

# 2026 Pacific Northwest Loads and Resources Study

April 2026





**2026 PACIFIC NORTHWEST LOADS AND RESOURCES STUDY**  
*The White Book*

**BONNEVILLE POWER ADMINISTRATION**  
April 2026

**Cover Picture:**

Source: BPA Photo Archive <https://river.bpa.gov>

Ice Harbor Dam is one of the four federal projects located on the Lower Snake River in the Pacific Northwest, residing roughly in the southwestern region of Washington state and neighboring the Walla Walla and Franklin counties. It is part of the Columbia River Basin hydro projects, and it serves a variety of purposes such as irrigation, navigation, recreation and hydropower.

Ice Harbor Dam is a run-of-river type of dam, which began its service in 1961 and is operated by the U.S. Army Corps of Engineers.

For more information on The Ice Harbor Dam, please visit: [Walla Walla District - Ice Harbor Lock and Dam](#)

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# ACKNOWLEDGMENTS

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Preparation of the annual Pacific Northwest loads and resources study is a complex, multidisciplinary effort. BPA wishes to acknowledge the team—BPA staff and others—whose diligence and dedication result in a reliable, high quality document.

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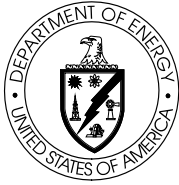
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April 10, 2026

In reply refer to: PGPR-5

*Dear Interested Parties:*

The Pacific Northwest Loads and Resources Study, commonly called “The White Book”, is the Bonneville Power Administration’s (BPA) annual publication of the Federal system and the Pacific Northwest’s loads and resources for the upcoming 10-year period.

The White Book is used by BPA as a planning tool, as an information source for customers, as a published source of loads and resources information for regional interests, and as a data source for the Columbia River Treaty studies. The White Book is not used to guide day-to-day operations of the Federal Columbia River Power System (FCRPS) or to determine BPA revenues or rates.

Due to uncertainties related to the ongoing litigation concerning the Columbia River System Operations (CRSO), the 2026 White Book reflects long-term hydro operations based on the 2020 CRSO Environmental Impact Statement (EIS) Record of Decision (ROD) for the full 10-year study period.

This 2026 White Book presents the Federal system and the region’s load obligations, contracts, and resources as of February 2026 for operating years (OY) 2027 through 2036. The 2026 White Book includes the following studies:

- **Federal system analysis**—forecast of Federal system firm loads and resources based on expected load obligations and different levels of generating resources that vary by water conditions. The results are summarized below:
  - **Annual Energy Surplus/Deficits:** Under firm conditions, the Federal system is projected to have annual energy deficits across the study period, ranging from deficits of 408 to 931 average megawatt (aMW). Overall, these annual energy deficit projections are generally less than those projected in the 2025 White Book. Under median water conditions, the Federal system is projected to have annual energy surpluses throughout the study period.
- **PNW regional analysis**—forecast of regional firm loads and resources, based on expected retail loads and different levels of generating resources that vary by water conditions. The scheduled decommissioning of existing resources, the extent of forecasted load growth, the availability of uncommitted PNW Independent Power Producer (IPP) generation to meet regional load, and new resource additions are key variables in the results of this analysis. The results are summarized below:
  - **Annual Energy Surplus/Deficits:** Under firm water conditions, the PNW is projected to have an annual energy surplus as large as 337 aMW in OY 2027, that sharply decrease to a deficit of 3,514 aMW by OY 2036. This result was mainly driven by the increasing PNW retail loads. Overall, the annual energy surplus/deficit position

projections are a slight improvement to forecasts from the 2025 White Book until the last year of the study period. Under median water conditions, the PNW region would begin to see energy deficits starting in OY 2034.

The 2026 White Book is available on BPA's website (<https://www.bpa.gov/energy-and-services/power/resource-planning>) or in hard copy format at BPA's Visitor Center, which you can reach toll-free at 800-622-4520 (or 503-230-4636). Detail reports regarding regional loads, contracts, and generating resources can be found in the Appendix and are available upon request via email to [whitebook@bpa.gov](mailto:whitebook@bpa.gov).

Please send questions and/or comments to [whitebook@bpa.gov](mailto:whitebook@bpa.gov).

Sincerely,

Rachel Dibble  
Vice President| Generation Asset Management  
Bonneville Power Administration  
Enclosure

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# SECTION 1: SUMMARY

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## Planning Context

The Pacific Northwest Loads and Resources Study, commonly referred to as “The White Book,” is a planning document produced by the Bonneville Power Administration (Bonneville) that presents its projection of load and resource conditions for the upcoming 10-year period from operating year (OY<sup>1</sup>) 2027 to 2036 (referred to in this document as “the study period”). The White Book includes analysis of Bonneville’s forecasts of expected power obligations and resource generation for both the federal system and the Pacific Northwest<sup>2</sup> (PNW) region. Information contained in the White Book is used for: 1) long-term planning studies for Bonneville; 2) planning studies for the Columbia River Treaty; and 3) as a published record of information and data for customers and other regional planning entities. The White Book is not used to guide day-to-day operations of the Federal Columbia River Power System (FCRPS).

Bonneville’s White Book traditionally focuses on long-term deterministic power planning for the federal system and the PNW region. The load and resource balance are calculated by comparing expected loads and contract obligations to forecast resource generation and contract purchases under the federal system. In the same manner, Bonneville’s PNW regional analysis calculates the PNW regional load and resource balance by comparing expected regional retail loads and contract obligations to forecast regional resource generation and contract purchases. Hydropower resources for the federal system and PNW region include variability by incorporating a variety of generation forecasts, associated with streamflow from the most recent 30-historical water conditions of the 2020 modified flows. These deterministic analyses are modeled by OY to be consistent with regional coordination of the Treaty. Analytical results are presented in annual and monthly energy, expressed in average megawatts. The federal system analysis is presented in [Section 2](#) and the Pacific Northwest regional analysis in [Section 3](#).

Bonneville, like the rest of the electric power industry, continues to explore ways to comprehensively assess the ability of the power system to meet long-term load obligations. Periodically, Bonneville incorporates additional analysis and data into its planning that look at different analytical methods and evaluate different scenarios. This year’s White Book does not incorporate any additional analysis.

The total retail load, contracts, and generation forecasts used in this study were updated as of February 2026. While Provider of Choice contracts were signed in December 2025, Bonneville will not have a full understanding of its Provider of Choice load obligations until Tier 2 elections are made in summer 2026. Thus, Provider of Choice updates are not included in this issue of White Book. The 2026 White Book supersedes the 2025 White Book and is published as a single summary document. A list of technical reports is located at the end of this summary document in the [Appendix](#); individual reports are available upon request only. Requests for these reports can be made by emailing [WhiteBook@bpa.gov](mailto:WhiteBook@bpa.gov).

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<sup>1</sup> Operating Year (OY) is the time frame August 1 through July 31. For example, OY 2026 is August 1, 2025, through July 31, 2026.

<sup>2</sup> As defined in the [Northwest Power Act](#)

## Load Obligations

The load obligations for the federal system and PNW region contain multiple components in this study. Forecasts are categorized as: 1) total retail loads (TRL), defined as each individual utility's total retail electric power consumption on its system, including electrical system losses; and 2) contract obligations, which include reported PNW utility long-term contract sales within the PNW region as intra-regional transfers (Out) and outside the PNW region as exports. Contract obligations also include federal system power sales delivered to federal agencies, public bodies, cooperatives, and tribal utilities as preference customers described under section 5 of the Northwest Electric Power Planning and Conservation Act (NW Power Act), 16 U.S.C. 839 et seq., (December 5, 1980).

Forecasts of the regional TRL and federal system load obligations are produced by Bonneville's Agency Load Forecasting (ALF) system. ALF forecasts are completed for individual PNW entities under one of two approaches: the largest share of load forecasts is now based on statistically adjusted end-use models, while other forecasts are based on time-series-based regressions that follow the fundamental assumptions of historical retail electricity consumption patterns continuing. The statistically adjusted end-use models include calculated indexes for heating and cooling equipment, and other components. ALF forecasts also assume normal weather conditions, using normalized temperatures based on recent history to incorporate evolving climate trends. Obligations associated with Bonneville's preference power sales contracts are forecast to continue as they are currently elected through the study period. Contract obligations not associated with Bonneville's preference power sales contracts follow individual contract terms throughout the life of the contract and are not assumed to be renewed. All federal system load and contract obligations are assumed to be firm and served by Bonneville regardless of weather, water or economic conditions.

## Resource Types

Regional resources consist of physical generating facilities (currently on-line and/or under construction) and contract purchases that are used to serve retail loads. PNW resources, with federal systems included, are predominantly hydro based; therefore, generation levels can vary greatly both from month-to-month and from year-to-year. This analysis classifies resources as: 1) hydro resources, which include regulated, independent, and small hydro projects; 2) non-hydro renewable resources, which include wind, solar, and other renewable projects; 3) thermal resources, which include nuclear, coal, natural gas, petroleum, biofuel, and cogeneration projects; 4) contract purchases, which include reported PNW utility long-term contract purchases from within the PNW region as intra-regional transfer (In) and from outside the PNW region as imports. Generation forecasts for these resources are provided by Bonneville models or from the project owners, and those are described in detail in the following sections.

### *Hydro Resources*

- Regulated hydro – Regulated hydro projects mainly consist of PNW Columbia River Basin hydro power projects for which the operation and generating capability is hydraulically linked. Bonneville forecasts the coordinated energy and capacity production from these hydro power projects using its hydro-system simulator model, called HYDSIM. The HYDSIM model considers individual project operating characteristics and conditions to determine energy production

expected on a project-to-project basis. Generation forecasts for these projects incorporate the month-to-month power and non-power requirements under each of the 30-year historical streamflow conditions of record, 1989 through 2018. The HYDSIM model is described further in the [Hydro Resource Modeling](#) section.

- Independent hydro - Independent hydro projects include those hydro projects whose generation output typically varies by water condition and are not operated or hydraulically linked to part of the Columbia River Basin. Independent hydro generation forecasts can vary month-to-month for energy and capacity and are developed and provided by individual project owners/operators for the same 30-year historical water conditions as the regulated hydro projects (1989 through 2018).
- Small hydro – Small hydro project generation forecasts are either provided by individual project owners or are based on historical actual generation. These generation forecasts vary month-to-month; however, they are not assumed to be dependent on water conditions.

### ***Non-Hydro Resources***

- Wind – Firm wind generation incorporates the statistical modeling of wind generation, based on historical weather data and actual generation, from currently operating PNW wind projects. The single operating year with the lowest total PNW wind generation is selected as firm wind year. The firm wind year generation performance determines each project’s energy forecast. The federal system and PNW regional capacity analysis assume zero capacity contribution from wind resources.
- Solar – Solar projects are utility-scale solar facilities that are metered and send generation to the grid. This does not include any behind the meter resources. Generation forecasts are either provided by individual project owners or are based on historical actual generation. The federal system and PNW regional capacity analyses assume zero capacity contribution from solar resources.
- Other renewable resources – Other renewable resources include all other projects identified as renewable, including geothermal and biomass/biogas waste projects. Generation forecasts for these resources are based on energy and capacity forecasts submitted by individual project owners.

### ***Thermal Resources***

- Thermal resources include nuclear, coal, natural gas, petroleum, biofuel (not identified as renewable) and cogeneration projects. Generation forecasts for these projects are based on energy and capacity capabilities submitted by project owners. These forecasts typically vary month-to-month, and total plant generation is reduced to account for scheduled maintenance. Forecasts are adjusted to show actual operational capabilities and expectations and do not reflect economic dispatch.

### ***Contract Purchases/ Imports***

- Contract purchases include signed federal system purchases and regional contract purchases with power delivered to PNW entities that are reported by utilities publicly and in data submittals. These purchases are treated as resources in both the federal system and PNW

regional analyses. Purchases between entities within the PNW are called intra-regional transfer (In) and purchases from entities outside the PNW are categorized as imports. Except for contracts associated with the Treaty, all existing federal system and regional contract purchases follow individual contract terms throughout the life of the contract and are not assumed to be renewed. Treaty power deliveries are assumed to be in place throughout the study period.

## Adjustment to Resources

The White Book assumes that resource generation and contract purchases are reliably delivered to load centers. To take this assumption into account, this study adjusts generation forecasts for: 1) operating and balancing reserves, which are held to meet reliability standards; and 2) transmission losses, associated with power deliveries. These adjustments are considered as reductions to both energy and capacity and are described below:

- Operating and balancing reserves: Operating reserves consist of both spinning and non-spinning contingency reserves that respond to the unforeseen loss of a resource, which are calculated by summing 3% of forecast load and 3% of forecast generation. Balancing reserves consist of regulation, load following, and imbalance reserves that are dedicated to maintaining within-hour load and resource balance. Details in modeling of reserves are described in the [Hydro Resource Modeling](#) section. Reserve forecasts included in this White Book are modeled consistently with those used in Bonneville's BP-26 rate case.
- Transmission losses: During the transmission of power to load centers, some of the electrical energy is lost, typically in the form of heat, which is categorized as transmission losses. Transmission loss factors are calculated monthly and vary by seasonal generation, e.g. summer months versus winter months. Transmission loss factors are applied to the sum of all generation and contract purchase forecasts. The monthly transmission loss factor has several components that combine to give the estimate of losses associated with federal system generation: 1) step-up transformers from generation to the high-voltage transmission network; 2) high-voltage network transmission; 3) transfers to federal loads over non-federal transmission systems; and 4) step-down transformers from high-voltage transmission to low-voltage delivery. The federal system transmission loss factors used in this White Book are consistent with those used in Bonneville's BP-26 rate case:
  - Energy: 2.83% from September through May, and 3.04% from June through August.
  - Capacity: 2.88% from September through May, and 3.09% from June through August.
- Wheeling loss (financial settlements): Wheeling losses are transmission losses incurred by transmission customers who have elected to settle those losses financially. The calculation of wheeling losses is based on the losses on the high-voltage network transmission system.

## Hydro Resource Modeling

The HYDSIM hydro regulation model forecasts energy production from the regulated hydroelectric power projects in the PNW. This includes the 14 federal hydroelectric projects that make up the Columbia River Federal system, and other major hydro projects in the PNW. Project-level generation forecasts are produced in a continuous study for each month of the 30-year historical streamflow

record<sup>3</sup> which is October 1989 through September 2018. Energy production is maximized by coordinating hydro operations while meeting power and non-power requirements. HYDSIM produces results for 14 periods: ten complete months plus two periods each for April and August. April and August are divided, (first half/second half) due to natural streamflow and significant operational changes happening during these two months. Consequently, generation can differ significantly between the beginning and end of these months. For simplicity, the 14-period results are referred to as “monthly” values in this report.

