Update of Financial Incentives for Promoting New and Renewable Energy in the U.S.

Cary Bloyd
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Pacific Northwest
NATIONAL LABORATORY

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The U.S. has a wide range of financial mechanisms that support electric utility specific renewable energy systems at both the federal and state levels

- Federal programs
  - Tax credits
  - Renewable energy credits
- State programs
  - Tax credits
  - Renewable Energy Portfolio Standards (RPS)
  - Net metering/Feed-in tariffs
- Utility/private sector
  - Purchased power contracts

U.S. Federal Investment Tax Credit Program was extended in 2008 and modified in 2009

- The U.S. Congress passed a 8-year 30% investment tax credit (ITC) for photovoltaics on October 3rd, 2008. The credit was further expanded by *The American Recovery and Reinvestment Act of 2009*, enacted in February 2009.
  - Extends for 8 years the 30-percent tax credit for both residential and commercial solar installations
  - Eliminate the $2,000 monetary cap for residential solar electric installations, creating a true 30-percent tax credit (effective for property placed in service after December 31, 2008)
  - Eliminate the prohibition on utilities from benefiting from the credit
  - Authorize $800 million for clean energy bonds for renewable energy generating facilities, including solar
  - The credits are available for systems put in service prior to December 31, 2016

Coverage of the Federal investment tax credit (1)

- **Solar.** The credit is equal to 30% of expenditures, with no maximum credit. Eligible solar energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Hybrid solar lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible. Passive solar systems and solar pool-heating systems are *not* eligible.
- **Fuel Cells.** The credit is equal to 30% of expenditures, with no maximum credit. However, the credit for fuel cells is capped at $1,500 per 0.5 kilowatt (kW) of capacity. Eligible property includes fuel cells with a minimum capacity of 0.5 kW that have an electricity-only generation efficiency of 30% or higher. (Note that the credit for property placed in service before October 4, 2008, is capped at $500 per 0.5 kW.)
- **Small Wind Turbines.*** The credit is equal to 30% of expenditures, with no maximum credit for small wind turbines placed in service after December 31, 2008. Eligible small wind property includes wind turbines up to 100 kW in capacity. (In general, the maximum credit is $4,000 for eligible property placed in service after October 3, 2008, and before January 1, 2009. *The American Recovery and Reinvestment Act of 2009* removed the $4,000 maximum credit limit for small wind turbines.)

Source: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F

Coverage of the Federal investment tax credit (2)

- **Geothermal Systems.*** The credit is equal to 10% of expenditures, with no maximum credit limit stated. Eligible geothermal energy property includes geothermal heat pumps and equipment used to produce, distribute or use energy derived from a geothermal deposit.

- **Microturbines.** The credit is equal to 10% of expenditures, with no maximum credit limit stated (explicitly). The credit for microturbines is capped at $200 per kW of capacity. Eligible property includes microturbines up to two megawatts (MW) in capacity that have an electricity-only generation efficiency of 26% or higher.

- **Combined Heat and Power (CHP).*** The credit is equal to 10% of expenditures, with no maximum limit stated. Eligible CHP property generally includes systems up to 50 MW in capacity that exceed 60% energy efficiency, subject to certain limitations and reductions for large systems. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the credit may be reduced for less-efficient systems. This credit applies to eligible property placed in service after October 3, 2008.

The U.S. EPA Green Power Partnership Program allows companies to support all forms of green energy

- Organizations can meet EPA purchase requirements using any combination of three different product options
  - Renewable Energy Certificates
  - On-site generation
  - Utility green power products

- Top companies include:
  - Intel Corporation (88% of electricity use) (2.5 Billion Kwh)
  - Kohl's Department Store (100%)
  - Microsoft (46%)
  - Wal-Mart (28%))
  - City of Austin, Texas (100%)
  - McDonald's USA (30%)
  - HSBC North America (112%)

http://www.epa.gov/greenpower/

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Database of State Incentives for Renewables & Efficiency

