2012 BPA Final Rate Proposal

Power Risk and Market Price Study Documentation

July 2011

BP-12-FS-BPA-04A

POWER RISK AND MARKET PRICE STUDY DOCUMENTATION
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FIGURES

COMMONLY USED ACRONYMS AND SHORT FORMS

AGC	Automatic Generation Control
ALF	Agency Load Forecast (computer model)
aMW	average megawatt(s)
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
ASC	Average System Cost
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDD	cooling degree day(s)
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
Commission	Federal Energy Regulatory Commission
COSA	Cost of Service Analysis
COU	consumer-owned utility
Corps or USACE	U.S. Army Corps of Engineers
Council	Northwest Power and Conservation Council
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DDC	Dividend Distribution Clause
dec	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DOE	Department of Energy
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
EPP	Environmentally Preferred Power
ESA	Endangered Species Act
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 Products and Services (rate)
FY	fiscal year (October through September)
GARD	Generation and Reserves Dispatch (computer model)

GEP	Green Energy Premium
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HDD	heating degree day(s)
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydro Simulation (computer model)
ICE	IntercontinentalExchange
inc	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power (rate)
IPR	Integrated Program Review
IRD	Irrigation Rate Discount
JOE	Joint Operating Entity
kW	kilowatt (1000 watts)
kWh	kilowatthour
LDD	Low Density Discount
LLH	Light Load Hour(s)
LRA	Load Reduction Agreement
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MNR	Modified Net Revenues
MRNR	Minimum Required Net Revenue
MW	megawatt (1 million watts)
MWh	megawatthour
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)
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
NPV	net present value
NR	New Resource Firm Power (rate)
NT	Network Transmission
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance

OMB	Office of Management and Budget
OY	operating year (August through July)
PF	Priority Firm Power (rate)
PFp	Priority Firm Public (rate)
PFx	Priority Firm Exchange (rate)
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
POM	Point of Metering
POR	Point of Receipt
Project Act	Bonneville Project Act
PRS	Power Rates Study
PS	BPA Power Services
PSW	Pacific Southwest
PTP	Point to Point Transmission (rate)
PUD	public or people's utility district
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation or USBR	U.S. Bureau of Reclamation
REP	Residential Exchange Program
RevSim	Revenue Simulation Model (component of RiskMod)
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark
RiskMod	Risk Analysis Model (computer model)
RiskSim	Risk Simulation Model (component of RiskMod)
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement (rate)
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability
RTO	Regional Transmission Operator
SCADA	Supervisory Control and Data Acquisition
SCS	Secondary Crediting Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	BPA Transmission Services

TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
ULS	Unanticipated Load Service
USACE or Corps	U.S. Army Corps of Engineers
USBR or Reclamation	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
VERBS	Variable Energy Resources Balancing Service (rate)
VOR	Value of Reserves
WECC	Western Electricity Coordinating Council (formerly WSCC)
WIT	Wind Integration Team
WSPP	Western Systems Power Pool

Table 1: Estimated Monthly Price Volatilities and One-Year Annual Price Volatility

Input Calculations for Gas Price Risk Model

Dec-90 3.17

Historical Henry Hub Monthly Spot Gas Prices in Real 2008$

Year	1 Jan	2 Feb	3 Mar	4 Apr	5 May	6 Jun	7 Jul	8 Aug	9 Sep	10 Oct	11 Nov	12 Dec	Annual Average
1991	$ 2.42	$ 1.97	$ 1.94	$ 1.93	$ 1.90	$ 1.74	$ 1.73	$ 1.90	$ 2.37	$ 2.57	$ 2.63	$ 2.79	$ 2.16
1992	$ 1.81	$ 1.72	$ 1.81	$ 2.08	$ 2.25	$ 2.21	$ 2.48	$ 2.79	$ 3.30	$ 3.43	$ 3.18	$ 3.06	$ 2.51
1993	$ 2.61	$ 2.34	$ 3.02	$ 3.26	$ 3.01	$ 2.73	$ 2.86	$ 3.13	$ 3.15	$ 2.80	$ 3.13	$ 3.25	$ 2.94
1994	$ 3.18	$ 3.68	$ 3.00	$ 2.77	$ 2.61	$ 2.58	$ 2.66	$ 2.25	$ 2.02	$ 2.05	$ 2.15	$ 2.34	$ 2.61
1995	$ 1.97	$ 2.05	$ 2.02	$ 2.12	$ 2.18	$ 2.20	$ 1.92	$ 2.08	$ 2.17	$ 2.34	$ 2.63	$ 3.26	$ 2.24
1996	$ 3.81	$ 5.76	$ 3.92	$ 3.54	$ 2.89	$ 3.17	$ 3.36	$ 2.77	$ 2.40	$ 2.96	$ 3.68	$ 4.94	$ 3.60
1997	$ 4.43	$ 2.76	$ 2.42	$ 2.60	$ 2.89	$ 2.82	$ 2.81	$ 3.19	$ 3.70	$ 3.94	$ 3.86	$ 3.02	$ 3.20
1998	$ 2.65	$ 2.83	$ 2.84	$ 3.08	$ 2.71	$ 2.75	$ 2.75	$ 2.35	$ 2.56	$ 2.42	$ 2.69	$ 2.18	$ 2.65
1999	$ 2.31	$ 2.21	$ 2.24	$ 2.69	$ 2.83	$ 2.88	$ 2.89	$ 3.49	$ 3.19	$ 3.41	$ 2.96	$ 2.95	$ 2.84
2000	$ 2.96	$ 3.26	$ 3.41	$ 3.72	$ 4.39	$ 5.25	$ 4.88	$ 5.42	$ 6.19	$ 6.14	$ 6.76	$ 10.89	$ 5.27
2001	$ 9.78	$ 6.71	$ 6.26	$ 6.21	$ 5.01	$ 4.45	$ 3.72	$ 3.55	$ 2.62	$ 2.94	$ 2.80	$ 2.75	$ 4.74
2002	$ 2.73	$ 2.73	$ 3.57	$ 4.04	$ 4.12	$ 3.84	$ 3.52	$ 3.64	$ 4.18	$ 4.86	$ 4.76	$ 5.58	$ 3.96
2003	$ 6.26	$ 8.89	$ 6.84	$ 6.06	$ 6.70	$ 6.71	$ 5.80	$ 5.74	$ 5.33	$ 5.34	$ 5.15	$ 7.07	$ 6.32
2004	$ 6.88	$ 6.02	$ 6.04	$ 6.40	$ 7.10	$ 7.03	$ 6.65	$ 6.06	$ 5.77	$ 7.12	$ 6.92	$ 7.38	$ 6.61
2005	$ 6.67	$ 6.66	$ 7.55	$ 7.77	$ 7.02	$ 7.79	$ 8.28	$ 10.34	$ 12.75	$ 14.56	$ 11.17	$ 14.16	$ 9.56
2006	$ 9.13	$ 7.92	$ 7.24	$ 7.52	$ 6.57	$ 6.52	$ 6.48	$ 7.50	$ 5.15	$ 6.15	$ 7.77	$ 7.07	$ 7.09
2007	$ 6.69	$ 8.17	$ 7.26	$ 7.76	$ 7.80	$ 7.51	$ 6.35	$ 6.35	$ 6.21	$ 6.88	$ 7.25	$ 7.25	$ 7.12
2008	$ 7.99	$ 8.54	$ 9.41	$ 10.18	$ 11.27	$ 12.69	$ 11.09	$ 8.26	$ 7.67	$ 6.74	$ 6.68	$ 5.82	$ 8.86
2009	$ 5.20	$ 4.49	$ 3.92	$ 3.48	$ 3.71	$ 3.75	$ 3.36	$ 3.12	$ 2.87	$ 3.88	$ 3.50	$ 5.26	$ 3.88
2010	$ 5.72	$ 5.22	$ 4.21	$ 3.91	$ 4.03	$ 4.71	$ 4.53	$ 4.26	$ 3.81	$ 3.37	$ 3.60	$ 4.14	$ 4.29
Annual Average	$ 4.76	$ 4.70	$ 4.45	$ 4.56	$ 4.55	$ 4.67	$ 4.41	$ 4.41	$ 4.37	$ 4.70	$ 4.66	$ 5.26	$ 4.62
Median	$ 4.12	$ 4.08	$ 3.74	$ 3.63	$ 3.87	$ 3.80	$ 3.44	$ 3.52	$ 3.50	$ 3.65	$ 3.64	$ 4.54	$ 3.92
Annual Standard Deviation													$ 2.25

Henry Hub Monthly Spot Gas Price Natural Log (Ln) Ratio Deltas (Returns) and Volatility Computations; Reflects Month-To-Month Price Changes

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
1991	$ (0.27)	$ (0.21)	$ (0.01)	$ (0.01)	$ (0.02)	$ (0.09)	$ (0.01)	$ 0.10	$ 0.22	$ 0.08	$ 0.02	$ 0.06	
1992	$ (0.43)	$ (0.06)	$ 0.06	$ 0.14	$ 0.08	$ (0.02)	$ 0.11	$ 0.12	$ 0.17	$ 0.04	$ (0.08)	$ (0.04)	$ 0.15
1993	$ (0.16)	$ (0.11)	$ 0.25	$ 0.08	$ (0.08)	$ (0.10)	$ 0.04	$ 0.09	$ 0.00	$ (0.12)	$ 0.11	$ 0.03	$ 0.16
1994	$ (0.02)	$ 0.15	$ (0.20)	$ (0.08)	$ (0.06)	$ (0.01)	$ 0.03	$ (0.17)	$ (0.11)	$ 0.01	$ 0.05	$ 0.08	$ (0.12)
1995	$ (0.17)	$ 0.04	$ (0.01)	$ 0.05	$ 0.03	$ 0.01	$ (0.14)	$ 0.08	$ 0.04	$ 0.08	$ 0.12	$ 0.21	$ (0.15)
1996	$ 0.16	$ 0.41	$ (0.39)	$ (0.10)	$ (0.20)	$ 0.09	$ 0.06	$ (0.19)	$ (0.14)	$ 0.21	$ 0.22	$ 0.29	$ 0.47
1997	$ (0.11)	$ (0.47)	$ (0.13)	$ 0.07	$ 0.10	$ (0.02)	$ (0.00)	$ 0.13	$ 0.15	$ 0.06	$ (0.02)	$ (0.25)	$ (0.12)
1998	$ (0.13)	$ 0.06	$ 0.00	$ 0.08	$ (0.13)	$ 0.01	$ -	$ (0.16)	$ 0.09	$ (0.06)	$ 0.10	$ (0.21)	$ (0.19)
1999	$ 0.06	$ (0.04)	$ 0.01	$ 0.18	$ 0.05	$ 0.02	$ 0.00	$ 0.19	$ (0.09)	$ 0.07	$ (0.14)	$ (0.00)	$ 0.07
2000	$ 0.00	$ 0.09	$ 0.05	$ 0.09	$ 0.17	$ 0.18	$ (0.07)	$ 0.10	$ 0.13	$ (0.01)	$ 0.09	$ 0.48	$ 0.62
2001	$ (0.11)	$ (0.38)	$ (0.07)	$ (0.01)	$ (0.21)	$ (0.12)	$ (0.18)	$ (0.05)	$ (0.30)	$ 0.12	$ (0.05)	$ (0.02)	$ (0.11)
2002	$ (0.01)	$ -	$ 0.27	$ 0.12	$ 0.02	$ (0.07)	$ (0.09)	$ 0.03	$ 0.14	$ 0.15	$ (0.02)	$ 0.16	$ (0.18)
2003	$ 0.11	$ 0.35	$ (0.26)	$ (0.12)	$ 0.10	$ 0.00	$ (0.15)	$ (0.01)	$ (0.08)	$ 0.00	$ (0.04)	$ 0.32	$ 0.47
2004	$ (0.03)	$ (0.13)	$ 0.00	$ 0.06	$ 0.10	$ (0.01)	$ (0.06)	$ (0.09)	$ (0.05)	$ 0.21	$ (0.03)	$ 0.06	$ 0.04
2005	$ (0.10)	$ (0.00)	$ 0.13	$ 0.03	$ (0.10)	$ 0.10	$ 0.06	$ 0.22	$ 0.21	$ 0.13	$ (0.26)	$ 0.24	$ 0.37
2006	$ (0.44)	$ (0.14)	$ (0.09)	$ 0.04	$ (0.14)	$ (0.01)	$ (0.01)	$ 0.15	$ (0.38)	$ 0.18	$ 0.24	$ (0.09)	$ (0.30)
2007	$ (0.06)	$ 0.20	$ (0.12)	$ 0.07	$ 0.01	$ (0.04)	$ (0.17)	$ -	$ (0.02)	$ 0.10	$ 0.05	$ -	$ 0.01
2008	$ 0.10	$ 0.07	$ 0.10	$ 0.08	$ 0.10	$ 0.12	$ (0.13)	$ (0.29)	$ (0.07)	$ (0.13)	$ (0.01)	$ (0.14)	$ 0.22
2009	$ (0.11)	$ (0.15)	$ (0.14)	$ (0.12)	$ 0.07	$ 0.01	$ (0.11)	$ (0.08)	$ (0.08)	$ 0.30	$ (0.10)	$ 0.41	$ (0.83)
2010	$ 0.08	$ (0.09)	$ (0.21)	$ (0.07)	$ 0.03	$ 0.15	$ (0.04)	$ (0.06)	$ (0.11)	$ (0.12)	$ 0.07	$ 0.14	$ 0.10
Volatilities (Std Devs of Ln Ratio Deltas)	$ 0.16	$ 0.21	$ 0.16	$ 0.09	$ 0.11	$ 0.08	$ 0.08	$ 0.14	$ 0.16	$ 0.12	$ 0.12	$ 0.20	$ 0.33

Table 2: Estimated Cumulative Annual Gas Price Volatilies Over a Seven Year Period

Natural Log (Ln) Ratio Deltas (Returns) and Volatility Computations; Reflects Cumulative Annual Price Changes Over Time

Historical Henry Hub Annual Spot Gas Price in Real 2008$

	Annual Avg Historical Real Prices	1 Yr LN Ratio Changes	2 Yr LN Ratio Changes	3 Yr LN Ratio Changes	4 Yr LN Ratio Changes	5 Yr LN Ratio Changes	6 Yr LN Ratio Changes	7 Yr LN Ratio Changes
Year								
1990								
1991	$ 2.16							
1992	$ 2.51	$ 0.15						
1993	$ 2.94	$ 0.16	$ 0.31					
1994	$ 2.61	$ (0.12)	$ 0.04	$ 0.19				
1995	$ 2.24	$ (0.15)	$ (0.27)	$ (0.11)	$ 0.04			
1996	$ 3.60	$ 0.47	$ 0.32	$ 0.20	$ 0.36	$ 0.51		
1997	$ 3.20	$ (0.12)	$ 0.36	$ 0.21	$ 0.09	$ 0.24	$ 0.40	
1998	$ 2.65	$ (0.19)	$ (0.31)	$ 0.17	$ 0.02	$ (0.10)	$ 0.05	$ 0.21
1999	$ 2.84	$ 0.07	$ (0.12)	$ (0.24)	$ 0.23	$ 0.08	$ (0.04)	$ 0.12
2000	$ 5.27	$ 0.62	$ 0.69	$ 0.50	$ 0.38	$ 0.85	$ 0.70	$ 0.58
2001	$ 4.74	$ (0.11)	$ 0.51	$ 0.58	$ 0.39	$ 0.27	$ 0.75	$ 0.60
2002	$ 3.96	$ (0.18)	$ (0.29)	$ 0.33	$ 0.40	$ 0.21	$ 0.10	$ 0.57
2003	$ 6.32	$ 0.47	$ 0.29	$ 0.18	$ 0.80	$ 0.87	$ 0.68	$ 0.56
2004	$ 6.61	$ 0.04	$ 0.51	$ 0.33	$ 0.23	$ 0.85	$ 0.91	$ 0.73
2005	$ 9.56	$ 0.37	$ 0.41	$ 0.88	$ 0.70	$ 0.59	$ 1.21	$ 1.28
2006	$ 7.09	$ (0.30)	$ 0.07	$ 0.11	$ 0.58	$ 0.40	$ 0.30	$ 0.92
2007	$ 7.12	$ 0.01	$ (0.29)	$ 0.07	$ 0.12	$ 0.59	$ 0.41	$ 0.30
2008	$ 8.86	$ 0.22	$ 0.22	$ (0.08)	$ 0.29	$ 0.34	$ 0.80	$ 0.63
2009	$ 3.88	$ (0.83)	$ (0.61)	$ (0.60)	$ (0.90)	$ (0.53)	$ (0.49)	$ (0.02)
2010	$ 4.29	$ 0.10	$ (0.72)	$ (0.51)	$ (0.50)	$ (0.80)	$ (0.43)	$ (0.39)
Annual Volatilities (Std Devs of Ln Ratio Deltas)		**$ 0.329**	**$ 0.406**	**$ 0.370**	**$ 0.424**	**$ 0.484**	**$ 0.502**	**$ 0.427**
Average of Ln Ratio Deltas		**$ 0.036**	**$ 0.062**	**$ 0.131**	**$ 0.202**	**$ 0.292**	**$ 0.383**	**$ 0.468**

Figure 1: Simulated Natural Gas Prices for CY 2010 - 2017

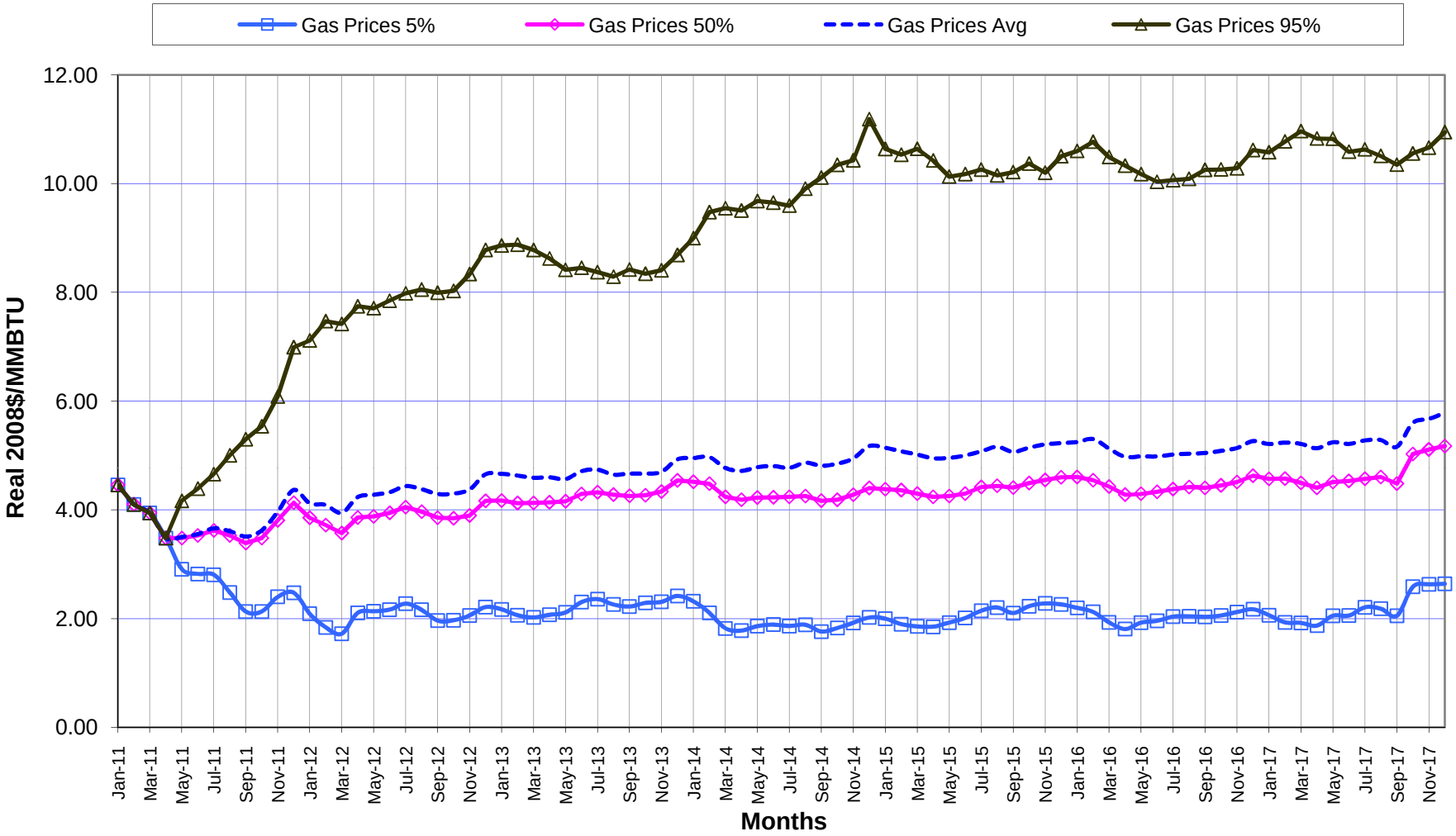


Table 3: PNW and California Load Growth Standard Deviation Calculations for One to Eight Years

Pacific Northwest (NWPP)

Year	NWPP with DSI Load	DSI Load	NWPP without DSI Load	% Change Over 1 Yr	% Change Over 2 Yr	% Change Over 3 Yr	% Change Over 4 Yr	% Change Over 5 Yr	% Change Over 6 Yr	% Change Over 7 Yr	% Change Over 8 Yr
1985	29,372	2,170	27,202								
1986	28,927	2,232	26,695	-1.86%							
1987	29,954	2,485	27,469	2.90%	0.98%						
1988	31,986	2,986	29,001	5.57%	8.64%	6.61%					
1989	33,265	3,083	30,182	4.07%	9.88%	13.06%	10.96%				
1990	34,372	3,130	31,242	3.51%	7.73%	13.73%	17.03%	-12.93%			
1991	34,840	3,074	31,767	1.68%	5.25%	9.54%	15.64%	-15.97%	14.85%		
1992	35,114	2,878	32,236	1.48%	3.18%	6.81%	11.16%	-14.79%	19.00%	18.51%	
1993	35,708	2,460	33,248	3.14%	4.66%	6.42%	10.16%	-12.77%	17.35%	24.55%	22.23%
1994	36,107	2,231	33,877	1.89%	5.09%	6.64%	8.43%	-10.91%	14.64%	23.33%	26.90%
1995	36,336	2,436	33,900	0.07%	1.96%	5.16%	6.71%	-7.84%	12.24%	16.89%	23.41%
1996	38,151	2,680	35,470	4.63%	4.70%	6.69%	10.03%	-10.44%	8.51%	17.52%	22.31%
1997	37,911	2,791	35,120	-0.99%	3.60%	3.67%	5.63%	-8.21%	11.66%	12.41%	16.36%
1998	39,144	2,819	36,325	3.43%	2.41%	7.15%	7.23%	-8.47%	8.95%	14.35%	16.27%
1999	39,829	2,815	37,014	1.90%	5.39%	4.35%	9.19%	-8.48%	9.25%	14.82%	16.52%
2000	40,479	2,473	38,007	2.68%	4.63%	8.22%	7.15%	-10.81%	9.26%	14.31%	17.90%
2001	36,998	285	36,713	-3.40%	-0.81%	1.07%	4.54%	-3.38%	12.12%	8.37%	10.42%
2002	39,121	410	38,711	5.44%	1.85%	4.59%	6.57%	-9.28%	3.50%	14.19%	14.27%
2003	38,881	439	38,442	-0.70%	4.71%	1.15%	3.86%	-5.51%	10.23%	8.38%	13.40%
2004	39,646	328	39,318	2.28%	1.57%	7.10%	3.45%	-5.86%	5.83%	11.95%	10.85%
2005	41,199	308	40,891	4.00%	6.37%	5.63%	11.38%	-7.05%	6.23%	12.57%	16.43%
2006	42,111	302	41,809	2.25%	6.33%	8.76%	8.00%	-12.19%	7.59%	12.96%	15.10%
2007	43,185	573	42,613	1.92%	4.21%	8.38%	10.85%	-9.15%	13.88%	12.12%	15.13%
2008	43,733	577	43,155	1.27%	3.22%	5.54%	9.76%	-10.92%	10.08%	17.55%	13.55%

Avg	0.021	0.043	0.067	0.089	-0.097	0.108	0.150	0.169
StDev	0.0225	0.0254	0.0312	0.0353	0.0320	0.0405	0.0442	0.0460
Min	-0.034	-0.008	0.011	0.035	-0.160	0.035	0.084	0.104
Max	0.056	0.099	0.137	0.170	-0.034	0.190	0.245	0.269

NWPP (Without DSI Load) & California Load Correlation (Post 1986)	0.982

California

Year			CAL/MEX	% Change Over 1 Yr	% Change Over 2 Yr	% Change Over 3 Yr	% Change Over 4 Yr	% Change Over 5 Yr	% Change Over 6 Yr	% Change Over 7 Yr	% Change Over 8 Yr
1987			24,498								
1988			25,491	4.05%							
1989			26,153	2.60%	6.76%						
1990			27,021	3.32%	6.00%	10.30%					
1991			26,324	-2.58%	0.65%	3.27%	7.46%				
1992			27,021	2.65%	0.00%	3.32%	6.00%	-9.34%			
1993			26,895	-0.46%	2.17%	-0.46%	2.84%	-5.22%	10.30%		
1994			27,820	3.44%	2.96%	5.68%	2.96%	-5.99%	5.51%	13.56%	
1995			27,454	-1.31%	2.08%	1.61%	4.29%	-1.58%	6.37%	7.70%	12.07%
1996			28,390	3.41%	2.05%	5.56%	5.07%	-7.28%	1.61%	8.56%	11.37%
1997			29,326	3.30%	6.82%	5.42%	9.04%	-7.86%	7.85%	8.53%	12.13%
1998			29,064	-0.90%	2.37%	5.86%	4.47%	-7.46%	8.53%	10.41%	7.56%
1999			29,943	3.02%	2.10%	5.47%	9.06%	-7.09%	8.06%	10.82%	13.75%
2000			31,461	5.07%	8.25%	7.28%	10.82%	-12.74%	7.63%	16.98%	16.43%
2001			30,708	-2.39%	2.55%	5.66%	4.71%	-7.55%	14.59%	10.38%	14.18%
2002			31,689	3.20%	0.73%	5.83%	9.03%	-7.46%	8.16%	15.43%	13.91%
2003			31,632	-0.18%	3.01%	0.54%	5.64%	-8.12%	8.06%	11.42%	15.22%
2004			32,945	4.15%	3.96%	7.29%	4.72%	-9.11%	8.84%	12.34%	16.04%
2005			32,534	-1.25%	2.85%	2.67%	5.95%	-3.30%	10.03%	11.94%	10.94%
2006			33,943	4.33%	3.03%	7.30%	7.11%	-9.53%	3.41%	13.36%	16.79%
2007			34,445	1.48%	5.87%	4.55%	8.89%	-8.00%	10.53%	9.48%	15.03%
2008			34,729	0.82%	2.32%	6.75%	5.41%	-8.92%	8.69%	13.09%	10.39%

Avg	0.017	0.033	0.049	0.063	-0.074	0.080	0.116	0.133
StDev	0.0240	0.0225	0.0261	0.0230	0.0251	0.0296	0.0261	0.0265
Min	-0.026	0.000	-0.005	0.028	-0.127	0.016	0.077	0.076
Max	0.051	0.082	0.103	0.108	-0.016	0.146	0.170	0.168

Note: For the reason describe below, California load growth variability was calculated using data that starts in 1987.

