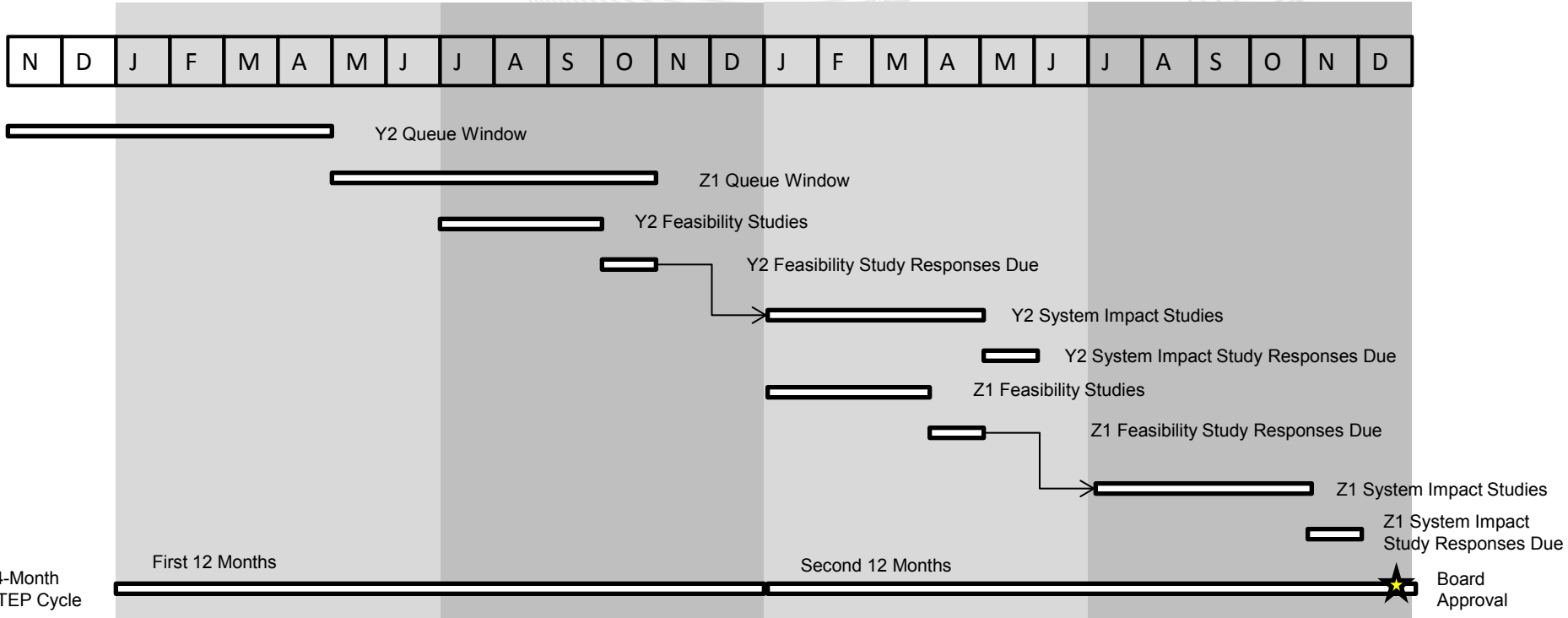


# Generation Interconnection (GI) as an Input to Multi-Driver Approach

October 23, 2014

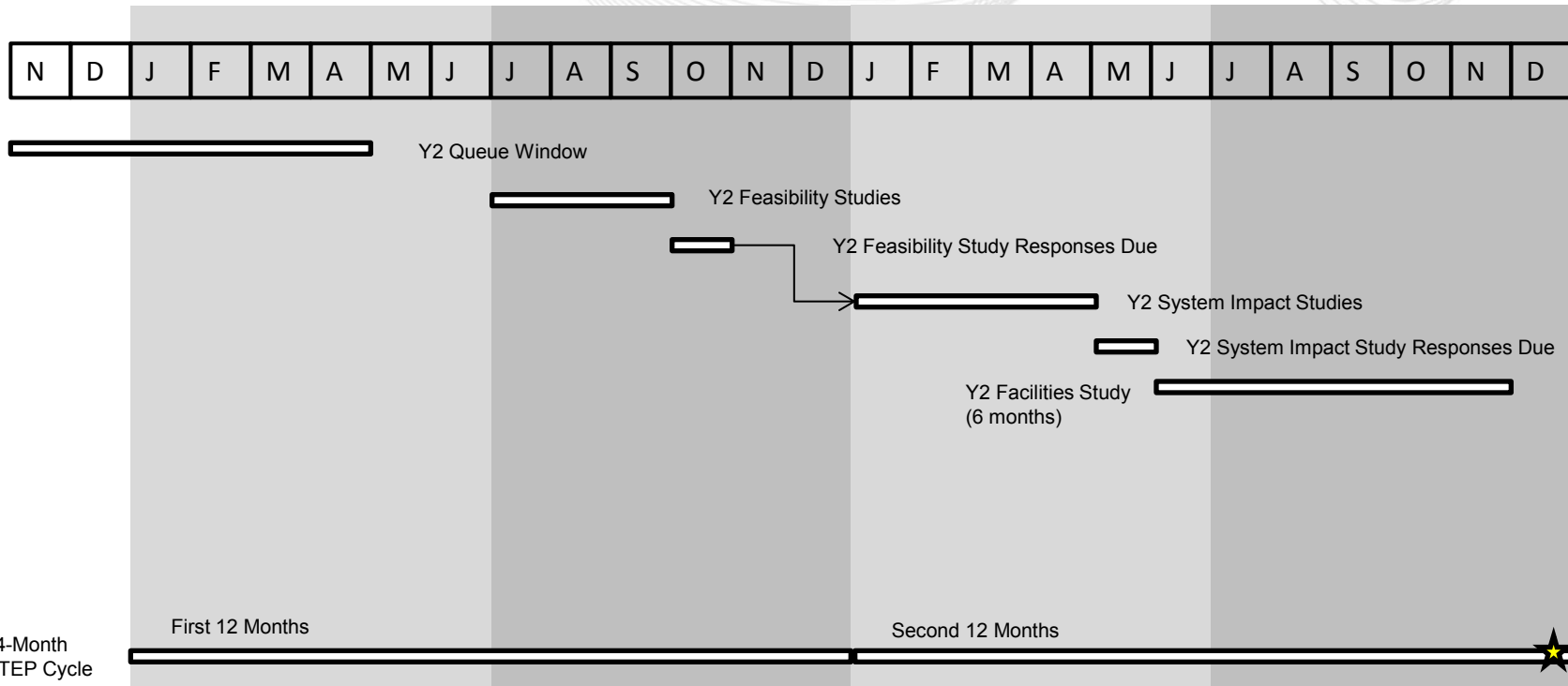


24-Month  
RTEP Cycle

First 12 Months

Second 12 Months

★  
Board  
Approval

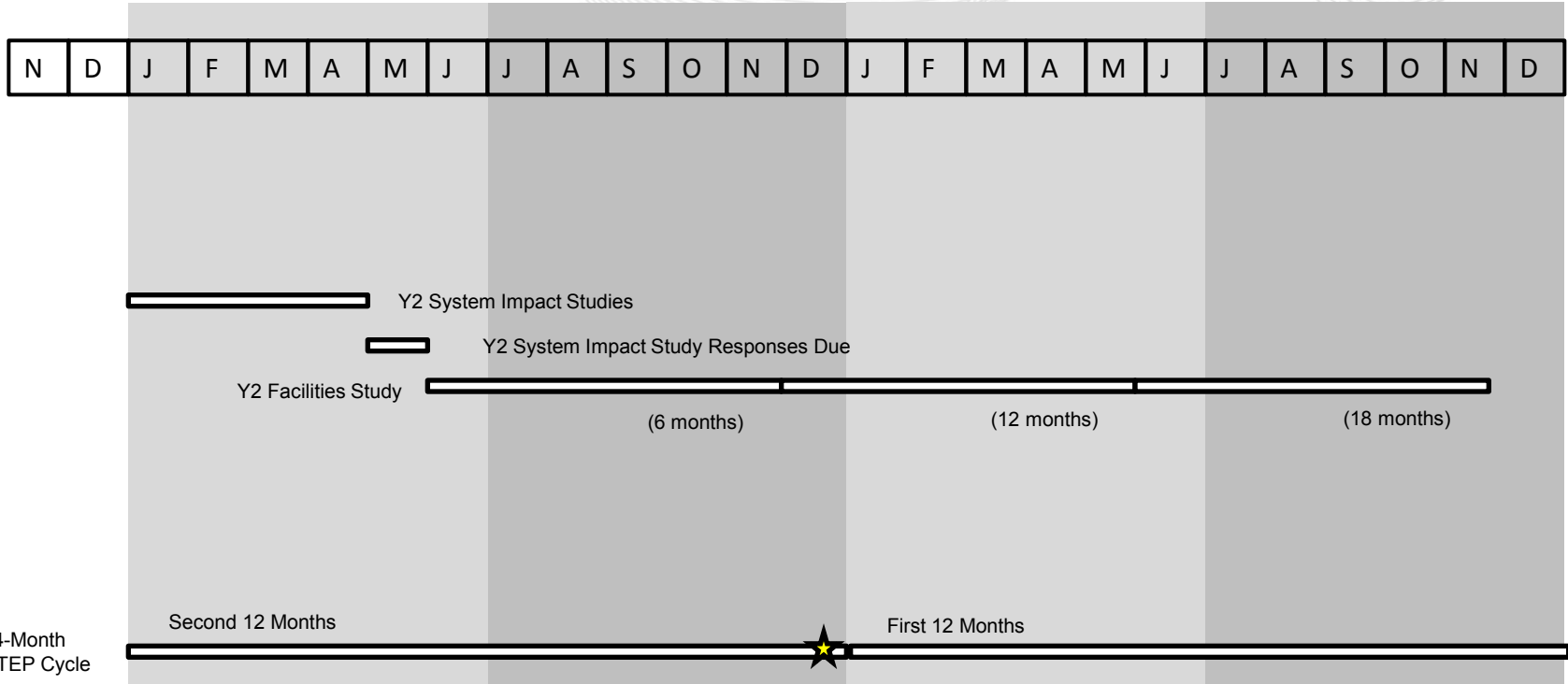


24-Month  