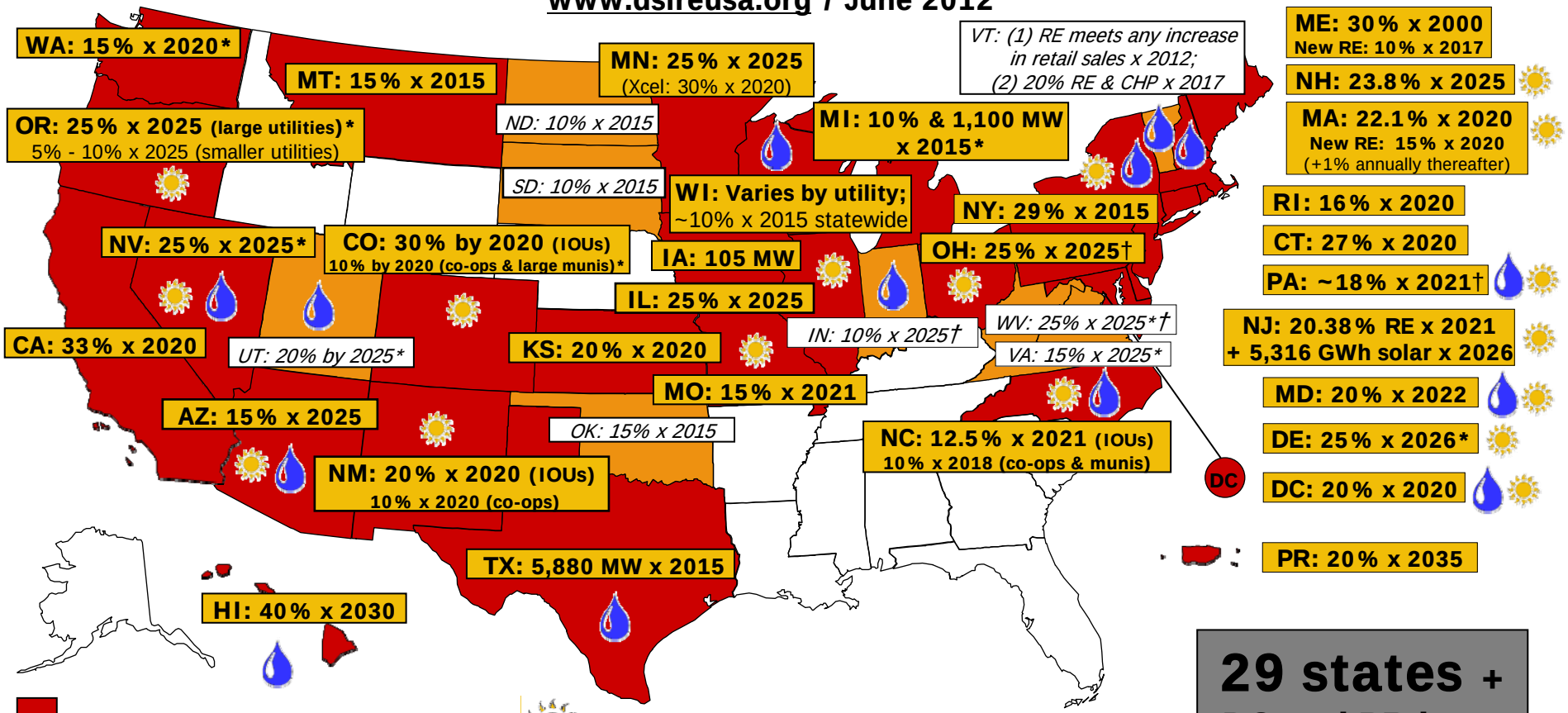
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

IREC Interstate Renewable Energy Council

North Carolina Solar Center

RPS Policies

www.dsireusa.org / June 2012



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

29 states + DC and PR have an RPS

(8 states have goals)

