

Attachment 1 to
Question No. 1
Case No. 2022-00190



PPL companies

Fuel Procurement Strategy for Electric Generation

January 28, 2016



Agenda

- *Review of Fuel Procurement Strategy for Electric Generation*
- *Recent LG&E and KU electric generation system changes*
- *Impact of the natural gas combined cycle unit (Cane Run 7) on the LG&E and KU fuel requirement for electric generation*
- *Projected natural gas price where fuel switching (coal to gas) occurs*
- *LG&E and KU fuel expense for electric generation and how it's currently physically hedged*
- *Discuss natural gas physical hedging*



Key Objectives

- *Mitigate Major Risk Elements*
- *Coordinate Coal and Natural Gas Procurement used in Electric Generation*
- *Demonstrate Prudent Procurement Practices*
- *Alignment of Fuel Procurement with the Annual Business Planning Process*
- *Management Oversight*



Major Risk Elements

- *Volume exposure*
 - *Quantify the contract position: long, flat or short*
 - *Guidelines for percent of minimum fuel requirement under contract*
- *Price Exposure*
 - *Quantify the price structure of the contract portfolio*
 - *Fixed, fully or partially indexed, indexed with a floor and ceiling*
- *Supplier Performance*
 - *Financial integrity assessment*
 - *Operational capability assessment*
 - *Past performance*
- *Supply Development and Logistics*
 - *Supply region diversity*
 - *Transportation diversity/logistics*
 - *Resource development exposure*

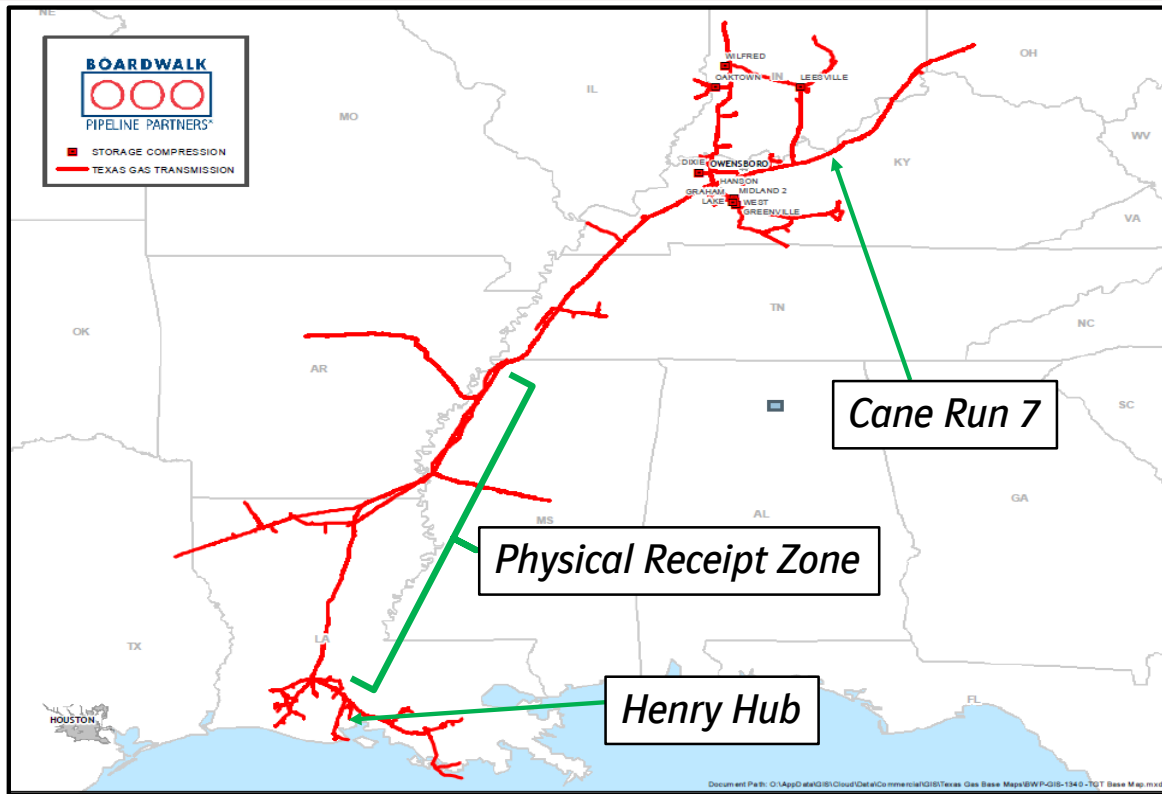


LG&E and KU had significant electric generation asset changes during 2015

- *Prior to 2015 all base load generation was coal fired*
 - *18 coal-fired generating units*
 - *14 primary natural gas-fired CTs for peaking load*
- *Five coal-fired units were retired in 2015*
 - *Cane Run Station retired in June*
 - *Green River Station retired in October*
- *Commissioned Cane Run 7, the first natural gas fired combined-cycle unit*
 - *Commercial in June 2015*
 - *~640 MW*
 - *Very efficient heat rate*

