COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

JOINT APPLICATION OF LOUISVILLE GAS	)	
AND ELECTRIC COMPANY AND KENTUCKY	)	
UTILITIES COMPANY FOR A CERTIFICATE	)	
OF PUBLIC CONVENIENCE AND NECESSITY,	)	CASE NO: 2004-______
AND A SITE COMPATIBILITY CERTIFICATE,	)	
FOR THE EXPANSION OF THE TRIMBLE	)	
COUNTY GENERATING STATION	)	

DIRECT TESTIMONY OF
JOHN N. VOYLES
VICE PRESIDENT, REGULATED GENERATION
LG&E ENERGY SERVICES INC.

Filed: December 9, 2004

Q. Please state your name, position, and business address.

A. My name is John N. Voyles. I am Vice President of Regulated Generation for LG&E Energy Services Inc. on behalf of Louisville Gas & Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (collectively "the Companies"). My business address is 220 West Main Street, Louisville, Kentucky 40202. My background and work experience are described in Appendix A.

Q. Have you previously testified before this Commission?

A. Yes. I have testified before the Commission in the Environmental Compliance Plan filing for LG&E in Case No. 94-332.

Q. Are you sponsoring any exhibits?

A. Yes. I will be sponsoring the following appendix and exhibits:

Exhibit JNV-1, Aerial Photo of Existing Trimble County Site

Exhibit JNV-2, Elevation views of typical sub-critical and super-critical boilers

Exhibit JNV-3, Reliability, Capital and O&M Cost - TC2 vs. IGCC and CFB

Exhibit JNV-4, SO_2 and NO_x Netting-Out Summary

Exhibit JNV-5, Summary Schedule of TC2 Project Execution

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the location, technologies chosen, fuels, environmental controls, and construction plans of the Companies' proposed new generating unit from an engineering perspective.

Q. Please describe the facility the Companies propose to construct in this proceeding?

A. The Companies have proposed the construction of a new pulverized-coal ("PC") super-critical unit of 750 MW nominal net rating (732 MW net summer rating) ("TC2") located adjacent to the existing operating unit ("TC1") at the Trimble County Generating Station ("Trimble Station"). TC2 will employ state of the art air pollution control equipment to ensure environmental compliance. In fact, TC2 will have the lowest emissions per megawatt-hour produced of any coal-fired plant in Kentucky. It is anticipated that this air pollution control equipment will consist of a Selective Catalytic Reduction ("SCR") system, Baghouse, Wet Flue Gas Desulphurization ("WFGD") system, and Wet-Electrostatic Precipitator ("WESP"), with provisions for the addition of future controls for acid mist and mercury engineered into the design should air regulations change in the future.

Q. Why was the Trimble Station chosen as the location for TC2?

A. The Trimble Station was originally developed as a multi-unit site and much of the full plant infrastructure was installed at the time of construction of TC1. Specifically, the limestone barge unloader, limestone handling system, limestone grinding and slurry systems, coal barge unloader, coal handling system, site fire protection, site fuel oil storage, administrative offices, maintenance shops, warehousing facilities, site development, barge mooring cells and raw river water supply systems were placed into operation when TC1 was constructed. See Exhibit JNV-1. These systems were built to handle the operation of multiple units with little or no modifications. The Companies can take advantage of these existing systems and infrastructure that would otherwise need to be developed and constructed. This significantly reduces the construction costs over having to acquire the land and develop a generating station in its entirety at a "greenfield" site. In addition, significant staffing benefits will be realized by building at the Trimble County site by taking advantage of economies of scale. Staffing at TC1 alone consist of approximately 80 full-time employees. The addition of TC2, while more than doubling the coal-fired generation of the station, will only require an 50% increase in full-time employees by adding approximately 30-40 employees to the staff. Finally, there is more than sufficient real estate available for construction and permanent facilities at the Trimble Station, and the site is well suited for the required transmission upgrades as the site was originally designed and constructed for multiple units. The Companies also enjoy a good relationship with the local community and have experienced no significant problems during the recent construction efforts of the SCR and combustion turbine projects. This excellent relationship and recent proven success of constructing large capital projects at the site should continue and we expect positive feedback on the project from the community.

