

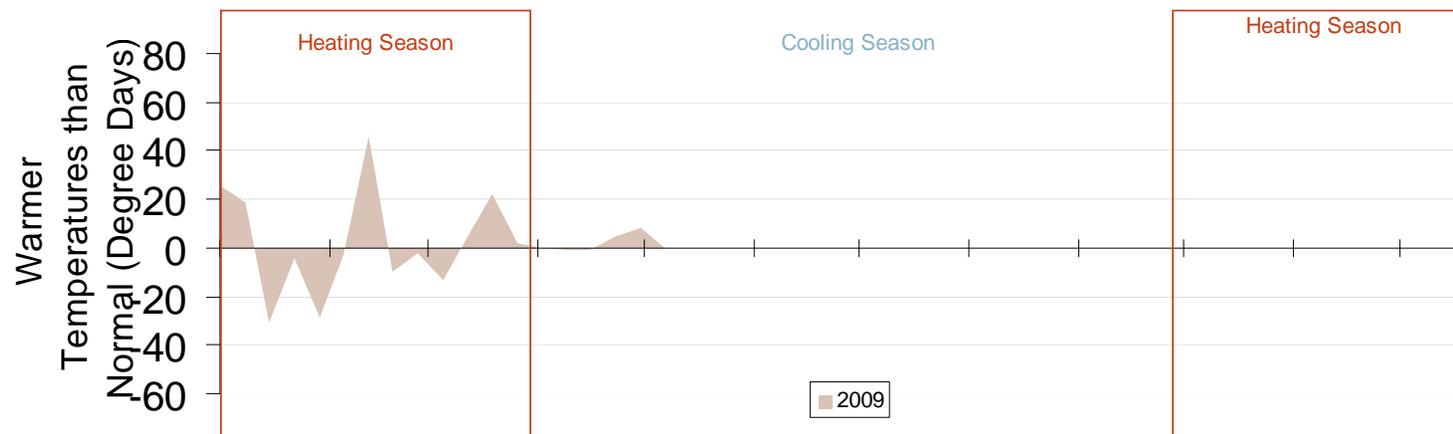
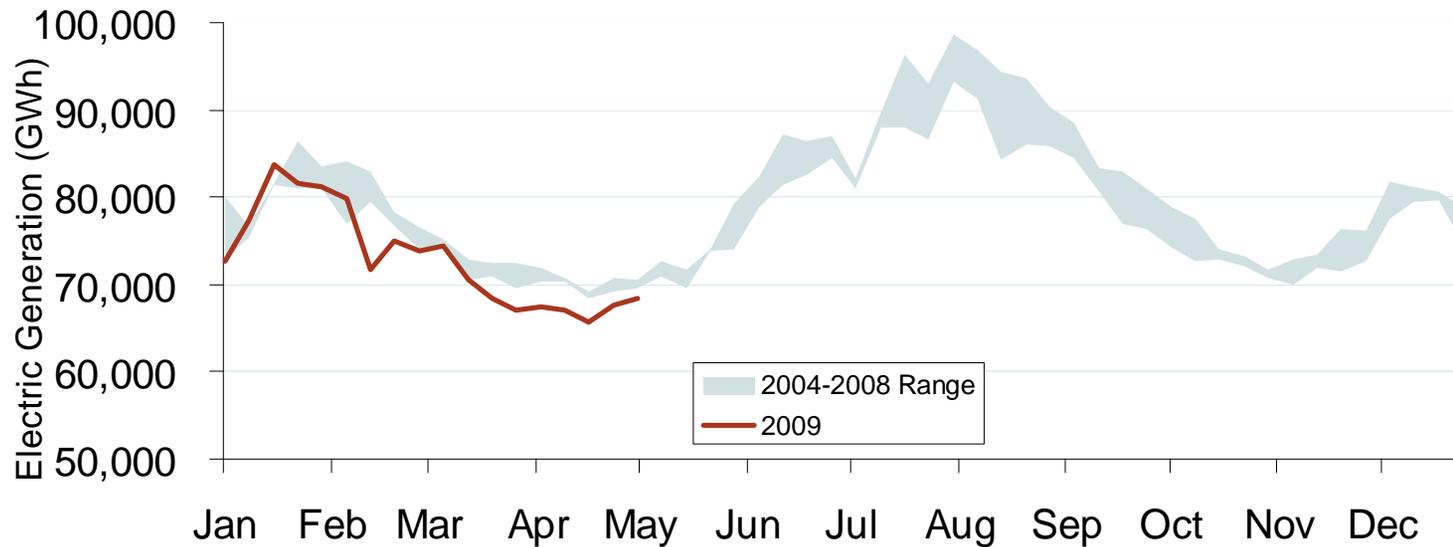
This map was created using
Platts POWERmap, November 2008
May 2009

REGIONAL TRANSMISSION ORGANIZATIONS

Electric Market Overview: Generation Output and Temperatures

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

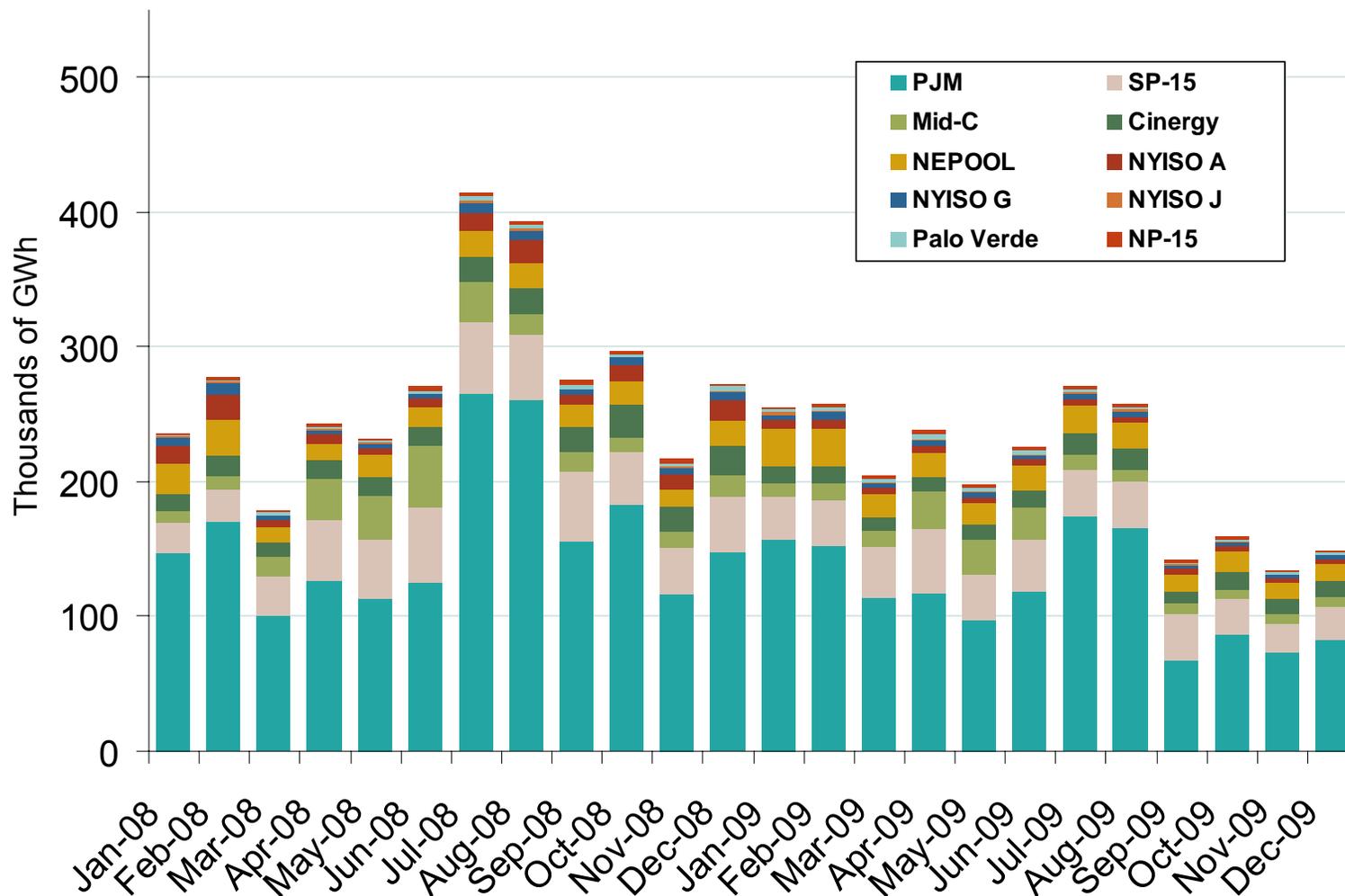
Weekly U.S. Electric Generation Output and Temperatures



Source: Derived from EEI and NOAA data.

