



Overview of the U.S. Renewable Energy Market and EPA's Green Power Partnership

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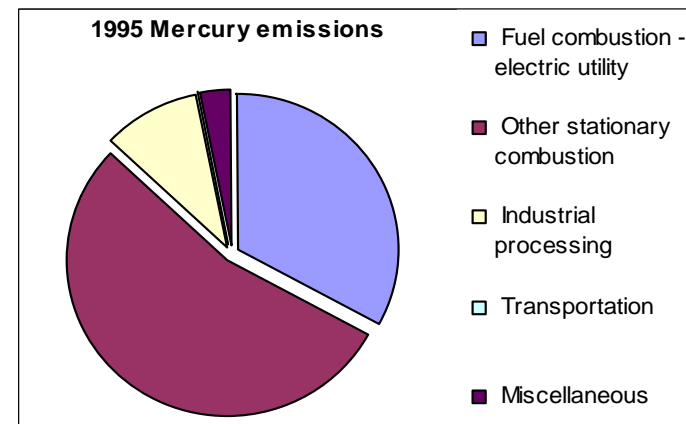
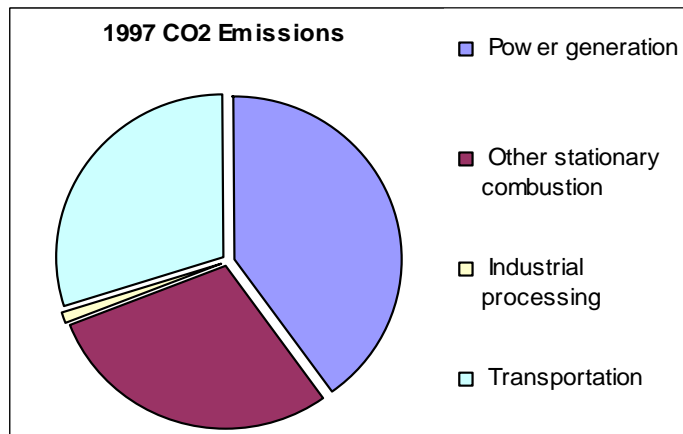
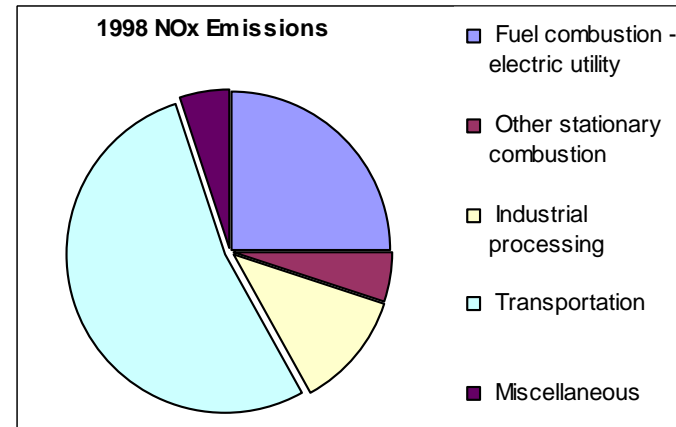
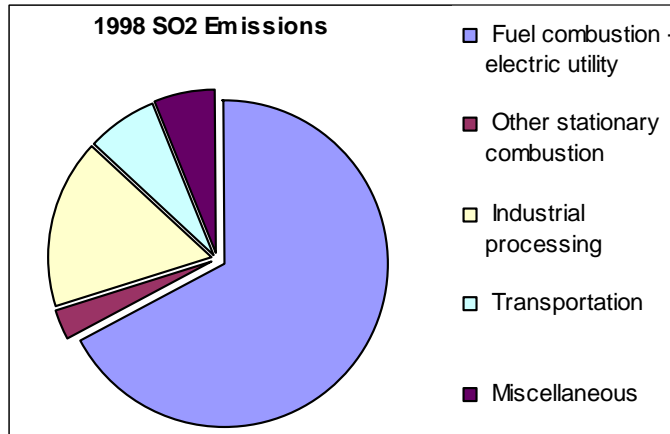
Overview

- **Renewable Energy in the United States**
- **Renewable Energy Policy Drivers**
- **U.S. Green Power Markets**
- **EPA's Green Power Partnership**
- **EPA Resources**



