

# memorandum

DATE: September 21, 2007

REPLY TO  
ATTN OF: IG-32 (A07DN057)

SUBJECT: Bonneville Power Administration Comments on the IG Discussion Draft Report on the "Audit of Continuity of Operations at Bonneville Power Administration" dated August 20, 2007

TO: George Collard, Assistant Inspector General for Performance Audits  
Office of the Inspector General

Thank you for allowing the Bonneville Power Administration (BPA or Bonneville) to comment on your audit of BPA's Continuity of Operations Planning (COOP). BPA accepts the IG's recommendations. BPA is either currently implementing or will soon implement the IG recommendations to ensure a viable COOP capability for critical functions at BPA.

However, BPA, by statutory directive, must provide power and transmission services to its customers in a business-like manner while implementing a number of organic statutes (including the Bonneville Project Act, the Federal Columbia River Transmission System Act, and the Pacific Northwest Electric Power Planning and Conservation Act), regulatory guidance (FERC, NERC, and WECC regulations), international treaties, regional operations agreements, and prudent utility practice. In the event of a conflict between FPC 65 and the Administrator's statutory responsibilities, BPA will comply with its statutory and regulatory obligations.

More specifically, BPA's current critical function COOP capability is operational, but needs to be improved. BPA has initiated the Business Resilience Program to develop an integrated and comprehensive set of COOP measures, as well as related emergency, crisis, and asset management plans to address those deficiencies and implement the IG recommendations. BPA has started with the most critical functions, all of which are related to sustaining safe, reliable, and adequate transmission and generation. COOP planning for lower priority functions will follow in FY 2008 and FY 2009. In this process, BPA will identify any aspects of business resilience that need to be strengthened and schedule the projects.

## Comments on IG Recommendations

BPA agrees with the IG Report recommendations. We have added some clarifications and timelines for a more complete understanding of the BPA approach to COOP planning.

### **Recommendation 1. Finalize an approach to COOP planning that includes milestones for developing and approving a Bonneville-wide COOP plan.**

BPA's strategic "approach" to COOP planning has been final since July 2007. BPA has consolidated COOP planning with emergency management, crisis management, and asset management planning. This overall approach is called Business Resilience and is intended to produce an integrated and comprehensive set of plans, enhancements, and skills to allow BPA to effectively respond to disruptive events affecting BPA, its customers and stakeholders in the Pacific Northwest region. Implementation details will be updated in October 2007, following our Business Impact Analysis

(BIA) which has identified BPA's "core outputs," the highest priority products and services the agency must sustain during and following an emergency, all of which are related to sustaining safe, reliable, and adequate transmission and generation. As part of the BIA, BPA will identify the critical functions that sustain these core outputs. COOP plans for these highest priority-critical functions will be completed by the end of FY 2008, with second priority function COOP plans to follow during FY 2009.

**Recommendation 2. Develop and maintain viable business function COOP plans in accordance with FPC 65 that include:**

- (a) Strategies that ensure independent alternate operating facilities which are not subject to the same hazards as the primary facilities;**
- (b) Devolution plans to ensure COOP in the event that both the primary and alternate facilities are rendered inoperable; and**
- (c) Formal testing of the alternate operating facilities and devolution plans, including documenting the results and implementing corrective actions when necessary.**

BPA intends to have viable business function COOP plans in accordance with (a) and (b) above by the end of FY 2008 for its most critical functions, with others to follow. Additional changes in systems and processes, including formal testing described in (c) above, will be implemented over a few months to several years, depending on agency priorities, implementation time and costs.

As pointed out in the comments in the Appendix, and in the IG report findings, BPA does currently have workable elements of (a), (b), and (c) above, but acknowledges that improvements are needed.

**Recommendation 3. Integrates the business function COOP plans into a Bonneville-wide COOP plan that meets FPC 65 requirements.**

Bonneville's COOP plans will be integrated to ensure that its priority "core outputs" are resilient. BPA has procured LDRPS (Living Disaster Recovery Planning System), an industry standard COOP planning tool to assist in this integration. All business function COOP plans will be integrated and lodged in the LDRPS data base which is expected to fully meet FPC 65 requirements by the end of FY 2008.

**Recommendation 4. Ensures timely completion of its information technology initiatives for power and transmission scheduling systems and that the new capabilities are reflected in business function COOP plans.**

Information technology initiatives for Power Scheduling and Transmission Scheduling Systems are under way. The remote site internet scheduling capability, located in Minneapolis, MN, will be operational by the end of FY 2008. The remote alternate facilities site for critical support functions, including forecasting and scheduling at the Munro Control Center (MCC) in Spokane, WA, is expected to be finished by January 2009.

