

Winter Reliability Meeting Update

November 9, 2011

Yasmin Snowberger, PE
Bureau of Technical Utility Services
Energy, Water & Emergency Preparedness Division



Natural Gas Market Summary

- US natural gas price in 2011 is near the 10 year average low.
- Average forward Henry Hub price for upcoming winter – November thru March is \$3.87/MMBtu.
- Record setting production, high storage levels, and new pipeline infrastructure.
- NOAA is calling for average temperatures in the Northeast.
- Northeast gas prices are higher (16%) than last year.
- US production is averaging 60.3 Bcfd, a 6% increase from 2010. Shale gas is now more than 25% of total.
- Natural gas in storage is 2% above the 5 year average. At the current injection rates, natural gas in storage should be sufficient to meet winter demand.

Marcellus Shale Production Update

- Marcellus shale production has increased from 2.7 to 4.7 Bcfd in the past year.
- In Northeast PA, production is up 1.3 Bcfd from 2010 levels. Pipeline constraints have led to natural gas prices in the \$2.00/MMBtu range.
- There are over 6 Bcfd of proposed pipeline projects designed to move Marcellus production .
- EIA states that the Tennessee Pipeline 300 has gone into service with 127 miles added to the pipeline. Also added two new compressor stations and upgraded 7 others. Increase in capacity of 350 MMBtu per day. Price rose at Tennessee station 4 from \$1 to \$3.40 per MMBTU.

New Pipeline Infrastructure for Marcellus Production

Company/Project Name	Capacity (Mmcfd)	Projected In-service Date
Central NY Oil & Gas Mark 1 Project	550	Summer 2012
Dominion Appalachian Gateway	484	Fall 2012
Tennessee 300 Line Expansion	350	In Service
Empire Tioga Line Extension	350	Fall 2011
National Fuels Gas Northern Access	320	Fall 2012
Equitrans Sunrise Project	314	Summer 2012

Natural Gas Electricity Generation in PJM and PA

- Natural gas was the marginal fuel – or the wholesale electric price setting fuel – 26% of the time in 2010, while coal was the marginal fuel 68% of the time in the PJM region.
- Existing natural gas generation in PA – 9,384 MW (as of 12/31/2010) – about 22% of the total.
- Planned natural gas generation in PA – 3,155 MW (as of 12/31/2010).

