US EPA ARCHIVE DOCUMENT

NARUC

An Insanely Succinct Summary Of the Electricity System

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CEET Technical Forum

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NARUC & Grants & Research

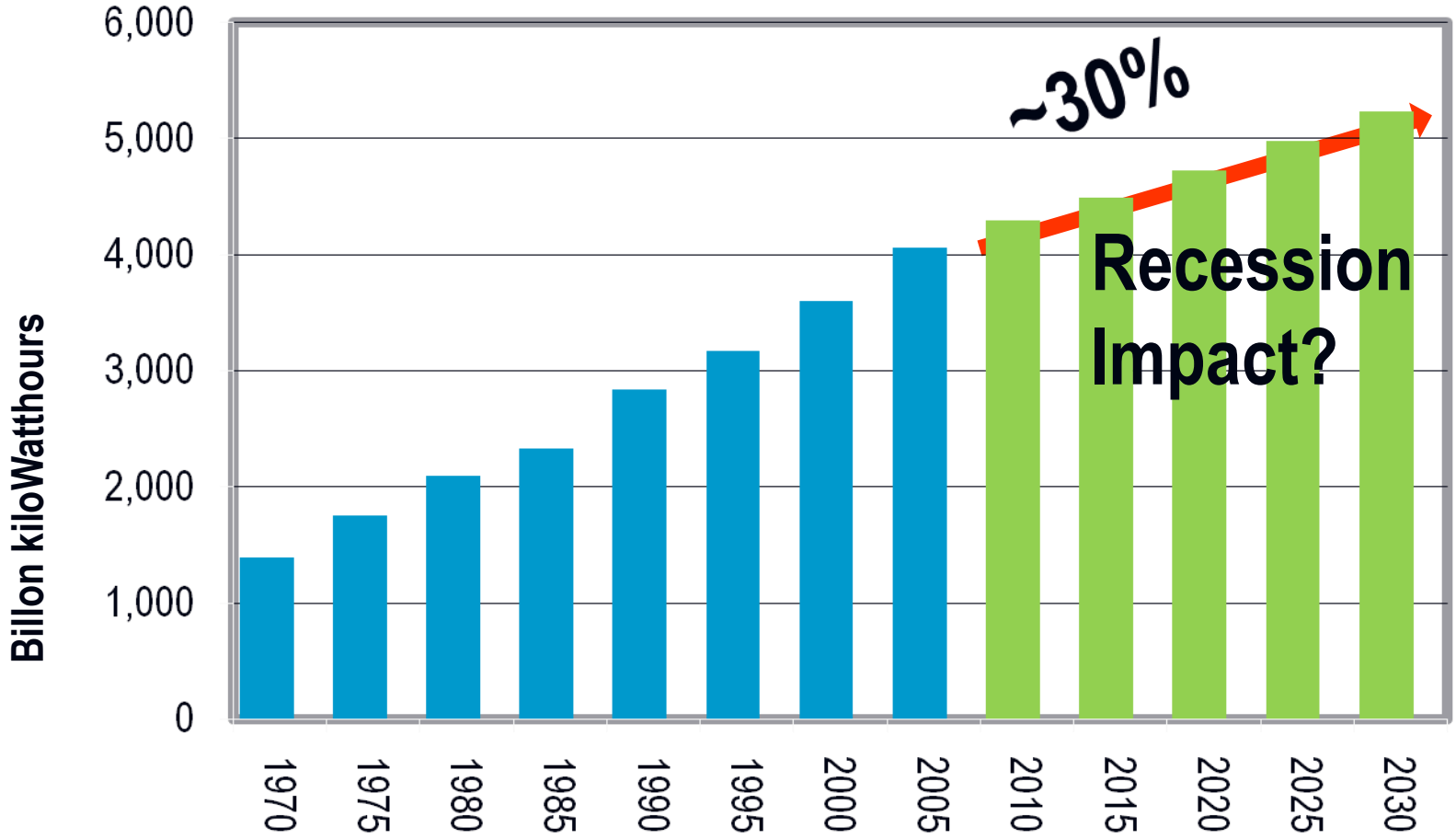
- NARUC members are the State PUCs that regulate investor-owned utilities
  - http://www.naruc.org
- G&R Dept. addresses research and facilitates dialogue on key questions facing Commissions
- Federal Funders: EPA, Dept. of Energy, Dept. of Homeland Security
- Partnerships with FCC, NCS, FERC, private sector, non-governmental orgs

Today's presentation is all about my opinions,
not NARUC policy or any of its members.
Hopefully my opinions are mostly in agreement with those.

Summary

- Where does our electricity come from?
- Three different maps: regulatory, market, power systems
- How we choose the order of power plant operation
- How we choose to build power plants
- State program leadership on clean energy
- A perfect segue into the other presentations

Demand is (probably)growing

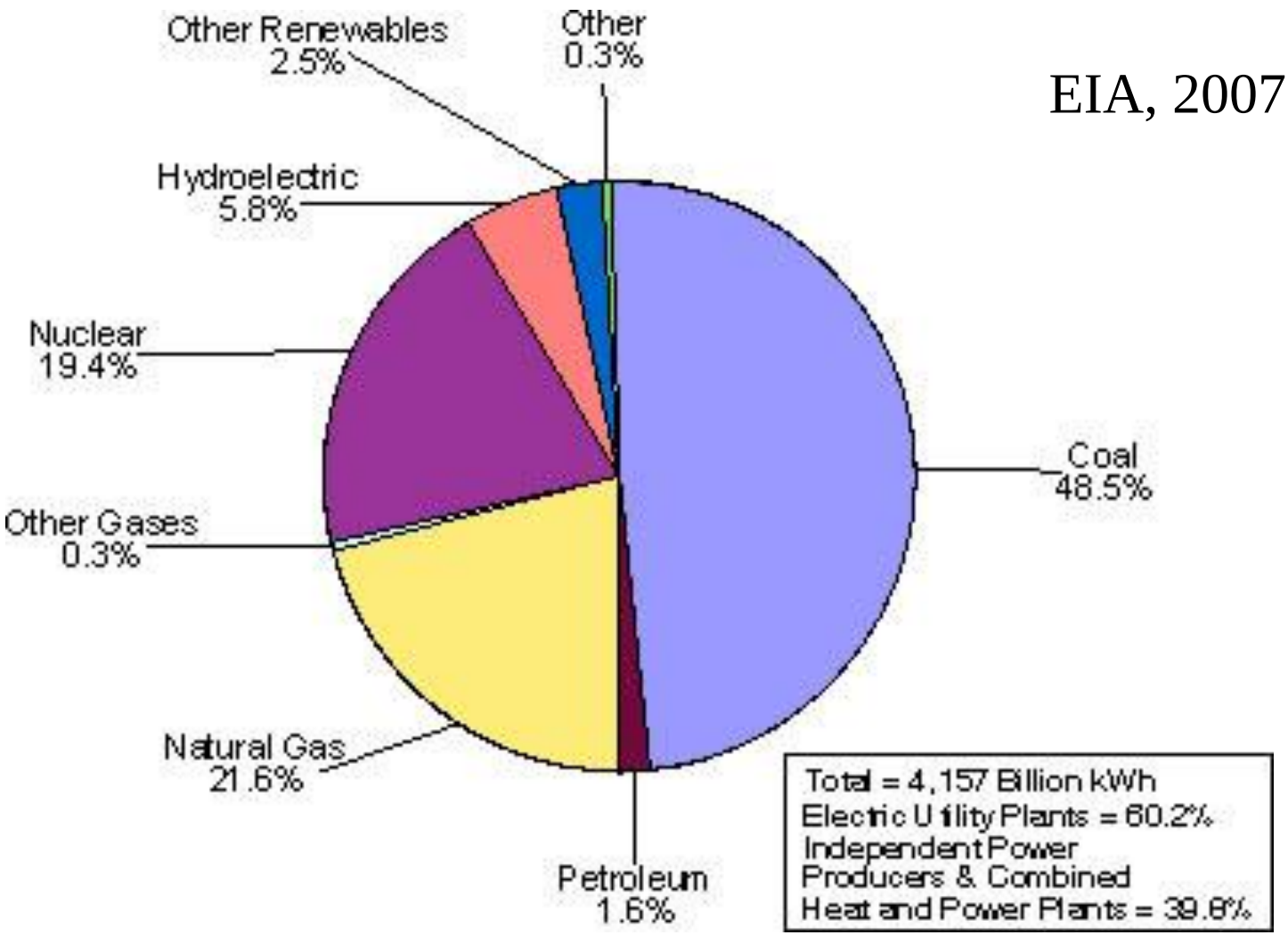


Sources: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2006* and *Annual Energy Outlook 2008 Early Release*

