BP-18 Rate Proceeding

Final Proposal

Power and Transmission Risk Study Documentation

BP-18-FS-BPA-05A

July 2017

POWER AND TRANSMISSION RISK STUDY DOCUMENTATION

TABLE OF CONTENTS **Page**

COMMONLY USED ACRONYMS AND SHORT FORMS iii

Table 1: Federal Hydro Generation (aMW) with Hydro Independents for FY 2018 1
Table 2: Federal Hydro Generation (aMW) with Hydro Independents for FY 2019 3
Table 3: Heavy-Load Hydro Generation Ratios for FY 2018 5
Table 4: Heavy-Load Hydro Generation Ratios for FY 2019 7
Table 5: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Light-Load-Hours for FY 2018 9
Table 6: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2018 11
Table 7: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Flat Energy for FY 2018.....13
Table 8: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Light-Load-Hours for FY 2019 15
Table 9: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2019 17
Table 10: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Flat Energy for FY 2019.....19
Figure 1: Simulated Total PS Wind Generation for FY 2018-2019 21
Table 11: Value of PS Wind Generation at Expected Wind Generation for FY 2018.....22
Table 12: Value of PS Wind Generation at Expected Wind Generation for FY 2019.....23
Figure 2: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2018 24
Figure 3: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2019 25
Figure 4: PS Transmission and Ancillary Service Expense Distribution for FY 2018 26
Figure 5: PS Transmission and Ancillary Service Expense Distribution for FY 2019 27
Table 13: 4(h)(10)(C) Credits ($ Million) for FY 2018 and FY 2019 28
Figure 6: 4(h)(10)(C) Credits Distribution for FY 2018.....29
Figure 7: 4(h)(10)(C) Credits Distribution for FY 2019.....30
Table 14: Augmentation Power Purchases for FY 2018 and FY 2019 31
Table 15: Firm Surplus Power Sale.....32
Table 16: Calculation of Surplus Energy Revenues and Balancing Power Purchase Expenses Provided to RAM2018, FY 2018 33
Table 17: Calculation of Surplus Energy Revenues and Balancing Power Purchase Expenses Provided to RAM2018, FY 2019 34
Table 18: Monthly Secondary Energy Sales and Revenues for FY 2018 and FY2019 35
Table 19: Monthly Power Purchases and Expenses for FY 2018 and FY 2019 36
Table 20: Annual Secondary Energy Sales/Revenues and Power Purchases/Expenses for FY 2018 and FY 2019 37
Figure 8: CGS O&M Distributions.....38
Figure 9: Corps of Engineers and Bureau of Reclamation O&M Distributions.....39

Figure 10: Conservation Acquisition and Weatherization Expense Distributions 40
Figure 11: Spokane Settlement Payment Distributions 41
Figure 12: Third-Party GTA Wheeling Expense Distributions 42
Figure 13: Third-Party Transmission and Ancillary Services Expense Distributions 43
Figure 14: Internal Operations Expense Distributions 44
Figure 15: Fish and Wildlife Direct Program Expense Distributions 45
Figure 16: Lower Snake River Hatcheries Expense Distributions 46
Figure 17: Leavenworth Complex O&M Expense Distributions 47
Figure 18: COE Fish Passage Facilities Expense Distributions 48
Figure 19: Federal and Non-Federal Interest Expense Distributions 49
Figure 20: CGS Refueling Outage Duration Distributions 50
Figure 21: CGS Refueling Outage Revenue Impact Distributions 51
Figure 22: P-NORM Output Summary Distributions 52
Table 21: Power Net Revenue to Cash Adjustments 53
Example 1: Calibrated Net Revenue Calculations 54
Figure 23: Power Services ToolKit Inputs 56
Figure 24: Power Services End of Year Net Reserves 57
Table 22: Power ToolKit Summary Statistics 58
Figure 25: T-NORM Output Summary Distributions 59
Table 23: Transmission Net Revenue to Cash Adjustments 60
Figure 26: Transmission Services ToolKit Inputs 61
Figure 27: Transmission Services End of Year Net Reserves 62
Table 24: Transmission ToolKit Summary Statistics 63

COMMONLY USED ACRONYMS AND SHORT FORMS

AAC	Anticipated Accumulation of Cash
ACNR	Accumulated Calibrated Net Revenue
ACS	Ancillary and Control Area Services
AF	Advance Funding
AFUDC	Allowance for Funds Used During Construction
aMW	average megawatt(s)
ANR	Accumulated Net Revenues
ASC	Average System Cost
BAA	Balancing Authority Area
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Bps	basis points
Btu	British thermal unit
CIP	Capital Improvement Plan
CIR	Capital Investment Review
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
CNR	Calibrated Net Revenue
COB	California-Oregon border
COE	U.S. Army Corps of Engineers
COI	California-Oregon Intertie
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council	Northwest Power and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DD	Dividend Distribution
DDC	Dividend Distribution Clause
dec	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DNR	Designated Network Resource
DOE	Department of Energy
DOI	Department of Interior
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EE	Energy Efficiency

EIM	Energy imbalance market
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
ESA	Endangered Species Act
ESS	Energy Shaping Service
e-Tag	electronic interchange transaction information
FBS	Federal base system
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FELCC	firm energy load carrying capability
FOIA	Freedom Of Information Act
FORS	Forced Outage Reserve Service
FPS	Firm Power and Surplus Products and Services
FPT	Formula Power Transmission
FY	fiscal year (October through September)
G&A	general and administrative (costs)
GARD	Generation and Reserves Dispatch (computer model)
GMS	Grandfathered Generation Management Service
GSP	Generation System Peak
GSR	Generation Supplied Reactive
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydrosystem Simulator (computer model)
IE	Eastern Intertie
IM	Montana Intertie
inc	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power
IPR	Integrated Program Review
IR	Integration of Resources
IRD	Irrigation Rate Discount
IRM	Irrigation Rate Mitigation
IRPL	Incremental Rate Pressure Limiter
IS	Southern Intertie
kcfs	thousand cubic feet per second
kW	kilowatt
kWh	kilowatthour
LDD	Low Density Discount
LGIA	Large Generator Interconnection Agreement
LLH	Light Load Hour(s)
LPP	Large Project Program
LPTAC	Large Project Targeted Adjustment Charge
LTF	Long-term Form

Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MNR	Modified Net Revenue
MRNR	Minimum Required Net Revenue
MW	megawatt
MWh	megawatthour
NCP	Non-Coincidental Peak
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFB	**N**ational Marine Fisheries Service (NMFS) **F**ederal Columbia River Power System (FCRPS) **B**iological Opinion (BiOp)
NLSL	New Large Single Load
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries
NOB	Nevada-Oregon border
NORM	Non-Operating Risk Model (computer model)
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NP-15	North of Path 15
NPCC	Pacific Northwest Electric Power and Conservation Planning Council
NPV	net present value
NR	New Resource Firm Power
NRFS	NR Resource Flattening Service
NT	Network Integration
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance
OATI	Open Access Technology International, Inc.
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
Peak	Peak Reliability (assessment/charge)
PF	Priority Firm Power
PFp	Priority Firm Public
PFx	Priority Firm Exchange
PNCA	Pacific Northwest Coordination Agreement
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration or Point of Interconnection
POR	Point of Receipt
Project Act	Bonneville Project Act
PS	Power Services

PSC	power sales contract
PSW	Pacific Southwest
PTP	Point to Point
PUD	public or people's utility district
PW	WECC and Peak Service
RAM	Rate Analysis Model (computer model)
RCD	Regional Cooperation Debt
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation	U.S. Bureau of Reclamation
RDC	Reserves Distribution Clause
REP	Residential Exchange Program
REPSIA	REP Settlement Implementation Agreement
RevSim	Revenue Simulation Model
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement
RRS	Resource Remarketing Service
RSC	Resource Shaping Charge
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability
SCD	Scheduling, System Control, and Dispatch rate
SCS	Secondary Crediting Service
SDD	Short Distance Discount
SILS	Southeast Idaho Load Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TGT	Townsend-Garrison Transmission
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
TRAM	Transmission Risk Analysis Model
Transmission System Act	Federal Columbia River Transmission System Act
Treaty	Columbia River Treaty
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	Transmission Services
TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
UFT	Use of Facilities Transmission
UIC	Unauthorized Increase Charge
ULS	Unanticipated Load Service
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation

USFWS	U.S. Fish & Wildlife Service
VERBS	Variable Energy Resources Balancing Service
VOR	Value of Reserves
VR1-2014	First Vintage Rate of the BP-14 rate period (PF Tier 2 rate)
VR1-2016	First Vintage Rate of the BP-16 rate period (PF Tier 2 rate)
WECC	Western Electricity Coordinating Council
WSPP	Western Systems Power Pool

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 1:**													
2	**Federal Hydro Generation (aMW) with Hydro Independents**													
3	**for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	5,669	7,233	7,147	7,014	6,381	6,407	6,351	8,230	8,333	5,635	6,600	6,306	**6,776**
6	**1930**	5,764	7,424	7,195	5,879	6,815	6,228	7,549	7,543	5,481	7,655	6,928	6,116	**6,715**
7	**1931**	5,664	7,461	7,379	6,477	5,362	5,788	5,718	8,697	5,900	7,441	6,918	5,830	**6,566**
8	**1932**	5,520	6,943	7,267	5,372	5,286	8,147	11,852	13,344	12,576	9,029	7,721	6,712	**8,326**
9	**1933**	5,619	6,669	9,011	10,757	10,323	9,563	8,200	10,692	14,344	11,588	9,322	6,453	**9,375**
10	**1934**	6,586	10,283	13,765	14,337	12,984	13,304	12,496	11,233	10,732	8,119	6,356	5,926	**10,496**
11	**1935**	5,534	6,180	7,150	10,351	9,683	9,233	7,643	9,999	9,558	10,002	7,919	5,564	**8,233**
12	**1936**	5,674	7,163	6,738	5,899	6,370	6,552	8,916	13,221	12,018	8,088	6,748	6,020	**7,787**
13	**1937**	5,665	7,536	7,109	5,491	5,923	6,127	5,899	9,112	7,660	6,021	6,694	6,007	**6,608**
14	**1938**	5,678	7,342	8,278	9,679	9,756	9,785	11,788	12,454	10,889	9,371	6,268	6,402	**8,966**
15	**1939**	5,611	7,098	6,998	8,241	7,493	7,198	9,219	10,416	7,424	7,706	6,652	6,249	**7,526**
16	**1940**	5,704	7,654	7,428	8,500	7,367	10,556	8,868	10,050	7,215	7,406	6,146	6,043	**7,751**
17	**1941**	5,394	7,307	7,833	6,736	6,609	6,496	6,137	9,193	7,341	7,382	6,889	6,306	**6,974**
18	**1942**	5,418	7,986	9,013	10,107	8,843	8,378	7,841	9,832	10,054	10,123	7,601	6,973	**8,515**
19	**1943**	5,607	6,564	7,688	11,005	10,028	10,021	13,406	11,525	14,151	11,969	8,054	5,864	**9,650**
20	**1944**	5,550	7,322	7,118	7,136	6,843	6,036	6,086	7,276	5,418	6,420	6,734	5,935	**6,490**
21	**1945**	5,536	7,273	7,322	6,185	6,241	6,110	4,936	11,025	11,381	6,274	6,563	5,958	**7,070**
22	**1946**	5,533	7,438	8,158	9,377	8,859	9,455	12,292	12,574	10,989	10,708	7,934	6,520	**9,153**
23	**1947**	5,578	7,539	11,844	12,413	11,435	10,897	9,792	12,616	11,346	10,158	7,547	6,227	**9,780**
24	**1948**	8,668	9,106	10,005	12,180	10,108	9,463	10,073	13,907	14,092	11,257	9,761	6,938	**10,471**
25	**1949**	6,083	7,125	8,370	9,379	8,389	10,694	11,004	13,414	11,239	6,866	6,016	5,917	**8,709**
26	**1950**	5,458	7,053	7,683	11,965	11,987	11,058	11,341	11,554	14,020	12,645	9,697	6,725	**10,086**
27	**1951**	6,982	9,552	12,007	14,076	13,763	13,839	12,038	12,618	11,241	11,124	8,017	6,323	**10,954**
28	**1952**	8,031	8,212	10,139	11,753	10,688	9,601	12,879	14,057	11,822	9,875	7,289	5,537	**9,989**
29	**1953**	5,626	6,961	6,848	8,743	9,741	8,479	7,591	10,985	14,407	11,982	8,305	6,443	**8,835**
30	**1954**	6,003	7,534	9,332	11,625	11,182	10,828	9,453	12,367	13,055	12,505	10,580	9,077	**10,293**
31	**1955**	6,171	8,335	9,240	8,165	7,776	6,259	7,065	10,426	14,181	12,267	8,918	6,135	**8,751**
32	**1956**	6,390	9,004	11,865	13,751	13,246	12,505	12,404	13,829	13,822	11,304	9,193	6,459	**11,138**
33	**1957**	6,310	7,092	9,529	9,739	8,411	9,330	10,176	14,397	14,387	9,017	7,129	6,307	**9,324**
34	**1958**	5,567	7,368	7,352	10,269	9,550	9,291	9,447	13,403	13,259	8,417	7,180	5,924	**8,913**
35	**1959**	5,855	8,291	11,206	13,047	12,311	11,532	9,988	11,323	13,229	11,705	9,533	9,538	**10,620**
36	**1960**	9,626	10,379	10,970	10,763	9,611	9,375	12,622	10,119	12,140	10,025	7,435	5,874	**9,910**
37	**1961**	5,924	7,374	8,575	10,378	10,623	11,572	9,241	12,232	13,412	8,844	7,421	5,990	**9,291**
38	**1962**	5,375	7,318	8,204	9,884	9,498	7,165	12,523	11,542	10,510	8,938	7,566	5,762	**8,680**
39	**1963**	6,647	8,431	10,764	11,092	9,778	8,516	7,537	10,824	10,546	9,728	7,314	6,646	**8,986**
40	**1964**	5,496	7,107	8,510	8,434	8,024	7,291	8,949	11,282	14,154	12,090	9,327	7,308	**9,001**
41	**1965**	6,859	7,981	12,221	14,630	15,100	12,882	11,038	12,954	11,614	9,937	9,024	5,967	**10,834**
42	**1966**	6,217	7,272	8,894	9,371	8,815	7,549	10,493	9,194	10,172	9,876	7,684	5,965	**8,456**
43	**1967**	5,510	6,981	9,268	12,358	11,521	11,087	7,017	10,706	13,655	11,455	8,566	6,470	**9,544**
44	**1968**	6,078	7,619	8,922	11,303	10,470	10,002	6,876	8,853	12,329	10,337	8,359	7,966	**9,086**

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45	**1969**	7,026	9,110	10,151	13,119	13,169	11,216	12,433	13,594	12,212	10,127	7,138	6,128	**10,435**
46	**1970**	6,076	7,454	7,668	10,184	9,193	8,626	7,636	11,134	13,370	7,704	6,969	5,965	**8,491**
47	**1971**	5,533	7,200	8,269	13,634	14,699	12,694	11,634	13,693	14,100	12,053	9,911	6,725	**10,823**
48	**1972**	6,343	7,371	9,332	13,419	13,746	14,530	11,913	13,434	13,599	11,922	10,251	6,951	**11,057**
49	**1973**	6,262	7,372	8,841	9,797	7,746	6,897	5,742	9,136	6,502	7,345	6,495	5,980	**7,350**
50	**1974**	5,570	7,003	9,960	15,215	14,115	14,059	12,684	12,992	13,736	12,762	10,087	6,800	**11,237**
51	**1975**	5,422	7,269	7,585	10,312	9,981	9,696	7,506	12,080	14,027	12,750	8,725	7,037	**9,365**
52	**1976**	7,194	9,448	13,156	13,111	12,215	12,583	11,931	13,718	12,337	11,513	11,119	10,192	**11,543**
53	**1977**	6,347	7,349	7,150	7,357	7,187	6,312	5,567	6,760	5,234	6,482	6,751	5,311	**6,485**
54	**1978**	5,045	7,372	8,784	9,744	9,425	8,507	10,623	11,793	9,809	10,019	6,973	8,126	**8,845**
55	**1979**	6,376	7,370	7,315	8,895	7,084	8,838	7,562	11,853	9,142	6,056	6,603	6,247	**7,786**
56	**1980**	5,597	7,317	6,755	8,308	7,241	6,805	9,213	13,290	12,420	8,622	6,513	6,327	**8,202**
57	**1981**	5,534	7,248	10,774	12,461	11,696	8,556	6,687	10,898	14,018	10,991	9,555	6,476	**9,568**
58	**1982**	5,873	7,716	8,945	11,417	14,528	13,851	10,915	13,126	13,941	12,776	9,850	7,832	**10,876**
59	**1983**	7,062	7,774	9,627	12,197	12,164	12,513	9,756	12,131	12,293	11,736	9,162	6,934	**10,275**
60	**1984**	6,100	9,844	10,016	11,310	11,211	10,494	12,249	12,335	13,655	11,378	8,411	6,922	**10,316**
61	**1985**	6,185	7,763	8,799	9,204	8,286	7,557	10,074	11,237	8,921	7,369	5,858	6,182	**8,117**
62	**1986**	5,555	9,081	9,047	11,033	11,554	13,625	12,336	10,613	11,329	8,656	6,796	5,748	**9,598**
63	**1987**	5,312	7,598	8,908	8,551	6,998	8,257	6,968	10,837	8,703	6,459	6,068	5,815	**7,547**
64	**1988**	5,538	7,249	6,773	6,665	5,623	6,556	6,789	8,813	7,017	7,754	6,741	5,904	**6,795**
65	**1989**	5,457	7,669	7,750	7,320	6,396	8,179	10,639	10,838	9,263	7,134	6,383	6,006	**7,757**
66	**1990**	5,706	7,523	9,382	10,536	10,557	10,173	10,171	9,835	12,275	9,562	8,648	5,939	**9,183**
67	**1991**	5,414	9,444	10,397	11,905	10,941	10,845	9,368	10,959	11,892	11,457	9,243	5,907	**9,812**
68	**1992**	5,756	7,337	6,851	7,839	7,469	8,541	5,907	8,739	6,434	6,501	6,374	5,640	**6,952**
69	**1993**	5,607	7,484	7,379	6,288	5,477	7,363	7,762	11,603	10,259	7,720	6,965	6,260	**7,526**
70	**1994**	5,696	7,704	7,632	5,978	6,271	6,195	6,695	9,951	8,822	7,448	6,507	6,096	**7,087**
71	**1995**	5,608	6,809	7,367	8,849	9,253	9,832	7,733	10,474	12,547	9,120	6,903	6,717	**8,427**
72	**1996**	6,741	10,753	14,776	14,791	14,596	14,702	12,691	13,106	12,370	11,581	9,122	6,441	**11,796**
73	**1997**	5,948	7,621	10,232	15,190	14,877	14,305	12,850	13,502	13,703	11,958	9,796	7,820	**11,466**
74	**1998**	8,933	8,911	8,802	9,679	9,205	8,409	8,660	13,671	13,595	9,862	7,625	5,943	**9,445**
75	**1999**	5,644	6,817	9,824	13,184	12,995	12,952	10,491	11,658	13,621	11,970	10,346	6,985	**10,531**
76	**2000**	5,912	10,100	10,847	10,433	10,019	9,369	12,048	11,829	8,611	9,384	7,091	5,648	**9,270**
77	**2001**	5,660	7,176	7,166	7,077	6,816	6,477	5,862	7,990	4,603	6,696	6,705	5,375	**6,472**
78	**2002**	4,959	7,285	7,526	7,022	6,829	7,278	9,642	10,465	13,200	10,849	7,270	6,242	**8,216**
79	**2003**	5,783	7,587	7,374	7,033	6,331	8,819	8,452	10,320	11,887	7,315	6,142	5,551	**7,720**
80	**2004**	5,535	7,829	8,085	8,220	6,650	7,894	7,701	10,038	8,820	7,778	6,895	7,199	**7,727**
81	**2005**	6,340	7,260	9,226	9,421	8,912	6,854	6,453	10,714	9,518	8,336	6,728	6,114	**7,989**
82	**2006**	5,174	7,431	8,855	10,931	11,248	9,693	12,438	13,265	13,022	9,053	6,555	5,650	**9,426**
83	**2007**	5,767	7,736	8,200	10,316	9,360	10,214	9,570	10,782	10,290	9,493	6,567	5,468	**8,645**
84	**2008**	5,778	7,764	7,116	7,846	7,735	7,391	6,695	12,307	14,343	10,163	8,034	5,676	**8,407**
85	**80 WY Average**	**5,994**	**7,758**	**8,837**	**9,996**	**9,537**	**9,403**	**9,335**	**11,307**	**11,194**	**9,489**	**7,747**	**6,412**	**8,915**
86	**Hours**	**744**	**721**	**744**	**744**	**672**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8,760**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 2:**													
2	**Federal Hydro Generation (aMW) with Hydro Independents**													
3	**for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	5,669	7,233	7,147	7,014	6,390	6,398	6,351	8,222	8,280	5,616	6,655	6,299	**6,773**
6	**1930**	5,764	7,424	7,195	5,882	6,815	6,228	7,548	7,532	5,466	7,642	6,937	6,112	**6,712**
7	**1931**	5,664	7,461	7,379	6,480	5,362	5,785	5,718	8,689	5,890	7,432	6,918	5,826	**6,564**
8	**1932**	5,520	6,943	7,267	5,372	5,286	8,129	11,737	13,375	12,575	9,002	7,714	6,703	**8,314**
9	**1933**	5,619	6,669	9,011	10,579	10,399	9,532	8,421	10,730	14,645	11,973	9,312	6,439	**9,440**
10	**1934**	6,586	10,283	13,828	14,408	13,290	13,008	12,271	11,414	10,456	8,105	6,353	5,921	**10,479**
11	**1935**	5,534	6,180	7,150	10,164	9,749	9,415	7,643	9,941	9,512	10,001	7,912	5,558	**8,228**
12	**1936**	5,674	7,163	6,738	5,899	6,378	6,552	8,915	13,286	11,897	8,075	6,747	6,016	**7,782**
13	**1937**	5,665	7,536	7,109	5,494	5,920	6,127	5,899	9,105	7,647	6,004	6,689	6,000	**6,603**
14	**1938**	5,678	7,342	8,278	9,671	9,766	9,718	11,805	12,663	10,878	9,343	6,262	6,394	**8,975**
15	**1939**	5,611	7,098	6,998	8,241	7,493	7,198	9,187	10,419	7,348	7,689	6,650	6,243	**7,515**
16	**1940**	5,704	7,654	7,428	8,503	7,364	10,532	8,869	10,018	7,203	7,397	6,146	6,040	**7,744**
17	**1941**	5,394	7,307	7,833	6,736	6,618	6,490	6,134	9,191	7,328	7,371	6,889	6,298	**6,971**
18	**1942**	5,418	7,986	9,013	10,107	8,843	8,378	7,841	9,817	10,148	10,033	7,651	6,961	**8,517**
19	**1943**	5,607	6,564	7,688	11,005	10,028	10,052	13,362	11,529	14,099	11,806	8,040	5,852	**9,629**
20	**1944**	5,550	7,322	7,118	7,136	6,843	6,036	6,086	7,275	5,403	6,404	6,733	5,931	**6,487**
21	**1945**	5,536	7,273	7,322	6,187	6,241	6,109	4,933	11,034	11,423	6,249	6,559	5,949	**7,071**
22	**1946**	5,533	7,438	8,158	9,377	8,859	9,413	12,224	12,843	10,992	10,777	7,982	6,507	**9,176**
23	**1947**	5,578	7,539	11,867	12,480	11,446	10,876	9,691	12,662	11,359	10,126	7,556	6,212	**9,781**
24	**1948**	8,680	9,106	10,005	12,234	10,112	9,463	10,088	14,096	14,130	11,334	9,820	6,924	**10,507**
25	**1949**	6,083	7,125	8,370	9,379	8,397	10,643	11,028	13,394	11,231	6,847	6,009	5,908	**8,702**
26	**1950**	5,458	7,053	7,683	11,802	12,157	11,040	11,247	11,616	14,167	13,033	9,702	6,710	**10,126**
27	**1951**	6,982	9,552	12,053	14,087	13,780	13,691	11,947	12,872	11,241	11,494	7,852	6,304	**10,978**
28	**1952**	8,043	8,212	10,139	11,748	10,688	9,601	12,782	14,314	11,866	9,847	7,281	5,530	**10,003**
29	**1953**	5,626	6,961	6,848	8,644	9,815	8,512	7,591	10,892	14,616	12,257	8,143	6,433	**8,853**
30	**1954**	6,003	7,534	9,332	11,564	11,225	10,876	9,438	12,641	12,975	12,963	10,670	9,059	**10,356**
31	**1955**	6,171	8,335	9,240	8,165	7,776	6,259	7,065	10,295	14,291	12,671	8,951	6,124	**8,785**
32	**1956**	6,390	9,004	11,902	13,824	13,378	12,454	12,281	14,110	13,885	11,661	9,020	6,446	**11,187**
33	**1957**	6,310	7,092	9,529	9,739	8,419	9,280	10,177	14,535	14,295	8,996	7,125	6,301	**9,322**
34	**1958**	5,567	7,368	7,352	10,269	9,550	9,291	9,447	13,369	13,221	8,396	7,177	5,917	**8,904**
35	**1959**	5,855	8,291	11,185	13,126	12,326	11,514	9,930	11,565	13,304	12,091	9,626	9,518	**10,685**
36	**1960**	9,659	10,379	10,968	10,758	9,611	9,453	12,547	10,078	12,206	10,013	7,423	5,861	**9,912**
37	**1961**	5,924	7,374	8,575	10,378	10,592	11,591	9,210	12,419	13,277	8,822	7,464	5,982	**9,293**
38	**1962**	5,375	7,318	8,204	9,884	9,498	7,165	12,294	11,595	10,520	8,912	7,556	5,752	**8,663**
39	**1963**	6,647	8,431	10,764	11,092	9,778	8,516	7,537	10,743	10,552	9,698	7,352	6,635	**8,980**
40	**1964**	5,496	7,107	8,510	8,434	8,024	7,291	8,949	11,176	14,331	12,428	9,348	7,289	**9,036**
41	**1965**	6,859	7,981	12,259	14,691	15,098	12,912	10,939	13,141	11,859	9,868	9,004	5,948	**10,863**
42	**1966**	6,217	7,272	8,894	9,371	8,815	7,549	10,486	9,140	10,084	9,899	7,722	5,954	**8,447**
43	**1967**	5,510	6,981	9,268	12,242	11,808	10,997	6,981	10,761	13,839	11,851	8,395	6,461	**9,584**
44	**1968**	6,078	7,619	8,922	11,303	10,470	10,002	6,876	8,779	12,430	10,459	8,386	7,946	**9,099**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 2:**													
2	**Federal Hydro Generation (aMW) with Hydro Independents**													
3	**for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	7,026	9,110	10,151	13,131	13,398	11,298	12,267	13,880	12,232	10,099	7,166	6,117	**10,472**
46	**1970**	6,076	7,454	7,668	10,111	9,280	8,732	7,580	10,933	13,576	7,673	6,957	5,955	**8,491**
47	**1971**	5,533	7,200	8,269	13,545	14,661	12,601	11,719	13,952	14,162	12,366	9,774	6,711	**10,853**
48	**1972**	6,343	7,371	9,332	13,394	13,877	14,653	11,872	13,693	13,836	12,336	10,278	6,937	**11,150**
49	**1973**	6,262	7,372	8,841	9,797	7,746	6,897	5,742	9,133	6,478	7,330	6,498	5,972	**7,346**
50	**1974**	5,570	7,003	9,960	15,286	14,489	14,128	12,530	13,237	13,980	13,164	10,119	6,787	**11,342**
51	**1975**	5,422	7,269	7,585	10,312	9,981	9,770	7,468	12,229	14,361	12,797	8,543	7,017	**9,395**
52	**1976**	7,194	9,448	13,202	13,190	12,176	12,550	11,909	13,972	12,497	11,900	11,155	10,174	**11,616**
53	**1977**	6,347	7,349	7,150	7,357	7,187	6,312	5,567	6,760	5,227	6,475	6,751	5,307	**6,483**
54	**1978**	5,045	7,372	8,784	9,811	9,425	8,478	10,592	12,006	9,800	9,989	6,956	8,107	**8,858**
55	**1979**	6,376	7,370	7,315	8,898	7,089	8,829	7,563	11,809	9,131	6,036	6,598	6,238	**7,779**
56	**1980**	5,597	7,317	6,755	8,308	7,241	6,805	9,214	13,566	12,547	8,594	6,503	6,312	**8,231**
57	**1981**	5,534	7,248	10,759	12,467	11,696	8,555	6,690	10,868	13,900	11,379	9,640	6,465	**9,594**
58	**1982**	5,873	7,716	8,945	11,408	14,618	14,046	10,892	13,354	14,045	13,034	9,835	7,818	**10,944**
59	**1983**	7,062	7,774	9,627	12,208	12,175	12,630	9,760	12,121	12,537	11,999	9,025	6,920	**10,316**
60	**1984**	6,100	9,844	10,016	11,310	11,211	10,453	12,228	12,350	13,739	11,300	8,402	6,910	**10,310**
61	**1985**	6,185	7,763	8,799	9,063	8,455	7,557	10,070	11,168	8,888	7,355	5,853	6,164	**8,106**
62	**1986**	5,555	9,081	9,047	11,033	11,523	13,861	12,294	10,611	11,260	8,639	6,792	5,737	**9,604**
63	**1987**	5,312	7,598	8,908	8,551	7,007	8,248	6,993	10,997	8,693	6,448	6,068	5,807	**7,560**
64	**1988**	5,538	7,249	6,773	6,665	5,623	6,556	6,789	8,805	7,002	7,743	6,741	5,902	**6,792**
65	**1989**	5,457	7,669	7,750	7,320	6,396	8,199	10,565	10,807	9,252	7,112	6,372	5,992	**7,745**
66	**1990**	5,706	7,523	9,382	10,536	10,570	10,167	10,085	9,785	12,188	9,532	8,698	5,929	**9,166**
67	**1991**	5,414	9,444	10,397	11,874	11,083	10,810	9,295	11,086	11,847	11,829	9,231	5,897	**9,848**
68	**1992**	5,756	7,337	6,851	7,842	7,466	8,541	5,907	8,722	6,428	6,488	6,374	5,635	**6,948**
69	**1993**	5,607	7,484	7,379	6,291	5,477	7,363	7,770	11,620	10,247	7,690	7,023	6,244	**7,528**
70	**1994**	5,696	7,704	7,632	5,981	6,268	6,195	6,695	9,944	8,806	7,436	6,553	6,091	**7,088**
71	**1995**	5,608	6,809	7,367	8,849	9,253	9,832	7,732	10,479	12,710	9,089	6,920	6,706	**8,439**
72	**1996**	6,741	10,753	14,825	14,864	14,708	14,312	12,465	13,397	12,609	11,939	9,110	6,428	**11,836**
73	**1997**	5,948	7,621	10,232	15,230	15,031	14,494	12,715	13,805	13,959	12,306	9,775	7,802	**11,559**
74	**1998**	8,944	8,911	8,802	9,679	9,205	8,408	8,659	13,650	13,700	9,832	7,629	5,935	**9,450**
75	**1999**	5,644	6,817	9,824	13,191	13,060	12,922	10,528	11,629	13,684	12,375	10,333	6,975	**10,573**
76	**2000**	5,912	10,100	10,843	10,433	10,019	9,368	11,936	11,923	8,596	9,366	7,089	5,640	**9,265**
77	**2001**	5,660	7,176	7,166	7,077	6,816	6,477	5,862	7,982	4,588	6,686	6,705	5,374	**6,469**
78	**2002**	4,959	7,285	7,526	7,022	6,829	7,278	9,643	10,414	13,199	10,959	7,273	6,233	**8,220**
79	**2003**	5,783	7,587	7,374	7,036	6,331	8,816	8,458	10,291	11,986	7,302	6,142	5,547	**7,725**
80	**2004**	5,535	7,829	8,085	8,220	6,650	7,894	7,707	9,972	8,801	7,755	6,888	7,179	**7,717**
81	**2005**	6,340	7,260	9,226	9,421	8,912	6,871	6,447	10,702	9,458	8,316	6,831	6,104	**7,990**
82	**2006**	5,174	7,431	8,855	10,931	11,248	9,694	12,363	13,198	12,944	9,035	6,553	5,645	**9,405**
83	**2007**	5,767	7,736	8,200	10,316	9,368	10,205	9,581	10,723	10,277	9,481	6,567	5,465	**8,638**
84	**2008**	5,778	7,764	7,116	7,846	7,735	7,391	6,698	12,270	14,620	10,137	8,025	5,662	**8,423**
85	**80 WY Average**	**5,995**	**7,758**	**8,841**	**9,991**	**9,571**	**9,403**	**9,304**	**11,364**	**11,233**	**9,574**	**7,743**	**6,401**	**8,929**
86	**Hours**	**744**	**721**	**744**	**744**	**672**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8,760**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Table 3:**												
2	**Heavy-Load Hydro Generation Ratios**												
3	**for FY 2018**												
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
5	**1929**	1.225	1.184	1.222	1.175	1.181	1.132	1.203	1.203	1.138	1.236	1.188	1.255
6	**1930**	1.228	1.189	1.228	1.150	1.174	1.135	1.202	1.215	1.153	1.264	1.196	1.261
7	**1931**	1.221	1.184	1.225	1.162	1.159	1.131	1.200	1.203	1.172	1.266	1.211	1.255
8	**1932**	1.220	1.181	1.221	1.140	1.149	1.103	1.127	1.090	1.067	1.192	1.224	1.267
9	**1933**	1.223	1.163	1.235	1.113	1.124	1.123	1.193	1.133	1.014	1.044	1.116	1.270
10	**1934**	1.249	1.173	1.086	1.021	1.035	1.040	1.098	1.078	1.060	1.195	1.222	1.269
11	**1935**	1.223	1.166	1.219	1.116	1.174	1.126	1.181	1.149	1.125	1.121	1.145	1.243
12	**1936**	1.225	1.190	1.225	1.161	1.182	1.127	1.191	1.113	1.069	1.238	1.197	1.253
13	**1937**	1.221	1.185	1.222	1.152	1.172	1.137	1.227	1.195	1.161	1.270	1.193	1.258
14	**1938**	1.226	1.176	1.229	1.212	1.165	1.124	1.121	1.066	1.112	1.169	1.210	1.265
15	**1939**	1.218	1.188	1.219	1.200	1.191	1.134	1.185	1.168	1.190	1.275	1.196	1.259
16	**1940**	1.219	1.180	1.215	1.202	1.182	1.120	1.205	1.179	1.179	1.263	1.191	1.255
17	**1941**	1.214	1.178	1.221	1.171	1.174	1.132	1.228	1.179	1.178	1.307	1.193	1.253
18	**1942**	1.209	1.177	1.221	1.199	1.216	1.137	1.212	1.175	1.122	1.146	1.184	1.249
19	**1943**	1.222	1.154	1.212	1.171	1.176	1.110	1.115	1.137	1.024	1.096	1.193	1.244
20	**1944**	1.218	1.181	1.212	1.172	1.189	1.135	1.195	1.220	1.139	1.287	1.191	1.251
21	**1945**	1.215	1.187	1.213	1.157	1.168	1.133	1.191	1.164	1.116	1.253	1.189	1.245
22	**1946**	1.213	1.176	1.218	1.197	1.184	1.119	1.119	1.038	1.104	1.094	1.213	1.256
23	**1947**	1.215	1.162	1.200	1.077	1.163	1.117	1.169	1.102	1.092	1.127	1.217	1.254
24	**1948**	1.250	1.172	1.235	1.126	1.204	1.130	1.155	1.030	0.993	1.077	1.105	1.259
25	**1949**	1.239	1.178	1.230	1.178	1.191	1.116	1.157	1.089	1.103	1.300	1.183	1.254
26	**1950**	1.217	1.178	1.217	1.076	1.108	1.122	1.151	1.112	1.001	1.036	1.116	1.260
27	**1951**	1.228	1.166	1.157	1.025	1.080	1.047	1.133	1.053	1.102	1.064	1.180	1.253
28	**1952**	1.244	1.176	1.239	1.098	1.179	1.115	1.099	1.038	1.110	1.151	1.214	1.241
29	**1953**	1.216	1.184	1.221	1.194	1.175	1.140	1.190	1.147	1.023	1.058	1.172	1.255
30	**1954**	1.234	1.171	1.240	1.090	1.159	1.102	1.170	1.079	0.997	1.030	1.051	1.269
31	**1955**	1.239	1.187	1.236	1.200	1.203	1.140	1.202	1.180	1.009	1.036	1.138	1.250
32	**1956**	1.241	1.172	1.186	1.071	1.073	1.075	1.091	1.030	1.002	1.059	1.134	1.253
33	**1957**	1.237	1.178	1.239	1.186	1.197	1.114	1.160	1.047	0.996	1.189	1.224	1.258
34	**1958**	1.210	1.182	1.208	1.164	1.200	1.133	1.185	1.094	1.028	1.225	1.221	1.253
35	**1959**	1.228	1.165	1.215	1.094	1.094	1.072	1.175	1.073	1.028	1.045	1.109	1.254
36	**1960**	1.226	1.174	1.183	1.147	1.193	1.147	1.118	1.170	1.082	1.123	1.198	1.256
37	**1961**	1.234	1.171	1.232	1.123	1.172	1.120	1.193	1.062	0.997	1.168	1.210	1.253
38	**1962**	1.216	1.178	1.230	1.201	1.207	1.133	1.105	1.121	1.121	1.195	1.225	1.247
39	**1963**	1.234	1.174	1.213	1.087	1.194	1.137	1.205	1.174	1.121	1.148	1.208	1.256
40	**1964**	1.211	1.168	1.231	1.211	1.207	1.131	1.175	1.143	1.001	1.045	1.125	1.253
41	**1965**	1.248	1.184	1.179	1.045	1.019	1.078	1.120	1.040	1.062	1.166	1.154	1.243
42	**1966**	1.230	1.181	1.230	1.215	1.210	1.145	1.163	1.199	1.129	1.131	1.159	1.249
43	**1967**	1.214	1.173	1.241	1.074	1.125	1.089	1.211	1.133	0.994	1.055	1.167	1.263
44	**1968**	1.226	1.177	1.232	1.108	1.194	1.144	1.203	1.205	1.061	1.107	1.144	1.247