RTEP Cycle

First 12 Months

Second 12 Months

Board  
Approval



24-Month  
RTEP Cycle

Second 12 Months

First 12 Months

Board  
Approval

Y2 System Impact Studies

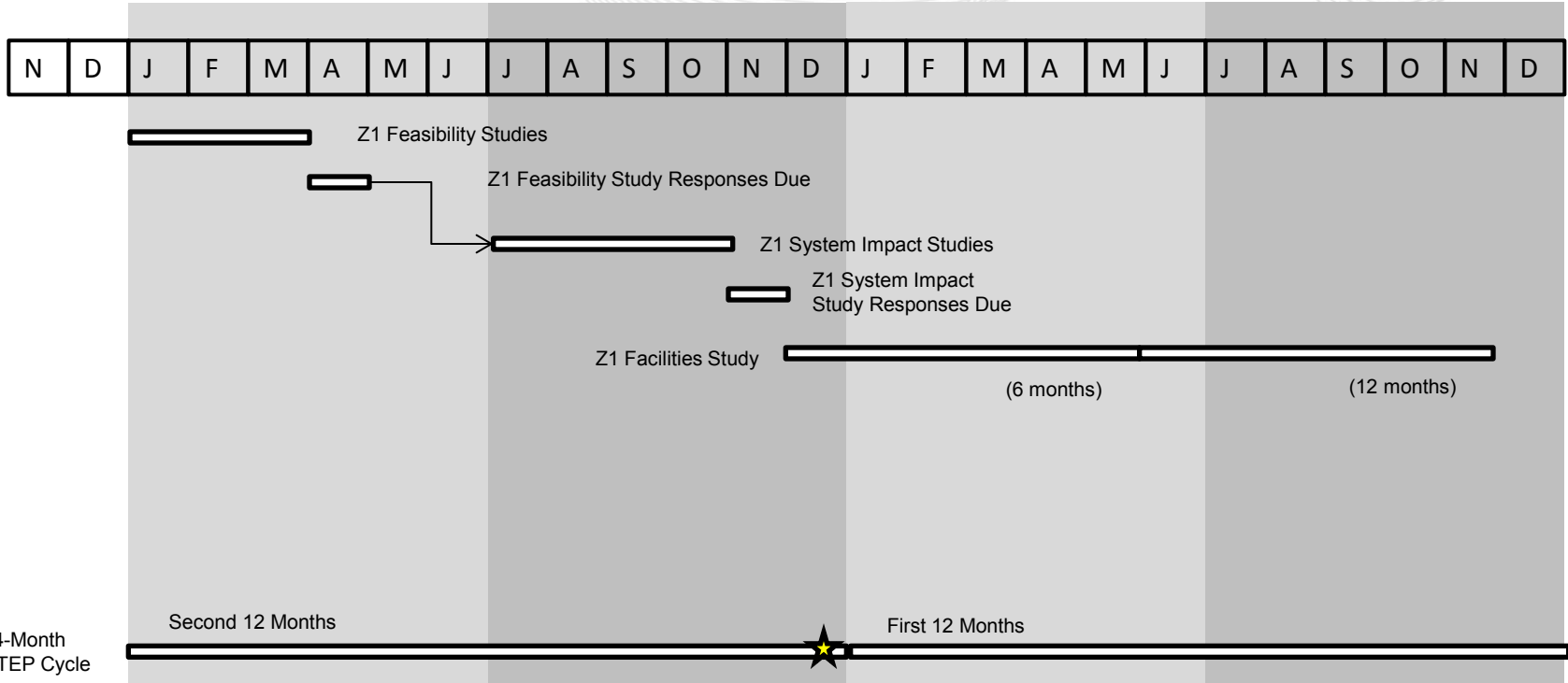
Y2 System Impact Study Responses Due

Y2 Facilities Study

(6 months)

(12 months)

(18 months)