Source: State of the Market Report,

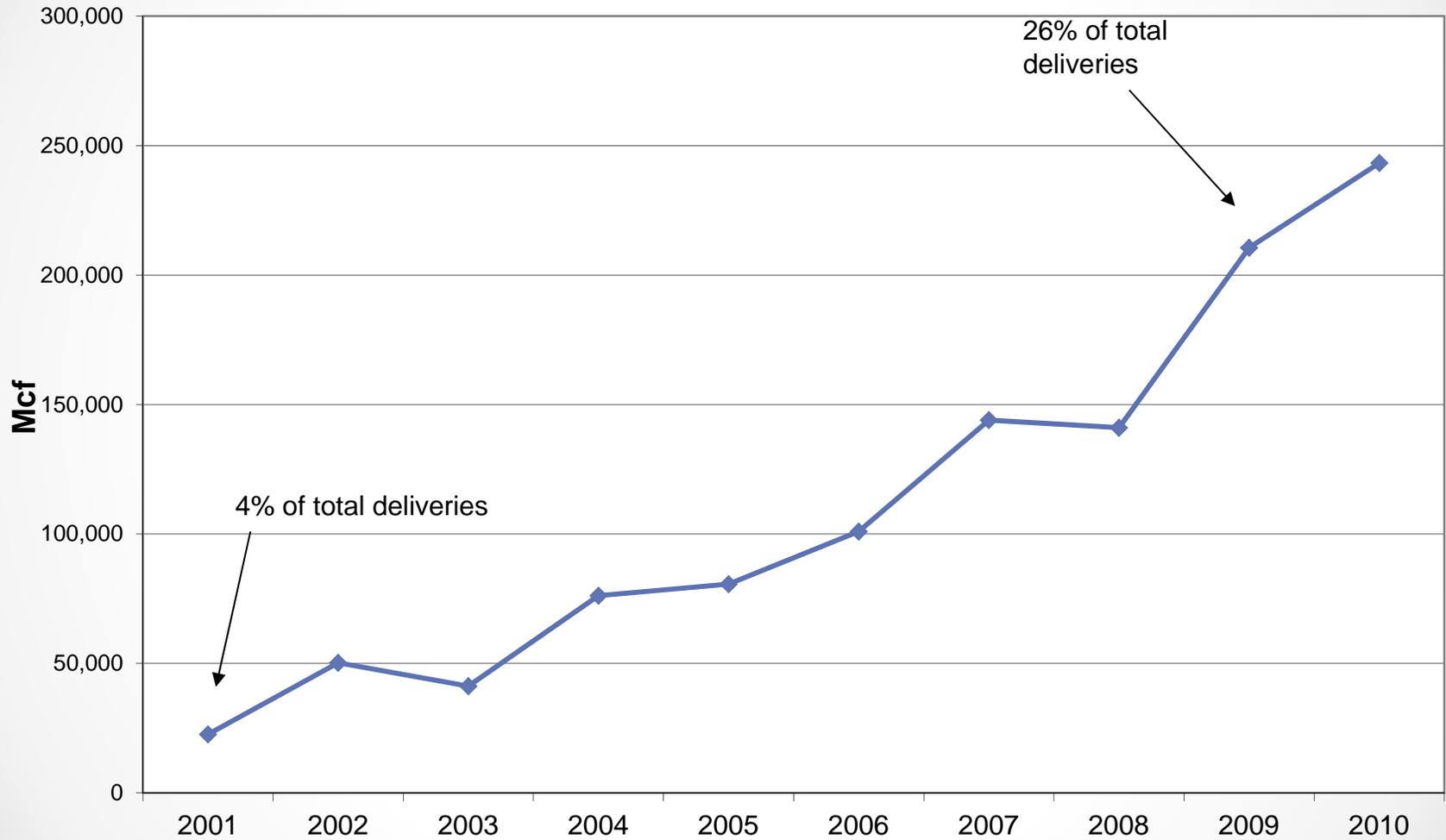
- Monitoring Analytics and PJM 2010
RTEP



Electricity Production from Natural Gas Update

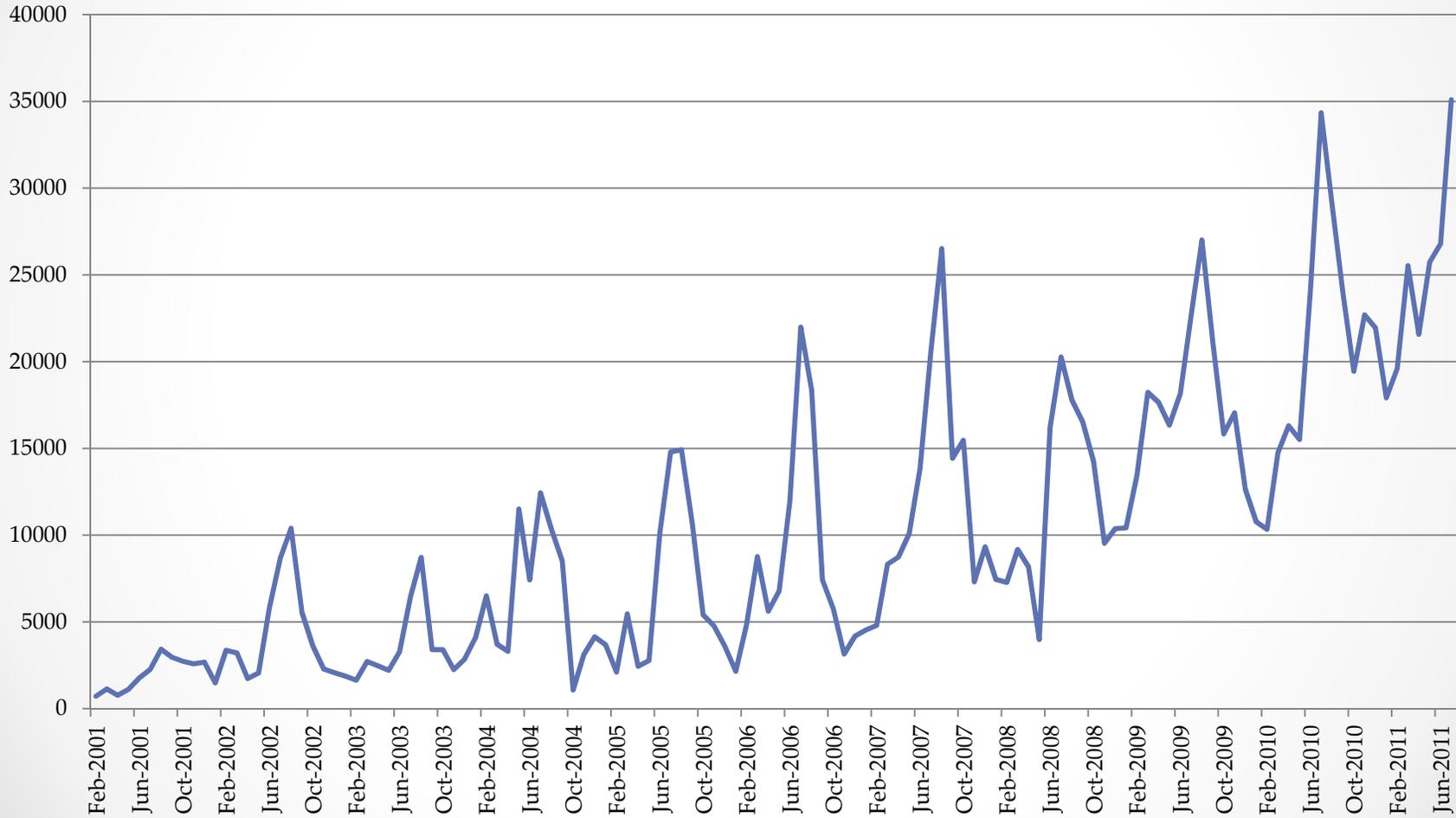
- Winter peak (January and February) wholesale prices are expected at \$55.25/Mwh at PJM's western hub. An increase of 16%. Likely due to higher gas prices from increase in industrial demand.
- US natural gas demand for power generation is up 3.6% thru October. In the east, gas is displacing some coal due to higher coal prices and lower gas prices.
- Power demand and heating load can both peak at the same time. Can lead to local constraints and price spikes as pipelines prioritize customers with firm transportation rights. Has not led to major reliability issues in the past.

