BONNEVILLE POWER ADMINISTRATION

Transmission Services

DRAFT – NT Redispatch Protocols

A. Types of DNRs To Be Considered for NT Redispatch

The following table identifies which types of DNRs will be considered for the NT Redispatch program and, if considered, may provide INC or DEC capacity.

	Considered for NT Redispatch?	Considered for INC?	Considered for DEC?
Long-Term On-System (In BPA Balancing Authority Area) DNRs	Yes	Yes	Yes
Long-Term Off-System (Out of BPA Balancing Authority Area) DNRs	Yes	Yes	Yes
Short-Term DNRs	No	N/A	N/A
Market Purchase DNRs[1]	Yes	No	Yes
Variable DNR (Wind, etc)[2]	Yes	No	Yes

B. Eligibility Criteria for Designated Network Resources (DNR)

Designated Network Resources (DNR) meeting all the criteria below will be deemed participating DNRs in the NT Redispatch program:

1. *Effectiveness and Dispatchability* –Based on the designated MW demand of a resource and its ramp rate, the DNR is paired with a Federal generator to calculate flowgate relief. If the flowgate relief is 3 MW or greater over a 10-minute period on any one flowgate, the resource is deemed "effective and dispatchable;"

[1] These are DNRs that are not associated with an individual resource, but are typically seller's choice contracts.

[2] Either on-system or off-system DNRs.

2. *Controllability* – Resource is either staffed or generation levels can be adjusted remotely such that the ramp rates assumed in criteria #1 above are achievable; AND
3. *Cost* – Communication/equipment cost per MW of 10-minute effectiveness is less than the cost per MW of effectiveness of the estimated option premium for bilateral redispatch.

C. Exceptions to DNR Eligibility Criteria

1. A DNR may be exempted from participating in the NT Redispatch program if it does not meet any one of the criteria listed in section B.
2. A customer may potentially demonstrate "non-dispatchability" of a DNR if:
    a. The resource is a "base load" DNR.
        i. Customer is required to demonstrate that the resource is operated as a base load resource (minimal variation in generation level across a 24-hour period), based on historical use.
        ii. DNR may be exempted from providing INC capacity.

    b. Moving the resource (INC or DEC) in any manner outside of its normal operating parameters/curve could damage the resource or cause it to violate operating/regulatory restrictions.
        i. Demonstrate through provision of resource operating specifications/manual and any other supporting information.

D. DNR Informational Requirements

For DNRs deemed eligible to participate in the NT Redispatch program, the following information will be required:

1. 10-minute response capability (if applicable, at various generation levels);
2. Future generation forecast (if available)
    a. Currently, provided on an hourly basis.
3. Real-time resource output information;
    a. BPA currently has the capability to view real-time operation of DNRs located in BPA's Balancing Authority Area.
4. Forecasted (anticipated) INC or DEC capacity and/or minimum and maximum generation levels.
    a. Customer will be required to update this information on a regular basis over a system interface.
5. Forecasted INC or DEC cost information

a. Customer will be required to update this information on a regular basis over a system interface.

6. Real-time response from resource/operator on whether NT Redispatch can be provided from DNR when requested.

E. Compensation Mechanism

The customer will be held whole financially for providing NT Redispatch. NT Customers who INC will be paid their costs by BPA. NT Customers who DEC will pay to BPA the net of their savings and costs. If costs are greater than savings for NT customers who DEC, BPA will pay costs minus savings.

1. Hydro Generation
    a. INC Pricing
        i. Higher of actual cost or opportunity cost based on the highest price of the 24-hour period starting with the interval for which NT Redispatch is requested (based on an hourly energy index in the Pacific northwest).[3]
    b. DEC Pricing
        i. Lower of net of actual cost and savings or opportunity cost based on the lowest price of the 24-hour period starting with the interval for which NT Redispatch is requested (based on an hourly energy index in the Pacific Northwest).
        ii. If the hydro resource is in spill condition the opportunity cost is zero.
2. Thermal Generation
    a. INC Pricing
        i. Higher of actual cost or opportunity cost.
        ii. Opportunity cost is based on an hourly price index in the Pacific Northwest for the interval in which NT Redispatch was requested.
    b. DEC Pricing
        i. Net of actual cost and savings.
3. Variable Generation
    a. INC Pricing
        i. Not applicable.

