



# *Efficient Dispatch Toolkit (EDT)*

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May 14, 2010

Michelle Mizumori

# *EDT – Activity to date*

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- December 2009 – Presentation to WECC Board
- April 2010 – WECC Board approves cost-benefit analysis
- April 2010 – Board approves creation of EDT Steering Committee chaired by WECC Chief Operating Officer

# *EDT Steering Committee Purpose*

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- To provide oversight and guidance to WECC staff on the project to perform a cost-benefit analysis of the EDT

# *Issues to be Addressed by the Efficient Dispatch Toolkit*

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- Increased variable generation (VG)
- Imprecise models of transmission availability
- Lack of consideration of transmission service priority in curtailments



Western Electricity Coordinating Council

# *Issue 1: Increased Variable Generation*

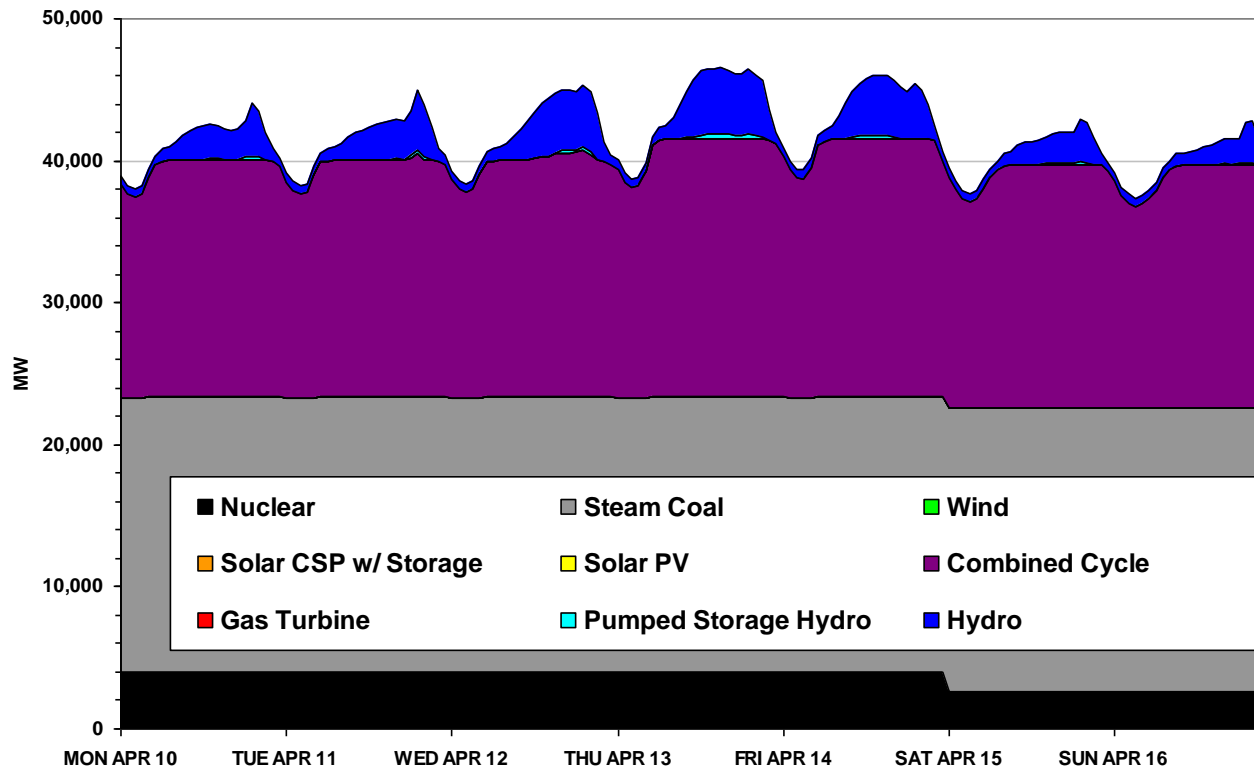
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# State RPS

