January 4, 2006

Office of Fossil Energy, FE-30
Attn: Trudy Transtrum or Nancy Johnson
U.S. Department of Energy
1000 Independence Ave, SW
Washington, DC 20585

Re: **PEABODY ENERGY CORP. COMMENTS ON NATURAL GAS SUPPLY AND DEMAND**

To Whom It May Concern:

Peabody Energy Corp. appreciates the opportunity to comment on the issue of natural gas supply and demand within the United States through 2015. Peabody Energy (NYSE: BTU) is the world's largest coal company. In 2004, coal accounted for over 51% of all the electricity produced within the United States and is the reason the United States has low-cost electricity. The products of Peabody Energy fuel more than 10% of all U.S. electricity generation and more than 2.5% of electricity generation worldwide. It is timely to be taking comment on the energy situation, since in 2005 US energy consumers have spent over $300 billion more annually for natural gas, motor gas and electricity, than they did in 1999 and much of this is a direct result of an over dependence on natural gas as US supplies were quickly dwindling.

Peabody Energy wishes to address both the supply and demand elements of the natural gas market.

Supply
Peabody Energy's believes we have entered a period where coal to natural gas conversion as well as coal to liquids can be an integral part of the US' overall energy strategy. Its is apparent from the 2005 Energy Policy Act that Congress, the DOE and as well as various coal production states are supporting the full commercialization of the various coal to energy projects, which we call "BTU Conversion". The DOE could look to identify certain tax incentives as a way bringing these projects on line sooner. These technologies should be pursued as vigorously as expanding domestic supplies of natural gas and expanding LNG import capabilities. An alternative fuel for natural gas from the US most abundant energy source, coal, is of critical importance. From an energy security and an economic balance of payments perspective, internally generated natural gas has added benefits to the US that imports of LNG cannot offer. The Secretary of Energy has asked the National Coal Council (NCC) to provide further information on these developments so we will defer further comment to the NCC's upcoming report.

Demand Reduction
A largely ignored opportunity to decrease demand for natural gas in the US is increasing the utilization of the existing coal generation fleet in the US as well as increasing the coal generation fleet in the US.

Increasing the Utilization of the Existing Coal Generation Fleet
The existing fleet of coal generation plant in the US operates at a 74% utilization rate producing approximately 51% of the electricity in the US. This coal fleet could produce economically at an 85% utilization rate, but for the regional and interregional transmission constraints which limit the amount of coal generation moving from one part of the grid to another. These high voltage transmission constraints are readily apparent in the Ohio River Valley and Upper Midwest US where the coal generation fleet operates at approximately 70% utilization. This excess coal generation tends to be stranded in the region during the "off-peak" hours and the coal units back down, while natural gas/oil plants on the East Coast and Gulf States continue to use gas /oil to make electricity as the coal and nuclear plants in those regions are fully utilized. These transmission bottlenecks have been well documented in numerous studies including the CERA 2004 Eastern Interconnection Study[1] in which the DOE participated (Exhibit 1 for Executive Summary) and various MISO long term transmission studies. The limited number of high voltage interconnections (10) leaving the heart of the excess coal generation in Middle US going to the East and South in shown in a Exhibit 2.

[1] CERA's 2004 Eastern Interconnection Study was created using a very conservative $4.20/mmbtu natural gas price in 2010, so the NYMEX savings are dramatically understated when compared to NYMEX Henry Hub for 2010 delivery at over $8.00/mmbtu.

The under utilized coal generation, during the middle of the night and weekends, could be delivered to the East Coast, the Southeast, Florida and the Gulf State including Texas displacing natural gas generation. This displacement could generally be done with approximately 10 major strategic transmission enhancements or additions with projects of 50 – 300 miles, which is significantly shorter in distance than those discussed in the Western US at 500 to 1,200 miles in length. Furthermore several of these enhancements could likely parallel existing right-of-way or be a second circuit on a reconstructed single pole. It is interesting to note that the DOE's Natural Gas Demand Overview dated December 19 – 20 supported the fact that large use of gas for power generation occurs in the New England, Middle Atlantic, South Atlantic, East South Central and West South Central states, while very little gas generation is used in the West North Central and East North Central states which are the heart of the excess coal plants in the US Exhibit 3.

By Peabody's internal analysis, we have concluded that displacement of natural gas generation with existing coal generation could displace over 2 TCF of natural gas demand annually for electric generation in the US by 2015. Some of these projects could be completed well before other capital intensive projects could be permitted and constructed.

The economic value of these enhancements is far greater than any previous transmission studies have indicated for two specific reasons. First, most of these transmission studies used DOE's old long range gas forecasts, which had natural gas prices in the $4.00 - $4.50/mmbtu in the long term. Given 4 of the last 5 years city gate gas prices have ranged in the $5.70 – 7.50/mmbtu, the value to US electricity consumers of replacing gas based generation with coal based generation has been massively undervalued by $25 – 50/MWh or $7 – $14 billion annually. The DOE needs to recognize the importance of these long-term price projections. They are often usually the quoted source for most state Public Service Commissions and Regional Planning models throughout the US. If these low gas prices are continued to be published by the DOE, then the US will systematically continue to under invest in electric transmission and "rely" on the "low cost gas generation near load" which we will later find out is not so low cost. This will all be done at the expense of the US consumers.

