State Solar Policy Trends in the Southeast

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Georgia Tech Clean Energy Speakers Series
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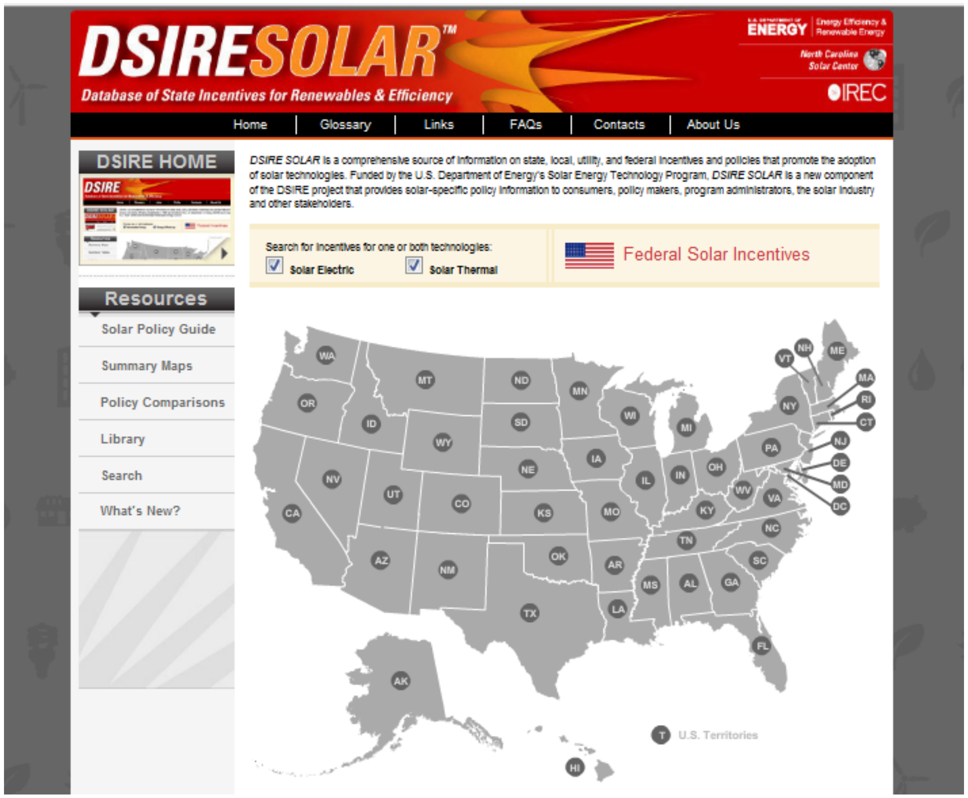
DSIRE Project Overview

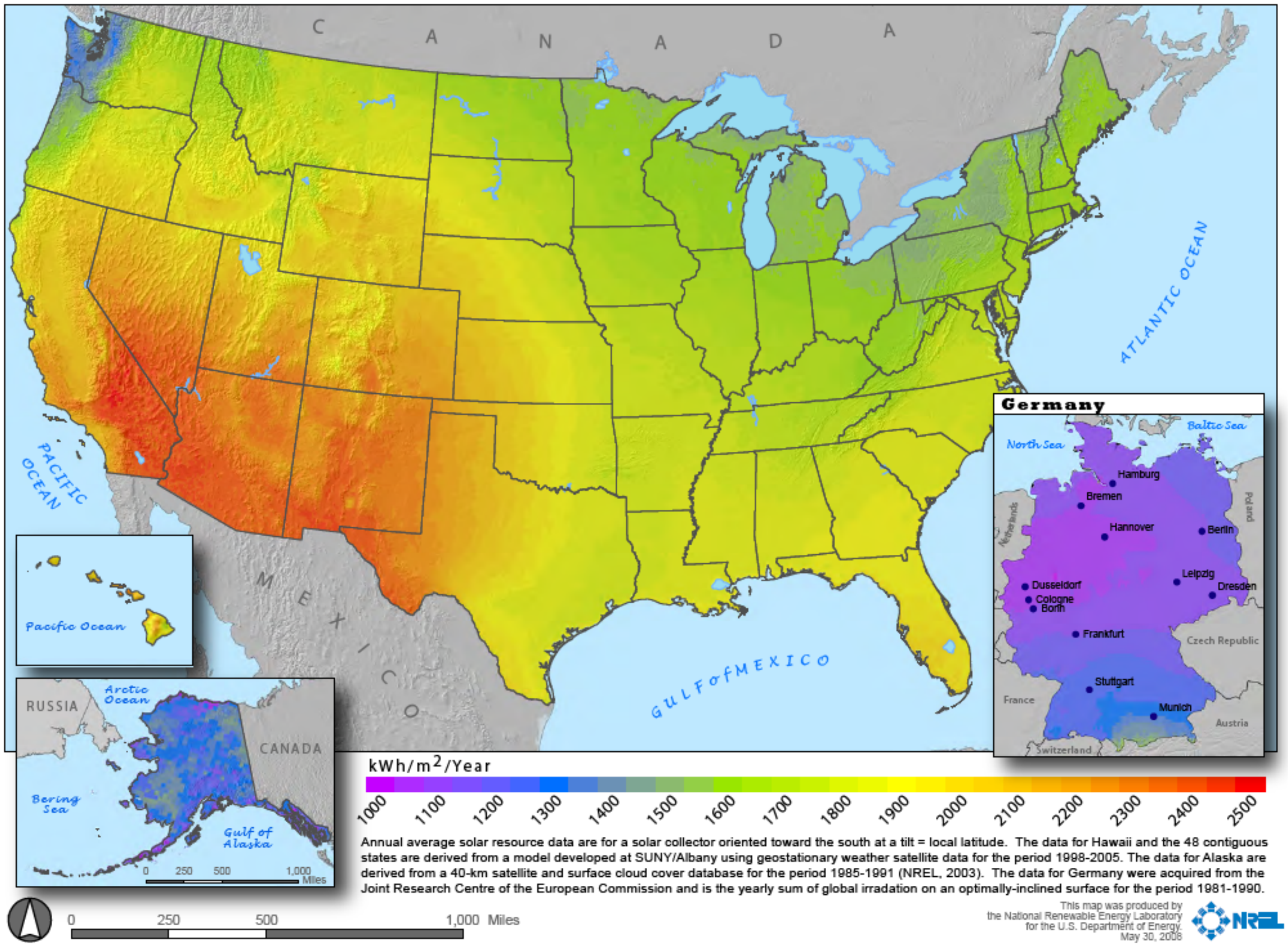
- Created in 1995
- Funded by DOE / NREL
- Managed by NCSU; works closely with IREC
- Scope: government & utility policies/programs that promote RE/EE deployment
- > 2,300 total summaries
- *DSIRE Solar*