The HYDSIM studies include the operational measures contained in the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) Record of Decision (ROD) released in September 2020, and the studies encompass both power and non-power operating requirements. Each hydro study specifies non-power hydroelectric project operations for fish, such as seasonal flow objectives, minimum flow levels for fish, spill for juvenile fish passage, reservoir target elevations and drawdown limitations, and turbine operation requirements.

Although the Pacific Northwest Coordination Agreement expired on September 15, 2024, PNCA project owners still provide Bonneville with physical plant data as well as power and non-power constraints. Bonneville incorporates this data into HYDSIM to simulate the coordinated operation of the PNW hydro system. As with previous White Books, these assumptions were included through the 10-year study horizon.

The construction of the three storage projects in Canada, (Mica, Arrow, and Duncan) under the Treaty between the United States and Canada, enhanced the volume of storage in the Columbia River Basin. These projects provide downstream power benefits by increasing the firm power generating capability of U.S. hydro projects. The Treaty calls for an Assured Operating Plan (AOP) to be completed six years prior to each operating year and allows a Detailed Operating Plan (DOP) to be completed, if agreed upon, in the year before the operating year. The Canadian project operations simulated in HYDSIM are based on the best available information from the Treaty planning and coordination process. Canadian operations included in this White Book are based on the official 2025 AOP studies, with additional modifications that reflect updates used in the official 2025 DOP studies.

Bonneville, along with the US Army Corps of Engineers, is continuing to implement operational and other obligations pursuant to the current Treaty and associated interim agreements. The Canadian Entitlement energy amounts included in this White Book for OY 2027 through OY 2036 are based on the amounts identified in the agreement-in-principle from July 2024, and interim agreements.

Balancing reserve requirements are additional items incorporated in the monthly hydro modeling. Bonneville holds capacity for balancing reserves following the North America Electric Reliability Corporation (NERC) standards and the Open Access Transmission Tariff (OATT) requirements within its balancing authority area (BAA). In this case, Bonneville holds it within the FCRPS. Holding the capacity of balancing reserve requirements reduce the ability to shape the federal system generation. For example, incremental reserves are modeled by reducing the generation capability of projects. Decremental reserves are not specifically reported in this study as they do not cause a limitation in generation capability.

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<sup>3</sup> [2020 Modified Flows](#)

## ***Firm Planning***

Bonneville bases its resource planning on firm expected generation to ensure sufficient generation to meet load obligations. Firm conditions are defined as when the PNW hydro system would be the most limited, due to a combination of operational constraints and low water conditions. For the federal system, this is established by considering the historical streamflow record, power and non-power operation constraints, and the planned operation of non-hydro resources, combined with the system load requirements. For operational purposes, Bonneville considers firm condition to be the tenth percentile (P10) of the monthly Tier 1 system firm critical output (T1SFCO) system results.

## ***Variability of Hydro Generation***

The generating capacity of the federal system and PNW regional hydro projects depends on several factors: 1) the amount of water flowing through the facilities; 2) the physical capacity of the facilities; 3) any flow or operating requirements, including those pursuant to biological opinions, court orders or applicable agreements; and 4) other operational limitations. Water conditions cause hydro generation to vary greatly year-to-year depending on weather factors such as precipitation, snowpack, and temperature. Project-level generation forecasts for regulated hydro resources are produced using HYDSIM for each of the 30-year historical streamflow conditions of record, which are based on the period from 1989 through 2018. Additionally, federal independent hydro project generation was updated by the Army Corps of Engineers, the Bureau of Reclamation, and other project owners, incorporating the 2020 modified flows and up to date project operations.

This White Book study uses three generation scenarios to demonstrate the magnitude of hydro generation variability:

- Firm water: tenth percentile (P10) of system generation by month, it represents the firm water condition for energy and capacity of the hydro system.
- Median water: 50<sup>th</sup> percentile (P50) of system generation by month, it represents the exact middle value of generation distribution for energy and capacity of the hydro system.
- High water: 90<sup>th</sup> percentile (P90) of system generation by month, this represents the high generation scenario of the energy and capacity of the hydro system.

## ***Hydro Capacity Modeling***

Bonneville uses the RiverWare<sup>4</sup> model to forecast usable hydro capacity for long-term planning. RiverWare incorporates the monthly historical 30 water-year reservoir storage and flows from HYDSIM to simulate the relationship of hydro energy to hydro peaking capability for system regulated hydro resources. For each month, RiverWare forecasts hourly federal system hydro generation by maximizing generation while meeting non-power requirements. The forecasts consider scheduled hydro maintenance and reserves.

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<sup>4</sup> RiverWare is a river system modeling tool developed by the University of Colorado Boulder College of Engineering and Applied Science, more specifically by the Center for Advanced Decision Support for Water and Environmental Systems (CADSWES). [RiverWare | Center for Advanced Decision Support for Water and Environmental Systems | University of Colorado Boulder](#)

## Notable Updates

The 2026 White Book includes updated forecasts of federal system power sales contracts (PSC) obligations, PNW regional total retail loads(TRL), and contract purchases as of February 2026.

Resource updates in this issue include:

- Hydro capabilities reflect the 2020 CRSO EIS ROD Preferred Alternative operations.
- Columbia Generating Station Extended Power Uprate work is scheduled during its standard refueling maintenance cycle for FY 2027, FY 2029, and FY 2031:
  - Extended downtime is expected to be between 80 to 90 days during the next three standard maintenance years, and the impact on generation will begin in mid-March and end before July. Historical refueling maintenance time has been around 40 days and typically starts in mid-May and finishes by late-June.
  - Energy generation increase post-EPU work is expected to be around 160 aMW, starting in FY 2032.

## Sources of Uncertainty

Forecasts presented in this document represent the best information currently available under the defined metrics for loads and resources. However, all forecasts are affected by uncertainty in economic conditions, weather, environmental and governmental policies, and a variety of other factors that could significantly affect the magnitude, duration, and timing of projected surpluses and/or deficits. Uncertainties include:

- Changes to hydro system operations in response to Endangered Species Act requirements or other environmental considerations,
- Changes to hydro system operations in response to court actions and/or operational agreements,
- Natural variations in weather affecting electrical power demand and streamflow runoff that result in hydroelectric power generation changes,
- Potential new large individual retail load and/or other changes to major industrial operations,
- Potential service to new load such as new customers or the Department of Energy's Richland vitrification plant operations,
- Potential future policy requirements at local, state, and federal levels regarding the amount and type of renewable resources, conservation standards, electric vehicle saturation, and/or carbon emissions,
- Fuel cost and availability, which may be affected by environmental factors or competing uses for industry, transportation, and import/export markets,
- Changes to operating limits on existing and future thermal resources,
- Changes to retirement dates associated with resources,
- Failures of resources to operate at anticipated times and/or output levels,
- Changes to Treaty operations after the time the study was run,
- PNW entities' ability to purchase power from new and existing uncommitted regional resources to serve retail load,

- PNW entities' ability to purchase and transmit power from extra-regional import/export markets,
- Future obligations related to Provider of Choice elections.

The potential impacts of these and other sources of uncertainty are not quantified in this study.

## SECTION 2: FEDERAL SYSTEM ANALYSIS

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The federal system analysis provides a deterministic forecast of the federal system loads and resources over a 10-year period from OY 2027 through 2036. This analysis incorporates forecasts of the federal system's firm requirement power sales contract obligations, contract sales and purchases, and resource generation. This section presents firm federal system load and resource forecasts for energy. Additional detailed components of the federal system study are available upon request, and a list of available reports can be found in the [Appendix](#).

### Load Obligations

Bonneville's ALF system is used to forecast federal system load obligations, as described previously in [Section 1: Summary – Load Obligations](#). Types of federal system load obligations include: 1) federal reserve power obligations to the U.S. Bureau of Reclamation (USBR); 2) Bonneville's Regional Dialogue (RD) PSC obligations to public, cooperative, and tribal utilities, and federal agency customers; 3) contract obligations to investor-owned utilities (IOUs); 4) contract obligations to direct service industry (DSI) customers; and finally 5) other Bonneville contract obligations including contract sales to entities within the PNW region (intra-regional transfers (OUT)) and to those outside the PNW region (exports). These load obligations are all considered firm power deliveries and are assumed to be served by the federal system regardless of weather conditions, water supply, or economic environments. Bonneville's forecasts of these obligations are categorized in the following sections.

#### *USBR Obligations*

USBR must meet statutory directives to provide reserve power to irrigation district facilities associated with USBR projects. Individual USBR project authorizations provide for irrigation districts to receive reserve power from specific FCRPS projects. The remaining power from USBR projects are marketed by Bonneville in the PNW.

#### *Regional Dialogue Contract High-water Mark Power Service Agreement Obligations to Public and Federal Agency Customers*

In December of 2008, Bonneville executed RD PSCs with public, cooperative, and tribal utilities, as well as federal agency customers. Bonneville is obligated to provide firm power deliveries from October 1, 2011, through September 30, 2028. Customers were offered three types of products: Load Following, Slice/Block, and Block. A total of 134 customers signed the RD contracts, and in this current period 124 are Load Following customers, seven are Slice/Block, and three are Block.

Under the RD PSCs, customers made periodic elections of how to serve their above rate period high-water mark (A-RHWM)<sup>5</sup> load by: 1) adding new non-federal resources; 2) acquiring power from non-

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<sup>5</sup> "Through the contracts and rate methodology, each public utility will get a high-water mark (HWM) that defines its right to buy an amount of power at BPA's lowest cost-based Tier 1 rate. Power above the HWM must be purchased from either

federal resources; and/or 3) requesting Bonneville to supply additional power (as a Tier 2 load service). The final customer election was made in October 2024 and set through fiscal year (FY) 2028. This study assumes these, along with the current contract elections, continue throughout the study period. Based on this assumption, federal system RD PSC obligation forecasts include elected and forecast A-RHWM (Tier 2) load for the study period<sup>6</sup>. Table 2-1<sup>7</sup> presents the A-RHWM load included in Bonneville’s obligations by fiscal year.

**Table 2-1 Above Rate-High-Water-Mark Obligations (BP26 Rate Case)**

FY	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Energy aMW</b>	534	579	619	696	692	734	768	806	836	862

### **Investor-Owned Utility Load Service under Regional Dialogue Contracts**

There are six IOUs in the PNW region: Avista Corporation, Idaho Power Company, Northwestern Energy Division of Northwestern Corporation, PacifiCorp, Portland General Electric Company, and Puget Sound Energy, Inc. Although these IOUs have all signed Bonneville RD PSCs for FY 2011 through FY 2028, no IOUs have elected to take power service under these contracts thus no net requirement power sales are assumed for the IOUs through this study period.

### **Direct Service Industrial (DSI) Contracts**

Bonneville currently has one customer, Port Townsend Paper Corporation. DSI deliveries are forecast at 11 aMW and expected to remain at that level throughout the study period.

### **Other Contract Obligations**

Bonneville provides federal power under a variety of additional contract arrangements. These contracts obligations are categorized as: 1) power sales; 2) power or energy exchanges; 3) capacity sales or capacity-for-energy exchanges; 4) power payment for services; and 5) power commitments under the Treaty. These arrangements, collectively referred to as “Other Contract Obligations,” are determined by individual contract provisions, and they have various delivery arrangements and rate structures. These contracts include power deliveries to entities within the PNW region as intra-regional transfers (Out), and to those outside of the PNW region as exports.

Treaty, RD PSCs, and DSI power deliveries are assumed to remain in place throughout the study horizon. Bonneville’s Other Contract Obligations follow individual contract terms and are not assumed to be renewed after the expiration date.

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Non-federal resources or from BPA at rates reflecting BPA’s marginal cost of acquiring the additional power, or through a mix of BPA Tier 2 priced power and non-federal resources. (P.4 [Regional Dialogue](#) July 2007)

<sup>6</sup> Provider of Choice contracts were signed in December 2025. Bonneville will not have a full understanding of its Provider of Choice load obligations until Tier 2 elections are made in summer 2026. Due to this timing issue, Provider of Choice obligation are not included in this issue of White Book.

<sup>7</sup> A-RHWM load are the same as those reported in the 2025 White Book and as reference are from the BP26 Final Proposal.

## Conservation

The PSC obligation forecasts developed by ALF are expected load forecasts, which include conservation identified by individual Bonneville customers. As an embedded assumption in the load forecasts, it is expected that the historically acquired amount of conservation will continue at the same rate going forward across the study period.

## Firm Loads

The federal system total firm load forecast shows roughly 7% load growth over this 10-year study period. While Bonneville’s forecast of PSC requirement loads increased almost 11% over the study period, Bonneville’s exports and intra-regional transfers (OUT) decreased during this same period due to the expiration or decrease in delivery of contracts.

Overall, the total federal system load obligations remain relatively flat on an average annual basis over the study period, which is consistent with previous White Book studies due to the nature of Bonneville’s RD PSCs. While produced on an annual basis, these obligations demonstrate little variation across the study period, because Bonneville’s loads can vary greatly throughout the year. At a high level, Bonneville<sup>8</sup> experiences its highest loads in the late fall through winter months (November through March) primarily due to heating loads, with lower loads during spring, early summer, and early fall months when temperatures are milder. July and August loads tend to be slightly higher than the rest of the summer months due to increasing air conditioning demands. Table 2-2 illustrates the monthly shape of the forecast federal system firm load obligations for OY 2027.

**Table 2-2 Federal System Firm Obligations for OY2027 - Monthly**

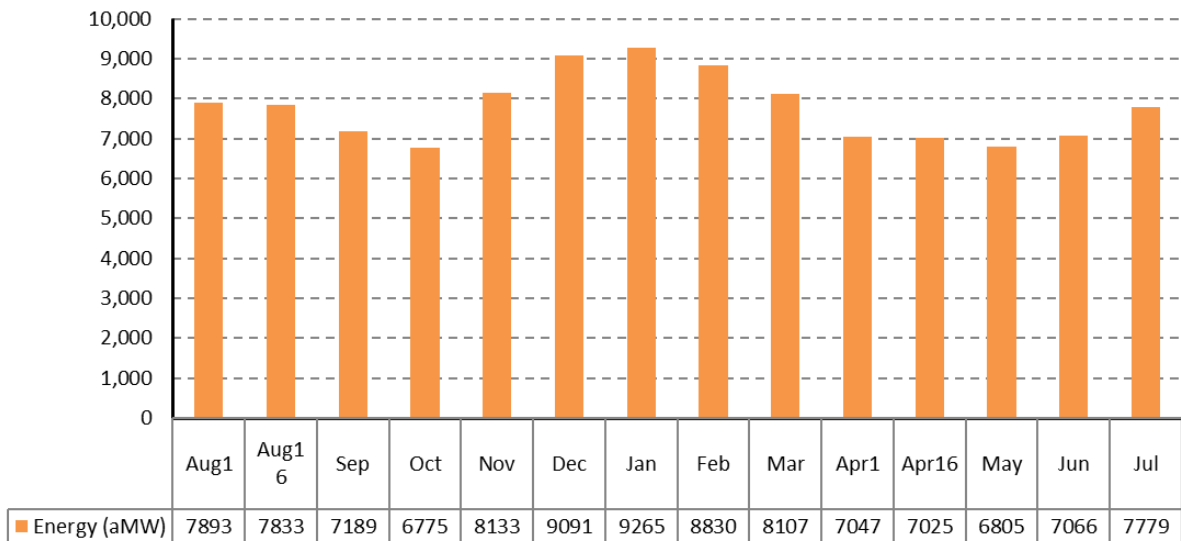
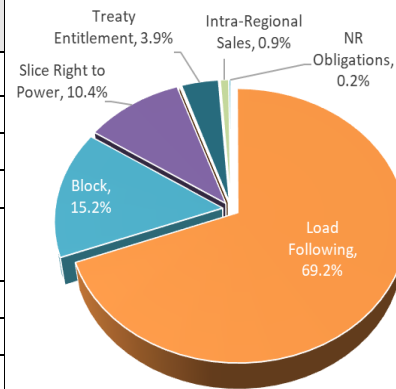


Table 2-3 shows the annual make-up of the federal system firm load obligations for OY 2027 in average megawatts. Obligations for New Resources (NR) firm power rates are included for the first time starting in BP-26 rate case.

