2002 – The Blue Plume

- High Sulfur Coal
- SCR
- Wet scrubber
- $\text{SO}_3$
- Gravimetric metering
- Delivery
2012 – Coal Isn’t King

- All coals
- MATS
- CSAPR
- NAAQS

- HCl, Hg, SO₂, SO₃
- CO₂ coming
- Water and Coal Ash
2012 – Sorbents

- HCl, Hg, SO$_2$, SO$_3$
- Selective Removal
- Competing Reactions
- Milling / Particle Size

The information contained or referenced in this presentation is confidential and proprietary to FLSmidth and is protected by copyright or trade secret laws.

To mill or not to mill?

As the use of trona in the mitigation of acid gases such as SO$_2$, HF and HCl increases, prospective users are considering milling.

The fine particle size distribution facilitates a more even distribution in the flue-gas duct and lower diffusion resistance inside the sorbent particles, resulting in higher removal efficiency. Milling trona is advantageous if the temperature at the injection port is low (<400°F) or the residence times short, as may be the case with a cold side ESP.

Many factors should be taken into account when deciding whether or not to mill trona. If you're looking for objective input, FLSmidth can help.

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Courtesy of EERC, 2011
Injection Rates

- Mercury and HCl removal can require low rates
- Microinjector™ Feeder - Smaller, more compact, accurate at very low flows (50-500 lb/h)
**Injection Rates**

- Higher rates for SO$_2$ + HCl
- More likely to have rail car unloading
  - Pressure
  - FK Pump / Tanks
- Air treatment
- Pneuboost™
- Storage Philosophy
  - Location of rail spur
  - Transfer to day bins
  - Direct injection from storage
Competing Technologies

- Options for SO$_2$/HCl removal
- Capital / Operating Costs vs life of plant
Competing Technologies
Competing Technologies

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APC Devices

- MATS PM, filterable only
- Improves sorbent efficiency
- Design adapted to improve filter cake, reduce “drop out”
- Replacement vs stand-alone polishing
Decisions

- Pollutants
- Removal required
- Age of Unit
- Size of Unit
- Run Time – now and future
- Resources – water, sorbents
- Fly ash utilization
- Future Legislation