State	RPS	By Year	Notes
Arizona	15%	2025	
California	33%	2020	
Colorado	30%	2020	IOUs
Idaho	None		
Montana	15%	2020	
Nevada	25%	2025	
New Mexico	20%	2020	IOUs
North Dakota	10%	2015	
Oregon	25%	2025	Large utilities
South Dakota	10%	2015	
Texas	10 GW	2020	
Utah	20%	2025	
Washington	15%	2020	
Wyoming	None		

# Dispatch with nominal VG

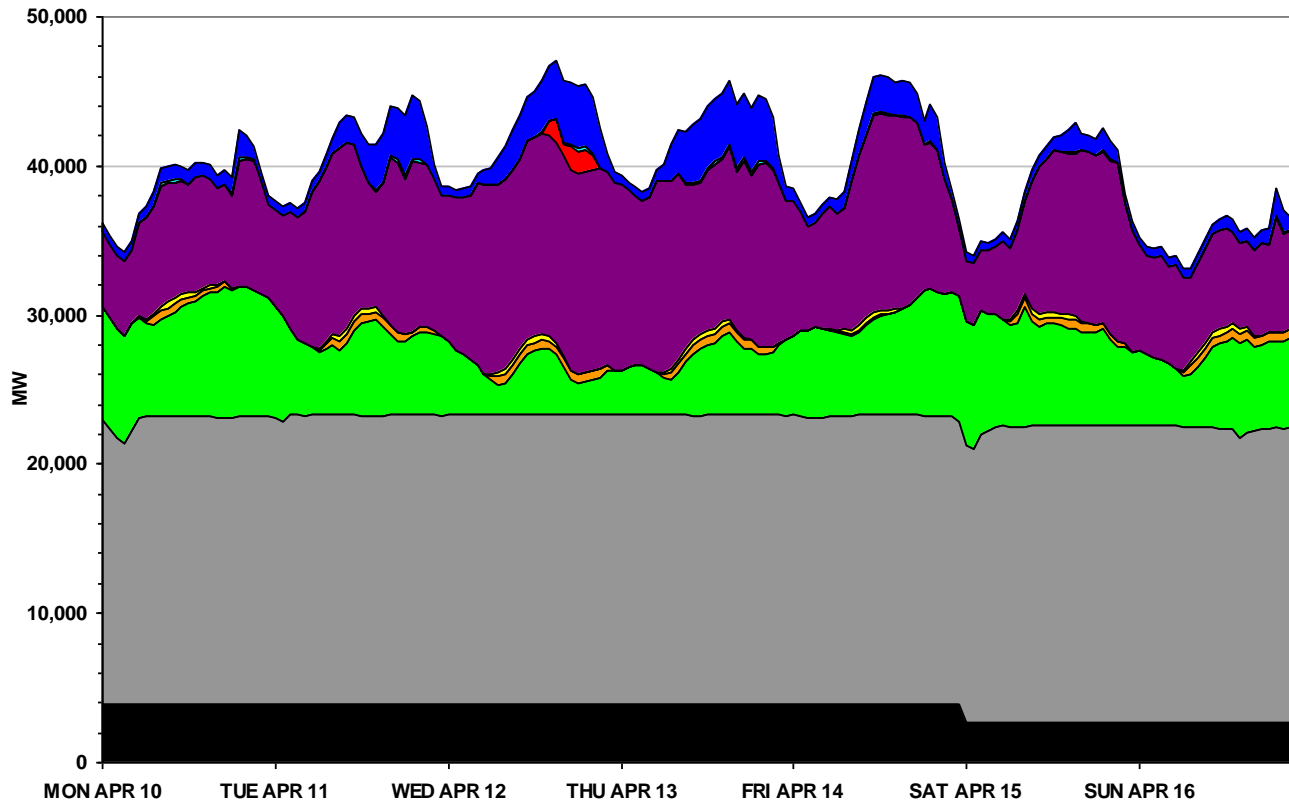
Study Area Dispatch - Week of April 10th - No Wind



