Cost Containment Status and Next Steps

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Planning Committee
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Proposal Fee Structure Review

Current Fee Structure

- "Flat Fee" based on proposing entity project cost estimate

- All proposals, upgrade and greenfield solutions, submitted for consideration in any RTEP Proposal Window are subject to a proposal fee based on the following fee structure:

Proposal Cost Estimate	Fee
<$20M	$0
$20M-$100M	$5k
>$100M	$30k

Additional Costs Associated With Comparative Framework Approach

Independent Consultant Review

- # of consultants depends on scope of work
  - Look at more projects, earlier
- Cost up to ~ $50k per project proposal

Financial Review

- Single consultant
  - Cost very dependent on window and cost containment
- Overall cost somewhat dependent on volume

Legal Review

- Evaluate the cost containment legal language

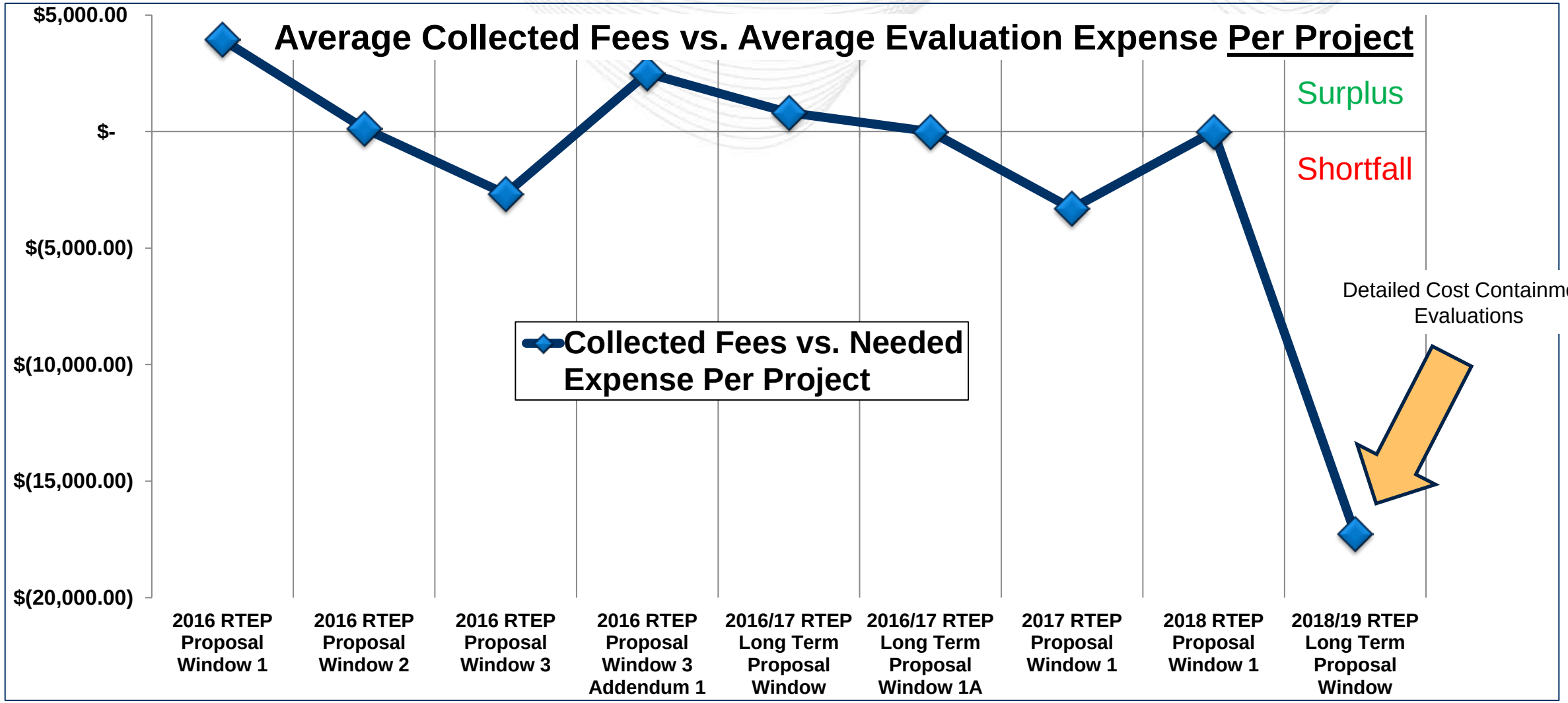
Comparative Framework

- Side-by-side comparison of estimated costs, cost containment information, risk profiles, measurements and observations

