PJM Competitive Planning Process:
PJM Cost Evaluations

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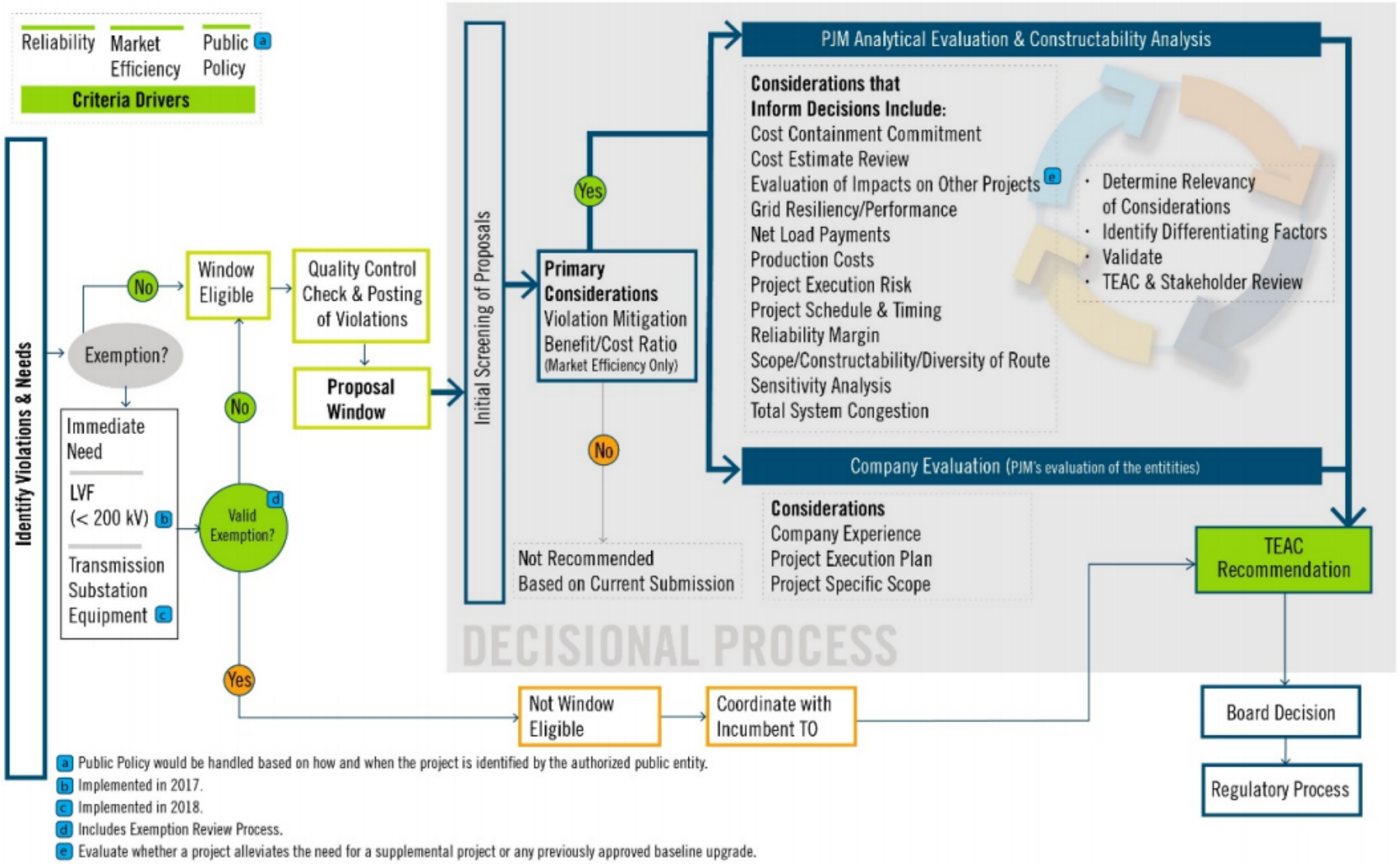
DESTF

Competitive Planning - Decisional Process



Cost Review & Independent Cost Estimate

- For proposals that require detailed constructability evaluations, PJM may engage a third-party consultant, and part of their scope will be to develop independent cost estimates for the proposals that provide a basis for the cost reviews.
- The independent cost estimates are developed by the third-party consultant based on engineering expertise and the most recent material and equipment costs.
- The independent cost estimates are broken into eight (8) categories:
  - materials and equipment
  - engineering and design
  - construction and commissioning
  - permitting/routing/siting
  - right of-way (ROW)/land acquisition
  - construction management
  - company overheads and other miscellaneous costs
  - project contingency (30%)
- The proposal cost estimate risk is assessed based on comparison between the developer's proposed cost and the independent cost estimate.