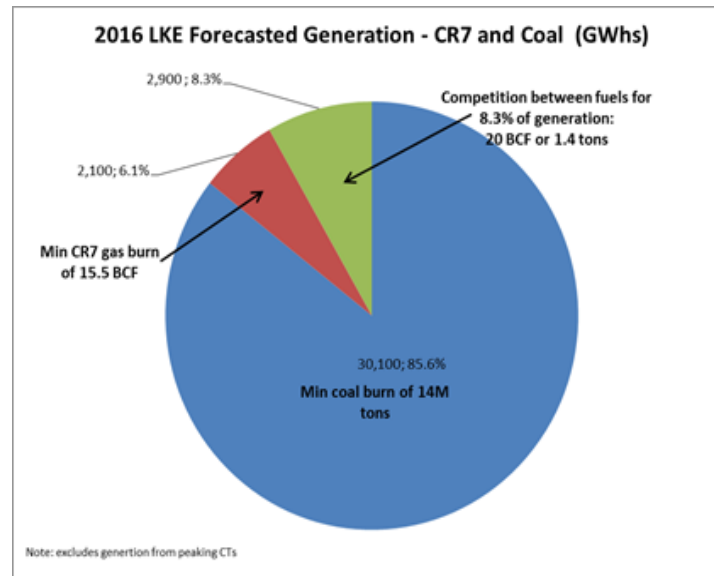


Cane Run 7 well positioned on the Texas Gas Transmission (TGT) Pipeline

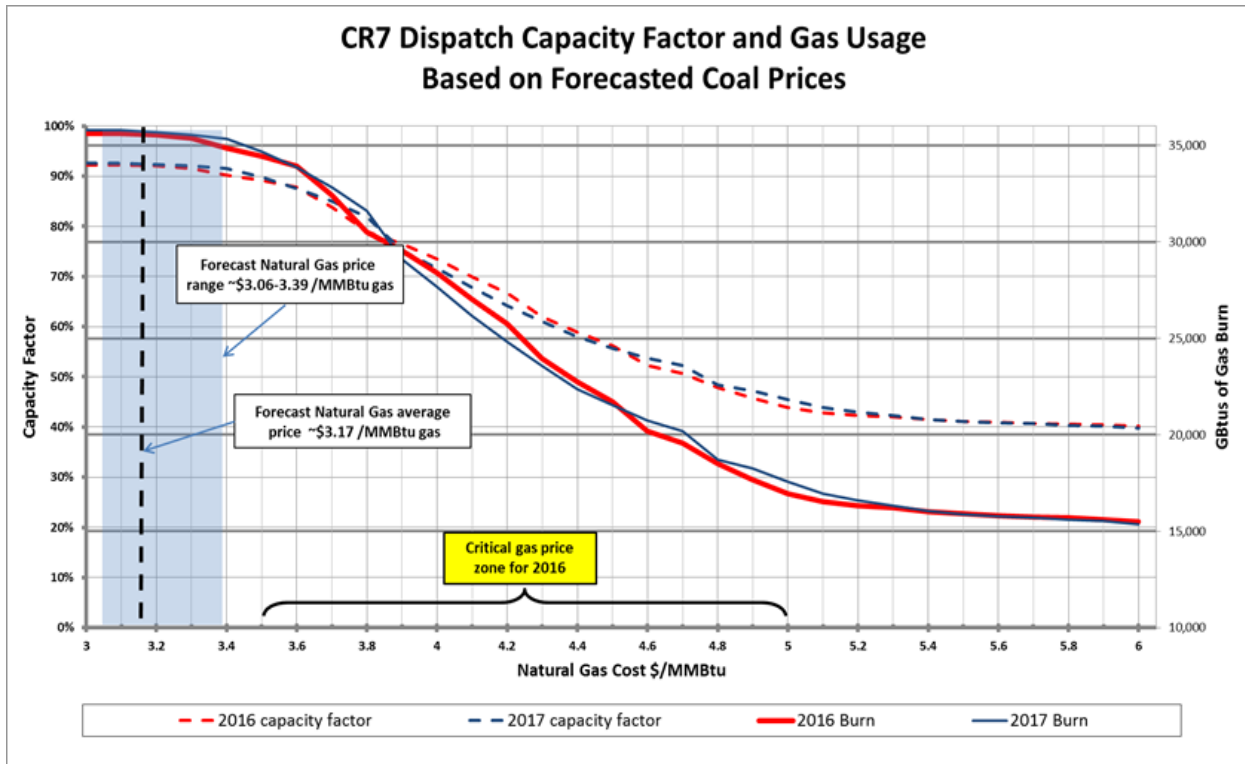


Cane Run 7 and coal units compete to serve a portion of annual base load energy needs

- *Coal-fired units and CR7 must operate together, at respective minimum levels, to meet annual base load requirement.*
- *This generation will yield the **minimum projected fuel requirement** for each.*
- *CR7 must supply a minimum of 6% with potential maximum of 14% of the annual base load requirement.*
- *This 8% difference represents a potential fuel swing of 20 BCF of natural gas and 1.4M tons of coal.*
- *CR7 is projected to operate at a high capacity factor in 2016 due to low natural gas prices.*



Fuel switching occurs between \$3.50 and \$5.00 per mMBtu for natural gas at forecasted coal prices



LG&E and KU fuel expense for generation and current physical hedging

- *System Fuel Expense ~\$950M per year (Base load and Peaking CTs)*
- *All hedging is through physical purchases, No financial instruments are used to hedge*
- *Prior to CR7 all base load fuel was coal and the Company physically hedged a portion of its projected coal requirement for up to six years, no hedging for CT natural gas*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>Guidelines for coal procurement (%)</i>	<i>95-100</i>	<i>80-90</i>	<i>40-90</i>	<i>30-70</i>	<i>10-50</i>	<i>0-30</i>
<i>Fuel expense (coal and natural gas) exposed to market before CR7</i>	<i>\$75-120M</i>	<i>\$160-245M</i>	<i>\$160-585M</i>	<i>\$330-670M</i>	<i>\$500-840M</i>	<i>\$695-950M</i>
<i>Fuel (coal and natural gas) expense exposed to market after CR7 w/o hedging natural gas for CR7</i>	<i>\$210-245M</i>	<i>\$280-350M</i>	<i>\$280-630M</i>	<i>\$420-700M</i>	<i>\$560-840M</i>	<i>\$740-950M</i>

- *Firm natural gas transportation is procured for locations interconnected with only one pipeline*



