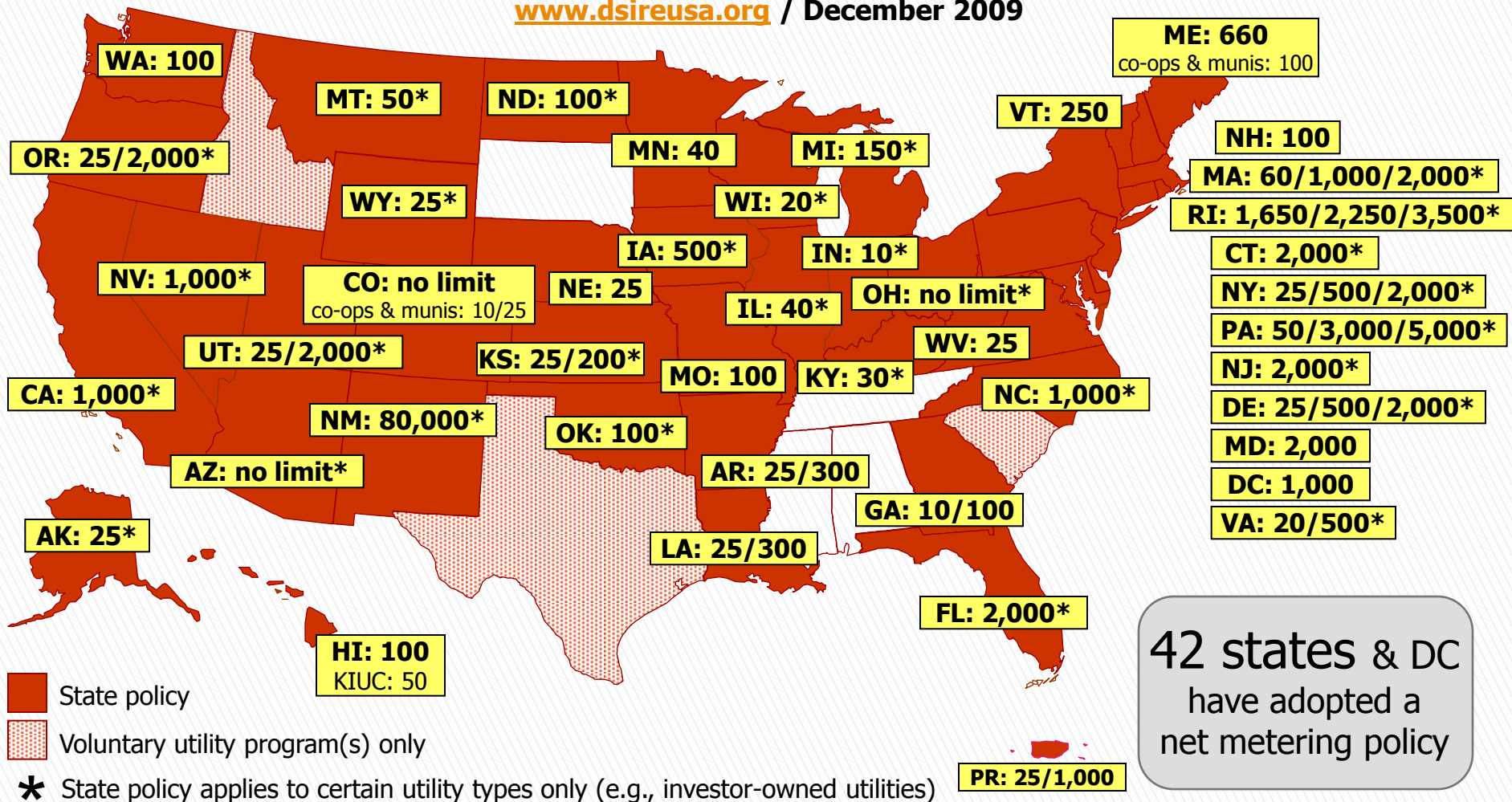
# Net Metering Grades 2009

[www.freeingthegrid.org](http://www.freeingthegrid.org) / November 2009



# Net Metering

[www.dsireusa.org](http://www.dsireusa.org) / December 2009



Note: Numbers indicate individual system capacity limit in kW. Some limits vary by customer type, technology and/or application. Other limits might also apply.

