

Air Quality Management Plan A New York State Pilot Project

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Multi-Pollutant Planning Makes Sense

- Strategies & technologies that reduce GHGs can also reduce traditional pollutants
- Can help design cost-effective approaches that minimize burden on industry & maximize the use of state resources
- Can result in better environmental results at lower cost
- Promotes integrated energy & air quality planning

NYSDEC

Multi-Pollutant Planning Goals

- The Department's multi-pollutant planning effort, which is referred to as the Air Quality Management Plan (AQMP), addresses air quality concerns that include nonattainment and maintenance of criteria pollutant national ambient air quality standards, sector-based emission control strategies, emission and risk reductions of Hazardous Air Pollutants (HAPs), climate change, regional haze and visibility. It will also address other considerations such as environmental justice, land-use, transportation, energy and ecosystem health to the extent practicable.
- The multi-pollutant plan incorporates Department priorities and provides details on the Department's air quality planning goals and potential strategies by which these goals may be achieved, as well as the technical approaches that will be used.

NYSDEC Priorities

- Connect New Yorkers to Nature
- Promote a Toxic-free Future
- Safeguard Unique Natural Assets
- Work for Environmental Justice
- Combat Climate Change
- Foster Green and Healthy Communities

AQMP Focus Pollutants

- 1,3-butadiene
- Acetaldehyde
- Acrolein
- Ammonia
- Benzene
- Carbon Dioxide and other GHG's
- Diesel Exhaust
- Fine Particulate Matter
- Formaldehyde
- Lead
- Mercury
- Nickel
- Oxides of Nitrogen
- Ozone
- Particulate Matter
- Polycyclic Organic Matter (POM)
- Sulfur Dioxide

AQMP Modeling

- Through the Northeast States for Coordinated Air Use Management (NESCAUM), the northeast states have developed the Northeast Regional Multipollutant Policy Analysis Framework (MPAF). MPAF is ideally suited to achieve certain NYSDEC AQMP goals, and was improved and tailored by NESCAUM and NYSDEC for specific application in New York.
 - NE-MARKAL
 - SMOKE
 - CMAQ
 - REMI
 - BenMAP

Sector-Level Policy Analysis

- Power Generation
 - 6 Scenarios
- Transportation
 - 9 Scenarios
- Residential and Commercial Buildings; Industry (R/C/I)
 - 5 Scenarios

Sector-Level Policy Analysis

- Power Generation
 - 10,000 MW wind generation by 2029
 - 10% reduction in T&D losses
 - 15 x 15 beginning in 2011
 - RPS: 25% by 2013
 - 52% CO₂ Cap by 2030 w/conservation
 - 52% CO₂ Cap by 2030 w/o conservation

Sector-Level Policy Analysis

- Transportation
 1. 10% of fleet diesel by 2020 (50% by 2030)
 2. 25% of fleet hybrid by 2025 (64% by 2030)
 3. 50% of fleet etOH by 2029
 4. 60% of fleet EV by 2029
 5. 13% less VMT demand by 2011
 6. LDV minimum efficiency 25 mpg by 2014
 7. 10% more efficient HDV
 8. 4+6
 9. 1+2+7

Sector-Level Policy Analysis

- Residential and Commercial Buildings; Industry (R/C/I)
 - 10% CHP for RES/COM heating by 2017
 - 100% Energy Star appliances by 2014
 - 10% Res. Water heat Solar Thermal
 - 500ppm distillate by 2015; 15ppm by 2016
 - NO_x Controls on Industrial Boilers