<sup>8</sup> This is reflective of Bonneville’s total aggregate loads; individual customers highest loads vary by month and season.

**Table 2-3 Federal System Annual Firm Obligations by Category OY 2027**

Customer Class	RD PSCs	Energy (aMW)	Percent of Firm Energy
Load Following	Yes	5,419	69.2%
Block	Yes	1,187	15.2%
Slice Right to Power	Yes	812	10.4%
DSI	No	11	0.1%
Treaty Canadian Entitlement	No	305	3.9%
Exports	No	7	0.1%
Intra-Regional Sales	No	68	0.9%
New Resource (NR) Obligations	No	17	0.2%
<b>Total Firm Obligations</b>	--	<b>7,825</b>	<b>100%</b>



RD PSCs expire at the end of FY2028, and new 19-year Provider of Choice contracts were signed in December 2025. Post-2028 obligation details will be available in the summer of 2026. Due to the timing of this publication, this study assumes a continuation of RD PSC load levels for planning purposes.

## Resources

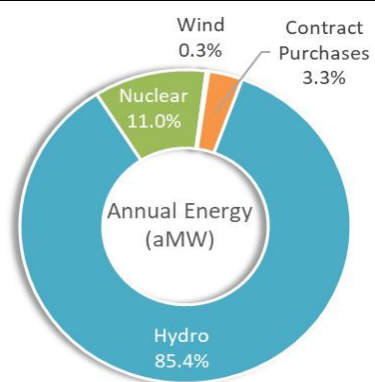
In the PNW, Bonneville is directed to market power from federal hydroelectric projects and other resources acquired to meet firm power contractual obligations. By statute, Bonneville does not own generating resources, but instead, Bonneville markets power from federal resources and non-federal generating resources whose output Bonneville has acquired under contract. These resources and contract purchases are collectively referred to as “federal system resources” in this study. Federal system resources are currently comprised of: 1) hydro resources, which include regulated, independent, and small hydro projects; 2) non-hydro renewable resources (wind projects); 3) thermal resources (Columbia Generating Station); and 4) contract purchases, which are purchases from entities within the PNW region as intra-regional transfers(In), including the estimated Mid-C non-federal Canadian Entitlement return power (downstream benefit return as part of Columbia River Treaty) and from those outside of the PNW region as imports.

### Federal System Resource Types

Table 2-5 summarizes Bonneville’s resources and contract purchases available to meet the federal system load obligations. For OY 2027, federal system resources are forecast to produce 7,290 annual aMW of generation under firm water conditions, with reserves and losses included.

**Table 2-5 Federal System Generations by Resource Type for OY 2027 - Firm Water Conditions**

Resource Type	Annual Energy (aMW)	Percent of Firm Energy
Hydro	6,610	85%
Nuclear	853	11%
Wind	20	0.3%
Contract Purchases	255	3.3%
<b>Total Federal Resources</b>	<b>7,738</b>	<b>100%</b>
Reserves and Losses	-448	--
<b>Total Net Resources</b>	<b>7,290</b>	<b>--</b>



### Federal System Contract Purchases

Bonneville purchases or receives power under a variety of contract arrangements from entities within the PNW region as intra-regional transfers(In), and from outside the region as imports, to meet federal system load obligations. These contract purchases, presented in Table 2-7 are made up of: 1) power purchases; 2) power or energy exchange purchases; 3) the estimated Mid-C non-federal Canadian Entitlement return power; and 4) transmission loss returns under Slice/Block contracts. Bonneville’s contract purchases are considered firm resources that are delivered to the federal system regardless of weather, water, or economic conditions. Transmission loss returns capture the return of Slice/Block transmission losses to the federal system as specified in the Slice/Block contract, and these returns are treated as federal system resources. Except for the estimated Mid-C non-federal Canadian Entitlement return power and transmission loss return of Slice/Block contracts, each contract purchase follows specific delivery terms and expiration dates and is not assumed to be renewed.

The federal system resources are comprised of:

- Federal system hydro resources: Table 2-6 details the federal system hydro resources from which Bonneville markets firm and non-firm power. Additionally, it shows the variability of individual federal system hydro project generation for the three water conditions: firm, median, and high.
- Federal system non-hydro resources: federal system non-hydro resources are generating resources whose output has been purchased by Bonneville. Table 2-7 details these generating resources, which include: 1) Columbia Generating Station; and 2) wind projects (non-hydro renewable resources). Forecasts for these resources are generally consistent from year to year but may change annually based on scheduling of annual maintenance, refueling, and capital improvements.

**Table 2-6 Federal System Hydro Project Generation Forecasts by Streamflow Conditions<sup>9</sup> – OY 2027**

Project	Initial Service Year	Operator	Number of Units	Maximum Capacity <sup>d/</sup> (MW)	High Water Energy <sup>c/</sup> (aMW)	Median Waer Energy <sup>c/</sup> (aMW)	Firm Water Energy <sup>a/ c/</sup> (aMW)	
<b>Regulated Hydro Projects</b>								
1.	Albeni Falls	1955	USACE	3	50	23.6	24.2	
2.	Bonneville	1938	USACE	18	1,221	1,758	1,122	
3.	Chief Joseph	1955	USACE	27	2,614	721	378	
4.	Dworshak	1974	USACE	3	465	288	181	
5.	Grand Coulee	1941	USBR	27	6,684	3,083	2,401	
	GCL Pumping	1973		6	314			
6.	Hungry Horse	1952	USBR	4	310	120	89.7	
7.	Ice Harbor	1961	USACE	6	693	297	159	
8.	John Day	1968	USACE	16	2,480	1,376	749	
9.	Libby	1975	USACE	5	605	265	218	
10.	Little Goose	1970	USACE	6	930	319	154	
11.	Lower Granite	1975	USACE	6	930	337	144	
12.	Lower Monumental	1969	USACE	6	930	337	151	
13.	McNary	1953	USACE	14	1,120	773	453	
14.	The Dalles	1957	USACE	22	2,080	1,074	622	
15.	Total Regulated Hydro Projects			169	21,426	10,771	8,001	6,328
<b>Independent Hydro Projects</b>								
16.	Anderson Ranch	1950	USBR	2	40	17.9	8.7	
17.	Big Cliff	1954	USACE	1	21	13.6	11.5	
18.	Black Canyon	1925	USBR	2	8.5	7.2	6.0	
19.	Boise Diversion	1908	USBR	3	2.5	1.4	1.0	
20.	Chandler	1956	USBR	2	12.2	8.2	5.5	
21.	Cougar	1964	USACE	2	28	9.0	5.2	
22.	Cowlitz Falls	1994	LCPD#1	2	70	39.3	29.0	
23.	Detroit	1953	USACE	2	115	31.7	24.9	
24.	Dexter	1955	USACE	1	17	9.8	8.0	
25.	Foster	1968	USACE	2	23	9.3	8.0	
26.	Green Peter	1967	USACE	2	92	21.7	17.1	
27.	Green Springs	1960	USBR	1	18	6.7	6.7	
28.	Hills Creek	1962	USACE	2	34	23.3	16.4	
29.	Lookout Point	1954	USACE	3	138	10.5	12.1	
30.	Lost Creek	1975	USACE	2	56	38.2	26.5	
31.	Minidoka	1909	USBR	4	28	15.7	11.2	
32.	Palisades	1957	USBR	4	177	84.6	74.3	
33.	Roza	1958	USBR	1	14	8.7	7.1	
34.	Total Independent Hydro Projects			38	894	357	299	279
<b>Small Non-Federally Owned Hydro Projects</b>								
35.	Dworshak/ Clearwater Small Hydro	2000	ID DWR	1	5.4	2.6	2.6	
36.	Rocky Brook	1985	MCPD#1	1	1.6	0.25	0.25	
37.	Total Non-Federally Owned Hydro Projects			2	7	2.9	2.9	
38.	Total Hydro Generation			209	22,327	11,131	8,304	6,610

a/ Firm Energy is the 12-month annual average for OY2027, assuming 10th percentile (P10) water conditions

b/ Bonneville Dam generation total includes Bonneville Fishway

c/ High Water Energy = 90th percentile (P90) water conditions, Median Water Energy = 50th percentile (P50) water conditions

d/ Maximum Capacity represents full capacity of resource including overload.

<sup>9</sup> Streamflow conditions do not always have a linear correlation with generation output. Projects with smaller head (head = forebay level minus tailwater level) are susceptible to having the inverse effect between flow and generation, e.g. Albeni Falls. Higher flow passes through the project increasing the tailwater level which results in less head, this results in lower generation than in other lower flow conditions.

Projects (dams) on Table 2-6 under some commonly known groups are:

- **The Lower Snake River projects (4):** Lower Granite, Little Goose, Lower Monumental, and Ice Harbor.
- **The Lower Columbia River projects (4):** McNary, John Day, The Dalles, and Bonneville.
- **The federal 10 regulated projects:** Grand Coulee, Chief Joseph, The Lower Snake River projects, and the Lower Columbia River projects.
- **The federal 14 projects:** Aleni Falls, Dworshak, Hungry Horse, Libby, and the Federal 10 Regulated projects.
- **The Willamette River projects (8):** Big Cliff, Cougar, Detroit, Dexter, Foster, Green Peter, Hills Greek, and Lookout Point.

**Table 2-7 Federal System Non-Hydro Project Generation Forecast and Contract Purchase – OY 2027**

Project	Initial Service Date	Resource Type	Operator	Maximum Capacity <sup>a/</sup> (Peak MW)	Firm Energy (aMW)	
<b>Non-Hydro Resources</b>						
1	Columbia Generating Station	1984	Nuclear	ENW	1,178	853
2	Klondike Phase III <sup>b/</sup>	2007	Wind	NW Wind Power	0	11.8
3	Stateline Wind Project <sup>c/</sup>	2001	Wind	PPM, FLP	0	8.0
4	Fourmile Hill Geothermal <sup>d/</sup>	Not in Service	Geothermal	Calpine	0	0
5	Total Federal System Non-Hydro Resources				1,178	873
<b>Contract Purchases</b>						
6	Canadian Entitlement for Canada (non-Federal)				147	84
7	Canadian Imports				1	1
8	Pacific Northwest Imports				0	0
9	Intra-Regional Transfer In (Pacific Northwest Purchases)				175	155
10	Slice Transmission Loss Return				34	15
11	Total Federal System Contract Purchases				357	255
12	Total Federal System Non-Hydro Resources and Contract Purchases				1,535	1,128

a/ This is the maximum generation for January 2027

b/ Klondike III Project expiring in 2029

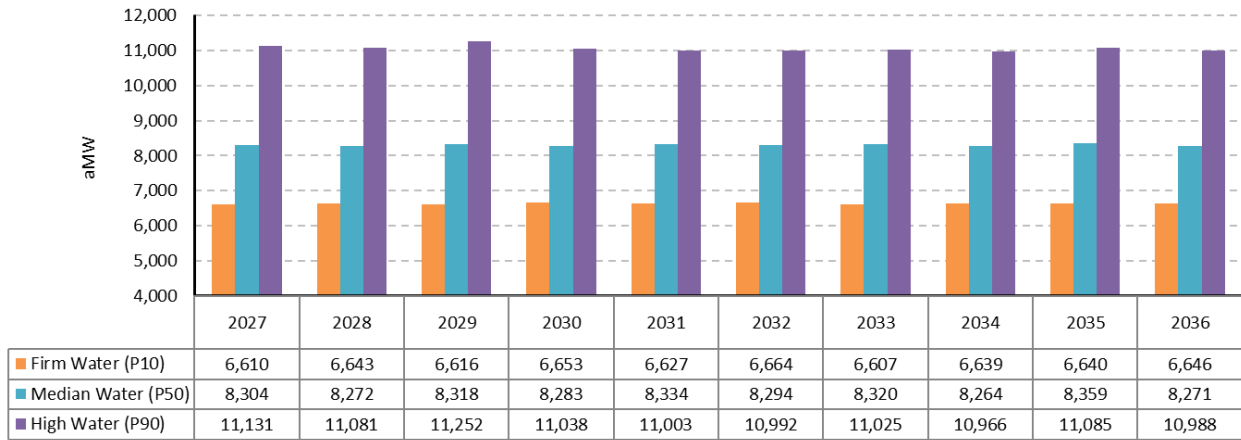
c/ Stateline Wind Project contract expiring in 2028

d/ Fourmile Hill is not assumed to be in operation within the study period

### **Federal System Hydro Generation Variability**

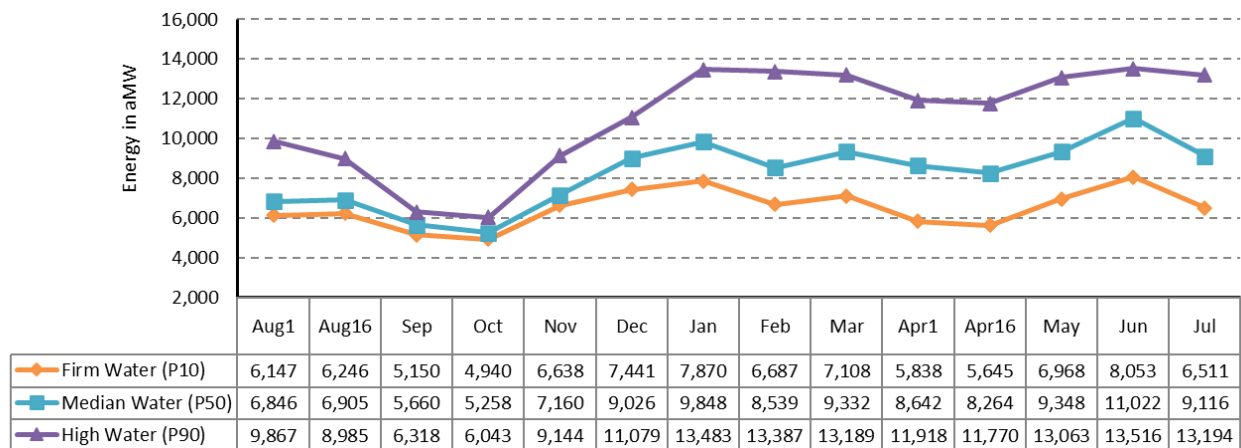
The generating capacity of federal system hydroelectric projects depends on the amount of water flowing through the facilities, the physical capacity of the facilities, flow requirements pursuant to biological opinions, a combination of other power and non-power constraints, and other operating limitations. Table 2-8 shows the annual variability of hydro generation under the three water conditions. Although hydro generation changes drastically from different water conditions, within each condition; however, it changes only slightly from year to year.