\*\*Graph courtesy of NREL from Western Wind and Solar Integration Study

# Dispatch with 10% VG

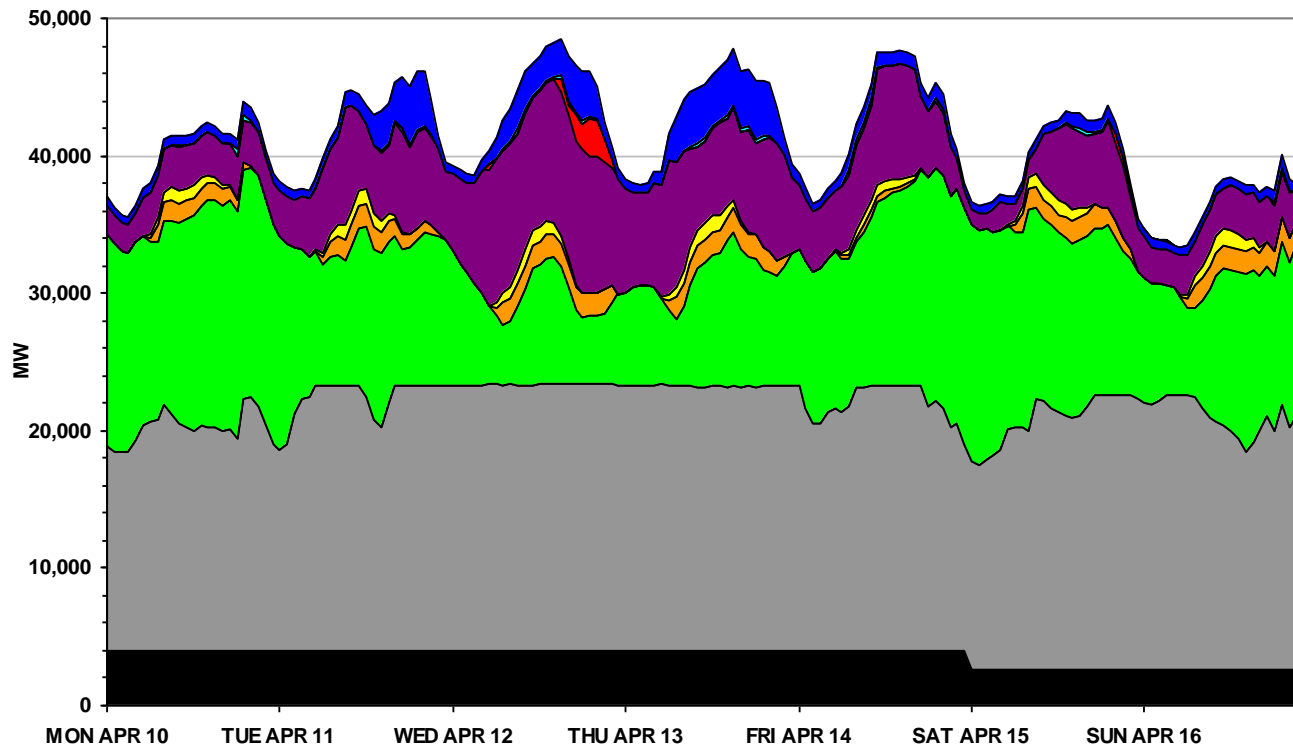
Study Area Dispatch - Week of April 10th - 10%R