Example - Cost Review

Component IDs	Component Description	Proposal Cost Estimates ($M)	Independent Cost Estimates ($M)
9	New Station A to Station B 500kV line	185.48	204.00
10	Reconductor Station B to Station C 500kV	43.18	43.56
12	Build new Greenfield Station B 500kV	38.71	28.00
	Total	**267.38**	**275.56**

Cost Review Risk Assessment: Proposal cost estimate is within 10% of the independent cost estimate, and is considered Low risk.

Cost Containment Review / Financial Analysis

- PJM will initiate the comparative cost framework as described in PJM Manual 14F Section 8.4 to evaluate the costs of project proposals that are submitted through PJM's competitive proposal window process, with the final comparative cost framework being performed once project proposals are found to pass an engineering screen.
- The comparative cost framework is a multi-step process that calculates project costs and permits the comparison of costs among projects addressing the same violation(s) or constraint(s) (competing projects) submitted through the proposal window.
- If there is only one project proposal submitted to address violation(s) or constraint(s), the comparative cost framework analysis is not necessary. Instead, PJM will review the potential risks, if any, associated with the estimated costs submitted for that project proposal.

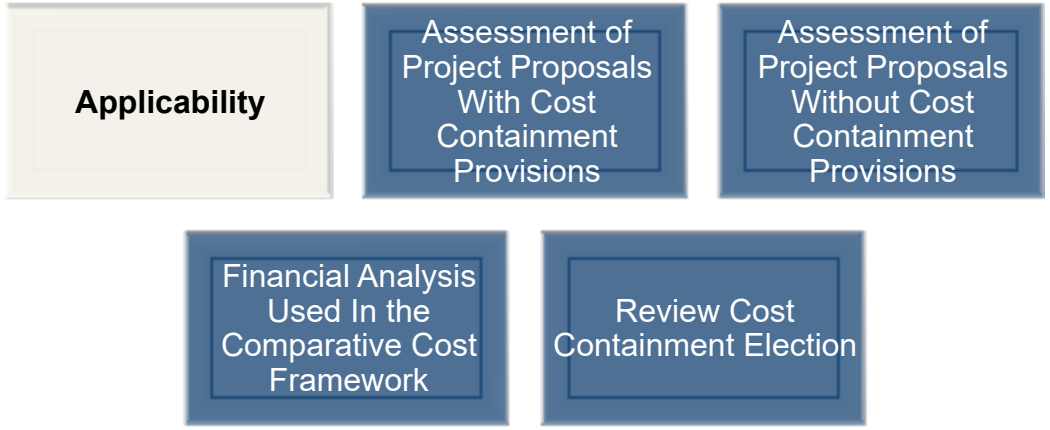
PJM Manual 14F – Section 8.4 Comparative Cost Framework

- Applicability
- Assessment of Project Proposals With Cost Containment Provisions
- Assessment of Project Proposals Without Cost Containment Provisions
- Financial Analysis Used In the Comparative Cost Framework
- Review Cost Containment Election

Applicability

- Process applies to any project that went through a competitive window
  - For window eligibility, see Operating Agreement Schedule 6 – Section 1.5.8
  - Examples: reliability, market efficiency, long-term or nearer term