Updated May 7, 2009

Financial Trading on ICE by Contract Month



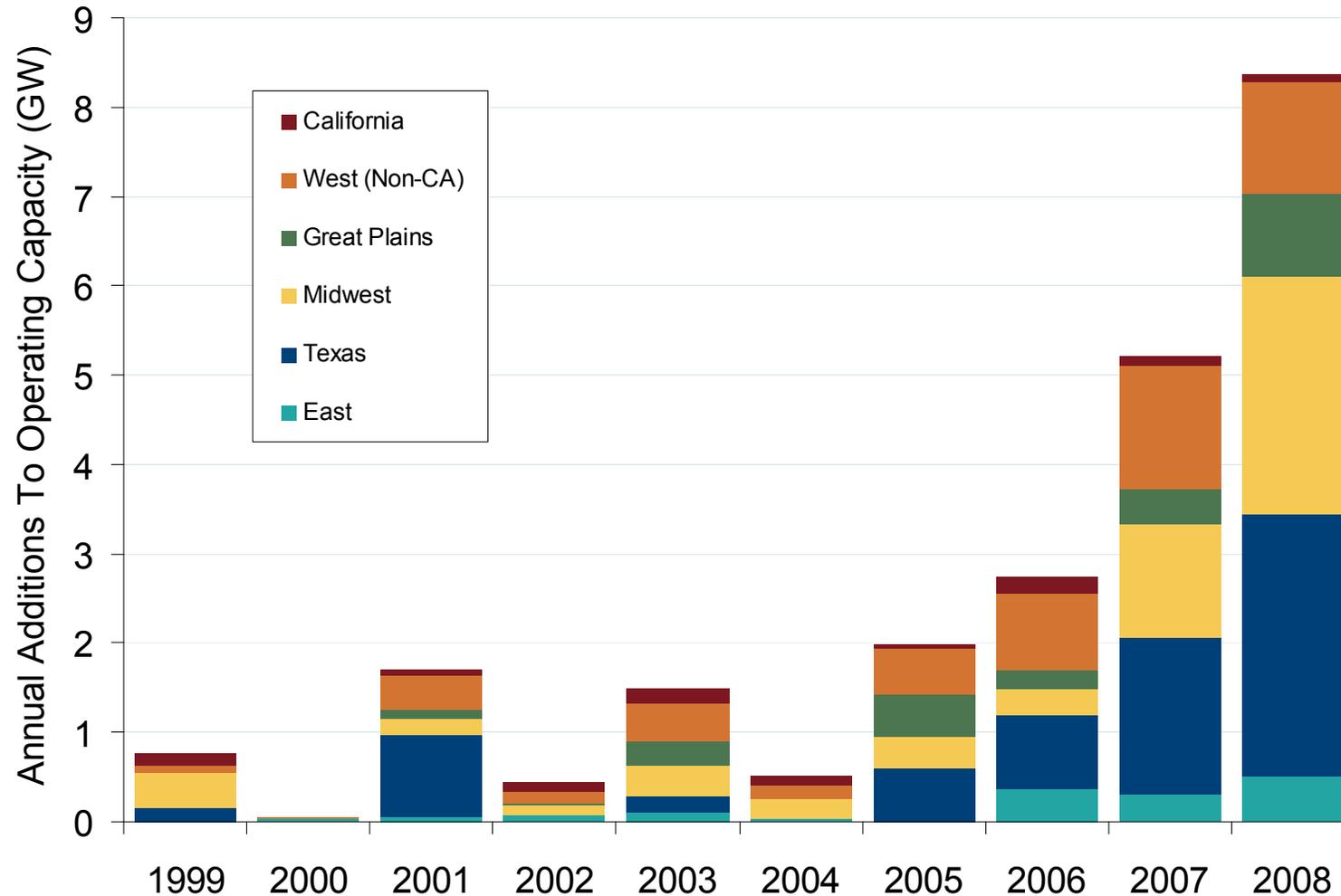
Source: Derived from ICE data. ICE on-peak swaps (financial) volume include monthly, dual monthly, quarterly, and calendar year contracts traded for each month.

Updated May 7, 2009

Electric Market Overview: Wind Capacity Growth

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Regional Wind Capacity Growth



West w/o CA: CO, HI, ID, MT, NM, OR, UT, WA, WY

Great Plains: KS, NE, ND, OK, SD

Midwest: IL, IN, IA, MI, MN, MO, OH, WI

East: ME, MA, NH, NJ, NY, PA, RI, TN, VT

Source: Energy Velocity Generating Unit Capacity Dataset

Updated April 7, 2009

1197

2008 Review of Wind Capacity and Generation

- Installed wind capacity grew 8,358 MW to 25,170 MW in 2008 from 16,818 MW in 2007, a 50% increase. Wind power was 43% of new U.S. new electric capacity in 2008, surpassing gas-fired generation.
- Installed capacity grew at a compound annual growth rate (CAGR) of 39% from 2004-08, compared to 28% for 2003-07

National wind policy and developments included:

- Congress extended the production tax credit (PTC) through Dec 2009. Indexed to inflation, it is now worth 2.1¢ per kWh for the first ten years a project operates.
- In Feb. 2009, Congress extended the credit through 2012, its longest renewal ever. This extension provides developers and equipment companies better long-term assurance to invest in projects and manufacturing facilities. The three times the PTC lapsed this decade were followed by declines in new capacity in subsequent years: 2000, 2002, and 2004 (see next chart, “Growth in Installed U.S. Capacity”).
- Foreign turbine, tower, and component manufacturers have opened U.S. facilities with the PTC’s steady renewal, lowering equipment transportation costs. In 2008, 30 facilities were announced, 10 opened, and 18 existing facilities expanded; 9 came online and 11 were announced in 2007.
- The economic turndown has led to some facility cutbacks, employee layoffs, project delays, and equipment order postponements.

State policies encouraged wind’s growth:

- 16 of the top 25 states by cumulative MW had an RPS (14 in 2007), 3 had renewable goals (3 in 2007) while 6 had neither.
- 34% of 2008 capacity additions – 7,454 MW – were in the 20 states with the highest wind potential; 86% of total U.S. wind capacity – 21,741 MW – is in those states.

State policies (continued):

- 80% of total U.S. wind is in the top ten states. The top 5 states by installed capacity (new 2008 MW) are:
 - Texas: 7,116 MW (2,670)
 - Iowa: 2,790 MW (1,519)
 - California: 2,517 MW (78)
 - Minnesota: 1,752 MW (454)
 - Washington: 1,375 MW (212)
- Texas kept its lead as the state with the most wind capacity; Iowa passed California for 2nd place. Oregon and Colorado each have more than 1,000 MW installed.