24-Month  
RTEP Cycle

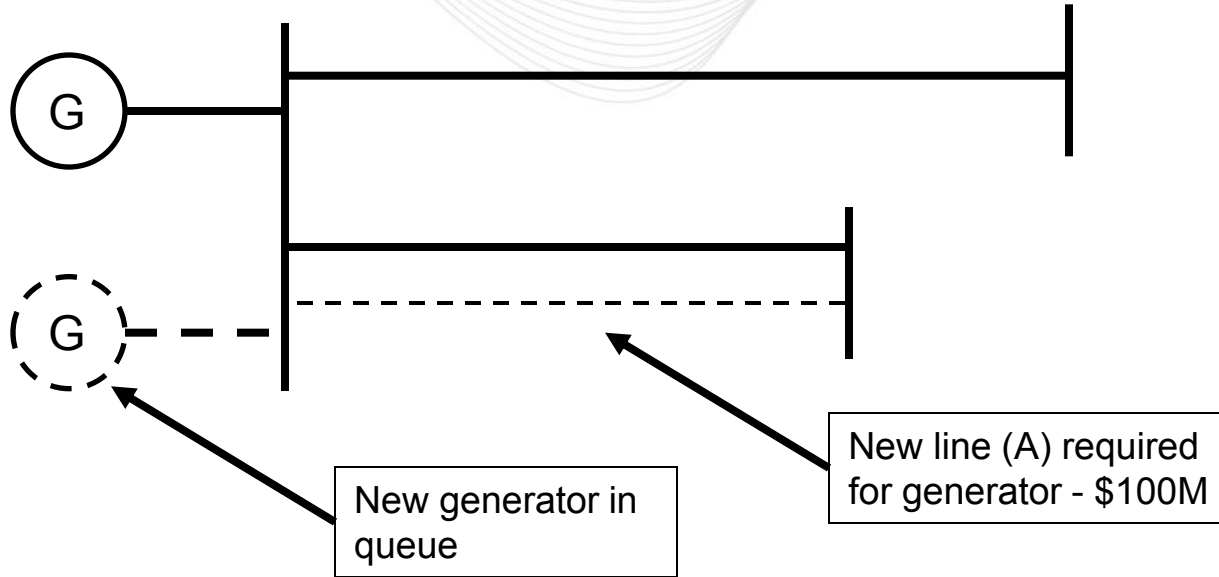
Second 12 Months

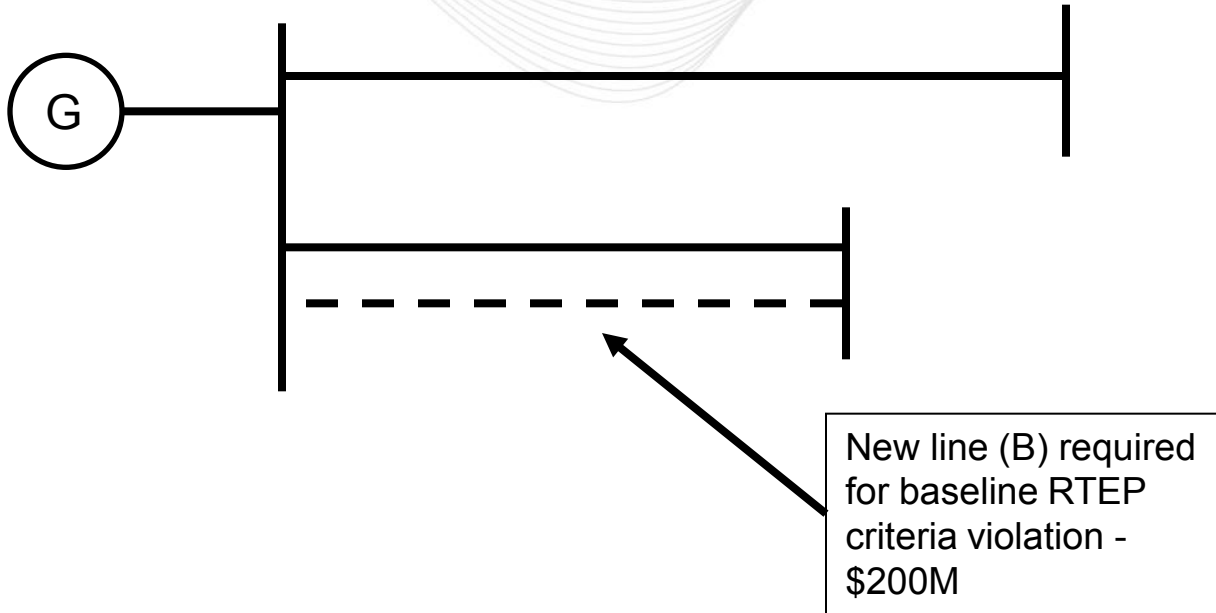
First 12 Months

Board  
Approval

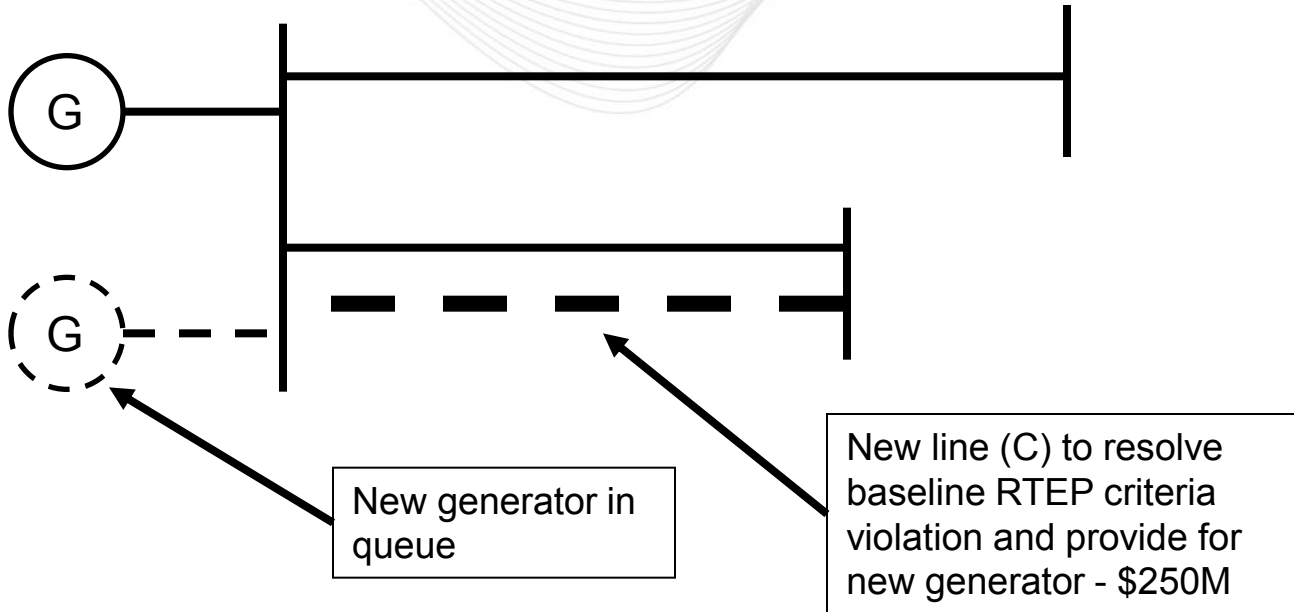
- Generator requires upgrade that will be completely replaced by baseline RTEP upgrade
  - *Generator enters queue before RTEP violation is identified*
  - *Generator enters queue after RTEP violation is identified*
  - *Generator in-service date is before date of RTEP violation*
  - *Generator in-service date is after date of RTEP violation*
- Baseline upgrade would be smaller (and less expensive) without generator

May be timing issues, but may not change integration of drivers









- Timing
  - *Is generator ready to commit (execute ISA) when decision would need to be made so that line C can be completed before onset of criteria violation?*
    - *If not, what level of certainty would be acceptable to move forward with line C?*
  - *Can line C be completed before onset of criteria violation, even if generator is ready?*
    - *If not, are acceptable operational measures available?*
  - *How do we manage generator rights if commercial date is after line B would have been in service, but before line C can be placed in service?*
  - *Other?*

# Example 1 – Proposed Business Rules

- Generator must execute ISA or interim ISA to be integrated into MDA
  - *MDA is still a baseline RTEP upgrade but is also identified with required “Network Upgrades” for generator*
  - *MDA becomes part of base case for subsequent interconnection studies*
  - *Right to change mind regarding participation in MDA will be based on construction status, continuing need, and impact on subsequent projects – security will be used to complete MDA as with any other Network Upgrade if decision is to proceed with MDA*
  - *If MDA cannot be completed, requirements for generator must be re-tooled*
  - *Treatment is the same whether RTEP violation is identified before or after generator enters queue*

