Issues for Interstate Pipelines Panel:

William E. Murrell – FERC

Amber McCullagh – Wood Mackenzie
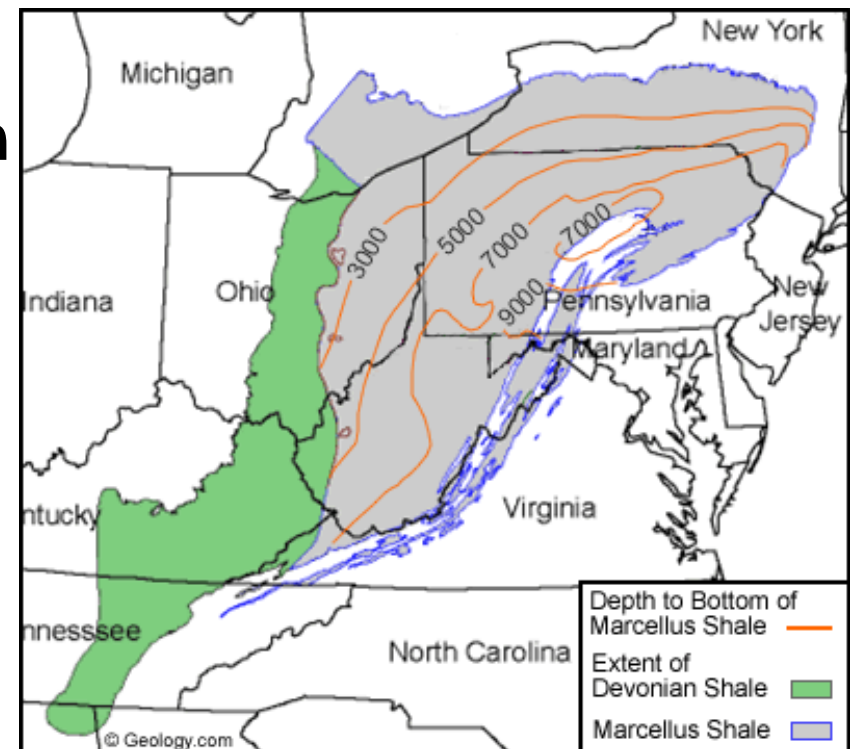
Alvin "Creech" Newsome – TransCanada

Bob Truman – CenterPoint Energy Services
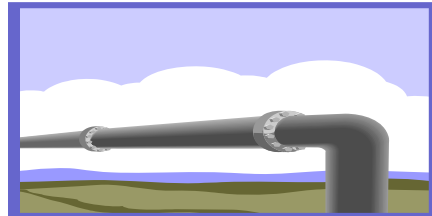
Gas Supply Shifts

- **Pipeline and Power Generation Communication Improvements**

- **Pipeline Capacity Utilization**

- **Natural Gas Storage Utilization**

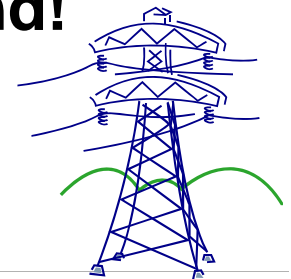# Pipeline and Power Comparison

Gas Pipelines

1. Pipelines move natural gas from production to market areas. Custody transfer occurs at meter stations.

2. Gas moves at 10 – 35 mph. It takes over ½ a year for gas to move in a pipeline the same distance an electron moves in 1 second.

Electric Power

1. Power lines move electrons from generators to appliances. Custody transfer occurs at power meters.

2. Electrons move at the speed of light at 186,000 miles per second!
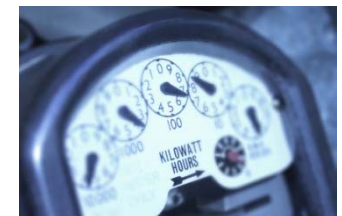
Pipeline and Power Comparison

Gas Pipelines

3. Gas Days are usually 24 hour periods starting at 7, 8, or 9 AM.

4. Gas is scheduled in daily quantities with intraday adjustment opportunities with imbalances trued up monthly. Storage and linepack are used for managing imbalances.

Electric Power

3. Days are calendar days, midnight to midnight.

4. Power is billed monthly with balancing occurring every 3-8 seconds by ramping generation up or down in real time.
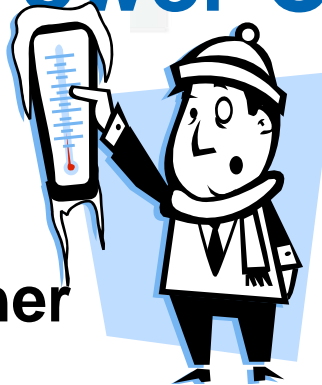
Pipeline and Power Comparison

Gas Pipelines

5. Demand is weather driven.

6. Capacity is fixed by the amount and location of compressors and pipe. Higher pressure pipe means more capacity.

Electric Power

5. Demand is weather driven.

6. Capacity is fixed by generator capacity and wire distribution. Higher voltage means more capacity.

Pipeline and Power Comparison

Williams
Ingenuity takes energy.

Gas Pipelines

7. Gas delivery is guaranteed when customers purchase firm transportation and make supply gas available.

   During periods of lower pipeline utilization, interruptible gas transportation is made available.

Electric Power

7. Power demand increases are served by peaker plants beyond base loaded power supply. Peaker plants generally avoid firm natural gas transportation.

   Gas may not be available from pipelines without firm transportation when pipe utilization is full.