\*\*Graph courtesy of NREL from Western Wind and Solar Integration Study

# Dispatch with 20% VG

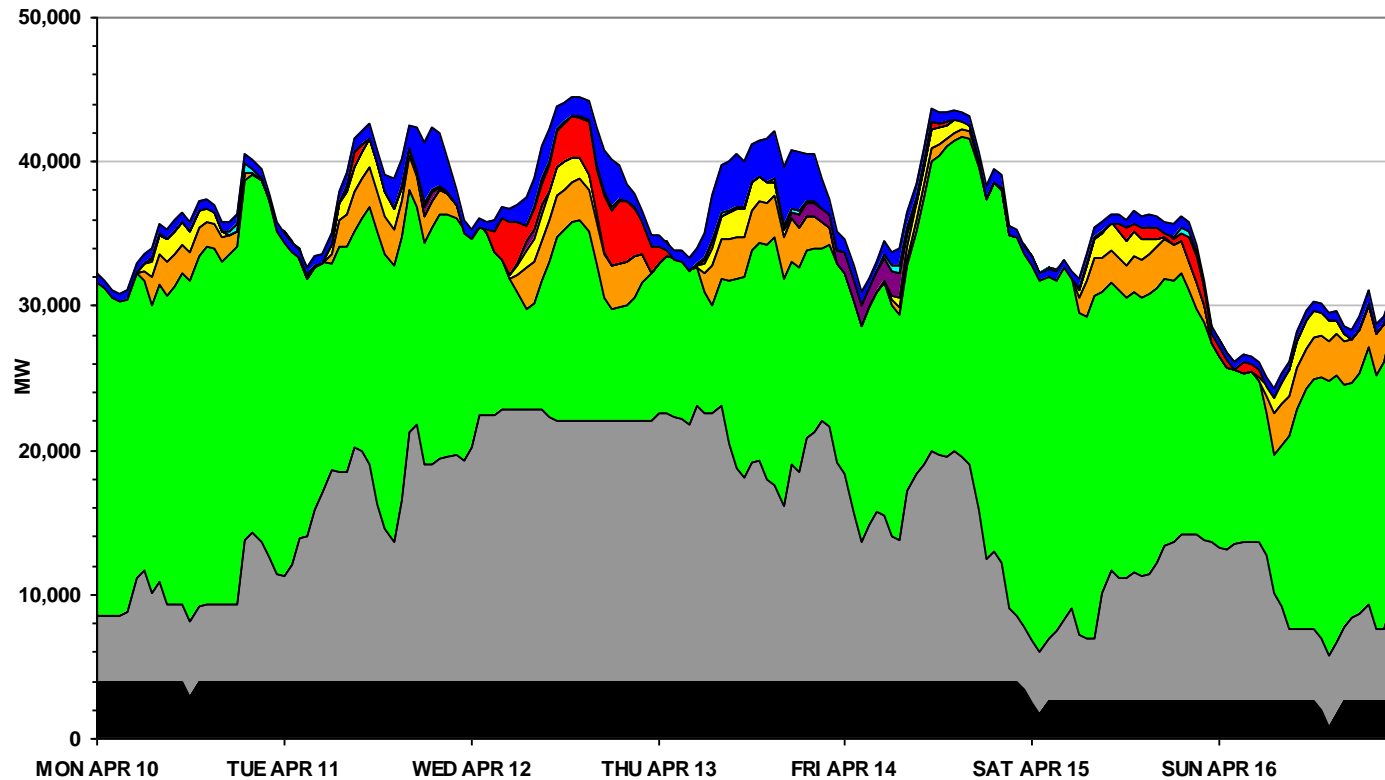
Study Area Dispatch - Week of April 10th - 20%R