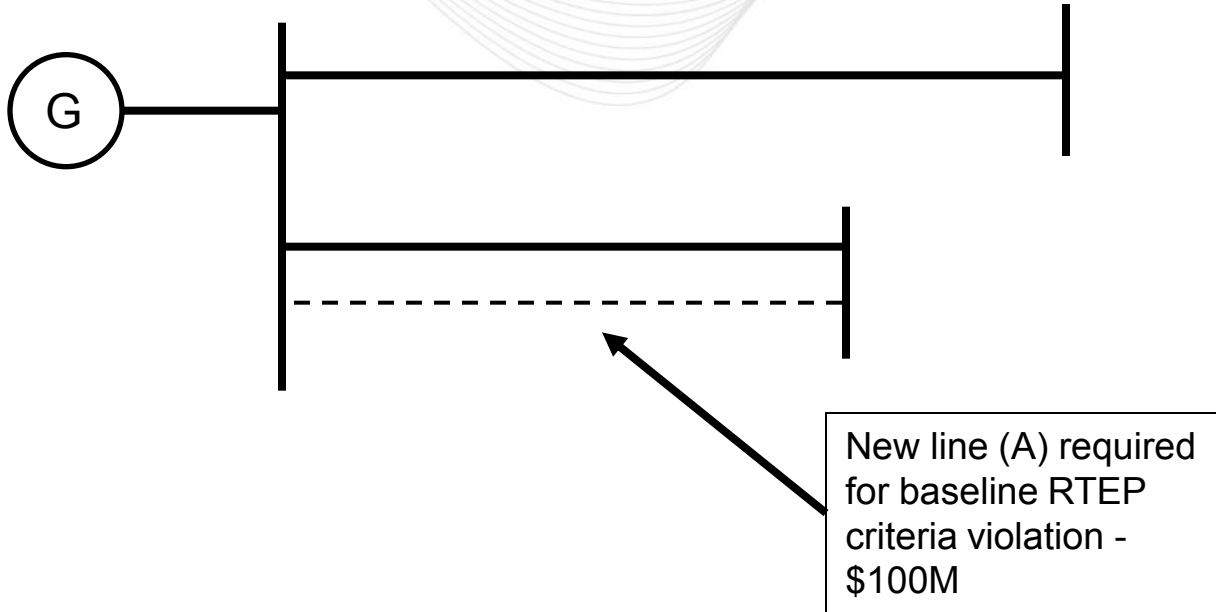
# Example 1 – Proposed Business Rules

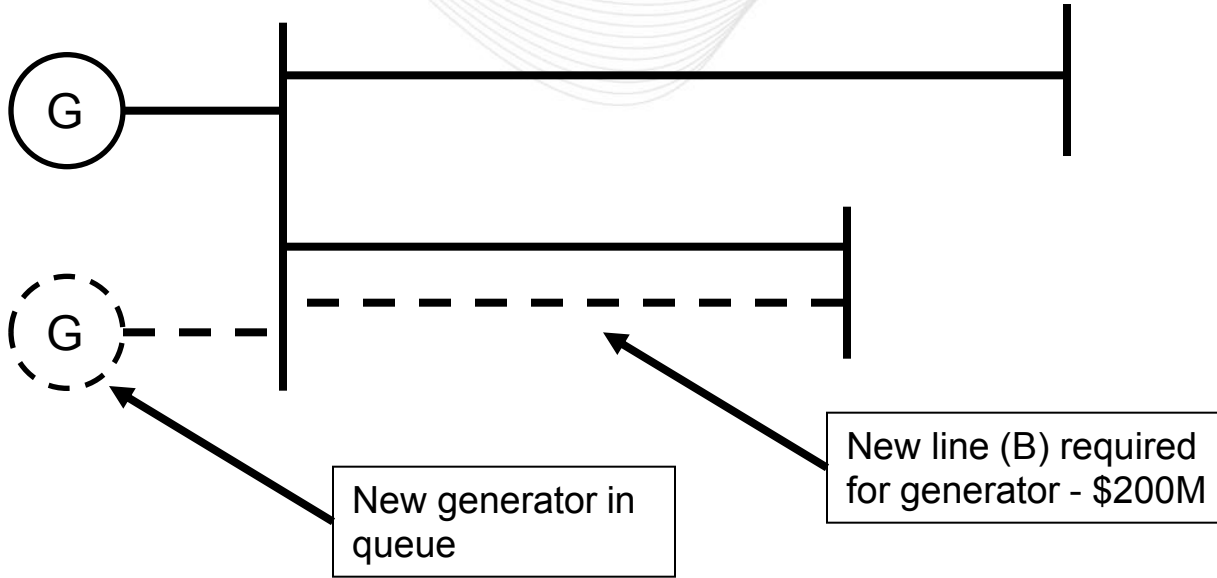
- Interim deliverability rights
  - *If generator enters queue after RTEP violation is identified rights will be based on ability to manage criteria violations during interim*
  - *If generator enters queue before RTEP violation is identified rights will be awarded based on projected in-service date of original Network Upgrades*
- Cost allocation to generator
  - *Based on Network Upgrade that would have been required without MDA (existing but-for test)*

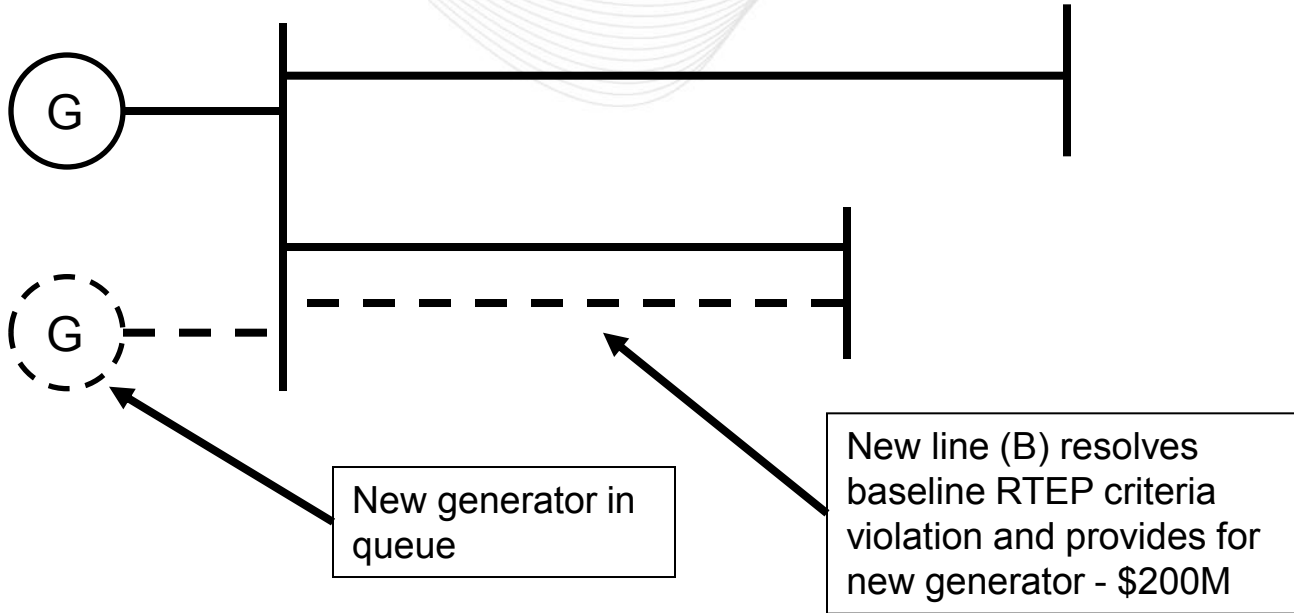
- Generator requires upgrade that completely replaces a smaller baseline RTEP upgrade
  - *Generator enters queue before RTEP violation is identified*
  - *Generator enters queue after RTEP violation is identified*
  - *Generator in-service date is before date of RTEP violation*
  - *Generator in-service date is after date of RTEP violation*

