

PJM Market Efficiency Long Term Window Overview

September 16, 2016

- Overview
- Market Efficiency Selection Process Guidelines
- Examples
- Appendix – References

- Objective –
 - Initial read of Market Efficiency Selection Process guidelines

- Key Takeaways –
 - Special PC sessions were conducted to develop guidelines
 - Goal is to conclude the effort by mid November
 - Verbal and written feedback is welcome
 - Targeting to post the guidelines document by early December



Guidelines – OA Schedule 6 “Bright Line” Primary Criteria



- **Congestion Mitigation –**
 - Market Efficiency proposal shall relieve one or more economic constraints(s)
 - Economic constraints are capacity and energy constraints
- **Benefit/Cost (B/C) –**
 - B/C ratio threshold of at least 1.25:1
- **Cost Estimate Review–**
 - If a proposal costs in excess of \$50 million, an independent review of such costs will be performed



- When a proposal does not meet the B/C test –
 - Proposal will not proceed further to address the driver
 - The proposal may be combined with another proposal

- When a proposal meet the B/C test but does not address the driver–
 - Proposal will not be necessarily rejected
 - Technicality
 - May relieve a different driver in the system



- Other secondary criteria is necessary when -
 - Proposals do not provide obvious benefits
 - Further analysis is required to evaluate constructability and reliability

- Zonal/Total Savings –
 - Production cost
 - Load payment (net and gross)
 - System congestion
 - Capacity



- Risk Evaluation –
 - Cost Escalation
 - Schedule
 - Development (Siting and Permitting)

- Cost Containment –
 - May address cost escalation risks
 - PJM will evaluate risk mitigation via a subjective analysis
 - If the analysis confirms mitigation risks, containment will be factored in



- Sensitivity Evaluation –
 - Load Forecast
 - Fuel Cost Variations
 - Generator Variations
 - Transfer Variations

- Reliability Impact–
 - Analyze the need for upgrades to address reliability limitations
 - Upgrades are added costs to the proposal
 - Will trigger B/C test



- Outage Impact –
 - Certain proposals may result in outage related congestion
 - Such congestion shall not be included in the B/C test
 - Such congestion shall be included as an ancillary cost to develop the proposal
 - Shall be considered in the overall project selection process

Appendix 1 – Examples

Example 1 – Large vs Small Proposals

- Proposals
- costs more than \$50M
- Small proposal - costs less than \$50M

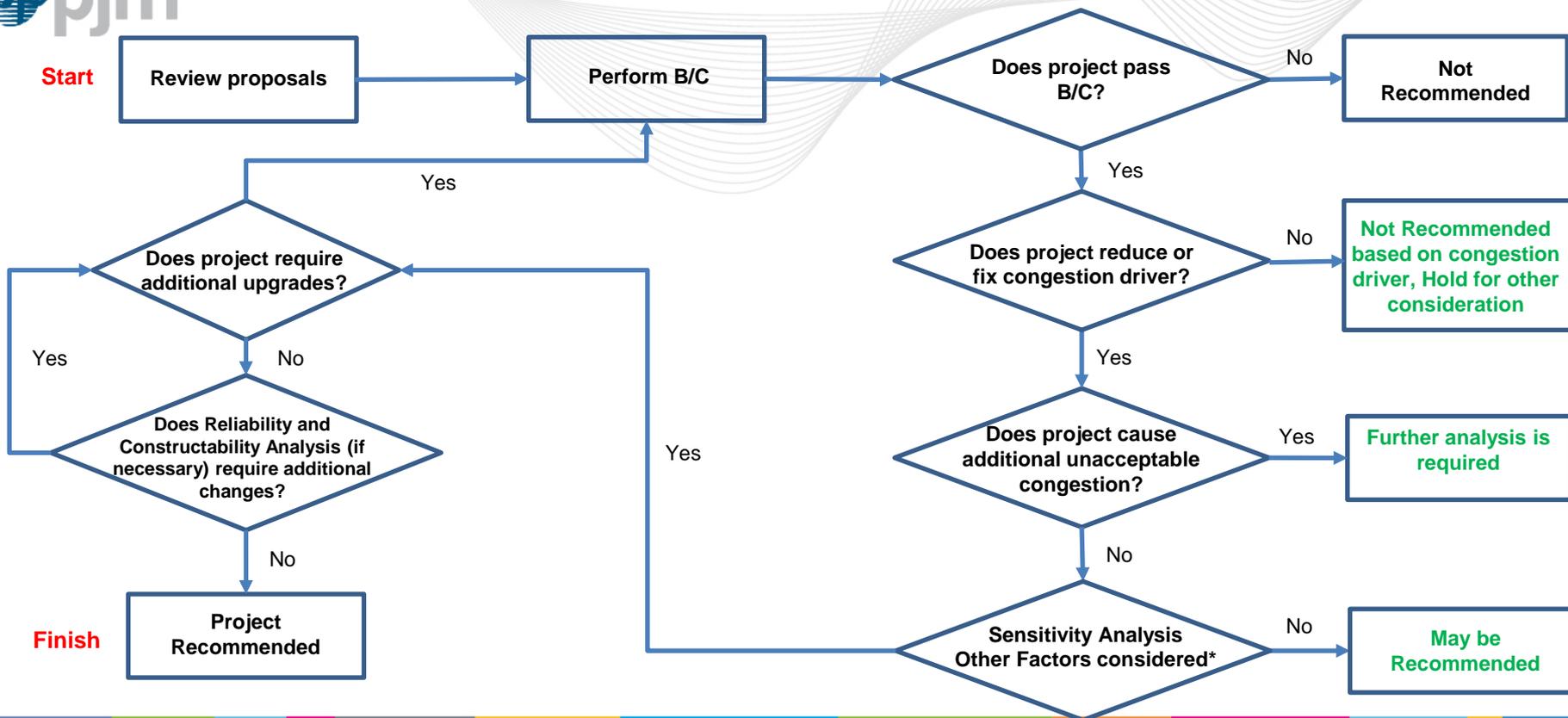
Type	Pros	Cons
Large	<ul style="list-style-type: none"> ➤ Relieves congestion driver significantly ➤ Relieves additional system congestion 	<ul style="list-style-type: none"> ➤ Cost and schedule risks ➤ Outcome of sensitivities need to verify robustness
Small	<ul style="list-style-type: none"> ➤ Minimum cost and schedule risks ➤ Sensitivities is a plus 	<ul style="list-style-type: none"> ➤ Less relief on congestion driver ➤ No additional system congestion relief