BPA's response, the Appendix, and other documentation can be found on the BPA website at [http://www.bpa.gov/corporate/about\\_bpa/audits](http://www.bpa.gov/corporate/about_bpa/audits).

A handwritten signature in black ink, appearing to read 'S. Baskerville', written over a horizontal line.

Sonya L. Baskerville  
National Relations Manager

3 Attachments

cc:

Mark Mickelsen – DOE, Office of Inspector General

# **APPENDIX**

## **Comments on the IG Draft Report**

## **APPENDIX**

### **Comments on the IG Draft Report**

1. IG Draft – Results of Audit page 1. “Its plan to recover transmission scheduling from disruptions to its primary automated system relied in part on a manual process, rather than a fully automated system as required by FPC 65.”

BPA Comment: BPA has nearly completed a project to access out-of-region back-up internet scheduling capability in Minneapolis, MN. Once this is completed, transmission scheduling will have a fully automated back-up scheduling system. See also Comment 3 below.

It should be noted that the loss of scheduling functions does not mean the immediate or even eventual loss of ability to serve load. While not ideal, in an emergency, dispatchers and generation project operators can operate the generation and transmission systems and keep them in balance for a limited period of time.

#### **Continuity of Operations**

2. IG Draft page 1. “. . . Bonneville did not have specific devolution plans for power scheduling, transmission scheduling, and system operations. . . .”

BPA Comment: This statement is not entirely accurate. Power Scheduling (PS), Transmission Scheduling (TS), and Transmission Operations (TO) have devolution plans. These plans don't comply with FPC 65 in every respect and will be upgraded. See Documentation for Devolution Plans below.

In addition, there are approved project plans associated with BPA's scheduling automation project to upgrade the devolution capability. An IG representative spoke at length with the project manager, Roger Bentz, who provided background and timelines.

#### **Alternate Operating Strategies**

BPA Comment: Bonneville's PS, TS, and TO functions have alternate sites for emergencies. The transmission operations site in Spokane, WA, on the east side of the Cascade Mountains, is remotely located from the primary site in Vancouver, WA. The PS Emergency Scheduling Center in Vancouver, WA, is in another city but is within the same geographic region as the primary center in Portland, OR. As described below, enhancements in FY 2008 to the Munro Control Center (MCC) will improve remote PS capabilities. BPA's TS function will also soon be fully mobile, so long as it has internet access. It has many alternate operations sites, including another local BPA building, a hotel 70 miles from its Vancouver, WA, home, and the MCC.

3. IG Draft page 1. “Additionally, Bonneville's COOP approach for recovering transmission scheduling relied in part on a manual process if the use of its primary automated system was disrupted during an emergency situation. However, use of a fully automated alternate operating system would increase its ability to continue transmission scheduling operations. Further, the manual part of the process did not meet the standard of FPC 65 that alternate operating facilities

must provide computer equipment, software, and other automated data processing equipment necessary to carry out essential functions.”

BPA Comment: The manual process was used before automation was available. It remains viable and is used to continue TS operations during emergency events. This disproves the unsupported assumption of FPC 65 that automation equals reliability.

The tools we have in place currently provide basic continuity of operation for BPA’s critical functions. These include emergency laptops with wireless connectivity, WIT, a distant alternative location, and the redundant connections for accessing our scheduling system. In an emergency, we have the minimum amount of infrastructure necessary to support our critical functions to get good controller total numbers to dispatch. See BPA Transmission Scheduling Back-Up Step-by-Step Process below.

4. IG Draft page 1 & 2. “Bonneville noted that it has a number of information technology initiatives underway that will reduce the possibility of power and transmission scheduling interruptions. . . . [O]nce the information technology initiatives are completed, Bonneville will need to update its COOP procedures to address the new capabilities to ensure that employees know the logistics of what to do and where to go if an emergency situation renders the primary facility unavailable.”

BPA Comment: BPA has procedures in place. Training is scheduled for September–October 2007, as we complete phase 3 of the scheduling automation project.