The second reason the economic value of enhancing transmission to displace high cost natural gas generation with lower cost coal has been understated, is none of the analysis Peabody has seen, to date, focuses on reducing the cost of natural gas for all gas consumer, but only on electricity cost savings. This approach ignores a large economic value to US energy consumers and that is in lowering natural gas prices as a result of lower demand. If you assume just a 1 TCF of natural gas demand can be displaced by existing excess coal generation and if this demand reduction leads to a very conservative $0.25/mmbtu price decline for natural gas, the annual savings would be roughly $5 billion annually (assuming 20 TCF used annually). This savings can easily offset a one-time $3 billion investment ($1.5 million/mile of enhanced or new transmission for 10 fixes that average 200 miles in length), which is approximately a 50% increase in transmission spending for a single year.

This lack of transmission infrastructure increases our dependence on natural gas and oil generation, which gives way to higher electricity prices. However, more generation from coal will yield lower prices for electricity. Exhibit 4 is a comparison of a state's coal use for electricity versus its average retail price of electricity for YTD September 2005. This demonstrates a direct relationship between coal generation and lower electricity prices. Moreover, comparing the electric prices in Exhibit 4 to areas most natural gas and oil dependent in Exhibit 5 reveal that the same areas, which most frequently have natural gas and oil on the margin, also yield the highest prices for electricity.

Additional New Coal Generation in the US

A second economical method to decrease the demand for natural gas in the US is adding new, clean coal plants in the US. This trend is already beginning with over 120 coal plants announced in the US representing 77 GW of new coal generation or a 25% increase in coal generation capacity by 2015 (DOE NETL November 7, 2005 New Coal Plant List Exhibit 6). While Peabody acknowledges not all these projects will be on line by then, the DOE has a role in highlighting the need for a reasonable permit review and appeal process which a few coal opponents are using as way to delay by 2 – 4 years or even try to stop coal projects that are have emission rates that are 70 – 90% lower than the average existing coal plant and are 40 – 50% lower than the 2015 standards of CAIR.

On top of concerns for endless permit appeal delays, these plants will more likely be built in the same areas of the US that are already constrained by lack of transmission as noted above. Over 40% of the new coal MW being proposed in the US is located in the Ohio River Valley and Upper Midwest areas which coincidentally are at or near the major Coal Basins in the US (Illinois, Powder River and Appalachia Basins). Again these new, very clean coal plants are being developed in areas that are constrained from providing additional low cost electricity to the East and Gulf Coast regions which rely much more heavily on natural gas. In the era of regional and interregional electricity markets, it is far more cost effective to move the coal-based generation by wire than it is by rail. The missing link is adding a few strategic transmission paths to allow the power to flow.

No Significant Environmental Impacts of More Coal Generation by Enhancing the Transmission System

To take this case a step further and address the "environmental concerns" several may raise with such an approach. With the implementation of Clean Air Interstate Transport Rule (CAIR) and the mercury rules, by the EPA this past year, a limit has been set for SO2, NOx and mercury that are ultimately 70% below the existing emission levels. The cap and trade system involved in these rules are such that even if the existing coal generation increases its MW output, the fleet as a whole cannot exceed the annual emission limits so additional pollution control devices will need to be added or lower sulfur/NOx producing coals will be utilized to further reduce emissions. The cap-and-trade system provides the appropriate price signals for the coal generation owners to make additional environmental investments or operating expenditures if they want to increase MWh production. Given the current prices of natural gas and delivered coal, coal has 2:1 to as great as 7:1 cost advantage over very efficient gas units even after considering emission credit costs.

DOE Step Needed

Modest investments in the transmission system of this nation can be easily cost justified and will result in significant long-term savings to consumers. The DOE needs to be an enabler of getting major transmission built in the US. Under the Energy Policy Act of 2005, the DOE is charged with identifying National Interest Electric Transmission Bottlenecks. The DOE should put special effort into identifying the transmission upgrades that would quickly enable existing coal and potential wind project to displace natural gas generation and should point out some of the economic value in doing so as noted above. Pinpointing opportunities in the public domain will the public with a good reason as to why these projects should be done. The economic value should be derived from displacing natural gas generation using $6 – 10/mmbtu natural gas, which is reflective of 4 of the last 5 years as opposed to DOE's past flawed projections.

