



FLORIDA SOLAR ENERGY CENTER



Creating Energy Independence Since 1975

Dr. James Fenton, Director



Practicing What We Preach

A Research Institute of the University of Central Florida



Florida Solar Energy Center Program Areas



- ❖ **High-Performance Buildings** (energy efficiency)
- ❖ **Solar Thermal Systems** (today's cost-effective solution)
- ❖ **Photovoltaics** (tomorrow's source of electricity)
- ❖ **Testing & Certification** (protecting Florida's citizens)
- ❖ **Alternative Fuels, Hydrogen and Fuel Cells**
(the future's fuels and engines)
- ❖ **Education and Training** (Florida's workforce for today and the future)
- ❖ **Demonstrations** (moving the market)



Florida Solar Energy Center



- ❖ **\$3 million** per year in operating funds
- ❖ **\$8.7 million** payroll per year (150 employees)
- ❖ **\$12 million** in contracted research and training per year
- ❖ American Recovery and Reinvestment Act funding
\$12 million → **> \$20 million**
- ❖ Building Research implemented in Florida's building energy codes and standards
saving **> \$100 million** annually in energy costs
- ❖ FSEC support has enabled more than 139,000 solar water heaters installed in Florida
saving **> \$34 million** annually in energy costs



UCF's FSEC Leads the Nation



❖ U.S. DOE

- **Building America, Energy Efficiency** – Only University lead
- **Southeast RES – Photovoltaic** applications research
- **Solar Energy Grid Integration** – Only University lead
- **Fuel Cell Membranes** – FSEC leads 12 univ./industry team
- **Solar Hydrogen Production** from water
- **Southern Alternative Energy Training Network – PV Southeast**

❖ Zero Energy Homes

FSEC created the first “Zero Energy Home” in the nation.

