Coal Combustion Byproduct
Plan for Trimble County Station
For

Subsidiaries
Kentucky Utilities and
Louisville Gas and Electric

June 2009

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1. Executive Summary

Kentucky Utilities and Louisville Gas and Electric Company's (collectively "the Companies") Trimble County station ("Trimble") produces three primary coal combustion byproducts ("CCP"): bottom ash, fly ash and gypsum, which are currently stored in the Bottom Ash Pond ("BAP") or beneficially reused. The BAP is expected to reach capacity in 2010, creating a need for additional CCP management solutions. Trimble also has an existing Emergency Fly Ash Pond, now known as the Gypsum Storage Pond ("GSP"), located just north of the BAP. The GSP was built during the construction of Trimble's Unit 1, but was never placed in service. The GSP needs a liner to meet regulations to store gypsum.

A variety of on-site and off-site CCP storage options were considered to meet management or disposal needs at Trimble. The most effective solutions were identified through a needs analysis and economic analysis based on engineering cost estimates.

To partially address the near-term need (prior to 2013) for CCP storage capacity, a beneficial reuse opportunity for gypsum was identified. The gypsum will be used in the manufacturing of wallboard. This reuse option is significantly lower cost than transporting CCP to an off-site landfill, but the volume is not sufficient to meet the entire near-term storage need. The remaining near-term CCP storage need will be met by expanding on-site storage, including extending the bottom ash pond dikes and lining the gypsum storage pond.

For post-2013 storage needs, the Companies contracted an engineering consultant to develop potential on-site storage alternatives. Of multiple options considered, three landfill options were selected for further economic evaluation. Based on cost estimates and qualitative factors for these alternatives, the most favorable option is a single on-site landfill to store both ash and gypsum. In addition, Trimble and the CCP Team have identified an opportunity for long-term beneficial reuse with a large cement producer to beneficially reuse 95% of fly ash produced at Trimble. The fly ash reuse is in addition to continuing the gypsum reuse opportunity. The reuse of fly ash is a lower cost alternative to sending the CCP to an off-site landfill or the construction of additional on-site storage.

In summary, the cost-effective and environmentally sound CCP disposal options for Trimble are:

- Near-Term:
  - Beneficial reuse of 1.1 million cubic yards ("MCY") of gypsum (approximately 50% of annual gypsum production as specified by the contract) by SynMat, Inc. in 2010 through 2012 (Present Value of Revenue Requirements ("PVRR") of $[redacted] million), or $[redacted] per cubic yard;
  - Extending the BAP dikes and lining the GSP in 2010 (PVRR of $[redacted] million) or $[redacted] per cubic yard.

- Longer-Term:
  - The construction of a new on-site landfill and conveyor system to store both ash and gypsum by 2013 (PVRR of $[redacted] million for 32.5 MCY of storage);
  - Beneficial reuse of 5.9 MCY of fly ash (PVRR of $[redacted] million)
  - Continued beneficial reuse of gypsum by SynMat (PVRR of $[redacted] million)

2. Background

The Companies' Trimble County station is comprised of one coal-fired generating unit rated at 495 MW. A second coal-fired steam boiler, rated at 750 MW, is scheduled to begin commercial operation during 2010. The station produces three primary coal combustion byproducts ("CCP"): bottom ash, fly ash and gypsum.

Trimble has two existing on-site storage basins for CCP as follows:

- Bottom Ash Pond (BAP)
- Gypsum Storage Pond (GSP)

The BAP is currently used to store all CCPs except for a quantity of gypsum that is beneficially reused off-site. Gypsum is produced by Trimble's flue gas desulfurization ("FGD") system, which use limestone reagent to remove sulfur dioxide from flue gas. As of February 2009[1], the BAP's remaining capacity was estimated at 150,000 cubic yards.

Almost 90%[2] of the gypsum produced by the current generating unit is currently shipped off-site for beneficial reuse by Synthetic Material ("SynMat")[3]. This contract began in 2008 and runs through 2027. With the second generating unit beginning operation in 2010, SynMat has a minimum annual volume obligation of 300,000 cubic yards per year (approximately 50% of total gypsum production).

Trimble is forecast to produce approximately 0.4 MCY of CCP in 2009 of which 0.26 MCY of gypsum is reused, thus leaving only 0.14 MCY to be deposited in the BAP. Based on this, the BAP is expected to last through 2009.

The GSP is not currently and has never been in service. However, with the installation of a liner, the GSP will have a maximum desired storage capacity of 1.05 MCY.

[1] A bathymetric survey of BAP was conducted by HDR/Quest/Rudy for GAI Consultants in February 2009.
[2] Gypsum sales to SynMat was 205,000 tons in 2008. However, their purchases declined late in 2008 as the economy slowed.
[3] The Companies identify economically and environmentally favorable options to beneficially reuse CCP, consistent with the Companies' Comprehensive Strategy for Management of CCP shown in Exhibit JNV-2.

3. Process and Methodology

The Companies develop the most effective plan for meeting the CCP storage needs at each generating station. The process of identifying the plan consists of the three following primary tasks which are performed by several departments within the Companies.

- Needs assessment
- Development of alternatives
- Comparison of alternatives

The CCP storage needs are defined by forecasting the production of CCP over the applicable planning period and comparing this production to the maximum desired storage capacity. The Project Engineering department and the applicable generating station are responsible for providing an estimate of remaining capacity.

The expected life of the existing storage capacity is based on the forecast of CCP production, which is developed by Generation Planning for all stations as a function of the expected coal usage for each unit. The Companies compile information regarding the cost of generation for each unit (fuel, variable O&M, emission costs, etc.), a description of the generation capabilities of each unit (capacity, heat rate curve, commitment parameters, emission rates, availability schedules, etc.), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is brought together in the PROSYM[4] software, which is used to model the economic operation of the Companies' generating system. The projected coal usage data provided by this model is checked for reasonableness by comparing the results to historical data.

The Project Engineering department develops alternatives for on-site CCP storage solutions and their associated costs. Any alternatives for off-site disposal such as beneficial reuse or off-site landfilling are provided by the generating stations' staff and a CCP team. The cash flows for selected options are summarized and provided to Generation Planning for evaluation.

The Generation Planning department evaluates the storage and disposal options received from Project Engineering to determine the present value of revenue requirements ("PVRR") associated with the capital expenditures and O&M expenses of each option. This analysis is performed using the Capital Expenditure Recovery module of the Strategist[5] software model.

[4] The PROSYM model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

[5] Strategist® is a proprietary, state-of-the-art resource planning computer model. The Capital Expenditure Recovery module is used to quantify the revenue requirements impact associated with capital projects.

4. Needs Assessment

The following capacities were provided by Project Engineering and Trimble:

- As of February 2009, the remaining available capacity of the BAP is 150,000 cubic yards. This is equivalent to a year end 2008 capacity of approximately 174,000 cubic yards, considering the historical CCP production rate and beneficial reuse volume.
- Approximately 150,000 cubic yards of bottom ash can be used as construction material in extending the BAP dikes.

The expected life of the remaining capacity of the BAP was estimated by forecasting the CCP production of ash and gypsum at Trimble. The quantity of ash produced at Trimble is estimated at a coal specification of 11.3% ash by weight of the total quantity of coal used, or approximately 11.3 tons of ash per 100 tons of coal. Converting to volumetric measurement, assuming ash production consists of 80% fly ash and 20% bottom ash by weight, approximately 9.8 cubic yards of total ash is produced per 100 tons of coal.[6]

The chemical reaction by which gypsum is produced results in a net gypsum production of approximately 18% by weight of the total quantity of coal used,[7] or approximately 18 tons of gypsum per 100 tons of coal. Converting to volumetric measurement for the BAP, approximately 19 cubic yards of gypsum is produced per 100 tons of coal.

The forecasted CCP production volume for Trimble is shown in Table 1 and depicted graphically in Figure 1 and Figure 2, based on the forecasted coal burn shown in Table 2. Table 2 also contains the historical quantities of coal burned as a comparison to the forecast. The increase in coal burn during the 2010-2013 period results from the second Trimble generating unit, scheduled to begin operation in mid 2010.

Table 1: CCP Production Forecast (MCY)

CCP Production Forecast *(MCY – wet storage)*			
	Fly Ash	**Bottom Ash**	**Gypsum**
2009	0.12	0.03	0.24
2010	0.24	0.06	0.42
2011	0.32	0.08	0.53
2012	0.32	0.09	0.54
2013	0.32	0.09	0.58

[6] Density assumptions for wet storage are 1.08 tons/CY for bottom ash, 0.88 tons/CY for fly ash and 0.945 tons/ CY for gypsum. Density assumptions for dry storage are 1.15 tons/CY for fly ash and 1.22 for gypsum.

[7] Fuel specification assumptions include SO_2 content of approximately 6.34 lb/mmBTU for High Sulfur (HS) coal and 0.8 lb/mmBTU for Powder River Basin (PRB) coal and a heat content of 22.3 mmBTU/ton for HS coal and 17.6 mmBTU/ton for PRB coal.

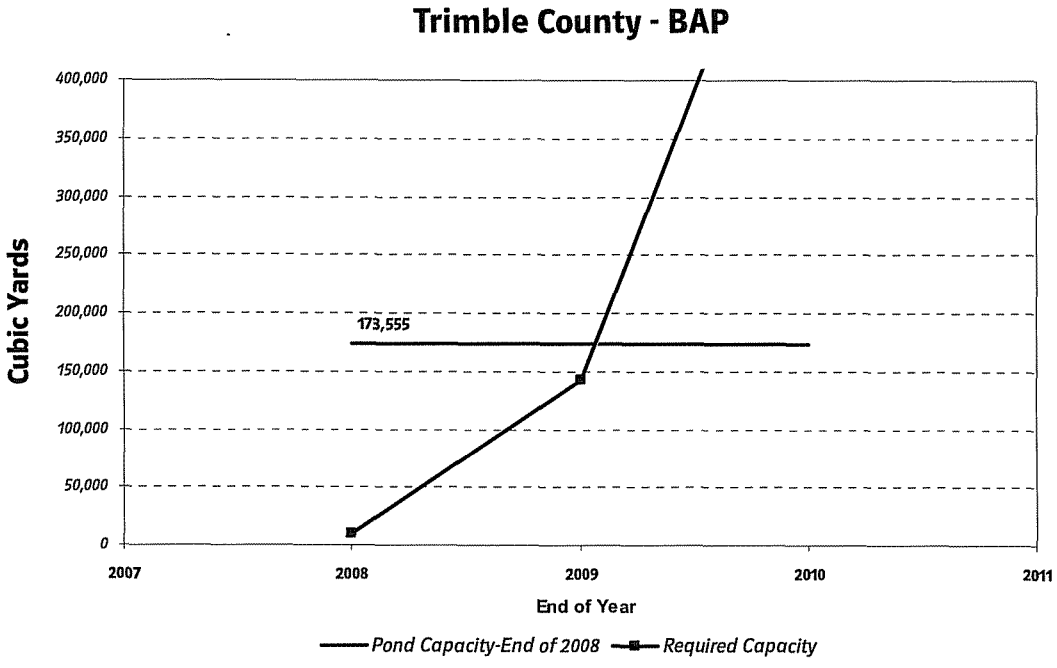
Table 2: Trimble Coal Usage (Million Tons)

Trimble Coal Usage *(M Tons)*	
Historical	
2004	1.7
2005	1.7
2006	1.9
2007	1.6
2008	1.9
Forecast	
2009	1.6
2010	3.1
2011	4.0
2012	4.1
2013	4.1

The forecasted generation and the resulting coal usage at Trimble correspond to an average capacity factor of approximately 84%. This relatively high capacity factor is consistent with Trimble's low production cost. Since Trimble is already modeled as a base load station, the risk of significantly underestimating CCP production is low. However, reduction in load or unexpected outages at Trimble could affect the capacity factor and lower future CCP production.

Figures 1 shows the forecasted cumulative CCP production at the end of each year compared to the available capacity at the end of 2008. The illustrated CCP production is net of 300,000 cubic yards taken by SynMat. Without additional on-site capacity or off-site storage, the BAP is expected to reach maximum desired capacity in early 2010, as shown in Figure 1.

Figure 1: BAP Capacity



5. Development of Alternatives

In the case of CCP solutions for Trimble, Project Engineering and the CCP team developed two sets of options for evaluation:

1. Short term storage options to meet 2009-2012 requirements
2. Long term storage options to meet 2013-2050 requirements.

Construction timelines limit the alternatives prior to 2013. These options were evaluated independently, leading to a recommendation for short-term and long-term solutions.

5.1 Short-Term Storage Options

As a result of the BAP nearing capacity, the station in conjunction with the CCP Team considered three options to meet CCP disposal needs: on-site storage, beneficial reuse and offsite landfill disposal as shown in Table 3 below.

Table 3: Alternatives for Short-Term Storage

Description		Expanding BAP/ Lining GSP	Beneficial Reuse	Off-Site Landfill
Total Maximum Desired Capacity *(MCY)*		3.15*	1.08	2.84 minimum
Nominal Cost *($M)*	**Capital**			
	O&M[8]			

* *Total capacity includes 0.15 MCY created in the BAP as result of excavating 0.15 MCY of ash from the BAP to be used in constructing the new landfill.*

5.1.1 Short-Term On-Site Storage

For the on-site storage option, Trimble contracted MACTEC Engineering and Consultants Inc., Louisville, KY ("MACTEC") to provide alternatives that would meet the short term gap. The most favorable solution identified involves extending the existing BAP dikes and lining the GSP to gain incremental storage. After the extension, the BAP usable capacity will be 2.1 MCY, assuming ash storage only.

The GSP will be used to store gypsum and gypsum fines. In addition, the GSP provides a means of discharging surplus service water to the river. (Unlike the GSP, the BAP is a closed system that does not discharge water into the river. The EPA prohibits the discharge of water that has come in contact with fly ash.)

5.1.2 Short-Term Beneficial Reuse

Trimble in conjunction with the CCP Team negotiated with Synthetic Material (SynMat), a company specializing in reusing gypsum in wall board production, to beneficially reuse 50% of the gypsum produced annually at a base cost of $[redacted] per cubic yard[9]. The

[8] The O&M figures in Table 3 include the cost for power to operate the on-site storage alternatives. The power costs are used to compare options but and not used to calculate ECR billing factors.

[9] $[redacted] per cubic yard is equivalent to $[redacted] per ton per the contract

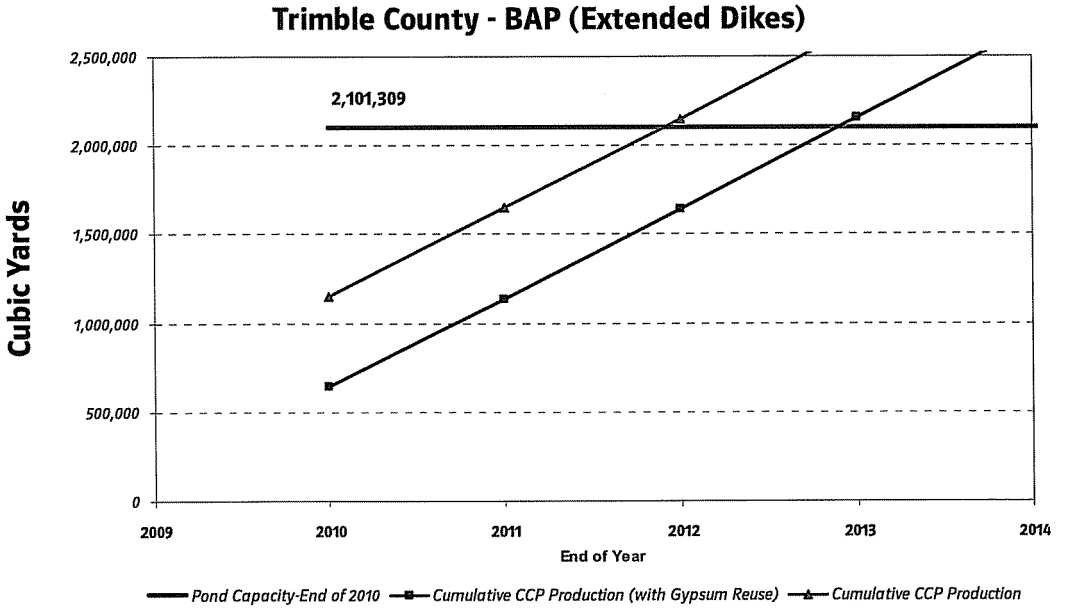
agreement has a minimum take of 300,000 cubic yards. This option is the most favorable but it does not provide sufficient disposal volume to eliminate the need for on-site construction. The SynMat contract specifies a minimum gypsum reuse of 350,000 tons per year (300,000 cubic yards) until 2027 at $[redacted] per cubic yard, not subject to increases.

5.1.3 Short-Term Off-Site Landfill Disposal

The third option is the use of an existing off-site commercial landfill. For 2009, the total unit cost of storage in the closest off-site landfill was estimated to be $[redacted] per cubic yard[10].

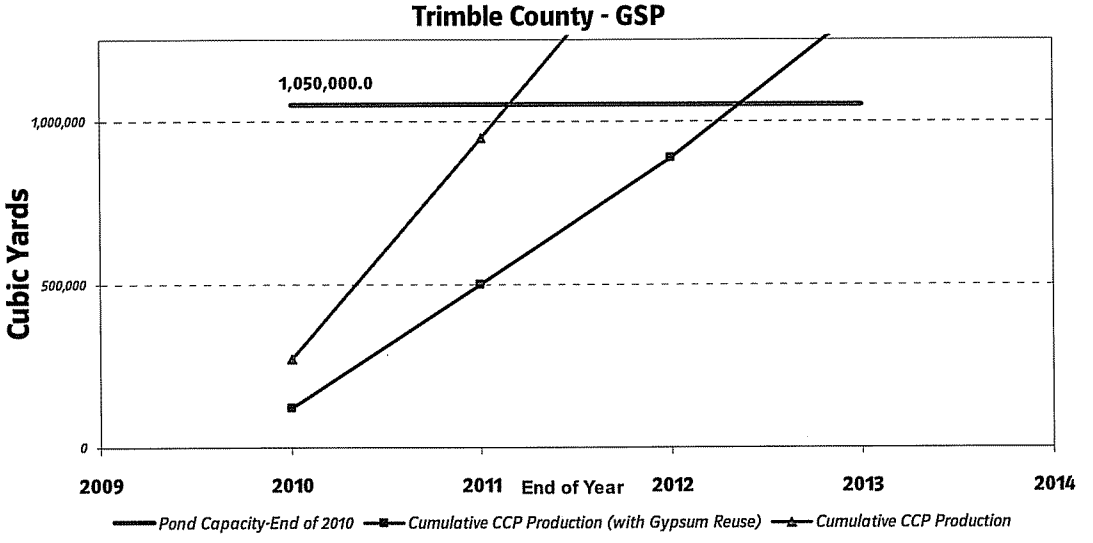
As shown in Figures 2 and 3, by extending the dikes and reusing 300,000 cubic yards of gypsum, the BAP and the GSP will reach capacity in 2013. Without the reuse with SynMat, the BAP and the GSP will reach capacity in 2012. An on-site landfill will not be available before 2013.

Figure 2: BAP (Extended Dikes) Capacity



[10] $[redacted] per cubic yard is equivalent to $[redacted] per ton as hauled for transport and storage at Valley View landfill near Sulphur, KY, approximately 8 miles from Trimble. Cost components per ton are $[redacted] for excavating and loading, $[redacted] for hauling, and $[redacted] for landfill tipping fee. This quoted tipping fee is slightly below the listed rates of $[redacted]/ton for other regional public landfills.

Figure 3: GSP (Lined) Capacity



5.2 Long-Term Storage Options

Three options were also considered for Trimble's long term storage needs: on-site storage, beneficial reuse and offsite landfill disposal.

5.2.1 Long-Term On-Site Storage

To meet the long-term storage needs at Trimble, the Companies contracted MACTEC to provide the Initial Siting Study ("ISS") of CCP storage alternatives at Trimble.[11] The ISS identified over 26 potential alternatives based on combinations of variables, including storage and transport methods, site locations, and relocation of transmission lines. As a result of this study, three on-site alternatives shown in Table 4 were selected for further consideration. Each alternative includes a leachate treatment wetland and sediment basin at the mouth of ravine B, as well as improvements along the main ravine channel and associated costs for stream mitigation. Both ash and gypsum will be transported to the landfills via conveyor belts.

[11] The Draft Interim Report of Initial Conceptual Design Study id shown in Exhibits JNV-5 for Landfill Storage of CCP Materials

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Table 4: Alternatives for Long-Term Storage

		On-Site				
Case		**16**	**21**	**23**	**Beneficial Reuse**	**Off-Site Landfill**
Description		2 Landfills	1 Landfill	1 Landfill		
Ash		Lower Ravine B	Landfill Ravine B	Landfill Ravine B	Holcim	Off-Site
Gypsum		Upper Ravine B			SynMat	
Total Capacity *(MCY)*		26.8	28.1	30.0	9.5	27.0 needed
Nominal Cost *($M)*	**Capital**					
	O&M[12]					

Each of the alternatives for on-site long-term storage was designed to hold at least 35 years of CCP production, assuming expected densities for the CCP stored, and will be constructed in a phased approach in ravine "B". Table 5 shows the construction periods, the in-service years, and the capacity for each phase of the on-site cases.

Table 5: Construction Phases for On-Site Storage Options

Case		**16**		**21**	**23**
Site		Lower Ravine B	Upper Ravine B	Ravine B	Ravine B
Phase 1	**Construction**	2011-12	2012-13	2011-12	2011-12
	In-Service	2013	2014	2013	2013
	Capacity *(MCY)*	16.1	10.7	8.0	13.9
Phase 2	**Timing**	--	--	2021-22	2029-30
	In-Service	--	--	2024	2032
	Capacity *(MCY)*	--	--	14.8	4.2
Phase 3	**Timing**	--	--	2040-41	2034-35
	In-Service	--	--	2043	2037
	Capacity *(MCY)*	--	--	5.3	11.9
Total Capacity		**16.1**	**10.7**	**28.1**	**30.0**

[12] The O&M figures in Table 4 include the cost for power to operate the on-site storage alternatives. The power costs are used to compare options, but are not used to calculate ECR billing factors.

Case 16. Case 16 consists of separate landfills for ash and gypsum. The gypsum landfill will be located in upper ravine B and the ash landfill will be located in lower ravine B as shown in Figure 4. Two separate conveyor belts are required to move the ash and gypsum to the appropriate landfills. The ash landfill will be constructed in one phase, in service in 2013, with a capacity of 16.1 MCY and a peak elevation of 1,020 ft. The gypsum landfill will also be constructed in one phase, in service in 2014, with a capacity of 10.7 MCY and a peak elevation of 980 ft.

The fly ash landfill will reach capacity in 2061 with no beneficial reuse and in 2074 with beneficial reuse (95% fly ash reuse from 2010 until 2029). The gypsum landfill will reach capacity in 2040 with 50% gypsum reuse (300,000 cubic yards annually from 2008-2027). Figure 5 shows the capacity of the fly ash landfill compared to the forecasted fly ash production both including and excluding the effect of the expected fly ash reuse. Figure 6 shows the capacity of the gypsum landfill compared to the forecasted gypsum production, including and excluding the effect of the expected gypsum reuse.

Figure 4: Site Illustration-Case 16

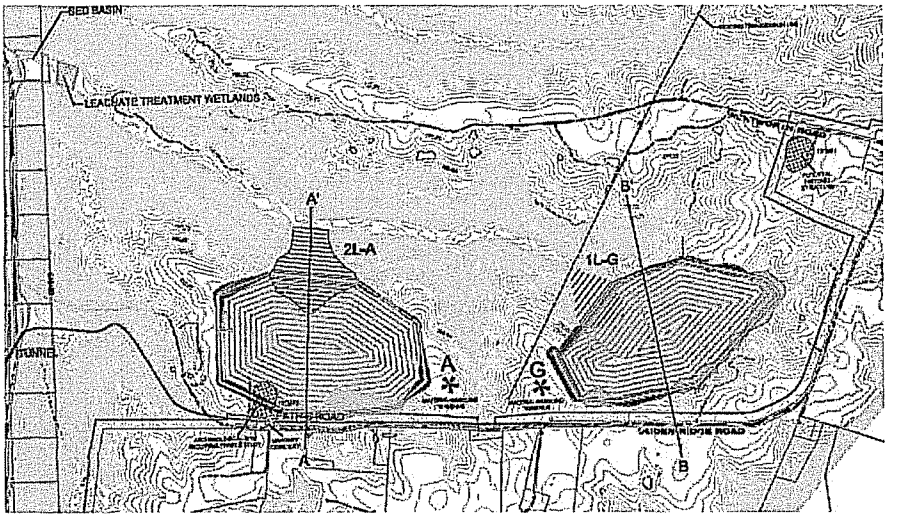


Figure 5: Fly Ash Landfill Capacity-Case 16

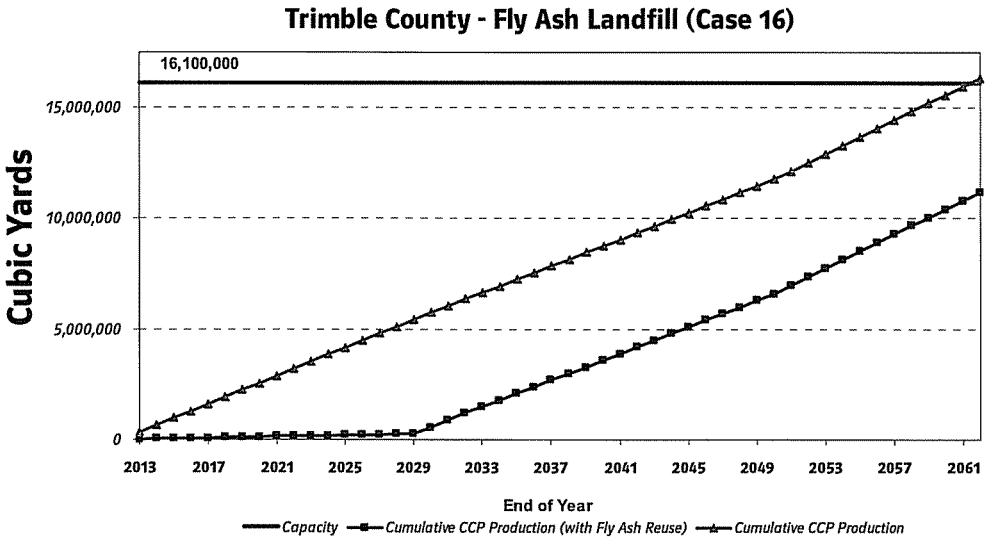
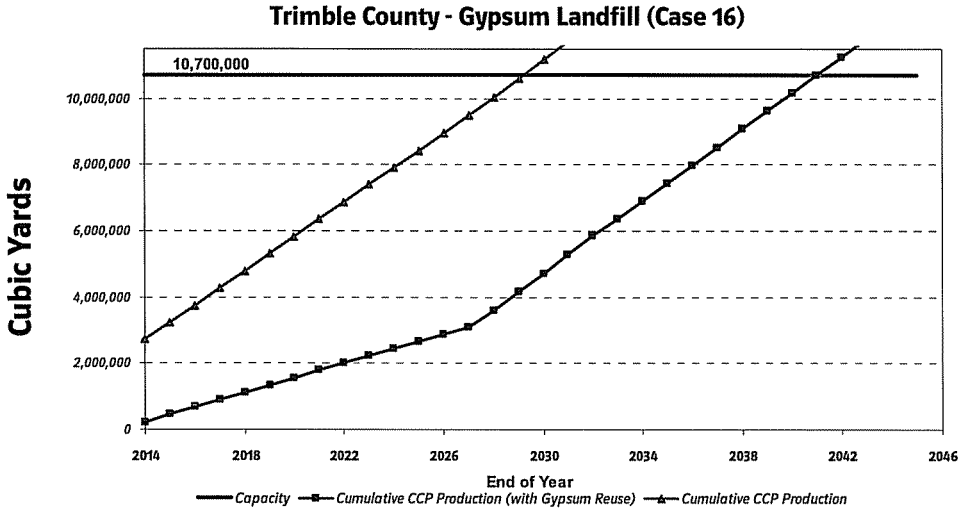


Figure 6: Gypsum Landfill Capacity-Case 16



Case 21. Case 21 consists of a common on-site landfill for both ash and gypsum as shown in Figure 7. A common conveyor belt will be used to transport both gypsum and fly ash, which will be handled and stored separately. Phase 1 of the landfill will be in service in 2013 with a total capacity of 28.1 MCY and a peak elevation of 880 feet. This landfill will be constructed in three phases.

The landfill in case 21 will be sufficient to store the CCP produced at Trimble until 2057, including both fly ash and gypsum reuse as shown in Figure 8 (95% fly ash reuse from 2010 until 2029 and 300,000 cubic yards annually of gypsum reuse from 2008-2027). Figure 8 shows the phased cumulative design capacity of this landfill compared to the forecasted cumulative CCP production both including and excluding the effect of the expected gypsum and fly ash reuse.

Figure 7: Site Illustration-Case 21

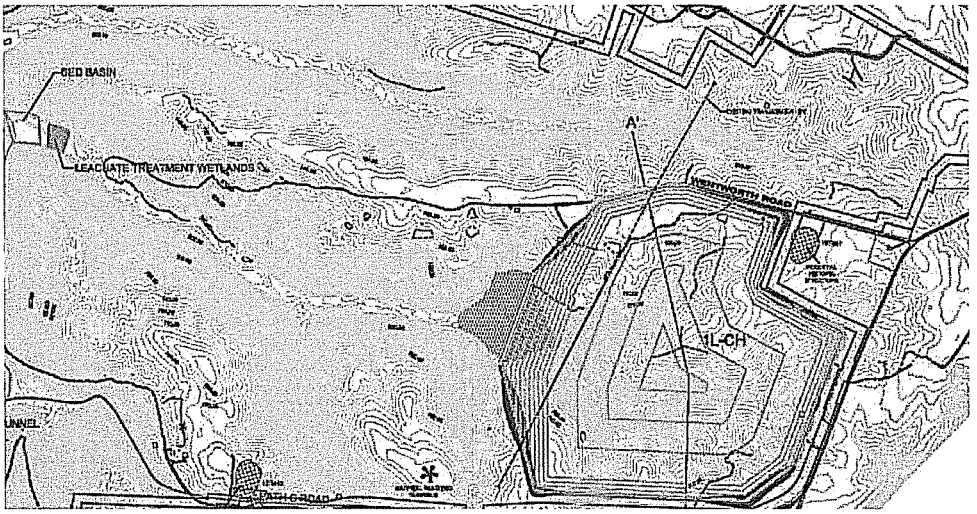
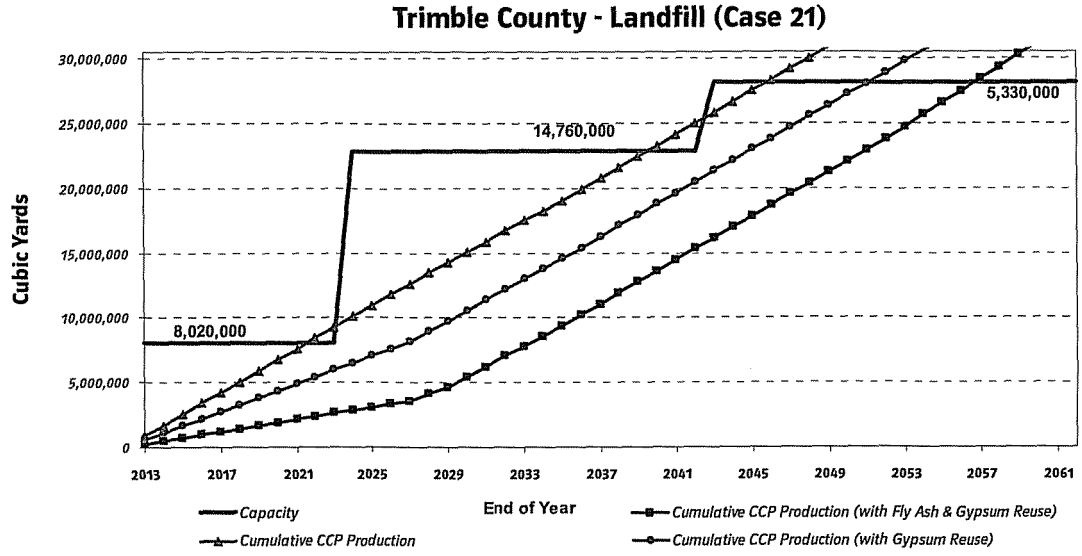


Figure 8: Ash and Gypsum Landfill Capacity-Case 21


Trimble County - Landfill (Case 21)
Cubic Yards
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
8,020,000
14,760,000
5,330,000
2013
2017
2021
2025
2029
2033
2037
2041
2045
2049
2053
2057
2061
End of Year
Capacity
Cumulative CCP Production
Cumulative CCP Production (with Fly Ash & Gypsum Reuse)
Cumulative CCP Production (with Gypsum Reuse)

Case 23. Case 23 consists of a common on-site landfill for both ash and gypsum as shown in Figure 9. One conveyor belt will be used to transport both gypsum and fly ash, which will be handled and stored separately. The landfill will be in service in 2013 with a total capacity of approximately 30 MCY and a peak elevation of 910 feet. This landfill will be constructed in three phases. This alternative requires land acquisition for access road construction and stormwater diversion.