\*\*Graph courtesy of NREL from Western Wind and Solar Integration Study

# Dispatch with 30% VG

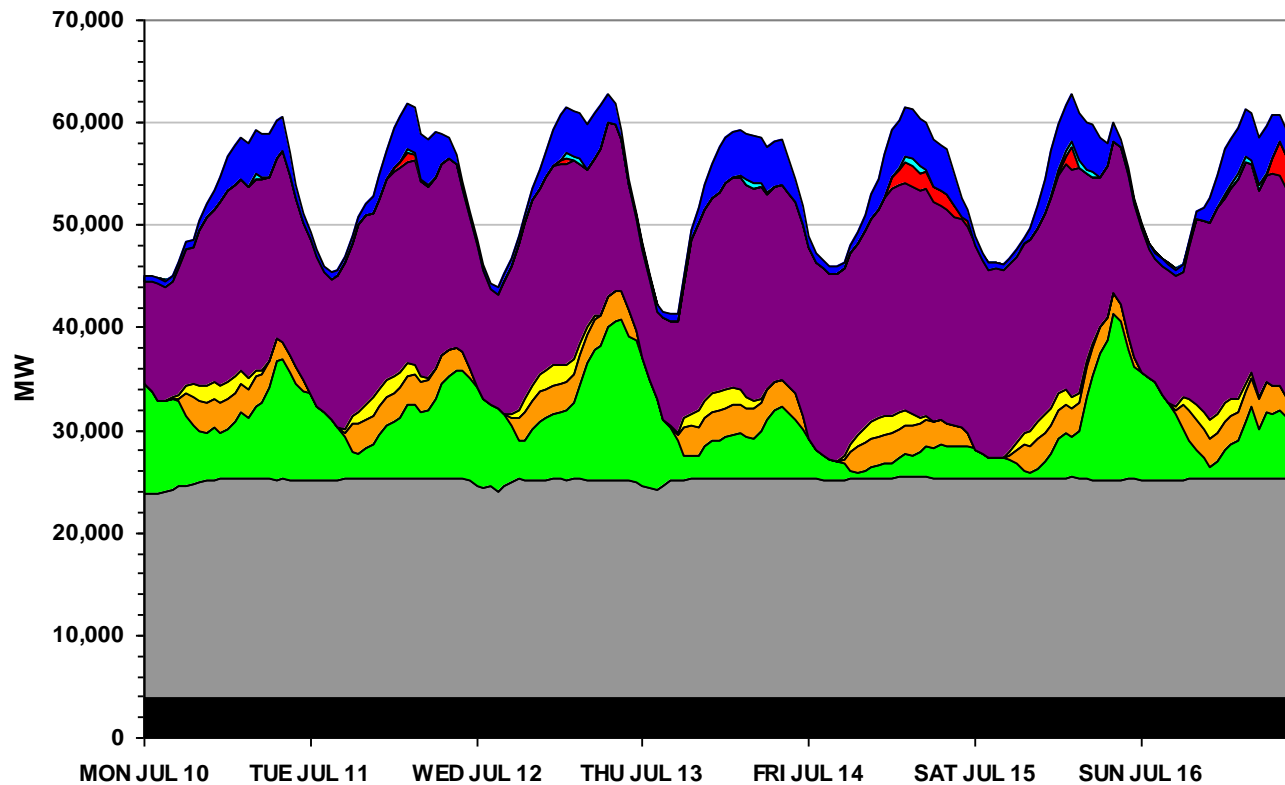
Study Area Dispatch - Week of April 10th - 30%R