DSIRE Solar



- **Interactive Policy Map**: Provides quick access to state-specific solar information
- **Solar Policy Guide**: Offers descriptions of various state and local policy types for promoting solar; status and trends of individual policies; specific policy examples; and links to additional resources
- **Summary Maps**: Provide geographical overview of incentives across the country
- **Solar Policy Comparison Tables**: Highlight individual elements of state rebate and tax credit programs
- **Search Function**: Allows users to create a custom list of programs by solar technology, incentive type, eligible sector, etc.

Photovoltaic Solar Resource : United States and Germany



Annual average solar resource data are for a solar collector oriented toward the south at a tilt = local latitude. The data for Hawaii and the 48 contiguous states are derived from a model developed at SUNY/Albany using geostationary weather satellite data for the period 1998-2005. The data for Alaska are derived from a 40-km satellite and surface cloud cover database for the period 1985-1991 (NREL, 2003). The data for Germany were acquired from the Joint Research Centre of the European Commission and is the yearly sum of global irradiation on an optimally-inclined surface for the period 1981-1990.

"Traditional" Solar Policy Options

State Financial Incentives

- Rebate Programs
- Production Incentives
- Corporate Tax Credits
- Personal Tax Credits
- Grant Programs
- Ind. Recruitment/Support
- Loan Programs
- Property Tax Incentives
- Sales Tax Incentives

State Regulatory Policies

- Public Benefits Funds (PBFs)
- Renewable Portfolio Standards (RPSs)
- Solar/DG Carve-Outs
- Net Metering
- Interconnection Standards
- Solar Access Laws
- Contractor Licensing

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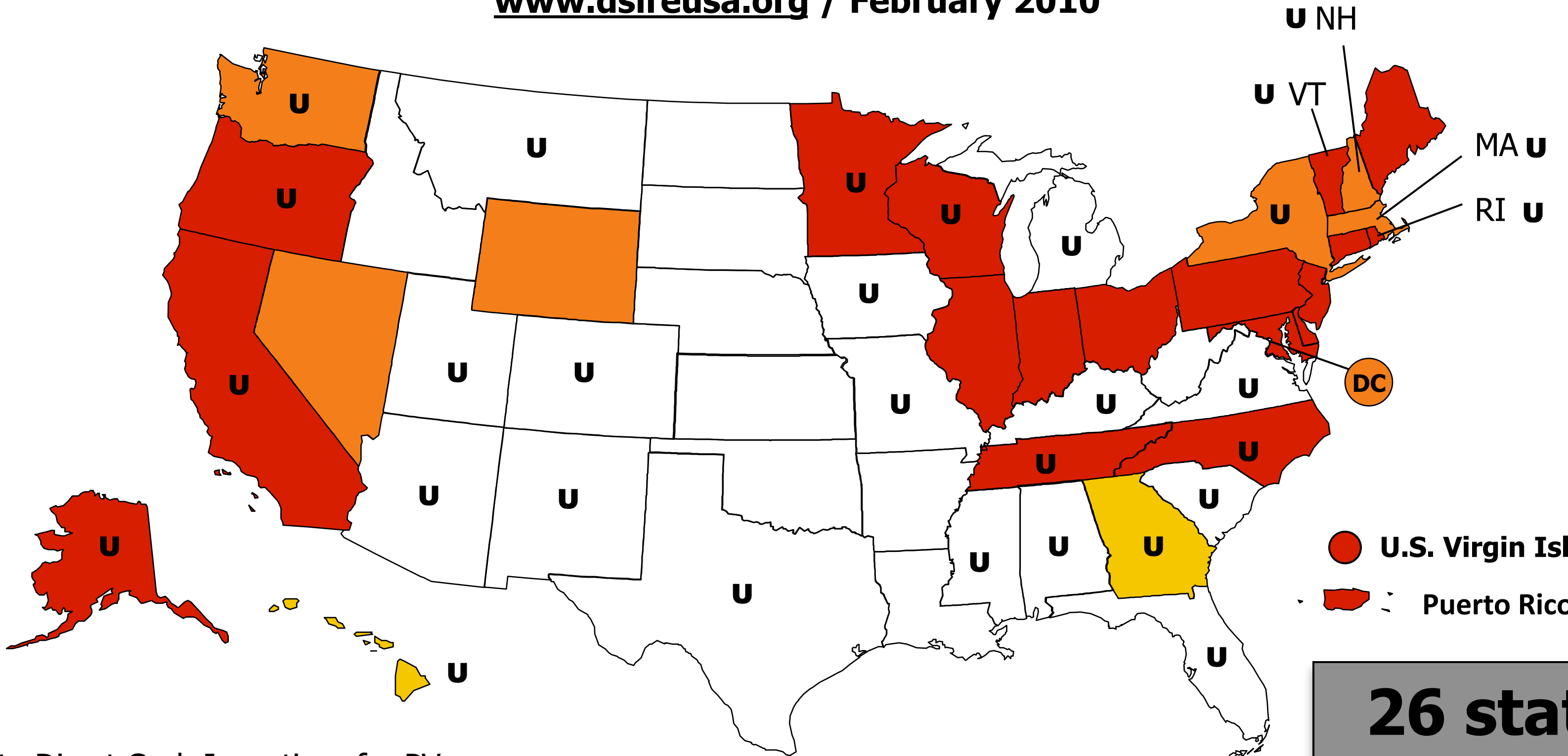
Direct Cash Incentives for Solar Projects