Prior to 1997, the Southern Nevada reporting-area data were included in the California sub-area data.
The Arizona-New Mexico-Southern Nevada Power Area and California-Mexico Power Area data, prior to 1987,
have not been adjusted for the Southern Nevada reporting-area change

Figure 2: Simulated PNW Loads for CY 2010 - 2013

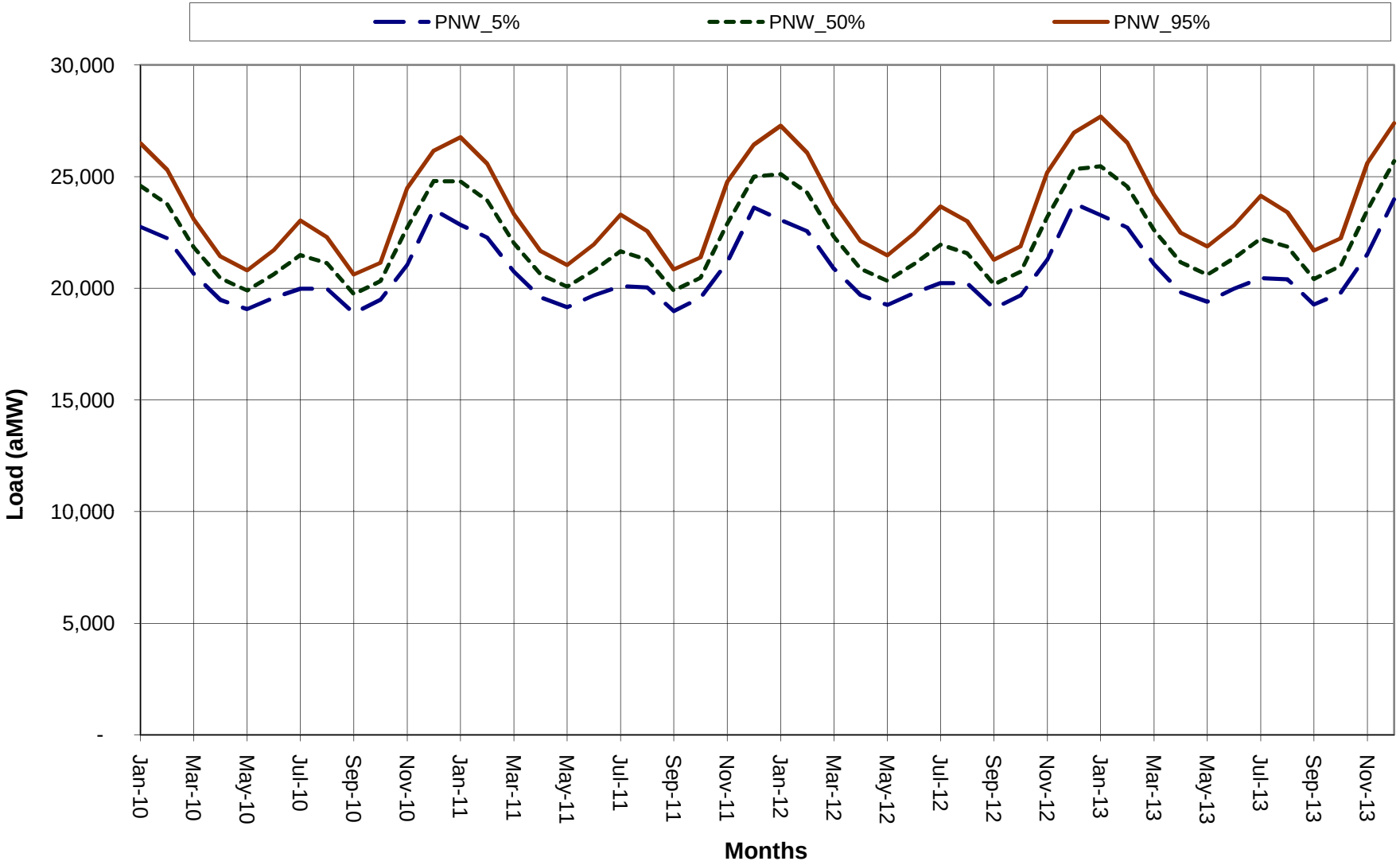


Figure 3: Simulated California Loads for CY 2010 - 2013

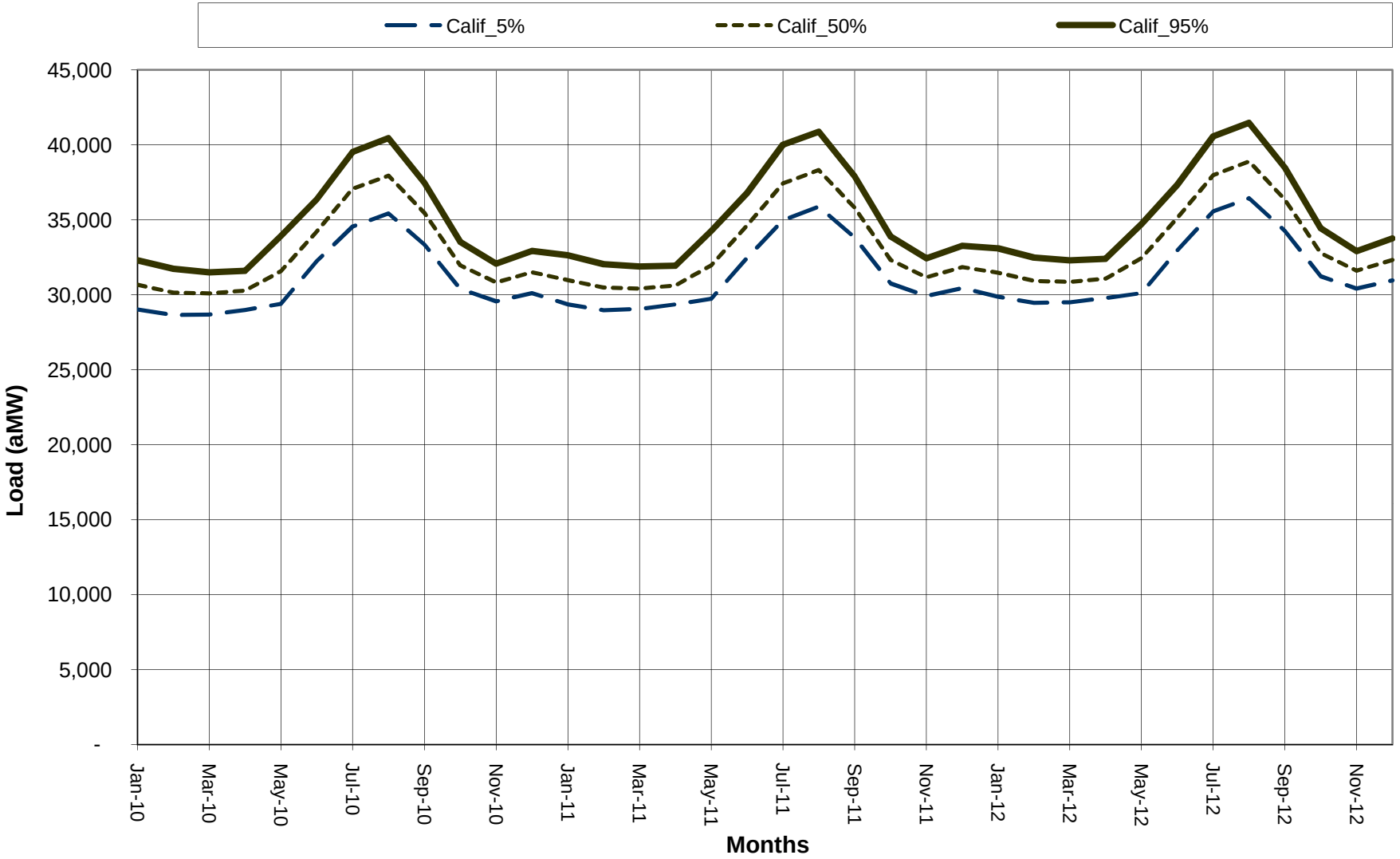


Figure 4: Simulated CGS Output Distribution for October 2012

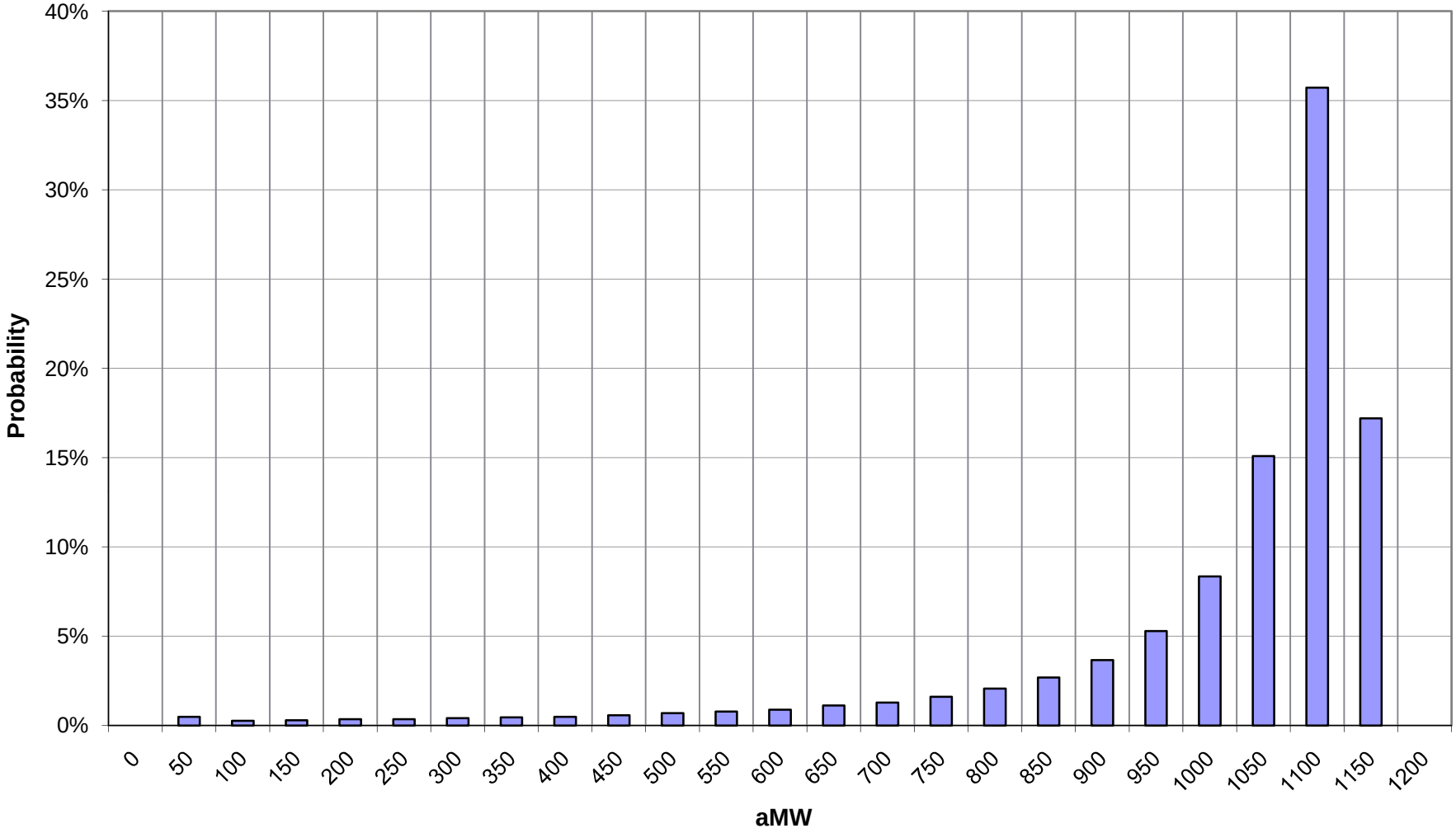


Figure 5: WECC RPS-Based Renewable Generation Build Forecast

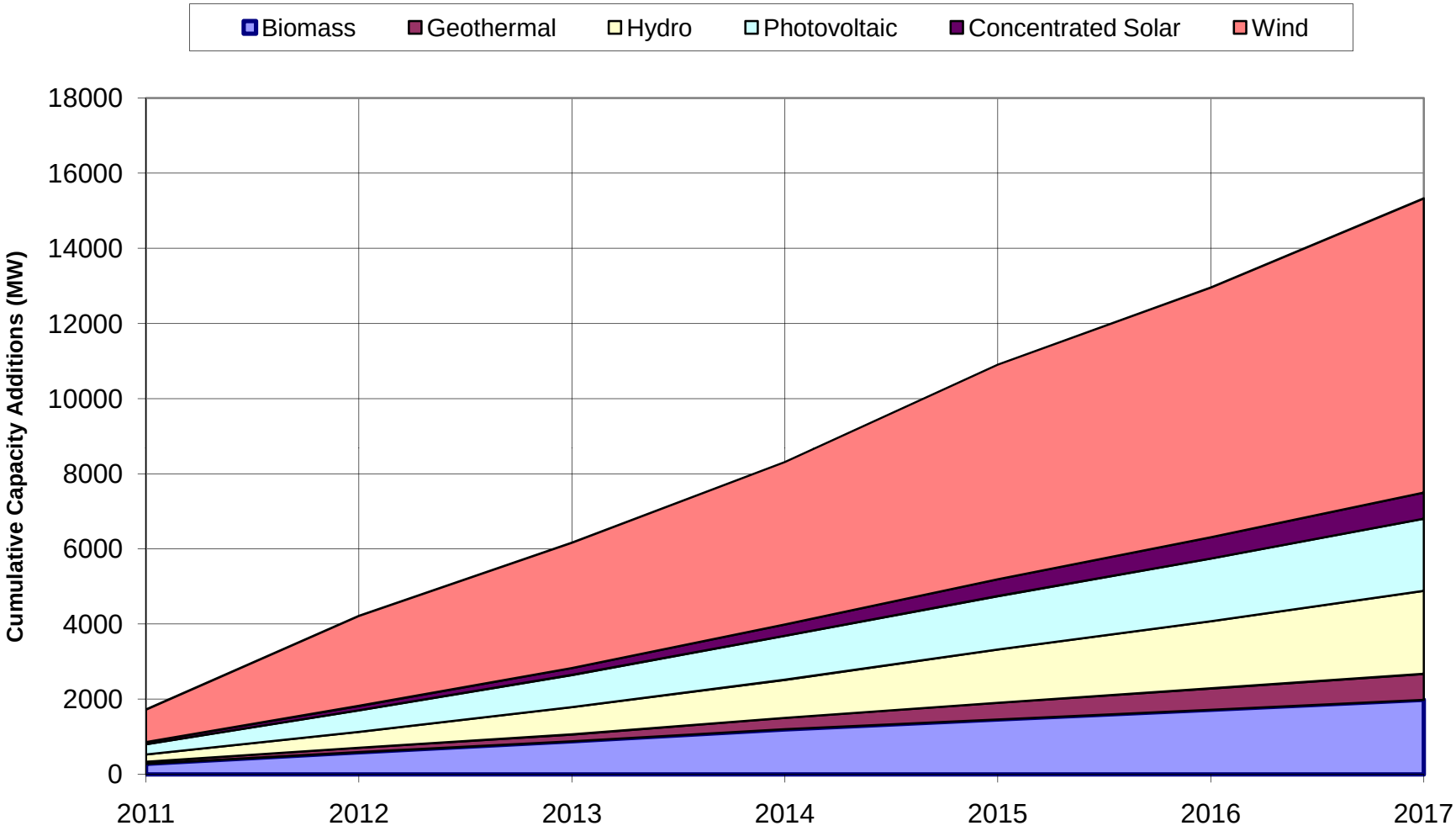


Figure 6: HLH Market Prices for FY 2012 - 2017

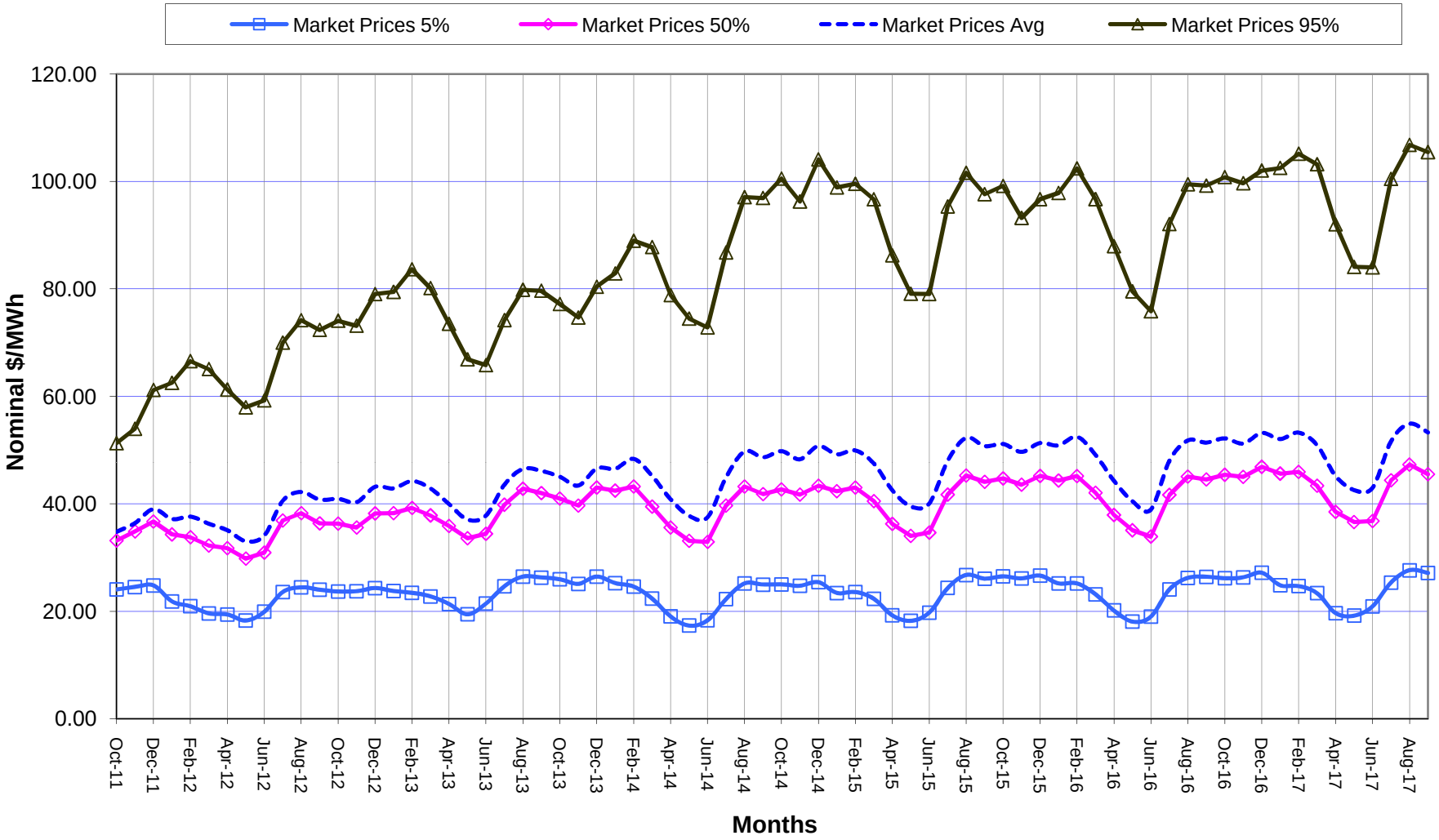


Figure 7: LLH Market Prices for FY 2012 - 2017

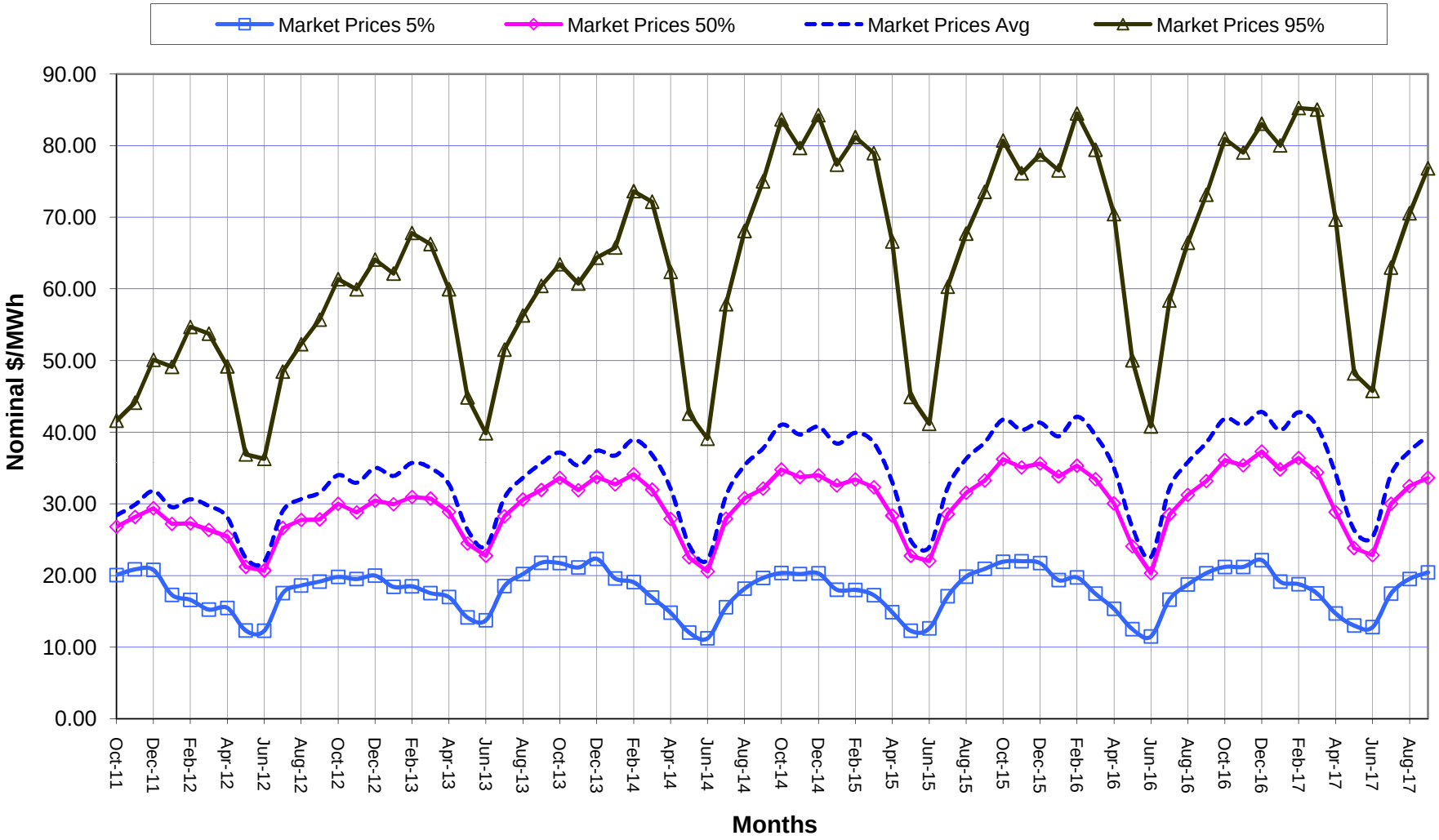


Figure 8: HLH Market Prices for the Critical Water Run

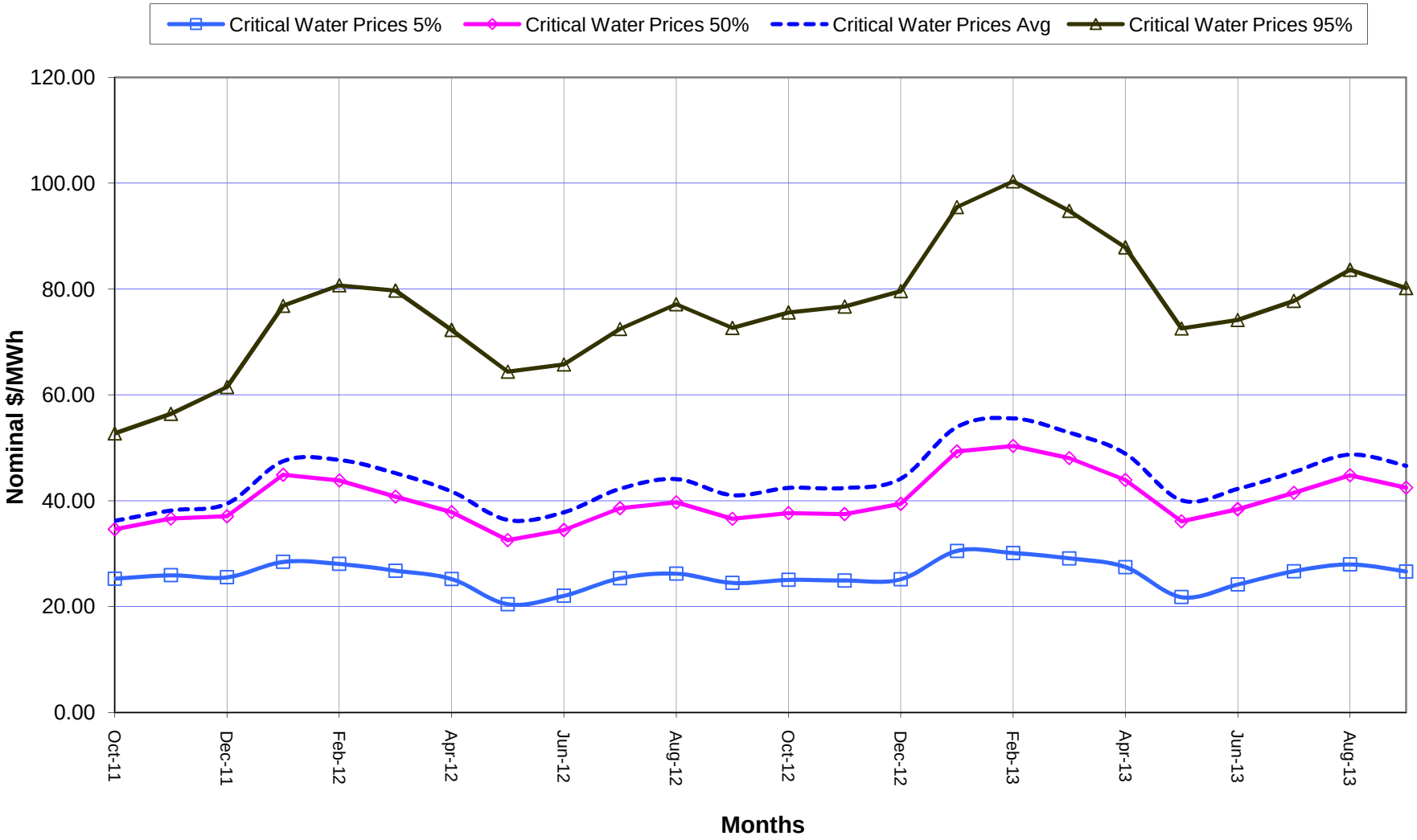


Figure 9: LLH Market Prices for the Critical Water Run

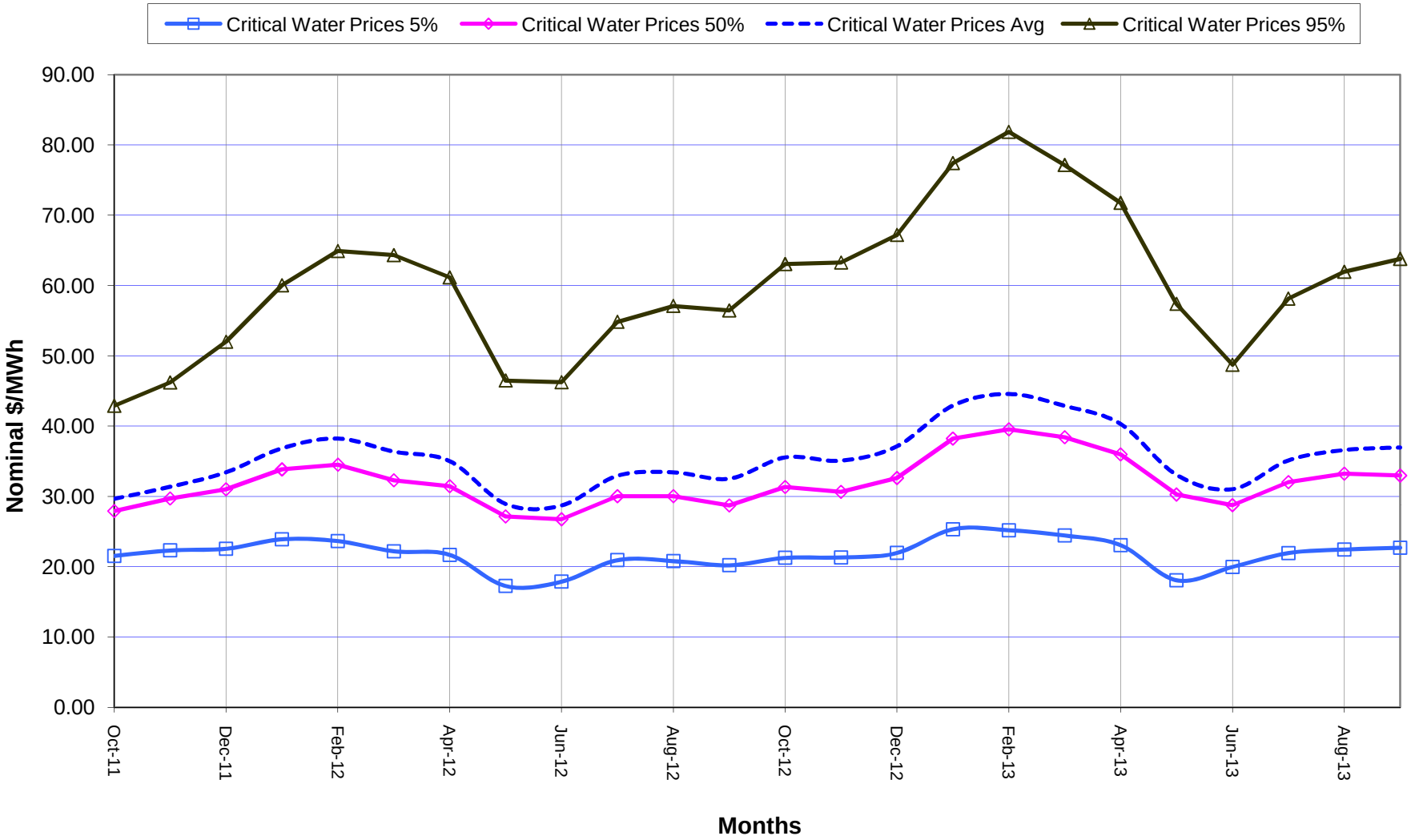


Table 4: Federal Hydro Generation (aMW) with Hydro Independents for FY 2012

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1929	6,031	7,255	7,140	7,045	6,551	6,114	6,299	8,301	9,035	7,137	6,677	6,436	**7,002**
1930	5,745	7,097	7,172	7,191	6,551	6,473	5,981	8,208	7,523	8,030	6,775	6,499	**6,941**
1931	5,405	7,324	7,274	7,010	6,596	4,704	5,425	9,214	6,657	7,726	6,087	5,929	**6,616**
1932	5,601	6,613	7,032	6,321	5,865	7,913	10,331	13,175	12,569	7,922	7,101	7,050	**8,125**
1933	5,992	6,661	8,768	10,265	10,344	9,503	9,112	11,315	13,034	12,026	9,434	6,647	**9,426**
1934	7,058	10,331	13,850	14,615	13,532	11,462	12,671	12,041	10,668	7,879	6,288	6,314	**10,549**
1935	5,701	6,136	7,316	9,691	9,841	8,154	8,960	10,631	9,396	9,729	7,672	5,745	**8,246**
1936	5,761	7,181	7,068	5,922	6,559	6,315	9,303	12,650	11,379	8,247	6,919	5,932	**7,769**
1937	5,721	7,495	7,252	7,262	6,402	5,942	4,871	9,090	8,123	7,985	6,544	6,566	**6,943**
1938	5,735	6,537	8,108	9,818	9,553	9,218	11,441	12,342	10,922	9,311	6,734	6,605	**8,856**
1939	6,137	7,076	7,063	7,449	6,968	6,815	9,949	11,727	8,630	7,856	6,439	6,229	**7,696**
1940	6,077	7,615	8,015	7,052	7,485	8,272	9,981	11,134	9,906	7,294	6,096	6,242	**7,928**
1941	6,222	6,779	7,873	6,767	6,582	6,363	6,916	9,792	8,334	7,890	6,722	6,796	**7,257**
1942	5,546	7,326	8,921	10,146	7,182	6,456	8,021	10,394	11,072	10,376	7,761	7,267	**8,378**
1943	5,915	6,510	7,786	11,149	10,683	8,654	13,387	12,357	12,560	9,110	7,125	6,085	**9,265**
1944	5,896	7,289	7,103	7,181	6,878	6,719	6,704	8,244	6,465	7,019	6,410	6,617	**6,878**
1945	5,495	6,895	6,410	6,642	6,189	5,832	4,399	11,127	10,354	7,193	6,904	6,334	**6,986**
1946	5,490	7,006	8,250	9,319	8,690	9,457	12,204	12,423	11,462	9,601	7,636	6,783	**9,025**
1947	5,833	7,504	11,577	12,564	12,228	10,101	9,720	12,127	11,900	10,077	7,539	6,511	**9,803**
1948	8,766	9,253	9,816	12,363	10,138	8,728	10,802	13,564	12,842	11,204	9,282	7,040	**10,321**
1949	6,373	7,233	8,349	9,179	7,385	10,899	11,648	13,342	11,347	7,233	6,023	5,898	**8,746**
1950	5,850	7,074	7,418	11,771	11,193	11,723	11,588	12,302	11,915	10,072	8,896	6,689	**9,703**
1951	7,178	9,761	11,954	14,005	13,492	12,985	12,146	12,422	11,195	11,210	8,402	6,758	**10,956**
1952	7,963	8,324	9,933	11,532	10,308	9,622	12,569	13,361	11,644	9,802	7,425	5,867	**9,863**
1953	5,786	7,106	7,132	8,403	8,800	8,447	8,925	11,910	12,948	11,174	8,263	6,679	**8,796**
1954	6,339	7,598	9,311	11,940	11,202	9,386	10,120	12,357	12,005	12,512	10,657	9,148	**10,215**
1955	6,381	8,428	8,752	7,817	6,634	6,609	7,202	10,971	12,815	12,727	8,961	6,338	**8,647**
1956	6,547	9,030	11,811	13,697	13,290	11,842	12,354	12,714	12,686	11,513	8,021	6,531	**10,830**
1957	6,600	7,206	9,359	9,391	7,376	9,500	11,396	14,071	13,127	8,709	6,670	6,496	**9,164**
1958	5,956	7,322	7,347	10,022	9,589	8,621	10,722	13,734	12,761	8,577	6,921	6,368	**8,988**
1959	5,787	8,142	10,813	12,992	12,129	10,706	10,380	11,484	12,171	9,652	8,826	9,537	**10,209**
1960	9,581	10,435	10,968	11,115	9,181	9,407	12,512	11,386	11,401	9,527	7,363	6,107	**9,917**
1961	6,124	7,390	8,256	10,301	10,143	10,970	9,811	12,223	12,519	8,681	7,067	6,214	**9,137**
1962	5,488	7,299	8,042	9,613	9,134	6,744	12,675	12,264	11,999	7,125	7,143	6,017	**8,616**
1963	6,649	8,528	10,580	10,740	9,325	8,503	8,344	11,030	10,587	9,795	7,619	6,723	**9,039**
1964	5,827	7,031	8,388	8,400	8,040	6,871	9,935	11,678	12,581	12,191	8,781	7,373	**8,926**