Enhancements to Cost Evaluation Paradigm

- Previous Cost Evaluation Paradigm
  - Reliability and Benefit analysis performed first
  - Constructability analysis typically only performed on a subset of “finalists” that demonstrate good performance
  - Majority of work in serial, next evaluation steps dependent on completion of previous
- Future Cost Evaluation Comparative Framework
  - Bottom line: more studies
  - Parallel analysis
  - Increased volume of constructability analysis
  - Full Financial Analysis

Collected Fees vs. Expenses



Proposed Fee Structure - Drivers

- Financial consultant analysis
  - New cost associated with cost containment evaluations and constructability/risk evaluations
  - Anticipate a single consultant performing an analysis of an entire window
  - $300k anticipated price for average sized window
    - Startup cost
    - Preparing and compare risk-adjusted revenue requirements
    - Revenue requirement analysis
    - Cost containment and risk analysis
    - Results review
    - Documentation and reporting
- Constructability Analysis
  - Multiple consultants working in parallel
  - $15-50k anticipated costs per proposal submission, dependent on complexity of project proposal and corresponding required work
- Example cost estimate per window:
  - **(PJM Labor) + ($200-400k financial analysis) + ($15-50k X Number of Proposals)**

Proposed Fee Structure

- **Proposed approach: Flat Fee + Detailed Study Costs**
  - Flat Fee structure = see table
    - Non-refundable, due at close of window
    - Intent is to cover general costs for every project submission associated with administering the process
  - Detailed Study Costs = the actual itemized evaluation expenses incurred for detailed study of project proposals
    - Intent is to bill the projects that incurred the expense
    - Anticipate a refundable deposit, amount TBD, due date under TBD – under review
    - Overflow evaluation expense beyond deposit due within standard PJM billing cycle

Proposal Cost Estimate	Existing Flat Fee	Proposed Flat Fee
<$20M	~~$0~~	$X thousand
$20M-$100M	~~$5k~~	
>$100M	~~$30k~~	

Additional Costs Associated With Comparative Framework Approach

- Next Steps
  - Finalize review of anticipated additional costs
  - Finalize new structure to address additional cost
- The comparative framework will add cost to the evaluation process
- Fee structure filed at FERC
  - will need to be updated
- Propose PJM Manual 14F Attachment C
  - Anticipate July 1st read and August request for endorsement

Anticipated Schedule for FERC 1000 Cost Containment Framework

Reliability Window (60 days)

Market Efficiency Window (120 days)

Reliability Window (60 days)

Reliability Window (60 days)

ME Window

2018

2019

2020

Develop initial Construction Cost Comparative Framework by 9/1/2019

Implement initial Framework by 1/1/2020

Continue Development of additional ROE Framework

Implement additional ROE Framework by 5/1/2020

Dec 2019 Vote
MRC

May 2020 Vote
MRC

IMM Coordination

- PJM & IMM Meetings
  - 2018
    - June, July, September
    - November (Joint PJM / IMM / Independent Cost Consultant conference)
  - 2019
    - January
    - February
    - June
    - Upcoming meetings

Cost Containment - Past Milestones

- May 2018 MRC Cost Containment Motion
  - Development process and initial schedule initiated, Manual language
    - https://pjm.com/-/media/committees-groups/committees/mrc/20180524/20180524-item-03c-cost-containment-ls-power-alternative-motion-with-friendly-amendment.ashx
  - Project proposal templates approved
    - https://pjm.com/-/media/committees-groups/committees/mrc/20180524/20180524-item-03b-pjm-enhanced-project-proposal-template.ashx
  - OA Language
    - https://pjm.com/-/media/committees-groups/committees/mrc/20180524/20180524-item-03c-cost-containment-ls-power-alternative-motion-oa-language.ashx
- September 2018 MRC
  - Schedule modified, process otherwise unchanged
    - https://pjm.com/-/media/committees-groups/committees/mrc/20180823/20180823-item-04-order-1000-transmission-oroject-cost-containment-motion-to-delay.ashx

