FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

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Cape Canaveral. Florida

Future of Natural Gas

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SC Electric & Gas Co

Hosted by:

Federal Energy Management Program

Agenda

- Gas Facts
- Supply vs. Capacity
- Sources
- Consumption
- Pipeline system
- Gas Interruptions – Operational Flow Orders
- Pricing

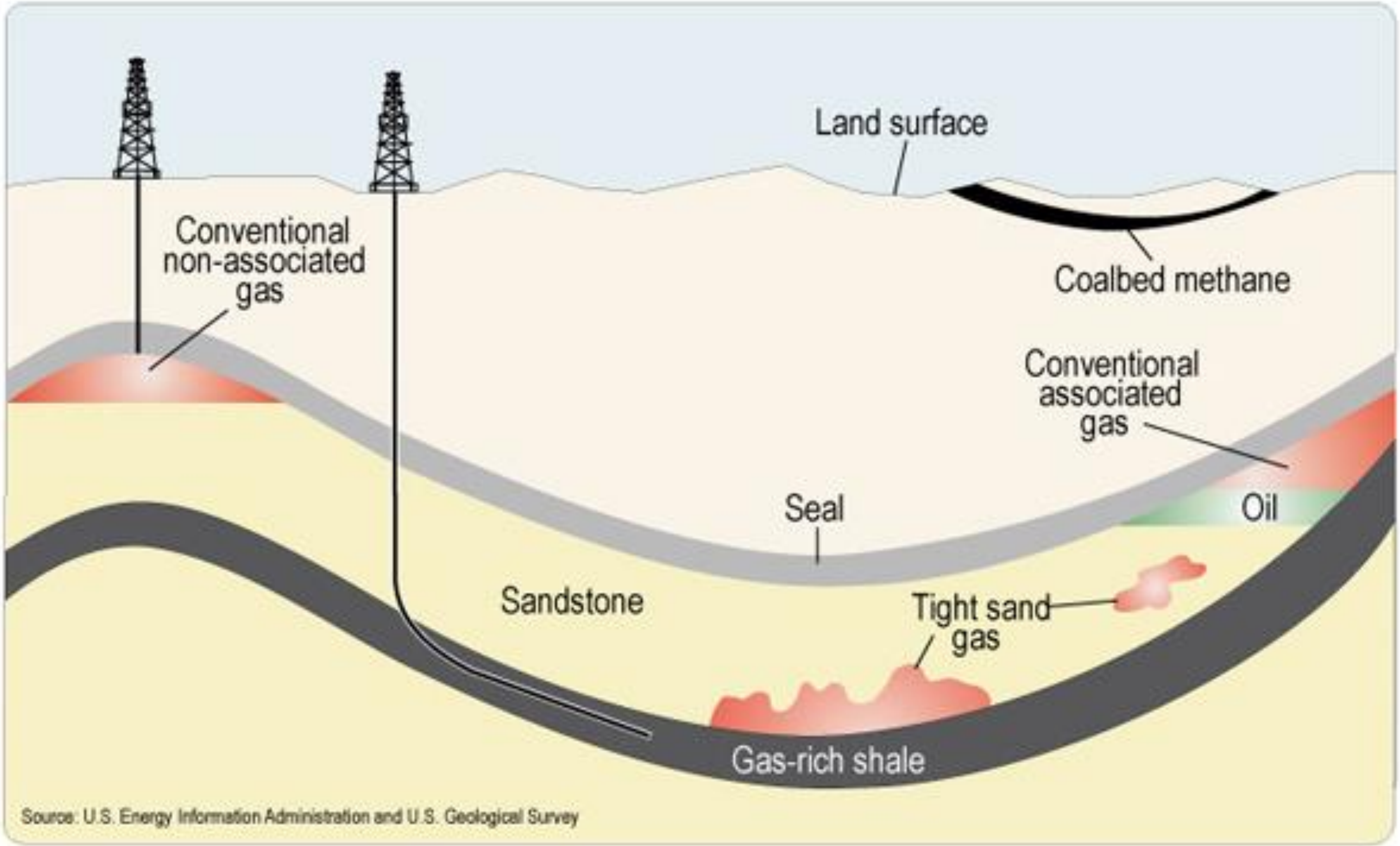
Sources of Natural Gas

- Mine
- Import
- Remove from storage

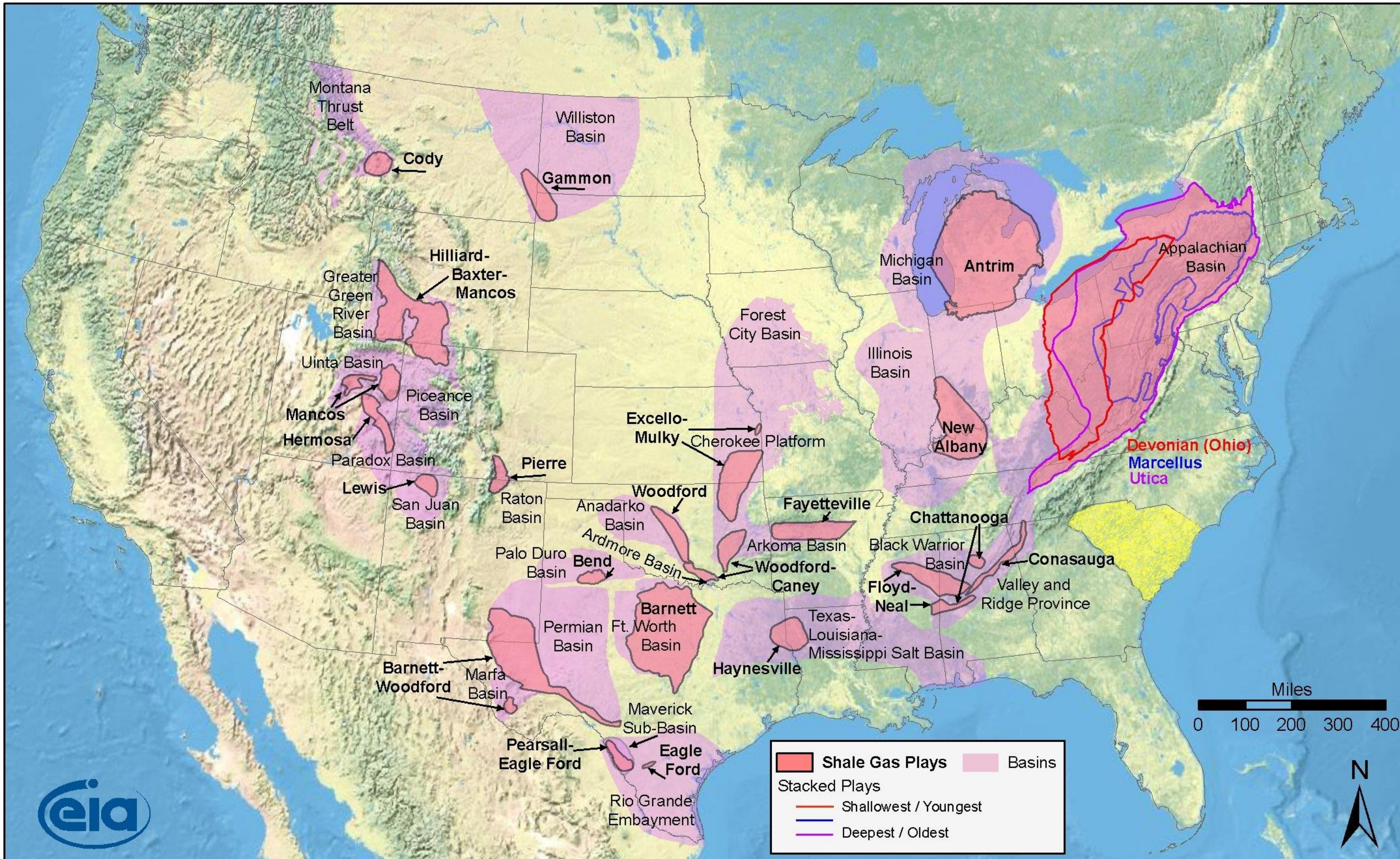
Natural Gas Proven Reserves

- US – 2010 - 273 TCF, 2013 – 308 TCF
- CAN – 68 TCF, 2013
- Central & South America – 269, Venezuela 195
- Asia & Oceania – 521, China 141
- Africa – 515, Algeria 159
- Eurasia – 2,178, Russia 1,688
  - gas and liquid fuels represent 50% of federal revenues
- Middle East – 2,823, Iran and Qatar 2,087
- Worldwide – 6,846 TCF
- US annual consumption, 26 TCF, 483,000 wells

