PJM / IMM Proposal to Improve Unit-specific MOPR Review Process

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Objectives

- Develop more standardized assumptions and modeling approach that is consistent with assumptions utilized to develop Net CONE parameters
- Reduce PJM / IMM discretion by defining more narrow and objective standards for review in the tariff
- Increase transparency of the process

- Basic assumptions to calculate alternative unit-specific minimum offer price include:
  - Levelization Technique - Require use of Nominal Levelized Values
  - Asset Life - Require use of 20 year asset life
  - Residual Value – Utilize residual value of zero
  - Sunk costs - No sunk costs are permitted
- Use of publicly available data sources for key parameter inputs
  - Cost of capital
  - Inflation
  - Future Revenues

- Documented cost advantages leading to lower capital or fixed are still permitted:
  - Transmission interconnection costs
  - Gas lateral costs
  - Fixed O&M
  - Power island
  - EPC
  - Tax exempt financing status
- Tax rates and lower taxes
  - Allow for lower taxes or payments such as PILOT-type incentives that are generally available

- Economic asset life
  - 20 years consistent with CONE modeling that goes into the VRR Curve parameters
  - Business model differences should already be covered by the self-supply exemption
- Inflation
  - The difference between the yield on 20 year Treasury Bonds and 20 year Treasury Inflation Protected Bonds
  - Over a specified time period prior to submission the unit specific exception
  - Available through the Federal Reserve Bank of St. Louis Economic Database (FRED)

- Levelization method
  - Nominal levelization that provides the same yearly revenue stream in each year over the asset life
  - Has the same NPV as real levelized method
  - Matches desire of merchant developers to receive their cash flows a bit earlier over the life of the asset rather than on the back end
- Sunk Costs and Residual Value
  - No sunk costs as project as a whole, or in pieces can at any time be resold
  - No residual value to be consistent with CONE determination

Unit-specific Cost Modeling Assumptions: Cost of Capital

- Cost of Equity
  - CAPM using 20 year using 20 year Treasury Bond as risk free rate available through FRED
  - Beta from studies of like companies
    - Beta = 1.23 in the last CONE study
  - Equity risk premium based on historic differentials
    - This premium was 6.5% for the last CONE study
    - What is the equity portfolio to which we compare risk-free rate?
  - Possibly validate against data from projects under development

Unit-specific Cost Modeling Assumptions: Cost of Capital

- Debt/Equity ratio
  - Consistent with CONE calculation for VRR Curve parameters
  - 50/50 during the previous CONE study
  - Validate new ratio against developed and developing projects
- Cost of Debt
  - Use B rated debt as a proxy for developer risk
  - Cost of B rated debt from Bank of America/Merrill Lynch index available through FRED
  - Contemplating validation through parties lending to actual projects

- Require use of standard forecast net revenues
- Power prices from forward curves such as NYMEX or publicly available forecasts.
  - Adjusted for basis as necessary especially if the forward prices are quoted at a liquid point like Western Hub
- Gas prices from forward curves such as NYMEX or publicly available forecasts.
  - Adjusted for basis as necessary especially if the forward prices are quoted at a liquid point like Henry Hub in LA.

- One possible avenue is 1st year revenues only
  - Would easily admit the use of NYMEX forward curves on both power and gas
- Possibly forecast revenues from first 3 years to match 3 year historic used in Net CONE today
  - Use of NYMEX power forward may be problematic due to lack of liquidity that far out
  - Gas forward prices are more liquid further out
  - Power prices forecasts may make more sense

- Forward prices in gas and power would be shaped to match hourly, daily, monthly changes for both peak and off-peak hours
  - We have the ability to do this already using historic data in the energy and environmentally limited opportunity cost application in eMkt
- Dispatch
  - Like we do today in Net CONE calculation to account for operational parameters
- Emissions Prices
  - From forecasts or forward curves as available or relevant

- PJM and the IMM shall post at a specified time prior to the submission deadline for unit specific exceptions all standardized data that will be used in the unit specific process
- PJM will also post for reference the unit specific exception offer the most recent CONE value adjusted for the standardized parameters:
  - Cost of capital
  - Inflation rate
  - Forward looking revenues
  - This differs from the MOPR screen price which uses historic revenues