www.dsireusa.org / February 2010



State Direct Cash Incentives for PV

State Direct Cash Incentives for Solar Water Heating

State Direct Cash Incentives for both PV and Solar Water Heating

U Utility Direct Cash Incentive(s) for PV and/or Solar Water Heating

26 states
+DC & USVI
offer direct cash
incentives for
solar projects

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State Tax Credits for Solar Projects

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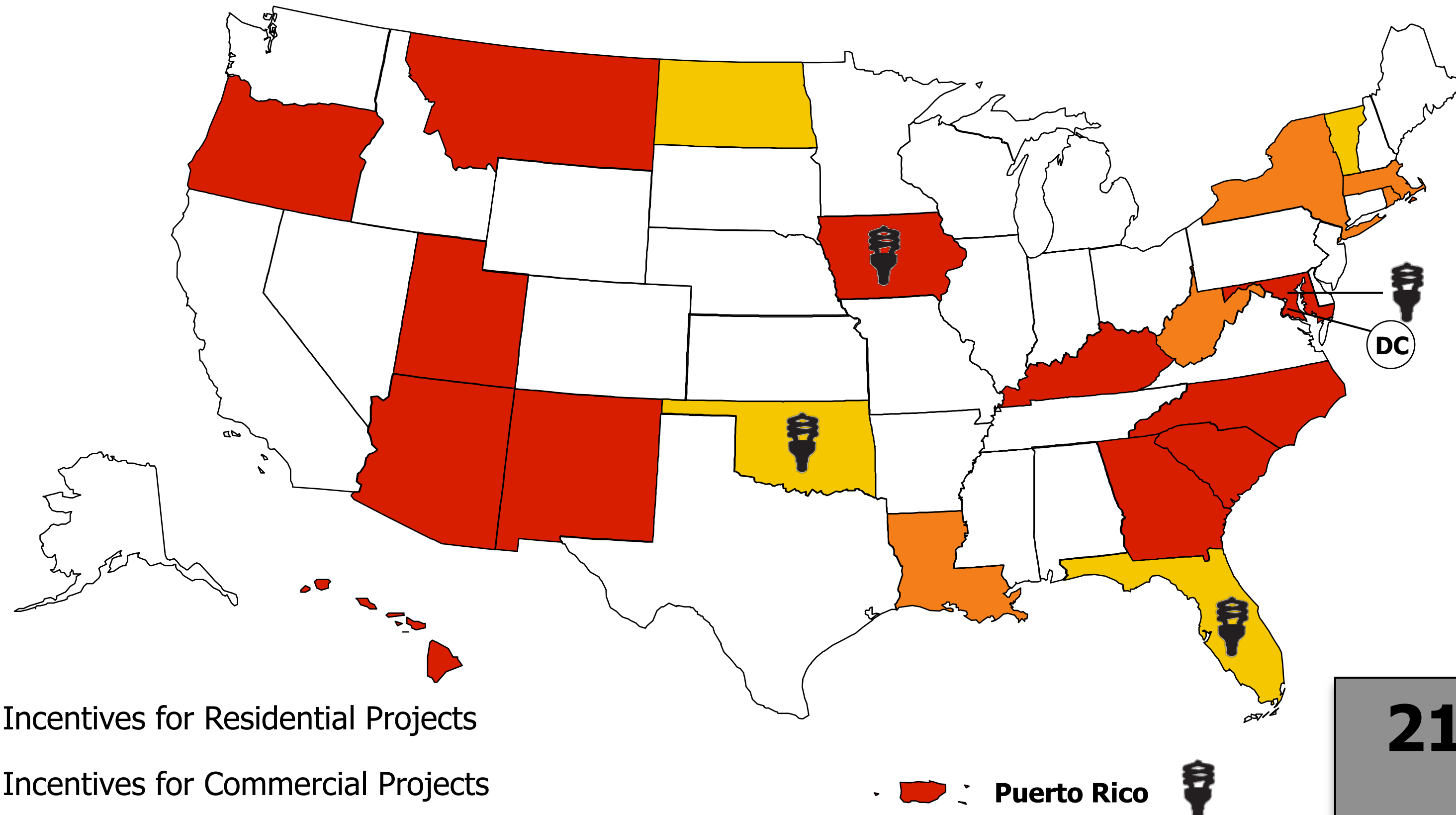

- Incentives for Residential Projects
- Incentives for Commercial Projects
- Incentives for Residential and Commercial Projects
- Applies to Solar Electric only

21 states + PR offer tax credits for solar projects

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Renewable Portfolio Standards