Geology of Gas Resource

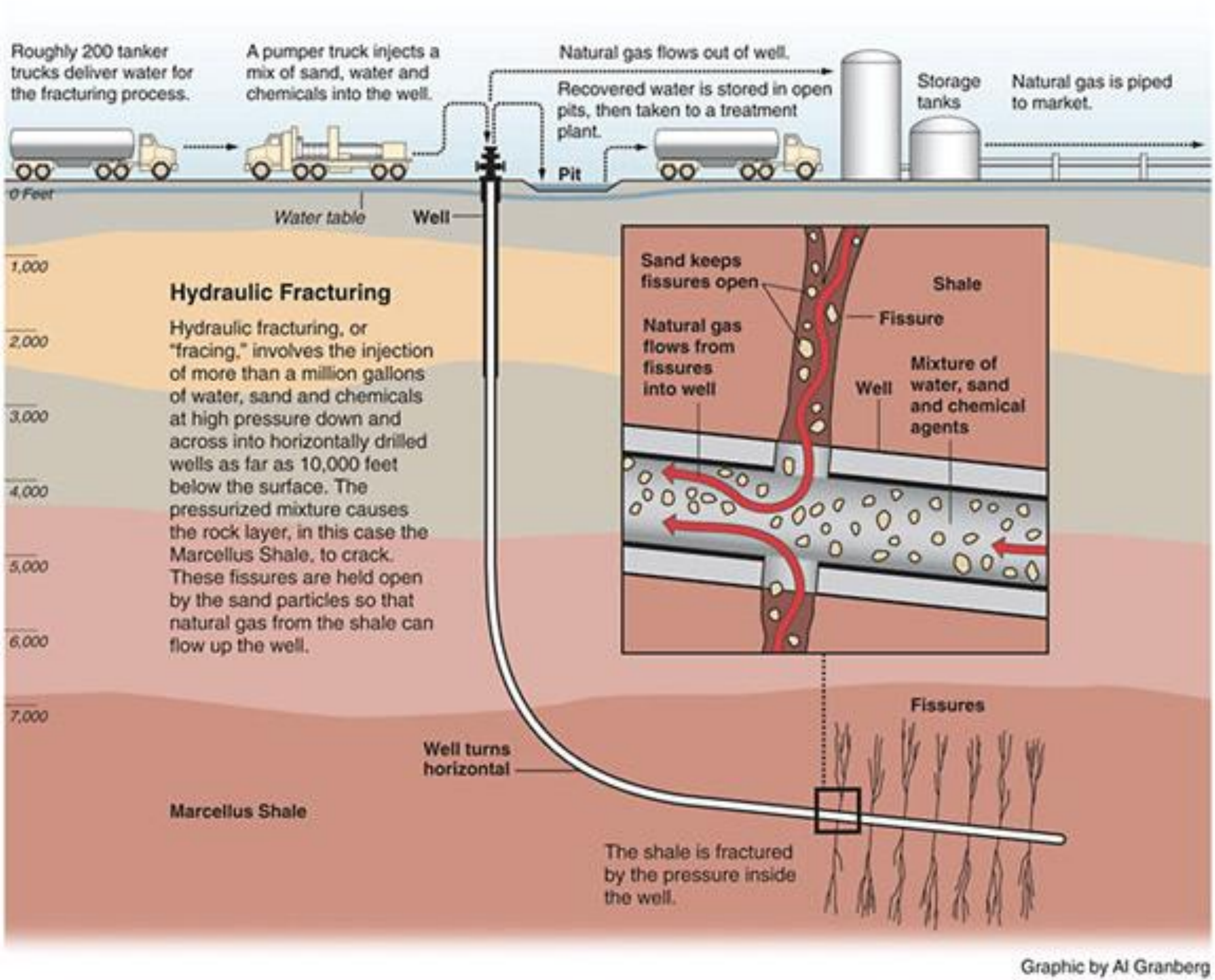


US Shale Plays



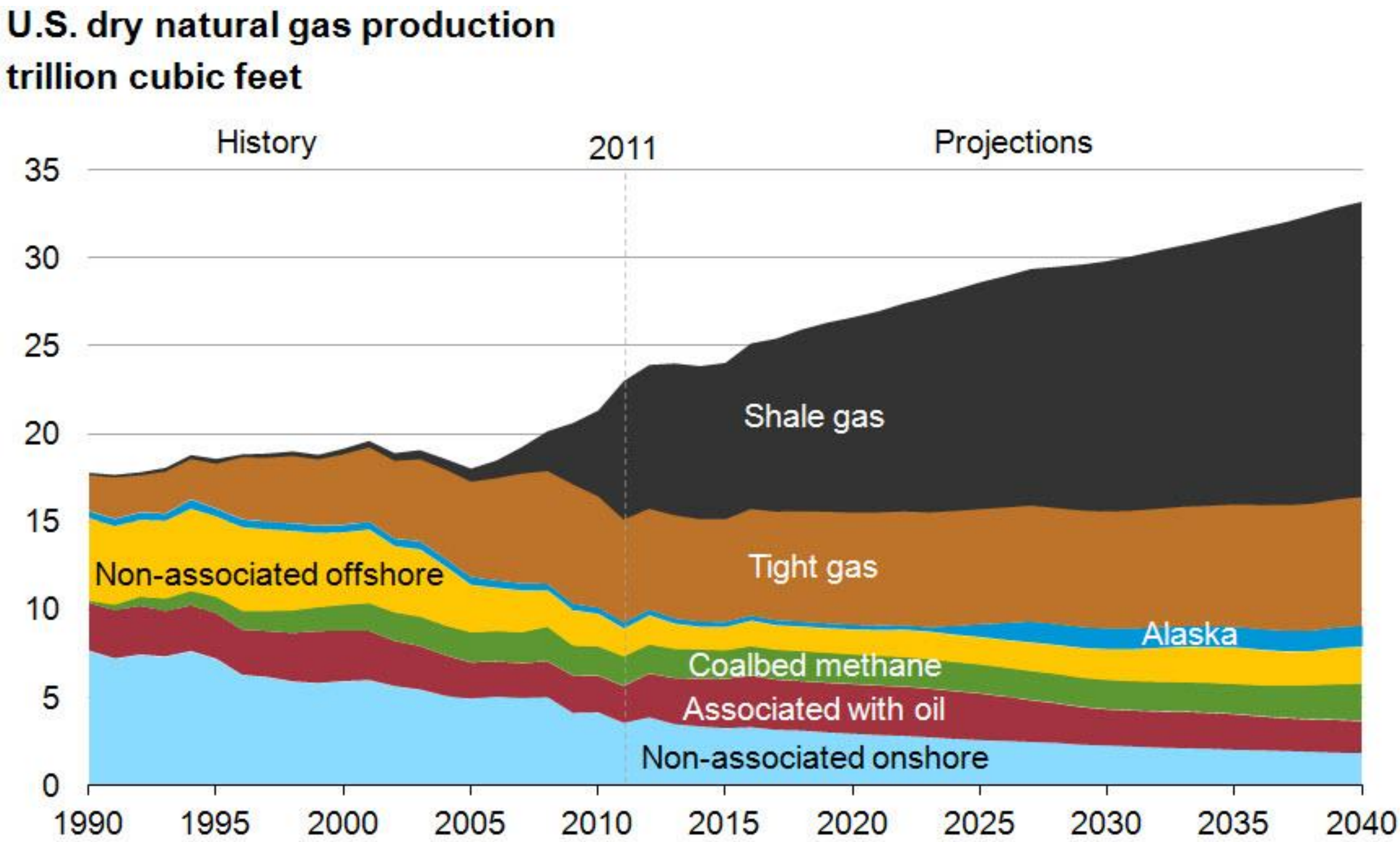
Source: Energy Information Administration based on data from various published studies
Updated: May 28, 2009

Hydraulic Fracturing - Fracking



Shale Gas Wellheads

US Gas Production

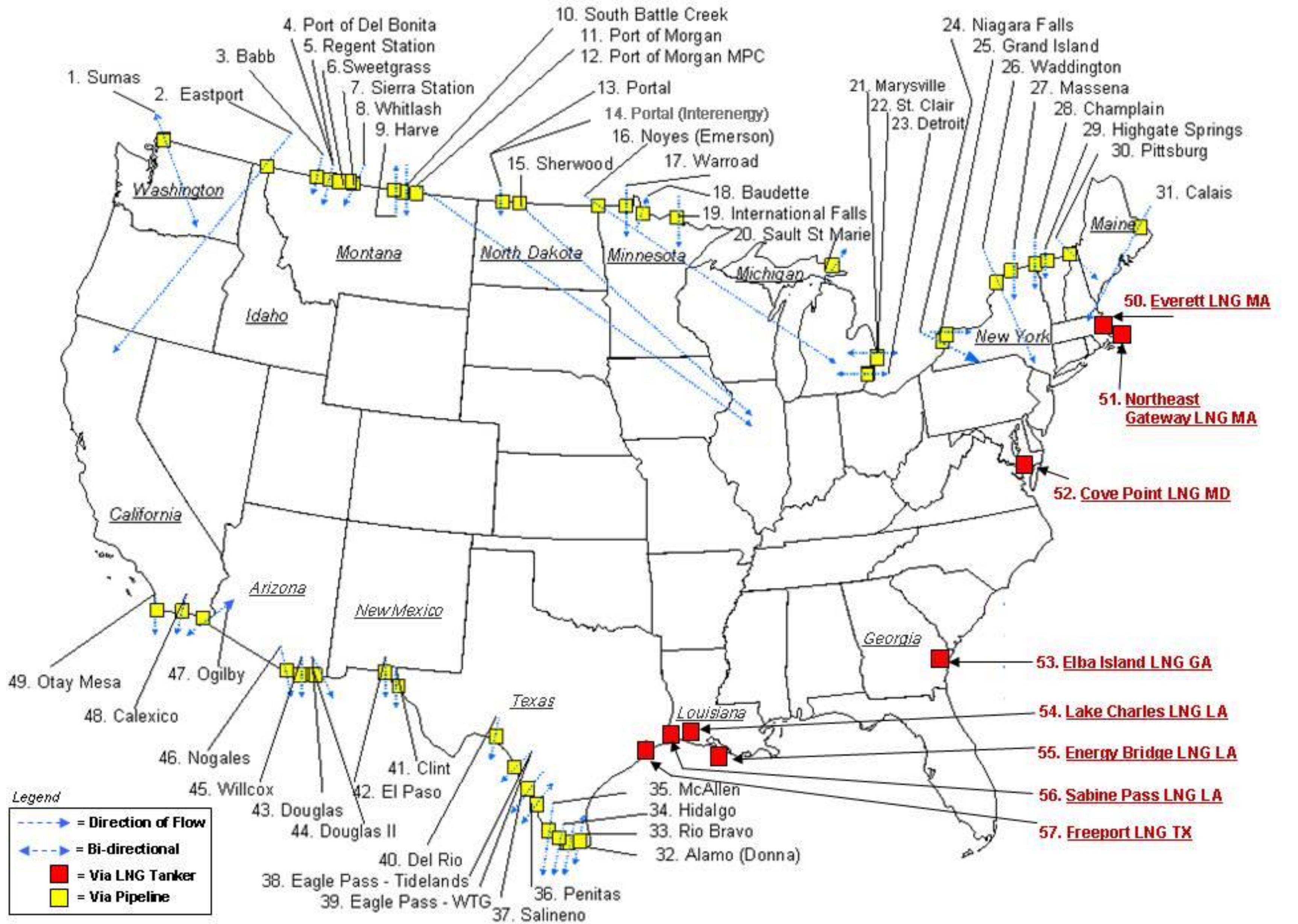


Source: U.S. Energy Information Administration, *Annual Energy Outlook 2013 Early Release*

