



Wind Energy in Indiana Issues and Concerns



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Energy Policy Goals

- Meeting peak demand energy needs
- Efficient, reliable, cost-effective generation
- Greenhouse emission reductions
- Stable, secure, sustained fuel sources (*nix foreign oil*)
- Environmentally sensitive siting of generation



The Tools

- State Renewable Portfolio Standard

State requires a % of electric energy sales be generated by renewable technologies (28 states mandatory, 6 states renewable goals)

- Federal Production Tax Credit (since 1992)

Per KWh tax credit for electricity generated by qualified resources

- Stimulus Bill: Federal loan guarantees

US Department of Energy guaranteed loans to finance renewable energy projects, electric transmission projects, etc.



The System Planning

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

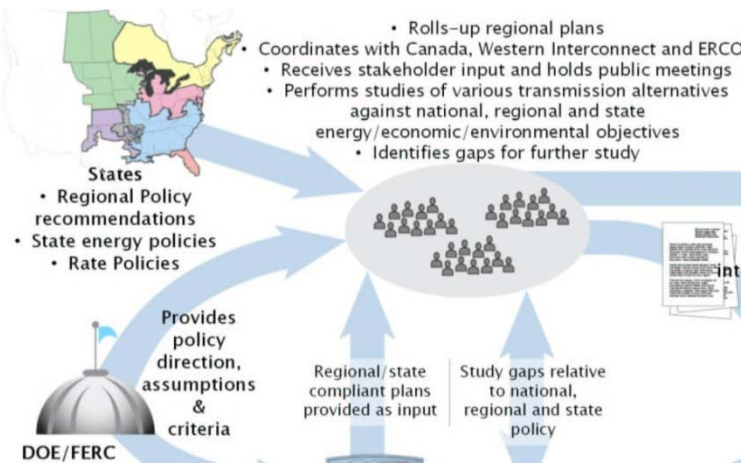
20% Wind Energy by 2030
Increasing Wind Energy's Contribution to U.S. Electricity Supply