Table 4: Federal Hydro Generation (aMW) with Hydro Independents for FY 2012

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1965	7,069	8,056	11,894	14,930	13,566	11,609	11,468	12,600	12,042	9,691	9,019	6,274	**10,682**
1966	6,523	7,667	8,693	9,429	8,677	6,503	10,993	10,983	10,036	9,964	7,608	6,274	**8,611**
1967	5,761	6,940	8,746	12,629	12,263	9,779	7,689	11,516	12,075	10,507	8,098	6,603	**9,379**
1968	6,266	7,734	8,747	11,518	10,275	9,412	7,861	9,749	11,176	10,482	8,703	8,119	**9,169**
1969	7,135	9,205	9,996	13,642	12,608	10,148	12,176	13,019	11,783	10,325	7,053	6,433	**10,285**
1970	6,140	7,470	7,420	9,839	8,427	8,003	8,970	11,342	12,599	8,507	7,080	6,139	**8,492**
1971	5,767	7,200	7,656	13,614	14,525	11,183	11,824	12,912	12,617	12,025	9,489	6,998	**10,471**
1972	6,578	7,548	8,934	13,349	13,554	14,559	11,868	12,823	12,505	12,261	10,221	7,330	**10,958**
1973	6,374	7,557	8,614	9,768	7,444	6,840	6,219	9,779	9,215	7,289	6,491	6,560	**7,684**
1974	5,544	6,743	9,079	15,554	14,424	12,921	12,846	12,703	12,664	12,882	9,582	6,883	**10,979**
1975	5,633	7,280	8,120	10,418	9,476	8,962	8,495	12,277	12,836	12,593	8,477	7,344	**9,329**
1976	7,308	9,650	13,098	13,035	12,738	11,877	12,482	12,893	12,059	11,656	10,931	10,091	**11,482**
1977	6,406	7,355	7,243	7,162	7,023	6,661	6,033	7,448	6,189	6,587	6,083	5,709	**6,660**
1978	5,291	6,326	9,475	9,331	9,112	8,306	10,637	11,742	9,908	9,941	7,359	8,416	**8,819**
1979	6,616	7,398	7,395	8,941	6,686	8,891	8,646	12,379	8,971	7,266	6,101	5,984	**7,948**
1980	5,644	7,177	6,796	7,551	6,733	6,057	10,455	13,217	11,853	7,808	6,446	6,596	**8,024**
1981	6,147	7,252	11,258	12,062	10,091	9,286	7,684	11,269	13,060	11,396	9,726	6,746	**9,673**
1982	6,184	7,855	9,441	10,595	14,069	13,282	10,996	12,700	12,237	11,117	9,618	8,159	**10,509**
1983	7,315	7,988	9,766	12,161	11,215	12,827	10,941	12,688	11,898	11,063	9,001	7,149	**10,338**
1984	6,388	9,940	9,658	11,940	11,380	10,709	12,794	12,360	12,771	10,944	7,637	6,867	**10,273**
1985	6,261	7,970	8,603	10,263	8,134	6,515	10,816	12,428	9,852	6,268	5,725	6,056	**8,237**
1986	5,814	8,418	7,816	10,060	11,090	14,548	11,780	10,907	11,156	9,010	7,185	6,132	**9,485**
1987	5,372	7,671	8,545	7,565	6,008	7,831	7,996	12,084	9,926	7,020	5,739	6,140	**7,664**
1988	5,316	6,882	6,722	6,685	6,383	6,213	6,652	9,496	8,080	7,773	6,421	6,266	**6,910**
1989	5,234	6,613	7,466	7,307	6,997	7,542	10,893	11,227	9,919	7,427	6,388	6,192	**7,764**
1990	5,534	7,441	8,705	10,713	10,841	8,777	10,998	11,114	11,768	9,207	8,186	6,161	**9,111**
1991	5,336	9,737	9,942	12,063	11,545	9,497	10,474	12,077	11,128	11,603	9,445	6,402	**9,934**
1992	5,547	7,230	7,424	8,399	6,714	8,803	7,099	9,616	9,072	6,644	5,650	5,762	**7,334**
1993	5,374	7,001	7,411	7,071	5,383	6,263	7,128	11,819	9,657	8,343	6,588	6,369	**7,376**
1994	5,393	7,531	7,460	6,964	7,212	6,395	6,886	9,566	9,165	7,098	6,334	6,472	**7,203**
1995	5,122	6,597	6,785	7,268	9,207	9,604	9,609	11,109	11,497	9,815	7,005	7,166	**8,391**
1996	6,415	10,745	14,794	14,921	14,810	13,214	12,865	12,932	12,763	12,428	8,988	6,139	**11,746**
1997	6,222	7,685	9,554	15,098	14,605	13,934	12,802	12,534	12,603	12,337	9,240	8,116	**11,218**
1998	9,095	9,177	9,270	9,597	9,393	8,732	9,300	13,463	12,897	9,447	7,264	6,818	**9,538**
50 WY Average	**6,247**	**7,610**	**8,798**	**10,218**	**9,523**	**8,856**	**9,767**	**11,578**	**11,085**	**9,576**	**7,708**	**6,751**	**8,975**
70 WY Average	**6,181**	**7,698**	**8,782**	**10,116**	**9,495**	**9,024**	**9,788**	**11,627**	**11,064**	**9,469**	**7,629**	**6,703**	**8,963**
Hours	**744**	**721**	**744**	**744**	**696**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8,784**

Table 5: Federal Hydro Generation (aMW) with Hydro Independents for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1929	6,031	7,255	7,140	7,045	6,551	6,114	6,299	8,298	8,972	7,137	6,677	6,436	**6,997**
1930	5,745	7,097	7,172	7,191	6,551	6,473	5,981	8,208	7,512	8,030	6,775	6,499	**6,941**
1931	5,405	7,324	7,274	7,010	6,596	4,704	5,425	9,175	6,657	7,726	6,087	5,929	**6,613**
1932	5,601	6,613	7,032	6,321	5,865	7,913	10,319	13,038	11,991	7,922	7,101	7,050	**8,071**
1933	5,992	6,661	8,768	10,265	10,344	9,503	9,112	11,257	12,398	11,885	9,422	6,647	**9,353**
1934	7,058	10,309	13,789	14,548	13,470	11,426	12,572	11,931	10,473	7,879	6,288	6,314	**10,487**
1935	5,701	6,136	7,316	9,995	9,443	8,154	8,960	10,604	9,306	9,692	7,672	5,745	**8,224**
1936	5,761	7,181	7,068	5,922	6,559	6,315	9,303	12,583	11,143	8,247	6,919	5,932	**7,747**
1937	5,721	7,495	7,252	7,262	6,402	5,942	4,871	9,088	8,096	7,985	6,544	6,566	**6,942**
1938	5,735	6,537	8,108	10,084	9,479	8,938	11,425	12,263	10,657	9,284	6,734	6,605	**8,815**
1939	6,137	7,076	7,063	7,449	6,968	6,815	9,949	11,704	8,626	7,856	6,439	6,229	**7,696**
1940	6,077	7,615	8,015	7,052	7,485	8,272	9,976	11,121	9,847	7,294	6,096	6,242	**7,923**
1941	6,222	6,779	7,873	6,767	6,582	6,363	6,916	9,772	8,315	7,890	6,722	6,796	**7,256**
1942	5,546	7,326	8,921	10,146	7,182	6,456	8,021	10,355	10,753	10,319	7,761	7,267	**8,347**
1943	5,915	6,510	7,786	11,138	10,672	8,654	13,220	12,274	11,856	9,049	7,125	6,085	**9,176**
1944	5,896	7,289	7,103	7,181	6,878	6,719	6,704	8,244	6,465	7,019	6,410	6,617	**6,878**
1945	5,495	6,895	6,410	6,642	6,189	5,832	4,399	11,120	10,175	7,193	6,904	6,334	**6,972**
1946	5,490	7,006	8,250	9,319	8,690	9,457	12,176	12,279	11,180	9,393	7,636	6,783	**8,970**
1947	5,833	7,504	11,566	12,533	12,217	10,101	9,720	12,093	11,724	10,021	7,539	6,511	**9,770**
1948	8,744	9,253	9,816	12,352	10,127	8,728	10,789	13,269	12,170	11,090	9,269	7,040	**10,226**
1949	6,373	7,233	8,349	9,179	7,385	10,888	11,617	13,287	11,253	7,233	6,023	5,898	**8,734**
1950	5,850	7,074	7,418	11,743	11,182	11,712	11,558	12,238	11,371	9,963	8,894	6,689	**9,633**
1951	7,178	9,750	11,943	13,957	13,481	12,948	12,069	12,303	10,850	11,069	8,402	6,758	**10,882**
1952	7,955	8,324	9,933	11,522	10,644	9,237	12,521	13,153	11,549	9,754	7,425	5,867	**9,820**
1953	5,786	7,106	7,132	8,403	8,942	8,306	8,925	11,845	12,595	11,062	8,263	6,679	**8,751**
1954	6,339	7,598	9,311	11,929	11,191	9,386	10,120	12,286	11,357	12,317	10,632	9,126	**10,130**
1955	6,381	8,428	8,752	7,817	6,634	6,609	7,202	10,893	12,205	12,540	8,948	6,338	**8,579**
1956	6,547	9,030	11,800	13,675	13,228	11,831	12,263	12,503	11,950	11,384	8,021	6,531	**10,718**
1957	6,600	7,206	9,359	9,391	7,376	9,500	11,381	13,723	12,331	8,709	6,670	6,496	**9,072**
1958	5,956	7,322	7,347	10,015	9,578	8,621	10,722	13,557	12,167	8,577	6,921	6,368	**8,921**
1959	5,787	8,142	10,802	12,970	12,118	10,706	10,367	11,369	11,688	9,584	8,813	9,515	**10,141**
1960	9,559	10,413	10,957	11,107	9,181	9,407	12,426	11,343	11,239	9,490	7,363	6,107	**9,887**
1961	6,124	7,390	8,256	10,291	10,132	10,959	9,811	12,138	12,009	8,678	7,067	6,214	**9,083**
1962	5,488	7,299	8,042	9,613	9,134	6,744	12,598	12,211	11,676	7,125	7,143	6,017	**8,578**
1963	6,649	8,528	10,569	10,729	9,314	8,503	8,344	11,017	10,339	9,760	7,619	6,723	**9,011**
1964	5,827	7,031	8,388	8,400	8,040	6,871	9,935	11,605	11,901	12,065	8,769	7,373	**8,855**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2	**Table 5: Federal Hydro Generation (aMW) with Hydro Independents for FY 2013**													
3														
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
42	**1965**	7,069	8,056	11,883	14,863	13,528	11,598	11,427	12,483	11,772	9,657	9,006	6,183	**10,617**
43	**1966**	6,523	7,667	8,693	9,429	8,677	6,503	10,956	10,940	9,868	9,898	7,608	6,274	**8,585**
44	**1967**	5,761	6,940	8,746	12,581	12,253	9,779	7,689	11,452	11,522	10,375	8,086	6,603	**9,303**
45	**1968**	6,266	7,734	8,747	11,507	10,553	9,075	7,861	9,689	11,093	10,377	8,690	8,108	**9,135**
46	**1969**	7,135	9,205	9,996	13,620	12,588	10,148	12,115	12,751	11,492	10,231	7,053	6,433	**10,216**
47	**1970**	6,140	7,470	7,420	9,828	8,569	7,862	8,970	11,307	12,175	8,507	7,080	6,139	**8,452**
48	**1971**	5,767	7,200	7,656	13,592	14,443	11,183	11,775	12,713	11,886	11,892	9,477	6,998	**10,358**
49	**1972**	6,578	7,548	8,934	13,302	13,543	14,490	11,766	12,628	12,080	12,105	10,195	7,330	**10,865**
50	**1973**	6,374	7,557	8,614	9,768	7,444	6,840	6,219	9,766	9,177	7,289	6,491	6,560	**7,680**
51	**1974**	5,544	6,743	9,079	15,471	14,343	12,910	12,736	12,563	11,971	12,716	9,570	6,834	**10,858**
52	**1975**	5,633	7,280	8,120	10,407	9,476	8,962	8,495	12,191	12,163	12,402	8,477	7,344	**9,248**
53	**1976**	7,308	9,650	13,087	13,013	12,727	11,866	12,413	12,764	11,676	11,498	10,906	10,019	**11,405**
54	**1977**	6,406	7,355	7,243	7,162	7,023	6,661	6,033	7,448	6,189	6,587	6,083	5,709	**6,659**
55	**1978**	5,291	6,326	9,464	9,331	9,112	8,306	10,616	11,715	9,791	9,902	7,359	8,394	**8,798**
56	**1979**	6,616	7,398	7,395	8,941	6,686	8,891	8,646	12,348	8,988	7,266	6,101	5,984	**7,951**
57	**1980**	5,644	7,177	6,796	7,551	6,733	6,057	10,447	13,042	11,822	7,808	6,446	6,596	**8,010**
58	**1981**	6,147	7,252	11,247	12,040	10,080	9,286	7,684	11,234	12,477	11,259	9,701	6,746	**9,603**
59	**1982**	6,184	7,855	9,441	10,584	14,031	13,261	10,984	12,597	11,615	10,974	9,606	8,141	**10,418**
60	**1983**	7,315	7,988	9,766	12,139	11,204	12,807	10,912	12,592	11,627	10,951	8,988	7,149	**10,288**
61	**1984**	6,388	9,929	9,658	11,923	11,370	10,698	12,736	12,329	12,304	10,824	7,637	6,867	**10,210**
62	**1985**	6,261	7,970	8,603	10,263	8,134	6,515	10,816	12,409	9,709	6,268	5,725	6,056	**8,224**
63	**1986**	5,814	8,418	7,816	10,049	11,072	14,479	11,721	10,876	10,875	9,005	7,185	6,132	**9,441**
64	**1987**	5,372	7,671	8,545	7,565	6,008	7,831	7,997	12,074	9,877	7,020	5,730	6,133	**7,663**
65	**1988**	5,316	6,882	6,722	6,685	6,383	6,213	6,652	9,484	8,059	7,773	6,421	6,266	**6,908**
66	**1989**	5,234	6,613	7,466	7,307	6,997	7,542	10,862	11,169	9,782	7,427	6,388	6,192	**7,748**
67	**1990**	5,534	7,441	8,705	10,976	10,471	8,777	11,000	11,122	11,245	9,167	8,183	6,161	**9,055**
68	**1991**	5,336	9,737	9,942	12,315	11,478	9,140	10,461	12,057	10,829	11,442	9,424	6,402	**9,873**
69	**1992**	5,547	7,230	7,424	8,399	6,714	8,803	7,099	9,614	9,057	6,644	5,650	5,762	**7,334**
70	**1993**	5,374	7,001	7,411	7,071	5,383	6,263	7,128	11,814	9,627	8,337	6,588	6,369	**7,378**
71	**1994**	5,393	7,531	7,460	6,964	7,212	6,395	6,886	9,564	9,133	7,098	6,334	6,472	**7,200**
72	**1995**	5,122	6,597	6,785	7,268	9,196	9,604	9,609	11,093	11,497	9,772	7,005	7,166	**8,382**
73	**1996**	6,415	10,728	14,717	14,854	14,722	13,178	12,752	12,824	12,106	12,228	8,975	6,139	**11,624**
74	**1997**	6,222	7,685	9,554	15,014	14,516	13,864	12,670	12,354	12,260	12,201	9,228	8,104	**11,121**
75	**1998**	9,073	9,177	9,270	9,597	9,629	8,494	9,300	13,408	12,224	9,447	7,264	6,818	**9,475**
76	**50 WY Average**	**6,246**	**7,609**	**8,795**	**10,217**	**9,522**	**8,826**	**9,741**	**11,491**	**10,753**	**9,513**	**7,703**	**6,745**	**8,928**
77	**70 WY Average**	**6,180**	**7,696**	**8,778**	**10,119**	**9,487**	**8,991**	**9,763**	**11,551**	**10,754**	**9,408**	**7,625**	**6,699**	**8,918**
78	**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													
2	**Table 6: Heavy-Load Hydro Generation Ratios for FY 2012**												
3													
4													
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
6	**1929**	1.217	1.151	1.143	1.180	1.105	1.095	1.144	1.160	1.104	1.258	1.156	1.221
7	**1930**	1.209	1.161	1.151	1.182	1.100	1.083	1.150	1.166	1.135	1.278	1.162	1.231
8	**1931**	1.198	1.155	1.147	1.177	1.086	1.094	1.124	1.175	1.148	1.269	1.140	1.218
9	**1932**	1.211	1.155	1.141	1.177	1.097	1.060	1.096	1.049	1.015	1.259	1.193	1.233
10	**1933**	1.215	1.137	1.154	1.190	1.126	1.057	1.141	1.085	1.027	1.045	1.096	1.228
11	**1934**	1.225	1.152	1.063	1.081	1.046	1.072	1.065	1.037	1.044	1.260	1.178	1.236
12	**1935**	1.214	1.141	1.139	1.194	1.127	1.099	1.124	1.111	1.108	1.178	1.154	1.223
13	**1936**	1.212	1.158	1.145	1.183	1.114	1.090	1.132	1.126	1.058	1.262	1.168	1.219
14	**1937**	1.205	1.158	1.146	1.187	1.113	1.089	1.135	1.166	1.129	1.290	1.161	1.228
15	**1938**	1.204	1.148	1.151	1.201	1.098	1.102	1.114	1.043	1.090	1.231	1.183	1.231
16	**1939**	1.210	1.153	1.141	1.179	1.111	1.086	1.157	1.086	1.148	1.291	1.159	1.221
17	**1940**	1.220	1.155	1.145	1.177	1.105	1.084	1.148	1.147	1.126	1.292	1.152	1.226
18	**1941**	1.212	1.148	1.148	1.175	1.109	1.089	1.147	1.168	1.135	1.293	1.166	1.220
19	**1942**	1.195	1.137	1.148	1.190	1.108	1.091	1.157	1.164	1.108	1.172	1.153	1.220
20	**1943**	1.214	1.143	1.142	1.141	1.113	1.068	1.062	1.054	0.996	1.170	1.171	1.214
21	**1944**	1.199	1.144	1.143	1.179	1.112	1.098	1.137	1.184	1.116	1.267	1.144	1.229
22	**1945**	1.203	1.154	1.141	1.171	1.111	1.093	1.131	1.143	1.104	1.253	1.162	1.222
23	**1946**	1.194	1.149	1.149	1.185	1.111	1.094	1.095	1.025	1.081	1.217	1.183	1.216
24	**1947**	1.193	1.144	1.162	1.110	1.101	1.102	1.139	1.114	1.064	1.175	1.186	1.221
25	**1948**	1.245	1.160	1.175	1.171	1.105	1.106	1.111	1.025	0.990	1.145	1.131	1.221
26	**1949**	1.215	1.147	1.151	1.178	1.098	1.100	1.119	1.080	1.095	1.270	1.144	1.219
27	**1950**	1.209	1.145	1.136	1.118	1.114	1.097	1.113	1.063	0.996	1.178	1.151	1.219
28	**1951**	1.216	1.159	1.122	1.124	1.088	1.028	1.097	1.031	1.089	1.110	1.159	1.219
29	**1952**	1.229	1.148	1.175	1.182	1.137	1.056	1.094	1.033	1.100	1.201	1.183	1.217
30	**1953**	1.203	1.156	1.144	1.178	1.114	1.106	1.134	1.083	1.015	1.160	1.167	1.219
31	**1954**	1.214	1.153	1.167	1.121	1.111	1.108	1.132	1.048	0.996	1.048	1.034	1.226
32	**1955**	1.220	1.157	1.159	1.186	1.113	1.089	1.137	1.144	1.011	1.039	1.128	1.215
33	**1956**	1.224	1.162	1.145	1.148	1.073	1.057	1.074	1.024	1.006	1.096	1.174	1.216
34	**1957**	1.210	1.143	1.167	1.188	1.104	1.093	1.104	1.055	0.994	1.260	1.178	1.224
35	**1958**	1.201	1.150	1.138	1.163	1.117	1.113	1.128	1.053	1.056	1.262	1.186	1.224
36	**1959**	1.207	1.147	1.174	1.157	1.112	1.053	1.124	1.042	0.992	1.231	1.148	1.214
37	**1960**	1.220	1.151	1.150	1.181	1.138	1.112	1.075	1.090	1.090	1.193	1.184	1.227
38	**1961**	1.219	1.154	1.149	1.152	1.131	1.094	1.145	1.064	0.993	1.226	1.193	1.221
39	**1962**	1.194	1.149	1.149	1.198	1.127	1.095	1.083	1.070	1.048	1.251	1.190	1.224
40	**1963**	1.202	1.151	1.174	1.159	1.123	1.100	1.164	1.149	1.112	1.187	1.151	1.221
41	**1964**	1.206	1.150	1.151	1.197	1.116	1.092	1.114	1.116	0.997	1.078	1.144	1.220

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2	**Table 6: Heavy-Load Hydro Generation Ratios for FY 2012**												
3													
4													
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**
42	**1965**	1.226	1.153	1.151	1.086	1.062	1.073	1.102	1.030	1.057	1.241	1.143	1.210
43	**1966**	1.209	1.149	1.157	1.198	1.125	1.100	1.099	1.130	1.122	1.180	1.162	1.218
44	**1967**	1.209	1.150	1.157	1.116	1.098	1.101	1.162	1.080	0.990	1.191	1.171	1.230
45	**1968**	1.213	1.146	1.154	1.127	1.127	1.113	1.159	1.173	1.092	1.154	1.140	1.224
46	**1969**	1.220	1.155	1.172	1.139	1.098	1.069	1.069	1.028	1.080	1.167	1.188	1.225
47	**1970**	1.216	1.153	1.147	1.195	1.121	1.099	1.146	1.138	1.066	1.266	1.176	1.206
48	**1971**	1.199	1.143	1.141	1.109	1.050	1.096	1.099	1.025	1.005	1.126	1.097	1.221
49	**1972**	1.201	1.141	1.156	1.108	1.084	1.007	1.090	1.025	0.992	1.057	1.061	1.219
50	**1973**	1.203	1.141	1.159	1.199	1.107	1.096	1.144	1.166	1.130	1.282	1.161	1.223
51	**1974**	1.200	1.125	1.148	1.066	1.030	1.044	1.070	1.024	0.994	1.051	1.110	1.227
52	**1975**	1.189	1.151	1.147	1.170	1.129	1.093	1.147	1.063	1.022	1.122	1.158	1.220
53	**1976**	1.215	1.161	1.099	1.159	1.095	1.070	1.084	1.033	1.076	1.093	1.012	1.135
54	**1977**	1.216	1.147	1.152	1.182	1.109	1.104	1.139	1.185	1.146	1.263	1.148	1.207
55	**1978**	1.194	1.145	1.147	1.185	1.106	1.093	1.124	1.078	1.083	1.224	1.183	1.247
56	**1979**	1.227	1.153	1.150	1.181	1.112	1.109	1.152	1.117	1.154	1.283	1.144	1.217
57	**1980**	1.203	1.156	1.143	1.174	1.108	1.099	1.130	1.042	1.075	1.270	1.169	1.224
58	**1981**	1.219	1.147	1.140	1.157	1.132	1.107	1.177	1.142	1.005	1.087	1.075	1.228
59	**1982**	1.217	1.154	1.172	1.149	1.058	1.063	1.121	1.045	0.990	1.182	1.108	1.236
60	**1983**	1.205	1.145	1.180	1.126	1.116	1.052	1.122	1.069	1.075	1.160	1.148	1.221
61	**1984**	1.195	1.162	1.171	1.174	1.119	1.077	1.079	1.117	1.059	1.166	1.181	1.213
62	**1985**	1.194	1.139	1.154	1.163	1.119	1.088	1.130	1.085	1.127	1.239	1.135	1.207
63	**1986**	1.202	1.150	1.144	1.182	1.075	1.024	1.130	1.153	1.101	1.231	1.175	1.210
64	**1987**	1.188	1.144	1.152	1.166	1.116	1.110	1.182	1.088	1.095	1.278	1.130	1.224
65	**1988**	1.193	1.158	1.143	1.182	1.112	1.083	1.159	1.169	1.141	1.293	1.161	1.229
66	**1989**	1.190	1.152	1.139	1.176	1.098	1.060	1.122	1.127	1.122	1.282	1.152	1.218
67	**1990**	1.199	1.144	1.147	1.165	1.121	1.098	1.136	1.094	1.021	1.238	1.155	1.222
68	**1991**	1.194	1.167	1.164	1.149	1.109	1.106	1.115	1.077	1.095	1.070	1.094	1.229
69	**1992**	1.199	1.150	1.132	1.175	1.098	1.099	1.161	1.165	1.139	1.268	1.135	1.215
70	**1993**	1.197	1.154	1.139	1.152	1.111	1.078	1.149	1.119	1.134	1.273	1.145	1.218
71	**1994**	1.190	1.152	1.140	1.175	1.104	1.090	1.164	1.174	1.144	1.283	1.155	1.228
72	**1995**	1.184	1.154	1.140	1.156	1.115	1.122	1.143	1.152	1.094	1.234	1.180	1.229
73	**1996**	1.209	1.154	1.034	1.079	1.027	1.060	1.085	1.043	1.053	1.049	1.125	1.223
74	**1997**	1.212	1.149	1.176	1.091	1.044	1.036	1.070	1.022	0.990	1.064	1.135	1.228
75	**1998**	1.235	1.157	1.161	1.203	1.139	1.112	1.160	1.091	1.037	1.235	1.169	1.219