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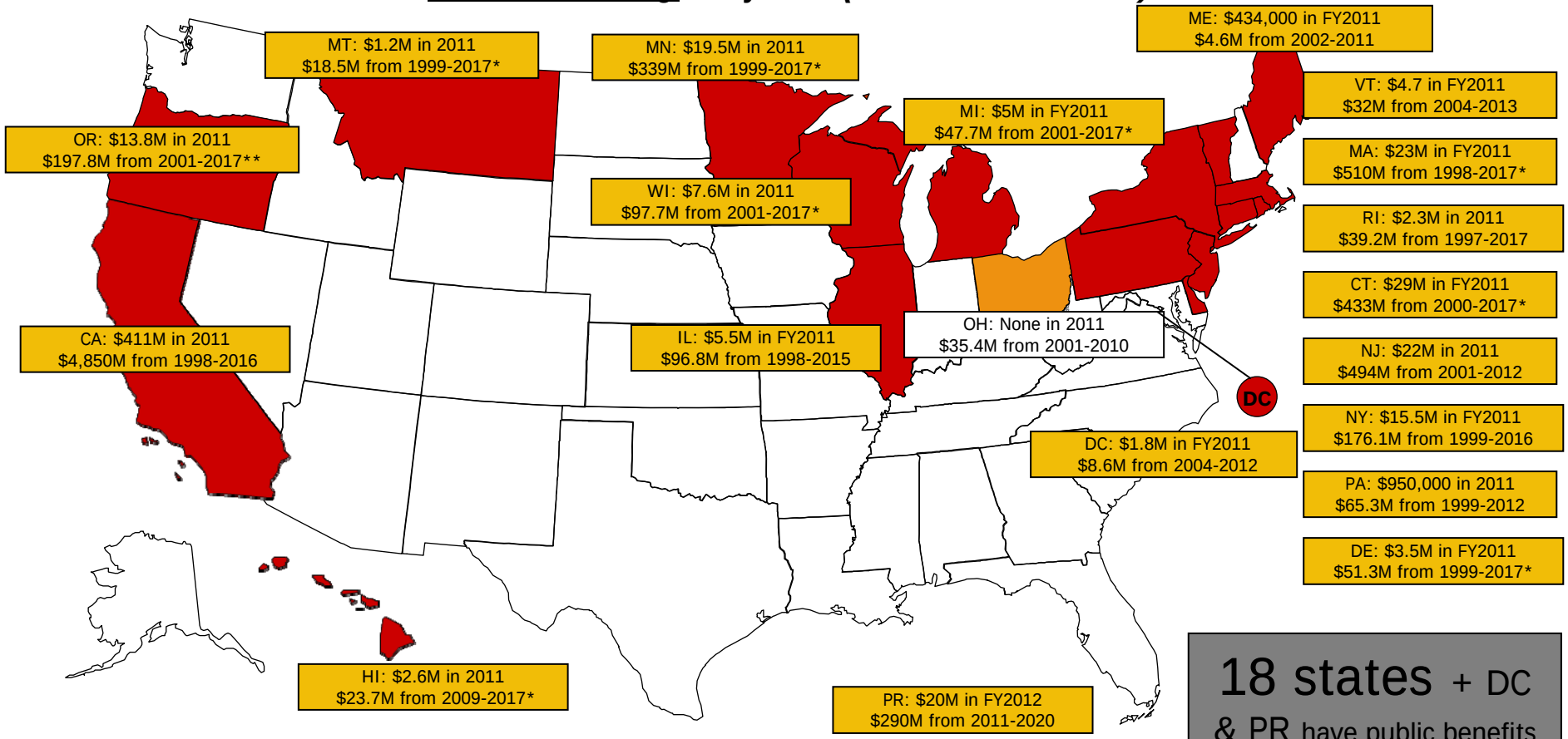
North Carolina Solar Center

Public Benefits Funds for Renewables

www.dsireusa.org / May 2012 ***(estimated collections)***



18 states + DC & PR have public benefits funds ($7.8 billion by 2017)

State PBF With Ongoing Collections

State PBF Closed to New Collections

Puerto Rico

* Fund does not have a specified expiration date

** The Oregon Energy Trust is scheduled to expire in 2025

(NOTE: Slides 2-10 explain the methodology for calculating funding estimates.)