July 2008

Joint Coordinated System Plan



Eastern Interconnection Planning Collaborative



The Vision

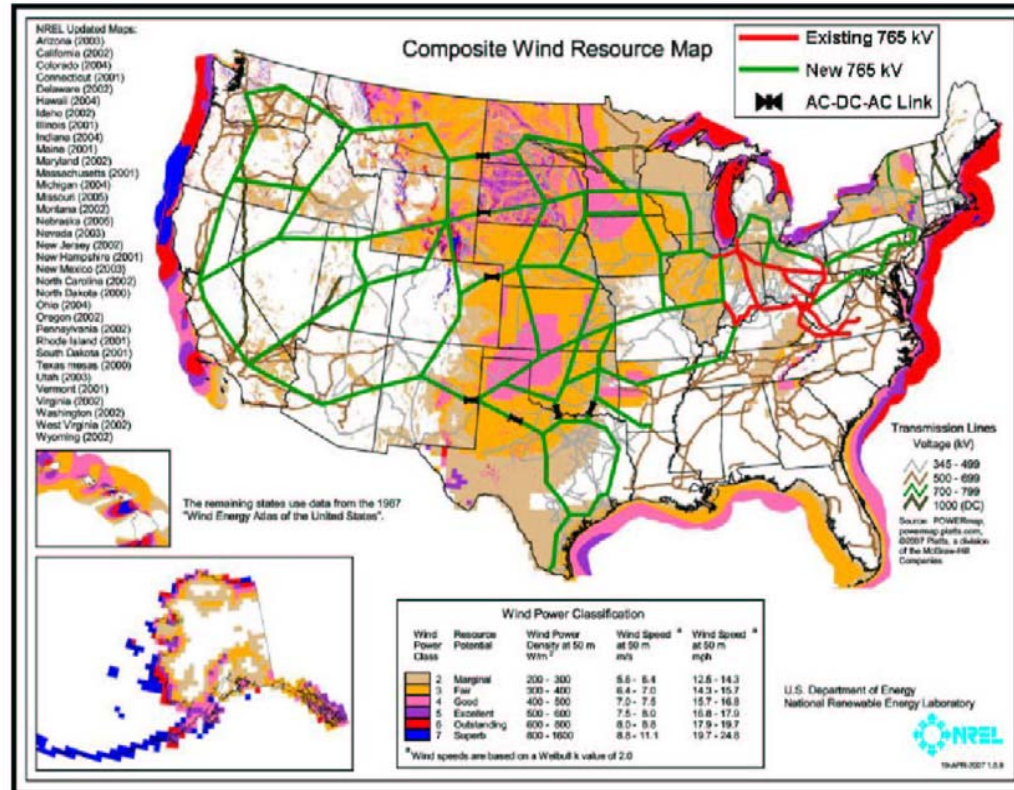


Exhibit 1: Conceptual 765 kV backbone system for wind resource integration (edited by AEP).

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Where is this “policy” headed?



Industrial wind represents more than 90% of the proposed generating capacity of all renewable energy projects.



Image: Elk River 150mw facility, Butler County Kansas



Midwest wind slated to flow East!

(...more headed West)

State	# of Queue Entries	WIND Megawatts
Iowa	2	3000 MW
North Dakota	1	1,500 MW
South Dakota	6	10,500 MW
Illinois	74	13,348 MW
