
U.S. Renewable Energy Markets & EPA's Role

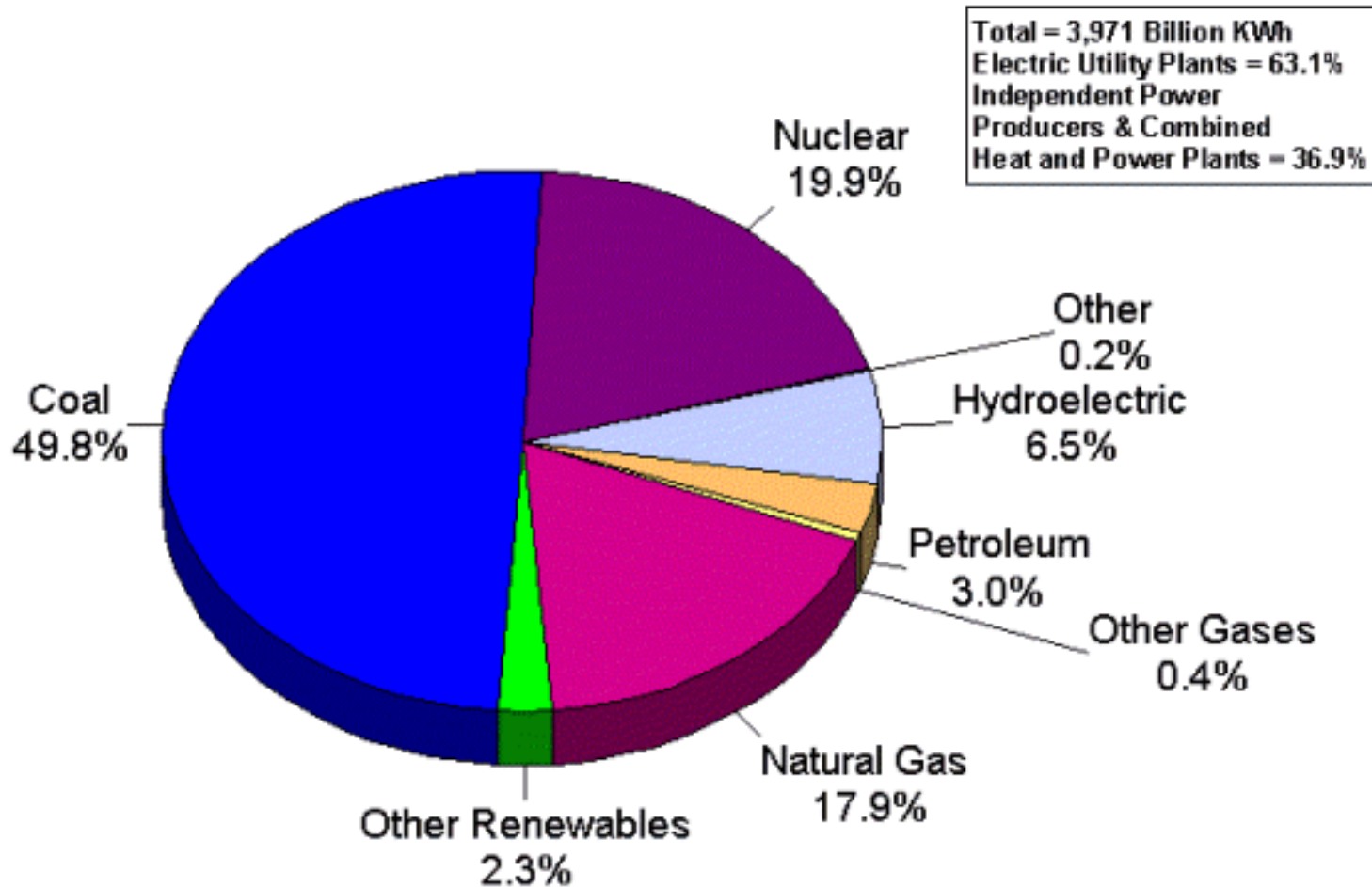
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**Commission for Environmental Cooperation (CEC)
Joint Public Advisory Committee (JPAC)
June 27, 2006**

Topics

- **Current Status**
 - **Two Markets**
 - **Drivers**
 - **Renewable Energy Forecast**
 - **Role of EPA**
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Current Fuel Mix for Power Generation



Note: Conventional hydroelectric power and hydroelectric pumped storage facility production minus energy used for pumping.