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Table 3:**												
2	**Heavy-Load Hydro Generation Ratios**												
3	**for FY 2018**												
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
45	**1969**	1.240	1.173	1.226	1.103	1.044	1.094	1.099	1.043	1.059	1.130	1.230	1.257
46	**1970**	1.233	1.185	1.226	1.206	1.204	1.140	1.208	1.154	1.058	1.288	1.190	1.237
47	**1971**	1.202	1.164	1.221	1.073	1.030	1.102	1.135	1.034	1.005	1.055	1.088	1.259
48	**1972**	1.224	1.165	1.235	1.053	1.069	1.038	1.120	1.034	0.994	1.037	1.075	1.257
49	**1973**	1.222	1.174	1.238	1.214	1.188	1.139	1.199	1.188	1.148	1.299	1.205	1.246
50	**1974**	1.212	1.151	1.235	0.993	1.028	1.065	1.102	1.037	0.996	1.031	1.084	1.264
51	**1975**	1.212	1.182	1.216	1.178	1.187	1.134	1.196	1.077	1.032	1.056	1.177	1.254
52	**1976**	1.222	1.180	1.136	1.098	1.101	1.078	1.142	1.044	1.068	1.051	1.021	1.229
53	**1977**	1.228	1.179	1.215	1.176	1.189	1.143	1.196	1.218	1.168	1.302	1.190	1.229
54	**1978**	1.201	1.177	1.216	1.189	1.184	1.122	1.157	1.071	1.104	1.158	1.212	1.261
55	**1979**	1.239	1.184	1.226	1.206	1.187	1.149	1.194	1.152	1.173	1.269	1.190	1.258
56	**1980**	1.220	1.183	1.220	1.196	1.174	1.135	1.180	1.062	1.065	1.229	1.216	1.254
57	**1981**	1.216	1.176	1.196	1.049	1.094	1.135	1.203	1.155	1.008	1.060	1.101	1.263
58	**1982**	1.232	1.185	1.235	1.152	1.025	1.082	1.161	1.055	1.036	1.033	1.099	1.253
59	**1983**	1.229	1.179	1.247	1.106	1.102	1.077	1.168	1.125	1.080	1.064	1.139	1.258
60	**1984**	1.219	1.177	1.244	1.186	1.142	1.094	1.138	1.131	1.064	1.104	1.166	1.250
61	**1985**	1.217	1.157	1.233	1.202	1.198	1.135	1.163	1.150	1.155	1.299	1.196	1.242
62	**1986**	1.207	1.176	1.233	1.161	1.135	1.065	1.174	1.170	1.112	1.206	1.211	1.234
63	**1987**	1.203	1.166	1.229	1.205	1.185	1.152	1.252	1.125	1.164	1.290	1.177	1.247
64	**1988**	1.216	1.184	1.223	1.171	1.159	1.134	1.232	1.211	1.188	1.256	1.199	1.252
65	**1989**	1.219	1.180	1.219	1.175	1.170	1.112	1.131	1.150	1.159	1.311	1.182	1.247
66	**1990**	1.221	1.179	1.230	1.122	1.119	1.122	1.155	1.164	1.014	1.159	1.155	1.246
67	**1991**	1.218	1.180	1.201	1.070	1.160	1.101	1.168	1.122	1.070	1.045	1.127	1.252
68	**1992**	1.227	1.174	1.217	1.182	1.193	1.132	1.210	1.199	1.197	1.290	1.185	1.240
69	**1993**	1.228	1.190	1.233	1.161	1.161	1.142	1.190	1.151	1.151	1.280	1.183	1.242
70	**1994**	1.224	1.187	1.222	1.165	1.179	1.135	1.241	1.182	1.164	1.312	1.188	1.253
71	**1995**	1.224	1.186	1.221	1.195	1.177	1.142	1.198	1.178	1.076	1.248	1.211	1.259
72	**1996**	1.238	1.161	1.063	1.025	1.052	1.033	1.105	1.056	1.064	1.050	1.136	1.255
73	**1997**	1.232	1.165	1.243	1.017	1.007	1.047	1.081	1.028	0.990	1.043	1.108	1.253
74	**1998**	1.241	1.182	1.231	1.216	1.211	1.143	1.212	1.092	1.049	1.168	1.190	1.233
75	**1999**	1.210	1.158	1.245	1.074	1.079	1.085	1.156	1.132	1.032	1.038	1.075	1.270
76	**2000**	1.223	1.176	1.193	1.160	1.201	1.134	1.106	1.113	1.152	1.148	1.190	1.243
77	**2001**	1.215	1.182	1.216	1.171	1.186	1.134	1.198	1.212	1.145	1.306	1.193	1.236
78	**2002**	1.188	1.189	1.218	1.170	1.165	1.127	1.157	1.166	1.010	1.085	1.218	1.259
79	**2003**	1.226	1.189	1.226	1.169	1.160	1.141	1.235	1.183	1.091	1.311	1.184	1.240
80	**2004**	1.222	1.183	1.219	1.198	1.170	1.141	1.238	1.186	1.163	1.290	1.185	1.248
81	**2005**	1.239	1.187	1.239	1.200	1.202	1.143	1.240	1.173	1.156	1.227	1.192	1.245
82	**2006**	1.209	1.184	1.225	1.155	1.128	1.121	1.133	1.091	1.016	1.173	1.216	1.241
83	**2007**	1.223	1.163	1.226	1.172	1.186	1.134	1.193	1.162	1.108	1.146	1.210	1.237
84	**2008**	1.227	1.180	1.209	1.189	1.199	1.133	1.199	1.122	0.997	1.150	1.211	1.237

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Table 4:**												
2	**Heavy-Load Hydro Generation Ratios**												
3	**for FY 2019**												
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
5	**1929**	1.183	1.190	1.228	1.175	1.184	1.192	1.160	1.176	1.203	1.186	1.191	1.261
6	**1930**	1.187	1.199	1.233	1.157	1.179	1.196	1.158	1.186	1.215	1.265	1.201	1.265
7	**1931**	1.180	1.193	1.233	1.162	1.167	1.194	1.157	1.185	1.239	1.263	1.216	1.260
8	**1932**	1.180	1.187	1.230	1.140	1.153	1.161	1.081	1.066	1.117	1.195	1.231	1.274
9	**1933**	1.182	1.166	1.243	1.126	1.150	1.187	1.149	1.107	1.053	1.004	1.129	1.275
10	**1934**	1.207	1.165	1.068	1.021	1.047	1.064	1.050	1.075	1.083	1.203	1.226	1.275
11	**1935**	1.182	1.168	1.226	1.128	1.195	1.187	1.138	1.128	1.194	1.103	1.156	1.249
12	**1936**	1.184	1.197	1.229	1.160	1.185	1.185	1.147	1.089	1.111	1.241	1.200	1.260
13	**1937**	1.180	1.196	1.231	1.156	1.174	1.198	1.182	1.173	1.227	1.220	1.196	1.265
14	**1938**	1.185	1.185	1.236	1.212	1.165	1.186	1.072	1.054	1.169	1.170	1.214	1.270
15	**1939**	1.177	1.194	1.227	1.200	1.195	1.190	1.143	1.151	1.261	1.268	1.200	1.265
16	**1940**	1.178	1.189	1.221	1.203	1.186	1.182	1.161	1.162	1.248	1.268	1.194	1.261
17	**1941**	1.172	1.188	1.228	1.171	1.176	1.192	1.183	1.164	1.246	1.266	1.197	1.259
18	**1942**	1.168	1.188	1.231	1.199	1.221	1.201	1.169	1.157	1.185	1.143	1.185	1.256
19	**1943**	1.181	1.157	1.220	1.170	1.178	1.171	1.070	1.117	1.050	1.069	1.203	1.250
20	**1944**	1.177	1.188	1.218	1.172	1.192	1.196	1.149	1.193	1.200	1.235	1.196	1.258
21	**1945**	1.174	1.194	1.221	1.163	1.173	1.197	1.147	1.144	1.172	1.205	1.192	1.252
22	**1946**	1.172	1.184	1.225	1.200	1.187	1.181	1.070	0.999	1.148	1.086	1.219	1.263
23	**1947**	1.173	1.171	1.184	1.076	1.180	1.175	1.130	1.078	1.137	1.107	1.225	1.259
24	**1948**	1.213	1.181	1.232	1.123	1.216	1.192	1.109	0.990	1.030	1.071	1.117	1.267
25	**1949**	1.196	1.183	1.237	1.178	1.195	1.177	1.111	1.062	1.149	1.249	1.187	1.261
26	**1950**	1.176	1.183	1.223	1.083	1.125	1.179	1.114	1.084	1.040	0.993	1.128	1.267
27	**1951**	1.189	1.173	1.137	1.020	1.107	1.066	1.090	1.035	1.148	1.039	1.210	1.259
28	**1952**	1.205	1.186	1.235	1.098	1.201	1.179	1.056	1.000	1.159	1.143	1.222	1.245
29	**1953**	1.175	1.188	1.225	1.196	1.179	1.200	1.145	1.126	1.051	1.032	1.200	1.261
30	**1954**	1.192	1.179	1.246	1.093	1.179	1.160	1.130	1.065	1.037	0.988	1.066	1.279
31	**1955**	1.196	1.197	1.240	1.200	1.209	1.201	1.158	1.164	1.046	0.999	1.145	1.256
32	**1956**	1.201	1.181	1.161	1.067	1.089	1.124	1.053	0.991	1.043	1.035	1.161	1.259
33	**1957**	1.195	1.183	1.244	1.185	1.201	1.172	1.120	1.028	1.039	1.191	1.228	1.264
34	**1958**	1.169	1.190	1.213	1.164	1.204	1.198	1.143	1.073	1.053	1.229	1.228	1.259
35	**1959**	1.187	1.175	1.198	1.087	1.115	1.129	1.134	1.065	1.070	1.007	1.121	1.263
36	**1960**	1.186	1.167	1.164	1.147	1.216	1.205	1.065	1.155	1.128	1.104	1.207	1.264
37	**1961**	1.192	1.179	1.240	1.122	1.193	1.153	1.152	1.025	1.038	1.170	1.217	1.260
38	**1962**	1.176	1.183	1.238	1.201	1.213	1.189	1.065	1.099	1.180	1.199	1.231	1.252
39	**1963**	1.194	1.184	1.195	1.087	1.199	1.200	1.160	1.152	1.183	1.142	1.206	1.262
40	**1964**	1.170	1.173	1.238	1.211	1.211	1.188	1.133	1.123	1.039	1.007	1.140	1.263
41	**1965**	1.207	1.194	1.163	1.047	1.044	1.120	1.073	1.001	1.120	1.163	1.170	1.249
42	**1966**	1.187	1.189	1.237	1.218	1.216	1.205	1.122	1.183	1.175	1.110	1.167	1.254
43	**1967**	1.173	1.177	1.248	1.079	1.135	1.147	1.168	1.109	1.034	1.023	1.196	1.268
44	**1968**	1.184	1.188	1.240	1.110	1.201	1.196	1.159	1.188	1.109	1.098	1.151	1.258

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Table 4:**												
2	**Heavy-Load Hydro Generation Ratios**												
3	**for FY 2019**												
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
45	**1969**	1.200	1.182	1.220	1.100	1.058	1.152	1.060	1.022	1.107	1.109	1.234	1.263
46	**1970**	1.191	1.192	1.232	1.206	1.211	1.200	1.164	1.137	1.100	1.238	1.194	1.241
47	**1971**	1.162	1.171	1.228	1.077	1.057	1.146	1.086	0.996	1.043	1.026	1.120	1.267
48	**1972**	1.184	1.172	1.242	1.053	1.079	1.060	1.071	0.995	1.032	1.002	1.086	1.264
49	**1973**	1.181	1.181	1.244	1.215	1.193	1.200	1.154	1.170	1.212	1.263	1.202	1.253
50	**1974**	1.171	1.162	1.237	1.005	1.035	1.085	1.059	0.998	1.035	0.990	1.097	1.270
51	**1975**	1.171	1.188	1.222	1.177	1.204	1.193	1.152	1.064	1.074	1.029	1.202	1.263
52	**1976**	1.181	1.184	1.120	1.091	1.128	1.126	1.097	1.018	1.113	1.018	1.032	1.269
53	**1977**	1.186	1.186	1.221	1.175	1.193	1.204	1.152	1.191	1.230	1.255	1.197	1.232
54	**1978**	1.161	1.185	1.224	1.190	1.183	1.182	1.119	1.058	1.166	1.158	1.216	1.271
55	**1979**	1.197	1.191	1.231	1.208	1.192	1.210	1.150	1.131	1.237	1.220	1.194	1.264
56	**1980**	1.179	1.191	1.224	1.198	1.179	1.193	1.131	1.050	1.116	1.232	1.220	1.260
57	**1981**	1.175	1.183	1.178	1.048	1.112	1.201	1.161	1.135	1.048	1.033	1.113	1.267
58	**1982**	1.190	1.195	1.243	1.150	1.051	1.104	1.122	1.044	1.080	1.001	1.115	1.265
59	**1983**	1.188	1.189	1.251	1.102	1.121	1.120	1.130	1.100	1.133	1.042	1.164	1.265
60	**1984**	1.177	1.175	1.244	1.184	1.168	1.142	1.096	1.107	1.113	1.085	1.177	1.259
61	**1985**	1.176	1.168	1.241	1.204	1.204	1.194	1.123	1.129	1.223	1.278	1.202	1.249
62	**1986**	1.166	1.186	1.240	1.158	1.142	1.099	1.129	1.146	1.174	1.210	1.207	1.239
63	**1987**	1.162	1.176	1.237	1.206	1.191	1.213	1.207	1.106	1.206	1.240	1.181	1.251
64	**1988**	1.175	1.194	1.228	1.170	1.165	1.193	1.191	1.192	1.254	1.259	1.203	1.256
65	**1989**	1.179	1.189	1.225	1.175	1.174	1.170	1.085	1.130	1.222	1.264	1.187	1.254
66	**1990**	1.180	1.188	1.235	1.123	1.145	1.185	1.113	1.142	1.056	1.158	1.166	1.253
67	**1991**	1.176	1.186	1.183	1.071	1.175	1.138	1.127	1.103	1.119	1.006	1.141	1.258
68	**1992**	1.185	1.179	1.221	1.183	1.199	1.197	1.165	1.181	1.265	1.236	1.189	1.246
69	**1993**	1.186	1.199	1.240	1.160	1.167	1.197	1.148	1.123	1.213	1.231	1.185	1.247
70	**1994**	1.183	1.195	1.230	1.170	1.183	1.196	1.196	1.165	1.206	1.270	1.191	1.258
71	**1995**	1.183	1.189	1.226	1.194	1.180	1.200	1.155	1.153	1.117	1.238	1.215	1.266
72	**1996**	1.196	1.153	1.056	1.027	1.071	1.058	1.062	1.044	1.119	1.014	1.149	1.261
73	**1997**	1.191	1.174	1.241	1.028	1.022	1.072	1.042	0.988	1.029	1.005	1.124	1.265
74	**1998**	1.205	1.193	1.240	1.218	1.216	1.205	1.168	1.070	1.091	1.169	1.200	1.237
75	**1999**	1.170	1.162	1.245	1.070	1.089	1.128	1.117	1.113	1.073	1.002	1.088	1.280
76	**2000**	1.182	1.169	1.174	1.159	1.218	1.192	1.063	1.093	1.220	1.133	1.191	1.248
77	**2001**	1.175	1.189	1.222	1.170	1.191	1.193	1.150	1.188	1.201	1.257	1.197	1.240
78	**2002**	1.149	1.198	1.224	1.170	1.169	1.185	1.109	1.150	1.050	1.077	1.222	1.265
79	**2003**	1.184	1.198	1.233	1.169	1.166	1.201	1.190	1.163	1.139	1.267	1.188	1.245
80	**2004**	1.181	1.193	1.226	1.200	1.175	1.203	1.197	1.167	1.231	1.267	1.189	1.257
81	**2005**	1.197	1.195	1.242	1.202	1.218	1.204	1.194	1.151	1.203	1.231	1.193	1.250
82	**2006**	1.169	1.191	1.232	1.153	1.154	1.186	1.089	1.068	1.056	1.175	1.221	1.245
83	**2007**	1.182	1.175	1.233	1.169	1.210	1.193	1.150	1.144	1.151	1.132	1.214	1.241
84	**2008**	1.185	1.191	1.214	1.190	1.204	1.191	1.154	1.098	1.039	1.147	1.220	1.242

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 5:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	87	248	242	199	211	102	185	447	54	40	51	47	**160**
6	**1930**	87	195	243	132	143	68	157	377	36	188	63	42	**146**
7	**1931**	87	210	198	181	52	36	42	423	39	286	99	48	**145**
8	**1932**	87	245	245	26	25	49	149	174	78	528	259	37	**162**
9	**1933**	88	118	74	130	239	153	215	179	67	-72	80	42	**107**
10	**1934**	150	56	41	-75	-137	31	116	167	47	539	47	46	**90**
11	**1935**	87	114	234	81	68	200	176	187	270	48	447	43	**161**
12	**1936**	87	228	251	57	184	71	161	175	68	330	43	54	**144**
13	**1937**	87	199	233	120	135	71	56	433	65	41	51	49	**129**
14	**1938**	87	244	185	77	63	171	328	176	217	346	41	42	**166**
15	**1939**	87	250	201	152	181	66	222	309	173	90	51	46	**152**
16	**1940**	87	201	235	88	204	143	187	370	159	272	52	48	**171**
17	**1941**	87	227	197	207	167	112	139	314	63	39	51	45	**137**
18	**1942**	87	184	189	65	107	178	95	370	248	250	138	33	**162**
19	**1943**	88	137	100	60	160	163	120	244	66	55	152	47	**115**
20	**1944**	88	255	191	186	183	68	98	268	33	45	51	54	**127**
21	**1945**	88	221	218	68	33	31	46	357	245	43	49	44	**121**
22	**1946**	87	251	210	125	150	116	244	169	86	36	368	49	**157**
23	**1947**	87	212	86	82	65	132	232	164	77	63	124	59	**115**
24	**1948**	105	102	43	183	79	171	362	174	178	0	80	34	**125**
25	**1949**	86	211	156	108	214	157	338	260	124	44	46	45	**148**
26	**1950**	88	207	197	84	178	176	415	165	68	-55	77	44	**136**
27	**1951**	108	104	206	-43	248	58	147	176	86	-86	363	58	**116**
28	**1952**	202	197	46	129	62	158	332	176	312	153	44	45	**154**
29	**1953**	87	255	207	168	174	202	212	169	82	-88	541	54	**169**
30	**1954**	87	248	98	88	71	233	224	178	65	-62	63	257	**129**
31	**1955**	85	131	56	123	150	145	159	365	68	-76	260	42	**124**
32	**1956**	101	116	282	11	-22	281	287	176	61	-86	24	39	**106**
33	**1957**	84	203	103	76	156	57	210	173	33	550	43	49	**147**
34	**1958**	88	247	150	112	133	160	251	259	29	397	63	45	**163**
35	**1959**	87	198	36	149	230	100	445	170	72	-79	84	399	**156**
36	**1960**	128	29	268	158	66	183	119	349	75	49	95	62	**133**
37	**1961**	87	253	129	113	76	185	224	177	67	329	180	60	**158**
38	**1962**	86	260	188	69	98	159	115	175	213	577	130	43	**178**
39	**1963**	83	170	141	89	128	174	157	402	234	208	100	44	**161**
40	**1964**	87	225	138	117	138	231	257	319	302	-81	79	34	**151**
41	**1965**	163	207	157	45	-6	28	302	167	248	399	148	43	**161**
42	**1966**	85	252	113	67	87	230	118	401	102	58	408	60	**164**
43	**1967**	87	224	93	79	175	99	113	215	74	-86	316	44	**117**
44	**1968**	87	234	127	86	123	152	147	442	73	50	376	26	**159**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 5:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	157	105	59	135	-133	314	120	175	74	59	52	57	**99**
46	**1970**	86	234	218	75	127	169	250	325	104	38	47	42	**143**
47	**1971**	87	189	203	18	73	253	260	173	176	-86	76	48	**121**
48	**1972**	86	231	110	44	52	38	118	167	199	-79	73	39	**89**
49	**1973**	85	225	141	69	160	227	106	381	30	40	51	55	**131**
50	**1974**	87	91	135	-78	-24	44	173	228	61	-67	74	39	**64**
51	**1975**	86	258	212	70	68	196	137	168	175	-88	405	32	**141**
52	**1976**	87	72	89	225	244	134	356	176	77	-82	63	341	**147**
53	**1977**	86	248	249	178	152	177	79	504	27	41	119	42	**159**
54	**1978**	82	251	134	130	138	95	399	168	85	329	50	25	**158**
55	**1979**	132	245	249	84	186	190	178	272	203	41	51	48	**156**
56	**1980**	87	237	179	157	217	85	259	170	82	444	43	50	**169**
57	**1981**	87	253	231	102	236	172	72	302	38	-84	79	44	**126**
58	**1982**	88	222	137	170	25	53	257	169	78	-83	81	24	**102**
59	**1983**	82	239	108	85	224	160	246	353	218	-88	252	37	**156**
60	**1984**	86	64	93	59	59	119	327	365	285	50	335	43	**156**
61	**1985**	86	188	146	81	159	144	175	368	252	50	51	36	**143**
62	**1986**	87	113	113	178	187	226	193	392	233	527	43	47	**196**
63	**1987**	86	215	132	95	244	166	169	258	237	40	47	56	**143**
64	**1988**	87	219	172	191	47	133	74	427	36	253	51	51	**147**
65	**1989**	87	214	203	190	127	47	251	300	262	45	51	46	**152**
66	**1990**	87	244	47	79	247	191	412	231	74	245	358	44	**186**
67	**1991**	87	72	173	80	60	110	383	169	73	-80	74	35	**103**
68	**1992**	87	214	118	172	187	153	54	428	70	42	50	60	**136**
69	**1993**	108	204	216	158	26	66	134	513	247	38	50	41	**151**
70	**1994**	87	195	188	75	180	60	112	268	295	39	51	47	**132**
71	**1995**	86	261	242	126	166	161	74	585	84	65	50	40	**162**
72	**1996**	107	52	-16	-23	240	67	115	176	322	-83	106	57	**89**
73	**1997**	87	243	96	9	-120	42	117	263	63	-81	78	23	**69**
74	**1998**	100	108	128	66	130	211	222	205	70	380	93	49	**148**
75	**1999**	87	141	98	29	56	244	403	336	77	-77	73	30	**124**
76	**2000**	87	60	254	161	115	198	121	168	212	84	47	43	**129**
77	**2001**	88	255	215	202	187	108	72	601	33	39	51	42	**158**
78	**2002**	84	229	235	220	112	104	251	295	58	7	42	51	**141**
79	**2003**	87	210	217	211	88	216	212	322	81	42	48	43	**149**
80	**2004**	88	181	177	125	186	159	122	400	152	41	51	33	**142**
81	**2005**	109	245	41	69	33	230	122	327	233	412	51	53	**162**
82	**2006**	87	245	113	63	103	159	329	255	21	372	43	42	**155**
83	**2007**	87	176	198	116	82	136	301	336	87	77	51	43	**142**
84	**2008**	87	205	164	157	175	84	54	370	32	273	398	46	**171**
85	**80 WY Average**	**93**	**194**	**159**	**104**	**120**	**139**	**196**	**281**	**123**	**105**	**120**	**55**	**141**
86	**Hours**	**328**	**321**	**344**	**328**	**288**	**311**	**320**	**328**	**304**	**344**	**312**	**336**	**3,864**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 6:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	-80	-213	-234	-179	-176	-89	-168	-371	-63	-66	-43	-57	**-144**
6	**1930**	-81	-168	-246	-117	-123	-65	-150	-319	-49	-179	-61	-57	**-134**
7	**1931**	-81	-178	-188	-157	-54	-42	-58	-351	-51	-257	-87	-58	**-130**
8	**1932**	-81	-207	-235	-40	-50	-62	-127	-124	-39	-456	-204	-45	**-139**
9	**1933**	-80	-112	-86	-117	-189	-123	-195	-136	-47	-229	-52	-50	**-117**
10	**1934**	-130	-64	-189	-337	-427	-172	-89	-129	-58	-475	-38	-56	**-179**
11	**1935**	-80	-108	-233	-68	-62	-157	-164	-139	-211	-4	-346	-46	**-137**
12	**1936**	-80	-197	-247	-63	-152	-67	-148	-129	-10	-317	-49	-56	**-125**
13	**1937**	-81	-169	-223	-113	-126	-72	-66	-364	-67	-51	-52	-55	**-120**
14	**1938**	-81	-208	-186	-71	-61	-144	-273	-125	-181	-283	-47	-52	**-142**
15	**1939**	-81	-216	-196	-135	-154	-64	-204	-253	-153	-106	-51	-53	**-138**
16	**1940**	-80	-172	-234	-91	-164	-115	-176	-305	-144	-261	-42	-55	**-153**
17	**1941**	-75	-196	-196	-178	-139	-98	-131	-255	-67	-59	-54	-52	**-125**
18	**1942**	-82	-165	-192	-67	-97	-143	-91	-312	-208	-186	-117	-45	**-143**
19	**1943**	-80	-126	-107	-65	-140	-130	-85	-200	-16	-11	-126	-57	**-96**
20	**1944**	-80	-225	-189	-158	-156	-64	-92	-233	-47	-58	-56	-59	**-118**
21	**1945**	-80	-190	-212	-73	-40	-38	-65	-294	-204	-59	-40	-47	**-112**
22	**1946**	-71	-229	-215	-114	-130	-94	-204	-129	-54	-52	-290	-51	**-137**
23	**1947**	-90	-188	-96	-60	-62	-118	-208	-134	-45	-4	-105	-56	**-97**
24	**1948**	-92	-101	-69	-161	-75	-138	-312	-127	-124	-108	-44	-44	**-117**
25	**1949**	-78	-191	-155	-97	-174	-120	-288	-227	-92	-68	-52	-58	**-133**
26	**1950**	-78	-185	-207	-53	-151	-136	-353	-137	-44	-207	-52	-50	**-137**
27	**1951**	-95	-102	-192	-279	-255	-155	-114	-125	-47	-255	-285	-53	**-164**
28	**1952**	-166	-171	-72	-121	-61	-131	-277	-129	-243	-100	-52	-58	**-132**
29	**1953**	-72	-221	-205	-144	-156	-154	-194	-134	-28	-259	-409	-55	**-170**
30	**1954**	-80	-218	-103	-66	-60	-181	-202	-124	-18	-211	-12	-239	**-125**
31	**1955**	-78	-120	-78	-115	-123	-124	-147	-308	-10	-236	-173	-46	**-130**
32	**1956**	-88	-108	-258	-171	-203	-364	-253	-125	-35	-255	6	-53	**-159**
33	**1957**	-79	-182	-102	-74	-136	-59	-196	-123	-80	-474	-49	-55	**-133**
34	**1958**	-79	-213	-155	-105	-129	-133	-219	-221	-85	-358	-62	-48	**-150**
35	**1959**	-79	-170	-56	-138	-158	-73	-371	-129	-35	-245	-49	-358	**-152**
36	**1960**	-116	-46	-247	-135	-63	-142	-88	-282	-48	-14	-86	-56	**-111**
37	**1961**	-80	-226	-126	-108	-62	-141	-201	-124	-13	-264	-147	-55	**-129**
38	**1962**	-76	-233	-184	-76	-83	-129	-85	-124	-168	-499	-112	-49	**-151**
39	**1963**	-76	-147	-145	-70	-113	-135	-147	-340	-201	-149	-91	-53	**-139**
40	**1964**	-73	-198	-136	-113	-117	-179	-225	-265	-214	-243	-54	-45	**-155**
41	**1965**	-143	-177	-159	-154	-414	-180	-264	-134	-201	-333	-67	-56	**-189**
42	**1966**	-78	-225	-113	-89	-79	-175	-84	-331	-59	-4	-320	-58	**-137**
43	**1967**	-81	-199	-104	-50	-147	-77	-109	-157	-27	-262	-216	-54	**-124**
44	**1968**	-80	-208	-125	-81	-101	-129	-150	-376	-54	-4	-262	-32	**-135**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 6:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	-138	-103	-77	-110	-375	-236	-91	-124	-38	-4	-54	-59	**-117**
46	**1970**	-79	-201	-215	-91	-121	-133	-221	-273	-69	-57	-50	-54	**-130**
47	**1971**	-78	-171	-197	-157	-245	-289	-222	-125	-115	-255	-41	-53	**-162**
48	**1972**	-81	-201	-112	-68	-109	-174	-85	-131	-170	-241	-31	-46	**-121**
49	**1973**	-79	-202	-142	-72	-133	-181	-99	-316	-38	-58	-43	-56	**-118**
50	**1974**	-83	-91	-142	-341	-264	-172	-133	-168	-59	-220	-39	-50	**-147**
51	**1975**	-79	-223	-209	-65	-67	-151	-137	-131	-152	-258	-306	-48	**-153**
52	**1976**	-79	-76	-68	-203	-173	-135	-299	-125	-48	-247	-10	-293	**-144**
53	**1977**	-78	-209	-244	-150	-129	-143	-80	-414	-42	-49	-106	-46	**-141**
54	**1978**	-78	-218	-141	-120	-124	-81	-329	-132	-85	-256	-43	-44	**-136**
55	**1979**	-115	-207	-241	-83	-167	-150	-167	-237	-173	-45	-43	-54	**-140**
56	**1980**	-79	-204	-178	-139	-178	-77	-229	-121	-39	-402	-42	-55	**-144**
57	**1981**	-81	-229	-223	-36	-161	-135	-75	-243	-71	-251	-45	-53	**-133**
58	**1982**	-82	-192	-140	-152	-153	-162	-227	-129	-48	-258	-44	-29	**-134**
59	**1983**	-76	-210	-117	-82	-229	-267	-220	-291	-183	-265	-171	-47	**-180**
60	**1984**	-71	-67	-106	-70	-61	-104	-270	-303	-227	-13	-262	-48	**-135**
61	**1985**	-79	-172	-147	-89	-136	-113	-160	-302	-206	-67	-52	-50	**-131**
62	**1986**	-90	-103	-114	-162	-172	-334	-172	-326	-198	-462	-49	-57	**-187**
63	**1987**	-86	-189	-131	-107	-210	-132	-157	-217	-173	-65	-55	-56	**-131**
64	**1988**	-82	-189	-172	-162	-47	-110	-75	-355	-47	-228	-57	-56	**-132**
65	**1989**	-79	-186	-196	-169	-106	-50	-218	-248	-211	-55	-44	-57	**-135**
66	**1990**	-80	-228	-68	-69	-203	-156	-353	-169	-25	-184	-247	-45	**-152**
67	**1991**	-77	-77	-174	-55	-61	-73	-328	-124	-53	-242	-55	-45	**-113**
68	**1992**	-80	-189	-125	-146	-160	-140	-64	-358	-73	-59	-47	-56	**-125**
69	**1993**	-97	-175	-211	-139	-37	-62	-133	-431	-198	-56	-45	-48	**-137**
70	**1994**	-81	-167	-180	-79	-145	-60	-115	-234	-230	-57	-43	-57	**-120**
71	**1995**	-79	-234	-241	-111	-142	-134	-76	-474	-48	-82	-48	-51	**-143**
72	**1996**	-96	-62	-318	-242	-268	-168	-91	-123	-258	-247	-66	-56	**-166**
73	**1997**	-80	-210	-110	-154	-421	-171	-88	-225	-21	-245	-46	-31	**-149**
74	**1998**	-85	-105	-134	-82	-123	-162	-192	-160	-36	-317	-86	-54	**-128**
75	**1999**	-86	-130	-101	-139	-99	-332	-337	-276	-43	-238	-29	-44	**-155**
76	**2000**	-80	-68	-240	-145	-97	-153	-84	-130	-178	-41	-53	-54	**-111**
77	**2001**	-77	-227	-211	-175	-160	-94	-76	-497	-56	-60	-52	-46	**-144**
78	**2002**	-80	-196	-228	-193	-98	-93	-220	-249	-38	-96	-48	-55	**-133**
79	**2003**	-78	-179	-209	-181	-80	-165	-189	-275	-48	-49	-51	-50	**-130**
80	**2004**	-78	-156	-170	-116	-153	-131	-126	-334	-127	-56	-50	-45	**-129**
81	**2005**	-95	-217	-68	-73	-45	-173	-119	-278	-186	-385	-54	-59	**-146**
82	**2006**	-78	-210	-113	-66	-98	-126	-276	-231	-101	-307	-40	-48	**-141**
83	**2007**	-82	-158	-194	-108	-69	-114	-256	-274	-55	-30	-45	-50	**-120**
84	**2008**	-78	-178	-168	-142	-152	-78	-61	-305	-80	-201	-315	-53	**-152**
85	**80 WY Average**	**-85**	**-172**	**-166**	**-121**	**-142**	**-135**	**-173**	**-227**	**-97**	**-180**	**-93**	**-61**	**-137**
86	**Hours**	**416**	**400**	**400**	**416**	**384**	**432**	**400**	**416**	**416**	**400**	**432**	**384**	**4,896**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 7:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Flat Energy for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	-6	-8	-14	-12	-10	-9	-11	-10	-14	-17	-4	-9	**-10**
6	**1930**	-7	-6	-20	-7	-9	-9	-13	-12	-13	-10	-9	-10	**-10**
7	**1931**	-7	-5	-10	-8	-9	-10	-13	-10	-13	-6	-9	-8	**-9**
8	**1932**	-7	-6	-13	-11	-18	-15	-4	7	10	-1	-10	-7	**-6**
9	**1933**	-6	-10	-12	-8	-6	-8	-13	3	1	-156	3	-7	**-18**
10	**1934**	-7	-11	-83	-221	-302	-87	2	2	-14	-6	-2	-8	**-60**
11	**1935**	-7	-9	-17	-3	-7	-8	-13	5	-8	20	-13	-5	**-5**
12	**1936**	-6	-7	-17	-10	-8	-9	-10	5	23	-18	-10	-5	**-6**
13	**1937**	-7	-6	-12	-10	-14	-12	-12	-12	-11	-8	-9	-6	**-10**
14	**1938**	-7	-7	-14	-6	-8	-12	-6	8	-13	8	-10	-8	**-6**
15	**1939**	-7	-9	-12	-9	-11	-10	-15	-5	-15	-15	-8	-7	**-10**
16	**1940**	-6	-6	-17	-12	-7	-7	-15	-8	-16	-15	-3	-7	**-10**
17	**1941**	-3	-8	-14	-8	-8	-10	-11	-4	-12	-14	-10	-7	**-9**
18	**1942**	-7	-9	-16	-9	-10	-9	-8	-11	-15	16	-10	-8	**-8**
19	**1943**	-6	-9	-11	-10	-12	-7	6	-4	18	19	-9	-8	**-3**
20	**1944**	-6	-12	-13	-7	-11	-9	-8	-12	-13	-10	-11	-6	**-10**
21	**1945**	-6	-7	-13	-11	-9	-9	-16	-7	-15	-12	-3	-4	**-9**
22	**1946**	-2	-15	-19	-9	-10	-6	-5	2	5	-11	-14	-4	**-7**
23	**1947**	-12	-10	-12	3	-8	-13	-12	-2	7	27	-9	-2	**-4**
24	**1948**	-5	-10	-17	-9	-9	-9	-13	6	4	-58	8	-8	**-10**
25	**1949**	-6	-12	-11	-7	-8	-4	-9	-12	-1	-16	-11	-10	**-9**
26	**1950**	-5	-11	-20	7	-10	-5	-12	-4	3	-137	2	-6	**-17**
27	**1951**	-5	-10	-8	-175	-40	-66	2	8	9	-177	-13	-1	**-40**
28	**1952**	-4	-7	-17	-11	-8	-10	-6	6	-9	17	-12	-10	**-6**
29	**1953**	-2	-9	-14	-6	-15	-5	-13	0	18	-180	-10	-4	**-20**
30	**1954**	-7	-10	-10	2	-4	-8	-13	9	17	-142	20	-7	**-13**
31	**1955**	-6	-8	-16	-10	-6	-11	-11	-11	23	-162	9	-5	**-18**
32	**1956**	-5	-8	-8	-91	-126	-94	-13	7	5	-177	13	-10	**-42**
33	**1957**	-7	-10	-7	-8	-11	-10	-16	8	-32	0	-10	-6	**-9**
34	**1958**	-5	-8	-14	-9	-17	-11	-10	-10	-37	-9	-10	-5	**-12**
35	**1959**	-6	-7	-14	-12	8	0	-9	3	10	-168	7	-5	**-16**
36	**1960**	-9	-12	-9	-6	-7	-6	4	-4	4	15	-10	-1	**-3**
37	**1961**	-6	-13	-8	-11	-3	-5	-12	8	21	10	-10	-1	**-2**
38	**1962**	-4	-13	-12	-12	-5	-9	4	7	-7	-2	-11	-6	**-6**
39	**1963**	-6	-6	-13	0	-10	-6	-12	-13	-17	16	-11	-8	**-7**
40	**1964**	-3	-10	-9	-11	-8	-7	-11	-8	4	-168	2	-8	**-20**
41	**1965**	-8	-6	-13	-66	-239	-93	-13	-1	-11	5	23	-9	**-34**
42	**1966**	-6	-13	-9	-20	-8	-6	6	-8	9	25	-15	-3	**-4**
43	**1967**	-7	-11	-13	7	-9	-3	-10	7	16	-181	7	-8	**-17**
44	**1968**	-6	-11	-8	-7	-5	-11	-18	-15	0	21	6	-5	**-5**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 7:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Flat Energy for FY 2018**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	-8	-10	-14	-2	-271	-6	3	8	9	25	-9	-5	**-22**
46	**1970**	-6	-8	-15	-18	-15	-7	-11	-9	4	-13	-10	-9	**-10**
47	**1971**	-5	-11	-12	-80	-109	-62	-8	6	8	-177	8	-6	**-37**
48	**1972**	-7	-9	-10	-19	-40	-85	5	0	-14	-166	13	-6	**-28**
49	**1973**	-7	-12	-11	-10	-8	-10	-8	-9	-9	-12	-3	-4	**-9**
50	**1974**	-8	-10	-14	-225	-161	-81	3	6	-8	-149	8	-9	**-54**
51	**1975**	-6	-9	-14	-5	-9	-6	-15	1	-14	-180	-8	-11	**-23**
52	**1976**	-6	-10	5	-14	6	-22	-8	8	5	-171	21	3	**-16**
53	**1977**	-6	-6	-16	-5	-9	-9	-9	-9	-13	-7	-12	-5	**-9**
54	**1978**	-7	-9	-14	-10	-11	-7	-6	1	-13	14	-4	-11	**-6**
55	**1979**	-6	-6	-15	-9	-16	-7	-14	-13	-14	-5	-4	-6	**-9**
56	**1980**	-6	-8	-13	-9	-9	-9	-12	7	12	-11	-6	-6	**-6**
57	**1981**	-7	-15	-13	25	9	-6	-10	-2	-25	-174	7	-8	**-18**
58	**1982**	-7	-8	-12	-10	-76	-72	-12	2	5	-177	9	-4	**-30**
59	**1983**	-7	-10	-13	-9	-35	-88	-13	-7	-14	-184	6	-8	**-32**
60	**1984**	-2	-9	-14	-13	-10	-11	-5	-8	-11	16	-12	-5	**-7**
61	**1985**	-6	-12	-12	-14	-10	-5	-11	-7	-13	-13	-9	-10	**-10**
62	**1986**	-12	-7	-9	-12	-18	-100	-9	-9	-16	-5	-11	-8	**-18**
63	**1987**	-10	-9	-9	-18	-16	-7	-12	-8	0	-16	-12	-4	**-10**
64	**1988**	-7	-7	-13	-7	-7	-8	-9	-10	-12	-6	-12	-6	**-9**
65	**1989**	-6	-8	-12	-11	-6	-9	-9	-6	-11	-9	-4	-9	**-8**
66	**1990**	-7	-18	-15	-4	-10	-11	-13	7	17	14	7	-4	**-3**
67	**1991**	-4	-11	-13	4	-9	3	-12	5	0	-167	-1	-7	**-18**
68	**1992**	-6	-9	-13	-6	-12	-17	-11	-11	-13	-13	-7	-2	**-10**
69	**1993**	-7	-6	-14	-8	-10	-8	-14	-15	-10	-13	-5	-7	**-10**
70	**1994**	-7	-6	-10	-11	-6	-10	-14	-13	-8	-13	-3	-8	**-9**
71	**1995**	-6	-13	-18	-7	-10	-10	-9	-7	8	-14	-7	-8	**-8**
72	**1996**	-6	-11	-178	-146	-50	-70	0	9	-13	-171	6	-4	**-53**
73	**1997**	-6	-8	-15	-82	-292	-82	3	-10	15	-169	6	-6	**-52**
74	**1998**	-4	-10	-13	-17	-15	-6	-8	1	9	6	-11	-6	**-6**
75	**1999**	-10	-9	-9	-65	-32	-91	-8	-6	7	-164	14	-10	**-32**
76	**2000**	-7	-11	-12	-10	-6	-6	7	1	-13	17	-11	-9	**-5**
77	**2001**	-4	-12	-14	-9	-11	-9	-10	-13	-19	-14	-9	-5	**-11**
78	**2002**	-8	-7	-14	-11	-8	-11	-11	-9	3	-48	-11	-5	**-12**
79	**2003**	-6	-6	-12	-8	-8	-6	-11	-11	7	-7	-10	-7	**-7**
80	**2004**	-5	-6	-10	-10	-8	-10	-16	-10	-10	-11	-7	-9	**-9**
81	**2005**	-5	-11	-18	-11	-12	-4	-12	-12	-9	-16	-10	-7	**-11**
82	**2006**	-5	-7	-8	-9	-12	-6	-7	-17	-50	7	-5	-6	**-10**
83	**2007**	-7	-9	-13	-9	-4	-9	-8	-5	5	20	-5	-7	**-4**
84	**2008**	-5	-7	-15	-10	-12	-10	-10	-7	-33	18	-16	-7	**-10**
85	**80 WY Average**	**-6**	**-9**	**-16**	**-22**	**-30**	**-20**	**-9**	**-3**	**-4**	**-48**	**-4**	**-6**	**-15**
86	**Hours**	**744**	**721**	**744**	**744**	**672**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8,760**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 8:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	92	200	179	166	186	89	193	203	53	42	30	38	**122**
6	**1930**	118	149	188	119	134	60	162	183	27	130	51	38	**113**
7	**1931**	92	163	135	156	48	31	25	225	41	161	90	38	**102**
8	**1932**	92	197	184	3	13	32	146	60	48	425	183	28	**118**
9	**1933**	92	121	20	125	226	88	251	59	44	24	36	32	**91**
10	**1934**	187	137	-187	-151	-260	-122	59	50	-22	436	29	38	**17**
11	**1935**	100	117	173	71	58	203	185	71	242	49	247	33	**129**
12	**1936**	92	187	188	43	163	57	167	52	-18	205	24	44	**100**
13	**1937**	92	151	176	103	128	62	45	231	64	45	27	41	**98**
14	**1938**	92	196	132	74	60	157	330	52	181	282	33	34	**135**
15	**1939**	92	202	187	121	163	46	228	123	167	91	30	36	**123**
16	**1940**	92	154	179	76	179	117	206	158	160	156	30	39	**128**
17	**1941**	92	179	141	177	159	99	143	104	68	42	30	37	**105**
18	**1942**	92	145	139	59	92	145	96	162	226	243	116	24	**129**
19	**1943**	92	139	88	56	138	151	59	171	-18	55	144	44	**93**
20	**1944**	93	208	177	151	159	62	99	148	26	45	30	46	**104**
21	**1945**	92	175	160	54	27	15	29	146	140	44	24	35	**79**
22	**1946**	91	209	150	84	131	108	309	60	43	48	194	40	**121**
23	**1947**	91	206	48	56	61	86	230	63	47	46	115	49	**90**
24	**1948**	85	60	15	175	68	138	182	52	45	47	30	24	**76**
25	**1949**	90	213	103	108	192	125	192	136	90	50	31	37	**113**
26	**1950**	92	211	155	57	215	144	224	60	38	19	24	34	**105**
27	**1951**	140	63	49	-118	113	-66	142	53	49	41	182	49	**56**
28	**1952**	188	155	10	86	58	132	295	48	176	116	23	44	**110**
29	**1953**	91	207	191	144	148	152	228	115	39	40	242	44	**136**
30	**1954**	91	203	38	53	64	150	240	52	35	23	19	207	**98**
31	**1955**	91	77	21	93	129	134	162	154	42	25	187	32	**94**
32	**1956**	131	69	179	-4	71	194	379	52	21	40	201	30	**112**
33	**1957**	89	206	48	67	137	50	210	56	-9	449	23	39	**113**
34	**1958**	93	202	137	115	114	128	252	230	-12	257	58	35	**134**
35	**1959**	91	153	29	49	155	49	276	60	43	26	35	170	**93**
36	**1960**	54	43	207	149	60	139	57	133	44	49	87	52	**91**
37	**1961**	102	211	61	58	72	122	201	47	37	314	172	50	**120**
38	**1962**	91	218	127	69	80	145	150	59	195	472	122	33	**147**
39	**1963**	103	125	105	53	117	138	163	204	229	174	91	34	**128**
40	**1964**	92	220	72	91	123	204	252	280	167	25	87	23	**136**
41	**1965**	201	160	65	-14	18	15	223	59	228	260	140	42	**116**
42	**1966**	98	210	59	73	77	180	137	188	64	47	212	50	**116**
43	**1967**	92	218	33	53	193	49	115	84	44	27	286	35	**100**
44	**1968**	92	186	65	55	110	102	153	240	36	49	310	182	**131**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 8:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	195	62	36	105	-140	247	123	44	34	56	43	47	**72**
46	**1970**	94	192	160	73	106	118	254	124	63	36	29	40	**107**
47	**1971**	92	192	145	0	12	238	248	51	84	41	31	38	**98**
48	**1972**	90	213	51	-13	21	4	68	59	170	25	27	29	**62**
49	**1973**	90	214	95	58	136	194	108	173	33	42	30	46	**101**
50	**1974**	92	84	74	-154	-182	-1	198	84	49	23	27	35	**28**
51	**1975**	90	210	176	66	63	143	142	60	41	49	175	27	**104**
52	**1976**	117	31	-14	159	213	51	258	51	45	39	25	108	**88**
53	**1977**	111	200	186	148	134	157	80	224	21	40	108	31	**120**
54	**1978**	87	205	131	90	124	86	289	60	83	291	31	273	**146**
55	**1979**	166	197	186	75	180	151	190	81	201	51	28	39	**128**
56	**1980**	92	196	166	126	204	75	128	54	50	303	26	40	**121**
57	**1981**	92	213	187	-25	156	138	76	138	-4	46	40	35	**91**
58	**1982**	92	181	89	161	18	-17	207	59	43	38	35	20	**77**
59	**1983**	112	194	57	44	194	126	253	143	163	46	261	29	**133**
60	**1984**	91	24	40	60	55	111	229	157	132	49	177	33	**96**
61	**1985**	90	188	99	84	128	132	186	159	242	48	29	40	**118**
62	**1986**	91	66	57	179	158	189	281	181	155	405	24	46	**152**
63	**1987**	91	204	70	82	241	128	179	120	75	42	31	47	**107**
64	**1988**	92	173	160	171	43	120	75	225	41	151	23	42	**111**
65	**1989**	92	171	142	156	117	31	248	244	239	48	29	36	**129**
66	**1990**	91	204	8	54	171	130	159	213	43	172	289	34	**129**
67	**1991**	92	33	141	55	56	52	313	59	41	25	26	31	**76**
68	**1992**	92	199	104	127	160	133	46	226	72	44	29	52	**107**
69	**1993**	140	158	153	141	23	46	138	227	238	41	28	32	**115**
70	**1994**	91	148	125	60	167	106	117	87	139	40	30	39	**95**
71	**1995**	93	214	182	86	148	73	115	237	44	64	29	30	**110**
72	**1996**	137	121	-155	-100	105	-75	132	52	259	27	123	47	**53**
73	**1997**	92	207	37	-15	-127	-5	76	119	34	26	31	21	**42**
74	**1998**	84	65	71	52	112	163	225	77	38	292	85	45	**108**
75	**1999**	92	143	39	-5	31	166	228	290	46	26	29	26	**92**
76	**2000**	92	155	214	162	105	147	143	59	205	58	40	39	**119**
77	**2001**	92	207	179	168	164	96	72	243	28	40	29	34	**113**
78	**2002**	86	181	173	192	103	92	249	148	16	46	30	41	**113**
79	**2003**	91	163	159	176	80	168	224	115	46	47	33	39	**112**
80	**2004**	92	135	119	96	177	148	125	201	147	46	30	25	**111**
81	**2005**	140	197	13	67	70	177	126	120	129	272	30	44	**115**
82	**2006**	92	198	57	58	95	130	318	224	-24	316	24	33	**126**
83	**2007**	93	173	140	117	70	115	270	134	55	60	30	34	**107**
84	**2008**	92	163	150	118	158	72	43	163	-10	273	203	42	**122**
85	**80 WY Average**	**101**	**164**	**105**	**78**	**100**	**103**	**177**	**127**	**83**	**111**	**80**	**47**	**106**
86	**Hours**	**312**	**321**	**344**	**328**	**288**	**327**	**304**	**328**	**320**	**328**	**312**	**336**	**3,848**

