

BP-16 Rate Proceeding

Power Risk and Market Price Study Documentation

BP-16-FS-BPA-04A

July 2015



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COMMONLY USED ACRONYMS AND SHORT FORMS

ACNR	Accumulated Calibrated Net Revenue
ACS	Ancillary and Control Area Services
AF	Advance Funding
aMW	average megawatt(s)
ANR	Accumulated Net Revenues
ASC	Average System Cost
BAA	Balancing Authority Area
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
CIR	Capital Investment Review
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)
DDC	Dividend Distribution Clause
<i>dec</i>	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
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
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
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
<i>inc</i>	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
IRMP	Irrigation Rate Mitigation Product
IS	Southern Intertie
kcfs	thousand cubic feet per second
kW	kilowatt
kWh	kilowatthour
LDD	Low Density Discount
LLH	Light Load Hour(s)
LPP	Large Project Program
LPTAC	Large Project Targeted Adjustment Charge
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
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	National Marine Fisheries Service (NMFS) Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp)
NIFC	Northwest Infrastructure Financing Corporation
NLSL	New Large Single Load

NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries
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.
OMP	Oversupply Management Protocol
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
Peak	Peak Reliability
PF	Priority Firm Power
PFIA	Projects Funded in Advance
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
PRS	Power Rates Study
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)
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation	U.S. Bureau of Reclamation
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

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD			
1	Table 1: Control Area to AURORAxmp Zone Mapping																																
2	BA	Alberta	Arizona	BritishColumbia	CA_IID	CA_LADWP	CA_PGandE_North	CA_PGandE_SF	CA_PGandE_ZP26	CA_SCE	CA_SDGE	CA_SMUD	Colorado	Montana	MontanaNW	NevadaNorth	NevadaSouth	NewMexico	PNW_IdahoEast	PNW_IdahoSouth	PNW_Olympia	PNW_OregonEast	PNW_OregonWest	PNW_PACWest	PNW_PugetSoundNorth	PNW_SeattleTacoma	PNW_Spokane	PNW_WashingtonCentral	Utah	Wyoming			
3	AESO	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
4	APS	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
5	AVA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00		
6	BCHA	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
7	BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.01	0.12	0.09	0.39	0.01	0.15	0.01	0.03	0.10	0.00	0.01			
8	CHPD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00		
9	CISO	0.00	0.00	0.00	0.00	0.00	0.39	0.02	0.04	0.46	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
10	DOPD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00		
11	EPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
12	GCPD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00		
13	IID	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
14	IPC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
15	LDWP	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
16	MID	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
17	NEVP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
18	NWE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03		
19	PAC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.16	0.16	0.03	0.00	0.00	0.00	0.07	0.46	0.08			
20	PGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
21	PNM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
22	PSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02			
23	PSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.40	0.00	0.00	0.00	0.00			
24	SCL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00			
25	SMUD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
26	SPR	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
27	SRP	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
28	TEP	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
29	TID	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
30	TPWR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00		
31	WACM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11		
32	WALC	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
33	WAUW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Table 2: Control Area Load Forecast (MWh)														
2	Date	APS	AVA	BPA	CHPD	CISO	DOPD	EPE	GCPD	IID	IPC	LDWP	NEVP	NWE	PAC
3	Oct-15	2622495	1003906	4246018	323917	20039564	102929	713783	330070	312309	1220082	2280762	2004923	902043	4809086
4	Nov-15	2217271	1130097	5013252	363478	18766008	136993	655146	333568	255673	1314675	2118246	1878686	954058	5056350
5	Dec-15	2503242	1288955	5603767	405480	19919508	173758	702039	383599	267569	1552384	2286293	2063846	1054189	5559546
6	Jan-16	2532228	1254317	5533510	406580	19469064	175383	705847	383480	266142	1505928	2285805	2073342	1076912	5587408
7	Feb-16	2213735	1088419	4787896	343665	17713886	132876	638529	322224	241498	1299939	2055087	1832216	954632	4907144
8	Mar-16	2347996	1075108	4660809	339440	19007006	109450	679344	329240	262593	1254915	2243697	1929783	973300	4986070
9	Apr-16	2374910	990392	4440890	315523	18296142	100236	683291	342927	265300	1213426	2144361	1851862	866655	4636029
10	May-16	2916836	999673	4475225	312751	19891000	104699	747763	371159	350003	1537897	2310021	2263753	873376	4732555
11	Jun-16	3236252	986535	4475774	305305	21363940	103583	821185	385423	411125	1660516	2485014	2731513	887094	4908276
12	Jul-16	3845331	1073799	4726224	326313	24568810	126365	902928	426206	479400	2068716	2775481	3272742	1011455	5649994
13	Aug-16	3805507	1074999	4632851	326324	24938386	127455	911375	420862	475619	1935401	2828588	3132812	974914	5533182
14	Sep-16	3257117	965587	4191369	307411	22380102	102868	793159	353705	407648	1526394	2602255	2534769	866357	4711765
15	Oct-16	2671521	1012716	4308982	327666	20297408	104736	728435	338711	319343	1238277	2307049	2046480	915130	4855261
16	Nov-16	2266280	1138890	5078124	367224	19023852	138800	669798	342182	262707	1332868	2144503	1920243	967131	5102371
17	Dec-16	2552234	1297730	5670111	409223	20177352	175565	716691	392188	274604	1570574	2312521	2105403	1067248	5605415
18	Jan-17	2576046	1262148	5586278	409627	19619888	177089	720281	392042	272428	1518714	2307268	2113266	1088043	5633737
19	Feb-17	2258675	1089774	4814840	347510	17590970	133871	645989	347367	250105	1303971	2080083	1856651	965755	4943043
20	Mar-17	2391780	1082905	4711427	342481	19157830	111156	693778	337751	268879	1267701	2265103	1969707	984403	5032098
21	Apr-17	2418678	998172	4490970	318561	18446966	101942	697725	351412	271585	1226211	2165738	1891785	877744	4681908
22	May-17	2960588	1007435	4525395	315786	20078104	106405	762197	379618	356289	1558222	2331370	2303676	884451	4778287
23	Jun-17	3279987	994280	4525952	308338	21551044	105289	835619	393857	417411	1680818	2506335	2771436	898155	4953861
24	Jul-17	3889050	1081527	4777026	329342	24755914	128071	917362	434616	485686	2088996	2796775	3312666	1022503	5695433
25	Aug-17	3849209	1082711	4683429	329351	25125490	129161	925809	429246	481905	1955658	2849854	3172735	985948	5578475
26	Sep-17	3300804	973282	4240861	310435	22567206	104573	807593	362065	413934	1546629	2623493	2574693	877376	4756914

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
27	Table 2 (cont.): Control Area Load Forecast (MWh)														
28	Date	PGE	PNM	PSC	PSE	SCL	SMUD	SPP	SRP	TEP	TID	TPWR	WACM	WALC	WAUW
29	Oct-15	1724975	907947	3343903	2034996	822035	838128	985284	2376514	1164298	225254	401010	1949141	982087	73262
30	Nov-15	1864954	911650	3397081	2333734	916767	819788	986195	2069542	1105503	200379	471886	1988389	911633	82883
31	Dec-15	2069481	1022164	3818026	2568027	966251	938423	1094088	2314655	1206257	211488	520168	2209354	994322	89951
32	Jan-16	2074755	1016731	3773293	2576626	1005908	925786	1142899	2407129	1197642	212147	515667	2167367	984906	92816
33	Feb-16	1826091	901636	3429421	2309558	897397	814239	1048839	2035634	1106707	186960	470587	2016469	906569	83243
34	Mar-16	1846825	934782	3471100	2237858	883964	846630	1089037	2244104	1127573	205470	457747	2028657	935807	81632
35	Apr-16	1727999	881280	3233548	2031022	822391	787082	1028460	2254005	1071890	201982	416115	1879411	940595	71346
36	May-16	1726456	890563	3280496	1903014	792631	849080	1084737	2706365	1241276	233594	388580	1947922	1034873	73575
37	Jun-16	1659265	964556	3463653	1843262	766052	988764	1112954	3041567	1426342	255341	369912	2037033	1132937	76450
38	Jul-16	1831010	1092169	4043936	1924949	791418	1171429	1252258	3466925	1624994	290641	378645	2309066	1197049	94247
39	Aug-16	1854469	1081275	3903690	1964690	787252	1159855	1228572	3430708	1604838	287355	386859	2270882	1148854	86440
40	Sep-16	1693152	940323	3295034	1874606	757444	981932	1098980	2981126	1409448	253373	373243	1945383	1061506	75976
41	Oct-16	1756990	922784	3369323	2046086	823407	843067	1064539	2430601	1177451	229749	405559	1963478	990989	73262
42	Nov-16	1896970	926498	3422502	2344825	918139	824727	1065467	2123518	1118511	204868	476967	2002562	920507	82883
43	Dec-16	2101496	1037289	3843447	2579118	967623	943361	1173643	2368522	1219517	215969	525612	2223367	1003169	89951
44	Jan-17	2098673	1030571	3793944	2584695	1009598	929711	1176936	2458569	1211698	216345	520642	2181224	993727	92816
45	Feb-17	1845260	910012	3365392	2273742	883004	797040	1059279	2151435	1087204	195221	465007	1975249	909796	81974
46	Mar-17	1870742	948423	3491751	2245927	887654	850555	1122952	2295328	1141459	209654	462289	2042212	944575	81632
47	Apr-17	1751916	894791	3254199	2039090	826081	791007	1062232	2305122	1085641	206160	420345	1892820	949336	71346
48	May-17	1750374	904098	3301148	1911082	796322	853005	1118654	2757376	1255447	237764	392604	1961188	1043588	73575
49	Jun-17	1683182	978276	3484304	1851330	769742	992690	1146947	3092473	1440973	259505	373797	2050158	1141626	76450
50	Jul-17	1854927	1106207	4064587	1933018	795108	1175354	1286601	3517725	1640118	294797	382596	2322055	1205713	94247
51	Aug-17	1878386	1095288	3924341	1972759	790942	1163780	1262862	3481404	1619914	291505	390873	2283737	1157491	86440
52	Sep-17	1717069	953989	3315685	1882675	761134	985858	1132956	3031719	1424043	257517	377155	1958106	1070118	75976

Figure 1: Simulated CGS Output Distribution for October 2015

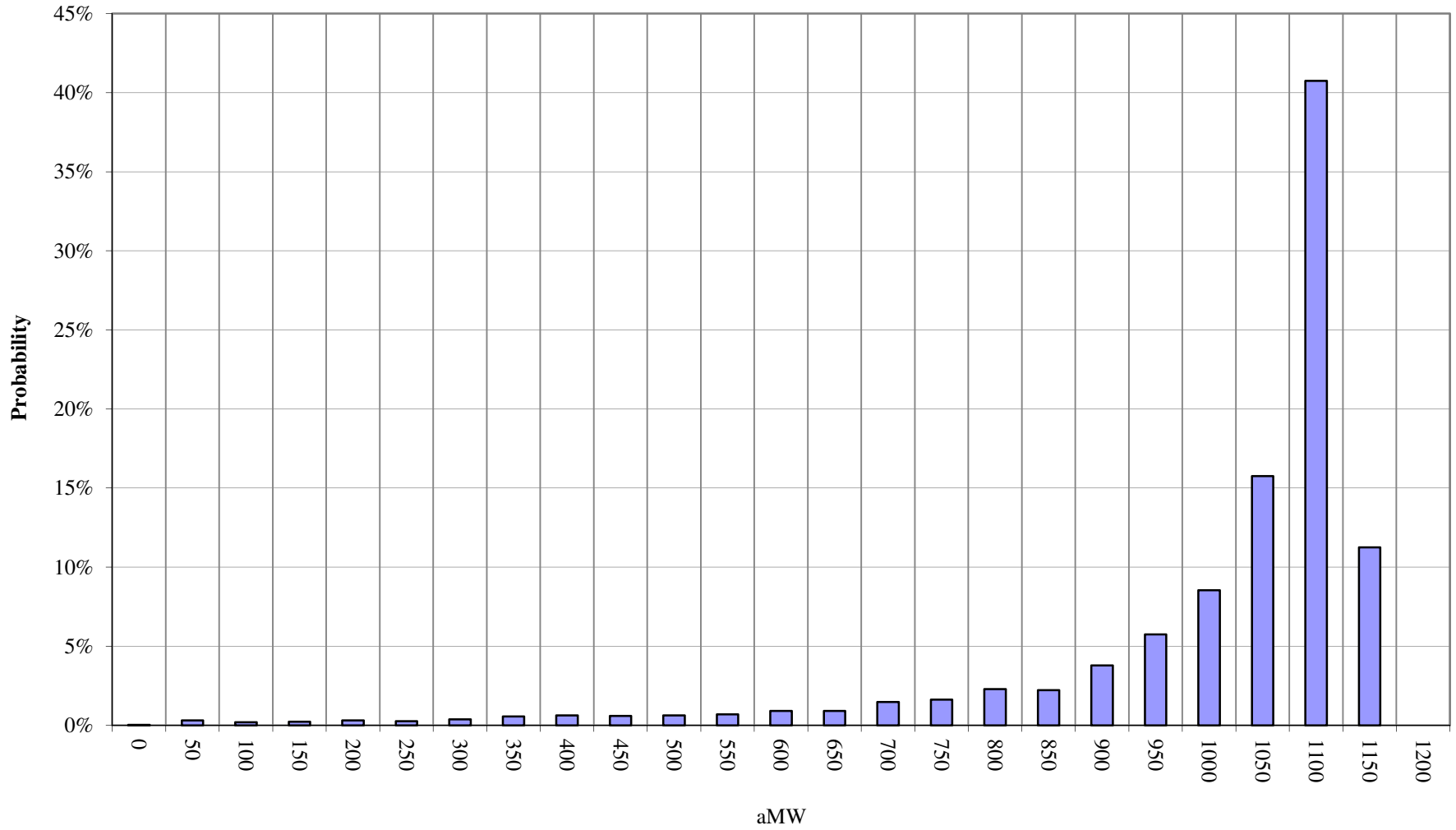


Figure 2: WECC Renewable Resource Additions

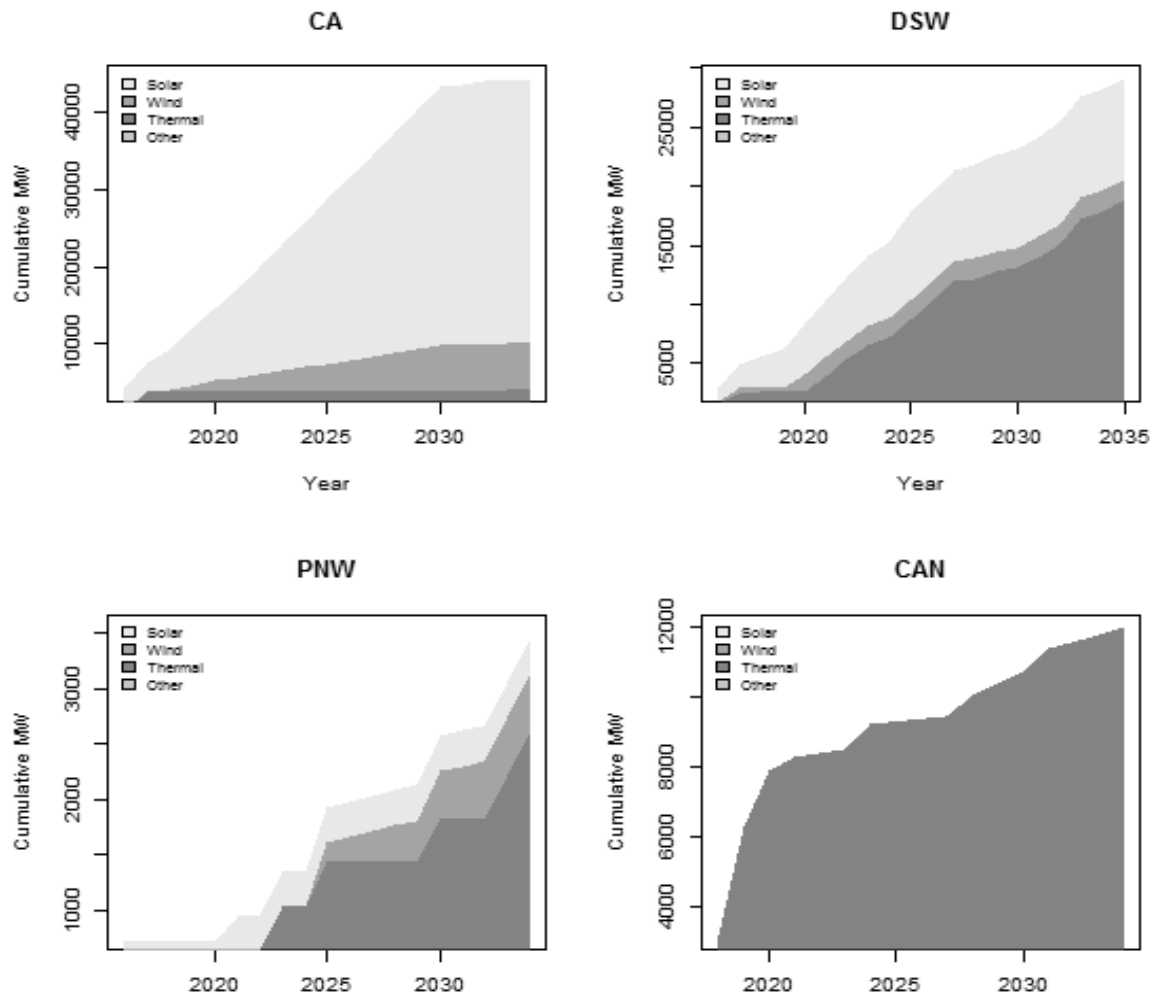


Figure 3: HLH Market Prices for FY 2016 - 2017

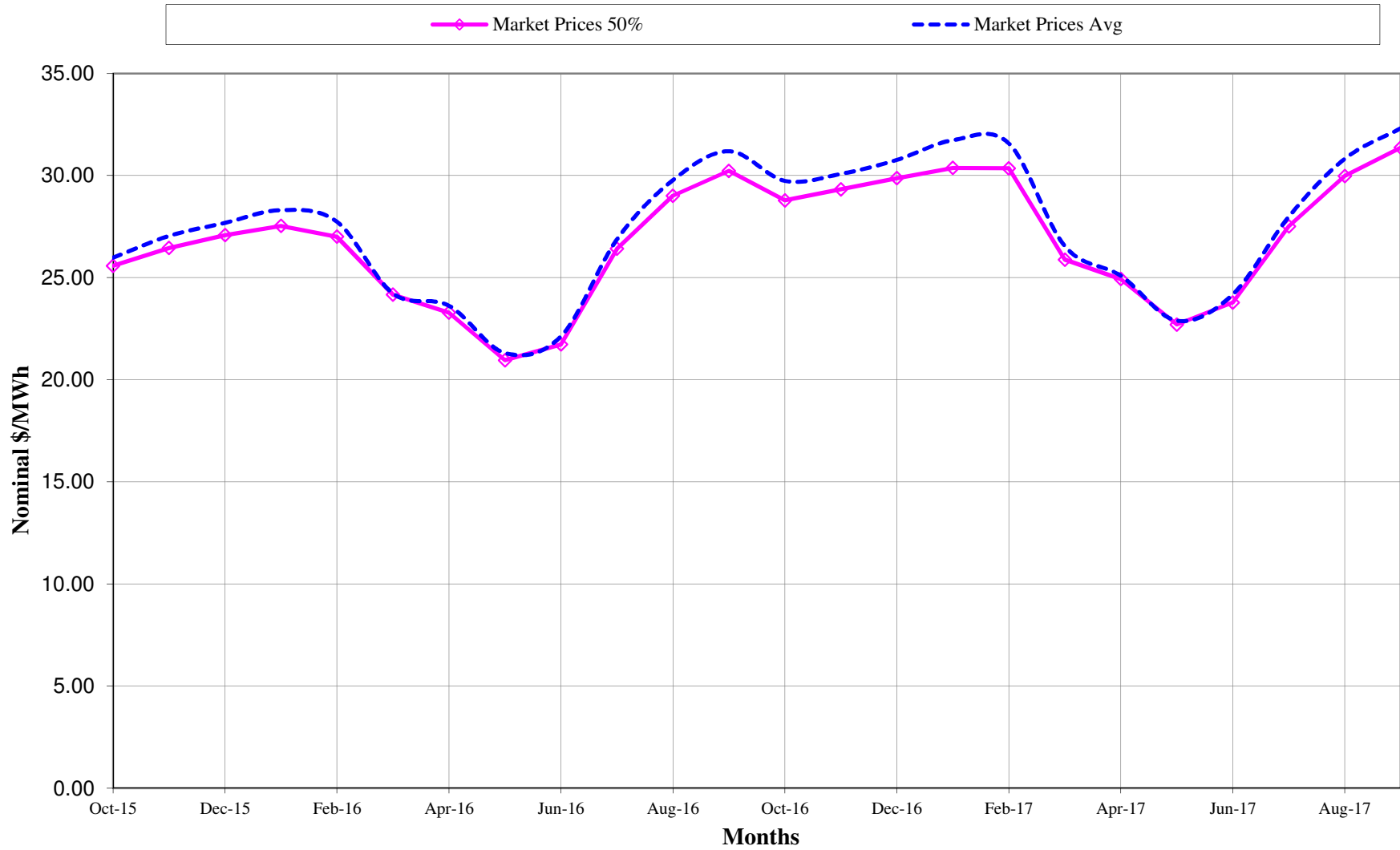


Figure 4: LLH Market Prices for FY 2016 - 2017

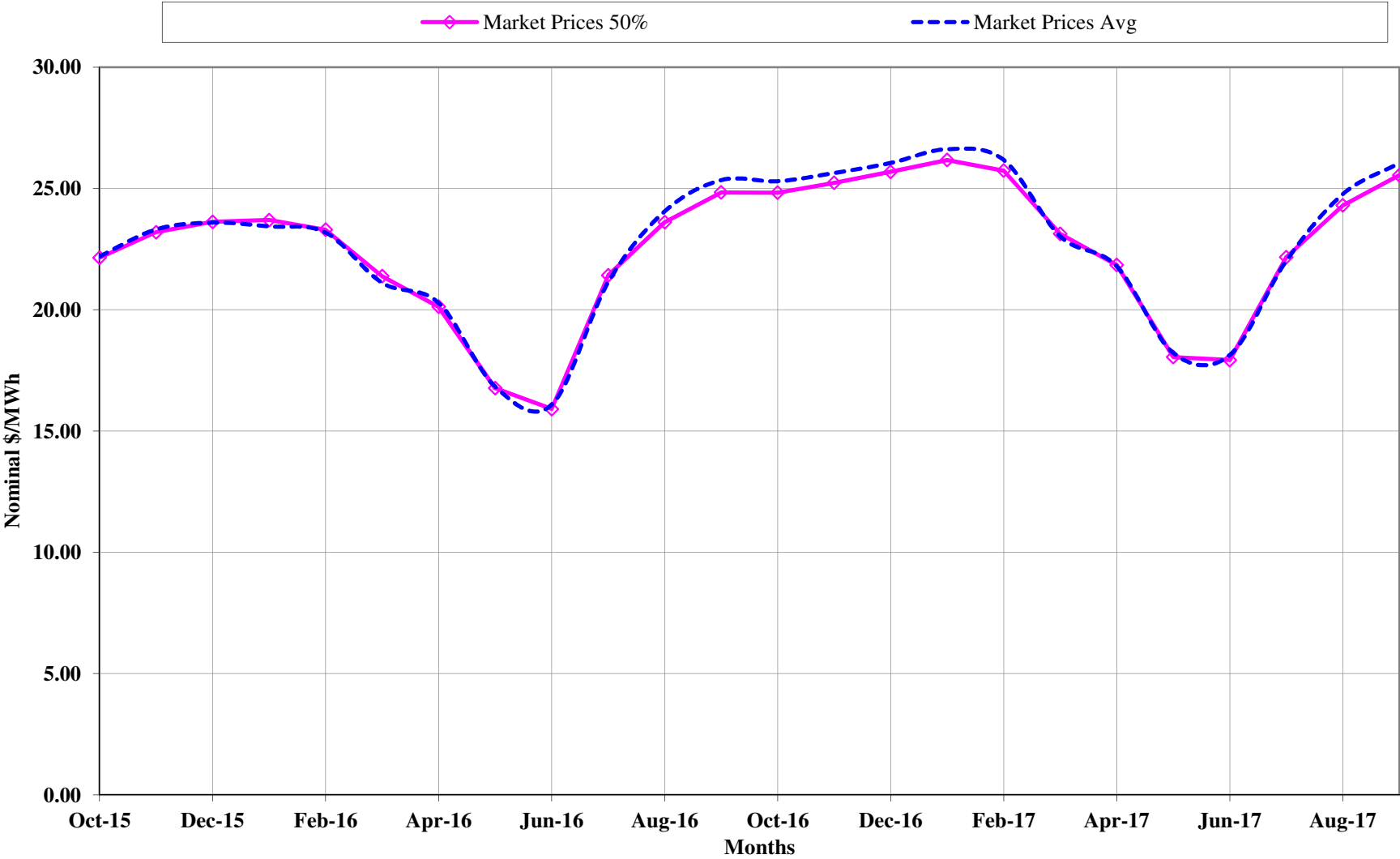


Figure 5: HLH Market Prices for the Critical Water Run for FY 2016- 2017

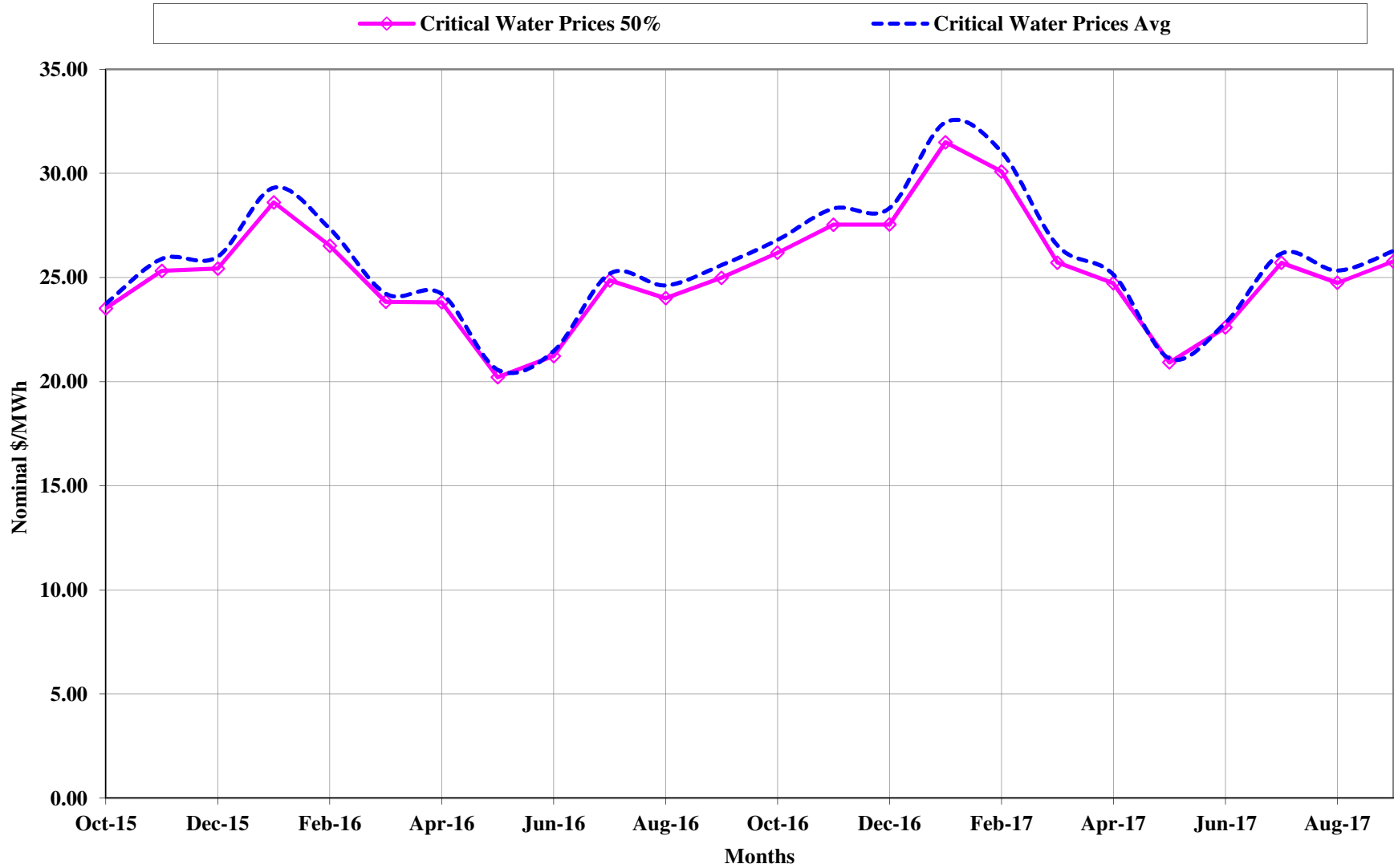
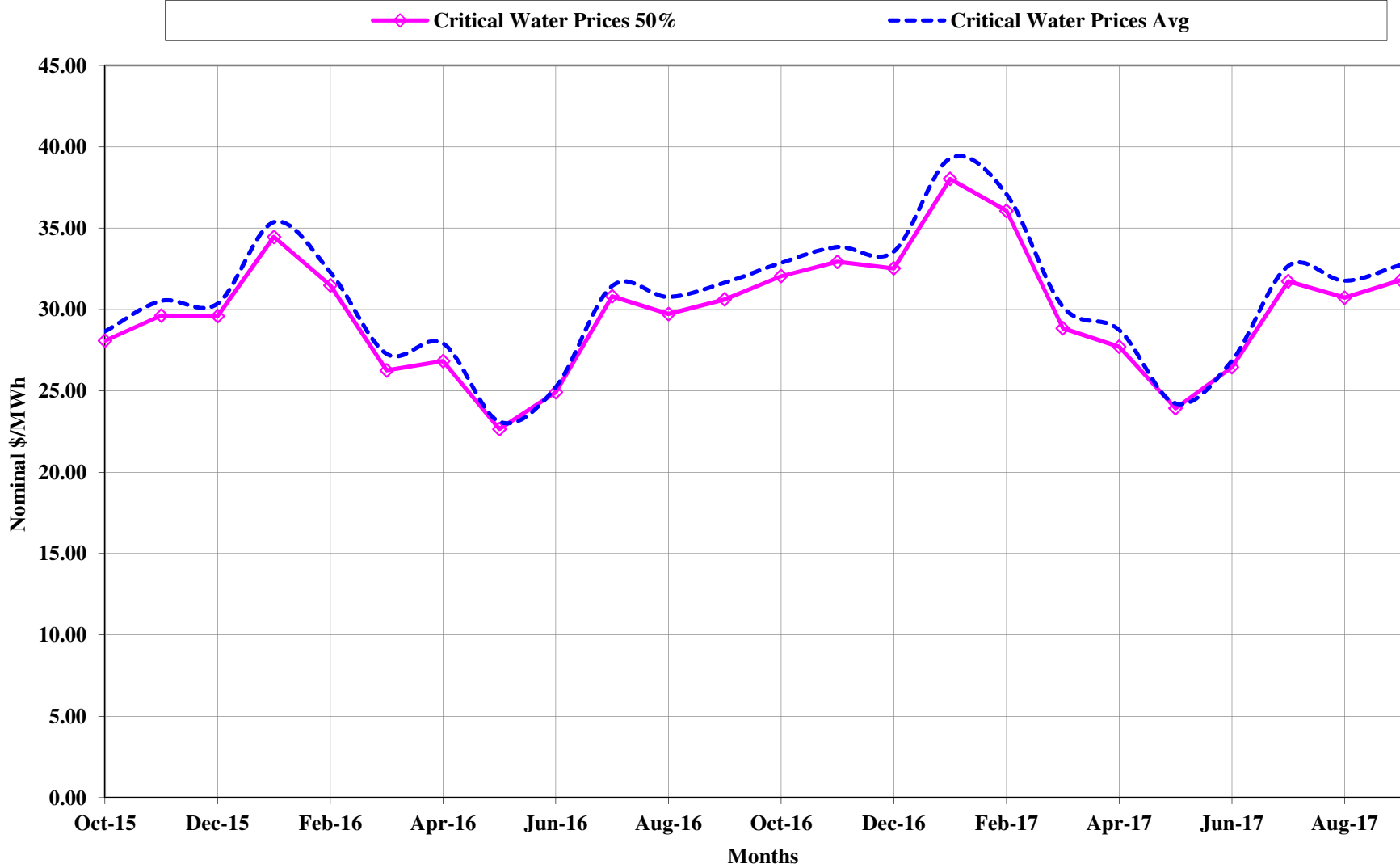


Figure 6: LLH Market Prices for the Critical Water Run for FY 2016 - 2017



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 3: Federal Hydro Generation (aMW) with Hydro Independents													
2	for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	5,944	7,281	7,202	7,111	6,732	6,461	6,173	7,729	8,655	6,021	6,688	6,030	6,834
6	1930	6,004	7,463	7,205	5,557	6,888	6,316	7,619	7,845	5,934	7,551	6,938	5,767	6,757
7	1931	6,000	7,594	7,353	5,747	5,696	5,899	4,702	9,021	6,213	7,815	6,304	5,367	6,486
8	1932	5,844	6,949	7,264	6,021	5,254	8,189	11,569	12,762	12,677	9,599	7,507	6,108	8,317
9	1933	6,190	7,599	8,174	10,459	10,549	9,314	8,211	10,609	13,896	12,441	9,136	6,006	9,380
10	1934	6,756	11,149	13,158	14,098	12,862	12,312	12,551	11,545	10,559	8,173	6,454	5,439	10,413
11	1935	6,119	7,028	7,128	10,581	9,596	8,855	8,097	9,692	9,486	9,709	7,752	5,458	8,293
12	1936	5,849	7,281	7,191	5,947	6,693	6,593	8,788	12,432	11,947	7,772	6,626	5,543	7,720
13	1937	5,747	7,579	7,300	5,842	6,228	6,144	5,379	8,892	7,751	6,525	6,866	5,670	6,663
14	1938	6,078	7,342	8,130	9,651	9,552	9,824	11,301	12,132	10,942	9,439	6,443	6,013	8,900
15	1939	6,204	7,139	7,050	8,384	7,406	7,041	9,135	10,572	7,555	7,417	6,682	5,738	7,529
16	1940	6,325	8,139	7,757	7,821	6,910	9,818	9,721	10,770	7,656	7,052	6,140	5,657	7,819
17	1941	5,932	7,425	7,502	7,008	6,695	6,940	6,021	9,203	7,717	7,827	6,539	6,166	7,086
18	1942	6,002	7,989	9,178	9,189	7,167	7,057	7,970	9,979	11,441	10,597	7,693	6,653	8,415
19	1943	5,816	6,608	7,954	11,054	10,125	9,393	12,783	11,205	13,891	12,616	7,268	5,645	9,524
20	1944	5,934	7,541	7,141	7,200	6,888	6,074	6,164	7,260	5,400	6,875	6,321	5,588	6,534
21	1945	6,147	7,272	7,281	5,818	6,298	6,160	4,923	10,860	11,424	6,331	6,672	5,174	7,032
22	1946	5,921	7,686	8,166	9,289	8,088	9,952	11,734	12,687	10,455	10,717	8,510	6,115	9,117
23	1947	5,893	8,252	11,368	12,161	11,118	10,671	9,565	11,928	11,125	9,885	8,135	5,902	9,669
24	1948	8,794	10,032	9,407	11,913	9,446	9,565	9,916	13,740	13,770	11,609	9,829	6,491	10,385
25	1949	6,225	8,013	7,871	9,319	7,376	10,768	10,771	12,920	11,600	6,541	5,846	5,220	8,541
26	1950	6,029	7,097	7,928	11,504	11,017	11,604	10,961	12,054	13,650	13,040	8,739	6,146	9,980
27	1951	7,121	10,477	11,496	13,767	13,496	12,590	11,564	12,570	11,281	11,700	8,253	5,968	10,854
28	1952	8,160	9,148	9,558	11,368	10,560	9,924	12,133	13,525	11,629	9,657	8,041	5,307	9,918
29	1953	5,833	7,361	7,237	7,666	9,919	8,988	7,703	11,754	13,895	10,533	7,582	6,032	8,701
30	1954	6,144	8,414	8,785	10,670	11,998	10,724	9,353	12,133	12,814	13,247	10,801	8,544	10,298
31	1955	6,294	9,201	8,739	8,245	7,312	6,626	7,149	10,317	13,862	12,967	9,118	5,729	8,803
32	1956	6,505	9,908	11,460	13,027	12,980	12,037	11,989	13,747	13,600	11,916	9,063	6,066	11,021
33	1957	6,448	7,951	9,015	9,587	7,267	10,093	10,190	13,740	13,955	9,366	7,217	5,871	9,232
34	1958	5,980	7,713	7,863	10,059	9,251	9,476	9,622	13,094	13,038	8,136	6,758	5,653	8,883
35	1959	6,050	8,946	10,681	12,513	12,090	11,094	9,720	11,700	13,137	12,633	9,228	8,828	10,547
36	1960	9,751	11,261	10,391	10,522	9,599	9,472	12,436	10,535	12,282	9,566	7,346	5,592	9,892
37	1961	6,194	7,956	8,078	10,283	10,243	10,910	9,574	12,521	13,234	9,111	7,466	5,657	9,265
38	1962	5,842	7,834	7,722	9,917	9,066	7,125	12,192	12,072	10,534	8,732	7,557	5,379	8,659
39	1963	6,606	9,293	10,209	11,085	8,595	7,583	8,051	10,999	12,294	9,197	7,322	6,217	8,956
40	1964	5,936	7,695	8,012	8,419	8,020	7,260	8,737	11,105	13,878	12,837	9,345	6,846	9,010
41	1965	7,006	8,847	11,727	14,462	13,783	11,576	10,655	12,854	12,130	9,320	9,033	5,542	10,574
42	1966	6,385	8,186	8,396	9,357	8,797	7,511	10,444	9,425	10,323	9,805	7,401	5,803	8,482
43	1967	5,831	7,617	8,552	12,319	11,593	10,464	7,068	10,287	13,400	12,217	8,418	6,099	9,487
44	1968	6,209	8,514	8,425	10,333	10,750	9,912	6,889	8,864	12,250	10,488	8,973	7,428	9,080