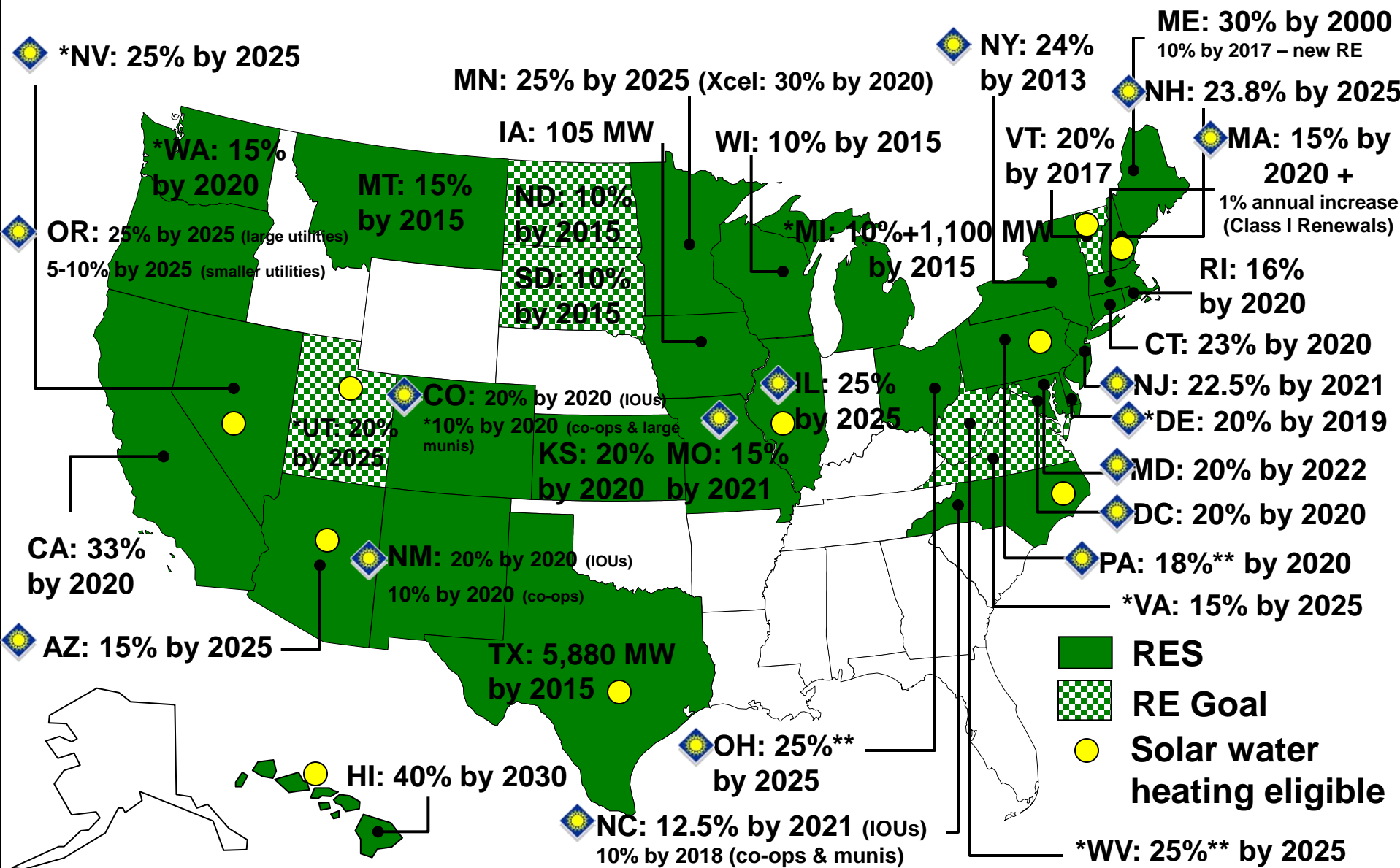
❖ Gossamer Wind[®] Ceiling Fan

UCF's most productive patent

(> 1.3M sold, > \$26M annual energy savings)

Renewable Portfolio Standards

November 2009



Minimum solar or customer-sited RE requirement.

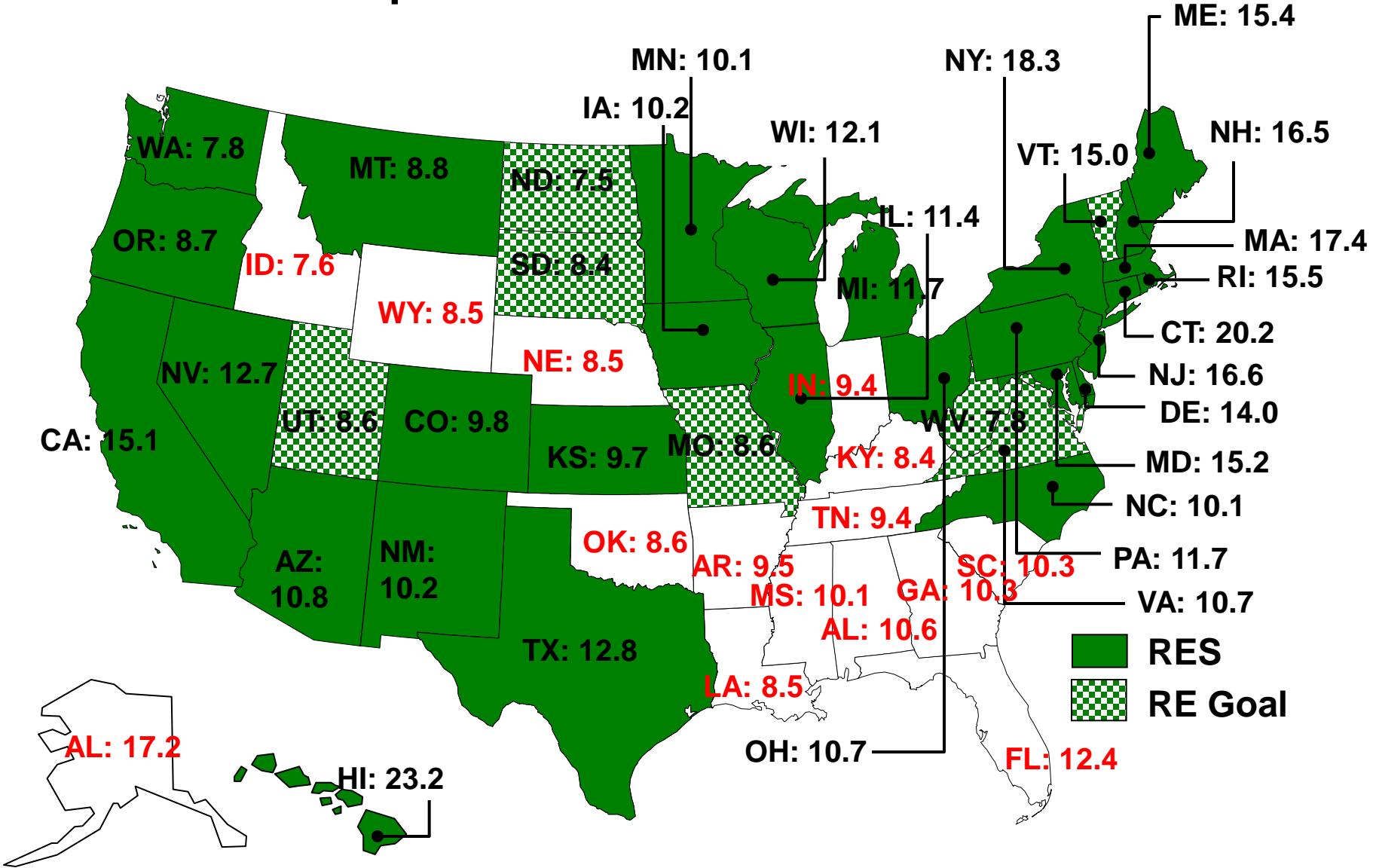
*Increased credit for solar or customer-sited RE