### **Devolution Plans**

BPA Comment: BPA does have current devolution plans for use in the event alternate work sites are down, although they will need to be enhanced to be fully compliant with FPC 65 in all respects. Devolution plans for TS rely on their remotely located outsourced scheduling service in Minneapolis, MN, or, in the event the internet is down, they can perform their basic functions with telephones and laptops. If their Emergency Scheduling Center is down, PS will place a hydro scheduler with the system dispatchers to coordinate hydro system operations with system dispatch during the emergency. If the system can’t be operated and dispatched from the back-up site at the MCC in Spokane, TO will coordinate with BPA Substation Operators to manage switching, voltage control, and safety. Automatic Generation Control will be accomplished by frequency control at major hydro projects, such as Grand Coulee. See documentation below.

5. IG Draft page 2. “Further, Bonneville’s power scheduling, transmission scheduling, and system operations functions have not developed specific plans for devolving operations to another site in the event that both the primary and alternate facilities are rendered inoperable. Such plans are especially important given the current situation in which primary and alternate facilities for power scheduling remain interdependent. FPC 65 requires devolution plans, among other things, to establish reliable processes and procedures necessary to acquire resources in order to continue essential functions.”

BPA Comment: PS, TS, and TO all have developed functional plans for devolving operations and moving to alternate sites. These were forwarded to the IG on April 20, 2007, and April 27, 2007. See documentation below.

### **Devolution Plans for Operations and Transmission and Power Scheduling**



Transmission  
Operations Devolu...



Transmission  
Scheduling Devolu...



Power Scheduling  
Devolution Pl...

### **Periodic Testing**

Testing of alternative site occupations and devolution plans is on-going. Documentation of some power scheduling, testing, and training is provided below. A more rigorous documentation of these events is needed and will be implemented to meet the standards set by FPC 65. BPA does not believe that a “lessons learned” approach to emergency response for scheduling alternative site occupation is appropriate. Standards must be simple, intuitive, and susceptible to repetition with little deviation to insure system reliability.

6. IG Draft page 2. “Although power and transmission scheduling personnel stated that their alternate operating strategies are tested, they were unable to provide us with any documentation to verify the existence or effectiveness of such tests.” Emphasis added.

BPA Comment: BPA disagrees that not “any” documentation was provided. See documentation below, sent to the IG on January 11, 2007.

Also included below is further documentation of Emergency Scheduling Center (ESC) occupations by generation and PS, including evidence that 100 per cent of duty schedulers had participated in those occupations. This was referenced in BPA’s interlineated comments on the Discussion Draft dated July 24, 2007.

7. IG Draft – Results of Audit page 1 & 2. “Bonneville could not always provide evidence that COOP capabilities for power scheduling and transmission scheduling were periodically tested, deficiencies were identified and lessons learned were implemented.”

BPA Comment: BPA did provide evidence of periodic testing of COOP capability, but acknowledges that documentation of testing and deficiencies could be improved. We gave the IG a copy of an e-mail and other notes from TS, showing that BPA had periodic tests of its emergency procedures (one on October 31, 2006, and another in April 2007). We do have testing and training on our emergency procedures 3-4 times a year. To demonstrate our procedures, the IG was shown Room 123 in Dittmer, our SIP-(shelter in place) room, and the use of the emergency load sheet using the emergency laptops.

8. IG Draft page 2. “In addition, we judgmentally selected a number of transmission schedulers and contacted them to confirm that tests were conducted and were effective. However, three of

the eight transmission schedulers who responded indicated that they had not participated in any of the tests and three others had not participated for several years.”

BPA Comment: BPA is committed to training all schedulers on our emergency scheduling procedures and will do so as part of the Business Resilience Program.

**Power Scheduling 2006 ESC (Emergency Scheduling Center) Occupations**

(Documentation sent to the IG on January 11, 2007, by Pete Lossner)

The times noted below are based on the shifts worked by real-time staff. The first, “1-shift,” is worked from 6:00 a.m. to 6:00 p.m., and the second, “2-shift,” is worked from 6:00 p.m. to 6:00 a.m.

Date Starting @ ESC	Shift Beginning @	Date Back @ HQ	Shift Beginning @
1/07/06	0600	1/08/06	1800
3/03/06	1800	3/06/06	0600
4/11/06	0600	4/12/06	0600
7/12/06	0600	7/17/06	1800
9/11/06	0600	9/18/06	1800
11/17/06	0600	11/20/06	1800

See further documentation below of periodic testing of the ESC, including data that shows that all Power Schedulers have participated.



Summary of ESC Occupations.xls...