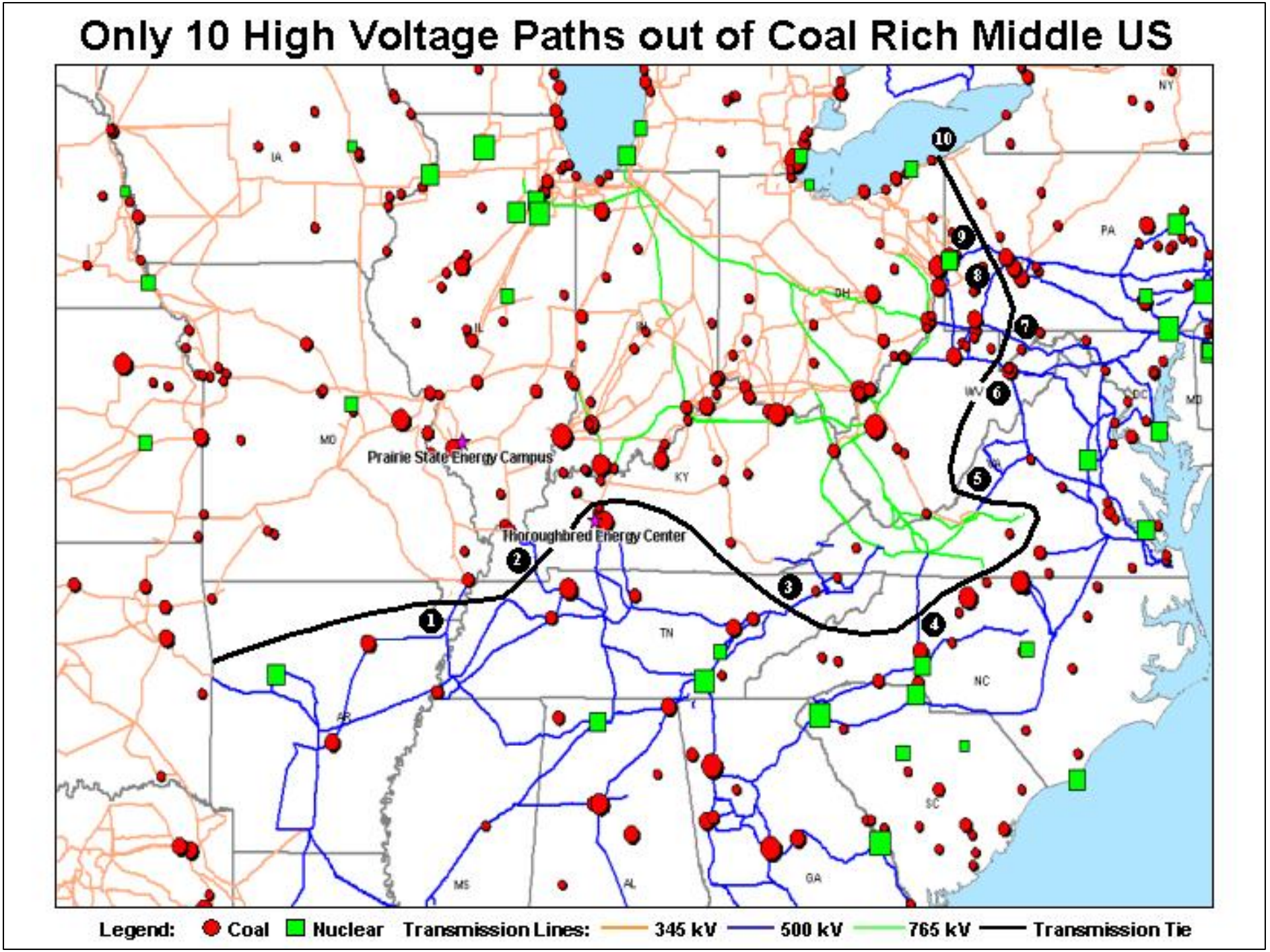
Sincerely,

Jacob A Williams
Vice President – Generation Development

Exhibit 1 (CERA Executive Summary)

Attached

Exhibit 2


Only 10 High Voltage Paths out of Coal Rich Middle US
Prairie State Energy Campus
Thoroughbred Energy Center
1
2
3
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9
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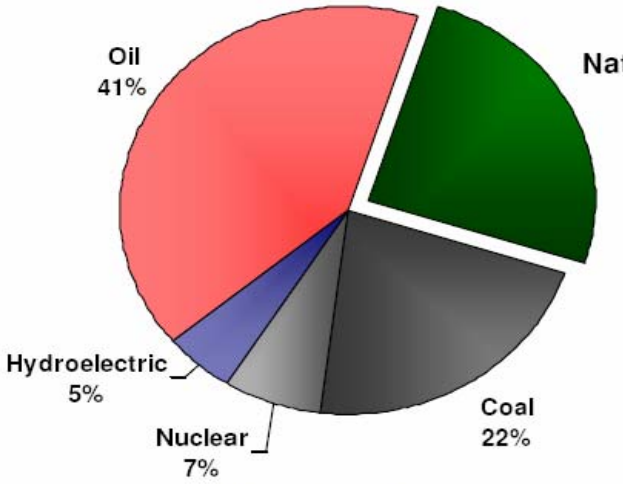
IA
IL
IN
OH
KY
TN
MS
AL
GA
SC
NC
WV
PA
NY
MD
DC
Legend:
Coal
Nuclear
Transmission Lines:
345 kV
500 kV
765 kV
Transmission Tie