May be timing issues, but may not change integration of drivers

In Example 1, generator upgrade does not resolve baseline criteria violation – need a bigger upgrade to solve both issues









- Timing
  - *Is generator ready to commit (execute ISA) when decision would need to be made so that line A can be completed before onset of criteria violation?*
    - *If not, what level of certainty would be acceptable to move forward with line B?*
  - *Can line B be completed before onset of criteria violation, even if generator is ready?*
    - *If not, are acceptable operational measures available?*
  - *Other?*

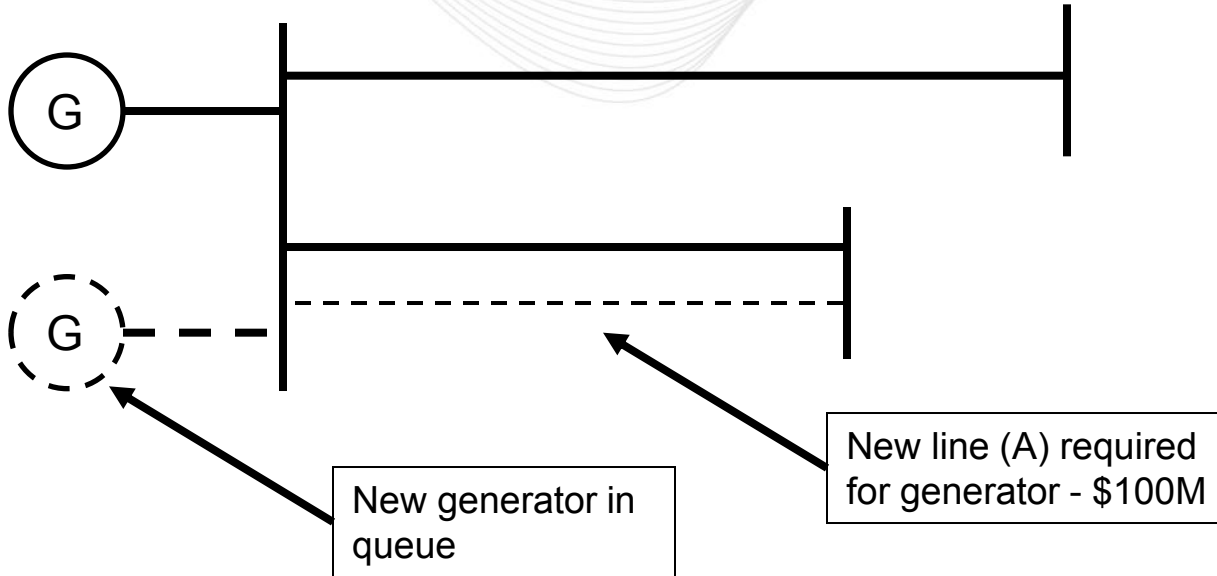
## Example 1A – Proposed Business Rules

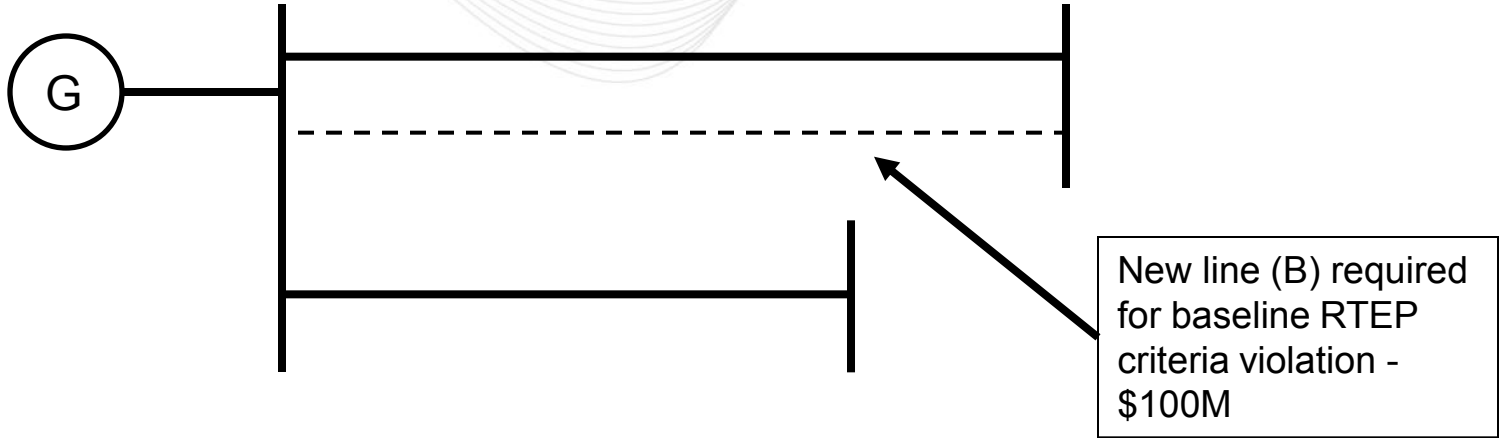
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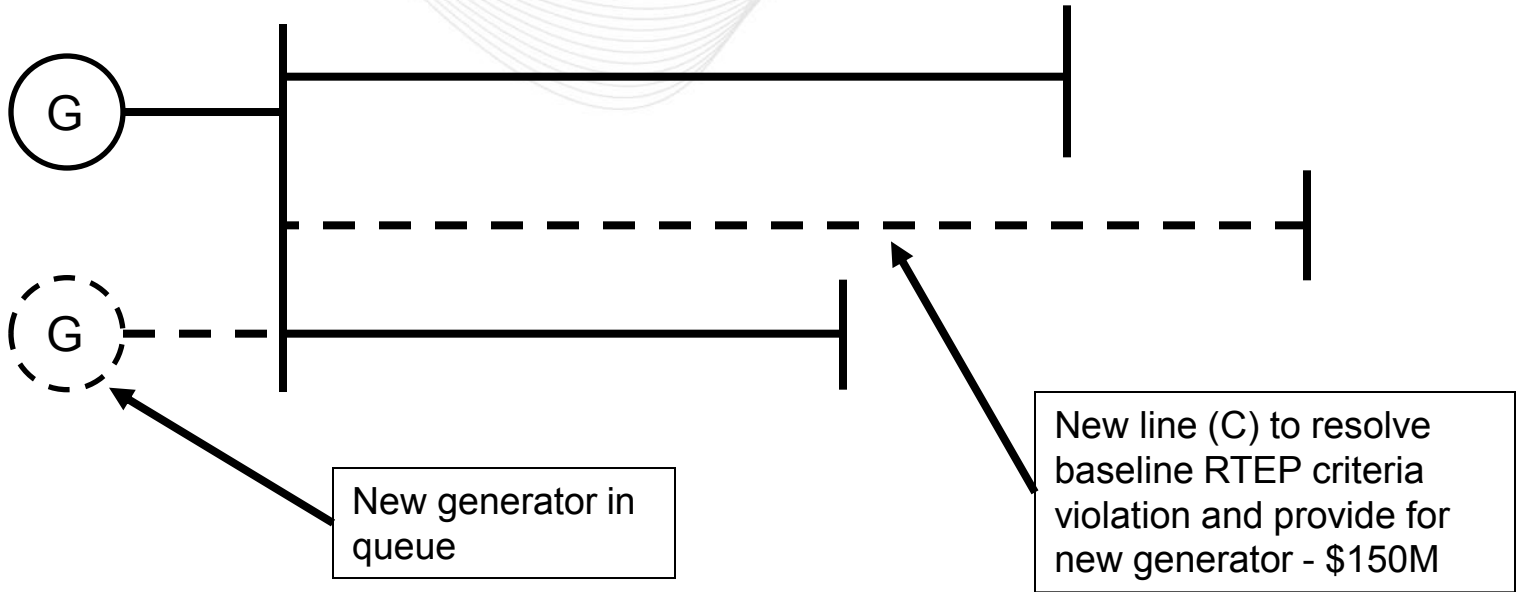
# Example 1A – Proposed Business Rules