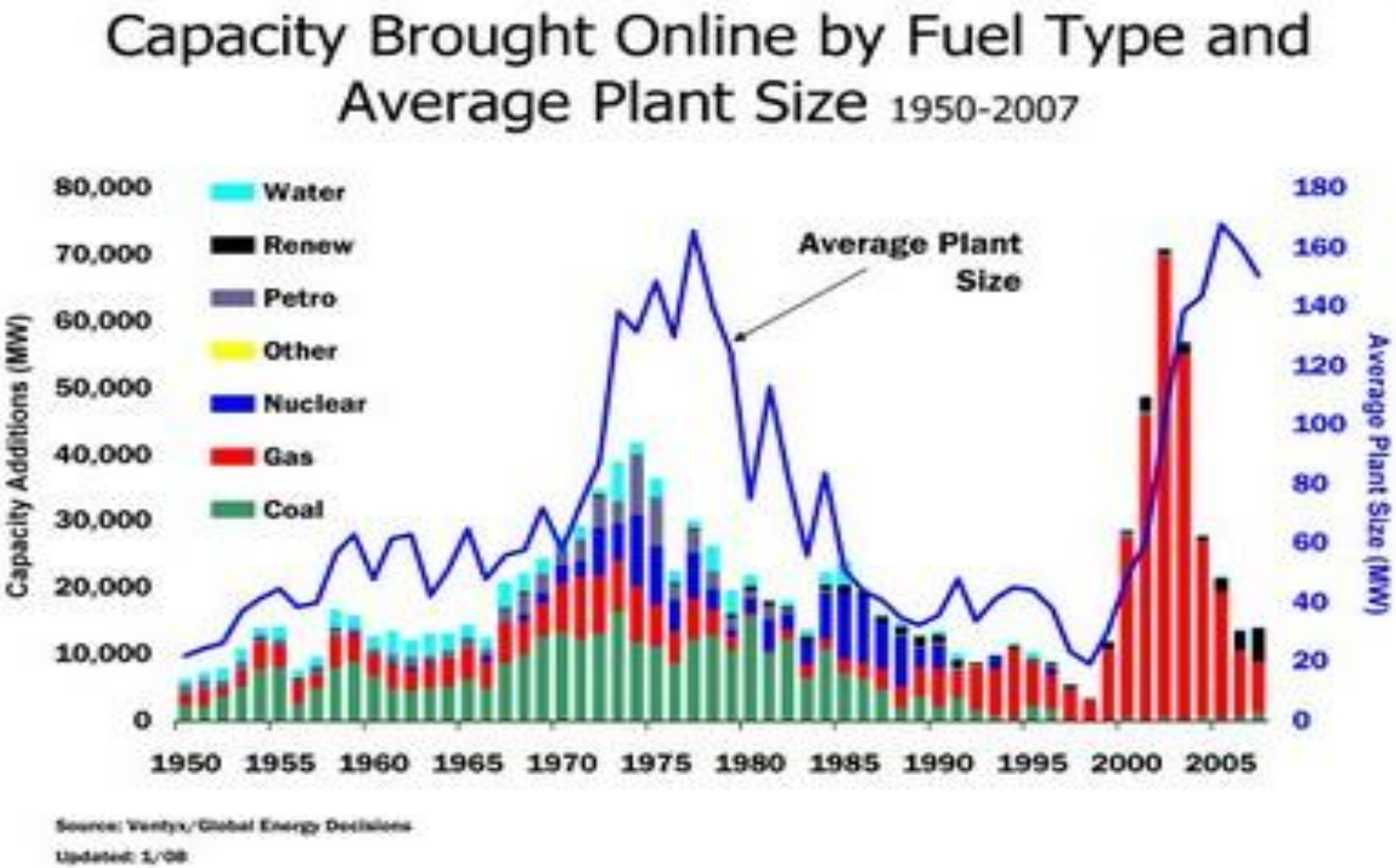
*Electricity demand projections based on expected growth between 2006-2030