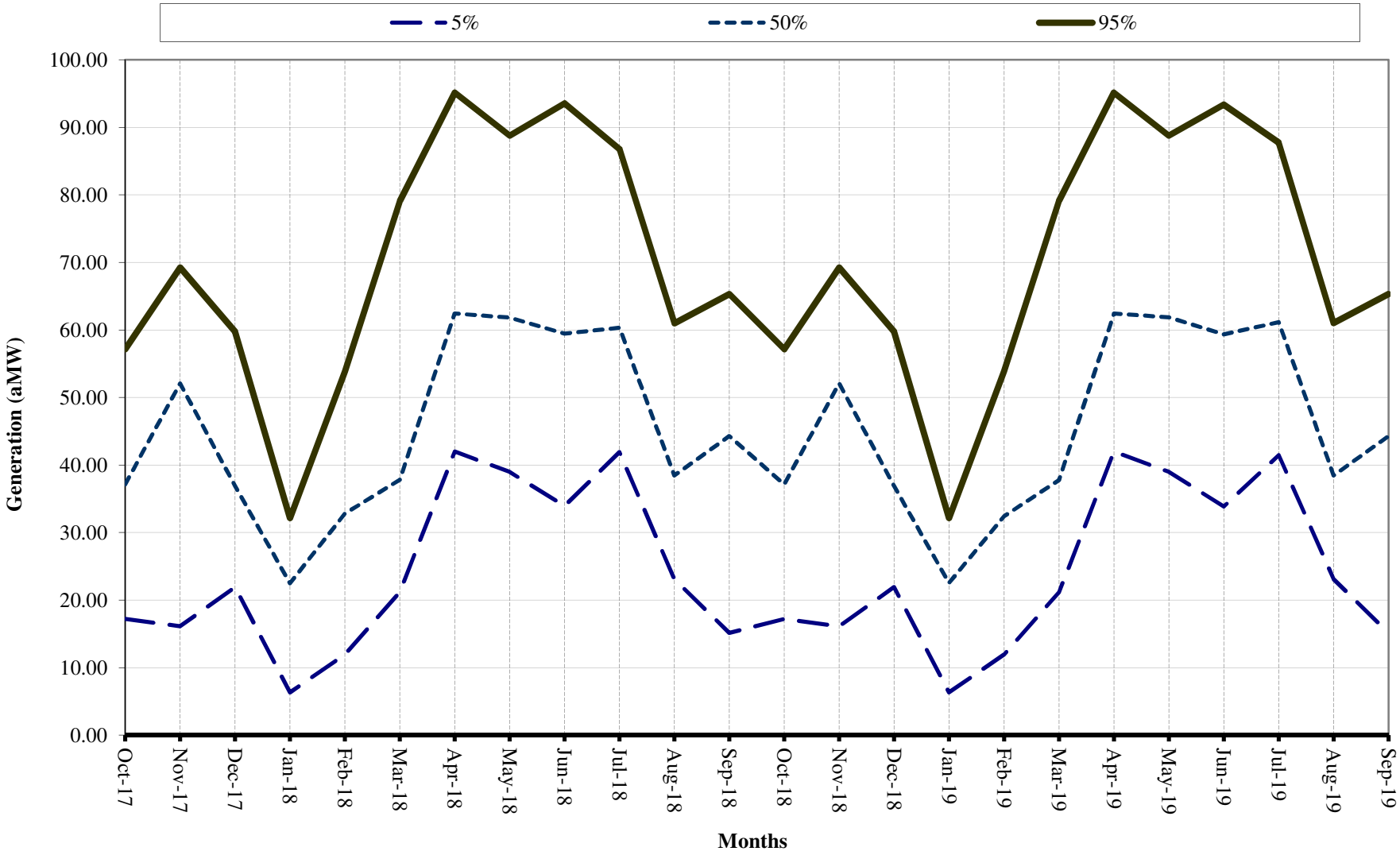
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 9:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	-79	-170	-182	-152	-152	-89	-162	-178	-65	-55	-31	-47	**-113**
6	**1930**	-96	-125	-191	-118	-119	-67	-141	-163	-46	-118	-56	-47	**-107**
7	**1931**	-79	-136	-137	-145	-55	-46	-48	-192	-61	-135	-81	-45	**-97**
8	**1932**	-78	-166	-185	-39	-33	-58	-123	-40	2	-339	-150	-33	**-104**
9	**1933**	-79	-109	-42	-109	-180	-82	-211	-45	-11	-9	-22	-41	**-78**
10	**1934**	-154	-117	-435	-359	-516	-305	-37	-25	-109	-346	-25	-45	**-204**
11	**1935**	-84	-105	-176	-60	-58	-181	-166	-45	-220	-24	-192	-51	**-114**
12	**1936**	-78	-155	-187	-62	-138	-64	-144	-41	-103	-194	-36	-46	**-104**
13	**1937**	-78	-127	-173	-105	-125	-73	-63	-202	-70	-51	-38	-48	**-96**
14	**1938**	-77	-168	-134	-70	-66	-142	-263	-37	-173	-209	-34	-42	**-118**
15	**1939**	-78	-172	-187	-123	-140	-54	-183	-110	-158	-95	-38	-43	**-114**
16	**1940**	-77	-129	-180	-84	-148	-116	-174	-148	-145	-148	-31	-45	**-118**
17	**1941**	-79	-151	-142	-164	-139	-97	-123	-96	-69	-51	-41	-43	**-99**
18	**1942**	-79	-122	-148	-64	-80	-132	-91	-149	-211	-185	-100	-32	**-116**
19	**1943**	-77	-124	-103	-62	-122	-131	-45	-131	-103	-31	-119	-38	**-90**
20	**1944**	-80	-177	-182	-144	-138	-72	-94	-136	-50	-53	-36	-51	**-101**
21	**1945**	-78	-149	-159	-71	-37	-31	-52	-135	-126	-55	-27	-45	**-80**
22	**1946**	-79	-177	-152	-103	-118	-96	-247	-44	-38	-21	-149	-42	**-106**
23	**1947**	-70	-178	-53	-29	-58	-87	-192	-39	-22	-28	-101	-47	**-76**
24	**1948**	-75	-73	-32	-161	-65	-129	-151	-39	2	-9	-15	-32	**-65**
25	**1949**	-78	-190	-107	-96	-165	-118	-159	-123	-73	-57	-35	-48	**-104**
26	**1950**	-79	-186	-155	-22	-179	-136	-177	-43	-25	-19	-20	-38	**-89**
27	**1951**	-110	-75	-42	-301	-108	-214	-135	-36	-41	5	-148	-41	**-105**
28	**1952**	-142	-130	-34	-78	-64	-134	-231	-26	-159	-92	-35	-37	**-97**
29	**1953**	-78	-176	-193	-141	-142	-143	-190	-81	1	-1	-183	-45	**-115**
30	**1954**	-78	-171	-63	-36	-59	-122	-201	-33	-1	-9	17	-165	**-76**
31	**1955**	-78	-80	-47	-101	-106	-125	-146	-145	-3	-9	-121	-46	**-85**
32	**1956**	-106	-76	-219	-134	-6	-190	-293	-33	-45	5	-131	-41	**-107**
33	**1957**	-75	-185	-66	-69	-121	-58	-172	-17	-90	-344	-38	-45	**-107**
34	**1958**	-79	-169	-145	-100	-109	-121	-201	-194	-95	-207	-58	-44	**-127**
35	**1959**	-78	-130	-44	-44	-102	-38	-215	-43	0	-13	-19	-133	**-71**
36	**1960**	-50	-41	-200	-135	-58	-129	-39	-128	-27	-27	-80	-44	**-80**
37	**1961**	-86	-176	-87	-51	-61	-114	-167	-24	1	-237	-140	-47	**-100**
38	**1962**	-77	-182	-131	-72	-74	-130	-117	-40	-181	-366	-105	-47	**-127**
39	**1963**	-86	-107	-109	-35	-106	-127	-143	-178	-204	-142	-85	-43	**-114**
40	**1964**	-79	-192	-100	-98	-104	-174	-212	-248	-132	-9	-54	-28	**-119**
41	**1965**	-156	-136	-202	-117	-292	-72	-177	-43	-209	-193	-78	-45	**-142**
42	**1966**	-83	-174	-76	-77	-73	-166	-95	-178	-45	-28	-166	-45	**-101**
43	**1967**	-78	-190	-53	-24	-156	-37	-109	-63	-3	-6	-192	-44	**-80**
44	**1968**	-79	-160	-91	-43	-94	-95	-141	-209	-29	-21	-208	-169	**-112**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 9:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	-153	-77	-49	-85	-319	-200	-110	-28	-6	-29	-47	-45	**-95**
46	**1970**	-79	-159	-159	-87	-98	-117	-224	-118	-44	-47	-36	-50	**-101**
47	**1971**	-78	-166	-152	-115	-98	-203	-200	-39	-46	5	-15	-41	**-95**
48	**1972**	-75	-179	-76	-108	-99	-124	-41	-44	-155	-9	-3	-36	**-78**
49	**1973**	-78	-187	-100	-71	-123	-167	-100	-157	-47	-52	-31	-47	**-96**
50	**1974**	-78	-80	-96	-363	-417	-112	-167	-63	-56	-9	-10	-37	**-123**
51	**1975**	-79	-179	-172	-63	-58	-135	-127	-43	-36	5	-138	-34	**-89**
52	**1976**	-94	-37	-117	-144	-142	-29	-219	-36	-23	5	19	-79	**-74**
53	**1977**	-92	-167	-190	-138	-116	-135	-82	-201	-42	-61	-98	-42	**-114**
54	**1978**	-77	-174	-140	-108	-111	-83	-229	-43	-91	-222	-28	-236	**-127**
55	**1979**	-128	-165	-182	-83	-170	-142	-163	-75	-187	-64	-29	-45	**-119**
56	**1980**	-78	-162	-177	-123	-174	-76	-122	-9	3	-255	-34	-43	**-104**
57	**1981**	-79	-178	-186	-142	-108	-127	-77	-124	-81	5	-15	-44	**-96**
58	**1982**	-78	-152	-101	-153	-106	-129	-169	-43	-28	4	-15	-34	**-84**
59	**1983**	-93	-164	-81	-40	-185	-268	-208	-139	-148	5	-173	-35	**-128**
60	**1984**	-78	-29	-58	-66	-60	-102	-187	-145	-130	-25	-142	-36	**-89**
61	**1985**	-77	-170	-105	-93	-111	-113	-157	-143	-214	-62	-41	-38	**-110**
62	**1986**	-77	-78	-74	-162	-139	-303	-226	-167	-136	-319	-36	-42	**-147**
63	**1987**	-80	-173	-100	-99	-191	-123	-156	-89	-60	-46	-38	-48	**-100**
64	**1988**	-78	-147	-159	-166	-47	-118	-76	-196	-60	-126	-36	-50	**-105**
65	**1989**	-79	-147	-146	-143	-104	-47	-200	-208	-220	-60	-28	-45	**-119**
66	**1990**	-79	-170	-40	-46	-149	-124	-136	-169	0	-123	-210	-48	**-109**
67	**1991**	-83	-38	-138	-21	-57	-20	-243	-38	-18	-9	-19	-40	**-61**
68	**1992**	-79	-172	-118	-130	-142	-127	-57	-196	-84	-52	-30	-46	**-102**
69	**1993**	-111	-133	-155	-138	-35	-56	-122	-196	-204	-47	-31	-44	**-106**
70	**1994**	-79	-125	-129	-77	-132	-106	-108	-84	-129	-60	-32	-47	**-92**
71	**1995**	-80	-186	-182	-98	-130	-72	-104	-208	-34	-76	-35	-39	**-103**
72	**1996**	-109	-105	-381	-266	-138	-236	-121	-36	-223	-6	-84	-47	**-146**
73	**1997**	-79	-173	-61	-120	-340	-107	-59	-114	-7	-9	-17	-34	**-92**
74	**1998**	-75	-80	-96	-72	-98	-153	-174	-57	4	-216	-78	-42	**-95**
75	**1999**	-86	-126	-60	-102	-54	-273	-180	-254	-13	-9	-1	-30	**-100**
76	**2000**	-78	-139	-200	-146	-92	-141	-119	-40	-180	-38	-46	-46	**-105**
77	**2001**	-79	-178	-179	-151	-142	-99	-76	-214	-61	-54	-37	-41	**-109**
78	**2002**	-73	-156	-172	-171	-99	-91	-201	-135	-49	-10	-40	-44	**-103**
79	**2003**	-78	-137	-158	-160	-75	-158	-184	-118	-27	-66	-38	-52	**-104**
80	**2004**	-77	-115	-123	-107	-142	-136	-114	-175	-145	-56	-38	-28	**-104**
81	**2005**	-111	-168	-31	-71	-59	-167	-111	-122	-123	-230	-43	-44	**-107**
82	**2006**	-77	-167	-72	-63	-93	-120	-253	-190	-114	-245	-25	-48	**-122**
83	**2007**	-83	-151	-143	-104	-61	-112	-228	-126	-33	-42	-33	-48	**-97**
84	**2008**	-78	-137	-151	-130	-138	-78	-60	-148	-90	-206	-166	-36	**-119**
85	**80 WY Average**	**-85**	**-142**	**-132**	**-109**	**-123**	**-122**	**-149**	**-108**	**-81**	**-85**	**-65**	**-50**	**-104**
86	**Hours**	**432**	**400**	**400**	**416**	**384**	**416**	**416**	**416**	**400**	**416**	**432**	**384**	**4,912**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 10:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Flat Energy for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
5	**1929**	-7	-5	-15	-12	-7	-11	-12	-10	-13	-12	-5	-7	**-10**
6	**1930**	-7	-3	-16	-14	-10	-11	-13	-11	-14	-9	-11	-7	**-10**
7	**1931**	-7	-3	-11	-12	-11	-12	-17	-8	-15	-5	-9	-6	**-10**
8	**1932**	-7	-4	-15	-20	-13	-19	-9	4	22	-2	-11	-5	**-7**
9	**1933**	-7	-6	-13	-6	-6	-7	-16	1	13	6	2	-7	**-4**
10	**1934**	-11	-4	-320	-267	-406	-225	3	8	-71	-1	-2	-6	**-107**
11	**1935**	-7	-6	-15	-2	-8	-12	-18	6	-15	8	-8	-12	**-7**
12	**1936**	-7	-3	-14	-16	-9	-11	-13	0	-65	-18	-11	-4	**-14**
13	**1937**	-7	-3	-12	-13	-16	-14	-18	-11	-11	-9	-10	-7	**-11**
14	**1938**	-7	-6	-11	-7	-12	-10	-13	2	-16	7	-6	-7	**-7**
15	**1939**	-7	-5	-14	-16	-10	-10	-9	-7	-14	-13	-9	-6	**-10**
16	**1940**	-6	-3	-14	-13	-8	-13	-13	-13	-9	-14	-5	-6	**-10**
17	**1941**	-7	-4	-11	-14	-11	-11	-11	-8	-8	-10	-11	-6	**-9**
18	**1942**	-7	-3	-15	-10	-6	-10	-12	-12	-17	4	-9	-6	**-9**
19	**1943**	-6	-6	-15	-10	-11	-7	-1	2	-65	7	-9	0	**-10**
20	**1944**	-8	-6	-16	-14	-11	-13	-13	-11	-16	-10	-8	-6	**-11**
21	**1945**	-7	-5	-11	-16	-10	-11	-18	-11	-8	-11	-5	-8	**-10**
22	**1946**	-8	-5	-12	-20	-11	-7	-12	2	-2	9	-5	-4	**-6**
23	**1947**	-2	-7	-6	8	-7	-11	-14	6	8	5	-10	-2	**-3**
24	**1948**	-8	-13	-10	-13	-8	-11	-10	1	21	16	4	-6	**-3**
25	**1949**	-7	-11	-10	-6	-12	-11	-11	-9	0	-10	-8	-8	**-9**
26	**1950**	-7	-9	-11	13	-10	-13	-8	2	3	-2	-2	-4	**-4**
27	**1951**	-5	-13	0	-221	-14	-149	-18	3	-1	21	-10	1	**-34**
28	**1952**	-4	-3	-14	-6	-12	-17	-9	7	-10	0	-10	0	**-6**
29	**1953**	-7	-5	-15	-15	-18	-13	-14	6	18	17	-5	-3	**-5**
30	**1954**	-7	-5	-16	3	-6	-2	-15	4	15	5	18	9	**0**
31	**1955**	-7	-10	-15	-15	-6	-11	-16	-13	17	6	8	-10	**-6**
32	**1956**	-7	-11	-35	-77	27	-21	-9	4	-16	21	8	-8	**-11**
33	**1957**	-6	-11	-13	-9	-11	-11	-11	15	-54	5	-12	-6	**-10**
34	**1958**	-7	-4	-14	-6	-13	-12	-10	-7	-58	-3	-9	-7	**-12**
35	**1959**	-7	-4	-10	-3	8	0	-8	3	19	5	4	8	**1**
36	**1960**	-7	-4	-12	-10	-8	-11	2	-13	5	7	-10	1	**-5**
37	**1961**	-7	-4	-19	-3	-4	-10	-11	7	17	6	-9	-2	**-3**
38	**1962**	-7	-4	-12	-10	-8	-9	-4	4	-14	4	-10	-10	**-7**
39	**1963**	-7	-4	-10	4	-10	-10	-14	-10	-12	-3	-11	-7	**-8**
40	**1964**	-7	-8	-20	-15	-7	-7	-16	-16	1	6	6	-4	**-7**
41	**1965**	-6	-4	-79	-71	-159	-33	-8	2	-15	7	13	-4	**-29**
42	**1966**	-7	-3	-14	-11	-9	-14	3	-16	3	5	-7	-1	**-6**
43	**1967**	-7	-8	-13	10	-6	1	-14	2	18	9	8	-7	**-1**
44	**1968**	-8	-6	-19	0	-7	-9	-17	-11	0	10	9	-5	**-5**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 10:**													
2	**Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Flat Energy for FY 2019**													
4	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
45	**1969**	-7	-15	-10	-1	-242	-3	-12	3	12	9	-9	-2	**-22**
46	**1970**	-7	-3	-12	-16	-10	-14	-22	-11	3	-10	-9	-8	**-10**
47	**1971**	-7	-7	-14	-64	-51	-9	-11	1	12	21	4	-4	**-11**
48	**1972**	-6	-4	-17	-66	-47	-68	5	1	-10	6	10	-6	**-17**
49	**1973**	-8	-9	-10	-14	-12	-8	-12	-12	-11	-11	-5	-4	**-10**
50	**1974**	-7	-7	-18	-271	-317	-63	-13	2	-10	5	5	-3	**-56**
51	**1975**	-8	-6	-11	-6	-6	-13	-13	2	-2	24	-7	-5	**-4**
52	**1976**	-6	-7	-69	-11	10	6	-17	2	7	20	21	8	**-3**
53	**1977**	-7	-4	-16	-12	-9	-7	-14	-14	-14	-17	-12	-8	**-11**
54	**1978**	-8	-5	-15	-21	-10	-9	-11	2	-14	4	-3	1	**-7**
55	**1979**	-5	-3	-12	-14	-20	-13	-14	-6	-15	-14	-5	-6	**-10**
56	**1980**	-7	-3	-19	-13	-12	-10	-17	19	24	-9	-9	-4	**-5**
57	**1981**	-7	-4	-14	-90	5	-10	-13	-9	-47	23	8	-7	**-14**
58	**1982**	-7	-3	-13	-14	-53	-79	-11	2	4	19	6	-9	**-13**
59	**1983**	-7	-5	-17	-3	-22	-95	-13	-15	-10	23	9	-5	**-13**
60	**1984**	-7	-6	-13	-11	-11	-8	-11	-12	-14	7	-8	-4	**-8**
61	**1985**	-7	-10	-11	-15	-9	-5	-12	-10	-11	-14	-12	-1	**-10**
62	**1986**	-6	-14	-13	-12	-11	-87	-12	-14	-6	0	-11	-1	**-16**
63	**1987**	-8	-5	-21	-19	-6	-13	-15	3	0	-7	-9	-4	**-9**
64	**1988**	-7	-4	-12	-17	-8	-13	-12	-10	-15	-4	-11	-7	**-10**
65	**1989**	-7	-5	-13	-11	-9	-13	-11	-9	-16	-13	-4	-7	**-10**
66	**1990**	-7	-4	-18	-2	-12	-12	-11	-1	19	7	0	-10	**-4**
67	**1991**	-10	-7	-9	12	-9	12	-8	5	8	6	-1	-7	**0**
68	**1992**	-7	-7	-15	-17	-13	-13	-14	-10	-15	-10	-5	0	**-10**
69	**1993**	-6	-3	-12	-15	-10	-11	-13	-10	-8	-8	-6	-8	**-9**
70	**1994**	-7	-3	-12	-17	-4	-13	-13	-8	-10	-16	-6	-7	**-10**
71	**1995**	-7	-8	-14	-17	-11	-8	-12	-12	1	-14	-8	-7	**-10**
72	**1996**	-6	-5	-276	-192	-34	-165	-14	3	-9	8	3	-3	**-58**
73	**1997**	-7	-4	-16	-74	-249	-62	-2	-12	11	6	3	-8	**-33**
74	**1998**	-8	-16	-19	-17	-8	-14	-6	2	19	8	-10	-1	**-6**
75	**1999**	-11	-6	-14	-59	-17	-80	-8	-14	13	7	12	-4	**-15**
76	**2000**	-7	-8	-9	-10	-7	-14	-8	4	-9	4	-10	-6	**-7**
77	**2001**	-7	-6	-14	-11	-11	-14	-13	-13	-21	-13	-10	-6	**-11**
78	**2002**	-6	-6	-12	-11	-13	-11	-11	-10	-20	15	-11	-4	**-8**
79	**2003**	-7	-3	-12	-12	-9	-15	-12	-16	5	-16	-8	-9	**-9**
80	**2004**	-6	-4	-11	-18	-5	-11	-13	-9	-15	-11	-10	-3	**-10**
81	**2005**	-6	-6	-11	-10	-4	-16	-11	-15	-11	-8	-13	-3	**-9**
82	**2006**	-6	-5	-13	-9	-12	-10	-12	-7	-74	3	-5	-10	**-13**
83	**2007**	-9	-7	-12	-7	-5	-12	-18	-11	6	3	-7	-10	**-7**
84	**2008**	-7	-4	-12	-21	-11	-12	-17	-11	-55	5	-12	0	**-13**
85	**80 WY Average**	**-7**	**-6**	**-22**	**-27**	**-27**	**-23**	**-12**	**-4**	**-8**	**1**	**-4**	**-5**	**-12**
86	**Hours**	**744**	**721**	**744**	**744**	**672**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8,760**