- Interim deliverability rights
  - *If generator enters queue after RTEP violation is identified rights will be based on ability to manage criteria violations during interim*
  - *If generator enters queue before RTEP violation is identified rights will be awarded based on projected in-service date of original Network Upgrades*
- Cost allocation to generator
  - *Generator receives credit against other required Network Upgrades based on cost of original baseline RTEP upgrade that is replaced (existing tariff rule)*

- Generator requires upgrade and baseline RTEP upgrade is required, separately, but both could be replaced by a third upgrade
  - *Similar to proportional MDA*
- Resulting MDA would be less expensive than sum of generator upgrade and originally identified RTEP upgrade
- Assume, for this example, that only one queued generator is involved and that generator has no interactions with other generators in queue







- Timing – same as for Example 1 (?)
  - *Is generator ready to commit (execute ISA) when decision would need to be made so that line C can be completed before onset of criteria violation?*
    - *If not, what level of certainty would be acceptable to move forward with line C?*
  - *Can line C be completed before onset of criteria violation, even if generator is ready?*
    - *If not, are acceptable operational measures available?*
  - *How do we manage generator rights if commercial date is after line B would have been in service, but before line C can be placed in service?*
  - *Other?*



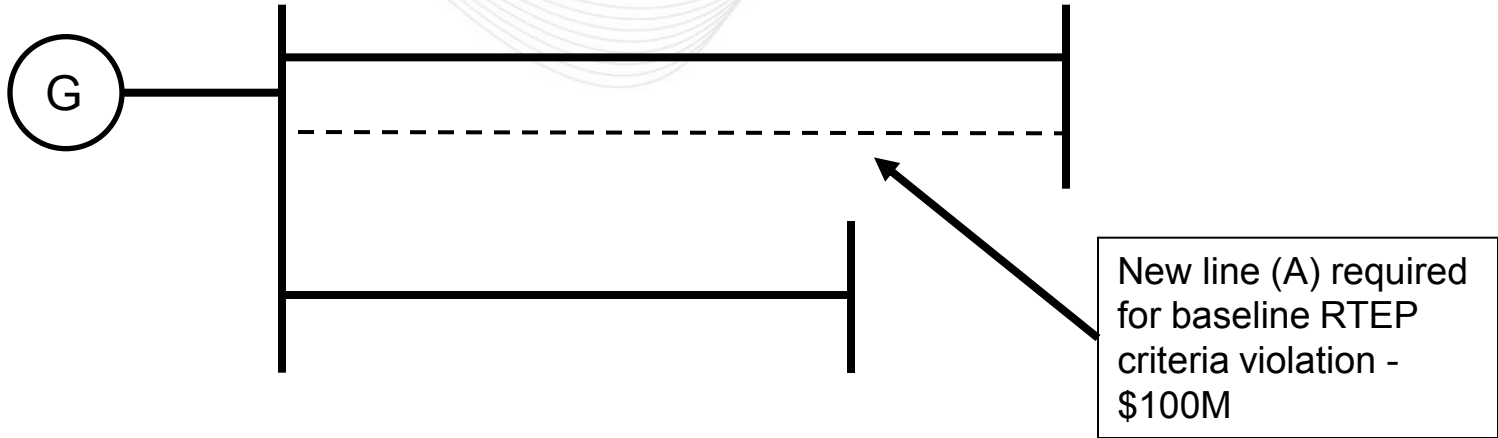
## Example 2 – Proposed Business Rules

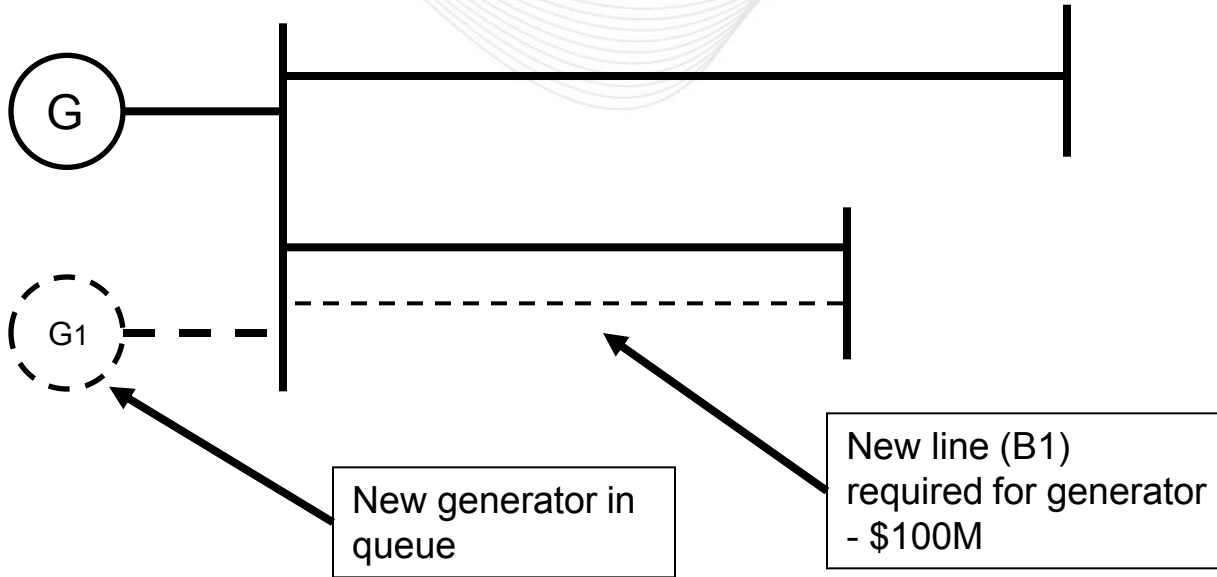
- Generator must execute ISA or interim ISA to be integrated into MDA
  - *MDA is still a baseline RTEP upgrade but is also identified with required “Network Upgrades” for generator*
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  - *Right to change mind regarding participation in MDA will be based on construction status, continuing need, and impact on subsequent projects – security will be used to complete MDA as with any other Network Upgrade if decision is to proceed with MDA*
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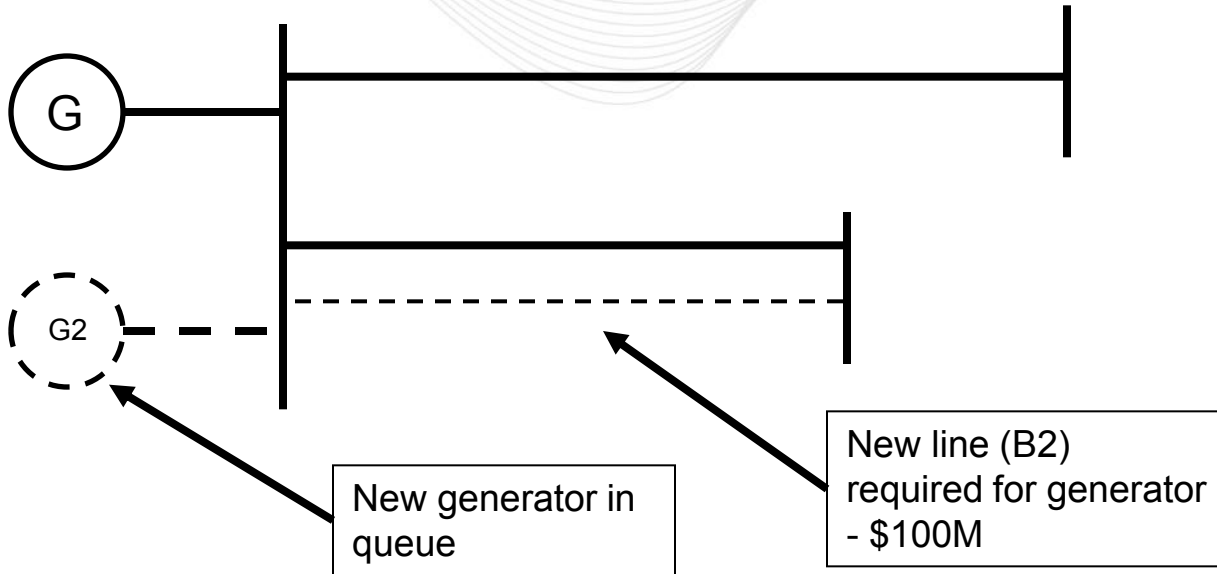
## Example 2 – Proposed Business Rules