The Commission acted to improve wind interconnection:

- Wind’s rapid capacity growth created a backlog in many interconnection queues. FERC held a technical conference in December 2007 (AD08-2) to re-examine its Large Generator Interconnection Rule (Order 2003). ISOs and RTOs reported that queuing procedures specified in the Order impeded their timely interconnection of wind resources.
- In March 2008, FERC directed RTOs and ISOs to report on the status of their efforts to improve the processing of projects in their queues; it offered guidance on reforms including increased staffing, more efficient modeling, or clustering requests.** Queue reform Orders were subsequently approved for the Midwest ISO (2008), California (2008), and ISO-New England (2009).
- FERC accepted the tariff provisions NYISO proposed, which allowed it to implement a centralized program to incorporate wind output into its day-ahead and real-time energy markets. Ongoing costs are recovered from wind plant operators.***

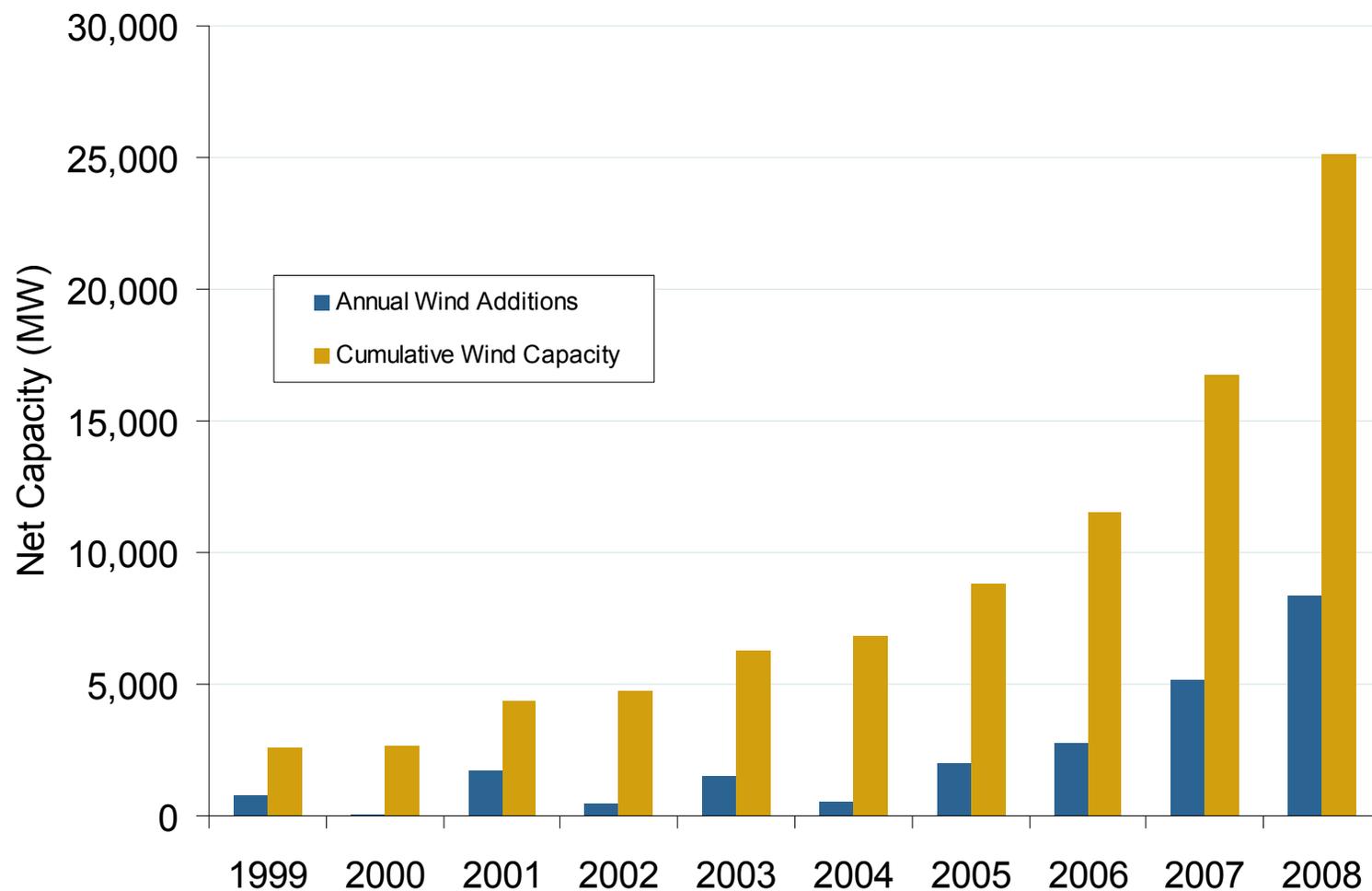
* CAGR is a better indicator of growth rates over time than a straight percent.

** *Interconnection Queuing Practices*, 122 FERC ¶ 61,252 (2008)

*** *New York Independent System Operator*, 123 FERC ¶ 61,267 (2008)

Source: OE analysis, derived from data in Commission filings; American Wind Energy Association (AWEA); DOE, *Annual Report on U.S. Wind Power*; Energy Velocity; Lawrence Berkeley National Laboratory; and trade press.

U.S. Wind Capacity Growth, 1999 – 2008



Source: Energy Velocity Generating Unit Capacity Dataset

Updated April 7, 2009

10004

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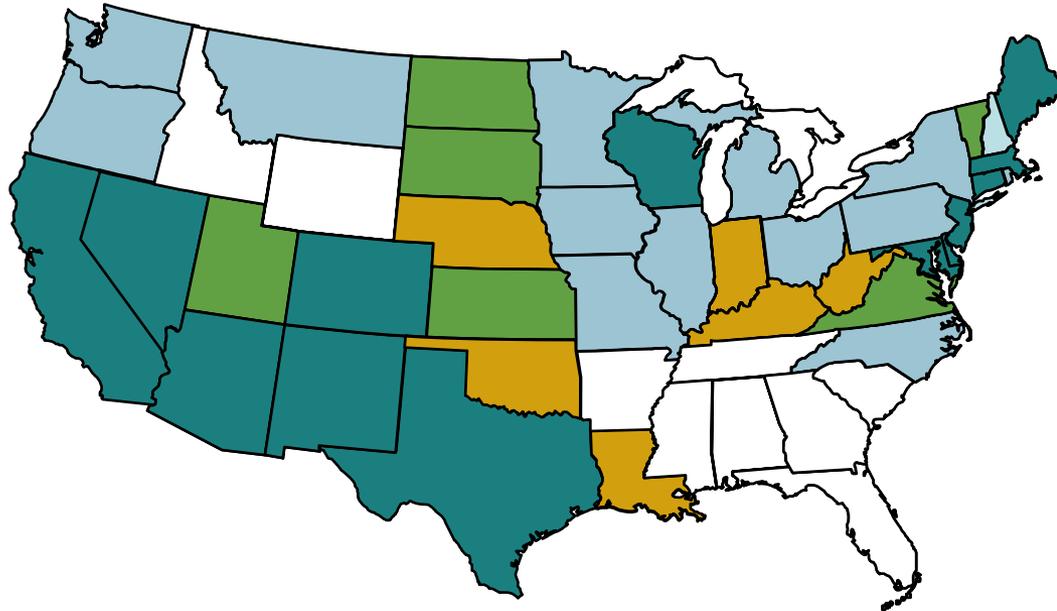
29 States including D.C. have Renewable Energy Portfolio Standards (RPS)

ND: 10% by 2015	MN: 25% by 2025	MI: 10% MWh and 1,100 MW by 2015
SD: 10% by 2015	IA: 105 MW	IN: different bills pending
NE: studying an RPS	MO: 15% by 2021	OH: 12.5% by 2025
KS: Goal - 20% wind by 2020	WI: 10% by 2015	WV: 25% by 2025 (bill pending)
OK: Studying an RPS	IL: 25% by 2025	KY: Report recommends RPS

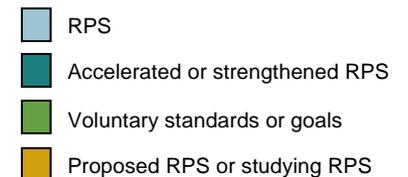
WA: 15% by 2020
OR: 25% by 2025
CA: 20% by 2010;
 Exec order: 33% by 2020
MT: 15% by 2015
NV: 20% by 2015
UT: 20% by 2025
CO: 20% by 2020
AZ: 15% by 2025
NM: 20% by 2020
TX: 5,880 MW by 2015

ME: 40% by 2017
NH: 23.8% by 2025
VT: 25% by 2025
MA: 15% by 2020
RI: 16% by end 2019
CT: 27% by 2020
NY: 25% by 2013
PA: 18% by 2020
NJ: 22.5% by 2020
DE: 20% by 2019
DC: 20% by 2020
MD: 20% by 2022
VA: 12% by 2022
NC: 12.5% by 2021
TVA: 50% by 2020*

HI: 20% by 2020



Updates at: <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-rps.pdf>



Notes: An RPS requires a percent of an electric provider's energy sales (MWh) or installed capacity (MW) to come from renewable resources. Most specify sales (MWh). Map percents are final years' targets. Alaska has no RPS; TVA's goal is not state policy; it called for 50% zero- or low-carbon generation by 2020.