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 3: Federal Hydro Generation (aMW) with Hydro Independents													
2	for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	7,151	9,969	9,597	13,579	10,997	11,105	12,081	13,263	12,190	10,021	7,796	5,894	10,303
46	1970	6,110	8,049	7,476	9,880	9,179	8,526	7,493	10,976	13,022	8,081	6,939	5,611	8,440
47	1971	5,899	7,641	8,049	13,132	13,269	12,615	11,186	13,495	13,741	11,615	9,840	6,311	10,560
48	1972	6,510	8,255	8,839	12,556	13,341	13,927	11,809	13,510	13,405	12,776	10,387	6,611	10,991
49	1973	6,388	8,283	8,330	9,748	7,438	7,218	6,040	8,959	7,144	6,962	6,466	5,609	7,389
50	1974	6,019	7,655	9,588	14,702	14,431	13,293	12,260	12,950	13,474	13,426	10,109	6,476	11,194
51	1975	5,826	7,570	7,498	10,612	9,651	9,192	7,368	11,976	13,437	12,467	9,074	6,604	9,276
52	1976	7,340	10,362	12,513	12,835	12,412	11,600	11,547	13,293	12,180	12,241	11,267	9,476	11,422
53	1977	6,499	7,757	7,168	7,333	7,239	6,379	5,844	7,077	4,964	6,657	6,390	5,031	6,531
54	1978	5,350	6,994	9,310	9,609	9,074	8,433	10,283	12,125	10,006	9,697	6,948	7,421	8,770
55	1979	6,543	8,088	7,316	7,824	7,506	9,032	7,656	11,602	9,325	6,523	6,271	5,747	7,788
56	1980	5,764	7,511	6,814	8,802	6,924	7,125	9,082	13,460	12,542	7,819	6,279	5,987	8,176
57	1981	6,061	7,825	10,180	11,825	10,975	7,630	7,167	12,414	13,774	11,479	9,299	6,109	9,563
58	1982	6,079	8,514	8,398	11,165	13,980	13,117	10,601	12,638	13,866	13,174	9,685	7,347	10,702
59	1983	7,210	8,654	9,077	11,651	11,668	12,214	9,794	11,851	12,500	11,160	9,546	6,504	10,152
60	1984	6,261	10,692	9,483	10,965	10,961	9,978	11,927	11,931	13,420	11,140	8,063	6,515	10,101
61	1985	6,339	8,647	8,303	8,952	8,329	7,333	9,954	12,209	9,878	5,604	5,622	5,718	8,067
62	1986	6,263	9,186	8,553	10,438	11,268	13,081	12,039	10,529	11,386	8,677	6,809	5,541	9,470
63	1987	5,818	7,989	8,416	8,202	6,636	8,861	6,863	10,402	9,023	6,906	6,113	5,469	7,566
64	1988	5,871	7,245	6,773	6,703	5,673	5,948	6,778	8,801	7,741	7,713	6,854	5,622	6,816
65	1989	5,885	7,533	7,822	7,347	6,034	8,141	10,159	10,608	9,347	7,451	6,321	5,599	7,691
66	1990	5,995	8,168	9,057	9,324	11,506	10,188	10,153	10,577	12,191	9,164	8,431	5,738	9,197
67	1991	5,727	10,325	9,794	11,814	10,689	9,654	9,408	11,151	11,739	12,303	9,078	5,709	9,783
68	1992	5,862	7,676	6,905	7,631	6,984	7,574	6,089	9,189	7,847	6,739	6,365	5,395	7,024
69	1993	5,953	7,514	7,425	5,593	5,454	7,391	7,458	11,125	9,983	8,055	7,096	6,127	7,438
70	1994	6,007	7,858	7,705	5,963	6,351	6,202	6,697	9,861	9,365	7,419	6,639	5,857	7,162
71	1995	5,922	6,888	7,602	8,642	8,693	8,118	8,717	11,008	12,607	8,596	6,840	6,257	8,319
72	1996	7,013	11,634	13,673	14,524	14,373	13,946	12,314	12,666	12,904	12,248	9,080	6,057	11,698
73	1997	6,089	8,502	9,722	14,741	13,940	13,180	12,590	13,519	13,648	12,812	9,806	7,339	11,318
74	1998	9,079	9,788	8,278	9,125	9,745	8,432	7,999	13,291	13,465	9,513	8,305	5,818	9,403
75	1999	5,954	7,613	8,983	12,646	12,449	12,462	10,457	11,382	13,063	12,679	10,410	6,605	10,390
76	2000	6,246	10,781	10,267	10,372	9,922	9,243	11,779	12,218	8,612	9,159	7,046	5,479	9,258
77	2001	6,066	7,307	7,197	7,150	6,861	6,596	6,093	8,063	4,486	7,059	6,291	4,992	6,520
78	2002	5,125	6,836	7,511	6,547	6,780	6,501	10,985	10,511	13,068	11,403	6,536	5,693	8,121
79	2003	6,009	7,781	7,363	6,383	7,165	9,489	8,386	10,384	11,465	7,291	6,263	5,396	7,779
80	2004	6,129	8,833	7,686	7,368	6,984	6,995	7,499	10,101	10,262	7,466	6,183	6,686	7,680
81	2005	6,461	8,107	8,666	9,139	8,843	7,207	6,754	10,569	9,600	8,178	6,671	5,717	7,993
82	2006	5,829	8,049	8,426	9,890	10,234	9,996	12,357	12,697	12,917	9,180	6,803	5,295	9,297
83	2007	5,805	7,915	8,564	10,571	9,451	10,568	9,577	11,302	8,900	9,461	6,454	5,137	8,646
84	2008	6,017	8,454	7,302	7,958	7,516	7,363	6,864	12,050	13,981	9,835	7,098	5,714	8,346
85	80 WY Average	6,282	8,265	8,584	9,731	9,310	9,177	9,245	11,285	11,222	9,589	7,694	6,033	8,868
86	Hours	744	721	744	744	696	743	720	744	720	744	744	720	8,784

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 4: Federal Hydro Generation (aMW) with Hydro Independents													
2	for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	5,944	7,282	7,202	7,111	6,732	6,461	6,173	7,866	8,453	6,017	6,686	6,064	6,832
6	1930	6,004	7,463	7,205	5,557	6,888	6,316	7,422	7,844	5,934	7,546	6,938	5,803	6,743
7	1931	6,000	7,594	7,353	5,747	5,696	5,899	5,075	9,457	6,295	7,810	6,302	5,401	6,565
8	1932	5,844	6,949	7,264	6,021	5,254	8,193	11,177	12,860	12,518	9,600	7,503	6,146	8,292
9	1933	6,190	7,532	8,174	10,364	10,422	9,607	7,930	10,493	14,055	12,436	9,132	6,061	9,362
10	1934	6,720	10,958	13,073	13,834	12,797	12,107	11,956	11,458	10,805	8,047	6,452	5,472	10,292
11	1935	6,119	7,031	7,128	10,514	9,778	9,246	7,111	9,588	9,431	9,709	7,750	5,489	8,239
12	1936	5,849	7,281	7,191	5,947	6,693	6,593	8,728	12,605	11,992	7,771	6,624	5,577	7,739
13	1937	5,747	7,579	7,300	5,842	6,228	6,144	5,736	9,345	7,837	6,520	6,863	5,700	6,741
14	1938	6,078	6,843	8,130	10,017	9,478	9,846	11,123	12,138	10,872	9,439	6,441	6,049	8,867
15	1939	6,204	7,139	7,050	8,384	7,406	7,041	8,974	10,526	7,513	7,412	6,680	5,769	7,511
16	1940	6,325	8,139	7,757	7,821	6,910	11,193	8,559	10,089	7,656	7,052	6,140	5,691	7,787
17	1941	5,932	7,425	7,502	7,008	6,695	6,940	6,362	9,644	7,807	7,836	6,541	6,216	7,165
18	1942	5,993	7,989	9,178	9,195	7,167	8,890	7,799	9,530	9,880	10,579	7,691	6,691	8,395
19	1943	5,816	7,105	7,476	11,085	10,042	9,528	12,562	11,220	14,025	12,465	7,265	5,687	9,515
20	1944	5,934	7,541	7,141	7,200	6,888	6,074	6,164	7,260	5,400	6,875	6,321	5,623	6,536
21	1945	6,147	7,272	7,281	5,818	6,298	6,160	4,923	10,850	11,322	6,336	6,670	5,223	7,029
22	1946	5,921	7,688	8,166	9,328	8,009	10,025	11,594	12,496	10,436	10,717	8,508	6,165	9,098
23	1947	5,893	8,255	11,236	12,014	11,114	10,562	9,291	12,126	11,084	9,886	8,133	5,958	9,628
24	1948	8,559	9,972	9,407	11,736	9,697	9,187	9,757	13,547	14,053	11,615	9,828	6,548	10,333
25	1949	6,225	8,015	7,871	9,273	7,371	10,941	10,588	13,121	11,574	6,556	5,844	5,264	8,560
26	1950	6,029	7,100	7,928	11,673	10,890	11,794	10,717	11,811	14,016	13,068	8,739	6,204	9,995
27	1951	7,077	10,371	11,403	13,598	12,963	12,778	11,372	12,597	11,219	11,704	8,252	6,014	10,772
28	1952	7,983	9,151	9,558	11,524	10,621	9,572	11,993	13,521	11,615	9,660	8,037	5,346	9,880
29	1953	5,833	7,361	7,237	7,666	9,860	8,983	7,659	11,678	14,330	10,534	7,578	6,071	8,722
30	1954	6,144	8,414	8,785	10,755	11,700	10,767	9,056	12,220	13,148	13,192	10,801	8,699	10,300
31	1955	6,294	9,196	8,739	7,883	7,747	6,626	6,984	10,214	14,090	13,041	9,114	5,786	8,816
32	1956	6,505	9,844	11,373	12,945	12,849	11,980	11,555	13,500	13,891	11,886	9,059	6,119	10,950
33	1957	6,433	7,952	9,015	9,530	7,267	10,179	9,865	13,954	14,342	9,364	7,215	5,910	9,265
34	1958	5,980	7,713	7,863	9,971	9,219	9,472	9,413	13,222	12,838	8,266	7,066	5,702	8,891
35	1959	6,050	8,949	10,598	12,395	12,035	11,009	9,539	11,369	13,234	12,578	9,224	9,039	10,492
36	1960	9,505	11,077	10,237	10,478	9,533	9,286	12,054	10,438	12,248	9,571	7,342	5,637	9,781
37	1961	6,194	7,959	8,078	10,193	10,121	11,521	8,664	12,200	13,424	9,109	7,464	5,706	9,214
38	1962	5,842	7,834	7,722	9,750	9,272	7,125	11,770	11,920	10,527	8,733	7,555	5,426	8,615
39	1963	6,597	9,296	10,209	10,830	9,489	8,793	7,306	10,685	11,114	9,225	7,320	6,258	8,927
40	1964	5,936	7,695	8,012	8,419	8,020	7,260	8,554	11,044	14,122	12,819	9,341	6,925	9,017
41	1965	6,948	8,850	11,634	14,388	13,340	12,033	10,470	12,764	12,250	9,340	9,033	5,608	10,545
42	1966	6,385	8,189	8,396	9,337	8,797	7,511	10,175	9,372	10,231	9,807	7,399	5,834	8,448
43	1967	5,831	7,620	8,552	12,193	11,770	10,476	6,926	10,233	13,744	12,140	8,413	6,138	9,494
44	1968	6,209	8,517	8,425	10,243	10,623	9,923	6,696	8,790	12,226	10,487	8,972	7,520	9,043

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 4: Federal Hydro Generation (aMW) with Hydro Independents													
2	for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	7,075	9,921	9,597	13,505	11,530	10,321	11,777	13,373	12,135	10,037	7,794	5,936	10,243
46	1970	6,110	8,050	7,476	9,812	9,137	8,549	7,281	10,961	13,182	8,081	6,935	5,669	8,430
47	1971	5,899	7,642	8,049	13,093	13,146	12,829	10,973	13,347	14,013	11,610	9,837	6,372	10,555
48	1972	6,510	8,257	8,839	12,733	13,053	14,392	11,420	13,414	13,875	12,743	10,386	6,669	11,017
49	1973	6,388	8,284	8,330	9,677	7,438	7,218	6,040	8,958	7,042	6,958	6,464	5,629	7,375
50	1974	6,019	7,658	9,588	14,772	13,641	13,605	11,949	12,805	13,844	13,489	10,106	6,507	11,157
51	1975	5,826	7,570	7,498	10,545	9,568	9,236	7,349	11,849	13,740	12,399	9,075	6,647	9,278
52	1976	7,253	10,265	12,494	12,767	12,091	11,632	11,450	13,344	12,181	12,192	11,267	9,686	11,385
53	1977	6,499	7,757	7,168	7,333	7,239	6,379	6,188	7,470	5,045	6,657	6,390	5,086	6,602
54	1978	5,350	6,994	9,296	9,424	9,254	8,133	10,049	11,845	9,988	9,697	6,945	7,466	8,700
55	1979	6,523	8,088	7,316	7,824	7,506	9,032	7,463	11,577	9,326	6,519	6,269	5,778	7,772
56	1980	5,764	7,511	6,814	8,802	6,924	7,125	9,036	13,561	12,460	7,821	6,277	6,025	8,181
57	1981	6,061	7,829	10,177	11,856	10,857	9,454	6,693	10,953	13,949	11,479	9,294	6,136	9,561
58	1982	6,079	8,515	8,398	11,064	13,487	13,531	10,394	12,823	14,158	13,085	9,682	7,388	10,700
59	1983	7,145	8,654	9,077	11,682	11,534	12,763	9,465	11,948	12,539	11,173	9,543	6,542	10,170
60	1984	6,261	10,575	9,483	10,952	10,833	10,313	11,705	12,123	13,646	11,128	8,058	6,550	10,125
61	1985	6,339	8,649	8,303	9,135	8,328	7,332	9,672	12,181	9,838	5,600	5,620	5,808	8,060
62	1986	6,263	9,188	8,553	10,348	11,325	13,606	11,771	10,569	11,204	8,608	6,807	5,567	9,469
63	1987	5,818	7,991	8,416	8,202	6,636	8,861	7,257	10,761	9,080	6,901	6,111	5,474	7,636
64	1988	5,871	7,245	6,773	6,703	5,673	6,427	6,735	8,741	7,283	7,709	6,852	5,640	6,815
65	1989	5,885	7,533	7,822	7,347	6,034	8,158	9,961	10,517	9,348	7,453	6,321	5,633	7,676
66	1990	5,995	8,169	9,057	9,431	11,559	10,218	9,592	10,477	12,468	9,163	8,427	5,740	9,174
67	1991	5,727	10,210	9,792	11,917	10,613	9,692	9,094	11,076	11,664	12,244	9,074	5,712	9,733
68	1992	5,862	7,676	6,905	7,631	6,984	9,370	6,229	9,148	6,450	6,735	6,363	5,460	7,075
69	1993	5,953	7,514	7,419	5,530	5,449	7,386	7,299	11,348	9,908	8,055	7,096	6,176	7,441
70	1994	6,007	7,858	7,705	5,963	6,351	6,202	7,091	10,270	9,441	7,414	6,637	5,890	7,240
71	1995	5,922	6,888	7,602	8,642	8,841	9,698	7,452	10,483	12,493	8,590	6,831	6,293	8,307
72	1996	6,974	11,453	14,400	14,330	14,149	14,246	11,899	12,953	12,709	12,377	9,078	6,097	11,715
73	1997	6,089	8,504	9,722	14,770	13,877	13,761	12,146	13,393	14,102	12,834	9,804	7,412	11,356
74	1998	8,833	9,769	8,278	9,119	9,666	8,432	7,907	13,577	13,535	9,513	8,303	5,865	9,399
75	1999	5,954	7,614	8,983	12,566	12,249	12,879	10,323	11,421	13,332	12,651	10,406	6,650	10,414
76	2000	6,246	10,650	10,260	10,282	9,839	9,239	11,436	12,100	8,615	9,153	7,044	5,533	9,196
77	2001	6,066	7,307	7,197	7,150	6,861	6,596	6,458	8,508	4,568	7,055	6,289	5,022	6,596
78	2002	5,125	6,836	7,511	7,201	6,761	7,019	9,542	10,423	13,478	11,268	6,532	5,741	8,122
79	2003	6,009	7,781	7,363	6,383	7,165	9,485	8,136	10,312	11,413	7,266	6,261	5,440	7,751
80	2004	6,129	8,833	7,686	7,973	6,326	7,861	7,413	9,862	9,194	7,466	6,181	6,775	7,648
81	2005	6,454	8,110	8,666	9,113	8,821	7,226	6,669	10,498	9,517	8,175	6,669	5,747	7,970
82	2006	5,829	8,050	8,426	10,489	10,042	9,969	11,645	12,813	13,214	9,067	6,801	5,334	9,298
83	2007	5,805	7,917	8,564	10,417	9,373	10,575	9,413	11,175	8,889	9,456	6,452	5,163	8,601
84	2008	6,017	8,454	7,302	7,958	7,516	7,359	6,749	12,285	14,312	9,830	7,094	5,771	8,390
85	80 WY Average	6,264	8,249	8,577	9,725	9,267	9,377	9,011	11,260	11,234	9,580	7,695	6,082	8,859
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 5: Heavy-Load Hydro Generation Ratios												
2	for FY 2016												
3													
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
5	1929	1.161	1.233	1.159	1.251	1.171	1.120	1.140	1.240	1.126	1.242	1.169	1.169
6	1930	1.165	1.243	1.161	1.230	1.153	1.125	1.148	1.253	1.150	1.317	1.182	1.174
7	1931	1.166	1.238	1.163	1.231	1.154	1.123	1.104	1.257	1.179	1.319	1.175	1.164
8	1932	1.165	1.236	1.156	1.231	1.138	1.087	1.096	1.158	1.061	1.245	1.210	1.181
9	1933	1.168	1.229	1.156	1.248	1.157	1.121	1.134	1.199	1.019	1.042	1.143	1.180
10	1934	1.177	1.179	1.072	1.100	1.075	1.062	1.051	1.160	1.054	1.300	1.208	1.180
11	1935	1.174	1.235	1.152	1.214	1.206	1.129	1.122	1.238	1.119	1.218	1.156	1.160
12	1936	1.160	1.240	1.161	1.229	1.172	1.112	1.139	1.181	1.062	1.320	1.187	1.159
13	1937	1.155	1.239	1.162	1.237	1.170	1.123	1.140	1.244	1.148	1.280	1.189	1.169
14	1938	1.165	1.235	1.157	1.284	1.157	1.110	1.083	1.147	1.103	1.263	1.195	1.181
15	1939	1.167	1.237	1.154	1.263	1.173	1.113	1.127	1.226	1.180	1.307	1.189	1.168
16	1940	1.171	1.237	1.151	1.254	1.153	1.120	1.129	1.230	1.181	1.314	1.174	1.171
17	1941	1.165	1.237	1.148	1.238	1.158	1.118	1.174	1.263	1.174	1.316	1.171	1.173
18	1942	1.163	1.220	1.161	1.263	1.160	1.118	1.163	1.247	1.106	1.195	1.169	1.168
19	1943	1.161	1.221	1.151	1.232	1.160	1.091	1.077	1.210	1.019	1.098	1.199	1.163
20	1944	1.158	1.231	1.154	1.248	1.176	1.125	1.139	1.259	1.119	1.291	1.167	1.164
21	1945	1.170	1.238	1.156	1.230	1.155	1.121	1.121	1.227	1.106	1.241	1.183	1.142
22	1946	1.159	1.231	1.151	1.257	1.158	1.107	1.080	1.075	1.104	1.166	1.193	1.172
23	1947	1.153	1.227	1.177	1.193	1.179	1.119	1.119	1.163	1.095	1.224	1.198	1.172
24	1948	1.115	1.226	1.172	1.251	1.200	1.121	1.104	1.071	0.990	1.124	1.124	1.177
25	1949	1.169	1.232	1.154	1.246	1.157	1.081	1.099	1.139	1.080	1.283	1.156	1.153
26	1950	1.164	1.230	1.154	1.202	1.166	1.094	1.101	1.139	0.995	1.033	1.180	1.173
27	1951	1.173	1.219	1.154	1.125	1.087	1.073	1.085	1.130	1.088	1.112	1.190	1.169
28	1952	1.168	1.226	1.175	1.234	1.200	1.094	1.059	1.104	1.107	1.259	1.194	1.155
29	1953	1.153	1.239	1.156	1.241	1.184	1.138	1.134	1.162	0.994	1.229	1.197	1.170
30	1954	1.166	1.237	1.170	1.261	1.131	1.106	1.116	1.156	0.995	1.022	1.070	1.217
31	1955	1.169	1.238	1.167	1.262	1.181	1.128	1.142	1.236	1.026	1.038	1.127	1.159
32	1956	1.176	1.229	1.172	1.208	1.101	1.060	1.042	1.079	0.996	1.103	1.165	1.168
33	1957	1.167	1.230	1.167	1.276	1.159	1.101	1.112	1.110	0.998	1.256	1.206	1.175
34	1958	1.156	1.232	1.149	1.263	1.173	1.135	1.122	1.142	1.032	1.314	1.202	1.172
35	1959	1.162	1.224	1.194	1.222	1.130	1.086	1.120	1.133	1.031	1.056	1.144	1.203
36	1960	1.075	1.194	1.184	1.274	1.218	1.137	1.088	1.226	1.075	1.221	1.208	1.174
37	1961	1.169	1.238	1.155	1.224	1.188	1.125	1.116	1.139	0.995	1.248	1.207	1.168
38	1962	1.161	1.232	1.156	1.285	1.198	1.117	1.069	1.159	1.109	1.303	1.213	1.159
39	1963	1.164	1.231	1.193	1.206	1.158	1.126	1.153	1.234	1.077	1.273	1.179	1.170
40	1964	1.159	1.232	1.155	1.266	1.196	1.117	1.120	1.211	0.997	1.055	1.147	1.178
41	1965	1.177	1.236	1.167	1.121	1.054	1.087	1.082	1.093	1.052	1.289	1.173	1.163
42	1966	1.167	1.235	1.160	1.279	1.205	1.130	1.117	1.253	1.112	1.203	1.187	1.165
43	1967	1.160	1.232	1.165	1.165	1.137	1.120	1.152	1.218	0.993	1.088	1.193	1.180
44	1968	1.163	1.228	1.162	1.269	1.195	1.136	1.142	1.261	1.066	1.156	1.155	1.182

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Table 5: Heavy-Load Hydro Generation Ratios for FY 2016												
2													
3													
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
45	1969	1.174	1.227	1.173	1.158	1.179	1.091	1.057	1.115	1.057	1.199	1.204	1.172
46	1970	1.163	1.235	1.156	1.274	1.193	1.129	1.141	1.216	1.052	1.294	1.170	1.154
47	1971	1.153	1.227	1.146	1.190	1.097	1.076	1.091	1.075	0.994	1.154	1.128	1.172
48	1972	1.156	1.231	1.161	1.197	1.082	1.042	1.080	1.075	0.992	1.040	1.089	1.176
49	1973	1.157	1.225	1.164	1.285	1.169	1.124	1.150	1.244	1.142	1.288	1.182	1.161
50	1974	1.162	1.215	1.166	1.111	1.013	1.046	1.063	1.071	0.994	1.025	1.109	1.183
51	1975	1.155	1.231	1.150	1.237	1.197	1.125	1.138	1.143	1.023	1.109	1.176	1.174
52	1976	1.155	1.217	1.116	1.199	1.109	1.099	1.089	1.107	1.072	1.084	1.048	1.184
53	1977	1.162	1.230	1.162	1.256	1.180	1.130	1.144	1.270	1.152	1.288	1.175	1.145
54	1978	1.148	1.231	1.168	1.253	1.173	1.106	1.113	1.128	1.095	1.275	1.192	1.197
55	1979	1.174	1.238	1.160	1.255	1.180	1.139	1.138	1.204	1.158	1.277	1.163	1.168
56	1980	1.156	1.235	1.152	1.263	1.153	1.126	1.140	1.118	1.064	1.307	1.190	1.176
57	1981	1.167	1.232	1.196	1.169	1.181	1.125	1.158	1.154	1.005	1.116	1.138	1.181
58	1982	1.165	1.235	1.168	1.233	1.047	1.062	1.109	1.132	1.014	1.062	1.143	1.191
59	1983	1.160	1.229	1.175	1.225	1.156	1.066	1.115	1.173	1.071	1.167	1.148	1.174
60	1984	1.153	1.213	1.171	1.280	1.167	1.075	1.085	1.186	1.043	1.175	1.191	1.167
61	1985	1.148	1.224	1.157	1.270	1.179	1.123	1.097	1.164	1.129	1.241	1.175	1.158
62	1986	1.155	1.223	1.159	1.255	1.126	1.060	1.116	1.227	1.106	1.302	1.184	1.151
63	1987	1.153	1.226	1.157	1.256	1.162	1.151	1.186	1.232	1.139	1.295	1.163	1.157
64	1988	1.161	1.240	1.153	1.239	1.151	1.120	1.172	1.255	1.166	1.319	1.194	1.162
65	1989	1.165	1.239	1.150	1.236	1.154	1.091	1.092	1.216	1.145	1.309	1.166	1.158
66	1990	1.161	1.227	1.162	1.287	1.106	1.123	1.113	1.199	1.015	1.280	1.163	1.161
67	1991	1.157	1.218	1.180	1.169	1.180	1.126	1.113	1.183	1.072	1.064	1.152	1.167
68	1992	1.159	1.234	1.144	1.241	1.165	1.123	1.177	1.265	1.178	1.287	1.168	1.157
69	1993	1.171	1.240	1.163	1.231	1.146	1.119	1.145	1.194	1.139	1.279	1.163	1.161
70	1994	1.162	1.239	1.158	1.231	1.172	1.123	1.183	1.260	1.121	1.305	1.172	1.168
71	1995	1.167	1.240	1.156	1.247	1.156	1.128	1.149	1.220	1.069	1.286	1.188	1.173
72	1996	1.170	1.184	1.060	1.108	1.040	1.018	1.066	1.133	1.047	1.084	1.159	1.172
73	1997	1.164	1.233	1.183	1.093	1.039	1.055	1.041	1.072	0.990	1.048	1.134	1.191
74	1998	1.101	1.227	1.157	1.280	1.213	1.132	1.140	1.149	1.043	1.281	1.164	1.155
75	1999	1.151	1.228	1.169	1.193	1.119	1.074	1.099	1.188	1.038	1.051	1.095	1.190
76	2000	1.161	1.200	1.190	1.251	1.205	1.127	1.066	1.150	1.140	1.257	1.182	1.160
77	2001	1.160	1.234	1.155	1.247	1.174	1.122	1.141	1.255	1.126	1.310	1.168	1.141
78	2002	1.134	1.233	1.152	1.234	1.152	1.109	1.093	1.229	1.007	1.125	1.192	1.170
79	2003	1.163	1.238	1.157	1.235	1.167	1.146	1.170	1.242	1.101	1.306	1.166	1.156
80	2004	1.173	1.240	1.150	1.241	1.158	1.121	1.171	1.246	1.139	1.299	1.151	1.172
81	2005	1.174	1.237	1.164	1.281	1.218	1.125	1.170	1.235	1.145	1.310	1.165	1.150
82	2006	1.162	1.235	1.153	1.288	1.206	1.122	1.072	1.141	1.010	1.268	1.203	1.150
83	2007	1.156	1.224	1.167	1.238	1.204	1.119	1.138	1.196	1.146	1.233	1.186	1.141
84	2008	1.167	1.235	1.149	1.253	1.174	1.121	1.140	1.169	0.995	1.271	1.198	1.167

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Table 6: Heavy-Load Hydro Generation Ratios												
2	for FY 2017												
3													
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
5	1929	1.216	1.170	1.149	1.208	1.172	1.122	1.188	1.174	1.121	1.241	1.170	1.170
6	1930	1.221	1.180	1.151	1.184	1.159	1.125	1.198	1.184	1.135	1.315	1.182	1.175
7	1931	1.223	1.174	1.157	1.187	1.151	1.123	1.142	1.179	1.165	1.315	1.175	1.164
8	1932	1.222	1.173	1.146	1.185	1.137	1.095	1.118	1.093	1.068	1.241	1.212	1.181
9	1933	1.224	1.163	1.156	1.206	1.144	1.125	1.182	1.117	1.029	1.039	1.144	1.179
10	1934	1.234	1.110	1.057	1.059	1.051	1.072	1.075	1.090	1.067	1.308	1.208	1.180
11	1935	1.228	1.169	1.142	1.168	1.185	1.131	1.171	1.141	1.116	1.217	1.156	1.161
12	1936	1.217	1.176	1.153	1.186	1.173	1.116	1.180	1.109	1.065	1.317	1.187	1.160
13	1937	1.209	1.175	1.153	1.190	1.167	1.125	1.180	1.177	1.141	1.279	1.189	1.170
14	1938	1.222	1.168	1.154	1.242	1.155	1.121	1.115	1.087	1.096	1.262	1.195	1.181
15	1939	1.222	1.172	1.144	1.228	1.181	1.117	1.174	1.148	1.172	1.305	1.189	1.169
16	1940	1.225	1.175	1.147	1.218	1.159	1.099	1.206	1.165	1.172	1.313	1.174	1.171
17	1941	1.220	1.172	1.143	1.197	1.164	1.120	1.215	1.172	1.166	1.313	1.171	1.172
18	1942	1.219	1.163	1.166	1.224	1.168	1.131	1.199	1.170	1.112	1.199	1.169	1.168
19	1943	1.217	1.167	1.135	1.193	1.170	1.109	1.111	1.127	1.029	1.097	1.199	1.163
20	1944	1.211	1.167	1.145	1.206	1.180	1.124	1.186	1.192	1.108	1.290	1.167	1.165
21	1945	1.225	1.174	1.149	1.187	1.154	1.122	1.167	1.153	1.102	1.241	1.183	1.142
22	1946	1.213	1.166	1.147	1.221	1.167	1.121	1.111	1.036	1.105	1.168	1.195	1.171
23	1947	1.205	1.167	1.173	1.144	1.181	1.127	1.167	1.095	1.098	1.223	1.201	1.170
24	1948	1.246	1.175	1.180	1.205	1.201	1.132	1.147	1.028	0.990	1.121	1.125	1.176
25	1949	1.224	1.170	1.149	1.208	1.161	1.095	1.130	1.078	1.086	1.278	1.155	1.154
26	1950	1.219	1.166	1.154	1.144	1.172	1.111	1.146	1.078	1.000	1.031	1.180	1.173
27	1951	1.235	1.166	1.127	1.071	1.122	1.067	1.125	1.069	1.092	1.110	1.190	1.169
28	1952	1.238	1.176	1.181	1.173	1.198	1.111	1.095	1.050	1.105	1.256	1.197	1.156
29	1953	1.206	1.176	1.148	1.201	1.185	1.144	1.180	1.098	0.999	1.228	1.198	1.170
30	1954	1.220	1.177	1.175	1.206	1.128	1.107	1.161	1.089	0.994	1.024	1.071	1.204
31	1955	1.223	1.181	1.173	1.218	1.197	1.129	1.191	1.165	1.034	1.036	1.127	1.159
32	1956	1.229	1.176	1.152	1.163	1.080	1.082	1.086	1.035	0.998	1.099	1.164	1.167
33	1957	1.222	1.168	1.174	1.239	1.167	1.115	1.158	1.054	1.011	1.259	1.206	1.174
34	1958	1.209	1.168	1.143	1.230	1.177	1.138	1.166	1.080	1.052	1.314	1.207	1.171
35	1959	1.217	1.174	1.178	1.179	1.114	1.091	1.166	1.072	1.035	1.053	1.145	1.188
36	1960	1.218	1.125	1.165	1.228	1.211	1.144	1.107	1.135	1.077	1.221	1.209	1.174
37	1961	1.225	1.175	1.151	1.187	1.189	1.100	1.191	1.078	0.996	1.245	1.208	1.169
38	1962	1.215	1.168	1.148	1.243	1.205	1.121	1.101	1.096	1.108	1.301	1.213	1.160
39	1963	1.223	1.181	1.178	1.166	1.184	1.128	1.206	1.159	1.106	1.279	1.180	1.170
40	1964	1.213	1.169	1.151	1.231	1.204	1.120	1.169	1.124	1.001	1.051	1.148	1.177
41	1965	1.238	1.180	1.161	1.098	1.084	1.096	1.110	1.038	1.050	1.285	1.173	1.162
42	1966	1.225	1.175	1.158	1.239	1.205	1.133	1.159	1.181	1.124	1.202	1.187	1.166
43	1967	1.215	1.168	1.165	1.119	1.107	1.123	1.201	1.125	1.000	1.085	1.197	1.179
44	1968	1.219	1.175	1.162	1.233	1.198	1.135	1.193	1.198	1.071	1.158	1.156	1.180

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Table 6: Heavy-Load Hydro Generation Ratios												
2	for FY 2017												
3													
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
45	1969	1.239	1.178	1.179	1.116	1.139	1.120	1.096	1.058	1.063	1.201	1.204	1.172
46	1970	1.217	1.172	1.149	1.240	1.195	1.132	1.192	1.137	1.058	1.293	1.171	1.154
47	1971	1.205	1.164	1.142	1.156	1.114	1.090	1.128	1.033	1.001	1.151	1.127	1.171
48	1972	1.212	1.169	1.163	1.143	1.094	1.038	1.113	1.033	0.992	1.037	1.090	1.175
49	1973	1.214	1.165	1.164	1.245	1.177	1.124	1.197	1.175	1.133	1.289	1.183	1.162
50	1974	1.218	1.153	1.169	1.076	1.046	1.058	1.095	1.032	0.997	1.026	1.110	1.183
51	1975	1.208	1.168	1.144	1.202	1.195	1.134	1.186	1.085	1.030	1.108	1.176	1.173
52	1976	1.218	1.166	1.109	1.149	1.111	1.105	1.122	1.052	1.077	1.079	1.048	1.182
53	1977	1.218	1.167	1.155	1.214	1.184	1.131	1.185	1.189	1.116	1.287	1.175	1.144
54	1978	1.200	1.168	1.172	1.218	1.167	1.117	1.161	1.067	1.089	1.274	1.193	1.196
55	1979	1.232	1.176	1.151	1.216	1.186	1.143	1.186	1.133	1.158	1.276	1.163	1.169
56	1980	1.212	1.171	1.145	1.228	1.159	1.130	1.162	1.062	1.068	1.305	1.190	1.175
57	1981	1.223	1.169	1.175	1.120	1.176	1.108	1.201	1.129	1.008	1.117	1.139	1.180
58	1982	1.219	1.178	1.168	1.196	1.078	1.072	1.157	1.076	1.022	1.058	1.141	1.190
59	1983	1.226	1.173	1.181	1.185	1.157	1.066	1.161	1.108	1.067	1.164	1.148	1.174
60	1984	1.205	1.160	1.176	1.246	1.171	1.083	1.120	1.114	1.049	1.172	1.190	1.167
61	1985	1.200	1.168	1.155	1.230	1.185	1.129	1.142	1.094	1.132	1.238	1.173	1.157
62	1986	1.208	1.173	1.158	1.220	1.151	1.054	1.156	1.154	1.104	1.303	1.184	1.152
63	1987	1.204	1.163	1.156	1.220	1.166	1.154	1.224	1.144	1.152	1.294	1.162	1.159
64	1988	1.218	1.175	1.145	1.196	1.149	1.125	1.220	1.185	1.152	1.316	1.194	1.164
65	1989	1.221	1.173	1.146	1.193	1.152	1.100	1.125	1.139	1.144	1.308	1.166	1.158
66	1990	1.216	1.165	1.171	1.244	1.086	1.126	1.151	1.124	1.025	1.278	1.164	1.162
67	1991	1.212	1.163	1.168	1.114	1.176	1.128	1.159	1.108	1.075	1.060	1.152	1.168
68	1992	1.213	1.169	1.136	1.197	1.170	1.109	1.198	1.184	1.172	1.286	1.168	1.156
69	1993	1.228	1.175	1.154	1.187	1.144	1.124	1.194	1.130	1.135	1.277	1.165	1.160
70	1994	1.217	1.174	1.153	1.187	1.170	1.123	1.220	1.166	1.142	1.304	1.173	1.169
71	1995	1.223	1.177	1.148	1.210	1.161	1.135	1.185	1.156	1.075	1.286	1.188	1.173
72	1996	1.231	1.116	1.038	1.072	1.053	1.035	1.104	1.076	1.055	1.062	1.160	1.171
73	1997	1.219	1.174	1.185	1.078	1.050	1.051	1.082	1.029	0.990	1.045	1.135	1.188
74	1998	1.237	1.173	1.155	1.239	1.214	1.136	1.191	1.086	1.056	1.279	1.164	1.155
75	1999	1.203	1.166	1.175	1.146	1.112	1.081	1.143	1.109	1.043	1.047	1.095	1.189
76	2000	1.215	1.130	1.169	1.214	1.207	1.132	1.097	1.086	1.135	1.258	1.184	1.160
77	2001	1.214	1.169	1.146	1.205	1.177	1.126	1.178	1.183	1.090	1.308	1.168	1.143
78	2002	1.186	1.169	1.144	1.192	1.155	1.111	1.118	1.140	1.016	1.122	1.190	1.170
79	2003	1.220	1.173	1.148	1.189	1.173	1.148	1.221	1.169	1.105	1.305	1.166	1.157
80	2004	1.227	1.184	1.143	1.209	1.155	1.129	1.227	1.176	1.146	1.298	1.152	1.170
81	2005	1.230	1.177	1.171	1.236	1.214	1.126	1.223	1.162	1.153	1.307	1.166	1.152
82	2006	1.219	1.172	1.152	1.252	1.202	1.120	1.123	1.084	1.020	1.268	1.204	1.151
83	2007	1.210	1.164	1.167	1.201	1.199	1.117	1.184	1.115	1.149	1.233	1.186	1.142
84	2008	1.222	1.177	1.141	1.216	1.183	1.127	1.188	1.107	0.999	1.267	1.198	1.167

