Related Cost Allocation Issues from July Meeting

CAWG

August 29, 2007

Issues To Discuss

A. Minimum B/C for Individual Projects
B. Off-Ramp vs. Integration Facilities
C. Adjustments for Unbalance Portfolios

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A. Minimum B/C for Individual Projects

- Recall:
  - Part of TO's Proposal is to have a minimum B/C for individual projects.
  - Also need a minimum B/C for cancellation of individual projects
    - Where C is remaining cost of project
    - Already spent $ are sunk and recoverable

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Discussion of Min B/C

- This is not the B/C being calculated for screening purposes – or is it?
  - If not, how should the calculation be made?
    - Should PROMOD be used instead?
    - Should a complete 10 year analysis be used?
    - Should the projects be evaluated with or without the other projects included?
  - If so, keep in mind that the purpose of the screening calculations is to rank projects and the estimated benefits are "back of the envelope" types of estimates.
    - Should this lead to a relative low B/C to exclude individual projects from further consideration?

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Min B/C Proposals for Screening

- This applies to B/Cs from the screening process and would exclude certain projects from consideration as candidates for alternative portfolio choices.
  - Exclude all screened project with B/C < 50% for initial consideration in developing alternative portfolios.
    - Keep in mind that the cost used here is not NPV of 10 years of revenue requirements, but is E&C costs.

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Alternative: Portfolio Development

IDEAL

1. Consider portfolio combinations of all possible projects that appear to have a change of making up a reasonably balanced portfolio.
2. Evaluate each alternative combinations as a portfolio using PROMOD.
3. Rank alternatives in terms of overall B/C ratio and balance.
4. Perform scenario analysis/sensitivities on top alternatives.
5. Stakeholder review to determine best portfolio.

REALITY

- There may be too many possible combinations to perform a full evaluation on all combinations.
- SPP may need to screen possible combinations with a less intensive analysis to work down to reasonable number of alternatives.
  - If so, what should be used to screen? This is an important "transparency" matter.

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Min B/C for Projects that Pass the Screen and are Considered as Portfolio Candidates

- Assume there are a small number of alternative portfolios to evaluate.
- Each project contributes to the B/C of the portfolio.
  - One way to measure contribution of an individual project is to remove that project from the portfolio and see what happens to the B/C of the portfolio
    - Does B/C increase or decrease?
    - Does the portfolio become unbalanced?

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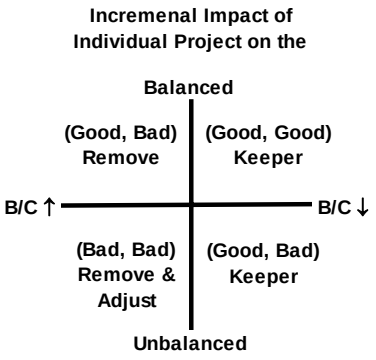
Criteria for Removal



Comment: This may be a computer intensive method for removing projects from consideration in the portfolio.

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Any Decisions?

B. Off-Ramp vs. Integration Facilities

- Recall
  - Integration facilities refers to new facilities required to connect EHV to existing lower voltage facilities.
  - Off-Ramp facilities refers to new facilities required to connect EHV to new lower voltage facilities.
  - Concern: What if the new lower voltage facilities are needed to deliver the benefits and raise the B/C ratio above the minimum?

Discussion

- Should we consider the MISO safe harbor approach (50% of total cost) for inclusion of lower voltage projects?

OR

- Should the cost of lower voltage facilities be included when this:
  - Raises the B/C of the portfolio?
  - Helps to balance the portfolio?

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Any Decisions?

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C. Adjustments to Unbalance Portfolios

- Recall
  - TO's proposal indicated possible inclusion of lower voltage facilities is needed to balance portfolio.
  - If a project is cancelled, need to make adjustments to balance the portfolio

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Adding Lower Voltage Projects

- Is adding lower voltage economic projects a viable alternative?
- If so, are there any additional considerations that need to be set out for this alternative?

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Consider Adding Reliability Projects

- Choose reliability projects that have base plan funding of costs to the zone with B/C <1 that are higher than their load ratio share of the total cost
  - This could also include directly assigned costs above the safe harbor limit.
  - Benefit to zones with B/C <1 would be calculated as the savings in cost from allocating the reliability project via a region-wide postage stamp rate.
  - Additional costs to other zones would be calculated as the additional cost from allocating the reliability project via a region-wide postage stamp rate.
    - Require B/C to be above 1 for these other zones.