Cost Containment - Progress to Date Presentations to PJM PC

- May 2018
  - MRC motions initiating the cost containment effort approved (and Aug 2018 motion to delay schedule)
- 2Q and 3Q 2019
  - Timeline and overall conceptual approach updates
- January 2019
  - Overview of major components and overall approach
- February 2019
  - Additional detail of overall approach
- March 2019
  - Additional detail and example data visualization
- April 2019
  - Examples of what output to expect from the cost containment process
- May 2019
  - High level example and discussion of process implementation
  - Proposal fee restructure discussion

Cost Containment and Proposal Fee Effort Timeline Moving Forward

- (Today) June 2019 PC
  - Review of cost containment evaluation approach and next steps
    - See today's presentation Appendix: Materials Presented at Previous Meetings
  - Review of Proposal Fee re-structure

- July 2019 PC and MRC
  - 1st read of M14F language to support cost containment
  - 1st read of OA and M14F language to support proposal fee modifications

- August 2019 PC and MRC
  - 2nd read and request for endorsement of M14F language to support cost containment
  - 2nd read and request for endorsement of OA and M14F language to support proposal fee modifications

- September 2019
  - File OA language to support cost containment evaluation with FERC

Appendix: Cost Containment Development Materials Presented at Previous PC Meetings

Anticipated Schedule for FERC 1000 Cost Containment Framework

Reliability Window (60 days)

Market Efficiency Window (120 days)

Reliability Window (60 days)

Reliability Window (60 days)

ME Window

2018

2019

2020

Develop initial Construction Cost Comparative Framework by 9/1/2019

Implement initial Framework by 1/1/2020

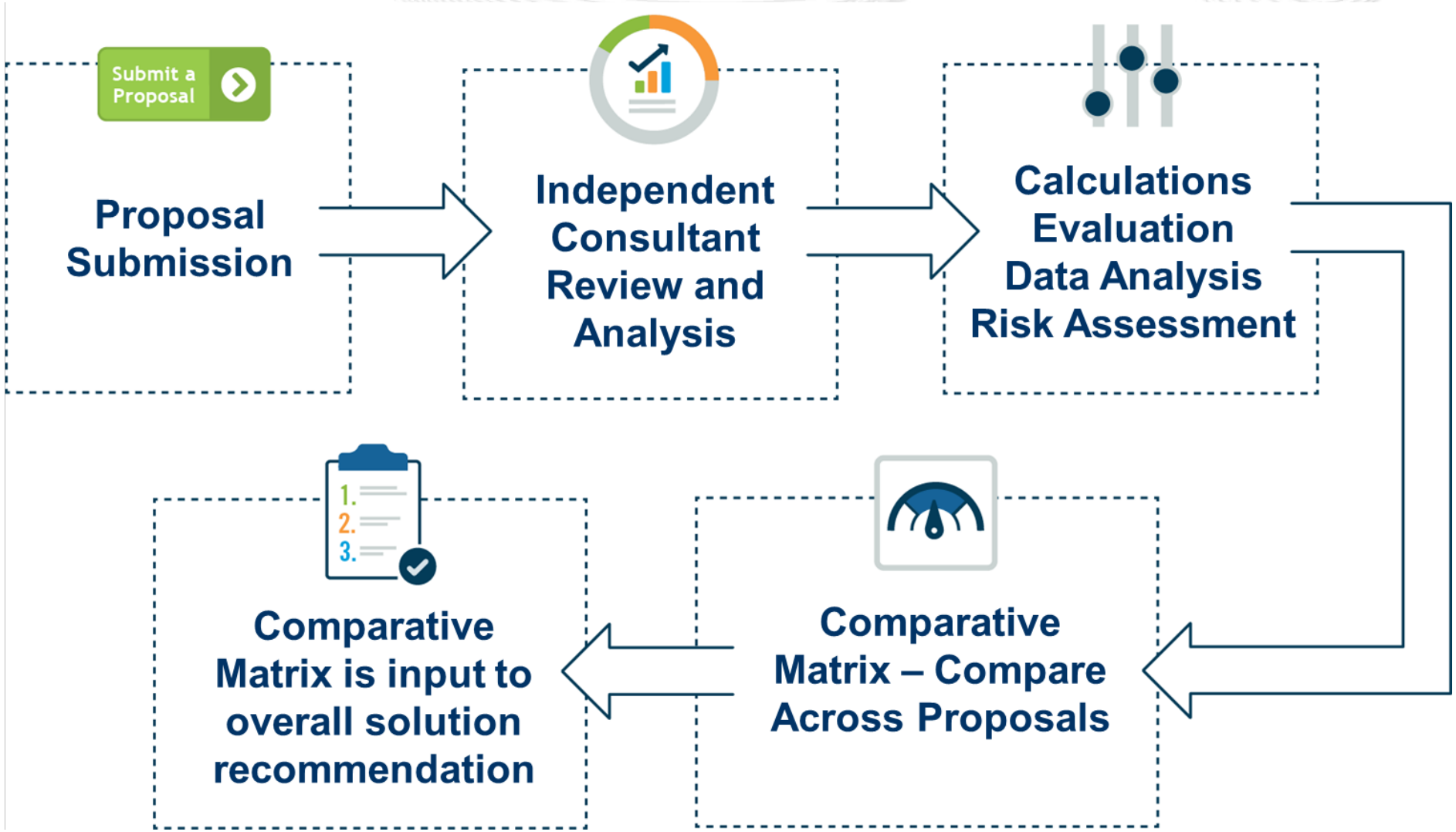
Continue Development of additional ROE Framework