Figure 1: Simulated Total PS Wind Generation for FY 2018-2019



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 11:**													
2	**Value of PS Wind Generation at Expected Wind Generation for FY 2018**													
3														
4														
5		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
6	**Expected Generation (aMW)**	**35**	**51**	**39**	**21**	**34**	**39**	**65**	**63**	**63**	**61**	**40**	**44**	**46**
7	**Contract Prices ($/MWh)**	**$ 45.25**	**$ 42.79**	**$ 44.92**	**$ 50.60**	**$ 42.95**	**$ 46.18**	**$ 43.00**	**$ 44.40**	**$ 43.10**	**$ 44.50**	**$ 46.18**	**$ 44.38**	**$ 44.89**
8														
9	**Power Purchase Costs for Expected Wind Generation ($1,000)**													
10														
11		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
12	**Expected Wind Generation Cost ($000)**	$ 1,599	$ 2,167	$ 1,734	$ 1,045	$ 1,467	$ 1,813	$ 2,780	$ 2,807	$ 2,694	$ 2,719	$ 1,833	$ 1,952	**$ 24,610**
13														
14														
15	**Average, Median, 5th Percentile, and 95th Percentile Spot Market Electricity Prices Estimated by AURORA ($/MWh)**													
16														
17		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
18	**5%**	$ 18.05	$ 19.13	$ 20.12	$ 16.77	$ 15.82	$ 12.50	$ 9.48	$ 1.26	$ (4.04)	$ 11.90	$ 18.12	$ 18.09	$ 16.35
19	**50%**	$ 25.08	$ 26.17	$ 28.27	$ 26.73	$ 26.10	$ 22.87	$ 18.56	$ 14.36	$ 14.35	$ 22.32	$ 25.24	$ 24.72	$ 22.87
20	**Average**	$ 25.65	$ 26.99	$ 29.01	$ 27.38	$ 26.60	$ 22.68	$ 18.81	$ 14.00	$ 13.22	$ 22.39	$ 25.69	$ 25.26	$ 23.14
21	**95%**	$ 35.39	$ 37.56	$ 40.38	$ 39.95	$ 39.22	$ 33.06	$ 28.91	$ 24.94	$ 27.78	$ 33.09	$ 34.93	$ 34.06	$ 30.75
22														
23	**Revenues from Expected Wind Generation at Various AURORA Price Percentiles ($1,000)**													
24														
25		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
26	**5%**	$ 474	$ 699	$ 578	$ 258	$ 363	$ 365	$ 441	$ 59	$ (182)	$ 541	$ 535	$ 573	$ 6,609
27	**50%**	$ 659	$ 955	$ 812	$ 411	$ 599	$ 667	$ 864	$ 675	$ 646	$ 1,014	$ 745	$ 783	$ 9,247
28	**Average**	$ 674	$ 986	$ 833	$ 421	$ 611	$ 662	$ 876	$ 658	$ 595	$ 1,018	$ 759	$ 800	$ 9,353
29	**95%**	$ 930	$ 1,371	$ 1,160	$ 614	$ 900	$ 965	$ 1,346	$ 1,173	$ 1,250	$ 1,504	$ 1,031	$ 1,078	$ 12,432

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 12:**													
2	**Value of PS Wind Generation at Expected Wind Generation for FY 2019**													
3														
4														
5		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
6	**Expected Generation (aMW)**	**35**	**51**	**39**	**21**	**34**	**39**	**65**	**63**	**63**	**61**	**40**	**44**	**46**
7	**Contract Prices ($/MWh)**	**$ 47.09**	**$ 44.12**	**$ 46.62**	**$ 50.97**	**$ 43.34**	**$ 46.59**	**$ 43.40**	**$ 44.79**	**$ 43.49**	**$ 44.89**	**$ 46.57**	**$ 44.78**	**$ 45.59**
8														
9	**Power Purchase Costs for Expected Wind Generation ($1,000)**													
10														
11		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
12	**Expected Wind Generation Cost ($000)**	$ 1,664	$ 2,234	$ 1,800	$ 1,052	$ 1,480	$ 1,830	$ 2,807	$ 2,831	$ 2,718	$ 2,743	$ 1,848	$ 1,969	**$ 24,977**
13														
14														
15	**Average, Median, 5th Percentile, and 95th Percentile Spot Market Electricity Prices Estimated by AURORA ($/MWh)**													
16														
17		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
18	**5%**	$ 16.64	$ 17.97	$ 19.51	$ 15.95	$ 15.64	$ 11.85	$ 9.26	$ 3.15	$ (0.82)	$ 11.22	$ 18.14	$ 18.31	$ 16.27
19	**50%**	$ 23.72	$ 24.82	$ 27.51	$ 26.16	$ 26.12	$ 22.48	$ 18.64	$ 14.92	$ 15.63	$ 22.09	$ 25.75	$ 24.97	$ 22.68
20	**Average**	$ 24.16	$ 25.30	$ 28.15	$ 26.49	$ 26.54	$ 22.29	$ 18.69	$ 14.52	$ 14.93	$ 21.87	$ 25.92	$ 25.26	$ 22.83
21	**95%**	$ 33.48	$ 34.41	$ 39.37	$ 38.20	$ 39.53	$ 32.28	$ 28.28	$ 24.64	$ 28.32	$ 31.69	$ 34.03	$ 33.17	$ 29.87
22														
23	**Revenues from Expected Wind Generation at Various AURORA Price Percentiles ($1,000)**													
24														
25		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual**
26	**5%**	$ 437	$ 656	$ 560	$ 245	$ 359	$ 346	$ 431	$ 148	$ (37)	$ 510	$ 536	$ 580	$ 6,576
27	**50%**	$ 624	$ 906	$ 790	$ 402	$ 600	$ 656	$ 868	$ 702	$ 703	$ 1,004	$ 760	$ 791	$ 9,168
28	**Average**	$ 635	$ 924	$ 808	$ 407	$ 609	$ 650	$ 870	$ 683	$ 672	$ 994	$ 765	$ 800	$ 9,231
29	**95%**	$ 880	$ 1,256	$ 1,131	$ 587	$ 907	$ 942	$ 1,317	$ 1,159	$ 1,274	$ 1,441	$ 1,005	$ 1,050	$ 12,074

Figure 2: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2018

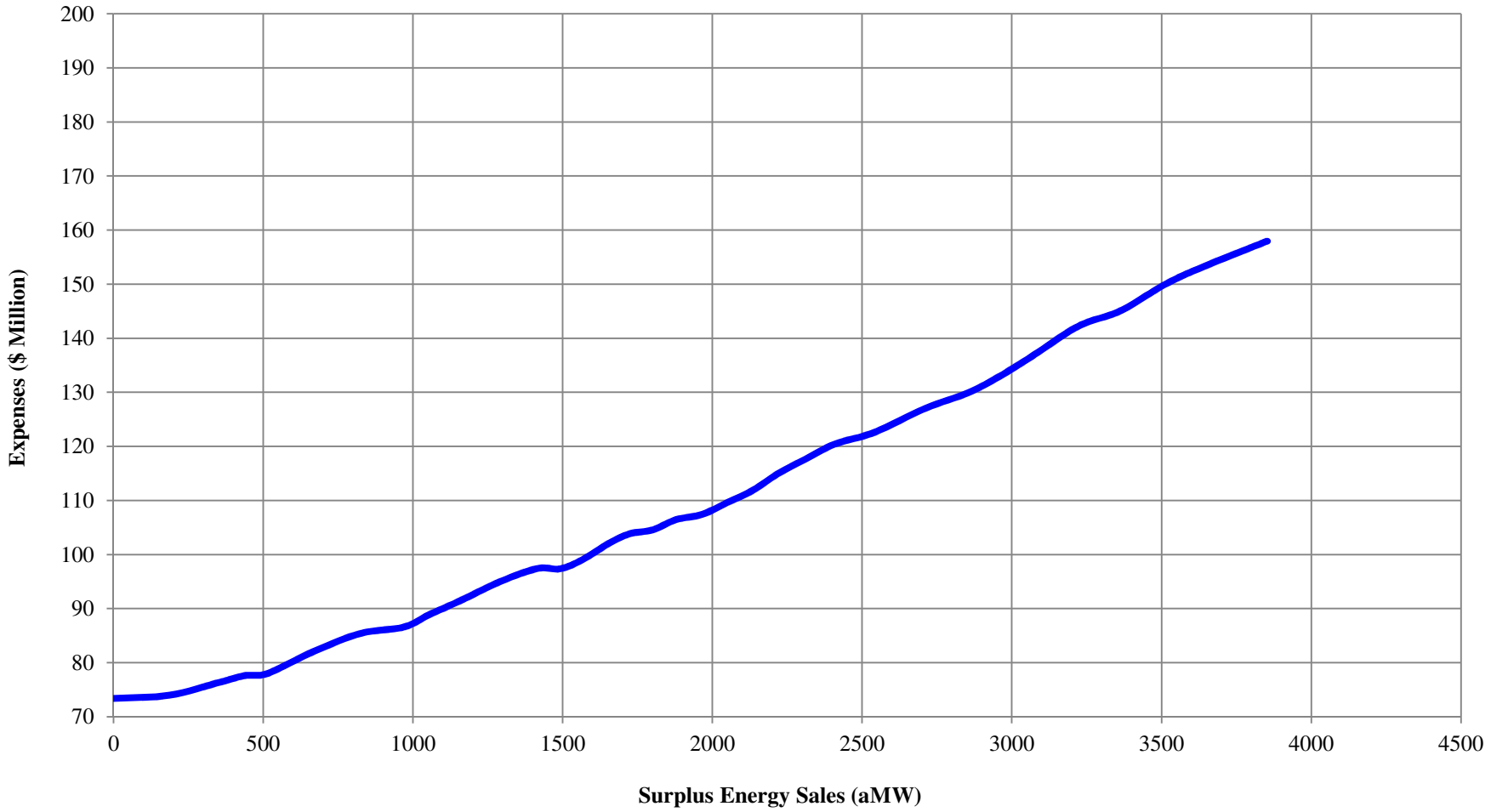


Figure 3: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2019

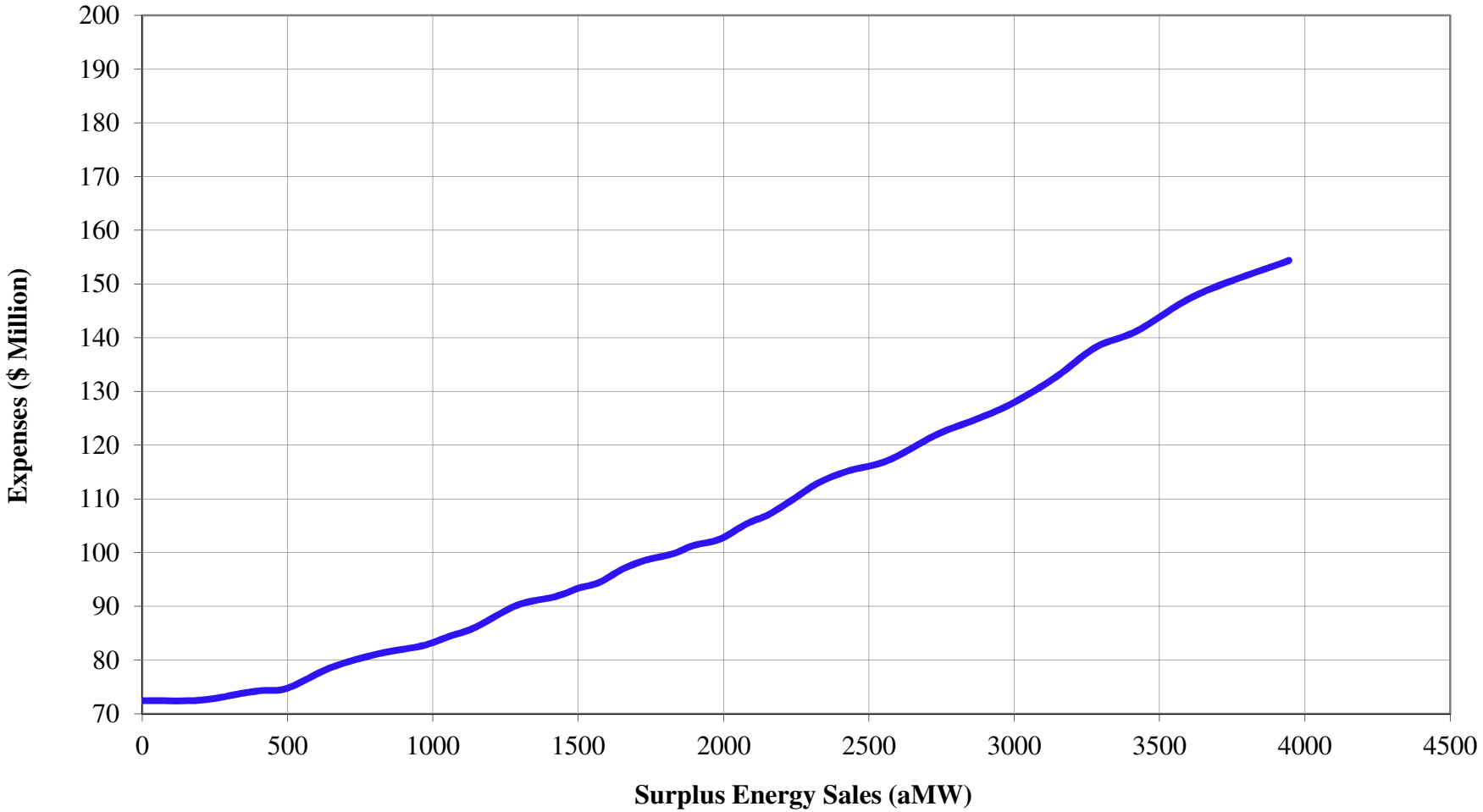


Figure 4: PS Transmission and Ancillary Service Expense Distribution for FY 2018

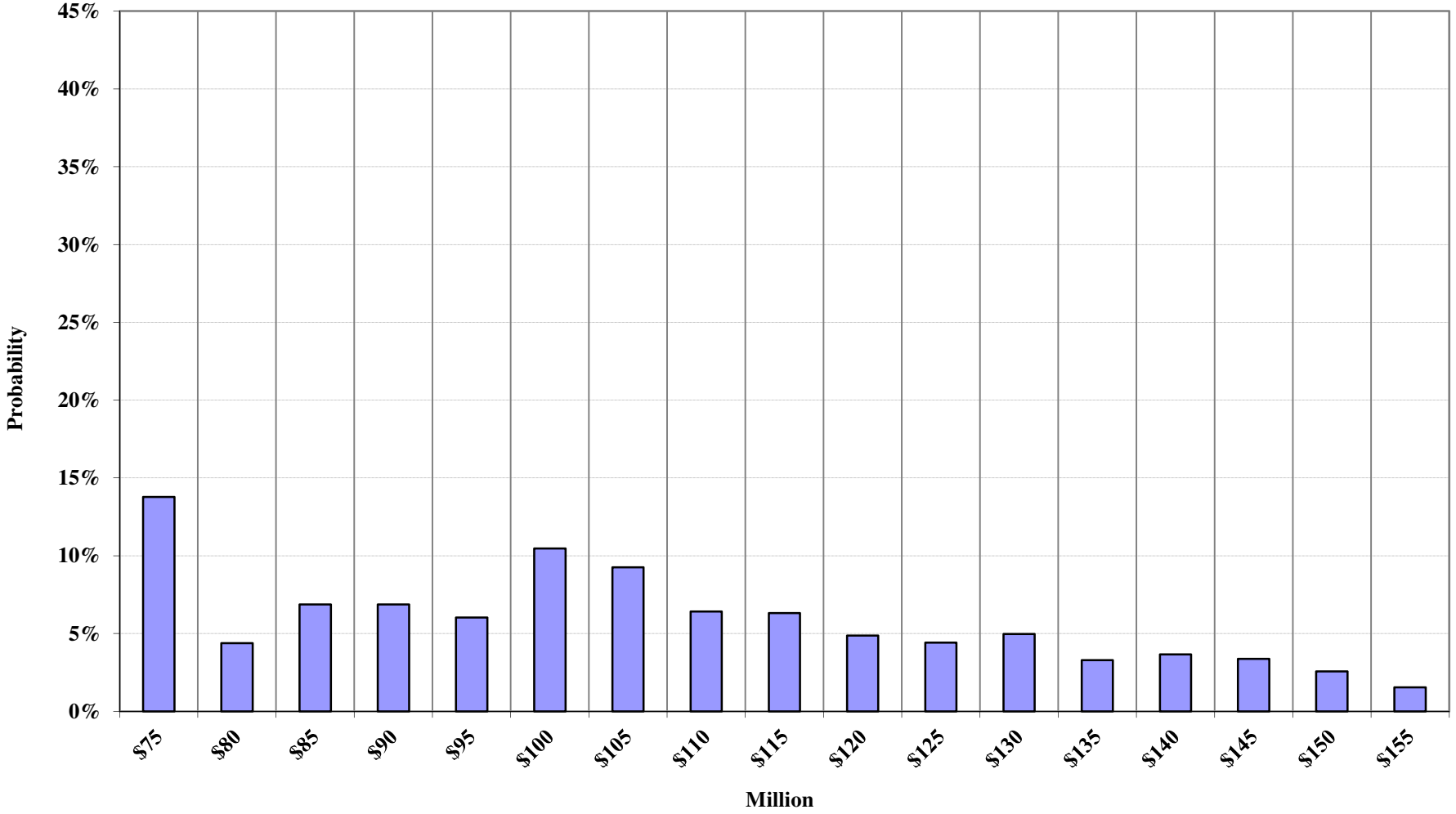
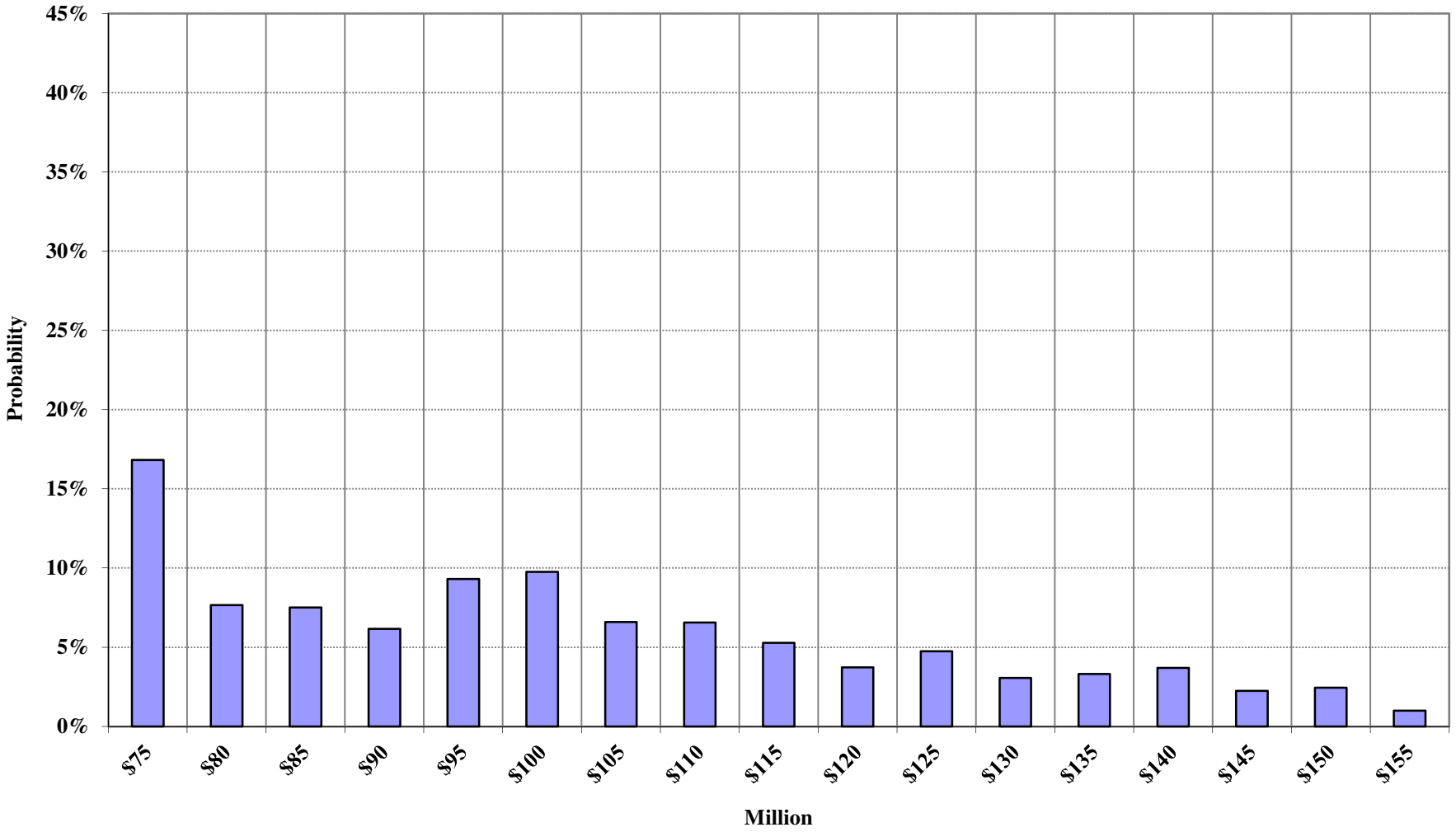


Figure 5: PS Transmission and Ancillary Service Expense Distribution for FY 2019



	A	B	C	D	E	F
1	**Table 13:** **4(h)(10)(C) Credits ($ Million) for FY 2018 and FY 2019**					
2						
3	**Fiscal Year**	**Purchase Expense**	**Direct Expense**	**Capital**	**%**	**Credit**
4	**2018**	**$ 79**	$ 288	50.5	22.3%	**$ 93.2**
5	**2019**	**$ 78**	$ 288	44.0	22.3%	**$ 91.5**

Figure 6: 4(h)(10)(C) Credits Distribution for FY 2018

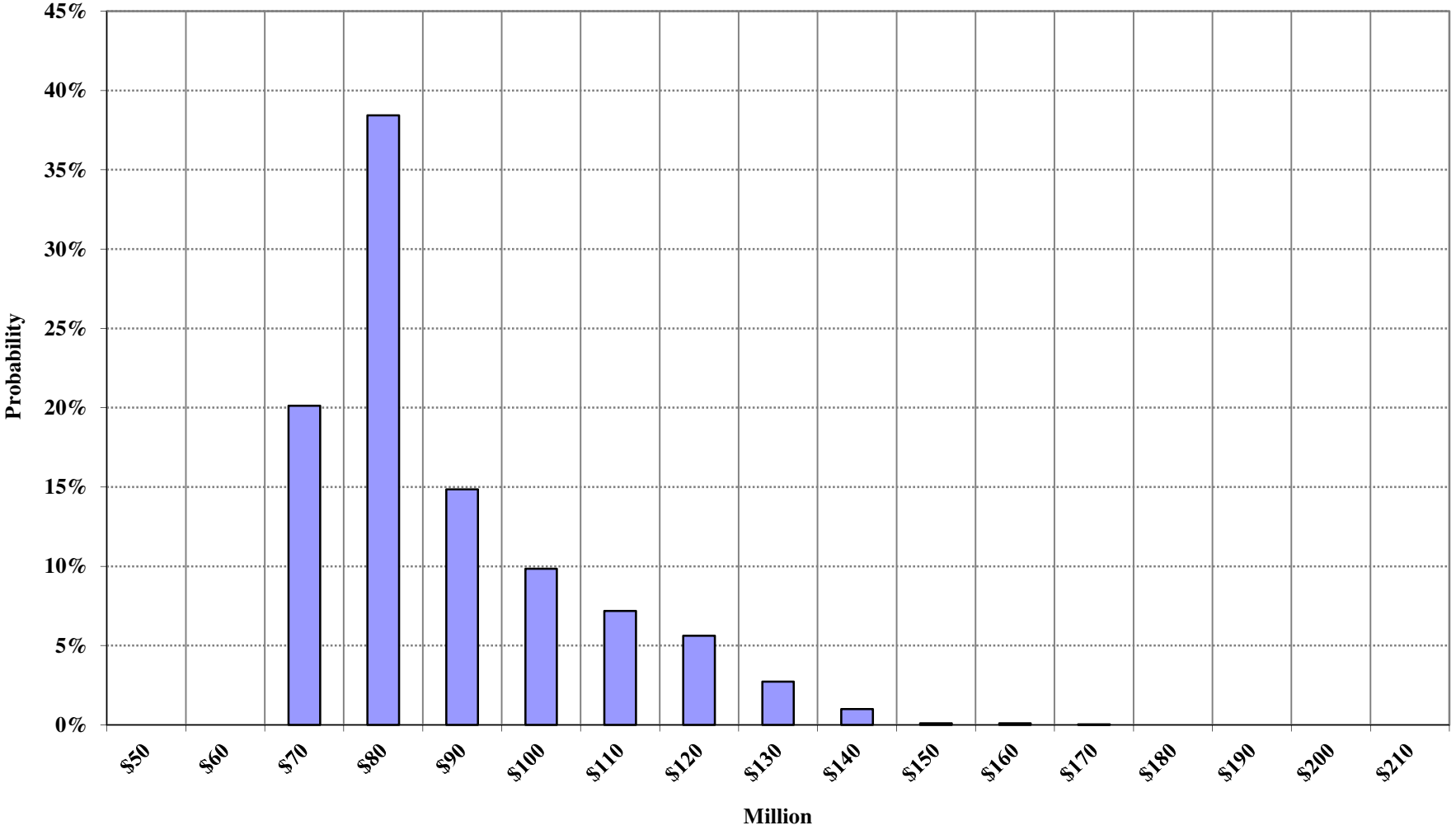
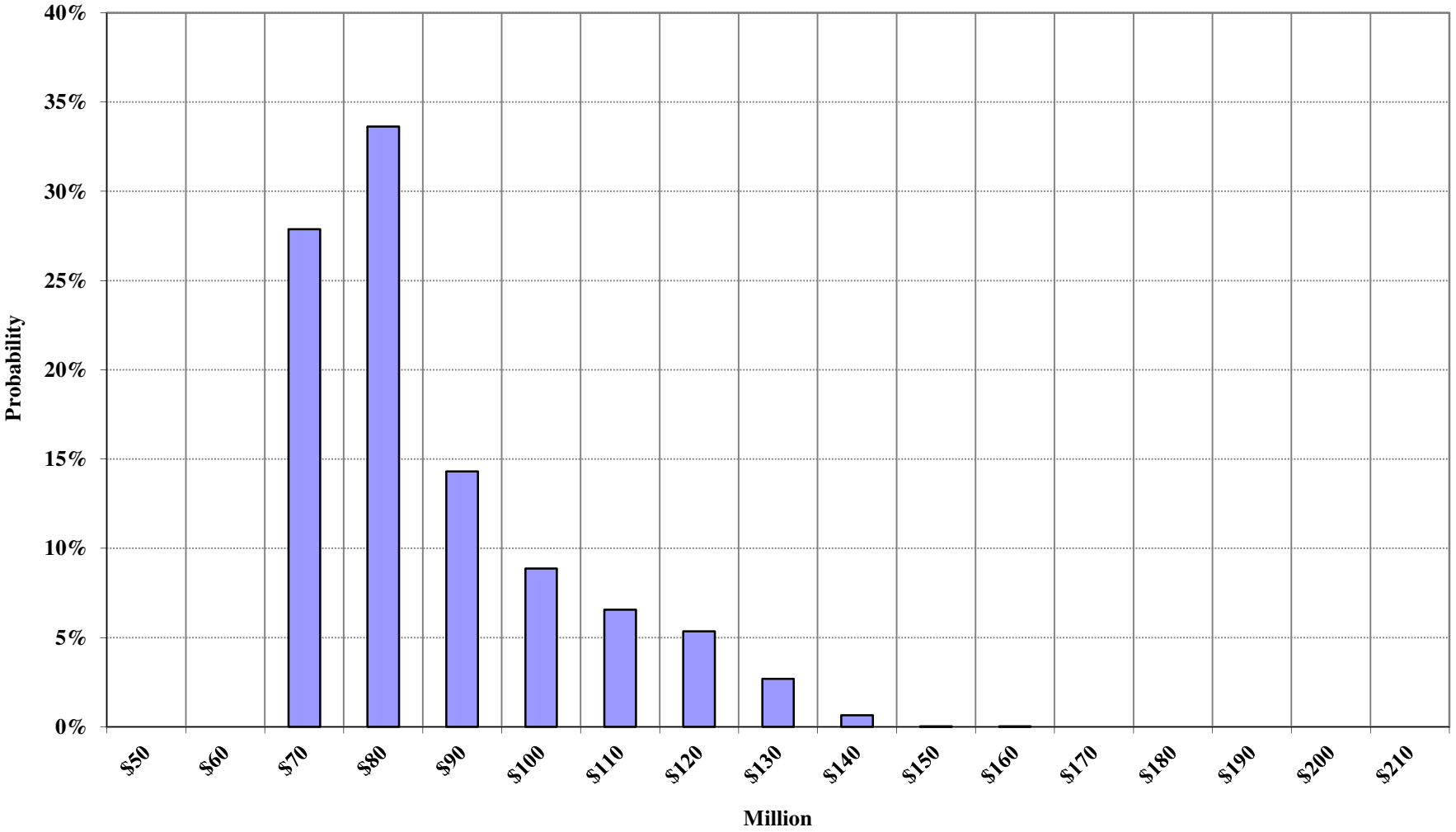


Figure 7: 4(h)(10)(C) Credits Distribution for FY 2019



	A	B	C	D	E
1	**Table 14:** **Augmentation Power Purchases for FY 2018 and FY 2019** **Average Annual Price for WY 1937 from Risk Analysis** **Used for Rate Calculations**				
6	**FY**	**MW**	**Hours**	**$/MWh**	**Exp. ($ 000)**
7	**2018**	0	8,760	27.26	$ -
8	**2019**	52	8,760	26.99	$ 12,222

	A	B	C	D	E
1	**Table 15:** **Firm Surplus Power Sale** **Average Annual Price AURORA Mid-c Price** **Used for Rate Calculations**				
2					
3					
4					
5					
6	**FY**	**MW**	**Hours**	**$/MWh**	**Exp. ($ 000)**
7	**2018**	177	8,760	23.14	$ 35,857
8	**2019**	0	8,760	22.83	$ -

	A	B	C	D	E	F
1	**Table 16:** **Calculation of Surplus Energy Revenues and Balancing Power Purchase Expenses Provided to RAM2018, FY 2018**					
2	**Total Game Counter**	**Iteration**	**Sales Rev Total ($000)**	**Purch Exp Total ($000)**	**Net Secondary Revenue (Sales Rev. - Purch. Exp.) ($000)**	**Counter From Median**
3	1	1815	$ 56,278	$ 155,442	$ (99,164)	
4	2	599	$ 67,906	$ 144,802	$ (76,896)	
5	3	360	$ 84,436	$ 157,417	$ (72,981)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	1441	872	$ 294,546	$ 18,590	$ 275,956	160
10	1442	2617	$ 286,010	$ 9,887	$ 276,122	159
11	1443	1793	$ 300,747	$ 24,475	$ 276,272	158
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	1598	1194	$ 324,861	$ 16,321	$ 308,540	3
16	1599	1825	$ 338,922	$ 30,333	$ 308,589	2
17	1600	2076	$ 320,167	$ 11,516	$ 308,651	1
18	1601	2534	$ 313,655	$ 4,987	$ 308,668	1
19	1602	1622	$ 312,373	$ 3,702	$ 308,671	2
20	1603	2181	$ 310,646	$ 1,858	$ 308,788	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	1758	890	$ 357,217	$ 18,637	$ 338,580	158
25	1759	1122	$ 355,336	$ 16,509	$ 338,827	159
26	1760	2975	$ 348,034	$ 8,960	$ 339,074	160
27	*	*	*	*	*	
28	*	*	*	*	*	
29	*	*	*	*	*	
30	3198	3084	$ 1,113,552	$ 12,871	$ 1,100,681	
31	3199	418	$ 1,107,535	$ 6,116	$ 1,101,419	
32	3200	2984	$ 1,168,713	$ 4,172	$ 1,164,542	
33						
34	**Average (3,200 Games)**		**$ 349,404**	**$ 29,615**	**$ 319,789**	
35	**Median (3,200 Games)**		**$ 330,848**	**$ 17,868**	**$ 308,659**	
36						
37	**Average to RAM ($000)**		**$ 329,349**	**$ 21,877**	**$ 307,472**	
38	**(160 Above, 160 Below Median Net Secondary Revenue)**					
39						
40	**SILS Purchases ($000)**			**$ 38,382**	**$ (38,382)**	
41	**Redispatch of Transmission Exp. ($000)**			**$ 225**	**$ (225)**	
42	**WAPA Forward Sale ($000)**		**$ 2,318**		**$ 2,318**	
43	**DSI TF Sales Revenue ($000)**		**$ 2,298**		**$ 2,298**	
44	**CAISO Sales Revenue ($000)**		**$ 8,565**		**$ 8,565**	
45						
46	**Total Median Sales/Purchases to RAM ($000)**		**$ 342,529**	**$ 60,484**	**$ 282,046**	