The landfill in Case 23 will be sufficient to store the CCP produced at Trimble until 2059, including both fly ash and gypsum reuse as shown in Figure 10. (95% fly ash reuse from 2010 until 2029 and 300,000 cubic yards annually of gypsum reuse from 2008-2027). Figure 10 shows the phased cumulative design capacity of the landfill compared to the forecasted gypsum production, both including and excluding the effect of the expected gypsum and fly ash reuse.

Figure 9: Site Illustration-Case 23

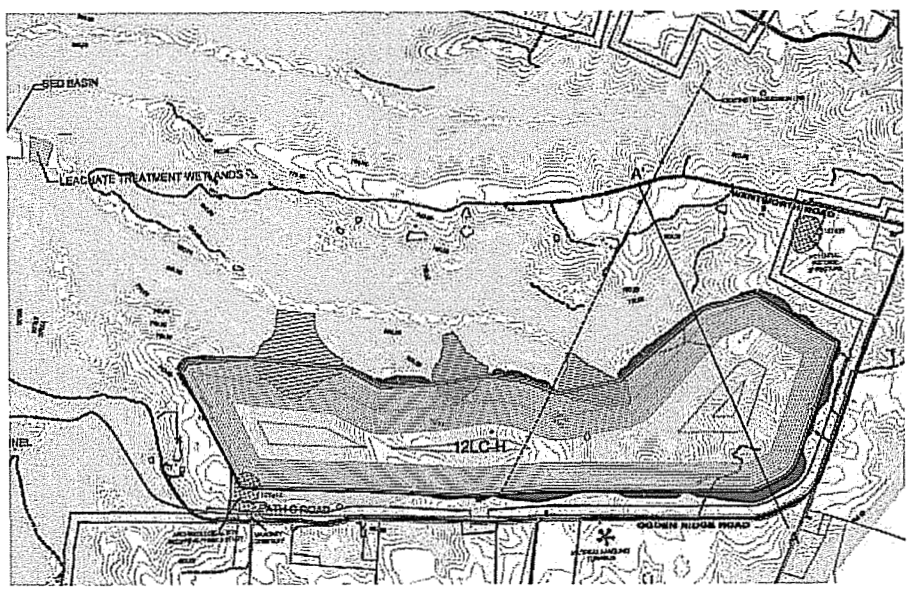


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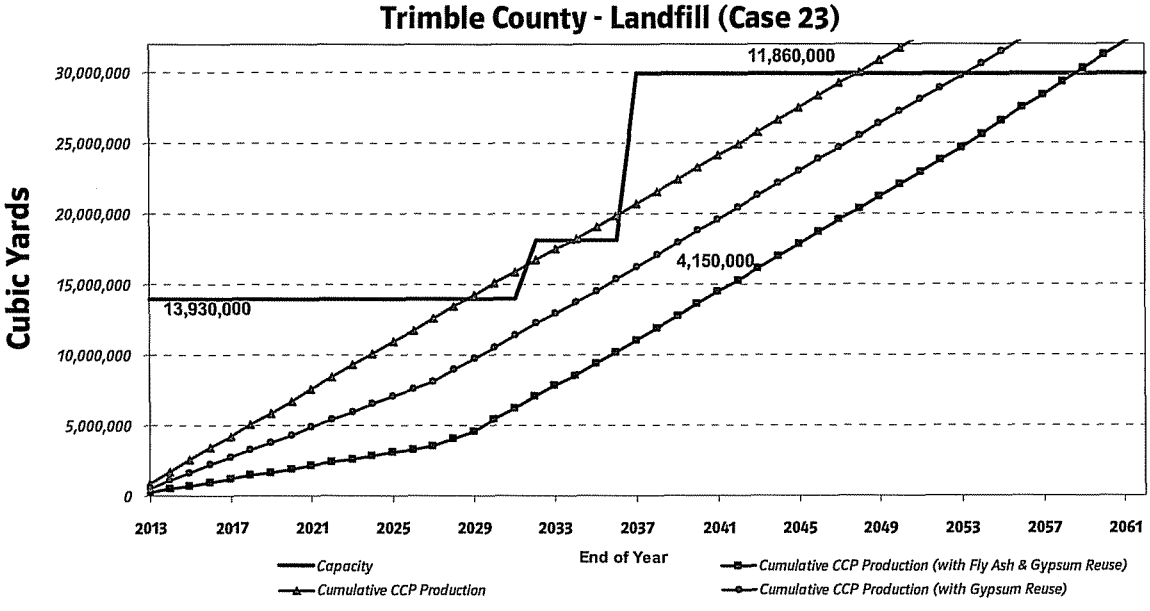
Figure 10: Ash and Gypsum Landfill Capacity-Case 23



This figure, as well as Figures 5, 6, and 8, demonstrates that the designs for the timing and volume of capacity additions for each of the cases considered are reasonable compared the forecasted CCP production.

5.2.2 Long-Term Beneficial Reuse

Trimble and the CCP Team have identified an opportunity for long-term beneficial reuse with one of the largest cement producers to beneficially reuse 95% of fly ash produced annually at Trimble. The contract is under negotiation and will involve constructing a barge loading facility at a cost of $[redacted] million to transfer the fly ash from Trimble to the cement production site. The contract term is expected to span 20 years, from mid 2010 until 2029, thus beneficially reusing 5.9 MCY of ash. This beneficial reuse opportunity will result in delaying phases 2 and 3 of the selected landfill as shown in Figures 11 and 12.

The existing gypsum beneficial reuse contract with SynMat is assumed to continue until 2027, with a minimum annual take of 300,000 cubic yards annually at a base cost of $[redacted] per cubic yard.

On a combined basis, both beneficial reuse contracts cover 11.3 MCY of CCP, which does not eliminate the need of on-site storage or off-site disposal.

Figure 11: Ash and Gypsum Landfill Capacity-Case 21 with Beneficial Reuse

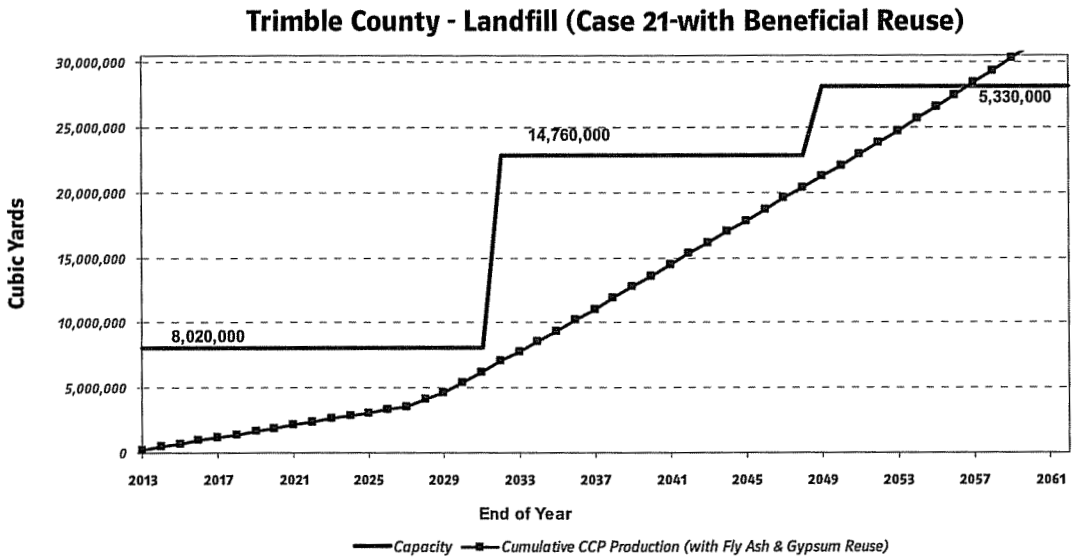
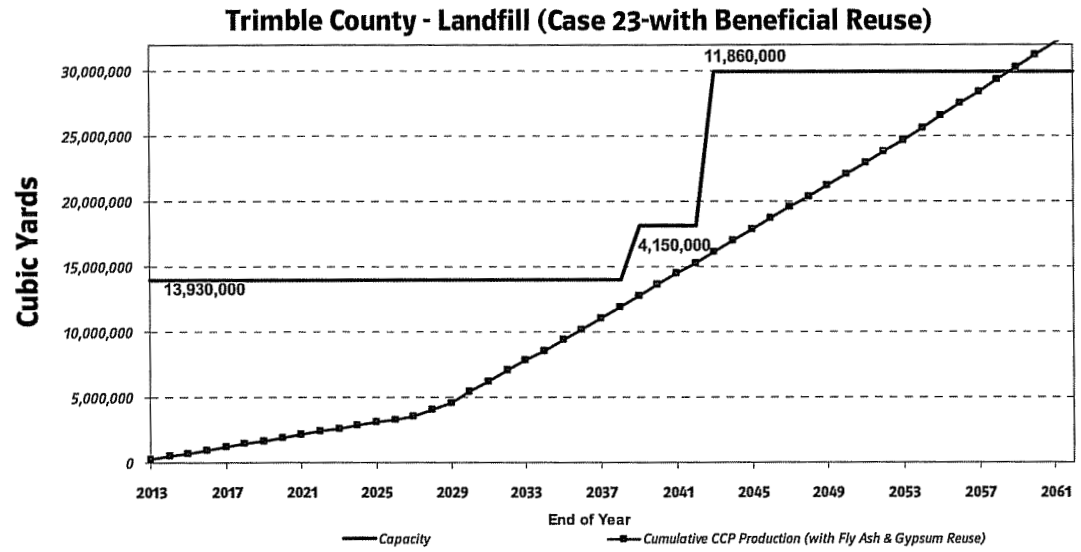


Figure 12: Ash and Gypsum Landfill Capacity-Case 23 with Beneficial Reuse



5.2.3 Long-Term Off-Site Landfill Disposal

The third option is to dispose of CCP in an existing off-site commercial landfill. This option requires moving 27.0 MCY of CCP, which is the cumulative CCP production at Trimble from 2013 until 2057 at an estimated nominal cost of $[redacted] per cubic yard.

6. Comparison of Alternatives

6.1 Short-Term Alternatives

The pre-2013 disposal analysis compares the cost of on-site storage (extending the BAP dikes and relining the GSP) to the beneficial reuse initiative and to the cost of off-site landfill disposal. As seen in Table 6, the beneficial reuse with SynMat is the least-cost option, but does not fully meet the short term capacity needs. On a PVRR basis, the combination of expanding the BAP, lining the GSP, and beneficial reuse is 50% less costly than the off-site landfill option.

Table 6: PVRR Analysis Summary of Short-Term Alternatives
(2009 PVRR million $)

Alternatives	**Expanding BAP/ Lining GSP**	**Beneficial Reuse**	**Off-Site Landfill**
PVRR			
Capital	[redacted]		
O&M			
Total			
Delta to Least Cost Case	*39.6*	*Least Cost*	*85.4*
Capacity *(MCY)*	3.15	1.08	2.84
Unit Cost *(2009 PVRR $/CY)*	[redacted]		

6.2 Long-Term Alternatives

The long-term storage evaluation (summarized in Table 7) compares the cost of three on-site storage alternatives, in addition to disposal in an off-site commercial landfill. The financial assumptions related to the analysis of these cases are shown in Appendix 1, the projected cash flows are shown in Appendix 2, and the annual revenue requirements are detailed in Appendix 3.

The following is a brief comparison of the results:

Case 16. Case 16 consists of separate landfills for ash and gypsum constructed in a single phase and two conveyor systems requiring $106 million higher capital costs through 2013 compared to Case 21. Case 16 also requires $13.2 million more in O&M than Case 21 due to material handling costs associated with operating two landfills.

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Case 21. Case 21 consists of a common on-site landfill for both ash and gypsum. This is least cost on a PVRR basis by $26 million. This option is also lowest cost on a PVRR per unit volume basis at $[redacted] per cubic yard. The favorable capital profile of this project results from the single landfill approach compared to Case 16, which includes separate landfills for ash and gypsum.

Cases 23. Case 23 consists of a single landfill for both ash and gypsum similar to Case 21, but with alternate phase volume and timing. Case 23 requires land acquisition at a cost of $[redacted] million compared to Case 21, which does not require additional land. Case 23 involves higher upfront capital costs driven by a larger phase 1 (13.9 MCY), compared to phase 1 of case 21 (8 MCY). The O&M of Case 23 is $13 million greater than Case 21 due to:

- Additional capacity - The landfill in Case 23 stores two more years of CCP compared to the landfill in Case 21.
- Two loading bases - Case 23 requires two loading bases: one for fly ash and one for gypsum compared to one loading base for both CCPs in Case 21.

Off-site landfill. The off-site landfill option consists only of O&M costs, but this option is the highest-cost alternative due to the high unit cost of off-site landfill disposal (PVRR per unit volume of $[redacted] per cubic yard). The projected cash flows are shown in Appendix 2, and the annual revenue requirements are detailed in Appendix 3.

Table 7: PVRR Analysis Summary of Long-Term Alternatives
(2009 PVRR million $)

Case	16	21	23	Off-Site Landfill
PVRR				
Capital	[redacted]			
O&M				
Total				
Delta to Least Cost Case	*56*	*Least Cost*	*26*	*385*
Capacity *(MCY)*	31.2	*32.5*	*34.4*	*31.0*
Unit Cost *(2009 PVRR $/CY)*	[redacted]			

The quantities in Table 7 include 4.4 MCY of gypsum reuse at an O&M cost of $[redacted] million PVRR (which is approximately 300,000 cubic yards of gypsum annually from 2013-2027). The gypsum beneficial reuse with SynMat continues to be the least cost option in the long-term CCP management at Trimble. The PVRR of building a landfill according to Case 21 is $[redacted] million with beneficial reuse and $[redacted] million with no gypsum reuse. Without gypsum reuse, Case 21 PVRR would increase by $73 million.

6.2.1 Long-Term Beneficial Reuse

After identifying Case 21 as the most effective long-term CCP option, a potential long-term beneficial reuse opportunity was also considered. Holcim has proposed a 20 year reuse of up to 5.9 MCY of fly ash for cement manufacturing. This quantity is in addition

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to the 5.4 MCY (1 MCY in short-term and 4.4 MCY in long-term) gypsum reuse with SynMat.

The reuse proposal has a PVRR of $[redacted] million for the 5.9 MCY, resulting in a PVRR per-unit of $[redacted] per cubic yard. This is favorable to the PVRR per-unit cost of Case 21 of $[redacted] per cubic yard. Combining this reuse opportunity with Case 21 diverts material from the proposed landfill and results in net O&M savings of $5 million PVRR for the landfill. While the need for the proposed on-site landfill remains, the second phase is delayed by eight years and the third phase is delayed by six years, resulting in $7 million lower PVRR for the landfill's capital expenditures.

Overall, combining Case 21 with fly ash reuse results in a $21 million higher PVRR, but reuse includes an additional 5.9 MCY of capacity, leading to an 8% reduction in per-unit cost as detailed in Table 8.

Table 8: PVRR Analysis Summary of Long-Term Beneficial Reuse (2009 PVRR million $)

	Excluding Long-Term Fly Ash Beneficial Reuse (Case 21)	Including Long-Term Fly Ash Beneficial Reuse (Case 21-H)
PVRR		
Capital	[redacted]	
O&M		
Total		
Delta to Least Cost Case	*Least Cost*	*21*
Volume *(MCY)*	32.5	38.4
Unit Cost *(2009 PVRR $/CY)*	[redacted]	

7. Recommendations

The needs assessment demonstrates a need for additional CCP storage capacity at Trimble by 2010. Analysis of the options provided by Project Engineering demonstrates that the cost effective alternatives to meet Trimble's CCP storage needs are:

- Pre-2013:
  - Beneficial reuse of 1.1 MCY of gypsum (approximately 50% of annual gypsum production as specified by the contract) by SynMat, Inc. in 2010 through 2012 (PVRR of $[redacted] million or $[redacted] per cubic yard)
  - Extending the BAP dikes and lining the GSP (PVRR of $[redacted] million or $[redacted] per cubic yard).
- Post-2013:
  - Continue beneficial reuse of gypsum by SynMat (PVRR of $[redacted] million O&M or $[redacted] per cubic yard)
  - Construct a new on-site landfill to store both ash and gypsum to be in-service by 2013. The PVRR is $[redacted] million, comprised of $[redacted] million capital and $[redacted] million O&M ($[redacted] per cubic yard on a PVRR basis).

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- Beneficial reuse of 5.9 MCY of fly ash by Holcim. The PVRR is $[redacted] million, comprised of $[redacted] million capital and $[redacted] million O&M ($[redacted] per cubic yard on a PVRR basis).

The pre-2013 solution of expanding the BAP, lining the GSP and utilizing beneficial reuse is 50% less on a PVRR basis than disposal at an off-site commercial landfill. This option meets Trimble's CCP needs through 2012.

The post-2013 solution will require a total (PVRR) of $[redacted] million in capital: $[redacted] million for on-site storage construction and $[redacted] million for building a barge loading system for fly ash reuse. O&M (PVRR) totals $[redacted] million: $[redacted] million for storing and operating the landfill, $[redacted] million for fly ash handling for beneficial reuse, and $[redacted] million for gypsum handling related to SynMat beneficial reuse.

Further details regarding the status of this project and the expected construction schedule are shown in Appendix 4.

Appendix 1

Analysis Assumptions

- Study Period: 43-year period for operational costs impacts (2009-2052)
  63-year period for capital costs impacts (2009 through tax life of final project phase).

  The revenue requirements associated with capital costs are determined via the Capital Expenditure and Recovery module of the Strategist production and capital costing software. To completely account for capital projects costs over their lifetime, the revenue requirements associated with new capital projects were included beyond the operational study period through the end of their tax life.

- Capital and O&M costs associated with the addition of new environmental projects will be subject to recovery through the Environmental Cost Recovery ("ECR") mechanism. O&M costs for electrical power usage required to operate equipment related to CCP storage are included when comparing alternatives (noted as "Power" in Appendix 2) but are not included as recoverable costs for calculation of ECR billing factors.

- Financial data
  - Discount rate: 7.76%
  - Income tax rate: 38.9%
  - Insurance rate: 0.07%
  - Property tax rate: 0.15 %
  - Percentage of debt in capital structure: 47.22%
  - Debt interest rate/weighted cost of debt: 4.55%
  - Return on equity: 10.63%
  - Environmental projects book life (non-transmission): 14-16 years
  - Environmental projects book life (transmission): 40 years
  - Environmental projects tax life (years): 20 years
  - Annual capital and O&M escalation rate: 6%
  - Cost contingency included in estimates: 20%
  - E.ON US overhead included in capital costs 3.5%

- CCP data
  - Coal ash content: 11.32%
  - HS Coal SO_2 content: ~6.34 lb/mmBTU
  - PRB Coal SO_2 content: ~0.8 lb/mmBTU
  - HS Coal heat content: 22.3 mmBTU/ton
  - PRB Coal heat content: 17.6 mmBTU/ton
  - FGD removal efficiency: Units 1&2 98%

Appendix 2

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Projected Cash Flows

Annual Cash Flows Short-Term Options ($M)			
	On-Site Storage	Beneficial Reuse	Off-Site Landfill
2009			
2010			
2011			
2012			
Total			

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Annual Cash Flows ($M)												
Case 16	Capital					O&M					Total
	Fly Ash Landfill	Gypsum Landfill	Final Cap Gypsum Landfill	Final Cap Fly Ash Landfill	Total Capital	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	Total O&M	
2009											
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Total											

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Annual Cash Flows ($M)											
Case 21	Capital					O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	Total Capital	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	Total O&M	
2009											
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Total											

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Annual Cash Flows ($M)													
Case 21 With Holcim	Capital						O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	Capital Holcim	Total Capital	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	Total O&M	
2009												
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Total												

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Annual Cash Flows ($M)													
Case 23	Capital						O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	Capital Holcim	Total Capital	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	Total O&M	
2009												
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Total												

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Off-Site Landfill (O&M only) ($M)				
	Capital	Beneficial Reuse Gypsum	O&M (6% infl.)	Total O&M (6% infl.)
2009				
2010				
2011				
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2013				
2014				
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2017				
2018				
2019				
2020				
2021				
2022				
2023				
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Total				

Off-Site Landfill (O&M only) ($M)

	Capital	Beneficial Reuse Gypsum	O&M (2% infl.)	Total O&M (2% infl.)
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
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Total				

Appendix 3

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On-Site Storage and SYNMAT- Short-Term Option

	Annual Revenue Requirements ($000)						
	Capital			O&M			Total
	BAP	GSP	Total Capital	Storage	Beneficial Reuse	Total O&M	
2009							
2010							
2011							
2012							
2013							
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2015							
2016							
2017							
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2050							
2009 PVRR							

Off-Site Landfill Disposal - Short-Term Option

	Annual Revenue Requirement		
	Capital	O&M	Total
2009			
2010			
2011			
2012			
2013			
2009 PVRR			

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Case 16

	Annual Revenue Requirements ($000)										
	Capital					O&M					Total
	Fly Ash Landfill	Gypsum Landfill	Final Cap Gypsum Landfill	Cap Fly Ash Landfill	**Total Capital**	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	**Total O&M**	
2009											
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2009 PVRR											

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Case 21

	Annual Revenue Requirements ($000)										
	Capital					O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	**Total Capital**	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	**Total O&M**	
2009	[redacted]										
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2073											
2009 PVRR											

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Case 21 with Holcim

	Annual Revenue Requirements ($000)											Present Value
	Capital						O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	Capital Holcim	Total Capital	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	Total O&M	
2009												
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2009 PVRR												

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Case 23

	Annual Revenue Requirements ($000)										
	Capital					O&M					Total
	Phase 1	Phase 2	Phase 3	Final Cap	**Total Capital**	Non-Power	Power	Beneficial Reuse Gypsum	Beneficial Reuse Fly Ash	**Total O&M**	
2009											
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2009 PVRR											

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Off-Site Landfill (O&M Only)

6% Inflation	Annual Revenue Requirements ($000)			
	Capital	Beneficial Reuse Gypsum	O&M	Total
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
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2020				
2021				
2022				
2023				
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2050				
2051				
2009 PVRR				

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Off-Site Landfill (O&M Only)

2% Inflation	Annual Revenue Requirements ($000)			
	Capital	Beneficial Reuse Gypsum	O&M	Total
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
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2018				
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2020				
2021				
2022				
2023				
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2051				
2009 PVRR				

Appendix 4

Project Status *(As of May 2009)*

Scope for Trimble County Station CCP Storage in Ravines A and/or B

For Ravines A and/or B development includes:

- Removal of marketable timber from Ravines A and/or B
- Development of Sediment/Leachate Collection Basins at the west end of Ravines A and/or B
- Clear-cut removal of timber in the first phase of development
- Development of a road/access system from the BAP/GSP area to the Ravine by means of a highway bridge crossing existing State Road 1838 and connecting to the existing Wentworth Road. Wentworth Road is a county road that divides Ravine A and B.
- Development of landfill and/or impoundment structures for Ravines A and/or B. As indicated above, this is currently being studied by MACTEC in the Initial Siting Study.
- Mitigation of the loss of the stream(s) in Ravines A and/or B, by development an 80-acre wetland on LG&E-owned Dickey Farm at the north end of the property and re-working of the existing Corn Creek from the LG&E property to the north for approximately 6-miles to the intersection with State Road 625 near Joyce Mills Road.
- Development of any required CCP treatment facilities, including gypsum dewatering, fly ash pug mills, bottom ash dewatering bins, etc.

Path Forward for Station County CCP Storage in Ravines A and B

The Path Forward for the development of the Ravines for Trimble County Generating Station will include:

- Completion of the Water Balance Issues as a result of the KPDES Permit withdrawal.
- Completion of the Initial Siting Study by MACTEC in late April, 2009
- Development of Capital Cash Flows, O&M Cash Flows, and resulting NPV's of 10 alternative by MACTEC by the end of April.
- Completion of the Final Conceptual Engineering (Level I Engineering) Study by early 4th Quarter, 2009.
- Selection of engineer for the Civil Detail Engineering by 4th Quarter, 2009.
- Selection of engineer for the Mechanical Detail Engineer for the CCP transportation systems, by 4th Quarter, 2009.
- Completion of Detailed Design by 2nd Quarter of 2010.
- Filing of 401/404 Permit Application by 3rd Quarter, 2009.
- Filing of Kentucky Dam Safety Permit for Sediment Retention Ponds by 4th Quarter of 2009.
- Filing of Kentucky Division of Waste Management, if landfills are the selected method of CCP Storage, by 2nd Quarter, 2010.
- Removal of Marketable Timber start in 2nd Quarter of 2010
- Start Construction in the Ravines, 3rd Quarter of 2010
- Start Stream Mitigation on Corn Creek, 3rd Quarter of 2010.
- Anticipated approval of 401/404 Permits by 1st Quarter, 2011.
- Anticipated approval of Kentucky Dam Safety Permits for Sediment Retention Ponds by 2nd Quarter of 2010.
- Anticipated approval of Kentucky Division of Waste Management, if landfills are selected, by 4th Quarter 2011.

Risk for Trimble County Station CCP Storage in Ravines A and/or B

The risk associated with the development of Ravines A and/or B includes the following:

- Discovery of unknown geotechnical issues
- Litigation and intervention of the 401/404 permits for Ravines A and/or B could delay the construction of this section of the work. This is likely due to the condition of the streams in Ravines A and/or B.
- Litigation and intervention of the KYDWM Special Waste Landfill permit or the KYDOW Dam Safety Permit.
- Unseasonable weather, such as exceptionally heavy rain in the fall, late spring, early on-set of winter, etc.
- Contractor delays due to shortage of materials or manpower issues
- Rejection of the EPA Region IV of the discharge of Gypsum Return Water to the Ohio River as part of the E.ON U.S. revised KPDES Permit application
- Unforeseen and unprecedented requirements by EAP Region IV on discharge of Gypsum Return Water to the Ohio River
- Change in regulations

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF KENTUCKY UTILITIES COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY AND APPROVAL OF ITS 2009 COMPLIANCE PLAN FOR RECOVERY BY ENVIRONMENTAL SURCHARGE	))))))	CASE NO. 2009-00197

DIRECT TESTIMONY OF
SHANNON L. CHARNAS
DIRECTOR, UTILITY ACCOUNTING AND REPORTING
KENTUCKY UTILITIES COMPANY

Filed: June 26, 2009

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

A. My name is Shannon L. Charnas. I am the Director, Utility Accounting and Reporting for E.ON U.S. Services Inc., which provides services to Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") (collectively, "the Companies"). My business address is 220 West Main Street, Louisville, Kentucky, 40202. A statement of my education and work experience is attached to this testimony as Appendix A.

Q. Have you previously testified before this Commission?

A. Yes, I have presented testimony before the Commission in several ECR proceedings, in the Companies' depreciation study proceedings, Case Nos. 2007-00564 and 2007-00565 and most recently in the Companies' base rate cases, Case Nos. 2008-00252 and 2008-00251.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain KU's reporting and accounting for the operation and maintenance expenses associated with the pollution control projects in KU's 2009 Environmental Compliance Plan ("2009 Plan"), to demonstrate that the environmental compliance costs KU proposes to recover through its surcharge are not already included in existing rates, and to discuss the accounting treatment of costs included in base rates when applicable.

Recording and Tracking of Environmental Surcharge Expenses

Q. Is KU seeking recovery of operation and maintenance expenses associated with some of the Projects included in its proposed 2009 Plan?

A. Yes, KU is seeking recovery of operating and maintenance ("O&M") expenses for Project No. 28, the SCR at Brown Unit 3; for Projects No. 30 and 32, which are new landfills at Ghent and at Trimble County, and for Project 33, which relates to beneficial reuse of coal combustion byproducts ("CCP") at all plants. KU is also seeking recovery of the operating and maintenance expenses to be incurred when the Air Quality Control Systems ("AQCS"), being installed on Trimble County Unit 2, go in service. The capital cost of the AQCS is included in KU's 2006 Compliance Plan[1] as Project No. 23. The estimated O&M costs are contained on Page 2 in Exhibit JNV-1.

No O&M expenses for Projects No. 29 or 31 will be recovered through KU's environmental surcharge.

Q. How will KU identify the O&M expenses associated with these projects in its 2009 Plan?

A. KU's accounting system permits the tracking of costs in accordance with the Federal Energy Regulatory Commission's ("FERC") Uniform System of Accounts. KU intends to use FERC Account No. 502, Steam Expenses – Operation, 506, Miscellaneous Steam Power Expenses and 512, Maintenance of Boiler Plant, to identify and track the O&M expenses associated with these

[1] In the Matter of: *The Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct a Selective Catalytic Reduction System and Approval of Its 2006 Compliance Plan for Recovery by Environmental Surcharge* (Case No. 2006-00206).

projects. KU will use subaccounts to track specific expenses and location codes to track expenses by unit.

Q. Has similar accounting proven to be successful in previous ECR cases?

A. Yes, tracking the costs using this accounting methodology has proven to be successful in the past. The costs in these accounts are clearly detailed on Environmental Surcharge Report Form ES 2.50.

Q. What book depreciation rates will be used in the calculation of the depreciation expense for the new capital projects?

A. The book depreciation rates to be used for the new capital projects at all existing units will be the existing depreciation rates for that group of assets. These rates were approved by the Commission as part of the most recent base rate case, Case No. 2008-251.

Q. What deferred income taxes are associated with pollution control facilities?

A. Deferred income taxes are recorded for all book versus tax temporary timing differences. The new capital projects are eligible for accelerated tax depreciation and amortization. These assets will generally fall into a 20-year Modified Accelerated Cost Recovery System life, or be eligible for U.S. Tax Code Section 169 amortization over a five-year or seven-year life.

Q. Please explain how property taxes associated with the new pollution control facilities are calculated.

A. Pollution control facilities in Kentucky are generally categorized as manufacturing machinery. This class of property is exempt from local property tax and is taxed at the state property tax rate of $0.15 per $100 of assessed value.

Costs Not Already Included in Existing Rates

Q. Are any of the capital expenditures for the new pollution control facilities in this case already included in existing rates?

A. No. The current base rates were determined to be fair, just and reasonable by the Commission in its Order issued February 5, 2009 in Case No. 2008-00251. In making that determination, the Commission evaluated the reasonableness of KU's regulated return from Kentucky jurisdictional operations using the twelve month period ending April 30, 2008, as the test period, adjusted for known and measurable changes. No capital expenditures for the new pollution control facilities in this case were incurred by KU during or prior to the twelve month period ending April 30, 2008, or included as adjustments thereto, for which KU is seeking recovery in this case.

Q. Are any of the operation and maintenance expenses for the new pollution control facilities in this case already included in existing rates?

A. No. As previously explained, all O&M expenses for which KU is seeking recovery in this filing are associated with new pollution control projects. In addition, there is no O&M associated with Project No. 23 for the AQCS in existing base rates. Therefore, KU's existing rates do not include any O&M related to these projects.

Q. Will any of the projects included in the 2009 Plan have an impact on operation and maintenance expenses that are already included in existing rates?

A. It is possible that projects in the 2009 Plan could affect the operation and maintenance expenses associated with CCP management at the Ghent station. KU will continually review operation and maintenance expenses that are already included in existing base rates. To the extent that those expenses are impacted by the projects included in the 2009 Plan, KU will recognize the impact in the surcharge calculations consistent with the Commission's orders.

Q. Will the installation of the new pollution control facilities replace or cause existing facilities to be removed from service?

A. Yes. Project No. 28, which relates to the SCR at Brown, will result in the removal from service of some existing assets. The amount is not currently estimable, but is expected to be minimal and relates to assets such as siding and miscellaneous utility and ductwork connections. As existing equipment is removed or replaced, labor associated with the removal will be charged to Retirement Work in Process ("RWIP"). Upon completion of the project, the book value of the assets replaced will be removed from the Plant In Service account. Accumulated Depreciation and all associated RWIP charges will be removed from the Reserve for Accumulated Depreciation account and the monthly ECR filings will be adjusted to reflect the retirements. As described above, when appropriate, KU will adjust the monthly ECR filings to reflect asset retirements on Environmental Surcharge Report Form 2.10, in conformity with prior Commission Orders and consistent with KU's current practice.

Q. Does this conclude your testimony?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **Shannon L. Charnas**, being duly sworn, deposes and says she is Director, Utility Accounting and Reporting for E.ON U.S. Services Inc., that she 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 her information, knowledge and belief.

Shannon L Charnas

SHANNON L. CHARNAS

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 24th day of June, 2009.

Tammy J. Elgy (SEAL)
Notary Public

My Commission Expires:

November 9, 2010

APPENDIX A

Shannon L. Charnas
Director, Utility Accounting & Reporting
E.ON U.S. Services Inc.
220 West Main Street
Louisville, KY 40202
(502) 627-4978

Professional Memberships

American Institute of Certified Public Accountants
Kentucky Society of Certified Public Accountants

Education

University of Louisville, Masters of Business Administration, 2000
University of Wisconsin Oshkosh, Bachelor of Business Administration with Majors in Accounting and Management Information Systems, 1993
Certified Public Accountant, Kentucky, 1995

Previous Positions

E.ON U.S.