Energy Resources In the US: where we are

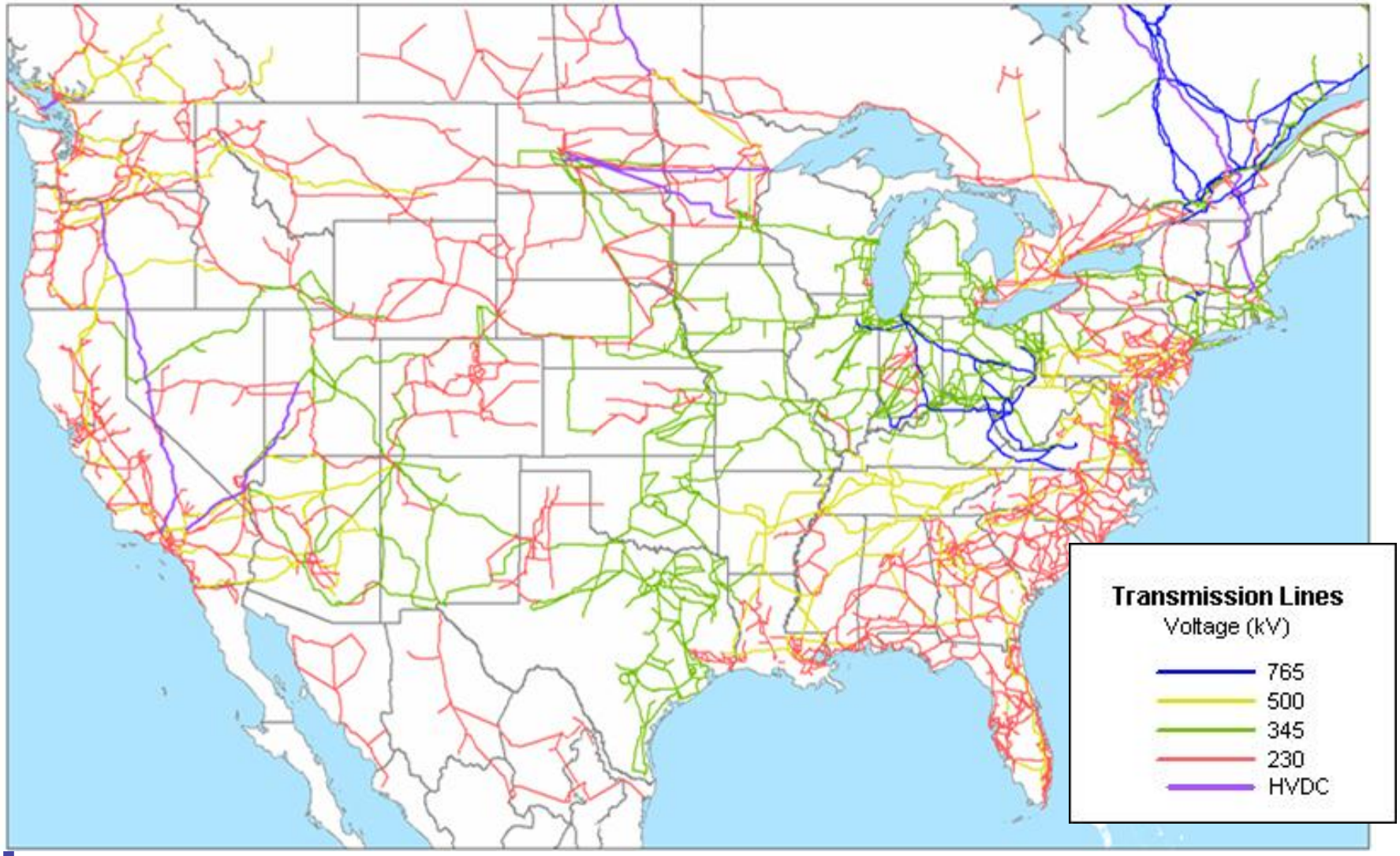
EIA, 2007



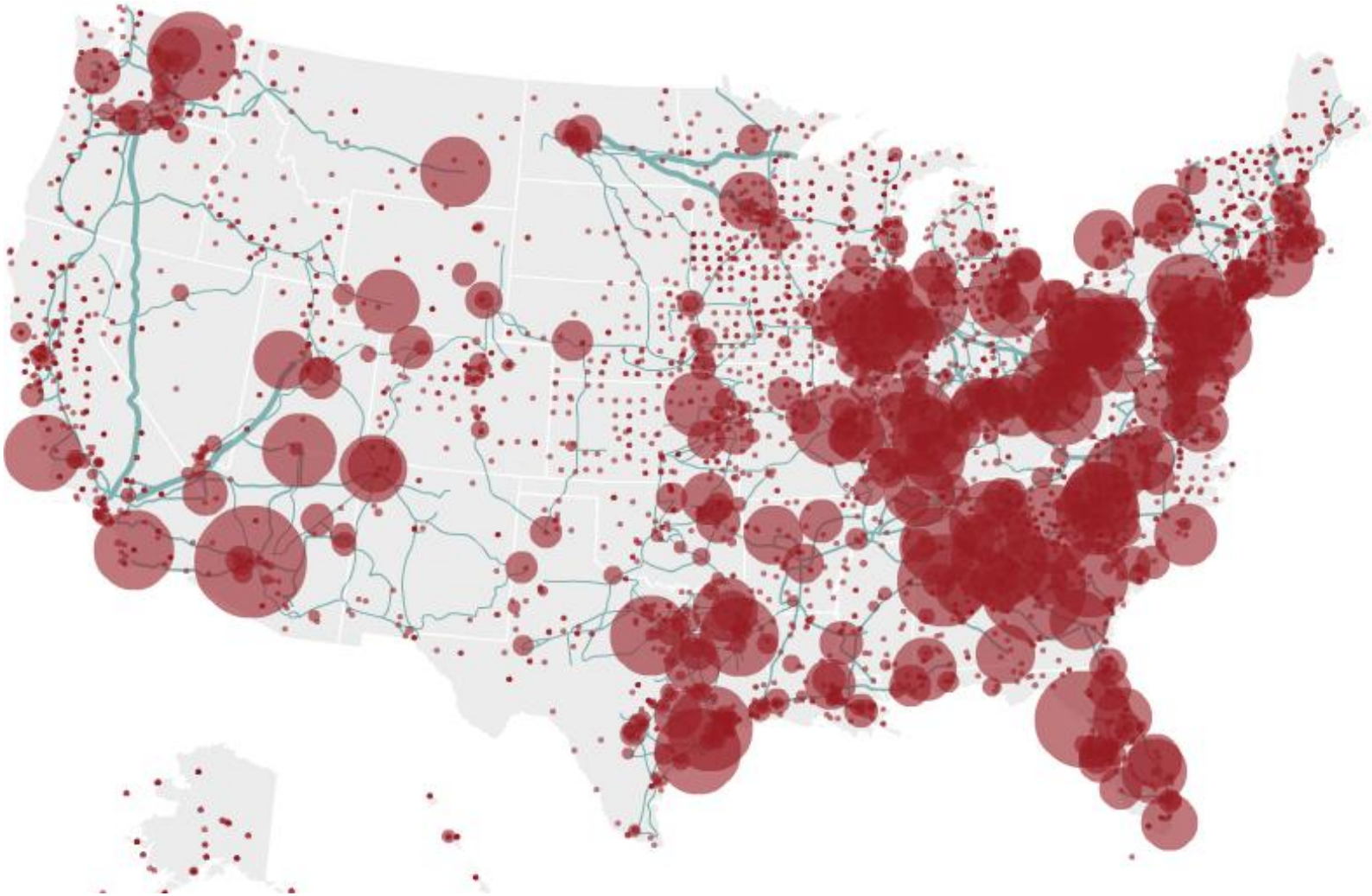
Where we've been



Transmission in North America

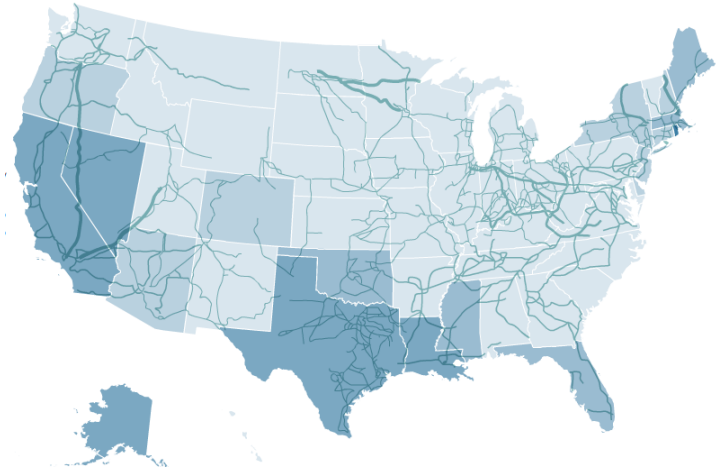


Where The Power Is

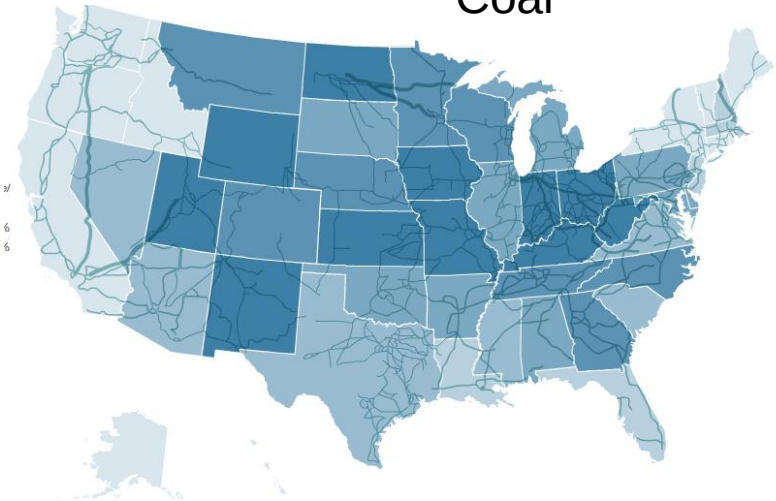


Resources

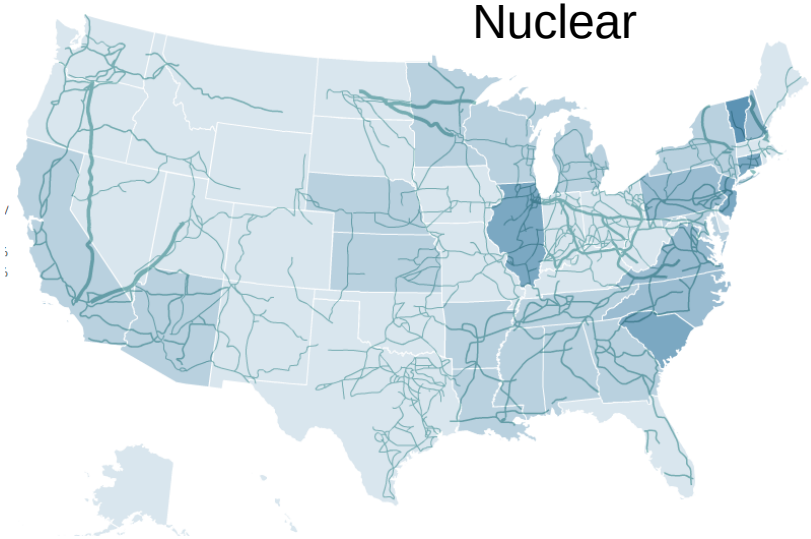