Table 7: Heavy-Load Hydro Generation Ratios for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
1929	1.153	1.147	1.193	1.118	1.114	1.146	1.081	1.118	1.156	1.194	1.144	1.215
1930	1.148	1.156	1.200	1.112	1.108	1.131	1.079	1.124	1.187	1.208	1.149	1.223
1931	1.137	1.152	1.196	1.109	1.095	1.138	1.062	1.130	1.199	1.202	1.134	1.211
1932	1.150	1.148	1.191	1.112	1.107	1.105	1.043	1.007	1.058	1.196	1.185	1.228
1933	1.151	1.130	1.204	1.128	1.135	1.103	1.084	1.043	1.071	1.001	1.096	1.222
1934	1.162	1.139	1.110	1.037	1.052	1.113	1.019	0.997	1.089	1.199	1.172	1.230
1935	1.153	1.133	1.188	1.122	1.132	1.150	1.071	1.049	1.161	1.118	1.143	1.216
1936	1.150	1.155	1.194	1.116	1.124	1.139	1.069	1.077	1.103	1.196	1.155	1.213
1937	1.144	1.155	1.197	1.115	1.123	1.137	1.071	1.125	1.183	1.216	1.149	1.222
1938	1.144	1.141	1.197	1.137	1.103	1.145	1.059	1.002	1.142	1.169	1.175	1.226
1939	1.144	1.149	1.189	1.113	1.119	1.132	1.096	1.043	1.209	1.219	1.147	1.216
1940	1.155	1.153	1.194	1.116	1.114	1.131	1.088	1.098	1.176	1.224	1.140	1.221
1941	1.147	1.142	1.195	1.114	1.116	1.139	1.083	1.116	1.190	1.219	1.153	1.216
1942	1.128	1.133	1.194	1.129	1.116	1.140	1.090	1.116	1.159	1.117	1.141	1.216
1943	1.148	1.137	1.190	1.082	1.120	1.114	1.017	1.012	1.037	1.111	1.164	1.208
1944	1.134	1.140	1.191	1.118	1.121	1.147	1.072	1.138	1.160	1.202	1.138	1.223
1945	1.141	1.149	1.187	1.111	1.120	1.139	1.067	1.100	1.155	1.192	1.150	1.216
1946	1.133	1.142	1.195	1.124	1.118	1.139	1.042	0.986	1.131	1.157	1.176	1.211
1947	1.128	1.140	1.206	1.060	1.107	1.150	1.080	1.065	1.097	1.118	1.179	1.217
1948	1.185	1.156	1.219	1.111	1.112	1.151	1.058	0.991	1.029	1.088	1.129	1.215
1949	1.149	1.142	1.198	1.108	1.106	1.146	1.066	1.037	1.139	1.206	1.132	1.210
1950	1.145	1.140	1.184	1.066	1.124	1.139	1.060	1.021	1.036	1.117	1.148	1.213
1951	1.154	1.153	1.168	1.067	1.093	1.068	1.044	0.991	1.140	1.058	1.156	1.213
1952	1.171	1.146	1.219	1.121	1.144	1.107	1.042	0.993	1.150	1.144	1.176	1.210
1953	1.141	1.151	1.194	1.118	1.125	1.153	1.078	1.040	1.056	1.107	1.163	1.214
1954	1.149	1.150	1.216	1.067	1.117	1.159	1.073	1.010	1.038	1.005	1.033	1.223
1955	1.154	1.156	1.209	1.117	1.122	1.138	1.073	1.100	1.052	0.996	1.113	1.206
1956	1.159	1.158	1.189	1.091	1.081	1.099	1.022	0.985	1.047	1.045	1.169	1.210
1957	1.147	1.138	1.214	1.126	1.112	1.140	1.052	1.011	1.035	1.194	1.170	1.220
1958	1.136	1.146	1.186	1.098	1.125	1.162	1.072	1.013	1.101	1.194	1.178	1.220
1959	1.143	1.145	1.218	1.098	1.119	1.094	1.071	1.003	1.033	1.164	1.144	1.211
1960	1.161	1.137	1.195	1.119	1.145	1.159	1.030	1.048	1.141	1.136	1.177	1.221
1961	1.154	1.151	1.198	1.094	1.140	1.138	1.085	1.021	1.033	1.166	1.186	1.215
1962	1.134	1.143	1.199	1.135	1.134	1.144	1.038	1.025	1.112	1.187	1.182	1.217
1963	1.138	1.150	1.218	1.106	1.130	1.154	1.101	1.105	1.164	1.130	1.138	1.217
1964	1.143	1.143	1.198	1.131	1.124	1.142	1.060	1.069	1.035	1.029	1.138	1.216

Table 7: Heavy-Load Hydro Generation Ratios for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
1965	1.165	1.151	1.195	1.039	1.067	1.114	1.048	0.991	1.104	1.177	1.140	1.206
1966	1.144	1.147	1.203	1.135	1.132	1.149	1.050	1.082	1.176	1.118	1.148	1.212
1967	1.146	1.144	1.207	1.048	1.102	1.146	1.099	1.037	1.031	1.130	1.165	1.225
1968	1.148	1.143	1.201	1.073	1.131	1.165	1.096	1.128	1.143	1.080	1.127	1.221
1969	1.160	1.152	1.216	1.081	1.101	1.116	1.023	0.992	1.126	1.108	1.180	1.220
1970	1.151	1.149	1.197	1.134	1.129	1.145	1.085	1.091	1.111	1.199	1.161	1.203
1971	1.134	1.137	1.189	1.060	1.053	1.141	1.049	0.985	1.045	1.073	1.100	1.217
1972	1.136	1.138	1.202	1.057	1.090	1.045	1.039	0.987	1.031	1.009	1.062	1.216
1973	1.138	1.137	1.206	1.137	1.117	1.144	1.079	1.115	1.189	1.218	1.149	1.218
1974	1.137	1.123	1.195	1.021	1.035	1.082	1.025	0.985	1.034	1.007	1.108	1.224
1975	1.129	1.146	1.196	1.108	1.138	1.139	1.087	1.021	1.064	1.067	1.152	1.216
1976	1.153	1.154	1.143	1.101	1.102	1.108	1.042	0.993	1.125	1.043	1.013	1.147
1977	1.151	1.143	1.202	1.120	1.117	1.156	1.077	1.140	1.187	1.200	1.143	1.200
1978	1.134	1.138	1.193	1.124	1.114	1.138	1.057	1.036	1.134	1.161	1.176	1.243
1979	1.163	1.149	1.199	1.113	1.120	1.159	1.090	1.070	1.214	1.217	1.132	1.211
1980	1.143	1.152	1.189	1.111	1.116	1.147	1.070	1.001	1.123	1.203	1.162	1.220
1981	1.153	1.142	1.186	1.097	1.140	1.152	1.111	1.097	1.044	1.036	1.071	1.223
1982	1.152	1.152	1.219	1.089	1.062	1.104	1.067	1.006	1.030	1.122	1.100	1.232
1983	1.143	1.142	1.226	1.072	1.125	1.093	1.066	1.025	1.125	1.105	1.144	1.217
1984	1.132	1.151	1.216	1.116	1.122	1.123	1.037	1.071	1.104	1.112	1.174	1.209
1985	1.130	1.136	1.200	1.102	1.125	1.135	1.077	1.041	1.185	1.178	1.128	1.202
1986	1.138	1.149	1.193	1.120	1.081	1.052	1.076	1.109	1.154	1.171	1.160	1.205
1987	1.128	1.141	1.198	1.106	1.125	1.159	1.116	1.042	1.143	1.213	1.118	1.217
1988	1.133	1.152	1.192	1.114	1.121	1.132	1.090	1.126	1.195	1.219	1.148	1.222
1989	1.129	1.144	1.189	1.109	1.106	1.103	1.068	1.079	1.179	1.217	1.139	1.210
1990	1.138	1.139	1.196	1.087	1.132	1.145	1.074	1.048	1.064	1.172	1.145	1.215
1991	1.133	1.154	1.212	1.075	1.114	1.155	1.065	1.033	1.144	1.021	1.094	1.223
1992	1.138	1.145	1.180	1.107	1.104	1.156	1.094	1.121	1.191	1.202	1.122	1.208
1993	1.136	1.148	1.189	1.086	1.118	1.125	1.081	1.075	1.188	1.204	1.131	1.212
1994	1.130	1.149	1.190	1.113	1.112	1.138	1.095	1.131	1.196	1.216	1.143	1.222
1995	1.123	1.147	1.187	1.099	1.122	1.169	1.085	1.107	1.148	1.172	1.172	1.225
1996	1.144	1.142	1.075	1.034	1.031	1.087	1.039	1.003	1.098	1.004	1.124	1.216
1997	1.148	1.147	1.222	1.038	1.037	1.075	1.025	0.983	1.029	1.016	1.137	1.224
1998	1.175	1.153	1.209	1.141	1.149	1.157	1.098	1.043	1.081	1.173	1.154	1.215

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2	**Table 8: Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2012**													
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
6	**1929**	86	204	208	157	192	4	4	3	-1	19	20	7	**75**
7	**1930**	69	190	185	131	39	12	1	11	0	459	86	9	**102**
8	**1931**	69	175	205	172	133	-15	5	401	9	193	-1	12	**115**
9	**1932**	68	224	213	89	-8	11	235	-42	167	20	48	-5	**85**
10	**1933**	68	95	54	-13	83	109	218	66	-24	-148	9	-1	**42**
11	**1934**	200	55	-28	-74	-20	-8	-27	14	10	352	15	5	**43**
12	**1935**	107	91	198	-8	160	41	335	19	178	-10	550	19	**137**
13	**1936**	69	201	204	16	164	121	65	-11	1	258	20	23	**94**
14	**1937**	69	165	204	144	146	-10	2	84	-2	19	25	5	**71**
15	**1938**	82	168	145	-9	108	15	110	-17	343	134	20	3	**90**
16	**1939**	67	216	151	157	158	39	304	60	216	84	21	5	**122**
17	**1940**	79	172	106	139	105	160	254	83	390	40	21	5	**127**
18	**1941**	68	205	128	157	73	203	83	140	-2	20	21	4	**92**
19	**1942**	69	175	148	66	177	89	91	225	-4	41	429	-6	**123**
20	**1943**	68	107	96	143	159	55	-33	-14	-23	-15	19	5	**47**
21	**1944**	69	212	148	156	183	141	6	10	0	22	20	7	**81**
22	**1945**	69	224	194	136	-9	-2	1	360	195	19	20	11	**102**
23	**1946**	69	203	136	86	174	137	42	-24	-8	365	198	0	**115**
24	**1947**	69	212	29	-9	61	149	376	11	-3	-10	67	5	**78**
25	**1948**	68	44	40	44	96	127	82	178	48	-7	90	-6	**66**
26	**1949**	65	210	151	160	45	152	100	-14	-14	22	9	6	**75**
27	**1950**	68	193	164	-12	74	142	254	-9	178	2	417	0	**120**
28	**1951**	121	44	62	-62	-7	-53	30	-18	216	-10	202	1	**42**
29	**1952**	176	140	46	76	32	131	122	10	-11	214	112	7	**89**
30	**1953**	69	222	205	151	156	93	283	31	-23	121	300	3	**134**
31	**1954**	70	199	73	-9	54	181	243	1	37	-110	1	166	**74**
32	**1955**	87	85	67	110	181	191	91	335	-22	-148	368	19	**111**
33	**1956**	123	71	103	-77	-77	242	50	166	-41	-9	368	9	**76**
34	**1957**	72	195	84	70	119	80	158	81	-44	461	20	5	**111**
35	**1958**	68	204	145	85	134	174	339	-15	-10	471	21	7	**137**
36	**1959**	68	155	14	-60	94	158	98	-25	9	316	356	306	**124**
37	**1960**	202	159	96	55	73	200	-12	35	-7	115	156	9	**90**
38	**1961**	99	206	133	-7	111	211	350	20	56	196	21	10	**117**
39	**1962**	68	221	173	55	174	111	-37	29	-14	18	78	16	**73**
40	**1963**	70	115	38	-9	154	146	204	347	383	197	263	4	**157**
41	**1964**	69	224	130	86	151	129	152	43	-8	-8	450	-6	**116**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2	**Table 8: Federal Hydro Generation Adjustment for**													
3	**Stand Ready & Deployment Losses, Light-Load-Hours for FY 2012**													
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
42	**1965**	195	153	32	-7	140	-20	359	-13	320	123	225	5	**124**
43	**1966**	95	180	96	63	88	-2	-17	10	47	-6	456	9	**83**
44	**1967**	69	214	62	-9	154	-5	98	80	-47	19	348	5	**81**
45	**1968**	67	186	101	-1	63	160	260	375	-10	-11	302	168	**138**
46	**1969**	186	52	28	-75	-16	158	-7	11	-12	-8	111	7	**35**
47	**1970**	94	187	210	60	132	104	280	270	117	39	21	6	**126**
48	**1971**	69	206	203	43	-8	79	89	11	-51	-9	12	0	**54**
49	**1972**	67	214	95	-70	-71	-69	9	79	-21	-120	-11	-5	**8**
50	**1973**	66	211	136	54	173	161	63	349	3	20	19	11	**105**
51	**1974**	68	61	58	-129	-10	-85	88	-34	-5	-8	10	1	**1**
52	**1975**	68	211	177	49	105	74	135	-14	-34	-8	520	-5	**105**
53	**1976**	155	47	-75	53	-49	84	36	-32	88	-17	-13	143	**35**
54	**1977**	119	204	206	133	152	182	3	25	-2	20	46	16	**92**
55	**1978**	62	110	92	114	182	89	110	17	80	287	129	394	**140**
56	**1979**	181	189	218	91	12	174	232	-11	81	20	-9	10	**99**
57	**1980**	68	195	150	191	194	2	111	-19	-15	21	10	2	**76**
58	**1981**	76	211	98	-12	34	139	75	35	-79	-18	18	5	**48**
59	**1982**	76	162	77	150	-7	-79	294	25	-41	98	2	106	**74**
60	**1983**	97	181	62	-65	105	212	379	-24	312	-11	347	-3	**128**
61	**1984**	67	114	65	76	131	61	-39	330	-22	47	41	0	**73**
62	**1985**	66	179	131	56	130	42	178	-5	351	19	-11	23	**94**
63	**1986**	68	111	159	53	151	-54	163	331	347	386	40	5	**147**
64	**1987**	69	203	122	167	19	168	220	-9	6	153	-5	20	**96**
65	**1988**	68	186	157	171	142	47	5	363	-2	480	112	8	**148**
66	**1989**	68	143	177	169	129	28	75	3	391	20	21	10	**101**
67	**1990**	69	187	89	-8	148	168	62	26	9	371	268	12	**116**
68	**1991**	69	129	98	-18	2	189	35	-5	-13	-25	13	2	**39**
69	**1992**	69	175	146	115	189	155	79	366	122	20	-15	22	**119**
70	**1993**	86	208	194	166	155	36	1	317	-2	19	20	16	**102**
71	**1994**	68	174	168	172	154	47	3	308	350	430	7	8	**159**
72	**1995**	68	209	160	171	148	169	290	23	10	121	20	1	**116**
73	**1996**	101	68	-14	-50	-12	-84	11	-38	1	-94	119	23	**2**
74	**1997**	68	207	97	-14	-11	-94	39	105	-24	-14	259	99	**60**
75	**1998**	121	53	65	49	97	167	291	-13	-40	136	20	11	**80**
76	**50 WY Average**	**89**	**164**	**117**	**51**	**94**	**92**	**122**	**74**	**53**	**80**	**140**	**28**	**92**
77	**70 WY Average**	**87**	**164**	**118**	**60**	**94**	**87**	**123**	**83**	**63**	**89**	**118**	**26**	**92**
78	**Hours**	**328**	**321**	**328**	**344**	**296**	**311**	**320**	**328**	**304**	**344**	**312**	**336**	**3872**

Table 9: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2012

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1929	-79	-172	-190	-150	-149	-21	-22	-18	-19	-32	-34	-26	**-76**
1930	-66	-164	-161	-131	-38	-24	-30	-27	-22	-384	-86	-38	**-97**
1931	-67	-148	-186	-160	-108	-20	-29	-303	-29	-135	-13	-31	**-102**
1932	-67	-191	-186	-97	-3	-30	-215	-55	-133	-36	-54	-24	**-91**
1933	-67	-90	-54	28	-49	-89	-191	-54	-21	-222	12	-21	**-68**
1934	-167	-31	-31	-110	-23	28	-37	-25	-25	-271	-26	-24	**-61**
1935	-93	-87	-182	28	-99	-52	-272	-4	-142	41	-402	-37	**-110**
1936	-66	-168	-187	-35	-126	-100	-65	38	-5	-230	-32	-40	**-84**
1937	-66	-139	-187	-144	-124	-9	-30	-80	-18	-37	-36	-35	**-75**
1938	-75	-147	-131	30	-96	-28	-59	-21	-235	-90	-31	-31	**-76**
1939	-65	-183	-135	-150	-121	-44	-240	-64	-170	-85	-24	-25	**-108**
1940	-73	-147	-94	-138	-87	-127	-196	-50	-293	-44	-25	-25	**-108**
1941	-64	-175	-112	-150	-63	-157	-80	-123	-21	-34	-28	-24	**-86**
1942	-71	-151	-134	-80	-137	-80	-86	-171	6	-20	-311	-24	**-106**
1943	-65	-101	-92	-139	-123	-51	-31	0	-23	-8	-20	-42	**-58**
1944	-69	-191	-132	-147	-140	-112	-24	-24	-28	-29	-24	-25	**-79**
1945	-69	-191	-168	-133	-15	-15	-29	-257	-154	-37	-34	-31	**-94**
1946	-70	-183	-118	-81	-136	-111	-68	-34	14	-286	-163	-20	**-105**
1947	-66	-189	-29	34	-83	-120	-292	11	-1	36	-70	-25	**-66**
1948	-20	-41	-42	-6	-77	-103	-38	-173	-37	34	-45	-24	**-49**
1949	-62	-189	-130	-148	-51	-125	-49	19	35	-28	-29	-44	**-66**
1950	-68	-177	-144	29	-54	-111	-178	2	-161	31	-275	-20	**-95**
1951	-103	-43	-30	-68	15	-51	-34	-22	-157	-3	-123	-22	**-54**
1952	-148	-121	-45	-37	-25	-99	-98	-83	37	-156	-99	-39	**-76**
1953	-67	-188	-178	-142	-124	-82	-242	-36	-16	-85	-230	-23	**-118**
1954	-67	-169	-67	29	-18	-128	-209	-14	-42	-142	-9	-123	**-79**
1955	-79	-77	-64	-101	-140	-147	-90	-241	-3	-217	-243	-33	**-120**
1956	-105	-74	-61	-87	-73	-177	-65	-223	-52	-4	-272	-28	**-104**
1957	-69	-178	-77	-82	-97	-68	-114	-91	-17	-385	-25	-26	**-101**
1958	-66	-171	-132	-91	-106	-136	-274	-14	33	-394	-33	-28	**-117**
1959	-65	-136	-8	-50	-40	-104	-51	-26	-67	-245	-231	-246	**-105**
1960	-127	-111	-55	-24	-54	-152	-5	-38	34	-80	-134	-29	**-65**
1961	-88	-175	-117	27	-85	-130	-263	-26	-45	-139	-32	-30	**-92**
1962	-67	-187	-148	-68	-132	-96	-21	-42	-9	-33	-80	-35	**-77**
1963	-66	-99	-37	29	-119	-108	-183	-269	-277	-141	-205	-35	**-127**
1964	-69	-193	-116	-79	-118	-107	-137	-29	-2	-4	-299	-24	**-99**

Table 9: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2012

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1965	-164	-130	-53	27	-96	28	-260	-19	-273	-77	-137	-39	**-99**
1966	-85	-155	-88	-68	-65	-18	39	14	-10	33	-327	-28	**-64**
1967	-66	-193	-61	28	-99	10	-96	-86	-55	-26	-223	-35	**-75**
1968	-64	-158	-92	24	-51	-130	-228	-291	25	-2	-193	-173	**-111**
1969	-155	-57	-20	-86	32	-117	15	-31	28	41	-99	-23	**-41**
1970	-83	-161	-190	-64	-106	-91	-233	-184	-169	-46	-29	-39	**-116**
1971	-69	-187	-177	-165	22	-62	-42	-102	-62	41	8	-28	**-68**
1972	-65	-183	-85	-85	-72	-86	10	-93	5	-171	15	-23	**-69**
1973	-63	-179	-118	-51	-135	-126	-67	-246	-21	-34	-23	-31	**-91**
1974	-68	-64	-59	-213	-3	-68	-61	5	1	2	17	-29	**-45**
1975	-69	-177	-153	-63	-91	-69	-122	0	-35	36	-378	-24	**-97**
1976	-134	-35	-82	-136	-21	-51	-28	8	-39	-2	-16	-97	**-53**
1977	-101	-172	-183	-129	-120	-140	-23	-33	-25	-32	-53	-35	**-87**
1978	-66	-103	-89	-117	-143	-76	-61	-21	-88	-210	-114	-346	**-118**
1979	-155	-163	-196	-101	-17	-138	-211	39	-87	-35	-16	-30	**-93**
1980	-65	-168	-136	-179	-148	-21	-76	-4	38	-30	-24	-21	**-69**
1981	-70	-180	-67	35	-25	-104	-74	-5	-69	-3	18	-33	**-48**
1982	-71	-138	-71	-105	11	-73	-262	-31	-45	-52	16	-115	**-77**
1983	-84	-153	-63	-58	-79	-250	-282	-35	-222	38	-227	-26	**-122**
1984	-64	-87	-64	-112	-95	-59	9	-229	-29	-25	-47	-21	**-69**
1985	-63	-163	-115	-56	-102	-45	-155	7	-249	-37	-15	-49	**-87**
1986	-64	-98	-135	-68	-108	-56	-117	-264	-263	-305	-48	-39	**-130**
1987	-71	-173	-106	-157	-23	-132	-202	39	23	-103	-17	-36	**-79**
1988	-67	-159	-139	-160	-121	-51	-22	-296	-18	-398	-101	-25	**-129**
1989	-67	-128	-153	-159	-102	-49	-30	-9	-287	-40	-26	-30	**-90**
1990	-67	-158	-65	28	-101	-137	-34	-30	-11	-291	-168	-32	**-89**
1991	-66	-86	-80	36	25	-139	-22	-4	38	-13	16	-20	**-27**
1992	-67	-153	-131	-105	-144	-115	-78	-294	-104	-36	-12	-39	**-107**
1993	-79	-175	-173	-158	-134	-48	-29	-274	-17	-27	-23	-41	**-98**
1994	-67	-148	-146	-159	-121	-55	-22	-250	-267	-358	-16	-25	**-136**
1995	-65	-189	-143	-157	-116	-133	-236	-3	20	-116	-23	-30	**-99**
1996	-90	-42	1	-77	-8	-78	7	-61	-34	-126	-67	-36	**-51**
1997	-64	-176	-88	15	8	-90	-39	-171	-29	4	-161	-113	**-76**
1998	-62	-55	-62	-48	-81	-128	-242	34	-18	-90	-33	-31	**-68**
50 WY Average	**-80**	**-143**	**-108**	**-74**	**-79**	**-82**	**-104**	**-73**	**-56**	**-87**	**-106**	**-46**	**-87**
70 WY Average	**-78**	**-142**	**-108**	**-78**	**-78**	**-86**	**-105**	**-78**	**-63**	**-91**	**-90**	**-44**	**-87**
Hours	**416**	**400**	**416**	**400**	**400**	**432**	**400**	**416**	**416**	**400**	**432**	**384**	**4912**

	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, Flat Energy for FY 2012**													
3														
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
6	**1929**	-7	-5	-14	-8	-4	-11	-10	-9	-11	-9	-11	-11	**-9**
7	**1930**	-7	-6	-8	-10	-5	-9	-16	-10	-12	6	-14	-16	**-9**
8	**1931**	-7	-4	-14	-6	-6	-18	-14	8	-13	17	-8	-11	**-6**
9	**1932**	-7	-6	-10	-11	-5	-13	-15	-49	-6	-10	-11	-15	**-13**
10	**1933**	-7	-8	-6	9	7	-6	-9	-1	-22	-188	11	-12	**-20**
11	**1934**	-5	7	-29	-93	-22	13	-33	-8	-10	17	-8	-11	**-15**
12	**1935**	-5	-8	-15	12	11	-13	-2	6	-7	18	-3	-11	**-1**
13	**1936**	-7	-4	-15	-11	-3	-7	-7	17	-3	-4	-10	-10	**-5**
14	**1937**	-7	-4	-14	-11	-9	-9	-16	-8	-11	-11	-10	-16	**-11**
15	**1938**	-6	-7	-9	12	-9	-10	16	-19	9	14	-9	-15	**-3**
16	**1939**	-7	-6	-9	-8	-2	-9	2	-10	-7	-7	-5	-11	**-7**
17	**1940**	-6	-5	-6	-10	-5	-7	4	9	-5	-5	-6	-11	**-4**
18	**1941**	-6	-5	-6	-8	-5	-6	-8	-7	-13	-9	-7	-11	**-8**
19	**1942**	-9	-6	-10	-12	-4	-9	-7	4	2	8	-1	-16	**-5**
20	**1943**	-7	-8	-9	-8	-3	-7	-32	-6	-23	-11	-4	-20	**-12**
21	**1944**	-9	-12	-9	-7	-3	-6	-11	-9	-16	-5	-6	-10	**-8**
22	**1945**	-8	-6	-8	-9	-12	-10	-16	15	-6	-11	-11	-12	**-8**
23	**1946**	-9	-11	-6	-4	-4	-7	-19	-29	4	15	-11	-10	**-8**
24	**1947**	-6	-11	-4	14	-22	-8	5	11	-2	15	-12	-11	**-2**
25	**1948**	19	-3	-6	17	-3	-7	15	-18	-1	15	12	-15	**2**
26	**1949**	-6	-11	-6	-5	-10	-9	17	5	14	-5	-13	-21	**-4**
27	**1950**	-8	-12	-8	10	0	-5	14	-3	-18	17	15	-11	**-1**
28	**1951**	-4	-4	10	-65	5	-52	-5	-20	1	-6	14	-11	**-12**
29	**1952**	-5	-5	-5	15	-1	-2	0	-42	17	15	-11	-18	**-4**
30	**1953**	-7	-6	-9	-6	-5	-8	-9	-6	-19	10	-8	-11	**-7**
31	**1954**	-7	-5	-5	12	12	2	-8	-7	-9	-127	-5	12	**-11**
32	**1955**	-6	-5	-6	-4	-3	-6	-9	13	-11	-185	13	-9	**-18**
33	**1956**	-4	-9	12	-82	-74	-2	-14	-51	-47	-6	-4	-11	**-24**
34	**1957**	-7	-12	-6	-12	-5	-7	7	-15	-28	6	-6	-12	**-8**
35	**1958**	-7	-4	-10	-10	-4	-6	-2	-15	15	6	-11	-12	**-5**
36	**1959**	-6	-6	2	-55	17	6	15	-26	-35	14	15	12	**-4**
37	**1960**	18	9	11	13	0	-5	-8	-5	17	10	-12	-11	**3**
38	**1961**	-6	-5	-7	12	-2	13	9	-6	-2	16	-10	-11	**0**
39	**1962**	-7	-5	-6	-12	-2	-9	-28	-11	-11	-9	-13	-11	**-10**
40	**1963**	-6	-4	-4	11	-3	-2	-11	3	1	15	-9	-17	**-2**
41	**1964**	-8	-7	-8	-3	-3	-8	-8	3	-5	-6	15	-16	**-4**

	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, Flat Energy for FY 2012**													
3														
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
42	**1965**	-6	-4	-15	12	5	8	15	-16	-23	16	15	-18	**-1**
43	**1966**	-5	-6	-7	-8	0	-11	14	12	14	15	1	-11	**1**
44	**1967**	-6	-12	-7	11	9	3	-10	-12	-51	-5	16	-16	**-7**
45	**1968**	-6	-5	-7	13	-2	-8	-11	3	10	-6	15	-14	**-2**
46	**1969**	-5	-9	1	-81	12	-2	5	-12	11	18	-11	-9	**-7**
47	**1970**	-5	-6	-13	-7	-5	-9	-5	16	-49	-6	-8	-18	**-10**
48	**1971**	-8	-12	-10	-69	9	-3	17	-52	-57	18	10	-15	**-14**
49	**1972**	-7	-6	-6	-78	-71	-79	9	-17	-6	-147	4	-15	**-35**
50	**1973**	-6	-5	-6	-3	-4	-5	-9	16	-11	-9	-6	-11	**-5**
51	**1974**	-8	-8	-7	-174	-6	-75	5	-13	-1	-3	14	-15	**-25**
52	**1975**	-9	-4	-8	-11	-7	-9	-8	-7	-35	15	-2	-15	**-8**
53	**1976**	-7	2	-79	-49	-33	5	0	-10	15	-9	-15	15	**-14**
54	**1977**	-4	-5	-12	-8	-4	-5	-11	-7	-15	-8	-11	-11	**-8**
55	**1978**	-10	-8	-9	-10	-5	-7	15	-4	-17	19	-12	-1	**-4**
56	**1979**	-7	-6	-13	-12	-5	-7	-15	17	-16	-9	-13	-11	**-8**
57	**1980**	-6	-6	-10	-8	-2	-11	7	-10	16	-6	-10	-10	**-5**
58	**1981**	-6	-6	6	13	0	-2	-8	13	-73	-10	18	-15	**-6**
59	**1982**	-6	-5	-6	13	3	-76	-15	-6	-44	18	10	-12	**-10**
60	**1983**	-4	-4	-8	-61	0	-57	12	-30	4	15	13	-15	**-11**
61	**1984**	-6	3	-7	-25	1	-9	-13	17	-26	9	-10	-11	**-6**
62	**1985**	-6	-11	-7	-4	-3	-9	-7	2	4	-11	-13	-16	**-7**
63	**1986**	-6	-5	-5	-12	2	-55	8	-2	-5	14	-11	-18	**-8**
64	**1987**	-9	-6	-6	-7	-5	-7	-14	18	16	15	-12	-10	**-2**
65	**1988**	-8	-5	-9	-7	-9	-10	-10	-5	-11	8	-11	-10	**-7**
66	**1989**	-7	-7	-8	-7	-4	-17	17	-4	-1	-12	-6	-11	**-6**
67	**1990**	-7	-4	3	12	5	-10	9	-6	-3	15	15	-12	**1**
68	**1991**	-7	10	-1	11	16	-2	4	-4	16	-18	15	-10	**2**
69	**1992**	-7	-7	-9	-3	-3	-2	-8	-3	-9	-10	-13	-11	**-7**
70	**1993**	-6	-5	-11	-8	-11	-13	-16	-14	-11	-6	-5	-14	**-10**
71	**1994**	-7	-5	-7	-6	-4	-12	-11	-4	-6	6	-6	-10	**-6**
72	**1995**	-7	-12	-9	-6	-4	-6	-2	8	16	-6	-5	-16	**-4**
73	**1996**	-6	7	-5	-65	-10	-80	9	-51	-19	-111	11	-8	**-28**
74	**1997**	-6	-6	-6	2	0	-92	-5	-49	-27	-4	15	-14	**-16**
75	**1998**	18	-7	-6	-3	-5	-5	-5	13	-27	14	-11	-12	**-3**
76	**50 WY Average**	**-6**	**-6**	**-9**	**-16**	**-6**	**-9**	**-4**	**-8**	**-10**	**-9**	**-3**	**-11**	**-8**
77	**70 WY Average**	**-6**	**-5**	**-8**	**-14**	**-5**	**-13**	**-4**	**-7**	**-10**	**-8**	**-2**	**-12**	**-8**
78	**Hours**	**744**	**721**	**744**	**744**	**696**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8784**