Implement additional ROE Framework by 5/1/2020

Dec 2019 Vote
MRC

May 2020 Vote
MRC

Major Components of Cost Containment Evaluation



STATUS

Process complete and in place

Provides the key input parameters used for the next steps in the overall evaluation

Submit a Proposal

Proposal Submission

Consultant Review and Data Evaluation

STATUS

Process under active development

- PJM & IMM
- Completed PJM / IMM / Consultant conference on Nov. 15, 2018

Independent Consultant Review and Analysis

Calculations Evaluation Data Analysis Risk Assessment

Matrix Development

STATUS

Process under active development

Initial work beginning in parallel with the other steps to ensure compatibility and integration with the overall RTEP decisional process

Comparative Matrix – Compare Across Proposals

Comparative Matrix is input to overall solution recommendation

Comparative Framework – Analytical Steps

Constructability Analysis

Financial Analysis

Legal Analysis

- Cost Evaluation – What to expect at TEAC
  - Information – project submittal templates, side-by-side comparisons, PJM and independent consultant cost estimates, observations, risk assessment, visual comparisons
  - No one size fits all approach
    - Use optimal approach given the cluster(s) of projects under evaluation
  - Regular updates

Project Cost Evaluation
What to Expect

- TEAC Review
- Summarize proposal submissions and PJM findings for TEAC review
- Cost Containment

Example Proposal ID#	Project Cost Comparison Overview			
	A	B	C	D
150 809 362 783 234	• Project Descriptions • Proposed Cost Estimate • PJM Cost Estimates • Cost Containment • Other			

Project Cost Evaluation
What to Expect

- TEAC Review
- Side-by side comparison of project details

Example Proposal ID#	Project Cost Comparison Breakdown			
	A	B	C	D
150 809 362 783 234	• See proposal templates ✓ Engineering & design, permitting, ROW and land, materials, construction, overhead, contingency, total capex, AFUDC, taxes, ROE cap, capital structure, etc. ✓ Assumptions			

Project Cost Evaluation
What to Expect

- No one size fits all approach, evaluation categories will be specific to the cluster under study
- Cluster specific observations and factors

Example Proposal ID#	Project Cost Evaluation Categories			
	A	B	C	D
150 809 362 783 234	• Qualitative Observations & Quantitative Factors ✓ Pass / Fail ✓ Acceptable / Unacceptable ✓ Poor / Fair / Good / Better / Best ✓ Low / Neutral / High ✓ Scales: 1-10, 1-100, percent %, etc. ✓ Timing / Duration ✓ Project Specific Risks ✓ Other			

Example Competitive Project Proposals Key Tasks

Receive Proposals

Initial Triage

- Data Check
- Redaction Normalization

Independent Consultant Review

- Prepare Work Packages
- Project Specific Risk Identification
- Independent Cost Estimates

