ATC Calculation Proposed Changes & Alternatives

Transmission Load Service Workshop

November 17, 2015

Agenda

- Outline specific changes to the LT ATC Methodology to be implemented within the next year
- Outline high-level options currently identified in seven key areas and kick-off process to gather your input

Pre-decisional. For Discussion Purposes Only.

Glossary

- ALIS = All Lines in Service
- AMM = ATC Methodology Margin
- ATC = Available Transfer Capability
- DNR = Designated Network Resource
- ETC = Existing Transmission Commitments
- FCRPS = Federal Columbia River Power System
- GF = Grandfathered, pre-Open Access Transmission Tariff, service
- LT = Long-Term (transmission service with term of >1 year)
- NCP = Non-Coincidental Peak
- NT = Network Integration Transmission Service
- POD = Point of Delivery
- POR = Point of Receipt
- PTDF = Power Transfer Distribution Factor
- PTP = Point-to-Point Transmission Service
- TTC = Total Transfer Capability

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Current State LT Calculations

- Current "hybrid" method in use on BPA's Internal Network was largely developed in 2002
- Method merges a "Contract Accounting" calculation with a Powerflow for calculation of Existing Transmission Commitments (ETC):
  - Contract Accounting ETC calculation uses PTDFs (derived from powerflows) to approximate the impact on flowgates resulting from a summing of the GF and LT PTP contract demands*, NT load forecasts, LTF non-Federal generation rights, and an assumed FCRPS dispatch
  - Planning ETC calculation uses a powerflow to approximate the impact on flowgates resulting from inputs of load forecasts (for all GF, NT, and PTP loads), LTF non-Fed generation rights and an assumed FCRPS dispatch which is then "backed off" to ensure load/resource balance

* GF transmission contracts are generally modeled as PTP, with a few exceptions.

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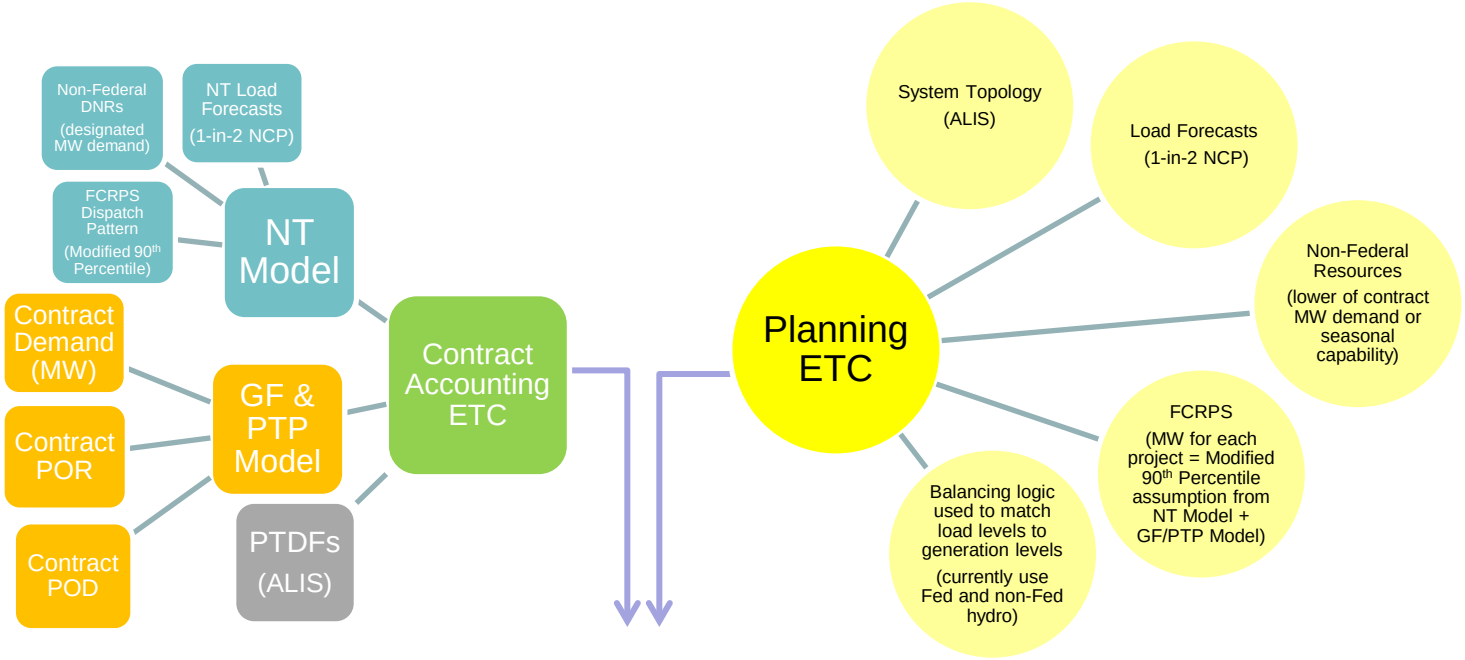
Current "Hybrid" LT ETC Calculation