Q. How does TC2 complement the existing generating assets of the Companies?

A. The last coal-fired generating unit installed by the Companies was TC1 in 1990. Since then, the native load demand for electricity has grown as discussed in Mr. Sinclair's testimony. In addition to native load growth since 1990, the Companies have been operating and maintaining the existing fleet of generating units. However, the Companies base load, coal-fired fleet now has an average age of 34 years of service, with approximately 650 MW at 40 years or older. While it is not unusual to have utility generating assets operating for this time period, the viability of a typical coal-fired unit with over 40 years of service becomes an ever-increasing challenge and older assets are more prone to failures that can be too costly to justify repairing. While TC2 is not being constructed to allow the decommissioning of some of our older, smaller coal-fired units,

its availability will decrease the risk to customers should circumstances cause one of our older units to be decommissioned sooner than anticipated.

CHOICE OF TECHNOLOGY

Q. Why did the Companies choose the super-critical technology?

A. Super-critical PC units have a higher thermal efficiency compared to other thermal power cycles, such as sub-critical pulverized coal and Circulating Fluidized Bed ("CFB"), because super-critical boilers operate at higher pressures and temperatures. The higher thermal efficiency reduces the fuel cost by reducing the amount of coal burned for the electricity produced, providing a benefit for the customers. There is also a significant environmental benefit from this higher efficiency since less fuel is combusted to produce the same electrical energy, therefore, less pollutants are emitted for the same mega-watt of electricity produced.

Q. How did the Companies evaluate the available technologies?

A. As a part of our evaluation of technologies for TC2, we focused on several key objectives on which to base a selection. Some of the key objectives were the economic assessments related to: the cost of construction, on-going O&M cost for the plant and environmental control for various technologies. Also, given the significant savings of constructing at Trimble Station where many of the original assets for a multi-unit site were installed with TC1, our approach called for reviewing and maximizing the use of those assets as far as economically practicable. The design fuel selection was focused around utilization of Kentucky coals and other regional bituminous high sulfur coals; however, the plant had to be able to burn a wide range of fuels, including western sub-bituminous coal without significantly impacting the capital or O&M cost of the project. Also, the technology chosen preferably would preserve space for additional future options at the site as originally envisioned (potentially for a TC3 and TC4).

In addition, the Companies (i) conducted a world-wide technology review that utilized the engineering expertise of our parent and sister companies to gain the most recent knowledge of new units, (ii) researched users of the latest vintage units of each technology, and (iii) researched the marketplace through the major equipment providers of similar size units. Based on this review, the Companies determined that the best technology choice for TC2 is super-critical pulverized coal. Advances in component materials and designs have increased the reliability of super-critical units substantially beyond the early vintage super-critical boilers employed in the U.S. during the 1970's and early 1980's. In fact, super-critical technology has been the technology of choice world-wide over the last couple of decades with the installed capacity increasing by approximately 76,000 MW from 1982 to 2000. Most of this super-critical technology was installed and refined in Europe and Asia due to demand for coal-fired generation in those regions of the world. A review of coal-fired generation of TC2's size currently being built in North America or being permitted in the U.S. indicates that super-critical technology is the choice in the industry due to increased efficiency, reduced emissions and maturation of design.

Q. Do the Companies or their parent company currently own any super-critical units?

A. While the Companies do not own any super-critical units, the vast majority of PC boilers owned by our parent company in Europe are of super-critical technology with a total capacity near 20,000 MW.

Q. **How does the super-critical technology compare to the sub-critical technology?**

A. The main difference in the technologies is the operating pressure and temperature of a super-critical boiler, which is above the critical pressure of water at approximately 3200 psi. The TC2 super-critical boiler will be designed to operate above 3,600 psi. A similar sub-critical boiler would operate at only 2,400 psi. From an engineers' perspective, this means that within the boiler the water turns to steam with no phase change thus no steam drum is required, whereas a sub-critical unit utilizes multiple pass steam/water circuits connected to a steam drum. Since there is no steam drum, start-up times are shorter and load ramp rates are faster which results in more flexible operations compared to the sub-critical unit. Exhibit JNV-2 shows the similarities between sub-critical and super-critical designs. It is important to note that the two designs are essentially the same for the entire station other than the absence of a steam drum in the super-critical boiler and the materials of construction are generally of higher quality tube metallurgy to accommodate the higher temperatures.

Q. How does the super-critical technology compare to CFB and Integrated Gasification Combined Cycle ("IGCC") technologies?