Financial Review

- Base revenue requirement analysis case
- Normalization & Base Case

Legal Review

- Evaluate the cost containment legal language

Project Cost Evaluation

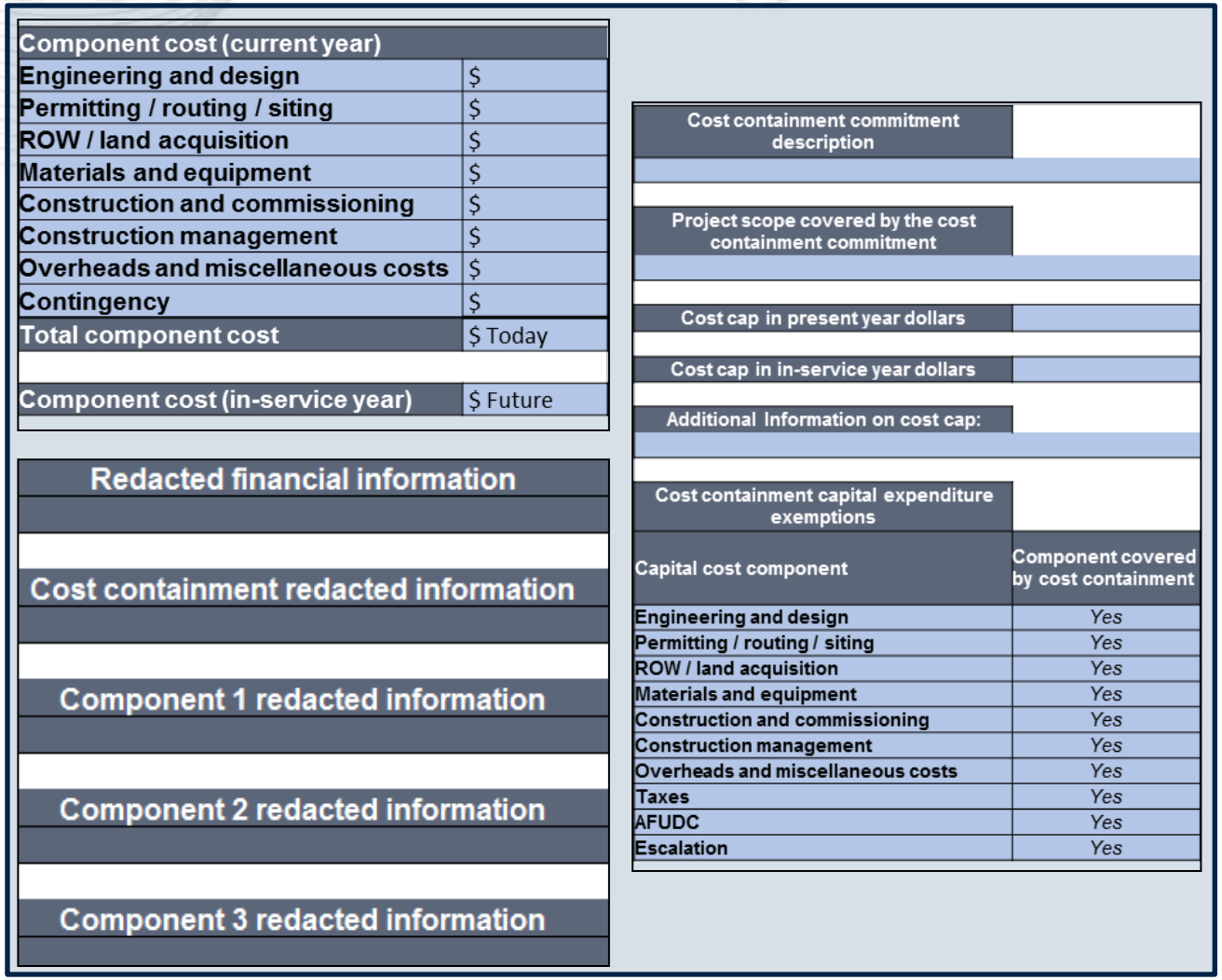
- Calculations, Observations
- Visualization

Comparative Framework

- Side-by-side comparison of estimated costs, cost containment information, risk profiles, measurements and observations

