

Technical Conference for Project 2010-11: TPL Table Footnote 'b'



Florida Municipal Power Agency
Community Power. Statewide Strength.®

August 10, 2010

Footnote 'b' should not be eliminated, but revised to optimize value to the customer while maintaining BES reliability

- Key Considerations:
 - Benefits the consumer, and
 - Little to no impact to BES reliability, and
 - Not discriminatory, and
 - Voluntary to the transmission customer / LSE in the planning horizon, and
 - Not for a generator contingency

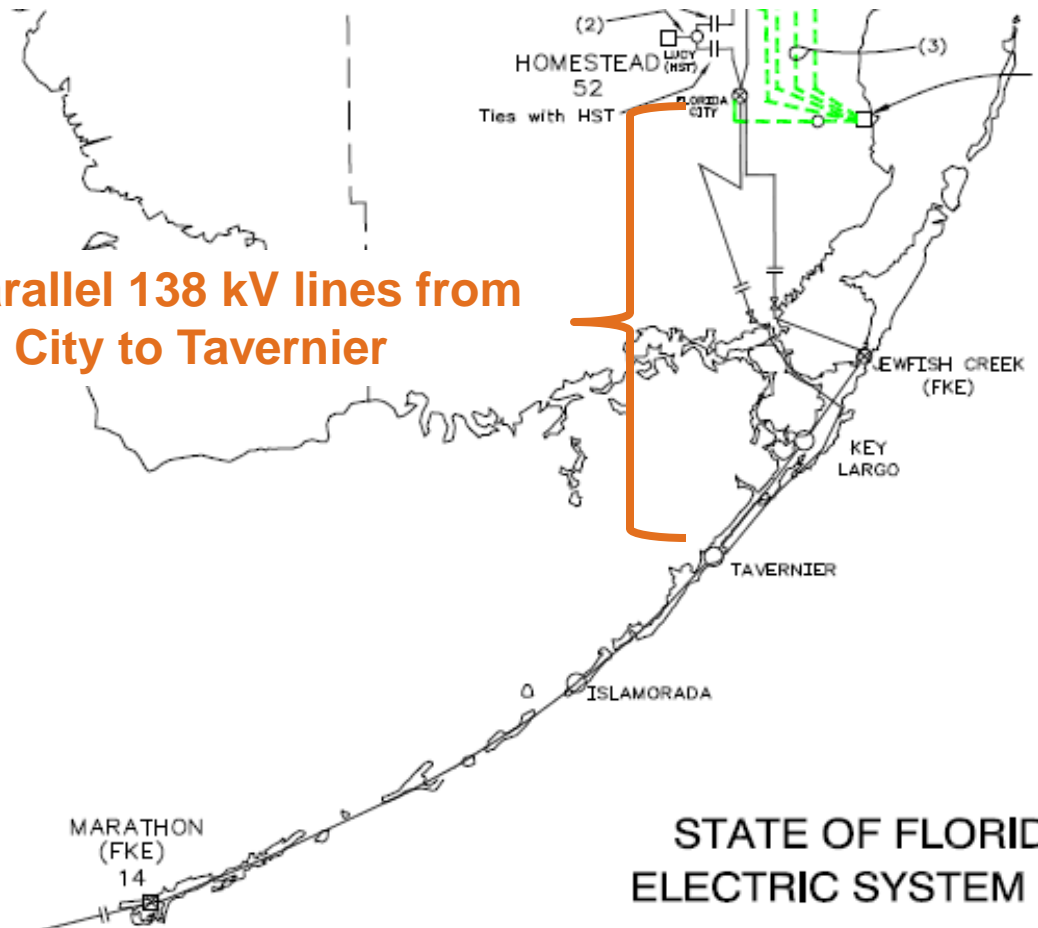
Balanced View

- FMPA will be presenting two sides to the story:
 1. The Florida Keys where shedding non-consequential load meets the Key Considerations
 2. Transmission Dependent Utilities (TDU) where there are cases where the Key Considerations are not met

Example 1: The Florida Keys

Two parallel 138 kV lines from Florida City to Tavernier

One radial 138 kV line from Tavernier to Key West



Key(s) Facts (pun intended)