Existing Policies/Programs

- **Federal**

- Tax incentives
 - Production Tax Credit = 1.8 ¢/kWh
 - Investment Tax Credit
 - MACRS = accelerated depreciation
- Interconnection standards at wholesale level

- **State**

- Renewable portfolio standards
 - Renewable energy funds
 - Tax incentives and measures
 - State/regional goals (Western Govs 30 GW 2020 goal)
 - Electricity market rules/rate policy
 - interconnection at distribution level
 - transmission planning/access
 - congestion relief/reliability
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Two U.S. Markets for Renewables

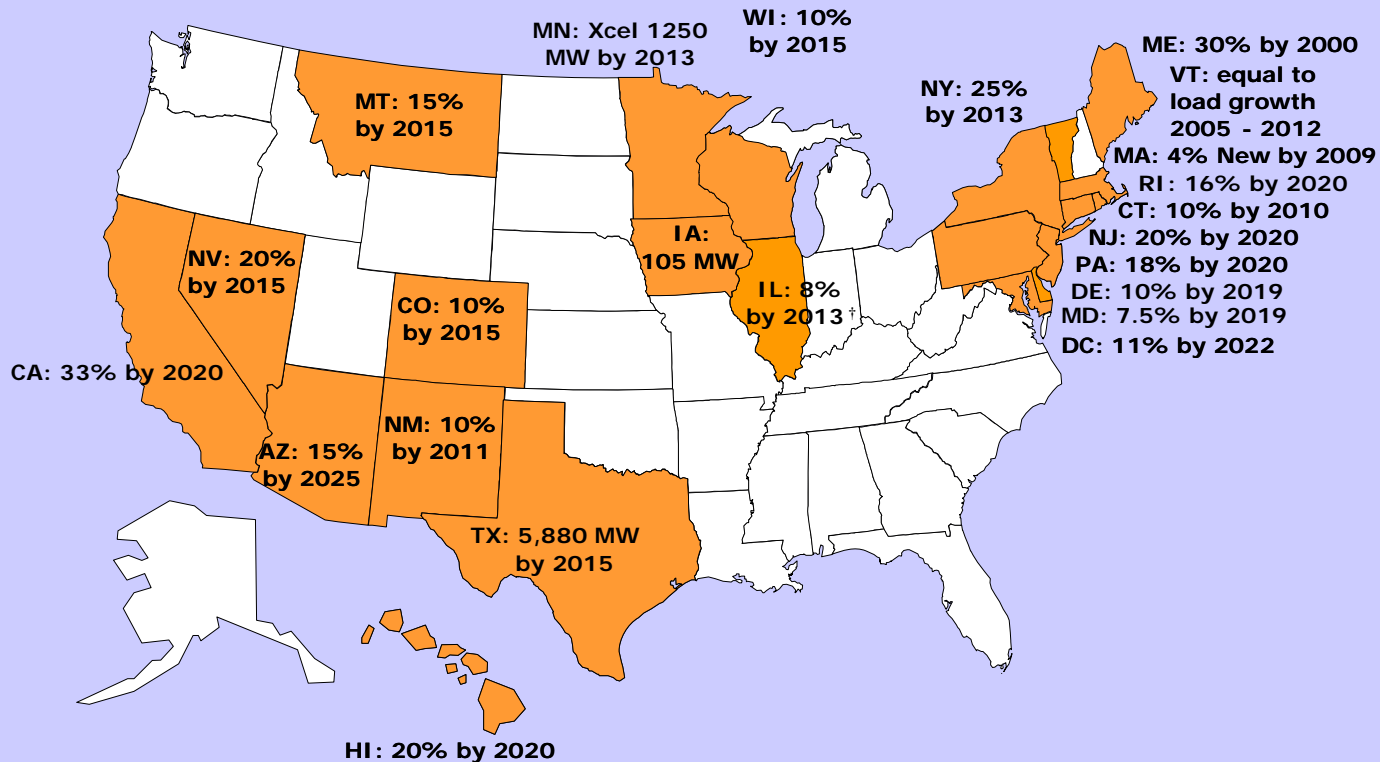
- **Two primary markets support the development of renewable energy**
 - Compliance market created by renewable portfolio standards (RPS) in 22 states
 - Voluntary market created by the sale of retail renewable electricity products a.k.a. *green power*
 - **Both markets increasingly rely on renewable energy certificates (RECs) to lower transaction costs and address needs for flexibility & liquidity**
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Compliance Markets for Portfolio Standards