2001 (Mar) - 2005 (Feb) - Manager, Finance & Budgeting - Energy Services
1999 (Sept) - 2001 (Apr) - Senior Budget Analyst
1995 (Aug) - 1999 (Sept) - Accounting Analyst, various positions

Arthur Andersen LLP

1995 – Senior Auditor
1993 – 1994 – Audit Staff

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF KENTUCKY UTILITIES COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY AND APPROVAL OF ITS 2009 COMPLIANCE PLAN FOR RECOVERY BY ENVIRONMENTAL SURCHARGE	))))))	CASE NO. 2009-00197

DIRECT TESTIMONY OF ROBERT M. CONROY DIRECTOR, RATES KENTUCKY UTILITIES COMPANY

Filed: June 26, 2009

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

A. My name is Robert M. Conroy. I am the Director – Rates for E.ON U.S. Services Inc., which provides services to Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (collectively "the Companies"). My business address is 220 West Main Street, Louisville, Kentucky, 40202. A complete statement of my education and work experience is attached to this testimony as Appendix A.

Q. Have you previously testified before this Commission?

A. Yes. I have previously testified before this Commission in proceedings concerning the Companies' most recent rate cases, fuel adjustment clauses, and environmental surcharge mechanisms.

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring five exhibits, identified as Exhibits RMC-1, RMC-2, RMC-3, RMC-4 and RMC-5. These exhibits are:

Exhibit RMC-1 Proposed KU Environmental Cost Recovery Surcharge Tariff

Exhibit RMC-2 Proposed KU Environmental Cost Recovery Surcharge Tariff (redline)

Exhibit RMC-3 Current KU Environmental Surcharge Monthly Reports

Exhibit RMC-4 Proposed KU Environmental Surcharge Monthly Reports

Exhibit RMC-5 2009 ECR Plan Customer Bill Impact

Q. What is the purpose of your testimony?

A. My testimony addresses how the environmental surcharge under KU's Electric Rate Schedule Environmental Cost Recovery Surcharge ("ECR") tariff will be calculated to include the costs incurred in connection with the new pollution control projects in KU's 2009 Environmental Compliance Plan ("2009 Plan").

Q. Is KU proposing any changes to its Environmental Cost Recovery Surcharge tariff?

A. Yes. KU is proposing an addition to the components of the ECR Revenue Requirement, and if approved, this modification will result in language revisions to the ECR tariff sheet. The proposed ECR Tariff is attached as Exhibit RMC-1. A redline version comparing the proposed ECR Tariff to the existing tariff is attached as Exhibit RMC-2.

Q. Will the methodologies for calculating the environmental surcharge change if the Commission approves recovery of KU's 2009 Plan?

A. No. KU will use the currently approved methodologies for calculating the environmental surcharge as specified by the Commission in Case Nos. 2000-439[1] ("2001 Plan"), 2002-00146[2] ("2003 Plan"), 2004-00426[3] ("2005 Plan"), and 2006-00206[4] ("2006 Plan"). The calculation of the monthly Environmental Surcharge billing factor will continue to consolidate the 2001, 2003, 2005, and 2006 Plans and if approved, the proposed 2009 Plan. However, KU is proposing to add a component to the determination of E(m).

Q. Why is KU proposing to add a component to the determination of E(m)?

A. KU is proposing to add a component to E(m) to separately identify the costs associated with coal combustion byproduct ("CCP") beneficial reuse opportunities

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[1] In the Matter of: *The Application of Kentucky Utilities Company for Approval of an Amended Compliance Plan for Purposes of Recovering the Costs of New and Additional Pollution Control Facilities and to Amend Its Environmental Cost Recovery Surcharge Tariff*

[2] In the Matter of: *The Application of Kentucky Utilities Company for Approval of Its 2002 Compliance Plan for Recovery by Environmental Surcharge*

[3] In the Matter of: *The Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct Flue Gas Desulfurization Systems and Approval of Its 2004 Compliance Plan for Recovery by Environmental Surcharge*

[4] In the Matter of: *The Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct a Selective Catalytic Reduction System and Approval of Its 2006 Compliance Plan for Recovery by Environmental Surcharge*

from the O&M expense currently included in the monthly filings. The E(m) would be determined as follows:

E(m) = [(RB / 12) (ROR+(ROR -DR)(TR/(1-TR)))] + OE - BAS + BR, where:

RB is the Total Environmental Compliance Rate Base.
ROR is the Rate of Return on Environmental Compliance Rate Base, designated as the overall rate of return.
DR is the Debt Rate.
TR is the Composite Federal and State Income Tax Rate.
OE is the Operating Expenses that includes operation and maintenance recovery authorized in previous ECR Compliance Plans.
BAS is the total proceeds from by-product and allowance sales.
BR is the operation and maintenance expenses (and/or revenues, if applicable) associated with beneficial reuse opportunities.

Q. What is the benefit of adding a component to the determination of E(m)?

A. The benefit of adding a component to the determination of E(m) is to provide the Commission with reporting that clearly identifies the costs associated with beneficial reuse opportunities that are included in the monthly filings. In addition, as discussed below, KU is adding an additional form, ES Form 2.60, to specifically identify the beneficial reuse operation and maintenance expense for each opportunity pursued by the Company. Together, these changes will facilitate the Commission's ongoing oversight and scrutiny of the costs associated with the beneficial reuse opportunities available to KU from time to time.

Q. Will the monthly reporting forms used for calculating the environmental surcharge change if the Commission approves recovery of KU's 2009 Plan?

A. Yes. KU is proposing to change the format of several monthly reporting forms to reflect the recovery of the costs associated with the 2009 Plan. Exhibit RMC-3 contains the forms KU currently uses when filing its monthly environmental

surcharge report. Exhibit RMC-4 shows the illustrative monthly environmental surcharge report forms KU is proposing in this case.

Q. Please describe the modifications that KU is proposing as a result of the 2009 Plan.

A. The calculation of the monthly billing factor for recovery of the cost of KU's 2009 Plan will be consistent with the methodology approved by the Commission in Case No. 2006-00206 and used to calculate the recovery of the cost of KU's current Environmental Compliance Plans. ES Form 1.00 will continue to show the calculation of the Jurisdictional Environmental Surcharge Billing Factor using the same methodology previously approved by the Commission.

The determination of the Environmental Compliance Rate Base is based on combining all ECR approved expenditures and calculating the rate base according to the methodologies ordered in Case Nos. 2000-439, 2002-00146, 2004-00426, and 2006-00206.

The plant, construction work in progress and depreciation expense for the 2001, 2003, 2005 and 2006 Plans are currently reported on ES Form 2.10. This form is being expanded to include the 2009 Plan projects for which KU is seeking cost recovery.

The pollution control equipment operation and maintenance expenses for the 2001, 2005, and 2006 Plans are currently reported on ES Form 2.50. This form is being expanded to include the incremental operation and maintenance expenses associated with the 2009 Plan projects as discussed in Ms. Charnas's testimony. The operation and maintenance expenses for Project 23 will be shown with the 2006 Plan.

Consistent with KU's most recent rate case, ES Form 3.10 is being revised to remove the revenues associated with the STOD Program Cost Recovery Factor, Merger Surcredit and Value Delivery Surcredit. ES Form 3.00 is being revised to remove the STOD Program Cost Recovery Factor Revenues beginning with the February 2010 expense month. Since KU reported STOD Program Cost Recovery Factor Revenues in January and February 2009 and ES Form 3.00 includes the current 12-months revenues, KU will continue to use the existing ES Form 3.00 for the December 2009 and January 2010 expense months.

Q. What modifications to the forms are necessary to clearly identify the costs associated with CCP Beneficial Reuse to be included in the determination of E(m)?

A. KU is proposing to add a new form ES Form 2.60 to track and report the costs associated with cost-effective beneficial reuse opportunities. As explained in Mr. Schram's testimony, KU will conduct a detailed evaluation of each beneficial reuse opportunity. For the opportunities that KU determines to be cost effective and that should be pursued, the evaluation results and associated signed and executed agreements will be provided to the Commission as an attachment to the monthly filing in the first month the beneficial reuse costs are reported. The sum of the current month O&M expense for all plans shown on ES Form 2.50 and the current month Beneficial Reuse expense shown on ES Form 2.60 will be utilized as the current month O&M on ES Form 2.40 in the determination of the pollution control cash working capital allowance.

KU is proposing to modify ES Forms 1.10 and 2.00 to separately identify the operation and maintenance costs, and/or revenues if applicable, associated with the beneficial reuse opportunities.

Q. Does the relief requested by KU in this case have any effect on the existing electric base rates?

A. No. Ms. Charnas's testimony affirms that none of the costs of the new pollution control facilities for which KU is seeking recovery was incurred prior to or during the 12-month period ending April 30, 2008 or included as adjustments hereto. Thus, none of these costs is already included in existing base rates. While KU did incur some engineering costs associated with these projects during the base rate case test year that ended April 30, 2008, those costs are excluded from the amount of recovery KU is seeking in this case as shown in Exhibit JNV-1.

The current base rates also do not include existing environmental surcharge revenues, expenses or assets associated with the proposed 2009 Plans. To the extent that the installation of the new pollution control facilities causes existing facilities to be replaced or retired, the cost of which facilities is already included in existing rates, KU will credit the net plant balance of retired or replaced plant against the amount of the capital expenditure to be recovered through the surcharge in accordance with past Commission orders. KU has been removing such amounts from the surcharge as necessary in the monthly calculation of the surcharge factor. KU will continually review operation and maintenance expenses that are already included in existing base rates. To the extent that those expenses are impacted by the projects included in the 2009 Plan, KU will recognize the impact in the surcharge calculations consistent with the Commission's orders.

Q. Has KU estimated the impact of the new projects on the Environmental Cost Recovery Surcharge?

A. Yes. The table below shows the estimated annual impact on Total E(m), Jurisdictional E(m) and the incremental MESF associated with the projects contained in the 2009 Plan. As shown in the table, the estimated impact on a residential customer using 1,000-kilowatt hours per month is expected to be $0.99 per month initially in 2010, upon approval by the Commission. It is estimated that this amount will increase to a maximum of $3.73 per month in 2013. Exhibit RMC-5 shows the details of the impact on the calculation of the environmental surcharge and a residential customer for 2009 through 2018.

Environmental Cost Recovery Surcharge Summary

	2010	2011	2012	2013	2014
Total E(m) - ($000)	$21,573	$43,140	$61,826	$95,090	$96,261
12 Month Average Jurisdictional Ratio	81.91%	81.91%	81.91%	81.91%	81.91%
Jurisdictional E(m) - ($000)	$17,670	$35,334	$50,639	$77,884	$78,843
Forecasted Jurisdictional R(m) - (million)	1,237	1,314	1,379	1,450	1,515
Incremental MESF	1.43%	2.69%	3.67%	5.37%	5.21%
Residential Customer Impact					
Monthly bill (1,000 kWh per month)	$0.99	$1.87	$2.55	$3.73	$3.61

Q. What is your recommendation to the Commission?

A. Based on my testimony, the Commission should approve (1) the 2009 Plan proposed in this case for the purposes of recovering the costs of pollution control facilities in that plan through the environmental surcharge beginning with the expense month of December 2009 and for bills rendered on and after January 28, 2010; (2) the proposed ECR Tariff; and (3) the proposed reporting formats.

Q. Does this conclude your testimony?

A. Yes it does.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **Robert M. Conroy**, being duly sworn, deposes and says he is the Director – Rates for E.ON U.S. Services Inc., and 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.

ROBERT M. CONROY

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 24th day of June 2009.

(SEAL)
Notary Public

My Commission Expires:

November 9, 2010

APPENDIX A

Robert M. Conroy

Director – Rates
E.ON U.S. Services Inc.
220 West Main Street
Louisville, Kentucky 40202
(502) 627-3324

Education

Masters of Business Administration
Indiana University (Southeast campus), December 1998. GPA: 3.9.

Bachelor of Science in Electrical Engineering;
Rose Hulman Institute of Technology, May 1987. GPA: 3.3

Essentials of Leadership, London Business School, 2004.

Center for Creative Leadership, Foundations in Leadership program, 1998.

Registered Professional Engineer in Kentucky, 1995.

Previous Positions

Manager, Rates	April 2004 – Feb. 2008
Manager, Generation Systems Planning	Feb. 2001 – April 2004
Group Leader, Generation Systems Planning	Feb. 2000 – Feb. 2001
Lead Planning Engineer	Oct. 1999 – Feb. 2000
Consulting System Planning Analyst	April 1996 – Oct. 1999
System Planning Analyst III & IV	Oct. 1992 - April 1996
System Planning Analyst II	Jan. 1991 - Oct. 1992
Electrical Engineer II	Jun. 1990 - Jan. 1991
Electrical Engineer I	Jun. 1987 - Jun. 1990

Professional/Trade Memberships

Registered Professional Engineer in Kentucky, 1995.

Kentucky Utilities Company

P.S.C. No. 14, First Revision of Original Sheet No. 87
Cancelling P.S.C. No. 14, Original Sheet No. 87

Adjustment Clause **ECR**

Environmental Cost Recovery Surcharge

APPLICABLE

In all territory served.

AVAILABILITY OF SERVICE

To electric rate schedules RS, VFD, GS, AES, PS, TOD, LTOD, RTS, IS, ST.LT., P.O.LT., LE, TE, FAC, and DSM.

RATE

The monthly billing amount under each of the schedules to which this mechanism is applicable, including the fuel clause and demand-side management cost recovery mechanism, shall be increased or decreased by a percentage factor calculated in accordance with the following formula.

$$CESF = E(m) / R(m) \qquad MESF = CESF - BESF$$

MESF = Monthly Environmental Surcharge Factor
CESF = Current Environmental Surcharge Factor
BESF = Base Environmental Surcharge Factor

E(m) is the jurisdictional total of each approved environmental compliance plan revenue requirement of environmental compliance costs for the current expense month and R(m) is the revenue for the current expense month as set forth below.

DEFINITIONS

1) For all Plans, $E(m) = [(RB/12) (ROR + (ROR - DR) (TR / (1 - TR))] + OE - BAS + BR$
   a) RB is the Total Environmental Compliance Rate Base.
   b) ROR is the Rate of Return on Environmental Compliance Rate Base, designated as the overall rate of return [cost of short-term debt, long-term debt, preferred stock, and common equity].
   c) DR is the Debt Rate [cost of short-term debt, and long-term debt].
   d) TR is the Composite Federal and State Income Tax Rate.
   e) OE is the Operating Expenses [Depreciation and Amortization Expense, Property Taxes, Emission Allowance Expense and O&M expense adjusted for the Average Month Expense already included in existing rates]. Includes operation and maintenance expense recovery authorized by the K.P.S.C. in prior amended ECR Plan proceedings. T
   f) BAS is the total proceeds from by-product and allowance sales.
   g) BR is the operation and maintenance expenses, and/or revenues if applicable, associated with Beneficial Reuse. T T

2) Total E(m) (sum of each approved environmental compliance plan revenue requirement) is multiplied by the Jurisdictional Allocation Factor to arrive at the Net Jurisdictional E(m).

3) The revenue R(m) is the average monthly base revenue for the Company for the 12 months ending with the current expense month. Base revenue includes the customer, energy and demand charge for each rate schedule to which this mechanism is applicable and automatic adjustment clause revenues for the Fuel Adjustment Clause and the Demand-Side Management Cost Recovery Mechanism as applicable for each rate schedule.

4) Current expense month (m) shall be the second month preceding the month in which the Environmental Surcharge is billed.

Date of Issue: June 26, 2009
Date Effective: With Bills Rendered On and After January 28, 2010
Issued By: Lonnie E. Bellar, Vice President, State Regulation and Rates, Lexington, Kentucky

Issued by Authority of an Order of the KPSC in Case No. 2009-00197 dated

Kentucky Utilities Company

P.S.C. No. 14, First Revision of Original Sheet No. 87
Cancelling P.S.C. No. 14, Original Sheet No. 87

Adjustment Clause **ECR**

Environmental Cost Recovery Surcharge

APPLICABLE

In all territory served.

AVAILABILITY OF SERVICE

To electric rate schedules RS, VFD, GS, AES, PS, TOD, LTOD, RTS, IS, ST.LT., P.O.LT., LE, TE, FAC, and DSM.

RATE

The monthly billing amount under each of the schedules to which this mechanism is applicable, including the fuel clause and demand-side management cost recovery mechanism, shall be increased or decreased by a percentage factor calculated in accordance with the following formula.

$$CESF = E(m) / R(m) \qquad MESF = CESF - BESF$$

MESF = Monthly Environmental Surcharge Factor
CESF = Current Environmental Surcharge Factor
BESF = Base Environmental Surcharge Factor

E(m) is the jurisdictional total of each approved environmental compliance plan revenue requirement of environmental compliance costs for the current expense month and R(m) is the revenue for the current expense month as set forth below.

DEFINITIONS

1) For all Plans, E(m) = [(RB/12) (ROR + (ROR – DR) (TR / (1 – TR))] + OE - BAS + BR
   a) RB is the Total Environmental Compliance Rate Base.
   b) ROR is the Rate of Return on Environmental Compliance Rate Base, designated as the overall rate of return [cost of short-term debt, long-term debt, preferred stock, and common equity].
   c) DR is the Debt Rate [cost of short-term debt, and long-term debt].
   d) TR is the Composite Federal and State Income Tax Rate.
   e) OE is the Operating Expenses [Depreciation and Amortization Expense, Property Taxes, Emission Allowance Expense and O&M expense adjusted for the Average Month Expense already included in existing rates]. Includes operation and maintenance expense recovery authorized by the K.P.S.C. in prior amended ECR Plan proceedings.
   f) BAS is the total proceeds from by-product and allowance sales.
   g) BR is the operation and maintenance expenses, and/or revenues if applicable, associated with Beneficial Reuse.

2) Total E(m) (sum of each approved environmental compliance plan revenue requirement) is multiplied by the Jurisdictional Allocation Factor to arrive at the Net Jurisdictional E(m).

3) The revenue R(m) is the average monthly base revenue for the Company for the 12 months ending with the current expense month. Base revenue includes the customer, energy and demand charge for each rate schedule to which this mechanism is applicable and automatic adjustment clause revenues for the Fuel Adjustment Clause and the Demand-Side Management Cost Recovery Mechanism as applicable for each rate schedule.

4) Current expense month (m) shall be the second month preceding the month in which the Environmental Surcharge is billed.

Date of Issue: June 26, 2009
Date Effective: With Bills Rendered On and After January 28, 2010
Issued By: Lonnie E. Bellar, Vice President, State Regulation and Rates, Lexington, Kentucky

Issued by Authority of an Order of the KPSC in Case No. 2009-00197 **dated**

Deleted: Case Nos. 2000-439, 2002-146, 2004-00426 and 2006-00206

Deleted: February 9, 2009

Deleted: With Service Rendered On and After October 31, 2003

Deleted:

Deleted: Refiled: February 9, 2009

Deleted: s

Deleted: 2007-00564 and 2008-00252

Deleted: February 5, 2009

ES FORM 1.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Calculation of Monthly Billed Environmental Surcharge Factor - MESF
For the Month Ended:

MESF = CESF - BESF

Where:

CESF	=	Current Period Jurisdictional Environmental Surcharge Factor
BESF	=	Base Period Jurisdictional Environmental Surcharge Factor

Calculation of MESF:

CESF, from ES Form 1.10	=	
BESF, from Case No. 2007-00379	=	5.51%
MESF	=	

Effective Date for Billing:

Submitted by: _____

Title: Director, Rates

Date Submitted: _____

ES FORM 1.10

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Calculation of Total E(m) and
Jurisdictional Surcharge Billing Factor

For the Month Ended:

Calculation of Total E(m)

E(m) = [(RB / 12) (ROR+(ROR -DR)(TR/(1-TR)))] + OE - BAS, where

RB	=	Environmental Compliance Rate Base
ROR	=	Rate of Return on the Environmental Compliance Rate Base
DR	=	Debt Rate (both short-term and long-term debt)
TR	=	Composite Federal & State Income Tax Rate
OE	=	Pollution Control Operating Expenses
BAS	=	Total Proceeds from By-Product and Allowance Sales

		Environmental Compliance Plans
RB	=	
RB / 12	=	
(ROR + (ROR - DR) (TR / (1 - TR)))	=	11.12%
OE	=	
BAS	=	
E(m)	=	

Calculation of Jurisdictional Environmental Surcharge Billing Factor

Jurisdictional Allocation Ratio for Expense Month	=
Jurisdictional E(m) = E(m) x Jurisdictional Allocation Ratio	=
Adjustment for Monthly True-up (from Form 2.00)	=
Adjustment for Under-collection pursuant to Case No. 2008-00216 Prior Period Adjustment (if necessary)	=
Net Jurisdictional E(m) = Jurisdictional E(m) minus Adjustment for Monthly True-up plus/minus Prior Period Adjustment	=
Jurisdictional R(m) = Average Monthly Jurisdictional Revenue for the 12 Months Ending with the Current Expense Month	=
Jurisdictional Environmental Surcharge Billing Factor: Net Jurisdictional E(m) / Jurisdictional R(m) ; as a % of Revenue	=

ES FORM 2.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Revenue Requirements of Environmental Compliance Costs
For the Month Ended:

Determination of Environmental Compliance Rate Base

	Enviromental Compliance Plan
Eligible Pollution Control Plant	
Eligible Pollution CWIP Excluding AFUDC	
Subtotal	
Additions:	
Inventory - Limestone	
Less: Limestone Inventory in base rates	76,473
Inventory - Emission Allowances per ES Form 2.31, 2.32 and 2.33	
Less: Allowance Inventory Baseline	69,415
Net Emission Allowance Inventory	
Cash Working Capital Allowance	
Subtotal	
Deductions:	
Accumulated Depreciation on Eligible Pollution Control Plant	
Pollution Control Deferred Income Taxes	
Pollution Control Deferred Investment Tax Credit	
Subtotal	-
Environmental Compliance Rate Base	$ -

Determination of Pollution Control Operating Expenses

	Enviromental Compliance Plan
Monthly Operations & Maintenance Expense	
Monthly Depreciation & Amortization Expense	
Monthly Taxes Other Than Income Taxes	
Monthly Insurance Expense	
Monthly Emission Allowance Expense from ES Form 2.31, 2.32 and 2.33	
Less Monthly Emission Allowance Expense in base rates (1/12 of $58,345.76)	
Net Recoverable Emission Allowance Expense	
Monthly Surcharge Consultant Fee	
Total Pollution Control Operations Expense	

Proceeds From By-Product and Allowance Sales

	Total Proceeds
Allowance Sales	
Scrubber By-Products Sales	
Total Proceeds from Sales	

True-up Adjustment: Over/Under Recovery of Monthly Surcharge Due to Timing Differences

A. MESF for two months prior to Expense Month	
B. Net Jurisdictional E(m) for two months prior to Expense Month	
C. Environmental Surcharge Revenue, current month (from ES Form 3.00)	
D. Retail E(m) recovered through base rates (Base Revenues, ES Form 3.00 times 5.51%)	
E. Over/(Under) Recovery due to Timing Differences ((D + C) - B)	
Over-recoveries will be deducted from the Jurisdictional E(m); under-recoveries will be added to the Jurisdictional E(m)	

ES Form 2.01

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Limestone Inventory

For the Month Ended:

	Beginning Inventory	Purchases	Other Adjustments	Utilized	Ending Inventory	Reason(s) for Adjustments
			Spare Parts			
			Limestone			
At Ghent:						
Tons						
Dollars						
$/Ton						
At E.W. Brown:						
Tons						
Dollars						
$/Ton						

Ghent Limestone Inventory in Base Rates: $ 76,473.34

Net to be included in ECR $ (76,473.34)

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Plant, CWIP & Depreciation Expense

For the Month Ended:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Description	Eligible Plant In Service	Eligible Accumulated Depreciation	CWIP Amount Excluding AFUDC	Eligible Net Plant In Service	Unamortized ITC as of	Deferred Tax Balance as of	Monthly Depreciation Expense	Monthly Property Tax Expense
				(2)-(3)+(4)				
2001 Plan:								
Project 16 - KU Nox modifications								
Project 17 - KU Nox SCR's								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2001 Plan								
Net Total - 2001 Plan:								
2003 Plan:								
Project 18 - Ghent Ash Pond Dike Elevation								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2003 Plan								
Net Total - 2003 Plan:								
2005 Plan:								
Project 19 - Ash Handling at Ghent 1 and Ghent Station								
Project 20 - Ash Treatment Basin Expansion at E.W. Brown Station								
Project 21 - FGD's at all E.W. Brown Units and at Ghent 1, 3, and 4								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2005 Plan								
Net Total - 2005 Plan:								

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Plant, CWIP & Depreciation Expense

For the Month Ended:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Description	Eligible Plant In Service	Eligible Accumulated Depreciation	CWIP Amount Excluding AFUDC	Eligible Net Plant In Service	Unamortized ITC as of	Deferred Tax Balance as of	Monthly Depreciation Expense	Monthly Property Tax Expense
				(2)-(3)+(4)				
2006 Plan:								
Project 23 - TC2 AQCS Equipment								
Project 24 - Sorbent Injection								
Project 25 - Mercury Monitors								
Project 27 - E.W. Brown Electrostatic Precipitators								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2006 Plan								
Net Total - 2006 Plan:								
Net Total - All Plans:								

ES FORM 2.30

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances

For the Month Ended:

Vintage Year	Number of Allowances			Total Dollar Value Of Vintage Year			Comments and Explanations
	SO_2	NOx Annual	NOx Ozone Season	SO_2	NOx Annual	NOx Ozone Season	
Current Year							
2010							
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
2021							
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029 - 2038							

In the "Comments and Explanation" Column, describe any allowance inventory adjustment other than the assignment of allowances by EPA. Inventory adjustments include, but are not limited to, purchases, allowances acquired as part of other purchases, and the sale of allowances.

ES FORM 2.31

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (SO_2) - Current Vintage Year

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor

ES FORM 2.32

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (NOx) - Ozone Season Allowance Allocation

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E:							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor.

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (NOx) - Annual Allowance Allocation

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E:							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor.

ES FORM 2.40

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
O&M Expenses and Determination of Cash Working Capital Allowance

For the Month Ended:

Environmental Compliance Plan	
O&M Expenses	Amount
11th Previous Month	
10th Previous Month	
9th Previous Month	
8th Previous Month	
7th Previous Month	
6th Previous Month	
5th Previous Month	
4th Previous Month	
3rd Previous Month	
2nd Previous Month	
Previous Month	
Current Month	
Total 12 Month O&M	

Determination of Working Capital Allowance		
12 Months O&M Expenses	$	-
One Eighth (1/8) of 12 Month O&M Expenses		
Pollution Control Cash Working Capital Allowance	$	-

ES FORM 2.50

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Pollution Control - Operations & Maintenance Expenses
For the Month Ended:

O&M Expense Account	E. W. Brown	Ghent	Green River	Tyrone	Total
2001 Plan					
506104 - NOx Operation -- Consumables					
506105 - NOx Operation -- Labor and Other					
512101 - NOx Maintenance					
Total 2001 Plan O&M Expenses					
2005 Plan					
502006 - Scrubber Operations					
512005 - Scrubber Maintenance					
Total 2005 Plan O&M Expenses					
2006 Plan					
506109 - Sorbent Injection Operation					
512102 - Sorbent Injection Maintenance					
506110 - Mercury Monitors Operation					
512103 - Mercury Monitors Maintenance					
Total 2006 Plan O&M Expenses					
Current Month O&M Expense for All Plans					

ES FORM 3.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Monthly Average Revenue Computation of R (m)

For the Month Ended:

	Kentucky Jurisdictional Revenues							Non-Jurisdictional Revenues	Total Company Revenues	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Month	Base Rate Revenues	Fuel Clause Revenues	DSM Revenues	STOD Program Cost Recovery Factor Revenues	Environmental Surcharge Revenues	Total (2)+(3)+(4)+(5)+(6)	Total Excluding Environmental Surcharge (7)-(6)	Total Including Off-System Sales (See Note 1)	Total (7)+(9)	Total Excluding Environmental Surcharge (10)-(6)
Average Monthly Jurisdictional Revenues, Excluding Environmental Surcharge, for 12 Months Ending Current Expense Month.										
Jurisdictional Allocation Percentage for Current Month (Environmental Surcharge Excluded from Calculations): Expense Month Kentucky Jurisdictional Revenues Divided by Expense Month Total Company Revenues: Column (8) / Column (11) =										
								Note 1 - Excludes Brokered Sales, Total for Current Month =		

ES FORM 3.10

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Reconciliation of Reported Revenues

For the Month Ended:

	Revenues per Form 3.00	Revenues per Income Statement
Kentucky Retail Revenues		
Base Rates (Customer Charge, Energy Charge, Demand Charge)		
Fuel Adjustment Clause		
DSM		
STOD Program Cost Recovery Factor		
Environmental Surcharge		
CSR Credits		
Total Kentucky Jurisdictional Revenues for Environmental Surcharge Purposes =		
Non -Jurisdictional Revenues		
Tennessee Retail		
Virginia Retail		
Wholesale		
InterSystem (Total Less Transmission Portion Booked in Account 447)		
Total Non-Jurisdictional Revenues for Environmental Surcharge Purposes =		
Total Company Revenues for Environmental Surcharge Purposes =		
Reconciling Revenues		
Brokered		
InterSystem (Transmission Portion Booked in Account 447)		
Unbilled		
Provision for Refund		
Merger Surcredit		
Merger Surcredit - Non Jurisdictional		
Value Delivery Surcredit		
Miscellaneous		
Total Company Revenues per Income Statement =		

ES FORM 1.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Calculation of Monthly Billed Environmental Surcharge Factor - MESF
For the Month Ended:

MESF = CESF - BESF

Where:

CESF	=	Current Period Jurisdictional Environmental Surcharge Factor
BESF	=	Base Period Jurisdictional Environmental Surcharge Factor

Calculation of MESF:

CESF, from ES Form 1.10	=
BESF, from Case No.	=
MESF	=

Effective Date for Billing:

Submitted by: _____

Title: Director, Rates

Date Submitted: _____

ES FORM 1.10

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Calculation of Total E(m) and
Jurisdictional Surcharge Billing Factor

For the Month Ended:

Calculation of Total E(m)

E(m) = [(RB / 12) (ROR+(ROR -DR)(TR/(1-TR)))] + OE - BAS + BR, where

RB	=	Environmental Compliance Rate Base
ROR	=	Rate of Return on the Environmental Compliance Rate Base
DR	=	Debt Rate (both short-term and long-term debt)
TR	=	Composite Federal & State Income Tax Rate
OE	=	Pollution Control Operating Expenses
BAS	=	Total Proceeds from By-Product and Allowance Sales
BR	=	Beneficial Reuse Operating Expenses

		Environmental Compliance Plans
RB	=	
RB / 12	=	
(ROR + (ROR - DR) (TR / (1 - TR)))	=	
OE	=	
BAS	=	
BR	=	
E(m)	=	

Calculation of Jurisdictional Environmental Surcharge Billing Factor

Jurisdictional Allocation Ratio for Expense Month	=
Jurisdictional E(m) = E(m) x Jurisdictional Allocation Ratio	=
Adjustment for Monthly True-up (from Form 2.00)	=
Adjustment for Over/Under-collection pursuant to Case No. Prior Period Adjustment (if necessary)	=
Net Jurisdictional E(m) = Jurisdictional E(m) minus Adjustment for Monthly True-up plus/minus Prior Period Adjustment	=
Jurisdictional R(m) = Average Monthly Jurisdictional Revenue for the 12 Months Ending with the Current Expense Month	=
Jurisdictional Environmental Surcharge Billing Factor: Net Jurisdictional E(m) / Jurisdictional R(m) ; as a % of Revenue	=

ES FORM 2.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Revenue Requirements of Environmental Compliance Costs
For the Month Ended:

Determination of Environmental Compliance Rate Base

	Environmental Compliance Plan
Eligible Pollution Control Plant	
Eligible Pollution CWIP Excluding AFUDC	
Subtotal	
Additions:	
Inventory - Limestone	
Less: Limestone Inventory in base rates	76,473
Inventory - Emission Allowances per ES Form 2.31, 2.32 and 2.33	
Less: Allowance Inventory Baseline	69,415
Net Emission Allowance Inventory	
Cash Working Capital Allowance	
Subtotal	
Deductions:	
Accumulated Depreciation on Eligible Pollution Control Plant	
Pollution Control Deferred Income Taxes	
Pollution Control Deferred Investment Tax Credit	
Subtotal	-
Environmental Compliance Rate Base	$ -

Determination of Pollution Control Operating Expenses

	Environmental Compliance Plan
Monthly Operations & Maintenance Expense	
Monthly Depreciation & Amortization Expense	
Monthly Taxes Other Than Income Taxes	
Monthly Insurance Expense	
Monthly Emission Allowance Expense from ES Form 2.31, 2.32 and 2.33	
Less Monthly Emission Allowance Expense in base rates (1/12 of $58,345.76)	
Net Recoverable Emission Allowance Expense	
Monthly Surcharge Consultant Fee	
Total Pollution Control Operations Expense	

Determination of Beneficial Reuse Operating Expenses

	Environmental Compliance Plan
Total Beneficial Reuse Operations Expense	

Proceeds From By-Product and Allowance Sales

	Total Proceeds
Allowance Sales	
Scrubber By-Products Sales	
Total Proceeds from Sales	

True-up Adjustment: Over/Under Recovery of Monthly Surcharge Due to Timing Differences

A. MESF for two months prior to Expense Month	
B. Net Jurisdictional E(m) for two months prior to Expense Month	
C. Environmental Surcharge Revenue, current month (from ES Form 3.00)	
D. Retail E(m) recovered through base rates (Base Revenues, ES Form 3.00 times 5.51%)	
E. Over/(Under) Recovery due to Timing Differences ((D + C) - B)	
Over-recoveries will be deducted from the Jurisdictional E(m); under-recoveries will be added to the Jurisdictional E(m)	

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Limestone Inventory

For the Month Ended:

	Beginning Inventory	Purchases	Other Adjustments	Utilized	Ending Inventory	Reason(s) for Adjustments
			Spare Parts			
			Limestone			
At Ghent:						
Tons						
Dollars						
$/Ton						
At E.W. Brown:						
Tons						
Dollars						
$/Ton						

Ghent Limestone Inventory in Base Rates: $ 76,473.34

Net to be included in ECR $ (76,473.34)

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Plant, CWIP & Depreciation Expense

For the Month Ended:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Description	Eligible Plant In Service	Eligible Accumulated Depreciation	CWIP Amount Excluding AFUDC	Eligible Net Plant In Service	Unamortized ITC as of	Deferred Tax Balance as of	Monthly Depreciation Expense	Monthly Property Tax Expense
				(2)-(3)+(4)				
2001 Plan:								
Project 16 - KU Nox modifications								
Project 17 - KU Nox SCR's								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2001 Plan								
Net Total - 2001 Plan:								
2003 Plan:								
Project 18 - Ghent Ash Pond Dike Elevation								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2003 Plan								
Net Total - 2003 Plan:								
2005 Plan:								
Project 19 - Ash Handling at Ghent 1 and Ghent Station								
Project 20 - ATB Expansion at E.W. Brown Station (Phase I)								
Project 21 - FGD's at all E.W. Brown Units and at Ghent 1, 3, and 4								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2005 Plan								
Net Total - 2005 Plan:								

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Plant, CWIP & Depreciation Expense

For the Month Ended:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Description	Eligible Plant In Service	Eligible Accumulated Depreciation	CWIP Amount Excluding AFUDC	Eligible Net Plant In Service	Unamortized ITC as of	Deferred Tax Balance as of	Monthly Depreciation Expense	Monthly Property Tax Expense
				(2)-(3)+(4)				
2006 Plan:								
Project 23 - TC2 AQCS Equipment								
Project 24 - Sorbent Injection								
Project 25 - Mercury Monitors								
Project 27 - E.W. Brown Electrostatic Precipitators								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2006 Plan								
Net Total - 2006 Plan:								
2009 Plan:								
Project 28 - Brown 3 SCR								
Project 29 - ATB Expansion at E.W. Brown Station (Phase II)								
Project 30 - Ghent CCP Storage (Landfill- Phase I)								
Project 31 - Trimble County Ash Treatment Basin (BAP/GSP)								
Project 32 - Trimble County CCP Storage (Landfill - Phase I)								
Project 33 - Beneficial Reuse								
Subtotal								
Less Retirements and Replacement resulting from implementation of 2009 Plan								
Net Total - 2009 Plan:								
Net Total - All Plans:								

Note 1: Trimble County projects for the 2009 Plan are proportionately shared by KU at 48% and LG&E at 52%

ES FORM 2.30

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances

For the Month Ended:

Vintage Year	Number of Allowances			Total Dollar Value Of Vintage Year			Comments and Explanations
	SO_2	NOx Annual	NOx Ozone Season	SO_2	NOx Annual	NOx Ozone Season	
Current Year							
2010							
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
2021							
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029 - 2038							

In the "Comments and Explanation" Column, describe any allowance inventory adjustment other than the assignment of allowances by EPA. Inventory adjustments include, but are not limited to, purchases, allowances acquired as part of other purchases, and the sale of allowances.

