

Virginia City Hybrid Energy Center
Response to Data Request
Bruce Buckheit, Member, Virginia Air Pollution Control Board

Question (Page No. 6, Footnote 8):

I recognize that construction has not yet been completed on the Lagisza supercritical CFB facility (see below) but the technology is “commercially available” and so must be considered. Smaller scale units have operated for a number of years, the Lagisza unit is the first in this size range.

Response:

The Lagisza supercritical CFB facility in Poland is currently under construction and planned for start-up in March 2009. This 460 MW single boiler is the first supercritical CFB to be sold by a CFB supplier and is also the largest single boiler sold to date. In addition to being the first supercritical CFB, the facility utilizes a new modularized design that close couples the cyclones to the boiler housing. The contract was signed in December of 2002, Mechanical Completion occurs in July 2008 and Commercial Operation in March 2009. Commissioning of the facility is anticipated to take 8 months. The facility does not have an SNCR or scrubber which allows the use of an additional flue gas heat recovery system which improves total plant efficiency by .8%.

“Commercially available” technology is defined as technology that can be purchased from a willing seller under commercial terms. Foster Wheeler, which is the boiler maker at the Lagisza plant, has stated that the Supercritical design is not commercially available in the US market until they have gained operating experience with the Lagisza facility. If Dominion had insisted on a Supercritical design, FW would have not included any guarantee and therefore such technology would not be “commercially available.” Dominion believes this is an unacceptable risk.

The stated gross plant heat rate (HHV) for Lagisza is 7849 btu/kwh which incorporates the flue gas heat recovery system. However, this system would not be allowed in the US because the flue gas heat recovery system is incompatible with using the SNCR and polishing scrubbers. Without control technologies, the SO₂ and NO_x would far exceed any BACT limits. Without the flue gas heat recovery system, the comparable gross heat rate would be 7996 BTU/KWH. The VCHEC gross heat rate associated with the guaranteed case is 8900 BTU/KWH. This represents a heat rate that is 11% higher than the Lagisza facility on a gross heat rate basis. To the extent the comment raises an issue concerning CO₂ emissions based on the difference of heat rate, the use of renewable fuel in VCHEC would more than offset that difference.