

# MARKETVIEWS

October 2017

## CEE'S 22<sup>ND</sup> ANNUAL MEETING IS ON DECEMBER 12-13

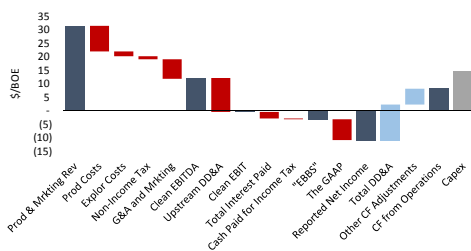
This year's theme is "RISK and Uncertainty – A Return to EEEK!onomics."

The unending quest is to better define, measure and mitigate the economics of risk and uncertainty in practical ways, across the integrated Energy-Environment-Economics themes.

We will explore assumptions, inputs and outputs related to how we perceive, identify, act upon and mitigate risk and uncertainty across the realms of BEG/CEE research.

Don't forget to submit your "what keeps me up at night" contributions.

### CEE Producer Health Tracker



2016 Cash Flow Waterfall: Companies spent 77% above cash flow from to replace production and improve leasehold positions.

## THE DOE NOPR: THE LAST NAIL ON THE COFFIN OF COMPETITIVE ELECTRICITY MARKETS?

The DOE followed its Grid Study with a 19-page [Notice of Proposed Rulemaking](#) (NOPR) to FERC, asking the agency to implement a market design change to compensate "fuel-secure" resources in organized markets "fully." The premise is that competitive electricity markets did not value the "resilience" offered by generators that can store fuel on site, which applies to only coal and nuclear units. There is no standard definition of resilience but the NOPR specifies 90-day fuel storage. Historically, coal piles on site have been significantly smaller than the 90-day condition, which would increase operating costs. The NOPR focuses on merchant plants in regions with both energy and capacity markets: PJM, NYISO and ISONE, and possibly MISO, given that its capacity market is voluntary. Only a handful of companies have sizable merchant coal or nuclear fleets in these markets.

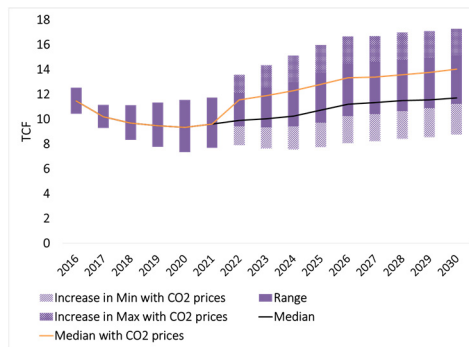
Many interpreted the NOPR as the end of the competitive electricity markets if FERC were to implement a market design change that would subsidize coal and nuclear plants. We would agree with that sentiment given the large amount of merchant coal and nuclear capacity in target markets, especially PJM. But, we see this NOPR not as a unique threat but rather the proverbial last nail on the coffin of competitive electricity markets, which have been diluted, practically from day one.

### "Competitive Electricity Market" Has Been an Elusive Target

Hypothetical Competitive Markets	Most Competitive Market of Today	Most Common Competitive Markets	Competitive IRP	Traditional Regulated IRP
Energy-only	Energy-only	Energy + capacity markets	IRP targets for generation mix, T&D, DER, DSM are met via competitive bidding	Rate-based generation, T&D, DER, DSM, etc.
No out-of-market generation	Sizeable out-of-market generation (tax credits)	Extensive out-of-market generation (tax credits, RPS, ZECs, etc.)		
Maximum feasible DS participation	Some DS participation	Limited DS participation		

The first nails were hammered in the early days: energy price caps, limits on demand-side participation (driven by politics and/or lack of technology), and

## CEE U.S. Gas Demand Stack – A Closer Look at Power Generation



CEE scenarios: a range of 8.5-TCF (23-BCFD) in 2030 for gas burn in power generation. The range is dependent on the price of natural gas, renewables generation, coal and nuclear retirements. These, in turn, depend on possible power market design changes, subsidies to baseload, continuation of renewables mandates and subsidies, environmental regulations, and ability to build gas infrastructure.

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renewables mandates and subsidies just to name a few suspects. As a result, the hypothetical competitive market remained an elusive target. One of the most competitive markets, ERCOT, has suffered from price caps and large amounts of subsidized renewables, among other distortions. In recent years, the death spiral sped up as cheap natural gas, and rapidly increasing capacities of subsidized renewables with low operating costs undermined market price signals, encouraging some states to subsidize other generators, most visibly [nuclear units in New York and Illinois](#). As a result, the portion of the market that could be considered truly competitive has been shrinking. Our essay on the [future of competitive electricity markets](#) provides a more detailed description of this trend and its drivers.

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*Fixing competitive electricity markets appears to be a political dead end. Achieving efficiency and transparency via competitive IRP may be the next best option.*

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We can either fix the competitive electricity markets, which would necessitate eliminating all subsidies, price caps, and capacity markets, fully incorporating demand-side in the market, and internalizing externalities via transparent pricing among other adjustments. This route is a political dead end (remember the Standard Market Design?). Alternatively, we can pursue a regulatory construct where often conflicting goals of the society, including competitive efficiency, environmental improvements, and promotion of domestic renewables industries, can be achieved efficiently and transparently. A competitive approach to integrated resource planning (IRP) could be one option.

## SHIFTS IN FRAC SAND INDUSTRY

Projections for hydraulic fracturing sand demand in the Permian basin have skyrocketed in recent months. At least 15 companies are planning to develop production capacity that add up to 50 to 70 million tons. The rise in proppant intensity, projected increase in drilling activity, increased flexibility on sand quality, and the drive to reduce well completion costs have contributed to the high demand forecasts. Considering that the total U.S. sand demand for fracturing and well packing was about 70 million tons in 2014 when drilling activity was high, the new mining plans in the Permian basin may be overoptimistic. On the other hand, the Permian basin, which already accounts for over 30% of fracturing sand use in the U.S., is the one region where drilling activity is expected to be robust.

However, the quality and suitability of sand resources in the Permian basin is not well understood. Our initial tests on samples from the region show that the compressive strength of the sand is much lower than reported. We have collected more samples and new tests are underway. In addition to the quality, the sand resource is home to the dune sagebrush lizard. Mining activity's impact on the lizard habitat will play an important role in permitting new mining capacity.