Marginal Value Limit Adjustments

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June 27, 2018

Objective Marginal Value Limits (MVL)

- Set LMP for resources controlling a transmission constraint
  - Reflects correct market signals
  - Reduces uplift payments
- Adjustments to the default MVL are based on the effective cost ($/MW) of an impactful resource on a transmission constraint
- MVL can be raised or lowered per transmission constraint
  - Raise is to set LMP for a resource with a higher effective cost ($/MW)
  - Lower is to contain LMP to effective units

Raising MVL

- Resource is called on to control a constraint
  - $ / MW = (Offer-System Energy Price) / dfax
  - ($250-$25) / 10% = $2,250, this is above the $2,000 default limit
    - Above the $2,000 default limit
    - Currently the resource will not set LMP
  - $2,250 x ~1.25% buffer, new MVL set to ~$2,800
    - The increased MVL allows the resource to set LMP ~$250
    - The buffer accounts for any fluctuation in System Energy Price

Lowering MVL

- Used for thermal surrogates and local constraints
  - Thermal surrogates are used to control local voltage contingencies
  - Controlling resources are selected by the operator
    - No dfax for voltage contingencies
    - Studies are run to determine effective resources
  - Surrogates are controlled by setting the limit = flow
  - Occasionally the solution will reach out for small amount of additional relief

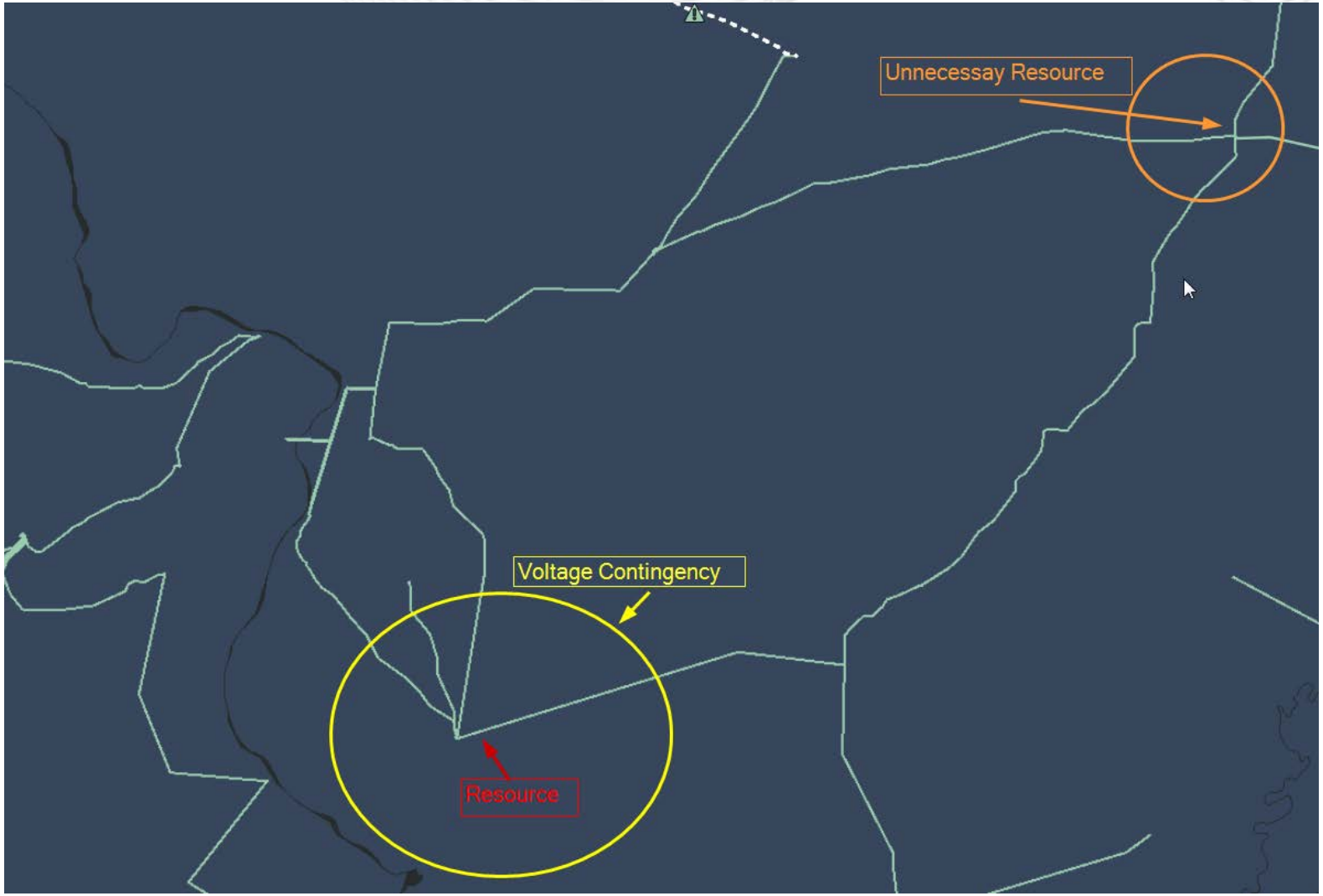
Lowering MVL (continued)

- Selected resource
  - $ / MW = (Offer-System Energy Price) / dfax
  - ($50-$25) / 100% = $25
  - $25 x ~125% buffer, new MVL set to ~$35

Lowering MVL (continued)

- Concern with not reducing MVL
  - No additional relief is needed
  - Ineffective resource may incorrectly set LMP in the wrong area
    - (Offer-System Energy Price) / dfax = $ / MW
    - ($35-$25) / 2.0 % = $500
      - Incorrect market signal
      - Elevated LMPs, remote loads pay higher LMP

Illustration Lowering MVL



Increasing MVL

- An effective resource with a raise-help dfax is required, but the system energy price has decreased such that the resource's $/MW exceeds the default MVL.
- An effective resource with a lower-help dfax is required, but the system energy price has increased such that the resource's $/MW exceeds the default MVL.
- Additional relief for a constraint is required from a resource with a $/MW above the default MVL based on the resource's Offer Price and/or dfax.
- A limited number of required controlling resources are available and have a $/MW above the default MVL.

Lowering MVL

- A thermal surrogate is used to set price for a resource called for voltage control and the resource's $/MW is lower than the default MVL.
- A pricing interface is used to set price for a specific resource and the resource's $/MW is lower than the default MVL.
- A constraint with many low dfax high $/MW resources where the effective control required is sufficient and over controlling the constraint would result in ACE deviations and/or other system controlling issues.