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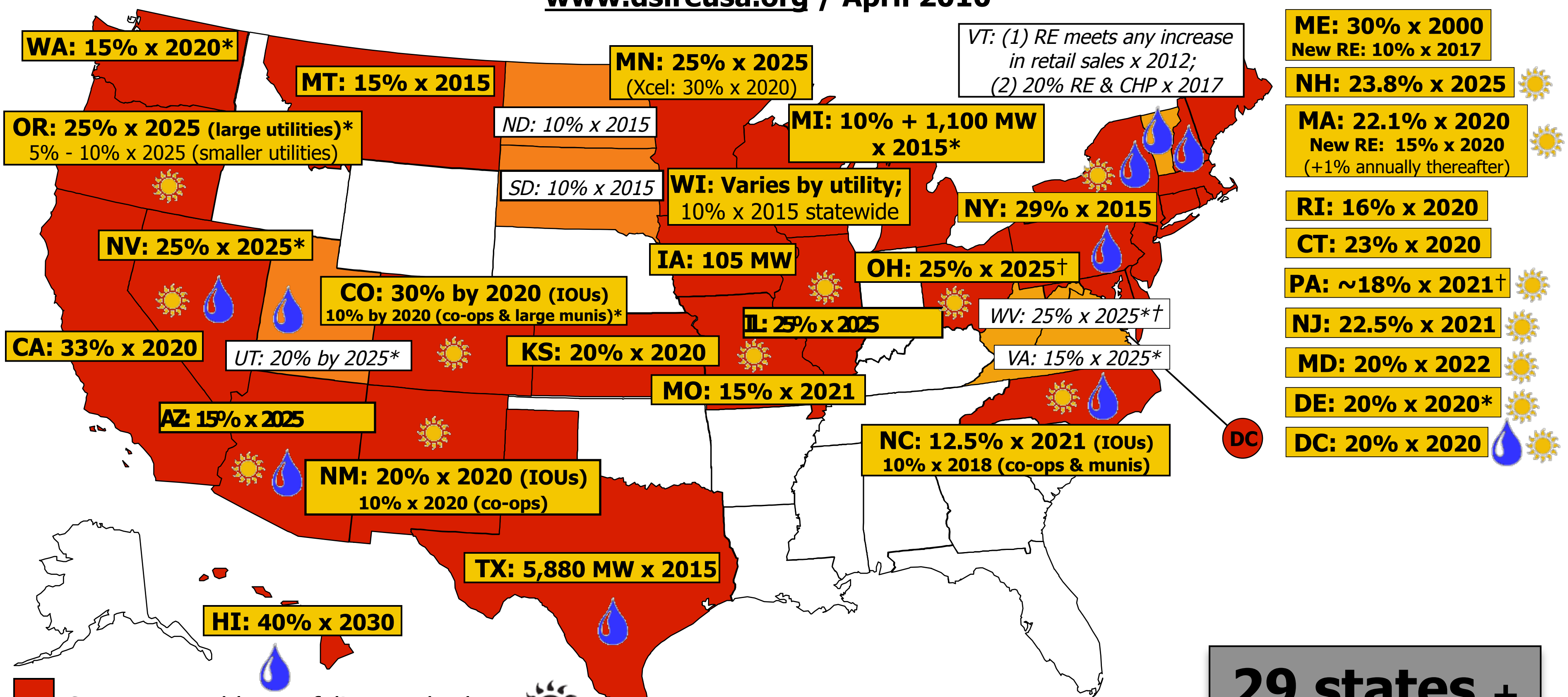


State renewable portfolio standard

State renewable portfolio goal

Solar water heating eligible

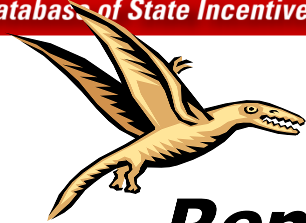
Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

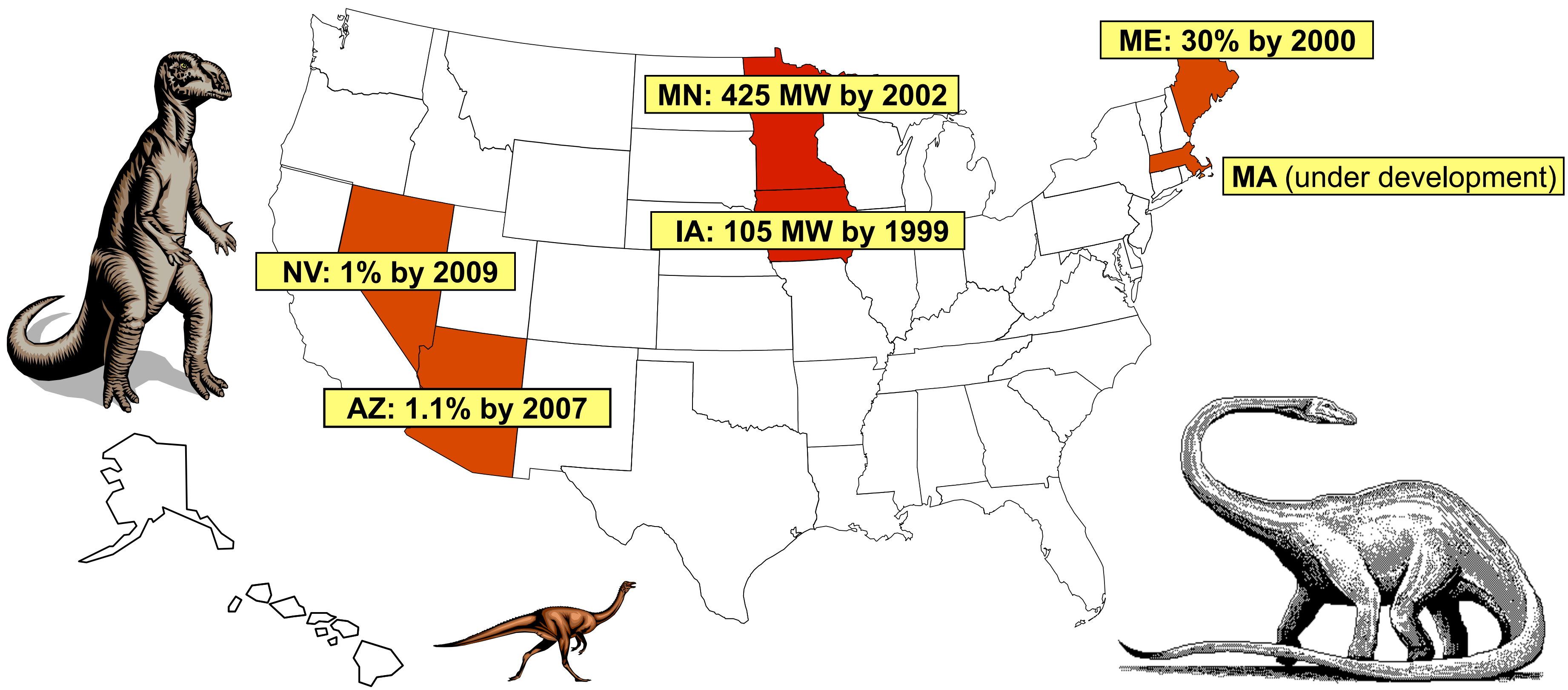
† Includes non-renewable alternative resources