Alaska	B	-	Nebraska	B	-
Arizona	A	-	Nevada	B	B
Arkansas	B	-	New Hampshire	B	D
California	A	B	New Jersey	A	B
Colorado	A	B	New Mexico	B	B
Connecticut	A	B	New York	B	B
D.C.	B	B	North Carolina	D	B
Delaware	A	F	North Dakota	D	-
Florida	A	B	Ohio	A	C
Georgia	F	-	Oklahoma	F	-
Hawaii	B	F	Oregon	A	B
Illinois	B	B	Pennsylvania	A	B
Indiana	D	C	Puerto Rico	B	F
Iowa	B	B	Rhode Island	B	-
Kansas	B	-	South Carolina	F	F
Kentucky	B	F	South Dakota	-	B
Louisiana	B	-	Texas	-	C
Maine	B	A	Utah	A	A
Maryland	A	B	Vermont	B	C
Massachusetts	A	A	Virginia	B	A
Michigan	A	C	Washington	B	D
Minnesota	B	D	West Virginia	A	B
Missouri	C	-	Wisconsin	C	D
Montana	C	C	Wyoming	B	-

2010 “Freeing the Grid” grade ranking of net metering, and interconnection.

Recommendations for Indiana to score higher were: Remove system size limits and allow systems to be sized to meet on-site load, Increase capacity to at least 5% of a utility’s peak demand, Include all customer classes, Expand net metering to all utilities.

Indiana only met one of these suggestions but did improve on most.