ES FORM 2.31

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (SO_2) - Current Vintage Year

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (NOx) - Ozone Season Allowance Allocation

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E:							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor.

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Inventory of Emission Allowances (NOx) - Annual Allowance Allocation

For the Month Ended:

	Beginning Inventory	Allocations/ Purchases	Utilized (Coal Fuel)	Utilized (Other Fuels)	Sold	Ending Inventory	Allocation, Purchase, or Sale Date & Vintage Years
TOTAL EMISSION ALLOWANCES IN INVENTORY, ALL CLASSIFICATIONS							
Quantity							
Dollars							
$/Allowance							
ALLOCATED ALLOWANCES FROM EPA: COAL FUEL							
Quantity							
Dollars							
ALLOCATED ALLOWANCES FROM EPA: OTHER FUELS							
Quantity							
Dollars							
ALLOWANCES FROM PURCHASES:							
From Market:							
Quantity							
Dollars							
$/Allowance							
From LG&E:							
Quantity							
Dollars							
$/Allowance							

Emission Allowance Expense for Other Power Generation is excluded from expense reported on Form 2.00 for recovery through the monthly billing factor.

ES FORM 2.40

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
O&M Expenses and Determination of Cash Working Capital Allowance

For the Month Ended:

Environmental Compliance Plan	
O&M Expenses	Amount
11th Previous Month	
10th Previous Month	
9th Previous Month	
8th Previous Month	
7th Previous Month	
6th Previous Month	
5th Previous Month	
4th Previous Month	
3rd Previous Month	
2nd Previous Month	
Previous Month	
Current Month	
Total 12 Month O&M	

Determination of Working Capital Allowance		
12 Months O&M Expenses	$	-
One Eighth (1/8) of 12 Month O&M Expenses		
Pollution Control Cash Working Capital Allowance	$	-

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT

Pollution Control - Operations & Maintenance Expenses
For the Month Ended:

O&M Expense Account	E. W. Brown	Ghent	Green River	Tyrone	Trimble County	Total
2001 Plan						
506104 - NOx Operation -- Consumables						
506105 - NOx Operation -- Labor and Other						
512101 - NOx Maintenance						
Total 2001 Plan O&M Expenses						
2005 Plan						
502006 - Scrubber Operations						
512005 - Scrubber Maintenance						
Total 2005 Plan O&M Expenses						
2006 Plan						
506109 - Sorbent Injection Operation						
512102 - Sorbent Injection Maintenance						
506110 - Mercury Monitors Operation						
512103 - Mercury Monitors Maintenance						
506104 - NOx Operation -- Consumables						
506105 - NOx Operation -- Labor and Other						
512101 - NOx Maintenance						
502006 - Scrubber Operations						
512005 - Scrubber Maintenance						
506001 - Precipitator Operation						
512011 - Precipitator Maintenance						
Total 2006 Plan O&M Expenses						
2009 Plan						
506104 - NOx Operation -- Consumables						
506105 - NOx Operation -- Labor and Other						
512101 - NOx Maintenance						
506109 - Sorbent Injection Operation						
512102 - Sorbent Injection Maintenance						
512017 - Ash Handling Maintenance						
501251 - Ash Handling Operation						
502001 - Other Waste Disposal						
501201 - Bottom Ash Disposal						
Total 2009 Plan O&M Expenses						
Current Month O&M Expense for All Plans						

Note 1: Trimble County projects for the 2009 Plan are proportionately shared by KU at 48% and LG&E at 52%.

ES FORM 2.60

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Beneficial Reuse - Operations & Maintenance Expenses
For the Month Ended:

Third Party	O&M Expense Account	Plant	Total O&M
			0.00

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Monthly Average Revenue Computation of R (m)

For the Month Ended:

	Kentucky Jurisdictional Revenues						Non-Jurisdictional Revenues	Total Company Revenues	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Month	Base Rate Revenues	Fuel Clause Revenues	DSM Revenues	Environmental Surcharge Revenues	Total (2)+(3)+(4)+(5)	Total Excluding Environmental Surcharge (6)-(5)	Total Including Off-System Sales (See Note 1)	Total (6)+(8)	Total Excluding Environmental Surcharge (9)-(5)
Average Monthly Jurisdictional Revenues, Excluding Environmental Surcharge, for 12 Months Ending Current Expense Month.									
Jurisdictional Allocation Percentage for Current Month (Environmental Surcharge Excluded from Calculations): Expense Month Kentucky Jurisdictional Revenues Divided by Expense Month Total Company Revenues: Column (7) / Column (10) =									
							Note 1 - Excludes Brokered Sales, Total for Current Month =		

ES FORM 3.10

KENTUCKY UTILITIES COMPANY
ENVIRONMENTAL SURCHARGE REPORT
Reconciliation of Reported Revenues

For the Month Ended:

	Revenues per Form 3.00	Revenues per Income Statement
Kentucky Retail Revenues		
Base Rates (Customer Charge, Energy Charge, Demand Charge)		
Fuel Adjustment Clause		
DSM		
Environmental Surcharge		
CSR Credits		
Total Kentucky Jurisdictional Revenues for Environmental Surcharge Purposes =		
Non -Jurisdictional Revenues		
Tennessee Retail		
Virginia Retail		
Wholesale		
InterSystem (Total Less Transmission Portion Booked in Account 447)		
Total Non-Jurisdictional Revenues for Environmental Surcharge Purposes =		
Total Company Revenues for Environmental Surcharge Purposes =		
Reconciling Revenues		
Brokered		
InterSystem (Transmission Portion Booked in Account 447)		
Unbilled		
Provision for Refund		
Miscellaneous		
Total Company Revenues per Income Statement =		

Kentucky Utilities Company
Environmental Cost Recovery Surcharge Summary

	2010	2011	2012	2013	2014
Total E(m) - ($000)	$21,573	$43,140	$61,826	$95,090	$96,261
12 Month Average Jurisdictional Ratio	81.91%	81.91%	81.91%	81.91%	81.91%
Jurisdictional E(m) - ($000)	$17,670	$35,334	$50,639	$77,884	$78,843
Forecasted Jurisdictional R(m) - (million)	1,237	1,314	1,379	1,450	1,515
Incremental MESF	1.43%	2.69%	3.67%	5.37%	5.21%
Residential Customer Impact					
Monthly bill (1,000 kWh per month)	$0.99	$1.87	$2.55	$3.73	$3.61

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 23	**TC2 AQS O&M**										
	Revenue Requirement										
	Eligible Plant	-	-	-	-	-	-	-	-	-	-
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	-	-	-	-	-	-	-	-	-
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	-	-	-	-	-	-	-	-	-
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	-	-	-	-	-	-	-	-	-	-
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Operating expenses	-	5,663,169	8,860,636	10,477,210	11,219,570	11,519,791	11,796,886	12,084,001	12,438,277	12,674,231
	Annual Depreciation expense	-	-	-	-	-	-	-	-	-	-
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	-	-	-	-	-	-	-	-	-
	Total OE	$ -	$ 5,663,169	$ 8,860,636	$ 10,477,210	$ 11,219,570	$ 11,519,791	$ 11,796,886	$ 12,084,001	$ 12,438,277	$ 12,674,231
	Total E(m)	-	5,663,169	8,860,636	10,477,210	11,219,570	11,519,791	11,796,886	12,084,001	12,438,277	12,674,231

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 28	**BR3 SCR**										
	Revenue Requirement										
	Eligible Plant	348,805	34,848,805	108,948,805	178,848,805	183,848,805	183,848,805	183,848,805	183,848,805	183,848,805	183,848,805
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	-	-	(1,043,285)	(6,191,051)	(11,338,818)	(16,486,584)	(21,634,351)	(26,782,117)	(31,929,884)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	-	-	(2,015,656)	(4,907,087)	(7,443,877)	(9,653,509)	(11,559,537)	(13,185,517)	(14,551,732)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	348,805	34,848,805	108,948,805	175,789,864	172,750,667	165,066,110	157,708,712	150,654,917	143,881,171	137,367,189
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 38,782	$ 3,822,662	$ 11,950,896	$ 19,282,877	$ 18,949,499	$ 18,106,558	$ 17,299,505	$ 16,525,755	$ 15,782,724	$ 15,068,187
	Operating expenses	-	-	-	649,267	3,122,809	3,193,154	3,239,641	3,335,614	3,463,706	3,572,886
	Annual Depreciation expense	-	-	-	1,043,285	5,147,767	5,147,767	5,147,767	5,147,767	5,147,767	5,147,767
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	523	52,273	163,423	266,708	266,487	258,765	251,043	243,322	235,600
	Total OE	$ -	$ 523	$ 52,273	$ 1,855,975	$ 8,537,284	$ 8,607,407	$ 8,646,173	$ 8,734,424	$ 8,854,794	$ 8,956,253
	Total E(m)	38,782	3,823,185	12,003,169	21,138,852	27,486,783	26,713,966	25,945,678	25,260,179	24,637,518	24,024,440

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 29	**Brown Ash Pond - Phase II**										
	Revenue Requirement										
	Eligible Plant	120,681	8,140,291	18,308,495	24,858,347	24,858,347	24,858,347	24,858,347	24,858,347	24,858,347	24,858,347
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	-	-	(29,001)	(725,035)	(1,421,069)	(2,117,103)	(2,813,136)	(3,509,170)	(4,205,204)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	-	-	(321,444)	(712,397)	(1,055,398)	(1,354,164)	(1,611,880)	(1,831,730)	(2,016,457)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	120,681	8,140,291	18,308,495	24,507,901	23,420,915	22,381,880	21,387,080	20,433,331	19,517,447	18,636,686
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 13,418	$ 892,931	$ 2,008,309	$ 2,688,340	$ 2,569,105	$ 2,455,130	$ 2,346,008	$ 2,241,389	$ 2,140,923	$ 2,044,310
	Operating expenses	-	-	-	-	-	-	-	-	-	-
	Annual Depreciation expense	-	-	-	29,001	696,034	696,034	696,034	696,034	696,034	696,034
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	181	12,210	27,463	37,244	36,200	35,156	34,112	33,068	32,024
	Total OE	$ -	$ 181	$ 12,210	$ 56,464	$ 733,278	$ 732,234	$ 731,190	$ 730,146	$ 729,102	$ 728,057
	Total E(m)	13,418	893,112	2,020,520	2,744,804	3,302,383	3,187,364	3,077,198	2,971,534	2,870,024	2,772,367

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 30	**Ghent Landfill - Phase I**										
	Revenue Requirement										
	Eligible Plant	4,321,671	46,478,848	105,485,803	177,577,356	191,133,918	201,941,953	202,578,976	203,254,220	203,969,979	203,969,979
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	-	-	-	(5,110,443)	(10,744,624)	(16,396,577)	(22,067,370)	(27,758,132)	(33,448,895)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	-	-	-	(732,114)	(3,915,287)	(6,717,731)	(9,167,825)	(11,289,716)	(13,100,909)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	4,321,671	46,478,848	105,485,803	177,577,356	185,291,361	187,282,042	179,464,668	172,019,025	164,922,131	157,420,175
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 480,509	$ 5,098,393	$ 11,571,030	$ 19,478,952	$ 20,325,122	$ 20,543,486	$ 19,685,976	$ 18,869,243	$ 18,090,765	$ 17,267,855
	Operating expenses	84,800	121,349	128,630	136,348	19,003,308	20,143,507	21,352,117	22,633,244	23,991,239	25,430,713
	Annual Depreciation expense	-	-	-	-	5,110,443	5,634,180	5,651,953	5,670,793	5,690,762	5,690,762
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	6,483	69,718	158,229	266,366	279,035	286,796	279,274	271,780	264,318
	Total OE	$ 84,800	$ 127,832	$ 198,348	$ 294,577	$ 24,380,117	$ 26,056,723	$ 27,290,866	$ 28,583,310	$ 29,953,782	$ 31,385,793
	Total E(m)	565,309	5,226,225	11,769,378	19,773,528	44,705,239	46,600,208	46,976,843	47,452,553	48,044,547	48,653,648

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 31	**TC Ash Treatment Basin (BAP/GSP)**										
	Revenue Requirement										
	Eligible Plant	4,728,491	11,835,899	11,835,899	11,835,899	11,835,899	11,835,899	11,835,899	11,835,899	11,835,899	11,835,899
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	(17,852)	(446,312)	(874,772)	(1,303,231)	(1,731,691)	(2,160,150)	(2,588,610)	(3,017,069)	(3,445,529)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	(151,611)	(303,215)	(431,988)	(539,699)	(627,865)	(698,001)	(751,414)	(789,410)	(824,878)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	4,728,491	11,666,435	11,086,372	10,529,139	9,992,969	9,476,344	8,977,748	8,495,875	8,029,420	7,565,492
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 525,742	$ 1,279,724	$ 1,216,095	$ 1,154,970	$ 1,096,156	$ 1,039,486	$ 984,794	$ 931,936	$ 880,769	$ 829,880
	Operating expenses	-	-	-	-	-	-	-	-	-	-
	Annual Depreciation expense	-	17,852	428,460	428,460	428,460	428,460	428,460	428,460	428,460	428,460
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	7,093	17,727	17,084	16,442	15,799	15,156	14,514	13,871	13,228
	Total OE	$ -	$ 24,945	$ 446,187	$ 445,544	$ 444,901	$ 444,259	$ 443,616	$ 442,973	$ 442,330	$ 441,688
	Total E(m)	525,742	1,304,669	1,662,281	1,600,514	1,541,058	1,483,745	1,428,410	1,374,909	1,323,100	1,271,568

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 32	**TC CCP Storage (Landfill - Phase I)**										
	Revenue Requirement										
	Eligible Plant	205,835	205,835	16,548,518	33,855,024	33,855,024	33,855,024	33,855,024	33,855,024	33,855,024	33,855,024
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	-	-	-	(1,174,487)	(2,400,039)	(3,625,591)	(4,851,143)	(6,076,695)	(7,302,247)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	-	-	-	(33,838)	(467,481)	(835,819)	(1,143,912)	(1,396,098)	(1,596,714)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	205,835	205,835	16,548,518	33,855,024	32,646,699	30,987,504	29,393,614	27,859,969	26,382,231	24,956,064
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 22,886	$ 22,579	$ 1,815,253	$ 3,713,651	$ 3,581,107	$ 3,399,105	$ 3,224,267	$ 3,056,037	$ 2,893,940	$ 2,737,500
	Operating expenses	-	-	-	-	892,889	946,462	1,003,249	1,063,444	1,127,251	1,194,886
	Annual Depreciation expense	-	-	-	-	1,174,487	1,225,552	1,225,552	1,225,552	1,225,552	1,225,552
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	309	309	24,823	50,783	49,021	47,182	45,344	43,506	41,667
	Total OE	$ -	$ 309	$ 309	$ 24,823	$ 2,118,158	$ 2,221,035	$ 2,275,984	$ 2,334,340	$ 2,396,309	$ 2,462,105
	Total E(m)	22,886	22,887	1,815,561	3,738,474	5,699,265	5,620,140	5,500,251	5,390,377	5,290,249	5,199,605

Revenue Requirements Summary
2009 Amended Plan - KU

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 33	**Beneficial Reuse**										
	Revenue Requirement										
	Eligible Plant	996,705	4,166,227	4,166,227	4,166,227	4,166,227	4,166,227	4,166,227	4,166,227	4,166,227	4,166,227
	Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
	Less: Accumulated Depreciation	-	(6,284)	(157,101)	(307,919)	(458,736)	(609,554)	(760,371)	(911,189)	(1,062,006)	(1,212,823)
	Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Less: Deferred Tax Balance	-	(53,367)	(106,732)	(152,060)	(189,974)	(221,008)	(245,696)	(264,497)	(277,872)	(290,357)
	Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
	Environmental Compliance Rate Base	996,705	4,106,576	3,902,394	3,706,249	3,517,517	3,335,665	3,160,160	2,990,541	2,826,349	2,663,047
	Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
		$ 110,820	$ 450,462	$ 428,064	$ 406,549	$ 385,846	$ 365,898	$ 346,647	$ 328,041	$ 310,030	$ 292,117
	Operating expenses	50,000	4,181,968	4,423,023	1,788,885	592,869	613,321	635,000	657,980	682,339	708,159
	Annual Depreciation expense	-	6,284	150,817	150,817	150,817	150,817	150,817	150,817	150,817	150,817
	Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
	Annual Property Tax expense	-	1,495	6,240	6,014	5,787	5,561	5,335	5,109	4,883	4,656
	Total OE	$ 50,000	$ 4,189,747	$ 4,580,080	$ 1,945,716	$ 749,474	$ 769,700	$ 791,153	$ 813,906	$ 838,039	$ 863,633
	Total E(m)	160,820	4,640,209	5,008,145	2,352,265	1,135,320	1,135,598	1,137,799	1,141,947	1,148,069	1,155,750

Revenue Requirements Summary
2009 Amended Plan - KU

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total E(m) - All KU Projects	1,326,957	21,573,456	43,139,690	61,825,647	95,089,617	96,260,812	95,863,064	95,675,501	95,751,784	95,751,608
	1,326,957	21,573,456	43,139,690	61,825,647	95,089,617	96,260,812	95,863,064	95,675,501	95,751,784	95,751,608
Total Revenue Requirements										
Project 23	-	5,663,169	8,860,636	10,477,210	11,219,570	11,519,791	11,796,886	12,084,001	12,438,277	12,674,231
Project 28	38,782	3,823,185	12,003,169	21,138,852	27,486,783	26,713,966	25,945,678	25,260,179	24,637,518	24,024,440
Project 29	13,418	893,112	2,020,520	2,744,804	3,302,383	3,187,364	3,077,198	2,971,534	2,870,024	2,772,367
Project 30	565,309	5,226,225	11,769,378	19,773,528	44,705,239	46,600,208	46,976,843	47,452,553	48,044,547	48,653,648
Project 31	525,742	1,304,669	1,662,281	1,600,514	1,541,058	1,483,745	1,428,410	1,374,909	1,323,100	1,271,568
Project 32	22,886	22,887	1,815,561	3,738,474	5,699,265	5,620,140	5,500,251	5,390,377	5,290,249	5,199,605
Project 33	160,820	4,640,209	5,008,145	2,352,265	1,135,320	1,135,598	1,137,799	1,141,947	1,148,069	1,155,750
Total	1,326,957	21,573,456	43,139,690	61,825,647	95,089,617	96,260,812	95,863,064	95,675,501	95,751,784	95,751,608
	-	-	-	-	-	-	-	-	-	-
12 Month Average Jurisdictional Ratio	81.91%	81.91%	81.91%	81.91%	81.91%	81.91%	81.91%	81.91%	81.91%	81.91%
Jurisdictional Allocation	1,086,855	17,669,919	35,333,923	50,638,811	77,883,944	78,843,220	78,517,441	78,363,817	78,426,296	78,426,153
Forecasted 12-Month Retail Revenue	1,104,927,144	1,237,119,744	1,313,556,392	1,379,068,850	1,449,620,460	1,514,540,580	1,599,080,120	1,649,862,080	1,749,085,440	1,804,598,160
Billing Factor	0.10%	1.43%	2.69%	3.67%	5.37%	5.21%	4.91%	4.75%	4.48%	4.35%
KU Residential Bill Impact										
Customer Charge	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00
Energy - 1,000 Kwh @ $0.05716	$57.16	$57.16	$57.16	$57.16	$57.16	$57.16	$57.16	$57.16	$57.16	$57.16
FAC billings (Apr 09 factor - $0.00584/kWh)	$5.84	$5.84	$5.84	$5.84	$5.84	$5.84	$5.84	$5.84	$5.84	$5.84
DSM billings (Apr 09 factor - $0.00144/kWh)	$1.44	$1.44	$1.44	$1.44	$1.44	$1.44	$1.44	$1.44	$1.44	$1.44
ECR billings (Apr 09 factor: 9.89%)	$6.87	$6.87	$6.87	$6.87	$6.87	$6.87	$6.87	$6.87	$6.87	$6.87
Additional ECR factor	$0.07	$0.99	$1.87	$2.55	$3.73	$3.61	$3.41	$3.30	$3.11	$3.02

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF KENTUCKY UTILITIES COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY AND APPROVAL OF ITS 2009 COMPLIANCE PLAN FOR RECOVERY BY ENVIRONMENTAL SURCHARGE	))))))	CASE NO. 2009-00197

DIRECT TESTIMONY OF CHARLES R. SCHRAM DIRECTOR, ENERGY PLANNING, ANALYSIS & FORECASTING KENTUCKY UTILITIES COMPANY

Filed: June 26, 2009

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

A. My name is Charles R. Schram. My position is Director – Energy Planning, Analysis & Forecasting for E.ON U.S. Services Inc., which provides services to Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU" or "the Company"). My business address is 220 West Main Street, Louisville, Kentucky 40202. A complete statement of my education and work experience is attached to this testimony as Appendix A.

Q. Please describe your job responsibilities.

A. I am responsible for the development of load forecasts, market analysis, and the long term planning of utility generation. As pertains to this proceeding, the Generation Planning group performed the analyses discussed below under my direction.

Q. Have you previously testified before this Commission?

A. Yes. I have testified previously in Case No. 2008-00520.[1]

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the following four exhibits, which were prepared under my direction and supervision:

Exhibit CRS-1 *E.W. Brown Unit 3 Selective Catalytic Reduction Analysis*

Exhibit CRS-2 *Coal Combustion Byproduct Plan for E.W. Brown Station*

Exhibit CRS-3 *Coal Combustion Byproduct Plan for Ghent Station*

[1] In the Matter of: *An Examination of the Application of the Fuel Adjustment Clause of Kentucky Utilities Company from November 1, 2006 through October 31, 2008.*

Exhibit CRS-4 *Coal Combustion Byproduct Plan for Trimble County Station*

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the methods by which the Company analyzed the projects included in KU's 2009 Environmental Compliance Plan ("2009 Plan") and to present the final recommendations related to the most cost effective method of complying with applicable environmental laws and regulations.

Q. What is the nature of the projects in KU's 2009 Plan?

A. KU's 2009 Plan consists of 1) the construction of a selective catalytic reduction ("SCR") system on E.W. Brown Unit 3 ("Brown 3"), and 2) projects associated with the safe, cost-effective handling, transportation and storage of coal combustion byproducts ("CCP") at the Brown, Ghent, and Trimble County Stations, including the beneficial reuse of CCP at all generating facilities. These projects are explained in more detail in Mr. Voyles' testimony.

In accordance with a March 17, 2009 consent decree with the U.S. Environmental Protection Agency ("EPA"), KU is required to install a selective catalytic reduction device for Brown 3 by December 31, 2012 to comply with the New Source Review provisions of the Clean Air Act as amended ("CAAA").

The CCP projects ensure the proper handling, transporting and storage of solid waste from combustion of coal in a safe, cost-effective manner in compliance with all applicable environmental regulations. Further, the 2009 Plan

describes certain opportunities to use CCP in a beneficial manner that reduces the quantity of CCP ultimately stored at KU's generating stations.

The Company's strategy for managing CCP is presented in Mr. Voyles' testimony, and the methods for identifying current storage capacity and future needs are discussed in Exhibit JNV-2.

Q. Please describe the identification, evaluation and recommendation methods that KU used to finalize its 2009 Plan projects.

A. The CCP storage needs are defined by forecasting the production of CCP and comparing this to the available storage capacity. Remaining storage capacity is determined by periodic sounding surveys (sonar maps of ash ponds) performed by third party consultants. The expected life of the existing storage capacity is based on the forecast of CCP production for all stations as a function of the expected coal usage for each unit. The Companies compile information regarding the cost of generation for each unit (fuel, variable operation and maintenance costs ("O&M"), emission costs, etc.), a description of the generation capabilities of each unit (capacity, heat rate curve, commitment parameters, emission rates, availability schedules, etc.), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is brought together in the well established production costing software PROSYM™[2]. This state of the-art software is used to model the economic operation of the Companies' generating system. The projected coal

[2] The PROSYM™ model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

usage data provided by this model is checked for reasonableness by comparing the results to historical data. The preparation of the forecast by experienced analysts spending significant amounts of time developing models and assumptions, gathering input data, and reviewing results also improves the likelihood of a reasonable forecast.

KU evaluated the various on-site storage, off-site storage and beneficial reuse options by calculating the present value of revenue requirements ("PVRR") of the capital and O&M costs for each alternative. The PVRR was calculated over the expected life of each alternative. Alternatives were also compared on the basis of costs per-unit volume of storage created to normalize any storage capacity differences between the alternatives.

Q. Please discuss the evaluation of Project 28, E.W. Brown Unit 3 SCR.

A. Mr. Voyles' testimony addresses the history of the litigation and explains why KU's agreement to the terms of the Consent Decree, and the construction of the SCR, are in the best long-term interests of KU's customers.

The evaluation of Project 28 compares the PVRR of constructing the SCR technology on Brown 3 versus retiring the unit in 2012. As detailed in Exhibit CRS-1 section 4, the total PVRR of building the SCR is approximately $1,850 million favorable to retiring the unit. The retirement case results in significantly higher production costs, $22,164 million versus the SCR's $20,393 million on a PVRR basis. In addition, the retire case also results in higher capital PVRR due to the need to build capacity to offset the loss of Brown 3. This evaluation assumed that the Brown flue gas desulphurization ("FGD") system, currently

under construction, is not completed in the retire scenario. This provides an offset to the revenue requirements in the retire case.

The results of KU's longstanding evaluation methods show that between the two alternatives, the least cost method of meeting the federally mandated Nitrogen Oxide requirements is to comply with the Consent Decree with the EPA and the DOJ and install the SCR on Brown 3 (Project 28).

Q. Please discuss the evaluation of Project No. 29, E.W. Brown Ash Treatment Basin Expansion (Phase II) in the KU 2009 Plan.

A. As described in Mr. Voyles testimony, the E.W. Brown station has two impoundments, a main ash treatment basin and an auxiliary ash treatment basin. The auxiliary ash treatment basin was completed to the approved Phase I elevation of 880 feet in 2008 and has been accepting fly ash and bottom ash. The main ash treatment basin was removed from service in September 2008 to facilitate the Phase I construction of the starter dike and is scheduled for completion by late-2010 (elevation 902 feet). (These two construction phases were originally presented to the Commission in KU's 2004 Environmental Compliance Plan ("2005 Plan")[3] as Project 20. Subsequently, KU updated the Commission staff on the status of the project on March 10, 2006 ("2006 Update").

Consistent with KU's 2005 Plan and 2006 Update, the station's long-term, on-site storage plans for coal combustion byproducts consist of a phased ash treatment basin expansion. The next planned additions to the ash treatment

[3] In the Matter of: *The Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct Flue Gas Desulfurization Systems and Approval of Its 2004 Compliance Plan for Recovery by Environmental Surcharge* (Case No. 2004-00426).

basins, which consist of raising the auxiliary ash treatment basin elevation to 900 feet and the main ash treatment basin elevation to 912 feet, are needed to provide CCP storage capacity beginning in 2012. Exhibit CRS-2 section 4 describes the depletion of existing capacity in both ash treatment basins.

Q. Is this project a cost-effective means of complying with environmental regulations and permits?

A. Yes. Consistent with the phased approach for Project 20 contained in the 2005 Plan and 2006 Update, Project 29 continues to provide the least-cost approach for the management of CCP at the Brown station. Given Brown's location within the Commonwealth, there are only two reasonable alternatives for CCP management: place the byproducts in the existing ash treatment basins, consistent with the approved 2005 Plan, or dispose of the byproducts at an off-site commercial landfill.

Off-site beneficial reuse opportunities are not currently available for Brown CCP. The Brown generating station is not located on a major navigable waterway necessary for the shipment of large quantities of CCP to potential users. The station is also not located within a reasonable trucking distance of industrial facilities that use these coal combustion byproducts. However, should cost effective opportunities arise for Brown CCP, those opportunities will be evaluated consistent with the later discussion for Project 33. It is important to note that, consistent with KU's strategy of beneficial reuse whenever economically feasible, Project 29 will reuse approximately 80% of the gypsum from the FGD at Brown to construct the main and auxiliary ash treatment basins embankments. This

gypsum reuse results in a significantly smaller impoundment than would otherwise be required.

As detailed in Exhibit CRS-2 Section 6, continuing the development of the approved CCP plan for Brown station will cost [redacted] million versus [redacted] million (PVRR basis) for off-site landfill disposal. Furthermore, the PVRR cost of on-site storage is [redacted] per cubic yard versus [redacted] per cubic yard for off-site landfill disposal. Therefore, continuing with the project expansion consistent with the 2005 Plan and 2006 Update is over 50% less costly on a per unit volume basis than the off-site landfill alternative.

Q. Please discuss the evaluation of Project 30, Ghent Landfill.

A. As detailed in Mr. Voyles' testimony, KU's Ghent station ("Ghent") produces three primary CCP: bottom ash, fly ash, and gypsum which are currently stored in two ash treatment basins and two gypsum stacking areas or beneficially reused off-site. As described in Exhibit CRS-3 Section 4, these storage facilities are expected to reach full capacity by the end of 2012. KU contracted with GAI Consultants to develop on-site storage alternatives as described in Mr. Voyles' testimony. Of the many options considered, four alternatives (described in Exhibit CRS-3 Section 5.2), in addition to off-site landfill disposal, were selected for further economic evaluation. These alternatives, based on the estimated time required to design, permit, and construct Phase I, will meet the plant's CCP storage needs beginning in 2013.

To meet storage needs prior to 2013, two alternatives (Exhibit CRS-3 Section 5.1) were evaluated – off-site landfill disposal and off-site beneficial

reuse. These alternatives were required to provide additional time required to implement the long term CCP storage alternative.