Example Competitive Project Proposals
Key Task: Proposals Submitted

- Project sponsors submit proposal templates
  - Summary and Description
  - Problems Addressed
  - Project Components
  - Redaction
  - Financials
  - Cost Containment



Component cost (current year)	
Engineering and design	$
Permitting / routing / siting	$
ROW / land acquisition	$
Materials and equipment	$
Construction and commissioning	$
Construction management	$
Overheads and miscellaneous costs	$
Contingency	$
Total component cost	$ Today
Component cost (in-service year)	$ Future

Redacted financial information

Cost containment redacted information

Component 1 redacted information

Component 2 redacted information

Component 3 redacted information

Cost containment commitment description	
Project scope covered by the cost containment commitment	
Cost cap in present year dollars	
Cost cap in in-service year dollars	
Additional Information on cost cap:	
Cost containment capital expenditure exemptions	

Capital cost component	Component covered by cost containment
Engineering and design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes
Materials and equipment	Yes
Construction and commissioning	Yes
Construction management	Yes
Overheads and miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes

Example Competitive Project Proposals
Key Task: Triage Proposals

- Template and supporting files data check (PSS/E and Market Simulation Data)
- Redaction review
- Project sponsor outreach
- Place projects into logical group “clusters”
  - Mix of project submissions (e.g. cost containment)

Example Competitive Project Proposals
Key Task: Group Competing Proposals

	Project 1	Project 2	Project 3	Project 4
Project Name	Vine to Cobbler Reconductor	New Harrison sub, new line Harrison to Jean	New line Falls to West Cooper	New Pine substation, new line to Jean
Project Description	Reconductor the Vine to Cobbler 500kV 35 mile line.	Build the new Harrison 500/230kV substation interconnecting the Logan and Wade 500kV substations. Construct a new dual circuit 230kV line between the new Harrison substation and the Jean substation.	Build the new 42 mile Falls to West Cooper 500kV line between the existing Falls and West Cooper substations.	Build the new Pine 500/230kV substation interconnecting the Logan and Wade 500kV substations. Construct a new dual circuit 230kV line between the new Pine substation and the Jean substation.

Example Competitive Project Proposals
Key Task: Constructability Analysis

- Develop work scope packages
  - Including risk factor identification
- Communicate and coordinate with the vendors
- Receive reports

Example Competitive Project Proposals
Key Task: Financial and Legal Analysis

- Main inputs
  - Project submission templates
    - Includes any cost containment information
  - Constructability analysis
    - Including risk factors
- Main Outputs
  - NPV
  - Financial risk factor evaluation
  - Project financial side-by-side cost comparison
  - Legal evaluation

Example Competitive Project Proposals
Key Task: Cost Containment Evaluation

		Project 1	Project 2	Project 3	Project 4
Project Name		Vine to Cobbler Reconductor	New Harrison sub, new line Harrison to Jean	New line Falls to West Cooper	New Pine substation, new line to Jean
Capital Cost Cap ($ Millions)		NA	110.5	NA	150*
	Engineering and Design	NA	Yes	NA	Yes
	Permitting / Routing / Siting	NA	Yes	NA	Yes
	ROW / Land Acquisition	NA	Yes	NA	Yes
	Materials and Equipment	NA	Yes	NA	Yes
	Construction and Commissioning	NA	Yes	NA	Yes
	Construction Management	NA	Yes	NA	Yes
	Overheads and Misc. Costs	NA	Yes	NA	Yes
	Escalation	NA	No	NA	Yes
AFUDC / CWIP		NA	No	NA	No
Taxes		NA	No	NA	No
ROE Cap (%)		NA	9.5	NA	No
Capital Structure (Equity %)		NA	45	NA	No

