



The National Coal Council
Power for America from America

Reliable & Resilient

The Value of Our Existing Coal Fleet

Improving Flexibility & Reliability of the Existing Coal Fleet

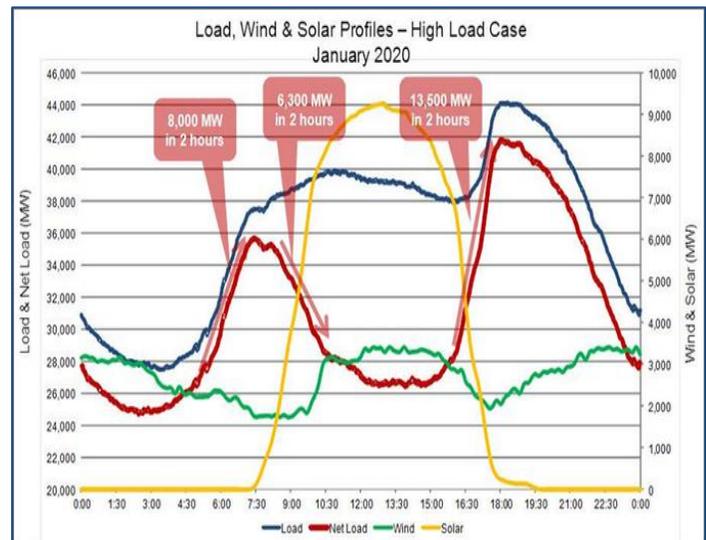
www.nationalcoalcoal.org/NEWS/NCCValueExistingCoalFleet.pdf



Coal-fired generating units large and small are being operated in ways not accommodated by their original design. DOE should lead public-private collaborative programs to ensure that these units can provide the operating flexibility vital to the reliability and health of the electricity grid.

ISSUES

- Market and regulatory factors have caused coal units to be dispatched in alarmingly different ways. Originally designed to run base-load (24/7/365 at or near their maximum output, except for planned and unplanned outages), many of these units now “ramp” often (cycle up and down in output) and start and stop frequently, sometimes daily. Must-run wind facilities and combined cycles burning historically low priced natural gas are dispatched ahead of coal.
- At the same time, when market conditions revert suddenly, such as during this past winter when gas prices escalate or gas supply is not assured, or when renewable resources are unavailable, coal units have to quickly adapt to higher run times and capacity factors.
- Frequent starts and stops and ramping impose stresses on the units, increasing O&M costs. Units suffer from thermal degradation, corrosion and fatigue of thick-walled metal components; lower efficiency, and elevated emissions levels. A full complement of environmental control systems (scrubbers, SCR, etc.) protect against higher emissions but reduce unit flexibility. Dispatch and cycling stresses increase the likelihood of critical component failures and forced outages.
- Older, smaller coal units which traditionally handled the load swings are being permanently retired, forcing larger and larger coal units into flexible but highly stressful operation. Given that it is next to impossible to permit and develop new, more flexible coal units in the near term, loss of flexibility in the existing coal units becomes a critical factor in the security and stability of the grid.
- Managing all the inputs into, and outputs from, a coal unit – water, coal deliveries, scrubber sorbent, catalyst, ash, emissions – gets progressively more difficult under such transient conditions.



NCC Recommendation

DOE should lead collaborative efforts to develop better assessment tools for cyclic stresses and impacts, best practice guidelines for cyclic operations, R&D investigations into cycling of emissions control systems, advanced materials that better withstand stresses, coal treatment options, and advanced control and automation systems which help manage units under aggressive cycling and dispatch conditions.