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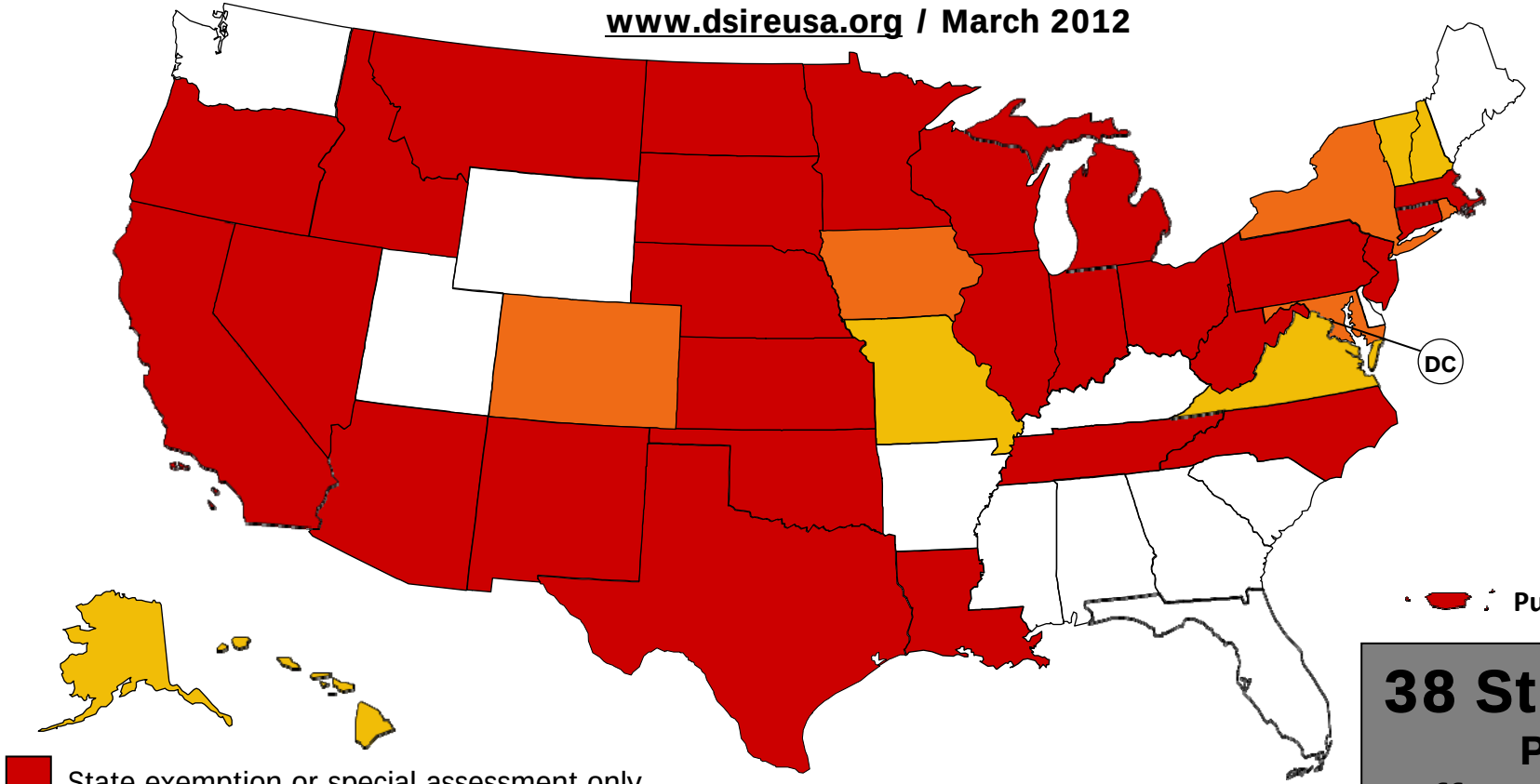
Property Tax Incentives for Renewables

www.dsireusa.org / March 2012



State exemption or special assessment only

Local governments authorized to offer exemption (no state exemption or assessment)