Indiana	22	5,152 MW
Ohio	22	3,635 MW
	127 proposed	37,135 MW

PJM wind proposals as of February 2009

<http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx>



... and much more

- ✘ 305,000 MW of installed wind geographically distributed
- ✘ 19,000 miles of new 765 kV transmission lines
- ✘ \$60+ billion in transmission & infrastructure costs
(2007 dollars, assumes \$2.6 million per mile 765 kV line cost)
- ✘ Wind power development capital costs in the trillions
- ✘ Profit motive married to fast-tracking of approvals

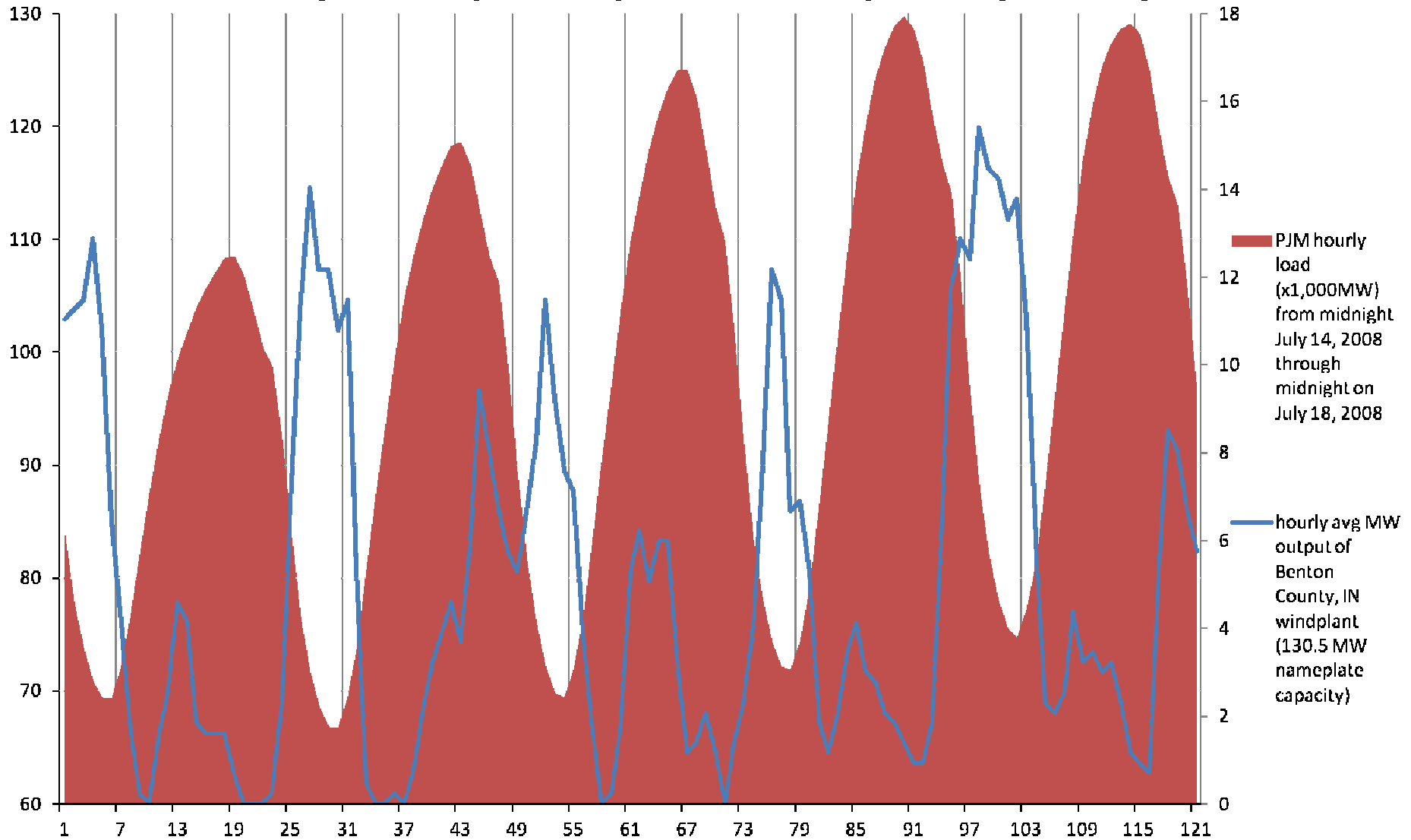
Fine print: costs are ballpark estimates created without the benefit of detailed engineering.