A. The CFB technology has not matured beyond the 300 MW size at this time, and therefore a multi-CFB unit installation would be required to provide 750 MW of capacity. This would result in a higher capital cost and revenue requirement when compared to a super-critical unit. Also, a multi-CFB unit installation would require more installation area from the site and would likely need to be built in the area currently designated for TC3 and TC4. And, while the CFB technology does offer fuel flexibility, there are disadvantages such as lower thermal efficiency, longer startup times, and increased O&M costs. Further, with the more stringent SO_2 emission limits of today, CFB does not have the cost advantage it once had over PC boilers (the ability to reduce SO_2 emissions to required levels by injection of limestone in the furnace without the use of a flue gas desulphurization process downstream of the steam generator). Best Available Control Technology ("BACT") for sulfur-dioxide emissions would likely require the installation of a WFGD, thus eliminating a significant cost advantage once held by CFB over PC technology.

While the IGCC technology holds promise for sometime in the future, to date it has not demonstrated reliability comparable to that of super-critical technology which is desired for utility applications in the 750 MW capacity size. In fact, of the four coal-fueled IGCC facilities operating around the world today for electricity production (only two of which are in the U.S.), none of the operators report availabilities above seventy-nine (79) percent, far less than the ninety-five (95) percent target for TC2. A summary of the availabilities reported by the operators of IGCC during the October 2003 Gasification Technologies Conference can be found in Exhibit JNV-3.

The air permitting studies for TC2 that were performed by Black & Veatch analyzed the super-critical pulverized coal design against CFB and two different IGCC designs. The report indicated that a comparable 750 MW size IGCC generating unit installed at the Trimble Station would require over $400 million more in capital investment and would have substantially higher O&M costs than the super-critical boiler while being substantially less reliable and much more complex to operate. The comparison for cost and reliability can be found in Exhibit JNV-3. Further, as described in Ms. Dodson's testimony, the environmental aspects of IGCC are nearly equivalent to the TC2 design for a substantially less expensive and more reliable design.

In summary, the complexity and relative technological immaturity of the IGCC process in a utility application increases the opportunities for deficiencies in design, vendor supplied equipment, construction, operation, and maintenance. The Companies feel the risk is too high for cost overruns and low availability, and that being on the cutting edge of this technology would be an unnecessary risk for their customers. However, while the time is not right for IGCC as the technological choice for TC2, the Companies are committed to staying abreast of IGCC developments for consideration in meeting potential future generating needs of the Companies.

Q. What is the significant environmental benefit of the super-critical technology?

A. The higher thermal efficiency (less coal burned per MW of production) of a super-critical boiler directly impacts the environmental emission rates from the unit. With this efficiency benefit and the air pollution controls to be installed, when the unit goes into service in 2010, the total emissions from TC1 and TC2 will be less than TC1's 2000-2001 baseline for two major pollutants (NO_x and SO_2). The TC2 air permit is based on this "netting out" of NO_x and SO_2 at the Trimble Station. This means that even though the station generating capacity will be more than doubled, the combined emissions for each pollutant will not significantly increase. TC2 will employ the most modern air pollution control equipment available. With respect to NO_x and SO_2 combined, TC2 will be the cleanest coal-fired unit per MWh produced in Kentucky. Calculations summarizing this netting out are provided in Exhibit JNV-4.

OPERATION AND MAINTENANCE

Q. What fuels will TC2 use?

TC2 will use the same Number 2 fuel oil for startup as is presently used for TC1. The primary fuel will be high sulfur coal; however, a new coal blending system will be added to the existing coal handling system during the construction of TC2 that will provide the capability for burning blends of coal, including high sulfur Kentucky, lower sulfur eastern and western sub-bituminous (Powder River Basin) coals. This blending capability gives the Companies maximum flexibility in coal choice, thus enabling the Companies to better manage fuel costs.

Q. Will the similarities between TC1 and TC2 result in operating efficiencies?

A. Yes. Given the similarities between TC1 and TC2 as shown in Exhibit JNV-2 comparing a sub-critical boiler to a super-critical boiler, the Companies expect to spend considerably less dollars on operation and maintenance of TC2 than if the same unit were built in a greenfield application. By utilizing the existing systems identified earlier in my testimony (i.e., limestone systems, coal systems, river water intake, site fire protection, etc.) the incremental O&M associated with operating and maintaining these systems is small in comparison to the total cost spent currently for TC1 only. With regards to personnel, TC1 currently employs approximately 80 people. The increase in staffing for the addition of TC2 is expected to be approximately 30-40 positions. A comparison of incremental personnel and O&M costs for TC2 with the current cost of TC1 shows the cost advantages of constructing for our native load needs at the existing Trimble County site.