State exemption or special assessment + local government option

38 States + PR offer property tax incentives for renewables

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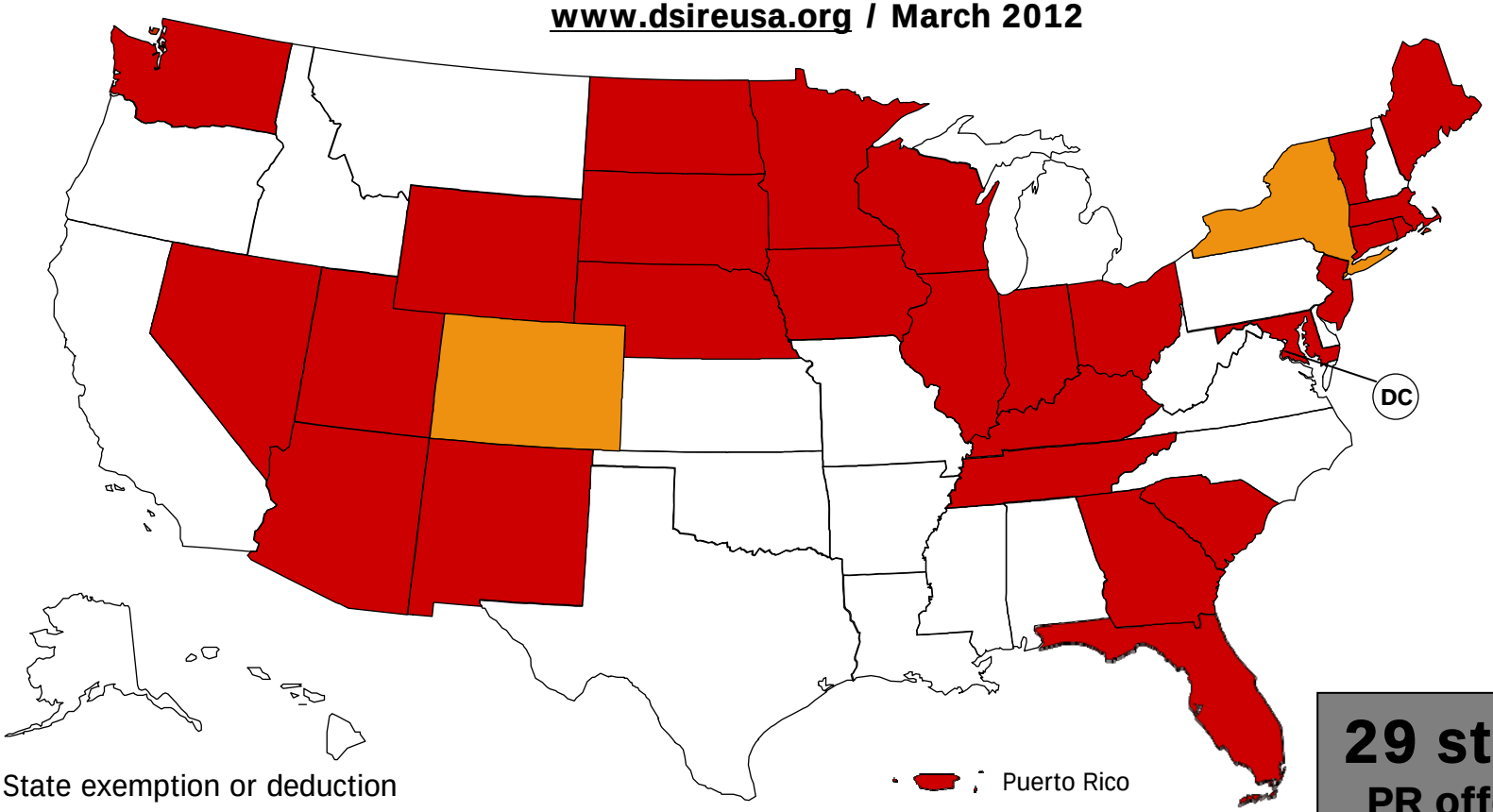
Sales Tax Incentives for Renewables

www.dsireusa.org / March 2012



State exemption or deduction

State exemption + local governments (option) authorized to offer exemption or deduction

29 states + PR offer sales tax incentives for renewables

Notes: This map does not include sales tax incentives that apply only to geothermal heat pumps or other energy efficiency technologies.