Gas



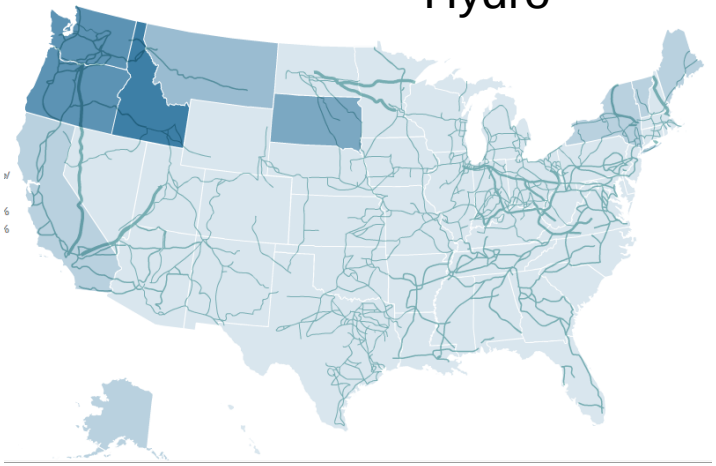
Coal



Nuclear

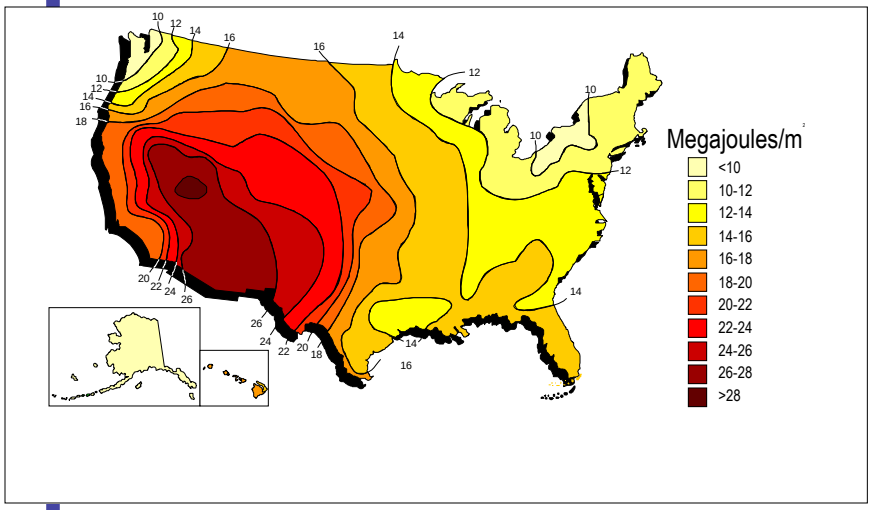


Hydro

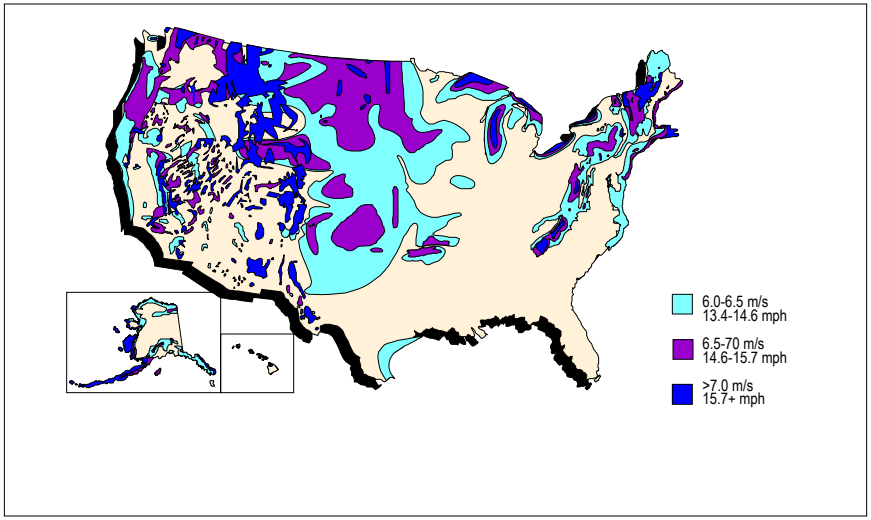


Renewable Resources

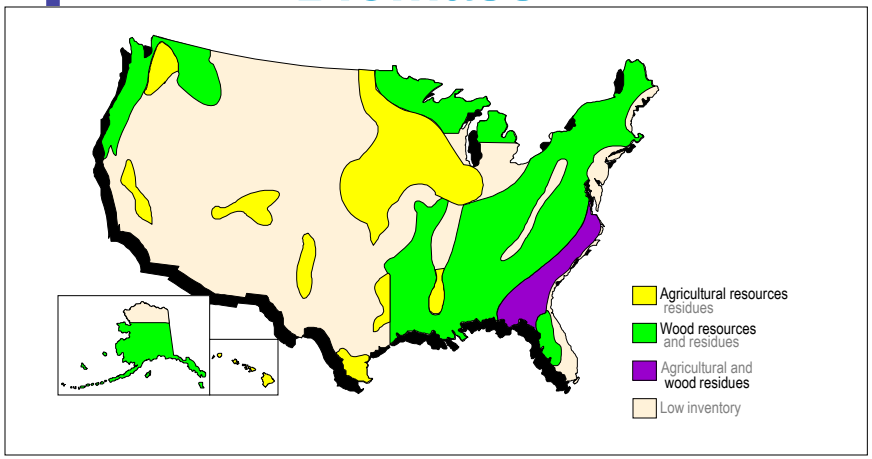
Solar



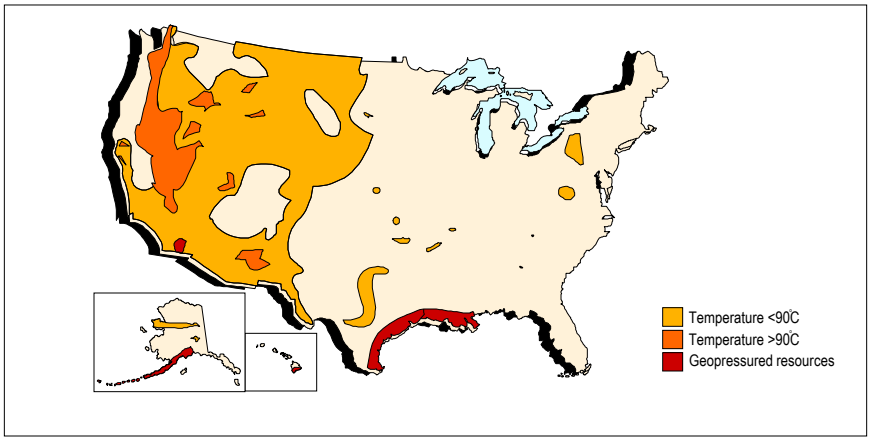
Wind



Biomass

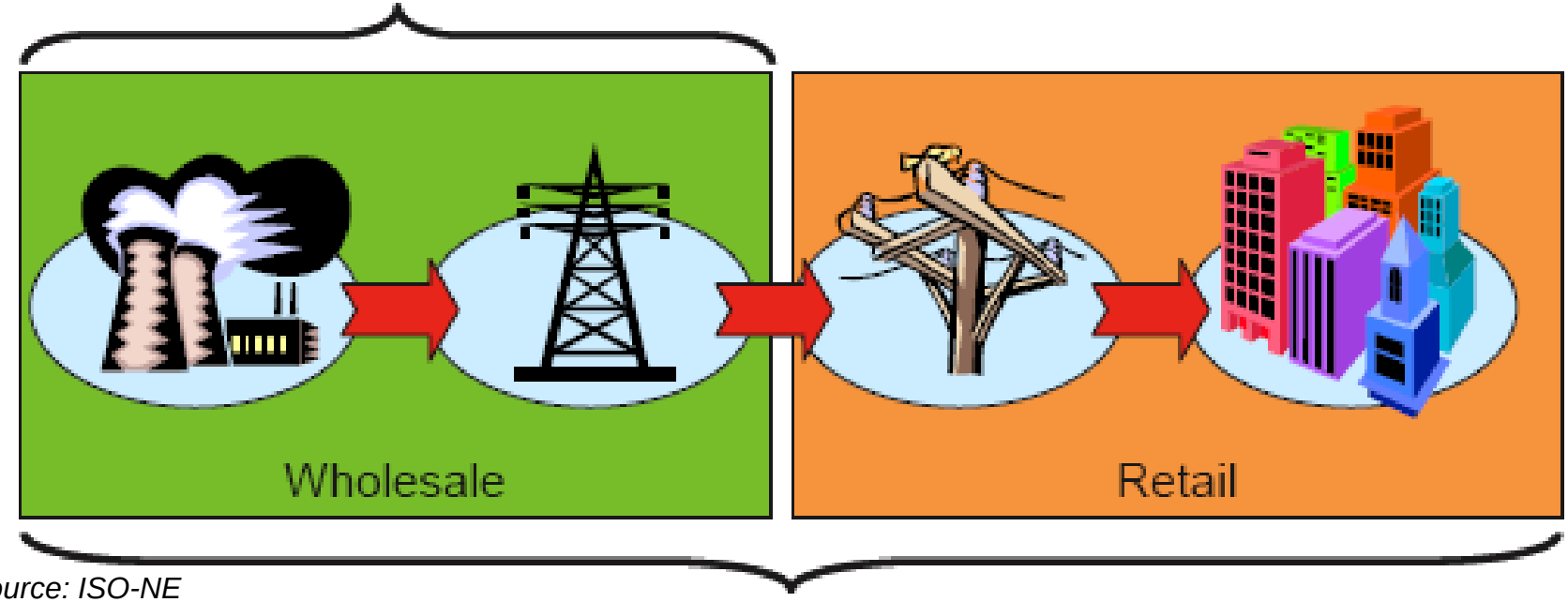


