DSIRESOLAR™
Database of State Incentives for Renewables & Efficiency

U.S. Department of Energy | Energy Efficiency & Renewable Energy
North Carolina Solar Center
IREC

Looking Back at Steps Forward: State Solar Policy and Trends

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IREC State Solar Policy and Market Trends Webinar
July 20, 2010

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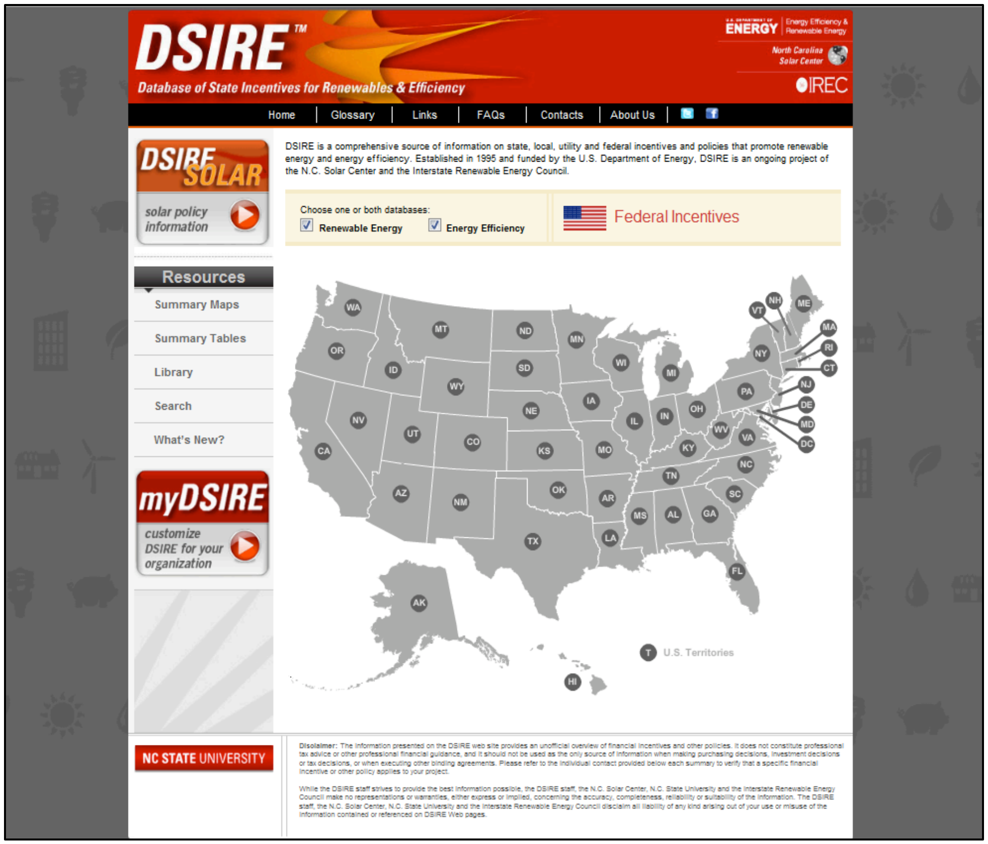
DSIRE Solar

http://www.dsireusa.org/solar/



DSIRE lists a total of ***616*** Federal, State, Utility and Local Financial Incentives for Solar

- **518** Incentives for PV
- **451** Incentives for Solar Thermal

DSIRE lists a total of ***367*** Federal, State, Utility, and Local Regulatory Incentives for Solar

- **356** Incentives for PV
- **293** Incentives for Solar Thermal

TOTAL = ***983*** Incentives for Solar

- **874** Incentives for PV
- **744** Incentives for Solar Thermal

Thinking About Trends…

- PACE financing & solar
- Increasing state focus on solar renewable energy certificates (or equivalent) SRECs as a financial incentive
- Direct solar incentives remain important and continue to evolve
- Progress being made on legal issues surrounding third-party PPAs
- Movers and shakers in net metering and interconnection
- Meter aggregation gaining ground

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Property Assessed Clean Energy (PACE)