CONSTRUCTION

Q. Please describe the construction plans for TC2.

A. Construction of TC2 will be primarily performed through a single Engineering, Procurement and Construction ("EPC") contract that will primarily include the boiler, air pollution control equipment, and turbine generator systems. The contracting process of utilizing a single EPC contract is very common in today's marketplace for owners that want to manage schedule, performance and price risk. The EPC contract will have significant penalties associated with these areas of risk to protect the Companies and the customers. Some relatively minor portions of the project may be constructed by the Companies, independent of the EPC contractor. The Companies will employ an Owner's Engineer to assist the Companies in certain functions of the project, such as preparing the EPC bid package, assisting in the management of communication during the bid clarification period, support during the contract award process, support for conceptual and detailed engineering reviews, and support for site construction management.

Q. Please describe the bidding phase for TC2.

A. The bidding process for the major EPC contract will use a functional technical specification with a typical set of turn-key, lump sum fixed price terms and conditions for a project of this scale. The specification and contract will include a full performance wrap (i.e., equipment warranties, schedule guarantees, emission rate guarantees, etc.) to ensure the contractor delivers the project on time, within budget and within the required performance criteria. Proposals will be solicited from a set of pre-qualified entities, including EPC contractors, major equipment providers, and engineering firms. The Companies have already completed the pre-qualification process and plan to issue the bid documents the week of January 24, 2005. The bidders have three months to provide their initial bids, followed by a proposal review period of approximately three months, at which time the detailed negotiations for the project will begin. Detailed negotiations on scope, schedule, price and other commercial terms will then proceed through the remainder of 2005. The schedule targets providing the selected bidder with a limited notice to proceed in the December 2005 to January 2006 timeframe. A summary schedule of the project is shown in Exhibit JNV-5.

Q. Please describe the prequalification process for TC2.

A. The Companies hired Cummins and Barnard, an Engineering firm from Michigan with recent U.S. experience on similar projects, to assist us with development of a detailed process. The main components of the process were a description of the project both technically and commercially along with a detailed formal questionnaire issued to prospective vendors and Original Equipment Manufacturers ("OEM"). The questionnaire required detailed information regarding engineering, administrative, project management, construction, and safety experience for similar projects. It also inquired as to the entities' financial capabilities by requiring submittal of standard financial data. The questionnaire required responses to other commercial areas such as the willingness to accept schedule and performance Liquidated Damages, and the ability for partners in the project to be held jointly and severally liable. The potential vendors were allowed to present their qualifications, both commercially and technically, regarding how each would manage the project to a team comprised of engineers, managers and senior management from within the Companies that are involved with the development of the project. The respondents were ranked using structured scoring criteria by both the internal team and the Cummins and Barnard participants.

Q. Are there permits that will be required as part of the construction on TC2?

A. Yes. The environmental permits are discussed in the testimony of Ms. Dodson. In addition, permits routinely required for construction (i.e., plumbing, building, etc.) will be obtained at the appropriate time as necessary.

Q. Please describe the construction timeline for TC2.

A. Once the successful EPC bidder is selected, the Companies expect the actual construction to take approximately four years. The expected timeline for construction of TC2 is as follows: EPC bidding and contract award process to be completed by the end of 2005; construction to begin in the first quarter 2006 and be mechanically completed in the fourth quarter of 2009; commissioning, startup, and testing phase following mechanical completion through the first quarter of 2010; and commercial operation in the second quarter of 2010. This summarized schedule is shown in Exhibit JNV-5.

Q. Will there be any new jobs created by the TC2 project?

A. Yes. As mentioned earlier, we expect to add between 30 to 40 permanent positions at the Trimble Station specific to TC2. We estimate that about 650 construction employees will be required on average for each of the four years of construction with a peak of nearly 1,200 construction workers or about 2,700 man-years.

Q. Why are the Companies filing for a CCN prior to signing an EPC contract?

A. The Companies recognize that it may take a number of months for approval of the CCN filing and the necessary pre-construction environmental permits and also know from experience that the large scope of the project will require an extensive bidding, evaluation, and negotiation period. In order to receive proposals with better price certainty and avoid a large contingency for an uncertain start date, the Companies believe it is prudent to synchronize these three efforts so that the best price is received for a schedule that supports the desired commercial operating date within the construction commencement restrictions of the air permit. Any EPC contract entered into will be contingent upon the grant of a CCN and Site Compatibility Certificate from this Commission.

Q. Have the Companies performed any construction work for TC2?

A. No. The Companies have only conducted typical development activities, such as preliminary geotechnical investigations and noise surveys, but have not performed any permanent work related to TC2.

