Gas-Electric Interdependence
Gas Industry Perspectives on the Coordination of Natural Gas and Electricity Markets and the Need for New Infrastructure

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Natural Gas Is Abundant
Reserves Are Up

Figure 5. U.S. wet natural gas proved reserves, 1980-2010

Note: Natural gas reserves are measured at 4.73 psia and 60 degrees Fahrenheit.
Total Potential Resources 1990-2010

Total Potential Resources (Mean Values, Tcf)

- Coalbed gas resources
- Traditional gas resources (conventional, tight, shale)

Volume of shale gas ("most likely" value) within total Traditional resources

- shale gas: 1,073 Tcf (m.l.)
- shale gas: 686.6 Tcf (m.l.)
- shale gas: 615.9 Tcf (m.l.)
- shale gas: ~200 Tcf (m.l.)
- shale gas assessed but not reported separately


Values:
- 1990: 1,003
- 1992: 1,001
- 1994: 1,028
- 1996: 1,067
- 1998: 1,038
- 2000: 1,091
- 2002: 1,127
- 2004: 1,119
- 2006: 1,321
- 2008: 1,836
- 2010: 1,898
- 2012: 2,384
Shale Gas Leads The Way

U.S. dry natural gas production
trillion cubic feet

Source: U.S. Energy Information Administration, Annual Energy Outlook 2013 Early Release
Growth Opportunities
Drivers of Natural Gas Demand

• Residential and Commercial
  • Economic and population growth
  • Energy Efficiency

• Industrial Demand
  • Manufacturing renaissance
  • Combined heat and power

• Electric Power Generation
  • Price Advantage for Natural Gas
  • EPA Rules

• LNG and Pipeline Exports
Gas Demand for Power Generation

Annual share of fossil-fired electric power generation, 1950 - 2012*

- Coal
- Natural gas
- Petroleum

Low oil prices during 1960s, combined with smog concerns, spur new additions to petroleum-fired capacity.

Rapidly rising oil prices lead many generators to switch oil-fired peaking capacity to natural gas.

Oil price shocks during 1970s lead to increased utilization of coal-fired capacity for baseload generation.

Historically low natural gas prices lead to increased utilization of combined cycle plants at expense of coal units.

*2012 reflects Jan to Apr data.
Coordination Between the Natural Gas and Electricity Markets
Interstate Natural Gas Supply Dependency

States which are at least 85% dependent on the interstate pipeline network for their natural gas supplies

Source: Energy Information Administration, Form EIA176
Generation Dependency

United States natural gas deliveries per capita by state and sector, 2010

Natural gas deliveries

- Electric Power
- Industrial
- Residential and Commercial

Cubic feet per capita
- 270
- 135
- 27

Map showing natural gas deliveries per capita by state and sector for 2010.
Storage Manages Load Variations

Market Structures Play A Role
Infrastructure Is The Key
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