Reclamation Manual

Directives and Standards

Subject: Unit Availability

Purpose: This Directive and Standard (D&S) establishes consistency among all Bureau of Reclamation power facilities and control centers to determine unit availability and outage classification of hydroelectric generators by establishing clear definitions and a standard for determining hydroelectric generator states. The benefits of this D&S are to ensure reliability of Reclamation powerplants and the bulk electric system and provide standardized reporting criteria for Reclamation hydropower generation statistics.

Authority: Reclamation Project Act of 1902 (Act of June 17, 1902, ch. 1093, 32 Stat. 388), the Town Sites and Power Development Act of 1906 (Act of April 16, 1906, ch. 1631, 34 Stat. 116), Reclamation Project Act of 1939 (Act of August 4, 1939, ch.418, 53 Stat. 887), the Flood Control Act of 1944 (Act of December 22, 1944, ch.665, 58 Stat. 887), the Department of Energy Act of 1977 (Act of August 4, 1977, Pub. L. 95-91; 91 Stat. 565), Energy Policy Act of 2005 (Act of August 8, 2005, 119 Stat. 594), and acts relating to individual dams or projects.

Approving Official: Director, Technical Resources

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1. **Introduction.** Reclamation collects, calculates, and reports generating unit statistics as part of its responsibility to provide reliable hydropower to the bulk electric system. The North American Electric Reliability Corporation (NERC) Generating Availability Data System (GADS) and Institute of Electrical and Electronics Engineers (i.e., IEEE) 762 define the industry standards for active and inactive states of generating units. As reliability standards become mandatory, knowledge of a generator's state is important to the reliability of the bulk electric system. Reclamation generally follows these industry standards with a few exceptions due to the uniqueness of Reclamation's mission.

2. **Applicability.** This D&S applies to all hydroelectric generating facilities and personnel within Reclamation.

3. **Definitions.**

   A. **Available.** The period during which a unit is in service or ready for service.

   B. **Balancing Authority**. The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a balancing authority area, and supports Interconnection frequency in real time.

C. **Benchmarking Statistics.** These statistics include, but are not limited to, availability factor, forced outage factor, and scheduled outage factor. These may be weighted or un-weighted.

D. **Forced Outage.** Results in or requires removal of a unit from service due to automatic mechanical, electrical, or hydraulic control systems or operator initiated action or a failure to start when called upon by the system or a failure of any system that requires a removal from service.

E. **Generating Unit or Unit.** Includes all components, penstocks, gates, valves, generators, turbines, and auxiliaries that impact the ability of a unit to operate.

F. **Government Performance and Results Act (GPRA).** GPRA is a United States law enacted in 1993. It is one of a series of laws designed to improve government project management. GPRA requires agencies to engage in project management tasks such as setting goals, measuring results, and reporting their progress. In order to comply with GPRA, agencies produce strategic plans, performance plans, and conduct gap analysis of projects.

G. **Outside Management Control.** Some outages are caused by events outside of the control of the generator owner. Such outages include acts of nature (e.g., ice storms, lightning strikes, hurricanes, tornados, etc.), interruption of fuel supply, transmission outages, special environmental limitations, seasonal outage, and others.

H. **Performance Assessment Rating Tool (PART).** PART is a program run through the United States Office of Management and Budget to rate all Federal programs on their effectiveness.

I. **Scheduled Outage.** Results when equipment is deliberately taken out of service at a selected time, usually for purposes of construction, maintenance, or repair. A scheduled outage is planned in advance, has a predetermined duration, and must be coordinated with the balancing authority.

J. **Seasonal Plant.** A power plant that was designed to operate and produce power during specific times of the year when water is available or is under court order to operate during specific times of the year. During other times, it has no water available to any of the plant for generation of power.

K. **Unavailable.** The period during which a unit is not available due to a scheduled or forced outage.

4. **Responsibilities.**

A. **Regional Director.** It is the responsibility of the regional directors to ensure that the availability of Reclamation units is reported in accordance with the requirements in this D&S.

B. **Area Managers.** It is the responsibility of the area managers to determine the process for transmitting data on their power facilities to the PRO.

C. **Manager, PRO.** The Manager, PRO is responsible for:

(1) calculating generating unit statistics and reporting these statistics to NERC in accordance with NERC's event reporting requirements;

(2) checking for discrepancies in the data and where necessary resolving those conflicts with the facility;

(3) in collaboration with the regional power managers, identifying and resolving long-term issues related to data classification and reporting within Reclamation; and

(4) providing interpretation of industry standards to Reclamation.

D. **Facility Managers**. It is the responsibility of the facility manager to ensure the accuracy of the Monthly Report of Power Operations data and submit this data as required by the area or regional office.

E. **Regional Power Managers**. Regional power managers are responsible for:

(1) resolving long-term issues in data classification, reporting, and interpretation, in conjunction with the PRO, within their region (e.g., defining which facilities are seasonal, how to handle transmission outages and their impacts on Reclamation data, etc.); and

(2) determining seasonal plants within their region.

5. **Availability.**

A. **Unit Testing.** When testing is associated with a maintenance activity and is part of a currently scheduled outage, then the unit is considered unavailable. However, if a unit is being tested and is available to the system within 10 minutes when called upon, then the unit is considered available.

B. **Remote, Local, Supervisory, Automatic Generation Control (AGC) Control.** Unit availability shall be considered independent of the unit's status regarding AGC or remote, local, or supervisory control.

C. **Seasonal Plants.**

(1) During seasons when plants have water available to generate power, these plants will be considered available unless maintenance is scheduled or a forced outage occurs.

(2) During seasons when there is no water available to generate power, these plants will be placed in a scheduled outage Outside Management Control status.

D. **Low Water.** Plants with low water or lack of water to generate with all units are considered available as long as the machines are ready to operate when called upon.

6. **Reporting.**

A. **Monthly Report of Power Operations.** The Monthly Report of Power Operations shall be completed and submitted to PRO no later than the 10th calendar day of the month following the reporting month. Any needed revisions or corrections to the Monthly Report of Power Operations will be submitted to the PRO as soon as possible.

B. **Reason Codes.** These codes shall be used when defining the reason for the outage. In addition, a short written summary shall be provided on the Monthly Report of Power Operations describing the reason for the outage and work being performed. These codes are outlined in Facilities Instructions, Standards, and Techniques (i.e., FIST).

C. **Outside Management Control.** These outage types shall not be counted against facilities' benchmarking statistics for PART and GPRA reporting purposes per the NERC GADS definitions.

7. **Transitions Between a Forced Outage and Scheduled Outage.**

A. **Transition from Forced to Schedule Outage.** In order to transition from a forced outage to a scheduled outage, the equipment issue that caused the forced outage must be repaired. Once the issue is repaired, the outage shall be changed to a scheduled outage to address other maintenance if it is scheduled with the balancing authority prior to the transition. During the forced outage, scheduled outage maintenance work that is possible will begin in order to shorten the time for the scheduled outage.

B. **Transition from Scheduled to Forced Outage.** In order to transition from a scheduled outage to a forced outage, a forced outage must occur. If a unit is being returned to service and a failure occurs, the unit shall transition to a forced outage. However, if a scheduled outage is planned, and prior to the scheduled outage a forced

outage occurs, the unit shall be considered in a forced outage until the equipment issue that caused the forced outage is repaired. During the forced outage, scheduled outage work that is possible will begin in order to shorten the time for the scheduled outage.