29 states + DC have an RPS

(6 states have goals)



Renewables Portfolio Standards, 1997



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RPS Policies with Solar/DG Provisions

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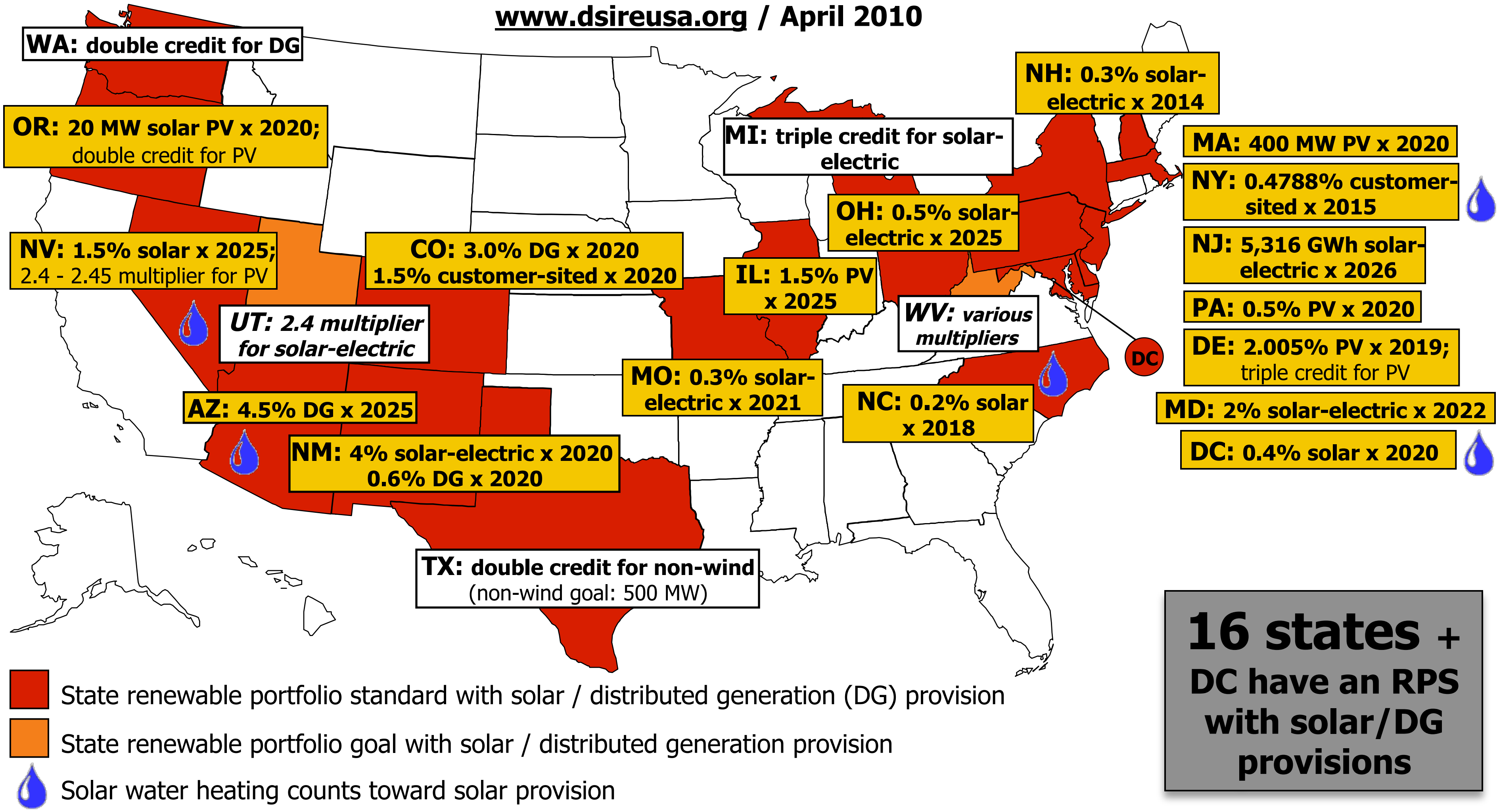


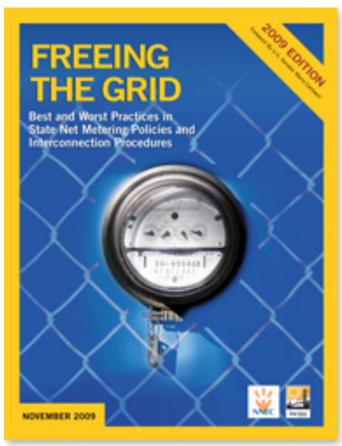
16 states + DC have an RPS with solar/DG provisions