\*\*Graph courtesy of NREL from Western Wind and Solar Integration Study

# Dispatch with 30% VG, low wind week

Study Area Dispatch - Week of July 10th - 30%R



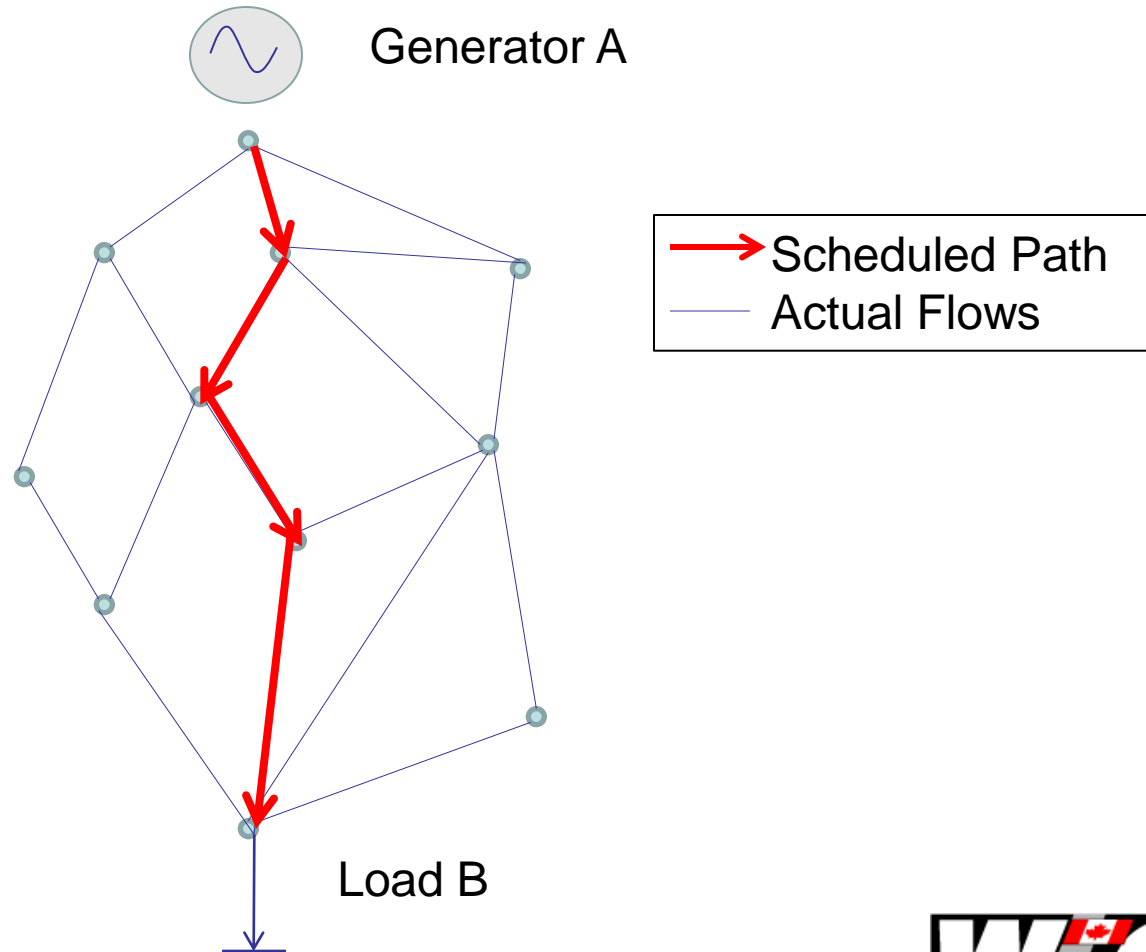
\*\*Graph courtesy of NREL from Western Wind and Solar Integration Study



## *Issue 2: Imprecise Models of Transmission Availability*

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# Rated System Path (contract path) vs. Flowgate (flow-based)