- The Diffusion of RPSs Across the U.S.
 - From 12 in 2002 to 22 (plus DC) in 2006
 - Represents every region except the Southeast
 - Very diverse set of states, from Hawaii to Maine
- Common Design Features
 - All set a percentage or absolute amount of electricity to be provided from renewable sources over time
 - Nearly all use RECs to allow flexibility
 - Each RPS state designates a lead agency (usually PUC) to oversee process

States with Portfolio Standards

Renewable Portfolio Standards



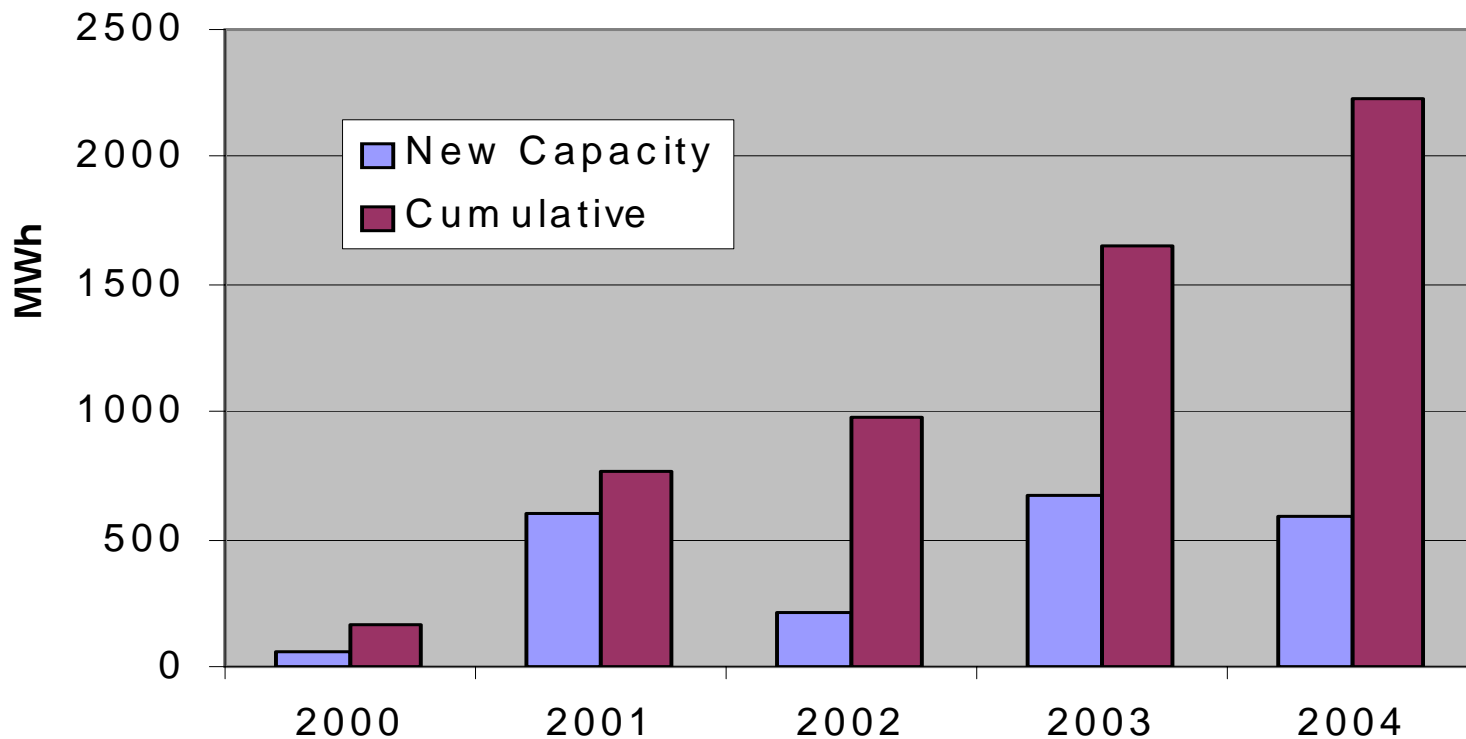
†IL implements its RPS through voluntary utility commitments