Exhibit CRS-3 Section 6 describes the evaluation of both the pre-2013 and post-2013 alternatives. This includes a review of total PVRR and PVRR per unit of storage for each of the alternatives. The preferred plan to meet the 2013-2038 storage needs has been identified as a common landfill to store both ash and gypsum, Project 30. In addition, a beneficial reuse project (included in Project 33 for Ghent) has been identified as the preferred plan to meet pre-2013 storage needs.

Q. Is Project 30, Ghent Landfill, a cost-effective means of complying with environmental regulations and permits?

A. Yes. Exhibit CRS-3 section 6 presents the results of KU's analysis of the cost-effectiveness of the landfill project at Ghent. The evaluation methodology previously described was used to compare all options for short-term and long-term ash and gypsum disposal at Ghent.

The recommended project to meet the pre-2013 needs is an off-site beneficial reuse project. The PVRR of this approach is [redacted] million, which is $9.8 million less than the off-site landfill alternative. In addition, on a per-unit volume basis, the recommended alternative PVRR is [redacted] per cubic yard versus [redacted] per cubic yard for off-site landfill disposal.

Long term, the recommended project to meet 2013-2038 CCP storage results in a PVRR of [redacted] million, $26 million less than the dual landfill configuration also evaluated. Based on the results of KU's longstanding

evaluation methods applied to the alternatives, Project 30 along with the beneficial reuse opportunity for Ghent contained in Project 33 is the cost-effective method of providing for CCP storage requirements at the Ghent facility.

Q. Please discuss the evaluation of Project 31, Trimble County Ash Treatment Basin and Gypsum Storage Pond.

A. The Companies' Trimble County station ("Trimble County") produces three forms of CCP: bottom ash, fly ash and gypsum, which are currently stored in the ash treatment basin or beneficially reused offsite. Further details are provided in Mr. Voyles's testimony. As explained in detail in Exhibit CRS-4 Section 4, the ash treatment basin is expected to reach capacity in 2010. Trimble County also has an existing emergency fly ash pond, now known as the gypsum storage pond. The gypsum storage pond was built during the construction of Trimble County Unit 1, but was never placed in service.

The following options were evaluated to meet the CCP storage requirements at Trimble County beginning prior to 2013:

- Extending the ash treatment basin dikes by reusing bottom ash which increases its capacity to 2.1 MCY (million cubic yards),
- Replacing the existing clay liner with a synthetic liner for the gypsum storage pond which will provide 1.05 MCY of gypsum storage,
- Continue existing beneficial reuse of gypsum, and
- Disposing of CCP in an off-site commercial landfill.

Exhibit CRS-4 Section 6.1 describes the evaluation of the above alternatives. This includes a review of total PVRR and PVRR per unit of storage for each of

the alternatives. The preferred plan to meet the pre-2013 storage needs has been identified as a combination of the continuing beneficial reuse of gypsum via the existing agreement with Synthetic Materials Inc. ("Synthetic Materials"), the ash treatment basin expansion, and the gypsum storage pond liner.

Q. **Is Project 31, Trimble County Ash Treatment Basin and Gypsum Storage Pond, a cost-effective means of complying with environmental regulations and permits?**

A. Yes. Exhibit CRS-4 section 6.1 presents the results of the Companies' analysis of the cost-effectiveness of the ash treatment basin, gypsum storage pond, and Synthetic Materials beneficial reuse project at Trimble County. The evaluation methodology previously described was used to compare options for CCP management at Trimble County. The total PVRR of this approach is [redacted] million for the bottom ash and gypsum storage ponds project, plus [redacted] million for the beneficial reuse project for a total PVRR of [redacted] million. This is 50% less costly than off-site landfill disposal, which has a PVRR of [redacted] million. On a PVRR per-unit of volume basis, the ponds and beneficial reuse components are [redacted] per cubic yard and [redacted] per cubic yard, respectively. Off-site landfill disposal cost is [redacted] per cubic yard. Therefore, based on the results of the Companies' longstanding evaluation methods, Project 31 is the cost-effective method for pre-2013 CCP management at Trimble County.

Q. Please discuss the evaluation of Project 32, CCP Storage (Landfill) at Trimble County.

A. For post-2013 storage, three landfill alternatives were evaluated. These are discussed in Mr. Voyles' testimony and summarized in Exhibit CRS-4 section 5.2. In addition, off-site landfill disposal and further beneficial reuse were evaluated.

The three landfill alternatives consist of the following configurations as described in Exhibit CRS-4 section 5.2.1:

- Case 16 is a two landfill configuration, which separates ash and gypsum storage. Total capacity is 26.8 MCY.
- Case 21 is a common landfill for ash and gypsum with a total capacity of 28.1 MCY.
- Case 23 is a common landfill for ash and gypsum with a total capacity of 30.0 MCY.

The primary difference in Case 21 and Case 23 involves phase storage capacity and timing of phases. Phase 1 of Case 21 develops 8.0 MCY of storage by 2013, while Phase 1 of Case 23 develops 13.9 MCY of storage in the same timeframe.

The Companies also identified an opportunity for long-term beneficial reuse for up to 95% of the station's fly ash, as noted in Exhibit CRS-4 Section 5.2.2. The current proposal would use 5.9 MCY of fly ash over a 20 year period for cement manufacturing.

Q. Is Project 32, CCP Storage (Landfill) at the Trimble County station, a cost-effective means of complying with environmental regulations and permits?

A. Yes. Exhibit CRS-4 Section 6.2 presents the results of the Companies' analysis of the cost-effectiveness of the landfill project at Trimble County. The evaluation

methodology previously described was used to compare the on-site landfill options as well as the off-site landfill disposal alternative.

The PVRR of the recommended landfill option (Case 21) is [redacted] million for 32.5 MCY of capacity (includes 4.4 MCY of gypsum reuse with Synthetic Materials), $26 million less than the Case 23 landfill option, $56 million less than the Case 16 landfill option and $385 million less than the off-site landfill disposal alternative. Unit cost for Case 21, Case 23, Case 16, and the off-site landfill are [redacted] per cubic yard, [redacted] per cubic yard, [redacted] per cubic yard, and [redacted] per cubic yard, respectively.

In addition to the landfill evaluation, the Companies also evaluated beneficial reuse opportunities (included as part of Project 33), as described in Exhibit CRS-4 section 6.2.1. The current reuse proposal for 5.9 MCY of fly ash results in a PVRR of [redacted] million, or [redacted] per cubic yard, for the 20 year term. Combining this opportunity with the Case 21 landfill discussed above results in a project with a PVRR of [redacted] million for 38.4 MCY of storage, or [redacted] per cubic yard. Pursuing the beneficial reuse opportunity would allow the second phase of the on-site landfill to be delayed by eight years.

Q. Please describe Project 33, Beneficial Reuse

A. The Companies will continue to seek and evaluate beneficial reuse opportunities for CCP. These opportunities typically involve the use of CCP for a feedstock for a specific product, such as cement or wallboard, or for structural fill. As discussed in the CCP strategy document contained in Mr. Voyles's testimony, the market for coal combustion byproducts has changed dramatically over the past

decade from a suppliers market to a buyer or user market. As shown in the evaluation for the 2009 Plan and the attached Exhibits to my testimony, the Companies have implemented a methodology to evaluate beneficial reuse opportunities and CCP storage alternatives. Project 33 seeks to recover the costs associated with beneficial reuse alternatives which, after an environmental and economic assessment, are prudent for both the environment and ratepayers.

Currently, as described in Mr. Voyles's testimony, KU is pursuing three beneficial reuse opportunities. The first involves the reuse of CCP from the Ghent station for structural fill opportunities as described above in the evaluation of Ghent's pre-2013 CCP storage alternatives. The second involves the reuse of fly ash from the Trimble County station for use in cement production as described above in the evaluation of Trimble County's CCP storage alternatives. The third opportunity is a contract with Synthetic Materials that includes the reuse of gypsum at Trimble County station. All three of these opportunities are included as part of Project 33. As previously discussed by Mr. Bellar and Mr. Voyles, Project 33 is also intended to include future opportunities that are determined to be economical using the same evaluation procedures as described in my testimony.

Q. Please describe how future CCP beneficial reuse opportunities to be included in Project 33 will be evaluated.

A. The Companies will continue to use the PVRR methodology consistent with other projects in the 2009 Plan to evaluate beneficial reuse opportunities and on-site storage alternatives. In general, the evaluation is based upon the principle that the cost per ton to remove CCP for a beneficial reuse opportunity should be less than

the cost per ton to store the CCP on-site, considering both the variable operational cost of disposal in the current on-site storage phase plus any fixed and variable costs of storage capacity created in future phases. Therefore, the Companies' goal is to capture beneficial reuse opportunities which minimize current disposal cost and minimize future disposal cost by deferring construction of future phases.

Since beneficial reuse projects will create additional storage space relative to an existing phased construction plan, the screening process will normalize the cost on a per cubic yard basis. In practice, after the execution of a beneficial reuse project, the timing of subsequent phases of an existing on-site storage plan will be reexamined. This will occur before a current on-site storage phase reaches capacity.

The table below identifies the pertinent data that will be used to evaluate future beneficial reuse opportunities. The template would be completed for 1) an on-site storage plan; and 2) an on-site storage plan with beneficial reuse. The on-site storage alternative (without beneficial reuse) will be limited to the avoidable portion of the plan for current and subsequent phases; previously incurred capital costs are not considered. The avoidable portion will include the variable O&M cost of the current on-site storage phase and the entire cost of any future storage phases. The beneficial reuse alternative will also include the cost to haul the CCP to the off-site beneficial reuse location, and capture the savings associated with deferrals of capital and O&M associated with future phases. Beneficial reuse opportunities may result in the delay or deletion of future phases of on-site storage.

	Annual Revenue Requirements ($000)									
	Capital					O&M				Total
	Phase 1	Phase 2	Phase 3	Other	Total Capital	Non-Power	Power	Beneficial Reuse	Total O&M	
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
2019										
2020										
2021										
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2028										
2029										
2030										
2031										
2032										
2033										
2034										
2035										
2036										
2037										
2038										
2009 PVRR										
Thousand Cubic Yards										
									$/CY	

Q. Are CCP beneficial reuse opportunities a cost effective means for CCP storage?

A. The Companies' believe that CCP beneficial reuse opportunities are a cost effective means for CCP storage if the opportunities meet the evaluation criteria described above.

Q. Does this conclude your testimony?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **Charles R. Schram**, being duly sworn, deposes and says he is Director, Energy Planning, Analysis & Forecasting for E.ON U.S. Services, Inc., and 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.

CHARLES R. SCHRAM

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 24th day of June 2009.

(SEAL)
Notary Public

My Commission Expires:

November 9, 2010

Appendix A

Charles R. Schram

Director – Energy Planning, Analysis & Forecasting
E.ON U.S. Services Inc.
220 West Main Street
Louisville, Kentucky 40202
(502) 627-3250

Education

Master of Business Administration
University of Louisville, 1995
Bachelor of Science – Electrical Engineering
University of Louisville, 1984
E.ON Academy General Management Program: 2002-2003
Center for Creative Leadership, Leadership Development Program: 1998

Professional Experience

E.ON U.S.

Director, Energy Planning, Analysis & Forecasting	May 2008 – Present
Manager, Transmission Protection & Substations	2006 – 2008
Manager, Business Development	2005 – 2006
Manager, Strategic Planning	2001 – 2005
Manager, Distribution System Planning & Eng.	2000 – 2001
Manager, Electric Metering	1997 – 2000
Information Technology Analyst	1995 – 1997

U.S. Department of Defense – Naval Ordnance Station

Manager, Software Integration	1993 – 1995
Electronics Engineer	1984 – 1993

E. W. Brown Unit 3
Selective Catalytic Reduction
("SCR") Analysis
For

Subsidiaries
Kentucky Utilities and
Louisville Gas and Electric

June 2009

Table of Contents

1. Executive Summary

This analysis compares the revenue requirements of constructing the Selective Catalytic Reduction ("SCR") technology on Brown Unit 3 ("Brown 3") versus retiring the unit. The settlement of the New Source Review ("NSR") case with the U.S. Department of Justice ("DOJ") requires installing Best Available Control Technology ("BACT") on Brown 3. An SCR qualifies as BACT for Brown 3. Purchasing NO_x emission allowances is not an option for meeting the consent decree's emission limitations.

The present value of the revenue requirements ("PVRR") of building the Brown 3 SCR is $1,851 million favorable to retiring the unit. The production cost savings associated with operating Brown 3 more than offsets the capital cost to build the SCR and the avoided cost of not completing the construction of the FGD at the Brown station. The table below summarizes the analysis:

2009 PVRR ($millions)	Total PVRR
Build Brown 3 SCR	23,325
Retire Brown 3	25,176
Difference	1,851

Values are in 2009 dollars and based on a 30 year study period (2009 – 2038). The retirement case utilizes reserve margin purchases where necessary and requires a higher capital PVRR due to the construction of capacity to offset the retirement of Brown 3. The retirement scenario assumes that the Brown FGD, currently under construction, is not completed. The avoided capital associated with the Brown FGD partially offsets the total needed revenue requirements.

Based on this analysis, the Companies recommend proceeding with the construction of the Brown 3 SCR. This project will allow the Companies to comply with the DOJ settlement of the Brown 3 NSR case.

2. Background and Engineering

This document provides an analysis of the Brown 3 SCR project, consistent with the DOJ NSR settlement (see Appendix 1 for information on the settlement). Construction of the Brown 3 SCR complies with the DOJ NSR settlement, but does not enable NO_x self-compliance on a system basis. Any remaining system shortfall would likely be mitigated through market purchases of NO_x emission allowances.

The conceptual engineering and scoping of the Brown 3 SCR were performed by the E.ON U.S. Project Engineering department. This development work was performed with the SCR technology provider and the engineering/construction firm that implemented the SCRs on Mill Creek 3 & 4, Ghent 1, 3 & 4, and Trimble County 1 to ensure commonality of SCR specifications and design concepts.

The estimate for the air heater modifications and SO_3 mitigation equipment were determined based on the past cost for similar scopes escalated to current prices. The overall project estimate includes the scopes discussed above, as well as an annual escalation rate of 8%. Ancillary scopes and cost to the project included are spare parts, a safety incentive for the primary contractor, project management expenses, sales taxes, plant support, and outside support services. The project has a contingency level of approximately 5%, and uses material pricing from spring 2008.

A substantial amount of engineering was completed in 2008 consistent with the scope of development work used to develop targets with the primary constructor on the prior SCR and FGD projects. This engineering resulted in an estimate based on quantities with +/-10 percent accuracy level and material prices of spring 2008. Engineering activities completed to support the estimate includes:

1. Field testing of Unit 3's flue gas flow conditions to properly size the SCR box and allow for the study of economizer modifications to expand the Unit operating range of the SCR.
2. Reviews of various SCR layouts relative to the existing structures and the new FGD currently being constructed. These layouts took into consideration existing sub-soil structures shown on prints and geotechnical information gained on initial level surveys.
3. A final conceptual layout, including the selection of foundation types.
4. A review of each layout's impacts on ductwork routings, fan loadings, interferences with above-ground structures, and utilities.
5. Determination of quantities and shipping components for the SCR supplier scope of work (e.g., SCR reactor casing, SCR catalyst, ammonia injection equipment, flue gas ductwork, and structural steel).
6. Determination of structural design loads on the final layout.
7. Determination of electrical loads on final design/layout.
8. The generation of a 3-D computer model of final design/layout.
9. Determination of P&IDs for the final design.
10. The establishment of "tie in" points for all utilities or plant interfaces (e.g., auxiliary power, controls, steam, and water).

11. General Arrangement drawings, including SCR vendor supplied equipment 3D drawings showing exploded views of shipping components.
12. Constructability reviews of the final layout to ensure crane access was achievable.
13. Market reviews of material, labor and engineered equipment cost, and delivery lead times.
14. Target level estimates that incorporate all of the above and take into consideration the currently planned outages.

2.1 Financials, Cash Flows and Schedule

The construction of the Brown SCR Project in total is estimated at a cost of approximately $184.6 million, with an in-service date by December 31, 2012.

Combined with actual costs through 2008 this project is budgeted as follows (in millions of dollars):

2008/2009*	2010	2011	2012	2013	Total
$1.1	$34.5	$74.1	$69.9	$5.0	$184.6

* Actual cost incurred during 2008

The expenditures shown in 2008 covered the conceptual engineering performed that resulted in a Level II engineering design and estimate (order of accuracy is within +/-10%). The cash flow for 2010 through 2013 is the budgeted cash flow to execute the project. The execution of the project for a late 2012 commissioning requires the bidding, contracting and negotiation of the primary contract in 2009.

3. Process and Methodology

The Companies determine the most effective plan for meeting the future load requirements of the customers while meeting all regulatory and legal obligations. The process of identifying the most effective plan consists of the following two primary tasks which are performed by departments within the Companies, and are discussed further in the following sections:

- Development of alternatives
- Comparison of alternatives

The Project Engineering department at E.ON U.S. is responsible for developing the alternatives and providing a construction cost estimate for the selected projects.

The Generation Planning department at E.ON U.S. is responsible for evaluating the alternatives. In general, to produce the data, the Companies compile information regarding the cost of generation for each unit (fuel, variable O&M, emission costs, etc.), a description of the generation capabilities of each unit (capacity, heat rate curve, commitment parameters, emission rates, availability schedules, etc.), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is assembled in the state of the art production costing software PROSYM™. The PROSYM™ model has formed the foundation of prior analyses involving certificates of public convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause. This software is utilized to model the economic operation of the Companies' generating system. The model outputs are checked for reasonableness by comparing the results to historical data.

The Generation Planning department evaluates all of the options in order to determine the PVRR associated with the capital expenditures and O&M expenses of each option. This is performed using the Capital Expenditure Recovery ("CER") module of the Strategist®[1] software model.

Used together, PROSYM™[2] and the CER have the capability of simulating the hourly production costs (fuel, fixed and variable operation and maintenance, emissions, etc.) and quantifying the revenue requirements impact associated with capital projects. Appendix 2 contains the economic and forward-looking assumptions used in this analysis.

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[1] Strategist® is a proprietary, state-of-the-art resource planning computer model. The Capital Expenditure Recovery module is used to quantify the revenue requirements impact associated with capital projects.

[2] The PROSYM™ model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

4. Detailed Analysis

The Companies' two options at Brown 3 are 1) comply with the settlement by building the SCR for Brown 3 or 2) retire Brown 3 by the end of 2012. The impacts of the two options are significantly different. The "Build SCR" case retains 429 MW of coal-fired capacity at Brown 3. The "Retire Brown 3" case utilizes reserve margin purchases where necessary and requires building additional capacity to offset the loss of 429 MW at Brown 3. The retirement case also assumes that construction of the FGD would be suspended, resulting in avoided capital investment of $249 million (PVRR of $320 million). This provides a partial offset to the total revenue requirements for the "Retire Brown 3" alternative.

4.1 Resource Expansion Plans

The resource expansion plans for the "Build SCR" and "Retire Brown 3" cases are based on the Companies' 2008 IRP and the most recent load forecast. The sequence and the mix of the future generating units is the same as the 2008 IRP with varied timing based on an updated load forecast from January 2009. The expansion plans are similar apart from reserve margin purchases in 2013-2016 and the addition of a Combined Cycle Combustion Turbine (CCCT) in 2017 in the "Retire Brown 3" case. The CCCT unit replaces the Brown 3 unit in the retire case, resulting in almost $400 million in additional present value revenue requirements.

Year	Build Brown 3 SCR	Retire Brown 3
2013		RMP
2014		RMP
2015		RMP
2016		RMP
2017	CCCT (1)	CCCT (2)
2018		
2019	CCCT (1)	CCCT (1)
2020		
2021		
2022	SCCT (1)	SCCT (1)
2023		
2024	SCCT (1)	SCCT (1)
2025	SCCT (1)	SCCT (1)
2026	SCCT (1)	SCCT (1)
2027	Wind (1)	Wind (1)
2028	LGCU(1)	LGCU(1)
2029		
2030		
2031		
2032		
2033	LGCU(1)	LGCU(1)
2034		
2035		
2036		
2037		
2038		

Key:

SCCT	Simple Cycle Combustion Turbine	155 MW
CCCT	Combined Cycle Combustion Turbine	475 MW
LGCU	Large Greenfield Coal Unit	750 MW
Wind	Wind Turbine	50 MW
RMP	Reserve Margin Purchase	Up to 400 MW

The total 30-year PVRR of each case has been categorized into four areas:

1. *Production Costs:* represent the revenue requirements associated with fuel, fixed and variable operation and maintenance expenses, and purchased power expenses.
2. *Capital Costs:* represent the revenue requirements associated with any capital expenditures for the case including those related to the aforementioned expansion plans, cost to build the SCR, and the avoided cost of not completing the construction of the Brown FGD where applicable.
3. *NO_x Allowance Purchase Costs:* represent the revenue requirements associated with the value of surplus annual and seasonal NO_x allowances or the cost of purchasing annual and seasonal NO_x allowances. Negative allowance purchase costs indicate excess allowances which are then valued at a market price. These negative costs offset the revenue requirements needed.
4. *SO_2 Allowance Purchase Costs:* represent the revenue requirements associated with the value of surplus SO_2 allowances or the cost of purchasing SO_2 allowances.

The following table is a summary of the PV of revenue requirements of the two cases. The annual data for each case is contained in Appendix 4, which presents the annual results of the cases evaluated.

2009 PVRR ($millions)	Production	Capital	SCR Capital	Avoided FGD Capital	NO_x Allowance	SO_2 Allowance	Total PVRR
Build Brown 3 SCR	20,393	2,647	207	-	(17)	94	23,325
Retire Brown 3	22,164	3,041	-	(320)	(8)	299	25,176
Difference	1,771	394	(207)	(320)	9	205	1,851

Results indicate that building the Brown 3 SCR is favored over retirement of Brown 3 by almost $1.9 billion on a PVRR basis. The following is a breakdown of the $1.9 billion overall difference by category.

Production Costs. Production costs are responsible for over 95% of the PVRR difference between the build SCR and retirement cases. This large variance results from the higher fuel cost of the retirement case due to the operation of more expensive units to replace the energy lost from the retired Brown 3 unit. For example, the production cost of Brown 3 grows from approximately [redacted] in 2017 to [redacted] in 2030 while the production cost of a combined cycle unit grows from [redacted] in 2017 to [redacted] in 2030. Fuel cost accounts for $1.5 billion of the $1.9 billion in PVRR difference between the SCR and retire case.

Capital Cost. The capital cost variance results from the addition of a CCCT in 2017. This capacity replaces the Brown 3 unit in the retirement case.

Avoided FGD Capital Cost. This is the cost that could be avoided by abandoning the construction of the FGD at the Brown station in the retire Brown 3 case. This was relevant at the time of the DOJ settlement decision in 2008. FGD construction has since proceeded toward a 2010 scheduled completion date.

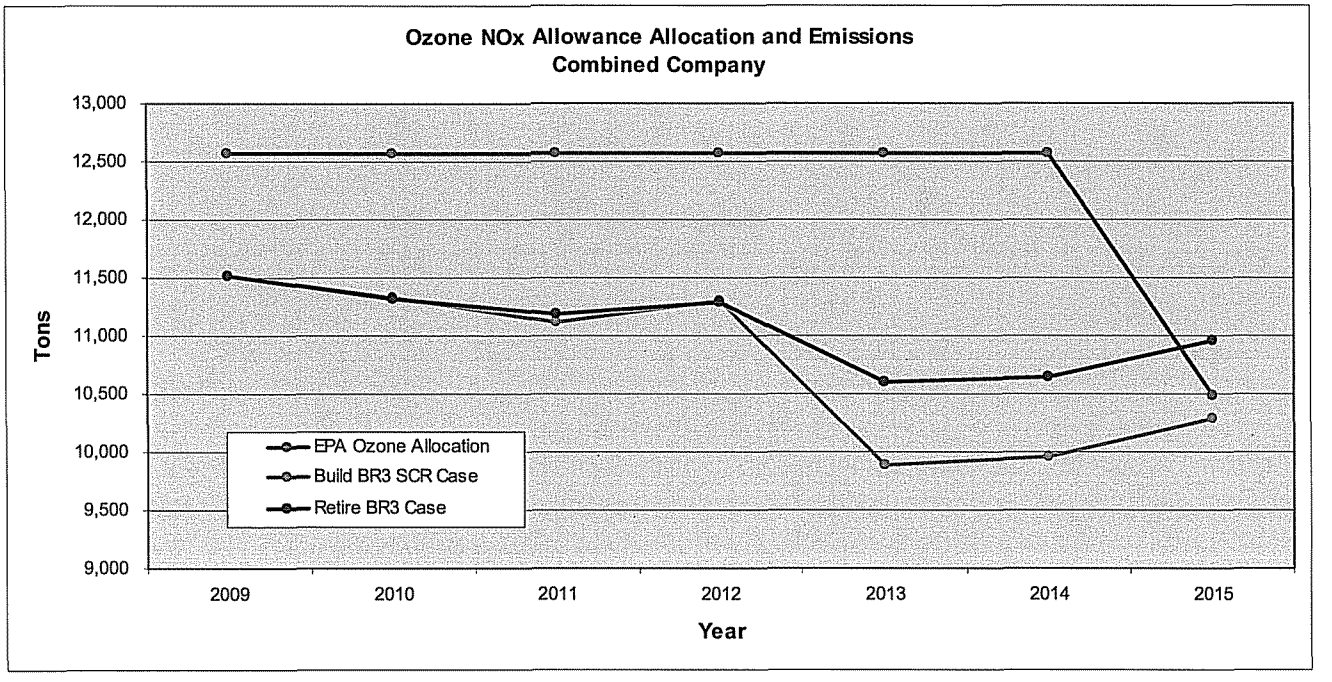
NO_x Allowances. Over the 30 year study period, NO_x compliance costs for both cases are negative. This is a result of excess allowances (primarily in the early years of the study) valued at market. While both cases have a shortfall in the later years of the study, the retirement case has a larger shortfall compared to the build case. Year by year NO_x emissions for ozone and annual seasons are listed in Appendix 3.

SO_2 Allowances. The higher SO_2 purchase cost in the retirement case is due to the cancellation of the Brown FGD project.

4.2a NO_x Position

Ozone Season NO_x Position

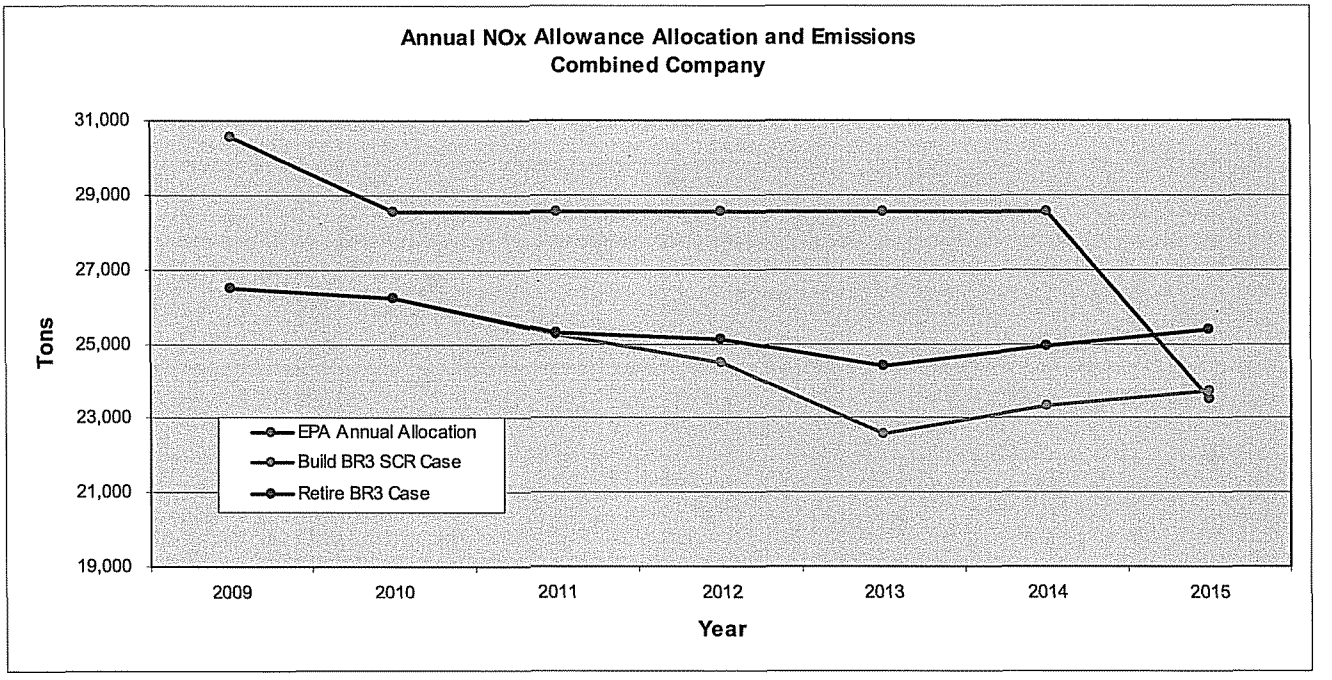
As of December 31, 2008, the Companies had a combined bank of 4,389 seasonal allowances. The following graph compares the forecasts of the Companies' ozone season NO_x emission levels and the allocation of ozone season allowances.



Recent information from the EPA indicates that in 2015 the Companies will receive fewer allowances than needed to cover emissions in the retire case (see Appendix 3 for the Companies' allocation). The reduction in the NO_x emissions in 2011 of the Build SCR case is due to the change in the dispatch order associated with the cancellation of the Brown FGD that is scheduled for completion in 2010. The reduction in NO_x emissions of over 500 tons per year beginning in 2013 is due to operation of the Brown SCR as illustrated by the green line.

Annual NO_x Position

The following graph compares the forecasts of the Companies' Annual NO_x emission levels and their allocation of Annual allowances. Projections indicate that the Companies will begin to experience a shortfall of annual NO_x emission allowances in 2015, despite construction of the Brown 3 SCR (see Appendix 3 for the Companies' annual allocation).



4.2b NO_x Price Sensitivity

The NO_x compliance cost of the SCR case is favorable by $9 million PVRR compared to the retire case. With the operation of the Brown 3 SCR, fewer NO_x tons are emitted and the value of the unused allowances is greater than the retire case.

To address the uncertainty associated with the NO_x emission allowance market, a sensitivity case was developed. Any increase in the forecasted NO_x emission allowance prices would only favor building the SCR over retiring Brown 3. However, any decrease in the forecasted NO_x emission allowance prices would favor retiring Brown 3 slightly compared to building the SCR. Even if the NO_x emission allowance were to approach zero dollars per ton, it would only reduce the delta between the Build SCR and Retire case by $9 million PVRR still favoring building the SCR by $1,841 million PVRR. **Therefore, based on the available options, the decision to build the SCR or retire Brown 3 is not sensitive to NO_x emission allowance prices.**

4.3 Natural Gas Price Sensitivity

A significant amount of the difference in PVRR between the two cases is due to the difference in overall fuel cost. This is a result of the difference in expansion plans between the two cases. The retirement case replaces a large coal fired unit with a large gas-fired combined cycle unit. To gauge the impact of fuel prices, a natural gas price sensitivity case was developed. The natural gas price forecast was decreased by 50% across all years for the sensitivity analysis. The annual natural gas price forecast for both the base case and the sensitivity are shown in Appendix 2.

In the natural gas sensitivity case, the $1.9 billion delta between the build SCR and retirement case was reduced to $0.4 billion. **Therefore, the build SCR case is still favorable to the retirement case even with a 50% reduction is the gas price forecast.**

5. Conclusion

The Companies have only two options for NO_x compliance on the Brown 3 unit. These two options are building an SCR for Brown 3 in compliance with the DOJ NSR settlement or retiring Brown 3. Building the SCR for Brown 3 is the cost effective solution – almost $1.9 billion PVRR more favorable than retiring Brown 3. The capital cost of building the SCR is more than offset by the production cost savings associated with the operation of Brown 3. Based on the information and analysis above, the Companies recommend proceeding with the construction of the Brown 3 SCR.

Appendix 1

Summary Information on New Source Review Department of Justice Settlement

The Clean Air Act's New Source Review ("NSR") program provides that new sources and sources that undertake major modifications are subject to more stringent emission control requirements, including the requirement to install Best Available Control Technology ("BACT"). A major modification is defined as a physical change or change in the method of operation that results in a significant emissions increase. Routine maintenance, repair, and replacement activities are not considered to be modifications. Unlike cap and trade programs where a utility is free to choose the units it desires to control, under the NSR regulations installation of BACT controls is mandatory for all units that are subject to the program. As a practical matter, the only option for a source which has triggered NSR requirements is to install BACT or shut down.

In 1997, KU performed work on a turbine and boiler reheater at the E.W. Brown Station's Unit 3 to correct past problems with the turbine and optimize boiler performance. At the time of the project in 1997, KU believed the work performed to be routine maintenance, which would have made the projects exempt from NSR requirements. KU's position was consistent with the interpretations of many companies throughout the electric utility industry which undertook similar projects and the prior interpretations of federal environmental regulatory officials.