Exhibit 3

Natural Gas Demand Overview

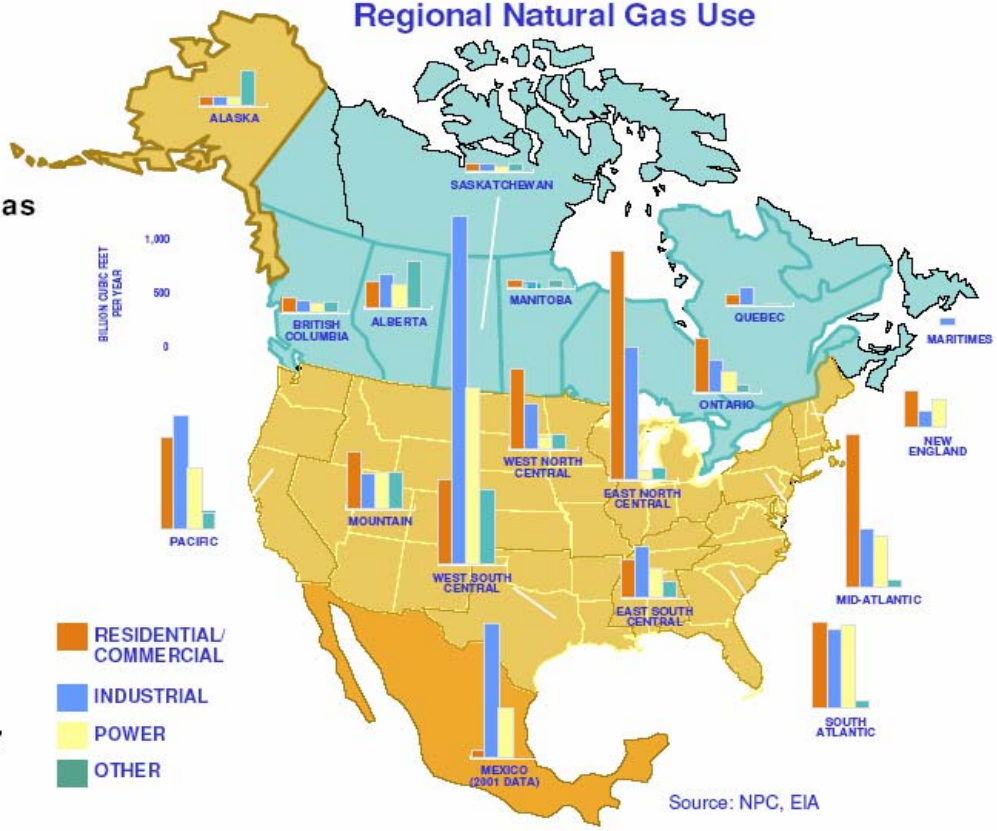
Economic Considerations

Sources of Energy



Primary Energy Demand

Regional Natural Gas Use



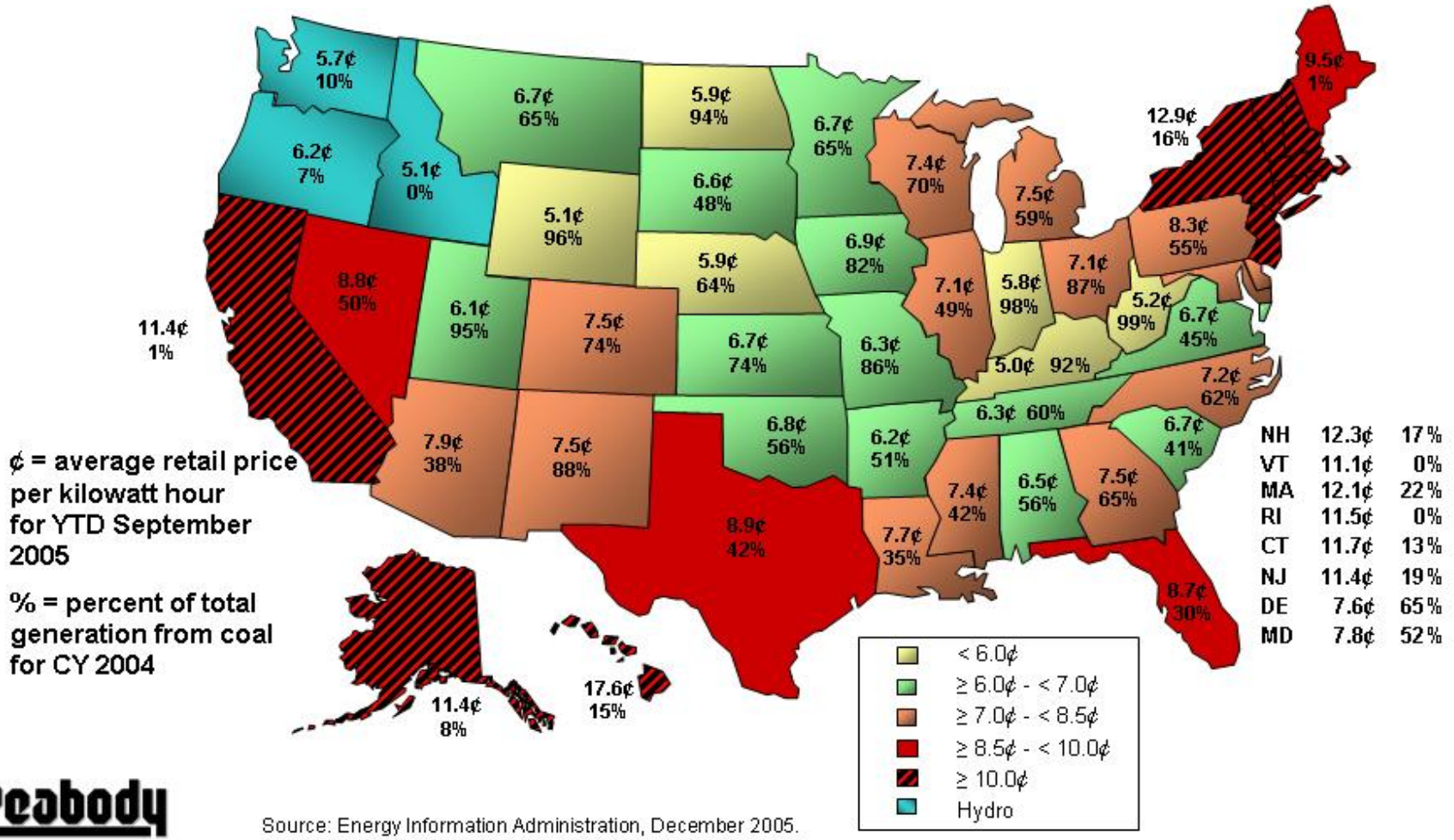
Source: NPC, EIA

- Natural gas is a key fuel/feedstock for most sectors of the economy
- It is the dominant fuel for residential, commercial and industrial sectors
- Growing importance for power, the marginal energy source in most regions