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 7: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Light-Load-Hours for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	67	280	185	164	185	61	77	38	11	19	330	24	120
6	1930	104	147	192	22	88	28	98	181	4	203	369	25	123
7	1931	91	143	315	35	14	-17	5	329	17	401	390	35	151
8	1932	90	313	199	26	-34	5	-22	-9	-38	32	122	23	61
9	1933	101	189	268	1	-11	237	158	67	-21	-6	-70	32	79
10	1934	170	-98	-395	-13	-255	-105	-28	-4	52	257	397	33	2
11	1935	142	191	173	-8	128	245	223	96	382	-12	455	21	165
12	1936	67	409	276	1	179	35	91	-15	-8	338	475	21	157
13	1937	67	147	258	85	130	20	4	266	17	16	285	34	112
14	1938	104	253	158	54	169	126	163	-12	154	90	65	25	111
15	1939	69	265	157	99	179	38	246	111	154	20	540	36	158
16	1940	144	166	170	117	84	141	209	-14	233	84	167	16	125
17	1941	65	339	157	199	106	145	49	131	24	257	236	23	147
18	1942	64	270	124	78	109	125	93	253	36	-11	87	12	105
19	1943	67	106	67	130	126	36	61	45	-45	-21	310	34	76
20	1944	67	288	136	160	166	7	46	70	4	21	161	21	97
21	1945	107	371	215	-20	-18	-6	4	304	129	21	256	44	120
22	1946	67	249	156	98	148	163	88	-21	81	-4	281	19	109
23	1947	67	317	267	-8	137	172	274	36	-6	-13	445	20	140
24	1948	280	-21	112	107	76	118	342	-35	-32	-13	-254	20	56
25	1949	64	375	169	167	27	124	349	-17	-29	24	4	32	108
26	1950	66	178	149	-8	154	163	331	-11	-45	-44	347	18	105
27	1951	106	-21	-27	-129	-23	-82	45	-10	-18	-2	438	20	23
28	1952	477	222	99	-13	45	185	156	-38	76	77	389	34	140
29	1953	68	467	215	66	113	133	179	-5	-14	51	359	20	138
30	1954	65	113	328	65	-23	-16	157	-4	-46	-105	-583	457	36
31	1955	64	38	124	97	152	177	90	309	-45	-24	-38	26	82
32	1956	97	20	27	-82	-76	18	120	-40	-40	-2	-12	19	3
33	1957	62	346	299	154	114	143	232	-19	-45	73	321	21	142
34	1958	68	367	165	156	145	122	251	-9	-20	336	405	20	168
35	1959	67	90	236	-28	-17	-15	262	-10	-44	-24	-41	462	78
36	1960	96	-75	42	150	124	125	-29	79	-37	-14	370	20	70
37	1961	95	381	252	-10	126	122	266	-3	-49	69	380	20	136
38	1962	67	363	188	143	97	90	-27	-5	189	397	203	26	147
39	1963	63	174	209	-8	94	215	245	239	-22	120	418	32	148
40	1964	67	300	261	103	116	170	184	105	-24	-5	-84	14	102
41	1965	290	160	171	-59	-19	228	344	-18	160	369	120	42	148
42	1966	68	110	330	48	71	213	-18	295	-16	-12	291	23	118
43	1967	67	357	228	-34	-13	5	68	144	-44	-3	356	27	98
44	1968	66	89	239	152	81	143	80	259	-19	-3	35	268	117

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 7: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Light-Load-Hours for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	250	-9	274	-106	107	50	26	-34	-34	-9	410	23	76
46	1970	66	125	194	59	102	182	162	142	-24	11	431	33	123
47	1971	68	203	153	-83	2	-60	100	-42	-18	-4	-250	22	8
48	1972	64	324	168	-24	-95	-26	-26	-45	127	-24	-459	22	3
49	1973	65	383	142	34	182	216	90	330	-1	15	262	20	146
50	1974	66	120	123	-13	-450	-104	100	14	31	-106	-319	19	-40
51	1975	67	333	138	145	82	136	33	-14	-15	-8	209	21	95
52	1976	83	-21	-43	-54	-21	81	28	-30	-9	-10	-670	293	-31
53	1977	82	276	201	144	138	132	68	235	-3	16	639	17	163
54	1978	66	188	129	116	164	11	230	-11	36	249	296	264	145
55	1979	135	125	204	114	200	158	110	244	313	15	158	37	150
56	1980	67	350	135	73	89	75	217	-7	-17	93	70	23	98
57	1981	69	389	100	-16	164	187	128	-19	-38	1	-92	26	74
58	1982	66	213	126	122	-29	-96	303	9	-50	-43	-136	78	48
59	1983	78	99	137	-21	61	211	265	112	110	-5	-83	22	81
60	1984	66	-22	288	29	136	25	-7	269	23	-7	209	14	86
61	1985	64	339	136	83	138	57	143	-11	122	18	-16	36	92
62	1986	66	177	290	132	90	-11	-27	278	118	338	482	39	168
63	1987	67	247	210	112	117	119	75	-7	4	16	26	21	84
64	1988	75	443	107	139	-28	-17	7	248	69	310	342	16	147
65	1989	76	344	252	177	-16	5	171	124	383	21	147	22	143
66	1990	66	432	306	140	-27	213	195	1	-42	148	344	20	152
67	1991	68	-21	171	-54	147	156	89	-14	-41	-6	-88	21	34
68	1992	66	337	67	132	183	190	34	286	267	17	291	20	158
69	1993	144	452	284	-19	-34	33	7	248	80	10	178	19	119
70	1994	66	139	372	8	137	-4	34	58	5	14	511	24	113
71	1995	92	276	182	115	30	63	242	301	-16	9	101	14	120
72	1996	128	-89	-279	-16	-15	-169	-4	-14	-43	-3	-63	20	-46
73	1997	67	115	345	-66	-27	-56	19	-26	-19	-6	-178	112	24
74	1998	182	-1	199	89	62	191	211	-8	-38	231	403	34	129
75	1999	67	239	211	-75	-53	7	246	92	-58	-32	-440	15	20
76	2000	66	-89	71	150	89	168	-11	-21	115	80	305	25	78
77	2001	67	310	165	169	170	76	47	170	-6	16	222	24	121
78	2002	67	190	185	91	51	16	11	47	-40	-27	76	20	59
79	2003	74	136	185	47	136	118	129	281	-9	17	82	22	102
80	2004	107	65	171	166	140	35	18	215	101	15	9	12	89
81	2005	109	107	135	41	127	182	99	261	95	330	226	20	146
82	2006	66	128	330	53	34	121	-28	8	-41	96	525	26	110
83	2007	67	152	224	68	123	148	50	2	198	5	219	24	105
84	2008	65	214	130	116	176	32	7	172	-48	143	548	22	132
85	80 WY Average	93	201	173	57	70	84	113	86	33	61	171	46	99
86	Hours	312	337	328	344	296	311	304	344	304	344	312	320	3856

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 8: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	-70	-262	-183	-164	-162	-65	-76	-51	-18	-34	-254	-28	-114
6	1930	-95	-112	-188	-42	-101	-41	-91	-178	-24	-169	-249	-29	-110
7	1931	-85	-107	-281	-56	-54	-10	-29	-291	-32	-351	-297	-31	-135
8	1932	-85	-290	-190	-47	-24	-30	4	-12	-52	-26	-80	-24	-71
9	1933	-92	-181	-242	2	31	-188	-141	-71	11	4	-40	-28	-79
10	1934	-143	-95	-592	-11	-324	-83	-40	-9	-44	-228	-315	-30	-161
11	1935	-122	-183	-168	31	-106	-195	-184	-90	-278	11	-323	-34	-139
12	1936	-68	-372	-258	-27	-156	-49	-85	1	-5	-275	-367	-37	-141
13	1937	-74	-116	-244	-101	-121	-39	-26	-244	-31	-39	-202	-30	-105
14	1938	-95	-242	-158	-67	-139	-119	-118	-9	-106	-77	-75	-30	-102
15	1939	-69	-251	-156	-112	-165	-53	-204	-117	-128	-41	-405	-29	-145
16	1940	-122	-113	-166	-126	-96	-121	-172	0	-192	-89	-140	-33	-115
17	1941	-72	-309	-159	-192	-112	-131	-51	-112	-38	-213	-192	-29	-133
18	1942	-60	-254	-136	-97	-112	-108	-85	-235	-55	10	-54	-15	-99
19	1943	-75	-105	-84	-97	-134	-44	-95	-66	-53	-35	-243	-41	-90
20	1944	-65	-269	-141	-156	-162	-28	-49	-83	-29	-28	-143	-38	-98
21	1945	-97	-331	-221	-14	-20	-21	-32	-263	-87	-35	-202	-52	-114
22	1946	-76	-240	-159	-108	-133	-138	-85	-27	-94	0	-188	-35	-107
23	1947	-71	-291	-190	36	-101	-128	-219	-28	-2	11	-308	-39	-112
24	1948	-186	31	-71	-91	-74	-106	-269	-58	-15	-9	-289	-24	-99
25	1949	-72	-350	-165	-131	-54	-101	-263	-19	4	-43	-27	-40	-104
26	1950	-74	-175	-155	29	-108	-113	-245	-8	-53	-81	-236	-36	-106
27	1951	-97	31	44	-224	21	-80	-86	-9	17	-4	-301	-36	-62
28	1952	-355	-167	-62	28	-59	-157	-135	-68	-45	-64	-273	-48	-119
29	1953	-64	-400	-205	-81	-119	-116	-155	-3	15	-41	-253	-35	-121
30	1954	-70	-73	-276	-43	35	29	-140	-3	-64	-171	-814	-356	-165
31	1955	-66	-7	-79	-112	-135	-144	-82	-280	-58	-33	40	-37	-82
32	1956	-88	6	-4	-94	-39	-74	-114	-68	-50	-4	16	-32	-46
33	1957	-66	-314	-256	-144	-111	-122	-193	-14	-54	-63	-230	-35	-133
34	1958	-64	-326	-164	-138	-133	-109	-198	-9	-25	-271	-321	-33	-149
35	1959	-63	-52	-164	15	35	32	-195	-8	-50	-30	14	-355	-68
36	1960	-50	-25	-17	-115	-130	-109	-36	-85	-24	2	-255	-38	-75
37	1961	-88	-348	-231	24	-104	-68	-203	-3	-53	-62	-266	-38	-120
38	1962	-75	-325	-185	-142	-92	-87	-27	-3	-151	-346	-139	-42	-133
39	1963	-68	-128	-154	25	-93	-169	-196	-225	9	-106	-278	-33	-119
40	1964	-62	-281	-246	-119	-104	-144	-157	-100	11	4	-36	-18	-103
41	1965	-234	-115	-121	-78	22	-146	-279	-18	-112	-328	-54	-46	-127
42	1966	-67	-73	-279	-69	-65	-176	8	-264	7	11	-201	-33	-101
43	1967	-72	-328	-213	19	35	3	-71	-140	-48	-10	-238	-30	-91
44	1968	-74	-53	-223	-115	-92	-98	-84	-249	-28	-5	-130	-233	-115

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 8: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	-206	20	-201	-117	-89	-17	-54	-54	-50	11	-286	-34	-92
46	1970	-70	-88	-189	-77	-91	-148	-137	-126	16	-27	-336	-40	-111
47	1971	-63	-197	-155	-105	19	1	-74	-69	15	6	-286	-35	-79
48	1972	-61	-305	-162	23	-85	-22	-2	-71	-142	-32	-629	-27	-128
49	1973	-62	-356	-143	-49	-166	-183	-85	-298	-11	-21	-207	-38	-134
50	1974	-68	-123	-144	-10	-635	-89	-83	-99	-37	-175	-410	-21	-158
51	1975	-66	-304	-146	-108	-79	-118	-47	-12	19	8	-123	-29	-83
52	1976	-78	43	32	-24	38	-43	-73	-39	15	-2	-984	-218	-116
53	1977	-76	-268	-196	-145	-117	-117	-65	-219	-27	-34	-480	-31	-148
54	1978	-66	-183	-140	-128	-140	-30	-175	-9	-49	-217	-230	-230	-132
55	1979	-116	-74	-197	-123	-174	-133	-105	-213	-224	-32	-135	-32	-130
56	1980	-74	-330	-139	-94	-95	-74	-180	-6	19	-87	-79	-37	-97
57	1981	-68	-343	-68	30	-98	-149	-111	-30	-50	-6	-84	-29	-83
58	1982	-70	-160	-132	-90	27	-85	-251	-41	-56	-82	-95	-85	-93
59	1983	-74	-55	-148	27	-61	-178	-212	-112	-77	-3	-17	-30	-79
60	1984	-65	44	-245	-50	-98	-37	-43	-235	-8	2	-143	-33	-76
61	1985	-69	-319	-139	-101	-133	-55	-125	-3	-81	-31	-18	-42	-92
62	1986	-69	-128	-254	-131	-110	4	-36	-255	-78	-298	-371	-44	-147
63	1987	-68	-237	-206	-123	-117	-104	-76	12	5	-29	-49	-35	-85
64	1988	-75	-384	-119	-149	-12	-10	-17	-237	-69	-247	-239	-31	-131
65	1989	-75	-315	-241	-178	-20	-31	-145	-115	-277	-32	-129	-37	-132
66	1990	-76	-390	-222	-140	29	-135	-154	-20	-53	-123	-228	-35	-129
67	1991	-63	42	-124	-5	-104	-90	-74	-7	-61	4	-47	-36	-48
68	1992	-74	-313	-86	-135	-160	-161	-44	-255	-193	-30	-237	-36	-143
69	1993	-123	-399	-270	-12	-14	-44	-20	-228	-80	-20	-150	-39	-115
70	1994	-75	-98	-314	-33	-128	-18	-44	-50	3	-42	-390	-28	-103
71	1995	-87	-260	-180	-119	-59	-62	-196	-265	16	-29	-101	-35	-114
72	1996	-114	-88	-401	-10	-10	-238	-15	3	-13	-3	-23	-40	-81
73	1997	-77	-85	-283	-128	11	-25	-41	-29	-1	4	-162	-112	-78
74	1998	-108	13	-206	-103	-61	-154	-173	3	-51	-200	-279	-36	-115
75	1999	-68	-225	-208	-81	-8	-164	-188	-75	-76	-46	-599	-19	-149
76	2000	-70	-68	-43	-106	-83	-137	-35	-38	-106	-70	-209	-39	-85
77	2001	-62	-288	-167	-166	-165	-75	-52	-176	-25	-36	-182	-33	-118
78	2002	-65	-185	-178	-106	-84	-46	-12	-37	-48	-35	-83	-33	-76
79	2003	-73	-97	-194	-70	-130	-102	-112	-263	5	-33	-85	-34	-99
80	2004	-97	-29	-169	-163	-134	-45	-36	-200	-65	-33	-30	-19	-85
81	2005	-98	-64	-85	-67	-111	-153	-88	-246	-57	-271	-184	-39	-122
82	2006	-68	-101	-276	-72	-57	-110	-24	-15	-62	-79	-399	-33	-110
83	2007	-62	-151	-218	-50	-96	-112	-35	-5	-139	-5	-179	-40	-92
84	2008	-68	-161	-139	-126	-170	-45	-22	-146	-55	-121	-418	-34	-126
85	80 WY Average	-86	-183	-178	-79	-92	-90	-105	-97	-53	-72	-221	-51	-109
86	Hours	432	384	416	400	400	432	416	400	416	400	432	400	4928

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 9: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Flat Energy for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	-13	-9	-21	-12	-14	-12	-11	-10	-6	-9	-9	-5	-11
6	1930	-11	9	-20	-12	-21	-12	-12	-12	-12	3	10	-5	-8
7	1931	-11	10	-18	-14	-25	-13	-15	-4	-12	-3	-9	-1	-10
8	1932	-11	-8	-19	-13	-29	-15	-7	-11	-46	1	5	-3	-13
9	1933	-11	-8	-17	2	13	-10	-15	-7	-2	-1	-53	-1	-9
10	1934	-12	-96	-505	-12	-295	-92	-35	-7	-3	-4	-17	-2	-89
11	1935	-11	-8	-18	13	-7	-11	-13	-4	1	0	3	-10	-5
12	1936	-11	-7	-22	-14	-14	-14	-10	-6	-6	8	-14	-12	-10
13	1937	-15	7	-22	-15	-14	-14	-14	-8	-11	-14	3	-1	-10
14	1938	-11	-11	-19	-11	-8	-17	1	-11	4	1	-16	-6	-9
15	1939	-11	-10	-18	-14	-19	-15	-14	-11	-9	-13	-8	0	-12
16	1940	-11	17	-18	-14	-19	-12	-11	-6	-12	-9	-12	-11	-10
17	1941	-14	-6	-20	-11	-19	-16	-9	0	-12	4	-12	-6	-10
18	1942	-8	-9	-21	-16	-18	-10	-10	-9	-16	0	5	-3	-10
19	1943	-15	-6	-17	8	-23	-10	-29	-14	-50	-28	-11	-8	-17
20	1944	-9	-8	-19	-10	-23	-13	-9	-12	-15	-5	-15	-12	-13
21	1945	-12	-3	-29	-17	-19	-15	-17	-1	4	-9	-10	-9	-11
22	1946	-16	-11	-20	-13	-13	-12	-12	-24	-20	-2	8	-11	-12
23	1947	-13	-7	12	15	0	-3	-11	2	-4	0	8	-13	-1
24	1948	9	6	10	1	-11	-12	-11	-47	-22	-11	-274	-5	-31
25	1949	-15	-11	-18	7	-20	-7	-5	-18	-10	-12	-14	-8	-11
26	1950	-15	-10	-21	12	3	2	-1	-10	-50	-64	8	-12	-13
27	1951	-11	7	13	-180	3	-81	-31	-9	2	-3	9	-11	-25
28	1952	-6	15	9	9	-15	-14	-12	-54	6	1	4	-11	-6
29	1953	-9	5	-20	-13	-21	-12	-14	-4	3	1	4	-10	-7
30	1954	-13	14	-9	7	11	10	-15	-3	-56	-140	-717	5	-77
31	1955	-11	14	11	-15	-13	-10	-9	-8	-52	-29	7	-9	-10
32	1956	-11	13	10	-88	-55	-36	-15	-55	-46	-3	4	-9	-24
33	1957	-12	-5	-11	-6	-15	-11	-14	-16	-50	0	1	-10	-12
34	1958	-9	-3	-19	-2	-15	-12	-8	-9	-23	10	-16	-9	-10
35	1959	-9	14	13	-5	13	12	-2	-9	-47	-27	-9	8	-4
36	1960	11	-48	9	8	-22	-11	-33	-9	-30	-5	7	-12	-11
37	1961	-11	-7	-18	8	-6	11	-5	-3	-51	-2	5	-12	-7
38	1962	-15	-3	-21	-10	-12	-13	-27	-4	-7	-3	4	-12	-10
39	1963	-13	13	6	10	-14	-8	-10	-11	-4	-2	14	-4	-2
40	1964	-8	-9	-22	-16	-11	-12	-13	-5	-3	0	-56	-4	-13
41	1965	-14	13	8	-69	4	10	-16	-18	3	-6	19	-7	-6
42	1966	-11	12	-11	-15	-7	-13	-3	-5	-3	0	6	-8	-5
43	1967	-14	-8	-18	-6	14	4	-12	-9	-46	-6	11	-4	-8
44	1968	-16	13	-19	8	-19	3	-15	-14	-25	-4	-61	-11	-13

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 9: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Flat Energy for FY 2016													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	-15	6	9	-112	-5	11	-20	-45	-43	2	6	-9	-18
46	1970	-13	12	-20	-14	-9	-10	-11	-2	-1	-10	-14	-8	-8
47	1971	-8	-10	-19	-95	12	-25	0	-56	1	1	-271	-10	-41
48	1972	-8	-11	-17	1	-89	-24	-12	-59	-29	-28	-558	-5	-70
49	1973	-9	-11	-18	-11	-18	-16	-11	-8	-7	-5	-11	-12	-11
50	1974	-12	-9	-26	-11	-557	-95	-6	-47	-8	-143	-372	-3	-106
51	1975	-10	-6	-21	9	-10	-12	-13	-13	4	1	16	-7	-5
52	1976	-11	13	-1	-38	13	9	-31	-35	5	-6	-852	9	-78
53	1977	-10	-13	-21	-11	-8	-13	-9	-9	-17	-11	-11	-10	-12
54	1978	-11	-10	-21	-16	-11	-12	-4	-10	-13	-2	-9	-10	-11
55	1979	-11	19	-20	-13	-15	-11	-14	-1	3	-10	-12	-2	-7
56	1980	-15	-12	-18	-17	-17	-11	-12	-6	4	-4	-16	-10	-11
57	1981	-11	-1	6	9	13	-8	-10	-25	-45	-3	-87	-5	-14
58	1982	-13	14	-18	8	3	-89	-17	-18	-53	-64	-112	-12	-31
59	1983	-10	17	-22	5	-9	-15	-11	-9	2	-4	-45	-7	-9
60	1984	-10	13	-10	-14	2	-11	-28	-2	5	-2	5	-12	-5
61	1985	-13	-11	-18	-16	-17	-8	-12	-7	5	-8	-17	-8	-11
62	1986	-13	15	-14	-9	-25	-2	-32	-8	5	-4	-13	-7	-9
63	1987	-12	-11	-23	-14	-17	-11	-12	3	5	-8	-17	-11	-11
64	1988	-12	3	-19	-16	-19	-13	-7	-13	-11	10	4	-10	-9
65	1989	-12	-7	-24	-14	-18	-16	-11	-4	1	-7	-13	-11	-11
66	1990	-17	-6	11	-11	5	11	-7	-10	-49	3	12	-10	-6
67	1991	-8	12	6	-28	3	13	-5	-10	-52	-1	-64	-11	-12
68	1992	-16	-9	-19	-11	-14	-14	-11	-5	1	-8	-16	-11	-11
69	1993	-11	-1	-25	-15	-23	-12	-9	-8	-13	-6	-12	-13	-12
70	1994	-16	13	-11	-14	-15	-12	-11	0	4	-16	-12	-5	-8
71	1995	-12	-9	-20	-11	-21	-10	-11	-4	2	-12	-16	-13	-11
72	1996	-12	-88	-347	-13	-12	-209	-10	-5	-26	-3	-40	-13	-65
73	1997	-17	9	-6	-99	-5	-38	-16	-28	-9	0	-169	-12	-33
74	1998	13	6	-27	-14	-8	-9	-11	-2	-46	0	7	-5	-8
75	1999	-12	-8	-24	-78	-27	-92	-5	3	-68	-40	-532	-4	-75
76	2000	-13	-78	8	13	-10	-10	-25	-30	-13	0	7	-11	-13
77	2001	-8	-8	-21	-11	-22	-12	-10	-16	-17	-12	-12	-8	-13
78	2002	-10	-10	-18	-15	-27	-20	-2	2	-44	-31	-17	-9	-17
79	2003	-11	12	-27	-16	-17	-10	-10	-11	-1	-10	-15	-9	-10
80	2004	-11	15	-19	-11	-18	-12	-13	-8	5	-10	-13	-6	-8
81	2005	-11	16	12	-17	-10	-13	-9	-12	7	7	-12	-13	-5
82	2006	-11	6	-9	-14	-19	-13	-26	-4	-53	2	-12	-7	-13
83	2007	-8	-9	-23	5	-3	-3	1	-2	3	-1	-12	-12	-5
84	2008	-12	14	-20	-14	-23	-13	-10	1	-52	1	-13	-9	-12
85	80 WY Average	-11	-3	-23	-16	-23	-17	-13	-13	-17	-10	-57	-8	-18
86	Hours	744	721	744	744	696	743	720	744	720	744	744	720	8784

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 10: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Light-Load-Hours for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	59	429	440	160	185	55	71	49	-5	18	7	6	123
6	1930	95	247	322	7	103	22	90	183	-12	43	254	5	113
7	1931	83	230	163	20	28	-23	0	260	10	397	-4	23	102
8	1932	82	464	431	11	-21	-1	-6	3	-6	75	397	4	120
9	1933	91	289	123	-7	-9	227	138	71	-20	-2	12	21	78
10	1934	299	-104	-461	-550	-26	-144	-6	-14	-221	355	1	16	-71
11	1935	215	268	246	-68	-21	130	43	92	254	-1	172	1	110
12	1936	59	180	169	-14	192	29	84	1	-114	93	23	1	58
13	1937	59	205	169	69	144	15	-1	295	8	16	153	23	96
14	1938	95	178	312	-4	203	121	98	-8	370	242	5	7	134
15	1939	61	413	191	131	183	33	236	126	150	13	59	24	134
16	1940	221	272	412	112	97	99	113	141	198	14	7	5	141
17	1941	58	491	221	187	121	139	45	55	21	62	8	6	118
18	1942	56	420	362	159	122	159	17	355	93	-2	381	-8	176
19	1943	59	183	8	-11	132	31	72	95	-138	5	0	15	37
20	1944	59	438	132	152	174	1	40	64	-12	18	7	3	90
21	1945	97	187	493	-35	-4	-12	-1	213	325	19	1	26	109
22	1946	59	397	260	92	166	158	88	-56	125	-1	300	0	130
23	1947	59	468	104	-85	84	170	318	39	-4	-4	293	1	118
24	1948	184	-13	257	-10	92	140	256	-33	-116	-3	-11	1	62
25	1949	57	157	409	0	40	255	232	4	-6	22	1	15	99
26	1950	59	189	334	-86	163	129	218	61	-44	-23	400	-1	114
27	1951	113	-11	-49	-355	-40	-150	56	-16	-6	-5	300	1	-15
28	1952	175	155	250	-14	158	200	116	-45	123	147	272	18	128
29	1953	60	185	495	50	114	129	173	-10	-231	117	299	1	116
30	1954	58	284	166	-5	-20	-20	142	-14	-230	-97	-4	326	50
31	1955	57	44	223	111	187	171	80	239	-20	-2	43	7	95
32	1956	88	25	26	-67	-171	83	150	-41	-305	-5	73	1	-10
33	1957	55	164	101	17	129	139	310	-45	-335	179	163	2	74
34	1958	60	173	225	-8	145	223	260	-8	-2	311	170	1	130
35	1959	59	225	145	-11	-63	-23	159	1	-51	-7	56	358	72
36	1960	99	-103	21	-9	145	142	-8	91	-2	-4	242	1	49
37	1961	86	159	141	-24	190	-12	285	-3	-250	131	529	1	102
38	1962	59	182	354	103	159	85	-7	-11	217	409	440	7	167
39	1963	55	78	73	-57	111	276	69	332	368	298	271	13	156
40	1964	59	450	150	194	158	167	173	109	-58	-3	26	-7	118
41	1965	414	63	58	-229	-12	-54	365	17	175	320	92	26	104
42	1966	60	287	138	104	118	210	-6	196	7	-1	482	3	132
43	1967	59	511	105	-80	-105	-4	59	144	-117	-3	242	9	69
44	1968	58	263	114	-12	169	223	74	342	-4	-12	93	-17	106

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 10: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Light-Load-Hours for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	376	0	112	-143	-16	178	61	-55	-18	-2	176	3	55
46	1970	59	197	333	55	104	176	150	70	-30	7	33	16	97
47	1971	60	313	156	-120	-13	-101	89	-56	-136	0	-8	2	16
48	1972	57	475	97	-77	-158	-144	-7	-41	-25	-1	-14	3	15
49	1973	57	141	294	63	187	212	83	314	-3	14	6	1	114
50	1974	59	125	400	-553	-30	-267	121	28	19	-103	-12	0	-20
51	1975	59	484	136	-9	146	137	29	41	-26	-9	272	2	103
52	1976	74	-15	-61	-36	-87	-21	42	-39	-6	-4	0	454	26
53	1977	74	425	226	139	140	129	62	234	-19	13	77	-3	125
54	1978	58	197	305	110	141	16	117	44	26	268	8	-7	109
55	1979	175	272	346	109	217	155	107	160	263	21	-8	25	152
56	1980	59	504	132	65	101	70	278	-93	-16	14	-4	3	92
57	1981	61	170	41	-91	-14	195	11	-6	-334	-2	11	8	5
58	1982	58	219	390	-9	-86	-227	355	43	-57	-3	-13	-22	56
59	1983	69	274	423	-28	-83	139	314	117	234	0	-1	5	122
60	1984	59	-45	97	145	-1	20	13	170	-19	-1	441	-5	73
61	1985	56	122	380	112	144	52	122	-7	278	15	-19	26	106
62	1986	58	212	111	26	51	-149	-2	325	302	352	23	23	113
63	1987	59	394	122	207	134	116	70	-6	7	15	-8	2	93
64	1988	67	188	106	124	-16	41	4	356	13	79	213	5	100
65	1989	68	496	149	171	-4	0	166	125	273	21	5	3	123
66	1990	58	150	138	23	-96	88	282	7	-93	330	361	1	107
67	1991	60	-40	59	-91	-20	21	80	-6	-9	-3	26	1	6
68	1992	58	489	64	126	197	-3	2	368	14	16	-16	3	110
69	1993	194	158	169	-35	-21	27	1	249	71	10	5	1	70
70	1994	58	317	209	-9	153	-10	29	9	11	13	30	6	67
71	1995	84	425	411	173	64	263	4	247	-10	-14	4	2	139
72	1996	241	-95	-688	-488	-8	-303	40	-7	44	-3	59	1	-104
73	1997	59	208	213	-213	-73	-188	60	-26	-215	-3	-14	-24	-17
74	1998	173	7	126	113	105	187	204	-4	-11	270	387	15	132
75	1999	59	387	117	-107	-122	-156	131	98	-23	-6	-81	-4	26
76	2000	58	-100	46	-8	133	163	8	-27	106	125	244	5	61
77	2001	59	461	278	165	179	70	42	176	-20	13	5	6	120
78	2002	58	275	349	184	55	35	276	50	-267	0	-1	1	87
79	2003	66	266	464	30	153	114	122	260	8	20	5	3	126
80	2004	111	72	389	205	36	110	19	321	149	18	6	-7	121
81	2005	124	279	255	161	122	176	91	323	193	124	8	1	156
82	2006	59	179	152	74	104	144	89	18	-303	214	51	7	68
83	2007	60	219	114	-10	84	157	42	12	374	12	8	5	87
84	2008	58	206	127	134	184	26	2	99	-328	302	57	3	75
85	80 WY Average	91	227	189	8	70	65	104	90	7	66	107	19	87
86	Hours	328	321	328	344	288	311	320	328	304	344	312	320	3848

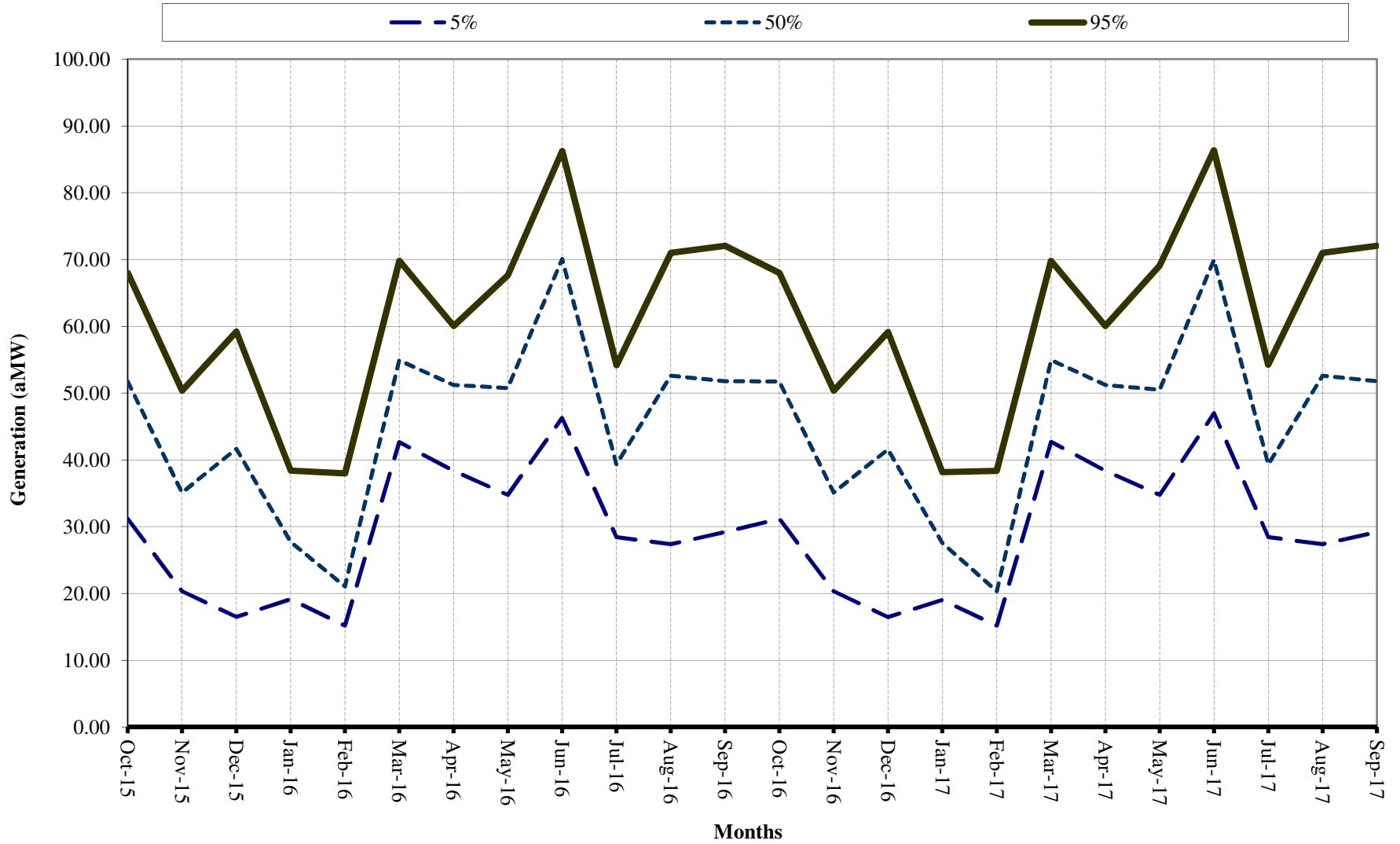
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 11: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	-75	-356	-379	-181	-163	-70	-78	-62	-27	-42	-35	-40	-125
6	1930	-98	-180	-292	-59	-111	-47	-94	-172	-24	-50	-206	-41	-115
7	1931	-89	-163	-122	-70	-43	-12	-31	-221	-33	-322	-24	-39	-97
8	1932	-88	-379	-372	-60	-14	-33	4	-17	37	-92	-309	-39	-115
9	1933	-96	-250	-95	24	34	-143	-140	-71	19	3	11	-38	-62
10	1934	-261	-126	-707	-946	-36	-156	-4	18	-419	-290	-29	-39	-249
11	1935	-193	-233	-231	-79	34	-86	-64	-86	-211	-5	-97	-39	-109
12	1936	-71	-136	-144	-29	-163	-50	-89	3	-138	-106	-48	-30	-83
13	1937	-77	-144	-147	-95	-127	-46	-33	-257	-30	-20	-139	-41	-97
14	1938	-98	-163	-278	27	-131	-113	-85	-9	-278	-225	-32	-42	-119
15	1939	-72	-347	-186	-108	-156	-52	-209	-114	-144	-37	-71	-39	-127
16	1940	-197	-195	-354	-124	-105	-51	-113	-110	-168	-38	-35	-43	-128
17	1941	-75	-390	-208	-193	-122	-122	-53	-43	-42	-63	-36	-42	-115
18	1942	-62	-340	-319	-157	-114	-102	-34	-287	-95	-3	-298	-31	-155
19	1943	-77	-164	-41	33	-119	-45	-81	-82	-190	-8	-30	-46	-71
20	1944	-68	-361	-142	-173	-149	-41	-53	-74	-35	-25	-32	-55	-99
21	1945	-101	-137	-423	-15	-20	-21	-36	-179	-243	-34	-31	-43	-108
22	1946	-80	-336	-239	-109	-139	-138	-77	-89	-109	-10	-190	-29	-129
23	1947	-71	-377	-62	-158	-34	-98	-274	-25	-1	-9	-186	-28	-110
24	1948	-128	23	-185	32	-64	-135	-209	-35	-138	-4	39	-36	-70
25	1949	-76	-127	-349	18	-61	-187	-187	-15	26	-39	-23	-46	-89
26	1950	-78	-172	-298	-156	-92	-153	-174	-61	-47	-38	-266	-25	-131
27	1951	-114	23	-8	-606	-12	-190	-65	-1	-2	-8	-190	-36	-101
28	1952	-131	-101	-183	26	-98	-167	-102	-51	-91	-147	-171	-42	-106
29	1953	-67	-123	-413	-99	-118	-122	-160	5	-306	-126	-234	-33	-151
30	1954	-74	-206	-124	26	36	22	-143	0	-322	-155	-13	-270	-101
31	1955	-70	-13	-164	-124	-154	-141	-92	-202	-7	13	-20	-44	-85
32	1956	-94	-1	-6	-65	-266	-193	-119	-39	-438	-8	-48	-32	-109
33	1957	-67	-123	-73	-11	-117	-123	-263	-22	-498	-170	-149	-47	-139
34	1958	-68	-126	-215	29	-132	-175	-224	-9	27	-260	-150	-30	-111
35	1959	-65	-160	-96	21	-26	28	-131	-20	-23	-11	-31	-308	-67
36	1960	-59	-125	-2	31	-90	-135	-9	-83	17	-9	-197	-27	-58
37	1961	-92	-121	-117	4	-115	39	-245	19	-352	-129	-387	-30	-128
38	1962	-78	-134	-314	-89	-135	-88	-4	4	-172	-330	-334	-51	-145
39	1963	-71	-40	-46	-59	-108	-212	-78	-280	-284	-267	-217	-46	-144
40	1964	-65	-372	-127	-187	-135	-140	-174	-102	-291	1	-5	-30	-135
41	1965	-343	-28	-31	-394	30	-48	-291	-158	-183	-262	-48	-61	-151
42	1966	-72	-212	-102	-75	-69	-178	9	-173	-6	-4	-360	-40	-109
43	1967	-75	-412	-84	-152	-96	6	-71	-137	-149	-8	-153	-42	-114
44	1968	-78	-193	-95	33	-99	-136	-89	-290	-4	-4	-50	-11	-85