Solar Set-Aside	MW (2025)	Rank	% Retail Sales (2025)	Rank
AZ	1,037	4	2.0%	3
CO	135	12	0.4%	11
DC	48	13	0.4%	10
DE	144	11	1.4%	5
IL	1,736	1	1.0%	6
MD	1,248	3	1.9%	4
MO	183	9	0.2%	13
☆ NC	236	8	0.2%	14
NH	31	14	0.3%	12
NJ	1,649	2	2.1%	2
NM	357	7	3.1%	1
NV	173	10	0.9%	7
NY	15	16	0.01%	16
OH	710	6	0.4%	9
OR	20	15	0.04%	15
PA	723	5	0.5%	8
Total	***8,447***		***0.2%***	

Source: Lawrence Berkeley National Lab

Net Metering

- Customer stores any excess electricity generated, usually in the form of a kWh credit, on the grid for later use
- Available "statewide" in 43 states, DC, & PR
- Around 20 states + DC allow 1 MW or greater (super-sized net metering)
- IREC model rules: www.irecusa.org
- *Freeing the Grid 2009*, November 2009



www.newenergychoices.org

State	Total	Grade
Colorado	20	A
Delaware	19	A
Maryland	18.5	A
New Jersey	18	A
California	17.5	A
Oregon	17.5	A
Pennsylvania	17.5	A
Florida	16.5	A
Utah	16.5	A
Connecticut	15	A
Arizona	15	A
Massachusetts	13.5	B
Virginia	13	B

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Net Metering

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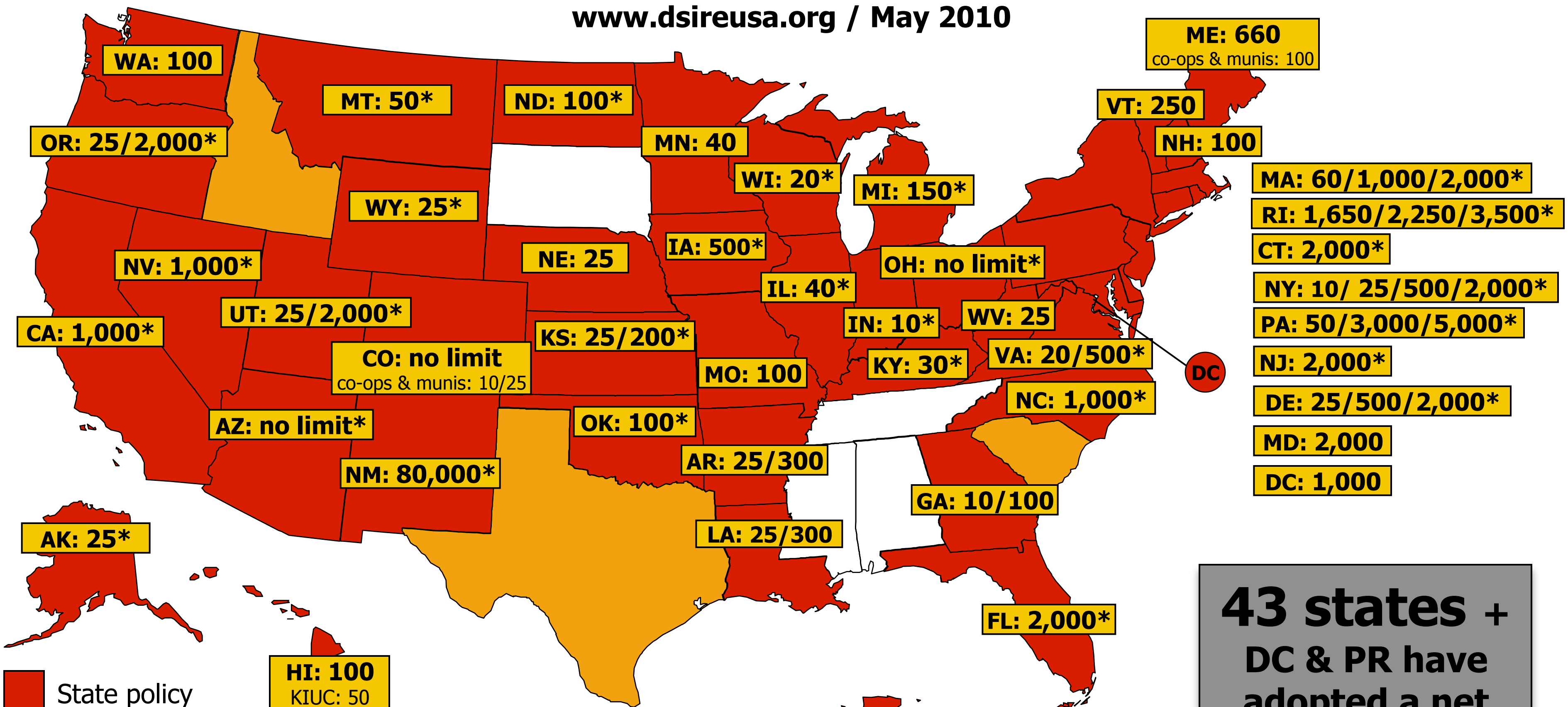


State policy

Voluntary utility program(s) only

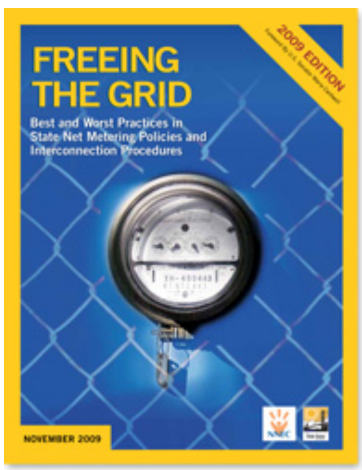
43 states + DC & PR have adopted a net metering policy

* 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.