Table 11: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Light-Load-Hours for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1929	85	242	207	233	193	23	5	5	1	23	153	21	**99**
1930	85	228	157	198	60	31	1	7	2	65	323	24	**99**
1931	86	216	215	220	109	-17	7	361	0	344	3	28	**133**
1932	85	225	187	76	3	24	250	-11	-16	98	279	9	**100**
1933	85	84	90	-15	98	80	205	198	3	-265	154	14	**59**
1934	196	79	-28	-214	-33	-20	-13	-2	-188	392	22	19	**18**
1935	100	80	196	-12	200	28	405	137	149	23	81	39	**117**
1936	85	239	206	-14	142	91	0	-11	-16	475	195	43	**120**
1937	86	205	207	197	123	4	5	21	0	22	254	20	**95**
1938	86	156	186	-14	138	26	158	7	375	108	25	17	**105**
1939	84	231	124	227	135	56	402	47	145	304	28	20	**149**
1940	85	213	160	206	81	183	248	60	430	252	29	21	**164**
1941	84	226	181	226	48	197	21	135	0	201	80	19	**120**
1942	86	205	104	138	154	61	55	224	-20	199	30	8	**104**
1943	85	96	72	133	117	16	36	-4	-11	-17	25	20	**47**
1944	85	201	121	227	208	112	6	7	3	27	35	21	**87**
1945	86	224	166	126	1	13	1	281	193	23	102	26	**105**
1946	86	190	190	122	208	88	147	36	-14	364	433	15	**154**
1947	86	201	153	-9	104	165	369	91	39	72	302	20	**131**
1948	95	110	76	22	134	98	126	-10	35	-22	278	9	**77**
1949	82	199	204	179	66	162	146	-11	11	27	13	22	**92**
1950	85	180	138	-14	138	155	196	40	210	64	337	15	**127**
1951	112	105	98	-43	-12	-10	164	-1	261	-199	379	16	**71**
1952	229	181	82	49	53	153	168	-15	-15	368	341	23	**134**
1953	85	230	176	184	137	123	282	25	-9	230	536	18	**166**
1954	83	237	109	-9	62	183	198	-4	-18	-294	2	360	**76**
1955	82	125	120	163	194	159	45	322	-17	-261	295	40	**104**
1956	115	97	59	-47	-9	330	179	13	-17	-120	565	28	**98**
1957	79	182	119	108	96	39	109	-13	-169	68	28	20	**55**
1958	85	242	118	159	172	176	398	-11	-22	101	92	23	**126**
1959	85	197	122	-12	106	216	143	55	-11	263	277	547	**167**
1960	261	180	46	40	105	173	-13	25	27	247	391	25	**125**
1961	91	241	186	-1	132	269	347	5	82	257	207	25	**152**
1962	85	230	224	38	231	82	-15	17	18	23	314	36	**106**
1963	77	155	161	-10	161	187	161	424	310	254	494	18	**199**
1964	85	216	186	125	222	101	132	154	-20	-158	343	8	**114**

Table 11: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Light-Load-Hours for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1965	192	193	152	-25	136	24	325	48	234	121	223	21	**135**
1966	86	222	151	53	132	1	30	66	79	152	36	24	**86**
1967	86	201	115	-13	200	-18	37	174	-13	125	315	19	**101**
1968	84	225	153	-12	109	200	356	431	21	-21	221	245	**167**
1969	182	115	136	-12	-14	254	96	91	76	-9	340	22	**106**
1970	85	225	225	112	189	74	325	213	-10	251	121	22	**152**
1971	85	194	174	-30	135	72	147	-16	-10	-23	143	17	**73**
1972	82	216	149	-9	-12	-116	129	84	-17	-257	13	13	**23**
1973	82	228	189	93	246	131	22	294	5	141	22	26	**123**
1974	85	77	94	-138	-243	-35	184	112	-9	-282	99	15	**-2**
1975	85	249	229	57	138	49	80	40	-1	-23	124	13	**86**
1976	149	112	-3	80	-10	90	102	-4	269	-286	-156	192	**45**
1977	110	242	231	201	225	185	1	6	1	213	275	36	**144**
1978	60	99	47	180	172	60	152	52	13	368	363	470	**170**
1979	181	227	225	159	16	198	181	4	17	84	-2	25	**110**
1980	85	238	123	214	60	56	57	-21	-21	37	16	17	**72**
1981	84	232	134	-11	60	242	13	66	-15	-275	27	22	**48**
1982	84	203	112	156	142	-45	244	72	-11	262	126	183	**127**
1983	87	219	98	-10	125	128	310	98	189	23	273	14	**128**
1984	83	179	104	163	187	12	31	280	-10	154	271	16	**122**
1985	82	168	182	80	183	59	292	23	350	21	-8	32	**121**
1986	84	151	210	52	111	-118	112	359	325	366	270	22	**162**
1987	86	215	175	238	14	137	167	-12	4	235	-1	40	**109**
1988	85	224	129	176	118	24	6	304	0	65	342	23	**125**
1989	85	132	221	240	107	46	120	52	289	25	30	26	**115**
1990	85	225	190	-5	193	192	146	34	-15	278	403	28	**145**
1991	86	107	174	-18	22	286	127	6	26	-254	127	17	**59**
1992	85	163	119	155	167	197	17	311	52	131	-12	42	**120**
1993	86	245	219	237	130	54	1	230	0	23	79	24	**112**
1994	85	215	220	201	226	28	4	297	341	33	11	23	**141**
1995	85	196	132	219	144	123	297	77	169	342	56	19	**154**
1996	93	96	-166	-78	-35	-42	85	-8	-12	-256	274	44	**-3**
1997	84	227	131	-26	-31	-73	157	30	-20	-254	207	175	**51**
1998	190	130	101	73	147	126	273	-13	-17	245	246	27	**126**
50 WY Average	**100**	**185**	**143**	**70**	**110**	**95**	**141**	**84**	**47**	**81**	**192**	**56**	**108**
70 WY Average	**99**	**186**	**143**	**82**	**108**	**91**	**139**	**91**	**57**	**76**	**176**	**51**	**108**
Hours	**312**	**321**	**344**	**328**	**288**	**327**	**304**	**328**	**320**	**328**	**312**	**336**	**3848**

Table 12: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1929	-77	-205	-197	-194	-151	-42	-23	-22	-24	-37	-122	-41	**-94**
1930	-76	-196	-154	-174	-59	-44	-26	-21	-24	-26	-247	-37	**-91**
1931	-77	-182	-213	-185	-101	-15	-29	-261	-23	-246	-24	-44	**-116**
1932	-75	-192	-178	-81	-14	-40	-201	-4	13	-88	-216	-20	**-92**
1933	-76	-80	-90	25	-66	-83	-152	-167	-20	-360	-112	-34	**-102**
1934	-152	-48	-8	-307	-27	20	-4	-13	-283	-289	-33	-40	**-99**
1935	-83	-77	-187	26	-137	-43	-287	-119	-138	-28	-44	-44	**-96**
1936	-78	-202	-196	-7	-114	-94	-21	7	9	-370	-153	-42	**-105**
1937	-78	-173	-197	-180	-100	-24	-28	-36	-23	-39	-195	-37	**-93**
1938	-76	-136	-181	25	-114	-41	-93	-24	-279	-62	-38	-31	**-87**
1939	-76	-198	-126	-193	-110	-67	-270	-50	-137	-257	-36	-42	**-130**
1940	-75	-180	-151	-180	-73	-158	-161	-22	-357	-219	-37	-42	**-137**
1941	-77	-193	-169	-193	-50	-172	-36	-125	-22	-173	-70	-36	**-110**
1942	-77	-176	-107	-128	-124	-72	-58	-152	38	-130	-10	-21	**-85**
1943	-77	-90	-81	-102	-95	-31	-49	-4	-4	-6	-36	-38	**-51**
1944	-80	-177	-122	-193	-162	-111	-20	-21	-22	-36	-40	-43	**-85**
1945	-79	-191	-160	-112	-16	-31	-26	-200	-173	-33	-88	-41	**-96**
1946	-80	-162	-178	-110	-166	-88	-94	-52	36	-264	-321	-37	**-127**
1947	-78	-175	-129	28	-69	-139	-254	-58	-6	-47	-232	-41	**-101**
1948	-48	-100	-77	3	-115	-94	-70	-2	-29	-1	-177	-24	**-61**
1949	-72	-176	-190	-126	-66	-138	-85	-4	18	-36	-28	-42	**-79**
1950	-78	-155	-135	25	-110	-133	-122	-56	-161	-25	-222	-37	**-101**
1951	-92	-97	-66	-21	-11	1	-127	-16	-185	-281	-255	-38	**-100**
1952	-174	-154	-82	-20	-48	-138	-102	-1	36	-264	-257	-40	**-106**
1953	-78	-196	-170	-157	-111	-123	-207	-27	-5	-157	-378	-38	**-139**
1954	-72	-201	-106	28	-37	-142	-147	-2	1	-390	-8	-312	**-115**
1955	-74	-109	-116	-141	-151	-141	-53	-229	-3	-351	-190	-41	**-134**
1956	-93	-86	-25	-5	26	-268	-115	-36	-5	-128	-396	-37	**-100**
1957	-72	-157	-116	-104	-81	-50	-58	-1	-199	-28	-37	-42	**-78**
1958	-78	-205	-121	-142	-139	-156	-285	37	2	-54	-80	-41	**-105**
1959	-78	-168	-109	25	-61	-151	-85	-62	-3	-183	-176	-473	**-126**
1960	-165	-130	-12	-12	-86	-151	-4	-30	-5	-170	-295	-42	**-93**
1961	-77	-204	-175	20	-113	-192	-241	-17	-65	-177	-163	-44	**-121**
1962	-79	-196	-208	-52	-178	-89	-5	-26	5	-37	-240	-44	**-96**
1963	-69	-131	-136	28	-130	-162	-138	-311	-242	-174	-355	-36	**-156**
1964	-79	-188	-172	-108	-177	-105	-115	-132	4	-190	-234	-20	**-127**

Table 12: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Heavy-Load-Hours for FY 2013

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Wtd Avg.
1965	-150	-163	-137	-2	-124	-2	-231	-69	-203	-72	-139	-39	**-111**
1966	-74	-188	-144	-59	-106	-24	-18	-72	-53	-142	-10	-43	**-77**
1967	-78	-179	-114	24	-141	21	-51	-147	-5	-124	-210	-36	**-87**
1968	-75	-191	-146	28	-91	-173	-276	-317	-8	2	-147	-245	**-136**
1969	-142	-104	-121	25	24	-212	-94	-65	-35	-5	-259	-42	**-88**
1970	-74	-194	-221	-102	-153	-83	-247	-142	-6	-212	-103	-39	**-131**
1971	-78	-165	-168	15	-123	-43	-87	-7	-5	6	-95	-28	**-64**
1972	-72	-185	-142	26	31	-176	-111	-81	0	-350	-25	-23	**-93**
1973	-74	-195	-178	-85	-194	-119	-34	-211	-22	-121	-31	-43	**-108**
1974	-78	-77	-96	-184	-340	-28	-136	-63	-4	-383	-78	-27	**-124**
1975	-79	-211	-213	-61	-111	-62	-81	-56	-16	0	-78	-23	**-82**
1976	-121	-92	26	-44	26	-59	-52	27	-216	-390	-303	-146	**-114**
1977	-90	-206	-223	-173	-180	-160	-23	-20	-23	-190	-214	-43	**-129**
1978	-63	-92	-59	-160	-136	-65	-91	-72	-32	-270	-277	-401	**-142**
1979	-142	-195	-214	-144	-24	-169	-149	-7	-34	-73	-19	-44	**-101**
1980	-76	-201	-126	-179	-57	-66	-22	24	37	-42	-32	-37	**-65**
1981	-75	-198	-98	22	-53	-192	-31	-27	11	-374	-35	-34	**-91**
1982	-73	-172	-109	-103	-141	-35	-177	-75	-3	-177	-81	-193	**-111**
1983	-75	-186	-101	28	-102	-339	-210	-88	-166	-5	-173	-24	**-121**
1984	-74	-142	-103	-146	-153	-33	-27	-194	-5	-102	-216	-34	**-103**
1985	-76	-150	-172	-77	-148	-70	-228	-38	-255	-27	-10	-42	**-107**
1986	-77	-132	-194	-57	-88	-177	-59	-261	-255	-270	-210	-39	**-152**
1987	-75	-184	-164	-200	-24	-123	-140	19	19	-159	-17	-45	**-91**
1988	-77	-192	-131	-149	-97	-39	-22	-222	-22	-31	-266	-43	**-108**
1989	-79	-118	-209	-203	-89	-58	-66	-65	-230	-34	-38	-42	**-102**
1990	-80	-192	-161	24	-134	-164	-82	-36	10	-203	-273	-41	**-112**
1991	-78	-60	-153	25	5	-227	-87	-22	-4	-347	-110	-38	**-93**
1992	-77	-141	-121	-134	-132	-170	-34	-226	-63	-117	-7	-42	**-105**
1993	-77	-207	-212	-204	-111	-67	-27	-172	-23	-35	-71	-38	**-103**
1994	-79	-182	-204	-167	-180	-43	-21	-228	-252	-4	-26	-43	**-118**
1995	-75	-178	-134	-183	-119	-114	-196	-37	-155	-282	-57	-28	**-130**
1996	-79	-61	-261	-102	-32	-22	-50	-2	-2	-349	-176	-44	**-99**
1997	-75	-194	-128	-3	-22	-121	-128	-39	4	-346	-128	-185	**-114**
1998	-113	-114	-100	-69	-130	-114	-189	13	11	-169	-187	-40	**-101**
50 WY Average	**-85**	**-159**	**-135**	**-75**	**-99**	**-94**	**-106**	**-71**	**-58**	**-152**	**-150**	**-65**	**-104**
70 WY Average	**-84**	**-159**	**-141**	**-82**	**-97**	**-101**	**-104**	**-75**	**-61**	**-154**	**-138**	**-62**	**-105**
Hours	**432**	**400**	**400**	**416**	**384**	**416**	**416**	**416**	**400**	**416**	**432**	**384**	**4912**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 13: Federal Hydro Generation Adjustment for**													
2	**Stand Ready & Deployment Losses, Flat Energy for FY 2013**													
3														
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
6	**1929**	-9	-6	-10	-6	-4	-14	-11	-10	-13	-10	-7	-12	**-9**
7	**1930**	-8	-7	-10	-10	-8	-11	-14	-9	-12	14	-8	-8	**-8**
8	**1931**	-9	-5	-15	-7	-11	-16	-14	13	-13	14	-13	-10	**-7**
9	**1932**	-8	-6	-10	-12	-6	-12	-10	-7	0	-6	-8	-6	**-8**
10	**1933**	-8	-7	-7	7	5	-11	-1	-6	-10	-318	0	-12	**-31**
11	**1934**	-6	9	-17	-266	-30	2	-8	-8	-241	11	-10	-12	**-48**
12	**1935**	-7	-7	-10	9	7	-11	5	-6	-10	-5	8	-5	**-3**
13	**1936**	-9	-6	-10	-10	-4	-12	-12	-1	-2	2	-7	-2	**-6**
14	**1937**	-10	-5	-10	-14	-5	-12	-14	-11	-12	-12	-7	-10	**-10**
15	**1938**	-8	-6	-11	8	-6	-12	13	-11	12	13	-12	-8	**-2**
16	**1939**	-9	-7	-11	-8	-5	-13	14	-7	-12	-10	-9	-13	**-7**
17	**1940**	-8	-5	-7	-10	-7	-7	12	14	-7	-11	-10	-13	**-5**
18	**1941**	-9	-6	-7	-8	-8	-10	-12	-10	-12	-8	-7	-11	**-9**
19	**1942**	-8	-6	-9	-11	-5	-14	-10	14	12	15	7	-7	**-2**
20	**1943**	-9	-7	-11	2	-4	-10	-13	-4	-7	-11	-11	-11	**-8**
21	**1944**	-10	-9	-10	-8	-4	-12	-9	-9	-11	-8	-9	-13	**-9**
22	**1945**	-10	-6	-9	-7	-9	-12	-15	12	-10	-8	-8	-10	**-8**
23	**1946**	-10	-5	-8	-8	-6	-11	8	-13	14	13	-5	-13	**-4**
24	**1947**	-9	-8	1	11	5	-5	9	8	14	6	-8	-12	**1**
25	**1948**	12	-6	-6	11	-8	-10	13	-5	0	-10	14	-8	**0**
26	**1949**	-8	-9	-8	8	-9	-6	13	-7	15	-9	-11	-12	**-4**
27	**1950**	-9	-6	-9	8	-4	-6	12	-14	4	14	13	-13	**-1**
28	**1951**	-6	-7	9	-31	-12	-4	-4	-10	13	-245	11	-13	**-25**
29	**1952**	-5	-5	-6	10	-5	-10	12	-7	13	15	-6	-11	**0**
30	**1953**	-9	-6	-10	-7	-5	-15	-1	-4	-7	14	5	-12	**-5**
31	**1954**	-7	-6	-6	11	5	1	-1	-3	-8	-348	-4	2	**-31**
32	**1955**	-9	-5	-7	-7	-3	-9	-11	14	-9	-312	13	-3	**-29**
33	**1956**	-6	-4	14	-24	11	-5	9	-14	-10	-125	7	-6	**-13**
34	**1957**	-9	-6	-7	-10	-5	-11	12	-7	-186	14	-10	-13	**-19**
35	**1958**	-10	-6	-10	-9	-6	-10	4	16	-9	14	-8	-11	**-4**
36	**1959**	-9	-6	-2	9	10	11	12	-11	-7	14	14	3	**3**
37	**1960**	14	8	15	11	-4	-8	-8	-6	10	14	-7	-11	**2**
38	**1961**	-6	-6	-8	11	-8	11	7	-7	0	15	-8	-12	**-1**
39	**1962**	-10	-6	-8	-12	-3	-14	-9	-7	11	-11	-8	-7	**-7**
40	**1963**	-8	-4	1	11	-5	-9	-12	13	3	15	1	-11	**0**
41	**1964**	-10	-8	-7	-5	-6	-15	-11	-6	-7	-176	8	-7	**-21**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 13: Federal Hydro Generation Adjustment for Stand Ready & Deployment Losses, Flat Energy for FY 2013**													
2														
3														
4														
5	**Water Year**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Wtd Avg.**
42	**1965**	-7	-4	-3	-12	-12	9	4	-17	-9	13	13	-11	**-3**
43	**1966**	-7	-6	-8	-10	-4	-13	2	-11	6	-12	9	-12	**-5**
44	**1967**	-9	-10	-8	8	5	4	-14	-5	-8	-14	10	-10	**-4**
45	**1968**	-9	-6	-8	10	-5	-9	-9	13	5	-8	7	-16	**-3**
46	**1969**	-6	-7	-2	9	8	-7	-14	4	14	-7	-8	-12	**-2**
47	**1970**	-7	-7	-15	-8	-6	-14	-5	14	-8	-7	-9	-10	**-7**
48	**1971**	-10	-5	-10	-5	-12	8	12	-11	-7	-7	5	-7	**-4**
49	**1972**	-7	-6	-7	11	13	-150	-10	-8	-7	-309	-9	-6	**-42**
50	**1973**	-8	-6	-8	-7	-5	-9	-11	12	-10	-6	-9	-11	**-6**
51	**1974**	-10	-8	-8	-163	-299	-31	-1	14	-6	-338	-4	-7	**-71**
52	**1975**	-10	-6	-9	-9	-4	-13	-13	-14	-9	-10	6	-6	**-8**
53	**1976**	-8	-1	12	11	10	7	13	13	0	-345	-241	12	**-44**
54	**1977**	-6	-6	-13	-8	-7	-8	-13	-9	-12	-12	-9	-6	**-9**
55	**1978**	-11	-7	-10	-10	-4	-10	12	-17	-12	11	-9	5	**-5**
56	**1979**	-6	-7	-11	-11	-7	-7	-10	-2	-11	-4	-12	-12	**-8**
57	**1980**	-8	-6	-11	-6	-7	-12	12	4	11	-7	-12	-12	**-5**
58	**1981**	-8	-6	9	8	-5	-1	-12	14	0	-330	-9	-8	**-30**
59	**1982**	-7	-5	-7	11	-20	-40	0	-11	-7	16	6	-17	**-6**
60	**1983**	-7	-6	-9	11	-4	-133	10	-6	-8	8	14	-6	**-12**
61	**1984**	-8	1	-8	-9	-7	-13	-3	15	-7	11	-12	-11	**-4**
62	**1985**	-10	-8	-8	-8	-6	-13	-9	-11	14	-6	-9	-8	**-7**
63	**1986**	-9	-6	-7	-9	-3	-151	13	13	3	10	-9	-11	**-14**
64	**1987**	-8	-7	-7	-7	-8	-9	-10	5	12	15	-10	-5	**-3**
65	**1988**	-9	-7	-11	-6	-5	-11	-10	10	-12	11	-11	-12	**-6**
66	**1989**	-10	-7	-10	-8	-5	-12	13	-13	1	-8	-9	-10	**-7**
67	**1990**	-11	-6	1	11	7	-8	14	-5	-1	9	10	-9	**1**
68	**1991**	-9	14	-2	6	12	-2	3	-10	9	-306	-11	-12	**-26**
69	**1992**	-9	-6	-10	-6	-4	-8	-12	11	-12	-7	-9	-3	**-6**
70	**1993**	-9	-6	-13	-9	-7	-14	-15	5	-13	-10	-8	-9	**-9**
71	**1994**	-10	-5	-8	-5	-6	-12	-11	3	12	12	-11	-12	**-4**
72	**1995**	-8	-11	-11	-6	-6	-9	12	13	-11	-7	-10	-6	**-5**
73	**1996**	-7	9	-217	-92	-33	-31	7	-5	-7	-308	13	-3	**-57**
74	**1997**	-8	-6	-8	-13	-26	-99	-8	-9	-7	-305	13	-17	**-42**
75	**1998**	14	-6	-7	-6	-11	-9	6	2	-2	14	-6	-9	**-1**
76	**50 WY Average**	**-8**	**-6**	**-7**	**-11**	**-10**	**-11**	**-2**	**-3**	**-11**	**-50**	**-7**	**-9**	**-11**
77	**70 WY Average**	**-7**	**-5**	**-10**	**-10**	**-9**	**-16**	**-1**	**-2**	**-9**	**-52**	**-6**	**-9**	**-11**
78	**Hours**	**744**	**721**	**744**	**744**	**672**	**743**	**720**	**744**	**720**	**744**	**744**	**720**	**8760**

Figure 10: Simulated Total PS Wind Generation for FY 2012-2013

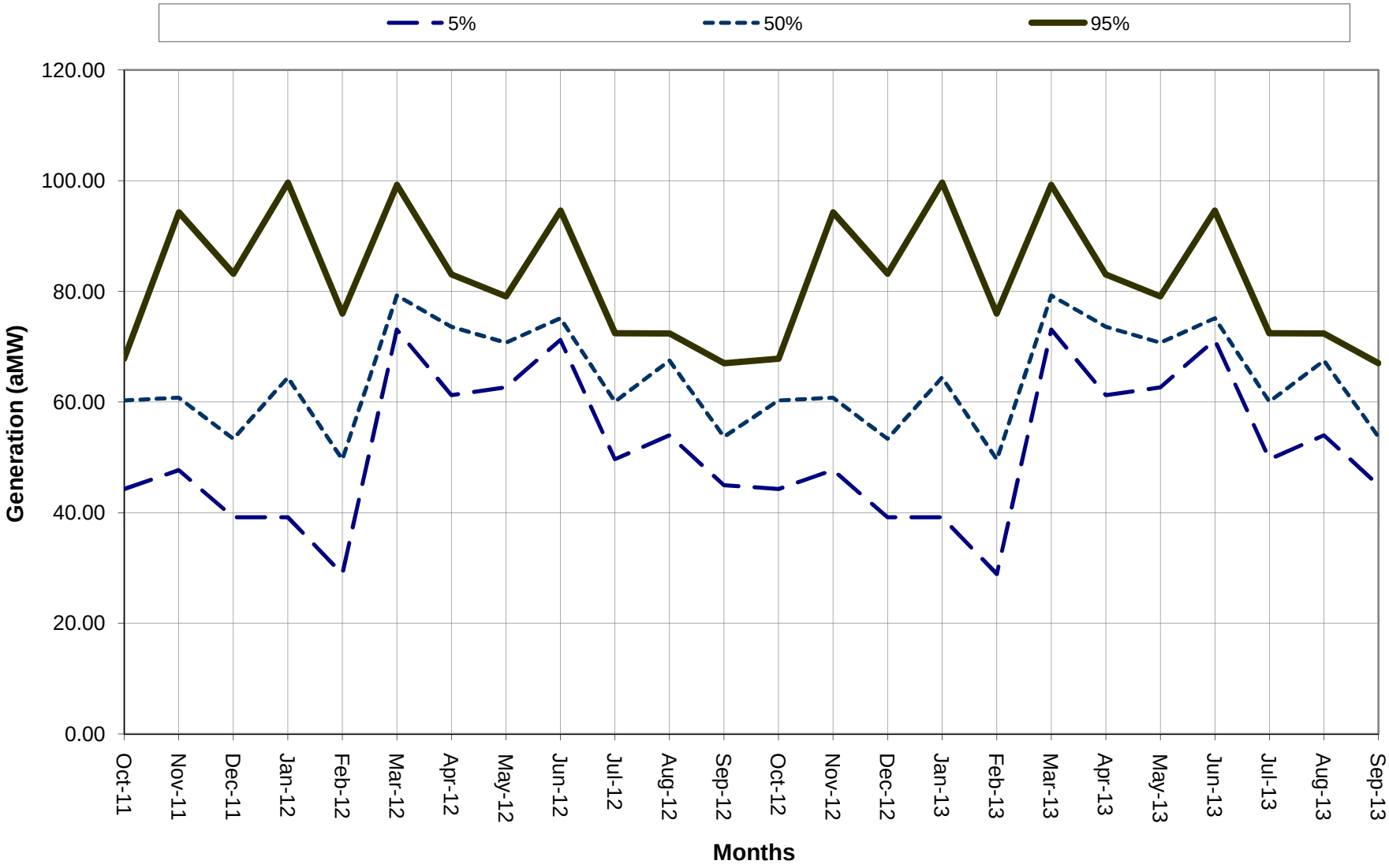


Table 14: Value of PS Wind Generation at Expected Wind Generation for FY 2012

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
Expected Generation (aMW)	**59**	**64**	**58**	**61**	**51**	**86**	**76**	**77**	**90**	**69**	**69**	**57**	**68**
Contract Prices ($/MWh)	**$ 43.88**	**$ 41.30**	**$ 42.32**	**$ 37.71**	**$ 43.76**	**$ 42.46**	**$ 38.03**	**$ 39.77**	**$ 32.52**	**$ 42.81**	**$ 38.99**	**$ 44.49**	**$ 40.67**

Power Purchase Costs for Expected Wind Generation ($1,000)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
Expected Wind Generation Cost ($000)	$ 2,609	$ 2,656	$ 2,454	$ 2,282	$ 2,229	$ 3,655	$ 2,892	$ 3,057	$ 2,934	$ 2,975	$ 2,696	$ 2,516	**$ 32,953**

Average, Median, 5th Percentile, and 95th Percentile Spot Market Electricity Prices Estimated by AURORA ($/MWh)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
5%	$ 24.05	$ 24.81	$ 25.63	$ 28.59	$ 26.51	$ 24.82	$ 20.70	$ 18.91	$ 20.33	$ 22.05	$ 24.81	$ 24.58	$ 25.56
50%	$ 31.38	$ 34.44	$ 37.51	$ 41.79	$ 41.13	$ 38.53	$ 33.97	$ 30.59	$ 32.08	$ 36.09	$ 40.81	$ 40.23	$ 37.02
Average	$ 33.02	$ 36.00	$ 39.47	$ 43.79	$ 43.32	$ 41.20	$ 36.63	$ 33.07	$ 33.96	$ 38.53	$ 43.09	$ 43.04	$ 38.75
95%	$ 52.47	$ 55.36	$ 62.07	$ 63.51	$ 65.38	$ 61.02	$ 57.96	$ 50.54	$ 52.07	$ 61.41	$ 67.10	$ 66.68	$ 57.10

Revenues from Expected Wind Generation at Various AURORA Price Percentiles ($1,000)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
5%	$ 1,064	$ 1,150	$ 1,106	$ 1,287	$ 940	$ 1,587	$ 1,133	$ 1,081	$ 1,320	$ 1,140	$ 1,277	$ 1,001	$ 15,019
50%	$ 1,388	$ 1,597	$ 1,618	$ 1,881	$ 1,458	$ 2,464	$ 1,860	$ 1,750	$ 2,084	$ 1,866	$ 2,100	$ 1,638	$ 22,057
Average	$ 1,461	$ 1,669	$ 1,703	$ 1,971	$ 1,536	$ 2,635	$ 2,005	$ 1,891	$ 2,206	$ 1,992	$ 2,217	$ 1,752	$ 23,039
95%	$ 2,321	$ 2,567	$ 2,678	$ 2,859	$ 2,318	$ 3,903	$ 3,173	$ 2,890	$ 3,382	$ 3,174	$ 3,452	$ 2,715	$ 34,196