[3] If no adequate hourly index exists, an alternative index will be used. At least 30 days prior to the use of such index BPA will post on its OASIS Web site the name of the index to be used. BPA will not change the index more often than once per year unless BPA determines that the existing index is no longer a reliable price index.

b. DEC Pricing

i. Net of actual cost and savings.

4. Market Purchases

a. INC Pricing

i. Not applicable.

b. DEC Pricing

i. Net of actual cost and savings.

5. Determining "Actual Cost and Actual Savings"

a. Actual Cost may include:

i. Cost of fuel

ii. Variable operation and maintenance expense

iii. Start-up cost

iv. Cost of additional operating reserves

v. Cost related to minimum run times

vi. Lost tax credits, renewable credits

vii. Liquidated damages, penalties (if applicable)

viii. Other related verifiable and quantifiable costs

b. Actual Savings may include:

i. Avoided fuel cost

ii. Other verifiable and quantifiable costs

F. Creating the NT Redispatch Resource Stack

The NT Redispatch resource stack for each flowgate will be determined based on cost per MW of congestion relief. The resource stack will consist of the eligible DNRs, paired and ranked in the following manner:

1. NT Redispatch pairs will be created using all the possible combinations of INC and DEC DNRs. The maximum MW quantity available for Redispatch for each Redispatch pair will be the lesser of the INC or DEC quantities (PairMW).
2. The MW quantity of relief each NT Redispatch pair is capable of providing for the congested flowgate (pair flowgate relief) will be calculated as follows:
    a. Subtract the power transfer distribution factor (PTDF) corresponding to the DEC DNR from the PTDF corresponding to the INC DNR to calculate the impact on the specified flowgate (PairPTDF).
    b. If the PairPTDF is a negative value, the NT Redispatch pair is retained.
    c. If the PairPTDF is zero or a positive value, the NT Redispatch pair is eliminated.

d. The flowgate relief available for each remaining NT Redispatch pair is the PairMW multiplied by the PairPTDF (Pair flowgate relief = PairMW x PairPTDF).

e. The cost of the Pair flowgate relief is calculated by subtracting the DEC price from the INC price and then dividing the result by the PairPTDF, as measured in $/MWh of relief on the flowgate.

f. The NT Redispatch stack for each flowgate is determined by ranking the retained NT Redispatch pairs based on the $/MWh of relief on the flowgate in ascending order (i.e., least cost of relief at the top, and greatest cost of relief at the bottom).

NOTE: BPA is considering placing market purchases at the bottom of the redispatch stack due to the difficulty of forecasting actual cost of redispatch.

G. Communicating an NT Redispatch Request

An NT Redispatch request to a DNR may be communicated in the following manners:

1. Communicating NT Redispatch to DNRs in BPA's Balancing Authority Area
   a. Signal via Integrated Curtailment and Redispatch System (iCRS)
      i. Web-based signal to resource.
      ii. System is currently installed and available to all resources.
   b. Signal via SCADA/ICCP System
      i. Will be available to resources that currently have the system installed.
2. Communicating NT Redispatch to Market Purchase DNRs
   a. Via curtailment of transmission schedule (e-tag)
      i. Market purchase DNRs are eligible to provide DEC capacity, and the transmission e-tag will be curtailed if necessary.
      ii. Despite the curtailment of e-tag, the NT Customer load will be met by INC from another DNR through NT Redispatch.
3. Communicating NT Redispatch to DNRs outside of BPA's Balancing Authority Area
   a. Two potential mechanisms:
      i. Via creation of Emergency E-Tags
         1. Effectuates necessary impact to account for interchange between Balancing Authority Areas.
         2. Requires approval of source and sink Balancing Authority Areas.
      ii. Via Dynamic Signal

1. Immediate signal to resource.

4. Following a request to the DNR for NT Redispatch, the customer/resource will be required to provide a response on whether redispatch can be provided as requested.

   a. DNR will have 5 minutes to respond to BPA whether redispatch can be provided as requested from the time of the original request.

5. Potential reasons for why a DNR may not be "available" to provide NT Redispatch, among others:

   a. DNR used to make a third-party sale.

      i. Sales for less than one year.

   b. Damage to resource.

      i. Moving DNR will cause damage to the resource.

   c. DNR is shut down for maintenance.

   d. Lack of water, fuel.

6. Customers must demonstrate supporting documentation, after the fact, for not providing NT Redispatch as requested.

H. Reporting Costs of NT Redispatch

BPA will post the costs incurred as a result of NT Redispatch on OASIS on a monthly basis consistent with appropriate NAESB standard.