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 11: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	-316	12	-72	-214	32	-108	-71	-59	24	-2	-102	-40	-78
46	1970	-73	-133	-296	-77	-104	-151	-146	-49	-27	-34	-50	-50	-99
47	1971	-66	-272	-162	-155	33	-99	-76	-78	-268	-2	36	-45	-96
48	1972	-63	-389	-88	-151	-207	-215	7	-102	-9	8	13	-38	-102
49	1973	-65	-114	-264	-65	-163	-181	-89	-261	-23	-33	-34	-24	-110
50	1974	-70	-119	-349	-951	-51	-348	-109	-176	-85	-171	39	-37	-202
51	1975	-70	-390	-143	31	-83	-117	-44	-54	-9	-4	-176	-33	-92
52	1976	-81	35	-45	-13	-63	25	-49	-53	10	-4	-20	-344	-49
53	1977	-81	-358	-218	-150	-132	-112	-70	-209	-19	-40	-88	-32	-125
54	1978	-71	-177	-275	-132	-125	-39	-92	-58	-50	-221	-31	-27	-107
55	1979	-161	-195	-305	-129	-189	-146	-111	-120	-209	-33	-21	-44	-138
56	1980	-77	-414	-139	-88	-105	-77	-238	-109	38	-31	-20	-47	-108
57	1981	-73	-118	-20	-145	32	-126	-30	4	-494	-12	19	-41	-84
58	1982	-73	-155	-337	31	-138	-276	-289	-52	-43	-11	38	-14	-110
59	1983	-79	-194	-356	-5	-44	-384	-271	-104	-175	-2	18	-41	-138
60	1984	-69	-14	-63	-127	23	-34	-12	-138	-11	-3	-332	-26	-69
61	1985	-72	-99	-327	-84	-126	-63	-118	-7	-205	-39	-22	-47	-101
62	1986	-66	-151	-83	-21	-168	-172	-1	-274	-227	-285	-47	-55	-129
63	1987	-76	-332	-111	-196	-118	-106	-82	13	-8	-33	-12	-30	-90
64	1988	-78	-121	-119	-149	-11	-67	-24	-301	-37	-86	-180	-42	-102
65	1989	-78	-401	-135	-177	-21	-27	-151	-113	-236	-40	-31	-38	-120
66	1990	-79	-106	-97	-14	-139	-45	-227	-24	-101	-295	-238	-35	-116
67	1991	-72	-11	-33	-139	37	0	-71	-8	22	0	-4	-39	-26
68	1992	-79	-398	-91	-135	-166	15	-24	-299	-40	-24	-20	-28	-106
69	1993	-176	-113	-143	-16	-12	-47	-23	-217	-80	-32	-31	-35	-78
70	1994	-78	-236	-161	-52	-130	-19	-45	-1	-4	-41	-51	-39	-71
71	1995	-91	-356	-355	-174	-72	-207	-25	-220	3	-17	-37	-37	-133
72	1996	-215	-126	-1,084	-841	-10	-444	-42	-2	-27	-1	-32	-39	-241
73	1997	-81	-150	-159	-357	-99	-219	-67	-20	-282	4	38	-16	-117
74	1998	-114	6	-123	-123	-62	-155	-187	15	41	-224	-252	-43	-102
75	1999	-76	-324	-107	-171	-135	-250	-106	-70	-18	-5	-73	-29	-114
76	2000	-73	-125	-23	32	-88	-138	-6	-45	-106	-121	-200	-42	-79
77	2001	-66	-377	-259	-182	-154	-82	-55	-167	-32	-33	-32	-42	-123
78	2002	-75	-241	-308	-193	-69	-53	-238	-32	-375	-2	-31	-32	-137
79	2003	-77	-195	-403	-78	-133	-103	-116	-206	-7	-47	-23	-41	-119
80	2004	-112	-32	-338	-203	-47	-99	-35	-275	-144	-37	-27	-31	-116
81	2005	-123	-203	-185	-141	-73	-167	-93	-260	-149	-117	-38	-31	-132
82	2006	-69	-127	-105	-59	-61	-101	-76	-12	-430	-203	-67	-38	-113
83	2007	-69	-193	-97	32	-41	-94	-40	-4	-289	-25	-37	-49	-76
84	2008	-71	-145	-135	-148	-158	-45	-27	-72	-482	-269	-72	-38	-138
85	80 WY Average	-95	-188	-199	-127	-87	-112	-99	-97	-124	-74	-88	-48	-112
86	Hours	416	400	416	400	384	432	400	416	416	400	432	400	4912

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 12: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Flat Energy for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
5	1929	-16	-7	-18	-23	-13	-18	-12	-13	-18	-15	-17	-20	-16
6	1930	-13	10	-21	-28	-19	-18	-12	-15	-19	-7	-13	-20	-15
7	1931	-14	12	4	-28	-13	-16	-17	-9	-15	10	-16	-11	-9
8	1932	-13	-4	-18	-27	-17	-19	0	-8	19	-14	-13	-20	-11
9	1933	-14	-10	2	9	16	12	-16	-9	3	0	11	-12	-1
10	1934	-14	-116	-598	-763	-32	-151	-5	4	-335	8	-16	-15	-171
11	1935	-13	-10	-20	-74	10	5	-16	-8	-15	-3	16	-21	-13
12	1936	-14	5	-6	-22	-11	-17	-12	2	-128	-14	-18	-16	-21
13	1937	-17	11	-8	-19	-11	-21	-19	-13	-14	-3	-16	-12	-12
14	1938	-13	-11	-18	12	12	-15	-4	-8	-4	-9	-17	-20	-8
15	1939	-14	-8	-20	3	-11	-16	-11	-8	-20	-14	-16	-11	-12
16	1940	-13	13	-16	-15	-18	12	-12	0	-14	-14	-17	-22	-10
17	1941	-17	2	-19	-17	-18	-13	-10	0	-15	-5	-18	-21	-12
18	1942	-10	-2	-19	-11	-13	7	-11	-4	-16	-2	-13	-21	-9
19	1943	-17	-10	-20	12	-12	-13	-13	-4	-168	-2	-17	-19	-23
20	1944	-12	-5	-21	-23	-11	-23	-12	-13	-26	-5	-16	-29	-16
21	1945	-14	7	-19	-24	-13	-17	-20	-6	-3	-10	-18	-12	-12
22	1946	-19	-10	-19	-16	-8	-14	-4	-74	-10	-6	16	-16	-15
23	1947	-14	-1	11	-124	17	14	-11	3	-2	-6	15	-15	-10
24	1948	10	7	10	12	3	-20	-2	-34	-129	-3	18	-20	-12
25	1949	-18	-1	-15	10	-18	-2	-1	-7	12	-11	-13	-19	-7
26	1950	-18	-11	-19	-124	17	-35	0	-7	-46	-31	13	-14	-23
27	1951	-14	8	-26	-490	-24	-173	-11	-7	-3	-7	16	-20	-64
28	1952	4	13	8	7	12	-13	-5	-49	-1	-11	15	-15	-3
29	1953	-11	14	-13	-30	-18	-17	-12	-2	-275	-13	-10	-18	-33
30	1954	-16	12	4	12	12	4	-16	-6	-283	-128	-9	-5	-35
31	1955	-14	12	7	-15	-8	-11	-15	-8	-12	6	6	-22	-6
32	1956	-14	11	8	-66	-225	-77	0	-40	-382	-7	3	-18	-66
33	1957	-13	5	4	2	-12	-13	-8	-32	-429	-9	-18	-25	-45
34	1958	-12	8	-21	12	-13	-8	-9	-8	15	4	-16	-16	-5
35	1959	-10	11	10	6	-42	7	-2	-11	-35	-9	5	-12	-6
36	1960	11	-115	8	12	11	-19	-8	-6	9	-6	-13	-14	-11
37	1961	-14	4	-3	-9	16	18	-9	9	-309	-9	-3	-16	-27
38	1962	-17	7	-20	0	-9	-15	-5	-2	-8	12	-10	-26	-8
39	1963	-15	13	7	-58	-15	-8	-13	-10	-9	-6	-12	-19	-12
40	1964	-10	-6	-5	-11	-9	-12	-20	-9	-192	0	8	-20	-24
41	1965	-9	12	8	-318	12	-51	0	-81	-32	7	11	-22	-39
42	1966	-13	10	4	8	11	-16	2	-10	-1	-2	-7	-21	-3
43	1967	-16	-1	-1	-119	-100	2	-13	-13	-136	-6	13	-19	-33
44	1968	-18	10	-3	12	16	14	-16	-12	-4	-8	10	-14	-1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 12: Federal Hydro Generation Adjustment for													
2	Stand Ready & Deployment Losses, Flat Energy for FY 2017													
3														
4	Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
45	1969	-11	7	9	-181	11	12	-12	-58	6	-2	14	-21	-19
46	1970	-15	14	-19	-16	-15	-14	-14	3	-28	-15	-15	-20	-13
47	1971	-11	-11	-22	-139	13	-100	-3	-68	-212	-1	18	-24	-47
48	1972	-10	-4	-6	-117	-186	-185	1	-75	-16	4	1	-20	-50
49	1973	-11	0	-18	-6	-13	-16	-13	-8	-15	-11	-17	-13	-12
50	1974	-13	-11	-19	-767	-42	-314	-7	-86	-41	-140	18	-20	-122
51	1975	-13	-1	-20	13	15	-11	-12	-12	-16	-6	12	-18	-6
52	1976	-13	13	-52	-24	-74	6	-8	-47	3	-4	-12	11	-16
53	1977	-13	-9	-22	-16	-15	-11	-11	-13	-19	-16	-19	-19	-15
54	1978	-14	-11	-19	-20	-11	-16	0	-13	-18	5	-15	-18	-12
55	1979	-13	13	-18	-19	-15	-20	-14	3	-9	-8	-15	-13	-11
56	1980	-17	-5	-19	-17	-17	-15	-8	-102	15	-10	-13	-25	-20
57	1981	-14	10	7	-120	12	8	-12	-1	-426	-7	15	-19	-45
58	1982	-15	11	-16	12	-116	-255	-3	-10	-49	-7	17	-18	-37
59	1983	-14	14	-13	-16	-61	-165	-11	-7	-3	-1	10	-20	-24
60	1984	-13	-28	7	-1	13	-11	-1	-2	-14	-2	-8	-17	-6
61	1985	-15	-1	-15	6	-10	-15	-12	-7	-1	-14	-21	-14	-10
62	1986	-11	11	3	0	-75	-162	-1	-10	-4	9	-18	-20	-23
63	1987	-17	-9	-8	-10	-10	-13	-14	5	-2	-11	-10	-16	-10
64	1988	-14	16	-20	-23	-13	-22	-12	-11	-16	-10	-15	-21	-13
65	1989	-14	-2	-10	-16	-14	-15	-10	-8	-21	-12	-16	-20	-13
66	1990	-19	8	7	3	-121	10	-1	-10	-97	-6	13	-19	-18
67	1991	-14	-24	8	-117	12	9	-4	-7	9	-1	9	-21	-12
68	1992	-18	-3	-22	-14	-11	7	-12	-5	-17	-5	-18	-15	-11
69	1993	-13	7	-5	-25	-16	-16	-12	-11	-17	-12	-16	-19	-13
70	1994	-18	10	2	-32	-9	-15	-12	4	2	-16	-17	-19	-10
71	1995	-14	-8	-17	-13	-13	-10	-12	-14	-2	-16	-20	-20	-13
72	1996	-14	-112	-910	-678	-9	-385	-5	-4	3	-2	6	-21	-181
73	1997	-19	9	5	-291	-88	-206	-10	-22	-254	1	16	-20	-73
74	1998	12	6	-13	-14	10	-12	-13	6	19	5	16	-17	0
75	1999	-17	-8	-8	-141	-130	-211	0	4	-20	-6	-76	-18	-52
76	2000	-15	-114	7	13	6	-12	0	-37	-17	-7	-14	-21	-17
77	2001	-11	-4	-22	-22	-11	-18	-12	-16	-27	-12	-16	-21	-16
78	2002	-16	-11	-18	-18	-16	-16	-9	4	-329	-1	-19	-17	-39
79	2003	-14	10	-21	-28	-11	-12	-10	-1	0	-16	-11	-21	-11
80	2004	-14	14	-18	-14	-12	-12	-11	-12	-20	-11	-13	-20	-12
81	2005	-14	12	9	-1	10	-24	-11	-3	-4	-6	-19	-17	-6
82	2006	-13	9	8	2	9	2	-3	1	-377	-10	-18	-18	-33
83	2007	-12	-10	-4	12	13	11	-4	3	-9	-8	-18	-25	-4
84	2008	-15	11	-20	-17	-11	-15	-14	3	-417	-5	-18	-20	-44
85	80 WY Average	-13	-4	-28	-65	-20	-38	-9	-15	-69	-9	-6	-18	-24
86	Hours	744	721	744	744	672	743	720	744	720	744	744	720	8760

Figure 7: Simulated Total PS Wind Generation for FY 2016-2017



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 13: Value of PS Wind Generation at Expected Wind Generation for FY 2016													
2														
3														
4														
5		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
6	Expected Generation (aMW)	50	36	42	27	23	57	50	50	69	41	51	50	45
7	Contract Prices (\$/MWh)	\$ 43.24	\$ 44.41	\$ 45.53	\$ 46.81	\$ 46.91	\$ 42.66	\$ 41.95	\$ 42.32	\$ 39.74	\$ 44.14	\$ 41.60	\$ 41.28	\$ 43.38
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)	\$ 2,146	\$ 1,598	\$ 1,895	\$ 1,279	\$ 1,061	\$ 2,422	\$ 2,079	\$ 2,119	\$ 2,726	\$ 1,816	\$ 2,123	\$ 2,059	\$ 23,324
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%	\$ 18.98	\$ 19.12	\$ 19.06	\$ 17.64	\$ 17.81	\$ 15.40	\$ 15.42	\$ 12.43	\$ 11.34	\$ 15.62	\$ 20.14	\$ 22.23	\$ 19.42
19	50%	\$ 24.13	\$ 24.93	\$ 25.55	\$ 25.75	\$ 25.42	\$ 23.02	\$ 21.95	\$ 19.02	\$ 19.21	\$ 24.04	\$ 26.76	\$ 27.82	\$ 24.08
20	Average	\$ 24.39	\$ 25.30	\$ 25.88	\$ 26.05	\$ 25.80	\$ 22.92	\$ 22.21	\$ 19.24	\$ 19.58	\$ 24.22	\$ 27.38	\$ 28.59	\$ 24.29
21	95%	\$ 30.73	\$ 32.46	\$ 33.73	\$ 35.44	\$ 34.73	\$ 31.07	\$ 30.05	\$ 26.44	\$ 28.87	\$ 32.99	\$ 36.60	\$ 37.49	\$ 29.73
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%	\$ 701	\$ 496	\$ 590	\$ 359	\$ 280	\$ 650	\$ 550	\$ 463	\$ 560	\$ 478	\$ 765	\$ 798	\$ 7,748
27	50%	\$ 891	\$ 647	\$ 791	\$ 523	\$ 400	\$ 971	\$ 783	\$ 708	\$ 949	\$ 736	\$ 1,016	\$ 999	\$ 9,607
28	Average	\$ 901	\$ 656	\$ 801	\$ 529	\$ 406	\$ 967	\$ 793	\$ 717	\$ 967	\$ 741	\$ 1,039	\$ 1,027	\$ 9,691
29	95%	\$ 1,135	\$ 842	\$ 1,044	\$ 720	\$ 547	\$ 1,311	\$ 1,073	\$ 985	\$ 1,426	\$ 1,009	\$ 1,390	\$ 1,347	\$ 11,862

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 14: Value of PS Wind Generation at Expected Wind Generation for FY 2017													
2														
3														
4														
5		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
6	Expected Generation (aMW)	50	36	42	27	23	57	50	50	69	41	51	50	45
7	Contract Prices (\$/MWh)	\$ 44.08	\$ 45.25	\$ 46.42	\$ 47.71	\$ 46.32	\$ 43.55	\$ 42.79	\$ 43.19	\$ 40.57	\$ 44.98	\$ 42.47	\$ 42.12	\$ 44.12
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)	\$ 2,189	\$ 1,629	\$ 1,932	\$ 1,303	\$ 1,048	\$ 2,473	\$ 2,121	\$ 2,162	\$ 2,783	\$ 1,850	\$ 2,168	\$ 2,101	\$ 23,758
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%	\$ 22.08	\$ 21.60	\$ 21.61	\$ 20.65	\$ 20.14	\$ 16.56	\$ 15.60	\$ 13.81	\$ 12.98	\$ 16.55	\$ 20.82	\$ 22.19	\$ 21.33
19	50%	\$ 27.05	\$ 27.49	\$ 28.02	\$ 28.40	\$ 28.38	\$ 24.72	\$ 23.58	\$ 20.61	\$ 21.28	\$ 24.90	\$ 27.59	\$ 28.77	\$ 26.20
20	Average	\$ 27.78	\$ 28.10	\$ 28.69	\$ 29.37	\$ 29.26	\$ 25.07	\$ 23.62	\$ 20.83	\$ 21.63	\$ 25.23	\$ 28.28	\$ 29.53	\$ 26.43
21	95%	\$ 35.84	\$ 36.51	\$ 37.78	\$ 40.95	\$ 40.88	\$ 35.01	\$ 32.65	\$ 28.44	\$ 31.65	\$ 35.07	\$ 37.63	\$ 39.08	\$ 32.29
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%	\$ 816	\$ 561	\$ 669	\$ 420	\$ 306	\$ 698	\$ 557	\$ 514	\$ 641	\$ 506	\$ 790	\$ 797	\$ 8,484
27	50%	\$ 999	\$ 713	\$ 867	\$ 577	\$ 431	\$ 1,043	\$ 842	\$ 767	\$ 1,051	\$ 762	\$ 1,048	\$ 1,033	\$ 10,424
28	Average	\$ 1,026	\$ 729	\$ 888	\$ 597	\$ 445	\$ 1,058	\$ 843	\$ 776	\$ 1,068	\$ 772	\$ 1,074	\$ 1,061	\$ 10,516
29	95%	\$ 1,324	\$ 947	\$ 1,170	\$ 832	\$ 622	\$ 1,477	\$ 1,165	\$ 1,059	\$ 1,563	\$ 1,073	\$ 1,429	\$ 1,404	\$ 12,845

Figure 8: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2016

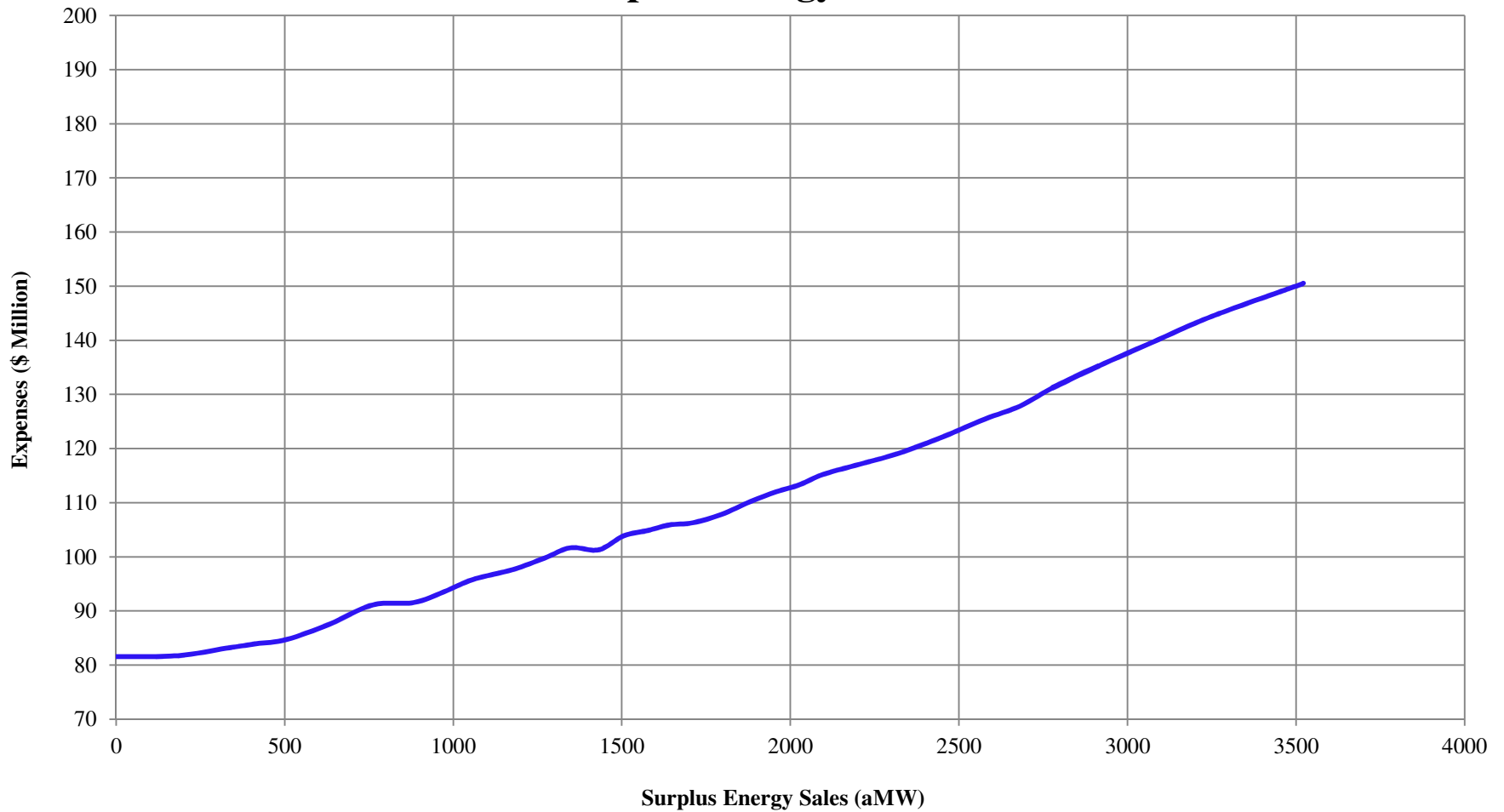


Figure 9: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales for FY 2017

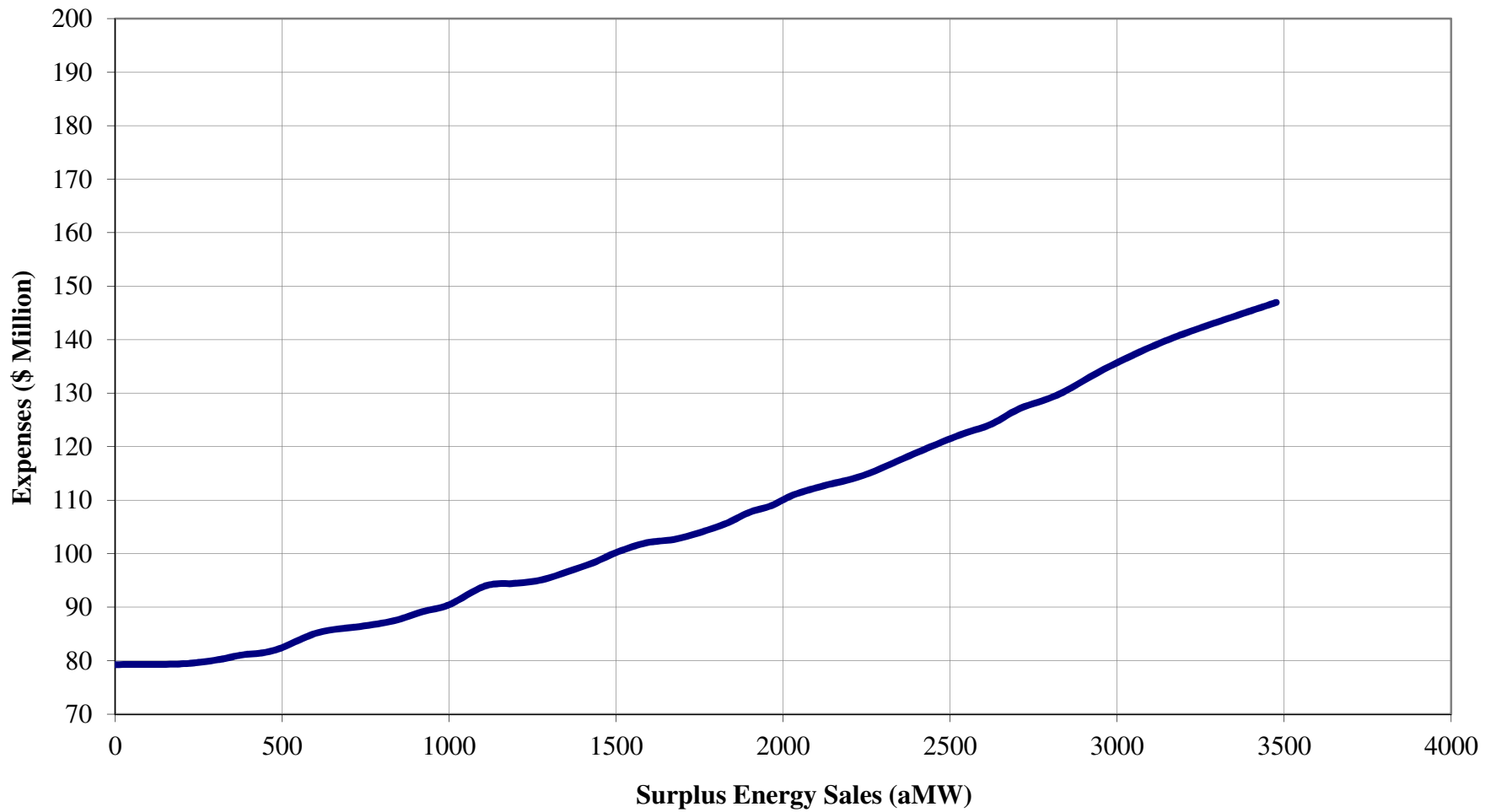


Figure 10: PS Transmission and Ancillary Service Expense Distribution for FY 2016

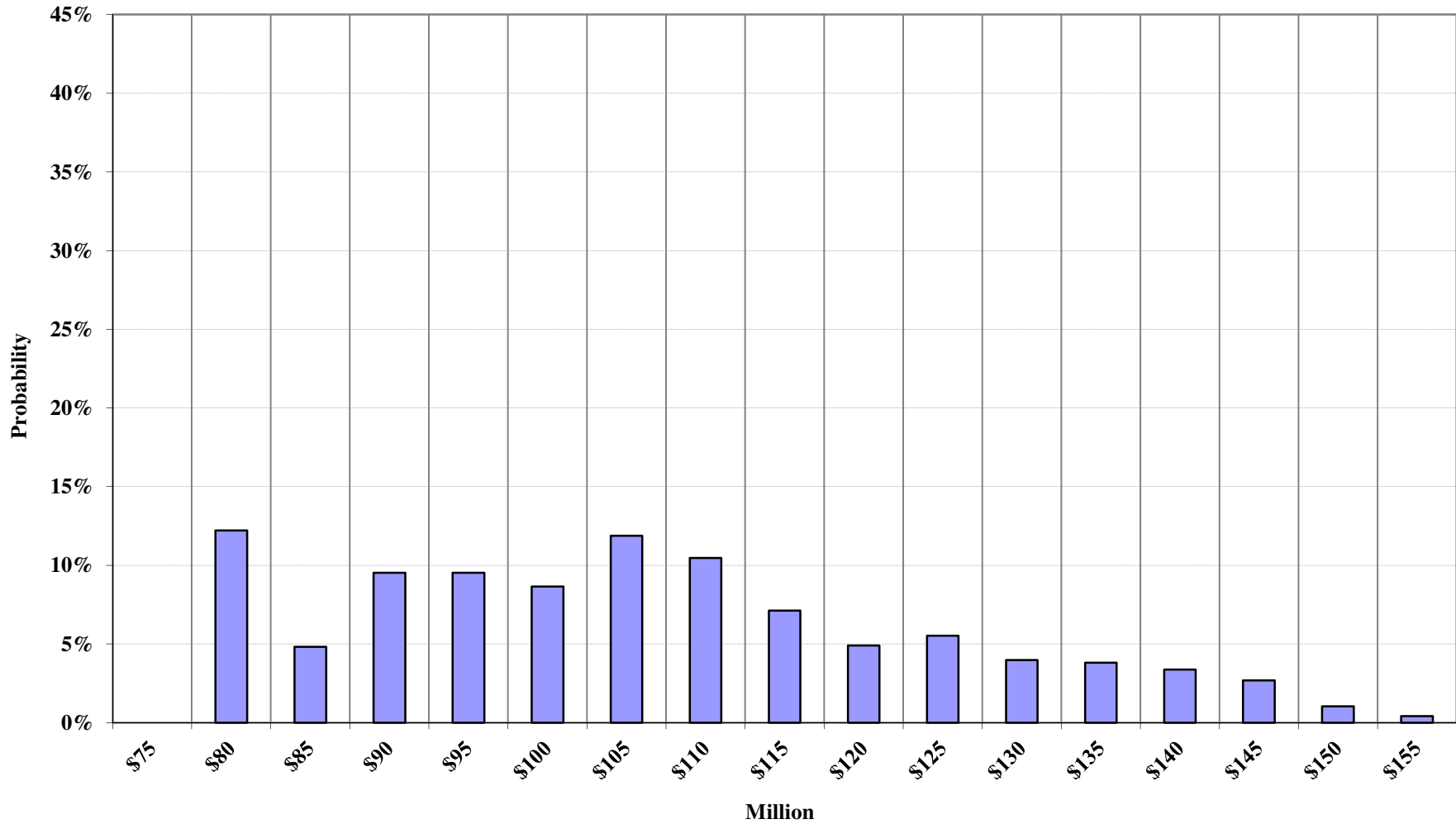
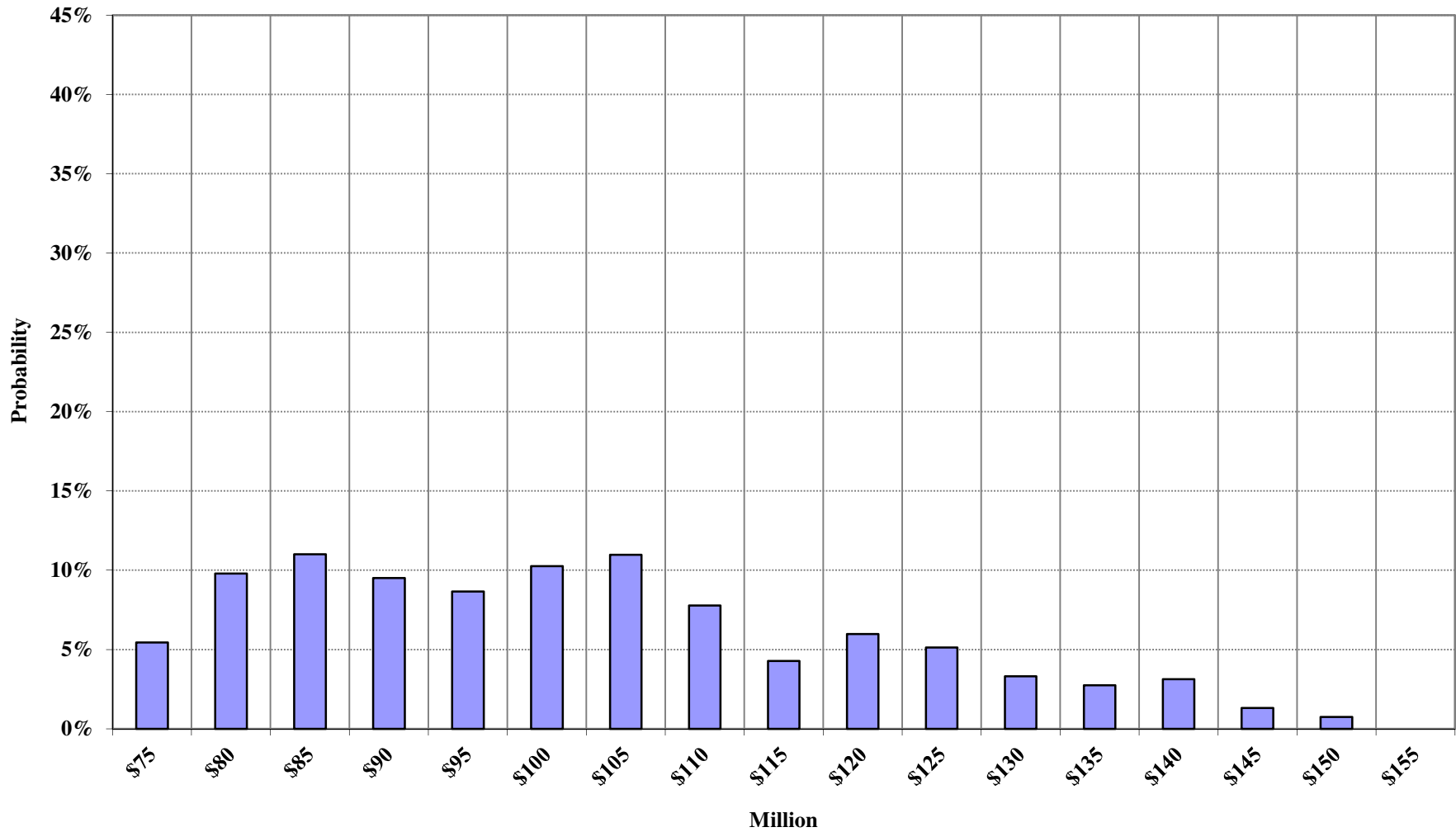


Figure 11: PS Transmission and Ancillary Service Expense Distribution for FY 2017



	A	B	C	D	E	F	G
1	Table 15: 4(h)(10)(C) Credits (\$ Million)						
2							
3	Fiscal Year	Purchase Expense	Direct Expense	Pisces	Capital	%	Credit
4	2016	\$ 85	\$ 267	\$ 1.8	54.8	22.3%	\$ 91.1
5	2017	\$ 87	\$ 274	\$ 1.8	30.8	22.3%	\$ 87.8