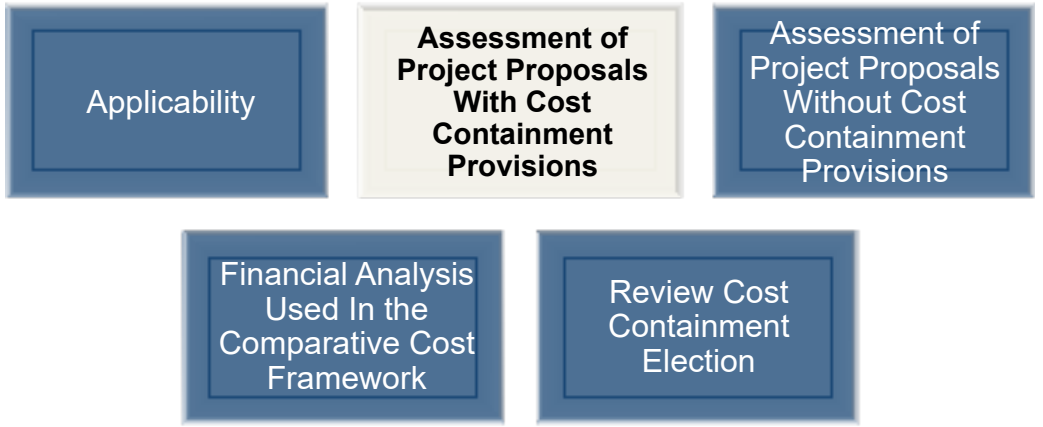
Manual 14F – Section 8.4.1 - Applicability



Assessment of Project Proposals With Cost Containment Provisions

- Projects WITH cost containment provisions
  - PJM assessment
    - Review project specific risks, scope of project, reasonableness of construction cost, risk of cost increasing beyond cap, risk of cost exceeding defined limit, risk of sponsor inability to complete
  - Review inclusion/exclusion of defined cost elements

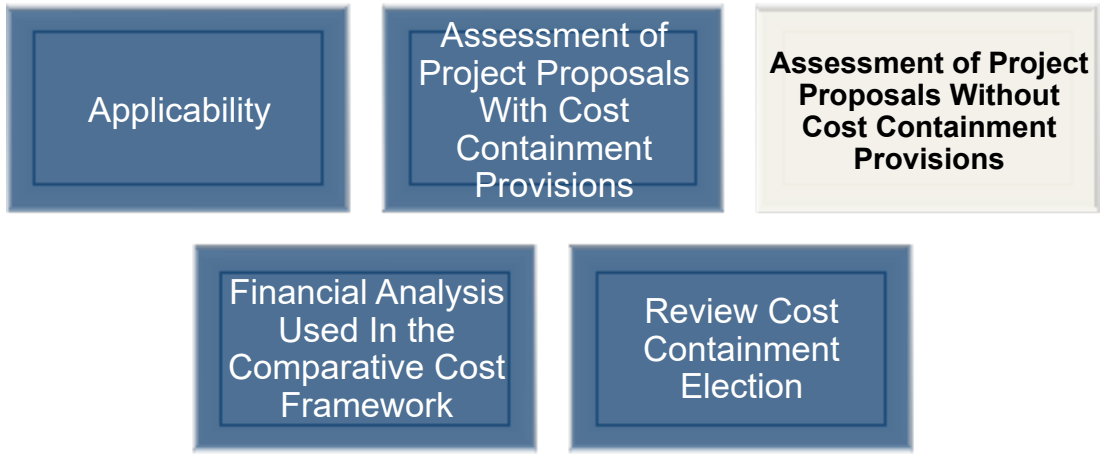
Manual 14F – Section 8.4 - Assessment of Project Proposals With Cost Containment Provisions



Assessment of Project Proposals Without Cost Containment Provisions

- Projects WITHOUT cost containment provisions
  - PJM will assess: project specific risks, scope of the project and reasonableness of the construction costs.