Table 15: Value of PS Wind Generation at Expected Wind Generation for FY 2013

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
Expected Generation (aMW)	**59**	**64**	**58**	**61**	**51**	**86**	**76**	**77**	**90**	**69**	**69**	**57**	**68**
Contract Prices ($/MWh)	**$ 44.30**	**$ 41.78**	**$ 42.78**	**$ 38.37**	**$ 44.42**	**$ 43.26**	**$ 38.75**	**$ 40.41**	**$ 33.06**	**$ 43.49**	**$ 39.05**	**$ 45.20**	**$ 41.23**

Power Purchase Costs for Expected Wind Generation ($1,000)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
Expected Wind Generation Cost ($000)	$ 2,634	$ 2,687	$ 2,481	$ 2,322	$ 2,263	$ 3,724	$ 2,938	$ 3,107	$ 2,982	$ 3,021	$ 2,701	$ 2,556	**$ 33,414**

Average, Median, 5th Percentile, and 95th Percentile Spot Market Electricity Prices Estimated by AURORA ($/MWh)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
5%	$ 24.05	$ 24.81	$ 25.63	$ 28.60	$ 26.63	$ 24.84	$ 20.70	$ 18.93	$ 20.37	$ 22.05	$ 24.81	$ 24.58	$ 25.55
50%	$ 31.39	$ 34.46	$ 37.57	$ 42.07	$ 41.39	$ 38.76	$ 34.41	$ 30.90	$ 32.19	$ 36.13	$ 40.90	$ 40.63	$ 37.28
Average	$ 33.11	$ 36.05	$ 39.53	$ 43.91	$ 43.46	$ 41.31	$ 36.77	$ 33.16	$ 34.03	$ 38.62	$ 43.18	$ 43.13	$ 38.83
95%	$ 52.47	$ 55.36	$ 62.07	$ 63.51	$ 65.38	$ 61.02	$ 57.96	$ 50.54	$ 52.07	$ 61.41	$ 67.10	$ 66.68	$ 57.06

Revenues from Expected Wind Generation at Various AURORA Price Percentiles ($1,000)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
5%	$ 1,064	$ 1,150	$ 1,106	$ 1,288	$ 912	$ 1,589	$ 1,130	$ 1,082	$ 1,323	$ 1,140	$ 1,277	$ 1,001	$ 14,982
50%	$ 1,388	$ 1,598	$ 1,621	$ 1,894	$ 1,417	$ 2,479	$ 1,878	$ 1,767	$ 2,091	$ 1,868	$ 2,104	$ 1,654	$ 22,107
Average	$ 1,465	$ 1,672	$ 1,705	$ 1,977	$ 1,488	$ 2,642	$ 2,007	$ 1,897	$ 2,211	$ 1,996	$ 2,222	$ 1,756	$ 23,035
95%	$ 2,321	$ 2,567	$ 2,678	$ 2,859	$ 2,238	$ 3,903	$ 3,164	$ 2,890	$ 3,382	$ 3,174	$ 3,452	$ 2,715	$ 34,121

Figure 11: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales For FY 2012

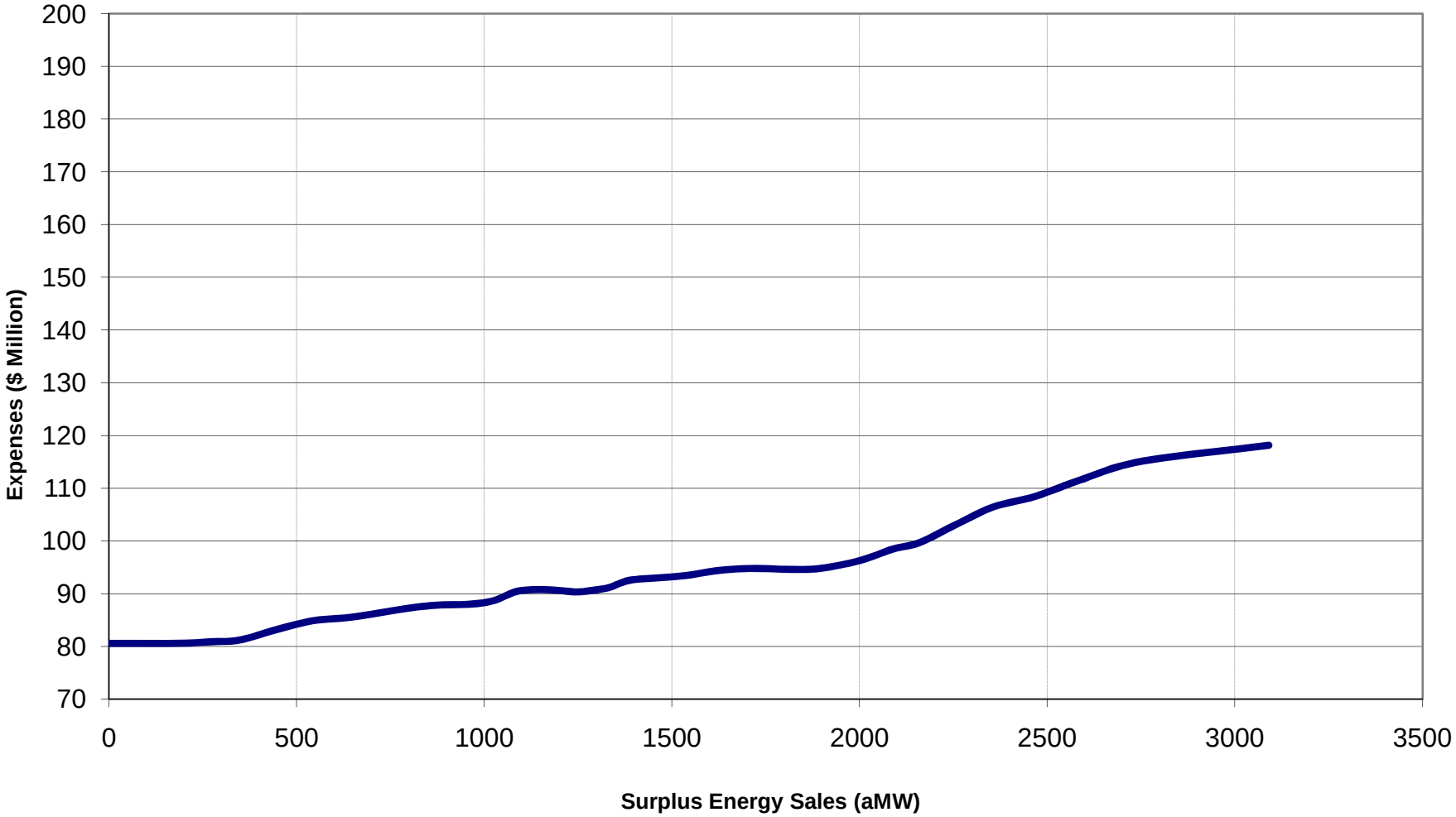


Figure 12: PS Transmission & Ancillary Services Expenses by Amount of Surplus Energy Sales For FY 2013

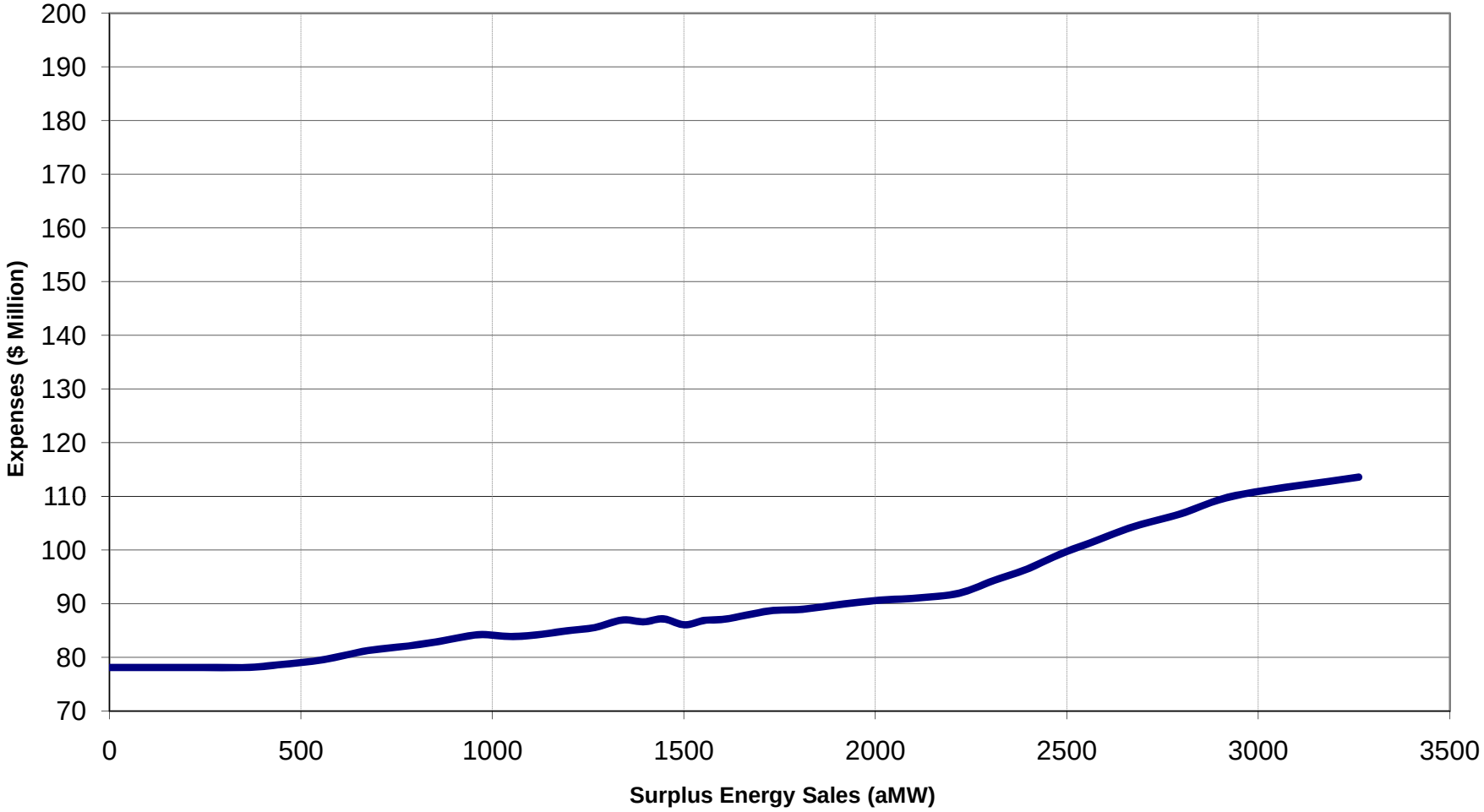


Figure 13: PS Transmission and Ancillary Service Expense Distribution for FY 2012

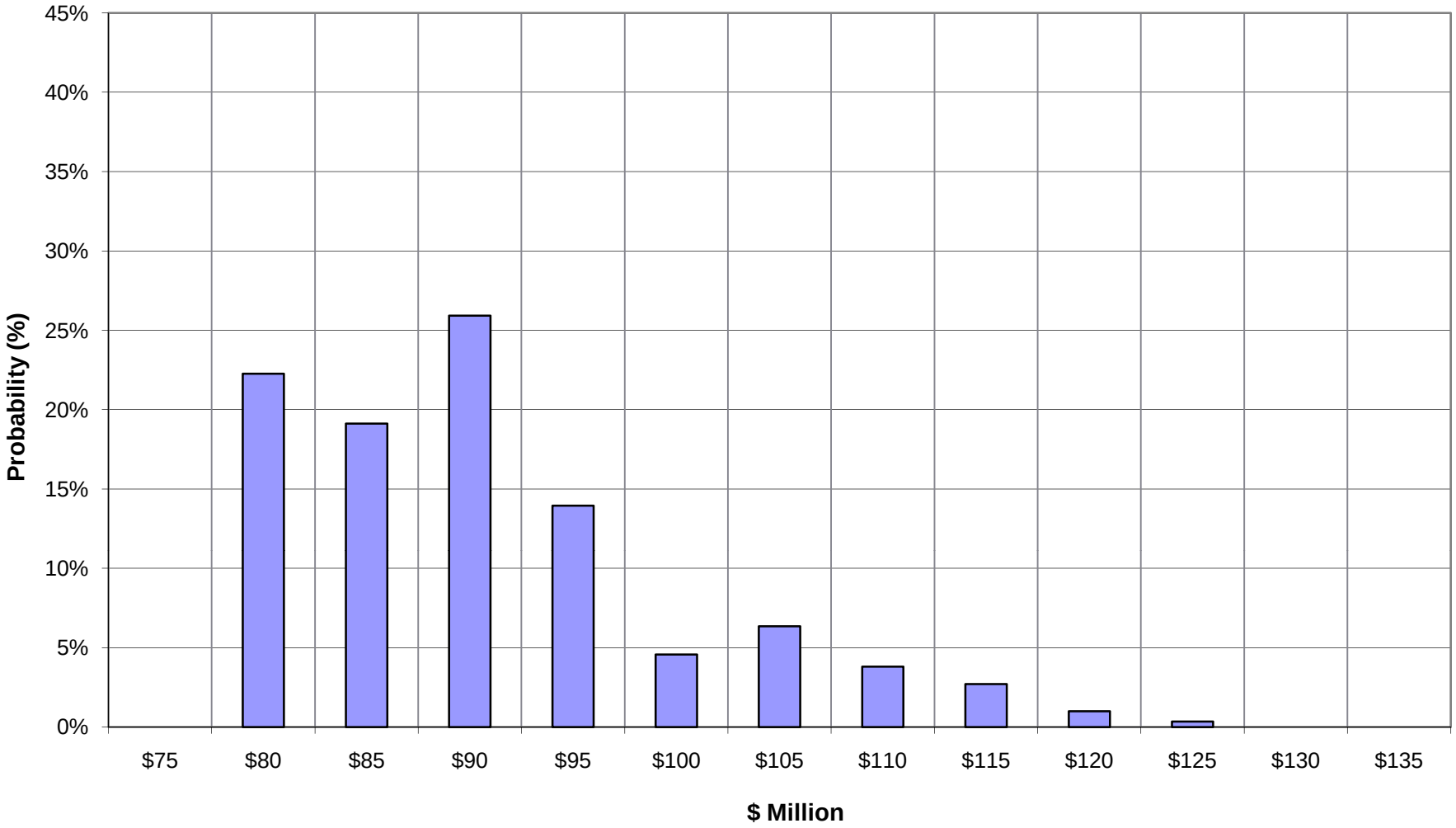


Figure 14: PS Transmission and Ancillary Service Expense Distribution for FY 2013

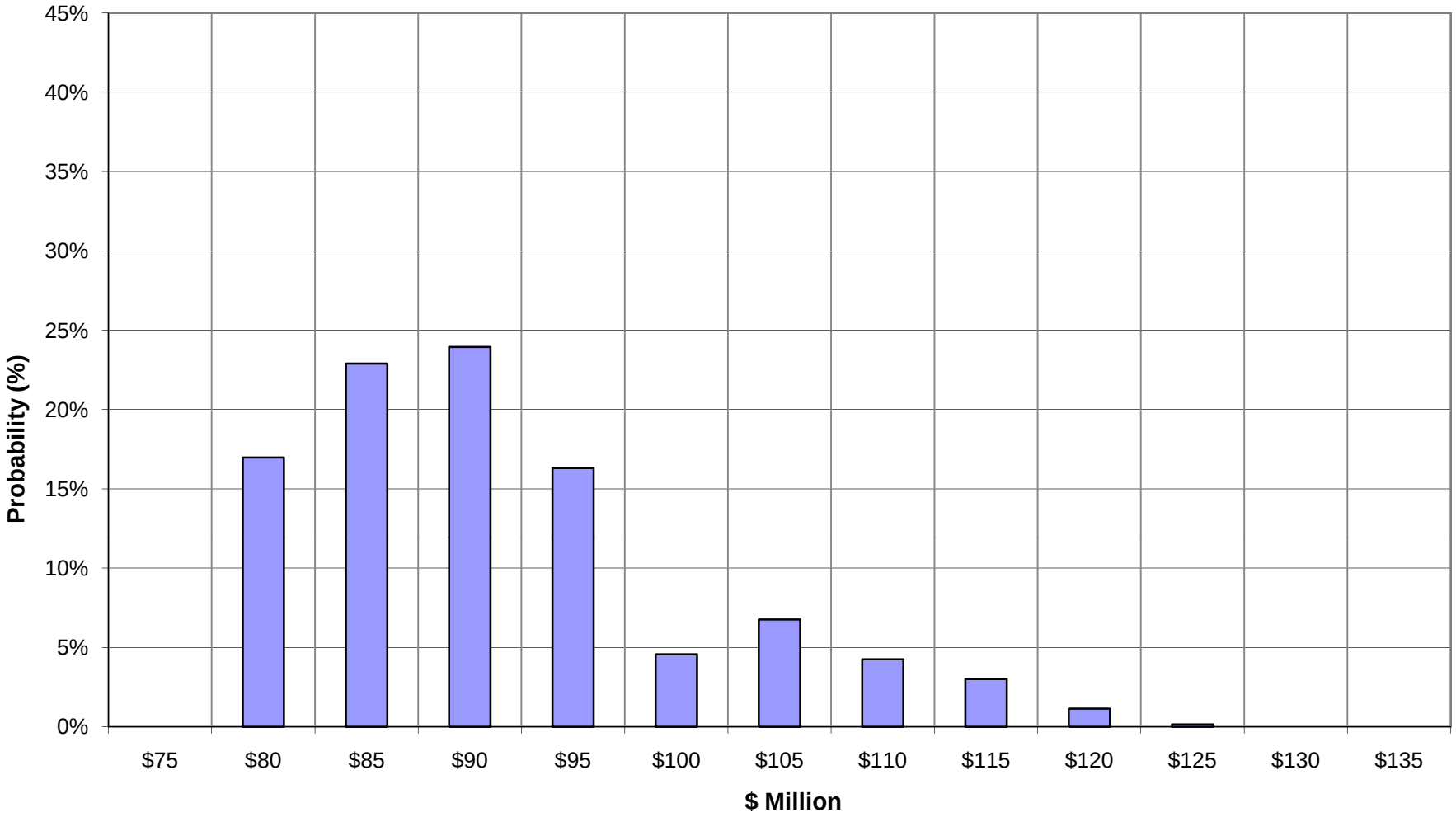


Table 16: 4h10c Credits

4h10c Credits ($ Million)

Fiscal Year	Purchase Expense	Direct Expense	Pisces	Capital	%	Credit
2012	**$ 119**	$ 237	$ 1.8	50.0	22.3%	**$ 91.1**
2013	**$ 137**	$ 241	$ 1.8	50.0	22.3%	**$ 95.8**
2014	**$ 146**	$ 254	$ 1.8	50.0	22.3%	**$ 100.9**
2015	**$ 158**	$ 260	$ 1.8	50.0	22.3%	**$ 104.7**
2016	**$ 162**	$ 267	$ 1.8	50.0	22.3%	**$ 107.2**
2017	**$ 166**	$ 274	$ 1.8	50.0	22.3%	**$ 109.7**

Figure 15: 4(h)(10)(C) Credits Distribution for FY 2012

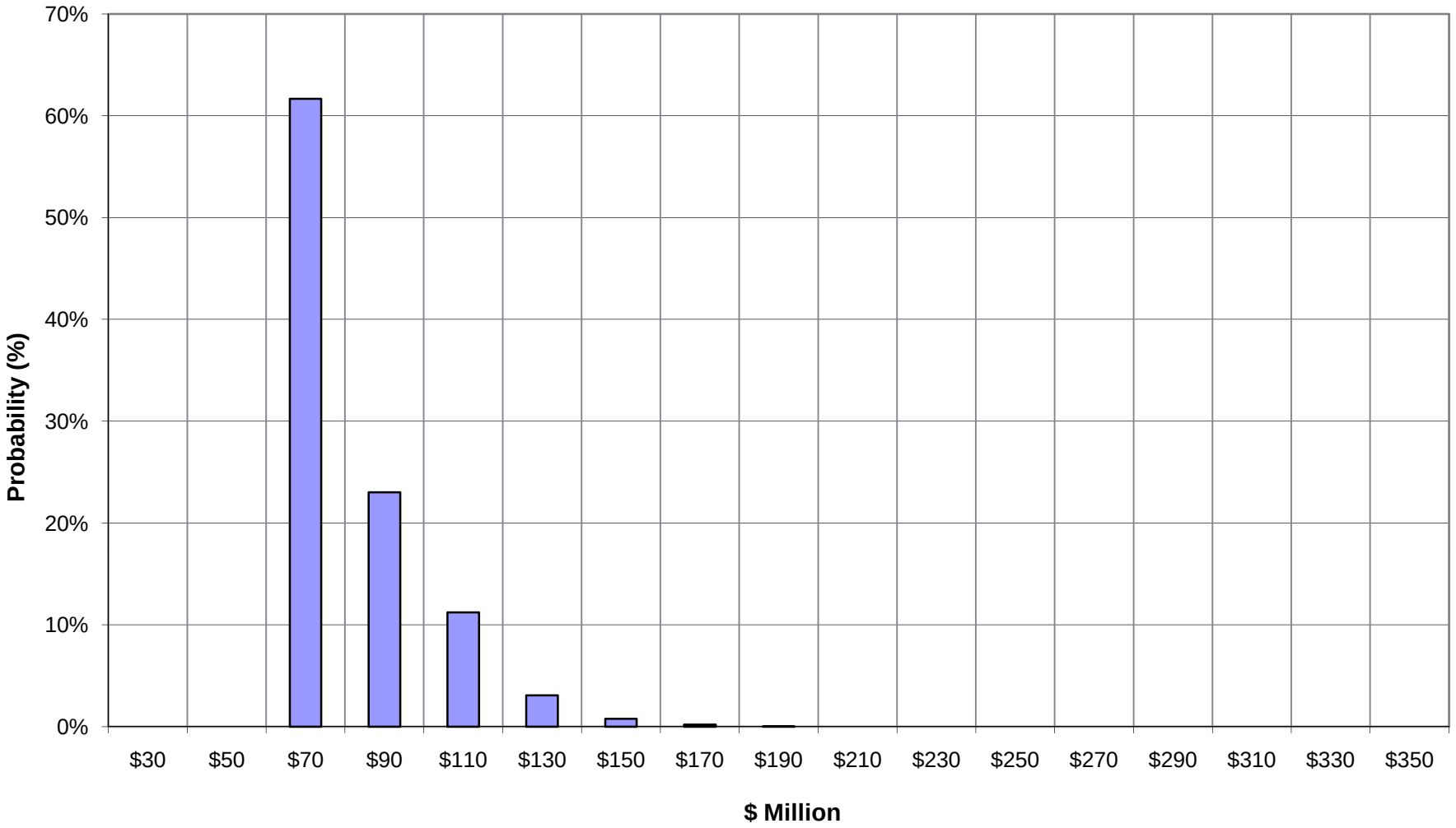
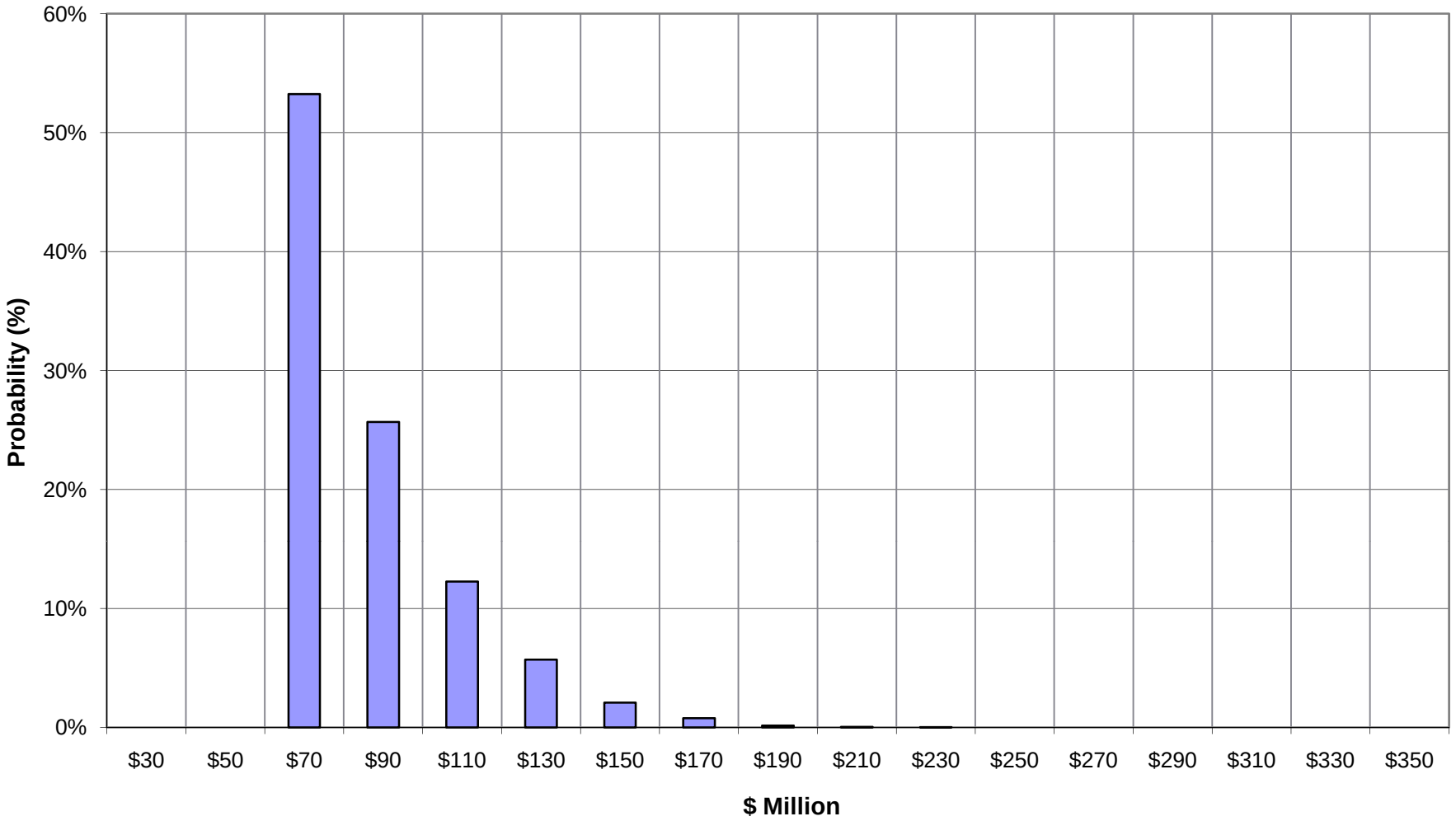


Figure 16: 4(h)(10)(C) Credits Distribution for FY 2013



	A	B	C	D	E	F
1		**Table 17 Augmentation Power Purchases**				
2						
3		**Price = Average Annual Price for WY 1937 from Risk Analysis LaRIS 77**				
4		**USE FOR RATE CALCs.**				
5						
6		**FY**	**MW**	**Hours**	**$/MWh**	**Exp. ($ 000)**
7		**2012**	0	8,784	37.78	$ -
8		**2013**	176	8,760	42.84	$ 66,150

	A	B	C	D	E	F	G	H	I
1	**Table 18: Augmentation Power Purchases - Risk Analysis**								
2									
3									
4	**FY**	**MW**	**Price Critical**	**Expense Critical**	**MW**	**Market Price**	**Expense Market**	**Expense Total**	**Delta**
5	2,012	-	**37.78**	$ -	-	**33.46**	$ -	$ -	$ -
6	2,013	-	**42.84**	$ -	176	**37.88**	$ 58,498	$ 58,498	$ (7,644)
7									

	A	B	C	D	E	F
1	**Table 19: Calculation of Surplus Energy Sales Revenue and Balancing Purchase Expenses Provided to RAM2012, FY 2012**					
2	**Iteration**	**Total Game Counter**	**Sales Rev Total ($000)**	**Purch Exp Total ($000)**	**Net Secondary Revenue (Sales Rev. - Purch.**	**Counter From Median**
3	1038	1	$ 108,450	$ 469,458	$ (361,008)	
4	3233	2	$ 43,706	$ 391,947	$ (348,241)	
5	364	3	$ 75,744	$ 398,393	$ (322,649)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	2117	1576	$ 267,190	$ 10,556	$ 256,634	175
10	3478	1577	$ 386,846	$ 129,283	$ 257,563	174
11	591	1578	$ 286,240	$ 28,596	$ 257,644	173
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	2885	1748	$ 335,338	$ 42,907	$ 292,430	3
16	962	1749	$ 345,175	$ 52,698	$ 292,477	2
17	615	**1750**	$ 321,060	$ 28,240	**$ 292,819**	**1**
18	1772	**1751**	$ 323,249	$ 30,290	**$ 292,959**	**1**
19	249	1752	$ 340,025	$ 47,022	$ 293,003	2
20	437	1753	$ 359,813	$ 66,756	$ 293,056	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	3365	1923	$ 342,641	$ 14,019	$ 328,622	173
25	6	1924	$ 400,980	$ 71,728	$ 329,252	174
26	2459	1925	$ 410,885	$ 81,517	$ 329,368	175
27	*	*	*	*	*	
28	*	*	*	*	*	
29	*	*	*	*	*	
30	2789	3498	$ 1,680,772	$ 117,492	$ 1,563,280	
31	3093	3499	$ 1,832,630	$ 40,700	$ 1,791,930	
32	1806	3500	$ 2,111,331	$ 12,066	$ 2,099,265	
33						
34		**Average (3,500 Games)**	**$ 382,336**	**$ 70,885**	**$ 311,451**	
35		**Median (3,500 Games)**	**$ 343,890**	**$ 44,146**	**$ 292,889**	
36						
37		**Average to RAM2012 ($000)**	**$ 339,735**	**$ 46,827**	**$ 292,908**	
38		**(175 Above, 175 Below Median Net Secondary Revenue)**				
39						
40		**Variable Cost Reduction due to Direct Assignment**	**$ 3,000**	**$ -**	**$ 3,000**	
41		**Dec Acquistions Pilot Cost ($000)**				
42						
43		**Committed Sales/Purchases ($000)**	**$ 104,592**	**$ -**	**$ 104,592**	
44						
45		**Total Median Sales/Purchases to RAM ($000)**	**$ 447,327**	**$ 46,827**	**$ 400,500**	
46						