US Import/Export Facilities

- Pipelines and shipping terminals
- 24 import only
- 18 export only
- 13 are both
- 8 are LNG import (today!!)
- Net Imports of LNG
  - 1995 – - 0.047 TCF (Japan and 6 others)
  - 2000 – 0.16 (Trinidad and 8 others)
  - 2007 – 0.72 (peak year)
  - 2012 – 0.15

US Import/Export Locations



Natural Gas Storage

- Underground
- Depleted reservoirs, Aquifers, other Caverns
  - 397 sites
  - 8.5 TCF total, 4.2 TCF practical
  - 0.095 TCF per day, max delivery
- Spring 2014 storage was at 822 Bcf, lowest since 2003
- October 24th, 3,480 Bcf, 8% below the 5-year average
- Levels price, provides more delivery points

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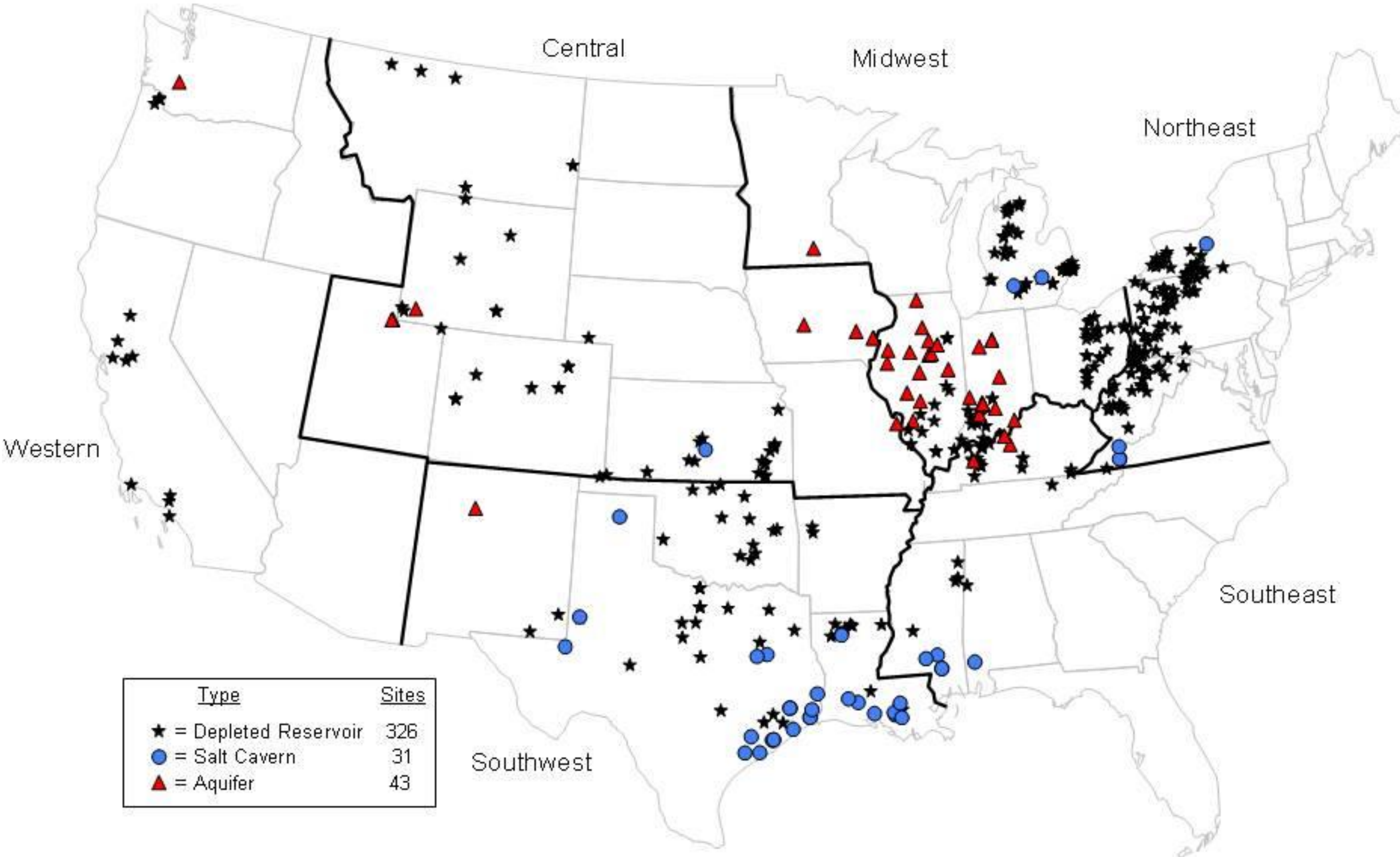
Underground Storage Facilities

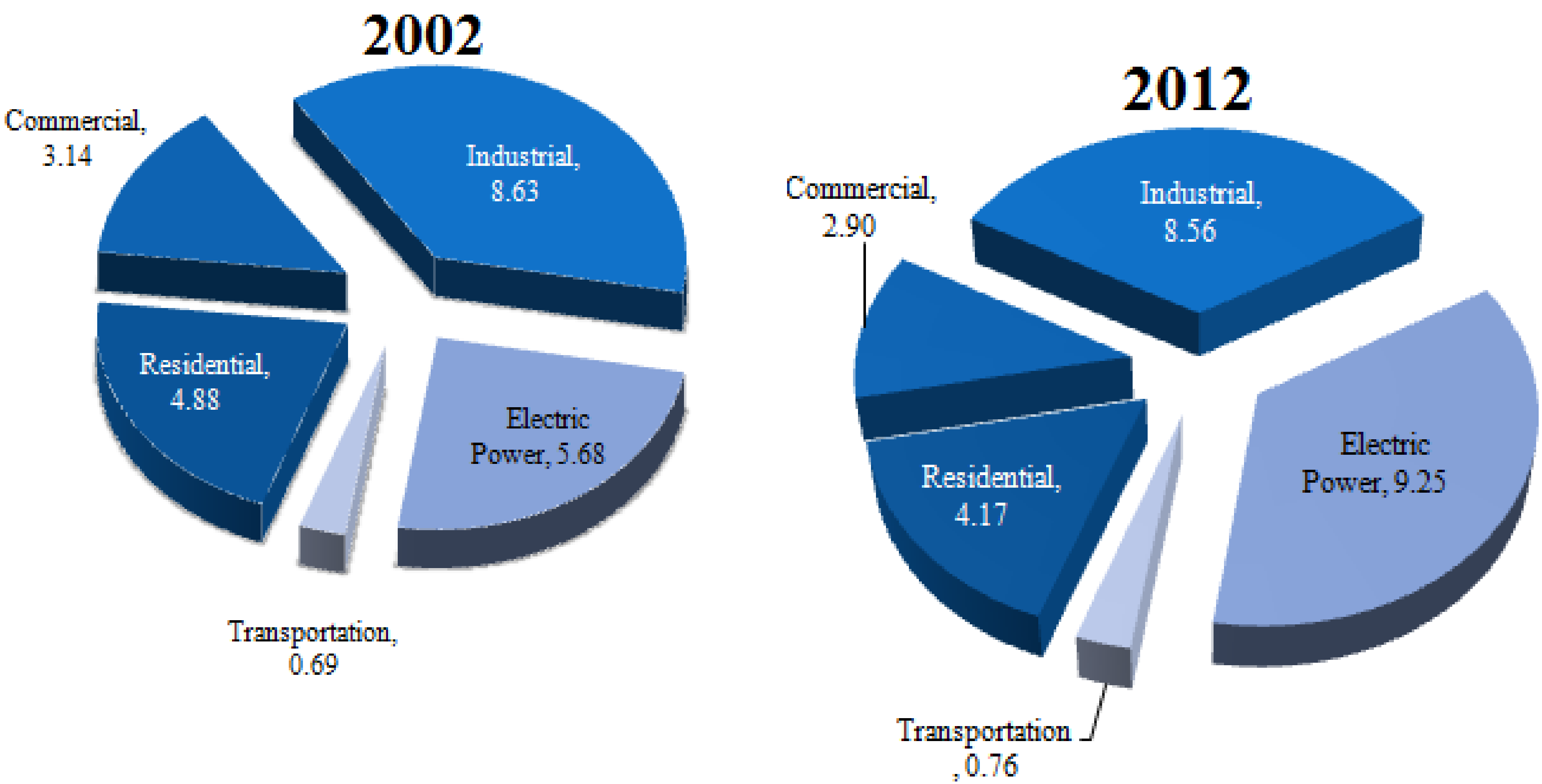


Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division Gas, Gas Transportation Information System, December 2008.