Exhibit 4

Low-Cost Electricity from Coal: Over 51% of U.S. Electricity is from Coal

Retail Cost Per kWh & Percent of Coal Generation



¢ = average retail price per kilowatt hour for YTD September 2005

% = percent of total generation from coal for CY 2004

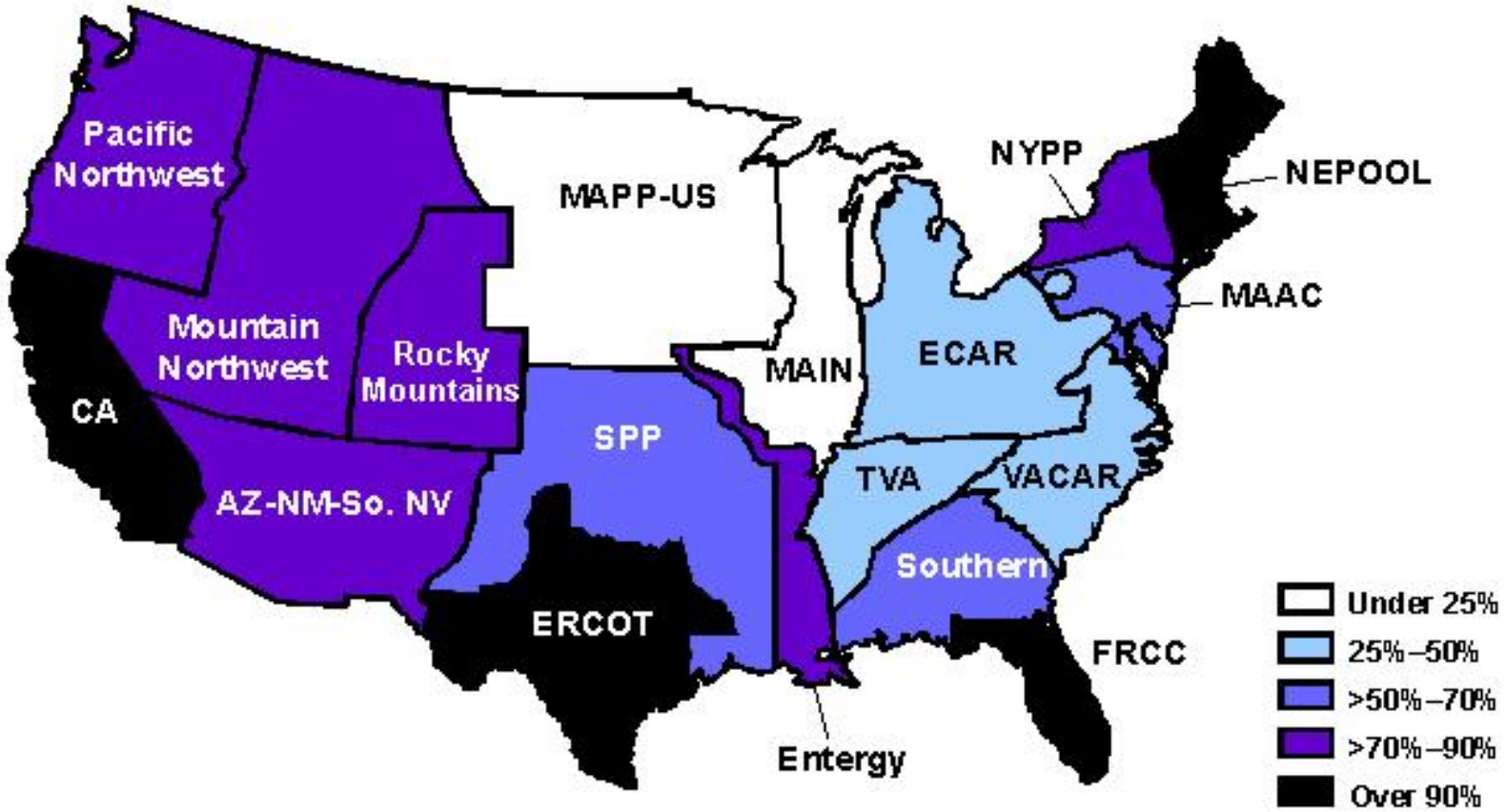
NH	12.3¢	17%
VT	11.1¢	0%
MA	12.1¢	22%
RI	11.5¢	0%
CT	11.7¢	13%
NJ	11.4¢	19%
DE	7.6¢	65%
MD	7.8¢	52%