Geothermal



Federal & State Jurisdiction

Federal Jurisdiction



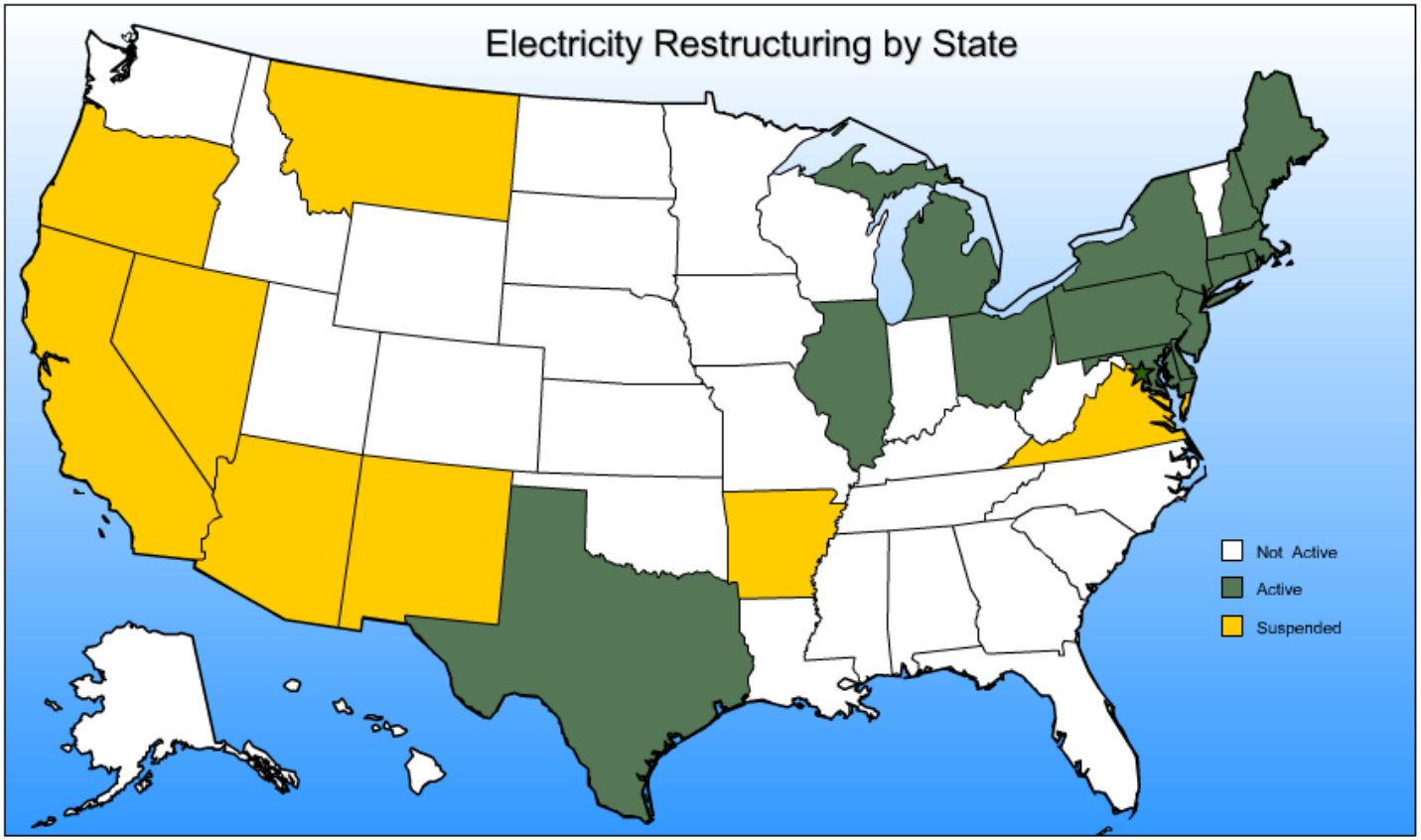
Source: ISO-NE

State Jurisdiction – Facility Siting, Distribution, Retail Rates

Who needs a mnemonic?
FERC jurisdiction is over “sale for resale”*

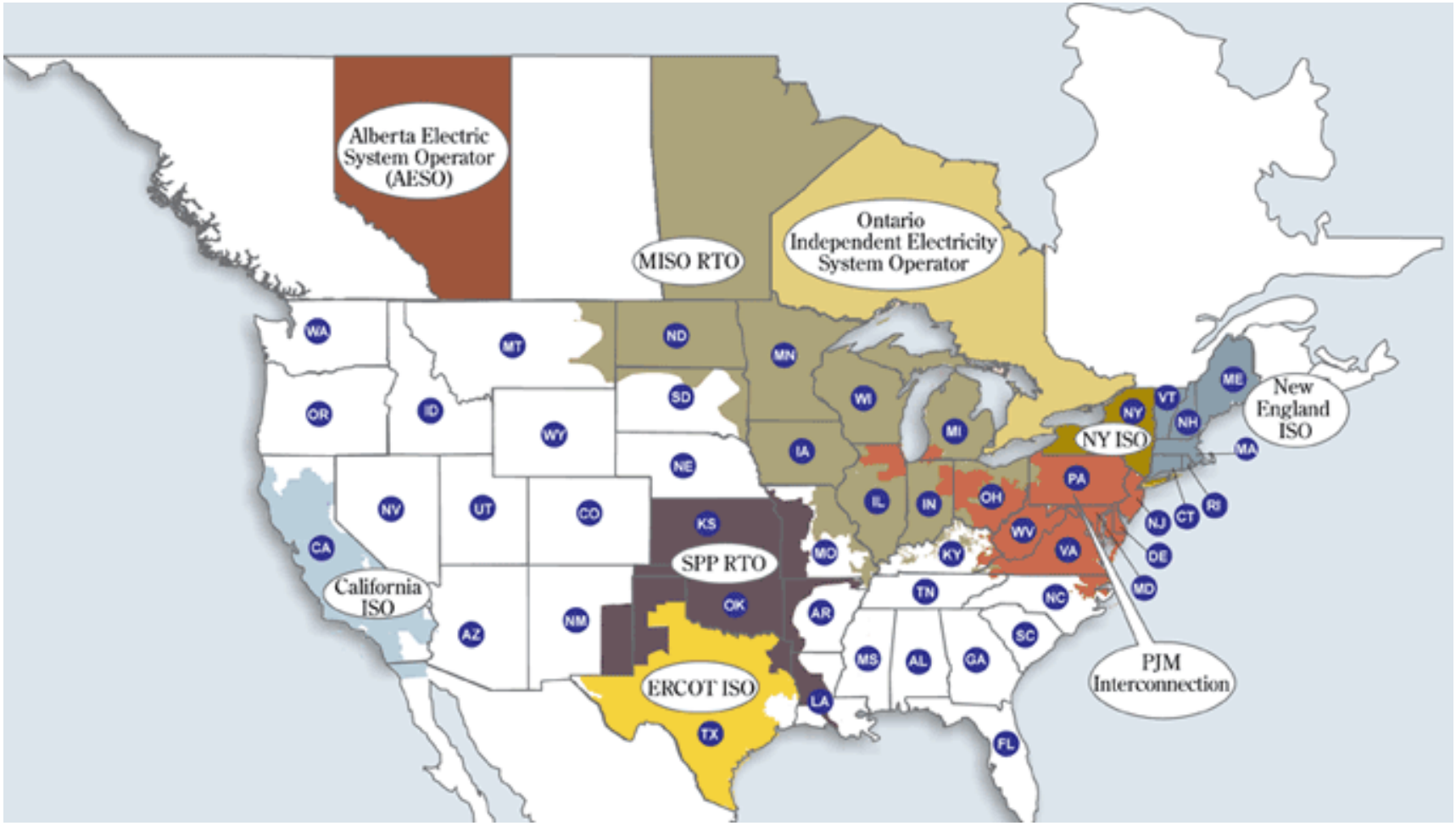
* Who doesn’t know what a mnemonic is?