Figure 12: 4(h)(10)(C) Credits Distribution for FY 2016

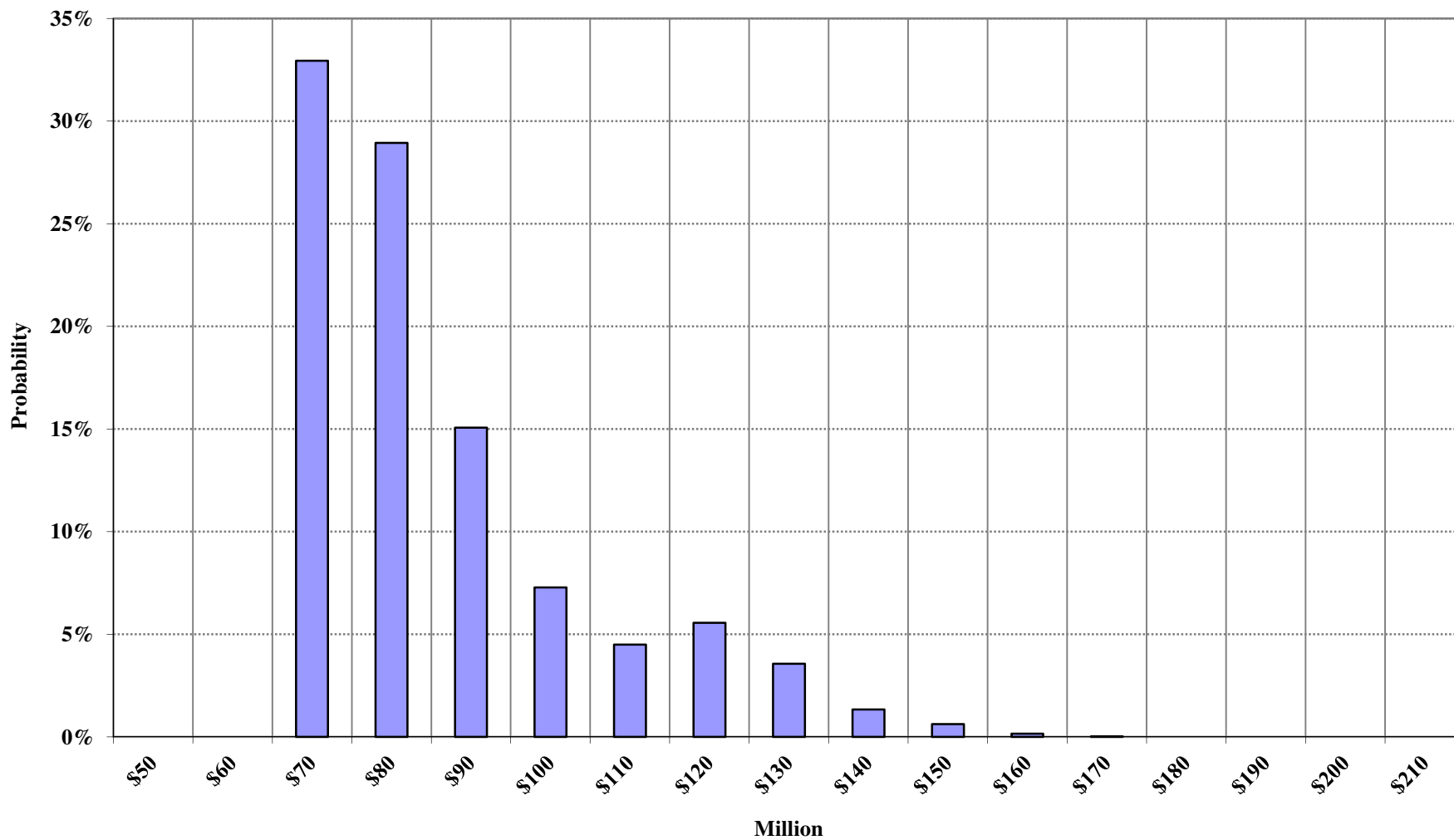
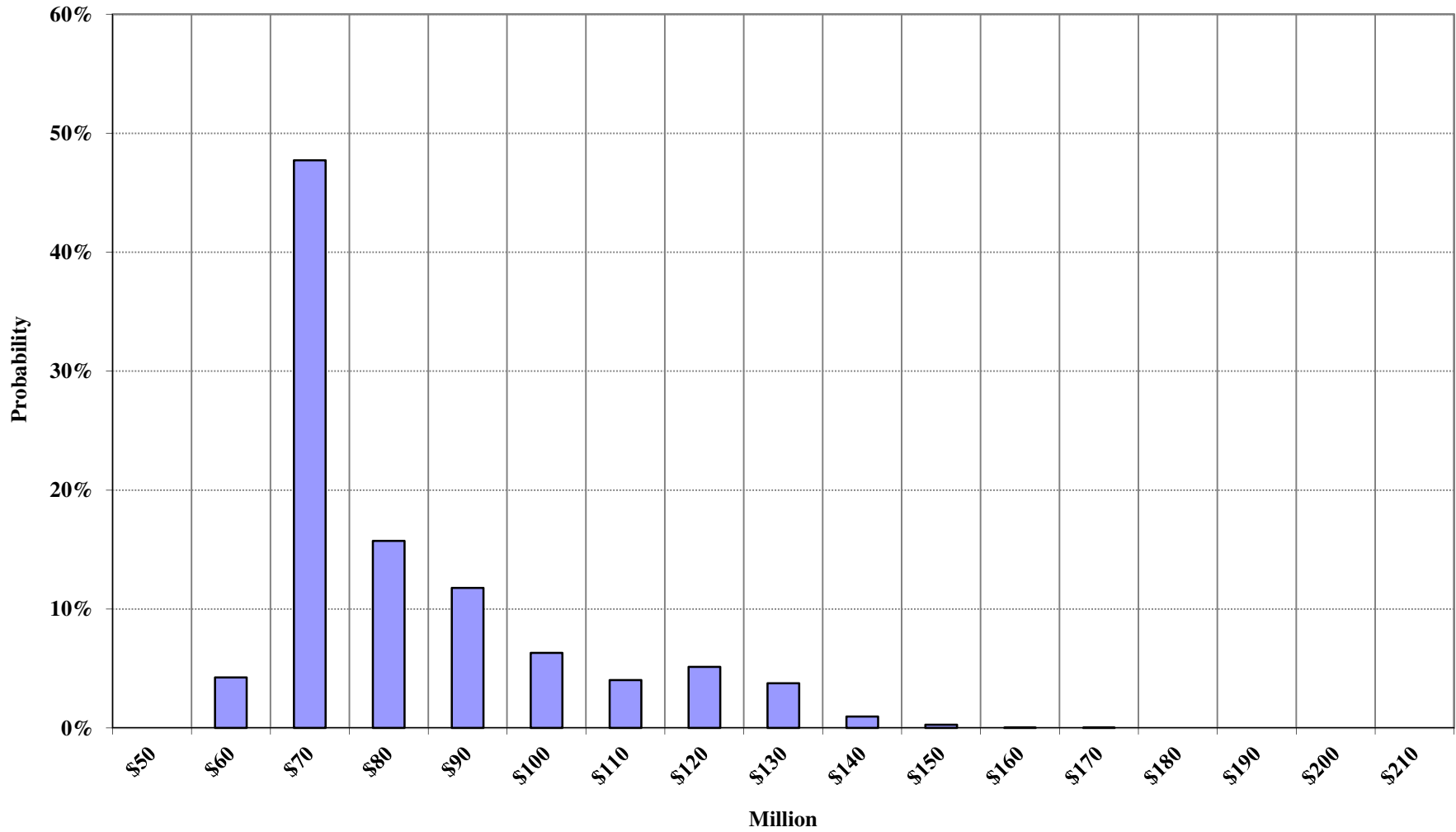


Figure 13: 4(h)(10)(C) Credits Distribution for FY 2017



	A	B	C	D	E
1	Table 16: Augmentation Power Purchases				
2	Average Annual Price for WY 1937 from Risk Analysis				
3	Used for Rate Calculations				
4					
5					
6	FY	MW	Hours	\$/MWh	Exp. (\$ 000)
7	2016	0	8,784	27.47	\$ -
8	2017	81	8,760	29.63	\$ 20,947

	A	B	C	D	E	F
1	Table 18: Calculation of Surplus Energy Sales Revenue and Balancing Purchase Expenses Provided to RAM2016, FY 2016					
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	1380	\$ 44,828	\$ 141,919	\$ (97,091)	
4	2	1493	\$ 77,548	\$ 174,467	\$ (96,919)	
5	3	2698	\$ 100,111	\$ 196,176	\$ (96,065)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	1441	2244	\$ 299,041	\$ 10,076	\$ 288,964	160
10	1442	978	\$ 319,292	\$ 30,320	\$ 288,971	159
11	1443	2134	\$ 294,909	\$ 5,938	\$ 288,971	158
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	1598	1077	\$ 332,870	\$ 17,092	\$ 315,778	3
16	1599	1095	\$ 334,992	\$ 19,125	\$ 315,867	2
17	1600	1178	\$ 325,331	\$ 9,443	\$ 315,888	1
18	1601	2856	\$ 330,289	\$ 14,398	\$ 315,891	1
19	1602	1705	\$ 336,970	\$ 20,971	\$ 315,999	2
20	1603	2480	\$ 328,490	\$ 12,439	\$ 316,051	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	1758	734	\$ 340,481	\$ 3,236	\$ 337,245	158
25	1759	2163	\$ 355,833	\$ 18,475	\$ 337,358	159
26	1760	1568	\$ 340,468	\$ 2,840	\$ 337,628	160
27	*	*	*	*	*	*
28	*	*	*	*	*	*
29	*	*	*	*	*	*
30	3198	1020	\$ 752,475	\$ -	\$ 752,475	
31	3199	1535	\$ 760,968	\$ 5,626	\$ 755,342	
32	3200	1155	\$ 808,406	\$ -	\$ 808,406	
33						
34	Average (3,200 Games)		\$ 331,393	\$ 28,548	\$ 302,846	
35	Median (3,200 Games)		\$ 330,507	\$ 15,716	\$ 315,890	
36						
37	Average to RAM2014 (\$000)		\$ 329,020	\$ 14,406	\$ 314,614	
38	(160 Above, 160 Below Median Net Secondary Revenue)					
39						
40	SILS Purchases (\$000)			\$ 8,711	\$ (8,711)	
41	Redispatch of Transmission Exp. (\$000)			\$ 225	\$ (225)	
42	WAPA Forward Sale (\$000)			\$ 666	\$ 666	
43	Clark Option Sales Revenue (\$000)			\$ 3,408	\$ 3,408	
44	Cal ISO Sales Revenue (\$000)			\$ 10,000	\$ 10,000	
45						
46	Total Median Sales/Purchases to RAM (\$000)		\$ 343,094	\$ 23,342	\$ 319,751	

	A	B	C	D	E	F
1	Table 19: Calculation of Surplus Energy Sales Revenue and Balancing Purchase Expenses Provided to RAM2016, FY 2017					
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	2321	\$ 96,502	\$ 250,072	\$ (153,570)	
4	2	322	\$ 54,995	\$ 157,701	\$ (102,705)	
5	3	1410	\$ 35,364	\$ 135,722	\$ (100,358)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	1441	692	\$ 312,376	\$ 8,810	\$ 303,567	160
10	1442	1834	\$ 313,559	\$ 9,753	\$ 303,806	159
11	1443	1151	\$ 321,278	\$ 17,278	\$ 304,000	158
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	1598	163	\$ 337,077	\$ 6,487	\$ 330,590	3
16	1599	1693	\$ 341,680	\$ 10,939	\$ 330,740	2
17	1600	1828	\$ 354,467	\$ 23,118	\$ 331,349	1
18	1601	650	\$ 342,562	\$ 10,906	\$ 331,656	1
19	1602	2410	\$ 345,061	\$ 12,505	\$ 332,556	2
20	1603	2379	\$ 340,172	\$ 7,526	\$ 332,646	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	1758	2051	\$ 366,582	\$ 5,749	\$ 360,833	158
25	1759	1869	\$ 374,710	\$ 13,853	\$ 360,857	159
26	1760	3102	\$ 375,890	\$ 14,724	\$ 361,167	160
27	*	*	*	*	*	*
28	*	*	*	*	*	*
29	*	*	*	*	*	*
30	3198	1369	\$ 810,229	\$ -	\$ 810,229	
31	3199	1220	\$ 815,387	\$ -	\$ 815,387	
32	3200	1360	\$ 826,201	\$ 2,547	\$ 823,653	
33						
34	Average (3,200 Games)		\$ 353,729	\$ 29,187	\$ 324,542	
35	Median (3,200 Games)		\$ 346,770	\$ 13,911	\$ 331,502	
36						
37	Average to RAM2015 (\$000)		\$ 346,117	\$ 13,598	\$ 332,519	
38	(160 Above, 160 Below Median Net Secondary Revenue)					
39						
40	SILS Purchases (\$000)			\$ 38,438	\$ (38,438)	
41	Redispatch of Transmission Exp. (\$000)			\$ 225	\$ (225)	
42	WAPA Forward Sale (\$000)			\$ 2,584	\$ 2,584	
43	Clark Option Sales Revenue (\$000)			\$ 3,408	\$ 3,408	
44	Cal ISO Sales Revenue (\$000)			\$ 10,000	\$ 10,000	
45						
46	Total Median Sales/Purchases to RAM (\$000)			\$ 362,109	\$ 52,261	\$ 309,848

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 20: Monthly Secondary Energy Sales and Revenues for FY 2016 and FY2017													
2														
3														
4	Secondary Energy Sales and Revenues for FY 2016													
5		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
6	Hours	744	721	744	744	696	743	720	744	720	744	744	720	8,784
7	Surplus Energy Sales (aMW)	539	925	631	1,568	1,609	1,889	2,264	3,964	3,961	2,370	1,059	338	1,759
8	Secondary Energy Sales Revenues	\$ 8,131	\$ 13,625	\$ 8,786	\$ 28,555	\$ 24,741	\$ 27,416	\$ 35,538	\$ 57,183	\$ 55,283	\$ 43,326	\$ 20,667	\$ 5,769	\$ 329,020
9														
10	WAPA Sales (aMW)	0	0	0	12	11	10	0	0	0	0	0	0	3
11	WAPA Sales Revenue (\$000)	\$0	\$0	\$0	\$241	\$207	\$218	\$0	\$0	\$0	\$0	\$0	\$0	\$666
12														
13	Clark Option Sales Revenue (\$000)	\$360	\$480	\$588	\$480	\$480	\$480	\$0	\$0	\$0	\$180	\$180	\$180	\$3,408
14														
15	Cal ISO Sales Revenue (\$000)	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$10,000
16														
17	Total Net Secondary Sales	\$ 9,325	\$ 14,938	\$ 10,207	\$ 30,109	\$ 26,261	\$ 28,947	\$ 36,371	\$ 58,017	\$ 56,116	\$ 44,339	\$ 21,681	\$ 6,782	\$ 343,094
18														
19	Secondary Energy Sales and Revenues for FY 2017													
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)	669	938	668	1,524	1,528	2,104	2,204	3,569	3,344	2,343	1,155	375	1,703
24	Secondary Energy Sales Revenues	\$ 11,914	\$ 14,327	\$ 9,801	\$ 29,748	\$ 25,510	\$ 35,995	\$ 35,869	\$ 54,968	\$ 52,348	\$ 44,879	\$ 23,102	\$ 7,657	\$ 346,117
25														
26	WAPA Sales (aMW)	0	0	0	12	11	10	11	11	11	12	10	11	8
27	WAPA Sales Revenue (\$000)				\$310	\$259	\$280	\$288	\$295	\$274	\$310	\$281	\$288	\$2,584
28														
29	Clark Option Sales Revenue (\$000)	\$360	\$480	\$588	\$480	\$480	\$480	\$0	\$0	\$0	\$180	\$180	\$180	\$3,408
30														
31	Cal ISO Sales Revenue (\$000)	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$10,000
32														
33	Total Net Secondary Sales	\$ 13,107	\$ 15,640	\$ 11,222	\$ 31,371	\$ 27,082	\$ 37,588	\$ 36,991	\$ 56,096	\$ 53,455	\$ 46,202	\$ 24,396	\$ 8,958	\$ 362,109

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Table 21: Monthly Power Purchases and Expenses for FY 2016 and FY 2017													
2														
3	Power Purchases and Expenses for FY 2016													
4														
5		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
6	Monthly Hours	744	721	744	744	696	743	720	744	720	744	744	720	8,784
7	Balancing Power Purchases (aMW)	63	90	249	355	207	47	53	0	23	99	68	191	120
8	Balancing Power Purchases Expenses (\$000)	\$ 1,204	\$ 1,635	\$ 3,070	\$ 2,590	\$ 911	\$ 143	\$ 17	\$ -	\$ -	\$ 227	\$ 874	\$ 3,734	\$ 14,406
9														
10														
11	Transmission re-dispatch for Gen Inputs adjustment	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 225
12														
13	SILS Forward Power Purchases (aMW)										90	94	92	23
14	SILS Forward Power Purchases Expenses (\$000)										\$ 2,886	\$ 2,991	\$ 2,835	\$ 8,711
15														
16	Total Power Purchases (aMW)	63	90	249	355	207	47	53	0	23	189	162	282	143
17	Total Power Purchases Expenses (\$000)	\$ 1,223	\$ 1,654	\$ 3,089	\$ 2,609	\$ 930	\$ 161	\$ 36	\$ 19	\$ 19	\$ 3,132	\$ 3,883	\$ 6,588	\$ 23,342
18														
19														
20	Power Purchases and Expenses for FY 2017													
21														
22														
23		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
24	Monthly Hours	744	721	744	744	672	743	720	744	720	744	744	720	8,760
25	Balancing Power Purchases (aMW)	77	36	214	286	235	33	44	1	60	108	93	179	113
26	Balancing Power Purchases Expenses (\$000)	\$ 1,782	\$ 845	\$ 3,331	\$ 1,354	\$ 1,248	\$ 47	\$ 110	\$ -	\$ -	\$ 310	\$ 1,312	\$ 3,259	\$ 13,598
27														
28														
29	Transmission re-dispatch for Gen Inputs adjustment	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 19	\$ 225
30														
31	SILS Forward Power Purchases (aMW)	114	114	114	113	114	115	92	92	93	90	94	92	103
32	SILS Forward Power Purchases Expenses (\$000)	\$ 3,587	\$ 3,473	\$ 3,587	\$ 3,570	\$ 3,249	\$ 3,600	\$ 2,835	\$ 2,938	\$ 2,887	\$ 2,886	\$ 2,991	\$ 2,835	\$ 38,438

	A	B	C
1	Table 22: Annual Secondary Energy Sales/Revenues and Power Purchases/Expenses for FY 2016 and FY 2017		
2		FY 2016	FY 2017
3	Annual Hours	8,784	8,760
4	Secondary Energy Sales (aMW)	1,759	1,703
5	Secondary Energy Revenues (\$000)	\$ 329,020	\$ 346,117
6	WAPA Power Sales (aMW)	3	8
7	WAPA Power Sales Revenue (1000)	\$ 666	\$ 2,584
8			
9	Clark Option Sales Revenue (\$000)	\$ 3,408	\$ 3,408
10			
11	Cal ISO Sales Revenue (\$000)	\$ 10,000	\$ 10,000
12			
13	Total Power Sales (aMW)	1,759	1,703
14	Total Power Sales Revenue (\$000)	\$ 343,094	\$ 362,109
15			
16	Balancing Power Purchases (aMW)	120	113
17	Balancing Power Purchases Expenses (\$000)	\$ 14,406	\$ 13,598
18	Transmission Re-dispatch for Gen Inputs Adjustment (\$000)	\$ 225	\$ 225
19	SILS Power Purchases (aMW)	23	103
20	SILS Power Purchases Expenses (\$000)	\$ 8,711	\$ 38,438
21			
22	Total Power Purchases (aMW)	120	113
23	Total Power Purchases Expenses (\$000)	\$ 23,342	\$ 52,261

Figure 14: CGS O&M Distributions

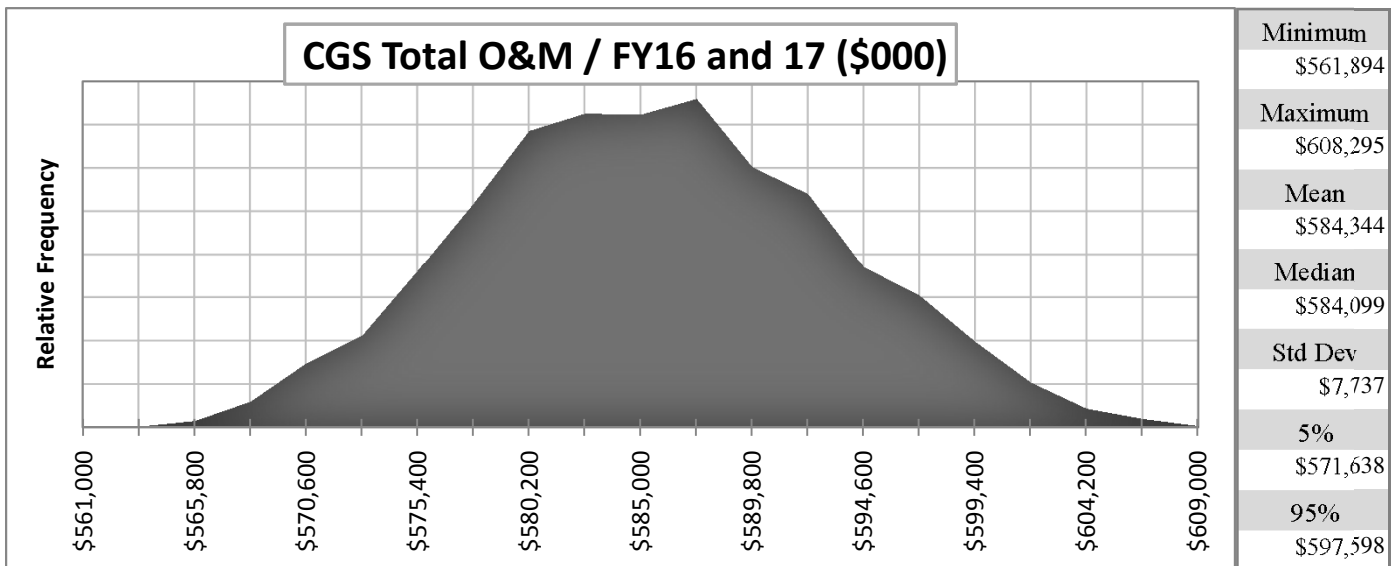
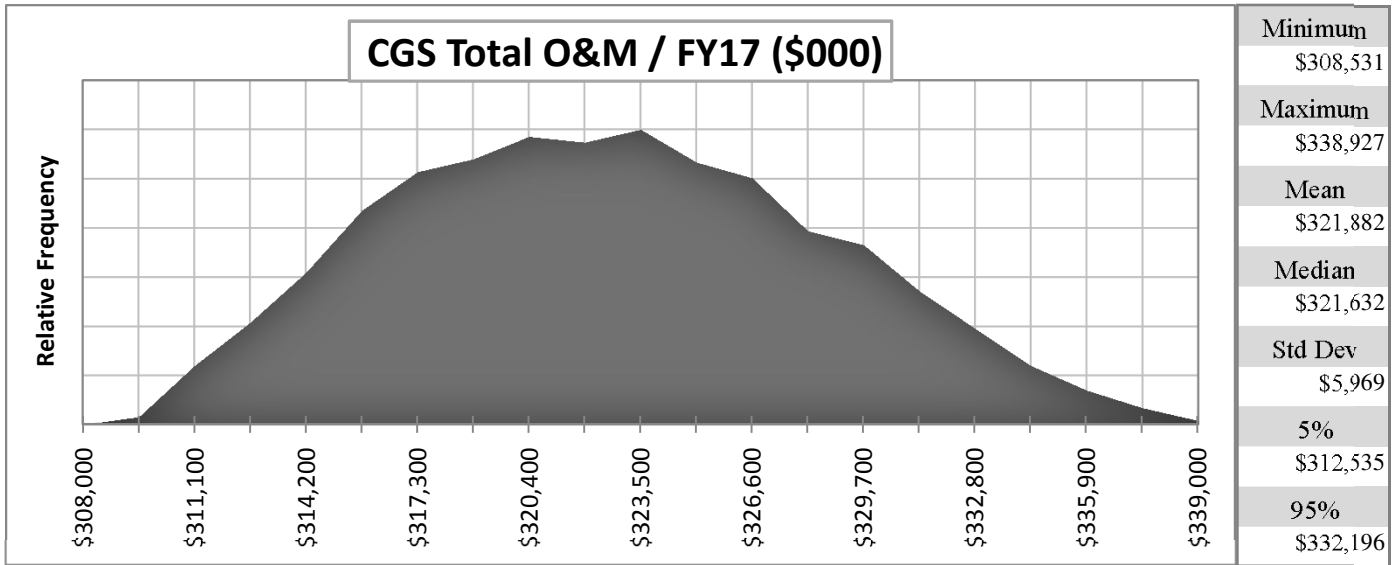
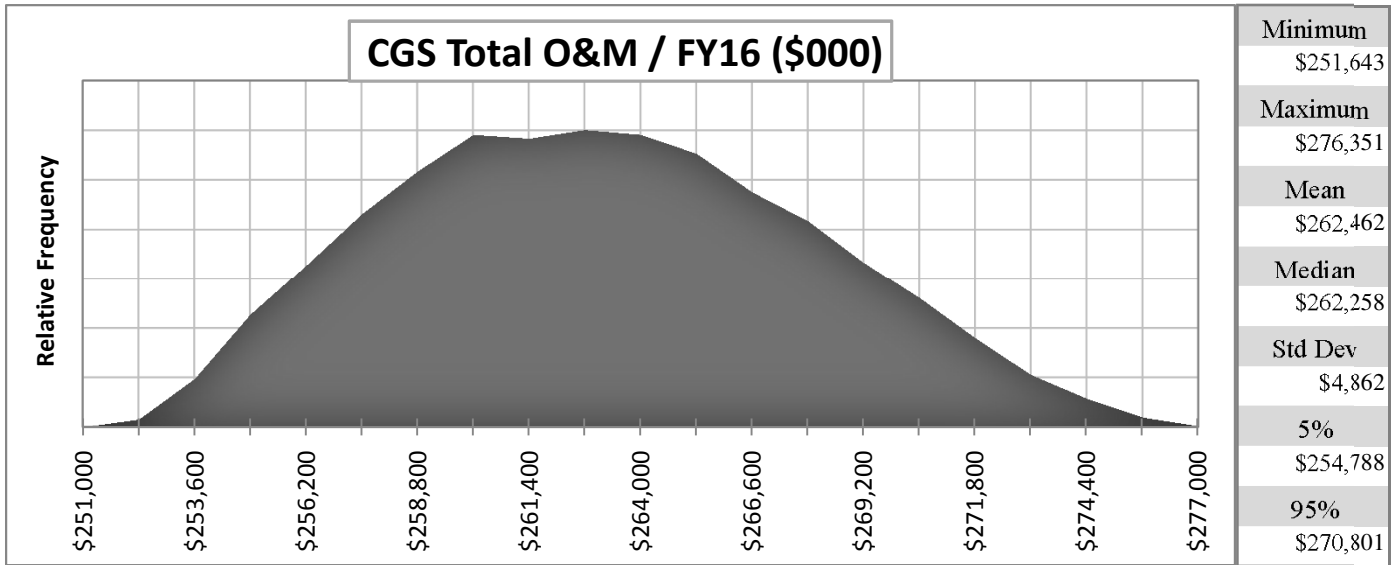


Figure 15: Corps of Engineers and Bureau of Reclamation O&M Distributions

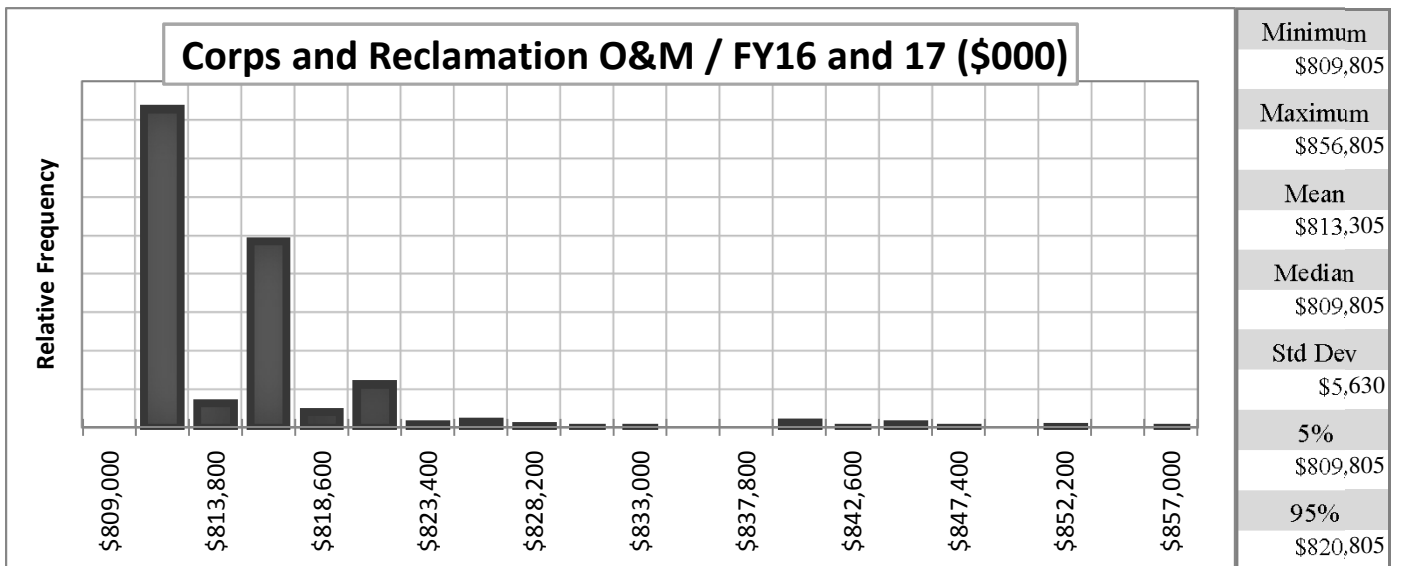
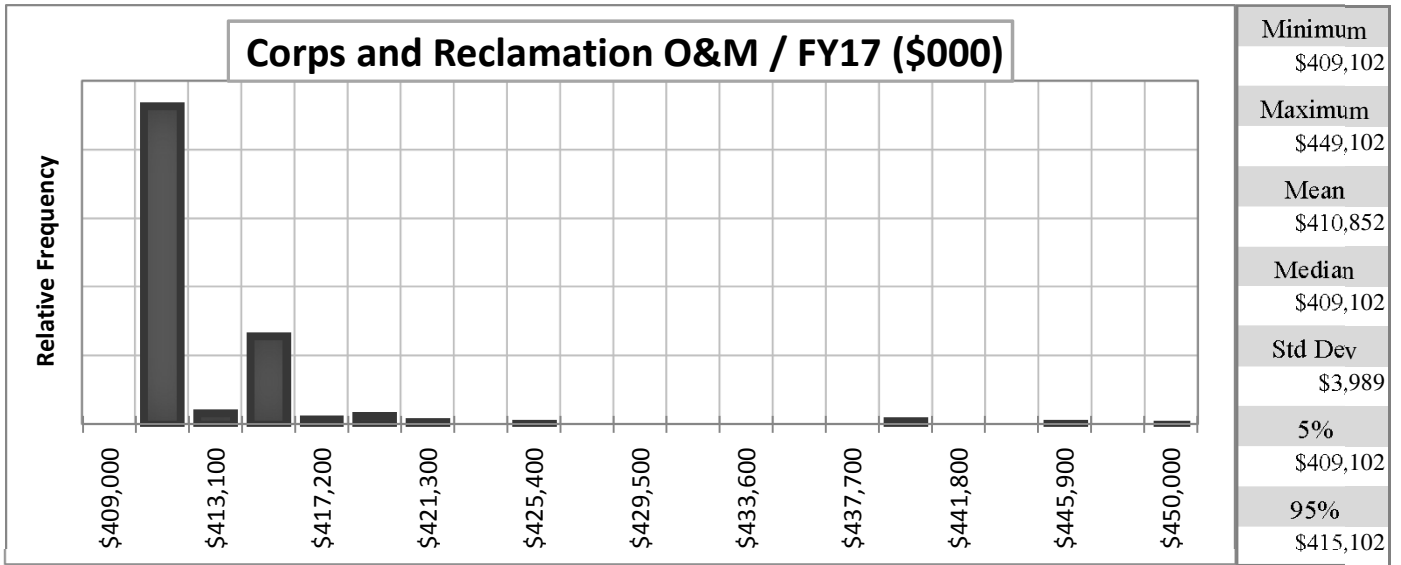
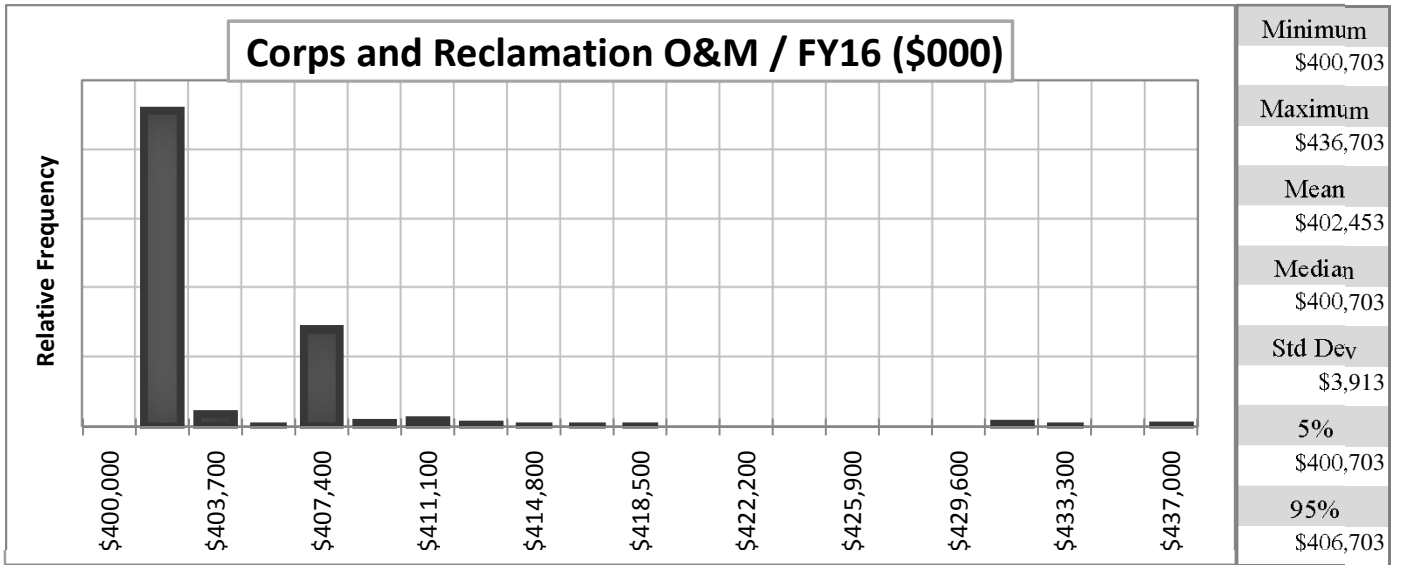