**Devolution Plans for Operations  
and  
Transmission and Power Scheduling**

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**Transmission Devolution Operations**

**Transmission Scheduling Devolution**

**Power Scheduling Devolution**

## **A. Devolution Planning for Transmission Operations**

(Submitted by Bonneville to IG on Friday, April 27, 2007 by Pete Lossner)

### **TRANSMISSION OPERATIONS CONTINUITY OF OPERATION / DEVOLUTION PROCESS**

#### **SYSTEMS APPROACH**

Transmission Services' operations centers and systems are located at two key Washington state sites: Vancouver (Dittmer Control Center-DCC) and Spokane (Munro Control Center-MCC). The DCC complex is the primary control center for BPA's entire 500kV grid; MCC operates BPA's sub grid (230kV, 115Kv) voltage systems. Each center serves as a fully redundant back-up site for the other center.

Triggers that might initiate a devolution plan would impact the facilities, staff, computers or telecommunication at both sites which are geographically located 300 miles from each other, but could include: terrorism, insider threat, cyber security, electro magnetic pulse (EMP), severe sun spots or a region-wide natural disaster (e.g. hurricane-like windstorms).

If both centers are out of commission, current devolution plans call for back-up through BPA districts and regions to carry out decentralized switching, and management of safety. Managing Automatic Generation Control (AGC) will be via frequency control from major US Bureau of Reclamation and Corps of Engineers generation sites such as Grand Coulee, John Day and McNary dams. Adjacent control area utilities (now known as Balancing Authorities) may also provide some measure of system support in a tertiary-type emergency.

#### **LOCATION APPROACH**

If Transmission Services is unable to operate and dispatch from the DCC, Dispatchers already located and operating 24/7 at Munro take control of the BPA grid. MCC has a written procedure to take control of the AGC.

If Transmission Services is unable to operate from either the DCC or the MCC, BPA Substation Operators in local maintenance districts will manage switching, voltage control and safety activities to a limited degree. Dispatch would coordinate via telephone or other communication formats if practical.

#### **DEVOLUTION PLANNING**

Attachment A describes a draft planning process outlined by System Operations staff to develop alternatives and a Plan to comply with FPC 65 requirements. This plan is expected to take between 12-18 months to complete.

## **Plan Process Outline:**

A. Identify and document Devolution Plan alternatives. Investigate existing procedures and sites whenever practical to become part of System Operation Devolution Plan. Of critical focus are the Dispatch, SCADA and AGC systems functionality and impact to safety and power system reliability. Existing Dispatcher Standing Orders, Operating Bulletins, Station Standing Orders, emergency procedures will be an initial focus. Many dispatch functions now have procedures such as Operating Bulletin-16 to delegate operations such as switching and safety to Substation Operations in BPA regional offices and districts. Plan alternative(s) will be developed to address compliance with the seven key items in FPC 65 Annex J (see attached).

B. Make presentation to BPA Transmission Tier 1 & 2 management on Devolution Plan Alternatives for Decision on Preferred Alternative for further analysis and development.

C. Identify and assess both risks and costs related to Devolution Plan preferred alternative.

D. Prepare Business Case for preferred plan implementation.

E. BPA Transmission Tier 1 & 2 Management review Risk Assessment and cost estimates and approve development of the preferred option.

F. Implementation of Preferred Alternative. 18 months. A project team and schedule will be set up to complete the Devolution Plan. Schedule may be driven by the need for agreements with other federal agencies, public utilities, investor owned utilities and/or other organizations such as NERC or WECC.

## **B. Devolution Planning -- BPA TRANSMISSION SCHEDULING EMERGENCY BACK UP STEP BY STEP PROCESS**

(Provided to Christine Nehls on Friday, April 20, 2007)

**\*Please note that BPA has multiple levels of treatment for this risk.**

### **SYSTEMS APPROACH**

**A) Transmission scheduling-using OATI has three levels of fall back capability.**

-Primary source is OATI headquarters-Minneapolis, Minnesota

-Two redundant secondary local servers

- Dittmer Control Center
- MCC Munro Control Center, Spokane Washington

(1) If we lose primary link to Minnesota-OATI, we can connect with full up capability to either Dittmer or Munro.

(2) Either Dittmer or Munro can provide full back up to the other.

**B) If we lose all three OATI sites or all links to OATI:**

(1) We would have the ability to use a reduced computer system process connecting to the internet.

(2) We could also use manual processes, transmitting controller totals to dispatch via phone.

