DRAFT
Redispatch for Reliability
September 19, 2006

Stage 1 (summer of 2007)

Goal: Begin developing business practices and infrastructure to facilitate voluntary reliability redispatch that includes bids for increasing and decreasing federal and non-federal generation; specifically, assist BPA in development, implementation, and assessment of the summer of 2007 BPA redispatch pilot project.

Possible roles:

- Have ColumbiaGrid policy-level representative be active in BPA Congestion Management Steering Committee
- Work with BPA technical team in setting up the pilot project, including
    - Tools
        - Potentially developing, updating, and maintaining
    - Commercial arrangements
        - Contracts (is there anything needed for FERC?)
        - Settlements
            - After-the-fact accounting for BPA's billing purposes
    - Business practices
    - Real-time protocols
    - After-the-fact evaluation reporting
    - Tests of the project
- Implementation responsibilities (location – have CG person be with BPA? (How many people? Probably 1, but for security clearance, might want 2)
    - Identifying candidate generators and solicit regional participation
    - Assist BPA in developing pro forma contract, finding generators to participate
    - Before the hour
        - Encourage participation based on current system status
        - Set up tests
        - Receive and process generation offers
        - *[A lot of this will be automated – PSANI tool]* Populate the redispatch tool with data from offers
            - Generation Offers
            - PUFs
            - Other
        - Provide updated information to BPA dispatchers
    - During the hour

        - *[Will be automated]* Minimal role, support as necessary or requested
    - After the hour
        - After-the-fact accounting for BPA's billing purposes (in the beginning CG may need to facilitate figuring out how to do settlement – little different than status quo)
        - After-the-fact evaluation reporting
- After Redispatch Events
    - Pull together Parties to discuss
- Fall 2007
    - Lessons learned and recommendations
    - Meeting of Parties and Other Interested Persons

Stage 2

Goal: Transition to ColumbiaGrid implementation offering reliability redispatch to footprint (Functional Agreement signatories) control areas. ColumbiaGrid will developing business practices and infrastructure to facilitate voluntary reliability redispatch that includes bids for increasing and decreasing federal and non-federal generation and load

- Develop General recommendations for enhancements in Fall of 2007
    - Public process
- Assessment of regional effectiveness and economic efficiency of ColumbiaGrid providing voluntary reliability redispatch service
- Further development based upon lessons learned from Stage 1
- Expand to more cutplanes/generators/loads
    - Assessment of need and potential benefits of including specific cutplanes
    - Assess effectiveness of including generators outside of the Northwest
    - Assess effectiveness of including loads that offer "spinning reserve" capability[1]
- Coordinate development of in-hour reliability redispatch predictive tool with PNSC *[is there a tie to Pre-Operating Hour Enhancements?]*
    - Communicate results of in-hour reliability redispatch to PNSC
    - Confirmation from PNSC of effectiveness of in-hour reliability redispatch
- Coordination of needed changes in business practices and tariffs
- Standardized communications protocols for actual implementation
- Net settlement procedures
- Procedures and decision-making rules for responding to multiple Balancing Authority requests

Stage 3 *[takes place after certain milestones in Stage 2]*

[1] See ICNU proposal in UE 180 at OPUC, Exhibit ICNU/200, p. 13.

Goal: Transition to ColumbiaGrid implementation offering hour-ahead congestion management to footprint (Functional Agreement signatories) control areas. Congestion management would use pre-real-time information for footprint control areas by developing business practices and infrastructure to facilitate hour-ahead voluntary redispatch that includes bids for increasing and decreasing federal and non-federal generation and load

- Feasibility assessment of regional effectiveness of ColumbiaGrid providing hour ahead redispatch service
    - Assessment of the interaction between the scheduling flexibilities and potential gaming opportunities
    - Assessment of the potential of creating a new energy market
- Explore possibility of accommodating hybrid response (e.g., first hydro, then thermal or other)
- Developing hour-ahead voluntary redispatch mechanism
    - Public process
    -
- Address potential gaming issues
- Coordination of needed changes in business practices and tariffs
- Standardized communications protocols for actual implementation
- Net settlement procedures
- Procedures and decision-making rules for responding to multiple Balancing Authority requests
- List of other items that required in order to implement hour-ahead voluntary redispatch – Flow-Based ATC/visibility (tools and data)

