

# OVERVIEW of CHP ACTIVITY for WEST VIRGINIA

## Mid-Atlantic CHP Application Center Roadmapping Workshop

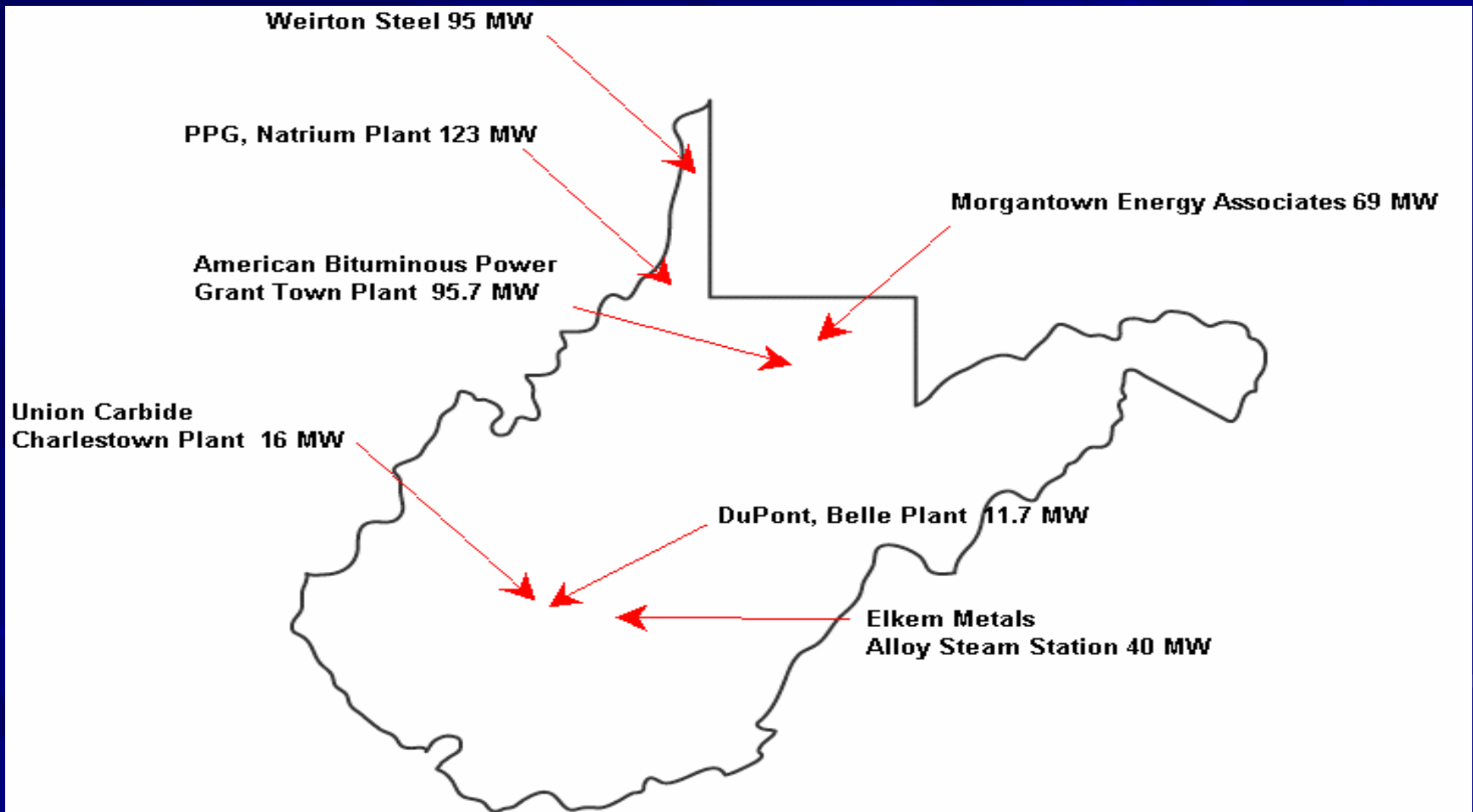
# Summary

- Existing 440 MW CHP about 3% of total 15,061 state generation
- Little or no new CHP activity, 1 new 75 MW project
- Market Realities
  - Reliable electric supply at relatively low rates and low buy back rates
  - Electric deregulation on hold
  - Abundant gas with generally rising prices, some potential constraints
- Permitting does not appear to be overly difficult relative to surrounding areas
- Significant opportunities by utilizing abundant WV resources

# Existing CHP in WV

- 440.4 MW, 6 industrial and 1 university site
- Mostly coal and waste gases
- Many units date back decades
- Little or no recent CHP activity
- Largest installations
  - MEA, 69MW, waste coal, serves WVU campus
  - PPG Industries, 123MW, Natrium Plant