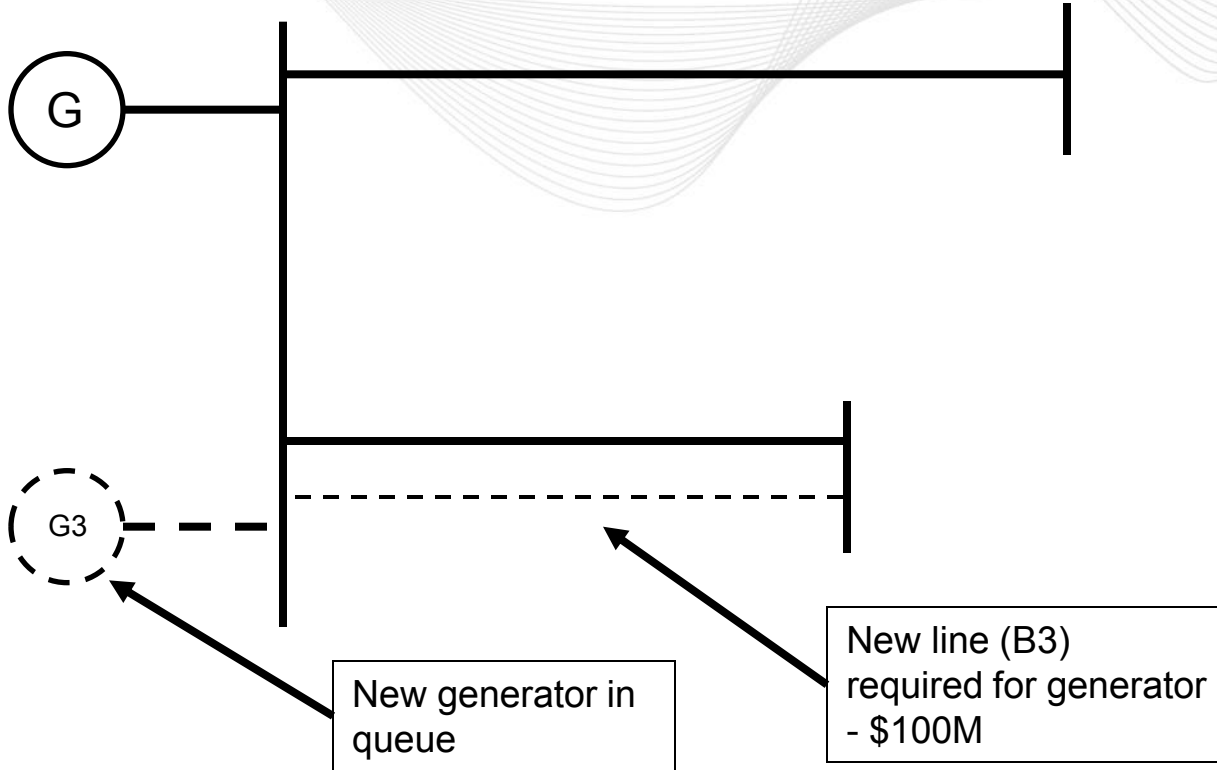
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- Cost allocation to generator
  - *Based on Network Upgrade that would have been required without MDA (existing but-for test)*

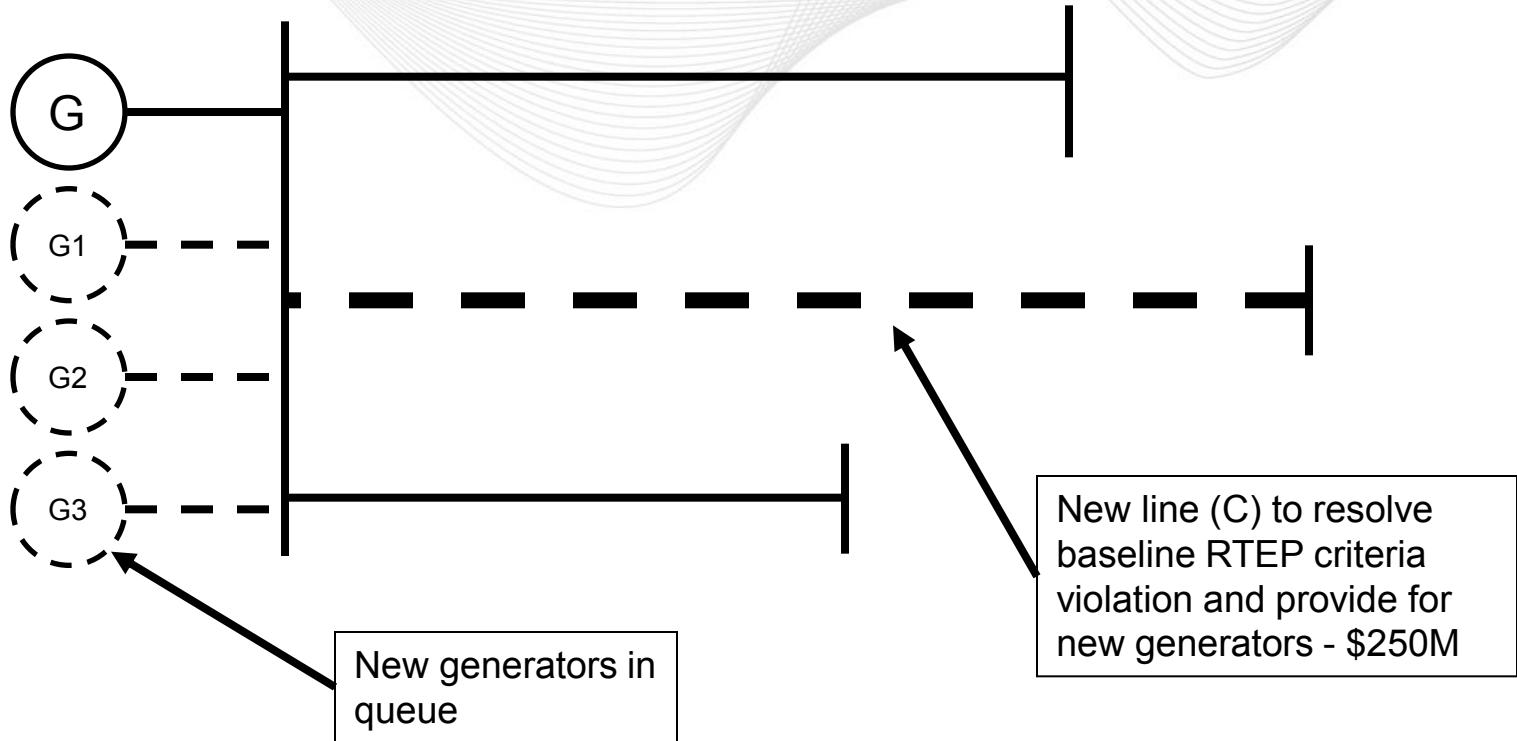
- Generator(s) requires upgrade and baseline RTEP upgrade is required, separately, but all could be replaced by a larger upgrade
  - *Similar to proportional MDA*
- Resulting MDA would be less expensive than sum of generator upgrades and originally identified RTEP upgrade