Peabody

Source: Energy Information Administration, December 2005.

Exhibit 5

Percent of Time Natural Gas and Oil On the Margin (projected in 2004)



Source: Cambridge Energy Research Associates, April 7, 2004.

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Grounded in Reality

Bottlenecks and Investment Needs of the North American Transmission System—Eastern Interconnection

EXECUTIVE SUMMARY—EXCERPT

CERA®

Grounded in Reality: Eastern Interconnection—Excerpt from the Executive Summary

Introduction

The North American electric transmission system holds a number of viable investment opportunities for relieving interregional transmission constraints to facilitate long-distance power flows. However, the aggregate value of these investments is quite uncertain and the impacts on any particular stakeholder group are uneven and difficult to predict. Furthermore, this is only a portion of the total investment needed to maintain and improve the transmission network in the coming years. This is the conclusion that Cambridge Energy Research Associates (CERA) reached in *Grounded in Reality: Bottlenecks and Investment Needs of the North American Transmission System*, our assessment of the appropriate amount of investment to reduce or eliminate constraints on the grid's ability to support wholesale trade in electric power within and among the regions of the North American grid's Eastern Interconnection.

Headlines and Conclusions

The principal insights and conclusions derived from this study are as follows:

- **The Eastern Interconnection of the North American electric power grid suffers from underinvestment.** This study shows that persistent transmission constraints exist where the benefits of relieving the bottlenecks far exceed the costs. These investments would expand transmission capacity between the Midwest and the East Coast and Southeast, from the Southeast into Florida, and within the Southeast and southern Great Plains. The Eastern Interconnection covers 75 percent of US peak electricity demand; separate CERA Multiclient Studies are evaluating the ERCOT (Texas) and Western Interconnection grids.

- **Congestion costs have increased with rising natural gas prices.** The cost of transmission constraints depends on the level and duration of the differentials in the incremental cost of producing energy. This cost differential is mainly due to the relative prices of coal and natural gas, with relatively low incremental cost generation fired by coal in the Midwest unable to reach load centers in the East, South, and Southeast, where higher-cost oil- and gas-fired generation is usually on the margin. The total benefit (reduction in generation cost) from relieving transmission constraints depends on the relative prices of natural gas and coal. The relative price of natural gas to coal has increased significantly in the past few years, increasing greatly the cost of this congestion. This study used two gas price cases, with 2010 prices of $4.20 per million British thermal units (MMBtu) and $3.20 per MMBtu in real 2002 dollars. A $1 per MMBtu reduction in the gas price forecast used in the analysis (roughly 25 percent) cut the total generation cost savings of the transmission investments analyzed by 33 percent. Conversely, if gas prices were above the forecasted level, the benefits of transmission enhancement would be greater.

- **Already-announced transmission and generation projects will reduce or eliminate some of the most severe congestion in the Eastern Interconnection by 2010.** Examples include the $2.8 billion transmission expansion planned in Wisconsin and major projects in Missouri and West Virginia. New generation in the New York City region will also reduce congestion in that area.