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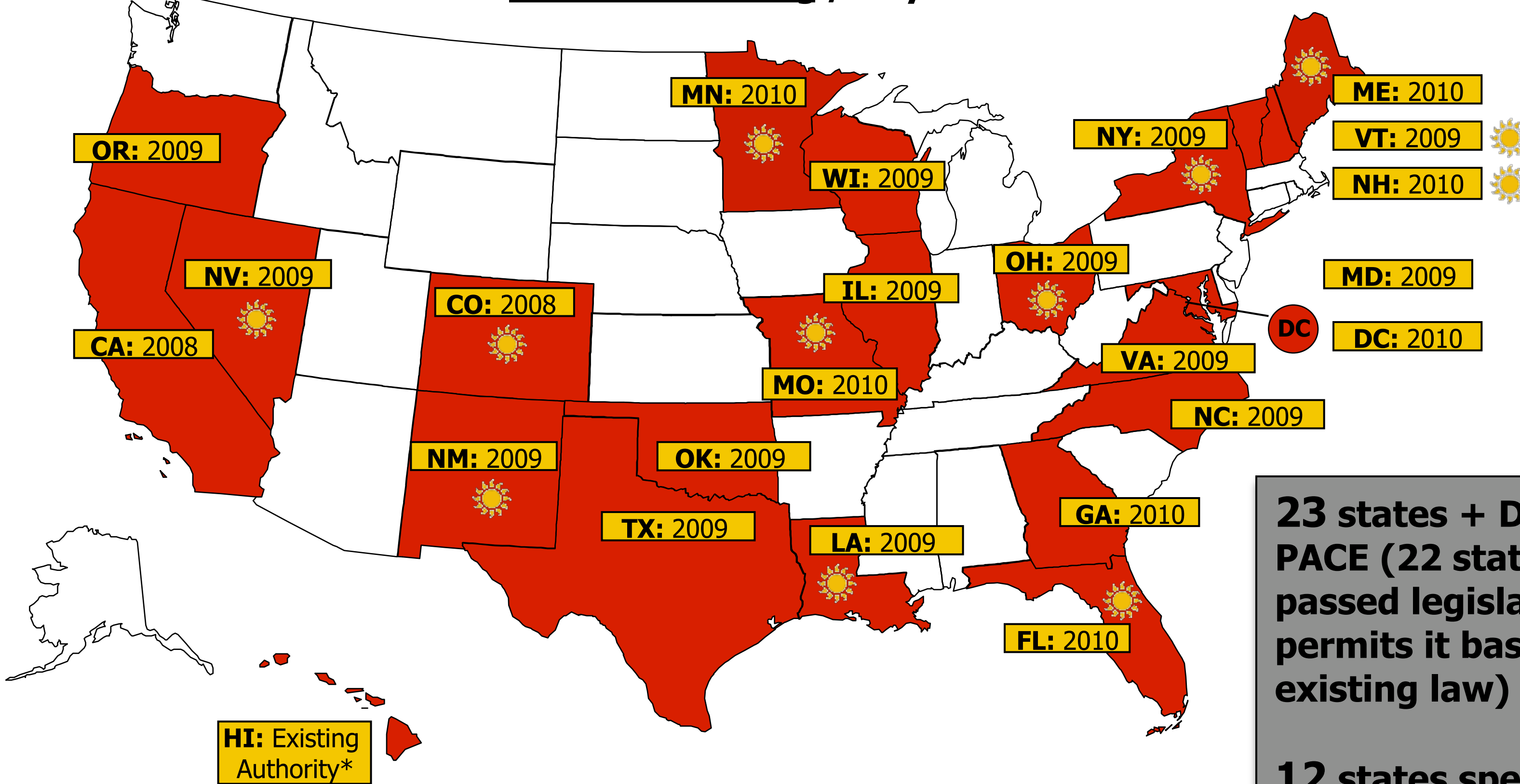

PACE financing authorized

Solar specifically included as eligible

23 states + DC authorize PACE (22 states have passed legislation and HI permits it based on existing law)

12 states specifically allow solar to qualify

PACE and Solar

- PACE adoptions by year:
    - 2008 – 2 (1 solar)
    - 2009 – 14 (6 include solar)
    - 2010 – 7 (including D.C., 5 include solar)
- So far all programs potentially support renewables, leaving the details to be locally determined.
- DSIRE lists 7 active PACE programs that support renewables
    - California (3), Wisconsin (2), Colorado (1), New York (1)
    - Numerous others under development
- The stance of Fannie Mae and Freddie Mac has created some uncertainties for the future of PACE programs
    - ~50% of mortgages owned or guaranteed