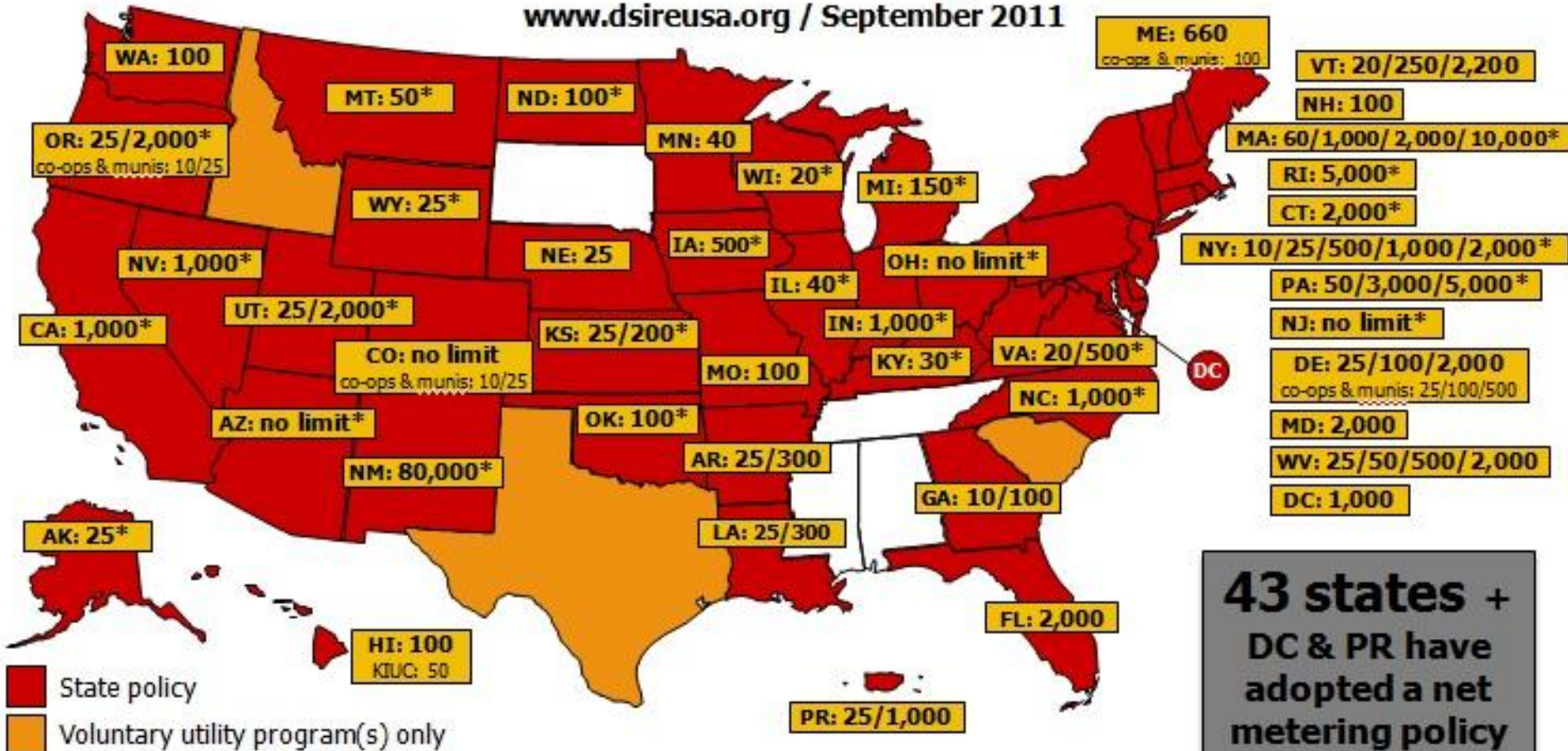
# How Far We Have Come

- ▶ Freeing the Grid 2011, a nation-wide renewable energy yearly publication, named Indiana the most improved state in net metering.
- ▶ “Indiana made impressive year-over-year improvements, from a “D” in net metering and “C” in interconnection in 2010 to solid “B”s in both categories this year.”\*

\* Source: [Clean Technica \(http://s.tt/13zOa\)](http://s.tt/13zOa)

## Net Metering

www.dsireusa.org / September 2011



Note: Numbers indicate individual system capacity limit in kW. Some limits vary by customer type, technology and/or application. Other limits might also apply. This map generally does not address statutory changes until administrative rules have been adopted to implement such changes.

Alabama	–	–	Montana	C	C
Alaska	C	–	Nebraska	B	–
Arizona	A	–	Nevada	B	B
Arkansas	B	–	New Hampshire	B	D
California	A	B	New Jersey	A	B
Colorado	A	B	New Mexico	B	B
Connecticut	A	B	New York	B	B
D.C.	B	B	North Carolina	D	B
Delaware	A	A	North Dakota	D	–
Florida	A	C	Ohio	A	C
Georgia	F	–	Oklahoma	F	–
Hawaii	B	F	Oregon	A	B
Idaho	–	–	Pennsylvania	A	B
Illinois	B	B	Rhode Island	B	D
Indiana	B	B	South Carolina	F	F
Iowa	B	B	South Dakota	–	B
Kansas	B	–	Tennessee	–	–
Kentucky	B	F	Texas	–	C
Louisiana	C	–	Utah	A	A
Maine	B	A	Vermont	A	C
Maryland	A	B	Virginia	B	A
Massachusetts	A	A	Washington	B	D
Michigan	A	C	West Virginia	A	B
Minnesota	F	D	Wisconsin	C	C
Mississippi	–	–	Wyoming	B	–
Missouri	C	–			

**2011 “Freeing the Grid” grade ranking of net metering, and interconnection.**

**Recommendations for Indiana to increase score:**  
Expand net metering to all utilities, Increase customer capacity, Increase total capacity to at least 5% of peak demand, Prohibit external disconnect switches, Include all customer classes.

# Problems

- »» Net metering is not the only renewable energy issue that should be addressed. There are many more ways to supplement renewable energy expansion in a state.