	A	B	C	D	E	F
1	**Table 17:** **Calculation of Surplus Energy Revenues and Balancing Power Purchase Expenses Provided to RAM2018, FY 2019**					
2	**Total Game Counter**	**Iteration**	**Sales Rev Total ($000)**	**Purch Exp Total ($000)**	**Net Secondary Revenue (Sales Rev. - Purch. Exp.) ($000)**	**Counter From Median**
3	1	711	$ 83,772	$ 139,867	$ (56,096)	
4	2	910	$ 76,801	$ 129,898	$ (53,097)	
5	3	1734	$ 68,390	$ 121,064	$ (52,674)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	1441	2969	$ 301,537	$ 12,288	$ 289,249	160
10	1442	1395	$ 292,861	$ 3,511	$ 289,349	159
11	1443	289	$ 311,986	$ 22,029	$ 289,957	158
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	1598	1585	$ 322,708	$ 4,643	$ 318,065	3
16	1599	1658	$ 434,332	$ 116,120	$ 318,212	2
17	1600	1346	$ 324,831	$ 6,605	$ 318,226	1
18	1601	2692	$ 336,447	$ 18,191	$ 318,257	1
19	1602	696	$ 331,425	$ 13,000	$ 318,425	2
20	1603	272	$ 372,179	$ 53,663	$ 318,516	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	1758	2699	$ 353,750	$ 2,447	$ 351,303	158
25	1759	700	$ 359,208	$ 7,720	$ 351,487	159
26	1760	271	$ 369,774	$ 18,232	$ 351,542	160
27	*	*	*	*	*	
28	*	*	*	*	*	
29	*	*	*	*	*	
30	3198	308	$ 1,085,314	$ 2,259	$ 1,083,055	
31	3199	263	$ 1,146,635	$ 4,733	$ 1,141,903	
32	3200	669	$ 1,224,028	$ -	$ 1,224,028	
33						
34	**Average (3,200 Games)**		**$ 356,539**	**$ 22,754**	**$ 333,785**	
35	**Median (3,200 Games)**		**$ 335,398**	**$ 11,220**	**$ 318,241**	
36						
37	**Average to RAM ($000)**		**$ 334,245**	**$ 15,743**	**$ 318,502**	
38	**(160 Above, 160 Below Median Net Secondary Revenue)**					
39						
40	**SILS Purchases ($000)**			**$ 38,441**	**$ (38,441)**	
41	**Redispatch of Transmission Exp. ($000)**			**$ 225**	**$ (225)**	
42	**WAPA Forward Sale ($000)**				**$ -**	
43	**DSI TF Sales Revenue ($000)**				**$ -**	
44	**CAISO Sales Revenue ($000)**		**$ 9,650**		**$ 9,650**	
45						
46	**Total Median Sales/Purchases to RAM ($000)**		**$ 343,895**	**$ 54,409**	**$ 289,486**	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 18:** **Monthly Secondary Energy Sales and Revenues for FY 2018 and FY2019**													
2														
3		**Secondary Energy Sales and Revenues for FY 2018**												
4														
5		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual Stats**
6	Hours	744	721	744	744	672	743	720	744	720	744	744	720	8,760
7	Surplus Energy Sales (aMW)	474	620	934	1,808	1,834	2,156	2,570	4,373	4,320	2,415	1,252	561	1,943
8	**Secondary Energy Sales Revenues**	**$ 8,605**	**$ 9,744**	**$ 15,616**	**$ 29,834**	**$ 25,256**	**$ 26,212**	**$ 33,271**	**$ 47,509**	**$ 52,016**	**$ 46,396**	**$ 24,254**	**$ 10,636**	**$ 329,349**
9														
10	WAPA Sales (aMW)	25	25	25										6
11	**WAPA Sales Revenue ($000)**	**$782**	**$757**	**$778**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,318**
12														
13	**DSI TF Sales Revenue ($000)**	**$491**	**$500**	**$554**	**$523**	**$230**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,298**
14														
15	**Cal ISO Sales Revenue ($000)**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$714**	**$8,565**
16														
17	**Total Net Secondary Sales**	**$ 10,592**	**$ 11,715**	**$ 17,661**	**$ 31,071**	**$ 26,200**	**$ 26,925**	**$ 33,985**	**$ 48,222**	**$ 52,730**	**$ 47,110**	**$ 24,968**	**$ 11,350**	**$ 342,529**
18														
19		**Secondary Energy Sales and Revenues for FY 2019**												
20														
21		**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Annual Stats**
22	Hours	744	721	744	744	672	743	720	744	720	744	744	720	8,760
23	Surplus Energy Sales (aMW)	529	728	1,016	1,871	1,925	2,287	2,676	4,016	3,717	2,577	1,359	634	1,945
24	**Secondary Energy Sales Revenues**	**$ 8,978**	**$ 12,114**	**$ 16,482**	**$ 28,014**	**$ 25,043**	**$ 28,739**	**$ 34,541**	**$ 44,743**	**$ 52,284**	**$ 46,212**	**$ 25,065**	**$ 12,029**	**$ 334,245**
25														
26	WAPA Sales (aMW)													
27	**WAPA Sales Revenue ($000)**													
28														
29	**DSI TF Sales Revenue ($000)**													
30														
31	**Cal ISO Sales Revenue ($000)**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$804**	**$9,650**
32														
33	**Total Net Secondary Sales**	**$ 9,783**	**$ 12,918**	**$ 17,286**	**$ 28,818**	**$ 25,847**	**$ 29,543**	**$ 35,345**	**$ 45,547**	**$ 53,088**	**$ 47,016**	**$ 25,869**	**$ 12,834**	**$ 343,895**

Table 19:
Monthly Power Purchases and Expenses for FY 2018 and FY 2019

Power Purchases and Expenses for FY 2018

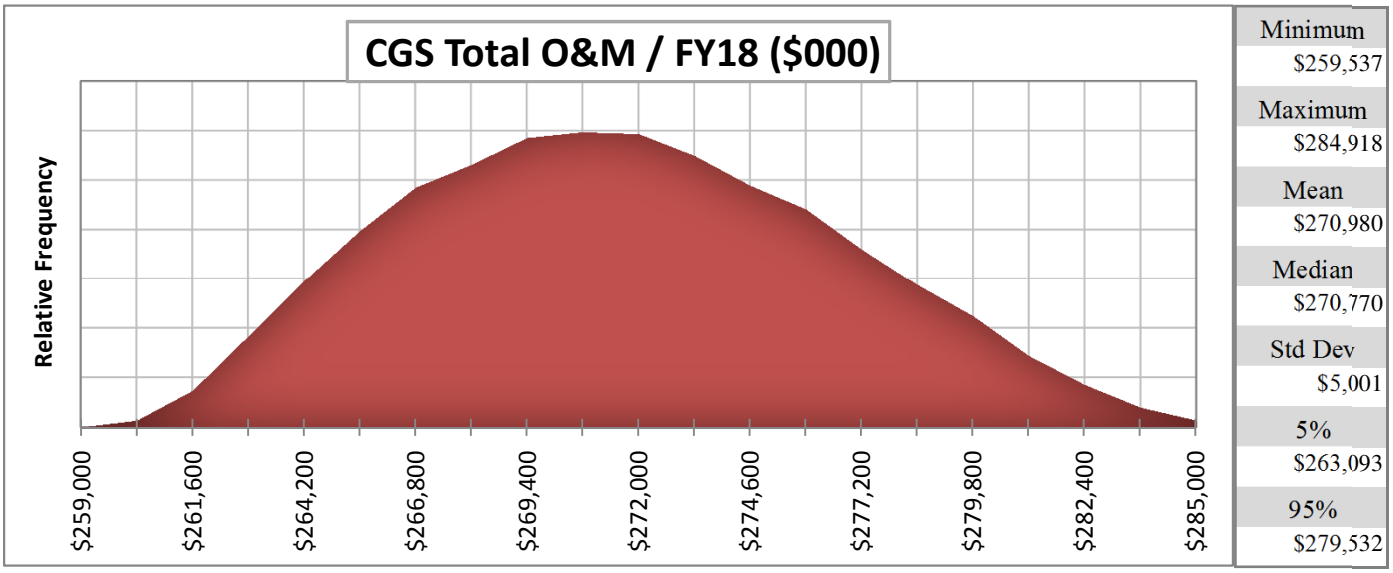
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	672	743	720	744	720	744	744	720	8,760
Balancing Power Purchases (aMW)	191	97	264	261	227	52	51	0	17	82	118	240	133
Balancing Power Purchases Expenses ($000)	**$ 3,719**	**$ 2,124**	**$ 4,802**	**$ 3,164**	**$ 2,270**	**$ 263**	**$ 203**	**$ -**	**$ -**	**$ 131**	**$ 1,546**	**$ 3,657**	**$ 21,877**
Transmission re-dispatch for Gen Inputs adjustment	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 225**
SILS Forward Power Purchases (aMW)	111	110	110	111	111	111	89	89	91	88	91	87	100
SILS Forward Power Purchases Expenses ($000)	**$ 3,468**	**$ 3,358**	**$ 3,452**	**$ 3,468**	**$ 3,141**	**$ 3,481**	**$ 2,948**	**$ 3,056**	**$ 3,007**	**$ 2,997**	**$ 3,115**	**$ 2,889**	**$ 38,382**
Total Power Purchases (aMW)	302	207	375	372	338	163	140	89	107	170	209	327	233
Total Power Purchases Expenses ($000)	**$ 7,206**	**$ 5,501**	**$ 8,272**	**$ 6,651**	**$ 5,429**	**$ 3,763**	**$ 3,170**	**$ 3,075**	**$ 3,026**	**$ 3,147**	**$ 4,680**	**$ 6,565**	**$ 60,484**

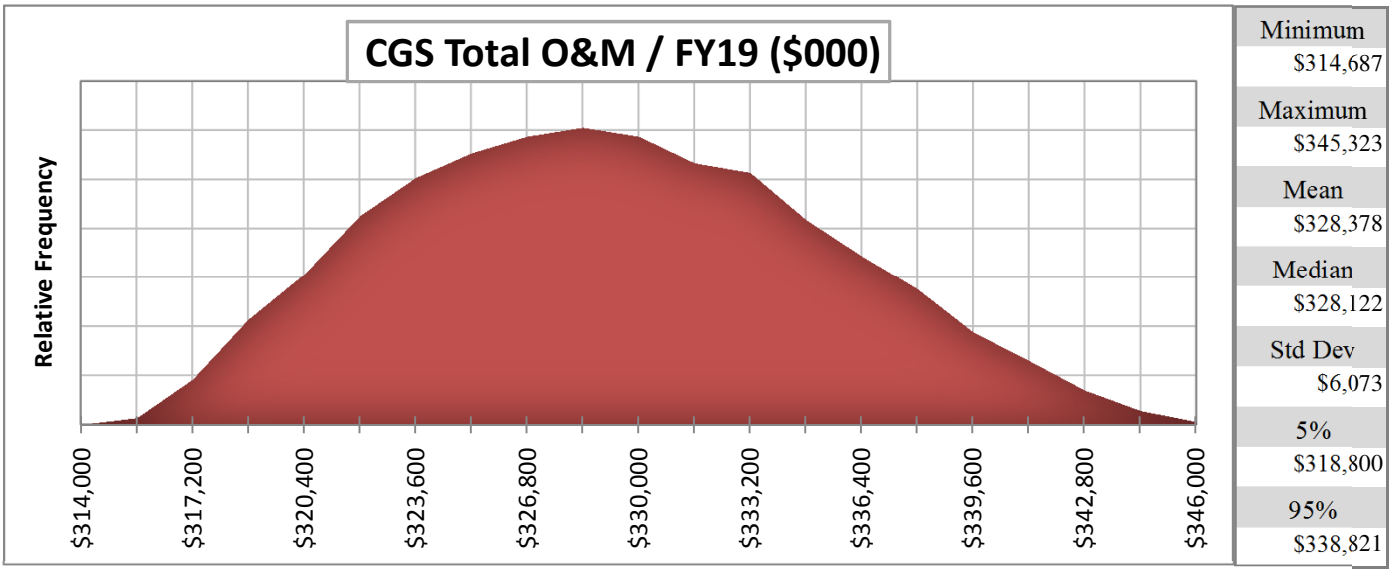
Power Purchases and Expenses for FY 2019

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	672	743	720	744	720	744	744	720	8,760
Balancing Power Purchases (aMW)	94	70	225	237	205	48	23	0	69	57	65	151	103
Balancing Power Purchases Expenses ($000)	**$ 1,782**	**$ 1,291**	**$ 4,254**	**$ 3,038**	**$ 2,297**	**$ 184**	**$ 21**	**$ -**	**$ -**	**$ 61**	**$ 672**	**$ 2,143**	**$ 15,743**
Transmission re-dispatch for Gen Inputs adjustment	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 19**	**$ 225**
SILS Forward Power Purchases (aMW)	111	110	110	111	111	111	91	89	89	89	91	87	100
SILS Forward Power Purchases Expenses ($000)	**$ 3,485**	**$ 3,358**	**$ 3,452**	**$ 3,468**	**$ 3,141**	**$ 3,464**	**$ 3,007**	**$ 3,056**	**$ 2,948**	**$ 3,056**	**$ 3,115**	**$ 2,889**	**$ 38,441**
Total Power Purchases (aMW)	205	180	335	348	316	159	114	89	158	146	155	238	203
Total Power Purchases Expenses ($000)	**$ 5,285**	**$ 4,668**	**$ 7,725**	**$ 6,525**	**$ 5,457**	**$ 3,667**	**$ 3,047**	**$ 3,075**	**$ 2,967**	**$ 3,136**	**$ 3,806**	**$ 5,051**	**$ 54,409**

	A	B	C
1	**Table 20:** **Annual Secondary Energy Sales/Revenues and Power Purchases/Expenses for FY 2018 and FY 2019**		
2		**FY 2018**	**FY 2019**
3	**Annual Hours**	**8,760**	**8,760**
4	**Secondary Energy Sales (aMW)**	1,943	1,945
5	**Secondary Energy Revenues ($000)**	**$ 329,349**	**$ 334,245**
6	**WAPA Power Sales (aMW)**	6	0
7	**WAPA Sales Revenue ($000)**	**$ 2,318**	**$ -**
8			
9	**DSI TF Sales Revenue ($000)**	**$ 2,298**	
10			
11	**Cal ISO Sales Revenue ($000)**	**$ 8,565**	**$ 9,650**
12			
13	**Total Power Sales (aMW)**	**1,943**	**1,945**
14	**Total Power Sales Revenue ($000)**	**$ 342,529**	**$ 343,895**
15			
16	Balancing Power Purchases (aMW)	133	103
17	**Balancing Power Purchases Expenses ($000)**	**$ 21,877**	**$ 15,743**
18	**Transmission Re-dispatch for Gen Inputs Adjustment ($000)**	**$ 225**	**$ 225**
19	**SILS Power Purchases (aMW)**	**100**	**100**
20	**SILS Power Purchases Expenses ($000)**	**$ 38,382**	**$ 38,441**
21			
22	Total Power Purchases (aMW)	233	203
23	**Total Power Purchases Expenses ($000)**	**$ 60,484**	**$ 54,409**

Figure 8:
CGS O&M Distributions





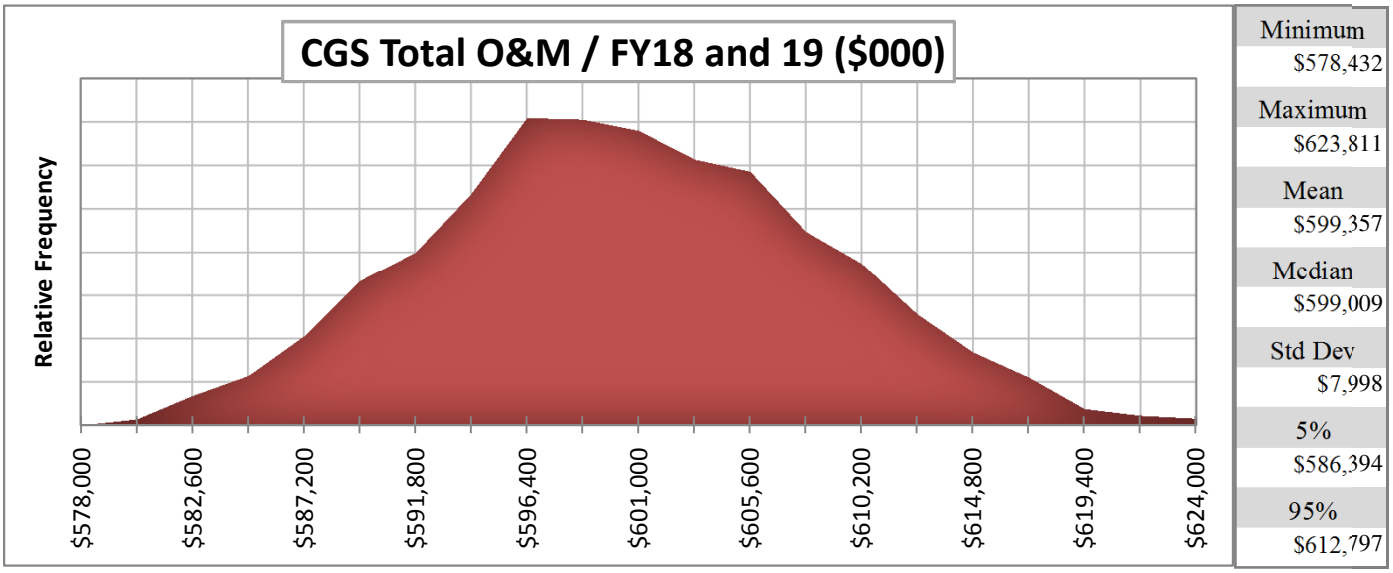
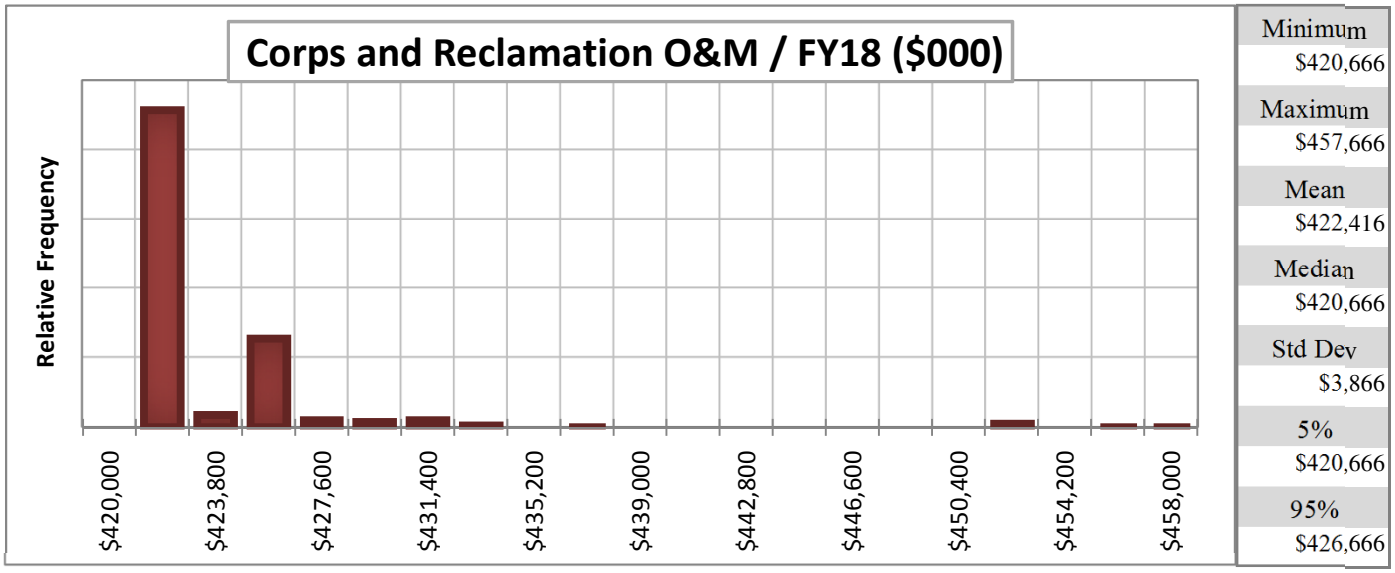
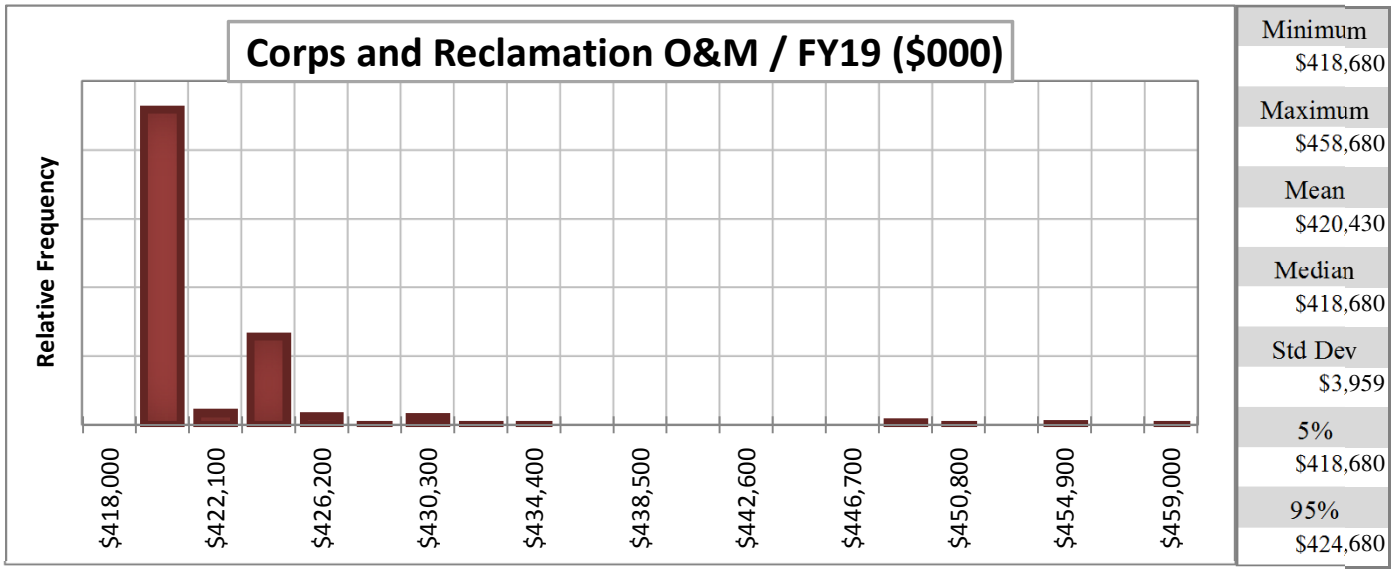


Figure 9:
Corps of Engineers and Bureau of Reclamation O&M Distributions





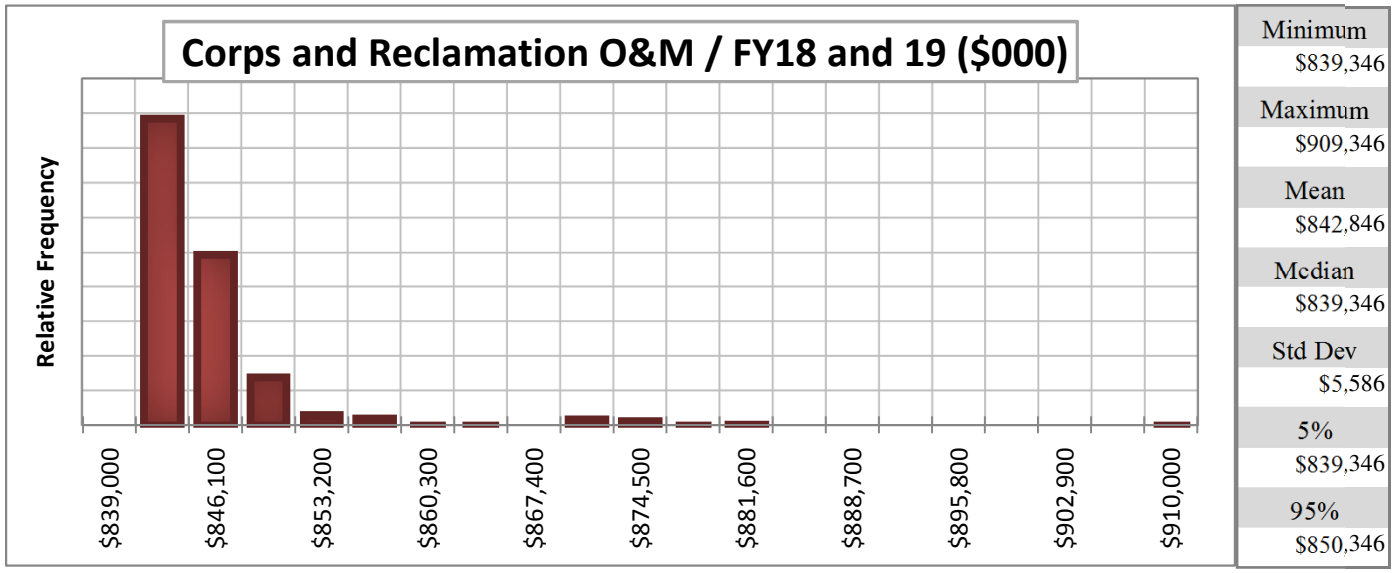
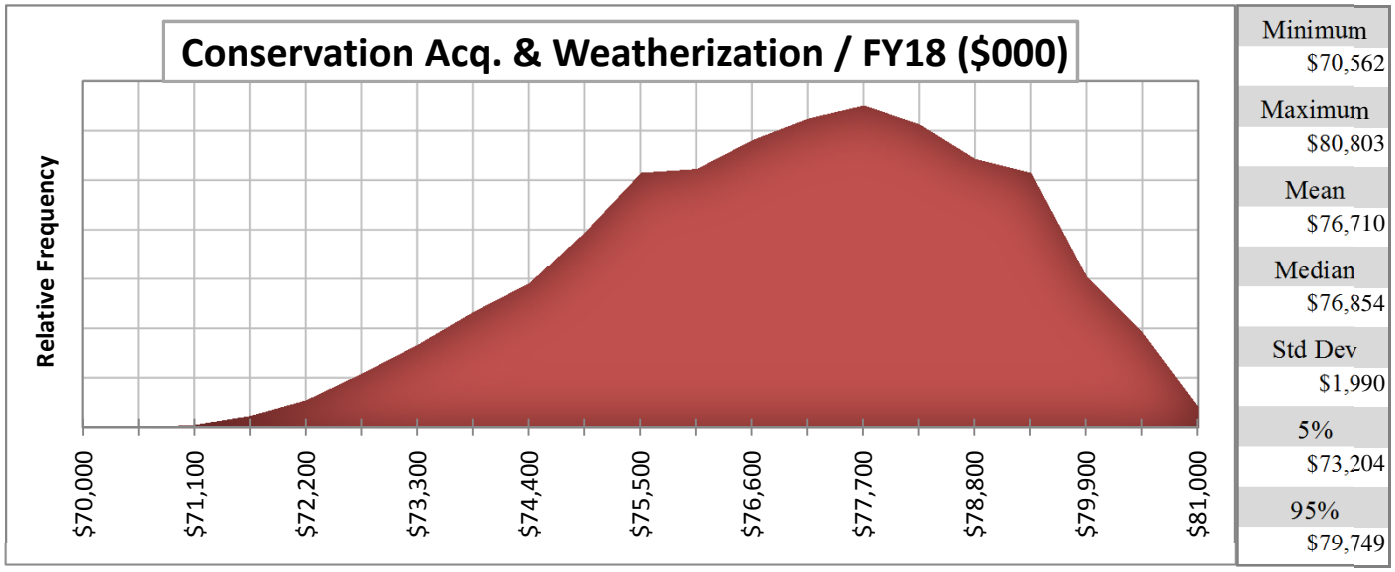
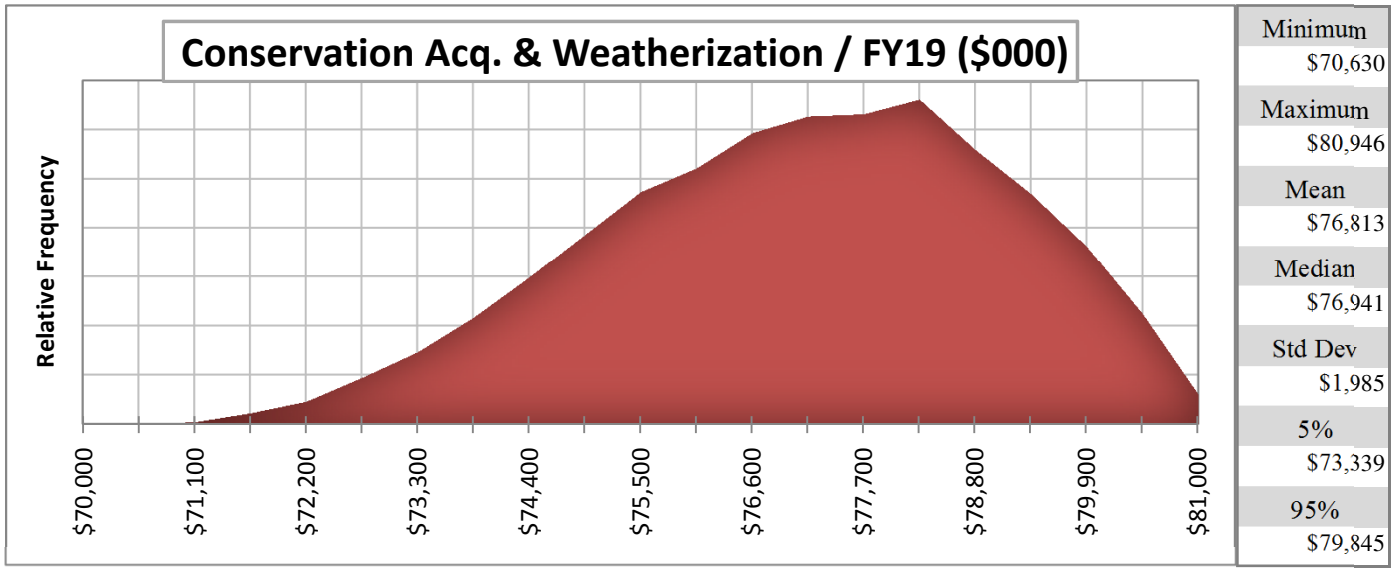


Figure 10:
Conservation Acquisition and Weatherization Expense Distributions





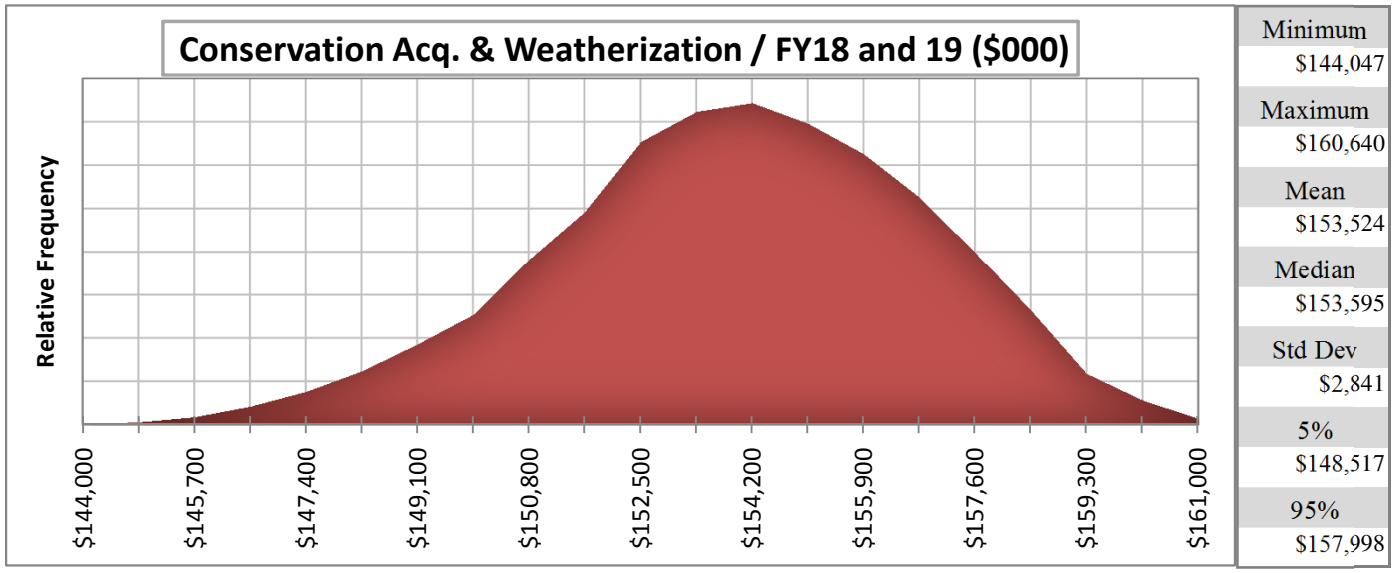
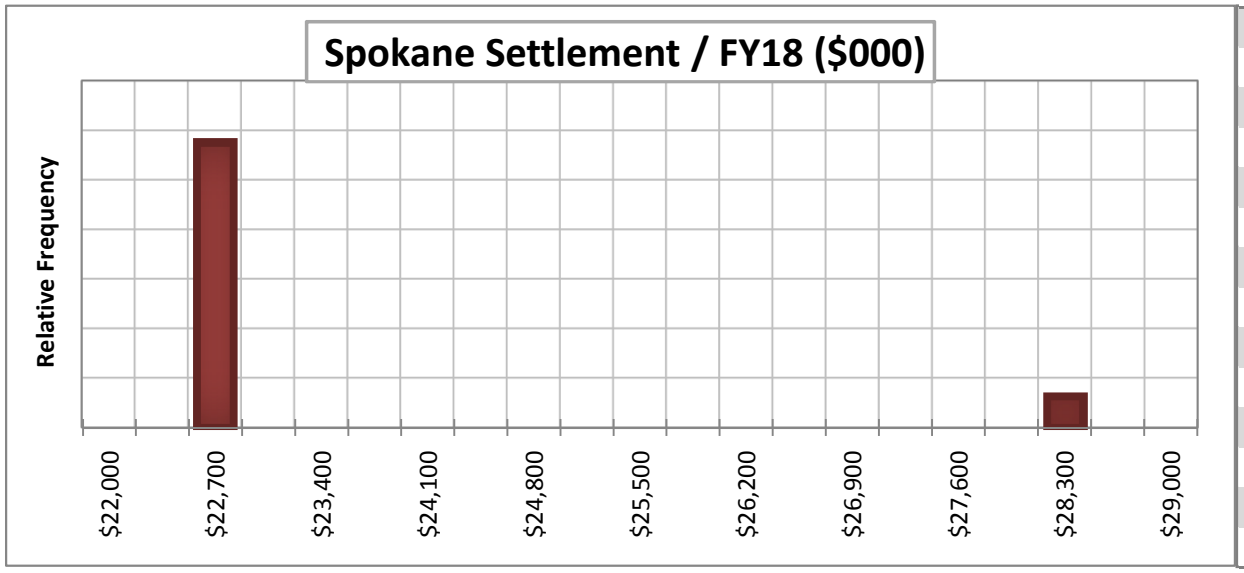
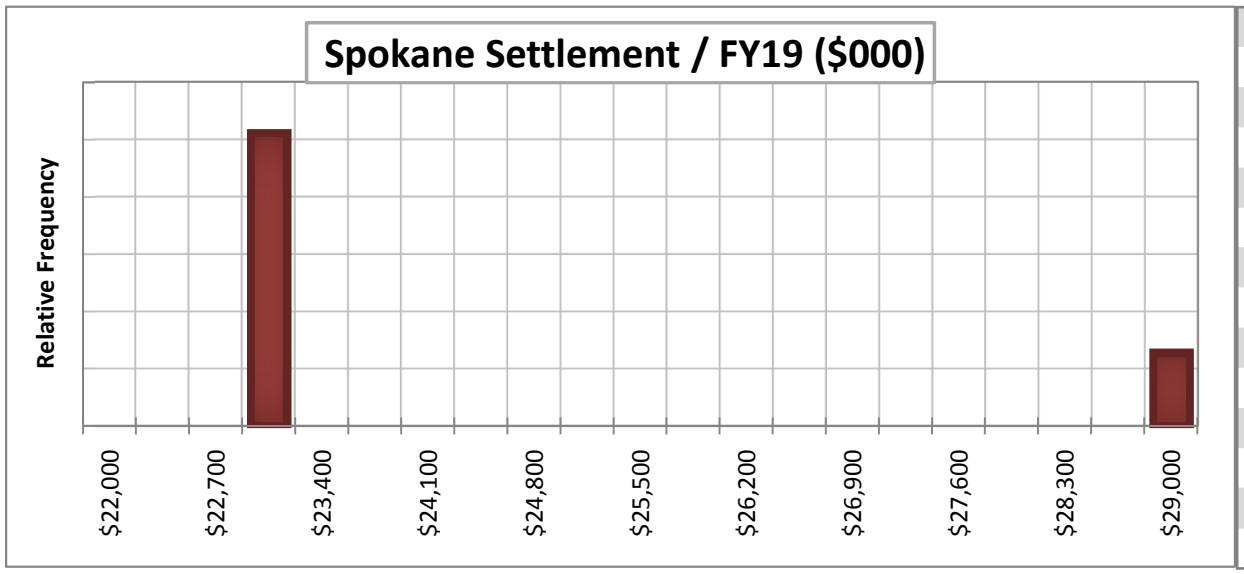