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RPS Policies with Solar/DG Provisions

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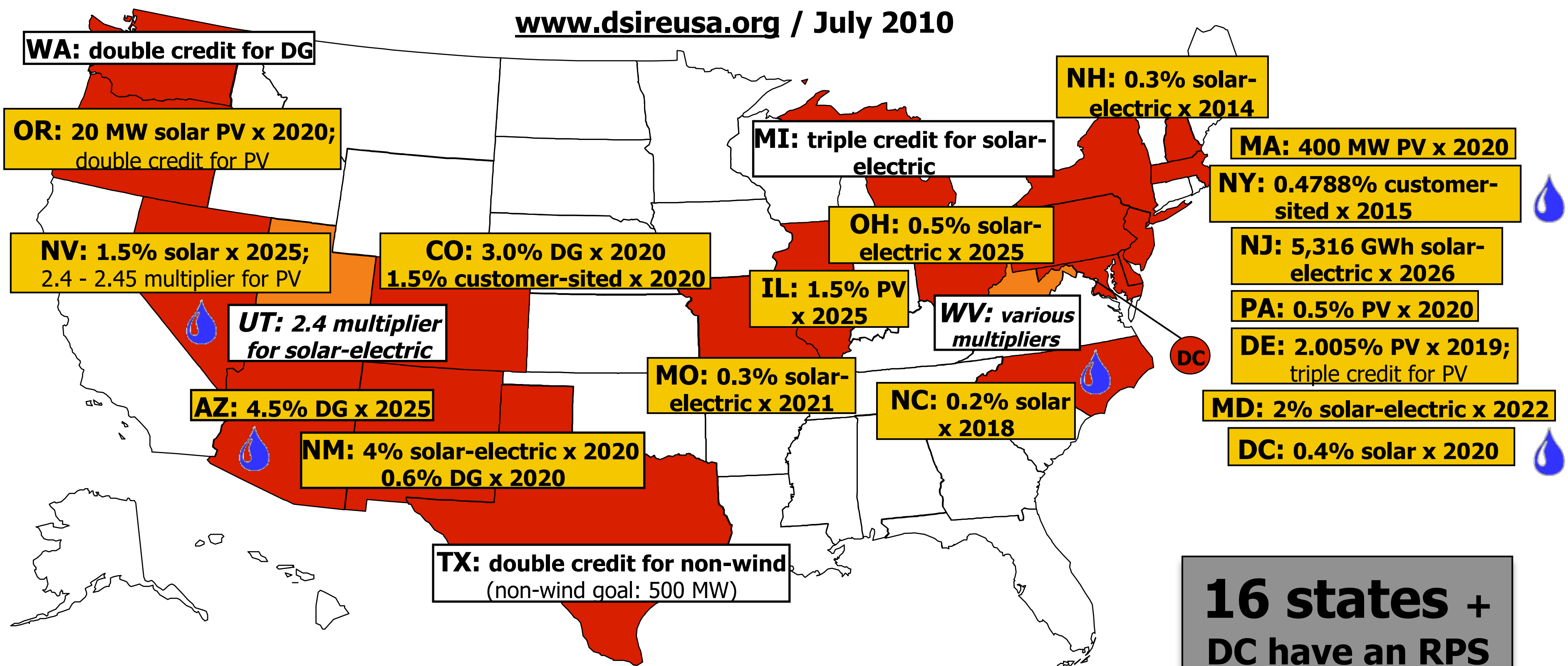


16 states + DC have an RPS with solar/DG provisions

State renewable portfolio standard with solar / distributed generation (DG) provision