# Issues Not Included in the New Regulation

- The new net metering rule adopted by the IURC leaves many issues unresolved

# Unincluded Areas

- ▶ Feed-in Tariffs
- ▶ Renewable Energy Credits
- ▶ Aggregation
- ▶ Third Party Power Purchasing
- ▶ Virtual Net Metering
- ▶ Utilities Not Owned By Investors
- ▶ More...



# PURPA

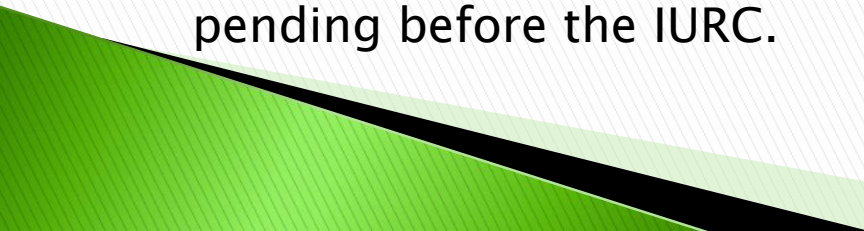
- ▶ Public Utility Regulatory Policy Act (PURPA)
- ▶ Passed in 1978
- ▶ The only federal law that promotes renewable energy and encourages competition in the utility industry
- ▶ Prior to PURPA, only utilities could own and operate electric generating plants. PURPA required utilities to buy power from independent companies that could produce power for less than what it would have cost for the utility to generate the power, called the "avoided cost."
- ▶ Due to current low avoided costs, few renewables are able to compete with new natural gas turbines. Technically, PURPA only calls for renewable energy if it is cost competitive with conventional polluting resources.
- ▶ Many of the benefits of renewables are not included in the price, such as clean air, but PURPA makes no provision for including these. By strictly interpreting the law, FERC has expressly forbidden non-price factors in PURPA decisions.\*

\* Source: Union of Concerned Scientists. "Public Utility Regulatory Policy Act (PURPA)." *Clean Energy*. 2010. Web. 8 Oct. 2011. <[http://www.ucsusa.org/clean\\_energy/solutions/big\\_picture\\_solutions/public-utility-regulatory.html](http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/public-utility-regulatory.html)>.

# Renewable Energy Policies and Programs

➤➤ Terms affecting renewable  
energy producers

# Feed-in Tariffs

- ▶ Under PURPA, the renewable energy generator must be connected. However, “avoided cost,” allows the utility to purchase this energy at the cheapest price they can purchase energy produced from any source. Renewable energy has a hard time competing with those cheap rates. At “avoided cost” rates, there is usually no incentive for creating large, feed-in tariff-type systems.
  - ▶ Language in document specifically says net metering can only be applied to customers who have the primary goal of supplementing their own energy usage. (Not the point of a feed-in tariff).
  - ▶ Because feed-in tariffs are not addressed in the rule, only those that can offer energy prices low enough to meet an “avoided cost” to the utility will have incentive to grow.
  - ▶ IPL is proposing to change its feed-in tariff called Rate REP and it is pending before the IURC.
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# REC's—Renewable Energy Credits

- ▶ Renewable energy credits are bought and sold as a commodity in voluntary “green power” markets or are directly used to fulfill a utility’s renewable energy requirements.\*
- ▶ RECs are basically a slip of paper stating your ownership to that specific portion of renewable energy produced.
- ▶ In net metering or feed-in tariffs, the issue of who owns the credits arises.