**Table 2-8 Federal System Variability of Annual Hydro Generation by Streamflow Conditions – OY 2027 – OY 2036**



In OY 2027, annual federal system hydro energy generation is forecast to be 6,610 aMW under firm water conditions. However, under the high water conditions these same federal system hydro resources could generate as much as 11,131 aMW. Table 2-9 displays the monthly variability of the federal system hydro generation forecast for OY 2027, under the same three water conditions. Higher generation levels from January through March are largely due to drafting reservoirs for flood risk management and power production. Available water in those months depends greatly on annual rainfall and snowpack levels in the Columbia River Basin, and thus the generation exhibits large variability from year to year. Power production from April through July is variable based on the timing and amount of Columbia River Basin snowmelt runoff. Power production decreases through the end of summer and early fall as stream flows decline due to depleted snowpack and lower precipitation levels. Annual water volume variability generally has little impact on generation from the federal system hydro resources in September and October. As observed from Table 2-9, hydro generation can vary by nearly 6,700 aMW in a single month, essentially doubled in this case the month of February, depending on operations and availability of water.

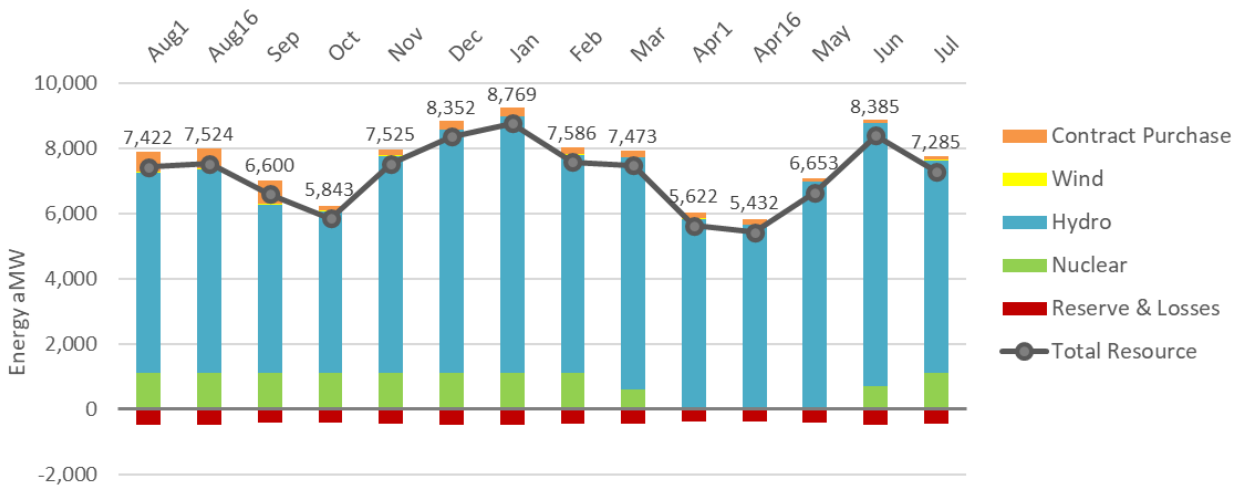
**Table 2-9 Federal System Monthly Hydro Generation Variability by Streamflow Conditions – OY2027**



## Total Federal System Resources

Table 2-10 shows the monthly shape of forecast total federal system resources in energy (aMW) for OY 2027, under firm water conditions. This includes generation from all federal system hydro and non-hydro resources, as well as contract purchases. Overall, the federal system has the highest net generation forecast in winter months to early spring and mid-summer periods. Noting the drop of generation from nuclear starting in the month of March through June, this is the CGS EPU extended down time during the standard refueling maintenance scheduled for OY 2027.

**Table 2-10 Federal System Monthly Generation for OY 2027 under Firm Water Conditions**



## Key Results

### Annual Energy

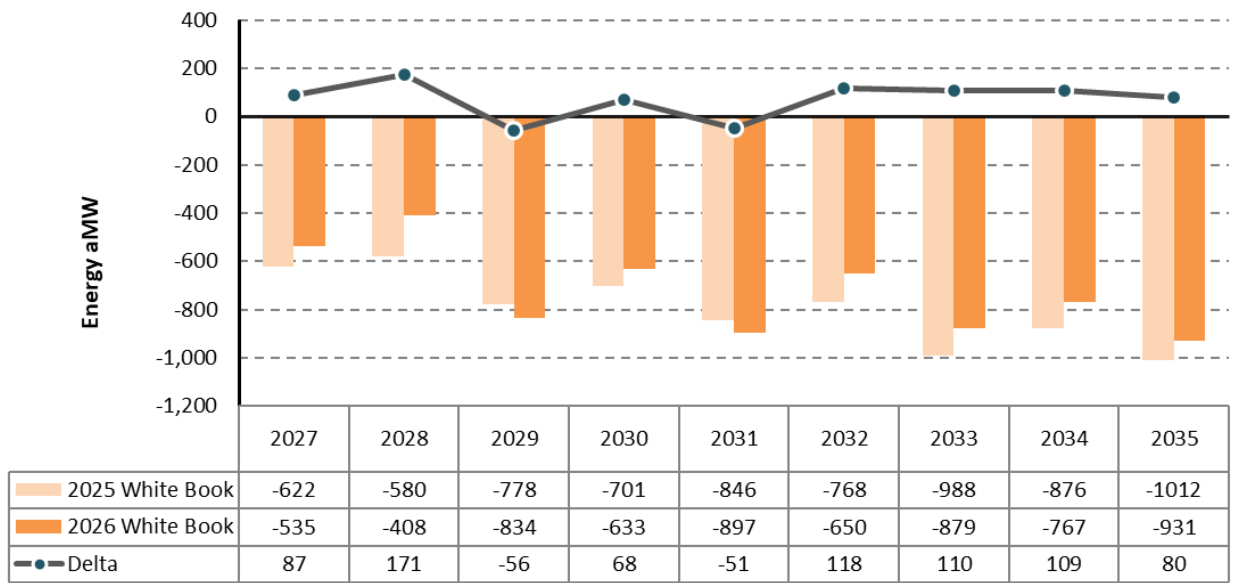
Table 2-11 shows that the federal system is forecast to have annual energy deficits throughout the study period. The individual components of the federal system annual energy loads and resources are shown in [Exhibit 4-1](#) for OY 2027 through OY 2036. The federal system detailed monthly energy loads and resources are shown in [Exhibit 4-2](#) for OY 2027.

**Table 2-11 Federal System Annual Energy Surplus/Deficit under Firm Water Conditions**

Energy (aMW)	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Surplus/Deficits	-535	-408	-834	-633	-897	-650	-879	-767	-931	-834

Table 2-12 compares the current (2026) White Book federal system annual firm energy surplus/deficit results to those from the 2025 White Book. In this comparison, the 2026 White Book shows a slight improvement in deficits annually in seven of the ten years. This improvement can be attributed to the decrease in federal obligations in the first half of the study period and the increase in federal resources from CGS EPU in the latter half.

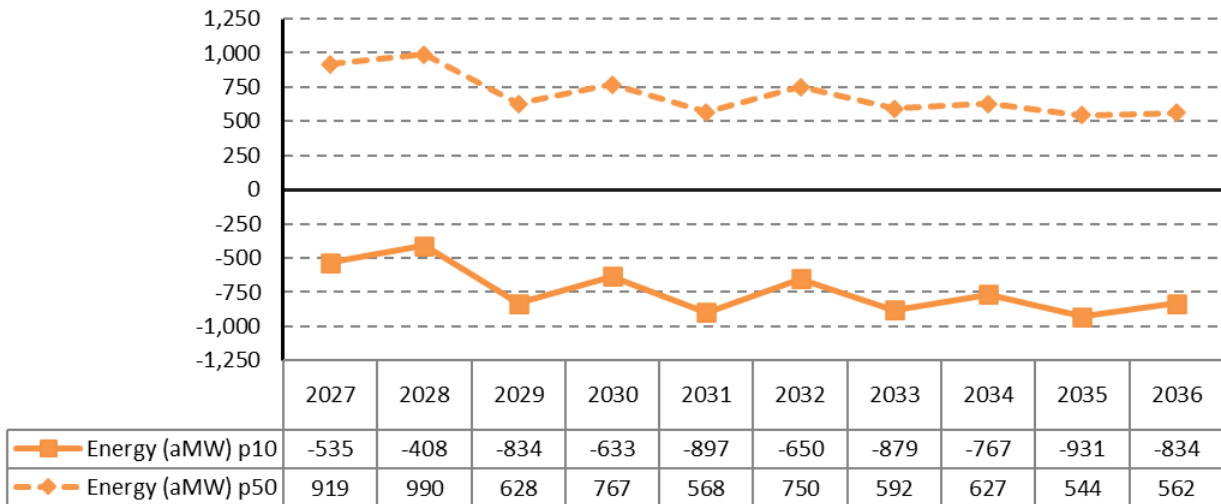
**Table 2-12 Federal System Annual Energy Surplus/Deficits Comparison under Firm Water**



**Federal System Annual Surplus/Deficit**

Table 2-13 graphically presents the annual firm and median conditions energy surplus/deficits. Over the study period, the federal system is forecast to have a deficit in annual firm energy as high as 931 aMW near the end of the study period. Noticeable differences in annual energy between odd and even years can be attributed to the biennial Columbia Generation Station (CGS) refueling maintenance schedule<sup>10</sup>. Under median water conditions, in contrast, the federal system is surplus throughout the study period.

**Table 2-13 Federal System Annual Surplus/Deficits Under Firm & Median Water Conditions**

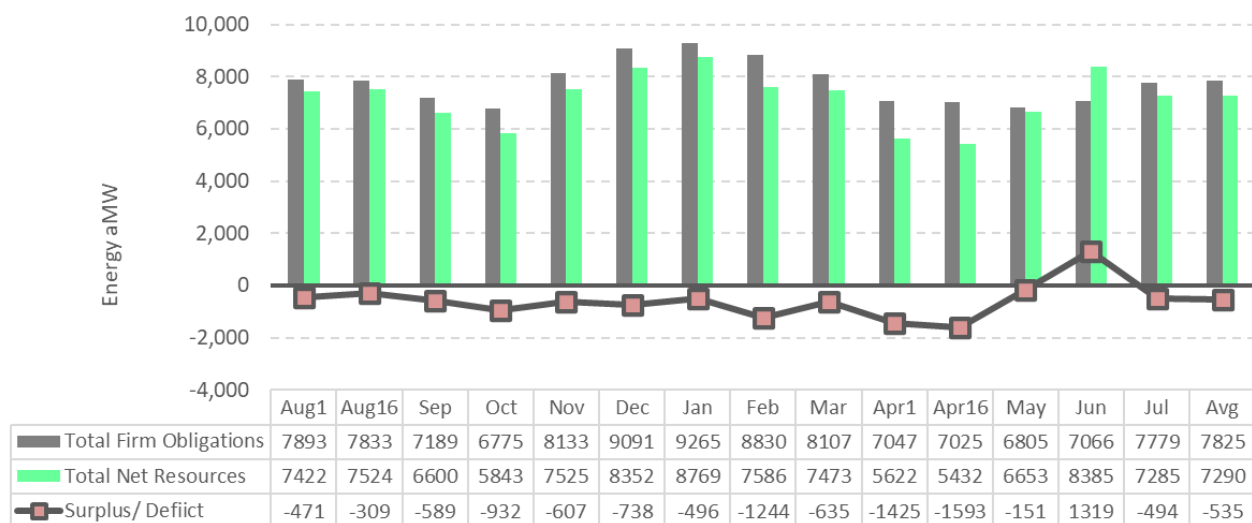


<sup>10</sup> Columbia Generating Station has routine maintenance cycle scheduled in odd calendar years, specifically in months of May and June. Historically, CGS is forecast to produce 994 aMW annually during maintenance years, and 1,116 aMW annually during non-maintenance years before the EPU. Post EPU work, CGS is forecast to add 160 aMW to its annually energy, increasing its generation to roughly 1275 aMW in non-maintenance years.

## Federal System Monthly Surplus/Deficit

Table 2-14 displays a graphic look at the federal system monthly firm energy surplus/deficits, along with total firm obligations and total net resources, for OY 2027. The largest deficit comes in the month of April due to CGS scheduled extended downtime combined with time just before run-off begins, and better positions in the months of May and June, after spring run-off.

**Table 2-14 Federal System Monthly Surplus/Deficits OY 2027 under Firm Water Conditions**



## Conclusion

Under firm water conditions, the federal system shows annual firm energy deficits through the 2027-2036 study period. These annual energy deficits range from 408 aMW in OY 2028, to as high as over 900 aMW in OY 2035. At a monthly resolution under firm water conditions, the federal system generally shows larger energy deficits across the winter and early spring periods until spring runoff starts, which then turns into surplus from May and to the early summer periods.

The federal system surplus/deficit forecasts understandably, in general, have a positive relationship with water conditions. Better water conditions generally yield more surplus overall. For example, the annual energy surplus can increase by over 3,500 aMW under better water conditions, from firm water to high water conditions, while monthly surplus or deficit position can vary by over 5,500 aMW within the same year under the same month.

The range of federal system monthly surplus and deficit forecasts under all 30 water years is presented in [Exhibit 4-3](#). Additional monthly and annual details for OY 2027 through OY 2036 are available upon request. A list of available data reports can be found in the [Appendix](#). Data requests can be sent to [WhiteBook@bpa.gov](mailto:WhiteBook@bpa.gov).

