Energy Planning in New York State

John Williams
Director, Energy Analysis
NYSERDA

A Systems Approach to Energy Transitions: Land, Economic and Community Transformations
March 31, 2011
2008 New York State Energy Flow (TBtu)

Primary Consumption: 4,027 TBtu

Conversion and Losses: 1,144 TBtu

Net Consumption: 2,883 TBtu

- Transportation: 1,153 TBtu (97%)
- Residential: 806 TBtu (22%)
- Commercial: 699 TBtu (17%)
- Industrial: 215 TBtu (23%)

Other Fuels: 990 TBtu
- Nuclear: 453 TBtu (28%)
- Hydro: 265 TBtu (16%)
- Biofuel: 41 TBtu (3%)
- Net Imported Electric: 230 TBtu (14%)

Electric Generation: 1,636 TBtu

Conversion and Losses: 1,144 TBtu

Electricity Sales: 482 TBtu
Net energy demand in New York differs from national demand in several respects:

• Residential net energy use accounts for 28% of total energy demand in New York, compared to 19% nationally.

• Commercial net energy use accounts for 24% of total energy demand in New York, compared to 14% nationally.

• Transportation net energy use accounts for 41% of total energy demand in New York, compared to 43% nationally.

Reveals opportunities for community action to influence energy outcomes
New York State Energy Facts 2009

Energy Expenditures ($Billion)

- Total: $56.5
- Estimated energy expenditures leaving the state: $28.1

- By sector:
  - Residential (31%) $17.6
  - Commercial (29%) $16.5
  - Industrial (4%) $2.4
  - Transportation (41%) $19.9

- By fuel type:
  - Petroleum (44%) $24.7
  - Natural gas (18%) $9.9
  - Electricity (38%) $21.7
  - Coal (<1%) $0.1
NYS Average Energy Prices 2009

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>2009</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline - all grades (gallon)</td>
<td>$2.39</td>
<td>$3.28</td>
</tr>
<tr>
<td>Heating oil (gallon)</td>
<td></td>
<td>$2.60</td>
</tr>
<tr>
<td>Natural gas (thousand cubic feet)</td>
<td></td>
<td>$3.42</td>
</tr>
<tr>
<td>Residential</td>
<td>$15.08</td>
<td>$16.83</td>
</tr>
<tr>
<td>Commercial</td>
<td>$10.90</td>
<td>$12.93</td>
</tr>
</tbody>
</table>
Primary Energy Use:

Primary Energy Use per capita:

Primary Energy Use per unit GSP:

Energy Expenditure per capita:

Total CO2 Equivalent from Greenhouse Gases:
250 Million Metric Tons

- **Carbon Dioxide**: 88.2%
- **Fuel Combustion**: 85%
- **Other Sources**: 15%

Other Sources (38 Million Metric Tons)
Fuel Combustion (213 Million Metric Tons)
CO₂ from Fuel Combustion by End Use Sector for New York, 2008

Total CO₂ from Fuel Combustion: 210 Million Metric Tons (84% of Total GHGs)

- **Industrial**: 9.5%
- **Residential**: 24.7%
- **Commercial**: 25.4%
- **Transportation**: 40.4%

Percent of Total CO₂ Emissions from Fuel Combustion:
- 40% Transportation
- 35% On-Site Combustion
- 21% Electricity Generation
- 4% Net Imports of Electricity

Total CO₂ from Fuel Combustion: 210 Million Metric Tons (84% of Total GHGs)
New York State Climate Action Plan Goal

- **1990**: 248 Million Metric Tons CO2 Equivalent
- **2008**: 254 Million Metric Tons CO2 Equivalent
- **40 by 30 Interim Benchmark**: 268 Million Metric Tons CO2 Equivalent
- **80 by 50 Goal**: 50 Million Metric Tons CO2 Equivalent

- **Residential, Commercial/Institutional & Industrial**
- **Power Supply & Delivery**
- **Transportation & Land Use**
- **Agriculture, Forestry & Waste**
Integrated State Energy Planning

• **Balance Energy – Economic – Environmental Policies**
  – Benefit-Cost Analyses: At what level does a policy/program contribute relative benefit or cost
  – Overall Energy/Program Costs

• **Identify Economic Opportunities**
  – Reduce fuel imports via In-State energy resources
  – Economic Development

• **Identify and Address Risks to Public Health, Safety, Welfare**
  – Provide rational progression to meet long-term policy drivers
Article 6, State Energy Planning