# Existing CHP (con't)



# CHP Under Development

- Western Greenbrier Co-Generation, LLC Project, 75mW, \$215M
- Serves 3 municipalities in Greenbrier Co.
- NETL, Clean Coal Power Initiative
- Novel use of ash and green wood waste to produce structural bricks. Steam kiln used to dry hardwood
- Projected online in about 3 years

# Worthy of Mention(not CHP)

- Mountaineer Wind Energy Center (FPL) – 44 windmills, 66MW operating
- 250MW (166 turbines) approved, 300 MW (200 turbines) planned
- Hydro >100MW

# Market Realities

- Abundant electric generation from coal
- Electric supply is apparently very reliable
- Electric Rates for commercial(5.4c/kwh) and industrial(3.8c/kwh) users are low
- Buy back rates for excess generation are very low
- Natural Gas Prices are rising

# WV Electric Utilities

- 4 electric utilities cover 99% of WV
  - Appalachian and Wheeling Power (AEP)
  - Monongahela Power, Potomac Edison (APS)
- Low cost generation (99% coal) is abundant keeping buy back rates low
- Utilities appear indifferent to CHP
- Interconnection should be straightforward ie APS and AEP belong to PJM
- However, APS references “Customer-owned generators, interconnection policy and guidelines” in its tariff.

# WV Electric Utilities (con't)

## ■ APS utilities

- Standby \$5 to \$6/kw for low voltage customers, energy < 2.0c/kwh, 20% annual standby hours
- Low buy back rates 2.26c/kwh onpeak, 1.44c/kwh offpeak
- Utilities may pay for some capacity credits

## ■ AEP utilities

- Published tariff for <100kw, negotiation on case by case basis for others
- No explicit standby rates
- Low buy back rates about 1.5c/kwh
- No credit given for capacity

# Natural Gas

- Abundant gas supplies for CHP projects
- WV is a net exporter of gas (only state east of Mississippi)
- Main transmission by Dominion and Columbia
- Columbia Gas Transmission constrained in Northern WV especially Wheeling
- Dominion constrained near Charleston and Southern WV (few customers here)

# Permitting

- **Permitting by WV DEP Office of Air Quality, process can take up to 180 days including 45 day public input**
- **Non attainment Areas**
  - **PM10 northern counties of Hancock, Brooke and Weirton**
  - **SO<sub>2</sub> Hancock County and Weirton**
- **De Minimis Exemption - PTE < 10 ton/yr and 6 lb/hr OR PTE < 2 lb/hr and 5 ton/yr of any HAP exempt from permitting**
- **Minor Source - Specific PM and SO<sub>2</sub> requirements depend heat input and unit location, also 10% opacity requirement**
- **Minor Source Exemption - PTE less than 10 tons per year and 6 lb/hr**

# Permitting (con't)

- Major Source Threshold - PTE 250 tons, any criteria pollutant in attainment areas. 100 tons of SO<sub>2</sub> or PM in nonattainment areas
- Unit emitting 100 tons of SO<sub>2</sub> or PM triggers NSR in a nonattainment area
- PTE 250 tons per year of a criteria pollutant triggers PSD in attainment area
- Emergency Generators – No requirements

# Regulatory

- All NUGs need a Certificate of Convenience and Necessity for new generation
- No exit fees for self generation
- Electric restructuring and competition are currently on hold
- Not aware of any rule or tariff changes that would affect CHP projects with the possible exception of:
  - Net metering for small customers

# Opportunities/Barriers

- Total available market? One study suggests 500 sites mostly under 10MW. 1,500 MW (10% state generation) perhaps? Study incomplete
- 400 million tons of waste coal (GOB piles)
- Forest products waste
  - Existing waste wood boilers for forest products industry
  - Waste wood for non-forest products applications – current study by Appalachian Hardwood Center, WVU
  - 5.0 million Ton/yr waste, heat value 4,000 to 8,000 btu/lb, \$1/DTh
- Land fill gas undeveloped. WVDO has tried unsuccessfully to get a land fill project started. Several potential sites
- NETL working on DG for emergency response centers – Extend to CHP?
- Bio Fuels, particularly biodiesel from chicken litter, WVU research
- Main barrier is economic given market realities

# Databases

- Oak Ridge National Laboratory(ORNL) databases for commercial CHP

<http://www.bchp.org/library-db.html>

- Appalachian Hardwood Center Residue Finder

<http://www.ahc.caf.wvu.edu/hardwoodtrader/searchresidue.asp>

- Landfill Methane Outreach Program (LMOP)

■ <http://www.epa.gov/lmop/proj/index.htm>