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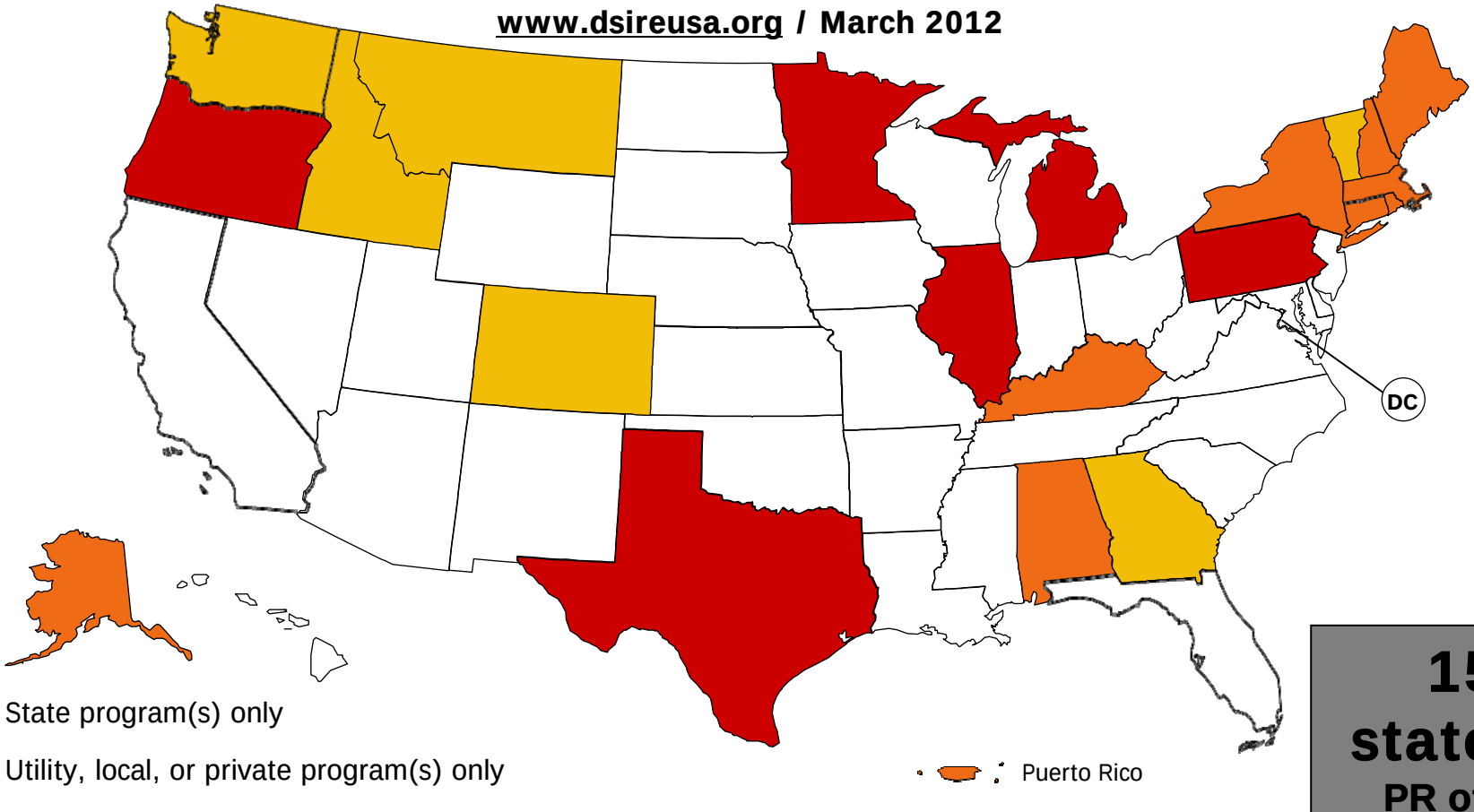
Grant Programs for Renewables

www.dsireusa.org / March 2012



State program(s) only

Utility, local, or private program(s) only

State program(s) + utility, local, and/or private program(s)

15 states + PR offer programs for renewables

Notes: This map only addresses grant programs for end-users. It does not address grants programs that support R&D, nor does it include grants for geothermal heat pumps or other efficiency technologies. The Virgin Islands also offers a grant program for certain renewable energy projects.