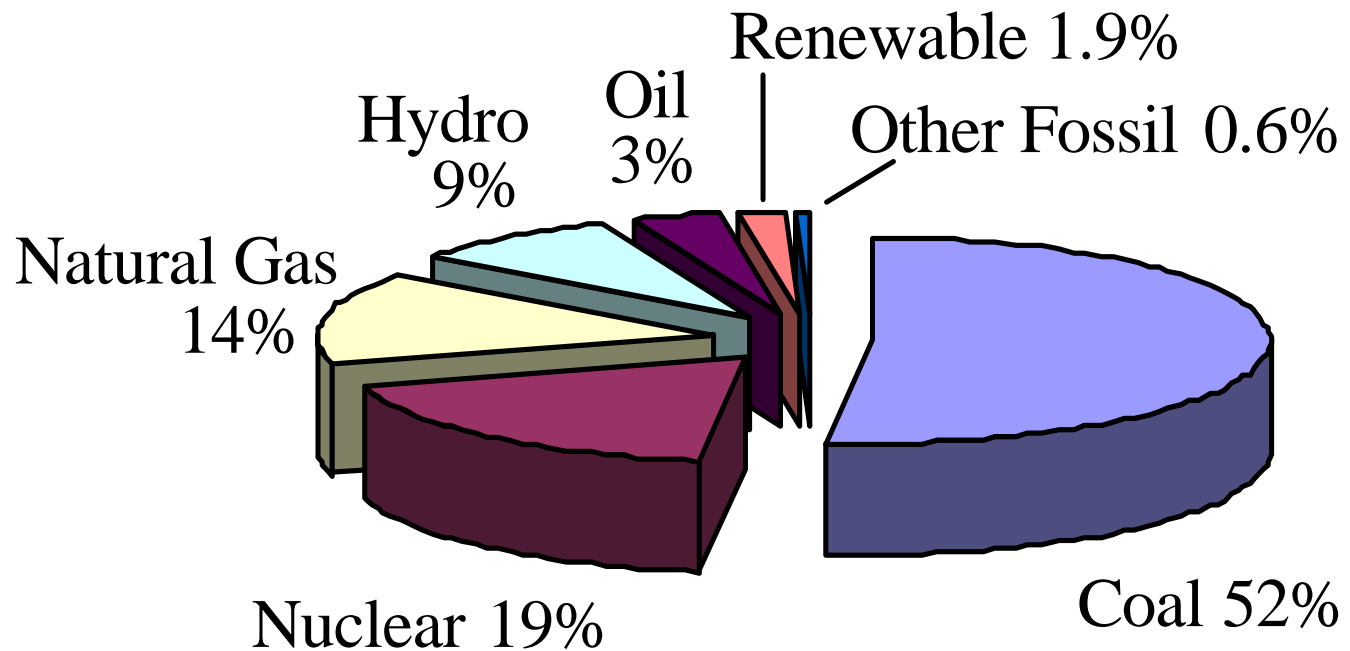
U.S. Electricity Generation

A Major Source of Air Emissions



* "Other stationary combustion" includes residential and commercial sources.

Current Fuel Mix of U.S. Electricity Generation



Source: EGRID2000 Data (1998)



Renewable Energy Market Drivers in the United States

- **Renewables Portfolio Standards:** 13 states have enacted RPS policies, which obligate suppliers to deliver a certain amount of renewable energy
- **Renewable Energy Funds:** 15 states have set-aside funds to financially support renewable energy sources
- **Market-Based Incentives:** Federal production tax credit for wind, investment tax credit for solar and geothermal, and accelerated depreciation, state tax incentives
- **Economics:** Some forms of renewable energy compete on cost alone (e.g., wind at ~2-4 cents/kWh)
- **Voluntary Green Power Markets:** Utility green pricing programs, competitive green power markets, and REC marketers



Renewable Energy Market Barriers in the United States

- **Utility regulatory policies**
 - ✓ Access to transmission
 - ✓ Level playing field for bidding into power markets
 - ✓ Interconnection
- **Cost**
 - ✓ Most renewable energy at a premium
- **Lack of recognition in environmental regulations**
- **Lack of awareness**