Voluntary or Green Power Market

- Green power market is over 10 yrs old
 - Non-residential sales driving growth increasingly
 - Any organization can buy green power
 - RECs are facilitating this growth
 - Green power premiums are declining
 - A few utility customers are paying less for green power than standard electricity service
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Renewable Capacity Supported

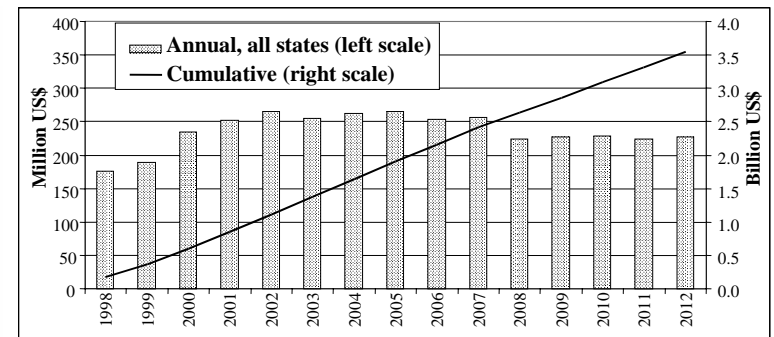
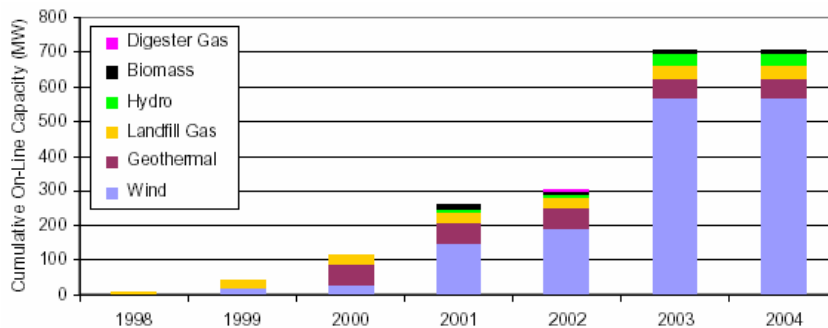
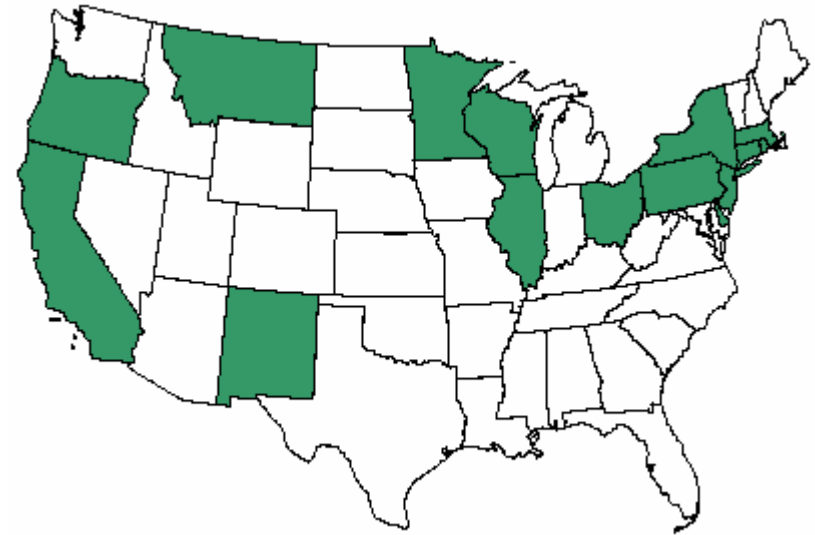
- Green power market is bringing new capacity on line



Source: Bird and Swezy, NREL, 2005.