Supply vs. Capacity

- 1992 FERC Order 636, unbundled the pipeline
  - Transportation companies
- Capacity – the delivery system, pipeline
- Supply – natural gas
- Must have both
- In a constrained marketplace a lack of either will reduce or stop delivery, and/or cause the price to spike

Consumption by Sector (TCF)



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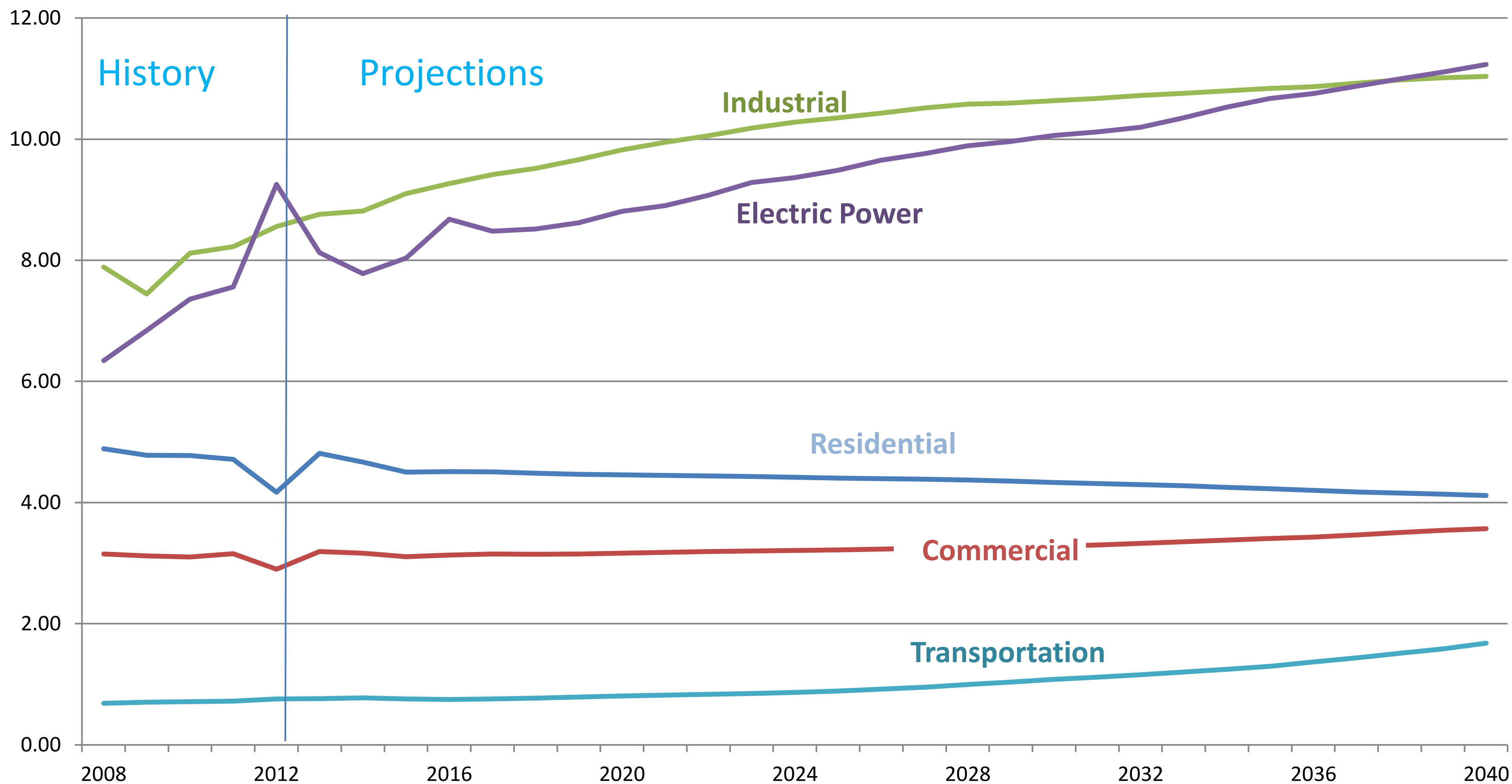
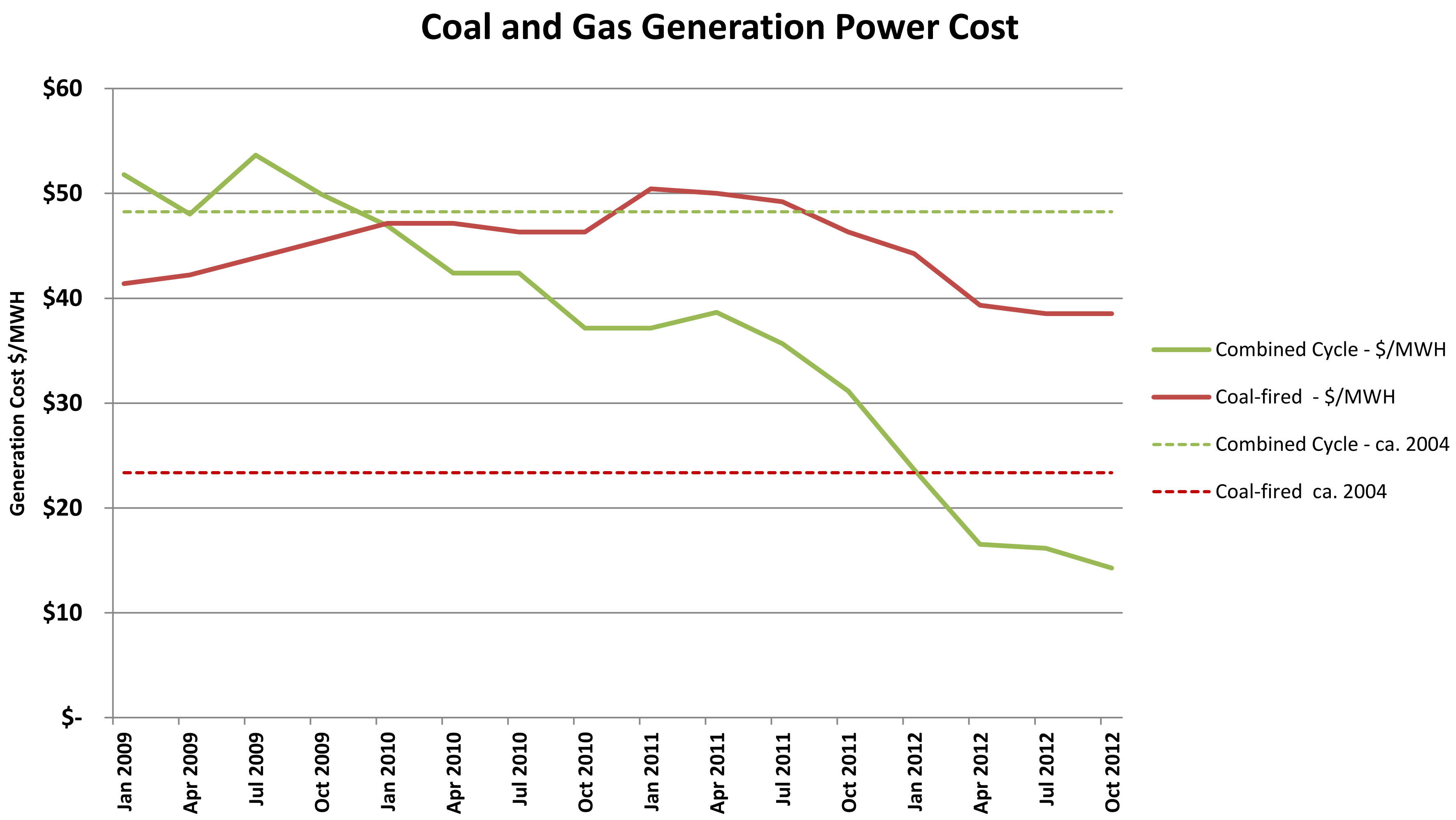
Projected Consumption (TCF)



Fuel Cost Differential



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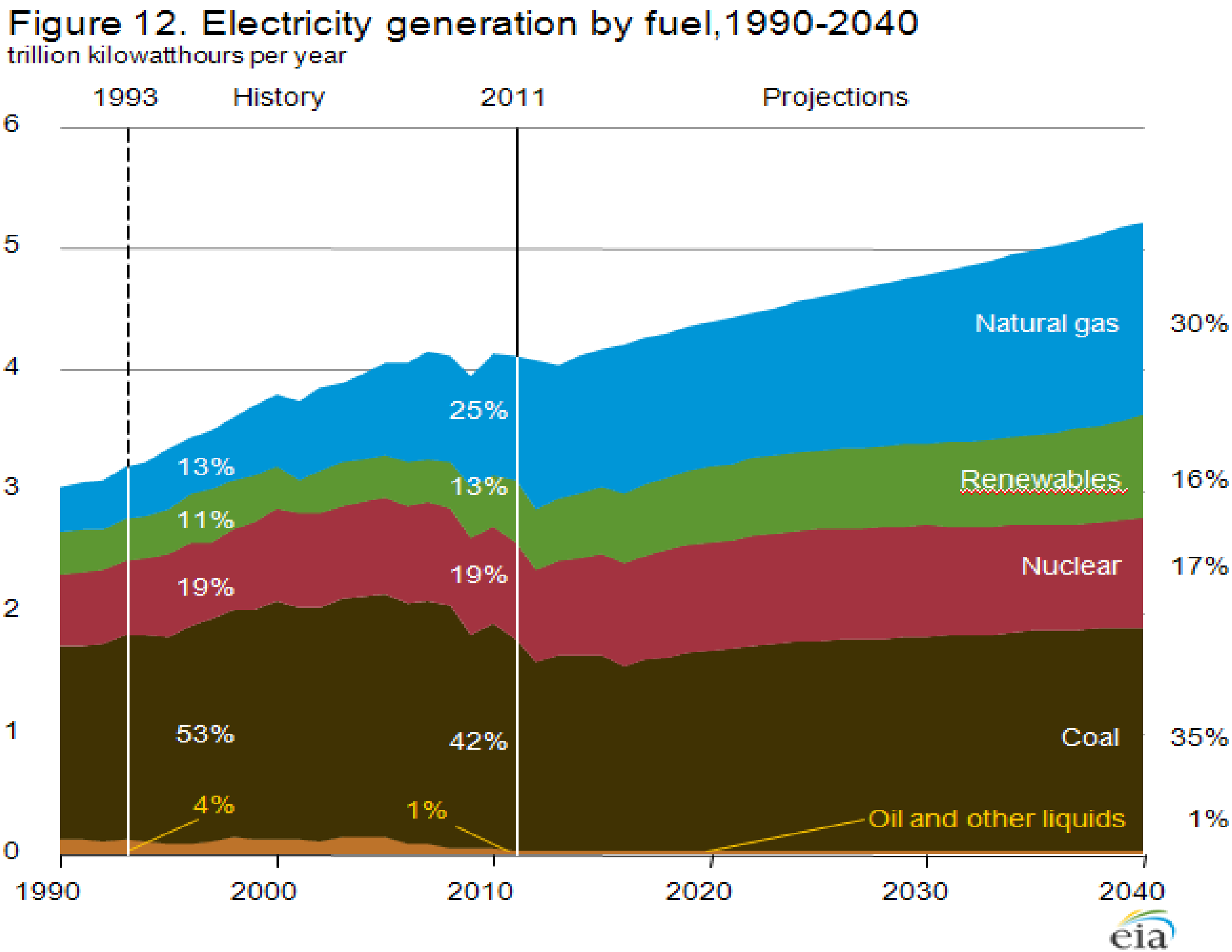
US Electric Generation by Fuel