COSTS OF FACILITY

Q. What are the expected costs of TC2?

A. The expected capital cost for construction of TC2 is $1.1 billion. The project cost was originally derived with the assistance of Burns & McDonnell Engineering in 2002. The cost was then independently reviewed and updated by Cummins & Barnard in January 2004 to account for subsequent scope and market changes. This includes escalation, contingency, and owner's costs, but excludes costs for transmission facilities. As explained in the testimony of Mr. Blake, 25% of the costs will be borne by other project participants, and therefore the Companies' construction costs are expected to be about $800 million, excluding transmission facilities. The projected annual O&M expenses associated with the Companies' 75% ownership for TC2 in 2004 dollars for non-fuel, fixed and variable O&M is $11.3 million.

Q. Based on the review and analysis to date, what conclusions have the Companies reached?

A. The Companies have concluded that the installation of TC2 at the Trimble Station provides the best choice option available. The selection of a 750 MW nominal net super-critical unit will provide the Companies' customers with a proven technology, adding the most reliable, lowest cost generating asset to the existing fleet of generating assets to meet the growing load requirements. The unit design provides the least cost supply alternative inclusive of state-of-the-art environmental controls, while preserving fuel flexibility to manage the cost of coal for today's needs and beyond.

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

STATE OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **John N. Voyles**, being duly sworn, deposes and says that he is the Vice President of Regulated Generation LG&E Energy Services Inc., that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

John N. Voyles

JOHN N. VOYLES

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 2nd day of December, 2004.

Victoria B. Harper
Notary Public

(SEAL)

My Commission Expires:

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VICTORIA B. HARPER
NOTARY PUBLIC
STATE AT LARGE
KENTUCKY
My Commission Expires Sept. 20, 2006

Appendix A

John N. Voyles, Jr.

Vice President - Regulated Generation
LG&E Energy LLC
220 West Main Street
P.O. Box 32010
Louisville, Kentucky 40202
(502) 627-4762

Education

Rose-Hulman Institute of Technology, B.S. in Mechanical Engineering - 1976
Emory Business School, Management Development Program - 1992
University of Louisville
  The Effective Executive - 1993
  Center for Creative Leadership-1996
Leadership Louisville 2004-2005

Previous Positions

LG&E Energy LLC, Louisville, Kentucky
  2003 (Feb to May) – Director, Generation Services

Louisville Gas and Electric Company, Louisville, Kentucky:
  1998-2002 – General Manager, Cane Run, Ohio Falls & Combustion Turbines
  1996-1998 – General Manager, Jefferson County Operations
  1991-1995 – Director, Environmental Excellence
  1989-1991 – Division Manager, Power Production, Mill Creek
  1984-1989 – Assistant Plant Manager, Mill Creek
  1982-1984 – Technical and Administrative Manager, Mill Creek
  1976-1982 – Mechanical Engineer

Other Professional Associations

Research Advisory Committee, Electric Power Research Institute (EPRI)
Board of Directors, Electric Energy Inc.
Board of Directors, Ohio Valley Electric Corp. (OVEC)