Sources: Derived from data in: LBNL, PUCs, State legislative tracking services, Pew Center, and the Union of Concerned Scientists. Details, including timelines, are in the Database of State Incentives for Renewables and Energy Efficiency at <http://www.dsireusa.org>

Renewable Energy Portfolio Standards

- **A Renewable Portfolio Standard (RPS)** requires a percent of energy sales (MWh) or installed capacity (MW) to come from renewable resources. Percents usually increase incrementally from a base year to an ultimate target. The percents on the map are ultimate targets.
 - **29** states – including D.C. – have renewable mandates.
 - **Six** have renewable goals without financial penalties.
- **Utilities mostly on track to meet 2008 RPS Targets:**
 - **Energy RPS: Nevada** met its 9% target for 2008. **New York**, without firm interim targets from a 19% base and 25% target procured 30 new or expanded projects from 3 central solicitations totaling 3,479 GWh/year.
 - **Capacity RPS: Texas** exceeded 5,880 MW, with 7,116 MW wind installed through 2008. **Iowa** utilities met their 105 MW target and surpassed a 1,000 MW wind goal with 2,790 MW capacity (1,492 MW new in 2008).
- **Recent State Renewable Actions:**
 - **Kansas** Gov. Sibelius vetoed an RPS because of riders weakening air quality provisions. New Gov. Mark Parkinson announced a compromise that allows an 895 MW coal unit to be built in exchange for a 20% by 2020 RES (May 4).
 - **Florida's** renewable legislation did not pass. The Senate approved a 20% by 2020 RPS, but it remained in committee in the House Committee at adjournment (May 1).
 - **West Virginia** passed a 25% by 2025 Alternative and Renewable and Energy (A&RE) Portfolio Standard (April 23). A percent of electricity sales must come from A&RE resources by 2025. Alternative energy includes advanced coal technologies. Credits may be awarded for EE, DR, or GHG emissions reductions or offsets. Governor Manchin is expected to sign it.*
- **State Actions (continued)**
 - **Indiana's** House and Senate each passed two RPS bills (April 15). One includes EE as a resource; the other excludes it, and *vice versa* for clean coal. They went to conference committee to be unified and reconciled.
 - **Hawaii's** PUC heard testimony on feed-in tariffs for renewable energy sales; they are used by some countries to incent renewable development, but not yet in the U.S.
 - **Ohio's** PUC issued final draft compliance rules for its hybrid RPS-EERS standards signed in May 2008 (April 15).
 - **New Mexico** Gov. Richardson signed renewable energy bills that expanded tax credits for geothermal and solar PV, included utility-scale projects, and authorized communities to form RE financing districts (April 9).
 - **California's** Senate passed a bill increasing its RPS to 33% by 2020 (March 31), in line with Exec. Order S-14-08. The bill was sent to the Assembly, which approved a similar bill in committee. It is still in Committee (May 5).
- **States incent solar development in RPS provisions:**
 - 13 states include a solar or distributed-energy (DG) set-aside in their RPS. States with solar in are: AZ, CO, DC, DE, MD, MO, NC, NH, NJ, NM, NV, NY and PA; MA has goal. States with DG include: AZ, NY, and WA.
 - LBNL calculated that cumulative solar requirements to meet State RPS solar and DG set-asides (in place through 2007) would be 550 MW in 2010 and 6,700 MW in 2025.
 - A report prepared for Connecticut recommends a solar carve-out of 300 MW by 2025, which would result in about 3.5% of its RPS being met by in-state solar in 2020.
 - A Pennsylvania bill to strengthen its RPS includes a 3% PV solar-set aside by 2026 in Tier I resources.

Note: * A technical deficiency in WV's bill prevented its being engrossed and sent to the Governor before adjournment. It is expected to clear in a special session in May. **Sources:** KEMA, for Connecticut Clean Energy Fund, *Sustainable Solar Strategy for CT*, (4/09); LBNL, *RPS in the U.S. through 2007*, (4/08); Summit Blue for NYSERDA, *NY RPS: Market Conditions Assessment* (2/09). **Abbreviations:** DG - distributed generation; DR - demand response / demand-side; EE - Energy Efficiency; GHG - Greenhouse Gas; PUC - Public Service/Utility Commission; PV - photo-voltaic; REC - Renewable Energy Credit

Electric Market Overview: Energy Efficiency Resource Standards (EERS) and Goals

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

18 States have Energy Efficiency Resource Standards

NE: Energy Plan stresses multi-sector EE improvements

KS: Advocates voluntary utility programs, not mandate

OK: PSC approved quick-start DR programs, including EE

MN: 1.5% annual savings based on prior-3 years average, to 2015

IA: utilities to submit EE goals to achieve 1.5% annual savings; awaiting approval

MI: 1% annual savings from prior year's sales to 2012

WI: EE in RPS

IL: reduce energy 2% by 2015 (EE) and 0.1% from prior year (DR)

OH: reduce peak 8% by 2018; 22% energy savings by '25, starting 2009

KY: proposed RPS-EE to offset 18% of projected 2025 demand

ME: 10% EE by 2017 – new since 2005; DR & EE as SOS priority resources

VT: 2009 – 2011 goals of 2% annual savings; administered by Efficiency VT

MA: 25% of electric load from DSR, EE by 2020: capacity and energy

NY: 15% electric use reduction by 2015 from levels projected in 2008

CT: 1.5% annual savings 2009-19, from 2007, using all cost-effective EE

RI: reduce 10% of 2006 sales by 2022

NJ: BPU proceeding on EERS to reduce consumption, peak demand

DE: creating a Sustainable Energy Utility; EE, RE, DG, DR as SOS priorities

PA: reduce energy consumption 3% and peak 4.5% by 2013 as percent of 2009-10 sales