# *Issue 3: Transmission Service Priority in Curtailments*

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# *Curtailments today*

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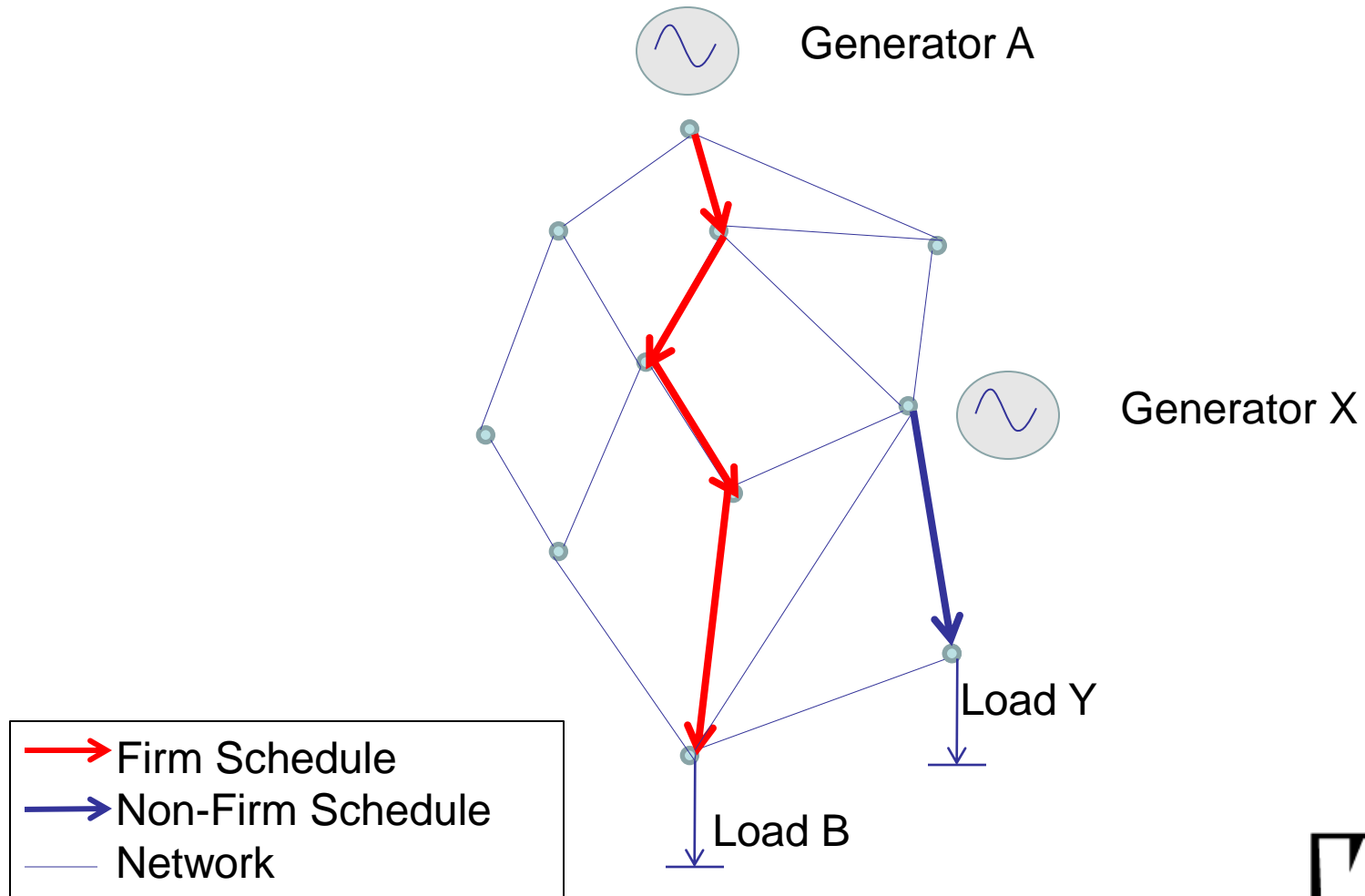
- Six Qualified Paths

- Unscheduled flow (flow that is not scheduled on the Qualified Path) is curtailed prior to scheduled flow, regardless of priority
- Unscheduled flow is cut based on contribution to the problem, rather than priority

- Other Paths

- Up to the Transmission Operator

# Curtailments today



# *Pro forma OATT*

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- “All Curtailments will be made on a non-discriminatory basis, however, Non-Firm Point-To-Point Transmission Service shall be subordinate to Firm Transmission Service.”



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# *Proposed Solution*

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# *Efficient Dispatch Toolkit (EDT)*

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- Two tools:
  - Seams Coordination Tool (SCT)
  - Energy Imbalance Service (EIS)

# *What is the Seams Coordination Tool (SCT)?*

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- Expansion of webSAS (tool used for curtailments today) to include:
  - All rated paths and possibly some other paths (currently just six Qualified Paths)
  - Closer to real-time model updates (currently updated twice annually)
  - Tagged and untagged flow
  - Consideration of transmission service priority (currently not considered)

# *What is the SCT? (continued)*

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- Can be implemented independently
- Can be implemented incrementally
- Requires some of the updates proposed in the webSAS Single License proposal
- Is a necessary step for creating the EIS
- Solves Issue 3 (transmission service priority)

# *What is the Energy Imbalance Service (EIS)?*

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- A real-time energy market providing centralized, automated interconnection-wide generation dispatch.
- Characteristics:
  - Voluntary
  - Considers generation capabilities (i.e. capacity, ramp rates, price)
  - Considers transmission availability (based on actual flows)

# *What is the EIS? (continued)*

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- Settlements and curtailment responsibilities tied to SCT
- Matches system needs with available, deliverable balancing energy on a 5-minute basis (mitigates Issue 1)
- Calculates dispatch based on actual system conditions (mitigates Issue 2)

# Questions

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