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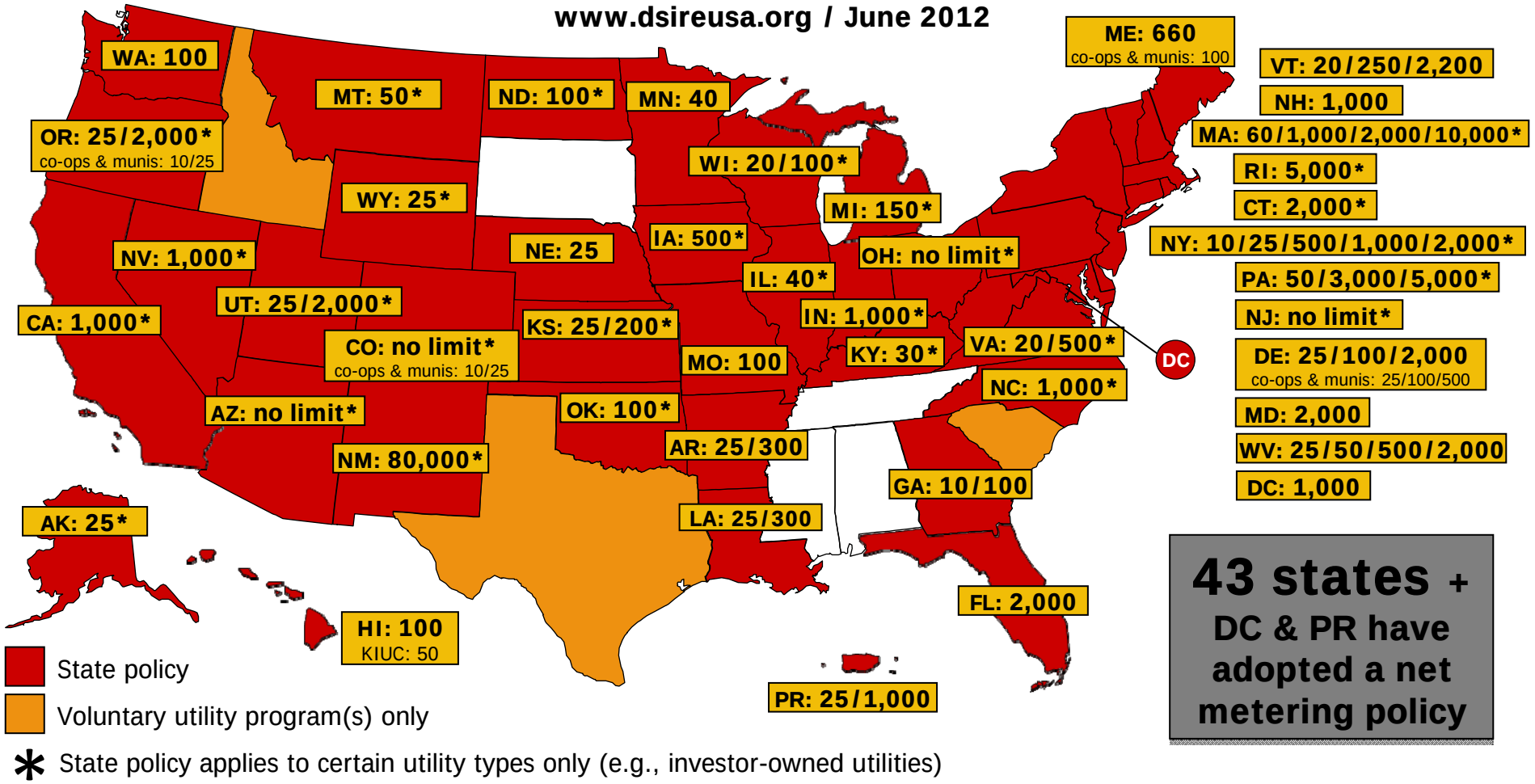
Net Metering

www.dsireusa.org / June 2012



43 states +
DC & PR have adopted a net metering policy

State policy

Voluntary utility program(s) only

* State policy applies to certain utility types only (e.g., investor-owned utilities)

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.