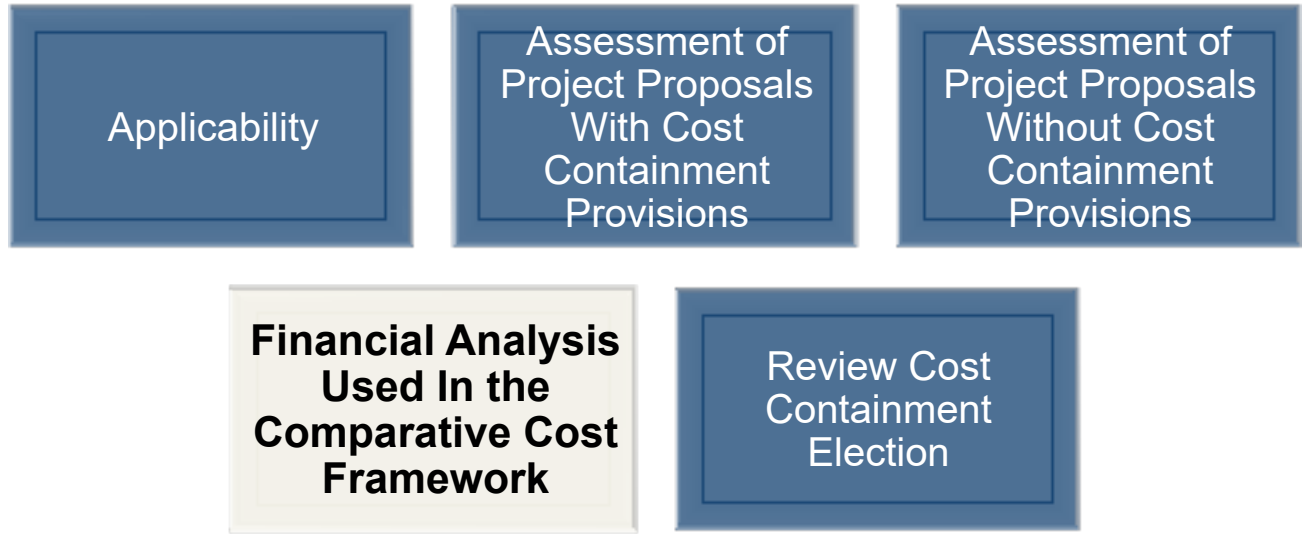
Manual 14F – Section 8.4 – Assessment of Project Proposals Without Cost Containment Provisions



Financial Analysis Used In the Comparative Cost Framework

- PJM identifies projects addressing the same violation(s) or constraint(s) – a.k.a. “competing projects”
- PJM applies financial analysis using defined inputs

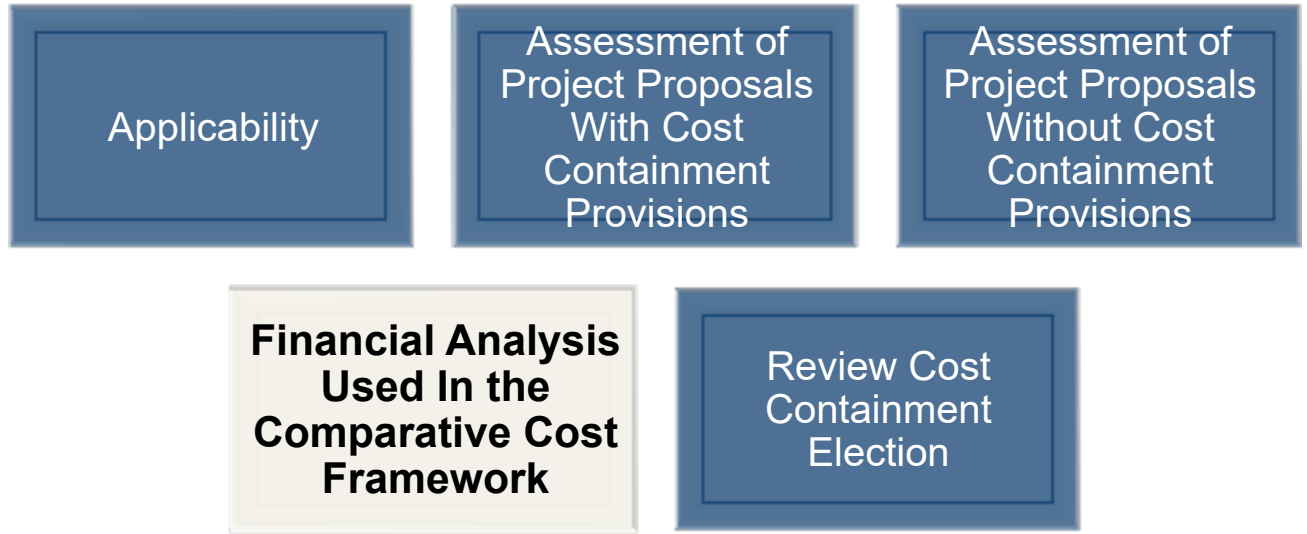
Manual 14F – Section 8.4.1 - 8.4.5 Financial Analysis Used In the Comparative Cost Framework



Financial Analysis Used In the Comparative Cost Framework

- Key inputs to the financial analysis include but are not limited to:
  - Data and information from the project proposals submitted to PJM, including details of cost containment and revenue requirements
  - Financial input assumptions
  - Develop and perform scenario analysis

Manual 14F – Section 8.4.1 - 8.4.5 Financial Analysis Used In the Comparative Cost Framework



Examples of Recent Financial Analysis

- For examples of recent usage of the comparative cost framework, the results from prior competitive proposal window evaluations are included on the following slides with the developer names obscured.