Figure 11:
Spokane Settlement Payment Distributions





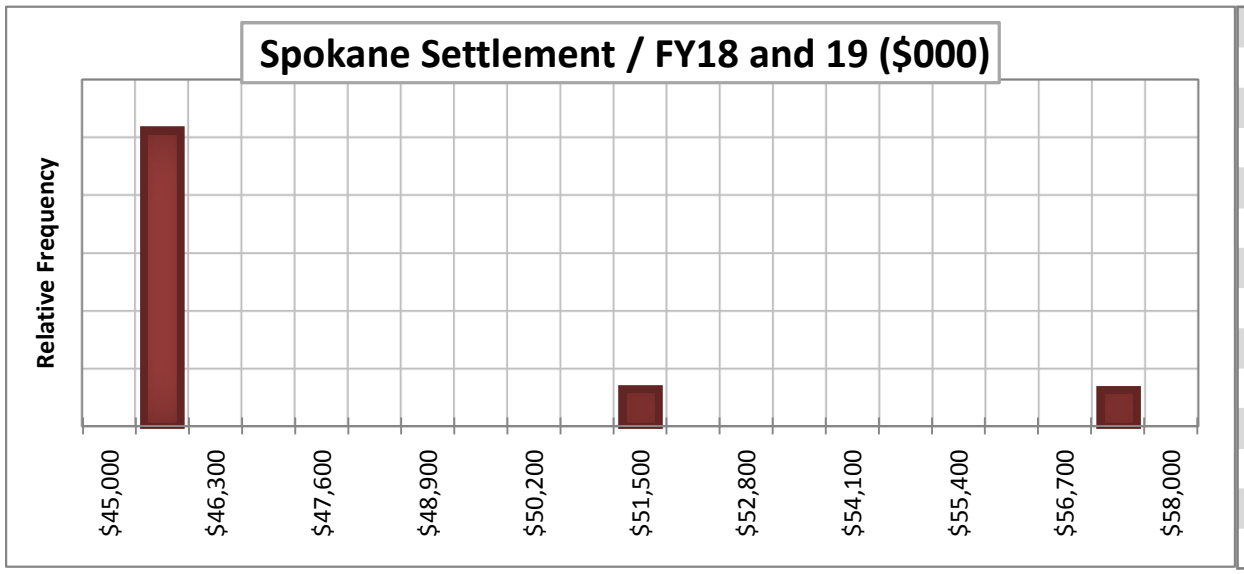
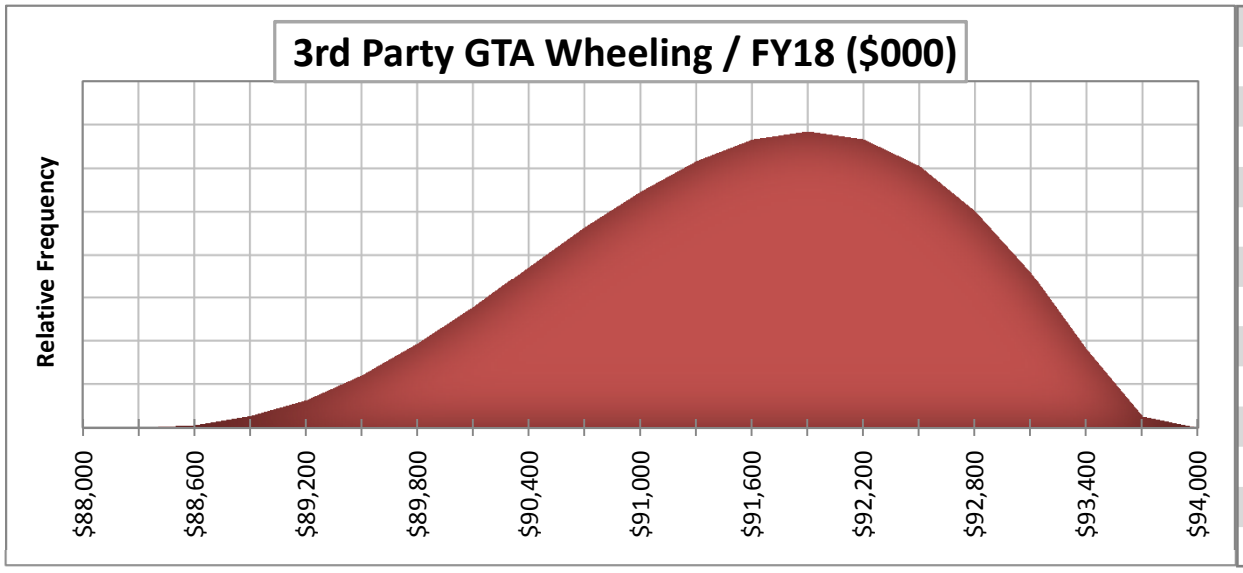
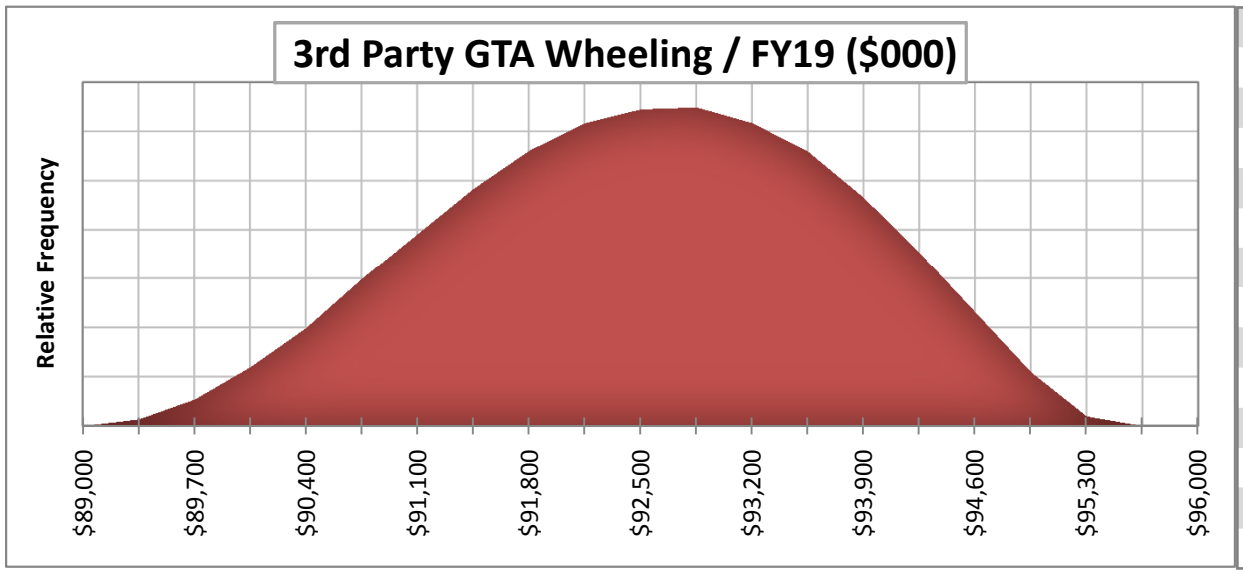


Figure 12:
Third-Party GTA Wheeling Expense Distributions





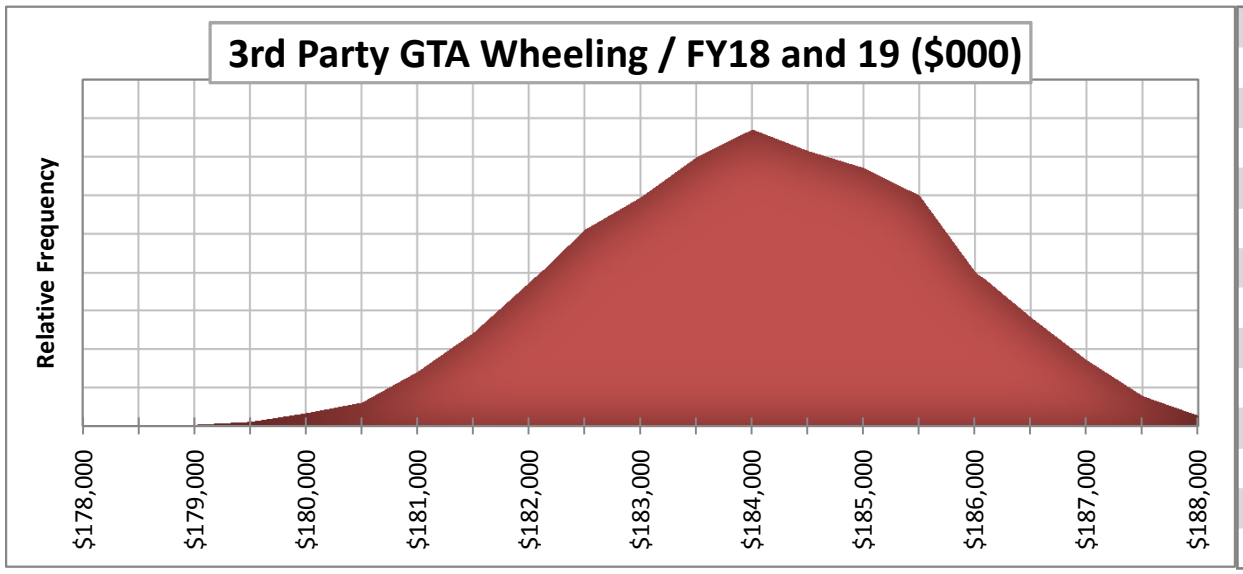
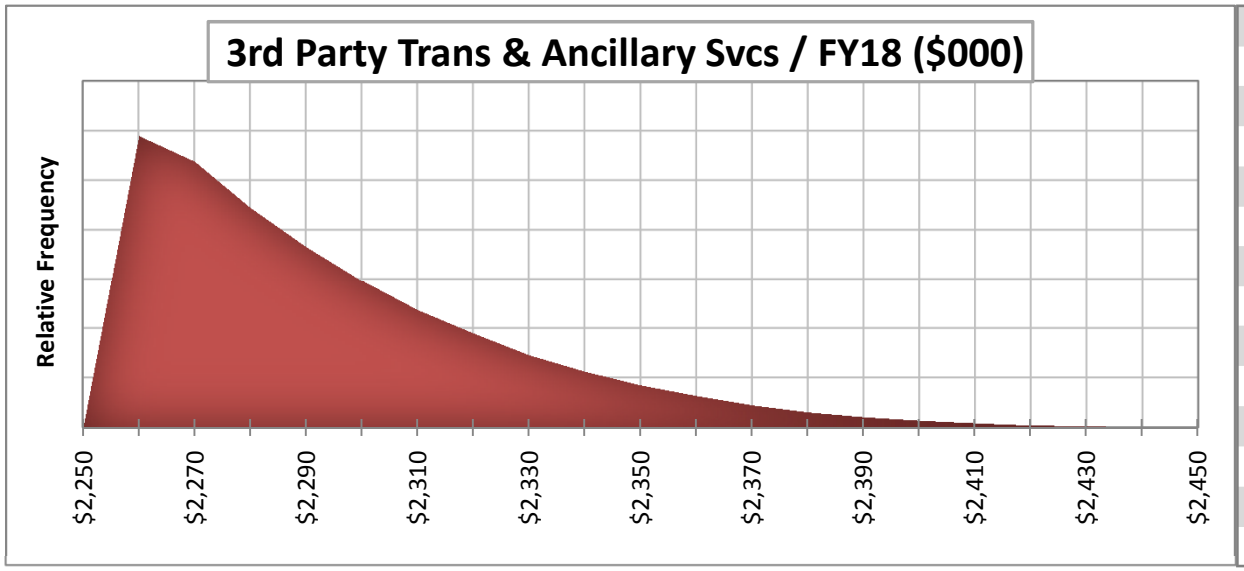
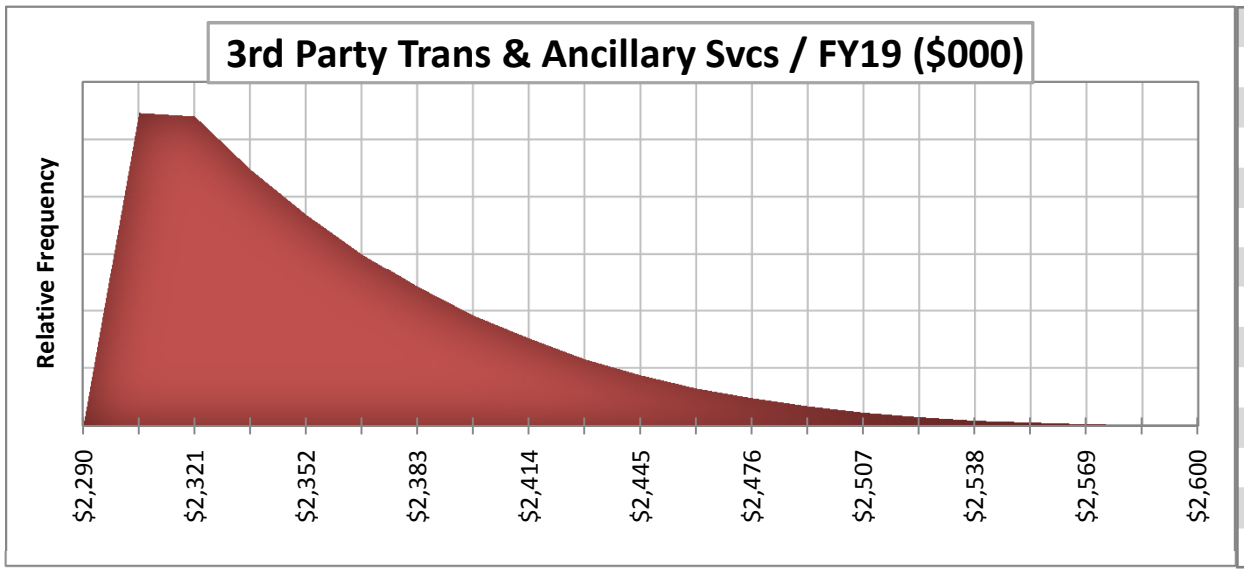


Figure 13:
Third-Party Transmission and Ancillary Services Expense Distributions





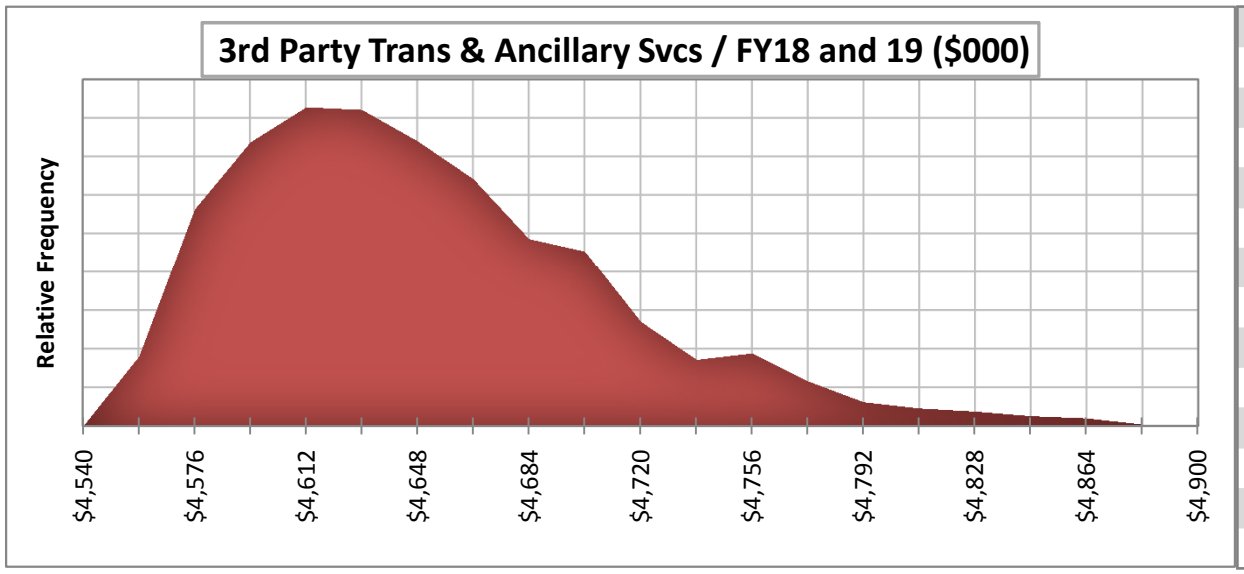
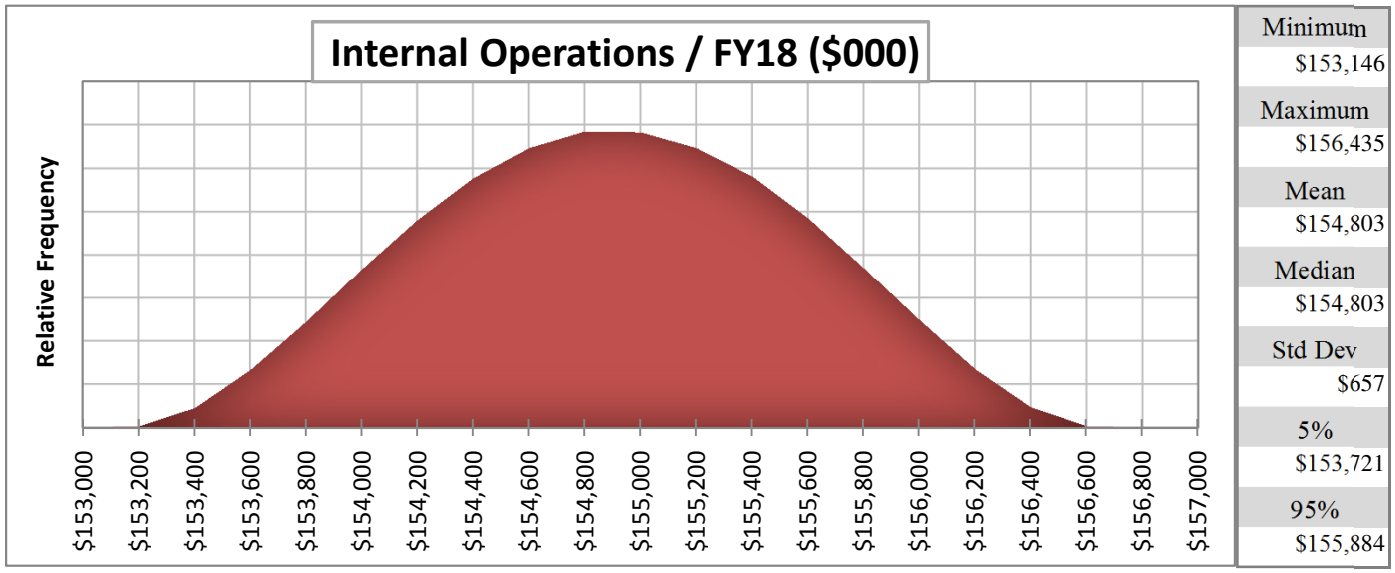
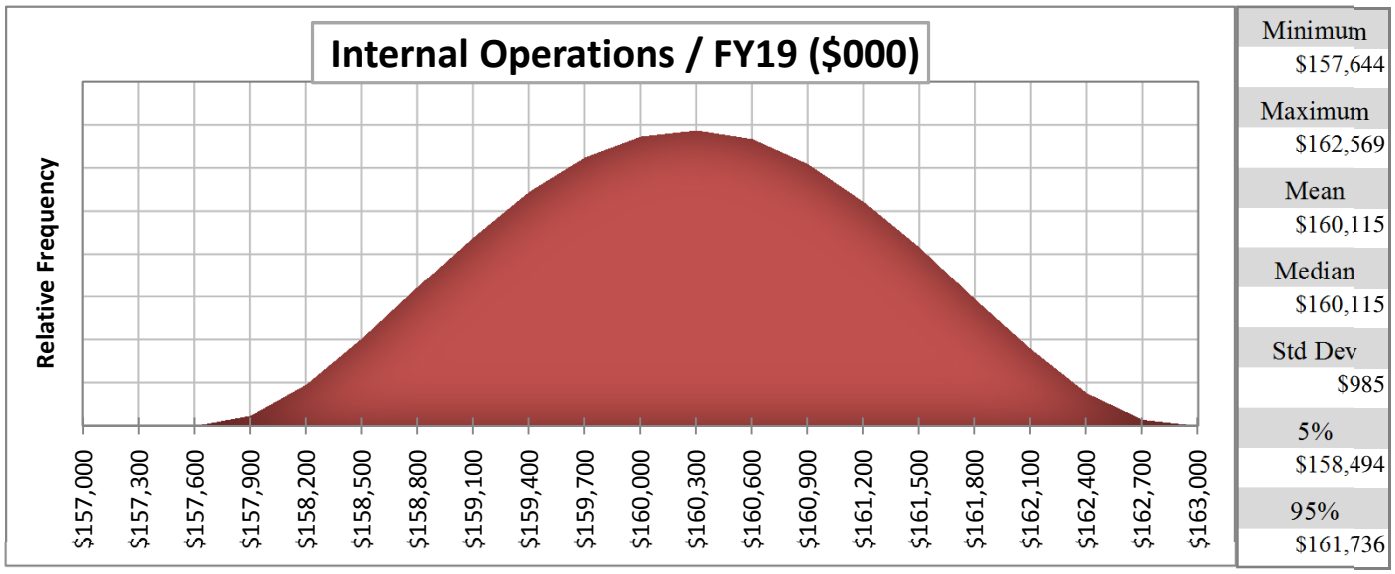


Figure 14:
Internal Operations Expense Distributions





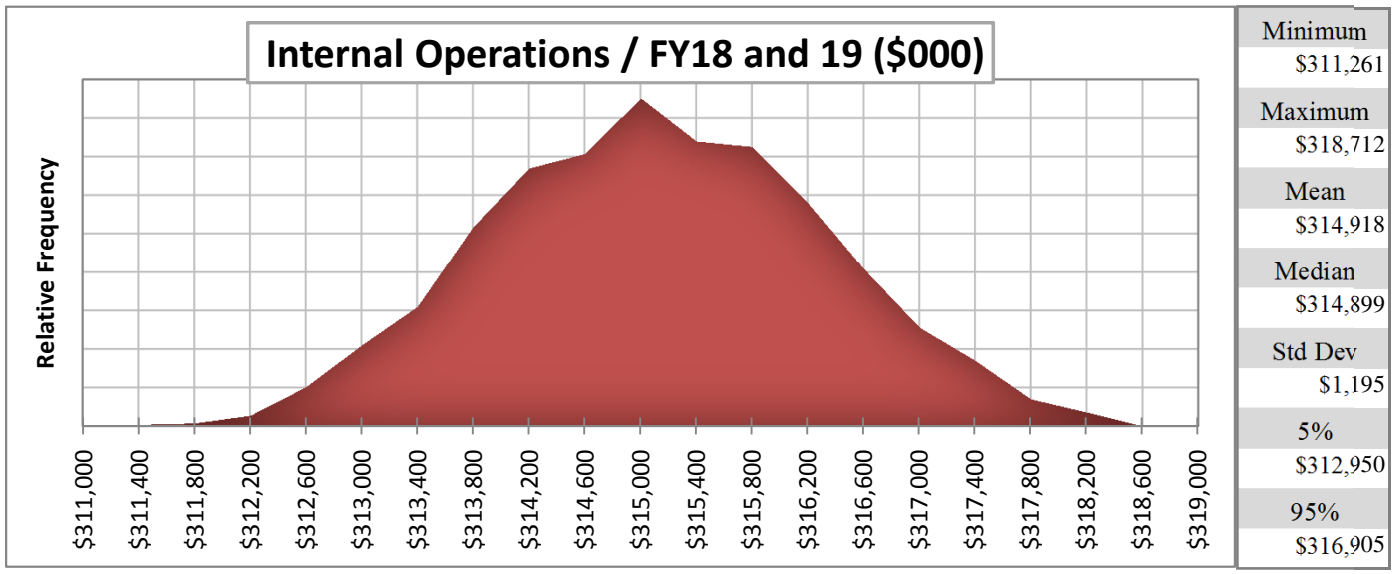
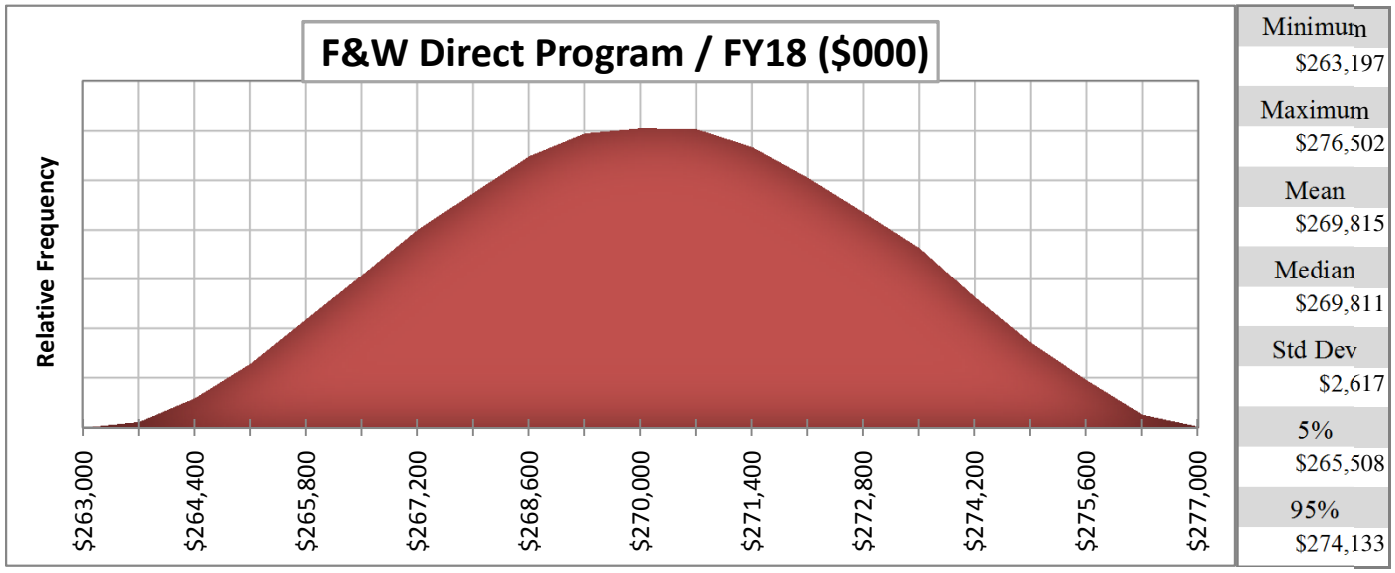
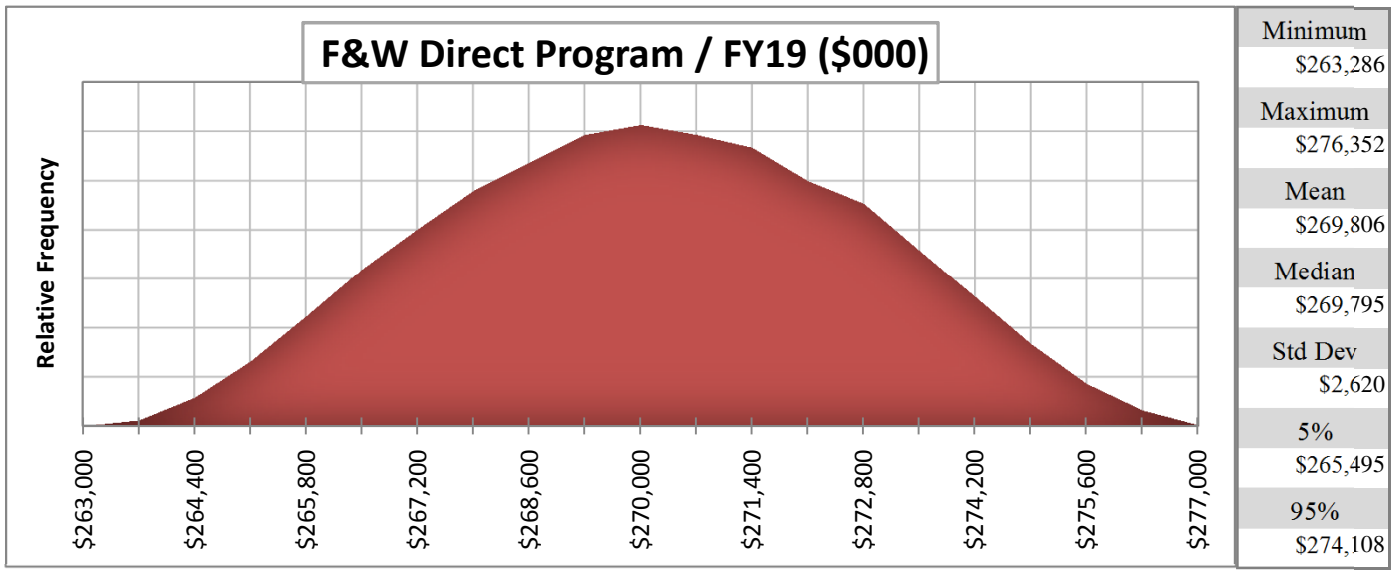


Figure 15:
Fish and Wildlife Direct Program Expense Distributions





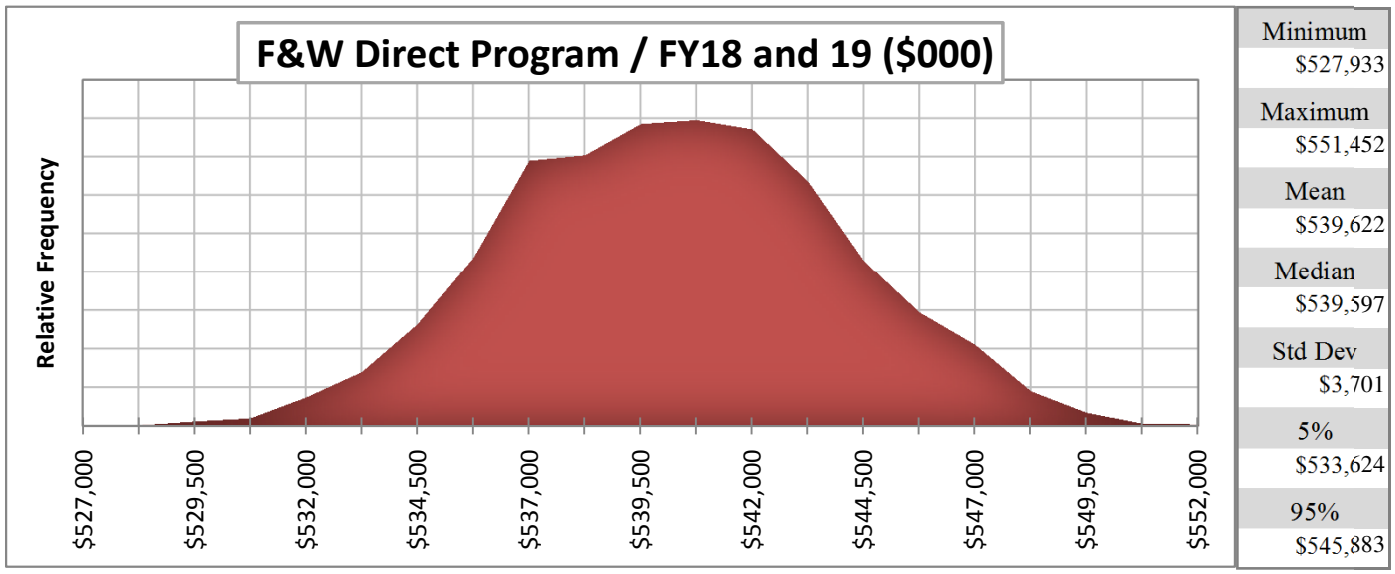
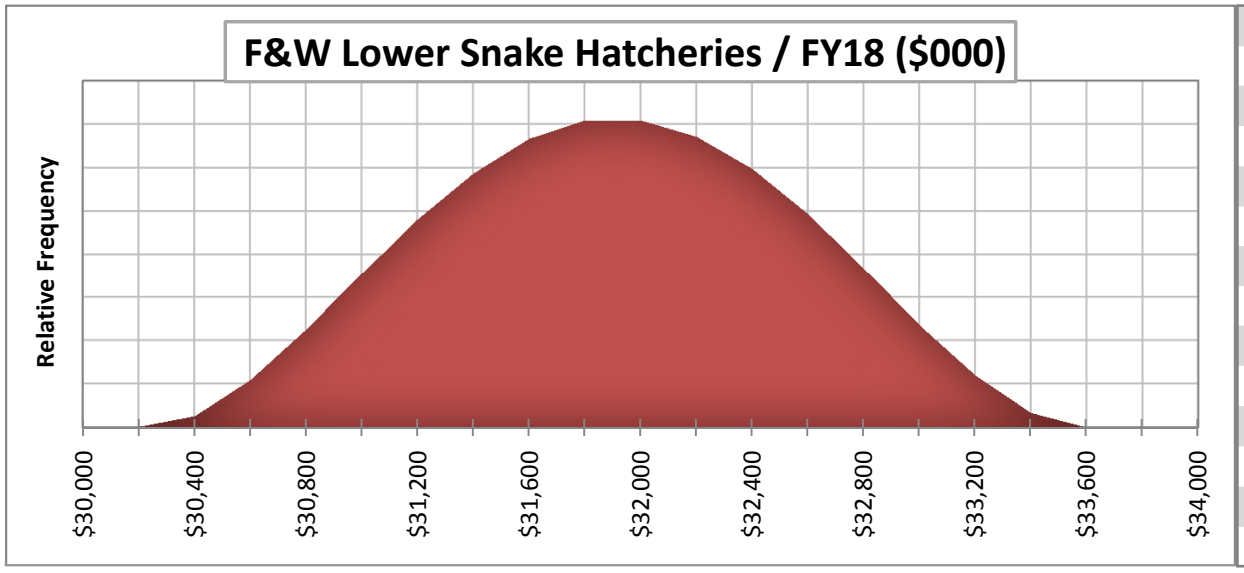
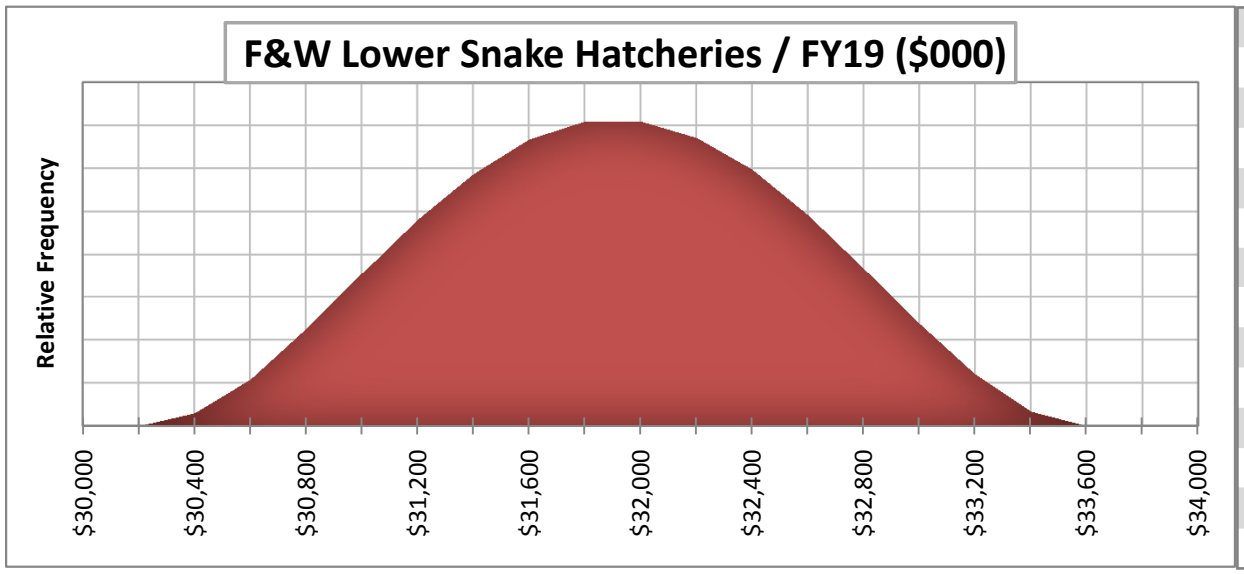