State renewable portfolio goal with solar / distributed generation provision

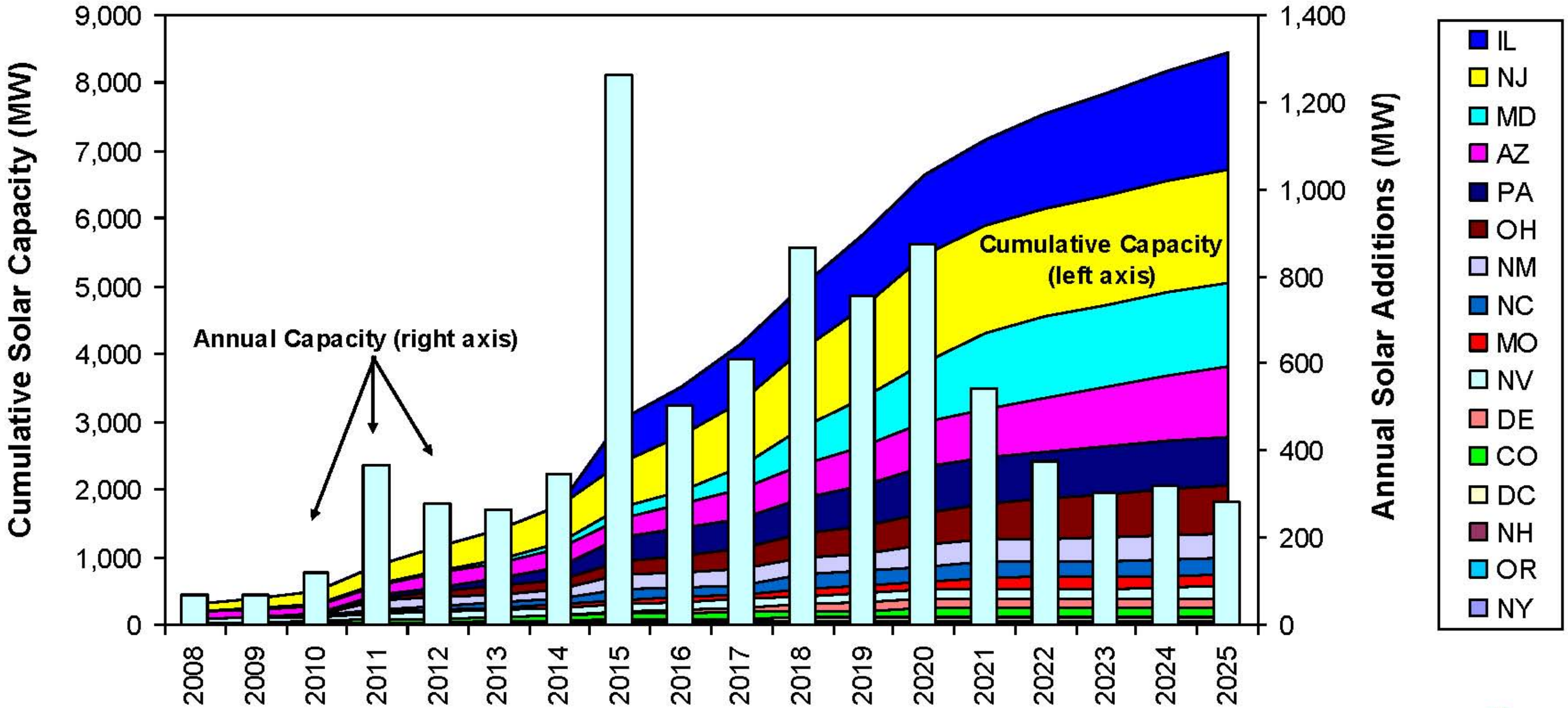
Solar water heating counts toward solar provision

SRECs in Vogue

State	2007 solar/DG requirement	2010 solar/DG requirement	Factor of Increase	Approximate SREC Prices ($/MWh)
Arizona	0.075%	0.500%	6.67	$102 - $182
Colorado	0.120%	0.200%	1.67	$45 - $110
Delaware	0.000%	0.014%	N/A	$300 - $350
District of Columbia	0.005%	0.028%	5.60	$290 - $470
Illinois	0.000%	0.000%	N/A	N/A
Maryland	0.000%	0.025%	N/A	$310 - $363
Massachusetts	0.000%	0.068%	N/A	$300 - $600 (SACP)
Missouri	0.000%	0.000%	N/A	N/A
Nevada	0.450%	0.600%	1.33	N/A
New Hampshire	0.000%	0.040%	N/A	$163 (SACP)
New Jersey	0.039%	0.221%	5.62	$450 - $650
New Mexico	0.000%	0.000%	N/A	$100 - $200
New York	0.023%	0.135%	5.87	N/A
North Carolina	0.000%	0.020%	N/A	$290 - $500
Ohio	0.000%	0.010%	N/A	$205 - $470
Pennsylvania	0.001%	0.012%	9.23	$300 - $400