Figure 16: Conservation Acquisition and Weatherization Expense Distributions

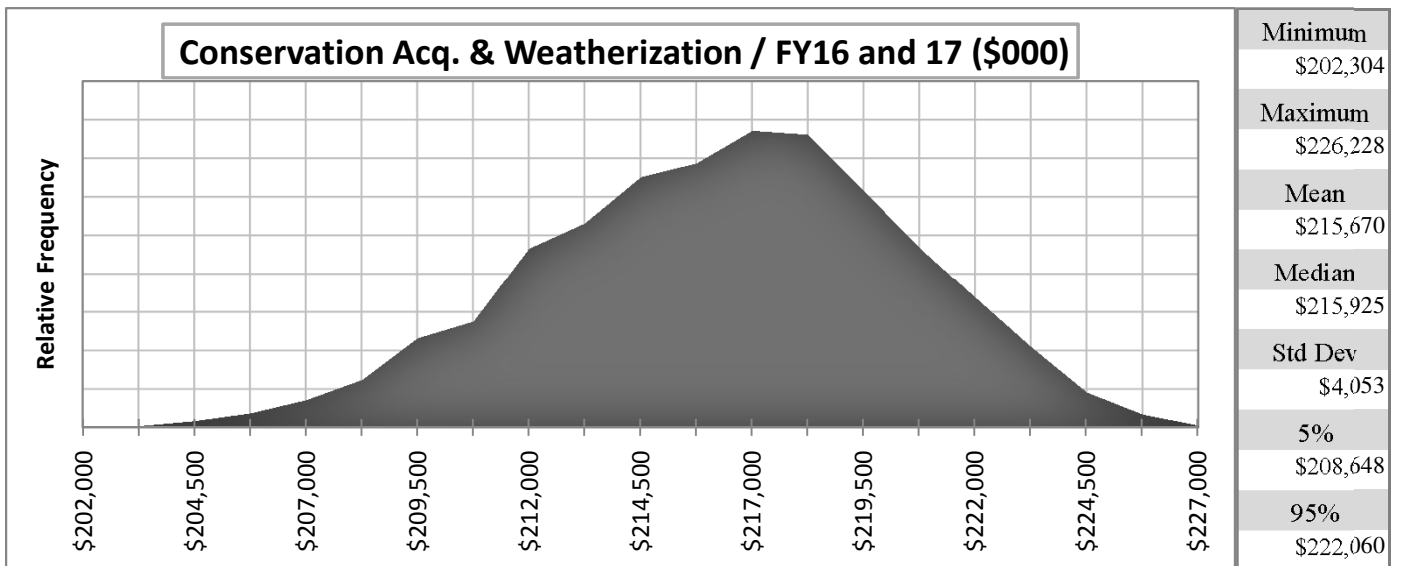
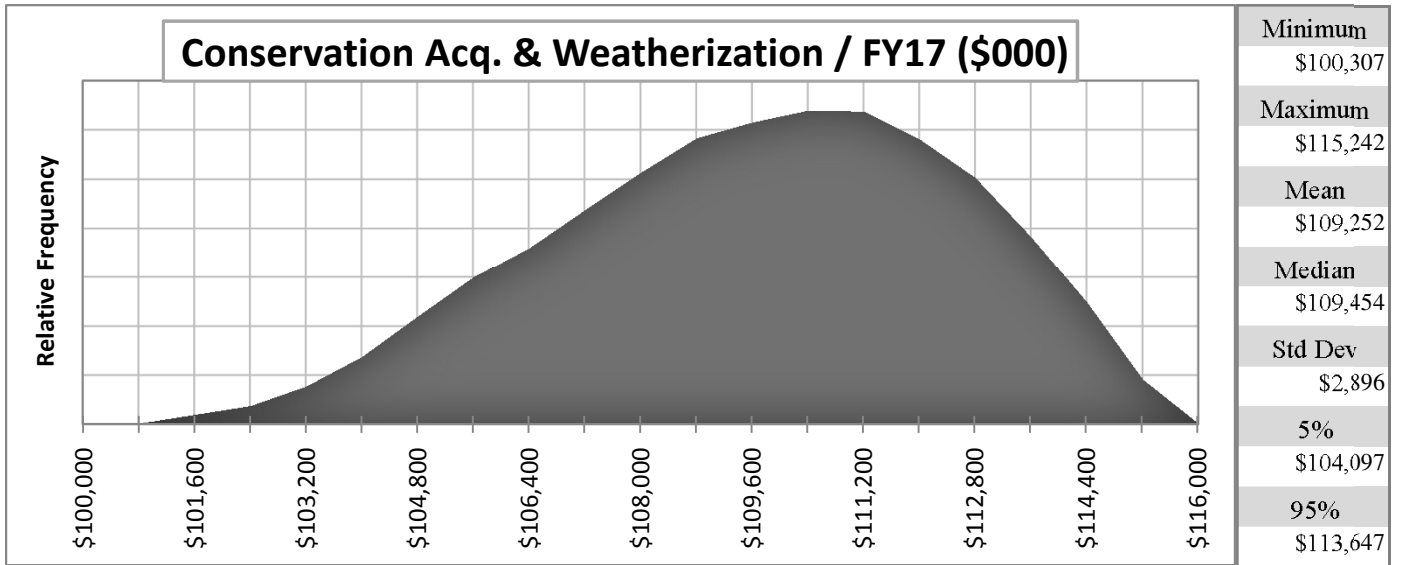
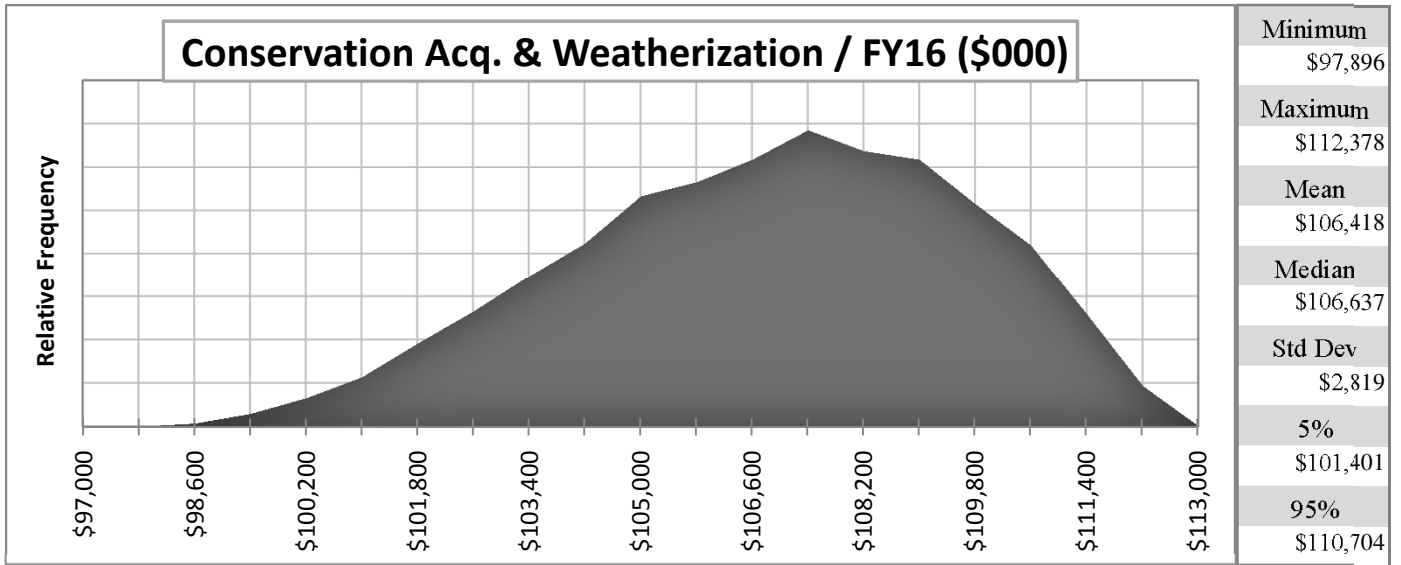


Figure 17: Spokane Settlement Payment Distributions

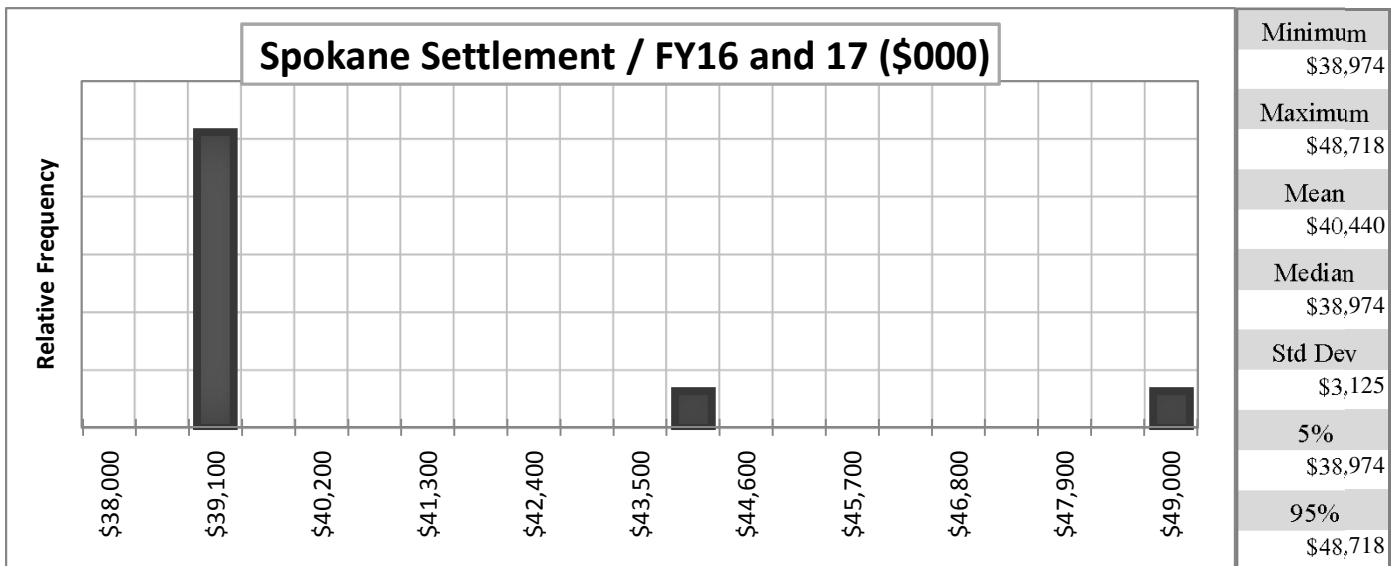
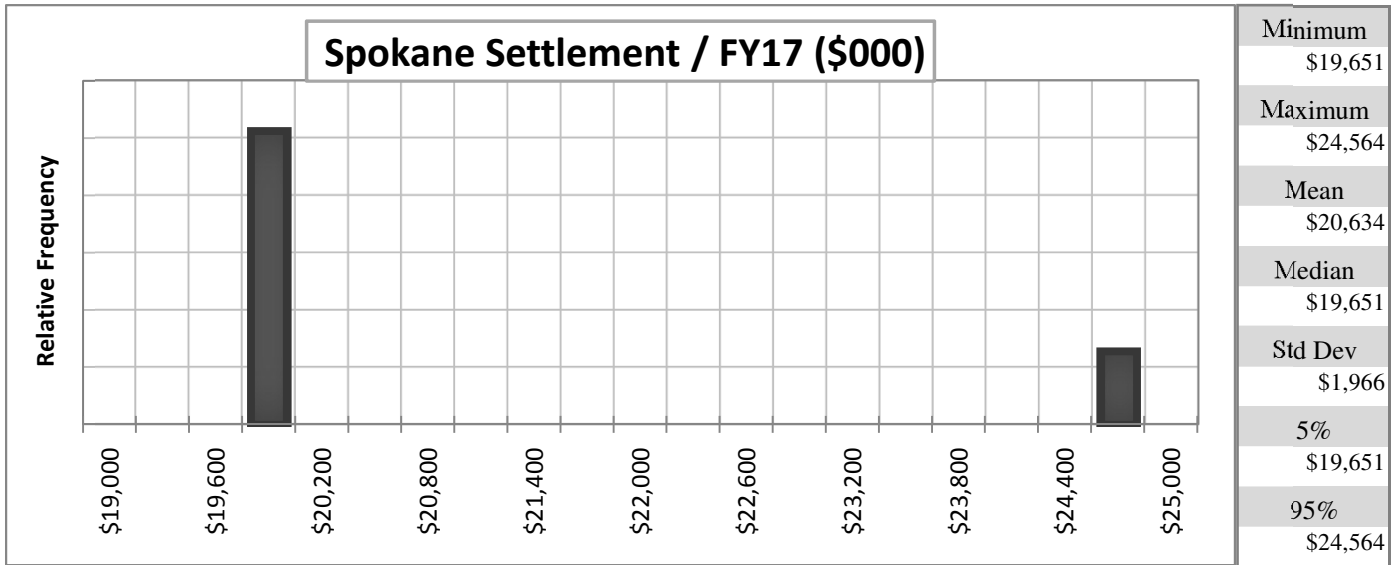
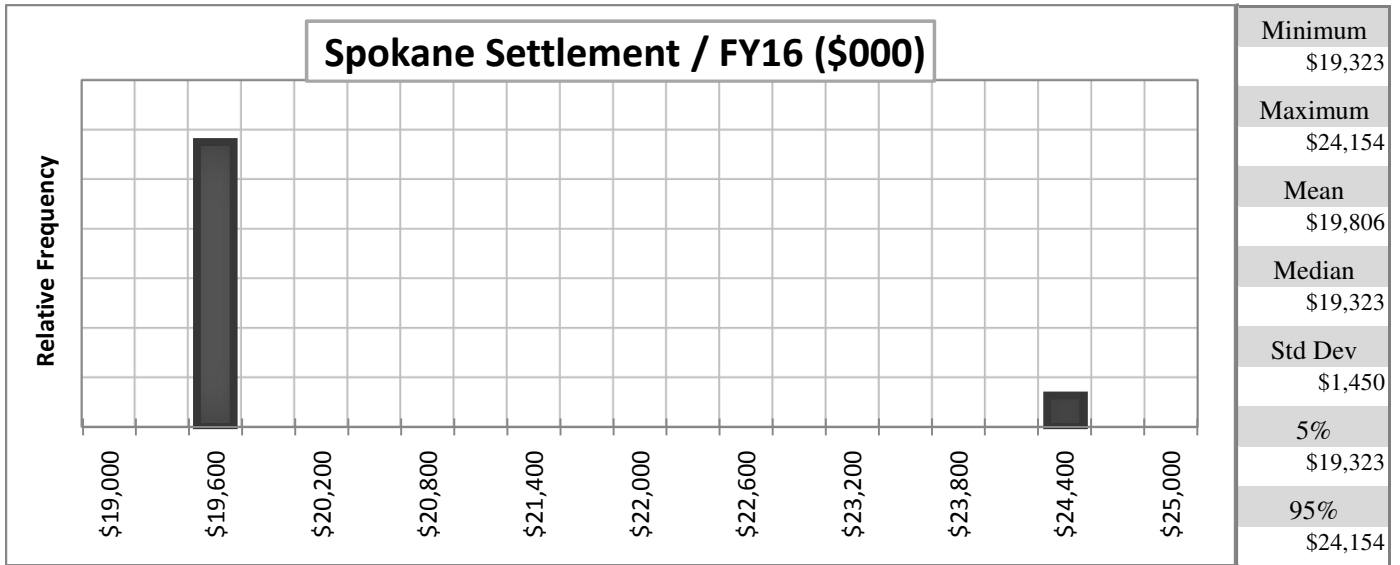


Figure 18: Third-Party GTA Wheeling Expense Distributions

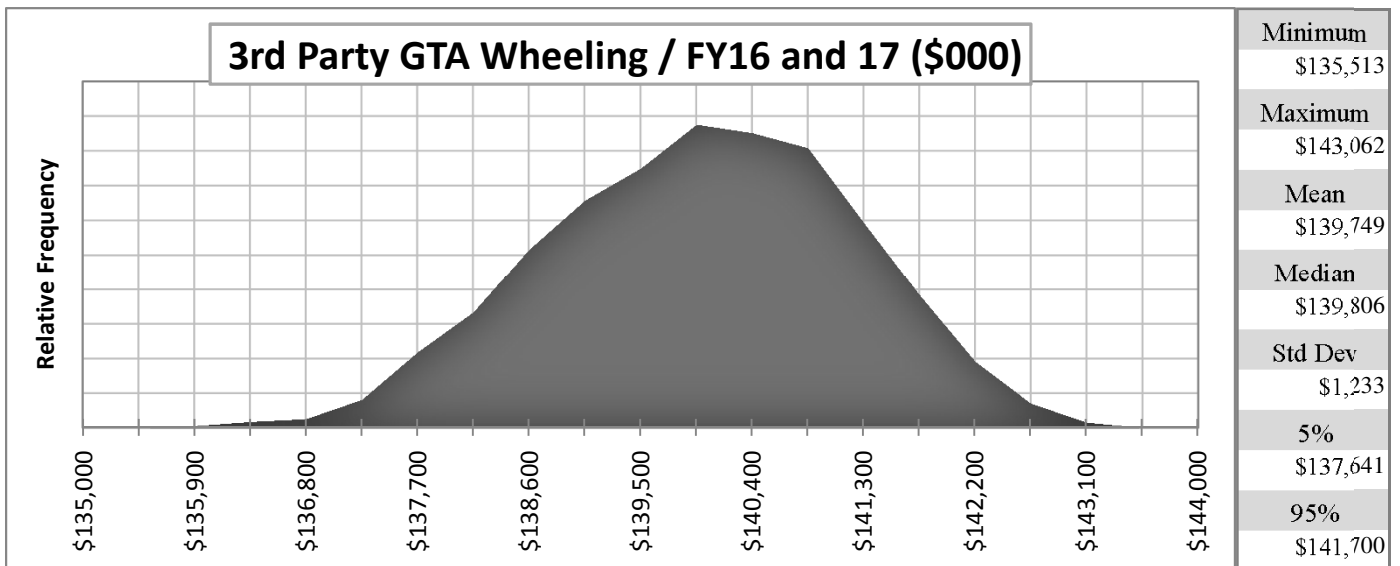
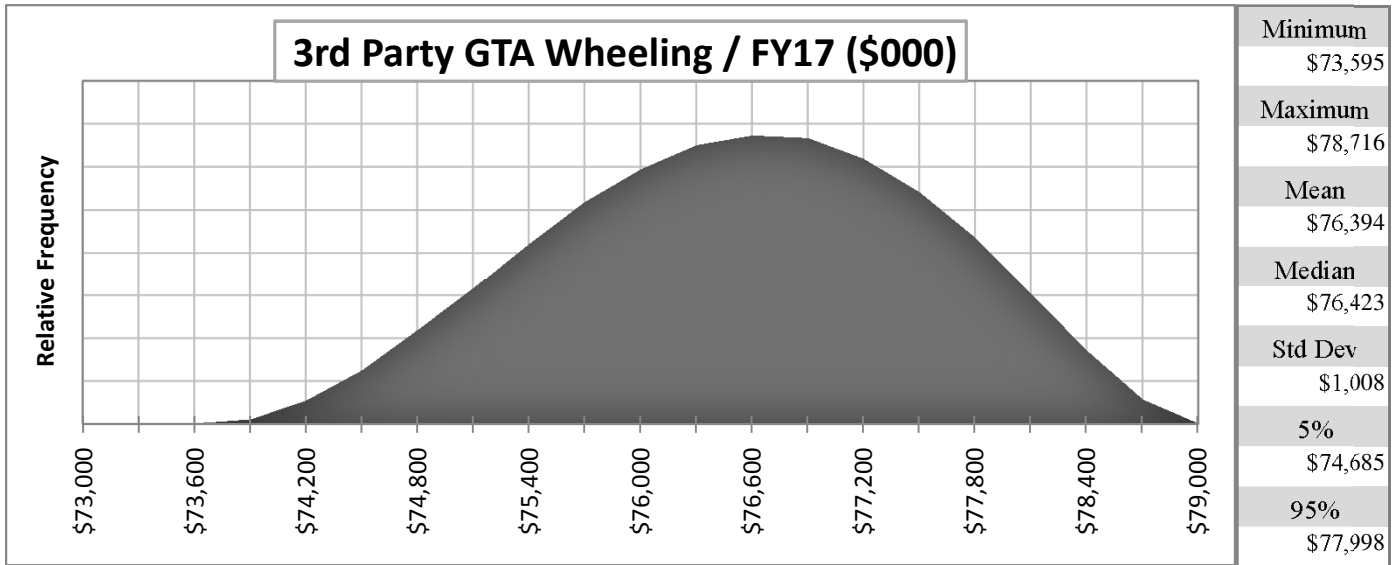
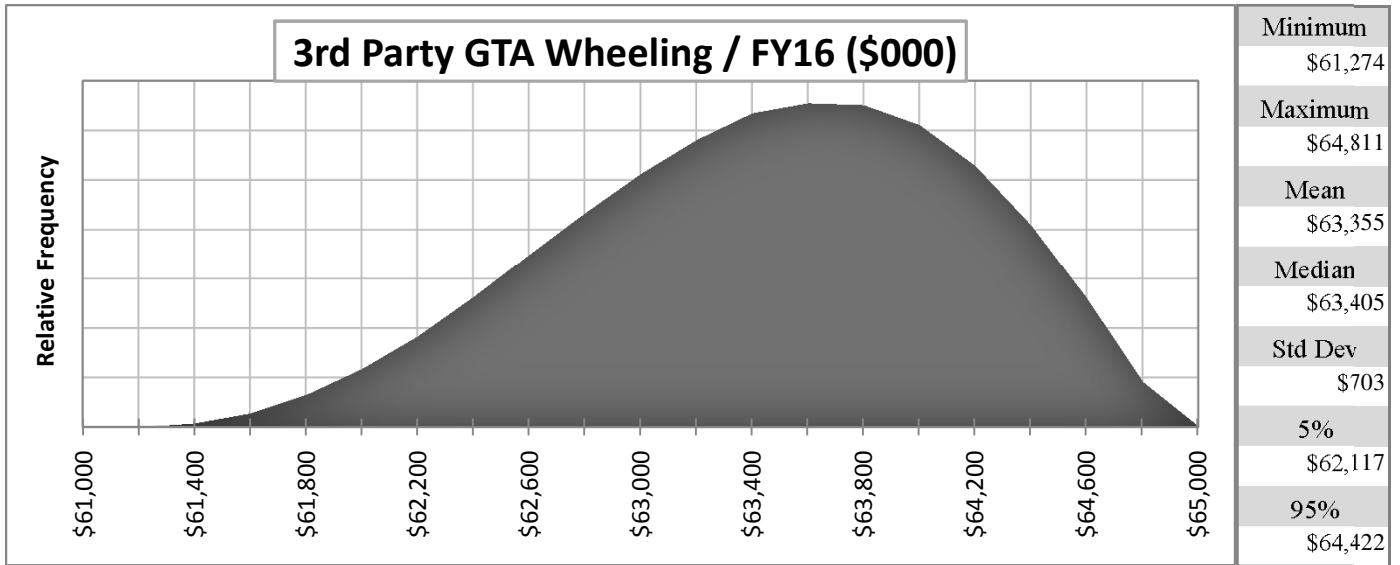


Figure 19: Internal Operations Expense Distributions

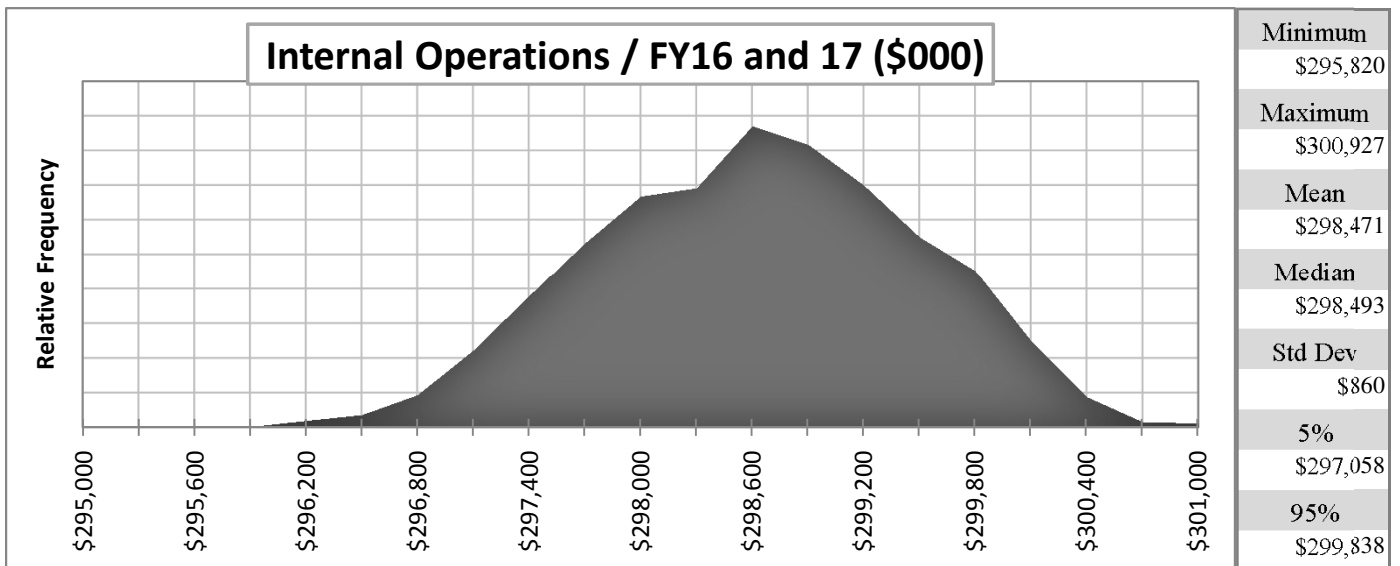
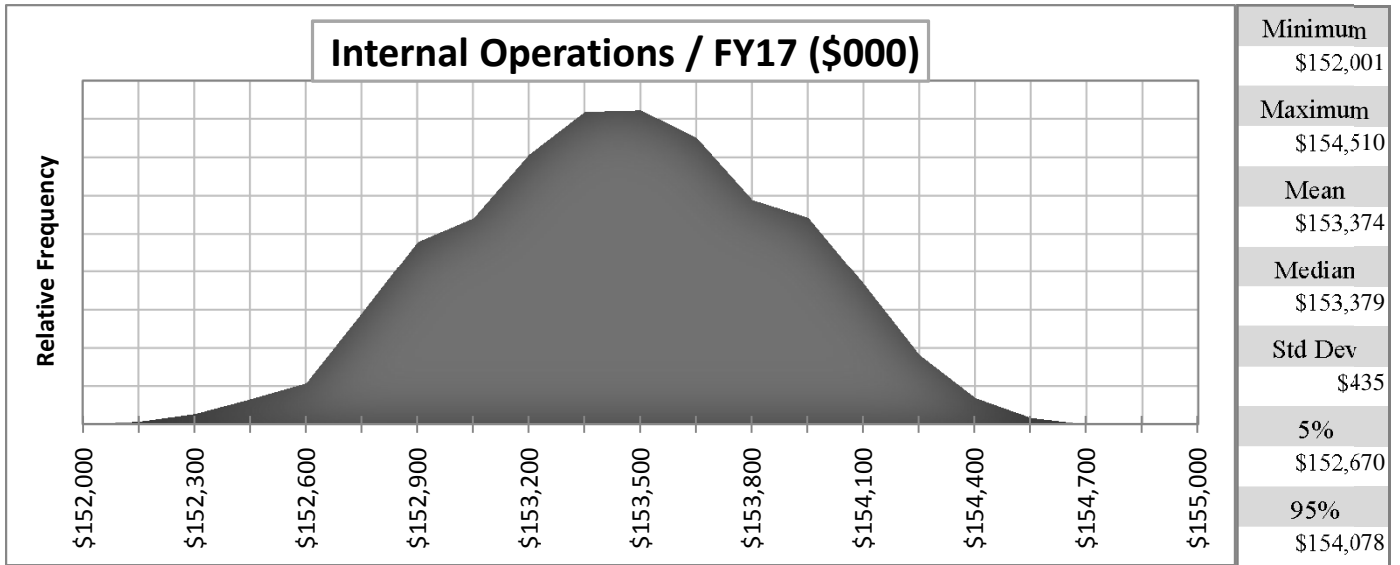
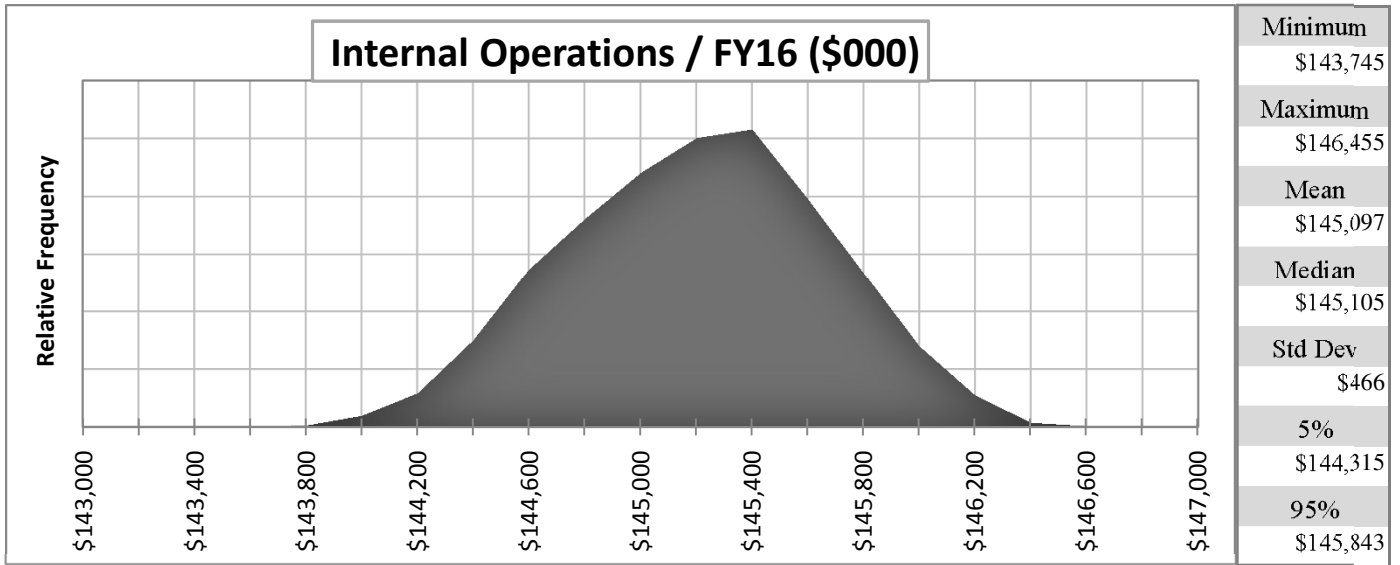


Figure 20: Fish and Wildlife Direct Program Expense Distributions

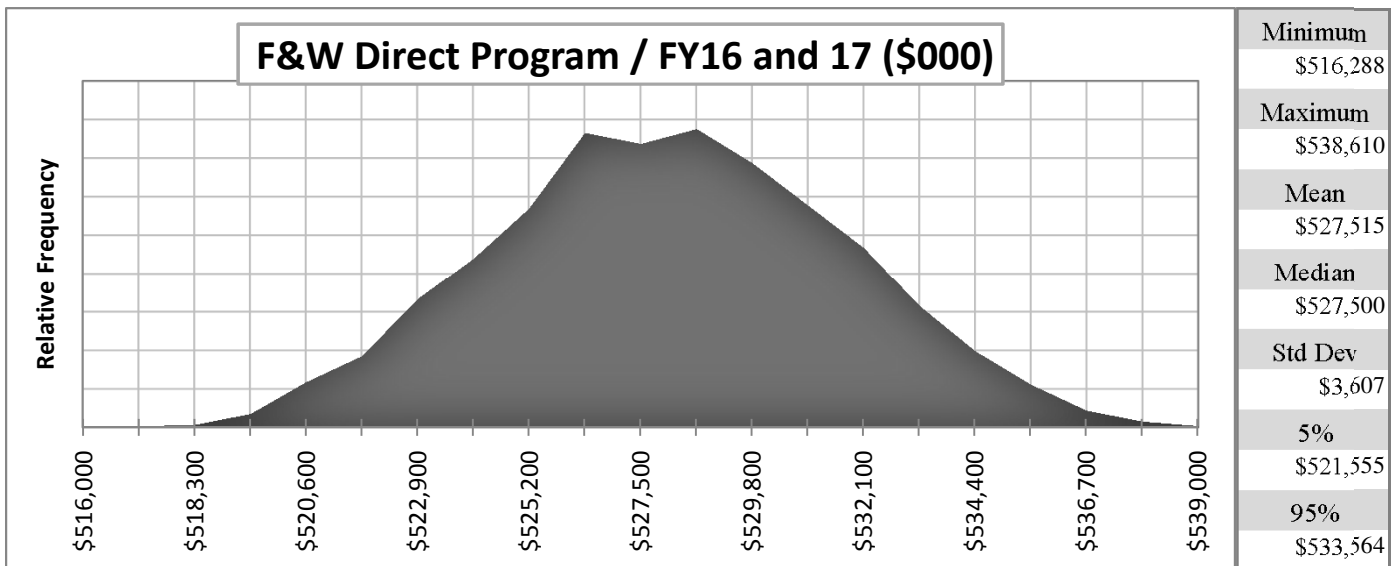
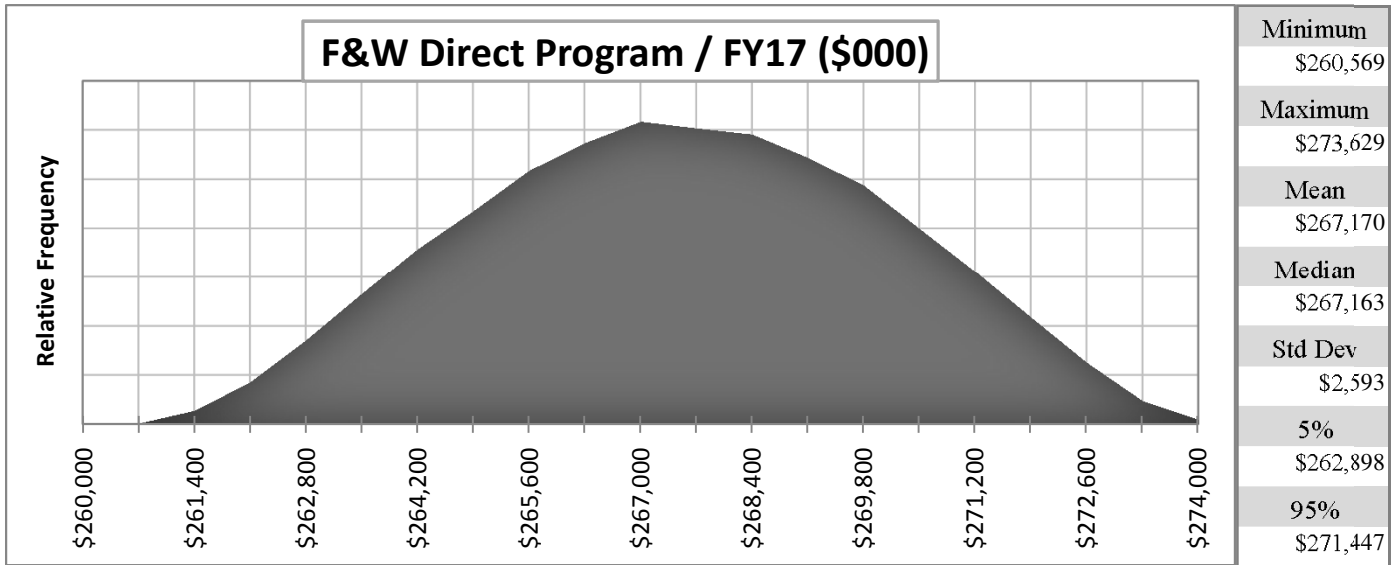
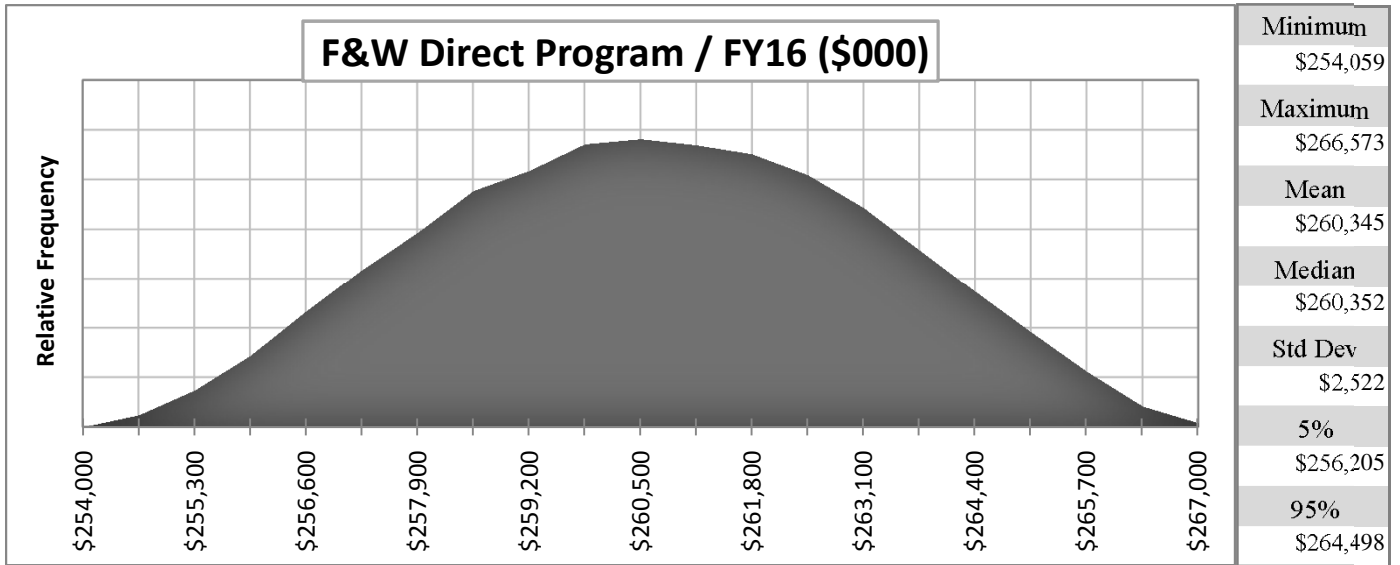