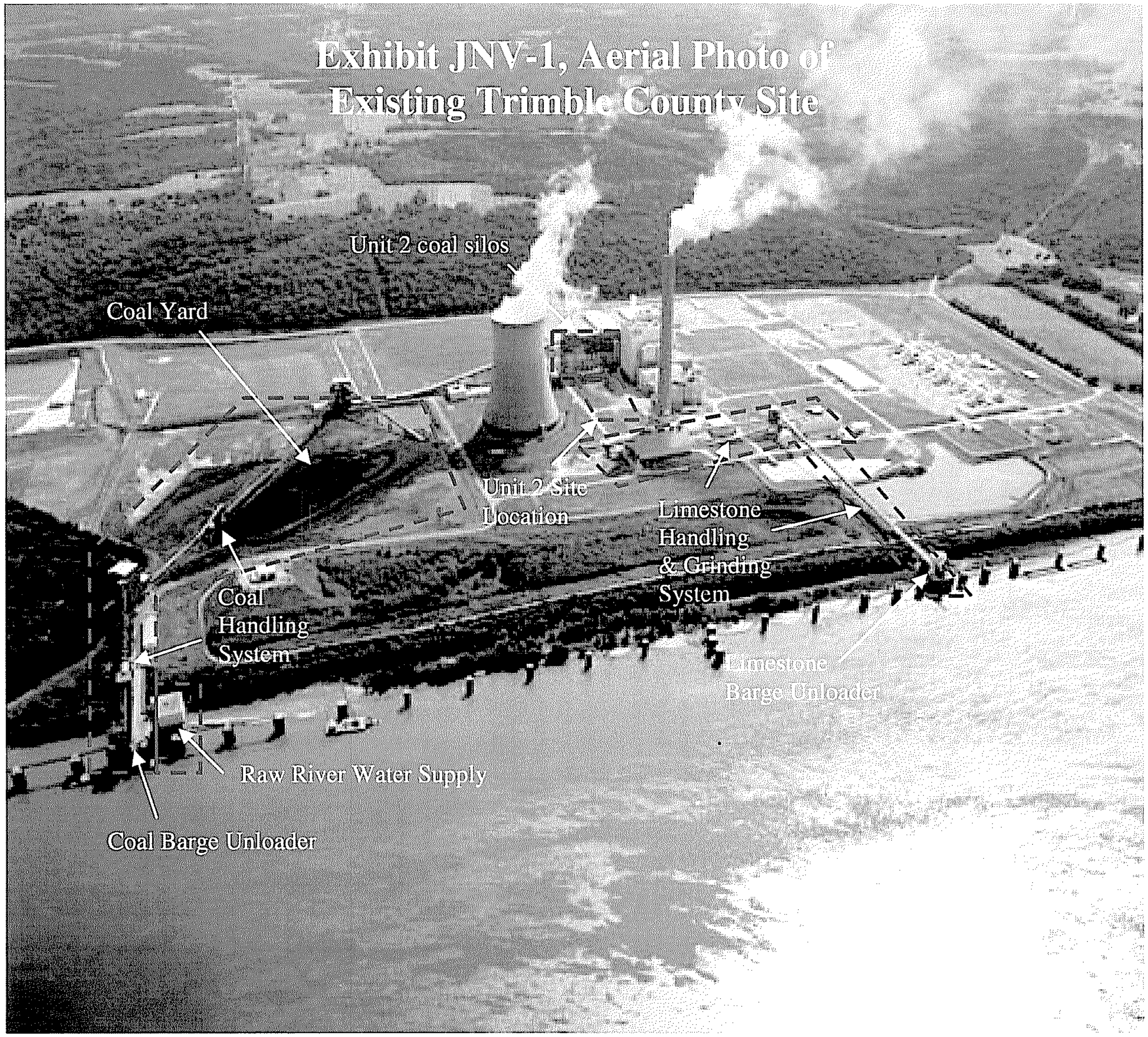
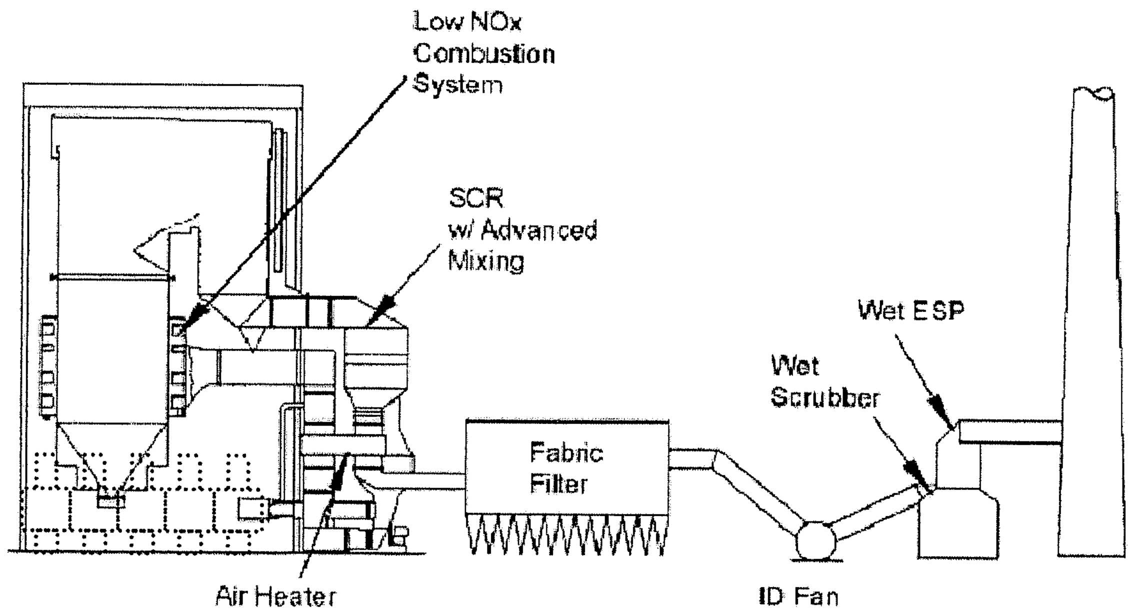