	A	B	C	D	E	F
1	**Table 20: Calculation of Surplus Energy Sales Revenue and Balancing Purchase Expenses Provided to RAM2012, FY 2013**					
2	**Iteration**	**Total Game Counter**	**Sales Rev Total ($000)**	**Purch Exp Total ($000)**	**Net Secondary Revenue (Sales Rev. - Purch.**	**Counter From Median**
3	2078	1	$ 142,906	$ 383,057	$ (240,151)	
4	2504	2	$ 178,230	$ 380,732	$ (202,503)	
5	1902	3	$ 132,078	$ 328,192	$ (196,113)	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	
9	3183	1576	$ 419,811	$ 47,731	$ 372,080	175
10	2419	1577	$ 399,885	$ 27,789	$ 372,096	174
11	562	1578	$ 413,163	$ 40,758	$ 372,405	173
12	*	*	*	*	*	*
13	*	*	*	*	*	*
14	*	*	*	*	*	*
15	2550	1748	$ 415,650	$ 6,992	$ 408,657	3
16	104	1749	$ 444,032	$ 35,073	$ 408,958	2
17	2064	**1750**	$ 411,193	$ 2,221	**$ 408,972**	**1**
18	1557	**1751**	$ 432,774	$ 23,776	**$ 408,999**	**1**
19	164	1752	$ 428,072	$ 18,981	$ 409,091	2
20	277	1753	$ 475,654	$ 66,330	$ 409,323	3
21	*	*	*	*	*	*
22	*	*	*	*	*	*
23	*	*	*	*	*	*
24	2046	1923	$ 453,058	$ 3,870	$ 449,188	173
25	1662	1924	$ 454,069	$ 4,545	$ 449,524	174
26	2868	1925	$ 475,760	$ 25,690	$ 450,070	175
27	*	*	*	*	*	
28	*	*	*	*	*	
29	*	*	*	*	*	
30	53	3498	$ 1,875,886	$ -	$ 1,875,886	
31	965	3499	$ 2,110,026	$ 51,696	$ 2,058,330	
32	710	3500	$ 2,192,878	$ 15,115	$ 2,177,763	
33						
34		**Average (3,500 Games)**	**$ 480,678**	**$ 48,687**	**$ 431,992**	
35		**Median (3,500 Games)**	**$ 442,443**	**$ 29,140**	**$ 408,985**	
36						
37		**Average to RAM2012 ($000)**	**$ 439,477**	**$ 29,559**	**$ 409,918**	
38		**(175 Above, 175 Below Median Net Secondary Revenue)**				
39						
40		**Variable Cost Reduction due to Direct Assignment**	**$ 3,000**	**$ -**	**$ 3,000**	
41		**Dec Acquistions Pilot Cost ($000)**				
42						
43		**Committed Sales/Purchases ($000)**	**$ 17,176**	**$ -**	**$ 17,176**	
44						
45		**Total Median Sales/Purchases to RAM ($000)**	**$ 459,653**	**$ 29,559**	**$ 430,094**	
46						

Table 21: Secondary Sales

Secondary Sales FY 2012

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	696	743	720	744	720	744	744	720	8784
Surplus Sales Total (aMW)	211	403	597	1,472	1,499	1,512	2,072	3,302	2,899	1,762	754	367	1,403
Surplus Sales Revenue Total ($000)	**$ 2,529**	**$ 4,328**	**$ 6,969**	**$ 25,200**	**$ 23,705**	**$ 27,119**	**$ 45,760**	**$ 67,583**	**$ 62,349**	**$ 47,623**	**$ 18,488**	**$ 8,082**	**$ 339,735**
Variable Cost Reduction due to Direct Assignment Dec Acquistions Pilot Cost ($000)	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 3,000**
Committed Sales (aMW)	340	329	340	329	316	339	605	624	599	206	206	199	368
Committed Sales Revenue	**$ 8,968**	**$ 8,679**	**$ 8,968**	**$ 9,098**	**$ 8,737**	**$ 9,371**	**$ 11,270**	**$ 11,645**	**$ 11,266**	**$ 5,590**	**$ 5,590**	**$ 5,410**	**$ 104,592**
Total Surplus Sales aMW	551	732	937	1,801	1,815	1,851	2,677	3,926	3,499	1,968	960	566	1,771
Total Surplus Sales Revenue ($000)	**$ 11,748**	**$ 13,257**	**$ 16,187**	**$ 34,548**	**$ 32,692**	**$ 36,740**	**$ 57,280**	**$ 79,478**	**$ 73,864**	**$ 53,463**	**$ 24,329**	**$ 13,742**	**$ 447,327**

Secondary Sales FY 2013

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	672	743	720	744	720	744	744	720	8760
Surplus Sales Total (aMW)	261	518	733	1,767	1,676	1,824	2,686	3,484	2,677	1,821	899	494	1,569
Surplus Sales Revenue Total ($000)	**$ 5,860**	**$ 9,196**	**$ 14,541**	**$ 41,135**	**$ 33,591**	**$ 42,092**	**$ 66,584**	**$ 76,228**	**$ 60,895**	**$ 49,725**	**$ 26,262**	**$ 13,367**	**$ 439,477**
Variable Cost Reduction due to Direct Assignment Dec Acquistions Pilot Cost ($000)	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 250**	**$ 3,000**
Committed Sales (aMW)	206	200	206	-	-	-	-	-	-	-	-	-	52
Committed Sales Revenue	**$ 5,639**	**$ 5,465**	**$ 5,639**	**$ 49**	**$ 44**	**$ 49**	**$ 48**	**$ 49**	**$ 48**	**$ 49**	**$ 49**	**$ 48**	**$ 17,176**
Total Surplus Sales aMW	467	718	939	1,767	1,676	1,824	2,686	3,484	2,677	1,821	899	494	1,621
Total Surplus Sales Revenue ($000)	**$ 11,749**	**$ 14,911**	**$ 20,431**	**$ 41,434**	**$ 33,885**	**$ 42,391**	**$ 66,881**	**$ 76,527**	**$ 61,193**	**$ 50,024**	**$ 26,561**	**$ 13,665**	**$ 459,653**

Table 22: Balancing Purchases

Balancing Purchases FY 2012

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	696	743	720	744	720	744	744	720	8784
Balancing Purchases (aMW)	407	247	460	306	281	169	156	6	24	147	233	329	231
Purchase Expense Total ($000)	**$ 9,840**	**$ 6,751**	**$ 10,228**	**$ 2,441**	**$ 2,576**	**$ 2,173**	**$ 392**	**$ -**	**$ -**	**$ 1,604**	**$ 3,822**	**$ 7,000**	**$ 46,827**
Committed Purchases (aMW)													
Committed Purchase Expense	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Balancing Purchases aMW	407	247	460	306	281	169	156	6	24	147	233	329	231
Total Purchase Expense ($000)	**$ 9,840**	**$ 6,751**	**$ 10,228**	**$ 2,441**	**$ 2,576**	**$ 2,173**	**$ 392**	**$ -**	**$ -**	**$ 1,604**	**$ 3,822**	**$ 7,000**	**$ 46,827**

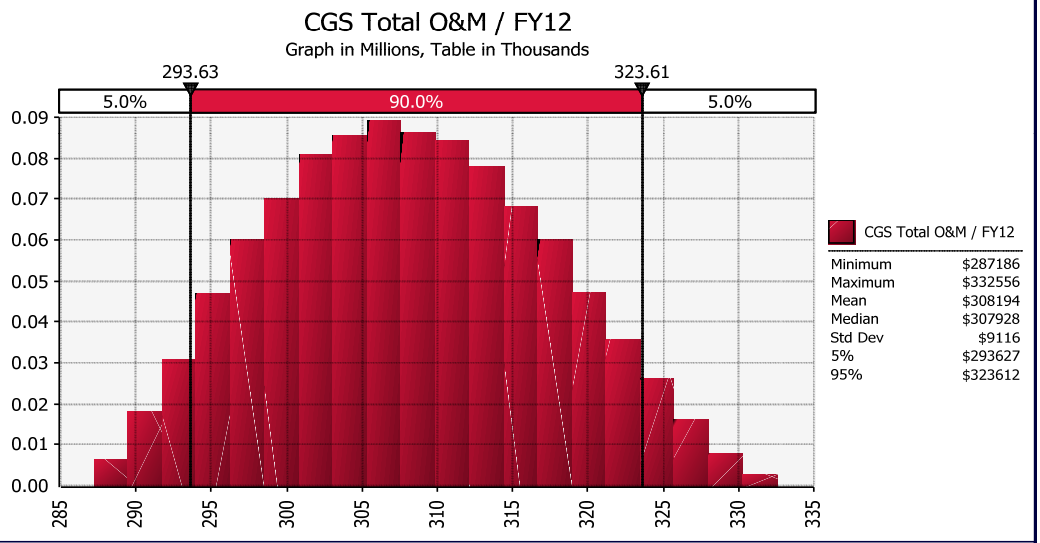
Balancing Purchases FY 2013

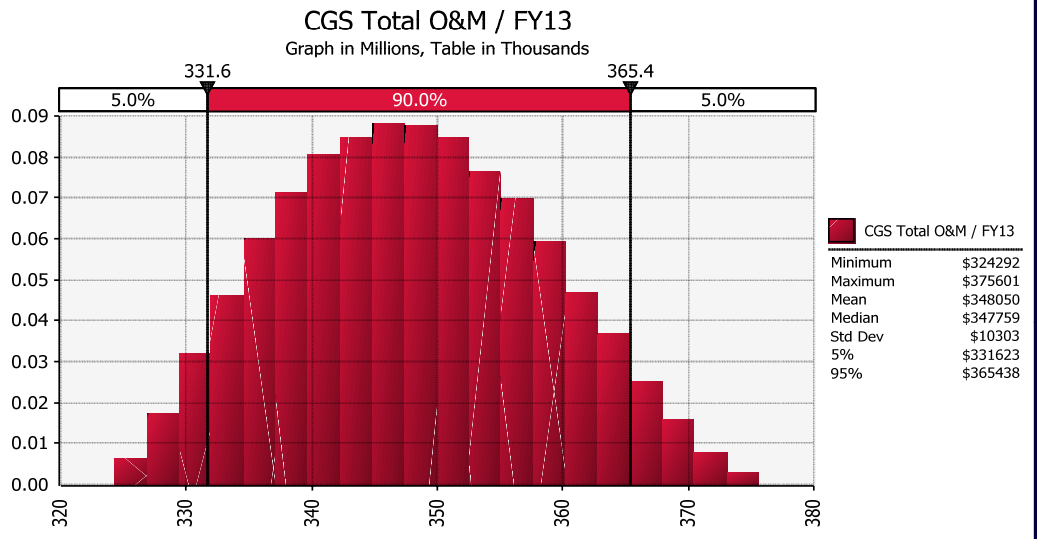
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Stats
Monthly Hours	744	721	744	744	672	743	720	744	720	744	744	720	8760
Balancing Purchases (aMW)	244	164	386	171	189	82	44	0	23	78	111	182	140
Purchase Expense ($000)	**$ 5,614**	**$ 4,637**	**$ 8,029**	**$ 800**	**$ 1,501**	**$ 998**	**$ 4**	**$ -**	**$ -**	**$ 1,322**	**$ 2,215**	**$ 4,441**	**$ 29,559**
Committed Purchases (aMW)													
Committed Purchase Expense	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Balancing Purchases aMW	244	164	386	171	189	82	44	0	23	78	111	182	140
Total Purchase Expense ($000)	**$ 5,614**	**$ 4,637**	**$ 8,029**	**$ 800**	**$ 1,501**	**$ 998**	**$ 4**	**$ -**	**$ -**	**$ 1,322**	**$ 2,215**	**$ 4,441**	**$ 29,559**

	A	B	C	D	E	F	G
1	**Table 23: Annual Secondary Sales and Balancing Purchases**						
2		**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**
3	**Monthly Hours**	**8784**	**8760**	**8760**	**8760**	**8784**	**8760**
4	Surplus Sales Total (aMW)	1,403	1,569	1,604	1,517	1,532	1,498
5	**Surplus Sales Revenue Total ($000)**	**$ 339,735**	**$ 439,477**	**$ 448,389**	**$ 433,684**	**$ 440,366**	**$ 449,439**
6							
7	**Variable Cost Reduction due to Direct Assignment Dec Acquistions Pilot Cost ($000)**	**$ 3,000**	**$ 3,000**	**$ -**	**$ -**	**$ -**	**$ -**
8							
10	Committed Sales (aMW)	368	52	-	-	-	-
11	**Committed Sales Revenue**	**$ 104,592**	**$ 17,176**	**$ -**	**$ -**	**$ -**	**$ -**
12							
13							
14	Total Surplus Sales aMW	1,771	1,621	1,604	1,517	1,532	1,498
15	**Total Surplus Sales Revenue ($000)**	**$ 447,327**	**$ 459,653**	**$ 448,389**	**$ 433,684**	**$ 440,366**	**$ 449,439**
16							
17							
18	Balancing Purchases (aMW)	231	140	153	145	160	126
19	**Purchase Expense Total ($000)**	**$ 46,827**	**$ 29,559**	**$ 38,887**	**$ 37,554**	**$ 42,536**	**$ 29,805**
20							
21	**Committed Purchases (aMW)**	**-**	**-**	**-**	**-**	**-**	**-**
22	**Committed Purchase Expense**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
23							
24	Total Balancing Purchases aMW	231	140	153	145	160	126
25	**Total Purchase Expense ($000)**	**$ 46,827**	**$ 29,559**	**$ 38,887**	**$ 37,554**	**$ 42,536**	**$ 29,805**
26							

	A	B	C
1	**Table 24: RiskMod Net Revenue Statistics (With PNRR of $0 million)**		
2			
3		**FY 2012**	**FY 2013**
4	**Average**	$ 71,546	$ 28,108
5	**Median**	$ 52,139	$ 7,361
6	**Standard Deviation**	$ 264,956	$ 292,799
7			
8	**1%**	$ (365,260)	$ (441,383)
9	**2.50%**	$ (328,831)	$ (412,880)
10	**5%**	$ (299,918)	$ (378,976)
11	**10%**	$ (268,950)	$ (342,993)
12	**15%**	$ (214,528)	$ (283,931)
13	**20%**	$ (167,747)	$ (241,287)
14	**25%**	$ (123,605)	$ (190,036)
15	**30%**	$ (84,866)	$ (145,988)
16	**35%**	$ (48,283)	$ (103,312)
17	**40%**	$ (15,339)	$ (67,366)
18	**45%**	$ 14,231	$ (30,741)
19	**50%**	$ 52,139	$ 7,361
20	**55%**	$ 83,441	$ 41,565
21	**60%**	$ 115,095	$ 73,279
22	**65%**	$ 153,683	$ 113,136
23	**70%**	$ 191,017	$ 154,280
24	**75%**	$ 229,458	$ 197,892
25	**80%**	$ 277,263	$ 250,152
26	**85%**	$ 340,204	$ 322,097
27	**90%**	$ 416,382	$ 409,480
28	**95%**	$ 534,294	$ 537,299
29	**97.50%**	$ 648,287	$ 666,430
30	**99%**	$ 810,958	$ 904,528

Figure 17: CGS O&M Distributions





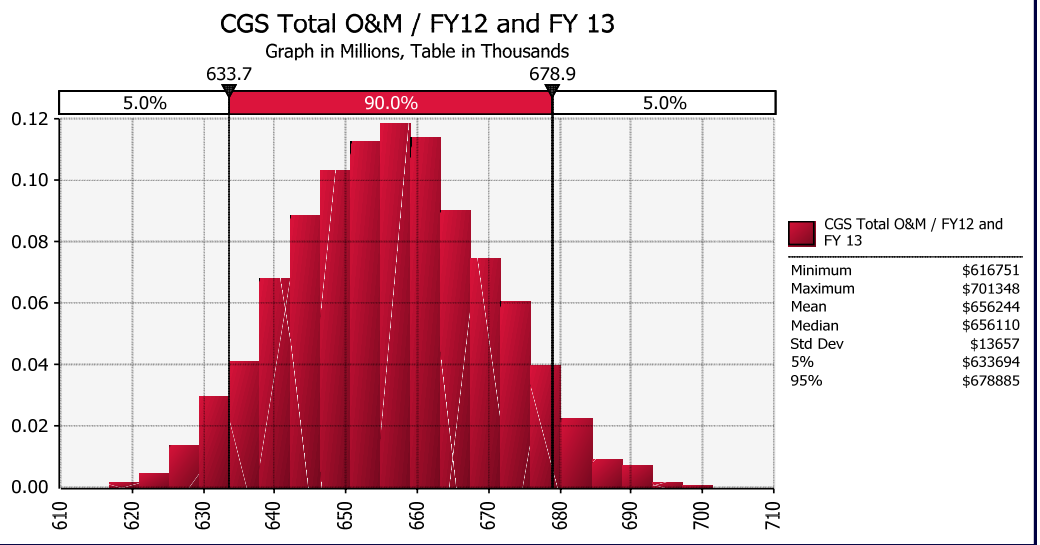
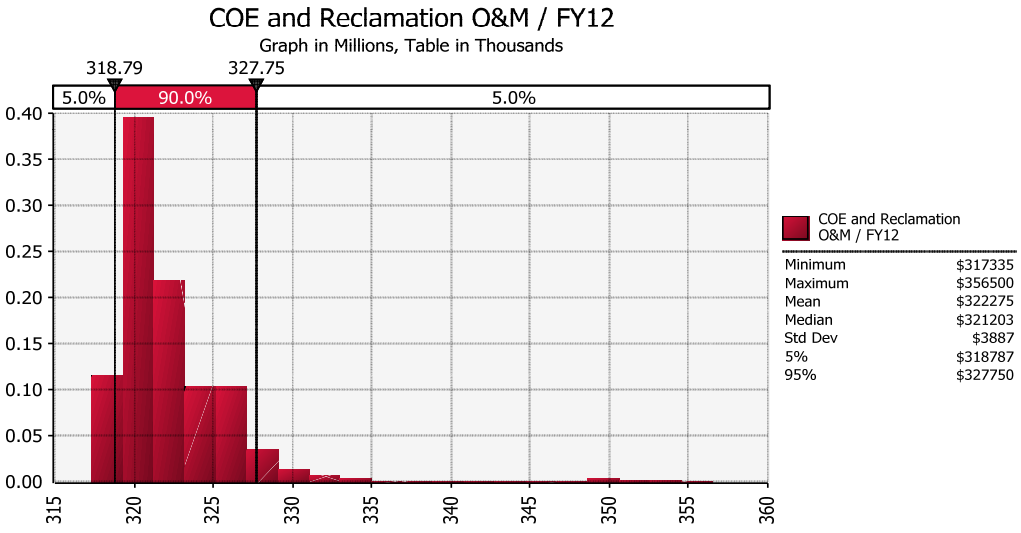
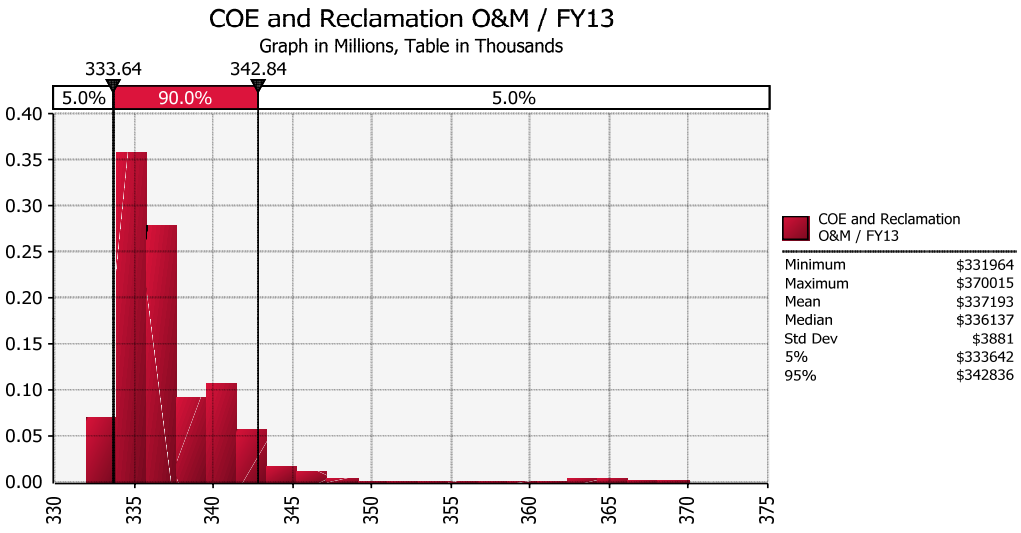


Figure 18: Corps of Engineers (COE) and Bureau of Reclamation (Reclamation) O&M Distributions





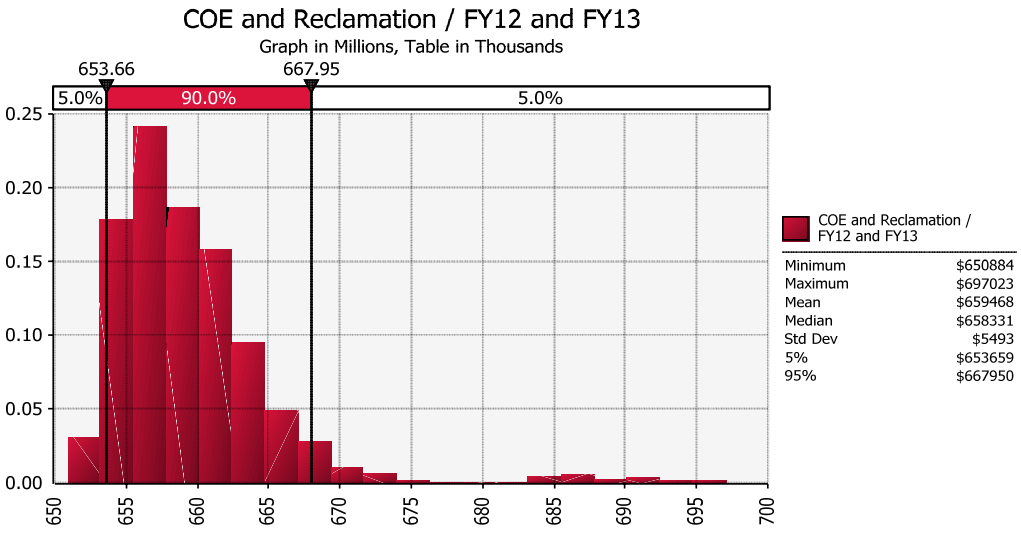
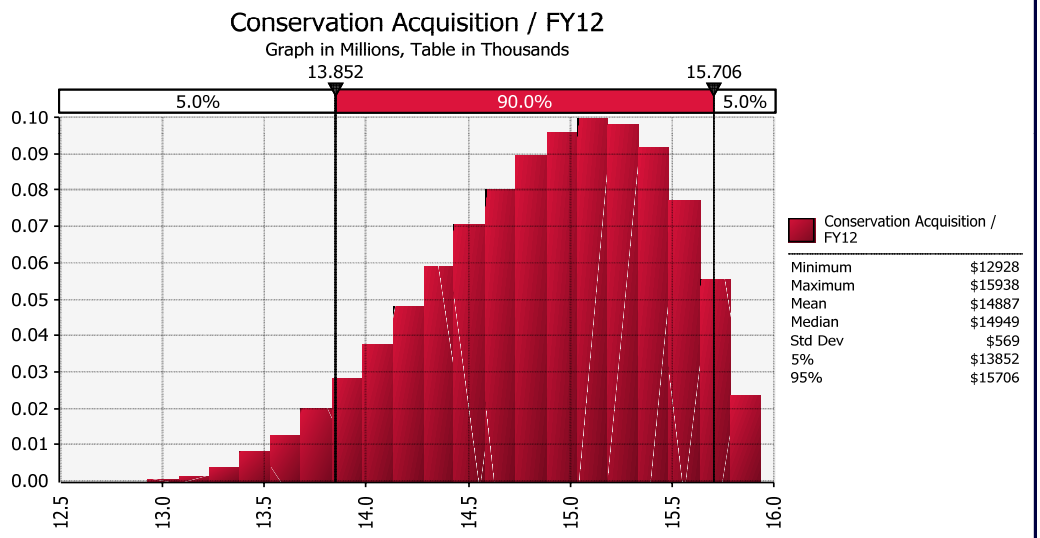
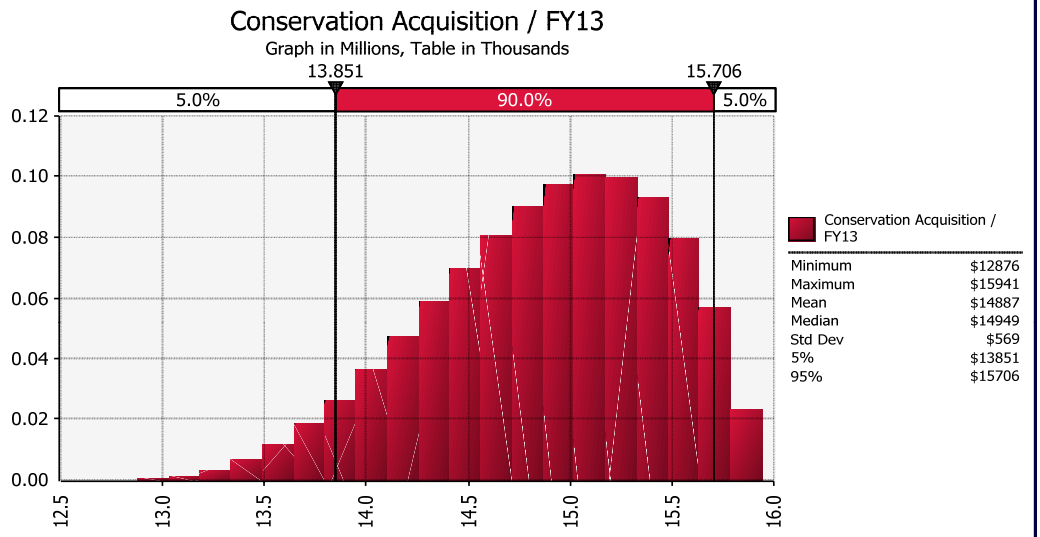


Figure 19: Conservation Acquisition Expense Distributions





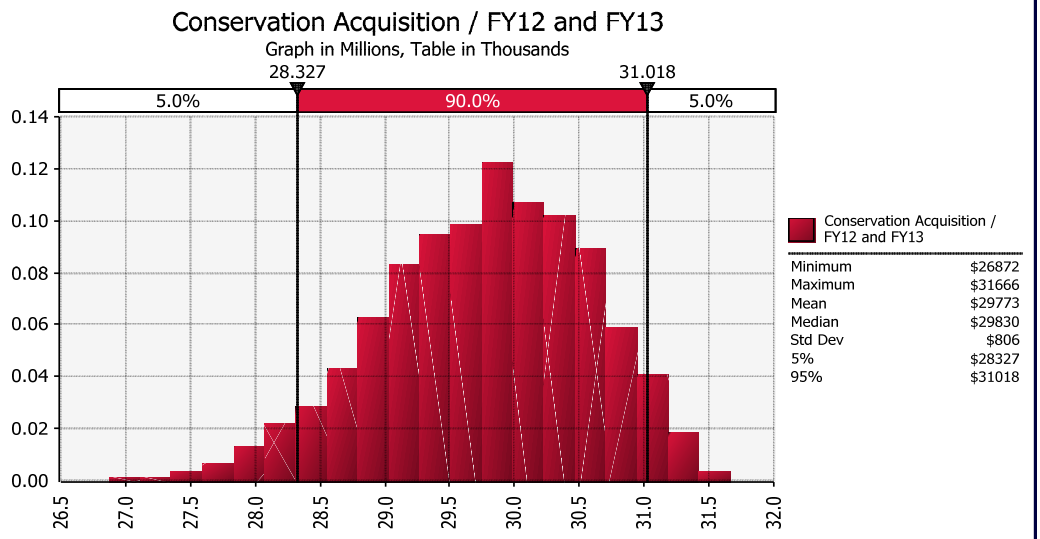
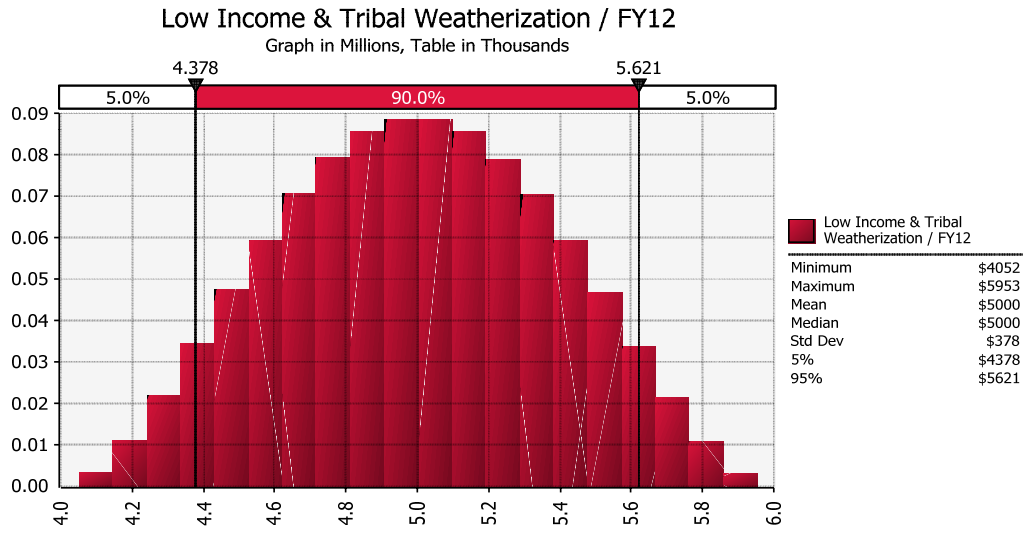
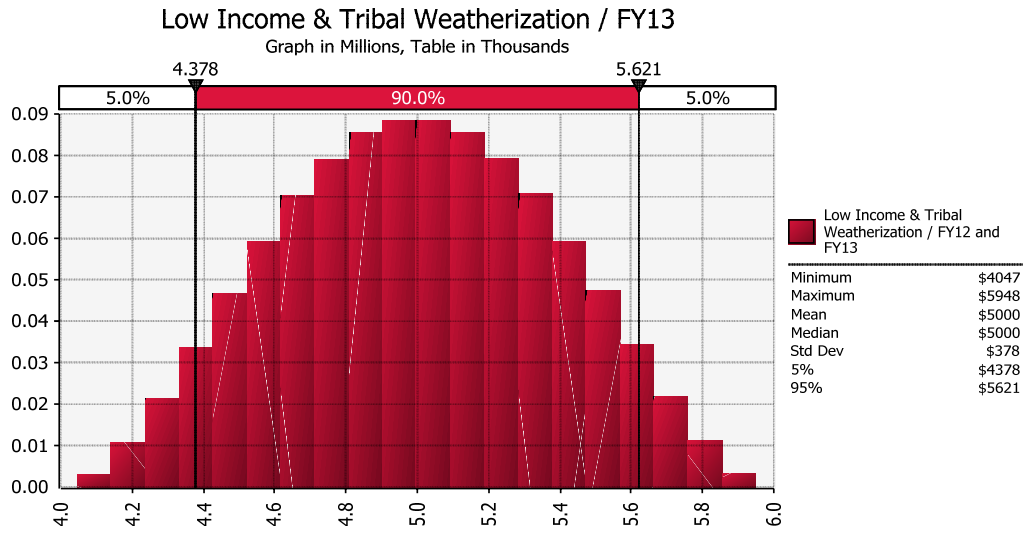