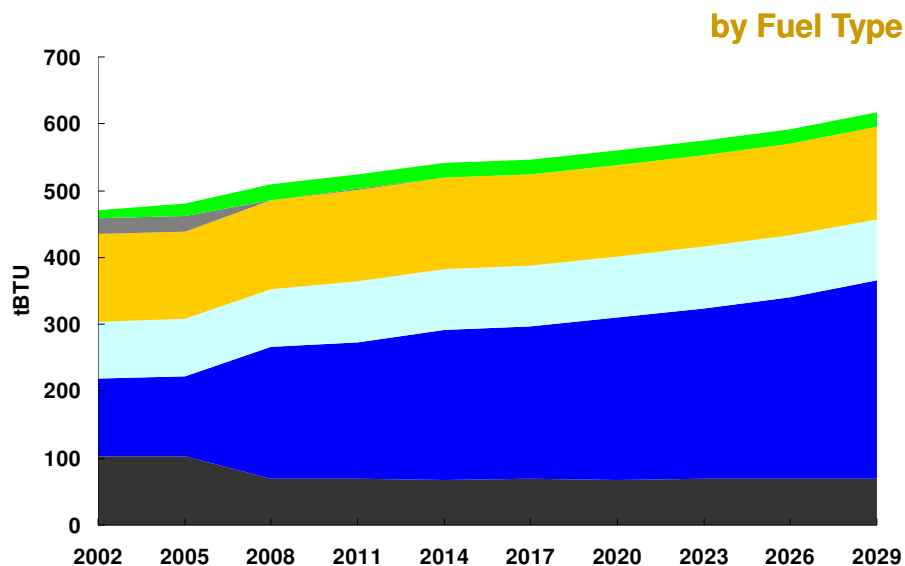
Meta-Scenario Summary

- Fuel Price Sensitivity
 - Vary Cost of oil/natural gas
- Technology Cost Sensitivity
 - Vary Cost of Key Technologies
- Carbon Cap vs. Policy Lever Analysis
 - “Kitchen-sink” Run
- Effectiveness Screen
 - “Combination” Run

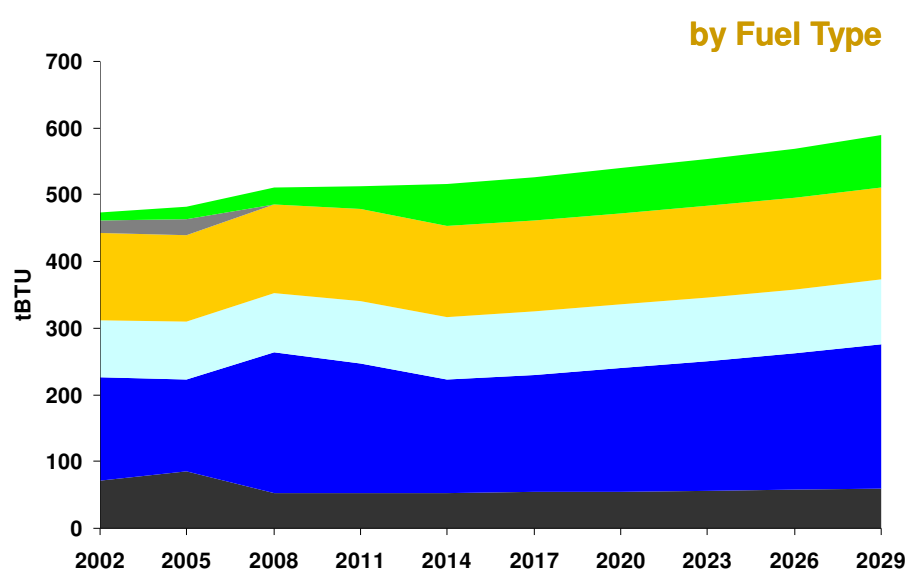
**The following results are
preliminary and for illustrative
purposes only ...**