Figure 16:
Lower Snake River Hatcheries Expense Distributions





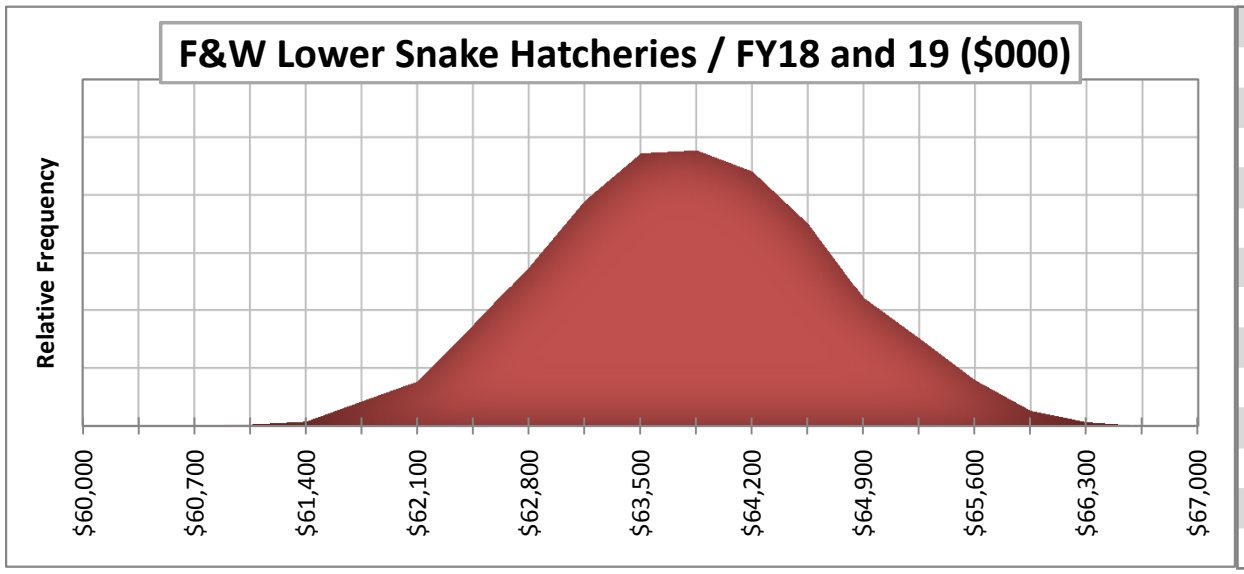
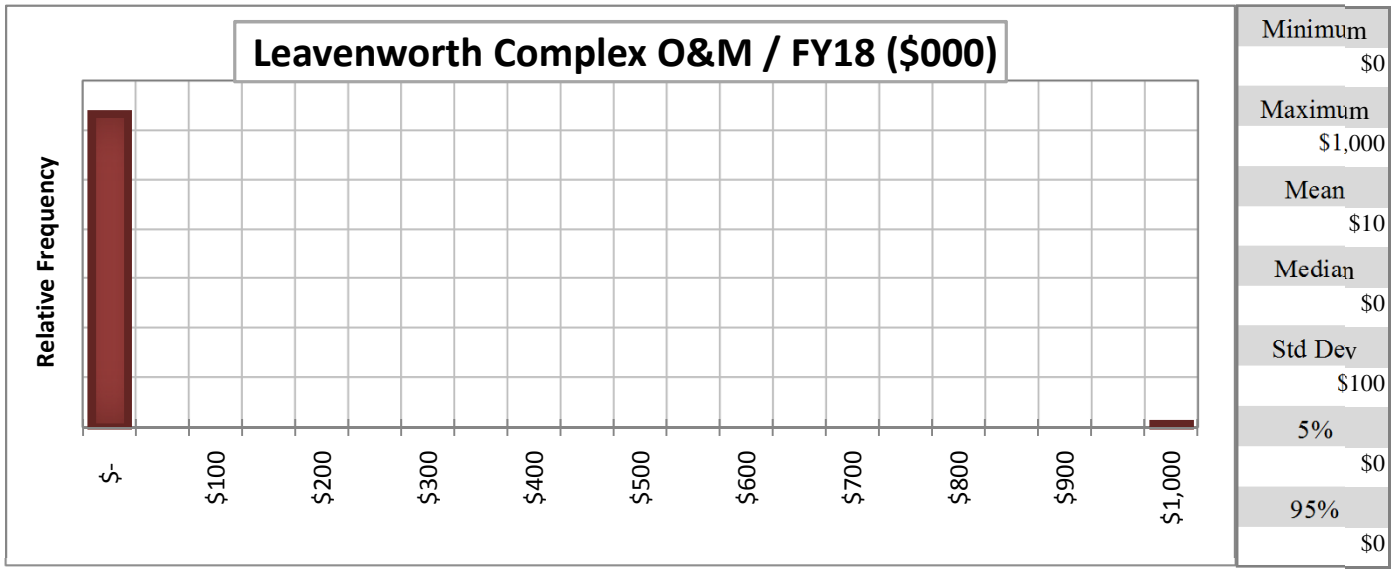
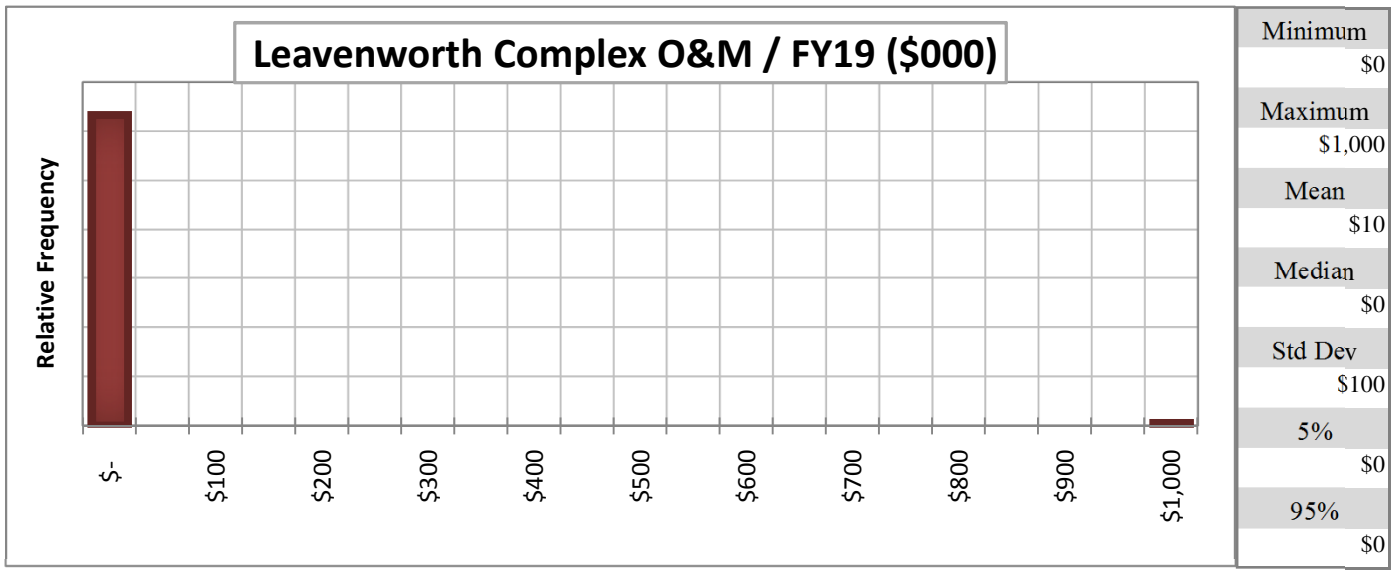


Figure 17:
Leavenworth Complex O&M Expense Distributions





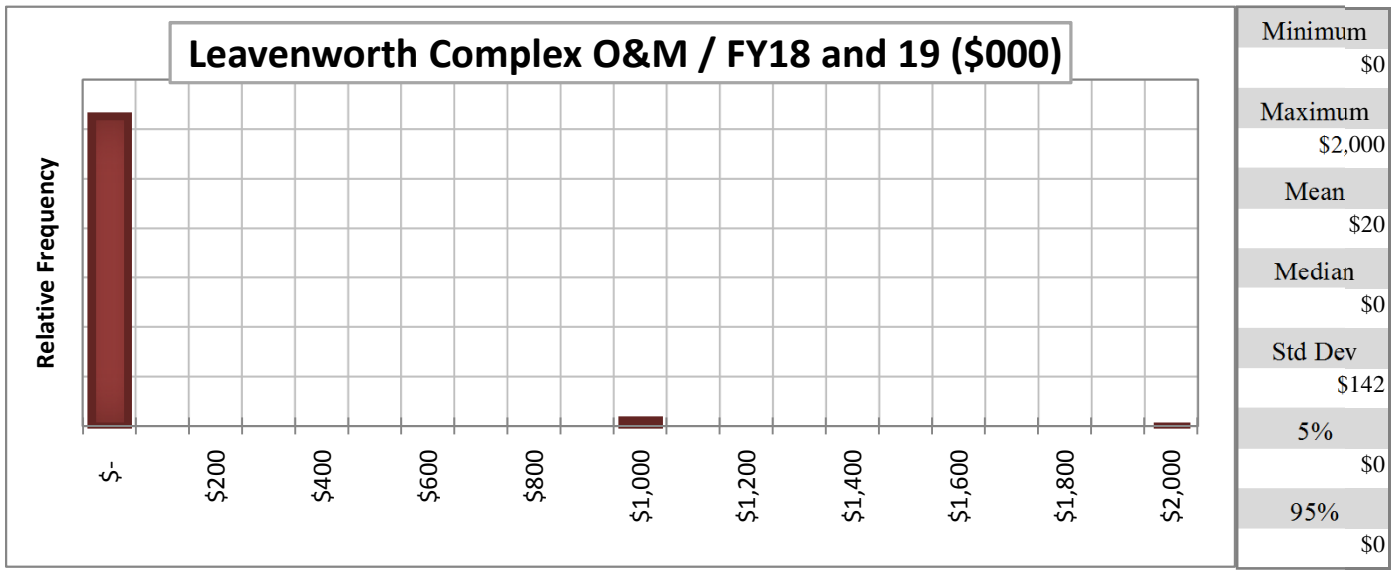
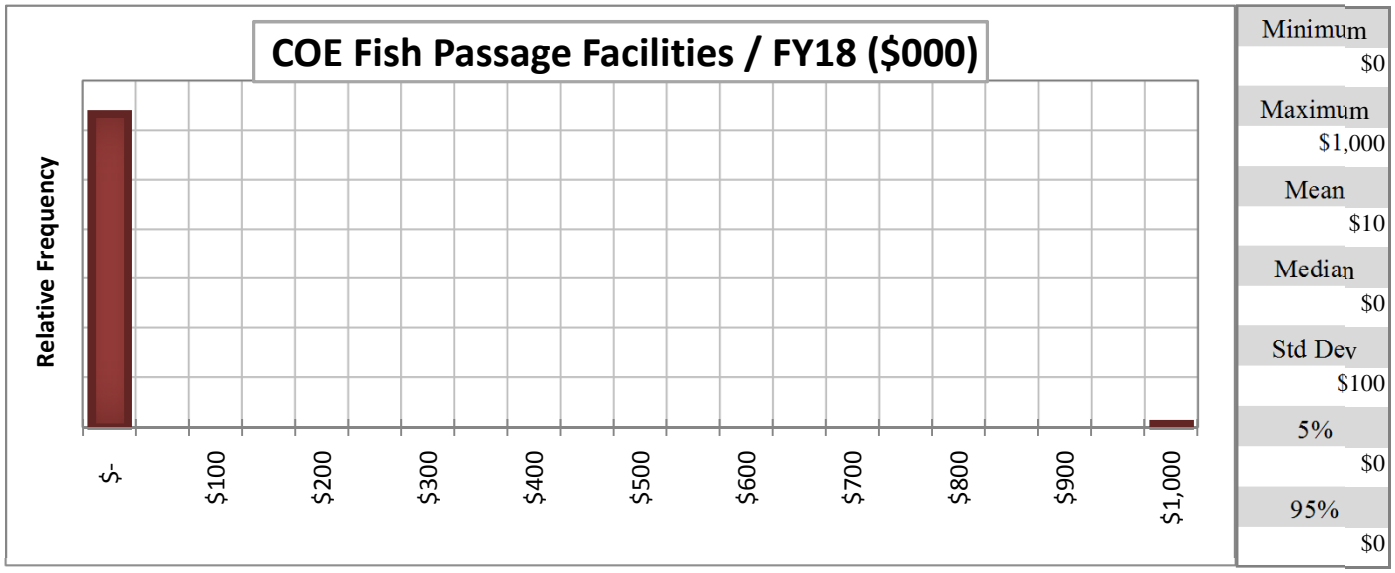
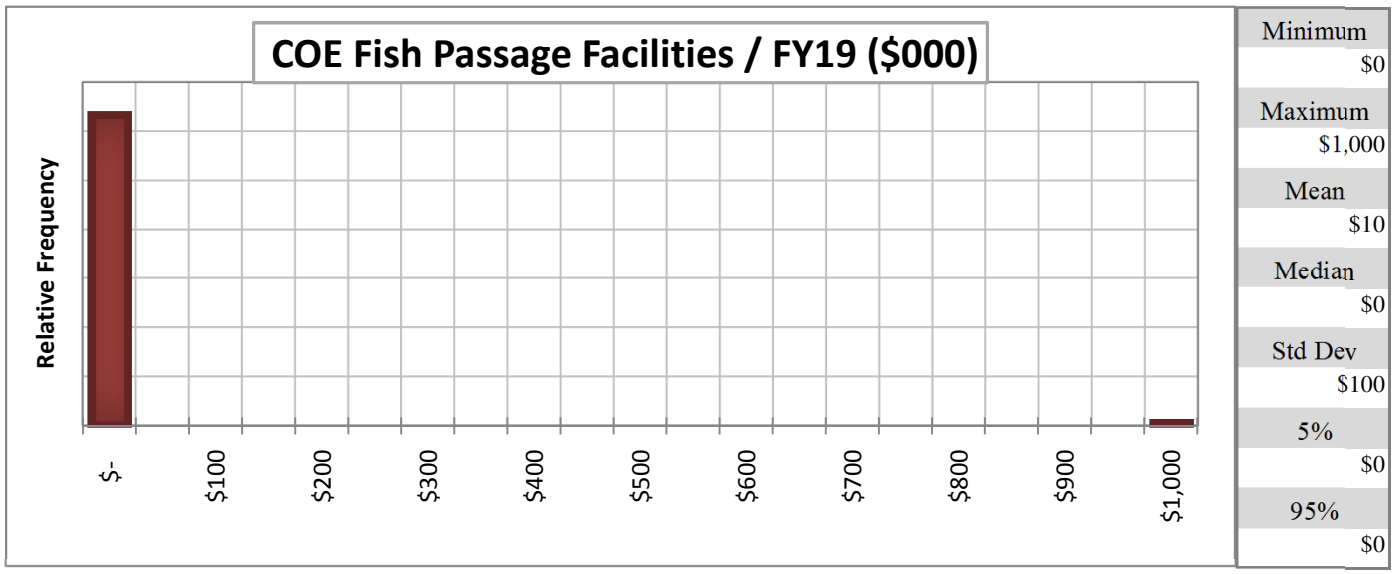


Figure 18:
COE Fish Passage Facilities Expense Distributions





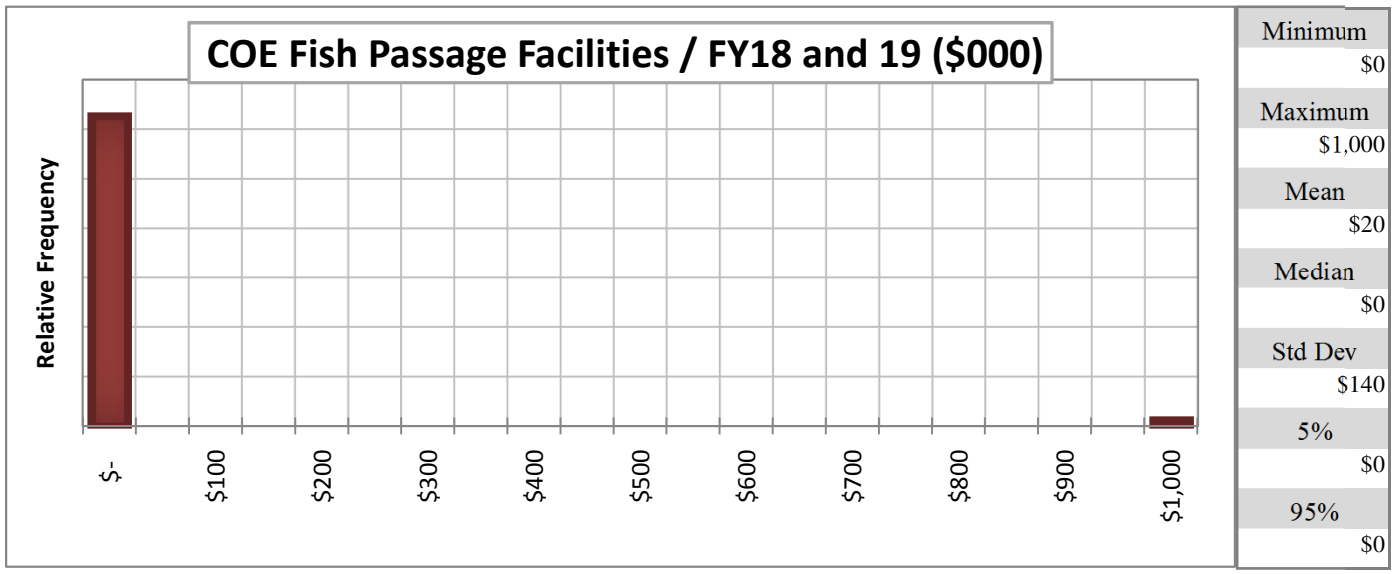
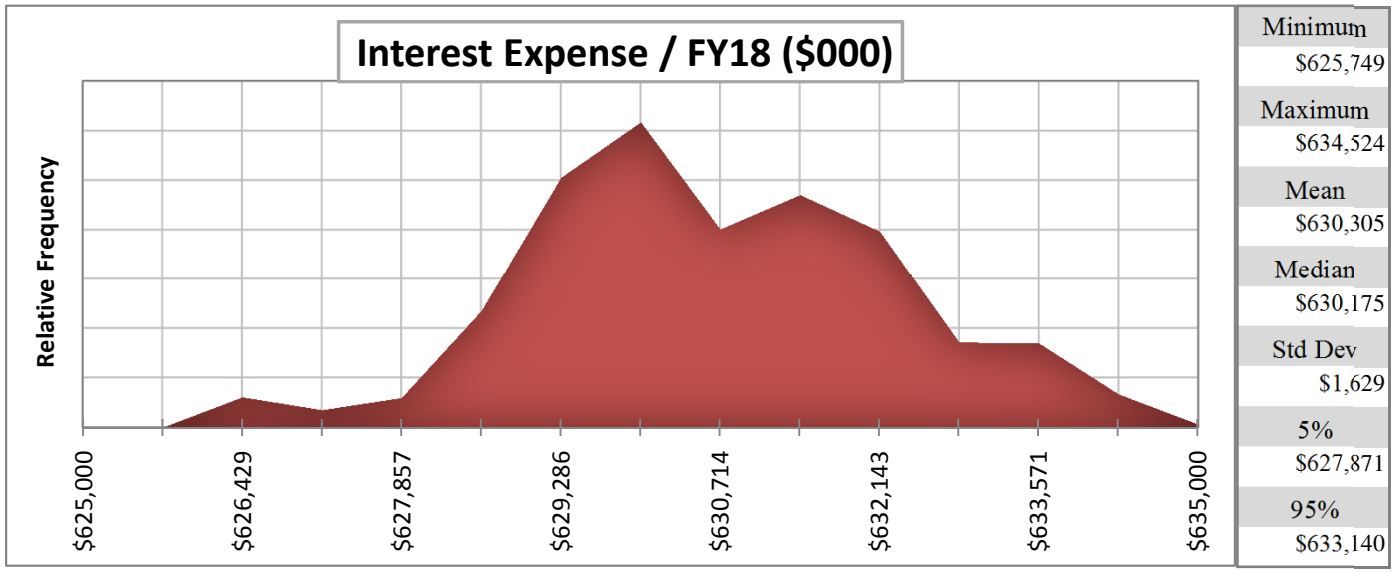
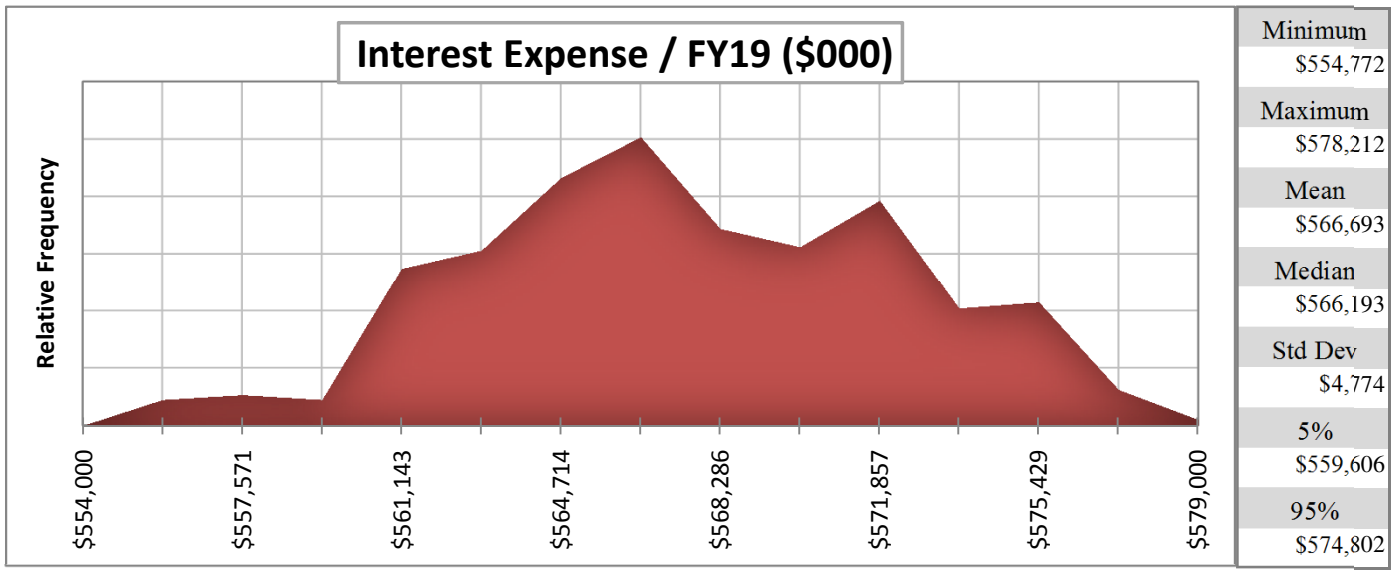


Figure 19:
Federal and Non-Federal Interest Expense Distributions





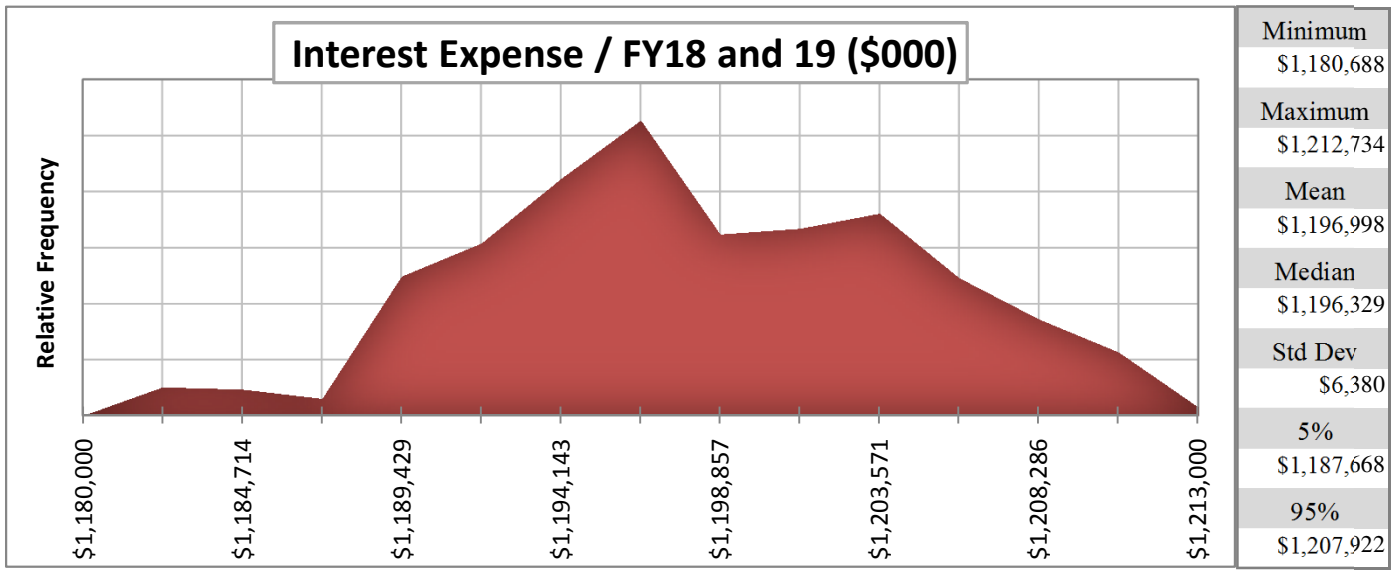
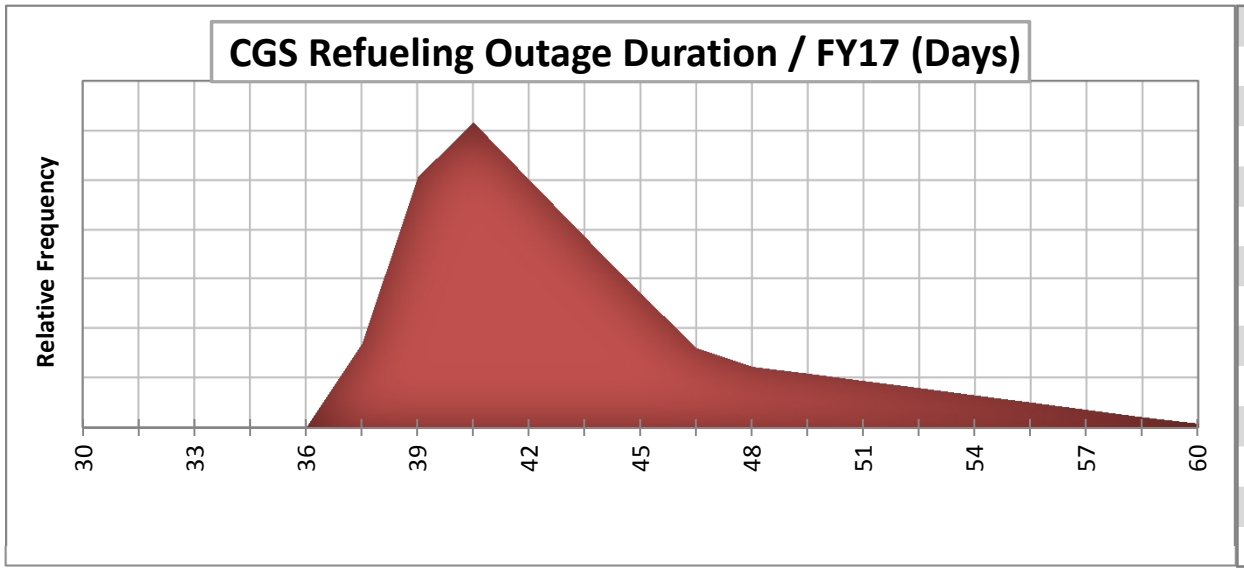


Figure 20:
CGS Refueling Outage Duration Distributions



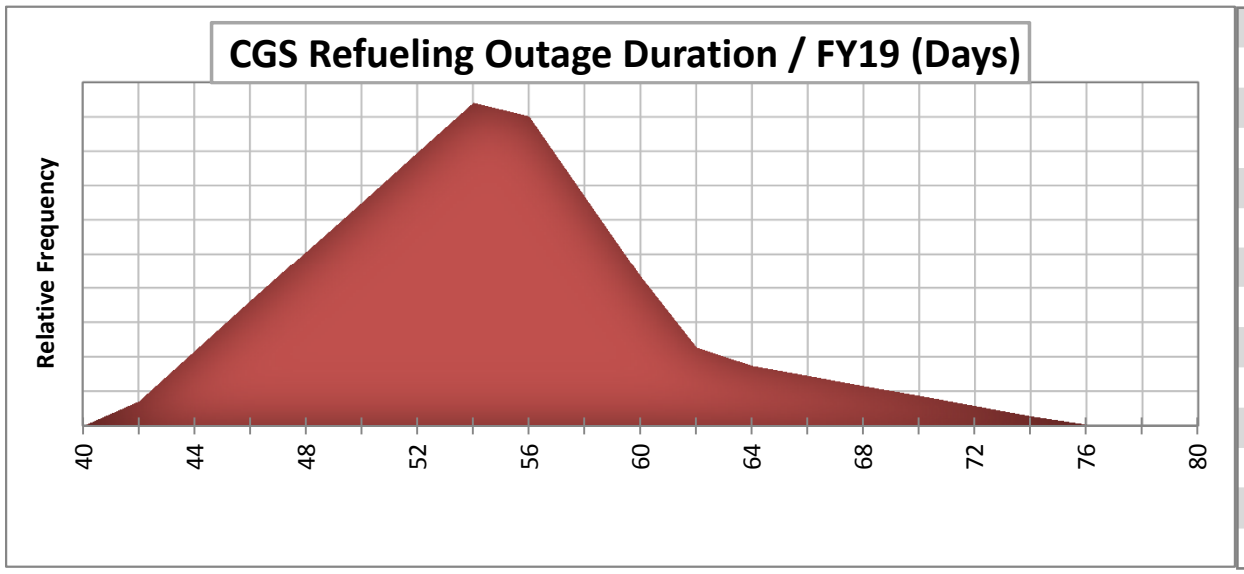
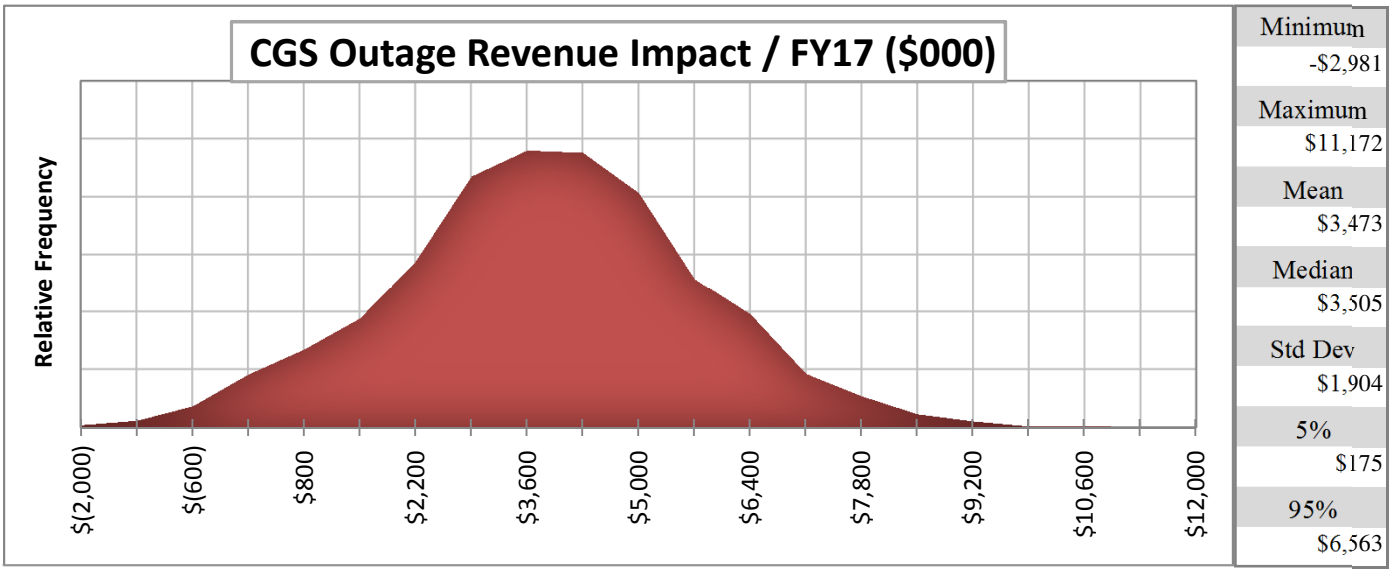


Figure 21:
CGS Refueling Outage Revenue Impact Distributions



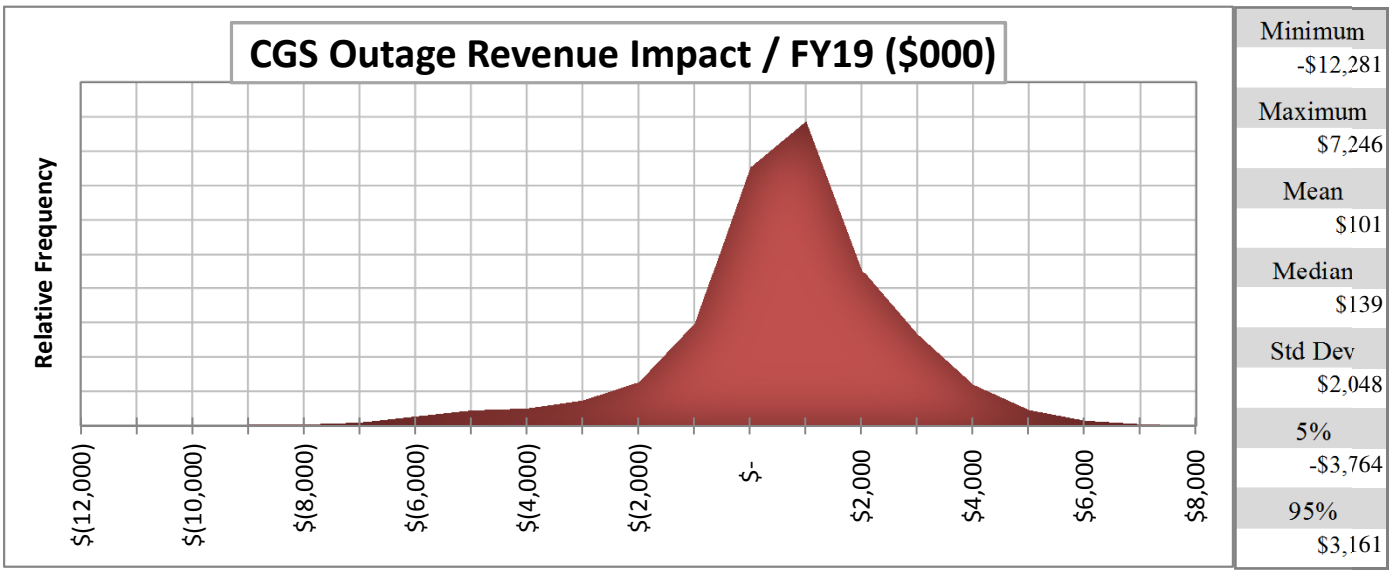
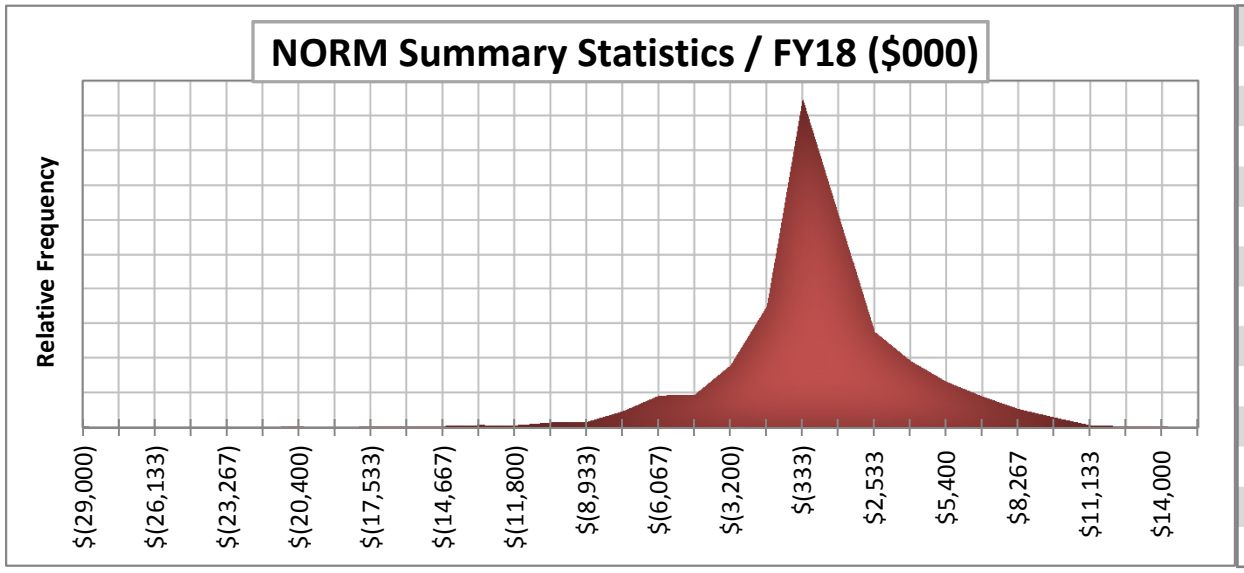
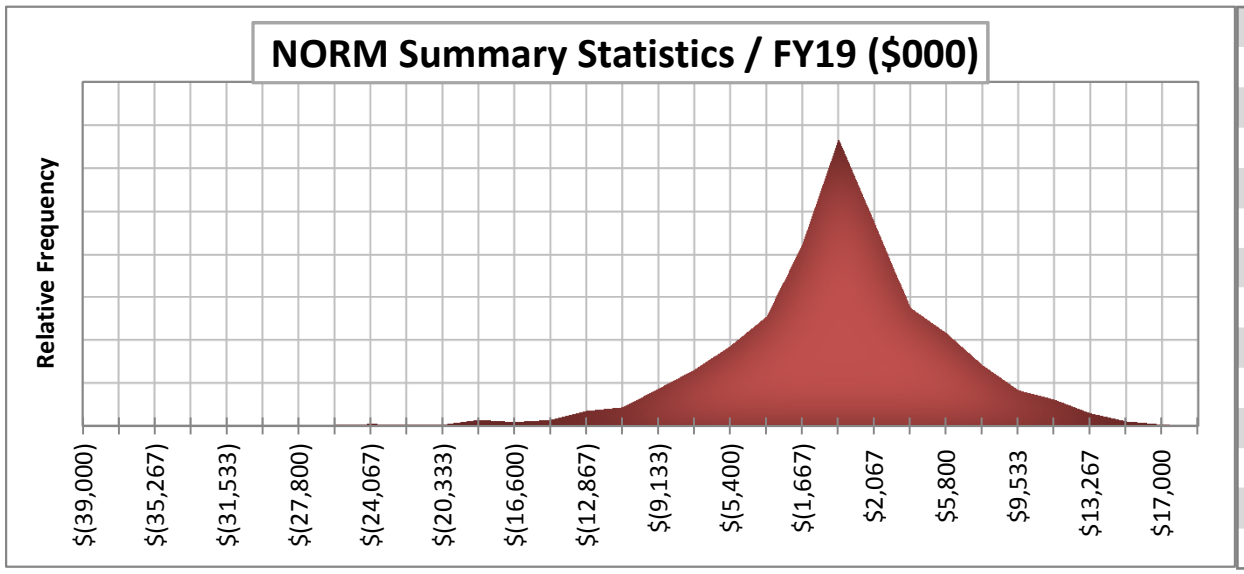