Example - Key Modeling Assumptions

For fair comparison, the following standardizing assumptions are used in revenue requirement modeling for all proposals.

Rates	Assumptions
PJM Discount Rate	6.81%
Inflation Rate	2.1%

Project Dates	Assumptions
Earliest Capital Spend Start Date	1/1/2024
Date used for Discounting	1/1/2024

Modeling Convention	Notes
Monthly Model	Greater precision and monthly rate base simulates 13-month average

Book Depreciation: Straight-line depreciation method is used for all proposals, assuming no salvage value or removal cost.

Tax Depreciation: 15-year MACRS (mid-year convention) accelerated tax depreciation is used for all projects.

Operations & Maintenance (O&M) / Administrative & General (A&G) Expenses, Property Tax, and Cash Working Capital: Modeled based on bidders' provided revenue requirement forecast for the useful life of the project.

- In cases where developers did not provide O&M/A&G, consultants used an assumption of 1% of Capital Expenditures ("CapEx") for pro-rated Year 1 O&M and inflated that value using its inflation vector.
- In cases where property tax is not provided, it was modeled as 1% of average net plant.
- In cases where cash working capital is not provided, it was modeled as 1/8th of total O&M for each year.

AFUDC/Return on CWIP: If a developer did not specify whether it will elect to accrue AFUDC or earn a return on CWIP during the construction period in their proposal and it was not discernable using their provided revenue requirement data, consultants modeled AFUDC.

Work by Others: Certain components included in proposals have a construction responsibility other than the proposing entity or one of its affiliates. These are known as "Work by Others" or "WBO." All results shown in this presentation include Work by Others.

- For all WBO CapEx, consultants calculated and used weighted-average Return on Equity %, Cost of Debt %, and Capital Structures for each model based on developer-provided and publicly available data.
- Except for LSP, WBO O&M, property tax, and cash working capital are assumed to proportional to the proposer values, relative to the ratio of their total capex.