- **Additional investments to relieve economic transmission congestion are a small portion of the Eastern Interconnection transmission system's investment needs.** The total cost to build the economic transmission enhancements proposed in CERA's analysis to relieve congestion in the Eastern Interconnection is $2.2 billion, or about $400 million per year over five years. This is only a portion of the investment needed in the Eastern Interconnection transmission system, however. Investor-owned utilities in the United States have spent $2–$3 billion per year on transmission construction in recent years, mostly to maintain the existing system, address local reliability needs, and accommodate newly built generators. A number of large project announcements such as those cited above suggest that the $2–$3 billion per year investment will grow substantially before 2010.

- **Economically driven expansions will have to compete against other needs for capital and other resources.** A large portion of the existing transmission plant has begun to reach the end of its useful life. Replacement of these existing assets will require a considerable increase in investments in transmission plant and equipment in the next decade. It will be difficult to cleanly separate replacements from improvements, though the extent of the overlap is unclear. This linkage raises concerns that the needed replacements will suffer from the same roadblocks that have prevented economically attractive improvements to the system from being made.

- **Transmission investments are justified under different gas price scenarios and regulatory structures, but the level of benefit is quite uncertain.** The net benefit from all of the proposed transmission enhancements was positive for both high and low gas price cases and under cost- and market-based regulatory frameworks, but the net benefit of some individual enhancements was negative in some cases. Total benefits from transmission constraint relief can vary significantly due to many unpredictable factors including electric load patterns, relative fuel prices, generating capacity mix, environmental policies, transmission investments to improve system reliability, and power market structures. As a result the net benefits are highly uncertain.

- **The allocation of costs and benefits among stakeholder groups is subject to considerable uncertainty as well.** The factors described above affect the distribution of costs and benefits among producers and consumers and from region to region, as well as the overall level of costs and benefits. Net benefits to any particular stakeholder group cannot be guaranteed, which complicates the negotiation process that is generally necessary to unleash investment activity. Furthermore, the affected stakeholders are generally spread across several political and legal jurisdictions and regional transmission organizations. The beneficiaries are often located hundreds of miles from the physical transmission enhancements.

- **The Federal Energy Regulatory Commission's (FERC's) "beneficiary pays" principle for transmission investments will be challenging to implement.** Transmission investments create beneficiaries, but they are difficult to identify in advance. Although the expected changes in market prices offer some insight into the identification of beneficiaries, preexisting contracts and regulatory requirements can result in a generator losing an opportunity to sell at the new higher price or a consumer paying below-market prices because of cost-based ratemaking. Uncertainty regarding the true level and distribution of future gains and losses further obscures the identities of those that should pay for enhancements and those that deserve to be compensated.

- **Transmission investment is critical to maintaining fuel diversity.** CERA's analysis shows that when additional generating capacity becomes necessary after 2010, transmission investments to support construction of remote coal-fired generation are likely to be preferable to constructing additional natural gas–fired power stations near load centers in some situations.

- **Government actions and market forces will jointly determine the final allocation of costs and benefits.** Political as well as economic considerations will determine the ultimate outcome. Concerns relating to increased use of low-cost coal-fired power plants with relatively high pollutant and greenhouse gas emissions are one important noneconomic consideration that will shape the debate.*

- **Transmission investment decisions remain gridlocked.** Conflicting interests and confusion all too often stymie investment actions. In addition to the uncertain benefits from constraint relief, most constraints can be relieved in more than one way, each with different implications for allocations. Furthermore, the transmission network faces a growing need for spending to replace existing structures and equipment, which will further complicate matters. The planning challenge of this situation is obvious and daunting. The sector remains fragmented and lacks a mechanism to align costs and benefits to fully unleash economic transmission investment.

Summary of Major Findings

Grounded in Reality has found that major transmission congestion exists in the Eastern Interconnection. The study focused on the medium-term congestion problems. The results provided below are for the year 2010, because it is the earliest date at which most major transmission enhancements that are not already under construction can be planned, approved, financed, designed, constructed, and commissioned.

*The study assumes that some generators must pay an allowance price for carbon emissions beginning in 2010 and all generators must pay by 2015.

Transmission Constraints and Congestion in 2010

CERA's analysis of the transmission network identified the major transmission constraints within the Eastern Interconnection that are likely to exist in 2010.

They include

- **Western PJM to Eastern PJM.**
- **Midwest to Virginia.**
- **Midwest to the Tennessee Valley Authority (TVA).**
- **TVA and the Southern Company (SoCo) to Entergy.**
- **Into Florida.**
- **Within Entergy.**
- **Within Southwest Power Pool (SPP).**
- **Significant transmission congestion and price differentials are expected to remain in New York City and southwestern New England.** Duration of these congestion periods and price differentials depend on timing and implementation of current transmission projects and generation additions.