Data Sources: PJM-EIS GATS, Xcel Energy, Arizona Public Service, Tucson Electric Power, Public Service New Mexico, El Paso Electric

Solar/DG Projections



Source: Ryan Wiser, LBL, presented at National Summit on RPS, November 2009

SREC Trends

- Increasing emphasis on SRECs as a financial incentive
- Increasingly sophisticated market involvement from states.
  - NJ finance programs, MA program design, DE SEU, MO regulations
- Improving price transparency
- Web based forums connecting buyers and sellers (Bulletin Boards, privately run auctions)
- Tracking system compatibility and inter-state trading

Direct Cash Incentives for Solar Projects

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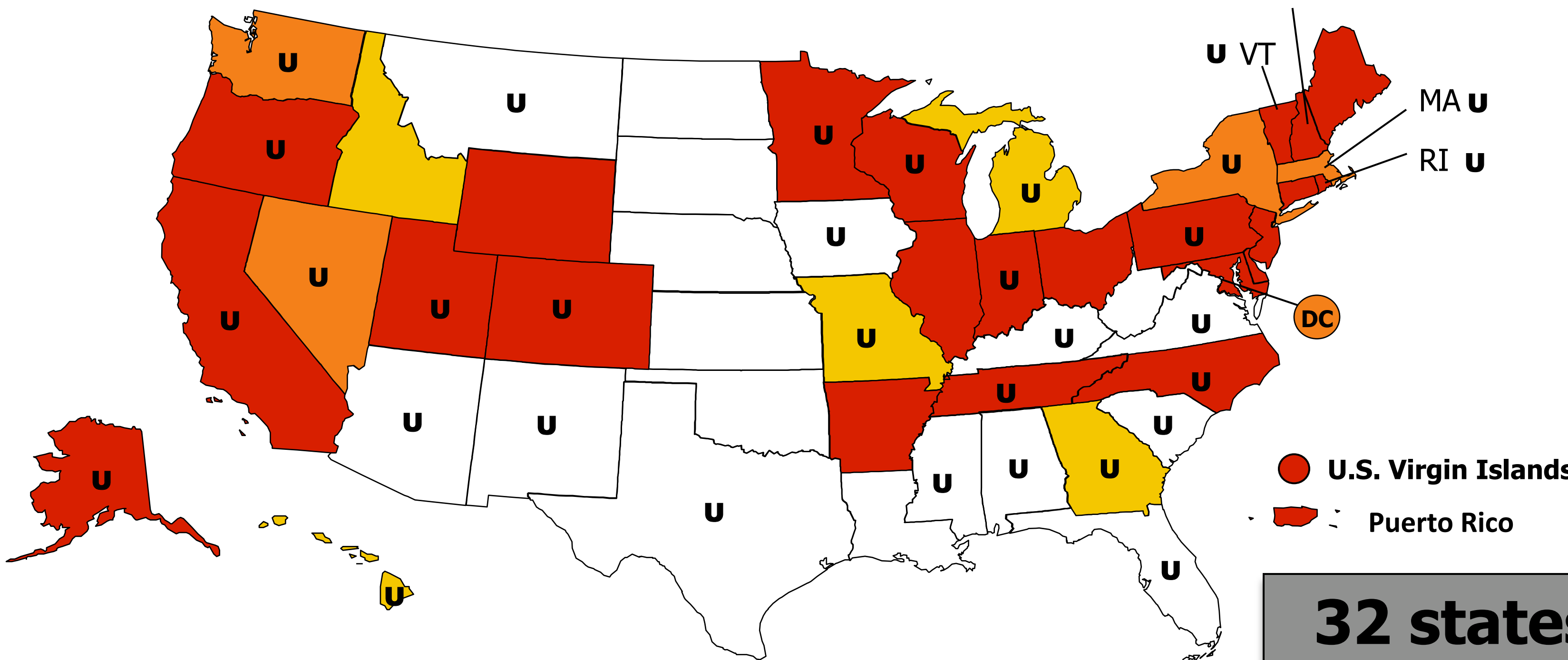