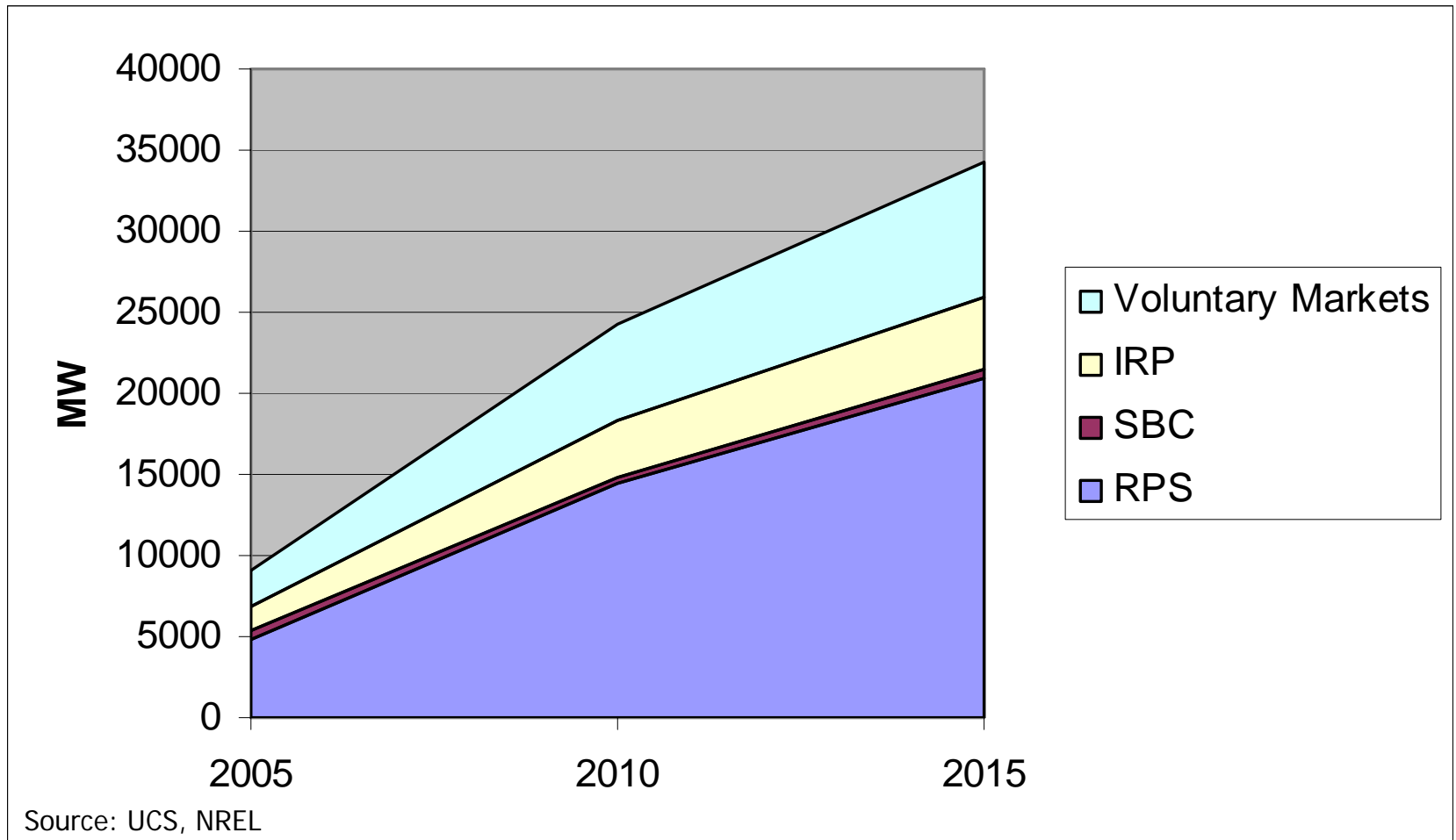
Clean Energy Funds - Renewables

- 14 states, funded through system-benefits charges or other means
- Approximately \$3.5 billion through 2012
- As of September 2004
 - 163 projects complete
 - 707 MW new capacity installed
 - Additional 1.5 GW obligated capacity pending



Source: LBNL, The Impact of State Clean Energy Fund Support for Utility-Scale Renewable Energy Projects (October 2004).

U.S. Renewables Capacity Forecast



EPA and Renewable Energy

- EPA supports renewable energy for several reasons
 - Fuel diversity/energy security
 - Local economic benefits
 - Environmental benefits
 - EPA works to address key RE market barriers
 - Lack of knowledge about choice/environmental impacts of electricity use
 - Lack of level playing field for RE technologies in power market rules
 - RE usually offered at a premium
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