Congestion Cost Drivers

The cost of the transmission congestion described above is mainly caused by the relative prices of coal and natural gas. Transmission constraints limit the amount of the relatively low-marginal-cost coal-fired generation in the Midwest from reaching load centers in the East, South, and Southeast, where more expensive oil- and gas-fired generation sets the price of power.

Shortage-driven differentials can greatly increase the benefit of transmission enhancements. Supply shortages can create very high price spikes and large price differentials, as was clearly seen in the Western Interconnection during the 2000/01 California power crisis and in the US Midwest in the summers of 1998 and 1998. When capacity is short, prices diverge significantly from the underlying short-run marginal costs of the generators on the margin. Unlike differentials caused by differences in the fuel mix of power generation in a well-supplied market, shortage-driven differentials are short-lived, disappearing as new supply is added more quickly than transmission capacity can be improved.

Shortages that would increase the value of transmission enhancements may affect some regions of the Eastern Interconnection by 2010. Most regional power markets in the Eastern Interconnection will absorb their excess capacity and return to balance between 2010 and 2015, depending on the growth of the regional economies. Florida and the Virginia-Carolinas region are the most likely to experience shortages because they will need additional capacity by 2006 or 2007, depending on economic growth and the progress of generating projects that have not yet entered construction. CERA's model provides a conservative estimate of the value of transmission enhancements because it assumes that supply is added in order to keep each region in balance.

Costs and Benefits of Transmission Enhancements to Relieve Congestion

The analysis identified a number of cost-effective solutions to relieve much of the congestion described above. This can be done by building new lines and upgrading other equipment to increase the transfer capability. The transmission congestion solutions are

- **Midwest to PJM and Virginia.** This set of improvements reduces the expected price differential between the Midwest and eastern PJM by about $3–$4 per MW in 2010 and the price differential between the Midwest and DVP by about $2 per MWh during that year.

- **The Midwest to TVA.** Directly connecting these two systems, which have only weak links today, would require only a few short new high-voltage lines. The connection reduces the 2010 price differential between the two regions by about $1 per MWh, and it provides a gateway for lower-cost Midwestern energy to flow to higher-cost markets in Florida and Entergy.

- **TVA and the SoCo to Entergy,** thereby largely eliminating the expected price differential between the two regions in 2010.

- **SoCo to peninsular Florida,** reducing the expected price differential between the regions by about $3 per MWh in 2010.

- **Within the SPP and Entergy regions.** CERA analyzed a set of modifications that would reduce expected 2010 prices in lead pockets in the region by about $4–$10 per MWh.

Wholesale power prices increase very moderately in the exporting regions of the Midwest and the South as a result of these enhancements.

Generation cost savings—the net change in the total cost of power supply across the entire Eastern Interconnection—is a measure of economic value created by reducing transmission bottleneck. The net generation cost savings from the various transmission solutions depends on the relative prices of gas and coal. (Coal prices are the same in both the high and low gas price cases.)

These transmission congestion solutions would provide economic savings in excess of $300 million per year in 2010 in the high gas price case. The total annualized costs of these solutions would be less than $200 million, for a net annual savings of $135 million. While the net savings from all the projects taken together are positive under a wide variety of conditions, net resource cost savings from some individual projects turn negative in a low gas price case. The net savings are thus reduced to roughly $30 million per year in the low gas price case.

Transmission Enhancement Effects on Fuel Diversity: Coal by Wire

Given CERA's forecasts of gas prices, new coal-fired generation will be the least-cost option for new generation capacity in some regions where additional base-load generation capacity is needed. However, there is always a trade-off to be made between installing a power plant close to the load and transmitting the power from a remote generating plant through either the AC

network or a dedicated DC line. Furthermore in some locations building a coal-fired plant would be very difficult and expensive owing to emissions regulations, siting rules, land availability, access to rail or barge transport for coal delivery, local opposition, and other factors. Although CERA has not performed a similar analysis for this case, siting constraints mean that other remote resources such as large-scale hydroelectric dams, nuclear plants, and even large wind turbine farms must also depend on the transmission network to compete with local, gas-fired generation.

To assess the trade-off, CERA analyzed the economics of the "coal-by-wire" options against coal- and gas-fired power plants built close to the loads. The existing Eastern Interconnection transmission system is not capable of supporting additional power exports from the regions where low-cost coal-fired generation would be built. Thus, the transmission improvements proposed in this study are critical to allowing remote coal-fired generation to be delivered to the consuming regions. Transmission enhancements are critical to providing a choice of fuels for future generation expansions.

In certain situations remote coal-fired generation appears to be an economic option. CERA analyzed the busbar cost of generation from the local and remote plants, assuming that the proposed transmission enhancements had been made. In some cases additional transmission lines were needed to deliver the power to market. The most viable options for remote coal were plants in

- west Kentucky to supply Virginia
- west Kentucky to supply Florida
- North Dakota to supply Minnesota