32 states +DC, PR & USVI offer direct cash incentives for solar projects

- 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

Evolving Cash Incentives

- Rebates remain important, particularly for small systems
- Declining rebate amounts, in some cases to less than $1/watt due to declining costs, availability of other incentives, program demand, and limited funding
- In some cases greater predictability and transparency (hopefully) surrounding incentive level reductions
  - declining block structure, funding periods, tiered structures
  - California CSI, New Jersey, Pennsylvania, New York CST, Massachusetts
- ARRA funds create new opportunities, but often these are short-lived.
  - reducing queues, new programs, customer eligibility
- Feed-in tariff prospects remain somewhat murky…

3rd-Party Solar Power Purchase Agreements (PPAs)

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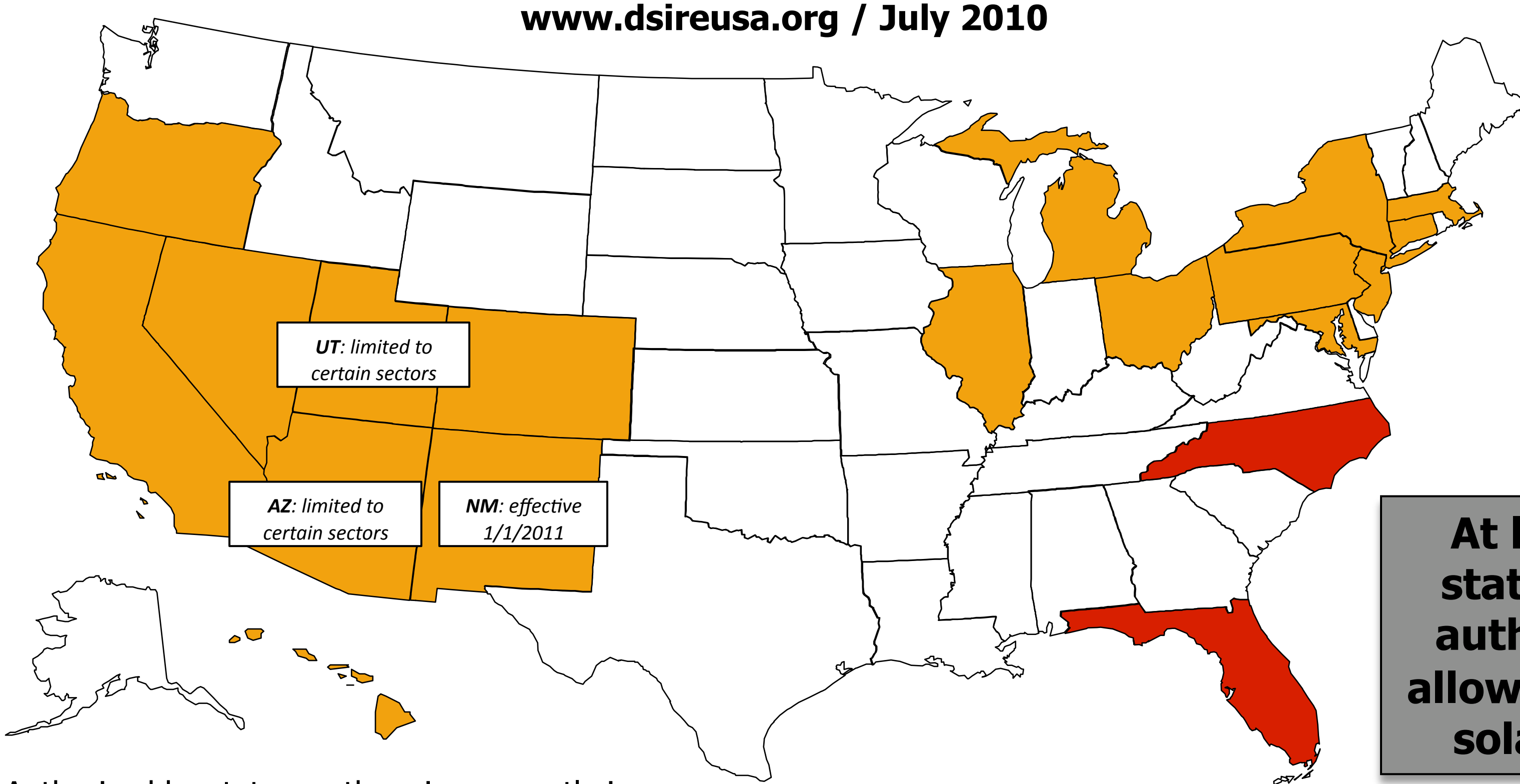

At least 17 states + PR authorize or allow 3rd-party solar PPAs

Authorized by state or otherwise currently in use

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 slide for authority references.