- End of the continent
- More than 2/3rds of the Keys is fed by a radial line
 - @ 2/3rds distance
 - @ 2/3rds load, or @ 200 MW of @ 300 MW of total load
- Served by two utilities, division at Marathon, splitting the load about 50/50
 - Keys Energy Services (KEYS) serving the southern half
 - Florida Keys Electric Coop (FKEC) serving the northern half
- Non-BES, expensive, oil-fired generation with air permit constraints
 - FKEC @ 24 MW of non-BES diesels
 - KEYS @ 85 MW of non-BES diesels and small combustion turbines connected at 69 kV

Keys Facts – Import Limit

- Limited by voltage stability, and then thermally
- We depend on a UVLS system to maximize imports and prevent voltage collapse post-single contingency
 - UVLS – Under-Voltage Load Shedding scheme
- Import limit:
 - With footnote 'b' @ 275 MW
 - Without footnote 'b' @ 200 MW
 - Hence, without footnote 'b' we would need to build something

Keys Facts - History

- Consumer expectations are island oriented
 - Even though quality of service has improved over time, it wasn't that long ago that the Keys was not connected to the mainland
 - The second line to Tavernier was built later
 - 2/3rds of the Keys are still radial
 - Consumers, including large commercial and the Navy base, know this and are prepared for it
- The entire Keys has experienced outages about every other year
 - No impact to the BES in actual experience
 - Keys not “on the map” of the FRCC “State of Florida Major Transmission Circuits”

Keys Plan if Footnote 'b' is Eliminated

- Double circuit one of the existing lines from Florida City to Tavernier to add a 3rd circuit
- Series capacitor on the radial line
- Active Reactive Compensation at multiple locations on the radial line
- Ballpark estimate >\$70 M
- No benefit to the consumer – 2/3rds still fed from radial line, and the other 1/3rd weren't included in the UVLS anyway

Keys Meets the Key Considerations

Key Considerations

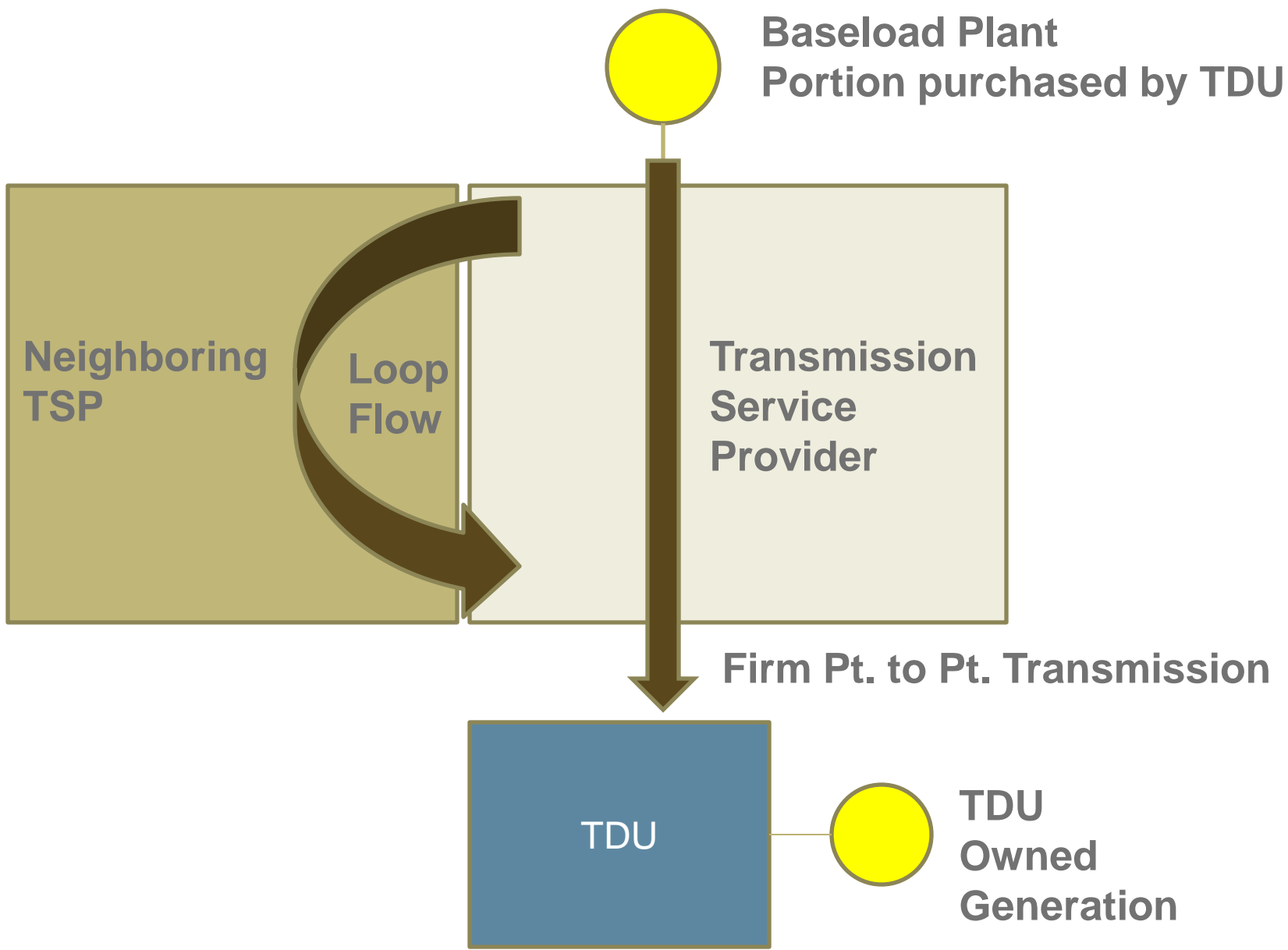
- Benefits the consumer
- Little to no impact to BES reliability
- Not discriminatory
- Voluntary to the transmission customer / LSE in the planning horizon
- Not for a generator contingency