Electricity Restructuring



Source: Energy Information Administration, status as of April 2007

RTOs


Alberta Electric System Operator (AESO)
MISO RTO
Ontario Independent Electricity System Operator
New England ISO
NY ISO
SPP RTO
California ISO
ERCOT ISO
PJM Interconnection
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
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IN
KY
TN
AL
OH
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CT
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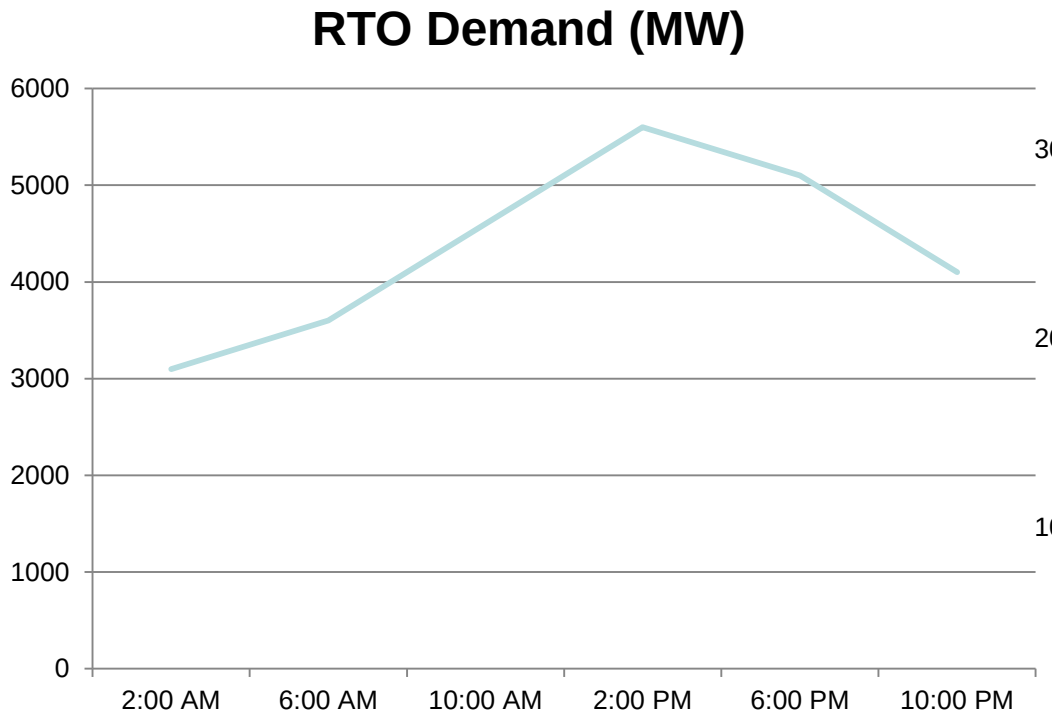
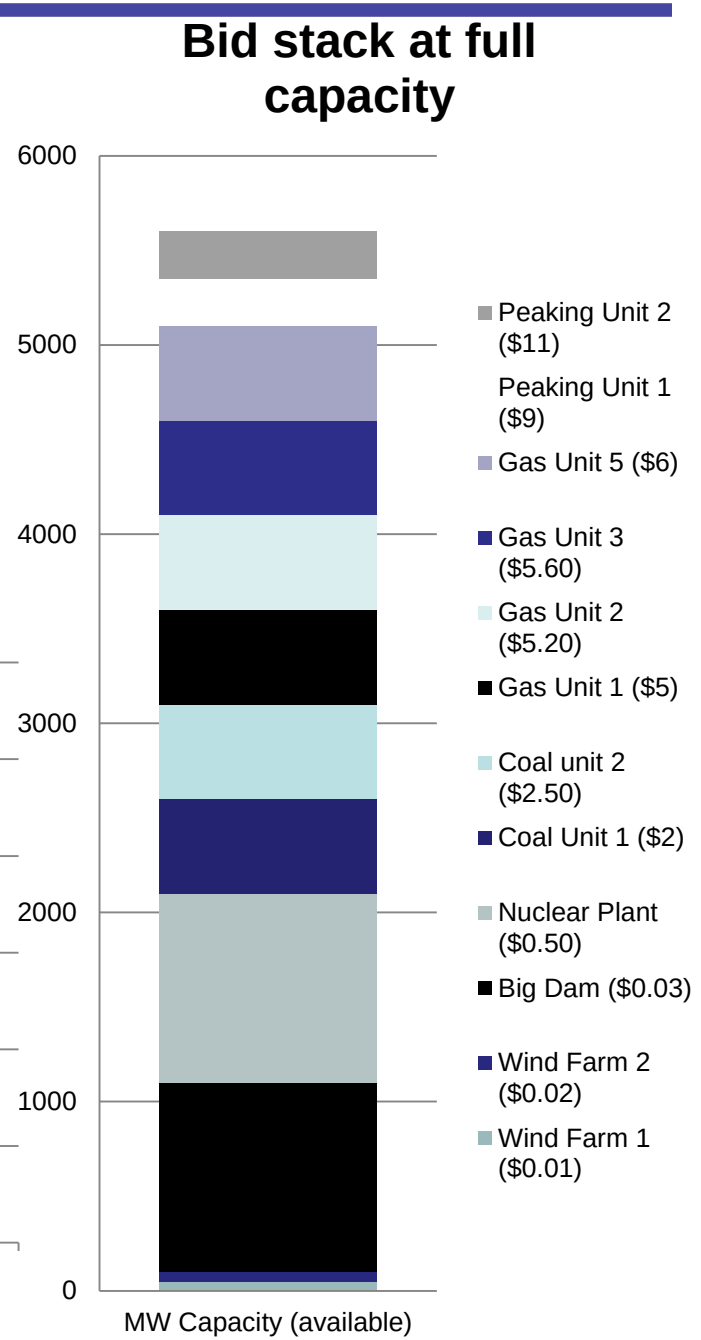
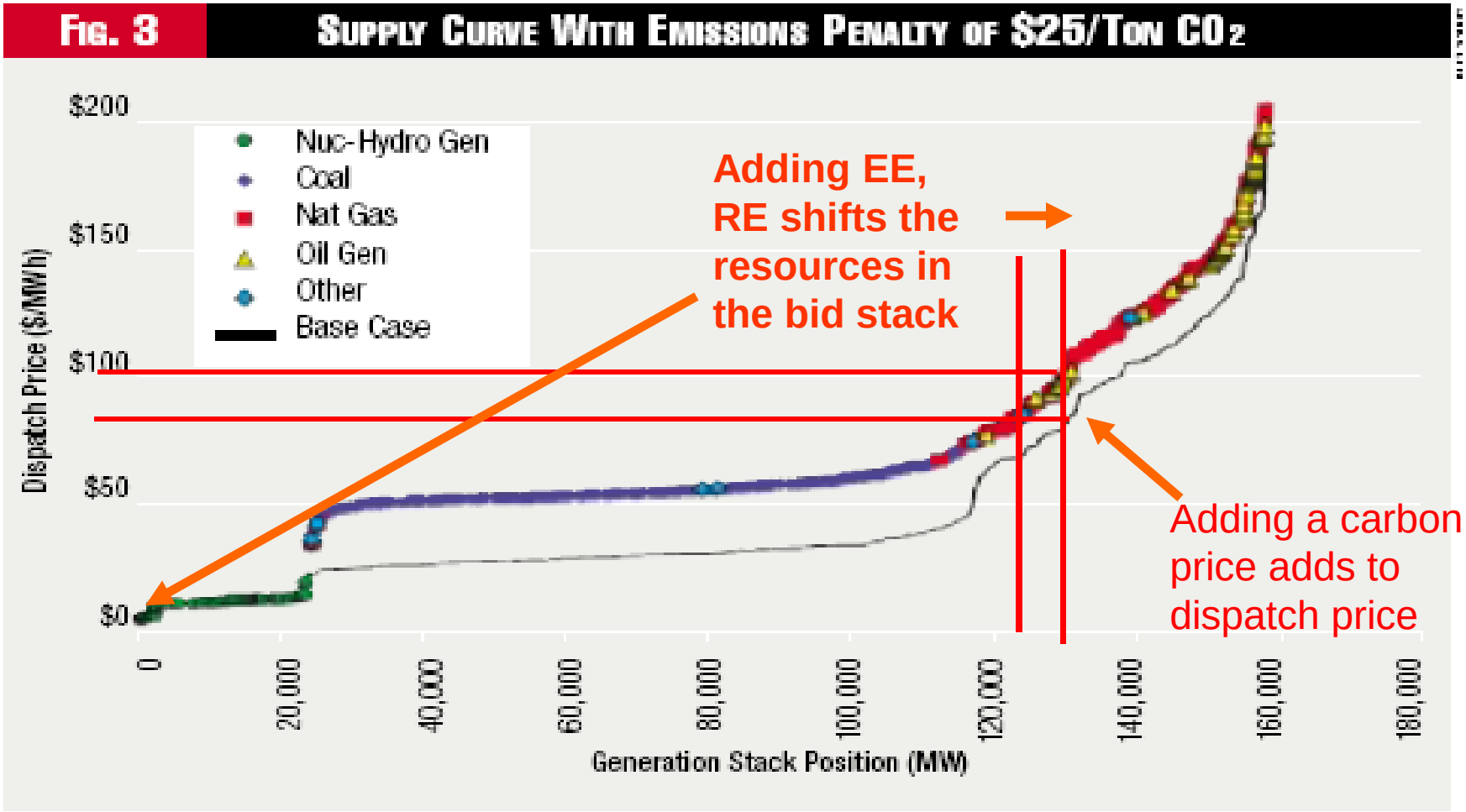
DE
MD