Gas Delivered for Pennsylvania Electric Generation
From EIA PA Natural Gas Deliveries Retrieved 11/3/2011



Monthly Natural Gas Deliveries to Pennsylvania Electric Power Generation

(Million Cubic Feet) From EIA Gas Monthly



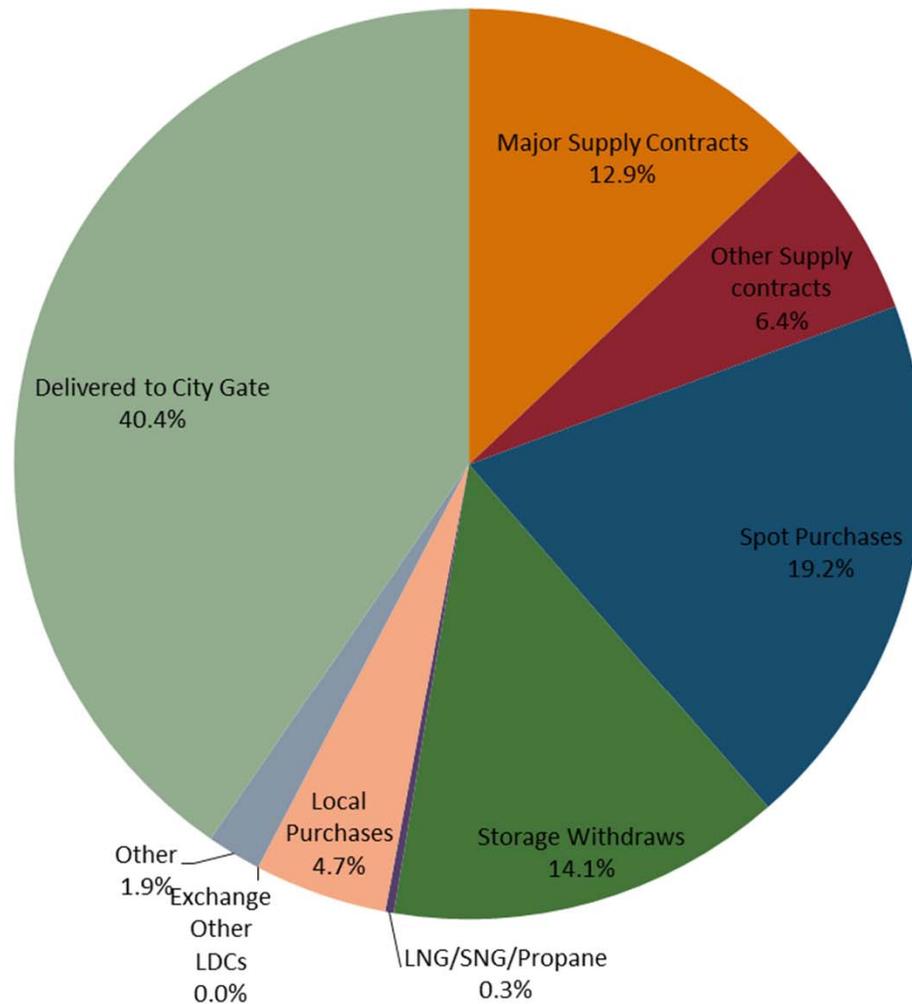
2011 Annual Utility Supply and Demand Balance for Pennsylvania