Figure 21: Lower Snake River Hatcheries Expense Distributions

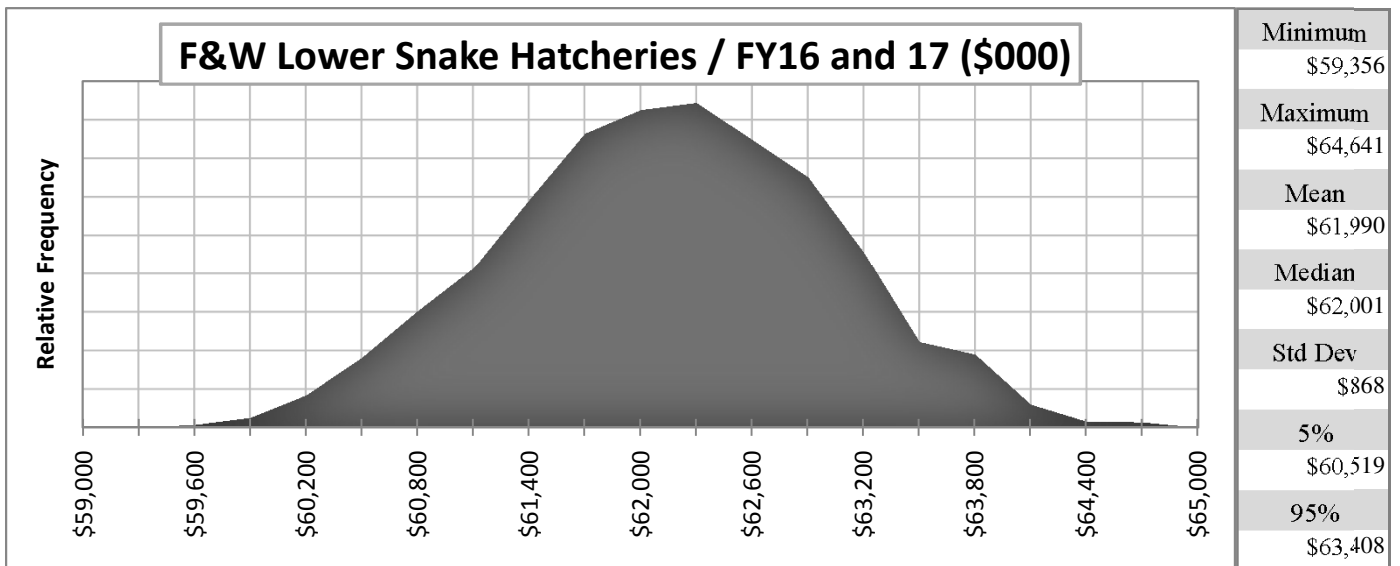
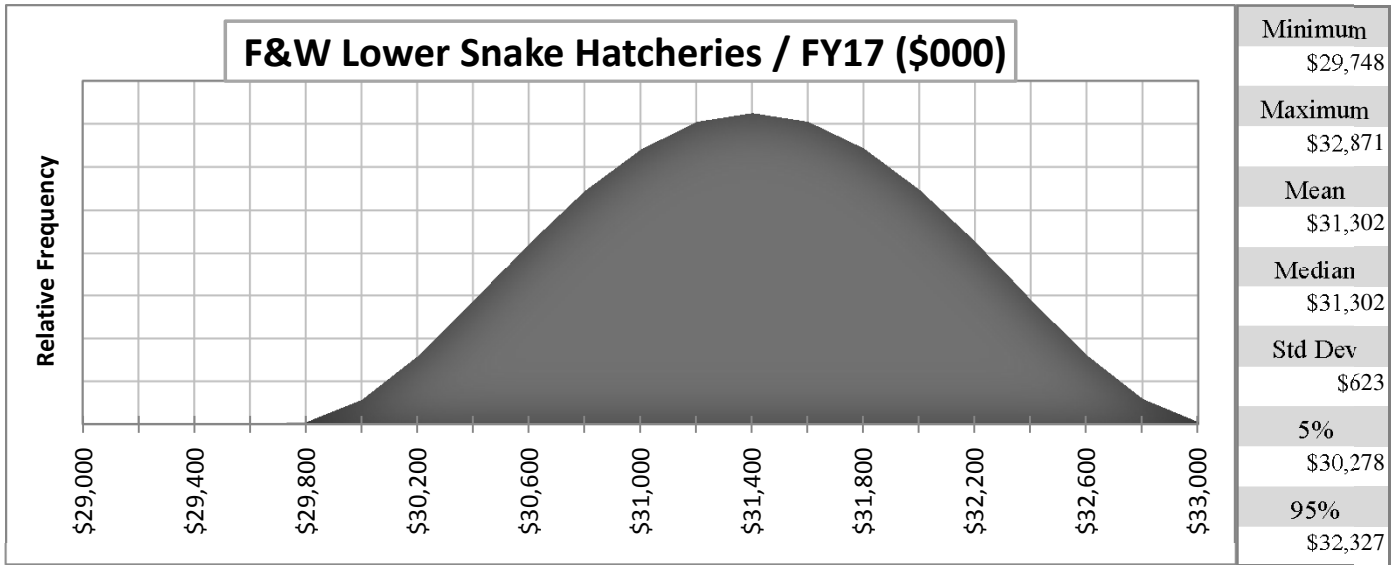
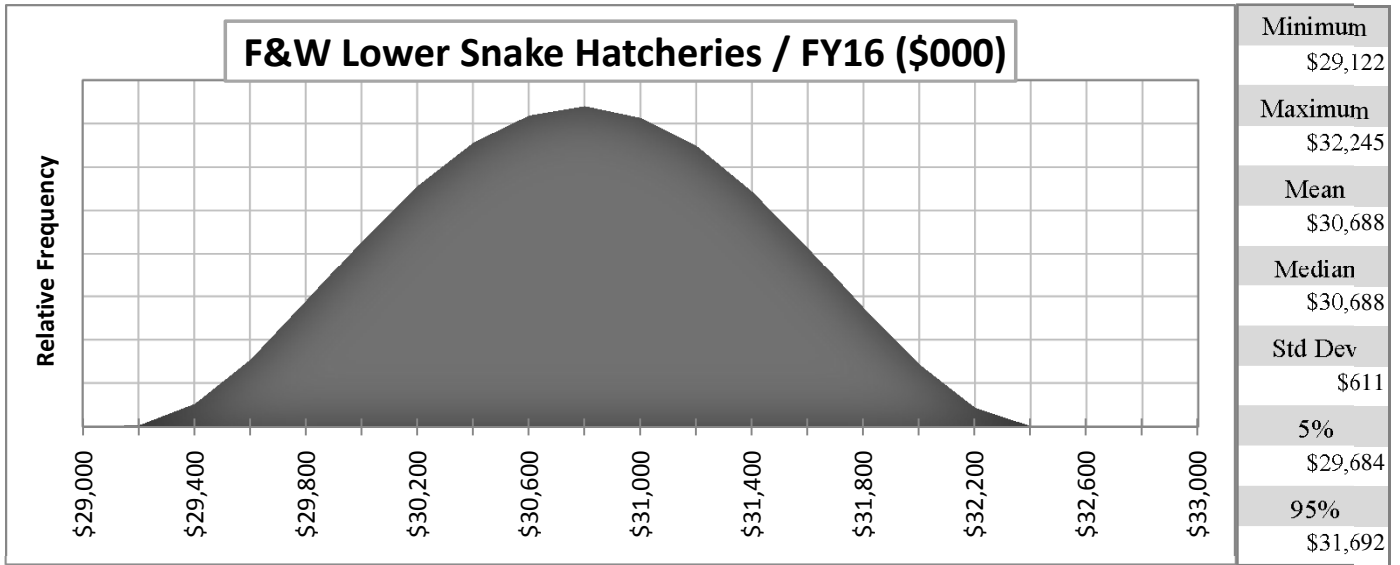


Figure 22: Leavenworth Complex O&M Expense Distributions

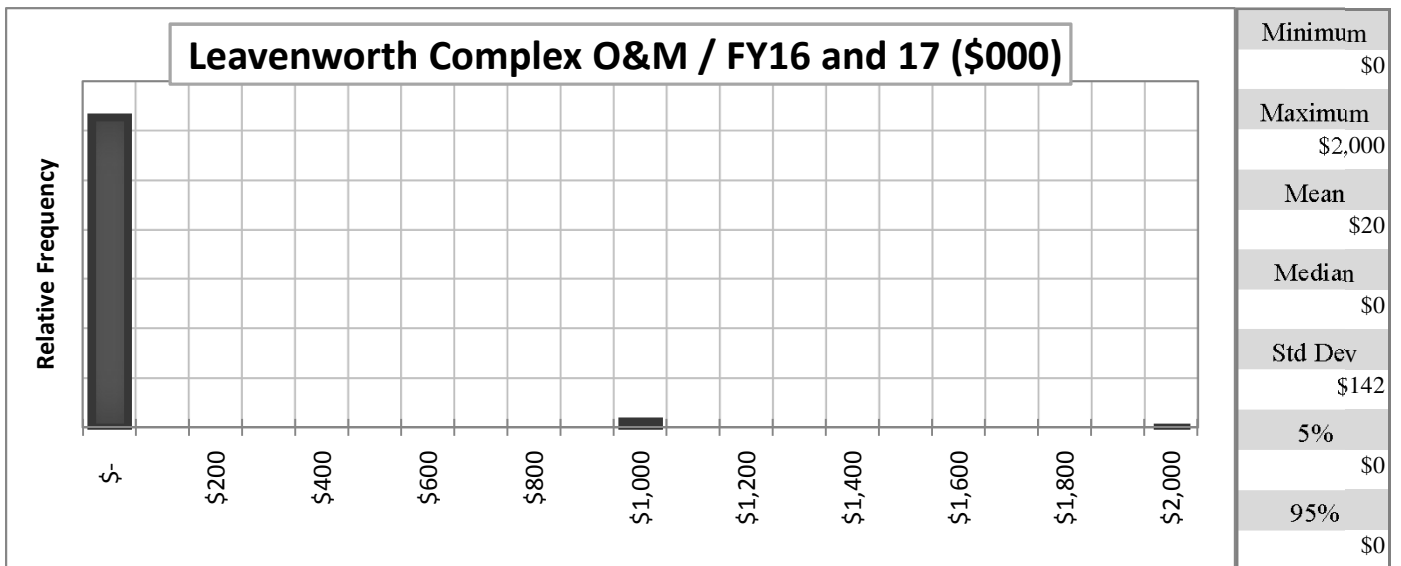
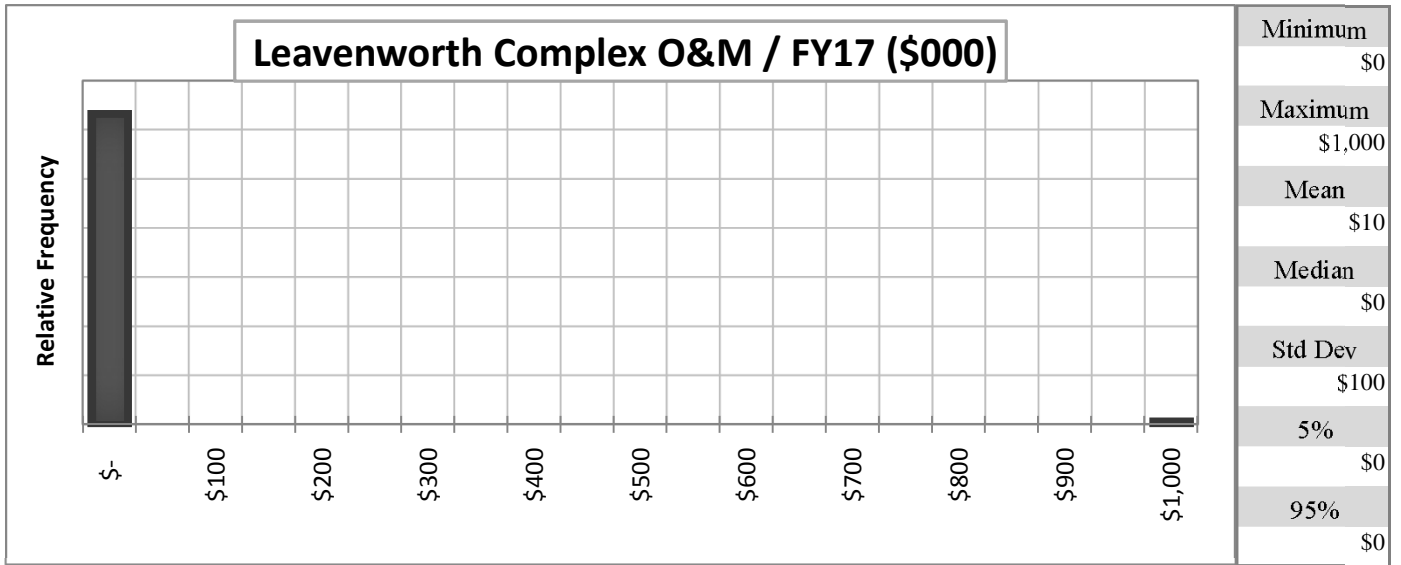
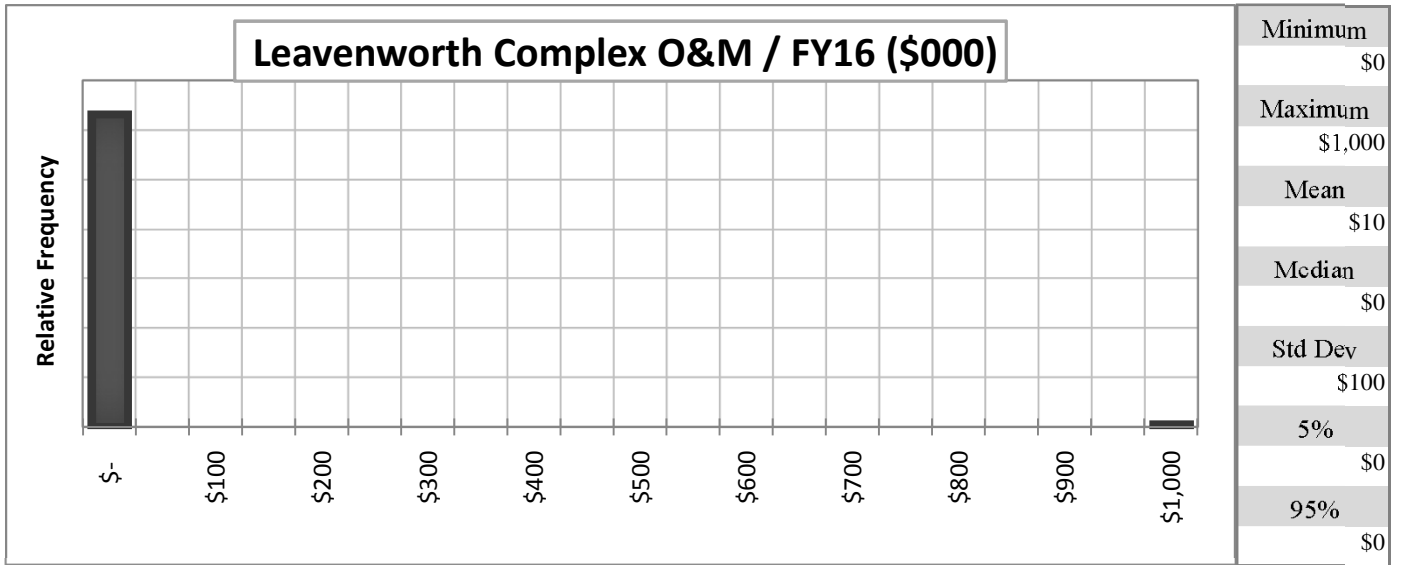


Figure 23: COE Fish Passage Facilities Expense Distributions

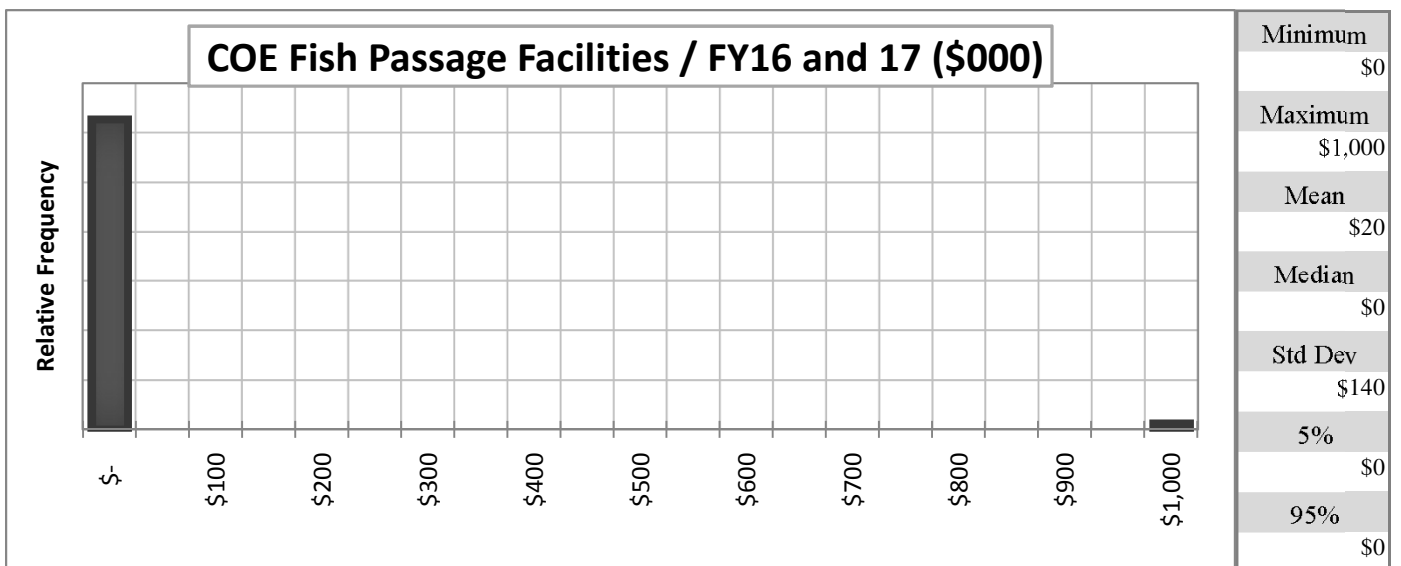
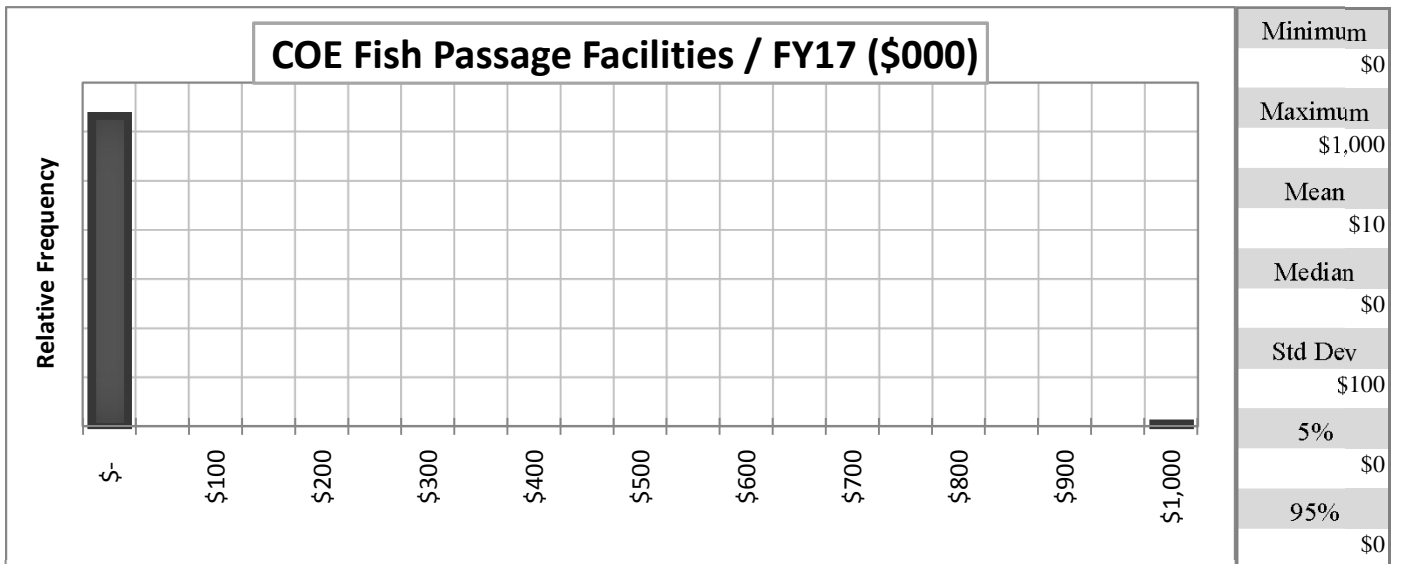
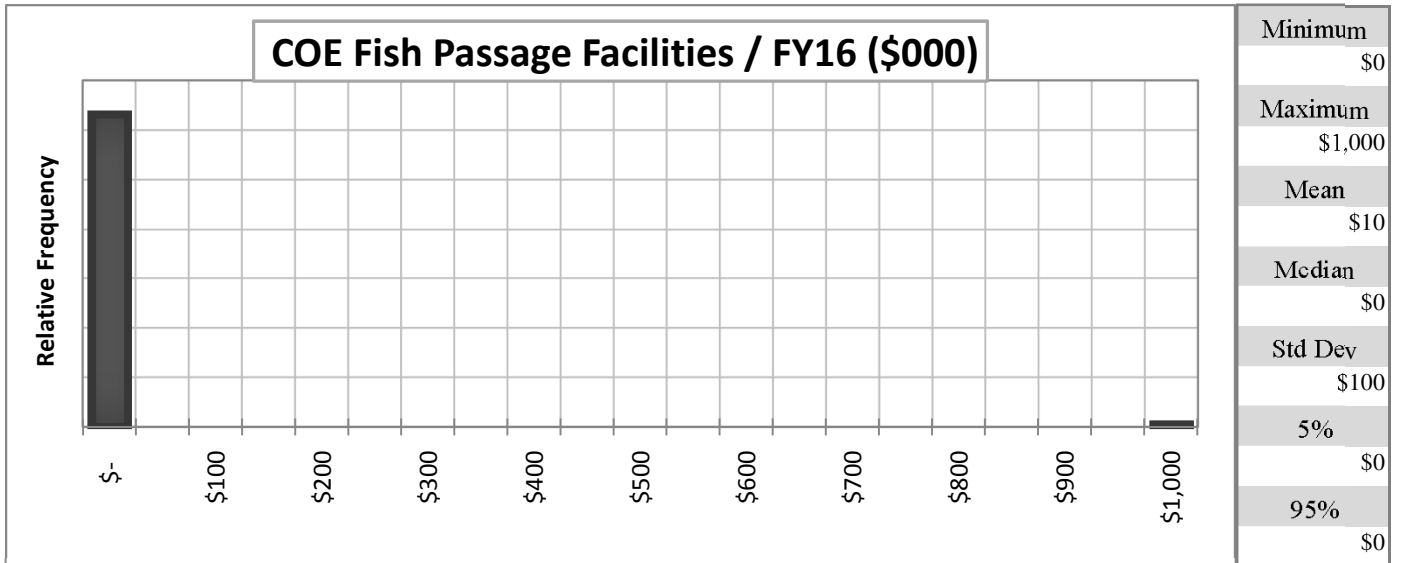


Figure 24: Federal and Non-Federal Interest Expense Distributions

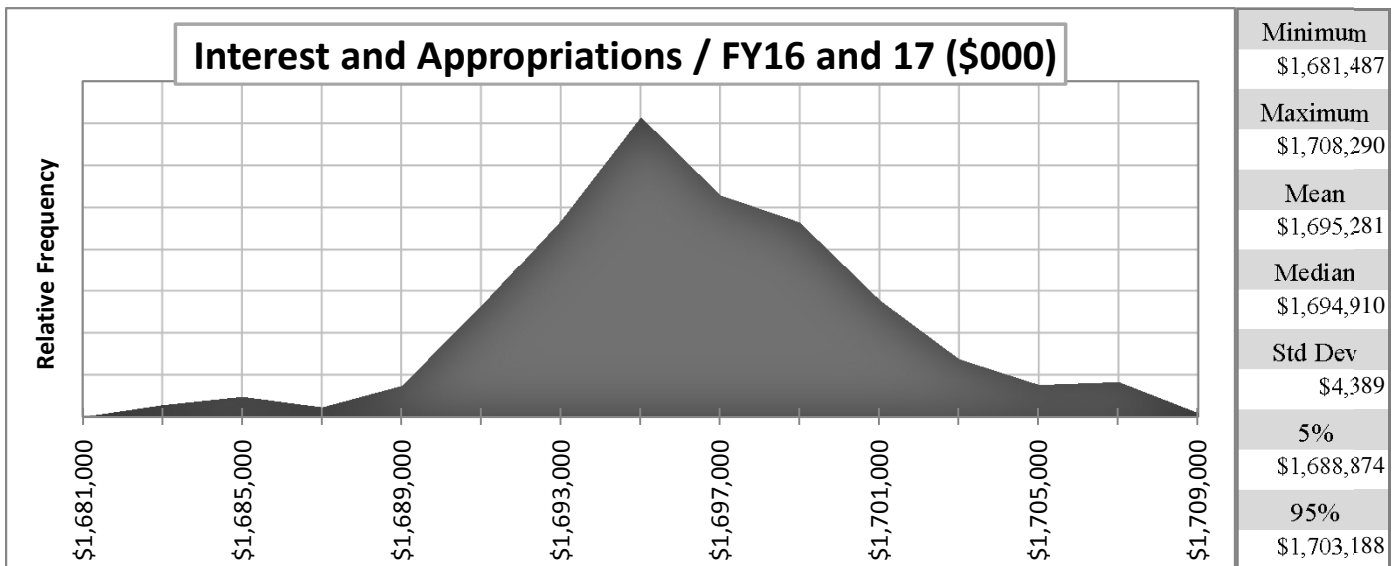
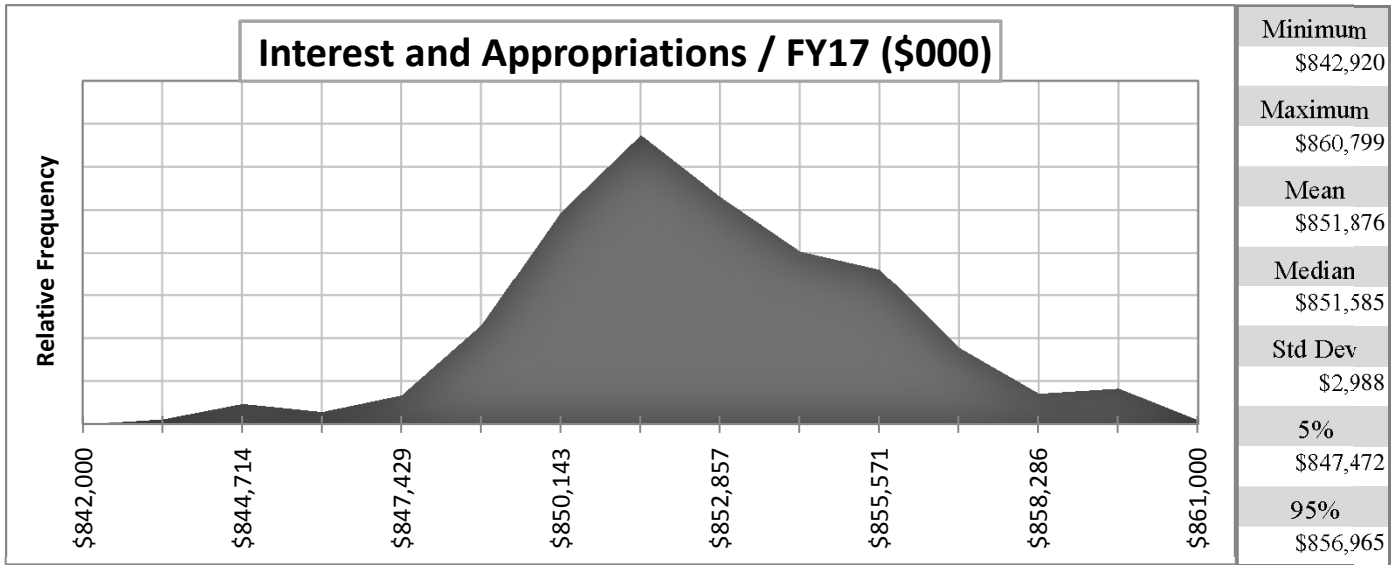
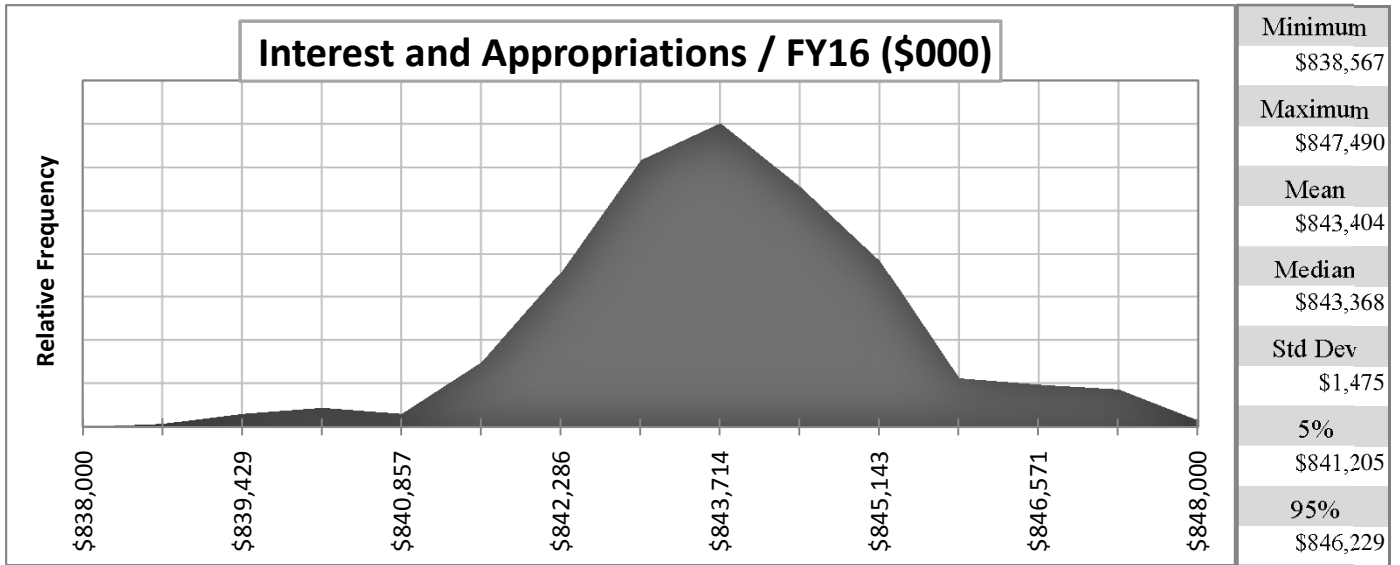


Figure 25: CGS Refueling Outage Duration Distributions

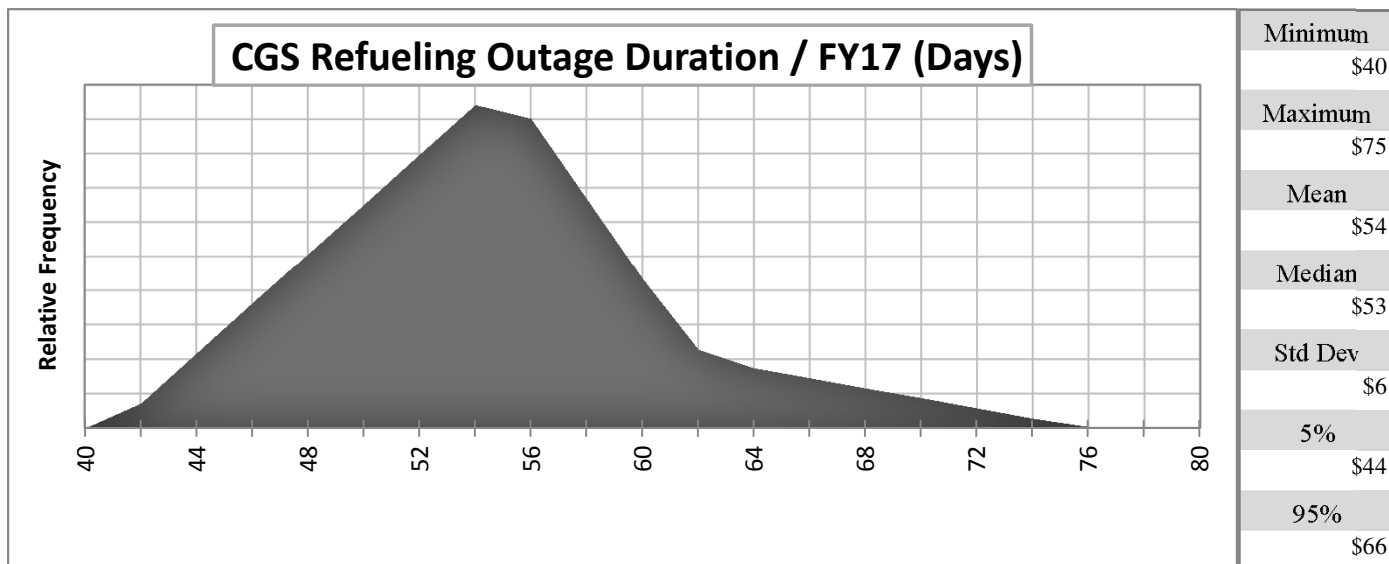
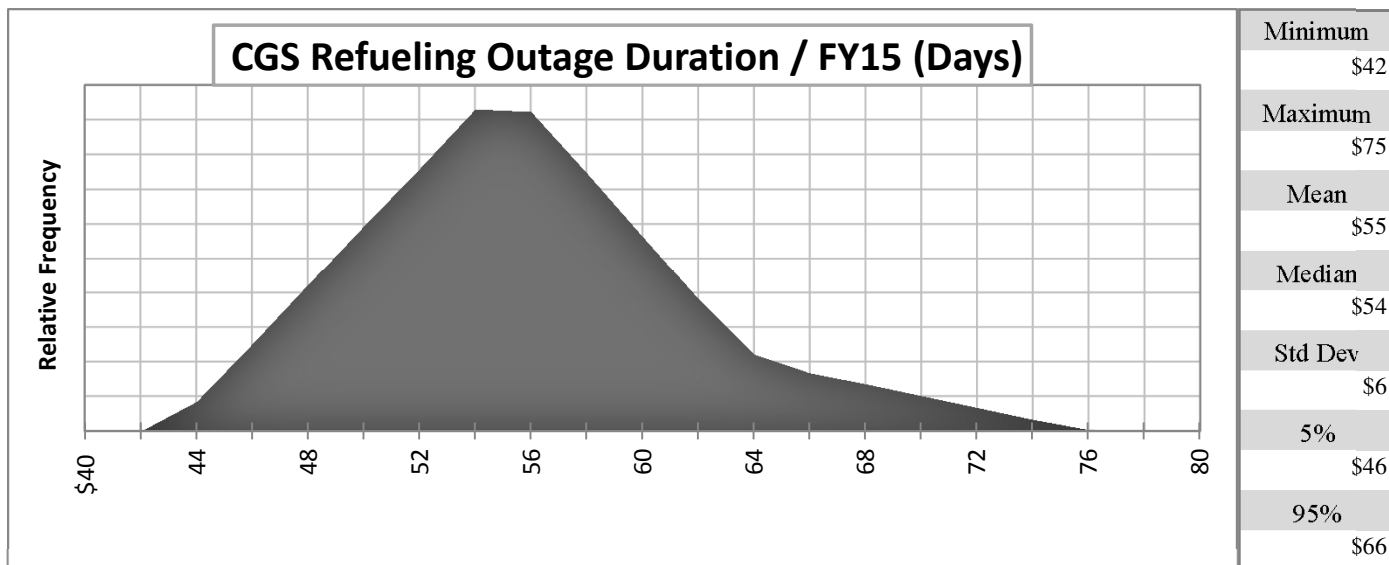