Infrastructure Requirements

This will become a reliability function; therefore it will, at some point, have certain requirements to ensure it is available when needed:

- Backup power supply
- Robust telephone communication to TOs and Generation Owners/Operators
- Robust telecommunications with TOs, Generation Owners/Operators
- Robust telecommunications connection to redundant SCADA data sources
- Sufficient FTE to back each other up
- Have a plan for a backup worksite in the event the primary site is unavailable (due to fire, flood, volcanic eruption, earthquake, etc.)

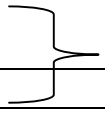
Note: In the event redispatch cannot solve the congestion problem for whatever reason, control area operators will need to be able to fall back on schedule curtailment to solve the congestion problem.

Cost Estimate – Rough Start – Will be Updated

Start-up Costs

Yr	Function	FTE	High end	Low end	Expected
2007	Operations & ATF	2 (6 mo)	150 K	134 k	
	Telephone		50 K	Use BPA's	
	Telecommunications				
	SCADA data source		TBL's service	TBL's service	
	Computers		20 K	15 K	
	Worksite		180 K	130 K	
	Backup power		Required at site	Use BPA's	
2008	Expand Scope	3 (3 mo)	120 K	120 K	
	Improve Tool	3 (3 mo)	120 K	120 K	
	Operations & ATF	3 (6 mo)	230 K	230 K	
	Software Development		500 K	200 K	
	Telephone		3 million	Use BPA's	
	Telecommunications				
	SCADA data source		6 million	Use BPA's	
	Computers		Additional 10K	Additional 5K	
	Primary worksite		Additional 90 K new startup plus 60 K rent	Additional 66 K new startup plus 43 K rent	
	Backup worksite		20 K	10 K	
	Backup power		Required at site	Use BPA's	
	TOTAL 2007 and 2008 Start up Cost		10.5 Million	1.2 Million	

Operating Expenses

Yr	Function	FTE	High end	Low end	Expected
2009 and beyond	Expand Scope	3 (3 mo)	120 K	120 K	
	Improve Tool	3 (3 mo)	120 K	120 K	
	Operations & ATF	3 (6 mo)	230 K	230 K	
	Software Development		150 K	100 K	
	Telephone		970 K	Use BPA's	
	Telecommunications				
	SCADA data source		1.1 million	Use BPA's	
	Computers		5 K	5 K	
	Primary worksite		90 K	65 K	
	Backup worksite		10 K	6 K	
	Backup power		Required at site	Use BPA's	
	Total annual operating expense		2.8 Million	645 K	

Some of my assumptions in pricing the above:

- I based my cost assumptions on the results of the work done by the Structures Group (SG) for Grid West (GW) – with BPA in and with BPA not in.
    - For FTE – used SG's FTE cost which includes salary, benefits, and training
    - For Voice date, telecommunications, secure telephone lines – use 1/3 of SG's cost estimate. (GW assumed TOs of Pac, Ida, and BPA – ColG has BPA)
    - For SCADA I used ¾ SG's cost – majority of the cost is in obtaining the SCADA data –I assumed that for 2007, ColG would use BPA SCADA
    - For Computers – used SG's hardware/software cost for 305 FTE scaled to ColG staff of 2 or 3
    - For primary worksite rent – For the high I used SG's estimate for a building other that Dittmer, scaled from GW's FTE of 305 to ColGrid FTE of 2 or 3. For the low case I used SG's estimate for renting space in Dittmer Scaled from GW to ColG
    - For backup worksite – assume it would not be manned
    - For Backup Power – I assumed that would be one of the requirements for where ColG would locate.

- For the Operating Expense I made similar assumptions in converting between SG's estimates and ColG.
- In the low case, I assumed that ColG would be able to use BPA's Voice, data telecommunications, secure telephone lines, and SCADA with out charge. This may not be the case.