Energy Planning Board, chaired by NYSERDA President

- 14 Agency/Appointee Members
- Agency staff shall provide services as requested by Board

The Board shall...be guided by the goals of:

- Improving the reliability of the State's energy systems
- Insulating consumers from volatility in market prices
- Reducing the overall cost of energy in the State
- Minimizing public health and environmental impacts, in particular, environmental impacts related to climate change
- Additional charge: Maximize cost-effective energy efficiency to meet projected demand growth
Section 6-104(2) State Energy Plan shall include

- 5, 10, 15 year demand and supply forecasts
- Infrastructure assessments, needed additions or alternatives
- Alternative (emerging) technologies
- Trends in supply, price, demand and review of current programs
- Security issues analysis
- Environmental Justice analysis
- Greenhouse gas emissions inventory and low carbon strategies
- Impact to Economic Development; Health, Safety, Welfare; Environmental Quality; Energy Costs for Consumers, low-income consumers
Energy Law Article 6

- 4-year Plan Cycles; No Sunset Provision

- State Agency Identification for Policy/Program Implementation
  - Annual Report to Board on Progress
  - Biennial Reports on Agency Progress, or recommended policy change

- SEP “shall provide guidance” to public and private sectors
  - Any energy-related decision by an agency “shall be reasonably consistent” with SEP
  - If not consistent, agency action to include statement explaining a finding why SEP is no longer reasonable

- Amendment, Appeals, Hearings processes
5 Policy Objectives

- Assure reliable energy and transportation systems
- Support energy and transportation systems that significantly reduce greenhouse gas emissions
- Address affordability and improve economic competitiveness
- Reduce health and environmental risks of energy production and use
- Improve energy independence and fuel diversity
2009 State Energy Plan

5 Key Strategies to Simultaneously Achieve Energy Plan Objectives

- Produce, deliver and use energy more efficiently
- Support development of in-state energy supplies
- Invest in energy and transportation infrastructure
- Stimulate innovation in the clean energy economy
- Engage others in achieving the State’s policy objectives

120 Action Items tracked via Implementation Table
New York State Clean Energy Policy

“45 by 15” Goal

• 15 x15 - Reduce electricity consumption 15% below projected by 2015
• 30 x 15 - Thirty percent of electricity sold in NYS will come from qualifying renewable energy sources by 2015

• Translates to:
  – New EEPS program
  – Expanded RPS program; expanded CST
  – Refocused SBC program
Key Strategy: Engaging Others

Sustained Commitment from Local Governments

- Energy Codes – Adoption and Enforcement
- Planning and Land Use Decision-making
  - Recommended legislation: Require energy considerations in Comprehensive Plans
  - Tax incentives to encourage distressed community redevelopment
  - Assistance to promote Smart Growth and reduce VMT
- Locally-sponsored Efficiency Initiatives
- Locally-developed Renewable Resources
- Energy Infrastructure Siting
Climate Smart Communities

Target Initiative of Energy Plan: Increase the number of participating communities

Program Attributes:
• Adopt the Pledge
• Create Climate Action Plan
  – Greenhouse Gas Inventory, Set Goals, Initiate Action
• Decrease Energy Demand for Local Government
  – Energy Efficiency, Transportation, Purchasing
• Encourage Renewable Purchases for Operations
• Non-Energy Activities (e.g. Waste Management)

NYSERDA-DEC Regional Coordinators
Energy Smart Communities

NYSERDA program to increase effectiveness of program and encourage clean energy at community level

Program Attributes:
- Link community and program opportunity/Establish goals
- Increase knowledge of consumers to create demand
- Recruit mid-stream partners for programs to ensure supply
- Education for future consumers
- Project referrals
- Help promote community success stories

NYSERDA Regional Coordinators
Cleaner, Greener Communities

Announced $100 Million Initiative; Competitive Grants

Envisioned with at least 2 types of Support:

• Local/Regional Planning
  – Innovative, Comprehensive, Smart Growth Strategies
  – Energy (supply and demand side), Transportation, Housing, etc.

• Implementation
  – Climate Smart Communities Pledge/Emissions Reduction Focus
  – Urban Revitalization; Brownfield Redevelopment
  – Green (not Gray) Infrastructure
  – Environmental Justice
  – Public Transportation
2013 State Energy Plan

http://www.nysenergyplan.com

• Draft Scope Issued
  March 2011

• Public Comments
  April 29, 2011

• Draft State Energy Plan
  September 1, 2012

• Public Hearings and Comments

• Final State Energy Plan
  March 15, 2013