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# SECTION 3: PACIFIC NORTHWEST REGIONAL ANALYSIS

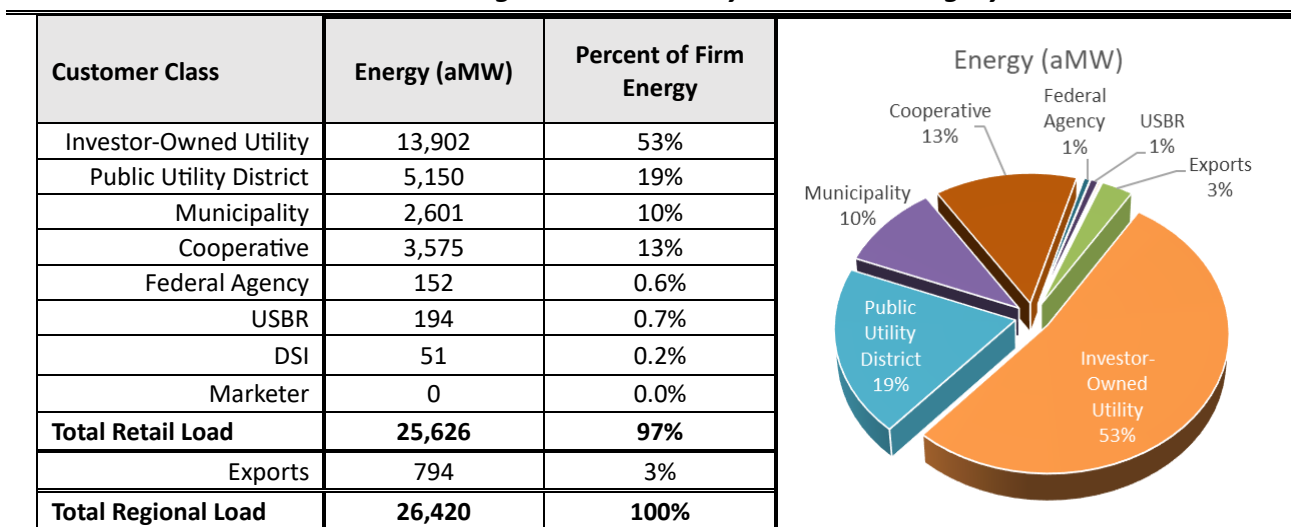
The PNW Regional Analysis is an OY analysis that provides Bonneville’s deterministic forecast of the PNW region’s loads and resources over a 10-year period from OY 2027 through OY 2036. Firm load and resources forecasts are presented in energy based on regional retail loads, contract obligations, and resources. This White Book analysis assumes that generation from all regional, uncommitted independent power producer (IPP) projects is available to meet regional load. Regional retail loads, contract sales and purchases, and generating resource forecasts incorporate annual regional utility data submittals received by Bonneville.

## Regional Loads

Regional analysis incorporates regional load projections, which consist of two separate components: 1) total retail loads (TRL), which is the sum of individual utilities’ retail power consumption within the PNW region; and 2) regional contract sales (exports), which are the sum of all reported long-term regional contract deliveries to entities outside the PNW region. The TRL forecasts for the regional analysis are developed by Bonneville’s ALF system. TRL forecasts reflect normal weather conditions, including historical conservation savings, and do not include specific adjustments for evolving climate trends. Apart from power commitments under the Treaty, all export contract deliveries follow individual contract terms and are not assumed to be renewed after their expiration dates. Treaty power deliveries are assumed to be in place throughout the study period. The sum of the forecast total retail load and export contracts represents the regional loads for the PNW.

Regional loads are comprised of roughly 97% retail loads and 4% exports. Table 3-1 shows the forecast composition of PNW regional load for OY 2027.

**Table 3-1 PNW Region Firm Loads by Customer Category – OY 2027**



## Regional Resources

PNW resources and contract purchases are collectively called “regional resources” in this study. Similarly to the federal system resources, regional resources vary monthly by water conditions, resource type, and seasonality of generating resource potential. This analysis classifies resources as: 1) hydro resources, which include regulated, independent, and small hydro projects; 2) non-hydro renewable resources which include wind, solar, and other projects; 3) thermal resources which include nuclear, coal, natural gas, petroleum, biofuel and cogeneration projects; and 4) contract purchases which are identified as imports.

Table 3-3 summarizes the resource generation available to meet PNW regional loads. The generation forecasts for these resources are provided by Bonneville models or the project owners. New regional generating projects are included when those resources begin operating, or are under construction, and have a scheduled on-line date. Similarly, retiring resources are removed from the forecasts based on the data of the announced retirement date. Contract purchases are provided by the individual utility, follow specific contract provisions, and can have various delivery arrangements.

**Table 3-3 PNW Regional Generations by Resource Type – OY 2027 Firm Water Conditions**

Project Type	Annual Energy (aMW)	Percent of Energy
Hydro	12,009	43.6%
Wind	2,240	8.1%
Solar	510	1.9%
Other Renewable	157	0.6%
Nuclear	853	3.1%
Coal	3,049	11.1%
Natural Gas	5,371	19.5%
Petroleum	0	0.0%
Biofuel	26	0.1%
Cogeneration	2,737	9.9%
Imports	600	2.2%
<b>Total Regional Resources</b>	<b>27,552</b>	<b>100%</b>

The donut chart illustrates the distribution of annual energy generation across various resource types. Hydro is the largest contributor at 44%, followed by Natural Gas at 19% and Coal at 11%. Cogeneration and Wind follow at 10% and 8% respectively. Nuclear, Other Renewable, Solar, and Imports each contribute smaller percentages of 3%, 1%, 2%, and 2%.

### Regional Hydro Generation Variability

The generating capability of regional hydroelectric projects depends upon the amount of water flowing through the facilities, the physical capacity of the facility, flow requirements pursuant to non-power requirements, and other operating limitations. Similarly to federal hydro resources, Bonneville uses the 30-year streamflow record for planning purposes, and three water conditions are presented here to represent the magnitude of hydro generation variability.

Table 3-4 shows the annual variability of the region’s hydro generation under the three streamflow scenarios. Details on the different streamflow scenarios please refer to [Hydro Resource Modeling](#) section.

In OY2027, annual firm energy generation from regional hydro projects is forecast to be 12,009 aMW under the firm water conditions, and this represents about 44% of the region’s resources. The

generating potential from regional hydro projects can vary annually by nearly 7,000 aMW between firm and high water conditions within the same year.

**Table 3-4 PNW Regional Annual Variability of Hydro Generation by Streamflow Conditions**

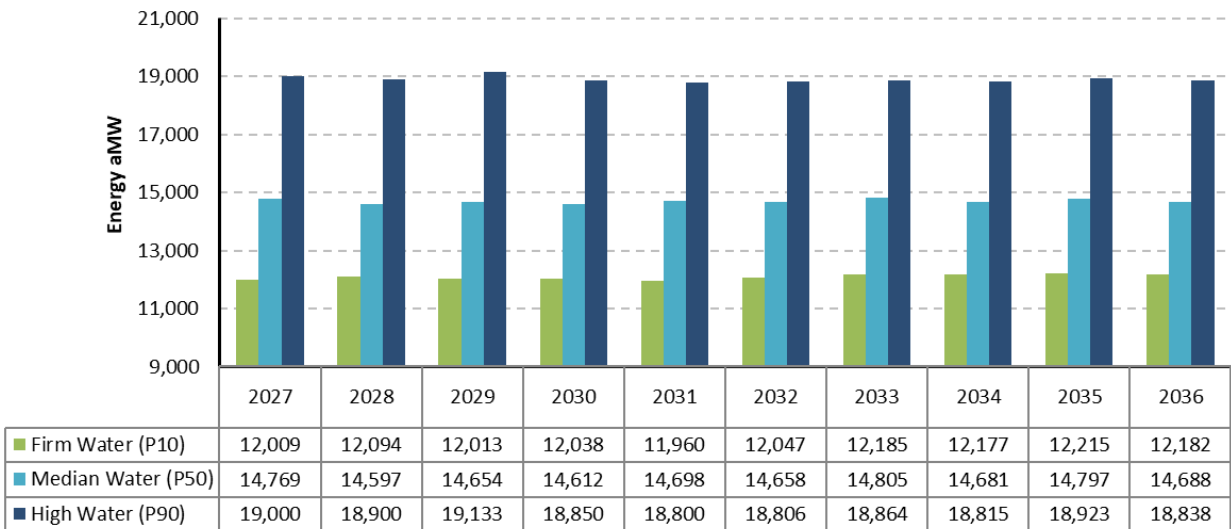
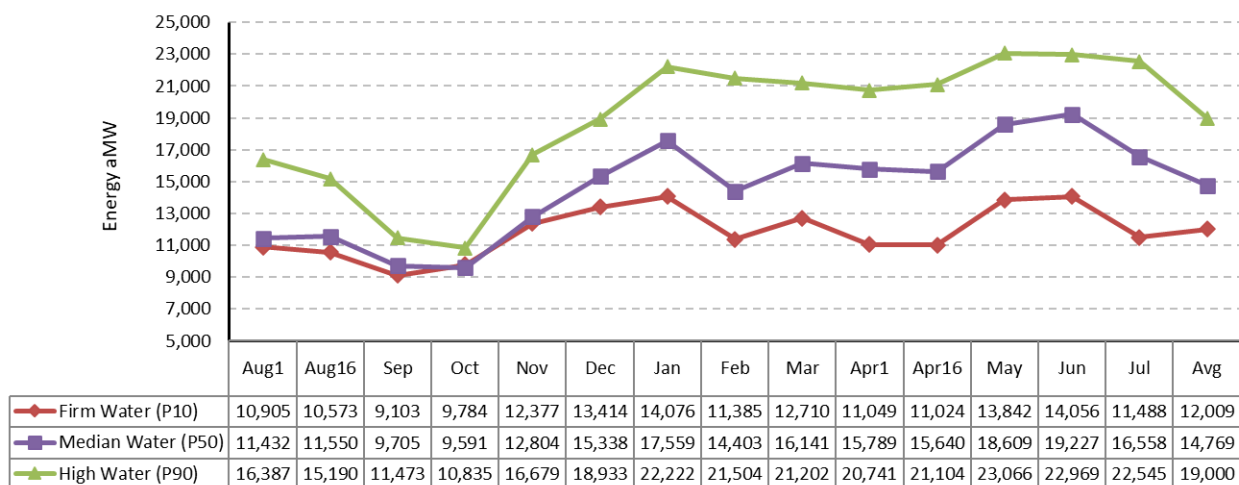


Table 3-5 shows the monthly variability of regional hydro generation under the same three water conditions for OY 2027. The increased level of generation in January through March is largely due to drafting reservoirs for power production and flood risk management, which can vary widely due to rainfall and snowpack levels in the Columbia River Basin. Power production fluctuations in the second half of April through July are highly related to the timing and amount of Columbia River Basin snowmelt runoff. Power production decreases through the end of summer and early fall as streamflows are reduced due to depleted snowpack and lower precipitation levels. Water variability does not have a substantial impact on regional hydro generation from September through October as those are the months with overall lowest water availabilities. Regional hydro generation capability can vary by as much as 10,000+ aMW between firm and high water conditions in the same month, in the example of OY 2027, months of February, second half of April, as well as July all exhibiting this level of range.

**Table 3-5 PNW Regional Hydro Generation Monthly Variability by Streamflow Conditions – OY 2027**



## Uncommitted Independent Power Production Generation Delivered to the PNW

The PNW regional study includes uncommitted PNW IPP generation as regional resources. These resources, or the share of these resources that are not committed to serving specific loads, represent approximately 2,558 aMW of energy for OY 2027. The inclusion of this uncommitted IPP generation is reasonable from the long-term planning perspective because the PNW regional analysis does not include any reliance on market purchases. However, PNW utilities may have to compete with other western markets to secure this generation to meet electricity demands. Table 3-6, next, details the region’s total uncommitted IPP annual energy generation forecasts over the OY 2027 through OY 2036 study period.

**Table 3-6 PNW Regional Annual Uncommitted IPP Generation**

Regional Uncommitted IPP	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Annual Energy (aMW)	2,558	2,588	2,591	2,596	2,591	2,594	2,587	2,597	2,597	2,595

Table 3-7 details the region’s uncommitted IPP projects and the associated fuel types. If uncommitted IPP generation is secured for long-term periods by load serving entities within the region or outside the region, the IPP forecasts will be updated in future studies to reflect those changes.

**Table 3-7 PNW Regional Uncommitted Independent Power Producer Projects – OY 2027 Firm Water Conditions**

Project	Fuel Type	Energy (aMW)
Airport Solar	Solar	13
Centralia Complex <sup>a/</sup>	Coal	0
Clearwater Wind	Wind	23
Condon Wind	Wind	12
Cosmopolis Specialty Fibres	Wood Waste	14
Goose Prairie Solar	Solar	17
Hermiston Power Project	Natural Gas	567
International Paper Energy Center	Wood Waste	16
Juniper Canyon Wind	Wind	36
Kittitas Valley Wind	Wind	24
Klamath Generation Facility	Natural Gas	436
Klamath Generation Peakings (CT)	Natural Gas	90
Klondike Wind 1	Wind	6
Klondike Wind 3	Wind	23
Klondike Wind 3a	Wind	18
Leaning Juniper Wind	Wind	47
Longview Fibre Paper & Packaging	Wood Waste	35
Nippon Paper Cogen (Port Angeles)	Wood Waste	5
Pelton	Hydro	14
Priest Rapids	Hydro	85
Rock Island	Hydro	167
Rocky Reach	Hydro	155
Round Butte	Hydro	30
Satsop Combustion Turbine Project	Natural Gas	584

Project	Fuel Type	Energy (aMW)
SDS Lumber	Wood Waste	1
Smith Creek (Idaho)	Hydro	7
Stateline Wind	Wind	26
Stimson Lumber (Plummer)	Wood Waste	7
Tacoma Biomass (WestRock)	Wood Waste	0
Tieton Dam (Yakima)	Hydro	0
Vansycle Wind	Wind	23
Wanapum	Hydro	25
Weyerhaeuser Longview	Wood Waste	35
Willow Creek Wind	Wind	17
<b>Total Uncommitted IPP Generation</b>		<b>2,558</b>

a/ Centralia #2 (670 MW) was scheduled for retirement on Dec 1, 2025, extended by Executive Order Nos. 202-25-11 and 202-25-11B to operate for 90 additional days; it is planned to be converted to Natural Gas plant by 2038.

## Key Results

### Annual Energy

Table 3-8 shows annual energy surpluses for the PNW region in the first two operating years, then increasingly more deficit going forward to outyears. This study assumes that 100% of the PNW region's uncommitted IPP generation (2,558 aMW in OY 2027) is available to serve regional loads. The individual components of the PNW regional annual energy loads and resources for OY 2027 through OY 2036 are shown in [Exhibit 5-1](#), and OY 2027 monthly PNW regional details are shown in [Exhibit 5-2](#). Other details of each component for OY 2027 through OY 2036 are available upon request via email at [WhiteBook@bpa.gov](mailto:WhiteBook@bpa.gov).