State RPS: 25% by 2013

Reference Power Sector Generation Mix

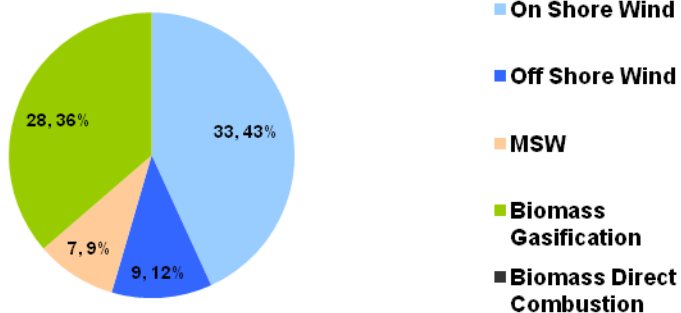


RPS Power Sector Generation Mix



Coal
 Gas
 Hydro
 Nuclear
 Oil
 Renewable

2029 Renewable Generation Breakout (tBTU , %)

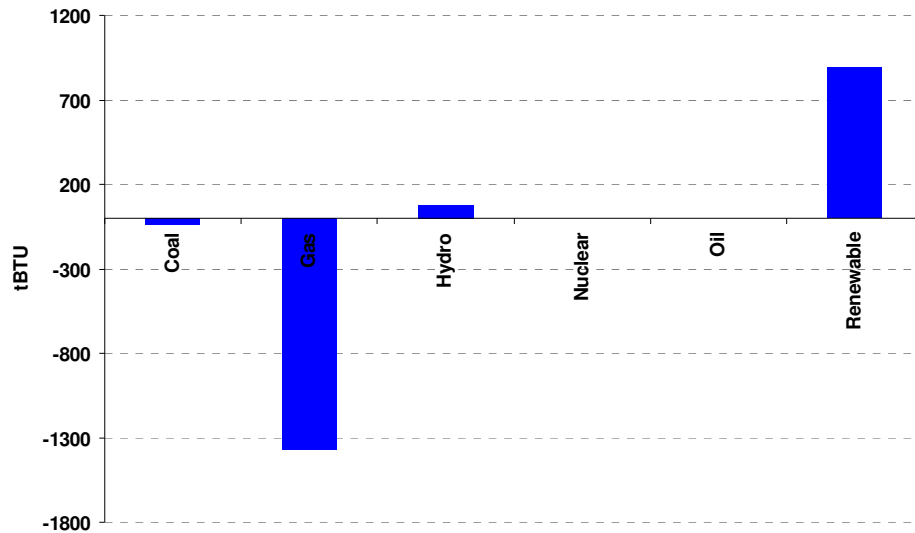


Annual Average Growth Rate between 2007 and 2030

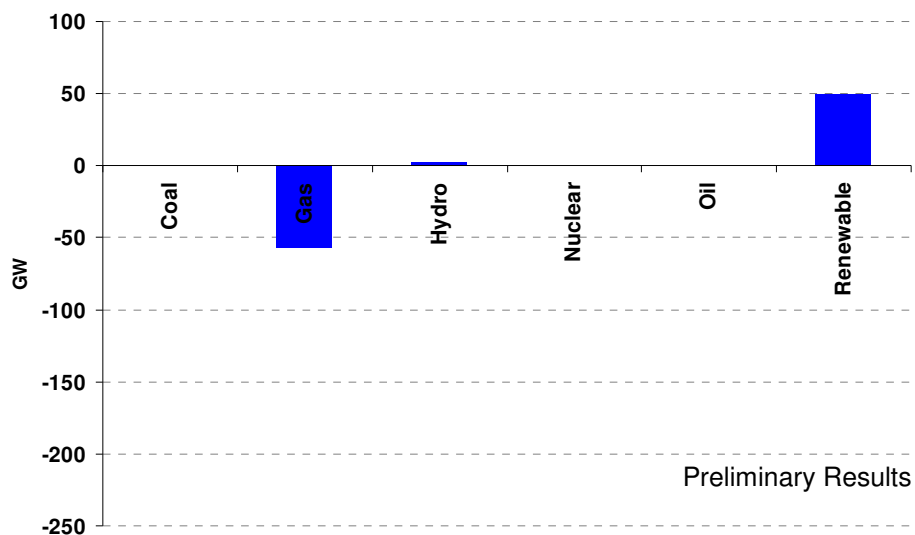
	Reference	Case C (RPS)
Coal	0.0%	0.0%
Gas	1.4%	1.0%
Hydro	0.2%	0.3%
Nuclear	0.0%	0.0%
Oil	0.0%	0.0%
Renewable	0.0%	6.3%

State RPS: 25% by 2013

Net Generation Change 2007-2030 Relative to Reference



Net Capacity Change 2007-2030 Relative to Reference



Power Sector Cost Breakout

Cost Changes relative to NYREF (2008 \$US)	Change in capital costs	Change in fixed & variable costs	Change in fuel costs
Annual (2029)	+\$1.1 B (2.2 times REF)	+\$75 M (+3.1%)	-\$1.1 B (-20%)
Cumulative (2008-2029)	+\$20 B (2.6 times REF)	+\$1.5 B (+2.6%)	-\$15 B (-13%)

Power Sector Emissions Changes

Emission Changes relative to NYREF	CO2 (Million Tons)	NOx (Thousand Tons)	SO2 (Thousand Tons)	Hg (lbs)
Annual (2029)	-12 (-18%)	-2.5 (-6.3%)	-1.5 (-1.1%)	-11 (-0.8%)
Cumulative (2007-2030)	-180 (-12%)	-47 (-4.5%)	-25 (-0.7%)	-120 (-0.3%)

For more information

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