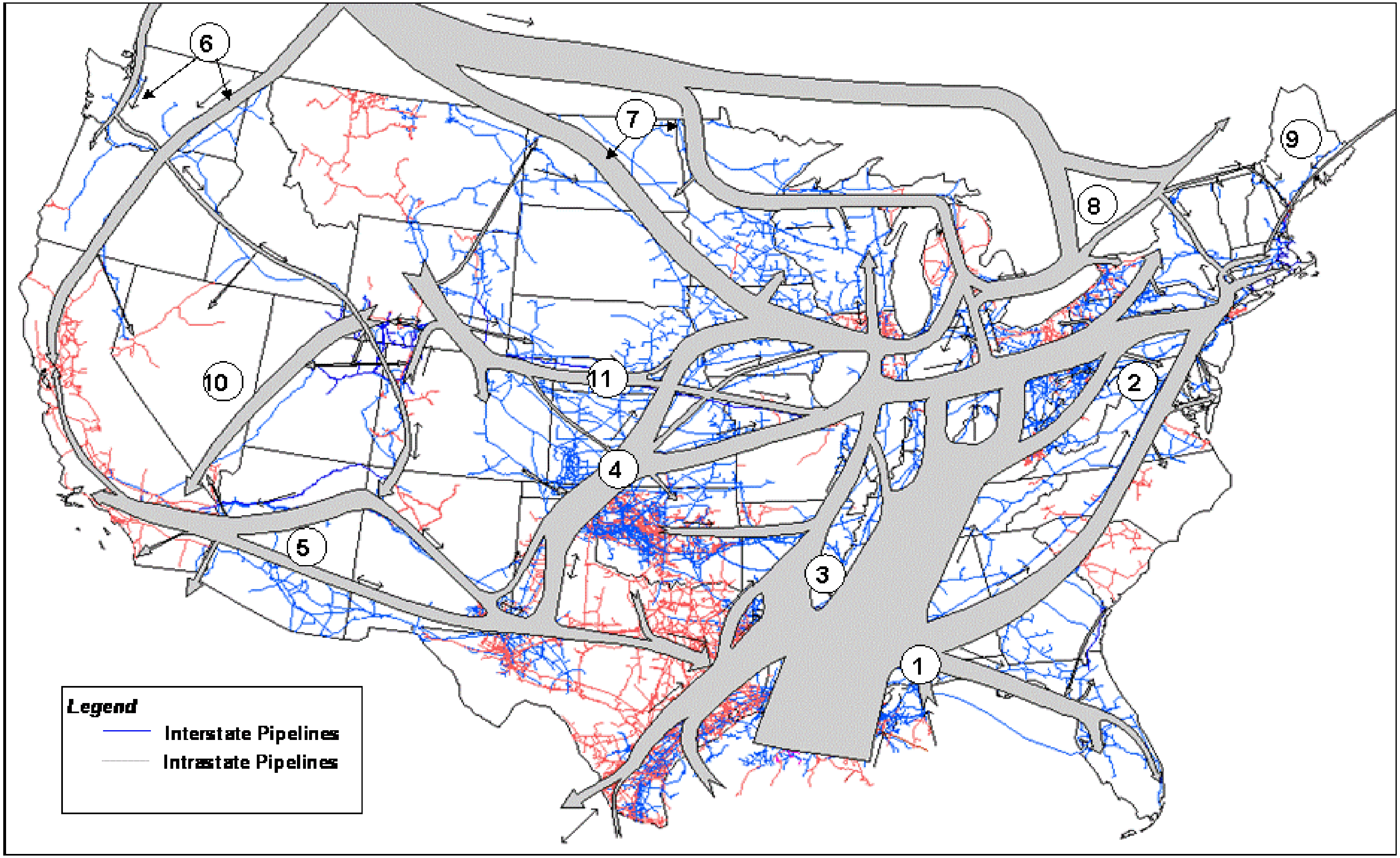
Market Outlook

- Hydraulic fracturing drilling technology is improving
  - Producers are drilling in liquids rich gas and crude oil shale plays due to lower returns on dry gas production
  - Improved well completion time enables shale supply to balance incremental demand faster than historical production
- MATS regulation will continue to drive more electric generation to natural gas
- LNG exports replaces LNG imports, price increases
- Incremental pipeline infrastructure needed

Gas Delivery System: Pipeline

- Interstate and Intrastate transmission (higher pressures), and distribution (LDC) systems
- Transco and Southern Natural (Sonat)
- Florida Gas, Gulf Stream Natural, Gulf South and Sonat
- Transmission and distribution combined, 2.4 million miles of pipe
- FL – 27,000 miles
- FL, GA, SC & NC – 120,000 miles

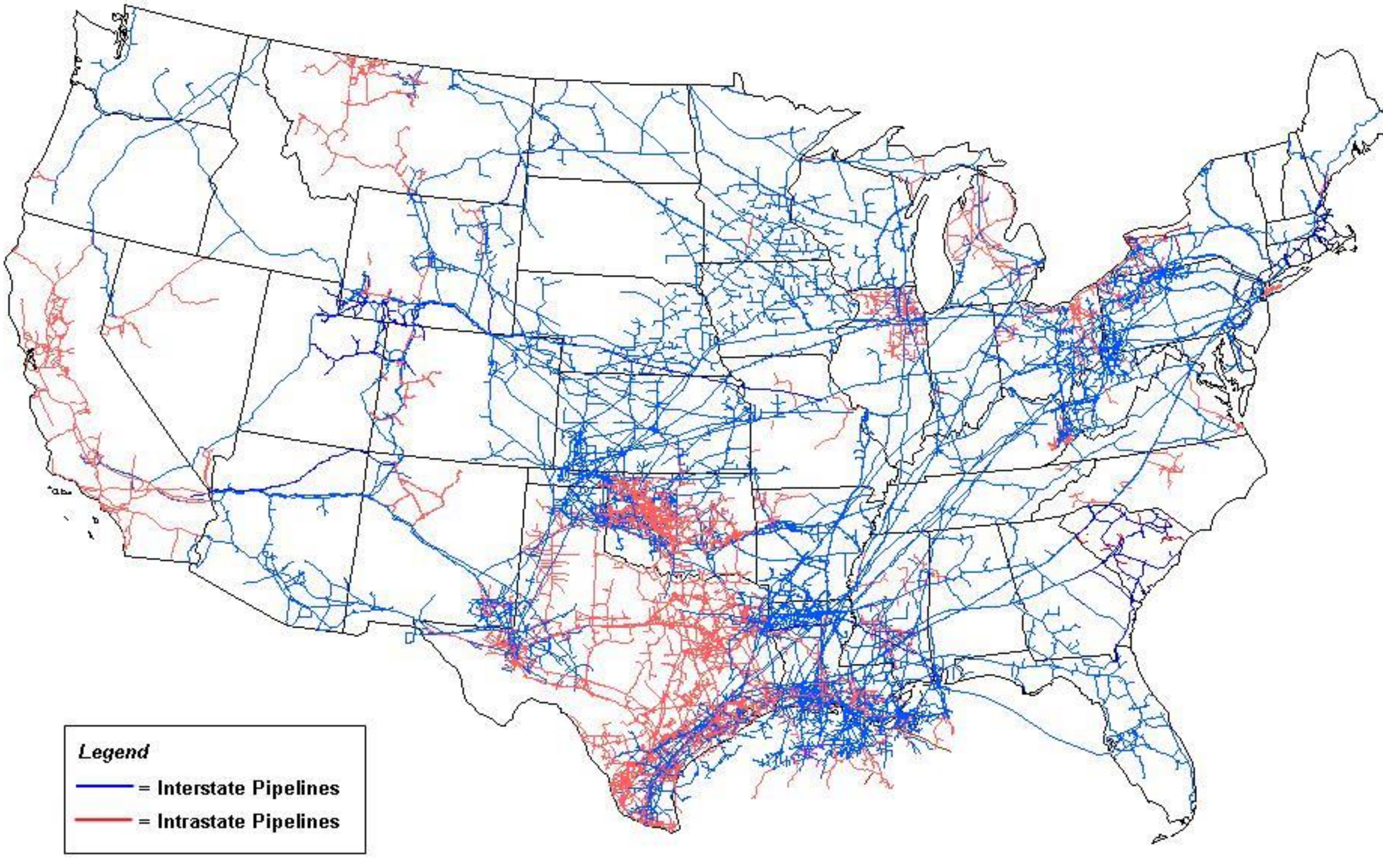
Major US Transportation Corridors



Source: Energy Information Administration, Office of Oil and Gas, Natural Gas Division, GasTran Gas Transportation Information System.

The EIA has determined that the informational map displays here do not raise security concerns, based on the application of the Federal Geographic Data Committee's *Guidelines for Providing Appropriate Access to Geospatial Data in Response to Security Concerns*.