Up and Comers, Net Metering

2007 Top 20

State	2007 Rank	2009 Rank	2007 NM Grade	2009 NM Grade
New Jersey	1	4	A	A
Colorado	2	1	A	A
Pennsylvania	3	7	A	A
Maryland	4	3	A	A
California	5	6	A	A
Oregon	6	6	B	A
Delaware	7	2	B	A
Iowa	8	32	B	C
Nevada	9	14	B	B
Connecticut	10	10	B	A
Ohio	11	17	B	B
New Mexico	12	20	B	B
Arkansas	13	31	C	C
New Hampshire	14	29	C	C
Rhode Island	15	21	C	B
Hawaii	16	28	C	C
Maine	17	16	C	B
Louisiana	18	26	C	B
Virginia	19	13	C	B
North Dakota	20	41	C	D

2009 Top 20

State	2009 Rank	2007 Rank	2007 NM Grade	2009 NM Grade
Colorado	1	2	A	A
Delaware	2	7	B	A
Maryland	3	4	A	A
New Jersey	4	1	A	A
California	5	5	A	A
Oregon	6	6	B	A
Pennsylvania	7	3	A	A
Florida	8	--	--	A
Utah	9	35	F	A
Connecticut	10	10	B	A
Arizona	11	--	--	A
Massachusetts	12	22	C	B
Virginia	13	19	C	B
Nevada	14	9	B	B
Michigan	15	30	D	B
Maine	16	17	C	B
Ohio	17	11	B	B
Kentucky	18	29	D	B
Wyoming	19	31	D	B
New Mexico	20	12	B	B

Source: Freeing the Grid 2007 & 2009. Network for New Energy Choices

Up and Comers, Interconnection

2007 Top 20

State	2007 Rank	2009 Rank	2007 IC Grade	2009 IC Grade
New Jersey	1	6	B	B
Arizona	2	16	B	C
California	3	12	C	B
Ohio	4	18	C	C
Texas	5	27	C	D
New York	6	8	C	B
Colorado	7	14	C	B
Oregon	8	3	C	B
Massachusetts	9	7	C	B
Georgia	10	32	C	F
New Mexico	11	9	C	B
Vermont	12	17	C	C
Minnesota	13	29	C	F
Rhode Island	14	42+	D	--
Wisconsin	15	24	D	D
West Virginia	16	--	D	--
Arkansas	17	36	D	F
New Hampshire	18	21	D	C
Virginia	19	1	D	A
Iowa	20	28	D	F

2009 Top 20

State	2009 Rank	2007 Rank	2007 IC Grade	2009 IC Grade
Virginia	1	19	D	A
Illinois	2	--	--	B
Oregon	3	8	C	B
D.C.	4	28	F	B
Maryland	5	21	D	B
New Jersey	6	1	B	B
Massachusetts	7	9	C	B
New York	8	6	C	B
New Mexico	9	11	C	B
Pennsylvania	10	25	D	B
South Dakota	11	--	--	B
California	12	3	C	B
Nevada	13	--	--	B
Colorado	14	7	C	B
North Carolina	15	27	F	B
Arizona	16	2	B	C
Vermont	17	12	C	C
Ohio	18	4	C	C
Florida	19	--	--	C
Michigan	20	23	D	C

Source: Freeing the Grid 2007 & 2009. Network for New Energy Choices

I Want to Net Meter Too!

- Meter aggregation remains unaddressed in most state net metering policies, but it is becoming more common.
  - DSIRE lists 11 states as allowing some form of meter aggregation. Several other pending proposals also exist
  - Other utilities may offer programs with similar benefits to their customers (e.g., SMUD)
- Benefits may include: cost advantages, increased flexibility for certain customers, better equity in net metering opportunities among customers.
- Actual benefits depend on the "flavor"…

Questions??

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