In 1999 EPA adopted a more expansive interpretation of the NSR regulations. As a result, EPA and DOJ commenced the NSR Enforcement Initiative and filed lawsuits against a number of utilities. In April 2006, EPA issued a notice of violation claiming that the turbine and reheater work performed on Brown Unit 3 in 1997 were major modifications that triggered Clean Air Act requirements for the installation of BACT. In March 2007, the Department of Justice, on behalf of EPA, filed a lawsuit against KU raising these claims and others.

KU entered into extensive negotiations with EPA and DOJ in an effort to reach a settlement. A key element of EPA's settlement demand was installation of selective catalytic reduction ("SCR") controls as BACT for nitrogen oxides ("NO_x") for Unit 3. It is well established under existing precedent that an SCR is the currently accepted BACT control for NO_x. KU concurred that SCR controls constitute BACT for NO_x, although KU contended that it had not undertaken a major modification at Unit 3 triggering the obligation to install BACT. After assessing the merits of EPA's claims, analyzing the Company's litigation risks, and considering the potential for future regulations that would likely mandate additional NO_x reductions, KU determined that installation of an SCR as NO_x BACT was in the best interest of the Company and its customers.

KU reached a settlement with DOJ and EPA in December 2008. The consent decree that was ultimately entered by the court in March 2009 requires KU to install BACT controls. In addition to installation of the SCR, KU also formally committed to install flue gas desulfurization controls which were already under construction. Other elements of the settlement include:

- Payment of a $1.4 million civil penalty;
- Funding of $3 million in environmental mitigation projects consisting of a carbon sequestration test well project; low emission school bus retrofit program; and Mammoth Cave forestry project;
- Surrender of excess SO_2 and NO_x emissions allowances; and
- Compliance with specified emissions limits and heat input limits.

KU is obligated to complete installation of the SCR by December 31, 2012.

Appendix 2

Analysis Assumptions

- Study Period: 30-year period for Production Cost impacts (2009-2038)
  30-year period for Capital Costs impacts (2009-2038)

  The production costs include items such as fuel, O&M, purchase power etc and are estimated using the PROSYM™ production model. The model was run for the 2009-2038 time period.

  The revenue requirements associated with capital costs are determined via the Capital Expenditure and Recovery module of the Strategist production and capital costing software.

- KU/LGE continues as a regulated entity subject to the oversight of the Kentucky Public Service Commission and that the Commission continues the requirement of the Companies implementing the least cost strategy to the benefit of the native load ratepayers.

- The capital costs, O&M costs and the costs of increased emissions (both NO_x and SO_2) associated with the addition of new environmental projects will be subject to recovery through the Environmental Cost Recovery mechanism.

- Fuel Forecast (Base Assumptions)
  Any and all fuel cost savings associated with serving native load will be returned to the ratepayers though the Fuel Adjustment Clause mechanism.

- Load Forecast includes impact of current recession, January 2009 perspective.

- Financial Data
  - KU/LG&E Discount Rate (%): 7.74 %
  - Kentucky Utilities Discount Rate (%): 7.81 %
  - Federal Income Tax Rate (%) 38.90 %
  - AFUDC Rate (%): 7.85 %
  - Insurance Rate (%): 0.053 %
  - Property Tax Rate (%): 0.15 %
  - Percentage of Debt in Capital Structure (%): 44.05 %
  - Debt Interest Rate/Weighted Cost of Debt (%): 4.88 %
  - Desired Return on Rate base (%): 7.74 %
  - Capitalized Interest Debt Rate (%): 4.51 %
  - Environmental Projects Book Life (years): 30 years
  - Environmental Projects Tax Life (years): 20 years

- NO_x Allowance Prices

$/ton	NO_x Allowance Price: Cases Ozone	NO_x Allowance Price: Cases Annual	Hill & Associates Pricing NO_x Ozone	Hill & Associates Pricing NO_x Annual
2009	$ 675	$ 5,000	$ 756	$ 3,329
2010	$ 675	$ 2,500	$ 827	$ 3,229
2011	$ 675	$ 2,500	$ 865	$ 3,130
2012	$ 605	$ 2,611	$ 732	$ 3,031
2013	$ 535	$ 2,722	$ 598	$ 2,932
2014	$ 464	$ 2,833	$ 464	$ 2,833
2015	$ 475	$ 2,734	$ 475	$ 2,734
2016	$ 488	$ 2,806	$ 488	$ 2,806
2017	$ 500	$ 2,878	$ 500	$ 2,878
2018	$ 513	$ 2,950	$ 513	$ 2,950
2019	$ 525	$ 3,021	$ 525	$ 3,021
2020	$ 538	$ 3,093	$ 538	$ 3,093
2021	$ 551	$ 3,171	$ 551	$ 3,171
2022	$ 565	$ 3,250	$ 565	$ 3,250
2023	$ 579	$ 3,331	$ 579	$ 3,331
2024	$ 594	$ 3,414	$ 594	$ 3,414
2025	$ 609	$ 3,500	$ 609	$ 3,500
2026	$ 624	$ 3,587	$ 624	$ 3,587
2027	$ 639	$ 3,677	$ 639	$ 3,677
2028	$ 655	$ 3,769	$ 655	$ 3,769
2029	$ 672	$ 3,863	$ 672	$ 3,863
2030	$ 689	$ 3,960	$ 689	$ 3,960
2031	$ 702	$ 4,039		
2032	$ 716	$ 4,120		
2033	$ 731	$ 4,202		
2034	$ 745	$ 4,286		
2035	$ 760	$ 4,372		
2036	$ 776	$ 4,459		
2037	$ 791	$ 4,548		
2038	$ 807	$ 4,639		

- Avoided cost of FGD (in nominal $M)

	2008/09	2010	2011	Total
Avoided Capital Cost of FGD	159.7	87.6	1.5	248.8

- **Natural Gas Cost**

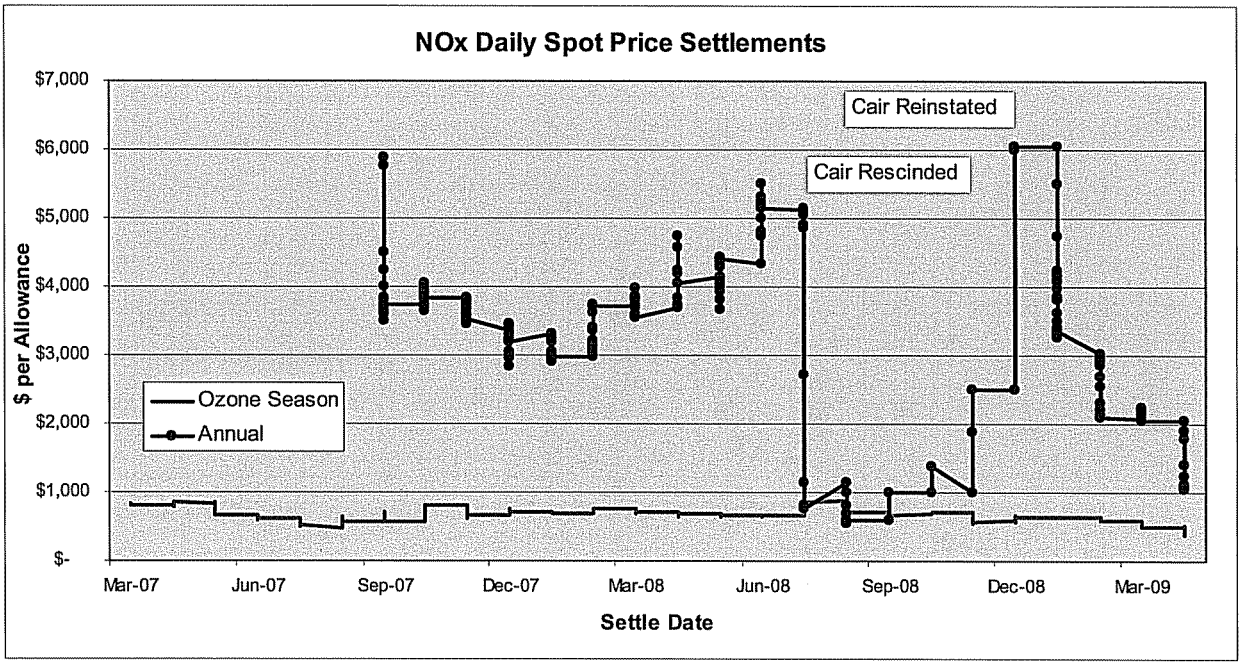
	Base Gas Costs (dollars/mmBTU)	50% of Base Gas Costs (dollars/mmBTU)
2009	[redacted]	[redacted]
2010	[redacted]	[redacted]
2011	[redacted]	[redacted]
2012	[redacted]	[redacted]
2013	[redacted]	[redacted]
2014	[redacted]	[redacted]
2015	[redacted]	[redacted]
2016	[redacted]	[redacted]
2017	[redacted]	[redacted]
2018	[redacted]	[redacted]
2019	[redacted]	[redacted]
2020	[redacted]	[redacted]
2021	[redacted]	[redacted]
2022	[redacted]	[redacted]
2023	[redacted]	[redacted]
2024	[redacted]	[redacted]
2025	[redacted]	[redacted]
2026	[redacted]	[redacted]
2027	[redacted]	[redacted]
2028	[redacted]	[redacted]
2029	[redacted]	[redacted]
2030	[redacted]	[redacted]
2031	[redacted]	[redacted]
2032	[redacted]	[redacted]
2033	[redacted]	[redacted]
2034	[redacted]	[redacted]
2035	[redacted]	[redacted]
2036	[redacted]	[redacted]
2037	[redacted]	[redacted]
2038	[redacted]	[redacted]

Appendix 3

NOx Emission Allowance Markets

As described in the May 2006 NO_x Compliance Strategy, CAIR created a new Annual NO_x reduction program in addition to the Ozone Season NO_x program (with some changes). The new annual NO_x reduction program is separate and independent of the ozone season program and allowances are not interchangeable between the programs. Therefore, during the ozone season, the Companies will be required to provide both an annual and a seasonal NO_x allowance for each ton of NO_x emitted. Only an annual allowance is required per ton of NO_x emitted outside of the ozone season.

The graph below illustrates the relative stable ozone season allowance prices compared to the more volatile Annual prices. The Annual program commenced on January 1, 2009, but the steep drop in Annual prices in July 2008 was due to the vacature of CAIR by the D.C. Circuit Court of Appeals. However, the ruling was never put in force, and in December 2008, the same court asked the EPA to review and revamp the program. Allowance prices rebounded but remain volatile due to the uncertainty of future regulations.



The forward market for 2009 vintage ozone season allowances is trading in the $600-$700 per ton range. This range has been steady over the last 2 years. Lower emissions have increased the allowance banks of market participants, and have tempered price expectations for Ozone Season NO_x compliance in the early years of the CAIR program since ozone season NO_x allowances can be carried forward under the CAIR ozone season program.

NO_x Emission Allowance Price Projections

The Companies' projection of annual NO_x allowance prices is based on analysis by Hill & Associates. Hill's forecast of annual NO_x emission allowance prices is derived from the all-in marginal cost of physical compliance with NOx emission limits by construction of SCR and other NO_x abatement systems and represents "shadow prices" of annual NO_x allowances. In their view, the majority of the all-in costs of compliance are assigned to the annual NO_x program (i.e. the annual emissions limits represent the binding constraint on plant operations). The table below contains a comparison of Allowance price projections.

(Nominal $/ton)

	May 2006 NO_x Compliance Strategy	**Brown 3 SCR Analysis**	**Hill & Associates Forecast 2008 Study**	
Year	*Annual & Seasonal*	*Annual & Seasonal*	*Seasonal*	*Annual*
2009	3,047	$ 5,675	$ 756	$ 3,329
2010	3,047	$ 3,175	$ 827	$ 3,229
2011	3,120	$ 3,175	$ 865	$ 3,130
2012	3,195	$ 3,216	$ 732	$ 3,031
2013	3,272	$ 3,257	$ 598	$ 2,932

The Companies will continue to monitor movements in NO_x emission allowance prices based on forward market indications and on fundamental analysis of supply and demand for allowances. Given the uncertainty with CAIR and the relative complexity and immaturity of the Annual NO_x emission allowance market, some continuing volatility in pricing can be anticipated. A complete table for all years of the study can be found in Appendix 3.

The NO_x emission allowance allocations on an annual and ozone season basis are provided from the analysis for informational purposes. The net total of these with the case emissions by year for the study are then combined to then calculate with the NO_x price forecasts the NO_x compliance cost / value.

Total Annual NOX Emission Allocations (000s Tons)		
Year	Build BR3 SCR	Retire BR3
2009	31	31
2010	29	29
2011	29	29
2012	29	29
2013	29	29
2014	29	29
2015	23	23
2016	23	23
2017	23	23
2018	24	24
2019	24	24
2020	24	24
2021	23	23
2022	22	22
2023	22	22
2024	22	22
2025	22	22
2026	22	22
2027	22	22
2028	22	22
2029	22	22
2030	22	22
2031	22	22
2032	22	22
2033	22	22
2034	22	22
2035	22	22
2036	22	22
2037	22	22
2038	22	22
Total	713	713
Delta From Min	-	-

Total Ozone NOX Emission Allocations (000s Tons)		
Year	Build BR3 SCR	Retire BR3
2009	17	17
2010	13	13
2011	13	13
2012	13	13
2013	13	13
2014	13	13
2015	10	10
2016	10	10
2017	10	10
2018	10	10
2019	11	11
2020	11	11
2021	11	11
2022	10	10
2023	10	10
2024	10	10
2025	10	10
2026	10	10
2027	10	10
2028	10	10
2029	10	10
2030	10	10
2031	10	10
2032	10	10
2033	10	10
2034	10	10
2035	10	10
2036	10	10
2037	10	10
2038	10	10
Total	322	322
Delta From Min	-	-

Total Annual NOX Emissions (000s Tons)		
Year	Build BR3 SCR	Retire BR3
2009	27	27
2010	26	26
2011	25	25
2012	25	25
2013	23	24
2014	23	25
2015	24	25
2016	24	24
2017	24	24
2018	25	25
2019	24	24
2020	24	24
2021	24	24
2022	24	24
2023	25	24
2024	26	25
2025	25	24
2026	26	24
2027	27	24
2028	26	25
2029	25	25
2030	25	26
2031	26	26
2032	26	26
2033	25	26
2034	24	26
2035	25	27
2036	25	27
2037	25	26
2038	26	27
Total	746	754
Delta From Min	-	8

Total Ozone NOX Emissions (000s Tons)		
Year	Build BR3 SCR	Retire BR3
2009	12	12
2010	11	11
2011	11	11
2012	11	11
2013	10	11
2014	10	11
2015	10	11
2016	10	10
2017	10	10
2018	10	10
2019	10	10
2020	10	10
2021	10	10
2022	10	10
2023	11	10
2024	11	10
2025	11	10
2026	11	10
2027	11	10
2028	11	10
2029	11	10
2030	11	11
2031	11	11
2032	11	11
2033	11	11
2034	10	11
2035	11	11
2036	11	10
2037	11	11
2038	11	11
Total	322	318
Delta From Min	4	-

Appendix 4

Total Case Costs ($ millions): Production, Emissions, Capital		
Year	Build BR3 SCR	Retire BR3
2009	945	928
2010	989	961
2011	1,005	963
2012	1,088	1,052
2013	1,187	1,173
2014	1,278	1,284
2015	1,378	1,407
2016	1,475	1,560
2017	1,591	1,720
2018	1,701	1,829
2019	1,817	1,938
2020	1,872	1,999
2021	1,935	2,065
2022	2,020	2,157
2023	2,207	2,388
2024	2,419	2,648
2025	2,797	3,006
2026	3,074	3,266
2027	3,166	3,416
2028	3,228	3,616
2029	3,315	3,802
2030	3,524	4,030
2031	3,690	4,208
2032	3,832	4,396
2033	4,015	4,700
2034	3,969	4,779
2035	4,045	4,879
2036	4,130	5,011
2037	4,205	5,146
2038	4,303	5,292
2039	7	(8)
2040	7	(7)
2041	6	-
2042	5	-
NPVRR	$23,325	$25,176
Delta From Min	$0	$1,850

Case Costs ($ millions): Production		
Year	Build BR3 SCR	Retire BR3
2009	996	996
2010	989	986
2011	1,005	1,003
2012	1,085	1,091
2013	1,182	1,215
2014	1,268	1,315
2015	1,317	1,361
2016	1,384	1,461
2017	1,450	1,543
2018	1,536	1,625
2019	1,633	1,716
2020	1,691	1,783
2021	1,751	1,847
2022	1,825	1,927
2023	1,984	2,133
2024	2,099	2,292
2025	2,355	2,537
2026	2,521	2,688
2027	2,562	2,789
2028	2,494	2,841
2029	2,543	2,977
2030	2,646	3,103
2031	2,725	3,188
2032	2,835	3,349
2033	2,902	3,525
2034	2,903	3,633
2035	3,010	3,767
2036	3,128	3,931
2037	3,234	4,106
2038	3,355	4,271
NPVRR	$20,393	$22,164
Delta From Min	$0	$1,771

Case Costs ($ millions): Capital		
Year	Build BR3 SCR	Retire BR3
2009	-	-
2010	-	-
2011	-	-
2012	-	-
2013	-	-
2014	3	7
2015	27	54
2016	55	107
2017	104	181
2018	127	199
2019	149	219
2020	147	213
2021	151	214
2022	158	219
2023	179	237
2024	262	317
2025	387	440
2026	493	544
2027	542	591
2028	679	725
2029	726	769
2030	827	867
2031	909	947
2032	939	976
2033	1,067	1,102
2034	1,028	1,062
2035	990	1,023
2036	954	986
2037	919	950
2038	884	914
NPVRR	$2,647	$3,041
Delta From Min	$0	$394

Case Costs ($ millions): Emissions SO2		
Year	Build BR3 SCR	Retire BR3
2009	(27)	(27)
2010	3	7
2011	(2)	7
2012	(4)	8
2013	(5)	5
2014	(5)	7
2015	7	19
2016	9	21
2017	10	23
2018	13	30
2019	12	30
2020	12	28
2021	11	27
2022	10	31
2023	17	36
2024	28	52
2025	25	43
2026	29	46
2027	29	45
2028	26	55
2029	22	59
2030	26	60
2031	29	69
2032	31	68
2033	24	69
2034	20	76
2035	23	79
2036	26	83
2037	30	80
2038	36	91
NPVRR	$94	$299
Delta From Min	$0	$205

Case Costs ($ millions): Emissions NOx Annual		
Year	Build BR3 SCR	Retire BR3
2009	(20)	(20)
2010	(6)	(6)
2011	(8)	(8)
2012	(11)	(9)
2013	(16)	(11)
2014	(15)	(10)
2015	1	5
2016	2	3
2017	3	2
2018	3	3
2019	1	1
2020	1	1
2021	3	2
2022	6	4
2023	8	5
2024	12	8
2025	12	6
2026	15	7
2027	17	9
2028	13	11
2029	10	12
2030	12	14
2031	14	17
2032	16	16
2033	11	15
2034	8	19
2035	11	20
2036	13	20
2037	14	19
2038	19	24
NPVRR	($11)	($2)
Delta From Min	$0	$9

Case Costs ($ millions): Emissions NOx Ozone		
Year	Build BR3 SCR	Retire BR3
2009	(4)	(4)
2010	(1)	(1)
2011	(1)	(1)
2012	(1)	(1)
2013	(1)	(1)
2014	(1)	(1)
2015	(0)	0
2016	0	(0)
2017	(0)	(0)
2018	0	(0)
2019	(0)	(0)
2020	(0)	(0)
2021	(0)	(0)
2022	0	0
2023	0	0
2024	1	0
2025	1	0
2026	1	0
2027	1	0
2028	0	0
2029	1	0
2030	1	1
2031	1	1
2032	1	1
2033	0	1
2034	0	1
2035	1	1
2036	1	0
2037	1	1
2038	1	1
NPVRR	($6)	($6)
Delta From Min	$0	$0

Case Costs ($ millions): SCR Capital		
Year	Build BR3 SCR	Retire BR3
2009	0	-
2010	4	-
2011	12	-
2012	19	-
2013	28	-
2014	27	-
2015	26	-
2016	25	-
2017	24	-
2018	23	-
2019	22	-
2020	21	-
2021	20	-
2022	19	-
2023	19	-
2024	18	-
2025	17	-
2026	16	-
2027	15	-
2028	14	-
2029	13	-
2030	12	-
2031	12	-
2032	11	-
2033	10	-
2034	10	-
2035	9	-
2036	9	-
2037	8	-
2038	8	-
2039	7	-
2040	7	-
2041	6	-
2042	5	-
NPVRR	$207	$0
Delta From Min	$207	$0

Case Costs ($ millions): Avoided FGD Capital		
Year	Build BR3 SCR	Retire BR3
2009	-	(17)
2010	-	(26)
2011	-	(38)
2012	-	(36)
2013	-	(35)
2014	-	(33)
2015	-	(32)
2016	-	(31)
2017	-	(30)
2018	-	(28)
2019	-	(27)
2020	-	(26)
2021	-	(25)
2022	-	(24)
2023	-	(23)
2024	-	(21)
2025	-	(20)
2026	-	(19)
2027	-	(18)
2028	-	(17)
2029	-	(16)
2030	-	(14)
2031	-	(14)
2032	-	(13)
2033	-	(12)
2034	-	(12)
2035	-	(11)
2036	-	(10)
2037	-	(10)
2038	-	(9)
2039	-	(8)
2040	-	(7)
NPVRR	$0	($320)
Delta From Min	$320	$0

Coal Combustion Byproduct
Plan for E.W. Brown Station
For

Subsidiaries
Kentucky Utilities and
Louisville Gas and Electric

June 2009

1. Executive Summary

Kentucky Utilities Company's ("KU") E.W. Brown station ("Brown") currently produces two primary coal combustion byproducts ("CCP"): bottom ash and fly ash. After the completion of the station's Flue Gas Desulfurization ("FGD") system in 2010, Brown will also produce gypsum.

Environmental cost recovery ("ECR") treatment for Phase I of an on-site storage plan was approved by the Kentucky Public Service Commission ("Commission") on June 20, 2005 as Project 20 in Case No. 2004-00426 ("2005 Plan"). The design of the future on-site storage options included in this plan is consistent with Project 20 in the 2005 Plan, as revised and presented to the Commission on March 10, 2006. The first phase of the approved plan for Brown included raising the elevation of the Main Pond to 902 feet and raising the elevation of the Auxiliary Pond ("Aux Pond") to 880 feet.

Currently, all CCP are stored in the Aux Pond while the Main Pond is expanded. Subsequent phases assume that a significant portion of gypsum will be reused in the embankment construction for both ponds. Fly ash and any gypsum not reused for the embankment construction will be sluiced to the Main Pond for storage. The Aux Pond will store only bottom ash once the Main Pond is available.

The station's Aux Pond was completed to the approved elevation of 880 feet in 2008. Current construction of the larger Main Pond to an elevation of 902 feet will be completed in 2010 and will provide enough capacity for the station until 2013. Construction of the following additional elevations is needed to maintain station operations beyond 2013:

- Aux Pond elevation 900 feet and
- Main Pond elevation 912 feet

An Aux Pond elevation of 900 feet will provide enough capacity for over 30 years of bottom ash storage, assuming that gypsum is beneficially reused in the construction of the embankment for both the Aux and Main ponds. Beyond the expansion of the Main Pond elevation to 912 feet, three further elevation expansions of the Main Pond will provide enough CCP storage for approximately 30 years.

The remote location of Brown limits options for any off-site reuse or disposal alternatives due to significant hauling costs. For example, an off-site disposal option of hauling all of the Brown CCP to a landfill results in a Present Value of Revenue Requirements ("PVRR") of [redacted] million over 30 years. This compares to the recommended plan for continued expansion of pond elevations, which results in a PVRR of [redacted] million over 30 years.

2. Background

KU's Brown station is located in Mercer County, Kentucky and is comprised of three coal-fired generating units. The total capacity for the three units is 697 MW. An FGD system, currently under construction for a 2010 commissioning, will control SO_2 emissions from the three units. The Brown station's long-term, on-site storage capacities for CCP consist of a phased Ash Treatment Basin ("ATB") expansion.

The Brown station has the following two existing on-site storage ponds for CCP:

- Main Pond
- Auxiliary Pond

Both ponds are designed to store bottom ash and fly ash, which are byproducts of burning coal. With the installation of the FGD, the plant will also produce gypsum. Gypsum is produced as a chemical byproduct of using limestone reagent to remove sulfur dioxide from flue gas.

The Aux Pond was completed to the approved Phase I[1] elevation of 880 feet in September 2008 and has been accepting fly ash and bottom ash since its completion. The Main Pond was removed from service in September 2008 to facilitate construction of the approved Phase I elevation of 902 feet and is scheduled for completion in 2010, before the start-up of the FGD.

The current construction schedule (Table 1) incorporates beneficial reuse of gypsum for the construction of the embankments for each addition to the ponds, with any gypsum not used in construction deposited in the Main Pond. In addition to gypsum, all of Brown's fly ash will be sluiced to the Main Pond. The Aux Pond will receive only bottom ash when the Main Pond is available for CCP storage.

Table 1: Brown ATB Proposed Construction

Proposed Pond Construction (Brown)

	Beg. Date	End Date
Aux Pond 900'	Jun-2010	Aug-2011
Main Pond 912'	Apr-2011	Nov-2012
Main Pond 928'	Jul-2012	Feb-2016
Main Pond 946'	Oct-2015	Feb-2021
Main Pond 962'	Oct-2020	Dec-2025

[1] In the Matter of: *The Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct Flue Gas Desulfurization Systems and Approval of Its 2004 Compliance Plan for Recovery by Environmental Surcharge* (Case No. 2004-00426).

3. Process and Methodology

KU and Louisville Gas and Electric Company (collectively "the Companies") develop the most effective plan for meeting the CCP storage needs at each generating station. The process of identifying the plan consists of the three following primary tasks which are performed by several departments within the Companies.

- Needs assessment
- Development of alternatives
- Comparison of alternatives

The CCP storage needs are defined by comparing the available storage capacity to the forecast of CCP production. The Project Engineering department and the applicable generating station are responsible for providing an estimate of remaining capacity.

The expected life of the existing storage capacity is based on the forecast of CCP production, which is developed by Generation Planning for all stations as a function of the expected coal usage for each unit. The Companies compile information regarding the cost of generation for each unit (fuel, variable O&M, emission costs, etc.), a description of the generation capabilities of each unit (capacity, heat rate curve, commitment parameters, emission rates, availability schedules, etc.), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is brought together in the PROSYM™[2] software, which is used to model the economic operation of the Companies' generating system. The projected coal usage data provided by this model is checked for reasonableness by comparing the results to historical data.

The Project Engineering department develops alternatives for on-site CCP storage solutions and their associated costs. Any alternatives for off-site disposal such as beneficial reuse or off-site landfill disposal are provided by the generating stations' staff and a CCP team focused on exploring alternatives for byproduct storage. The cash flows for selected options are summarized and provided to Generation Planning for evaluation.

The Generation Planning department evaluates the storage and disposal options received from Project Engineering to determine the PVRR associated with the capital expenditures and O&M expenses of each option. This analysis is performed using the Capital Expenditure Recovery module of the Strategist®[3] software model.

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[2] The PROSYM™ model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

[3] Strategist® is a proprietary, state-of-the-art resource planning computer model. The Capital Expenditure Recovery module is used to quantify the revenue requirements impact associated with capital projects.

4. Needs Assessment

The following remaining capacities were provided by Project Engineering to Generation Planning:

- The Main Pond, currently under construction, will have an initial capacity of 760,000 cubic yards ("CY") in 2010
- As of September 2008, the remaining available capacity of the Aux Pond is 830,000 CY[4]

The remaining capacity at both of the ponds was estimated by forecasting the CCP production of ash and gypsum at Brown. The quantity of ash produced at Brown is estimated at a coal specification of 10.5% ash by weight of the total quantity of coal used, or approximately 10.5 tons of ash per 100 tons of coal. Converting to volumetric measurement, assuming ash production consists of 80% fly ash and 20% bottom ash, approximately 11.1 CY of total ash is produced per 100 tons of coal. These values are based on Brown's switch to high-sulfur coal after the FGD installation in 2010.

The chemical reaction by which gypsum is produced results in a net gypsum production of approximately 18.3% by weight of the total quantity of coal use[5], or approximately 18.3 tons of gypsum per 100 tons of coal. Converting to volumetric measurement, approximately 18.1 CY of gypsum is produced per 100 tons of coal. Gypsum will not be produced at Brown until after the FGD is installed in 2010.

Table 2 shows the forecasted CCP production for Brown in millions of cubic yards ("MCY"), based on the forecasted coal burn shown in Table 3. Table 3 also contains the historical quantities of coal burned as a comparison to the forecast. The increase in coal burn during the 2011-2013 period is due to the completion of the FGD installation at Brown in 2010 and the subsequent switch to lower cost high sulfur coal. The expected decline in coal usage at Brown in 2010 is driven by the units' outages related to the construction of the FGD.

Table 2: CCP Production Forecast (MCY)

CCP Production Forecast *(MCY - dry)*			
	Fly Ash	Bottom Ash	Gypsum
2009	0.12	0.03	0
2010	0.11	0.03	0.04
2011	0.14	0.03	0.17
2012	0.15	0.04	0.30
2013	0.17	0.04	0.34

[4] Based on expected coal burn, Generation Planning forecasts that by the end of 2009, the remaining capacity of the Aux Pond will be 0.61 MCY.
[5] Fuel specification assumptions include SO_2 content of approximately 5.85 lb/mmBTU and heat content of 22.4 mmBTU/ton.

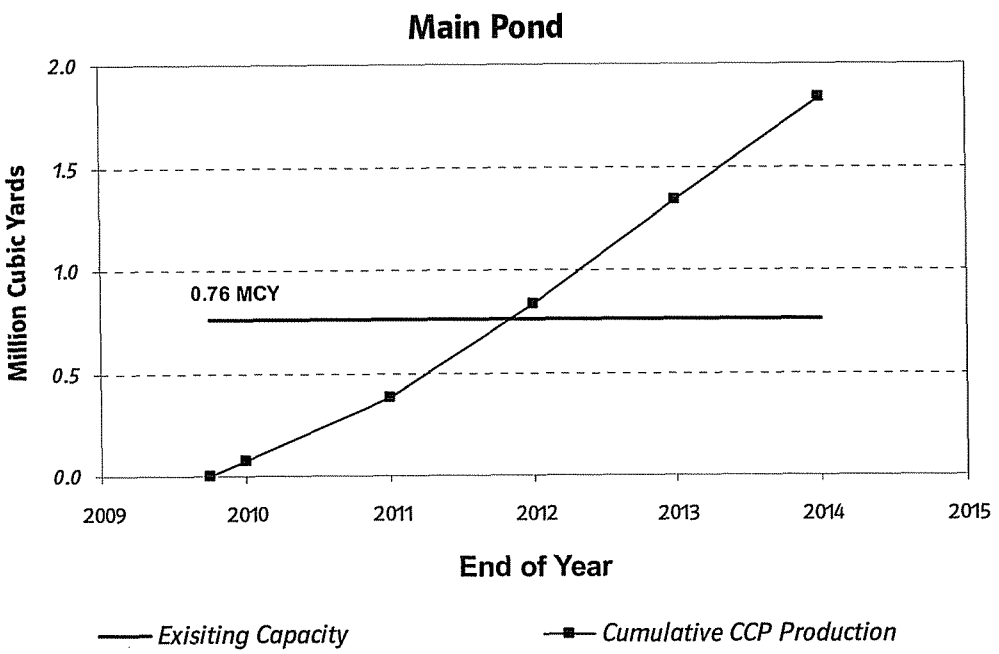
Table 3: Brown Coal Usage (Million Tons)

Brown Coal Usage *(M Tons)*	
Historical	
2004	1.6
2005	1.4
2006	1.5
2007	1.7
2008	1.8
Forecast	
2009	1.4
2010	1.2
2011	1.5
2012	1.7
2013	1.9

The forecasted generation and the resulting coal usage at Brown correspond to an average capacity factor of approximately 62%. This is consistent with historical capacity factors for Brown. Any reduction in load or unexpected outages at Brown could lower future CCP production.

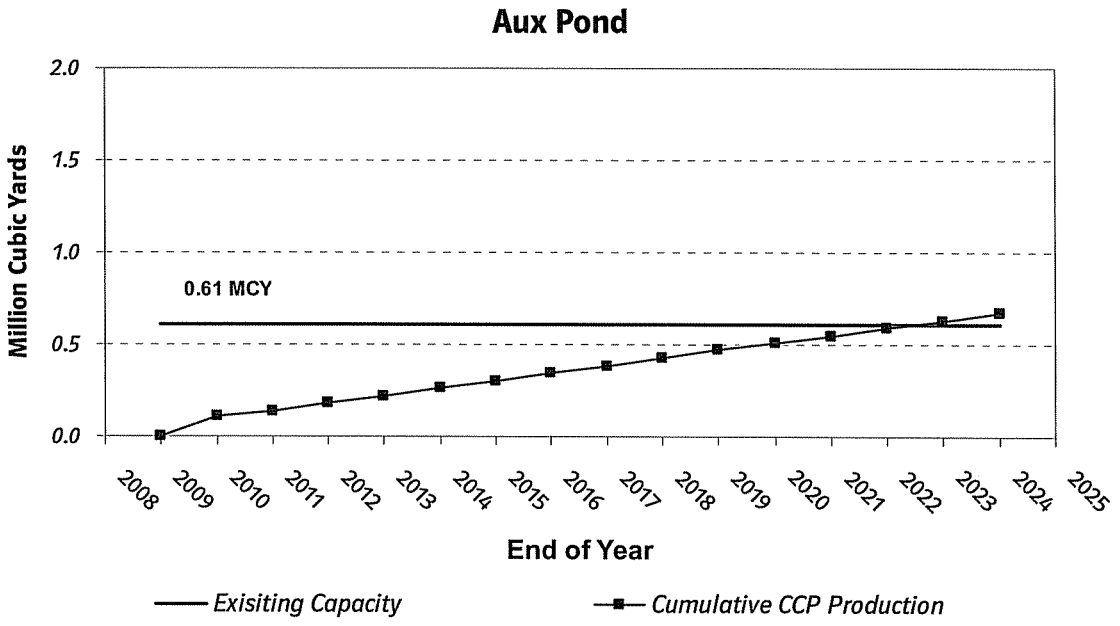
With current forecasts for CCP production and without any additional on-site capacity or off-site storage or reuse, the Main Pond is expected to reach full capacity in 2012, as shown in Figure 1 below.