Exhibit JNV-1, Aerial Photo of
Existing Trimble County Site
Unit 2 coal silos
Coal Yard
Unit 2 Site
Location
Limestone
Handling
& Grinding
System
Coal
Handling
System
Limestone
Barge Unloader
Raw River Water Supply
Coal Barge Unloader

Exhibit JNV-2 - Elevation views of typical sub-critical and super-critical boilers

Super-critical Boiler Arrangement



Sub-critical Boiler Arrangement

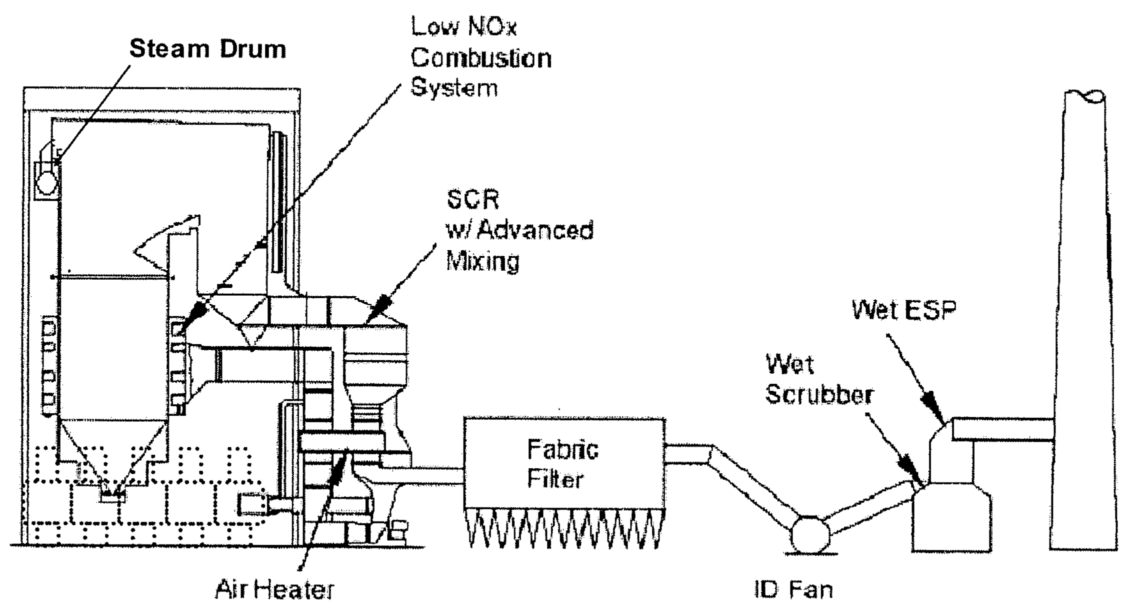


Exhibit JNV-3, Reliability, Capital and O&M Cost – TC2 vs. IGCC and CFB

Summary Comparison Of Technologies				
	CFB	Supercritical PC	IGCC	
Configuration	3 CFB boilers, 1 STG	1 PC Boiler, 1 STG	GE Quench	Shell
Net Plant Output at 59F	750	750	793	802
Heat Rate at 59F	9,134	8,793	9,360	8,510
EPC Cost, 2004 $million	852	797	1,024	1051
Owner's Costs	297	279	358	367
Start-up Contingency	0	0	102	105
Total Project Cost	1,149	1,076	1,484	1,523
Specific Cost, $/kW	1,532	1,435	1,871	1,899
Fixed O&M, $/kW-yr	18.42	17.46	22.07	20.82
Variable O&M, $/MWh	3.45	2.76	5.59	4.85

IGCC Reliabilities:

Reported in the October 2003 Gasification Technologies Conference:

- NUON, Netherlands – 67.3 percent in 2002, 72.5 percent in 2003 YTD
- Polk County, Florida – 74 percent in 2002, 68 percent in 2003 YTD
- Puertollano, Spain – 63.7 percent in 2002, 51.9 percent in 2003 YTD
- Wabash, Indiana – 78.7 percent in 2002, 74 percent in 2003 YTD

Exhibit JNV-4, SO_2 and NO_x Netting-Out Summary (page 1 of 2)

Trimble County 2 Net Out Summary for NO_x

- **Accept a Federally Enforceable Limit (FEL) for TC1 of 5556 TPY of NO_x beginning on January 1, 2005**
- **NO_x Net Out Calculation**