**Table 3-8 PNW Regional Annual Energy Surplus/Deficit - Firm Water Conditions**

**Assuming 100% of Uncommitted IPP Generation is Available to the Region**

Energy (aMW)	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Surplus/ Deficit	337	84	-767	-940	-2,135	-2,134	-2,534	-2,910	-3,367	-3,514

Table 3-9 shows the significant variability in PNW regional annual firm energy surplus/deficit forecasts depending on the level of uncommitted IPP generation available to the region. IPP generation is detailed in Tables 3-6 and 3-7.

**Table 3-9 PNW Regional Annual Energy Surplus/Deficit by Uncommitted IPP Generation %**

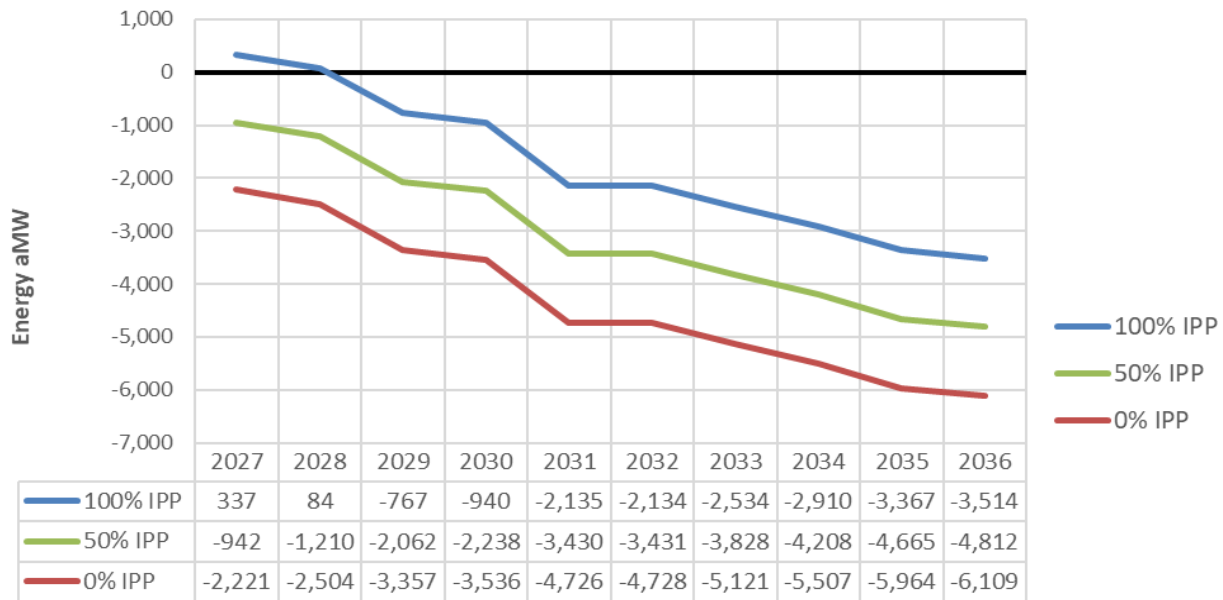
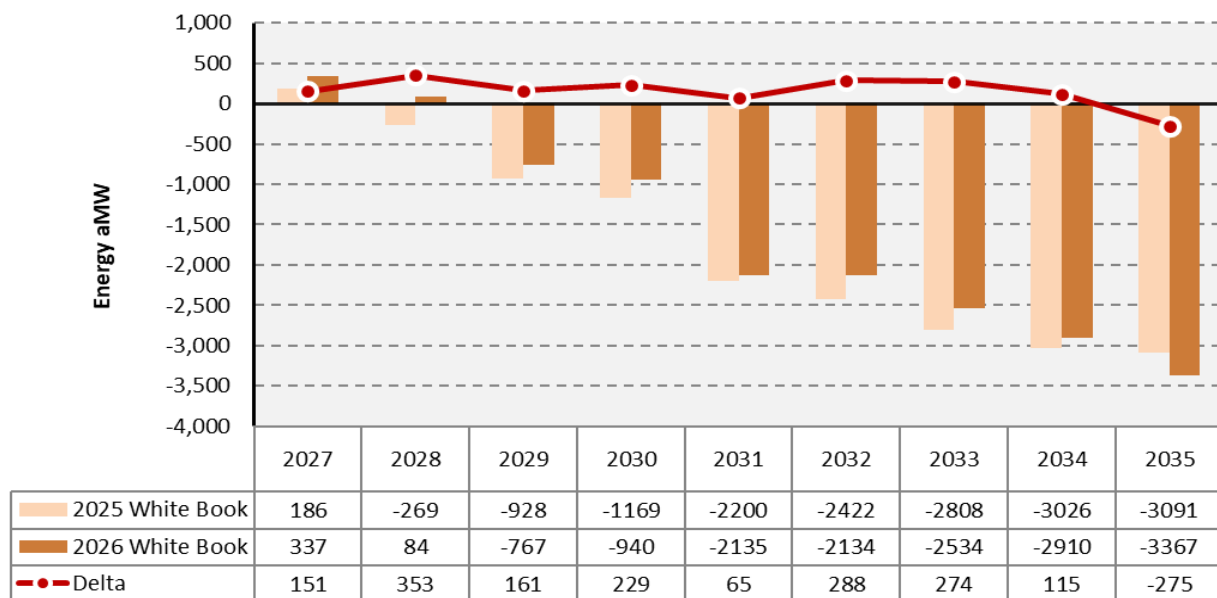


Table 3-10 compares the 2026 White Book PNW regional annual firm energy surplus/deficit forecasts to that of the 2025 White Book. The comparison shows some changes. For example, the 2026 White Book shows OY 2027 to have roughly 150 aMW more energy surplus available, and this trend of slight improvement in overall inventory position continues through nearly the entire study period. This change is predominately driven by the TRL forecast decreases in the first half of the study period, more specifically in the new large industrial loads category.

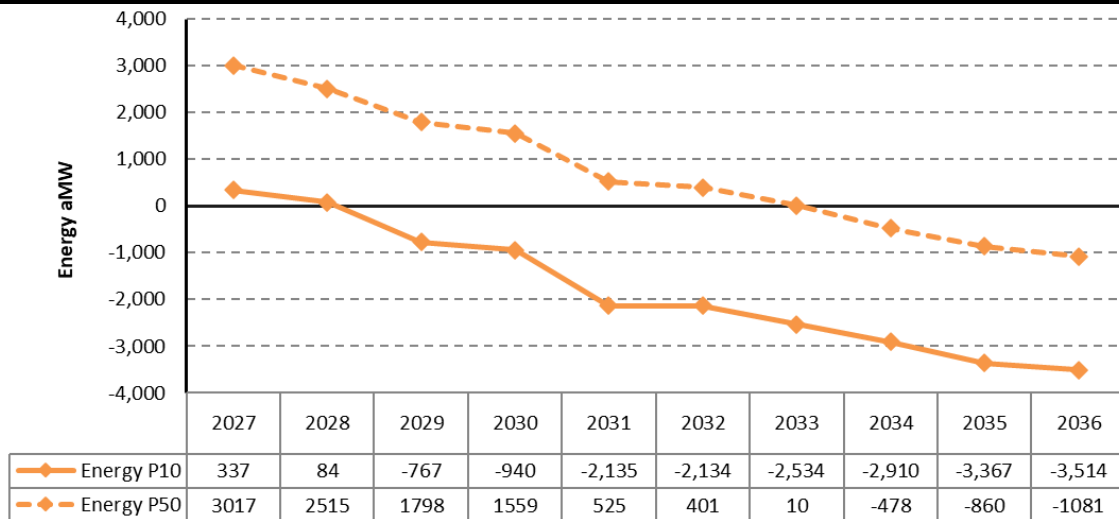
**Table 3-10 PNW Regional Annual Surplus/Deficit Comparison – Firm Water Conditions Assuming 100% Uncommitted IPP Generations available to the Region**



### Regional Annual Surplus/Deficit

Table 3-14 graphically presents the annual firm energy surplus/deficit forecasts for the PNW region under firm (P10) and median (P50) conditions. These forecasts assume 100% availability of the PNW uncommitted IPP generation to serve the region’s loads. The regional annual energy surplus/deficit declines over the 10-year study period.

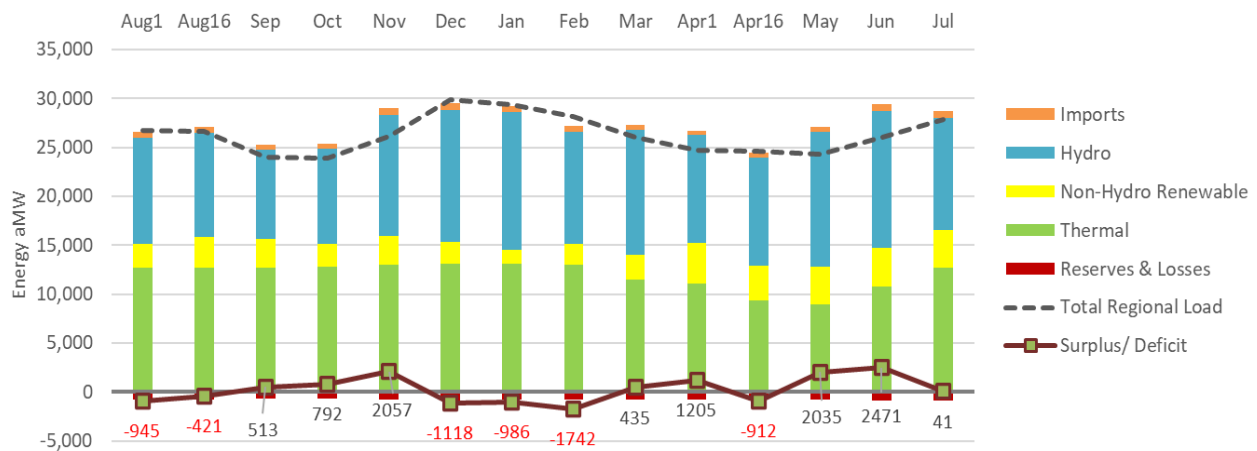
**Table 3-14 PNW Regional Annual Surplus/Deficit – Firm & Median Water Conditions**



### Regional Monthly Surplus/Deficit

Table 3-15 shows the monthly energy surplus/deficit forecast for OY 2027, accompanied with monthly total firm obligations and resources by category. Again, these forecasts assume 100% of uncommitted IPP generation serving the region. This monthly view shows how both metrics follow a similar monthly shape with most surplus months in late spring to the beginning of summer when hydro generation is high, and most deficits around the second half of April, before the runoff begins historically and as fish operations begin. The decrease in thermal generation between March through June is directly related to the CGS extended maintenance downtime for OY2027.

**Table 3-15 PNW Regional Monthly Surplus/Deficit – OY2027 Firm Water Conditions**



## Conclusion

The PNW region is projected to have annual firm energy surpluses in the first two operating years, with surpluses declining and quickly becoming deficits. These grow into larger deficits going into the outyears, assuming that 100 % of the PNW region's uncommitted IPP generation is available to serve the region's load. Additionally, the supply of power within the region can change dramatically and quickly if those resources were to be used to serve loads outside of the region or retire early or unexpectedly. That's because of the full uncommitted nature of independent power producer generation to serve the region's load. Under the median (P50) water conditions, the PNW sees surpluses through OY 2033.

Notably, the region's retail load forecasts adjusted downwards significantly in the front half of the study period from 2025 White Book forecast. This was driven by the uncertainty of the new large single load category of the retail loads. The uncertainty continues and could drastically change these results.

Detailed surplus/deficit forecasts for all 30 historical water conditions are presented in [Exhibit 5-3](#). Monthly and annual details for OY 2027 through OY 2036 are available upon request with the itemized list located in the [Appendix](#).

# SECTION 4: FEDERAL SYSTEM ANALYSIS EXHIBITS

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**Exhibit 4-1: Annual Energy – Federal System Surplus/Deficit:  
Operating Years 2027 – 2036, Firm Water Conditions**

**Loads and Resources - Federal System Percentile**  
**Operating Year: 2027 to 2036 Percentile: 10**  
**2026 White Book (Energy Only) Report Date: 2/18/2026**

S274-WB-20260218-115822

Energy-aMW	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
<b>Firm Obligations</b>										
<b>1 Load Following</b>	5419	5496	5652	5738	5800	5852	5894	5934	5968	6008
2 Preference Customers	5075	5146	5298	5373	5421	5465	5505	5542	5580	5614
3 Federal Agencies	150	154	161	167	181	188	190	193	195	195
4 USBR	194	197	194	199	199	199	199	199	194	199
5 Federal Diversity	0	0	0	0	0	0	0	0	0	0
<b>6 Tier 1 Block</b>	573	586	583	588	590	590	590	589	589	589
7 Tier 1 Block	573	586	583	588	590	590	590	589	589	589
<b>8 Slice</b>	1426	1446	1415	1443	1424	1460	1450	1458	1451	1456
9 Slice Block	613	601	604	595	600	588	601	588	598	586
10 Slice Output from T1 System	812	845	810	848	824	872	849	869	854	870
<b>11 Direct Service Industries</b>	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
12 Direct Service Industry	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
<b>13 Contract Deliveries</b>	380	316	316	289	234	234	234	234	234	234
14 Exports	312	305	305	278	225	225	225	225	225	225
15 Intra-Regional Transfers (Out)	68.2	10.7	10.7	10.7	9.44	9.44	9.44	9.44	9.44	9.44
<b>16 NR Obligation</b>	16.8	24.1	31.2	33.4	46.8	58.9	64.6	73.9	75.0	75.0
17 NR Rate Load	16.8	24.1	31.2	33.4	46.8	58.9	64.6	73.9	75.0	75.0
<b>18 Total Firm Obligations</b>	<b>7825</b>	<b>7880</b>	<b>8007</b>	<b>8103</b>	<b>8106</b>	<b>8206</b>	<b>8244</b>	<b>8300</b>	<b>8329</b>	<b>8372</b>
<b>Net Resources</b>										
<b>19 Hydro</b>	6610	6643	6616	6653	6627	6664	6607	6639	6640	6646
20 Regulated Hydro - Net	6328	6356	6333	6375	6354	6388	6348	6380	6390	6387
21 Independent Hydro - Net	279	284	279	275	270	273	255	256	247	256
22 Small Hydro - Net	2.88	2.88	2.88	2.88	2.88	2.87	2.88	2.88	2.88	2.87
<b>23 Non-Hydro Renewable</b>	19.8	1.90	0	0	0	0	0	0	0	0
24 Wind - Net	19.8	1.90	0	0	0	0	0	0	0	0
25 Other - Net	0	0	0	0	0	0	0	0	0	0
<b>26 Thermal</b>	853	1116	841	1116	885	1270	1131	1270	1131	1270
27 Nuclear - Net	853	1116	841	1116	885	1270	1131	1270	1131	1270
<b>28 Contract Purchases</b>	255	163	161	154	143	77.9	77.3	77.8	77.6	77.9
29 Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30 Intra-Regional Transfers (In)	155	63.1	62.9	63.0	63.0	0	0	0	0	0
31 Non-Federal CER	84.0	83.8	82.5	75.0	64.6	61.2	60.9	61.1	61.1	61.2
32 Slice Transmission Loss Return	14.7	15.3	14.7	15.3	14.9	15.8	15.4	15.7	15.4	15.7
<b>33 Reserves &amp; Losses</b>	-448	-453	-444	-453	-445	-456	-450	-455	-451	-455
34 Operating Reserves	0	0	0	0	0	0	0	0	0	0
35 Balancing Reserves	0	0	0	0	0	0	0	0	0	0
36 Transmission Losses	-225	-230	-221	-230	-222	-233	-227	-232	-228	-232
37 Wheeling Loss (financial settlement)	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223
<b>38 Total Net Resources</b>	<b>7290</b>	<b>7471</b>	<b>7173</b>	<b>7470</b>	<b>7209</b>	<b>7556</b>	<b>7365</b>	<b>7532</b>	<b>7398</b>	<b>7539</b>
<b>39 Total Surplus/Deficit</b>	<b>-535</b>	<b>-408</b>	<b>-834</b>	<b>-633</b>	<b>-897</b>	<b>-650</b>	<b>-879</b>	<b>-767</b>	<b>-931</b>	<b>-834</b>