Renewables Portfolio Standard

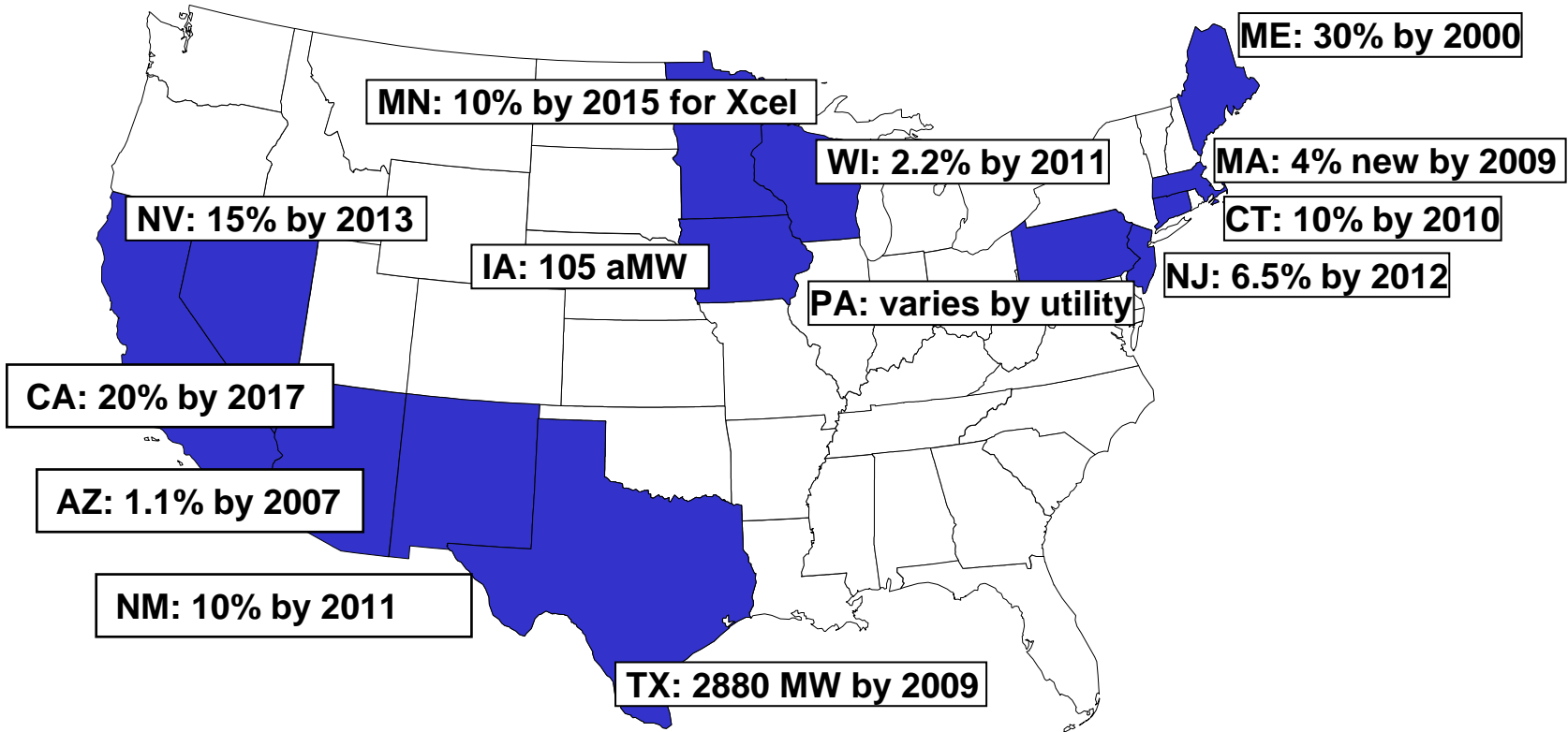
RPS is a...

- Requirement on retail electric suppliers...
- to supply a minimum percentage or amount of their retail load...
- with eligible sources of renewable energy.