MD: reduce per cap electricity use & peak 15% by 2015 from 2007

VA: reduce 10% of 2006 sales by 2022

NC: EE to meet up to 25% of RPS to 2011; later to 40%

TVA: reduce peak demand 1,400 MW by 2012 with EE, DR *

FL: PSC to adopt new goals to reduce electric consumption, peak demand

WA: must pursue all cost-effective conservation

OR: IOU 2008 goals 34 MW; administered by Energy Trust OR

CA: 1% annual energy savings 2004 – 2013 ~23,183 GWh, 4,885 peak MW by 2013

ID: Energy Plan sets conservation, DR, EE as priority resources

MT: Governor's initiative – 20% state agencies energy savings by 2010

NV: EE up to 25% of RPS by 2015

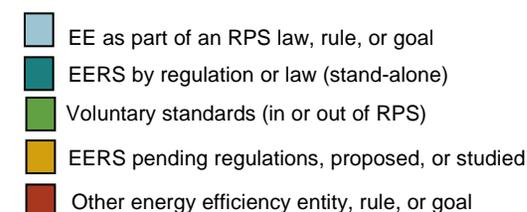
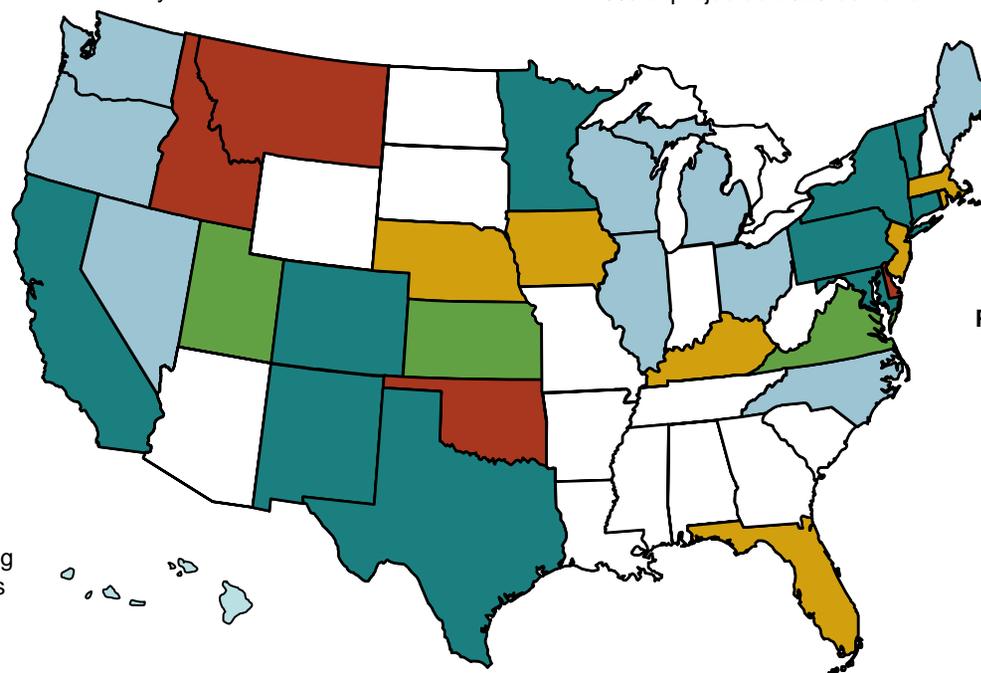
UT: EE incentives in RPS goal

CO: 11.5% energy savings 2009 – 2020 ~ 3,669 GWh

NM: use EE and DR to save 10% of 2005 retail electric sales by 2020

TX: 20% of load growth by 2010, using average growth rate of prior 5 years

HI: 20% savings of net electric sales by 2020; up to 50% of RPS



Updates at: <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-eeps.pdf>

* TVA's "EE and DR Plan" is from the Public Power Authority, and is not a state policy.

Abbreviations: DG – distributed generation; DR - demand response; DSR – demand-side resources; EE - energy efficiency; E&G: electric and gas utilities; IRP – integrated resource plan; RPS: Renewable Portfolio Standard; SOS: Standard Offer Service

Sources: ACEEE, EPA, Regulatory Assistance Project, Union of Concerned Scientists, State regulatory and legislative sites; State Efficiency Agency reports; trade press

Updated April 3, 2009

1126

Energy Efficiency Resource Standards (EERS)

- An **EERS** – Energy Efficiency Resource (or portfolio) Standard – aims to reduce or flatten electric load growth through energy efficiency (EE) measures. Goals may specify reductions in energy (MWh), demand (MW), or both. Many specify both overall energy reductions and peak-load reductions.
- **Energy Efficiency** (EE) is using less fuel to produce the same or greater amount of *usable* energy from a given energy source. EE actions usually have a multiple-year effect. EE is different from conservation, which can be temporary energy *use* reductions.

ENERGY EFFICIENCY IN THE STATES:

- **Eighteen** states have an EERS. Twenty-eight have EE standards or goals as an EERS, a utility goal, or as part of a proceeding. At least 18 include EE as part of a renewable standard or goal.
 - **Three** states have a pending EERS while they develop details to implement legislation: FL, MA, and NJ. Utilities in IA and RI must file plans showing EE reduction goals or plans. KY and NE Energy Reports published in late 2008 suggested an EERS.
 - **14 states** passed significant energy efficiency legislation or regulations in 2008, including: DC, FL, HI, IA, MA, MD, MI, NJ, NM, NY, PA, OH, OK, UT, and VT.
 - Many states use special-purpose agencies to administer EE programs and goals, including CT's Energy Conservation Management Board; NJ's Clean Energy Board, NYSERDA; Efficiency Maine; Energy Trust of Oregon; and Efficiency Vermont. D.C. and Delaware are creating Sustainable Energy Utilities. Hawaii will use a third – party coordinator.
- ACEEE named 5 states in its *2008 State Energy Efficiency Scorecard* as EE leaders: California, Oregon, Connecticut, Vermont, and New York.
 - Energy savings in some states with long-standing programs recently reported results:
 - CA: utilities met 1.5% of the state's electric needs in 2007 – over their annual 1% goals.
 - Energy Trust Oregon anticipates 2008 electricity savings of “a34 MW”* (297,840 MWh equivalent), nearly the “a35MW” saved in 2007.
 - CT: utilities filed plans to average 1.5% of annual needs in response to a requirement to acquire “all cost-effective efficiency.” The ECMB reported 368,000 MWh savings across all sectors for 2008.
 - VT: EV met 1.75% of the state's electric needs in 2007; preliminary 2008 data anticipate 1.8% savings.

NATIONAL ENERGY EFFICIENCY LEGISLATION:

- Reps. Henry Waxman and Edward Markey introduced the “American Clean Energy and Security Act of 2009” March 31. Title II, Energy Efficiency, proposes national minimum levels of electric and natural gas savings from 2012 – 2020, measured by average annual sales during the two preceding calendar years. Cumulative electric savings would begin in 2012 at 1% and ramp to 15% in 2020. Cumulative gas savings would begin at 0.75% and reach 10%. The bill specifies that states should consider EE as a resource in utility planning and procurement and seek to procure all EE that is available at lower cost than energy supply options.

* “aMW” is average MW without a time factor; MWh equivalent is: MW saved times the number of hours in a year.

Abbreviations: ACEEE: American Council for an Energy Efficient Economy; ECMB (CT) - Energy Conservation Management Board; EE - energy efficiency; EERS – Energy Efficiency Resource Standard; NYSERDA: New York State Energy Research & Development Authority; EV – Efficiency Vermont

Collaborative Greenhouse Gas Programs

National Energy and Environment Update:

- The EPA declared that CO₂ endangers public welfare and human health.
- The White House's Office of Management and Budget approved a proposal by the EPA to regulate GHGs under the Clean Air Act.
- President Obama's proposed budget includes cap-and-trade revenue beginning in 2012.
- Congressmen Waxman and Markey released a draft Energy and Emissions bill March 31, which includes:
 - a GHG cap-and-trade plan to reduce emissions 20% below 2005 levels by 2020 through a multi-sector emissions trading program beginning in 2012
 - limits on the carbon content of motor fuel

RGGI's Auction 3 held on March 18, 2009:

- RGGI states auctioned 2009 vintage allowances and the first 2012 control-period allowances, raising \$117 million for energy efficiency, renewable energy, and other consumer-benefit programs in participating states.
- Participant states are: CT, DE, ME, MD, MA, NH, NJ, NY, RI, VT.
- Demand outstripped supply for both vintages. 50 entities bid 2.5 times the offered 31.5 million 2009 allowances, and 20 entities bid 2.3 times the available 2.2 million 2012 allowances.
- Compliance entities or affiliates (generators) were awarded the bulk of allowances:
 - 78% of 42 winners for 2009 allowances
 - 93% of 12 winners for 2012 allowances
- 2009 allowances cleared at \$3.51 per allowance, 13¢ higher than Auction 2. Analysts posited that the expectation that RGGI allowances might have grandfathered value in a national cap-and-trade system may underpin the increased prices in each auction for 2009 allowances.
- 2012 allowances cleared at \$3.05 per allowance. The 2.2 million allowances are 1.5% of the 2012 cap.
- The 4th and 5th RGGI auctions are scheduled for June 17th and September 9th.