Figure 22:
P-NORM Output Summary Distributions





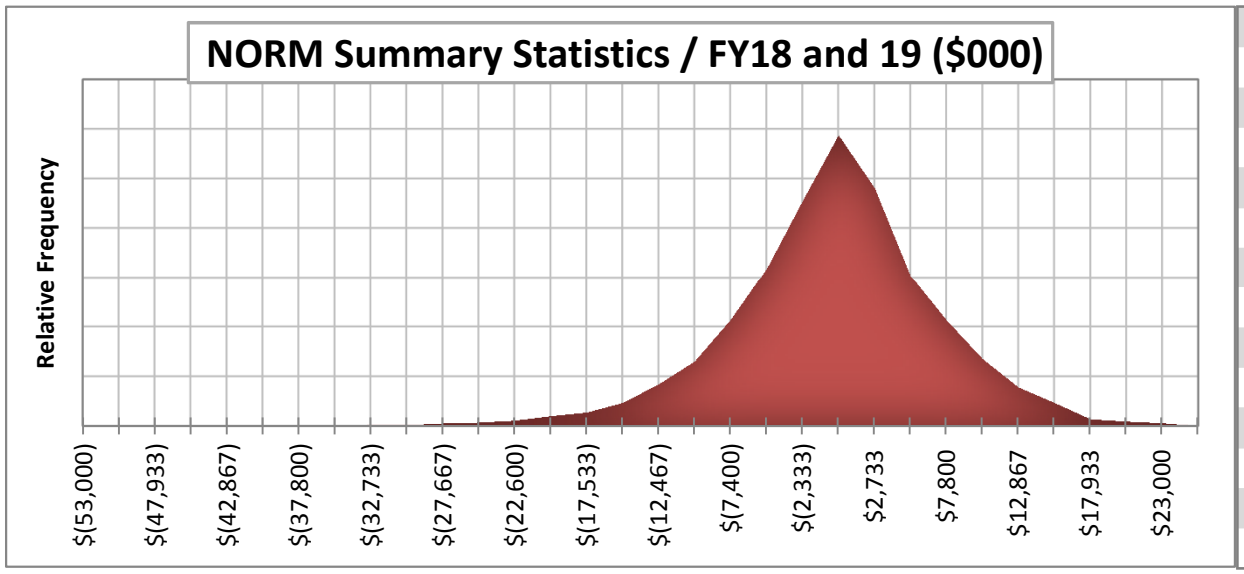


Table 21:
Power Net Revenue to Cash Adjustments ($000)

	A	B	C	D
		FY17	FY18	FY19
1	**Net Revenue**	$ 273,577	$ 198,284	$ 130,135
2	**Non-cash Adj.**	$ 161,810	$ 146,221	$ 162,210
3	**Cash Adj.**	$ (571,026)	$ (360,706)	$ (252,195)
4	**Other**	$ 1,543	$ -	$ -
5	**Accrual to Cash Adj.**	**$ (407,673)**	**$ (214,485)**	**$ (89,985)**
6	**Cash Flow**	$ (134,096)	$ (16,201)	$ 40,150
7	**Interest Credit**	$ (1,727)	$ (1,483)	$ (2,341)
8	**Repayment of Treasury Principal**	$ 160,911	$ 140,454	$ 252,195
9	**Repayment of Treasury Interest**	$ 169,478	$ 139,743	$ 145,989
10	**Total Treasury Payment**	$ 330,389	$ 280,197	$ 398,184

Example 1: Calibrated Net Revenue Calculations

The Net Revenue (Net Revenue) Calibration is the sum of the effects of a set of differences, one difference calculated for each event not forecast in the BP-16 rate case that affects Net Revenue and cash flow (more specifically, changes in Financial Reserves Available for Risk) differently by more than $5 million. For each event, the impact on Net Revenue will be subtracted from the impact on cash flow; this difference is added to the Net Revenue Calibration. The following is a non-exhaustive list of examples:

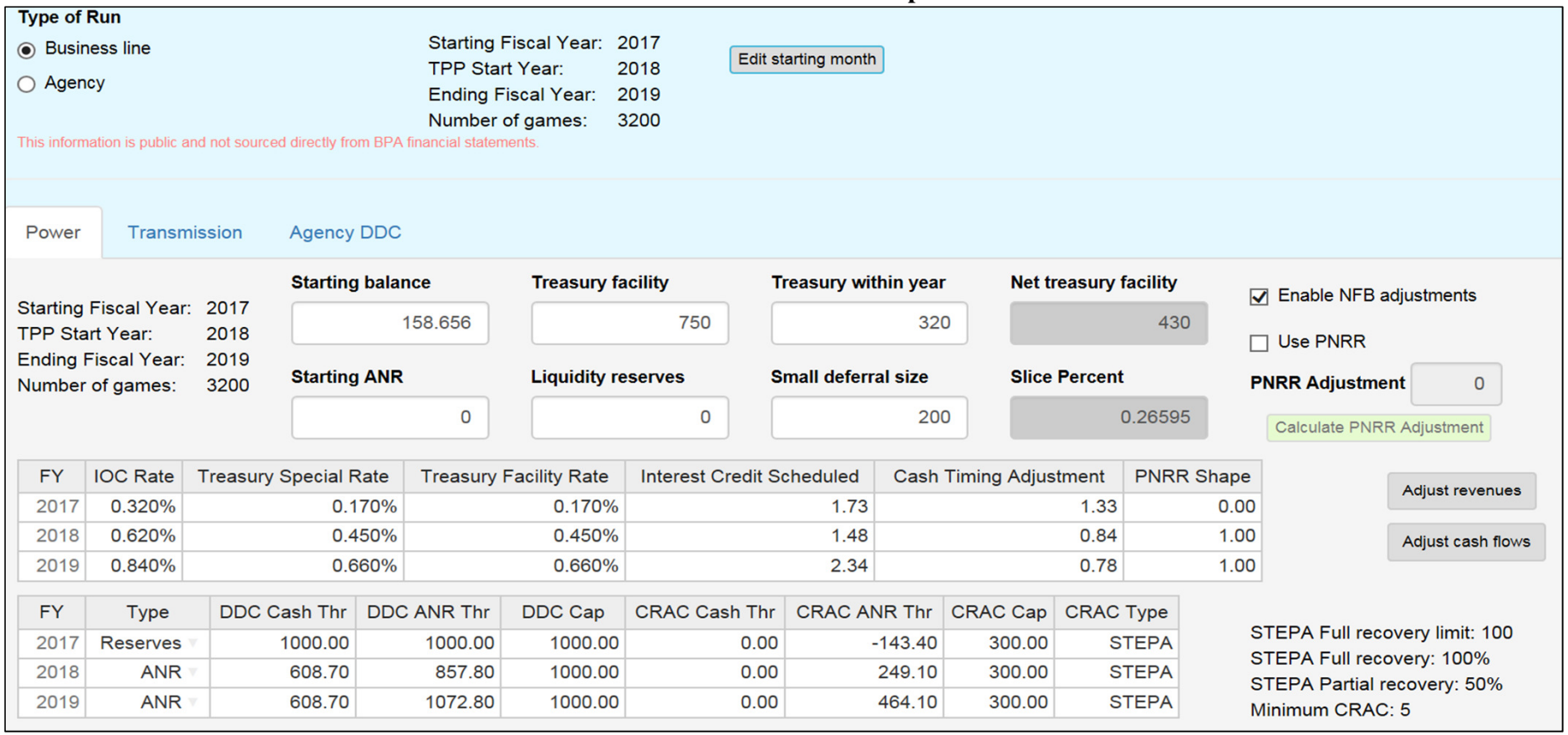
A decrease in Federal asset depreciation of $X: this change reduces depreciation expense and therefore increases Net Revenue by $X. Changes in depreciation do not affect cash flow and therefore this change has an impact of $0 on cash flow. Subtracting $X from $0 yields -$X. This is the amount to be added to Net Revenue (as part of the CNR calculation).

A debt transaction that decreases EN debt service by $Y and increases Federal principal repayment by the same amount: Power Net Revenue is only affected by the first half of the transaction; decreasing EN debt service increases Net Revenue by $Y. Increasing Federal repayment does not affect Net Revenue. Therefore, the net impact on Net Revenue is an increase of $Y. Decreasing EN debt service increases cash flow by $Y. Increasing Federal repayment reduces cash flow by $Y. The net impact on cash flow is $0. Subtracting the Net Revenue impact, +$Y, from the cash flow impact, $0, yields -$Y. This is the amount to be added to Power Net Revenue (as part of the Power CNR calculation).

Cashing out a contract for several years of a product: a Business Line had previously contracted to sell a product to a counterparty for 10 years at $Z per year starting in FY 18; the counterparty offers to pay the Business Line up front for the 10 years' of product at BPA's discount rate; the

total cash paid in FY 18 is $8Z. In FY 18, there is no impact of the cash-out on Net Revenue. The impact on cash flow is an increase from $Z to $8Z, or $7Z. Therefore, the FY 18 Net Revenue Calibration due to this transaction is $0 subtracted from $7Z, or +$7Z. In FY 19, Net Revenue remains unaffected by the cash-out; revenue from the contract for the year is still $Z. However, in FY 19, there is no cash received for the sale; the change in FY 19 cash flow is -$Z. Therefore, the FY 19 Net Revenue Calibration due to this transaction is $0 subtracted from -$Z, or -$Z.

Figure 23:
Power Services ToolKit Inputs



Type of Run

- (•) Business line
- ( ) Agency

Starting Fiscal Year: 2017
TPP Start Year: 2018
Ending Fiscal Year: 2019
Number of games: 3200

Edit starting month

This information is public and not sourced directly from BPA financial statements.

Power | Transmission | Agency DDC

Starting Fiscal Year: 2017
TPP Start Year: 2018
Ending Fiscal Year: 2019
Number of games: 3200

Starting balance	Treasury facility	Treasury within year	Net treasury facility
158.656	750	320	430

Starting ANR	Liquidity reserves	Small deferral size	Slice Percent
0	0	200	0.26595

☑ Enable NFB adjustments
☐ Use PNRR
PNRR Adjustment 0
Calculate PNRR Adjustment

FY	IOC Rate	Treasury Special Rate	Treasury Facility Rate	Interest Credit Scheduled	Cash Timing Adjustment	PNRR Shape
2017	0.320%	0.170%	0.170%	1.73	1.33	0.00
2018	0.620%	0.450%	0.450%	1.48	0.84	1.00
2019	0.840%	0.660%	0.660%	2.34	0.78	1.00

Adjust revenues
Adjust cash flows

FY	Type	DDC Cash Thr	DDC ANR Thr	DDC Cap	CRAC Cash Thr	CRAC ANR Thr	CRAC Cap	CRAC Type
2017	Reserves	1000.00	1000.00	1000.00	0.00	-143.40	300.00	STEPA
2018	ANR	608.70	857.80	1000.00	0.00	249.10	300.00	STEPA
2019	ANR	608.70	1072.80	1000.00	0.00	464.10	300.00	STEPA

STEPA Full recovery limit: 100
STEPA Full recovery: 100%
STEPA Partial recovery: 50%
Minimum CRAC: 5

Figure 24:
Power Services End of Year Net Reserves ($ in Millions)

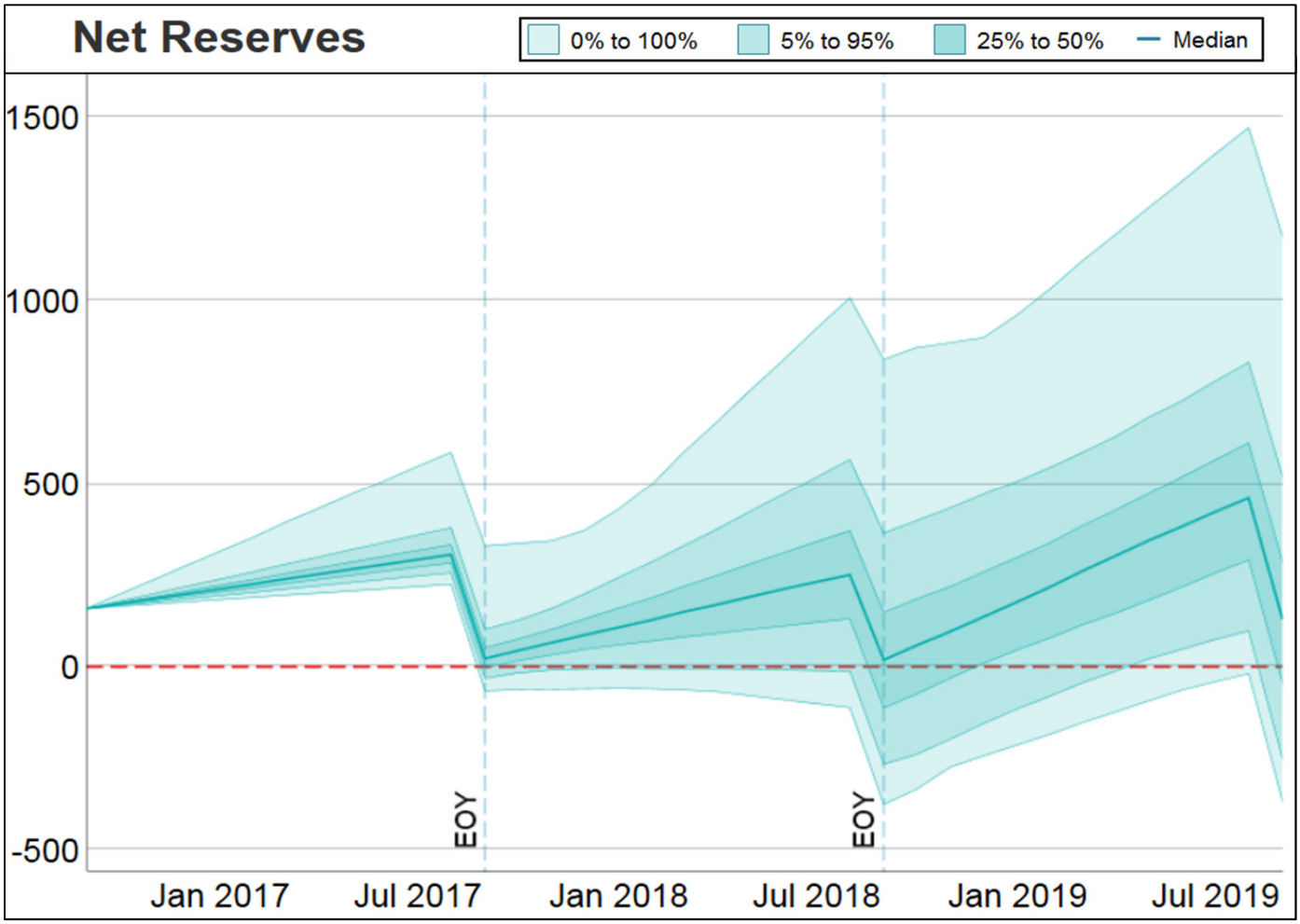


Table 22:
Power ToolKit Summary Statistics ($ in Millions)

Net Reserves

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	-65.7	-31.7	-2.2	22.4	52.2	102.5	329.7
2018	-375.2	-265.4	-112.1	18.9	148.5	364.4	840.2
2019	-366.3	-250.3	-44	129.5	286	521.5	1176.1

Accumulated Net Revenue

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	183.2	217.2	246.9	271.7	301.2	352	578.2
2018	89	198.8	352.1	482.7	612.7	827.4	1304.4
2019	200.5	313.1	515.5	686.7	841.5	1076.1	1726.8

Net Liquidity

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	364.3	398.3	427.8	452.4	482.2	532.5	759.7
2018	54.8	164.6	317.9	448.9	578.5	794.4	1270.2
2019	63.7	179.7	386	559.5	716	951.5	1606.1

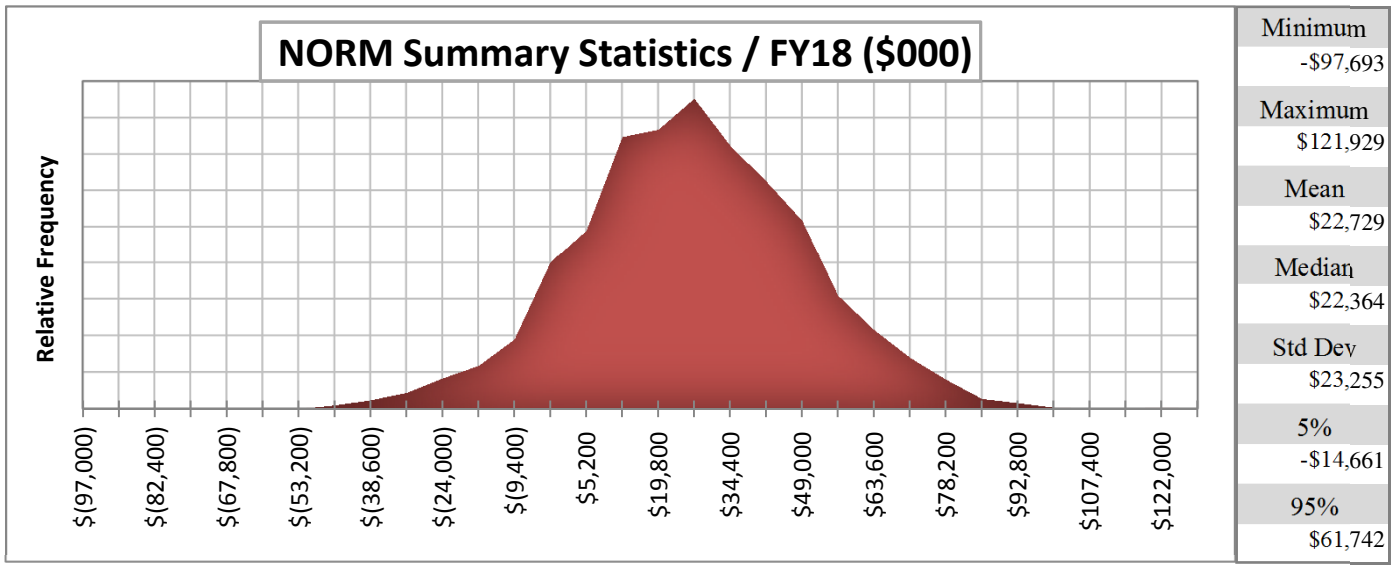
Bonneville Fund

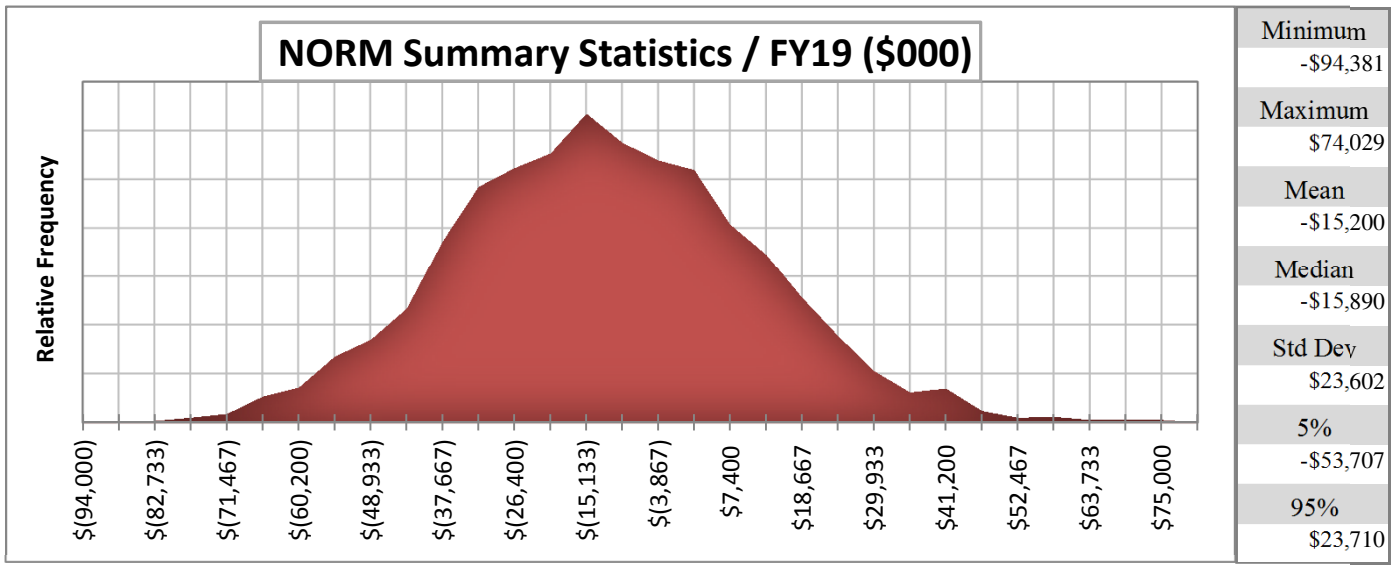
Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	0	0	0	22.4	52.2	102.5	329.7
2018	0	0	0	18.9	148.5	364.4	840.2
2019	0	0	0	129.5	286	521.5	1176.1

Treasury Note

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	-65.7	-31.7	-2.2	0	0	0	0
2018	-375.2	-265.4	-112.1	0	0	0	0
2019	-366.3	-250.3	-44	0	0	0	0

Figure 25:
T-NORM Output Summary Distributions





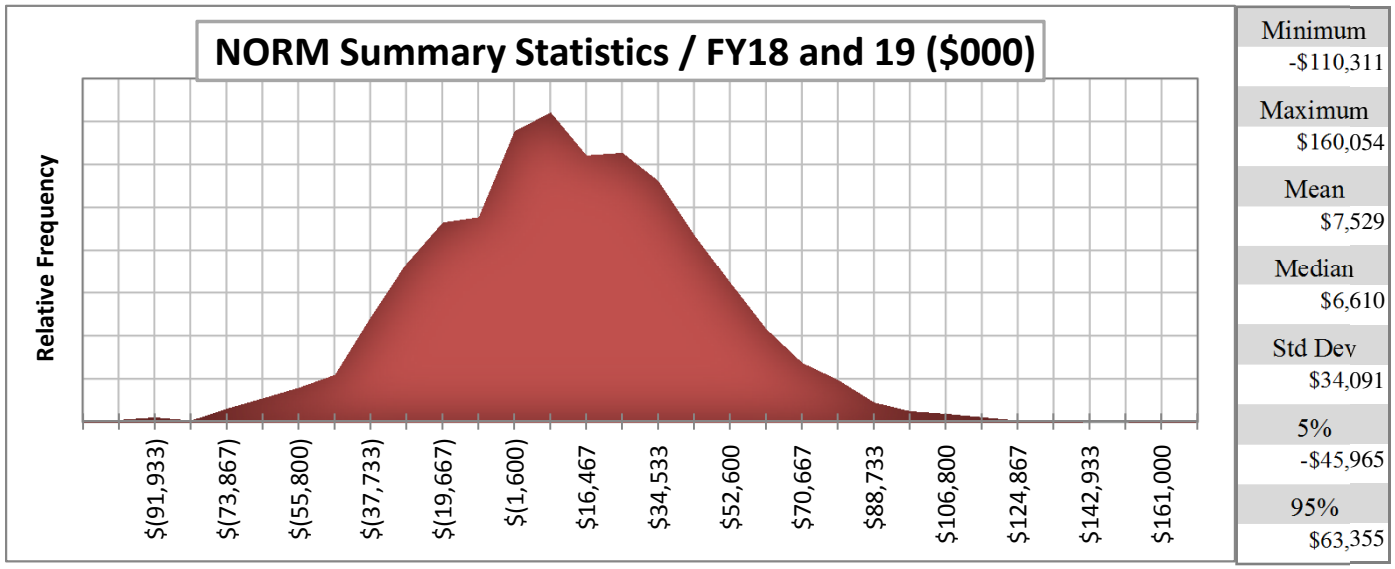
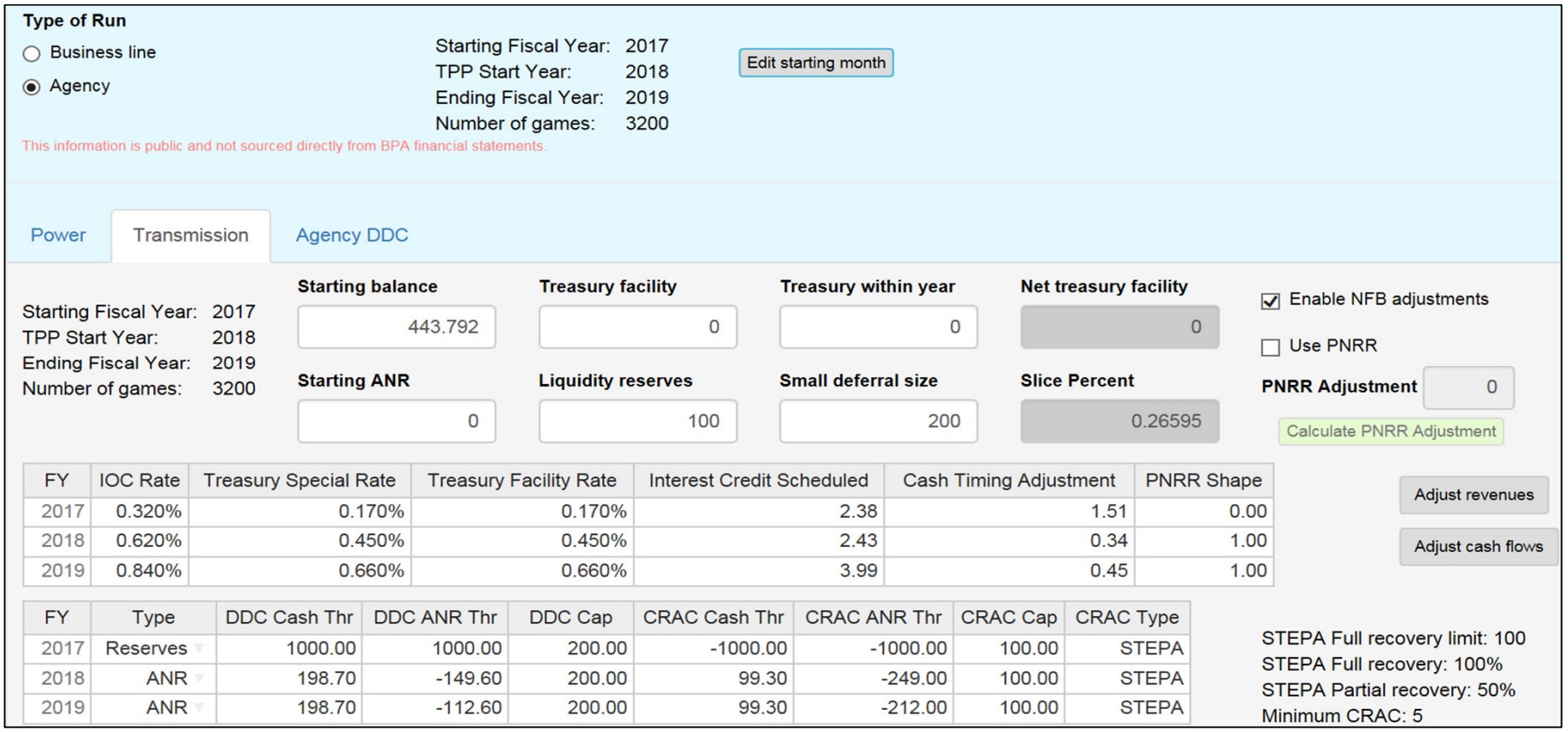


Table 23:
Transmission Net Revenue to Cash Adjustments ($000)

	A	B	C	D
		FY17	FY18	FY19
1	**Net Revenue**	$ 66,716	$ 18,184	$ 1,380
2	**Non-cash Adj.**	$ 204,012	$ 232,657	$ 251,972
3	**Cash Adj.**	$ (312,916)	$ 249,525	$ 254,258
4	**Cash for Capital Investments**	$ -	$ (505,808)	$ (521,577)
5	**Accrual to Cash Adj.**	**$ (108,904)**	**$ (23,626)**	**$ (15,348)**
6	**Cash Flow**	$ (42,188)	$ (5,443)	$ (13,967)
7	**Interest Credit**	$ (2,377)	$ (2,430)	$ (3,991)
8	**Repayment of Treasury Principal**	$ 97,925	$ 47,906	$ 235,016
9	**Repayment of Treasury Interest**	$ 103,257	$ 102,658	$ 108,115
10	**Total Treasury Payment**	$ 201,182	$ 150,564	$ 343,131

Figure 26:
Transmission Services ToolKit Inputs



Type of Run

- ○ Business line
- ◉ Agency

Starting Fiscal Year: 2017
TPP Start Year: 2018
Ending Fiscal Year: 2019
Number of games: 3200

Edit starting month

This information is public and not sourced directly from BPA financial statements.

Power | Transmission | Agency DDC

Starting Fiscal Year: 2017
TPP Start Year: 2018
Ending Fiscal Year: 2019
Number of games: 3200

Starting balance	Treasury facility	Treasury within year	Net treasury facility
443.792	0	0	0

Starting ANR	Liquidity reserves	Small deferral size	Slice Percent
0	100	200	0.26595

☑ Enable NFB adjustments
☐ Use PNRR
PNRR Adjustment 0
Calculate PNRR Adjustment

FY	IOC Rate	Treasury Special Rate	Treasury Facility Rate	Interest Credit Scheduled	Cash Timing Adjustment	PNRR Shape
2017	0.320%	0.170%	0.170%	2.38	1.51	0.00
2018	0.620%	0.450%	0.450%	2.43	0.34	1.00
2019	0.840%	0.660%	0.660%	3.99	0.45	1.00

Adjust revenues
Adjust cash flows

FY	Type	DDC Cash Thr	DDC ANR Thr	DDC Cap	CRAC Cash Thr	CRAC ANR Thr	CRAC Cap	CRAC Type
2017	Reserves	1000.00	1000.00	200.00	-1000.00	-1000.00	100.00	STEPA
2018	ANR	198.70	-149.60	200.00	99.30	-249.00	100.00	STEPA
2019	ANR	198.70	-112.60	200.00	99.30	-212.00	100.00	STEPA

STEPA Full recovery limit: 100
STEPA Full recovery: 100%
STEPA Partial recovery: 50%
Minimum CRAC: 5

Figure 27:
Transmission Services End of Year Net Reserves ($ in Millions)

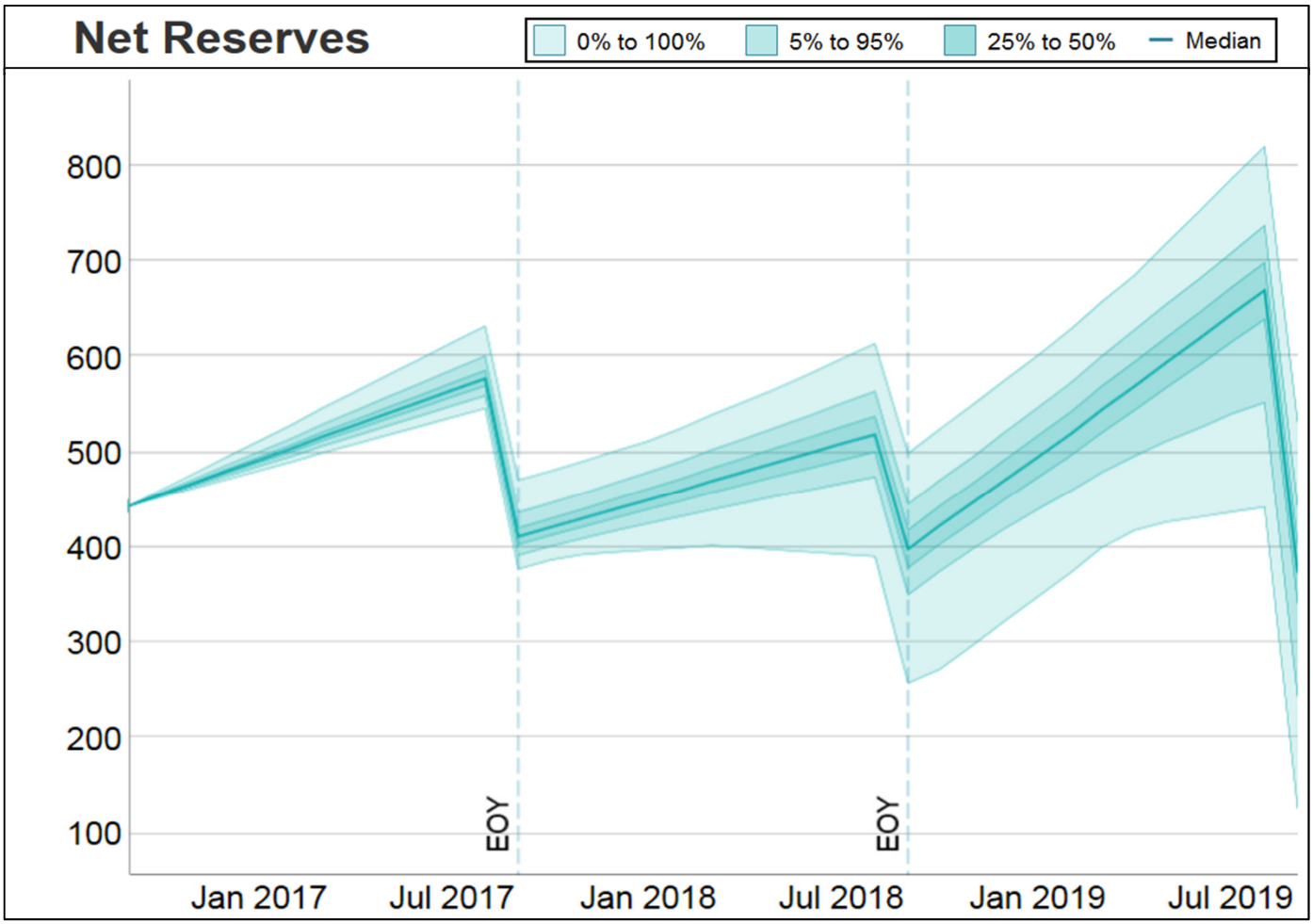


Table 24:
Transmission ToolKit Summary Statistics ($ in Millions)

Net Reserves

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	374.5	392.9	403.5	411.7	421	436.1	470.5
2018	252	351.3	379.2	398.5	417.5	446.1	506.9
2019	140.4	246.8	341	371.6	402	443.6	558.6

Accumulated Net Revenue

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	33	50.2	58.6	64.6	70.3	78.3	94.2
2018	-48.7	46.3	70.5	87	104.4	128.3	200.8
2019	-178.3	-78.4	34.1	63.3	91.3	126.7	232.4

Net Liquidity

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	374.5	392.9	403.5	411.7	421	436.1	470.5
2018	252	351.3	379.2	398.5	417.5	446.1	506.9
2019	140.4	246.8	341	371.6	402	443.6	558.6

Bonneville Fund

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	374.5	392.9	403.5	411.7	421	436.1	470.5
2018	252	351.3	379.2	398.5	417.5	446.1	506.9
2019	140.4	246.8	341	371.6	402	443.6	558.6

Treasury Note

Fiscal Year	0	0.05	0.25	0.5	0.75	0.95	1
2017	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0

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BONNEVILLE POWER ADMINISTRATION
DOE/BP-4809 • July 2017