Figure 1: Main Pond Capacity



Assuming no beneficial reuse or additional storage, the Aux Pond is expected to reach maximum capacity in 2023, as shown in Figure 2 below.

Figure 2: Aux Pond Capacity



In summary, the needs assessment indicates that additional CCP disposal alternatives will be needed for the Main Pond by 2012 and the Aux Pond by 2023.

5.0 Development of Alternatives

Project Engineering and the CCP team developed two sets of options for evaluation for CCP disposal at Brown:

1. Santec (formerly Fuller, Mossbarger, Scott, and May) developed a phased ATB expansion for on-site storage
2. An off-site disposal option

5.1 On-site Storage

The design of the on-site storage alternative included in this plan is the same as was submitted as Project 20 in the 2005 Plan as updated with the Commission in March 2006[6].

KU contracted Santec to provide a conceptual design report of CCP storage alternatives at Brown. As a result of this study, a phased ATB expansion was developed raising the elevations at both the Aux Pond and Main Pond over an approximate 18 year span, in the Project 20 filing.

The Aux Pond was designed and permitted to be constructed in two phases, elevation 880 feet and 900 feet (1st phase completed in 2008, 2nd phase to be completed in 2011).

The Main Pond was designed and permitted to be constructed in five phases. The first phase (elevation 902 feet) is currently under construction and will be completed in 2010. The next phase will raise the elevation to 912 feet and will be completed in 2012. Three additional phases will raise the elevation to 928 feet, 946 feet, and 962 feet by 2025.

The timing of the phases is coordinated to meet the on-site storage needs at Brown. However, this coordination of phases assumes that 80% of the gypsum produced by the FGD will be used on-site in the construction of the Main and Aux Pond embankments. Otherwise, the gypsum will be deposited in the Main Pond, which would then exhaust its available capacity in 2012.

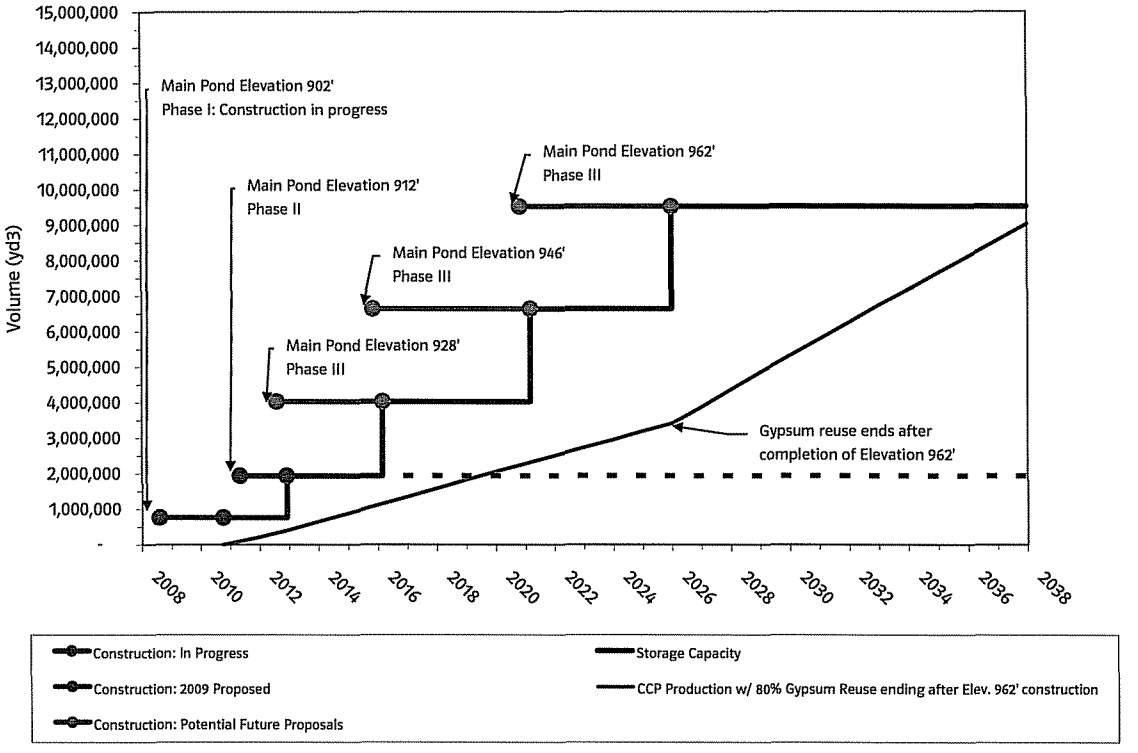
After completion of the Main Pond Phase I elevation 902 feet, transfer system constraints allow only fly ash and gypsum to be sluiced to the Main Pond and bottom ash to the Aux Pond.

Re-used gypsum is expected to help with the construction of the second phase of the Aux Pond embankment (elevation 900 feet). If this gypsum is not reused and the elevation is not constructed, it will be deposited in the Main Pond, which will then fully deplete its available capacity in 2012. Future production of gypsum would then have to be *trucked* to the Aux Pond until the next elevation of the Main Pond is completed. This will accelerate the Aux Pond's depletion date to 2013 due to its small size and will significantly increase costs.

[6] Environmental Compliance Plan Progress Report meeting with the Public Service Commission on March 10, 2006.

Under the current construction schedule with all five elevations, expected CCP production rates, and with 80% gypsum reuse, the Main Pond should have enough capacity for 30 years (Figure 3).

Figure 3: Brown Main Pond Storage



5.2 Off-site Storage

The off-site storage opportunity represents the projected costs ([redacted]/ton) of hiring a third party contractor to haul all CCP produced off-site for disposal in a landfill.

5.3 Beneficial Reuse

Brown does not currently have any off-site beneficial reuse opportunities available. Transportation costs are significant since the Brown station is not located on a major navigable waterway or within reasonable trucking distance of industrial facilities. However, any future beneficial reuse opportunities will be investigated and evaluated for economic feasibility.

6. Comparison of Alternatives

The Brown station has two alternatives for CCP disposal: continue with the approved phased construction of on-site storage or dispose of all CCP in an off-site landfill. A PVRR evaluation of each of these alternatives was completed.

The capital costs for the expansion of the Main and Aux Ponds were provided by the Project Engineering group. Refer to Appendix 1 for analysis assumptions regarding capital costs, escalation rates, discount rates, and other financial inputs.

Table 4 shows that the total storage capacity created by the multiple phases of the Main and Aux Ponds is 9.9 MCY at a cost (PVRR) of [redacted]/CY. Refer to Appendix 3 for the annual PVRR.

Table 4: PVRR Comparison

	On-Site Storage	**Off-site Landfill Disposal**
PVRR *(2009 million $)*	[redacted]	[redacted]
Delta to Least Cost Case	*Least Cost*	*205*
Total Quantity *(MCY)*	9.9	14.5
Unit Cost *(2009 PVRR $/CY)*	[redacted]	[redacted]

As seen in Table 4, the total quantity of CCP being disposed of off-site is 14.5 MCY at a cost of [redacted]/CY. The PVRR for off-site storage is [redacted] million greater than that of the on-site option. The volume of CCP displaced in the off-site disposal option is greater than the capacity created by the on-site storage option due to the volume of gypsum expected to be beneficially reused in the construction of the embankments of the Main and Aux Ponds.

Table 5 shows the projected cost of CCP disposal in an off-site commercial landfill.

Table 5: Off-site Disposal Cost

	$ per ton (2009)
Excavating and Loading	[redacted]
Tipping Fee	[redacted]
Hauling	[redacted]
Fuel Adjustment	[redacted]
Total	[redacted]

7. Recommendation

The needs assessment demonstrates a need for additional CCP storage capacity at the Brown station by 2013. Analysis of the on-site and off-site disposal options demonstrates that a continuation of the phased ATB expansion that was part of the 2005 Plan is advisable. This includes construction of the next phase of the Aux Pond (to elevation 900 feet) and Main Pond (to elevation 912 feet), consistent with Project 20 of the 2005 Plan.

The entire phased ATB expansion is more cost-effective than off-site disposal by $205 million PVRR, which is consistent with the prior filing's comparison to off-site landfill disposal. These elevations provide Brown with sufficient capacity for over 30 years.

Appendix 1: Analysis Assumptions

Analysis Assumptions

- Study Period: 30-year period for O&M costs impacts (2009-2038)
  2009 through book life of final project phase

  The revenue requirements associated with capital costs are determined via the Capital Expenditure and Recovery module of the Strategist production and capital costing software. Capital projects with a 20-year tax life and an in-service date after 2018 would have the last years of their life excluded from the revenue requirement calculation if capital costs impacts were halted at 2038. Doing so would have the effect of underestimating the capital cost of alternatives and would favor construction of new projects. Therefore, to completely account for capital projects costs over their lifetime, the revenue requirements associated with new capital projects were extended through the end of their book life.

- Capital and O&M costs associated with the addition of new environmental projects will be subject to recovery through the Environmental Cost Recovery mechanism.

- Financial data
  - Discount rate: 7.81%
  - Income tax rate: 38.9%
  - Insurance rate: 0.07%
  - Property tax rate: 0.15 %
  - Percentage of debt in capital structure: 47.01%
  - Debt interest rate/weighted cost of debt: 4.64%
  - Return on equity: 10.63%
  - Aux Pond 900' Book Life: 30 years
  - Main Pond 912' Book Life: 7 years
  - Main Pond 928' Book Life: 11 years
  - Main Pond 946' Book Life: 15 years
  - Main Pond 962' Book Life: 13 years
  - All environmental projects tax life: 20 years
  - Annual capital and O&M escalation rate: 6%
  - Cost contingency included in estimates: 10%
  - Estimated Overhead: 3.5%

- Density, Ash, and Moisture Assumptions
  - % Ash: 10.50%
  - Bottom Ash %: 20%
  - Gypsum Wet Storage: 1.013 tons/yd^3
  - Fly Ash Wet Storage: 0.945 tons/yd^3
  - Bottom Ash Wet Storage: 0.945 tons/yd^3
  - Gypsum % Moisture: 10%

Appendix 2: Capital Cash Flows

CONFIDENTIAL INFORMATION REDACTED

Capital Cash Flows

			Cost (2008)	2008	2009	2010	2011	2012
	Task 2 - Aux Pond 900' w/Engineering & QA/QC Support							
A	Subtotal		[redacted]					
B	Contingency (Applied to A)	10%						
C	LG&E Energy Overhead (Applied to A+B)	3.5%						
D	Escalation (Applied to A+B+C)	6%						
	Escalated Annual Total							

	Task 3 - Main Pond 912' w/Engineering & QA/QC Support							
A	Subtotal		[redacted]					
C	Contingency (Applied to A)	10%						
D	LG&E Energy Overhead (Applied to A+B)	3.5%						
D	Escalation (Applied to A+B+C)	6%						
	Escalated Annual Total							

	Task 7 - O&M Dewatering Plant							
A	Subtotal		[redacted]					
B	Contingency (Applied to A)	10%						
C	LG&E Energy Overhead (Applied to A+B)	3.5%						
D	Escalation (Applied to A+B+C)	6%						
	Escalated Annual Total							

Appendix 3: Revenue Requirements Detail

CONFIDENTIAL INFORMATION REDACTED

On-site Storage

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Case

	Annual Present Value Revenue Requirements							
	Capital						Gypsum Dewatering	Total
	Aux Pond 900'	Main Pond 912'	Main Pond 928'	Main Pond 946'	Main Pond 962'	Total Capital	Total Gypsum Dewat.	
2009								
2010								
2011								
2012								
2013								
2014								
2015								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
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2053								
2054								
2055								
2056								
2057								
2058								
2009 PVRR								

Discount Rate 7.81%

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Off-site Landfill Disposal (O&M only)

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using 6% cost escalation

	Capital	O&M
2008	[redacted]	
2009		
2010		
2011		
2012		
2013		
2014		
2015		
2016		
2017		
2018		
2019		
2020		
2021		
2022		
2023		
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2030		
2031		
2032		
2033		
2034		
2035		
2036		
2037		
2038		
2009 PVRR		

Coal Combustion Byproduct Plan for Ghent Station For

Subsidiaries Kentucky Utilities and Louisville Gas and Electric

June 2009

CONFIDENTIAL INFORMATION REDACTED

1. Executive Summary

Kentucky Utilities Company's ("KU") Ghent station ("Ghent") produces three primary coal combustion byproducts ("CCP"): bottom ash, fly ash and gypsum, which are currently stored in two ash treatment basins and two gypsum stacking areas. These storage areas are expected to reach full capacity in 2012, creating a need for additional CCP management solutions.

A variety of on-site and off-site options were considered to meet CCP management needs at Ghent. The most effective solutions were identified through a needs analysis and economic analysis based on engineering cost estimates.

To address the pre-2013 need for gypsum storage capacity, an opportunity to remove a quantity of gypsum to be beneficially reused as structural fill was identified. This reuse option is significantly lower cost than transporting CCP to an off-site landfill, which is the other short-term option.

For longer-term CCP storage needs, KU contracted an engineering consultant to develop potential on-site storage alternatives. Of multiple options considered, four options were selected for further economic evaluation. Based on cost estimates and qualitative factors for these alternatives, the most favorable option is a single on-site landfill to store both ash and gypsum.

The most cost effective and environmentally sound CCP management options for Ghent are:

- a proposal for beneficial reuse of 1.3 million cubic yards ("MCY") of CCP (approximately 75% of annual CCP production) by Trans Ash, Inc. in 2010-2012 (Present value of revenue requirement ("PVRR") of [redacted] million or [redacted] per cubic yard), and
- the construction of a new on-site landfill system to store both ash and gypsum production for 25 years to be in-service by 2013 (PVRR of [redacted] million or [redacted] per cubic yard).

In addition, KU will continue to pursue other beneficial reuse opportunities that result in lower disposal costs.

CONFIDENTIAL INFORMATION REDACTED

2. Background

Kentucky Utilities Company's ("KU's") Ghent generating station ("Ghent") is located in Carroll and Gallatin Counties, Kentucky and is comprised of four coal-fired generating units for a total net station capacity of over 1,900 MW. The station produces three primary coal combustion byproducts ("CCP"): bottom ash, fly ash and gypsum. The Ghent station has four existing on-site storage facilities for CCP as follows:

- Ash Treatment Basin ("ATB") #1
- ATB #2
- North Gypsum Stack
- South Gypsum Stack

The ATBs are used to store bottom ash and fly ash which are byproducts of burning coal. ATB #1 is at maximum capacity[1] and ATB #2 is nearing maximum desired capacity. As of February 2009[2], ATB #2 can hold approximately an additional 2.5 MCY of ash. Ghent is forecast to produce approximately 0.7 MCY of ash annually, thus depleting the capacity in ATB #2 in 2012.[3]

Gypsum is produced by Ghent's flue gas desulfurization ("FGD") systems, which use limestone reagent to remove sulfur dioxide from flue gas. Until an additional repository can be developed, Ghent's gypsum is stacked on site. Based on the plant's expected generation, the existing capacity of the north and south gypsum stacks (collectively the "gypsum stack") is expected to be exhausted in 2012.[4]

Some gypsum is currently sold to a third party for beneficial reuse.[5] CertainTeed, Inc. ("CertainTeed") currently pays KU [redacted] per cubic yard for gypsum to be used as a raw material in the production of wallboard. This contract began in 1999 and runs through 2024. CertainTeed does not have minimum or maximum volume obligations, but their expected annual volume is approximately 222,000 cubic yards of gypsum (approximately 20% of annual gypsum production) based on recent utilization data.[6]

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[1] ATB #1 is not relevant to this analysis as it is not currently receiving any CCP, although it is available for emergency use.

[2] A bathymetric survey of ATB #2 was conducted by HDR/Quest/Rudy for GAI Consultants in February 2009.

[3] The available capacity of ATB #2 at the end of June 2009 is forecasted to be approximately 2.3 MCY.

[4] The available capacity of the gypsum stack at the end of June 2009 is forecasted to be approximately 2.6 MCY.

[5] KU identifies economically and environmentally favorable options to beneficially reuse CCP, consistent with KU's Comprehensive Strategy for Management of CCP shown in Exhibit JNV-3.

[6] Gypsum sales to CertainTeed were 263,000 tons in 2007, 375,000 tons in 2008, and 103,000 tons year-to-date through May 2009. However, their purchases decreased late in 2008 and year-to-date in 2009 as the economy slowed.

3. Process and Methodology

KU and Louisville Gas and Electric Company (collectively "the Companies") develop the most effective plan for meeting the CCP storage needs at each generating station. The process of identifying the plan consists of the three following primary tasks which are performed by several departments within the Companies.

- Needs assessment
- Development of alternatives
- Comparison of alternatives

The CCP storage needs are defined by forecasting the production of CCP over the applicable planning period as compared to the existing storage capacity. The Project Engineering department and the applicable generating station are responsible for providing an estimate of remaining capacity.

The expected life of the existing storage capacity is based on the forecast of CCP production, which is developed by Generation Planning for all stations as a function of the expected coal usage for each unit. The Companies compile information regarding the cost of generation for each unit (fuel, variable O&M, emission costs, etc.), a description of the generation capabilities of each unit (capacity, heat rate curve, commitment parameters, emission rates, availability schedules, etc.), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is brought together in the PROSYM™[7] software, which is used to model the economic operation of the Companies' generating system. The projected coal usage data provided by this model is checked for reasonableness by comparing the results to historical data.

The Project Engineering department develops alternatives for on-site CCP storage solutions and their associated costs. Any alternatives for off-site disposal such as beneficial reuse or off-site landfill disposal are provided by the generating stations' staff and a CCP team focused on exploring alternatives for byproduct storage. The cash flows for selected options are summarized and provided to Generation Planning for evaluation.

The Generation Planning department evaluates the storage and disposal options received from Project Engineering to determine the present value of revenue requirements ("PVRR") associated with the capital expenditures and O&M expenses of each option. This analysis is performed using the Capital Expenditure Recovery module of the Strategist®[8] software model.

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[7] The PROSYM™ model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

[8] Strategist® is a proprietary, state-of-the-art resource planning computer model. The Capital Expenditure Recovery module is used to quantify the revenue requirements impact associated with capital projects.

4. Needs Assessment

The following capacities were provided by Project Engineering and the Ghent station:

- ATB #1 is at capacity and is available for emergency use only.
- As of February 2009, the remaining available capacity of ATB #2 is 2.5 million cubic yards.[9]
- The remaining available capacity of the gypsum stacks is estimated to be 2.9 MCY as of January 2009.[10]

The expected life of the remaining capacity of the ATB #2 and the Gypsum Stack were estimated by forecasting the CCP production of ash and gypsum at Ghent. The quantity of ash produced at Ghent is estimated at a coal specification of 11.5% ash by weight of the total quantity of coal used, or approximately 11.5 tons of ash per 100 tons of coal. Converting to volumetric measurement, assuming ash production consists of 80% fly ash and 20% bottom ash by weight, approximately 11.5 cubic yards of total ash is produced per 100 tons of coal.[11]

The chemical reaction by which gypsum is produced results in a net gypsum production of approximately 18% by weight of the total quantity of coal used,[12] or approximately 18 tons of gypsum per 100 tons of coal. Converting to volumetric measurement for the gypsum stack, approximately 17.8 cubic yards of gypsum is produced per 100 tons of coal.

The forecasted CCP production volume for Ghent is shown in Table 1 and depicted graphically in Figure 1 and Figure 2, based on the forecasted coal burn shown in Table 2. Table 2 also contains the historical quantities of coal burned as a comparison to the forecast. The increase in coal burn during the 2010-2013 period is due to the completion of the FGD installations at Ghent in 2009, which required prior scheduled outages on each of the Ghent units during 2007-2009. Also, with the addition of the FGDs, Ghent has lower fuel costs, resulting in higher forecasted generation.

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[9] Based on expected coal burn, Generation Planning forecasts that by the end of 2009, the remaining capacity of ATB #2 will be 1.9 MCY.

[10] Based on expected coal burn and existing beneficial reuse, Generation Planning forecasts that by the end of 2009, the remaining capacity of the gypsum stacks will be 2.2 MCY.

[11] Density assumptions for wet storage are 0.945 tons per cubic yard for bottom ash and 1.0125 tons per cubic yard for both fly ash and gypsum.

[12] Fuel specification assumptions include SO_2 content of approximately 5.9 lb/mmBTU and heat content of 22.16 mmBTU/ton.

Table 1: CCP Production Forecast (MCY)

CCP Production Forecast *(MCY – wet storage)*			
	Fly Ash	**Bottom Ash**	**Gypsum**
2009	0.54	0.14	0.88
2010	0.55	0.15	1.09
2011	0.58	0.15	1.12
2012	0.55	0.15	1.06
2013	0.55	0.15	1.09

Table 2: Ghent Coal Usage (Million Tons)

Ghent Coal Usage *(M Tons)*	
Historical	
2004	5.4
2005	5.6
2006	5.6
2007	5.3
2008	5.7
Forecast	
2009	5.6
2010	6.0
2011	6.3
2012	6.1
2013	6.1

The forecasted generation and the resulting coal usage at Ghent correspond to an average capacity factor of approximately 77%. This relatively high capacity factor is consistent with Ghent's low production cost. Since Ghent is already modeled as a baseload station, the risk of significantly underestimating CCP production is low. However, reduction in load or unexpected outages at Ghent could affect the capacity factor and lower future CCP production.

Figures 1 and 2 show the forecasted cumulative CCP production at the end of each year compared to the expected available capacity at the end of 2009. With current forecasts for ash production and without any additional on-site capacity or off-site storage or reuse, ATB #2 is expected to reach full capacity during 2012, as shown in Figure 1. Assuming no beneficial reuse beyond the expected 222,000 cubic yards per year by CertainTeed, the gypsum stack is also expected to reach maximum capacity in 2012, as shown in Figure 2.

Figure 1: ATB #2 Capacity

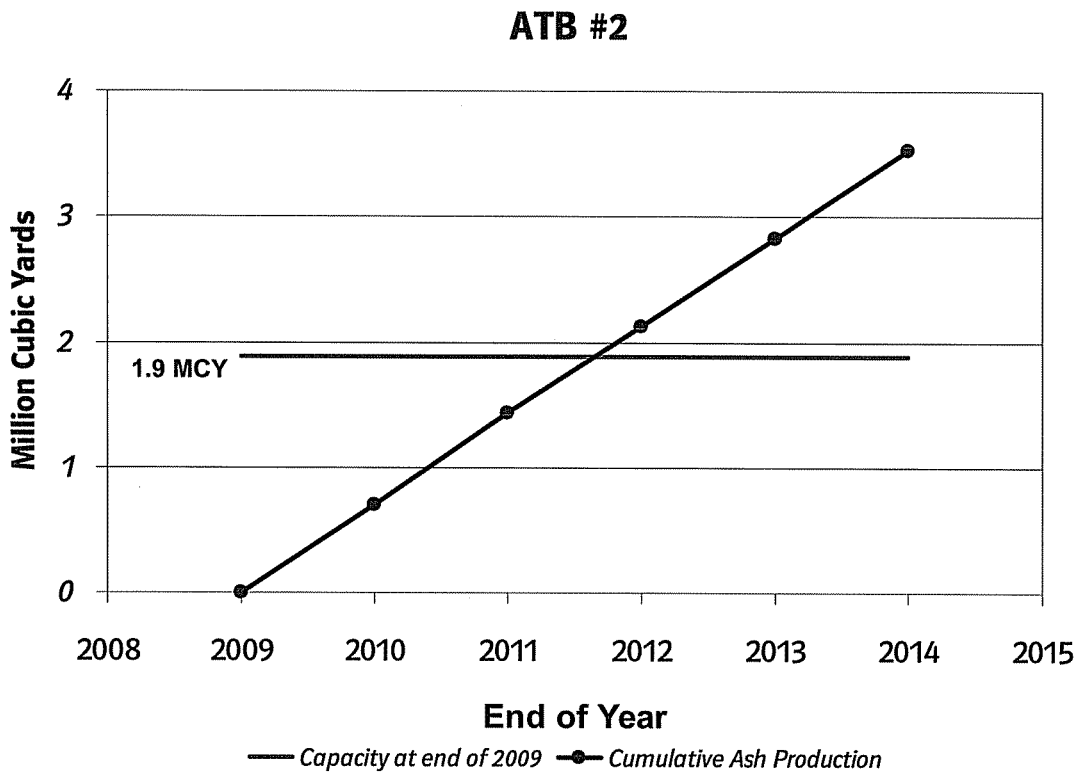
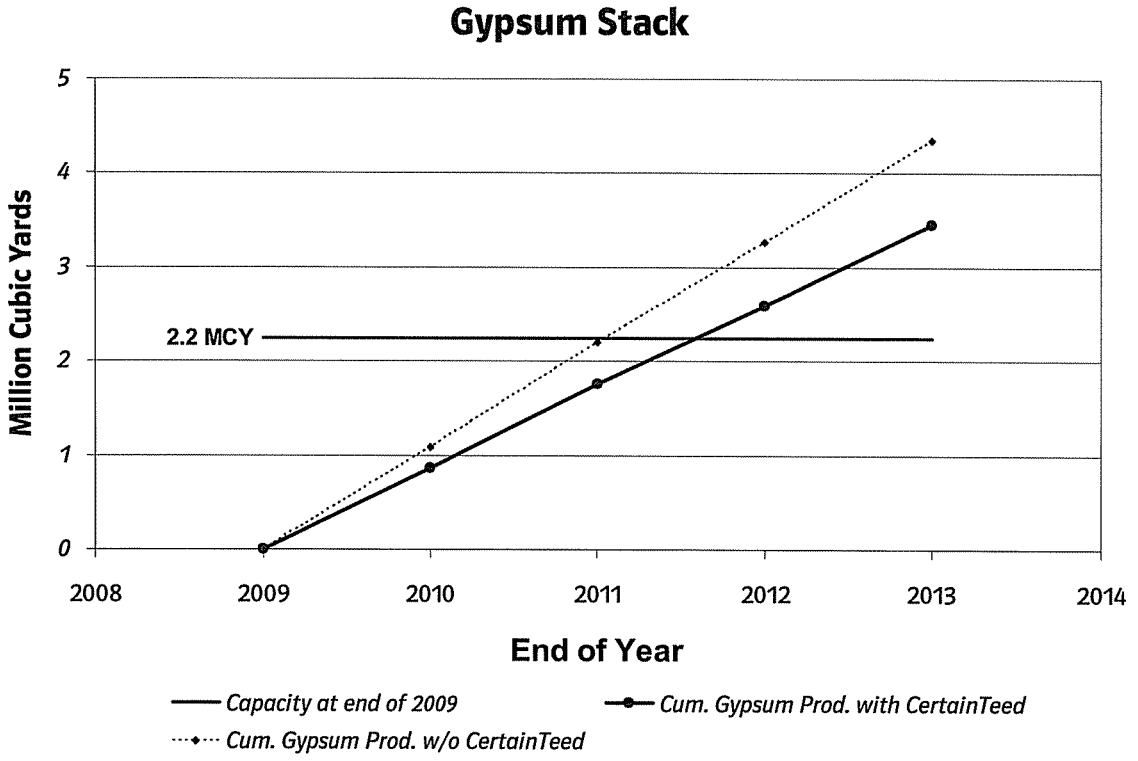


Figure 2: Gypsum Stack Capacity



In summary, the needs assessment indicates that additional CCP disposal alternatives will be needed for both ash and gypsum at Ghent by 2012. At least 0.6 MCY of CCP must be moved off-site in order to maintain operations of the existing storage facilities at Ghent through 2012.

5. Development of Alternatives

In the case of CCP solutions for Ghent, Project Engineering and the CCP team developed two sets of options for evaluation:

1. Short-term storage options to meet 2009-2012 requirements
2. Long-term storage options to meet 2013-2037 requirements.

The short-term options were developed because long-term options cannot be in service before 2013, and on-site capacity is expected to be depleted in 2012. These options were evaluated independently, leading to a recommendation for short-term and long-term solutions.

5.1 Short-Term Disposal

As a result of ATB #2 and the gypsum stack nearing their maximum desired storage capacities, the station, in conjunction with the CCP Team, negotiated with Trans Ash, Inc. ("Trans Ash"), a company specializing in the reuse of CCP, to beneficially reuse 1.3 MCY (approximately 1.5 million tons as hauled) of CCP as structural fill. The 2009 base cost of this proposal is [redacted] per MCY[13], subject to annual adjustments to the base price and fuel cost adjustments. The base price is redetermined by increasing the previous year's price by 90 percent of the year-over-year percent change in the Consumer Price Index – All Urban Customers, U.S. City Average. The fuel adjustments are made for both off-road and on-road diesel use. Off-road fuel adjustments are calculated as the difference between the base diesel unit price of [redacted] per gallon and the average unit diesel price paid multiplied by the quantity of off-road diesel purchased each year. The on-road diesel adjustment is calculated as the product of the average quantity of fuel used and the difference between the base diesel price and the index price as published by the U.S. Department of Energy, Energy Information Administration in "The U.S. No 2 Diesel Low Sulfur (15-500 ppm) Retail Sales by All Sellers (Cents per Gallon)"

An agreement with Trans Ash would require that the full 1.3 MCY be moved in 2010-2012 to satisfy the end consumer of the beneficial reuse opportunity. Consistent with KU's CCP management strategy, this fill location has been evaluated and confirmed as appropriate for beneficial reuse. The location is not in an environmentally sensitive area.

The only near-term alternative to beneficial reuse of CCP is the use of an existing off-site commercial landfill. For 2009, the total unit cost of storage in the closest off-site landfill was estimated to be [redacted] per cubic yard[14]. In contrast to the Trans Ash proposal, an off-site landfill storage option requires that only a minimum of 0.6 MCY must be moved off-site prior to 2013 to ensure continuing operations at Ghent.

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[13] [redacted] per MCY as stored is equivalent to [redacted] per ton as hauled.

[14] [redacted] per cubic yard is equivalent to [redacted] per ton as hauled for transport and storage at Valley View landfill near Sulphur, KY, approximately 25 miles from Ghent. Cost components per ton are [redacted] for excavating and loading, [redacted] for hauling, and [redacted] for landfill tipping fee. This quoted tipping fee is slightly below the listed rates of [redacted]/ton for other regional public landfills.

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5.2 Long-Term Storage

To meet the long-term storage needs at Ghent, KU contracted GAI Consultants, Inc., Pittsburgh, PA ("GAI") to provide both an Initial Siting Study ("ISS") and a Final Conceptual Design Study of CCP storage alternatives at Ghent.[15] The ISS identified over forty potential alternatives based on combinations of a number of variables, including storage and transport methods, site locations, and relocation of transmission lines. As a result of this study, four on-site alternatives shown in Table 3 were selected for further consideration. In the process of developing the Final Conceptual Design Study, GAI refined the cost estimates for these alternatives in addition to other detailed engineering tasks. As an alternative to building on-site storage facilities, use of an existing off-site commercial landfill for storing future CCP was also considered as a long-term option.

Table 3: Alternatives for Long-Term Storage

		On-Site				
Case		**14/28**	**37**	**41**	**42/28**	**Off-Site Landfill**
Description		2 Landfills	1 Landfill	1 Pond	1 Pond 1 Landfill	
Total Capacity *(MCY)*		46.1	46.1	53.6	48.3	46.1 needed
Nominal Cost *($M)*	**Capital**					
	O&M[16]					

Each of the cases for on-site long-term storage was designed to hold twenty-five years of CCP production with phased construction. The total capacity required for each case differs due to the different density of CCP stored in ponds versus landfills. Table 4 shows the construction periods, the in-service years, and the capacity for each phase of the on-site cases. The site locations as shown in Figure 3 are noted as follows:

- Site M is north of ATB #2 on property owned by KU.
- Site E/F which is southeast of ATB #2 and include properties owned by KU and approximately 350 acres owned by others.
- Pond L represents vertical and lateral expansion east of ATB #2 with an impoundment.

[15] A preliminary draft of the Final Conceptual Design Study is shown in Exhibit JNV-4.
[16] The O&M figures in Table 3 include the cost for power to operate the on-site storage alternatives.