An Intro to Power Dispatch





Bumping marginal units off the bid stack: Utility Procurement and CO2 dispatch pricing



The Many Charms Of Efficiency

Costs less than a power plant!

Pays you back – now with local benefits!

NIMBY-proof!

Terrorist-proof!

Hurricane-proof!

Hugo Chavez-proof!

Easy to install: no wires or pipes!

100% NOx and SOx-free!

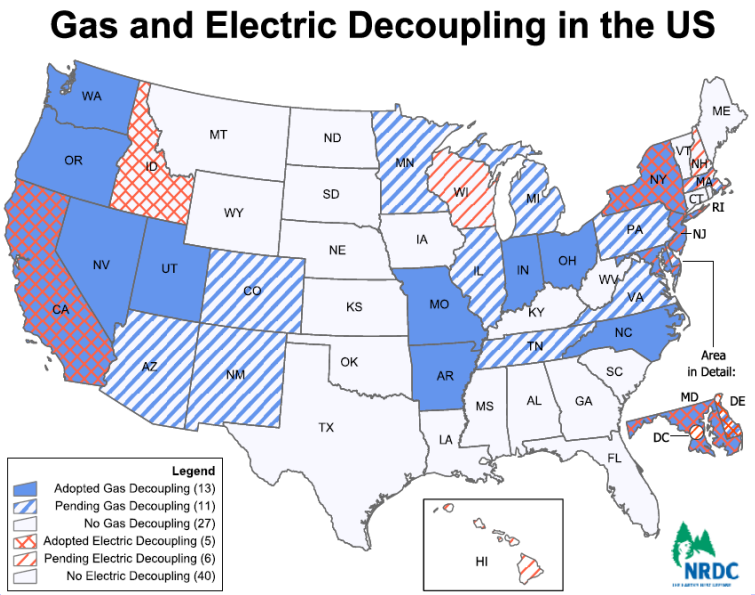
Legal everywhere, and Yucca-free!

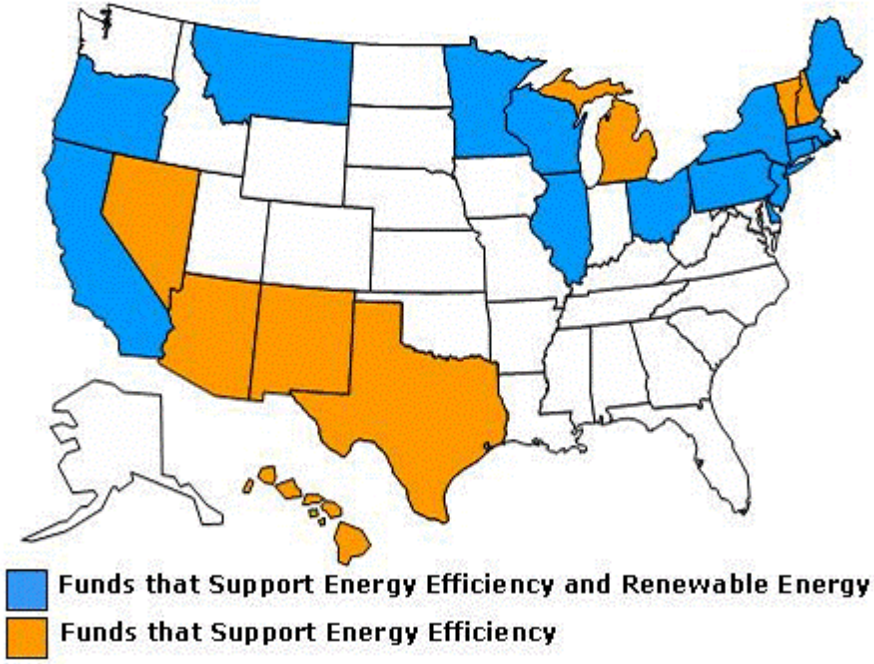
Bird / Bat-friendly!

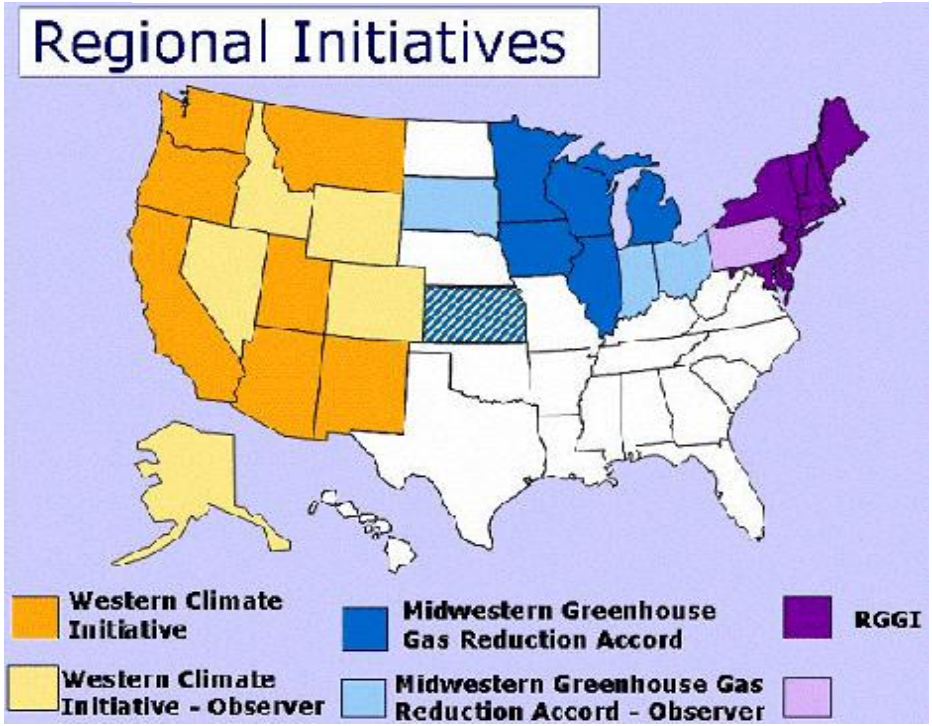
Good-looking!