### **LOCATION APPROACH**

If we are unable to schedule from the Transmission Duty Scheduling Center:

-We can relocate (depending on the nature of the emergency) to:

- CSB Construction Services Building (less than 3 miles away)
- MCC Munro Control Center Spokane Washington
- Any location that has internet connection where we can access the OATI server, we have a no cost contract in place with a hotel (70 miles away) that has full internet, fax, and other business capabilities.
- Essentially we could go anywhere as our transmission scheduling capabilities are mobile with laptops, and emergency spreadsheet and emergency cell phones.
- All of this enables us to maintain full up scheduling capabilities as long as OATI is functioning from one of three sites.

## **C. BPA Power Scheduling Devolution Plan**

(Provided to Christine Nehls on Friday, April 20, 2007)

### **SYSTEMS APPROACH**

Various components of Power Services' scheduling systems are located at BPA's Headquarters in Portland, Oregon, and at BPA's Ross Campus in Vancouver, Washington. If a particular system fails, the schedulers revert to manual procedures or workarounds.

The Alternate Data Center Project, scheduled for completion around June 2009, will result in systems being backed-up at the Munro Control Center in Spokane, Washington. If systems in Portland/Vancouver should fail, the back-up systems at Munro will take over.

### **LOCATION APPROACH**

If Power Services is unable to schedule from the Headquarters Duty Scheduling Center (DSC), located in Portland, Oregon, the schedulers relocate to the Emergency Scheduling Center (ESC) located on BPA's Ross Campus in Vancouver, Washington. The ESC is located approximately 13 miles from the DSC.

If Power Services is unable to schedule from either the DSC or the ESC, a Hydro Scheduler would co-locate with BPA's Transmission Dispatch. The first alternative would be to co-locate with Dispatchers at the Dittmer Control Center which is located on the Ross Campus. If the Dittmer Control Center is not operational, the second alternative would be to transport and co-locate a Hydro Scheduler with Dispatchers at the Munro Control Center in Spokane, Washington.

**Power Scheduling 2006 ESC  
(Emergency Scheduling Center) Occupations**

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**Summary of ESC Occupations**

Period	Shifts	Check	Regular Schedulers	Arp	Barton (On Detail since 04/30/06)	Bolas	Dewitt	Erdmann	Folts	Hawkins	Klement (Hired 01/22/06)	Neal	Randolph	Rojas	Schaufelberger	Scheel	Yim	Trainees	Hyde (02/07)	Klement (Hired 01/22/06)	Jenks (08/06)	Martin (08/06/06)	Winner (07/23/06)
Dec 07	0	0	0															0					
Nov 07	0	0	0															0					
Oct 07	0	0	0															0					
Sep 07	0	0	0															0					
Aug 07	0	0	0															0					
Jul 07	1	2	2				1				1							0					
Jun 07	8	16	16				2	1		3	2	1	3	3	1			1	1				
May 07	7	14	14	3		2	2	2	1	2							2	0					
Apr 07	0	0	0															0					
Mar 07	0	0	0															0					
Feb 07	7	14	14	2					1	1	3	1		3	3			3	1	1		1	
Jan 07	0	0	0															0					
Dec 06	0	0	0															0					
Nov 06	7	14	14			1	3	2	3			2		2	1			5	1	2		2	
Oct 06	0	0	0															0					
Sep 06	15	30	30	3		2	1		3	1	4	2	4	5	2	3		12		5	3	4	
Aug 06	0	0	0															0					
Jul 06	11	22	22			2	3	3	2	1	3	2	2	3	1			2	2				
Jun 06	0	0	0															0					
May 06	0	0	0															0					
Apr 06	3	6	6	1				1	1		1		1			1		0					
Mar 06	5	10	10		2		2		1					1	3	1		0					
Feb 06	0	0	0															0					
Jan 06	3	6	6			1	1	2	1				1					0					

Jul-Dec 07	1	2	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Jan-Jun 07	22	44	44	5	0	2	4	3	1	1	4	7	2	3	6	4	2	4	1	1	1	0	1
Jul-Dec 06	33	66	66	3	0	5	3	7	4	7	1	7	6	6	10	4	3	19	0	3	7	3	6
Jan-Jun 06	11	22	22	1	2	1	3	3	3	0	0	1	1	2	3	2	0	0	0	0	0	0	0
Total	67	134	134	9	2	8	11	13	8	8	5	16	9	11	19	10	5	23	1	4	8	3	7