**Exhibit 4-2: Monthly Energy – Federal System Surplus/Deficit:  
Operating Year 2027, Firm Water Conditions**

**Loads and Resources - Federal System Percentile**  
**Operating Year: 2027 Percentile: 10**  
**2026 White Book (Energy Only) Report Date: 2/18/2026**  
S274-WB-20260218-116822

Energy-aMW	Aug1	Aug16	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Avg
<b>Firm Obligations</b>															
<b>1 Load Following</b>	5401	5364	4756	4655	5398	6170	6249	6037	5405	5047	5047	5029	5212	5703	5419
2 Preference Customers	4926	4882	4323	4392	5231	5986	6052	5842	5187	4648	4648	4551	4693	5119	5075
3 Federal Agencies	137	136	124	135	163	180	185	183	160	141	141	128	127	141	150
4 USBR	339	347	309	128	4.12	4.27	12.0	12.0	57.5	258	258	350	392	443	194
5 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>6 Tier 1 Block</b>	377	375	618	532	869	869	952	896	850	423	423	151	21.3	341	573
7 Tier 1 Block	377	375	618	532	869	869	952	896	850	423	423	151	21.3	341	573
<b>8 Slice</b>	1347	1359	1225	1226	1493	1674	1716	1548	1497	1223	1201	1282	1491	1393	1426
9 Slice Block	576	576	561	565	624	713	709	677	639	604	604	546	556	593	613
10 Slice Output from T1 System	771	784	664	661	869	961	1007	872	858	619	597	736	935	800	812
<b>11 Direct Service Industries</b>	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11
12 Direct Service Industry	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11
<b>13 Contract Deliveries</b>	757	723	571	343	345	346	318	318	314	314	314	314	314	314	380
14 Exports	371	349	331	305	305	305	305	305	305	305	305	305	305	305	312
15 Intra-Regional Transfers (Out)	387	374	240	38.5	39.8	41.3	13.2	13.4	9.44	9.44	9.44	9.44	9.44	9.44	68
<b>16 NR Obligation</b>	0	0	8.41	8.32	16.6	19.8	19.1	20.1	29.7	28.9	28.9	17.7	17.0	16.6	17
17 NR Rate Load	0	0	8.41	8.32	16.6	19.8	19.1	20.1	29.7	28.9	28.9	17.7	17.0	16.6	17
<b>18 Total Firm Obligations</b>	<b>7893</b>	<b>7833</b>	<b>7189</b>	<b>6775</b>	<b>8133</b>	<b>9091</b>	<b>9265</b>	<b>8830</b>	<b>8107</b>	<b>7047</b>	<b>7025</b>	<b>6805</b>	<b>7066</b>	<b>7779</b>	<b>7825</b>
<b>Net Resources</b>															
<b>19 Hydro</b>	6147	6246	5150	4940	6638	7441	7870	6687	7108	5838	5645	6968	8053	6511	6610
20 Regulated Hydro - Net	5801	5910	4922	4709	6295	7175	7573	6527	6930	5612	5371	6549	7691	6211	6328
21 Independent Hydro - Net	344	333	226	228	340	262	294	158	175	223	272	416	359	297	279
22 Small Hydro - Net	2.63	2.63	2.63	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.9
<b>23 Non-Hydro Renewable</b>	22.6	33.8	31.5	25.3	36.2	27.6	5.28	8.73	10.0	17.9	15.1	16.2	16.0	15.6	20
24 Wind - Net	22.6	33.8	31.5	25.3	36.2	27.6	5.28	8.73	10.0	17.9	15.1	16.2	16.0	15.6	20
25 Other - Net	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>26 Thermal</b>	1116	1116	1116	1116	1116	1116	1116	1116	612	0	0	0	707	1116	853
27 Nuclear - Net	1116	1116	1116	1116	1116	1116	1116	1116	612	0	0	0	707	1116	853
<b>28 Contract Purchases</b>	601	596	726	162	186	242	264	225	191	161	161	95.7	104	102	255
29 Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
30 Intra-Regional Transfers (In)	500	500	628	64.5	88.3	139	163	125	89.5	64.4	64.4	0	0	0	155
31 Non-Federal CER	84.9	79.6	85.2	85.4	81.6	85.3	81.8	84.0	85.5	84.9	84.9	81.8	84.9	85.3	84
32 Slice Transmission Loss Return	15.1	15.4	11.7	11.6	15.3	16.9	17.7	15.3	15.1	10.9	10.5	12.9	18.4	15.7	15
<b>33 Reserves &amp; Losses</b>	-465	-468	-423	-401	-451	-474	-486	-452	-448	-395	-389	-426	-496	-460	-448
34 Operating Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Balancing Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Transmission Losses	-242	-245	-200	-178	-228	-251	-263	-229	-226	-172	-166	-203	-273	-237	-225
37 Wheeling Loss (financial settlement)	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223	-223
<b>38 Total Net Resources</b>	<b>7422</b>	<b>7524</b>	<b>6600</b>	<b>5843</b>	<b>7525</b>	<b>8352</b>	<b>8769</b>	<b>7586</b>	<b>7473</b>	<b>5622</b>	<b>5432</b>	<b>6653</b>	<b>8385</b>	<b>7285</b>	<b>7290</b>
<b>39 Total Surplus/Deficit</b>	<b>-471</b>	<b>-309</b>	<b>-589</b>	<b>-932</b>	<b>-607</b>	<b>-738</b>	<b>-496</b>	<b>-1,244</b>	<b>-635</b>	<b>-1,425</b>	<b>-1,593</b>	<b>-151</b>	<b>1,319</b>	<b>-494</b>	<b>-535</b>

## **Exhibit 4-3: 30-Water Year Conditions Monthly Energy – Federal System Surplus/Deficit: Operating Year 2027**

**Federal Report Surplus Deficit By Water Year**  
**Fiscal Year 2027**  
**2026 White Book (Energy Only) Report Date: 3/5/2026**  
S274-WB-20260218-115822

Energy-aMW - Surplus Deficit	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug1	Sep	Avg
													6		
1 1989 Federal Report Surplus Deficit	-932	-581	247	72.3	-787	368	102	1759	1916	1605	17.6	-603	-239	-412	174
2 1990 Federal Report Surplus Deficit	-506	-93.0	2144	1203	2087	1187	1300	2507	908	4474	3325	1843	1507	-232	1501
3 1991 Federal Report Surplus Deficit	-1052	1688	2352	2889	3458	2016	1676	1051	1826	3381	4486	2565	2146	-588	2008
4 1992 Federal Report Surplus Deficit	-850	-94.5	-904	-362	-751	-481	-1425	-850	-51.9	1319	-751	-644	-189	-792	-439
5 1993 Federal Report Surplus Deficit	-931	-412	-937	-1000	-2289	-808	-706	-2229	2616	2332	1732	166	285	-320	-88.2
6 1994 Federal Report Surplus Deficit	-1019	-244	-931	-822	-1095	-199	-2051	-519	-151	1814	-412	-257	-90.7	-751	-437
7 1995 Federal Report Surplus Deficit	-892	-502	-469	655	1634	1512	-617	-628	1126	4286	1964	548	-58.2	-158	723
8 1996 Federal Report Surplus Deficit	291	2746	6120	5927	6203	6191	2852	3678	3384	6003	4903	2265	1480	84.0	3905
9 1997 Federal Report Surplus Deficit	-577	55.4	2386	6015	6111	5445	3799	4848	5636	6556	5236	2658	2252	767	3688
10 1998 Federal Report Surplus Deficit	1596	1382	1250	1345	1477	1297	-898	-1107	5507	4632	2313	1335	459	-324	1704
11 1999 Federal Report Surplus Deficit	-794	-607	1389	4326	4003	4446	984	2727	1894	5532	5458	3051	4045	51.7	2591
12 2000 Federal Report Surplus Deficit	-245	1547	2970	2501	2051	1951	2423	2613	1907	1268	1745	1344	285	-697	1526
13 2001 Federal Report Surplus Deficit	-797	-493	-460	-1005	-1244	-1031	-1879	-2999	-898	206	-494	-473	-380	-1103	-844
14 2002 Federal Report Surplus Deficit	-1271	-861	-738	-496	-293	-635	44.9	1794	1403	4966	3714	-133	-639	-785	460
15 2003 Federal Report Surplus Deficit	-834	-36.5	-615	-242	-1460	696	85.2	437	852	3865	-362	-396	-108	-1024	75.8
16 2004 Federal Report Surplus Deficit	-798	44.4	-6.23	164	-231	-598	-666	-759	352	2476	219	-371	621	-21.7	84.3
17 2005 Federal Report Surplus Deficit	14.7	85.9	1520	982	346	366	-1730	-620	779	1833	1259	61.4	-173	-971	421
18 2006 Federal Report Surplus Deficit	-634	-48.8	1181	3238	2948	1276	2810	1451	4569	4909	1445	-550	-522	-1040	1610
19 2007 Federal Report Surplus Deficit	-689	-329	1356	2406	1438	2879	1772	656	1461	2679	1106	-296	-784	-1325	971
20 2008 Federal Report Surplus Deficit	-550	20.7	636	194	47.6	-107	-1153	-1423	2757	5644	3039	148	762	-141	898
21 2009 Federal Report Surplus Deficit	-578	-557	139	1769	-646	69.6	1064	653	1467	2340	570	-538	-632	-805	343
22 2010 Federal Report Surplus Deficit	-660	-158	-380	-148	-1623	-1474	-1109	-2098	-510	4708	1739	-66.0	-326	-728	-80.7
23 2011 Federal Report Surplus Deficit	-705	-505	1274	4381	4512	3000	4815	465	2941	6448	6582	2170	1829	-156	2692
24 2012 Federal Report Surplus Deficit	-610	-363	880	2470	1480	2919	4026	4105	3311	5363	5733	2775	1391	-420	2248
25 2013 Federal Report Surplus Deficit	-503	235	3126	1140	134	147	3417	996	2236	3417	2101	904	533	-242	1233
26 2014 Federal Report Surplus Deficit	-606	-204	111	1560	255	2934	3004	868	2686	3867	2809	420	495	-187	1309
27 2015 Federal Report Surplus Deficit	-715	365	2359	3250	3249	4590	847	-1593	-910	894	-1222	-307	-343	-585	870
28 2016 Federal Report Surplus Deficit	-550	-708	372	916	53.7	2135	1708	3079	2441	1618	-830	17.0	128	-365	632
29 2017 Federal Report Surplus Deficit	113	2665	623	3594	3617	6792	4759	3668	5086	6087	1782	331	44.8	-756	2824
30 2018 Federal Report Surplus Deficit	-655	-944	378	3715	4520	3005	2210	1357	5091	3974	397	-493	-310	-778	1657

# **SECTION 5: PACIFIC NORTHWEST REGIONAL ANALYSIS EXHIBITS**

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**Exhibit 5-1: Annual Energy – PNW Regional Surplus/Deficit:  
Operating Years 2027 – 2036, Firm Water Conditions**

**Loads and Resources - Pacific Northwest Region Percentile**

**Operating Year: 2027 to 2036 Percentile: 10**

**2026 White Book (Energy Only) Report Date: 2/18/2026**

S274-WB-20260218-115822

Energy-aMW	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
<b>Regional Loads</b>										
<b>1 Retail Loads</b>	25626	26129	26668	27218	27806	28325	28808	29228	29604	29912
2 Federal Agency	152	156	163	169	183	190	192	195	197	198
3 USBR	194	197	194	199	199	199	199	199	194	199
4 Cooperative	3575	3794	4065	4396	4763	5088	5363	5590	5778	5902
5 Municipality	2601	2641	2674	2706	2737	2760	2775	2787	2797	2810
6 Public Utility District	5150	5249	5328	5374	5419	5460	5507	5550	5593	5630
7 Investor-Owned Utility	13902	14041	14193	14324	14454	14578	14721	14857	14994	15123
8 Direct-Service Industry	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3
9 Federal Diversity	0	0	0	0	0	0	0	0	0	0
<b>10 Exports</b>	794	787	785	756	456	360	361	361	361	360
11 Canada	305	305	305	278	225	225	225	225	225	225
12 East Continental Divide	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13 Pacific Southwest	488	481	479	477	230	134	135	135	135	134
<b>14 Total Regional Loads</b>	<b>26420</b>	<b>26916</b>	<b>27454</b>	<b>27974</b>	<b>28262</b>	<b>28686</b>	<b>29169</b>	<b>29589</b>	<b>29965</b>	<b>30273</b>
<b>Regional Resources</b>										
<b>15 Hydro</b>	12009	12094	12013	12038	11960	12047	12185	12177	12215	12182
16 Regulated Hydro - Net	10838	10910	10841	10868	10803	10880	10990	10984	11034	10989
17 Independent Hydro - Net	928	940	928	926	913	925	952	950	938	949
18 Small Hydro - Net	244	243	244	244	244	243	244	244	244	243
<b>19 Non-Hydro Renewable</b>	2907	2906	2908	2907	2891	2902	2907	2907	2907	2905
20 Wind - Net	2240	2238	2240	2240	2224	2235	2240	2240	2240	2238
21 Solar - Net	510	510	510	510	510	510	510	510	510	510
22 Other - Net	157	158	158	157	157	157	157	157	157	157
<b>23 Thermal</b>	12035	12198	11950	12280	11920	12352	12295	12349	12227	12428
24 Nuclear - Net	853	1116	841	1116	885	1270	1131	1270	1131	1270
25 Coal - Net	3049	2955	2981	3034	2948	2962	3034	2948	2966	3030
26 Natural Gas - Net	5371	5373	5372	5368	5371	5372	5371	5371	5371	5372
27 Petroleum - Net	0	0	0	0	0	0	0	0	0	0
28 Biofuel - Net	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
29 Cogeneration - Net	2737	2729	2730	2737	2691	2722	2734	2734	2734	2731
<b>30 Imports</b>	600	605	609	613	132	38.7	38.8	38.9	39.0	39.2
31 Canada	38.8	38.8	38.8	38.8	36.7	36.5	36.4	36.4	36.4	36.5
32 Inland Southwest	513	517	521	525	93.6	0	0	0	0	0
33 Pacific Southwest	48.7	48.9	49.2	49.2	2.15	2.25	2.35	2.48	2.59	2.70
<b>34 Reserves &amp; Losses</b>	-795	-802	-793	-803	-776	-789	-791	-792	-790	-795
35 Operating Reserves	0	0	0	0	0	0	0	0	0	0
36 Balancing Reserves	0	0	0	0	0	0	0	0	0	0
37 Transmission Losses	-795	-802	-793	-803	-776	-789	-791	-792	-790	-795
<b>38 Total Regional Resources</b>	<b>26757</b>	<b>27000</b>	<b>26687</b>	<b>27034</b>	<b>26127</b>	<b>26552</b>	<b>26634</b>	<b>26679</b>	<b>26598</b>	<b>26759</b>
<b>39 Total Surplus/Deficit</b>	<b>337</b>	<b>84</b>	<b>-767</b>	<b>-940</b>	<b>-2,135</b>	<b>-2,134</b>	<b>-2,534</b>	<b>-2,910</b>	<b>-3,367</b>	<b>-3,514</b>