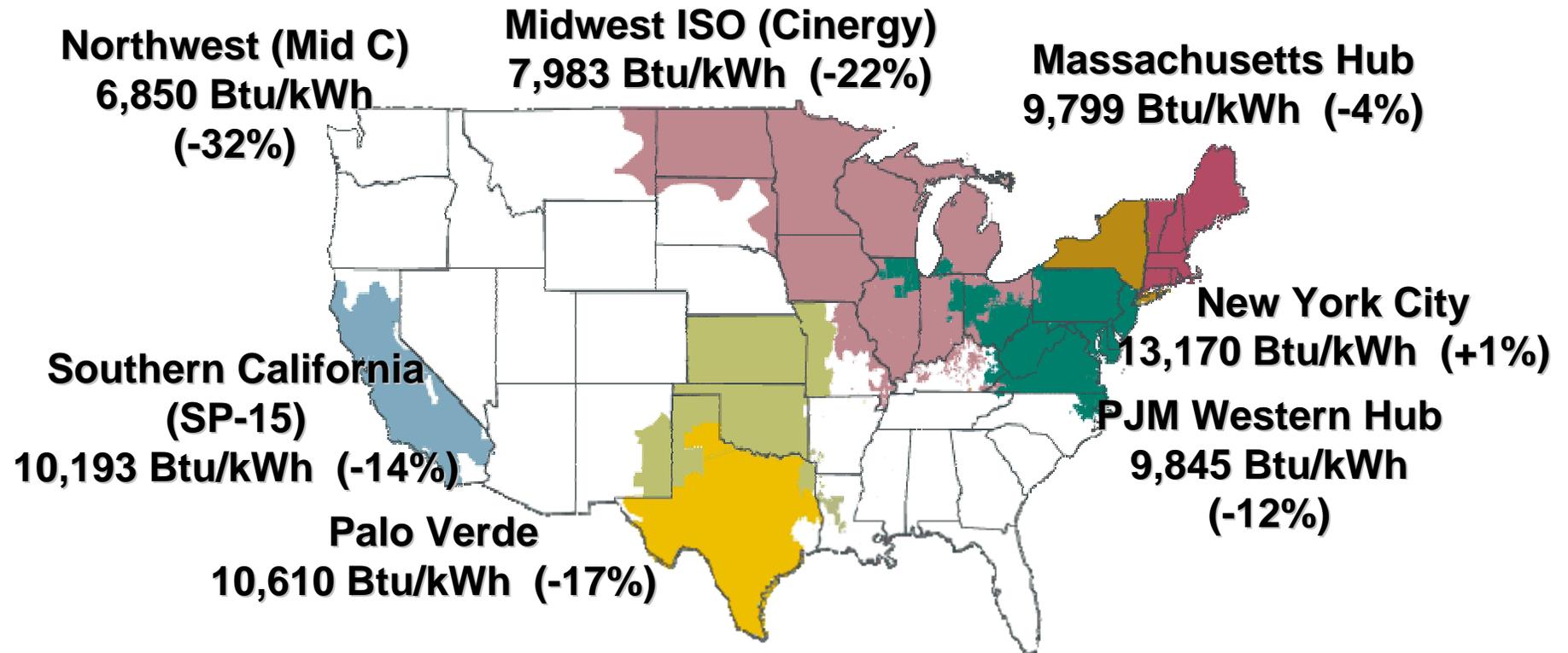
Midwest Greenhouse Gas Regional Accord:

- Signed at Midwestern Governors Association Energy Summit to establish GHG reduction targets, Nov 2007:
 - Participants: IA, IL, KS, Manitoba, MI, MN, WI
 - Observers: IN, OH, Ontario, SD
- Preliminary Design Recommendations issued Dec 2008
 - Target reductions from 2005 levels: 15% - 25% reductions by 2020; 60% - 80% by 2050
 - Cap-and-trade should cover multiple sectors
 - Each jurisdiction to control allowance distribution methods
 - Final design pending results of further ICF modeling
- Model Rule anticipated by August 2009

Western Climate Initiative (WCI):

- Launched at Western Governors' Association meeting to reduce regional GHG collectively, Feb 2007:
 - Partners: AZ, British Columbia, CA, Manitoba, MT, NM, Ontario, OR, Quebec, UT, WA
 - Observers: AK, CO, ID, KS, NV, Saskatchewan, WY
- Initial design released for a market-based, *multi-sector* cap-and-trade program (Sept 2008):
 - Phase I to take effect Jan 2012
 - Phase II to begin 2015; will cover 90% of regional emissions
- Released its [2009 – 2010 Work Plan](#), Feb 2009. Key WCI Committee tasks include:
 - develop emissions reporting database & allowance tracking system
 - develop rules for robust and transparent allowance and offset credit trading market
 - examine role of RECs in GHG accounting and treatment of voluntary renewable energy
 - update policy modeling; revise energy efficiency assumptions

June-August Implied Heat Rates, 2008 vs. 2007



Source: Implied heat rates derived from Platts *Megawatt Daily* data.

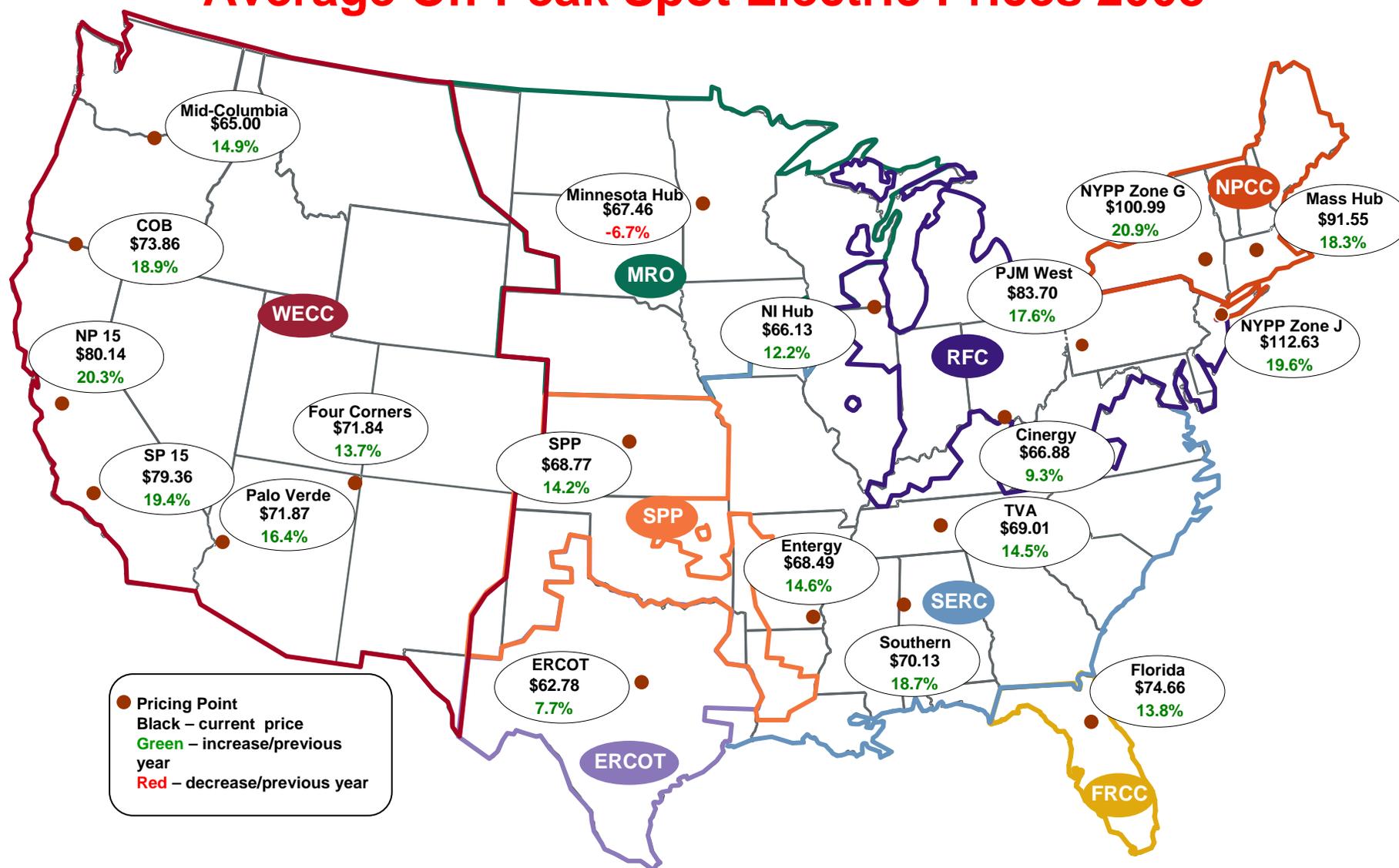
Updated September 9, 2008

1206

Electric Market Overview: On-Peak Spot Electric Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Average On-Peak Spot Electric Prices 2008

Source: Derived from *Platts* data.