Example - Cost Containment by Developer

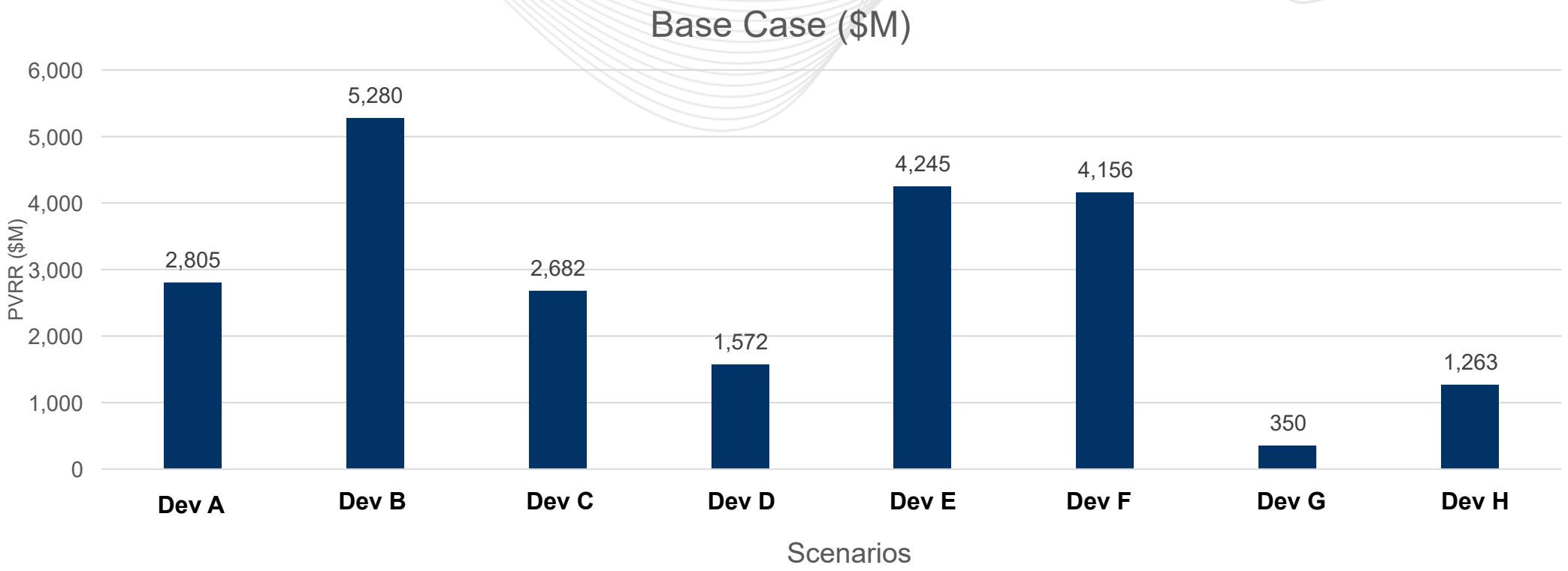
Cap Type	Developer A	Developer B	Developer C	Developer D	Developer E	Developer F	Dev. G	Dev. H	Dev. I
Project Cost Containment	✓	✓	✓	✓	✓	✓	**No Cost Containment Proposed**		
Soft Cap	✓	✓	✓		✓				
Hard Cap				✓		✓			
ROE Cap (inclusive of adders)		✓	✓	✓					
Equity Percentage Cap		✓	✓	✓					
Schedule Guarantee			✓						
Key Differences	○ No Hard Cap ○ Still recovers Depreciation and Debt Cost on all CapEx ○ Reduces ROE from 10% to 9.5% on incremental CapEx over the "cap" ○ Only caps certain elements for 3 of 4 proposals	○ No Hard Cap ○ Still recovers Depreciation and Debt Cost on all CapEx ○ Reduces ROE from 9.8% on incremental CapEx over the "cap" ▪ Up to 25%: 8.5% ▪ 25-50%: 7.0% ▪ Over 50%: 5.5% ▪ ROE cap adjusted downward by above tiers if project cost exceeds original estimate	○ No Hard Cap ○ Still recovers Depreciation and Debt Cost on all CapEx ○ Reduces ROE from 9.8% to 0% on incremental CapEx over the "cap" ○ 23 proposals have a minimum overall ROE floor of 7.0% - 7.5% ○ 3 proposals have no minimum overall ROE floor	○ Hard Cap ○ No recovery of Depreciation, Debt Cost, or Return on Equity on incremental capex over the cap ○ Caps set at 120% of CapEx estimate	○ No Hard Cap ○ Still recovers Depreciation and Debt Cost on all CapEx ○ Special mechanism to provide a return of 1-2% of cost overruns once project costs exceed 5% of estimates. ○ This mechanism is uncapped and covers a small percentage of cost overruns relative to other proposals	○ Hard Cap ○ No recovery of Depreciation, Debt Cost, or Return on Equity on incremental capex over the cap ○ Caps set at 120% of CapEx estimate			

Example - Sensitivity Modeling

- To evaluate cost overrun and financing risks, consultants modeled a **base case** and **8 different sensitivities** for each proposal.
- **Some variables are interdependent.** E.g., certain developers state that increases in project capex would result in a lower ROE.
- The downside sensitivity combines multiple sensitivities to create an environment where multiple variables are stressed.