\*[http://indianadg.files.wordpress.com/2010/12/fr\\_eeingthegrid2010\\_report.pdf](http://indianadg.files.wordpress.com/2010/12/fr_eeingthegrid2010_report.pdf)

# Renewable Energy Credits


- ▶ There is no mention of RECs or anything directly related in the new rule.
  - ▶ This gives IOUs the power to claim a net metering customer's RECs without paying for them.
  - ▶ With increasing renewable energy goals, RECs can be used to supplement those goals. Prices depend on the number of kWh, the location the energy was produced, and the type of renewable energy.
  - ▶ They are bought and sold in the open market so ownership of RECs could be very beneficial as prices rise.
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# Aggregation

- ▶ Large or spread out facilities may have more than one electric meter.
- ▶ Aggregation is the combination of all meters on one property, for net metering purposes.
- ▶ So, total aggregate power refers to the sum of all meters on one property.
- ▶ Aggregation issues apply to large facilities like farms, universities, airports, etc.
- ▶ Addresses “contiguous properties owned by one customer.”



# Aggregation


- ▶ This topic is not directly confronted in the new rule.
  - ▶ A net metering customer must have nameplate capacity of less than or equal to 1MW. 'Nameplate capacity' is defined as the aggregate output of all inverters in the facility, in the rule.
  - ▶ This implies that the IOUs must allow aggregate net metering for all systems with total aggregate output under 1MW.
  - ▶ The IURC does not clearly state their stance on this issue and thus IOUs are not obligated to permit net metering aggregation.
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# Third Party Power Purchasing


- ▶ Best explained by an example: A family signs a contract with a third party who installs a solar panel onto the family's roof. The third party owns and operates the system. Together, the tax credits and incentives are much better utilized.
- ▶ Many states may consider the third party to be a separate utility provider, which causes issues in regards to net metering.



# Third Party Power Purchasing

- ▶ The new rule, again, does not mention this term directly. However, the rule specifically states that an eligible net metering customer is a customer who owns a renewable energy generation system.
  - ▶ The keyword here is OWNS. In third party power purchasing, the third party owns the renewable energy system, not the customer. Thus IOUs do not have to provide net metering for third party systems.
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# Virtual Net Metering

- ▶ Virtual net metering (VNM) is a set up that allows the utility credits from one system/customer to be spread out among multiple utility service accounts.
  - ▶ This would make it easy for two or more people/groups to purchase one system together and all reap the benefits in their electric bills.
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# Virtual Net Metering

- ▶ Example: There are three families. Two live in apartments and one owns their own home. The three families decide to pool their money together to set up a solar system on the roof of the house that one of them owns. The system would be too expensive for one family to install themselves, but with the pooled money, it is affordable. The renewable energy is credited among the three families accounts so all three families realize the benefits.

# Virtual Net Metering

- ▶ Like the previous topics, VNM is not addressed in the new rule.
  - ▶ It is one system on the property of the owner. So it follows some specifications of the IURC rule.
  - ▶ However, the rule does not mention spreading the credits on to more than one account.
  - ▶ As long as the system capacity was under 1MW, IOU's would not seemingly be harmed by spreading out the credits between more than one account; the same amount of credits would be issued, just to more than one person.
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# Other Utilities

- ▶ In the state of Indiana, there are many other energy providers than the five IOUs.
  - ▶ Municipal electric utilities (Muni's) and rural electric cooperatives (REMCs) make up the other energy providers.
  - ▶ The new net metering rule does not apply to Muni's and REMCs.
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# Municipalities

- ▶ There are currently 72 municipalities in Indiana.
- ▶ A municipal electric utility is any city or town that owns its own electric distribution system.
- ▶ 53 of the 72 municipalities are members of the Indiana Municipal Power Agency (IMPA) which has a small renewable energy project that a 7.85kW total generation capacity and was built to demonstrate to the member municipalities renewable energy options.\*
- ▶ If a muni is an IMPA member, that means they purchase all or some of their energy from IMPA.

\*IMPA. "Renewable Energy Demonstration." *The Indiana Municipal Power Agency*. 2011. Web. 09 Oct. 2011. <<http://impa.com/renewable-energy-demonstration.asp>>.