Delta = Contract Accounting ETC – Planning ETC

Since: a) AMM ≅ 25% of Delta and b) ETC ≅ Contract Accounting ETC – Delta + AMM… **ETC ≅ Planning ETC + 25% of Delta**

This calculation is performed once per year and updates to the baseline ATC are referred to as the "LT Base Case Update".

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LT ATC Method Changes

- To streamline the Long-Term Firm Internal Network ATC calculation and align with other studies, BPA has decided to cease use of the Contract Accounting ETC, Delta, and AMM – instead, BPA will use the Planning ETC calculation and a more transparent uncertainty margin.
- Inputs to the Planning ETC calculation that require vetting:
  - Load levels
  - Wind resource levels
  - Non-wind resource levels
  - FCRPS dispatch(es)
  - Balancing logic
- Other ATC calculation decisions that require vetting:
  - Method for incorporation of load growth
  - Method for calculation and release of an uncertainty margin

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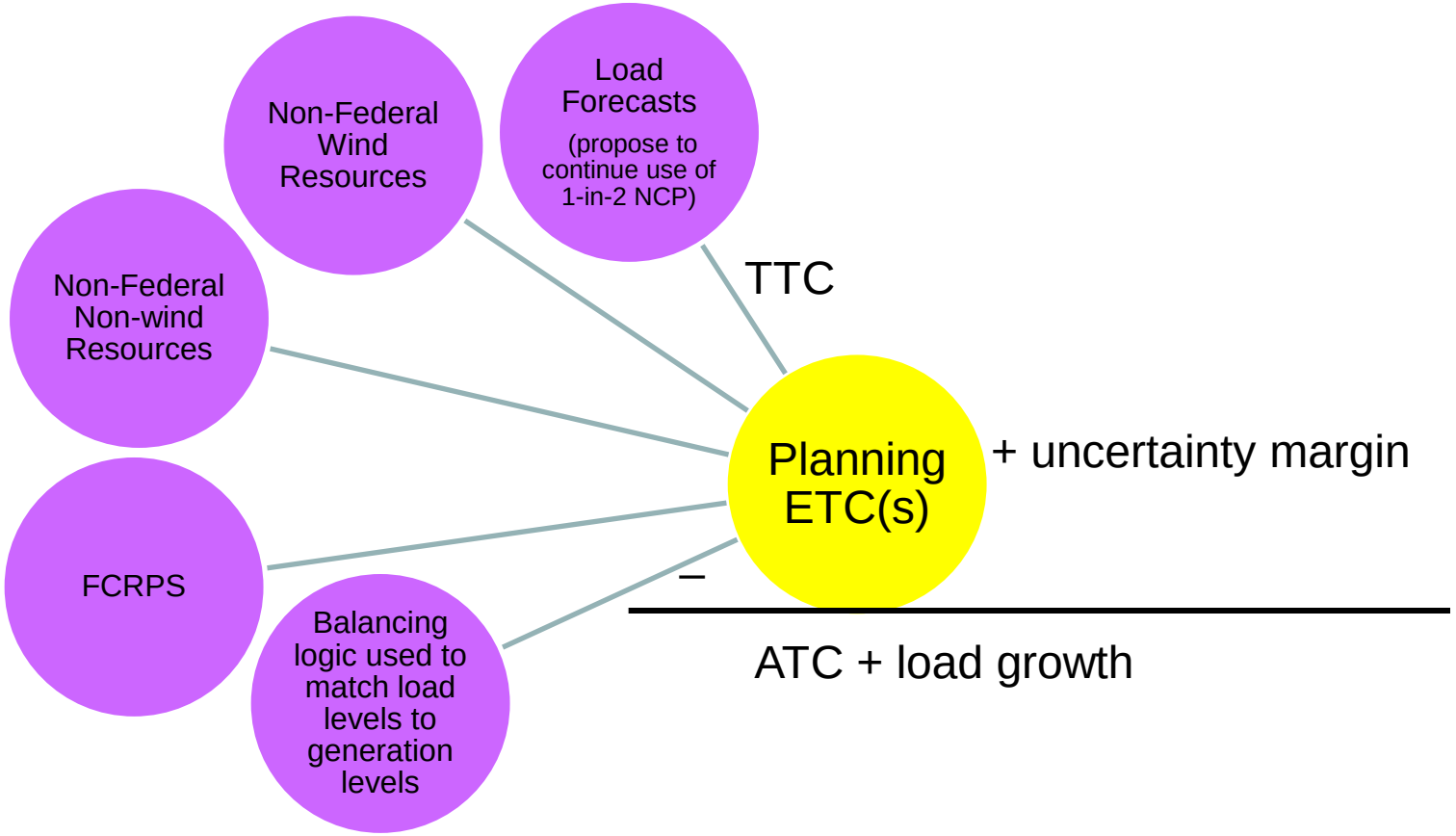
Future LT ATC Calculation