Interconnection Standards

- Technical issues (safety, power quality, system impacts) largely resolved
- Policy issues (legal/procedural) improving
- IREC model rules: www.irecusa.org
- *Freeing the Grid 2000*, November 2009



www.newenergychoices.org

State	Total	Grade
Nebraska	9	B
Hawaii	8.5	C
New Hampshire	8.5	C
Washington	8.5	C
Arkansas	8	C
Iowa	8	C
Missouri	7.5	C
Montana	7	C
Minnesota	6	C
New York	5.5	D
North Carolina	5.5	D
Wisconsin	5.5	D

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Interconnection Standards

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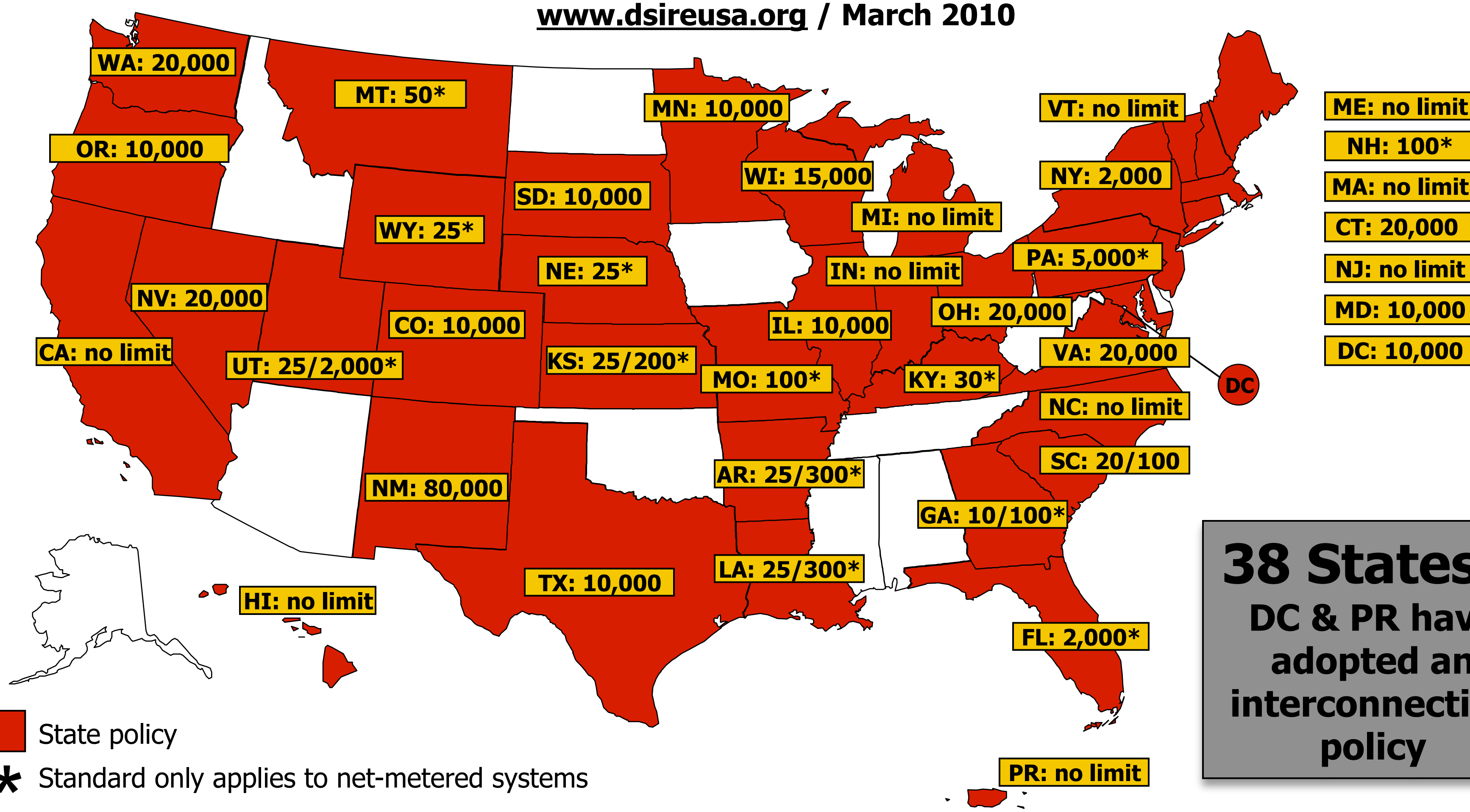


38 States + DC & PR have adopted an interconnection policy

Notes: Numbers indicate system capacity limit in kW. Some state limits vary by customer type (e.g., residential/non-residential). "No limit" means that there is no stated maximum size for individual systems. Other limits may apply. Generally, state interconnection standards apply only to investor-owned utilities.