Sources: American Electric Power: Interstate Transmission Vision for Wind Integration (2007)

DOE 20% wind power by 2030 (2008)



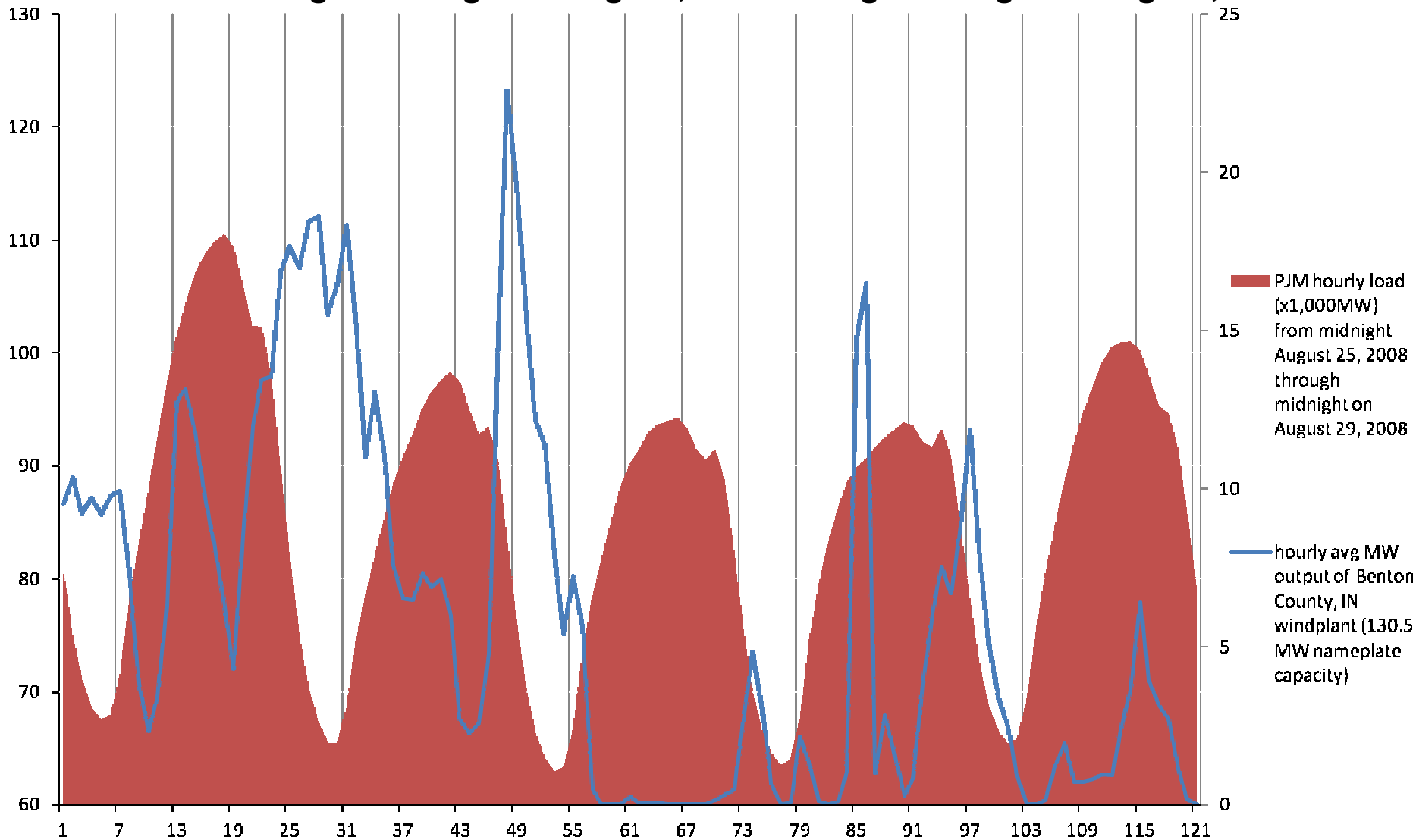
Output of Benton County, IN windplant (130.5 MW) vs. PJM Hourly Load for 5 days commencing at midnight of July 14, 2008 through midnight of July 18, 2008