Example 2 – Greenfield vs Upgrade Proposals

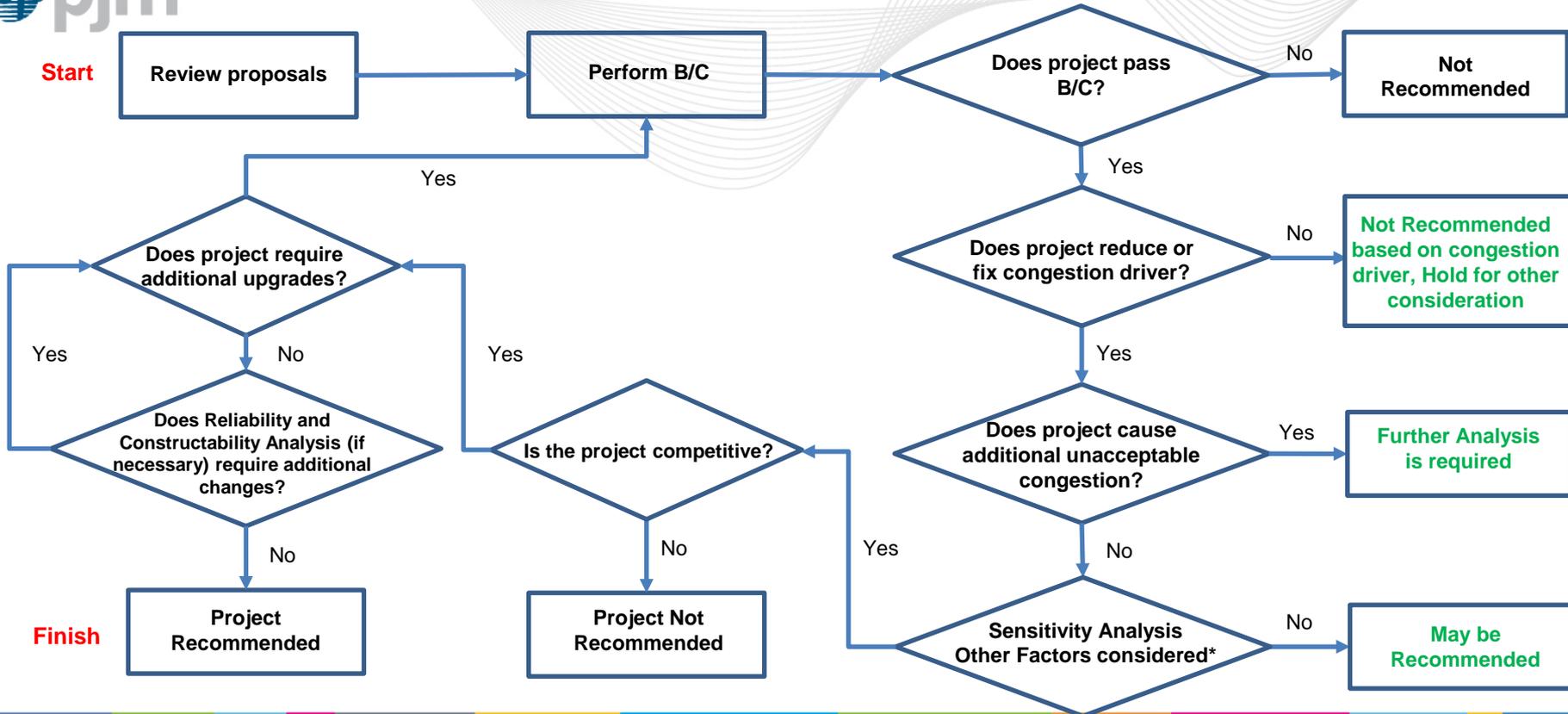
- Likely factors that may influence the selection:

Type	Pros	Cons
Greenfield	➤ Minimum outage related congestion	➤ Siting, permitting and scheduling risks
Upgrade	➤ Minimum siting, permitting and scheduling risks	➤ Outage related congestion

Appendix 2 – Decision Tree Diagrams



* Other factors considered such as PJM Overall Production Cost, load Payments, and congestion



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Appendix 3 – Operating Agreement & Manual References

- Scope, PJM requirements & Member requirements
- <http://www.pjm.com/about-pjm/member-services.aspx>
- PJM Manual 14B, Section 2.6:
<http://www.pjm.com/~media/documents/manuals/m14b.ashx>
- PJM Operating Agreement, Schedule 6, Section 1.5.7:
<http://www.pjm.com/media/documents/merged-tariffs/oa.pdf>
- PJM Market Efficiency Practices <http://www.pjm.com/~media/planning/rtep-dev/market-efficiency/pjm-market-efficiency-modeling-practices.ashx>