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When All Else Fails!

- If adding projects to balance the portfolio fails should we then consider:
  - Removal of projects from the portfolio, leaving these projects to be sponsored.
  - Making adjustments to the postage stamp rate by lowering the allocations to zones with B/C <1 and raising the allocations to zones with B/C >1?

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Any Decision?

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Model Assumptions for Evaluation of Benefits from Economic Upgrades

CAWG

August 29, 2007

Background

- July RSC meeting, the RSC directed the CAWG to hold discussions regarding the Resource Planning Assumptions that go into the model used by SPP for evaluating benefits from economic upgrades.
- August 24 RSC teleconference meeting, after discussion, the CAWG will consider discussion of assumptions that are likely to be "problematic," with the purpose of coming up with a list of these assumptions.

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Basic Modeling Plan

- SPP plans to use PROMOD for estimation adjusted production costs savings.
  - This model includes savings from changes in unit commitment resulting from transmission upgrades.
  - This model does (not?) include changes in losses resulting from transmission upgrades.
  - This model does not include changes in planning reserve requirements resulting from transmission upgrades.

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List of Assumptions

- On the RSC call, the following assumption areas were included:
  - Renewable Portfolio Standards
  - Timing, location and types of new generation
  - Exports
- What needs to be added to this list?
  - CO2 legislation
  - ???

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Description of the Problem And Questions Needing Answers : RPS

- Some states have adopted RPS, including percentage of renewables and a time table for achieving these and others have not.
  - What level of wind generation resources should be assumed as base case for SPP economic evaluation models?
  - What sensitivities should be run to determine the robustness of benefits measured in the Base case?
- RPS in SPP states
  - What are they now?
  - What are they likely to be 10 years from now?
- RPS will impact the reliability upgrades required for the SPP system
  - What should the economic models assume in terms of reliability upgrades in doing its economic analysis?

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Description of the Problem And Questions Needing Answers : New Generation

- Benefits from economic upgrades can significantly change with changes in the timing, location and type of new generation assumed in the SPP model used to calculate benefits.
  - What assumptions should be included in the Base case for SPP models?
  - What sensitivities should be run to test the robustness of benefits measured in the Base Case?
- What has been the response from SPP and its RSC's request for utilities to provide SPP with planned new generation additions?

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Description of the Problem And Questions Needing Answers : Exports

- Current reliability modeling in STEP only includes flows that correspond to existing firm through and out transmission service.
  - Should current transmission service be used as the Base Plan level?
    - If additional exports are included, what do we assume regarding reliability upgrades to provide transmission service?
    - If additional exports are included, how do we deal with these in terms of cost allocation? (Similar to seams issue on economic upgrades.)
  - What sensitivities should be included?

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Description of the Problem And Questions Needing Answers : CO2

- There appear to be two paths currently being contemplated: Cap and trade vs. CO2 tax.
  - Which should be included in the Base plan and at what levels?
  - What sensitivities should be included to test the robustness of benefits from the Base Plan?

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Description of the Problem: Other

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If time allows:
Answers to the Questions

- Determination of Base Level modeling assumptions for each.
- Determination of Sensitivities to apply to each.
- Determination of how sensitivities will be analyzed in making choices about upgrades to include in portfolio.
- ✓ Continued discussion of answers at September CAWG meeting.