US Pipeline Network



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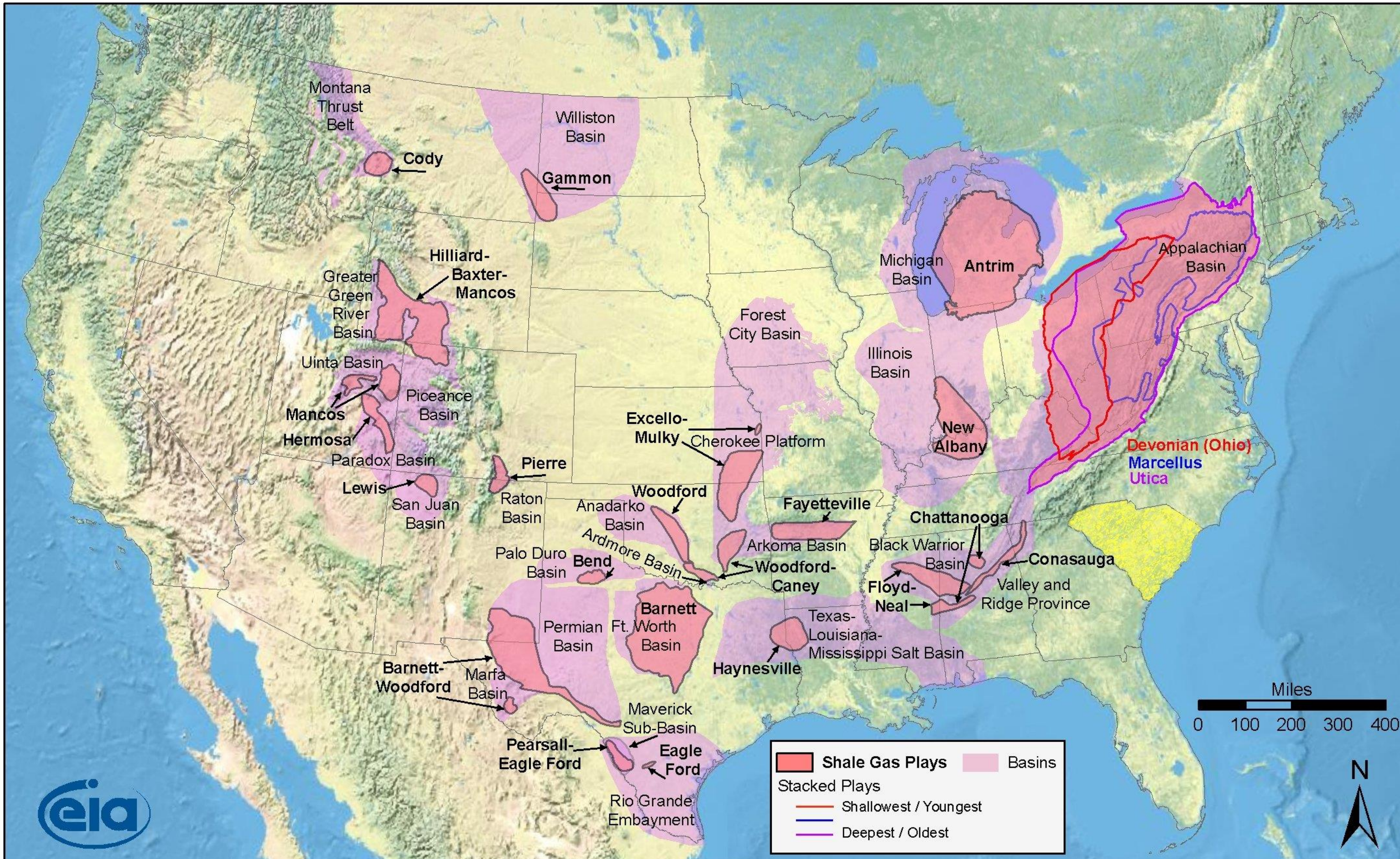

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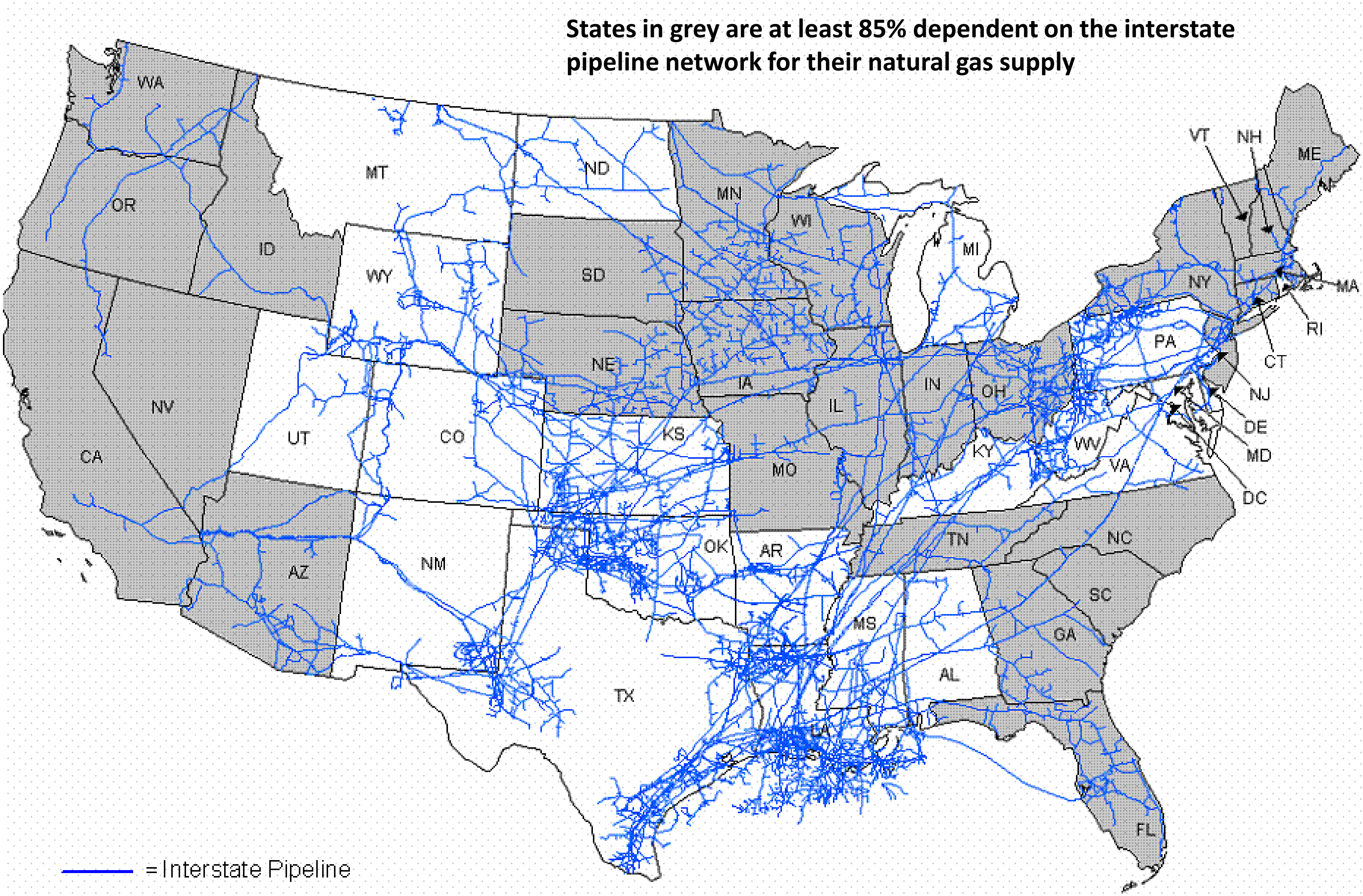
Natural Gas Supply Dependency



Gas LDCs

- Florida Public Utilities, TECO Peoples Gas, Florida City Gas and municipal systems
- GA – only deregulated SE state
  - Primary LDC is Atlanta Gas Light
  - 12 marketers and 84 muni systems
- SC – 1 intrastate pipeline company, 2 primary LDCs and munis
- NC – 4 LDCs and 8 munis

Purchasing Gas

- Firm Transportation – FT
  - Reserved pipeline capacity
  - Monthly demand charge
  - Nominal usage fee
- Interruptible
  - Serve when available
  - Lower price than FT

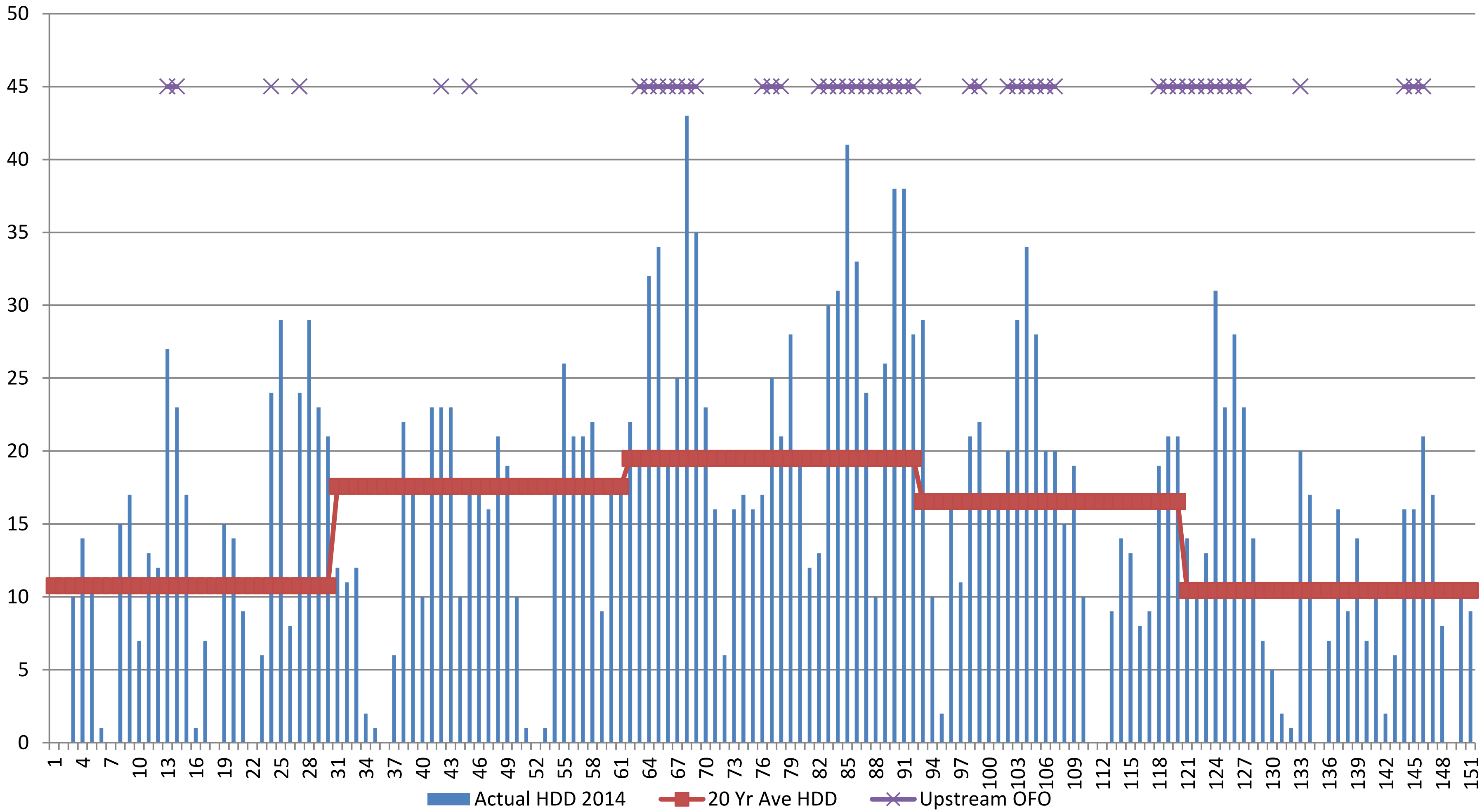
Winter 2013-14

- Polar Vortex - a new kind of winter storm
- Dramatic fluctuations of extreme temps
- Heavy utilization of interstate storages & on-system LNG
- Transco Zone 5 daily delivered prices hit new highs
- Record natural gas throughput all along the Eastern Seaboard
- Curtailments!!