# Municipalities

- ▶ Of the 72 municipalities, only two had net-metering and one had net-billing, information available to the public on their website.
  - ▶ Anderson and Lebanon are the two with net-metering, and Peru offers net-billing.
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# REMCs

- ▶ Owned by the customers they serve.
- ▶ Unlike investor-owned utilities that exist to maximize shareholder profits, REMCs provide electricity to members at cost. Any margin above the cost of power and any expenses involved in delivery of power must either be used to improve operations or distributed among members.
- ▶ Most REMCs do not generate their own energy.\*

\*Wabash Valley Power Association. "About Electric Cooperatives." *Wabash Valley Power*. 2011. Web. 08 Oct. 2011. <<http://www.wvpa.com/aboutcoops.aspx>>.

# REMCs

- ▶ The two energy providers for REMCs in Indiana are Wabash Valley Power Association and Hoosier Energy
- ▶ Hoosier energy has committed itself to the renewable energy goal that 2% of their energy will come from renewable sources by 2011
- ▶ Bartholomew County REMC, Decator County REMC, Dubois REC, RushShelby REMC, South Central Indiana REMC, Southeastern Indiana REMC, and WIN Energy REMC are the REMCs currently working with Hoosier Energy on renewable energy programs.


# REMCs

- ▶ Of the 40 REMCs, only five offer true net-metering. These five are Hendricks Power Cooperative, Johnson County REMC, Kankakee Valley REMC\*, and Northeastern REMC.\*\*
- ▶ The rest offer net-billing, as mandated by PURPA, with customer payback at Avoided Cost many times and no net-metering.


•Kankakee Valley REMC has other onerous net metering requirements.

\*\*May be more, these were the only REMCs who promoted their program but putting information publicly available on their website.


# Muni's and REMCs

- ▶ Although still small, major muni and REMC providers have started to develop renewable energy options.
  - ▶ Those located in muni and REMC–provided areas may be able to purchase renewable energy from provider.
  - ▶ Rebate programs, energy efficiency programs, and high efficiency products are offered by many providers.
  - ▶ A widespread net metering policy like that of the IURC for IOUs, has not been developed for muni and REMC customers.
  - ▶ A strong renewable energy policy for a state WOULD include all energy providers for net metering, not just IOUs.
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# Muni's and REMCs: Findings

- ▶ Researching Muni's and REMCs was very eye-opening.
  - ▶ Many only pay customers at Avoided Cost, or wholesale rate, but offer programs for other customers to pay more if they want 'Green Energy.'
  - ▶ Through offering net-billing, Muni's and REMCs increase revenue by selling their 'Green Energy' programs, yet customers providing this Green Energy do not see any of that revenue.
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# Investor Owned Utilities—IOWs