BPA will include resource forecasts, for resources delivered using NT service, in the future LT ATC calculations. How and where in the calculation this will be done is still under development.

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Load Levels

- Status quo – for those load forecasts BPA produces, 1-in-2 NCP load forecasts are used in:
  - Reliability Planning studies
  - LT and Short-term ETC studies
  - Cluster Studies

- No change is proposed at this time

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Non-Federal Resources

- Wind
  - 60% of contract demand, as is used in Cluster Studies
  - Highest impact, per flowgate, from NT load served by either 100% of designated contract demand or FCRPS, as is status quo for NT resources in Planning ETC studies
  - Historical peaks
  - Others?

- Non-wind
  - Contract demand, capped by nameplate
  - Historical peaks
  - Others?

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FCRPS

- Four seasonal dispatches, with four scenarios to test impact of delivery of the Canadian Entitlement Return and wind output for those resources designated to serve NT load
- Highest impact, per flowgate, from at least three dispatches which separately stress the hydro system at:
  - Upper Columbia
  - Lower Columbia
  - Lower Snake
  - Stress could be derived from nameplate output, adjusted nameplate output (to reflect expected outages), or historical output

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Balancing Logic

- Status quo – Federal and non-Federal hydro decreased to achieve balance
- Merit order – backing off the most expensive resources first, per a production cost model, as is used in the Cluster Studies
- Pro rata – backing off all resources by percentage needed to achieve balance (last LT Base Case, this would have resulted in a ~10% drop)
- Others?

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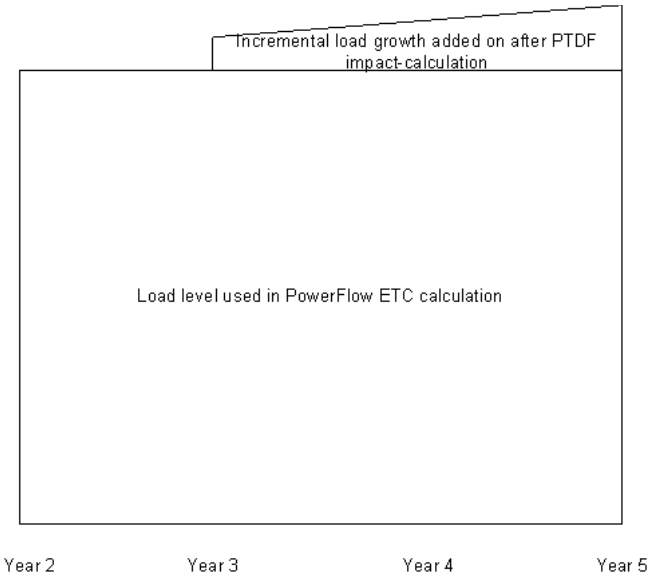
Load Growth

- Calculate impact of incremental load growth using PTDFs



- Apply the regional load growth rate to the Planning ETC values
- Others?

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Uncertainty Margin

- Hold aside a percentage of each flowgate's TTC
- To the extent multiple scenarios are run and the "highest of" isn't selected as input to ETC calculations, use the difference between the "highest of" and the selected case as a margin
- Others?

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Timeline for LT ATC Changes

- November 18-December 4, 2015: comment period
- January-February 2016: decision(s) for these ATC changes
- March-April 2016: updated ATC Methodology documents posted for written comment period
- May 2016: updated ATC Methodology documents finalized
- July-August 2016: ATC process changes incorporated into LT Base Case Update
- TBD: incorporation of resource forecasts, for non-Federal resources delivered using NT service, into ATC calculations

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Follow Up

- If you have any feedback on the questions related to this presentation, which will be posted tomorrow, please submit them by close of business **December 4, 2015** to the Tech Forum e-mail box, with "**TLS-ATC comment**" as the subject line, at: techforum@bpa.gov

- Other ATC-related questions should be submitted using the usual process:
  - Submit them to the Reservation Desk e-mail box at: tblresdesk@bpa.gov or
  - Call the Reservation Desk at: (360) 418-8499

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