Curtailment & Gas Categories

- Categories 1 – 10
- 1 – residential and small commercial, firm
- 2 – 3B – commercial and industrial firm loads
- 3C to 9 – interruptible categories
  - 3C – colleges, hospitals and military bases
  - 3D to F – direct flame applications
  - Cat 6 to 9 – boilers, based on size

Winter 2013 - 14



Operational Flow Orders - OFO's

- Issued to protect the operational integrity of the system
- Transco issued 27 OFOs
  - 18% of winter season
- Sonat issued 44 OFOs
  - 29% of winter season
- Customer penalty can be $50 Dt

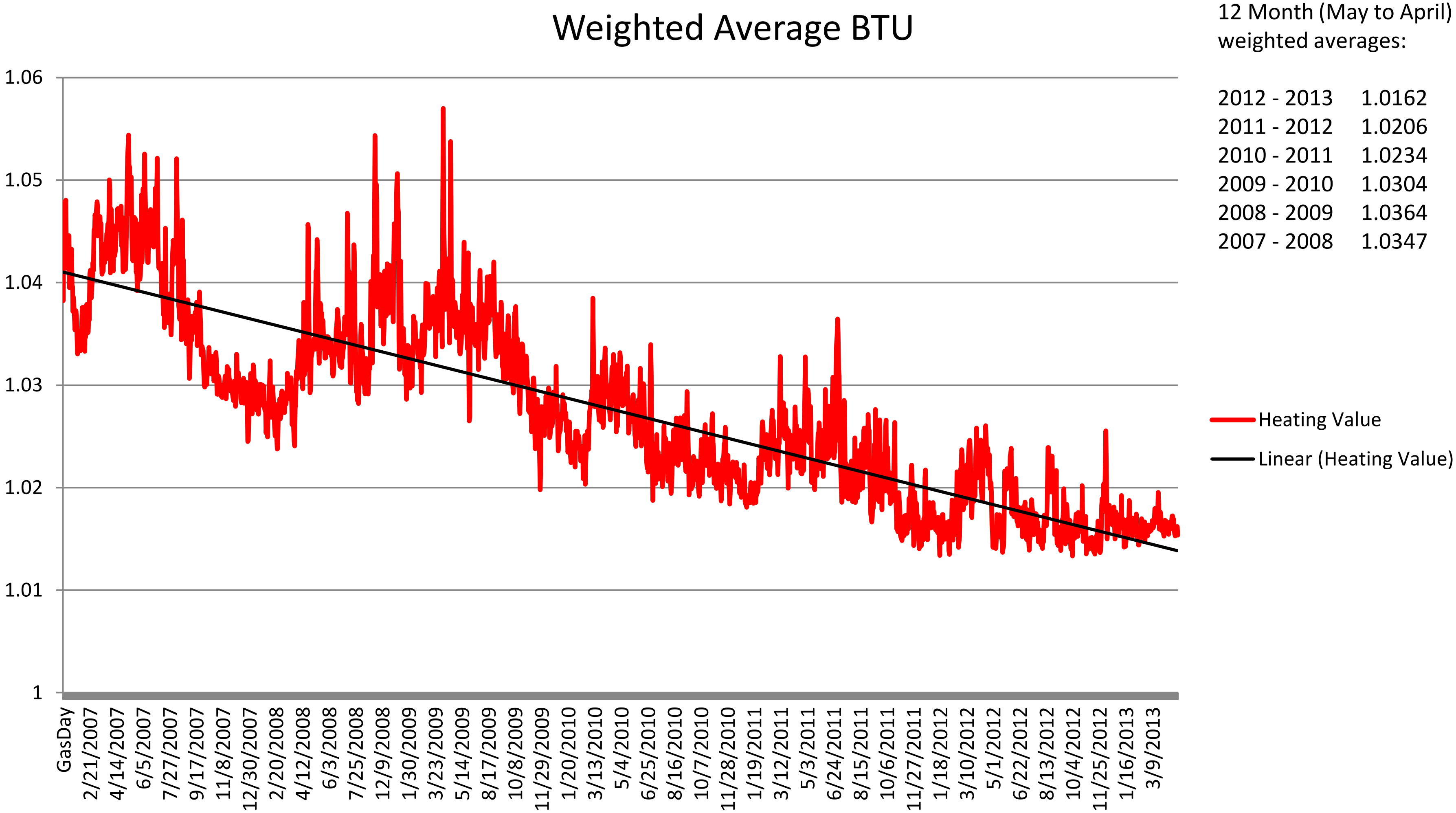
Curtailments – Winter 2013-14

- Cat 3C 13 days, 318 hours, 3 continuous
- Cat 3F 22 days, 530 hours, 5 continuous
- Cat 6 28 days, 686 hours, 6 continuous
- Cat 9 32 days, 775 hours, 11 continuous days
- If capacity is fixed and demand increases, curtailments increase

Available Capacity

- Capacity Constrained Environment, issues that impact pipeline operations
  - Line pack and BTU content
  - Receipt and delivery combinations
  - Inlet pressures and volumes
  - Uniform hourly flow rates
  - Non uniform hourly flow rates
  - Overall system pressures
- Impact the ability to schedule IT

Historic BTU Content



12 Month (May to April) weighted averages:

2012 - 2013	1.0162
2011 - 2012	1.0206
2010 - 2011	1.0234
2009 - 2010	1.0304
2008 - 2009	1.0364
2007 - 2008	1.0347

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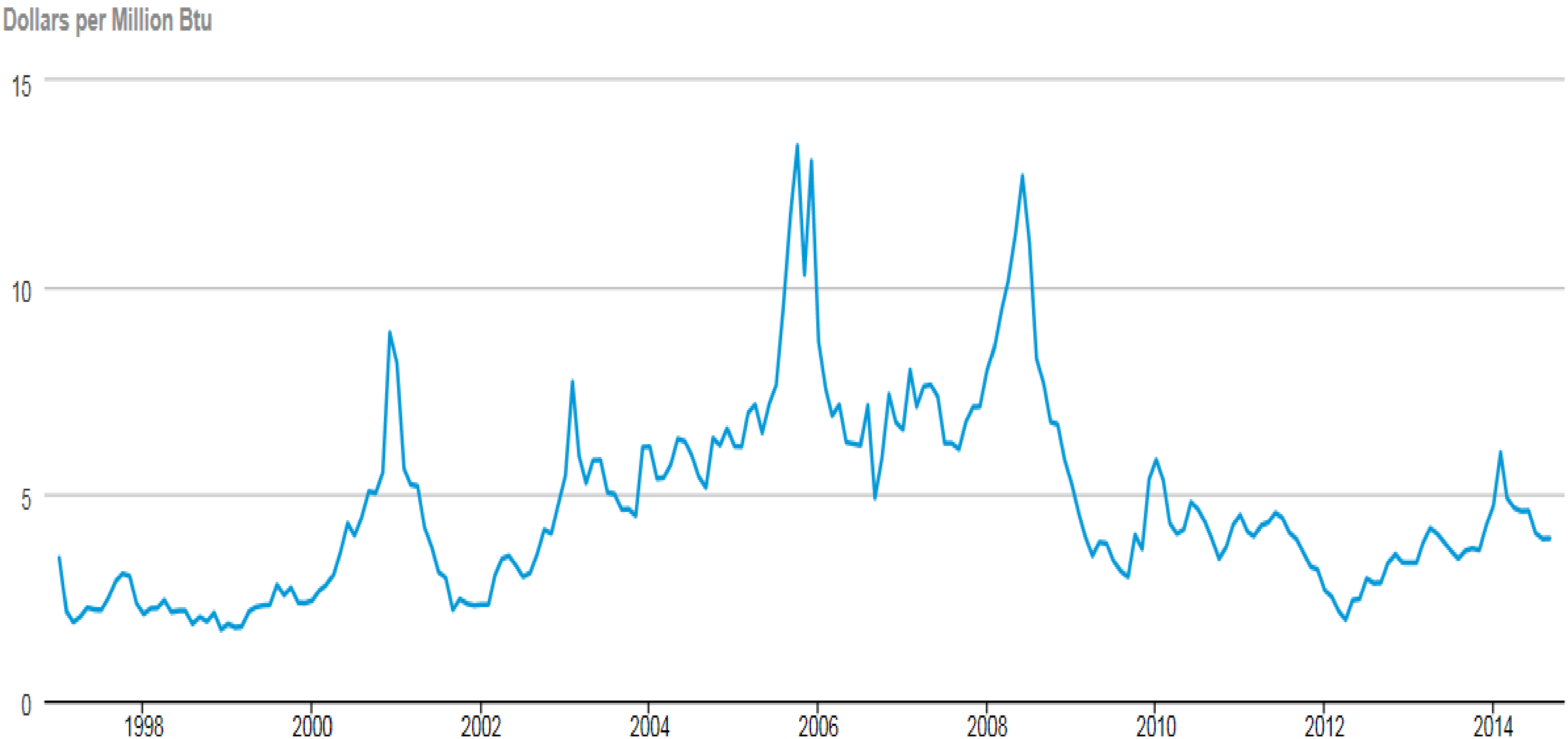
Accessing Shale Supply