Federal Incentives

- ARRA Funded Programs – vary state-to-state
- US Department of Treasury Renewable Energy Grants (1603 grants, cash in lieu of tax credit)
- Business Energy Investment Tax Credit
- Accelerated Depreciation (MACRS)

Top State Solar Spending, ARRA-SEP

States	Solar $
TN	$ 61.5 M
TX	$ 46.8 M
NY	$ 44.3 M
FL	$24.4 M
PA	$19.7 M
MA	$ 18.5 M
VA	$ 14.4 M
MD	$ 9.75 M
PR	$ 7.8 M
GA	$ 7.78 M

Installed U.S. PV Capacity *(through 12/31/08)*

Top 10 States	2007 (MW_{DC}) installations	2008 (MW_{DC}) installations	Cumulative *(through 12/31/08)*
California	91.8	182.3	531.9
New Jersey	20.4	22.5	70.2
Colorado	11.5	21.7	35.7
Nevada	15.9	14.9	34.2
Arizona	2.8	6.4	25.3
New York	3.8	7.0	21.9
Hawaii	2.9	8.6	13.5
Connecticut	2.5	5.3	8.8
Oregon	1.1	4.8	7.7
Massachusetts	1.4	2.9	7.5

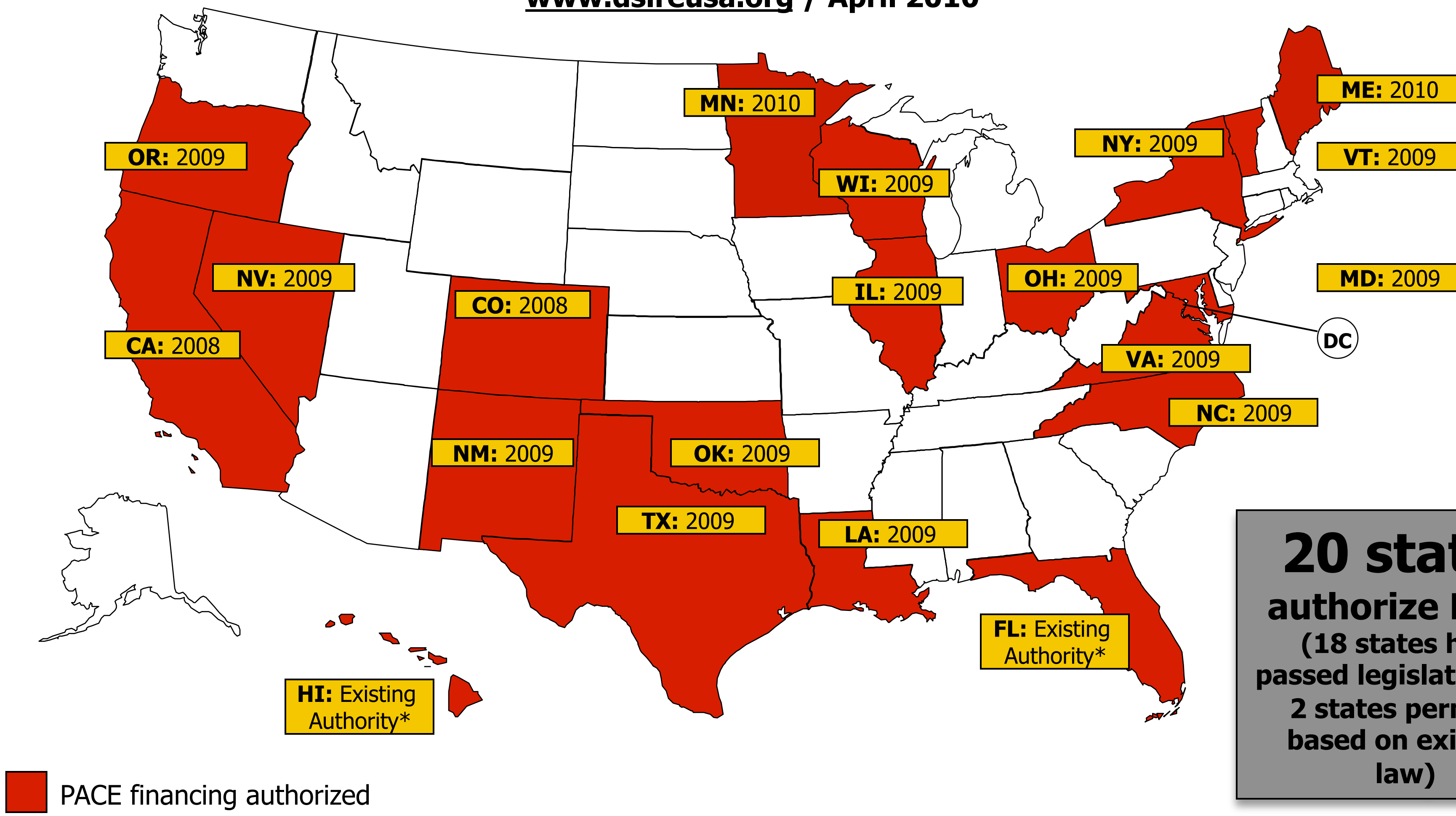
Source: www.irecusa.org, May 2009

Emerging Trends – PACE Financing

- PACE financing = property assessed clean energy financing
- Property owners borrow money from the local government to pay for renewable energy and/or energy efficiency improvements
- Loan typically repaid on property tax bill (or water, sewer, utility)
- Loan legally transfers with property
- Opt-in special assessment feature
- Loan secured by lien on property
- Administered by local government, but generally requires state authorization

Property Assessed Clean Energy (PACE)

www.dsireusa.org / April 2010



20 states authorize PACE (18 states have passed legislation and 2 states permit it based on existing law)

Timeline of PACE

- In 2008, 2 states passed PACE legislation.
- In 2009, 14 states passed PACE legislation and 2 more appeared to have existing authorization. Legislation in 19 states.
- In 2010, 2 states passed PACE legislation.* 3 states modified PACE. Legislation in 29 states.

*4 more states have legislation waiting to be signed by governor: CT, FL, GA, MO

Conclusions

Trends/Issues

- Dominance of RPS policies
- Super-sized net metering
- Surging interest in FITs
- Rapid adoption of PACE financing
- New financial & policy models
- Calibrating state/federal policy
- Distributed v. centralized PV
- Increasing policy complexity

Need for Improvement

- Utility rate structures
- REC markets
- Incentives for non-taxpayers
- National market coordination
- Legal clarification: 3rd party sales, PACE financing
- Bureaucracy

Questions?

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