<http://www.pjm.org/markets-and-operations/energy/real-time/loadhryr.aspx>

<http://www.ferc.gov/docs-filing/eqr/data/spreadsheets.aspx>

Output of Benton County, IN windplant (130.5 MW) vs. PJM Hourly Load for 5 days commencing at midnight of Aug. 25, 2008 through midnight of Aug. 29, 2008



<http://www.pjm.org/markets-and-operations/energy/real-time/loadhryr.aspx>

<http://www.ferc.gov/docs-filing/eqr/data/spreadsheet.asp>

What some are saying...

- ✓ There are better —cheaper — ways to get more clean power flowing to the big cities.
- ✓ Long-distance transmission lines = no inherent value.
- ✓ The longer the power line, the more expensive to build.
- ✓ The closer electricity is generated to where it's used, the better.

*Source: Ian Bowles, Sec. of Energy and Environmental Affairs for Massachusetts in his op-ed entitled "Home-Grown Power" (NYTs March 6, 2009)
<http://www.nytimes.com/2009/03/07/opinion/07bowles.html>*



Can we get there?

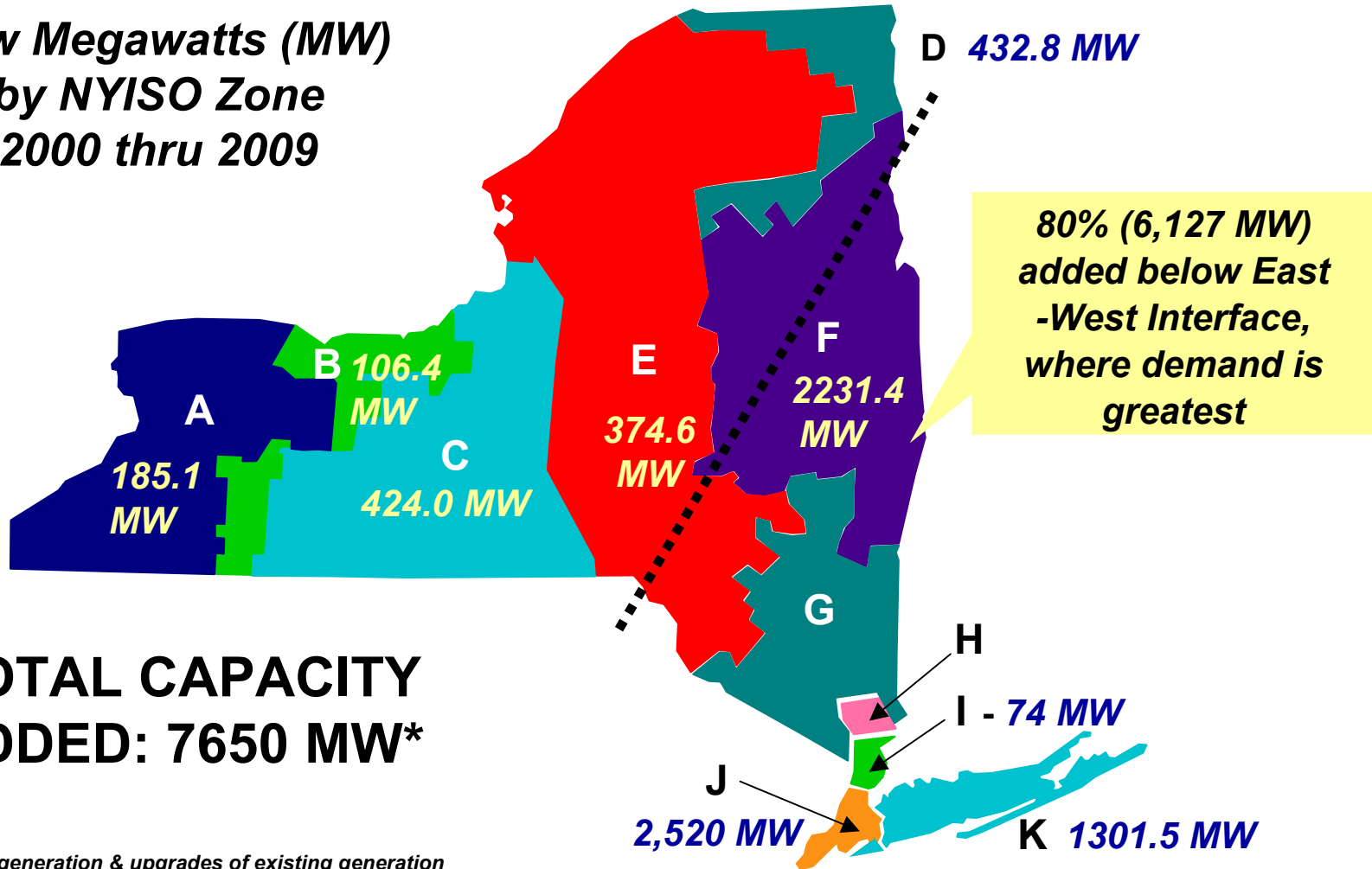
Mimic public policy in a deregulated market:

- ✓ Prices paid non-renewable generators reflect plant location and time of day production.
- ✓ The result: non-renewable generators sited closest to load, produce when load needs the power the most.



New Generation

*New Megawatts (MW)
by NYISO Zone
2000 thru 2009*



**TOTAL CAPACITY
ADDED: 7650 MW***

** Includes new generation & upgrades of existing generation developed by both public power and private companies*

The better policy...

Revisit the Renewables Incentives

Send the right market signals favoring renewable sources:

- ✓ **built closer to load**
(locational argument)
- ✓ **better able to generate during on-peak hours**
(time-of-day argument)
- ✓ **better able to generate during on-season hours**
(time-of-season argument)
- ✓ **committed to delivering energy and capacity**
(time-of-season argument)



Who Benefits?

- ✓ Renewable generators located near load;
- ✓ Renewable generators that generate on-peak;
- ✓ Renewable generators that generate on-season;
- ✓ Taxpayers, Consumers, Ratepayers



Thank You

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www.windaction.org

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Industrial Wind Action Group

facts, analysis, exposure of wind energy's real impacts