- Transco, Southern Natural are fully subscribed
- Transco begins projects to move natural gas bi-directionally
- New firm capacity requires additional pipeline and compression
- Cost of Construction has increased
- Long term contracts (20+ years) are required to support new infrastructure

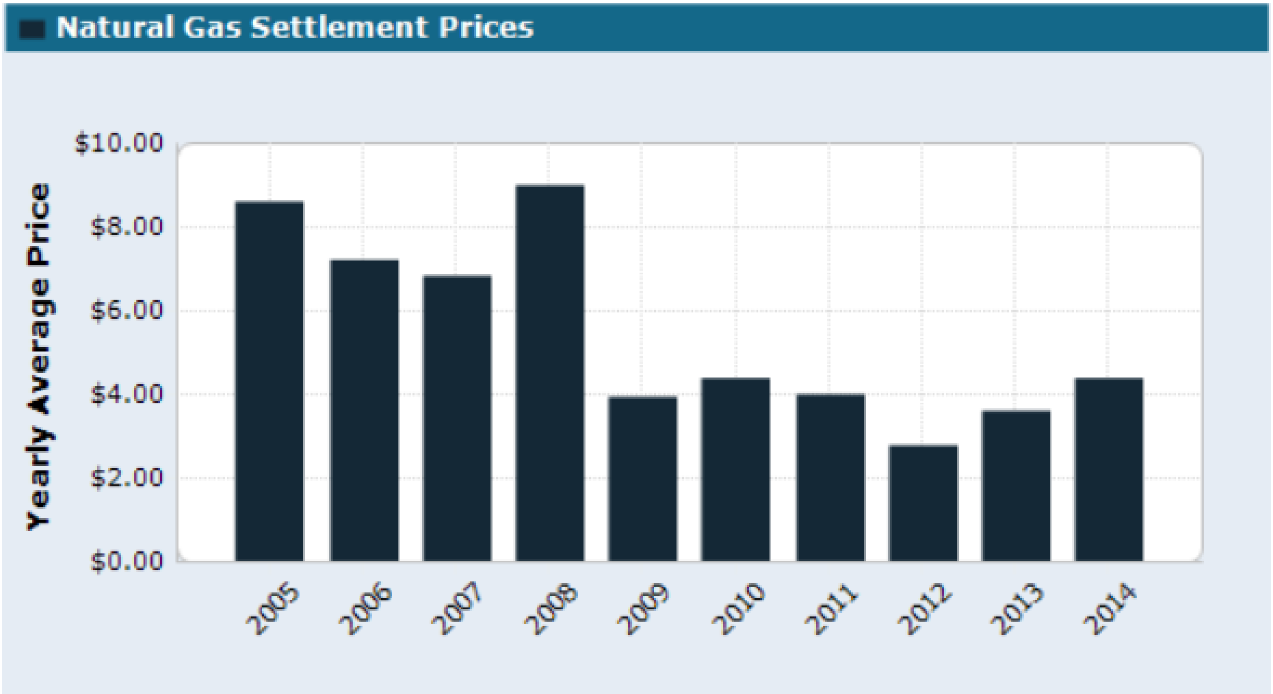
Natural Gas Pricing Variables

- Producer behavior and production activity
- Supply – production, imports, exports and volumes in storage
- Capacity - pipeline infrastructure
- Economic recovery/growth
- EPA policies
- Nuclear generation

Henry Hub Spot Gas Prices



Natural Gas Settlement Prices



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Jan	$6.21	$11.43	$5.84	$7.17	$6.14	$5.81	$4.22	$3.08	$3.35	$4.41
Feb	$6.29	$8.40	$6.92	$8.00	$4.48	$5.27	$4.32	$2.68	$3.23	$5.56
Mar	$6.30	$7.11	$7.55	$8.93	$4.06	$4.82	$3.79	$2.45	$3.43	$4.86
Apr	$7.32	$7.23	$7.56	$9.58	$3.63	$3.84	$4.24	$2.19	$3.98	$4.58
May	$6.75	$7.20	$7.51	$11.28	$3.32	$4.27	$4.38	$2.04	$4.15	$4.80
Jun	$6.12	$5.93	$7.59	$11.92	$3.54	$4.16	$4.33	$2.43	$4.15	$4.62
Jul	$6.98	$5.89	$6.93	$13.11	$3.95	$4.72	$4.36	$2.77	$3.71	$4.40
Aug	$7.65	$7.04	$6.11	$9.22	$3.38	$4.77	$4.37	$3.01	$3.46	$3.81
Sep	$10.85	$6.82	$5.43	$8.39	$2.84	$3.65	$3.86	$2.63	$3.57	$3.96
Oct	$13.91	$4.20	$6.42	$7.47	$3.73	$3.84	$3.76	$3.02	$3.50	$3.98
Nov	$13.83	$7.15	$7.27	$6.47	$4.29	$3.29	$3.52	$3.47	$3.50	$3.73
Dec	$11.18	$8.32	$7.20	$6.89	$4.49	$4.27	$3.36	$3.70	$3.82	
Avg	$8.62	$7.23	$6.86	$9.03	$3.99	$4.39	$4.04	$2.79	$3.65	$4.43

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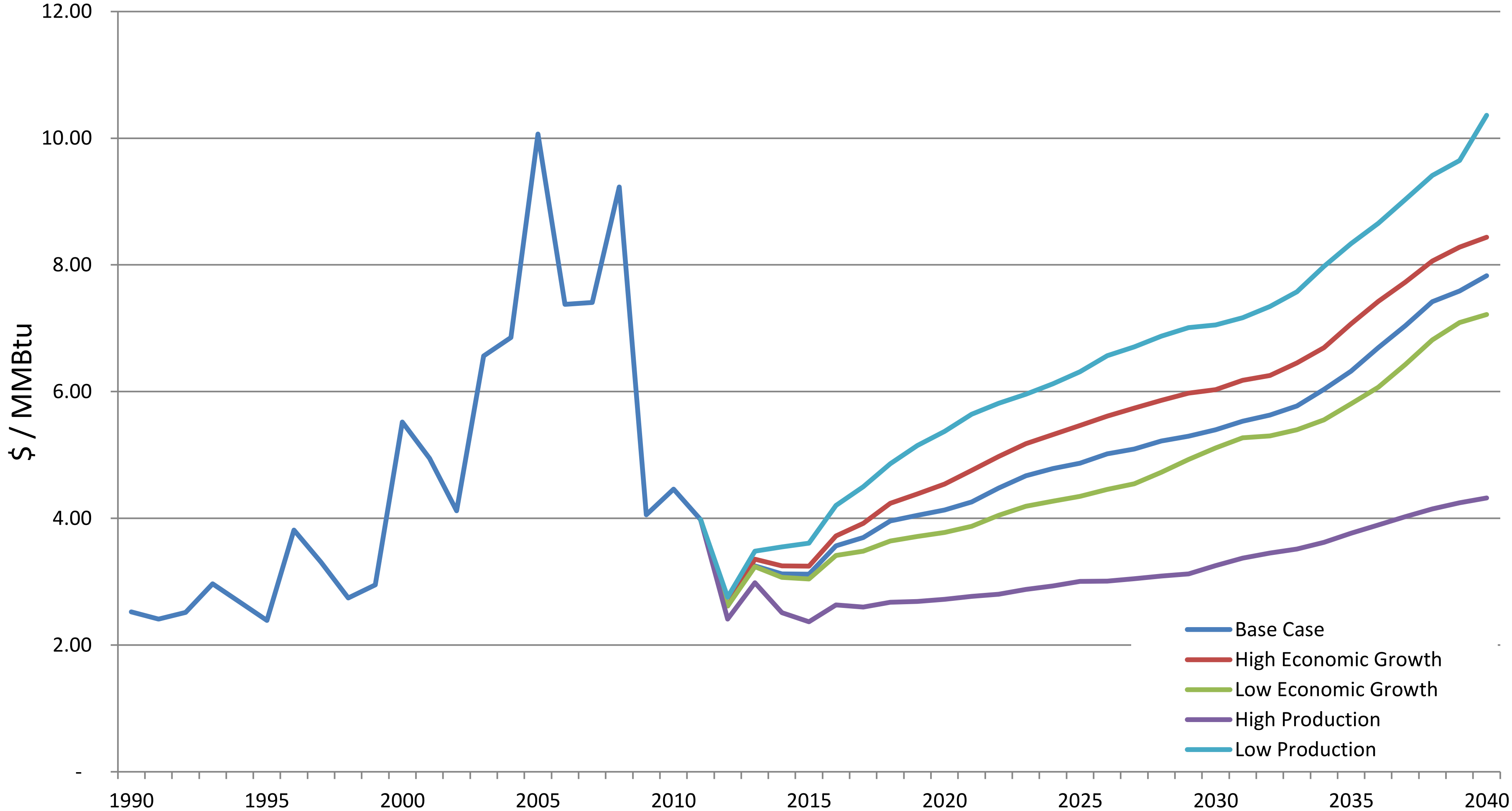
Current Market

- Natural gas prices trading around $4.00
- Current Close $4.03
- 12-month strip $3.88
- Winter $4.06
- Summer $3.77
- TransCo Zone 5 Interruptible 3C
  - Customer price = Henry Hub plus ~$1.50
- Interstate, intrastate, LDC and margin

Henry Hub Price History & Forecast



Key Points

- Natural Gas is plentiful with strong demand
- Additional pipeline infrastructure is needed to match supply with demand
- Future expansions may be above the current system rate and will likely require longer term commitments
- Talk with your local provider early in the planning process and for pricing data

Questions