Coordinated coal and natural gas procurement process for electric generation

- *Determining the required volume of fuel*
 - ***Minimum projected fuel requirement*** for each fuel will be determined during the annual planning process and will be utilized to guide forward procurement activities (non-current year).
 - Updated generation forecast will be produced each quarter to determine the quarterly need for each fuel.
- *Procurement Process*
 - No material changes for coal.
 - No change to the current procurement strategy for the simple cycle combustion turbines.
 - To date all natural gas for CR7 has been purchased on a short-term basis. The Companies will be transitioning to this strategy in the near future.
 - Solicitations for both coal and gas procured for electric generation will follow the same schedule.
 - Solicitations will occur quarterly. The fall and spring solicitations will continue to be more formal and will be utilized to address longer term needs.



Fuel procurement for electric generation – Utilization Under Contract Guidelines (% of minimum projected need)

- *Coal*

Delivery Year guideline (%)	Year 1- 2017	Year 2- 2018	Year 3- 2019	Year 4- 2020	Year 5- 2021	Year 6- 2022
Utilization under contract of the minimum projected coal requirement (~14M tons)	95-100	80-90	40-90	30-70	10-50	0-30

- *Natural Gas for Combined Cycle – The contract position for natural gas will be gradually built over time.*

Delivery Year guideline (%)	2017	2018	2019
Utilization under contract of the minimum projected CR7 natural gas requirement (~15 BCF)	10 - 50%	0 - 30%	0 - 10%



Objectives for LG&E and KU fuel procurement for electric generation remain to . . .

- *Maintain a reliable fuel supply*
- *Ensure the fuel supply meets all operational limits and environmental standards*
- *Procure the lowest reasonable cost fuel*
- *Reduce customer bill volatility*