Updated February 6, 2009

1207

Electric Market Overview: Regional Spot Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Regional Spot Prices: 2006-2008

	On-peak Spot Prices					Off-peak Spot Prices				
	2006	2007	2008	% Change 06-07	% Change 07-08	2006	2007	2008	% Change 06-07	% Change 07-08
Northeast										
Mass Hub	69.85	77.39	91.55	10.8%	18.3%	47.93	54.73	66.50	14.2%	17.7%
Ny Zone G*	75.95	83.51	100.99	10.0%	20.9%		48.86	67.32		27.4%
NY Zone J*	85.96	94.15	112.63	9.5%	19.6%		53.66	70.29		23.7%
NY Zone A*	58.70	64.02	68.34	9.1%	6.7%		41.26	50.68		18.6%
PJM West	61.90	71.15	83.70	14.9%	17.6%	37.45	42.23	51.21	12.8%	17.5%
Southeast										
VACAR	56.34	60.52	70.86	7.4%	17.1%	34.98	33.67	39.36	-3.7%	14.4%
Southern	55.50	59.10	70.13	6.5%	18.7%	34.02	33.03	39.82	-2.9%	17.1%
TVA	53.48	60.28	69.01	12.7%	14.5%	33.08	33.56	38.61	1.5%	13.1%
Florida	64.02	65.59	74.66	2.5%	13.8%	39.79	35.80	41.35	-10.0%	13.4%
Entergy	56.28	59.74	68.49	6.2%	14.6%	34.20	31.88	35.26	-6.8%	9.6%
Midwest										
Cinergy	51.81	61.20	66.88	18.1%	9.3%	27.66	28.94	31.14	4.6%	7.1%
Michigan Hub	55.29	64.43	69.15	16.5%	7.3%	30.20	31.04	31.81	2.8%	2.4%
Minnesota Hub	59.47	72.32	67.46	21.6%	-6.7%	27.57	29.32	25.76	6.4%	-13.8%
NI Hub	52.52	58.93	66.13	12.2%	12.2%	29.09	29.32	31.24	0.8%	6.1%
Illinois Hub	51.32	59.88	62.52	16.7%	4.4%	26.41	27.40	26.29	3.8%	-4.3%
MAPP South	55.11	61.18	69.18	11.0%	13.1%	32.73	30.80	34.00	-5.9%	9.4%
South Central										
SPP North	55.84	60.21	68.77	7.8%	14.2%	33.96	31.24	33.66	-8.0%	7.2%
ERCOT	57.83	58.27	62.78	0.8%	7.7%	39.03	38.83	38.36	-0.5%	-1.2%
Southwest										
Four Corners	58.52	63.21	71.84	8.0%	13.7%	37.91	40.19	49.40	6.0%	18.7%
Palo Verde	57.59	61.74	71.87	7.2%	16.4%	38.21	41.94	52.16	9.8%	19.6%
Mead	59.93	64.49	75.63	7.6%	17.3%	39.92	44.15	54.90	10.6%	19.6%
Northwest										
Mid-C	50.18	56.57	65.00	12.7%	14.9%	38.71	44.00	53.70	13.7%	18.1%
COB	55.58	62.14	73.86	11.8%	18.9%	40.71	46.38	55.81	13.9%	16.9%
California										
NP15	61.08	66.59	80.14	9.0%	20.3%	40.77	47.10	59.22	15.5%	20.5%
SP15	61.95	66.48	79.36	7.3%	19.4%	41.62	46.76	57.86	12.4%	19.2%

Note: * Off Peak as of April 2, 2007.

Regional Electric and Input Prices: 2006-2008

Electricity and Input Prices, 2006-08			
	2006	2007	2008
Electric Spot Prices (On-Peak \$ per MWh)			
Mass Hub	\$69.85	\$77.39	\$91.55
Cinergy	\$51.81	\$61.20	\$66.88
SP-15	\$61.95	\$66.48	\$79.36
Input Prices			
Natural Gas (\$ per MMBtu)			
Henry Hub	\$6.74	\$6.94	\$8.85
New York	\$7.37	\$8.46	\$10.13
Southern California	\$6.10	\$6.41	\$7.80
Coal (\$ per ton)			
Central Appalachian (Eastern)	\$51.64	\$45.00	\$92.37
Powder River Basin (Western)	\$13.21	\$10.24	\$13.62
Emissions (\$ per ton)			
SO ₂ Allowances	\$738.12	\$527.58	\$280.43
NO _x allowances	\$1,862.03	\$815.87	\$786.64
Oil			
WTI (Crude - \$ per barrel)	\$66.12	\$72.45	\$99.63
Residual Fuel, New York (\$ per barrel)	\$55.07	\$64.35	\$91.94
Distillate Fuel, New York (\$ per gallon)	\$2.04	\$2.22	\$3.08

Source: Derived from *Platts & Bloomberg* data.