More Popular Every Day!

State programs are the only programs that matter

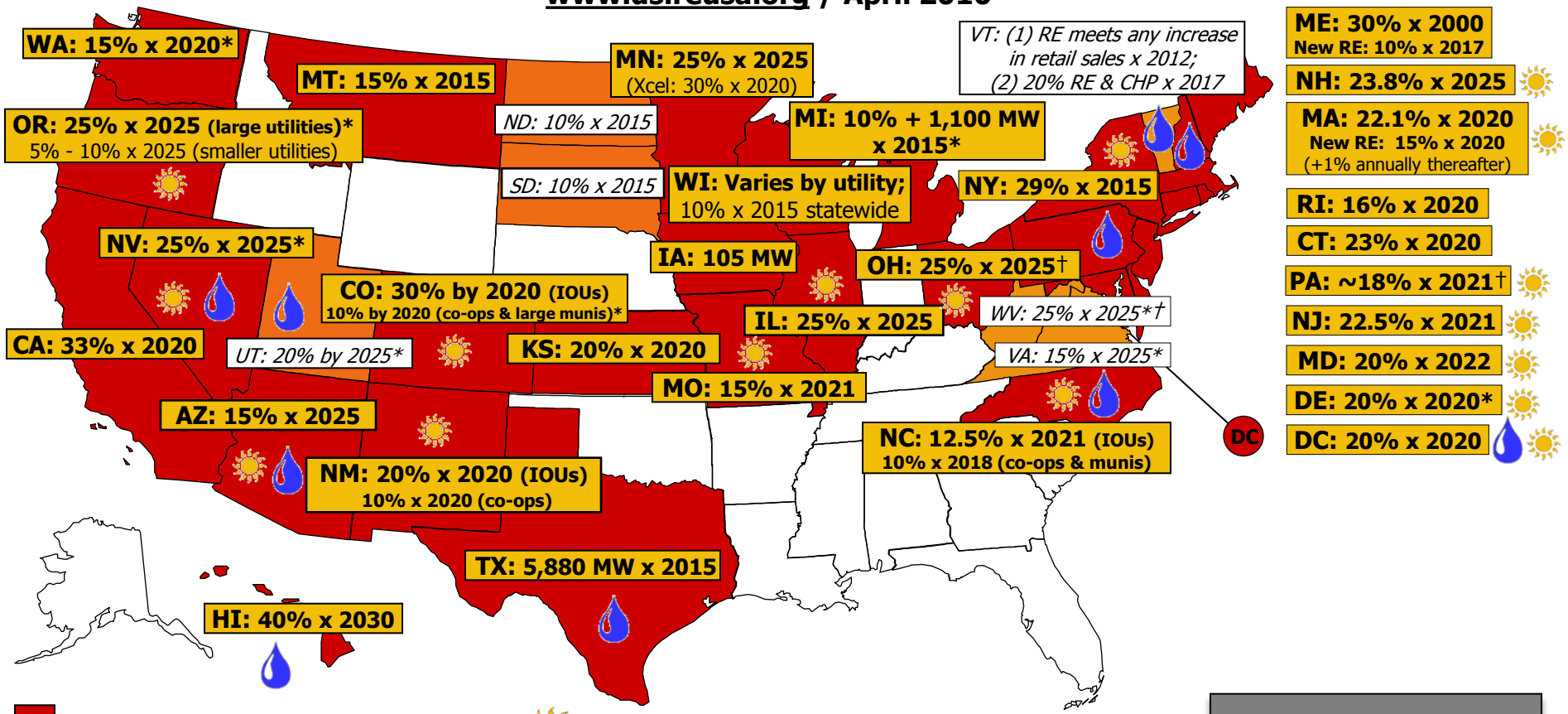






Renewable Portfolio Standards

www.dsireusa.org / April 2010



State renewable portfolio standard

State renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

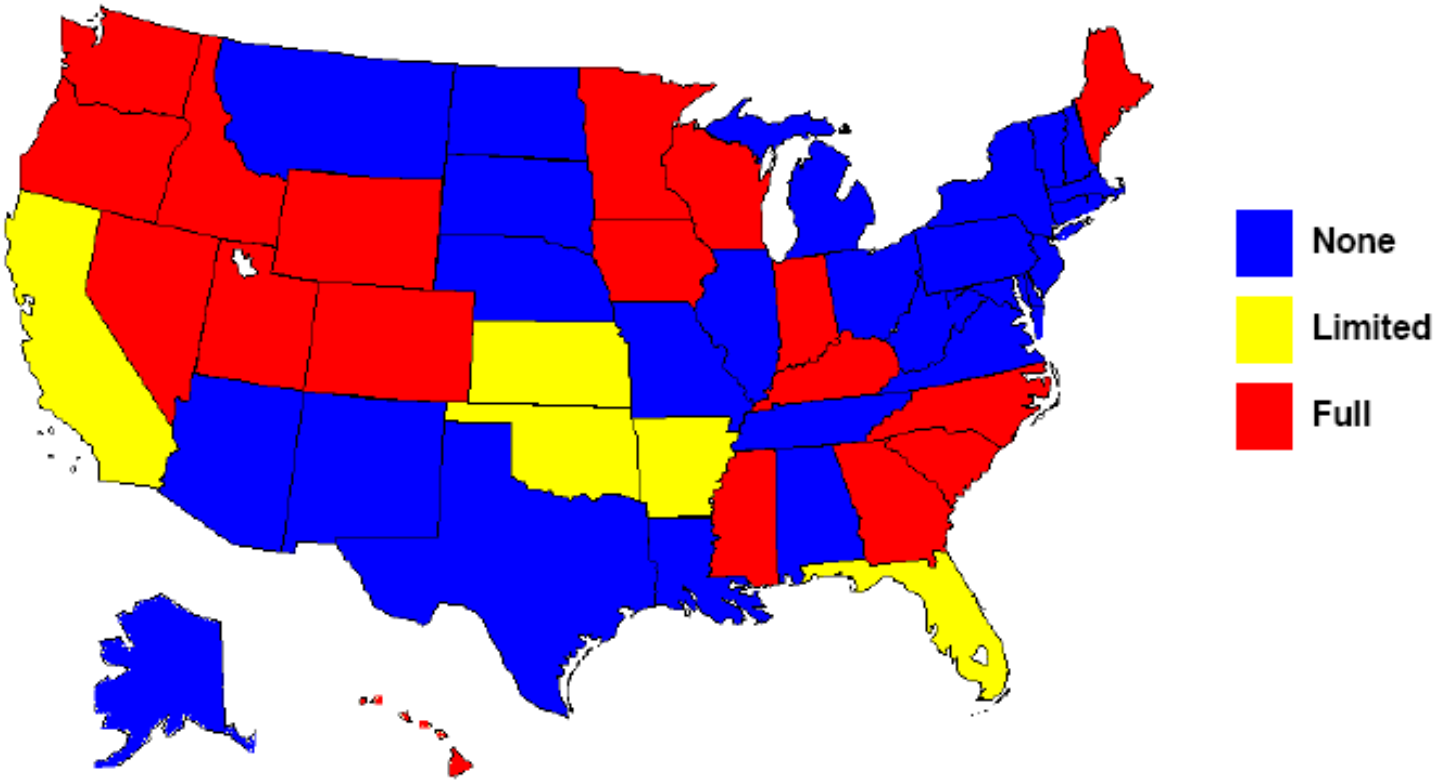
* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

29 states + DC have an RPS
(6 states have goals)

Resource Planning

- IRP evaluates scenarios and chooses resource mix that has best reliability, affordability, and other desired attributes
- Even without IRP, portfolio management is gaining ground



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I Will Now Confront Your Most Challenging Questions!

Or! Later if you prefer!

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