Supply for sales	
Major Supply Contracts	91,207
Other Supply contracts	45,310
Spot Purchases	135,509
Storage Withdraws	99,182
LNG/SNG/Propane	2,130
Company Production	0
Local Purchases	33,324
Exchange Other LDCs	0
Other	13,678
Subtotal	420,340
<i>Transportation Gas</i>	
Delivered to City Gate	284,796
Total sales and trans.	705,136
<i>Deductions</i>	
Curtailments	0
Storage Injections	89,617
LNG Liquifications	2,434
Sales to Other LDCs	33
Off-System Sales	16,177
Total Deductions	108,261
Net Supply	585,084

Demand	Total
<i>Firm</i>	
Retail Residential	210,976
Retail Commercial	67,512
Retail Industrial	3,177
Electric Power	0
Exchange Other LDCs	0
Unaccounted for Gas	13,944
Company Use	2,887
Other	1
Subtotal – Firm	298,497
<i>Interruptible</i>	
Retail	1,370
Electric Power	12
Company's Own Plant	90
Unaccounted for Gas	43
Subtotal - Interr'p	1,586
Firm & Interruptible	300,012
<i>Transportation</i>	
Firm Residential	26,205
Firm Commercial	45,123
Firm Industrial	87,614
Interruptible Residential	0
Interruptible Commercial	28,232
Interruptible Industrial	79,422
Electric Power	15,711
Subtotal - Trans.	282,307
Total Requirements	582,319

Pennsylvania Gas Utility Annual Supply 2011

Total 705,136 MMcf (does not include deductions)
from PA PUC Gas IRP reports



2011 Annual Peak Day Utility Supply and Demand Balance for Pennsylvania

Supply for sales	
Major Supply Contracts	1,199
Other Supply contracts	185
Spot Purchases	556
Storage Withdraws	1,505
LNG/SNG/Propane	168
Company Production	0
Local Purchases	90
Exchange Other LDCs	0
Other	0
Subtotal	3,703
<i>Transportation Gas</i>	
Delivered to City Gate	1,214
Total sales and trans.	4,917
<i>Deductions</i>	
Curtailments	18
Storage Injections	3
LNG Liquifications	1
Sales to Other LDCs	0
Off-System Sales	128
Total Deductions	150
Net Supply	4,767

Demand	Total
<i>Firm</i>	
Retail Residential	2,432
Retail Commercial	794
Retail Industrial	20
Electric Power	0
Exchange Other LDCs	0
Unaccounted for Gas	119
Company Use	28
Other	3
Subtotal - Firm	3,395
<i>Interruptible</i>	
Retail	9
Electric Power	0
Company's Own Plant	1
Subtotal - Interr'p	0
Firm & Interruptible	3,405
<i>Transportation</i>	
Firm Residential	181
Firm Commercial	353
Firm Industrial	442
Interruptible Residential	0
Interruptible Commercial	100
Interruptible Industrial	234
Electric Power	3
Subtotal - Trans.	1,309
Total Requirements	4,714

Pennsylvania Peak Day Supply 2011

Total 4,917 MMcf (does not include deductions)
from PA PUC Gas IRP reports