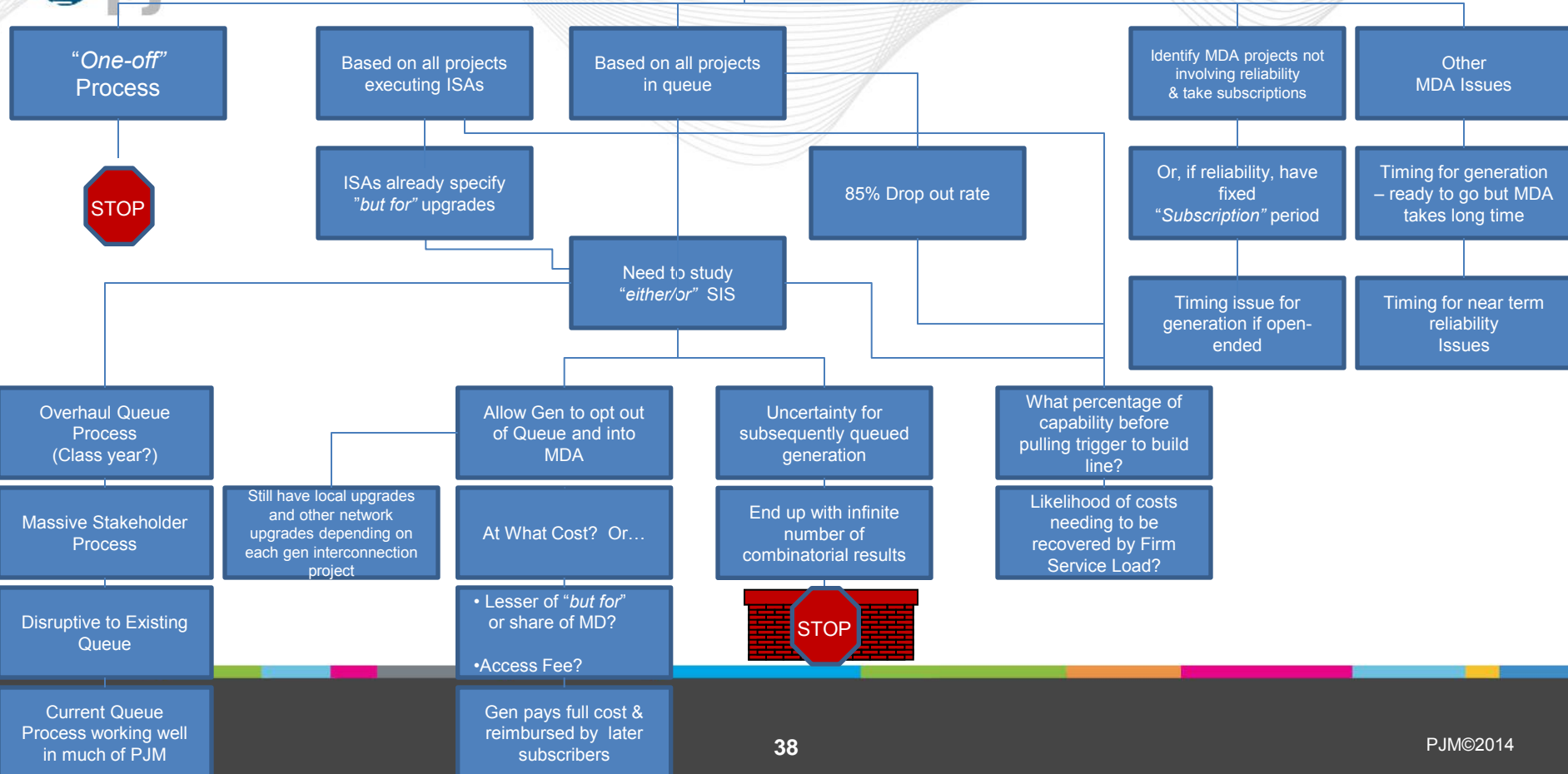
- Timing –
  - *Are generators ready to commit (execute ISA) when decision would need to be made so that line C can be completed before onset of criteria violation?*
    - *If not, what level of certainty would be acceptable to move forward with line C?*
  - *Can line C be completed before onset of criteria violation, even if generator is ready?*
    - *If not, are acceptable operational measures available?*
  - *How do we manage generator rights if commercial date is after line B1, B2, or B3 would have been in service, but before line C can be placed in service?*

- **Subscription Process Issues**
  - Managing competing rights of multiple generators at different points in queue process
  - Managing interaction(s) between MDA capability and other requirements identified through interconnection studies
  - Managing studies for later queued projects
  - Impact of withdrawing generators on MDA
  - Impacts of MDA delay/failure to proceed (CPCN) on MDA generators and later queued generators
  - Other?

- Other
  - Cost of unsubscribed capability?
  - Basis for costs assigned to each generator
    - *but for* analysis
    - Access fee
    - other

- 3/4/5 driver project
  - What occurs when with the addition of generators, you no longer resolve one of the original drivers? (market efficiency, aging infrastructure)
  - What are some of the other issues stakeholders see?

# Slides from last meeting



- Opportunity to capture stakeholder ideas
- Intent – Continue GI in parallel to MDA Business rules / consideration by MRC / MC
- “*Either/or*” Studies compound by number of generation projects
- Impact to existing (*or alternate?*) Queues
- Aligning timing of GI with RTEP/MDA cycles

- What does generator pay?
  - But-for cost based on SIS without MD project
  - Some reduced amount based on incremental or parallel apportionment (similar to discussion for public policy MD projects)



- Will require triggers or guidelines for when to apply
- Still have to deal with uncertainties for later queued projects
- Timing and risk issues for generator waiting for larger scope project
- Have to deal with cost apportionment
- Have to deal with issue of how much capability needs to be signed up before pulling the trigger
  - Issue of risk to load of paying for unused capability

- Subscription process
  - Should we do periodic analyses to identify potential MD projects targeted to delivering clusters of generation?
  - Need rules to address
    - how a generator moves from SIS upgrades to MD project
    - cost to generator
    - impact to later queued generators
  - Need to address when to fold MD project into other baseline and interconnection analyses (this issue probably applies to MD projects in all cases related to interconnection)

- Who proposes MD projects?
  - Answer: Anyone can
    - Transmission owners may see linkage to other drivers when developing solutions
    - May surface in proposal windows related to other drivers
    - Generation developer may see linkage to other drivers
    - PJM staff may see linkage to other drivers in evaluation analyses

- When do you consider MD project for generator?
  - At Feasibility or SIS stage
    - will make it very difficult to complete studies on time and will delay later queued projects
    - could work if MD project has already been identified for other drivers
  - At Facilities Study stage
    - have to manage timing with pending issuance of ISA
    - still have delay and uncertainty issues for later queued projects