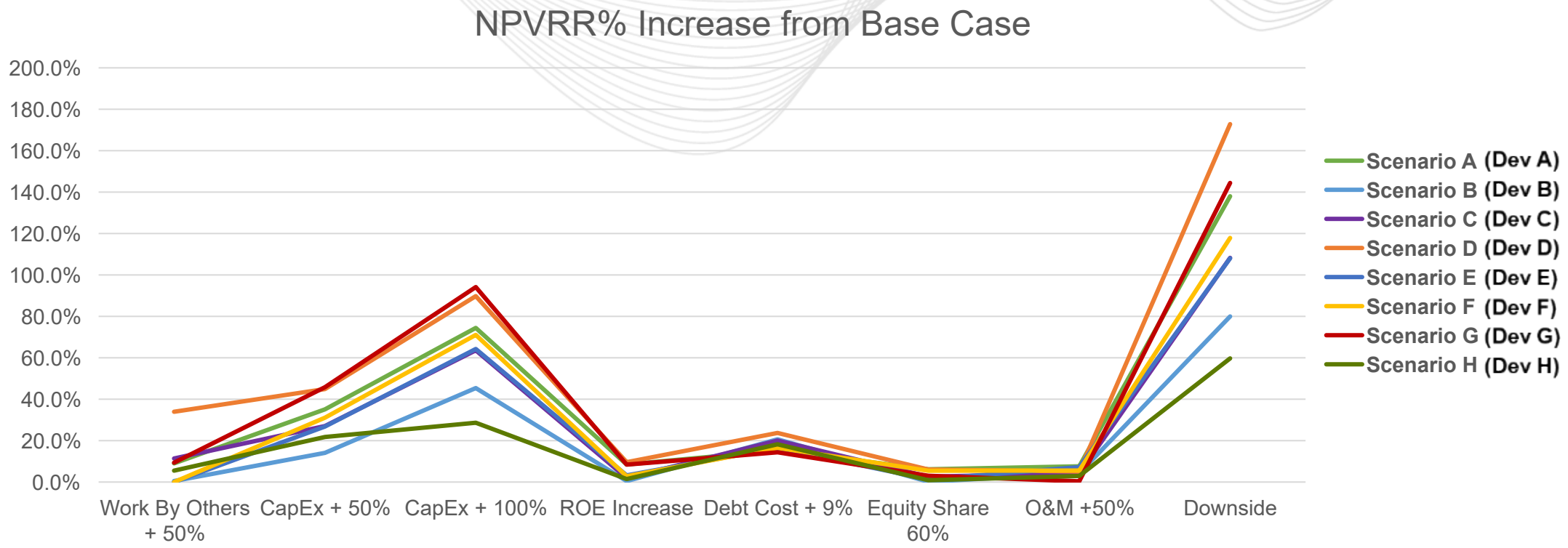
#	Sensitivity	Variable	Description
1	Base Case	None	Model the proposal using inputs from developer and ICOS model calculations
2	WBO +50%	Single Variable	Work by others project cost increased by 50% for all periods
3	Project Cost +50%	Single Variable (*changes to capex may affect Return On Equity ("ROE") for some developers*)	Proposer's project cost increased by 50% for all periods *(unless capped)*
4	Project Cost +100%	Single Variable (*changes to capex may affect Return On Equity ("ROE") for some developers*)	Proposer's project cost increased by 100% for all periods *(unless capped)*
5	ROE 12%	Single Variable	Return on Equity raised to 12% for all periods *(unless capped)*
6	Cost of Debt 9%	Single Variable	Cost of Debt raised to 9% for all periods
7	Equity 60%	Single Variable (*changes to Debt-to-Equity ratio may affect ROE for some developers*)	Equity thickness set to 60% for all periods *(unless capped)*
8	O&M +50%	Single Variable	O&M expense increased by 50% for all periods *(unless capped)*
9	Downside (*includes various changes above*)	Multiple Variables (*changes to capex and equity % may affect ROE for some developers*)	Proposer's project cost +50% *(unless capped)* O&M +50% *(unless capped)* ROE 12% *(unless capped)* COD 9% Equity 60% *(unless capped)*

Example - Scenario Base Case Results



- **Proposal Scenario Results: S**cenarios are grouped by developer and vary in PVRR from $0.4B to $5.3B based on the projects included in each scenario.
- **Comparative Analysis:** Because the projects are not analogous, comparisons between projects and scenarios can best be viewed in conjunction with project benefits.

Example - Scenario Sensitivity Results



- Demonstrates volatility of scenarios across modeled sensitivities
- Scenario H (Developer H) is least volatile in most sensitivities and in downside

Review Cost Containment Language

- PJM will evaluate
  - Any exceptions, exclusions or limitations to the proposed cost containment.
  - Potential concerns with the legal language provided by the developer for inclusion in DEA Schedule E

Manual 14F – Section 8.4.1 – Review Cost Containment Election