JOC-NETL PROJECT UPDATE

(to be supplemented as the project proceeds)

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DISCLAIMER

JOC-NETL PROJECT UPDATE

The Jupiter Oxygen and NETL ORD project teams find that the testing to date indicates as follows for the combined Jupiter Oxygen high flame temperature oxy-combustion technology and NETL IPR pollution control and carbon capture system for coal fired power plants:

1. These technologies provide a means to retrofit existing power plants and build new ones.

2. Boiler system fuel savings can be expected from high flame temperature oxy-combustion technology, resulting in cost savings for fuel as well as CO2 transport and sequestration since less CO2 is produced.

3. 95-100% carbon capture is feasible, with the range depending on whether the IPR has an alternative source of power when a power plant is being started up or shutdown, except for any loss to reach high purity levels.

4. Pending CO2 transport and sequestration infrastructure development, these combined technologies allow fully carbon capture ready power plants to exist today which can be completely compliant with clean air NOx, SOx, mercury and particulate regulatory requirements.

5. Water recovery will exceed boiler feedwater requirements.

6. Heat integration from cryogenic oxygen plant and IPR compressors can lower fuel costs as well.

7. While high flame temperature oxy-combustion burner and IPR scale-up and optimization will continue during the current project year, these technologies are ready for commencement of a demonstration pilot project. The 15MWth [5 MWe equivalent] boiler retrofit completed for this JOC-NETL project has demonstrated that high flame temperature oxy-combustion can make steam in a conventional, older boiler without changing boiler interior materials, and with an IPR slipstream system operating to control pollution and capture carbon as described above. The IPR system uses commercialized equipment, and scale-up also will use commercialized equipment.

8. With these technologies, total parasitic power requirements for both oxygen production and carbon capture currently are in the range of 20%, far below earlier DOE projections because of system improvements using commercialized equipment.

9. Preliminary economic projections indicate that these technologies can generally allow new and retrofitted coal fired power plants to achieve 95-100% carbon capture with zero amortized net incremental economic cost if there is net CO2 revenue of approximately $20 per ton and a COE increase of not more than 35%. The minimum net CO2 revenue and COE increase which will be necessary to achieve zero amortized net incremental economic cost are unclear.