2000-2001 Baseline Actual Emissions (BAE)	7,041.1 tons
TC2 Potential to Emit (PTE) @ .0496 lb/mmBtu	- 1,508.1 tons
Auxiliary Equipment Emissions	- 16.0 tons
New Source Review (NSR) Significance Level	+ 39.0 tons
TC1 FEL on NO_x Annual Tons	5,556.0 tons

- **New FEL <u>not</u> expected to increase TC1 SCR use beyond Five Month Ozone Season (heat input = permit limit of 5,333 mmBtu/hr)**

Five Month Ozone Season Emissions @ .05 lb/mmBtu @ 100% LF	486.6 tons
Seven Month Emissions @ .38 lb/mmBtu @ 100% LF	5,177.8 tons
Total Expected TC1 Annual NO_x Emissions	5,664.4 tons @100%LF
	5,556.0 tons @ 98% LF

Exhibit JNV-4, SO_2 and NO_x Netting-Out Summary (page 2 of 2)

Trimble County 2 Net Out Strategy for SO_2

- **Accept a FEL for TC1 of 4,821.5 TPY of SO_2 beginning on January 1, 2006**
- **Modification required to TC1 FGD during October 05 Outage**
- **SO_2 Net Out Calculation**

2000-2002 BAE	8,046.9 tons
TC2 PTE @ .745 lb SO_2/hr [1]	- 3,263.1 tons
Auxiliary Equipment Emissions	- 1.3 tons
NSR Significance Level	+ 39.0 tons
TC1 FEL on SO_2 Annual Tons	4,821.5 tons

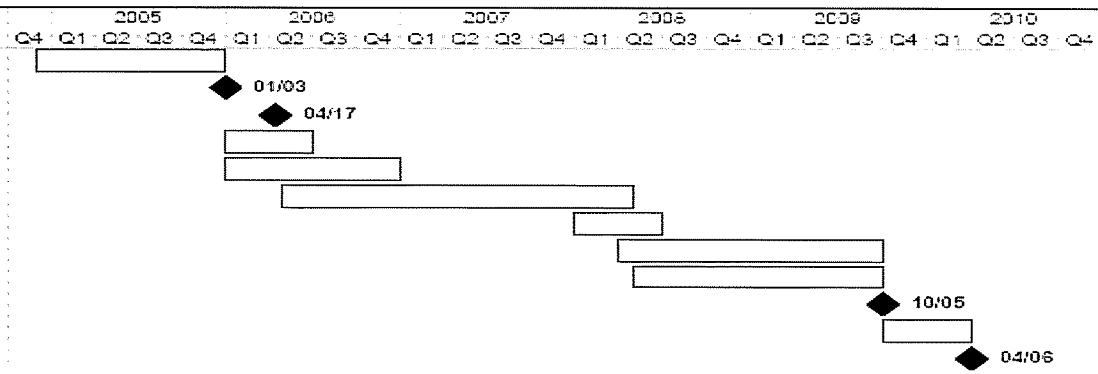
- **At 100% LF and a heat input of 5,333 mmBtu/hr for TC1 the new FEL of 4821.5 tons requires:**
  - Annual Average Emissions of .206 lb SO_2/mmBtu
  - 97.05% Removal Efficiency on 7 lb SO_2/mmBtu Coal
  - 96.25% Removal Efficiency on 5.5 lb SO_2/mmBtu Coal

(1) **98% Removal on Performance Coal**

Exhibit JNV-5, Summary Schedule of TC2 Project Execution

Trimble County Unit 2

ID	Task Name	Start	Finish
1	CCN Order and Air Permit	Wed 12/01/04	Fri 12/30/05
2	Limited Notice to Proceed	Tue 01/03/06	Tue 01/03/06
3	Full Notice to Proceed	Mon 04/17/06	Mon 04/17/06
4	Turbine & Boiler Engineering	Tue 01/03/06	Mon 07/03/06
5	Turbine & Boiler Procurement	Tue 01/03/06	Tue 01/02/07
6	Foundations Construction	Mon 05/01/06	Fri 05/02/08
7	Boiler Steel Erection	Wed 01/02/08	Tue 07/01/08
8	Boiler Erection	Tue 04/01/08	Mon 10/05/09
9	Turbine Erection	Fri 05/02/08	Mon 10/05/09
10	Mechanical Completion	Mon 10/05/09	Mon 10/05/09
11	Startup/Commissioning/Testing	Mon 10/05/09	Mon 04/05/10
12	Commercial Operation	Tue 04/06/10	Tue 04/06/10



Project: Trimble County Unit 2
Date: Tue 11/23/04

Task	Milestone	External Tasks
Split	Summary	External Milestone
Progress	Project Summary	Deadline