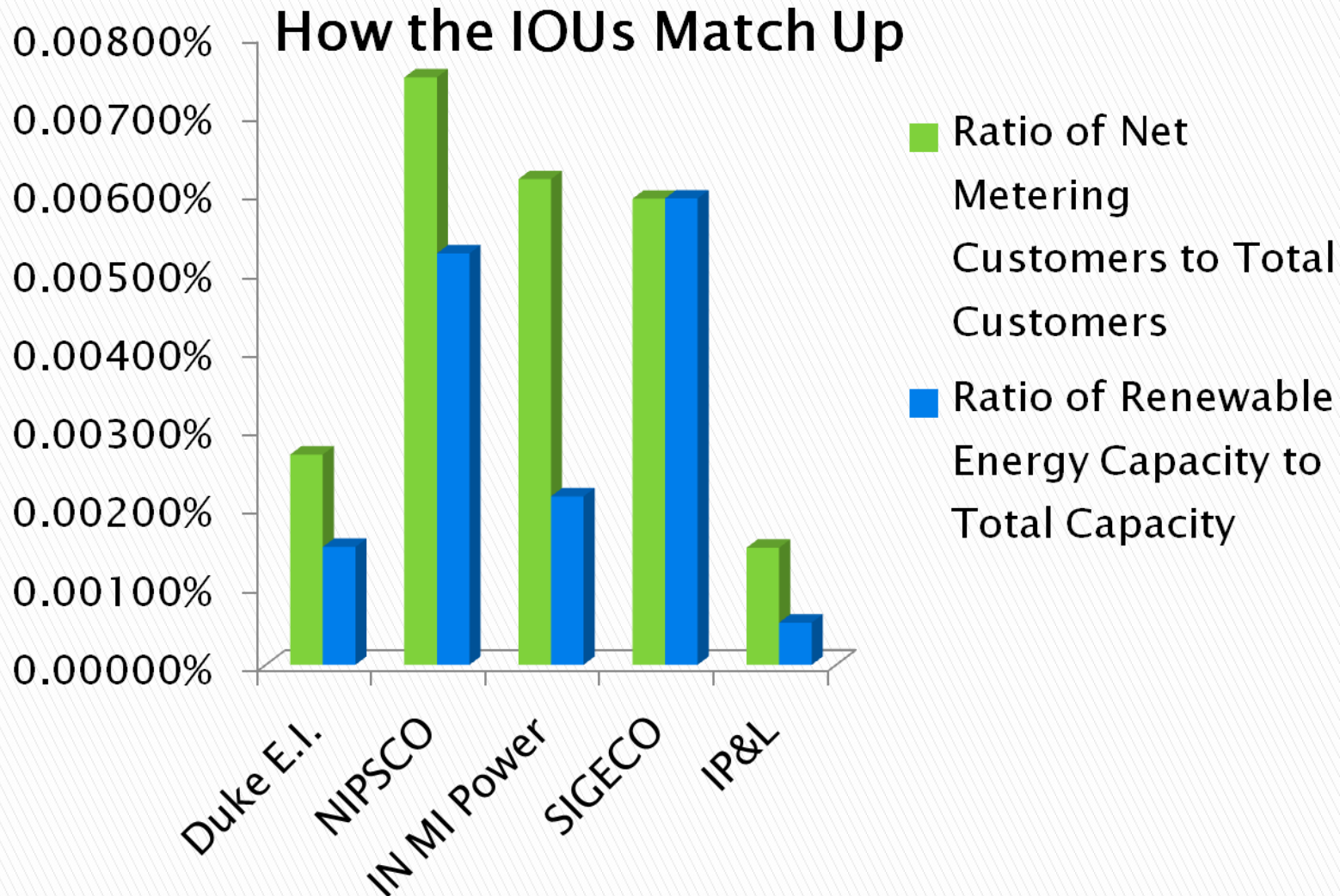
- ▶ The IOUs must comply with the new net metering rule.
  - ▶ Some choose to offer more than what is required by the rule.
  - ▶ NIPSCO offers an additional feed-in tariff program and IP&L offers a Rate REP program. All IOUs also have various rebate programs.
  - ▶ The following slides show IOUs, the number of net metering customers they have, and how much those customers produce.
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# Comparison of IOU Net Metering Statistics (data as of 12/31/2010)

	<u>Total Renewable Nameplate Capacity (in kW)</u>	<u>Total Net Metering Customers</u>	<u>Total Energy Production Capacity (in kW)</u>	<u>Total Customers</u>	<u>Ratio of Net Metering Customers to Total Customers</u>	<u>Ratio of Renewable Energy Capacity to Total Capacity</u>
<b>Duke E.I.</b>	405	107	27,000,000	4,000,000	0.00268%	0.00150%
<b>NIPSCO</b>	157	34	3,000,000	455,000	0.00747%	0.00523%
<b>IN MI Power</b>	127	36	5,927,400	582,752	0.00618%	0.00214%
<b>Vectren</b>	77	15	1,298,000	253,000	0.00593%	0.00593%
<b>IP&amp;L</b>	18	7	3,353,000	470,000	0.00149%	0.00054%



# Investor Owned Utilities—IOUs



# We CAN Make A Difference

- ▶ If we work together, we can show state decision makers that Indiana wants and needs programs that will encourage the expansion of renewable energy throughout the state.
  - ▶ We have come this far, now we must use the momentum and keep going forward.
- 