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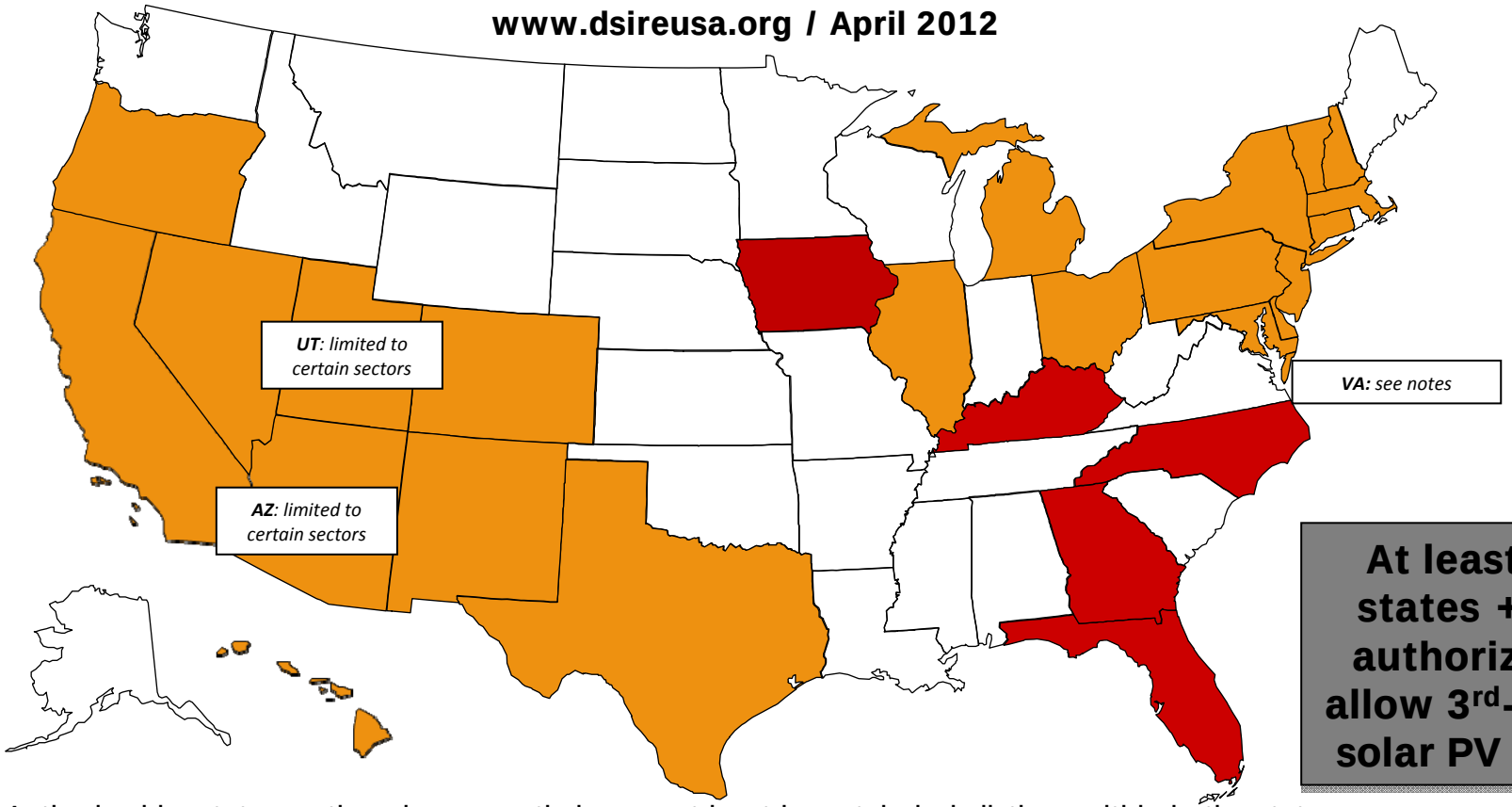
3rd-Party Solar PV Power Purchase Agreements (PPAs)

www.dsireusa.org / April 2012



At least 21 states + PR authorize or allow 3rd-party solar PV PPAs

Authorized by state or otherwise currently in use, at least in certain jurisdictions within in the state

Apparently disallowed by state or otherwise restricted by legal barriers

Status unclear or unknown

Puerto Rico

Note: This map is intended to serve as an unofficial guide; it does not constitute legal advice. Seek qualified legal expertise before making binding financial decisions related to a 3rd-party PPA. See following slides for additional important information and authority references.

The U.S. is developing a number of innovative business models

- Power Purchase Agreements (PPAs)
- Installation aggregation
- “solar options” on new home constructions

Solar Purchase Power Agreements allow for turn key solar installations

- SunEdison will provide turn key solar PV for eight Wal-Mart stores, four in California and four in Hawaii
- The solar photovoltaic systems will be deployed with the SunEdison Power Purchase Agreement (PPA) model, whereby customers purchase solar electricity, rather than solar equipment
- SunEdison will finance, install, operate and maintain the photovoltaic power plants for Wal-Mart
- Under the PPA model, SunEdison only charges customers for electricity produced at rates equal to, or below the customer's existing retail prices
- As of 06/2012 Wal-Mart has completed or announced plans for 130 stores in California, 27 in Massachusetts, and 6 in Colorado

Thank you for you attention!

Cary.Bloyd@pnnl.gov