Sometimes accompanied with a tradable renewable energy credit (REC) program to ease compliance



State RPS and Purchase Mandates – 13 States



- Renewable energy “goals” established in Illinois, Minnesota, and Hawaii

Impacts of State RPS Policies

- Texas: **Over 1100 MW of wind installed since RPS established**
- Minnesota: **Largely met initial 425 MW wind/125 MW biomass mandate**
- Iowa: **Policy met with 250 MW of wind some time ago**
- Wisconsin: **140 MW of RE so far, with more on the way**
- California: **Interim procurements resulting in lots of RE contracts, a fraction of which are coming from new RE**
- Nevada: **Initial procurement led to 277 MW of RE contracts**
- Arizona: **7 MW PV, 5-10 MW LFG, 3 MW biomass, 15 MW wind (contract), 20 MW geothermal (contract)**
- New Mexico: **Contributor to 204 MW wind project installed in 2003**
- Massachusetts and Connecticut: **Merchant LFG, wind development, biomass repowering and re-development**
- New Jersey: **Mostly supported existing LFG so far, but some new wind and LFG indirectly affected by policy**



Market-based incentives

Federal

- Production tax credit (PTC)
 - ✓ Provides tax credit of 1.5 cents/kWh generated
 - ✓ Key driver for U.S. wind energy market
 - *Expired 12/31/03; numerous wind projects on hold*

States

- Public Benefit Funds
 - ✓ Minimal charge on electricity bill (cents per kWh basis)
 - ✓ 15 States with Funds; \$4 billion by 2012
 - ✓ Support renewable energy investments (CT, PA, MA) projects (CA, NJ, NY, OR, others), industry/infrastructure (WI, PA, NY)
 - ✓ Vulnerable to budget cuts (CT, MA, PA, WI)
- Tax credits – renewable energy equipment purchases (CA, HI, OR, others)
- Sales tax (AZ, UT, VT, others) and/or property tax exemptions (OR, IA, others)



What is Green Power?

- Special category of marketed electricity
- Electricity that is entirely or significantly generated from:



U.S. Green Power Market

- **Green Power Options**

- ✓ Utility Markets

- More than 350 utilities in 33 states have green pricing programs
- Top programs are achieving 3-6% customer participation, average participation is about 1%

- ✓ Competitive Markets

- About 20 retail green power marketers active in 8 states

- ✓ Voluntary REC Markets

- About eighteen REC marketers across the US

- **Current Status**

- ✓ 1500+ MW of new RE capacity brought on-line to serve demand created by voluntary green power markets



EPA's Green Power Partnership

- **Vision**

- ✓ Lower the cost and increase the value of renewable energy by increasing demand and offering services to buyers

- **Goal**

- ✓ Reduce air pollution and greenhouse gas emissions by expanding the market for green power

- **Structure**

- ✓ Program Partners make a commitment to buying green power in return for technical assistance and recognition

- **Current Status**

- ✓ Over 230 Partners with a total commitment which exceeds 1.1 billion kilowatt hours of green power annually



Partner Requirements

- **Sign Letter of Intent (on website)**
 - ✓ Purchase green power within one year of joining
 - ✓ Purchase must meet or exceed facility(ies) benchmark level
 - ✓ Eligible products: green power, green tags, onsite generation
 - ✓ Eligible renewable resources
 - “eligible” as currently defined by Green-e
 - 50% of minimum green power purchase must be “new” renewable resources
- **Provide Annual Update**
 - ✓ electricity usage, percentage of “new” renewables in commitment, provider, and resource type



Partner Benefits

- **Credibility**

- ✓ A definition of green power (in collaboration with Green-e)
- ✓ A metric for “How much green power is enough?”
- ✓ A metric for “How much green power is outstanding?”
- ✓ A product standard: % new renewables
- ✓ An answer to “What does my purchase mean environmentally?”

- **Recognition**

- ✓ Press and communications support
- ✓ Promotional opportunities & use of the Partnership Logo
- ✓ Green Power Leadership Awards

- **Information**

- ✓ Procurement and Communications Guides
- ✓ Environmental impact information
- ✓ A network of Partners
- ✓ Green Power Locator



Recommended Renewable Energy Resources

- **Green Power Network**
 - ✓ www.eren.doe.gov/greenpower
- **Renewable Energy**
 - ✓ www.eren.doe.gov
- **State Renewable Energy Incentives**
 - ✓ www.dsireusa.org
- **Green-e**
 - ✓ www.green-e.org
- **EPA's Green Power Partnership**
 - ✓ www.epa.gov/greenpower



Tackling Utility Policy Barriers

- **Standardized interconnection at wholesale/distribution**
- **“postage stamp” rates for transmission**
- **State forward-funding for new transmission lines**
- **BC Hydro/CA wind scheduling approaches**