**Includes separate tier of non-renewable "alternative" energy resources

35 States + D.C.

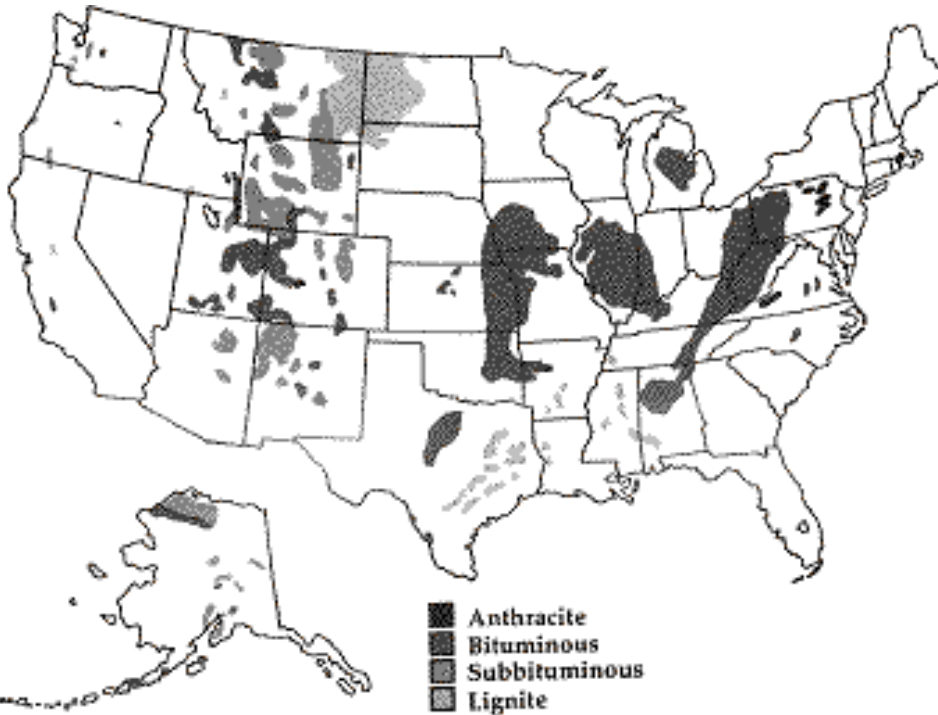
taken from DSIRE: www.dsireusa.org

Average Residential Retail Price of Electricity *Year to date August 2009* cents per kilowatthour



Coal Mining States

Reserves as of December 2005



State (2009 res electricity cost kWhr)	Tons (billions)	% of U.S.
Montana (8.6¢)	120	25.4
Illinois (11.4¢)	78	16.5
Wyoming (8.1¢)	68	14.4
West Virginia (7.6¢)	37	8.0
Kentucky (8.3¢)	30	6.3
Pennsylvania (11.1¢)	29	6.1
Ohio (10.0¢)	19	4.0
Colorado (9.4¢)	17	3.6
Texas (13.0¢)	13	2.7
Indiana (9.2¢)	10	2.1
Other States	51	10.9
TOTAL (11.2¢)	472	100.0

Although 90 percent of the country's coal reserves are concentrated in 10 states, coal is mined in 27 states and can be found in even more. Montana has the most coal, 25 percent of demonstrated reserves. Wyoming, third among states with the most coal, is first in coal output, accounting for 18 percent of annual production.