Figure 26: CGS Refueling Outage Revenue Impact Distributions

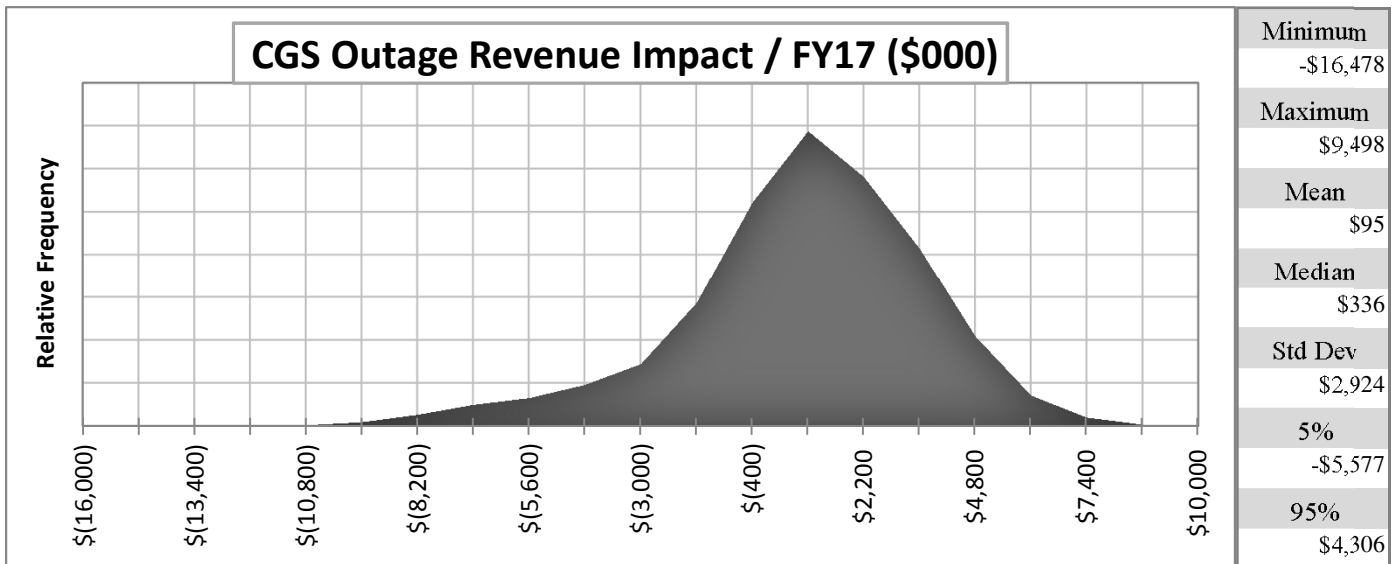
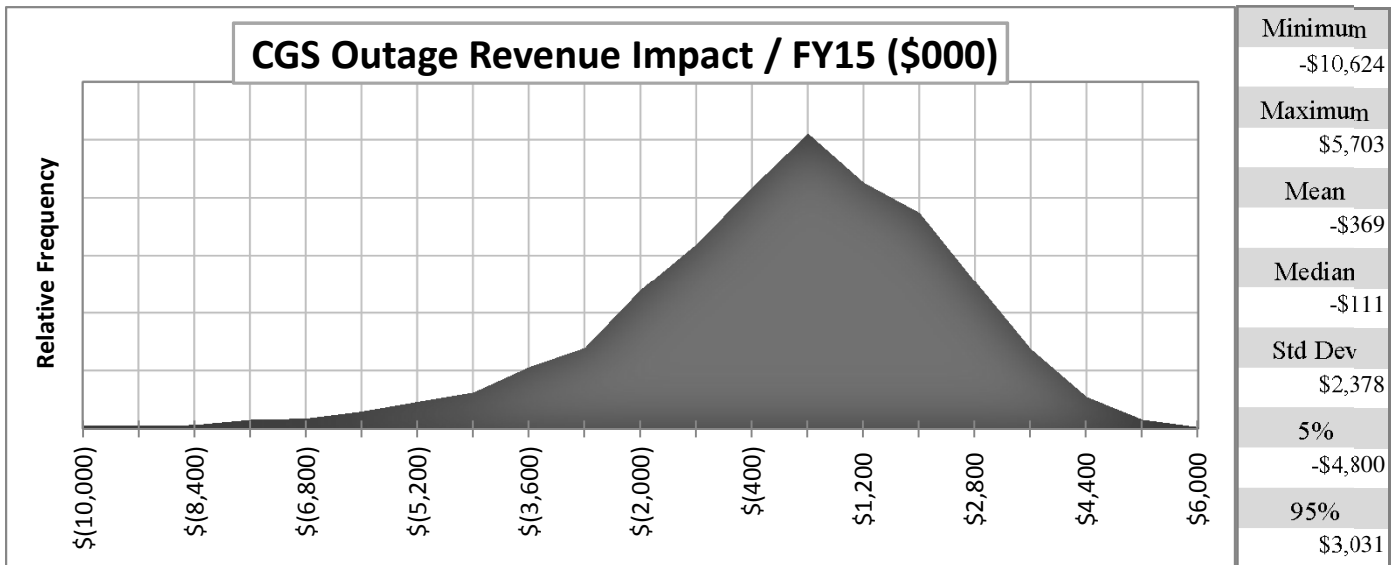
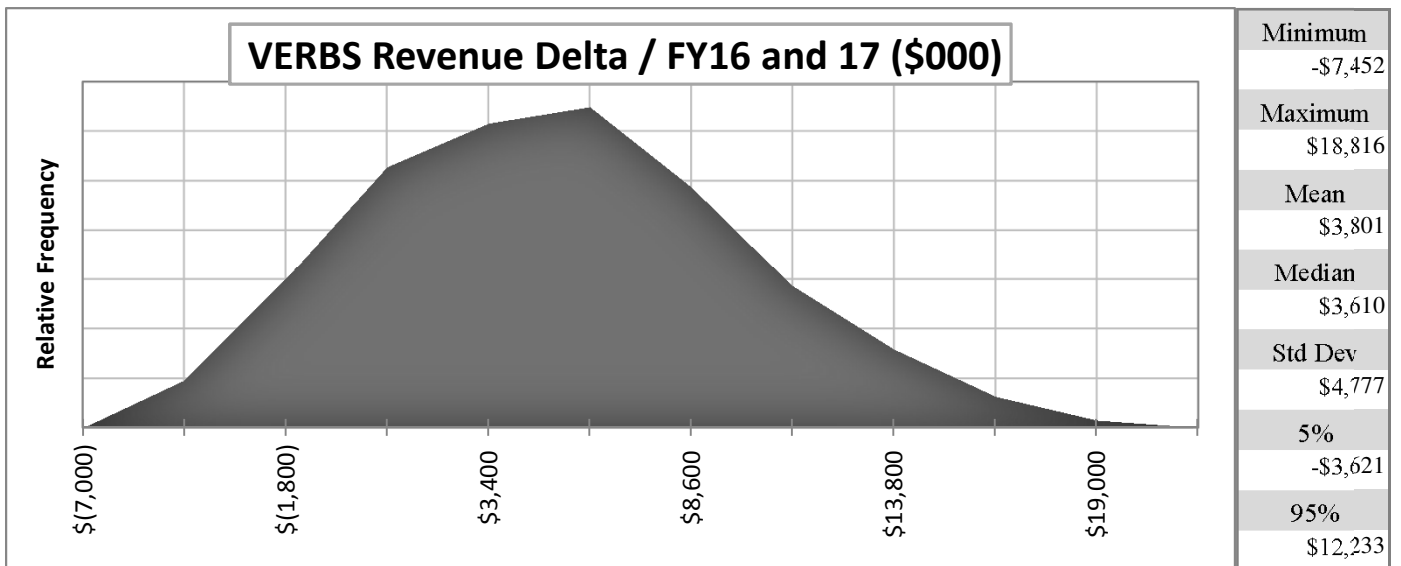
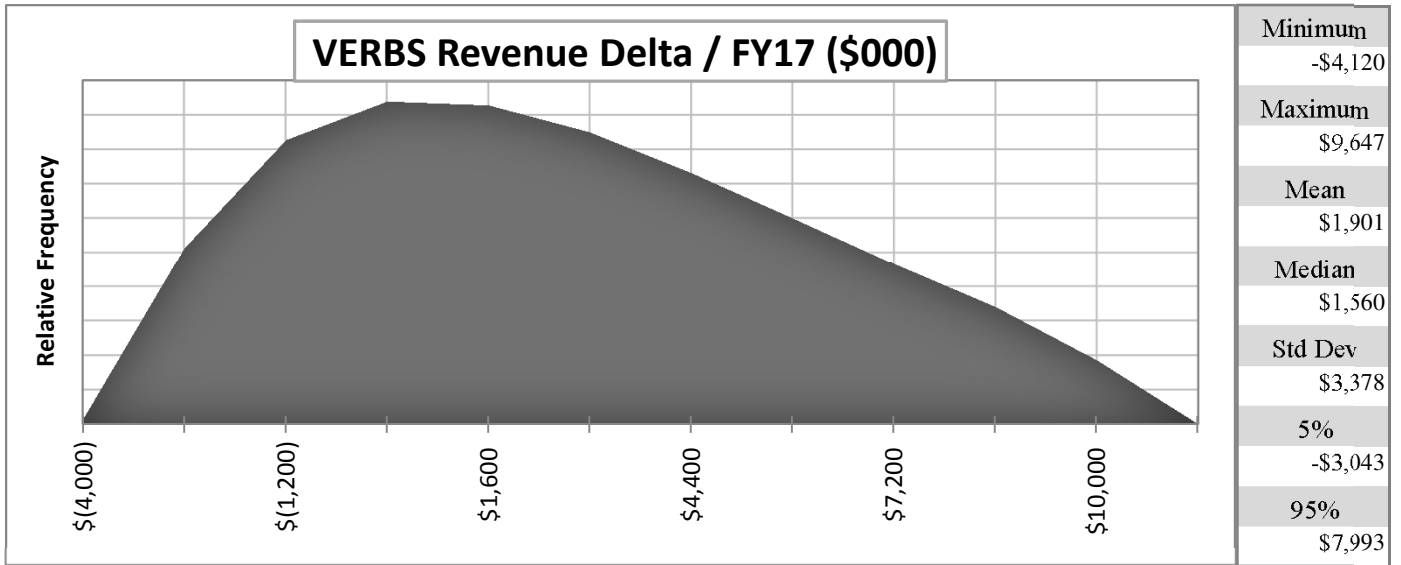
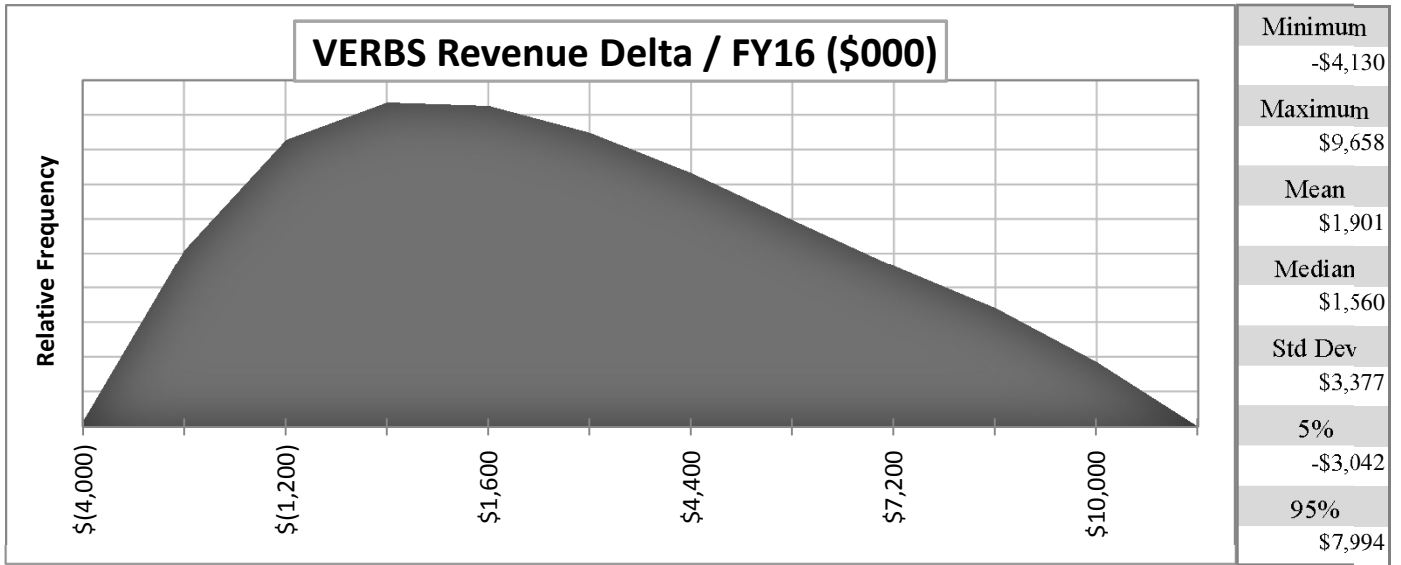


Figure 27: Variable Energy Resource Balancing Services Revenue Distributions



	A	B	C	D	E	F	G	H	I	J	K
1	Table 23: Snake River Spill MW Delta by Water Year										
2											
3		Water Year	Apr	May	Jun		Water Year	Apr	May	Jun	
4		1929	-	-	-		1969	-	-	-	
5		1930	-	-	-		1970	-	-	-	
6		1931	(373)	(440)	(81)		1971	-	-	-	
7		1932	-	-	-		1972	-	-	-	
8		1933	-	-	-		1973	-	-	-	
9		1934	-	-	-		1974	-	-	-	
10		1935	-	-	-		1975	-	-	-	
11		1936	-	-	-		1976	-	-	-	
12		1937	(357)	(455)	(88)		1977	(344)	(394)	(82)	
13		1938	-	-	-		1978	-	-	-	
14		1939	-	-	-		1979	-	-	-	
15		1940	-	-	-		1980	-	-	-	
16		1941	(341)	(441)	(90)		1981	-	-	-	
17		1942	-	-	-		1982	-	-	-	
18		1943	-	-	-		1983	-	-	-	
19		1944	-	-	-		1984	-	-	-	
20		1945	-	-	-		1985	-	-	-	
21		1946	-	-	-		1986	-	-	-	
22		1947	-	-	-		1987	(388)	(423)	(54)	
23		1948	-	-	-		1988	-	-	-	
24		1949	-	-	-		1989	-	-	-	
25		1950	-	-	-		1990	-	-	-	
26		1951	-	-	-		1991	-	-	-	
27		1952	-	-	-		1992	(371)	(423)	(23)	
28		1953	-	-	-		1993	-	-	-	
29		1954	-	-	-		1994	(394)	(434)	(82)	
30		1955	-	-	-		1995	-	-	-	
31		1956	-	-	-		1996	-	-	-	
32		1957	-	-	-		1997	-	-	-	
33		1958	-	-	-		1998	-	-	-	
34		1959	-	-	-		1999	-	-	-	
35		1960	-	-	-		2000	-	-	-	
36		1961	-	-	-		2001	(365)	(444)	(82)	
37		1962	-	-	-		2002	-	-	-	
38		1963	-	-	-		2003	-	-	-	
39		1964	-	-	-		2004	-	-	-	
40		1965	-	-	-		2005	-	-	-	
41		1966	-	-	-		2006	-	-	-	
42		1967	-	-	-		2007	-	-	-	
43		1968	-	-	-		2008	-	-	-	
44											

Figure 28: Snake River Spill Revenue Impact Distributions

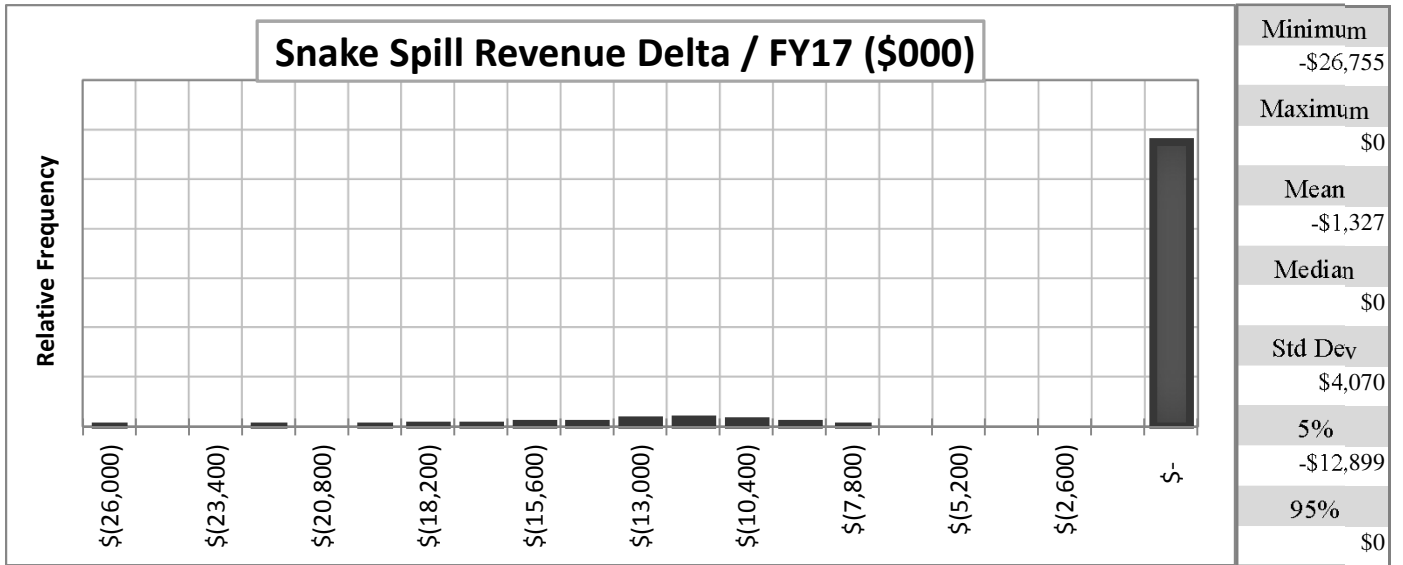
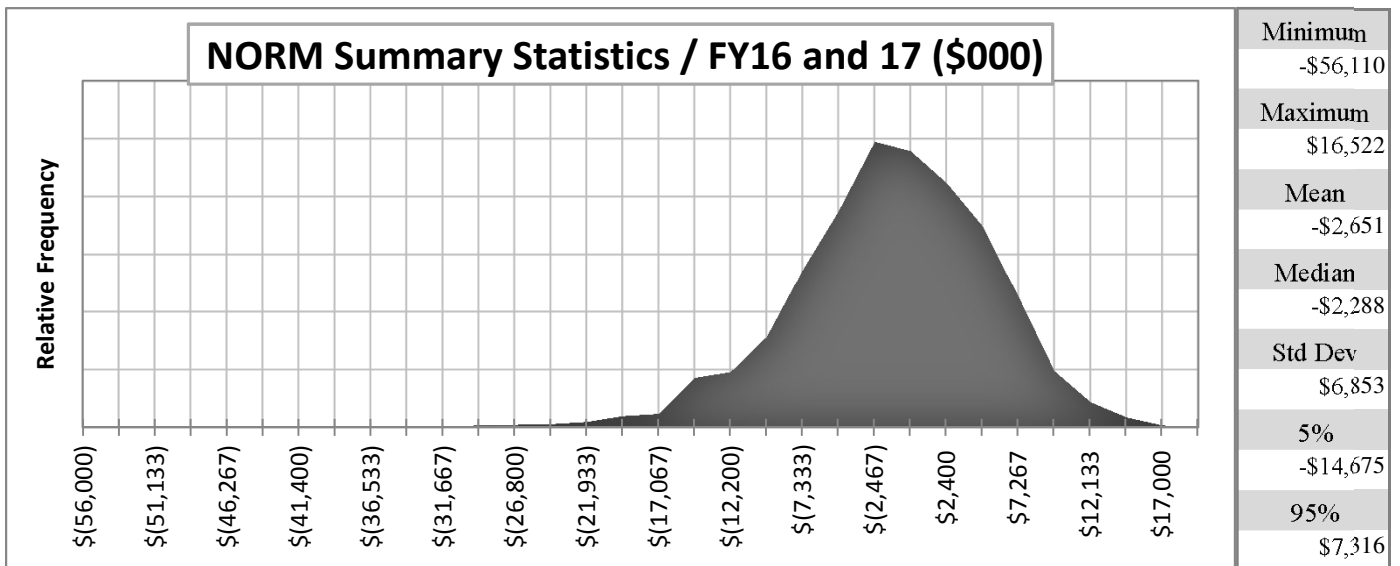
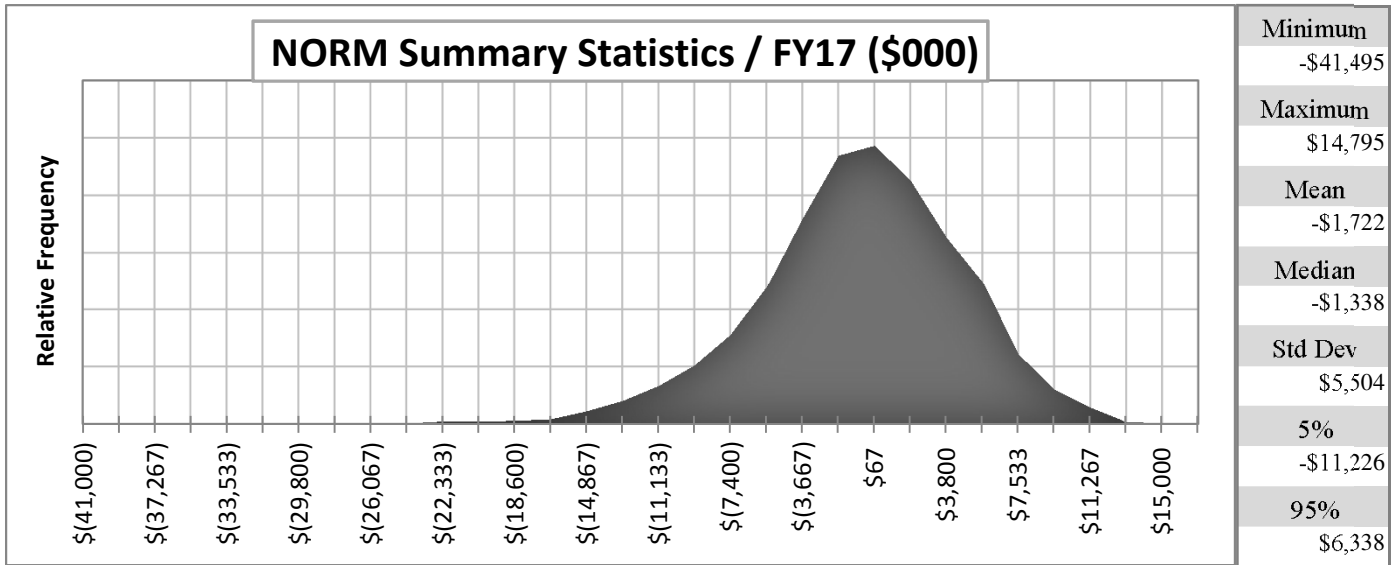
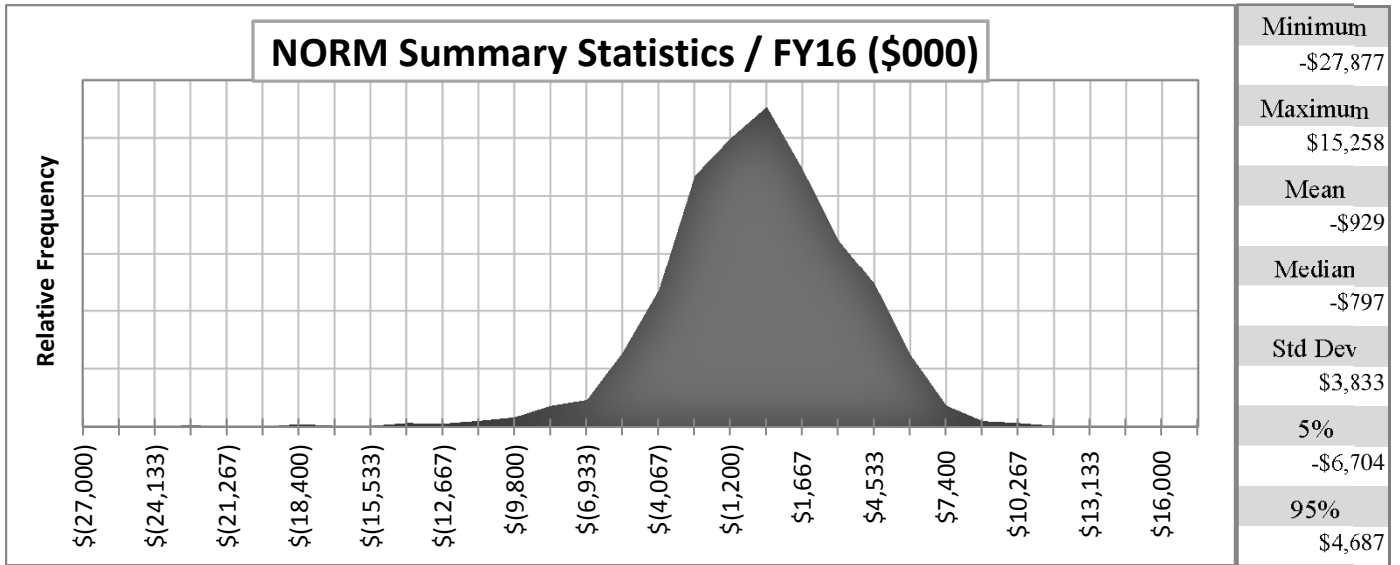


Figure 29: NORM Output Summary Distributions



Example 1: Calibrated Net Revenue Calculations

The Net Revenue (NR) 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 Power NR and Power cash flow (more specifically, changes in Financial Reserves Available for Risk Attributed to Power) differently by more than \$5 million. For each event, the impact on Power NR will be subtracted from the impact on Power cash flow; this difference is added to the NR 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 Power NR by \$X. Changes in depreciation do not affect cash flow and therefore this change has an impact of \$0 on Power cash flow. Subtracting \$X from \$0 yields -\$X. This is the amount to be added to Power NR (as part of the Power CNR calculation).

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

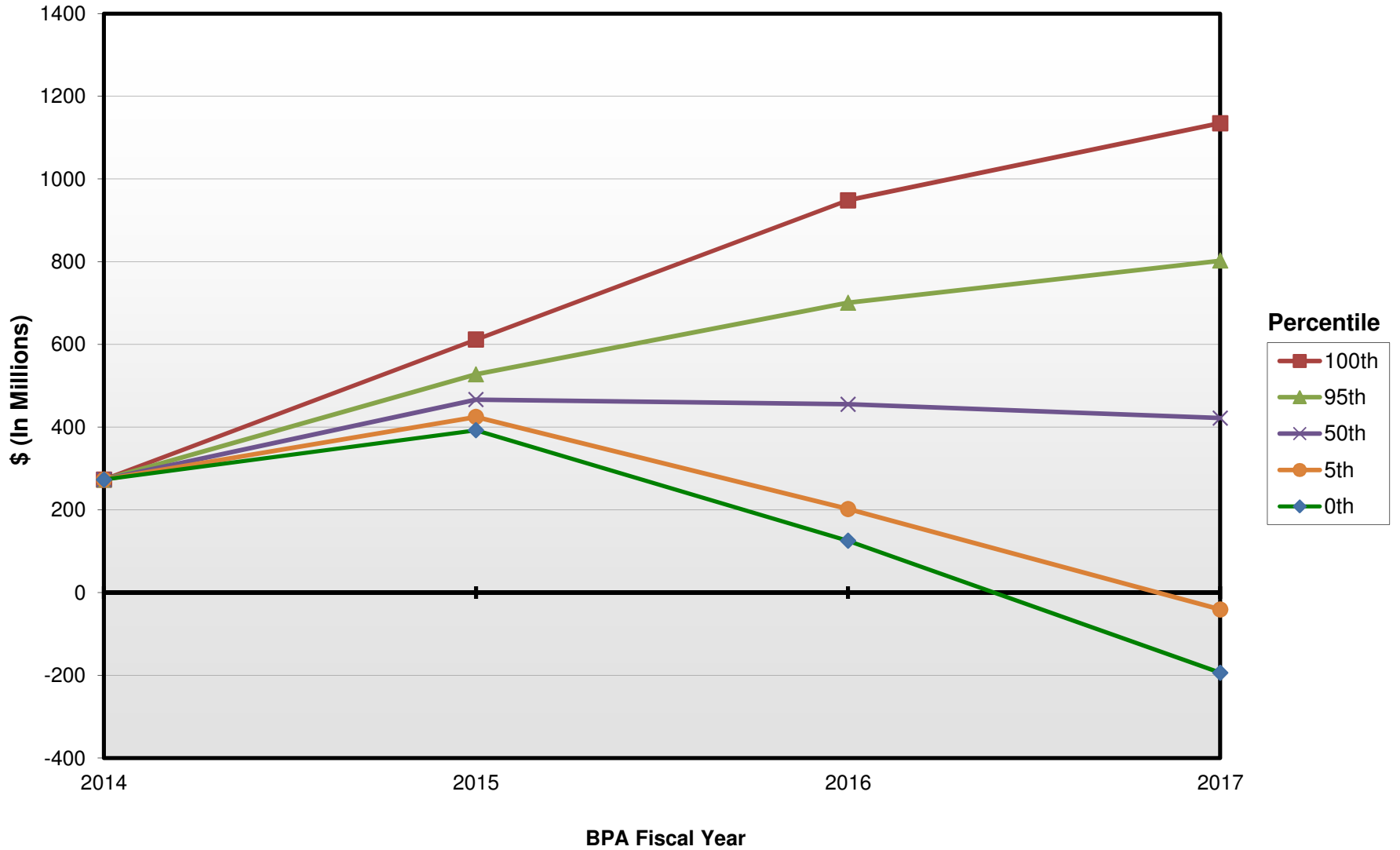
Cashing out a contract for several years of a product: Power had previously contracted to sell a product to a counterparty for 10 years at \$Z per year starting in FY 16; the counterparty offers to pay Power up front for the 10 years' of product at BPA's discount rate; the total cash paid in FY 16 is \$8Z. In FY 16, there is no impact of the cash-out on NR. The impact on cash flow is an increase from \$Z to \$8Z, or \$7Z. Therefore, the FY 16 NR Calibration due to this transaction is

1 \$0 subtracted from \$7Z, or +\$7Z. In FY 17, NR remains unaffected by the cash-out; revenue
2 from the contract for the year is still \$Z. However, in FY 17, there is no cash received for the
3 sale; the change in FY 17 cash flow is -\$Z. Therefore, the FY 17 NR Calibration due to this
4 transaction is \$0 subtracted from -\$Z, or -\$Z.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Figure 30: ToolKit "Main" Sheet																		
2	ToolKit v. 4.10, (Nov-2014)					Study title: BP16 FS PS reserves													
3	Time of run: 11:02:37 AM on 7/16/2015					2 -yr TPP = 100.00% Run Type: PS-only run													
4																			
5	Input Files	\\portal.bpa.gov\DavWWWRoot\orgs\risk-mgmt\DBE\Documents\Risk_Models\Toolkit\15-07_July_FSNORM_BP16FP_FY15_ID190_FY16-17_ID206_20150714.xlsx													Split Percentile				
6		\\portal.bpa.gov\orgs\risk-mgmt\DBE\Documents\Risk_Models\Toolkit\15-07_July_FSNORM_Output_2015_07_FS.xls																	
7																			
8	PS Only (no TS)	Start in TK Year	Stop in TK Year	Start TPP in TK Yr	Starting Iteration	No. of Iterations	Deferral Logic	Enable NFB Adj	Ask For PNRR Adj	Sec Rev Rebate	AutoPrint Res Grph	AutoPrint This Page	CRAC Stats						
9	TRUE	1	3	2	1	3,200	Hybrid	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE						
10	PS Starting Resrvs Bal	TS Strt Rsrv Bal	PS Starting ANR	PS Liq Res	TS Liq Res	Gross Treas Facility	Treas Facil LiqRes	Net Treas Facility	TS to PS Res Allocation			"Small" Def. Size	Starting PNRR Adj	Sec Rev Rebate Description					
11	273.1		0.00	0	20	750	320	430	0			\$200	0	n / a					
12																			
13		Fiscal Year	Probabilistic?	BPA Fund Int. Rates		Treas Facil Int Rate	Treasury Pmt Sched		Interest Credit Sched		Other Cash Only Adj	Cash Lag for PNRR	PS Cash Tmg Adj	TS Cash Tmg Adj					
14	TK Year	Year		IOC	Tr.Specials		Amort	Interest	PS	TS									
15	1	2015	TRUE	1.10%	1.10%	0.67%	163.3	250.8	7.50			0.0	4.6	0.0					
16	2	2016	TRUE	1.48%	1.48%	2.17%	155.8	246.7	11.96			0.0	5.1	0.00					
17	3	2017	TRUE	2.67%	2.67%	160.9	160.9	255.4	19.46			0.0	6.7	0.00					
18		Fiscal Year	Div. Dist.		CRAC				PNRR			Other Misc Adjustments to Cash and NR							
19	Year	Year	Threshold	Lim/Year	Threshold	Lim/Year	Rev Basis	Type	Shape	Risk Mod	Calc'd in TK	Sum							
20	1	2015	606.6	1,000	-143.4	300	StepA	0.0			0	0							
21	2	2016	616.5	1,000	-133.5	300	StepA	1.0			0	0							
22	3	2017	663.5	1,000	-86.5	300	StepA	1.0			0	0							
23																			
24	Outputs		PS Starting Reserves 273.1										Approx PF rates (avg not block)						
25	Toolkit Year	Fiscal Year	No. of Deferrals	"Small" Deferrals	1-year Probab.	Cumul. Deferrals	Cumul. Probab.	Avg. Def. per Year	Avg. Def. per Def.	Avg. 1st Def./Def.	Avg. End. Reserves	Avg. End. Tr Note Bal	Avg. End. ANR	PNRR Added	Base	After PNRR	After Var.Rates	Net Liquidity	Net Reserves
26	1	2015	0	0	100.0%	n / a	n / a	0.0	n / a	n / a	470.0	-	336.6	0	not implemented	not implemented	not implemented	900.0	470.0
27	2	2016	0	-	100.0%	-	100.0%	0.00	n / a	n / a	452.12	-	365.6	0	imple-	imple-	imple-	882.1	452.12
28	3	2017	0	-	100.0%	-	100.0%	0.00	n / a	n / a	403.27	(5.5)	311.5	0	mented	mented	mented	827.8	397.79
29	2	-yr Total	0	0	n / a	n / a	n / a	0.0	n / a	n / a	n / a	n / a	n / a	0.0					
30	2	-yr Avg.	0	0	n / a	n / a	n / a	0.0	n / a	n / a	n / a	n / a	n / a	0.0					
31	Toolkit Year	Fiscal Year	No. of DDCs	Avg. DDC per each	Avg. DDC per Year	DDC Frequency	No. of CRACs	Avg CRAC per each	Avg CRAC per Year	No. of NFB Access	Avg NFB per each	Avg NFB per Year	Ann.Lim. Reached	CRAC Frequency	NFB Rec. Frequency				
32	1	2015	0	n / a	0.0	0%	0	n / a	0.0	0	n / a	0.0	0	0%	0%				
33	2	2016	0	n / a	0.0	0%	0	n / a	0.0	0	n / a	0.0	0	0%	0%				
34	3	2017	84	44.3	1.2	3%	0	n / a	0.0	0	n / a	0.0	0	0%	0%				
35	2	-yr Total	84	n / a	1.2	n/a	0	n / a	0.0	0	n / a	0.0	0	n/a	n/a				
36	2	-yr Avg.	42	44.3	0.6	1%	0	n / a	0.0	0	n / a	0.0	0	0%	0%				
37	Toolkit Year	Fiscal Year	NORM Inputs	PBL Inputs	TBL Inputs	NRTC Totals	Ave. Reb. per each	Ave Reb. per Year	PF share of Rebate	IOU Share of Rebate	No. of Rebates	Ave. Re-bate Rate	PS Int Credit	TBL Int Credit					
38	1	2015	5.8	329.7		-139.7							8.66						
39	2	2016	-0.9	30.1		-46.9							11.79						
40	3	2017	-1.7	-49.5		-0.3							17.76						
41	2	-yr Total	-2.7	-19.4		-47.2							29.6						
42	2	-yr Avg.	-1.3	-9.7		-23.6							14.8						

Reserves Thresholds	
DDC	CRAC
750	0
750	0
750	0
ANR Thresholds	
DDC	CRAC
476.9	-273.1
616.5	-133.5
663.5	-86.5

Power Services End of Year Net Reserves
(Reserves Available For Risk Attributed to Power Less Liquidity Borrowing)



	A	B	C	D	E	F	G	H	I	J	K	L
1	Table 24: PS End of Year Balances											
2	(Values in Millions)											
3	EOY Reserves Balance					Treasury Note Balance						
4		2014	2015	2016	2017		2014	2015	2016	2017		
5	Avg	273	470	452	403	Avg	0	0	0	-5		
6	stdev	0	31	154	252	stdev	0	0	0	24		
7												
8	100%	273	612	948	1135	100%	0	0	0	0		
9	95%	273	528	701	802	95%	0	0	0	0		
10	75%	273	488	565	595	75%	0	0	0	0		
11	50%	273	467	455	422	50%	0	0	0	0		
12	25%	273	449	331	186	25%	0	0	0	0		
13	5%	273	425	202	0	5%	0	0	0	-41		
14	0%	273	393	125	0	0%	0	0	0	-194		
15												
16												
17	Available Liquidity					Net Reserves						
18		2014	2015	2016	2017		2014	2015	2016	2017		
19	Avg	703	900	882	828	Avg	273	470	452	398		
20	stdev	0	31	154	261	stdev	0	31	154	261		
21												
22	100%	703	1042	1378	1565	100%	273	612	948	1135		
23	95%	703	958	1131	1232	95%	273	528	701	802		
24	75%	703	918	995	1025	75%	273	488	565	595		
25	50%	703	897	885	852	50%	273	467	455	422		
26	25%	703	879	761	616	25%	273	449	331	186		
27	5%	703	855	632	389	5%	273	425	202	-41		
28	0%	703	823	555	236	0%	273	393	125	-194		
29												
30												
31	EOY Accumulated Net Revenue Balance					Net Revenue						
32		2014	2015	2016	2017		2015	2016	2017			
33	Avg	0	337	366	311	Avg	337	29	-54			
34	stdev	0	31	154	261	stdev	31	149	169			
35												
36	100%	0	477	862	1041	100%	477	510	425			
37	95%	0	394	614	716	95%	394	271	221			
38	75%	0	354	479	508	75%	354	140	69			
39	50%	0	333	370	335	50%	333	33	-49			
40	25%	0	315	244	100	25%	315	-89	-189			
41	5%	0	291	116	-126	5%	291	-218	-328			
42	0%	0	267	39	-280	0%	267	-259	-507			

Figure 32: Third-Party Transmission and Ancillary Services Expense Distributions

