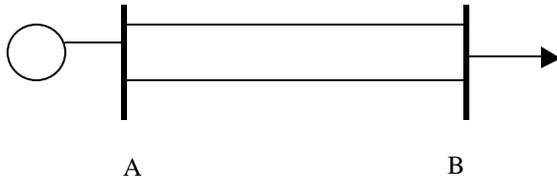


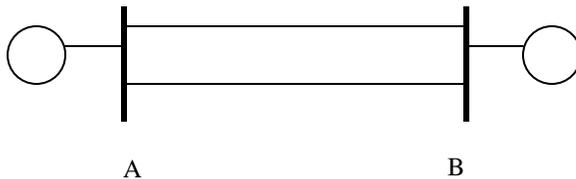
## Load Vs Congestion Examples

### 1. Generic Load Service Example



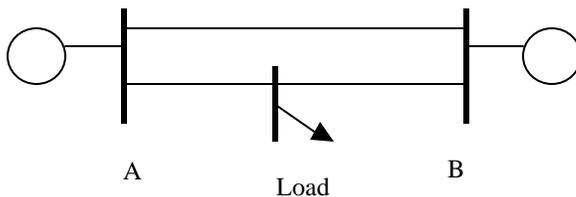
Service to Load at B is on a radial line from A. This line carries no transfers to other areas. There may be some interactions with transfers due to voltage levels. For example, if transfers increase through the system, voltages at A may drop (still to acceptable levels) which causes reduced voltage at B (which may not be acceptable). The reverse of this could also happen; load increase at B may cause reduced voltage at A and reduced throughput on the system (paths connected to A but not to B).

### 2. Generic Congestion Example



Transfer occur between A and B and there is no load directly served from these lines. However if there is any load at either bus A or B or close by, there could be voltage issues that interact with transfers. Also any load growth upstream or downstream from the path could cause flow distributions that limit transfers.

### 3. Generic Mixed Load/Congestion Example



As the intermediate Load grows, the amount of transfer between A and B decreases (and since the load is not symmetrically located, the transfer decrease may not be equivalent to the load increase in MWs). If load B reinforces the line between A and the load (and assuming that the load entity would plan for future

load growth due to the lumpiness issue), would the Load be able to protect this capacity from increased transfers (free riders)? Would they be able to dole out the capacity only while they are not using it, and return the capacity to load service once the load has grown?

Separate issue: What if load growth downstream from a flowpath causes a limitation that is more constraining than the original flowpath.

## **Actual Flowpath Examples**

### 4. Cross Cascades into Puget Sound

- Season – Winter
- Mostly load service

This path mostly provides load service to the Puget Sound Region. There is little redispatch available as most generation will be running to meet the load level. There is an interaction with the NW/BC Hydro path, however when the cross cascades path is stressed, it is due to high loads in the Puget Sound Region which typically extend north into Canada as well. High transfers do not normally occur during these situations as neither BC Hydro nor the NW have a significant amount of surplus resources to help each other out.

### 5. West of Hatwai

- Season – Spring and Summer
- Mostly congestion but some load service

A portion of the transmission in this path must serve local load in addition to moving the transfers from the east. Load increases would decrease the capacity for though transfers and vice versa. Is this still true with the reconfigured system? Presently, transfers are reduced whenever system limitations are exceeded.

### 6. North of John Day

- Season – Spring and Summer
- Both congestion and load service

Power that crosses this cutplane serves load throughout the state of Oregon plus exports to California, Nevada and Idaho (other flowpaths). Presently when there are limitations on North of John Day, curtailments are taken on the flowpaths and not on the load service. In the future, all transfers across this path, including load, will need to be curtailed when limits are reached.

### 7. Northern Intertie

- Season – All Seasons
- Both congestion and load service (load level is higher than transfer level).

Transfers to and from the Northern Intertie cross the same facilities that serve load in the Puget Sound region. A portion of the transmission in this path must serve local load in addition to moving the transfers from the north. Load changes

affect the capacity for though transfers and vice versa. There are also several generators along this path which interact with the transfer capability also.

#### 8. West of McNary

- Season – Spring and Summer
- Mostly congestion

This path is basically a transfer path to move generation to the load. It has a little load interaction since the remaining lines after the outage have intermediate loads connected.

#### 9. NW-Idaho

- Season – Spring and Summer
- Mostly congestion but some load

This path covers the transfers between the NW and Idaho. However, as there are resource limitations in Idaho at certain times, adequacy of load service can become an issue.