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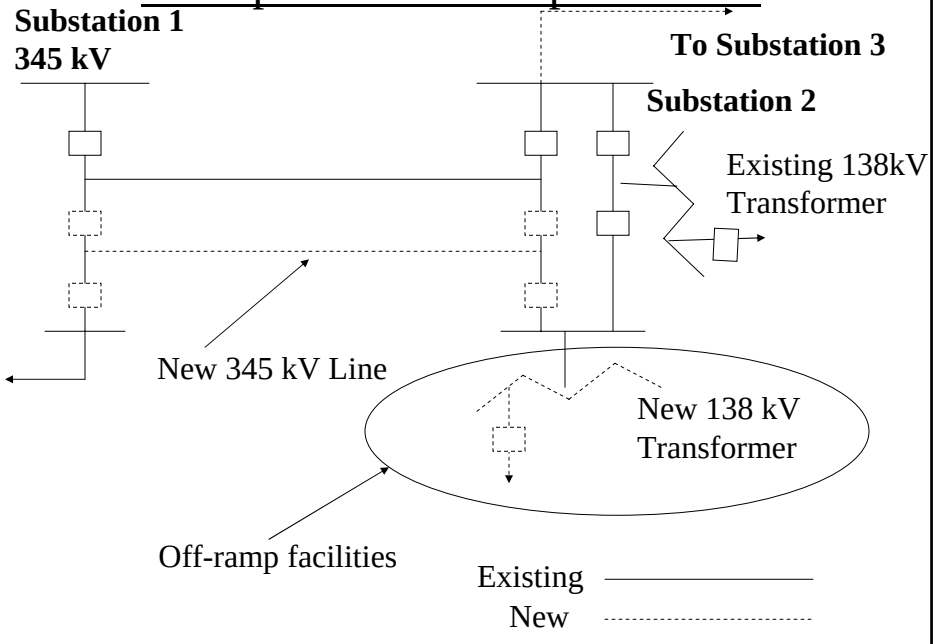
Off-ramp Facilities and Integrating Facilities

Off- Ramp Facilities

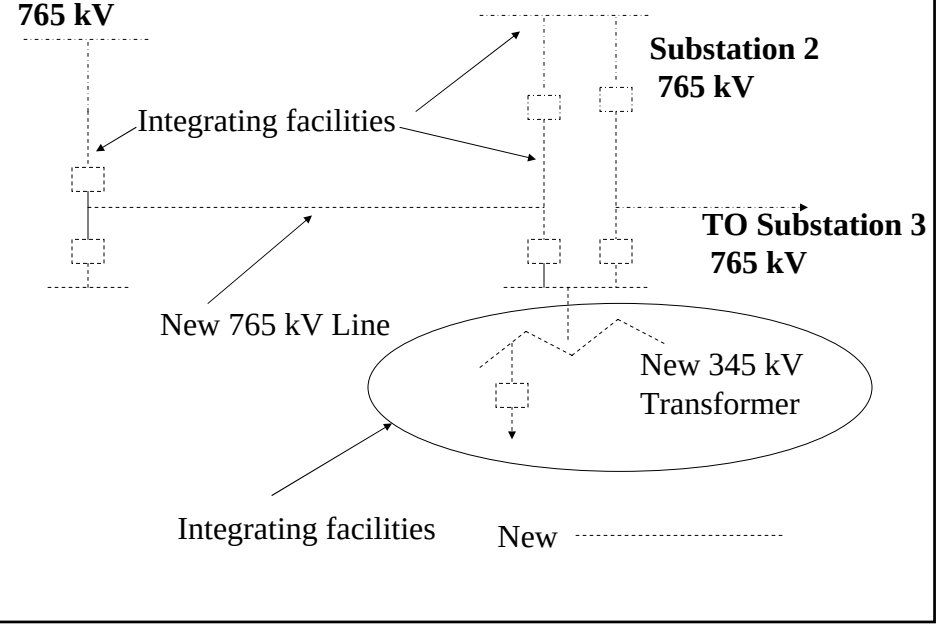
- Off ramp facilities are those, which are required to “tap” a new 765, 500, or 345 kV line or add a 138 kV or a lower voltage step-down transformer and associated station facilities and lines at a new 765, 500, or 345 kV station to support the zonal needs

Any new facilities added below 345 kV to support the zonal needs

Example of Off-Ramp Facilities



Example of Integrating facilities



Cost Allocation For Off- Ramp Facilities

- Costs for off-ramp facilities should be allocated to the benefiting zone(s) using the existing MW-Mile method

Cost Allocation For Integrating Facilities

- Costs for integrating a new 345 kV or higher voltage project should be regionalized
  - Integrating facilities to include:
    - Station facilities to terminate the new project, such as breakers, switches and step down transformers with lower voltage at 345 kV or above, such as a 765-500/345 kV transformer
    - Underlying facility upgrades due to a new project, such as:
      - A 138 kV line requiring an upgrade because of a thermal overload associated with the new 765, 500, or 345 kV project
      - A 138 kV circuit breaker replacement due to short circuit duty imposed by the new 765, 500, or 345 kV project

Questions?