Figure 3: CCP Storage Site Alternatives

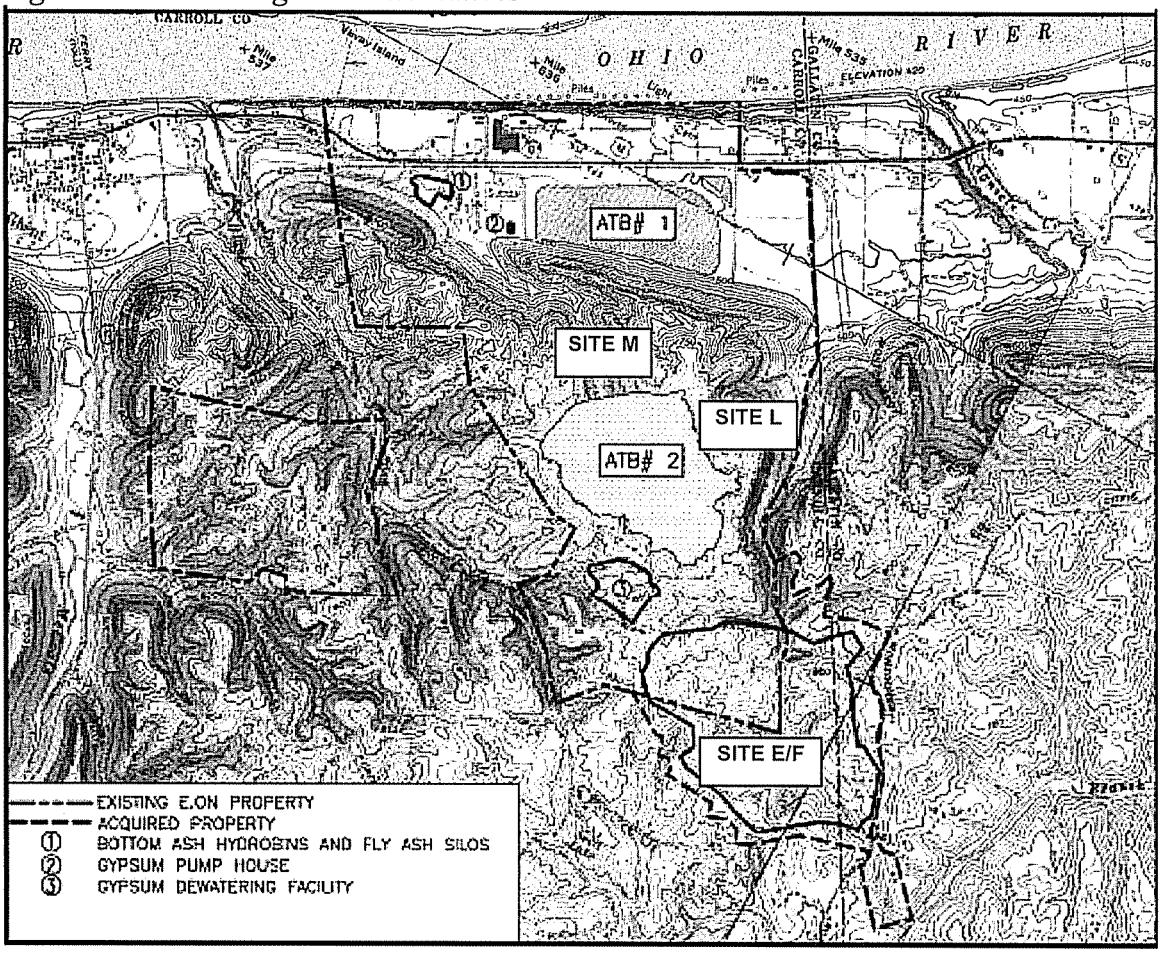


Table 4: Construction Phases for On-Site Storage Options

Case		**14/28**		**37**	**41**	**42/28**	
Site Location		M	E/F	E/F	L	L	E/F
Phase 1	**Construction**	2010-14		2010-14	2010-13	2010-14	
	In-Service	2013		2013	2013	2013	
	Capacity *(MCY)*	5.3	5.7	14.7	16.5	7.2	8.4
Phase 2	**Construction**	2016-18		2018-19	2017-19	2018-20	
	In-Service	2019		2020	2020	2021	
	Capacity *(MCY)*	8.5	8.0	12.3	15.7	8.3	7.7
Phase 3	**Construction**	--	2023-25	2024-26	2025-27	2027-29	
	In-Service	--	2026	2027	2028	2030	
	Capacity *(MCY)*	--	12.4	19.1	21.6	6.1	8.0
Phase 4	**Construction**	2027-29	--	--	--	--	
	In-Service	2030	--	--	--	--	
	Capacity *(MCY)*	6.2	--	--	--	--	--

Case 14/28. Case 14/28 consists of separate landfills for ash and gypsum with ash stored at Site M and gypsum stored at Site E/F. Construction of the landfills consists of four phases as shown in Table 4 with the first phase beginning in 2010 and the final phase ending in 2029. Figure 4 shows the phased cumulative design capacity of the landfill at Site M compared to the forecasted ash production. Figure 5 shows the phased cumulative design capacity of the landfill at Site E/F compared to the forecasted gypsum production both including and excluding the effect of the expected gypsum reuse by CertainTeed. These figures, as well as Figures 6-9, demonstrate that the designs for the timing and volume of capacity additions for each of the cases considered are reasonable compared the forecasted CCP production.

Figure 4: Long-Term Needs Assessment – Case 14/28, Landfill M

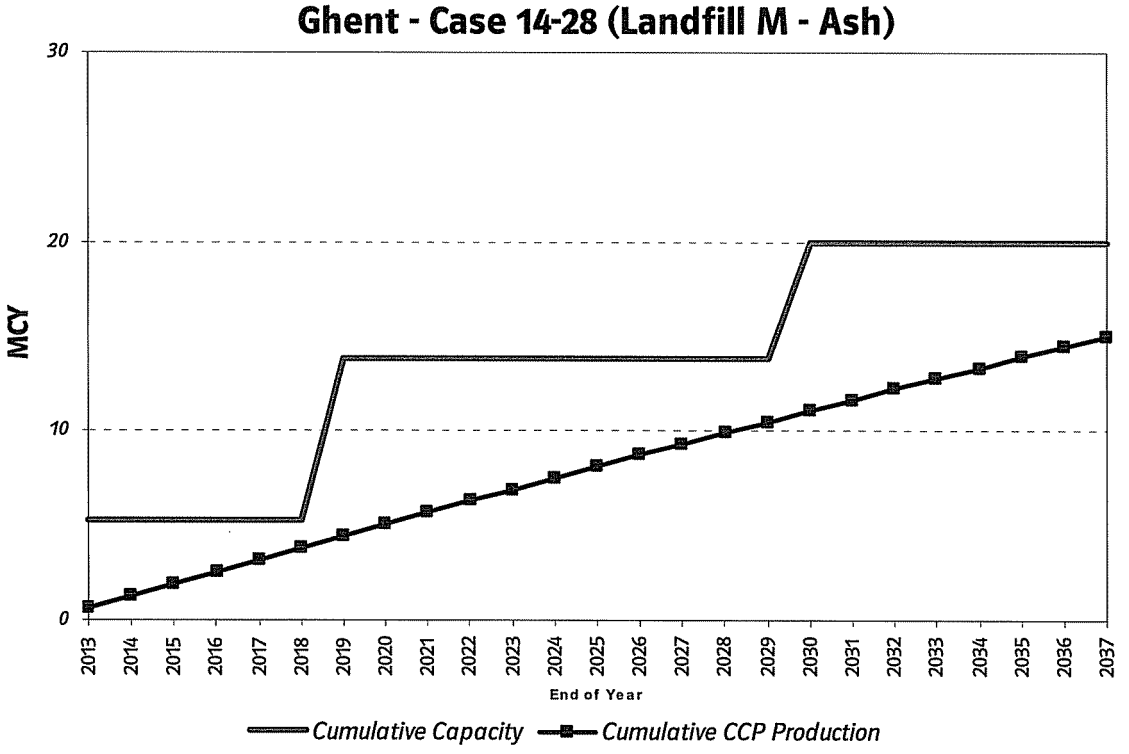
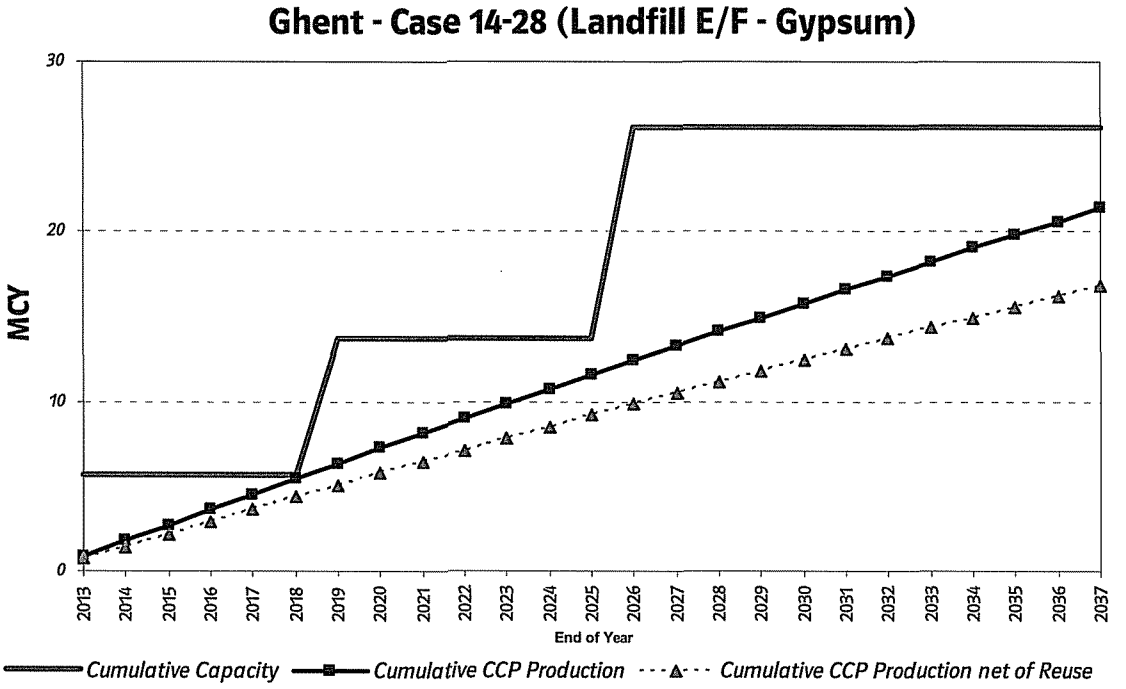
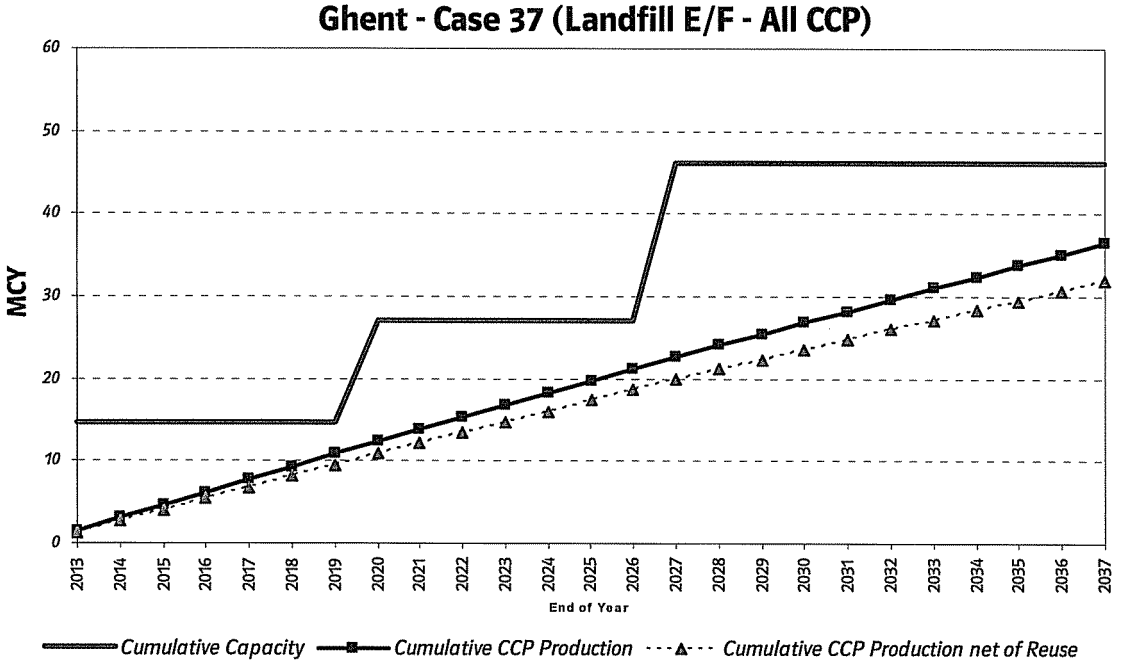


Figure 5: Long-Term Needs Assessment – Case 14/28, Landfill E/F



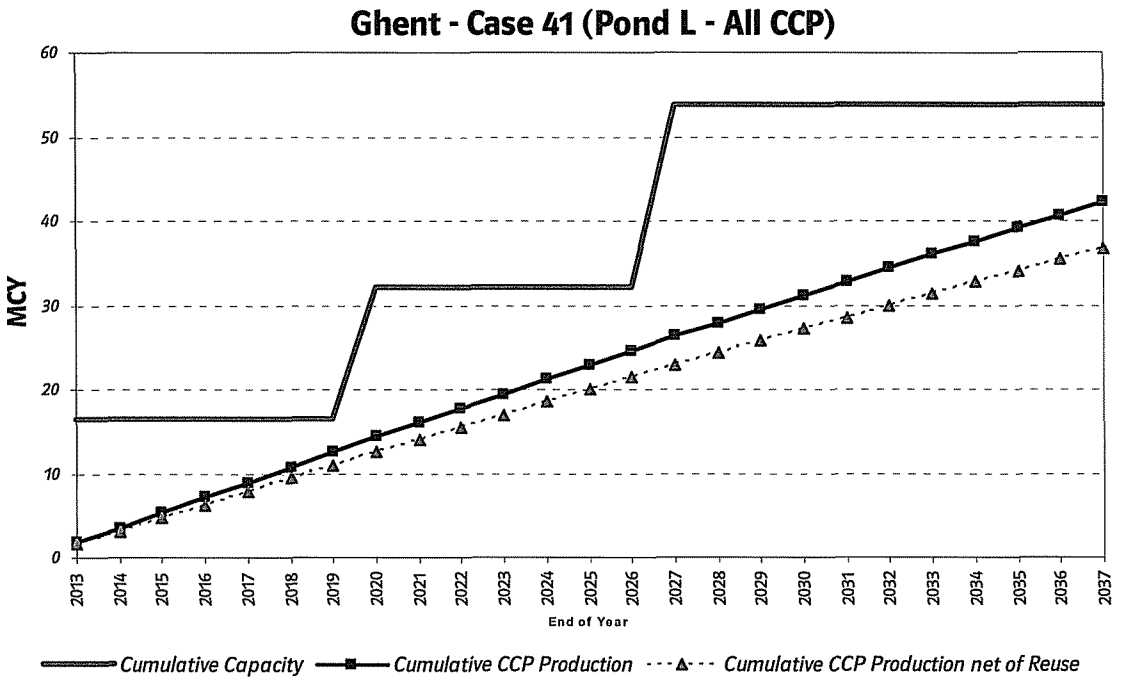
Case 37. Case 37 consists of a single landfill for both ash and gypsum at Site E/F. The construction schedule consists of three phases beginning in 2010 and ending in 2026. Figure 6 shows the phased cumulative design capacity of this landfill compared to the forecasted cumulative CCP production both including and excluding the effect of the expected gypsum reuse by CertainTeed.

Figure 6: Long-Term Needs Assessment – Case 37, Landfill E/F



Case 41. Case 41 consists of a single pond for both ash and gypsum at Site L. The construction schedule consists of three phases beginning in 2010 and ending in 2027. Figure 7 shows the phased cumulative design capacity of this landfill compared to the forecasted cumulative CCP production both including and excluding the effect of the expected gypsum reuse by CertainTeed.

Figure 7: Long-Term Needs Assessment – Case 41, Pond L



Case 42/28. Case 42/28 consists of a pond at "Site L" for ash and a landfill at "Site E/F" for gypsum. Construction of these facilities consists of four phases as shown beginning in 2010 and the final phase ending in 2029. Figure 8 shows the phased cumulative design capacity of the pond at Site L compared to the forecasted ash production. Figure 9 shows the phased cumulative design capacity of the landfill at Site E/F compared to the forecasted gypsum production both including and excluding the effect of the expected gypsum reuse by CertainTeed.

Figure 8: Long-Term Needs Assessment – Case 42/28, Pond L

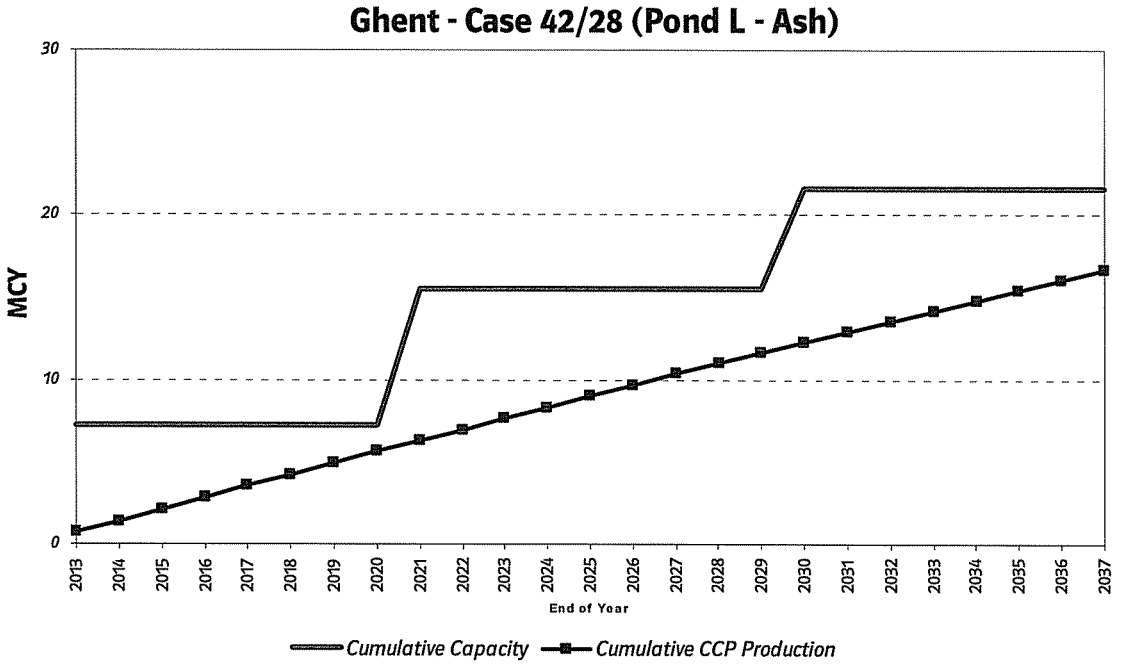
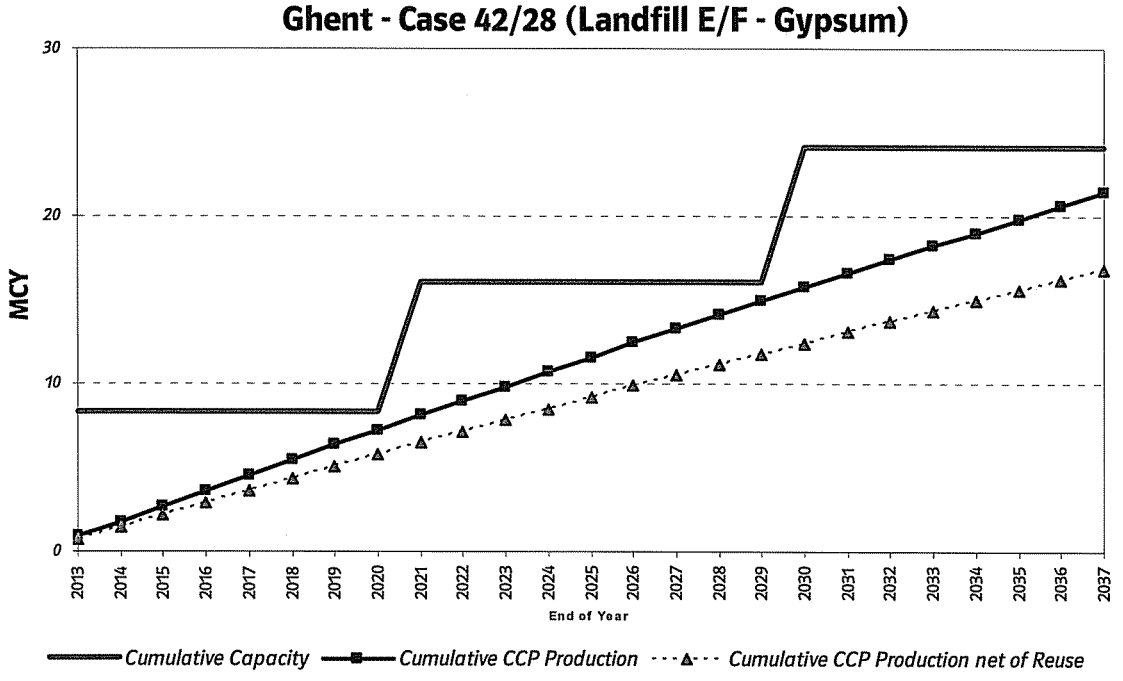


Figure 9: Long-Term Needs Assessment – Case 42/28, Landfill E/F



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6. Comparison of Alternatives

6.1 Short-Term Disposal

The short term disposal analysis compares the cost of a beneficial reuse initiative with Trans Ash to the cost of off-site landfill disposal. The Trans Ash proposal is to move 1.3 MCY in 2010 through 2012 and the plan for off-site landfill disposal is to move 0.6 MCY in 2012. Both of these options consist only of O&M costs, with no additional capital expenditure. As seen in Table 5, the Trans Ash proposal is the least-cost option to meet the short term capacity needs at Ghent. On a cost per volume basis, the Trans Ash option is almost 80% less costly than the off-site landfill option. Also, despite the higher volume requirement, the Trans Ash proposal's PVRR is $9.8 million lower than the off-site landfill alternative.

Table 5: PVRR Analysis Summary of Short-Term Alternatives

	Trans Ash Beneficial Reuse	**Off-site Landfill Disposal**
Total Quantity *(MCY)*	1.3	0.6
PVRR *(2009 million $)*		
Delta to Least Cost Case	*Least Cost*	*9.8*
Unit Cost *(2009 PVRR $/cubic yard)*		

6.2 Long-Term Storage

The long-term storage evaluation (Table 6) compares the PVRR and per-unit cost of four on-site storage alternatives selected in the engineering studies, in addition to disposal in an off-site commercial landfill. The financial assumptions related to the analysis of these cases are shown in Appendix 1, the projected cash flows are shown in Appendix 2, and the annual revenue requirements are detailed in Appendix 3.

The following is a brief comparison of the results:

Case 37. Case 37 consists of a common on-site landfill for both ash and gypsum. This is least cost on a PVRR basis by $26 million. This option is also lowest cost on a per unit volume basis at [redacted] PVRR per cubic yard. The favorable capital profile of this project results from the single landfill approach compared to Case 14/28, which includes separate landfills for ash and gypsum.

Case 14/28. Case 14/28 consists of separate landfills for ash and gypsum and involves higher up-front capital costs ($34 million higher through 2017, $6 million of which is due to transmission expenditures), an accelerated timeline for the addition of subsequent phases, and an additional construction phase compared to Case 37. This is partially offset by slightly lower annual O&M costs due to reduced distances for transporting ash. In summary, the lower costs associated with the shorter transport distances are overcome by the additional costs of the two landfills.

Cases 41 and Case 42/28. Case 41 consists of a single pond for both ash and gypsum and Case 42/28 consists of an ash pond and a gypsum landfill. The construction of an ash

pond is significantly more capital intensive compared to a landfill, although the ongoing operation is less costly. Through 2016, both of these cases are approximately $95 million higher in total capital costs than Case 37. Construction of the second and third phases increases the capital premium to $850 million for Case 41 and $350 for Case 42/28. Inclusion of the pond closure costs in 2038 raises these figures to $1,145 million and $475 million for Cases 41 and 42/28, respectively. Although the O&M is significantly lower for these cases compared to Case 37, it is not enough to offset the effect of the higher initial capital expenditures.

Off-site landfill. The off-site landfill option consists only of O&M costs, but this option is the highest-cost alternative due to the high unit cost of off-site landfill disposal, which is approximately [redacted] PVRR per cubic yard.

Beneficial Reuse. KU will evaluate beneficial reuse opportunities as they arise, and will pursue proposals that are favorable to on-site disposal.

Table 6: PVRR Analysis Summary of Long-Term Alternatives
(2009 PVRR million $)

Case	**14/28**	**37**	**41**	**42/28**	**Off-Site Landfill**
PVRR					
Capital	[redacted]				
O&M					
Total					
Delta to Least Cost Case	*26*	*Least Cost*	*254*	*125*	*413*
Capacity *(MCY)*	46.1	46.1	53.6	48.3	46.1
Unit Cost *(2009 PVRR $/CY)*	[redacted]				

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7. Recommendations

The needs assessment demonstrates a need for additional CCP storage capacity at the Ghent station by 2012. Analysis of the options provided by Project Engineering demonstrates that the most favorable alternatives to meet Ghent's CCP storage needs are:

- Short-term: the proposal for beneficial reuse of 1.3 MCY of gypsum by Trans Ash in 2010 through 2012. The PVRR is [redacted] million, or [redacted] per cubic yard.
- Long-term: constructing the first phase of an on-site landfill to store both ash and gypsum, to be in-service in 2013. The PVRR is [redacted] million, comprised of [redacted] million capital and [redacted] million O&M.

The short-term solution utilizing beneficial reuse is almost 80% less on a per unit of volume basis than disposal at an off-site commercial landfill. The unit cost of this short-term recommendation is also lower than the unit cost of the recommended long-term on-site landfill. The long-term solution includes the construction of a single landfill and is 4% less on a PVRR basis than the dual landfill option (Case 14/28).

Further details regarding the status of this project and the expected construction schedule are shown in Appendix 4.

Appendix 1

Analysis Assumptions

- Study Period: 30-year period for operational costs impacts (2009-2038)
  50-year period for capital costs impacts (2009 through tax life of final project phase).

  The revenue requirements associated with capital costs are determined via the Capital Expenditure and Recovery module of the Strategist production and capital costing software. To completely account for capital projects costs over their lifetime, the revenue requirements associated with new capital projects were included beyond the operational study period through the end of their tax life.

- Capital and O&M costs associated with the addition of new environmental projects will be subject to recovery through the Environmental Cost Recovery ("ECR") mechanism. O&M costs for electrical power usage required to operate equipment related to CCP storage are included when comparing alternatives (noted as "Power" in Appendix 2) but are not included as recoverable costs for calculation of ECR billing factors.

- Financial data
  - Discount rate: 7.81%
  - Income tax rate: 38.9%
  - Insurance rate: 0.07%
  - Property tax rate: 0.15 %
  - Percentage of debt in capital structure: 47.01%
  - Debt interest rate/weighted cost of debt: 4.64%
  - Return on equity: 10.63%
  - Book life - average landfill phase (non-transmission): 12 years
  - Book life – transmission (line relocation): 40 years
  - Tax life: 20 years
  - Annual capital and O&M escalation rate: 6%
  - Contingency included in cost estimates: ~28%
  - E.ON US overhead included in capital costs 3.5%
  - Capital expenditures are assumed to occur at year end.

- CCP data
  - Coal ash content: 11.5%
  - Coal SO_2 content: ~5.9 lb/mmBTU
  - Coal heat content: 22.16 mmBTU/ton
  - FGD removal efficiency:
    Units 1, 3, 4 98%
    Unit 2 (currently Unit 1) 94.3%

Appendix 2

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Projected Cash Flows

Annual Cash Flows Short-Term Options O&M Only *($ thousands)*		
Case	**Beneficial Reuse**	**Off-Site Landfill**
2008		
2009		
2010		
2011		
2012		
2013+		
Total		

$ thousands

Case **14/28** **2 landfills**

	Annual Cash Flows										
	Capital						**O&M**				**Total**
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2008											
2009											
2010											
2011											
2012											
2013											
2014											
2015											
2016											
2017											
2018											
2019											
2020											
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2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
Total											

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$ thousands

Case **37** **1 landfill**

	Annual Cash Flows										
	Capital						O&M				Total
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2008	[redacted]										
2009											
2010											
2011											
2012											
2013											
2014											
2015											
2016											
2017											
2018											
2019											
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2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
Total											

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$ thousands

Case **41** **1 pond**

	Annual Cash Flows										
	Capital						O&M				Total
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2008											
2009											
2010											
2011											
2012											
2013											
2014											
2015											
2016											
2017											
2018											
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2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
Total											

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$ thousands

Case **42/28** **1 pond/1 landfill**

	Annual Cash Flows										
	Capital						**O&M**				**Total**
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2008											
2009											
2010											
2011											
2012											
2013											
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2032											
2033											
2034											
2035											
2036											
2037											
2038											
Total											

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$ thousands

Case	Off-Site Landfill (O&M Only)		
	Capital	O&M	
Cost Escalation		6%	2%
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
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2029			
2030			
2031			
2032			
2033			
2034			
2035			
2036			
2037			
2038			
Total			

Appendix 3

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Revenue Requirements Detail

$ thousands

Case **Short-Term Beneficial Reuse (O&M Only)**

	Capital	O&M
2008	[redacted]	
2009		
2010		
2011		
2012		
2013+		
2009 PVRR		

$ thousands

Case **Short-Term Off-Site Landfill (O&M Only)**

	Capital	O&M
2008	[redacted]	
2009		
2010		
2011		
2012		
2013+		
2009 PVRR		

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$ thousands

Case **14/28** **2 landfills**

	Annual Revenue Requirements										
	Capital						**O&M**				**Total**
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2009											
2010											
2011											
2012											
2013											
2014											
2015											
2016											
2017											
2018											
2019											
2020											
2021											
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2057											
2058											
2009 PVRR											

CONFIDENTIAL INFORMATION REDACTED

$ thousands

Case **37** **1 landfill**

	Annual Revenue Requirements										
	Capital						O&M				Total
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2009	[redacted]										
2010											
2011											
2012											
2013											
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2055											
2056											
2057											
2058											
2009 PVRR											

CONFIDENTIAL INFORMATION REDACTED

$ thousands

Case **41** **1 pond**

	Annual Revenue Requirements										
	Capital						**O&M**				**Total**
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2009											
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2011											
2012											
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2056											
2057											
2058											
2009 PVRR											

CONFIDENTIAL INFORMATION REDACTED

$ thousands

Case **42/28** **1 pond/1 landfill**

	Annual Revenue Requirements										
	Capital						**O&M**				**Total**
	Phase1	Phase2	Phase3	Phase4	Transmission	**Total Capital**	Non-Power	Power	Trans Ash	**Total O&M**	
2009											
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2058											
2009 PVRR											

CONFIDENTIAL INFORMATION REDACTED

Case **Off-Site Landfill (O&M Only)**

$ thousands

using 6% cost escalation

	Capital	O&M
2008	[redacted]	
2009		
2010		
2011		
2012		
2013		
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2015		
2016		
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2036		
2037		
2038		
2009 PVRR		

using 2% cost escalation

	Capital	O&M
2008	[redacted]	
2009		
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2017		
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2021		
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2038		
2009 PVRR		

Appendix 4

Project Status *(As of April 2009)*

Detailed Design

The detailed design phase for Case 37 is currently in progress. Meetings are being conducted with the E.ON U.S. property appraiser and the individual owners of properties within the boundaries of Site F. After obtaining approval from these property owners, geotechnical, archaeological, ecological, and historical structures studies have begun. This will allow for the completion of the detailed engineering design and the start of the development of the permits for this location. The permits are expected to be submitted by the end of 2009.

Construction Schedule

The preliminary design for the landfill is to develop it in three distinct phases. This detail as well as the closure plan for each phase will be further developed in the detailed design phase. The current schedule is shown in Table A4-1.

Table A4-1: Preliminary Construction Schedule

Task	Schedule
Property acquisition	3rd Quarter 2009
Begin first phase landfill development	2nd Quarter 2010
Finish first phase landfill development	4th Quarter 2014
Begin second phase landfill development	2nd Quarter 2018
Finish second phase landfill development	4th Quarter 2019
Begin third phase landfill development	2nd Quarter 2024
Finish third phase landfill development	4th Quarter 2026

The risks associated with the project include the following:

- Inability to reach a settlement on purchase price for one or more of the properties required for the site, resulting in lengthy eminent domain litigation
- Discovery of unknown geotechnical issues
- Litigation and intervention of the 401/404 permits for Sites E/F could delay the construction of this section of the work
- Failure of major components during start-up
- Unseasonable weather, such as exceptionally heavy rainfall, late spring, early on-set of winter, etc.
- Engineering design failure of a component of design
- Contractor delays due to shortage of materials or manpower issues
- Change in regulations