In this example:

- Customer rates would climb about 10-20% for no improvement to quality of service
- The Keys going black has no impact to the BES – 300 MW of load vs. > 900MW worst case single contingency
- Has no impact on the ability of provision of transmission service to others
- KEYS and FKEC are voluntary participants due to the benefit to their consumers
- Results from a transmission contingency.

Example 2: Transmission Dependent Utility in Another Part of the Country

Names of entities redacted



Background

- TDU purchased portion of base load unit, and purchased associated firm Pt-Pt service, decades ago
- Load has grown and generation has been added in the region without much accompanying transmission investment
- Non-RTO area
- Prevalent flow north to south
- “Must-run” generation owned by others near the TDU in the south
- For a single transmission contingency, the TSP loses its highest voltage tie north to south and depends largely on loop flow on the neighboring TSP’s system to provide the Pt-Pt service

Last Summer ...

- Forced outage of a “must-run” generator
- Firm Pt.-Pt. service of the TDU was curtailed
 - Forced the TDU to run more expensive generation and absorb redispatch costs
- Reliability Coordinator warned the TSP, the neighboring TSP with the loop flow, and multiple TDUs that if a transmission contingency were to occur, they would all need to shed load
 - The transmission contingency did not occur

Some Key Considerations Not Met

Key Considerations

- Not for a generator contingency
- Benefits the consumer
- Voluntary to the transmission customer / LSE in the planning horizon

In this example:

- Curtailment of firm Pt to Pt resulted from a generator contingency
- Consumer experienced higher production costs
- Involuntary

Observation – Opportunity for Discrimination

- Assuming the Transmission provider depends on load shedding of their consumers to provide themselves firm service
- If the TDU were to request additional firm service, would they be required to build the upgrade that the transmission provider is avoiding?

Conclusions

How Firm is Firm?

- Question: How is “voluntary” in the planning horizon any different than non-firm?
- To FMPA, there should be varying levels of firmness
 - Similar to varying levels of firmness in power supply contracts
 - We already do some of this with “conditional firm”
- Certainly, firm should be at minimum:
 - Not be curtailed as a result of (pre- or post-) a single generator contingency
- However, it gets more fuzzy when considering
 - Conditional firm service
 - Curtailment post-first transmission contingency
 - E.g., “consequential load” fed by a radial line is still firm
 - Curtailment in preparation for a second contingency

Key Considerations for Retaining and Revising Footnote 'b'

- Benefits the consumer, and
- Little to no impact to BES reliability, and
- Not discriminatory, and
- Voluntary to the transmission customer / LSE in the planning horizon, and
- Not for a generator contingency