*Rate base cap

Example Competitive Project Proposals
Cost of Capital Scenarios

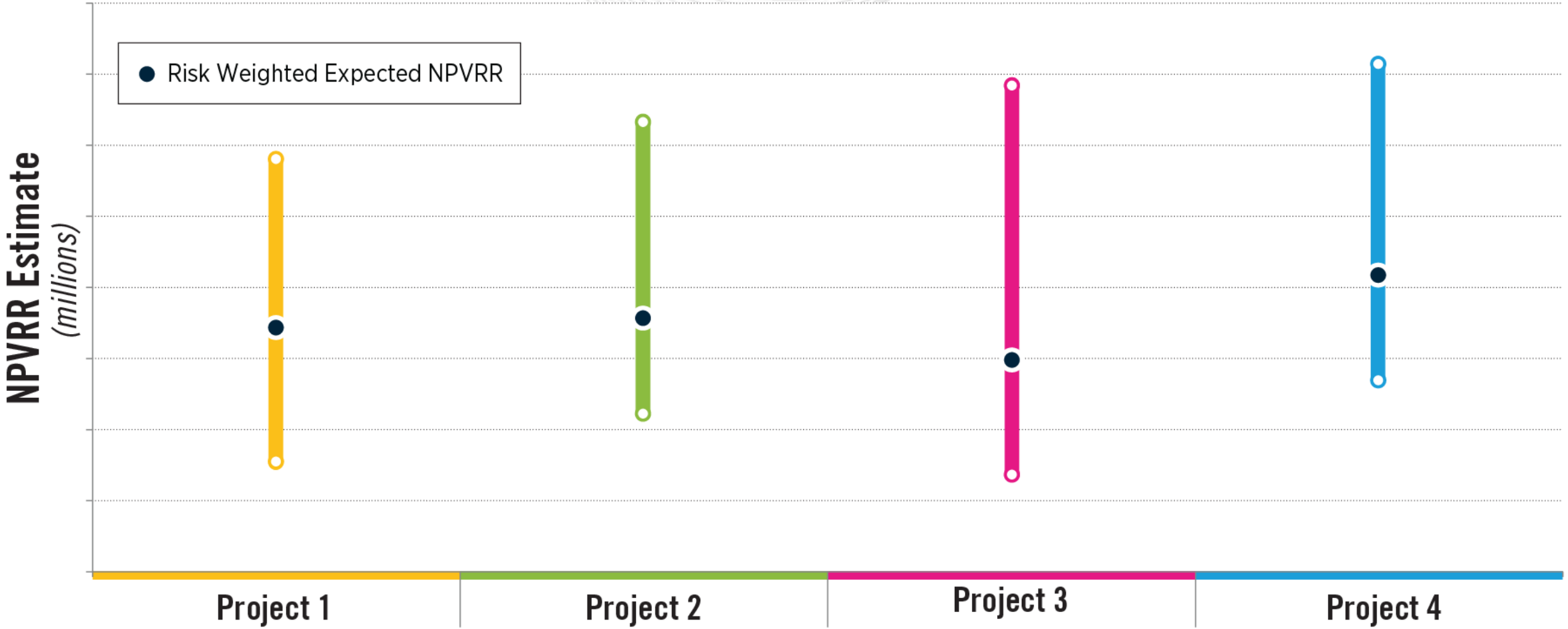
- Scenarios
  - Project cluster specific
  - Note: PJM adjusted cost incorporates cost cap scenario analysis and individual analysis

Scenario		Example Parameters
Cost of Capital	Return on Equity High	11.50%
	Return on Equity Low	9.00%
	Debt Cost High	6.00%
	Debt to Equity Ratio Low	45% Equity
	Debt to Equity Ratio High	55% Equity
	Total Construction Cost	High/Low/Etc.

Example Competitive Project Proposals
Key Task: Cost Comparative Framework Evaluation

	Project 1	Project 2	Project 3	Project 4
Project Name	Vine to Cobbler Reconductor	New Harrison sub, new line Harrison to Jean	New line Falls to West Cooper	New Pine substation, new line to Jean
Project Sponsor Proposed Cost Estimate	$126.5	$127	$115.5	$130.9
	As received from the project sponsor. May consider cost containment.			
Independent Consultant Cost Estimate	$132	$146.6	$124.8	$152.4
	Independently developed. Does not consider cost containment.			
Cost Containment	No	Yes	No	Yes
PJM Cost Estimate With Cost Containment	These estimates will include consideration of the independent cost estimates, constructability analysis, financial analysis, legal analysis and any other relevant information.			

Example Competitive Project Proposals
Key Task: Compare Project Estimates and Risk



Revision History

- 6/10/2019
  - Original version posted to PJM.com

- 6/12/2019
  - Re-ordered the slides
  - Added detail to slide 12 – Milestones and slide 14 – Timeline and Next Steps
  - Added revision history slide