**Exhibit 5-2: Monthly Energy – PNW Regional Surplus/Deficit:  
Operating Year 2027, Firm Water Conditions**

**Loads and Resources - Pacific Northwest Region Percentile**  
**Operating Year: 2027 Percentile: 10**  
**2026 White Book (Energy Only) Report Date: 2/19/2026**  
S274-WB-20260218-115822

Energy-aMW	Aug1	Aug16	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Avg
<b>Regional Loads</b>															
<b>1 Retail Loads</b>	25867	25654	23086	23246	25339	29180	28863	27513	25401	23794	23794	23423	25122	26802	25626
2 Federal Agency	141	140	127	138	163	180	185	183	160	145	145	132	131	145	152
3 USBR	339	347	309	128	4.12	4.27	12.0	12.0	57.5	258	258	350	392	443	194
4 Cooperative	3544	3525	3215	3173	3473	3862	3918	3752	3517	3400	3400	3438	3703	3921	3575
5 Municipality	2400	2379	2259	2406	2729	3113	3119	3012	2764	2476	2476	2290	2272	2403	2601
6 Public Utility District	4873	4838	4479	4723	5324	6042	6119	5774	5228	4849	4849	4607	4766	5060	5150
7 Investor-Owned Utility	14520	14375	12646	12625	13594	15928	15458	14728	13623	12614	12614	12556	13808	14780	13902
8 Direct-Service Industry	50.2	50.1	50.9	51.8	52.2	51.9	52.3	52.0	51.5	51.9	51.9	50.4	50.1	50.1	51
9 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>10 Exports</b>	864	989	924	642	777	665	498	623	671	959	863	901	948	1042	794
11 Canada	315	295	305	305	305	305	305	305	305	305	305	305	305	305	305
12 East Continental Divide	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
13 Pacific Southwest	548	693	618	336	471	359	192	317	365	653	557	595	642	736	488
<b>14 Total Regional Loads</b>	<b>26731</b>	<b>26643</b>	<b>24010</b>	<b>23888</b>	<b>26115</b>	<b>29844</b>	<b>29361</b>	<b>28137</b>	<b>26072</b>	<b>24752</b>	<b>24657</b>	<b>24325</b>	<b>26069</b>	<b>27843</b>	<b>26420</b>
<b>Regional Resources</b>															
<b>15 Hydro</b>	10905	10573	9103	9784	12377	13414	14076	11385	12710	11049	11024	13842	14056	11488	12009
16 Regulated Hydro - Net	9583	9287	8089	8799	11076	12362	12966	10520	11734	9920	9773	12239	12686	10224	10838
17 Independent Hydro - Net	997	963	770	822	1172	927	986	733	815	849	969	1200	947	859	928
18 Small Hydro - Net	325	323	244	163	128	126	124	132	162	280	282	403	422	405	244
<b>19 Non-Hydro Renewable</b>	2411	3185	2867	2346	2933	2271	1454	2172	2525	4089	3558	3866	3942	3862	2907
20 Wind - Net	1593	2340	2162	1744	2430	1871	1047	1663	1897	3314	2802	3026	3049	2954	2240
21 Solar - Net	658	686	548	443	344	242	259	351	470	619	599	692	759	727	510
22 Other - Net	159	159	157	160	159	159	148	158	158	157	157	149	134	181	157
<b>23 Thermal</b>	12680	12687	12745	12777	13004	13098	13057	12992	11525	11109	9388	8905	10759	12677	12035
24 Nuclear - Net	1116	1116	1116	1116	1116	1116	1116	1116	612	0	0	0	707	1116	853
25 Coal - Net	3075	3075	3079	3080	3077	3081	3082	3081	2900	2962	2765	3097	3095	3078	3049
26 Natural Gas - Net	5585	5592	5654	5716	5851	5921	5914	5853	5804	5484	4427	3366	4262	5587	5371
27 Petroleum - Net	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 Biofuel - Net	23.6	23.6	25.4	26.7	27.0	24.6	24.3	24.4	27.0	25.4	25.4	27.2	25.0	25.8	26
29 Cogeneration - Net	2880	2880	2871	2838	2933	2955	2921	2919	2182	2638	2171	2414	2670	2870	2737
<b>30 Imports</b>	599	599	522	492	678	780	614	614	518	465	465	514	677	731	600
31 Canada	20.8	20.8	15.8	22.0	38.9	49.3	62.3	70.8	62.7	30.2	30.2	28.9	38.6	27.0	39
32 Inland Southwest	577	577	504	468	457	494	463	479	454	433	433	483	637	702	513
33 Pacific Southwest	1.48	1.48	1.48	1.65	182	237	89.0	64.9	1.65	1.65	1.65	1.65	1.65	1.65	49
<b>34 Reserves &amp; Losses</b>	-808	-822	-714	-719	-820	-837	-826	-769	-772	-756	-692	-768	-895	-874	-795
35 Operating Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Balancing Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Transmission Losses	-808	-822	-714	-719	-820	-837	-826	-769	-772	-756	-692	-768	-895	-874	-795
<b>38 Total Regional Resources</b>	<b>25786</b>	<b>26222</b>	<b>24523</b>	<b>24680</b>	<b>28172</b>	<b>28726</b>	<b>28374</b>	<b>26394</b>	<b>26507</b>	<b>25958</b>	<b>23745</b>	<b>26359</b>	<b>28540</b>	<b>27884</b>	<b>26757</b>
<b>39 Total Surplus/Deficit</b>	<b>-945</b>	<b>-421</b>	<b>513</b>	<b>792</b>	<b>2,057</b>	<b>-1,118</b>	<b>-986</b>	<b>-1,742</b>	<b>435</b>	<b>1,205</b>	<b>-912</b>	<b>2,035</b>	<b>2,471</b>	<b>41</b>	<b>337</b>

**Exhibit 5-3: 30-Water Year Conditions Monthly Energy – PNW  
Regional Surplus/Deficit: Operating Year 2027**

**Regional Report Surplus Deficit By Water Year**  
**Fiscal Year 2027**  
**2026 White Book (Energy Only)** Report Date: 3/5/2026  
S274-WB-202602 8-15822

Energy-aMW - Surplus Deficit	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
1 1989 Regional Report Surplus Deficit	738	1,928	85	-481	-656	2,051	4,558	6,456	5,732	4,592	1,412	-1,268	-398	1,199	1,777
2 1990 Regional Report Surplus Deficit	728	3,200	4,047	2,366	4,224	3,610	6,411	7,093	4,040	8,940	7,091	2,695	2,245	1,368	4,057
3 1991 Regional Report Surplus Deficit	280	6,627	3,885	4,033	6,995	4,833	6,957	4,111	5,583	7,268	9,233	4,047	3,418	946	4,893
4 1992 Regional Report Surplus Deficit	-26	2,219	-1,530	-879	-76	490	1,098	414	1,326	2,375	-674	-1,888	-947	119	215
5 1993 Regional Report Surplus Deficit	-49	1,567	-2,263	-2,720	-3,258	315	3,210	-1,553	7,228	5,031	4,369	385	439	1,337	1,090
6 1994 Regional Report Surplus Deficit	-124	1,391	-1,830	-1,708	-1,269	1,541	545	2,011	1,938	3,653	59	-1,141	-668	374	366
7 1995 Regional Report Surplus Deficit	114	1,460	-469	761	4,173	4,357	2,604	668	4,641	8,826	4,800	855	-174	1,604	2,665
8 1996 Regional Report Surplus Deficit	2,552	8,353	10,155	9,197	11,758	11,417	9,440	9,588	8,309	11,018	9,729	3,710	2,333	2,120	8,067
9 1997 Regional Report Surplus Deficit	1,034	2,770	4,186	9,701	10,789	10,950	10,516	10,911	11,867	12,417	10,668	4,834	3,827	3,853	7,750
10 1998 Regional Report Surplus Deficit	5,527	5,348	2,301	2,515	3,787	4,195	2,858	694	10,996	9,364	5,575	2,110	586	1,520	4,525
11 1999 Regional Report Surplus Deficit	277	1,980	2,932	6,898	7,553	8,804	5,703	6,860	6,570	11,718	11,356	5,563	6,531	2,086	6,036
12 2000 Regional Report Surplus Deficit	1,471	6,160	5,432	3,686	4,395	4,606	8,435	7,322	5,893	4,259	4,515	1,873	304	750	4,168
13 2001 Regional Report Surplus Deficit	414	1,123	-1,484	-2,807	-1,794	-698	155	-3,887	337	1,203	-53	-1,568	-970	-359	-601
14 2002 Regional Report Surplus Deficit	-686	1,327	-1,177	-1,018	322	375	4,212	5,679	5,027	10,040	7,883	-444	-1,272	507	2,217
15 2003 Regional Report Surplus Deficit	-71	1,821	-1,568	-324	-1,308	2,712	3,772	2,683	3,405	7,390	256	-1,466	-751	-74	1,197
16 2004 Regional Report Surplus Deficit	766	2,344	-194	-395	331	547	3,052	986	2,713	5,157	1,503	-1,159	1,009	2,227	1,407
17 2005 Regional Report Surplus Deficit	1,760	2,509	2,603	1,269	1,138	1,853	834	1,286	3,342	3,924	2,850	-650	-828	-159	1,789
18 2006 Regional Report Surplus Deficit	574	2,188	1,819	5,618	5,729	3,709	8,512	5,168	9,965	10,119	3,675	-1,400	-1,220	-57	4,051
19 2007 Regional Report Surplus Deficit	269	3,208	2,317	3,176	3,158	7,039	7,264	3,483	4,958	5,804	3,086	-1,070	-1,663	-506	3,036
20 2008 Regional Report Surplus Deficit	725	1,976	1,096	-717	557	981	1,110	-1,078	7,730	10,835	7,164	79	1,062	1,482	2,711
21 2009 Regional Report Surplus Deficit	503	1,642	-465	2,296	-479	1,009	5,182	3,428	5,139	5,931	2,334	-1,161	-1,224	320	1,783
22 2010 Regional Report Surplus Deficit	551	2,395	-996	-333	-1,963	-1,044	1,757	-1,682	1,223	9,762	4,863	-281	-641	834	1,243
23 2011 Regional Report Surplus Deficit	510	1,798	2,157	7,044	8,038	7,005	12,026	3,766	7,882	12,625	13,039	4,379	3,257	1,900	6,126
24 2012 Regional Report Surplus Deficit	771	1,903	1,034	3,523	3,403	6,456	10,454	9,895	8,127	10,405	11,155	4,328	1,986	1,061	5,099
25 2013 Regional Report Surplus Deficit	964	3,397	5,011	941	770	1,517	9,521	3,985	6,391	7,171	4,739	962	545	1,631	3,342
26 2014 Regional Report Surplus Deficit	830	1,775	-515	1,857	1,351	6,521	8,440	4,135	7,114	7,778	6,668	472	538	1,380	3,470
27 2015 Regional Report Surplus Deficit	680	3,458	4,254	4,958	6,798	8,627	5,555	-1,002	-463	1,882	-1,466	-1,574	-1,298	512	2,476
28 2016 Regional Report Surplus Deficit	470	1,570	964	1,257	1,622	5,309	6,952	7,469	6,054	3,366	-326	-608	-231	976	2,333
29 2017 Regional Report Surplus Deficit	2,852	7,315	692	4,434	7,347	12,856	12,197	8,793	10,902	11,801	4,387	327	-272	590	6,115
30 2018 Regional Report Surplus Deficit	880	1,758	718	5,635	8,231	6,314	7,927	5,792	10,213	7,839	2,167	-1,293	-947	441	4,127

# APPENDIX – REPORTS AVAILABLE UPON REQUEST

Please send request via email to [WhiteBook@bpa.gov](mailto:WhiteBook@bpa.gov), and allow three to five business days for turn-around time.

- A. Annual Energy (aMW) – Operating Years 2027 – 2036
- B. Monthly Energy (aMW) – Operating Years 2027 – 2036

Report Descriptions	Report #	
	Annual	Monthly
Federal Report Surplus/Deficit	1A	1B
Regional Report Surplus/Deficit	2A	2B
Regional Total Retail Load	3A	3B
Regional Exports	4A	4B
Regional Imports	5A	5B
Regional Intra-Regional Transfer	6A	6B
BPA Sales to Preference and Legacy Customers	7A	7B
Regional Regulated Hydro	8A	8B
Regional Independent Hydro	9A	9B
Regional Small Hydro	10A	10B
Regional Non-Hydro Renewable – Wind	11A	11B
Regional Non-Hydro Renewable – Solar	12A	12B
Regional Non-Hydro Renewable – Other	13A	13B
Regional Thermal – Nuclear	14A	14B
Regional Thermal – Coal	15A	15B
Regional Thermal – Natural Gas	16A	16B
Regional Thermal – Petroleum	17A	17B
Regional Thermal – Biofuel	18A	18B
Regional Thermal – Cogeneration	19A	19B
Non-Federal CER Deliveries to BPA	20A	20B
Federal Report Surplus/Deficit by 30 Water Year	--	21B
Regional Report Surplus/Deficit by 30 Water Year	--	22B