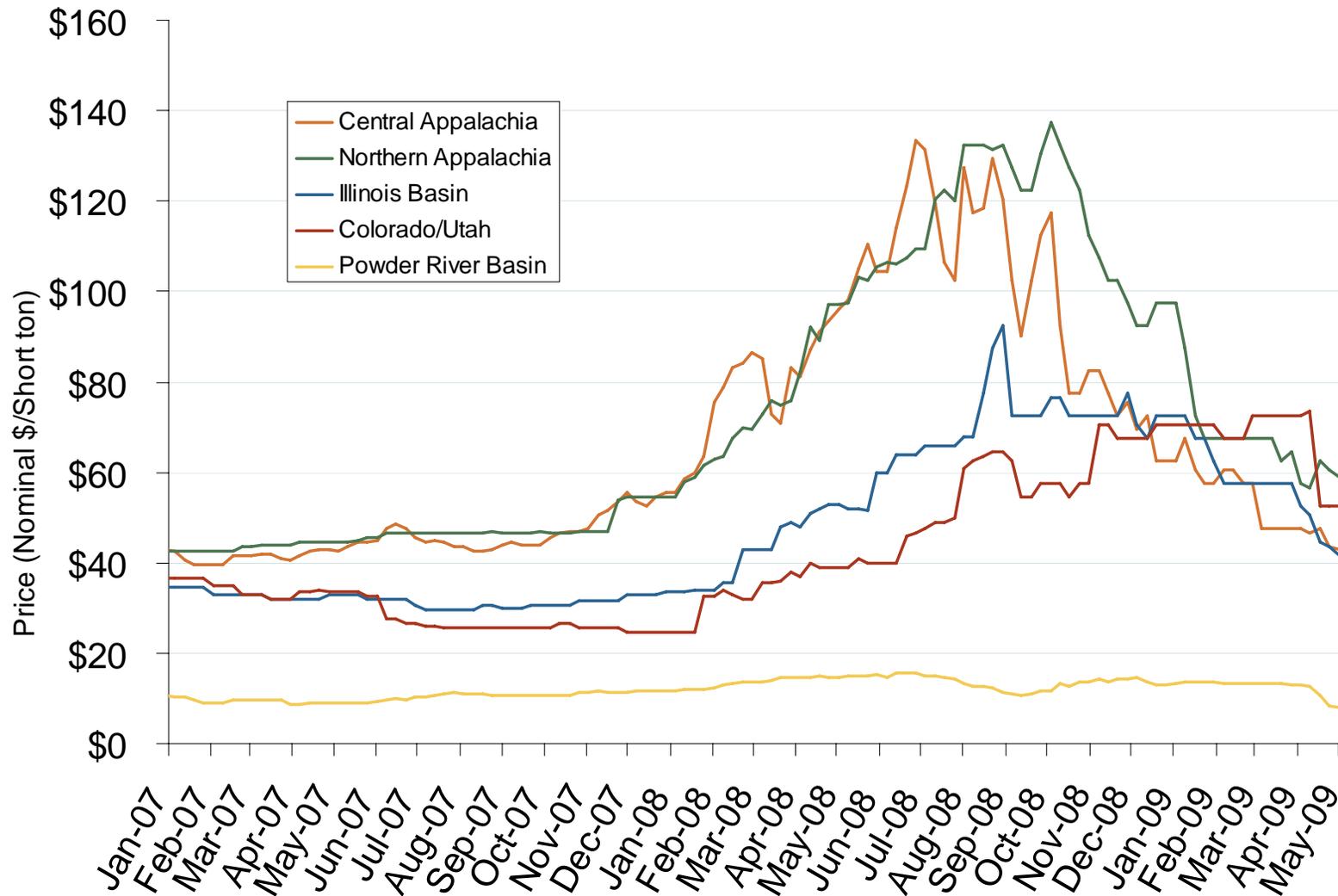
Updated February 6, 2009

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National Electric Market Overview: Coal Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Central Appalachian and Powder River Basin Coal Prices

Source: Derived from *Bloomberg* data.

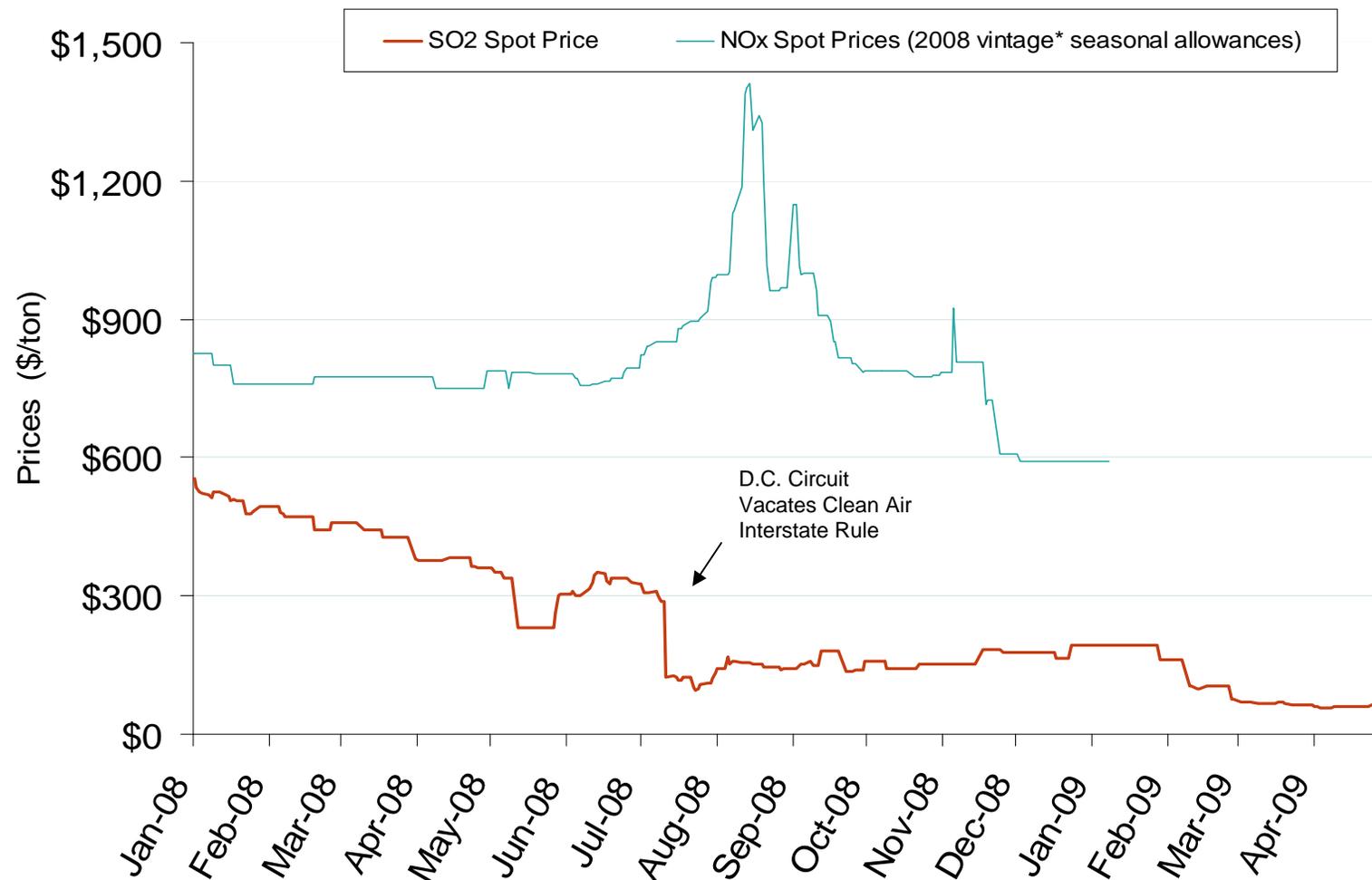
Updated May 7, 2009

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National Electric Market Overview: Emission Allowance Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

SO₂ Allowance Spot Prices and NOx Seasonal Allowance Spot Prices

Source: Derived from *Cantor Fitzgerald* data.

* Earliest year an allowance may be applied against emissions.

Updated May 7, 2009

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Brief Overview of the SO₂ and NO_x Emissions Markets

The electric power industry is a major source of sulfur dioxide emissions (SO₂) and nitrogen dioxide emissions (NO_x) – both precursors of acid rain and smog. According to the Environmental Protection Agency's (EPA) 2006 Acid Rain Progress Report, the power sector is responsible for 70% of SO₂ emissions and 20% of NO_x emissions.

Currently US policy encourages reduction in SO₂ and NO_x emissions which can be achieved through a cap and trade program. This market based model also allows for relative flexibility in compliance options. An emitting source may choose pollution control technology such as add-on controls like flue gas desulfurization (FGD) for SO₂ and selective catalytic reduction (SCR) for NO_x, fuel switching, and/or participation in the respective cap and trade markets. The decision is primarily driven by the regulatory environment, fuel input type, the level of emission output, and compliance costs, the latter of which affects wholesale and retail prices.

The Acid Rain Program

<http://www.epa.gov/airmarkets/progsregs/arp/index.html>

EPA's Acid Rain Program (ARP), established under the 1990 Clean Air Act Amendments, requires reductions of SO₂ and NO_x emissions from the electric power industry. The Acid Rain Program was the first cap and trade program implemented nationwide to reduce SO₂ emissions.^[1] The SO₂ program set a permanent cap on the total amount of SO₂ that can be emitted by fossil fuel-fired generating units and allows allowance trading so affected sources have some flexibility in their compliance method. Currently, SO₂ sources must surrender one allowance to emit one ton of SO₂. If a source falls short on the number of allowances it needs to comply with its individual cap, it can purchase allowances from another source that has a surplus of allowances. An emitting source may have a surplus of allowances for several reasons. For example, if it chose to install and/or run scrubbers, it can "bank" those unused allowances for future use or sell the leftover allowances to other emitting sources.

The NO_x Budget Trading Program

<http://www.epa.gov/airmarkets/cap-trade/docs/nox.pdf>

In 2003, the cap-and-trade method was also implemented to reduce seasonal (primarily summer) NO_x emissions from fossil fuel-fired plants. While the EPA administers the program, states are required to share the responsibility for allowance allocation and enforcement. Currently, NO_x sources must surrender one allowance to emit one ton of NO_x.

^[1] The Acid Rain Program also required NO_x emission reductions by select coal units but under a rate-based regulatory program [<http://www.epa.gov/airmarkets/progsregs/arp/nox.html>].