Figure 20: Low Income and Tribal Weatherization Expense Distributions





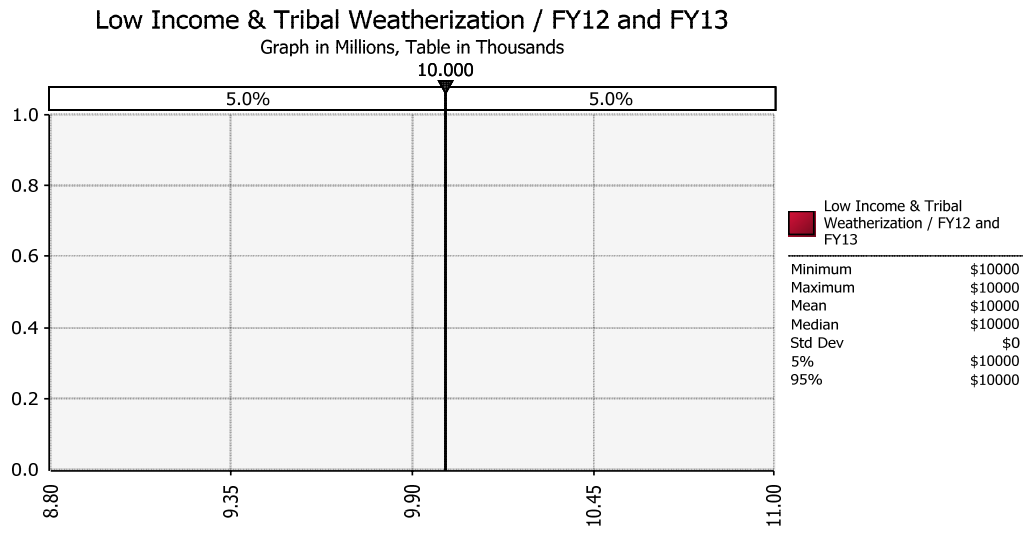
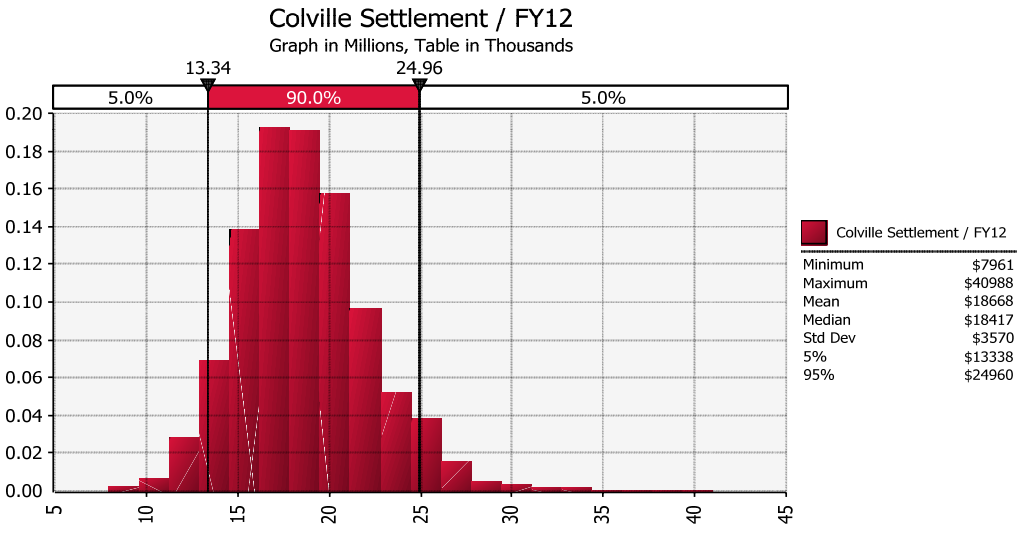


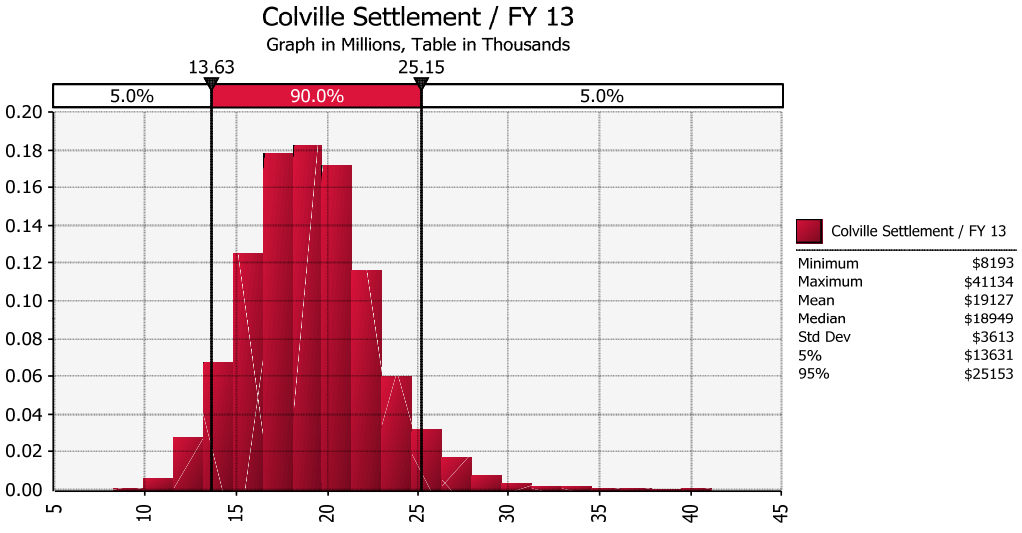
Table 25: Annual Grand Coulee Generation

	GWH
Mean	21,292
St Dev	3,286
Min	15,943
Max	28,590

Water Year	Energy (aMW)	GWH		Water Year	Energy (aMW)	GWH
1929	1,868	16,360		1964	2,539	22,303
1930	1,906	16,700		1965	2,732	23,930
1931	1,875	16,422		1966	2,521	22,085
1932	2,217	19,475		1967	2,709	23,730
1933	2,729	23,906		1968	2,593	22,778
1934	3,264	28,590		1969	2,890	25,312
1935	2,426	21,251		1970	2,238	19,601
1936	2,219	19,493		1971	2,845	24,925
1937	1,861	16,301		1972	3,094	27,180
1938	2,387	20,914		1973	2,095	18,348
1939	2,162	18,939		1974	3,057	26,778
1940	2,257	19,823		1975	2,492	21,832
1941	1,987	17,407		1976	3,261	28,644
1942	2,372	20,781		1977	2,031	17,790
1943	2,318	20,309		1978	2,238	19,604
1944	1,841	16,167		1979	2,200	19,273
1945	1,820	15,943		1980	2,291	20,128
1946	2,383	20,871		1981	2,915	25,539
1947	2,617	22,924		1982	2,756	24,146
1948	2,933	25,768		1983	2,618	22,930
1949	2,249	19,700		1984	2,570	22,577
1950	2,521	22,081		1985	2,074	18,165
1951	2,998	26,262		1986	2,436	21,341
1952	2,671	23,463		1987	2,182	19,118
1953	2,372	20,779		1988	1,975	17,349
1954	2,993	26,220		1989	2,037	17,843
1955	2,614	22,898		1990	2,705	23,692
1956	2,965	26,048		1991	2,947	25,819
1957	2,501	21,913		1992	2,015	17,703
1958	2,422	21,218		1993	1,816	15,910
1959	2,871	25,149		1994	2,126	18,620
1960	2,829	24,846		1995	2,213	19,385
1961	2,689	23,554		1996	3,203	28,132
1962	2,420	21,195		1997	3,056	26,768
1963	2,458	21,532		1998	2,598	22,758

Figure 21: Colville Settlement Payment Distributions





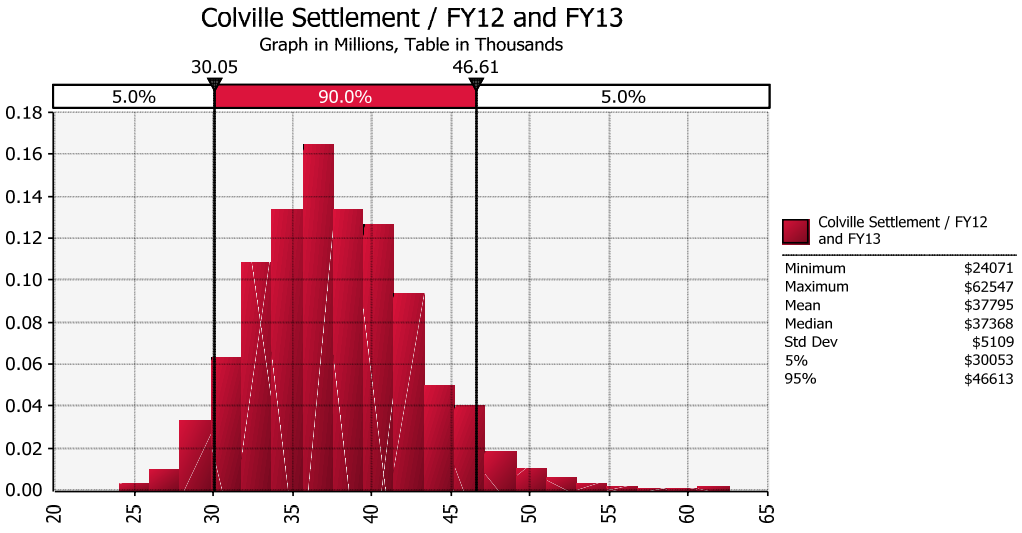
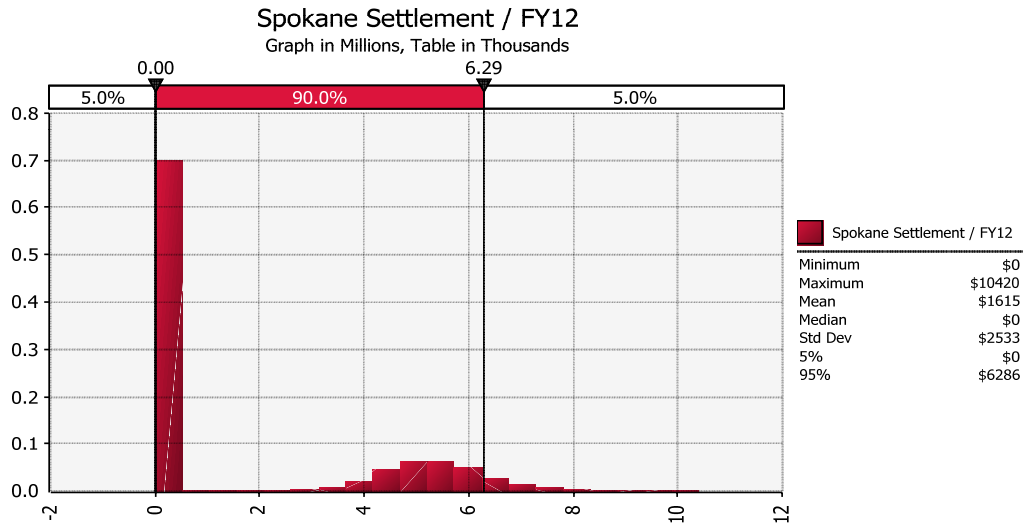
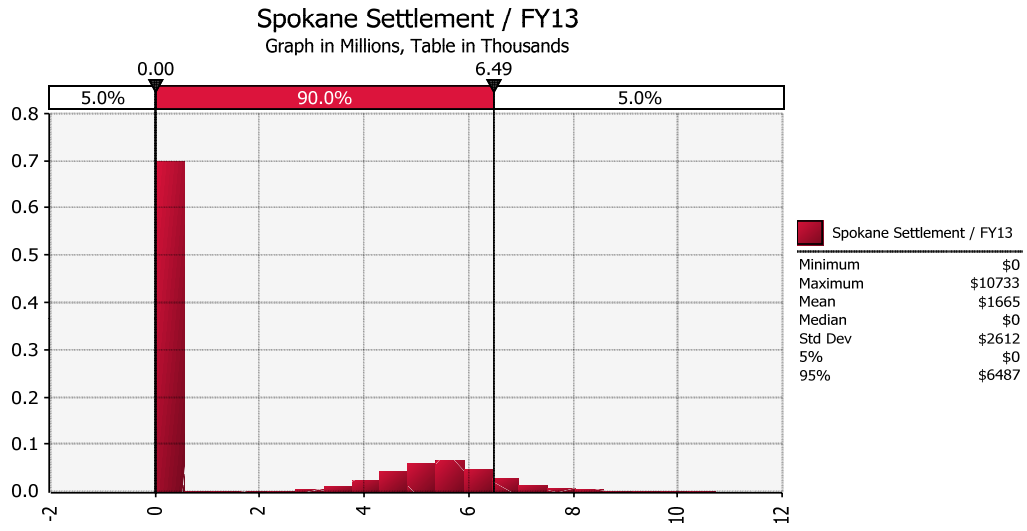


Figure 22: Spokane Settlement Payment Distributions





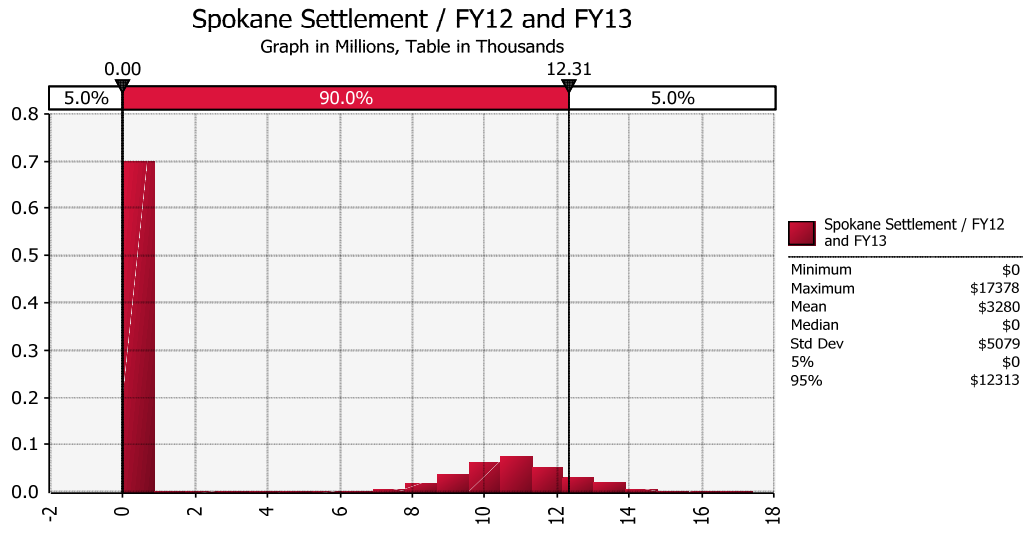
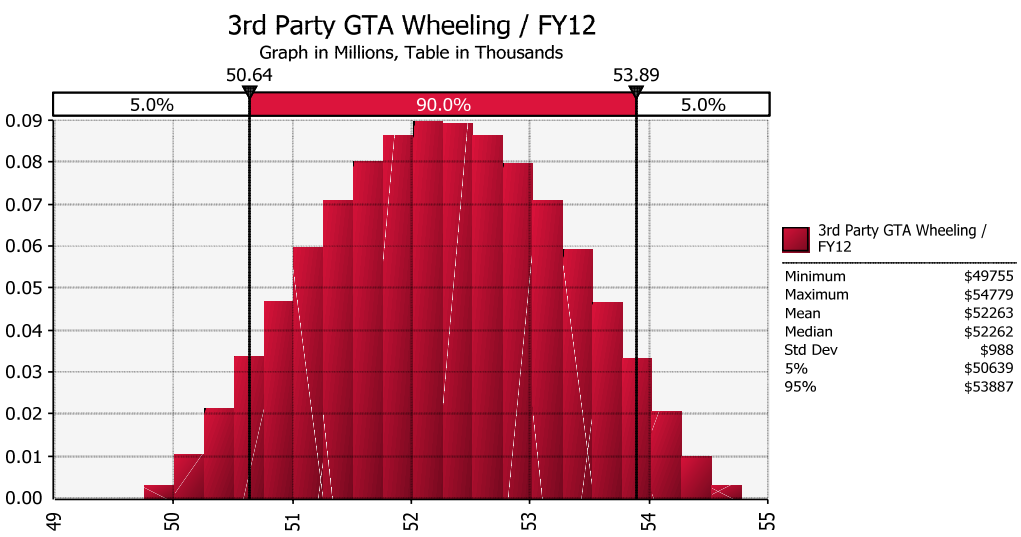
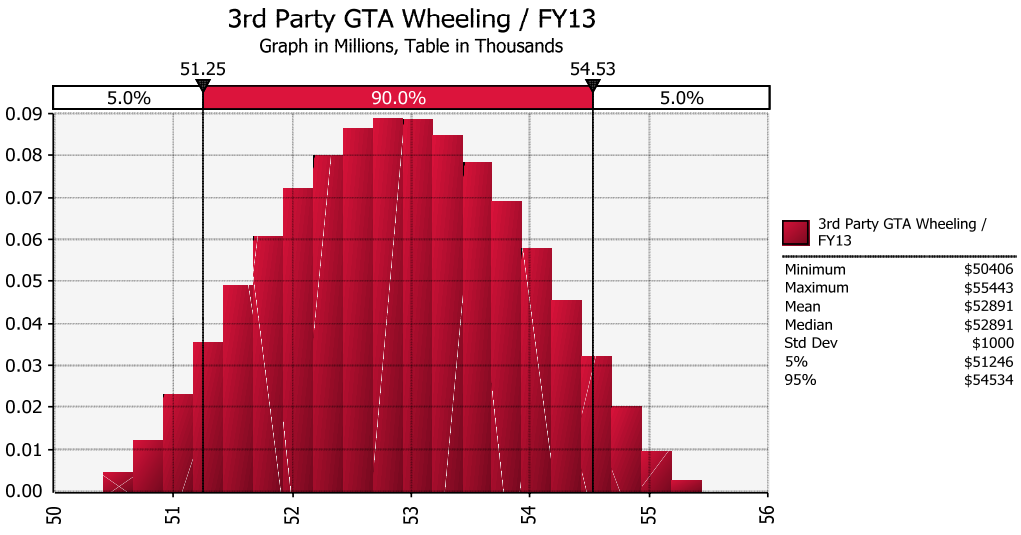


Figure 23: Third-Party GTA Wheeling Expense Distributions





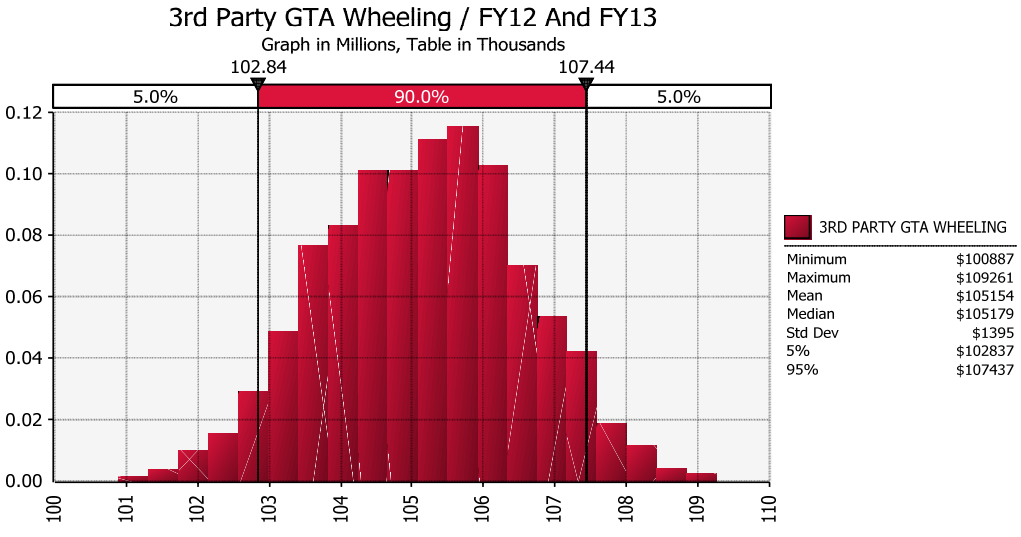
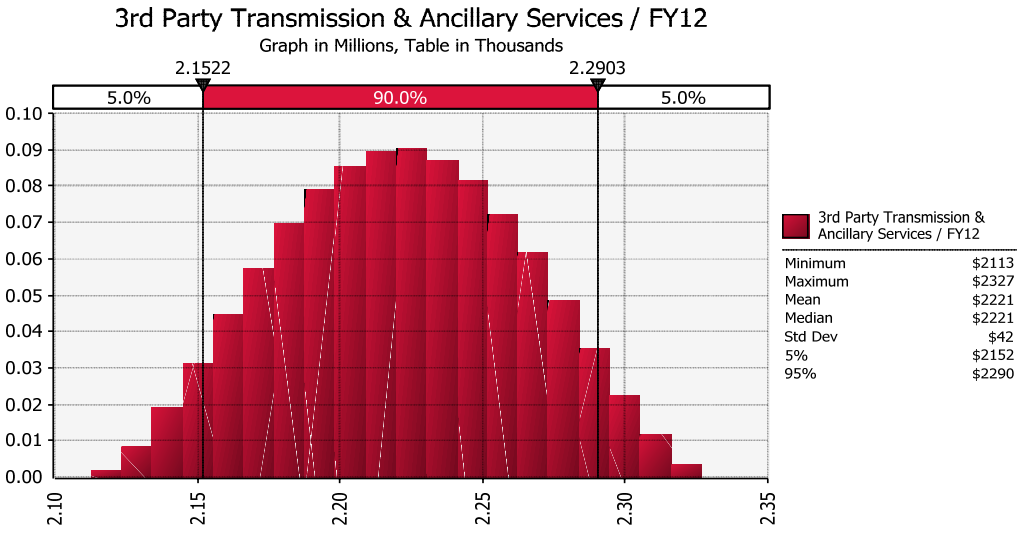
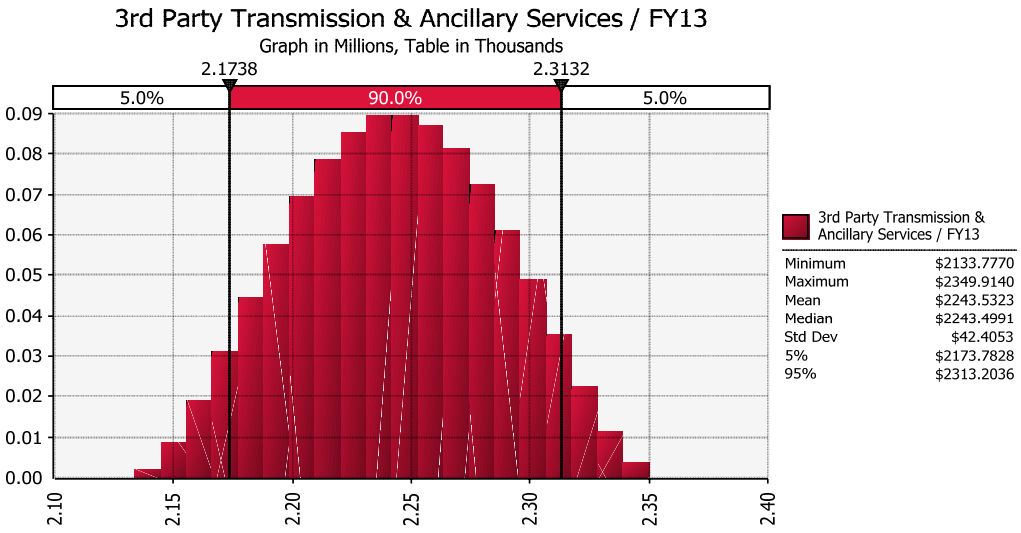


Figure 24: 3rd Party Transmission & Ancillary Services Distributions





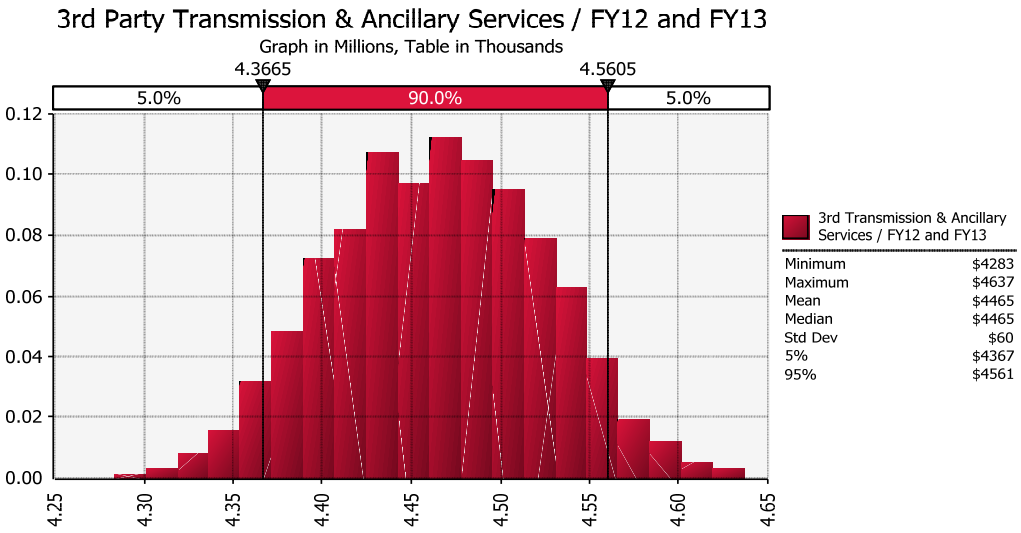
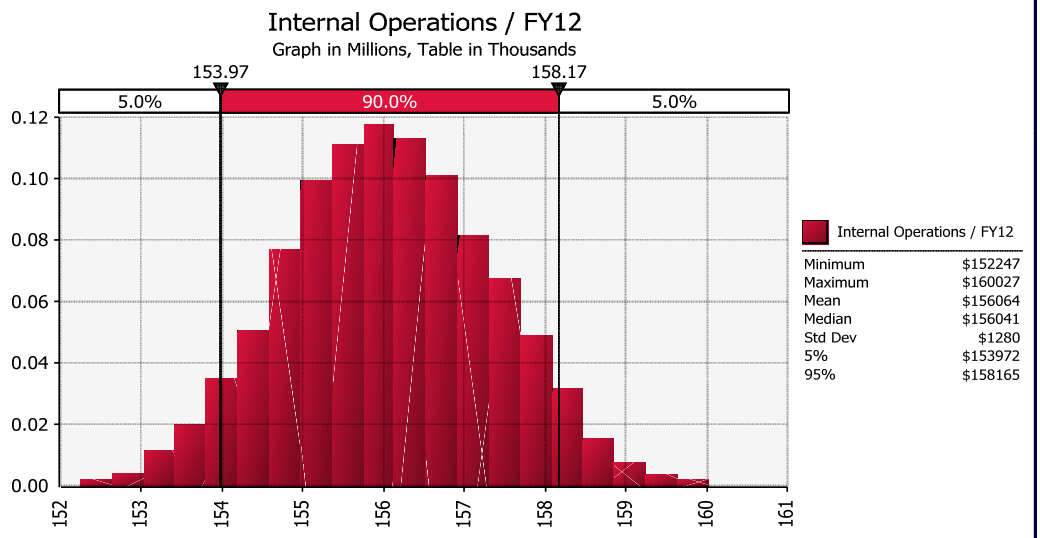
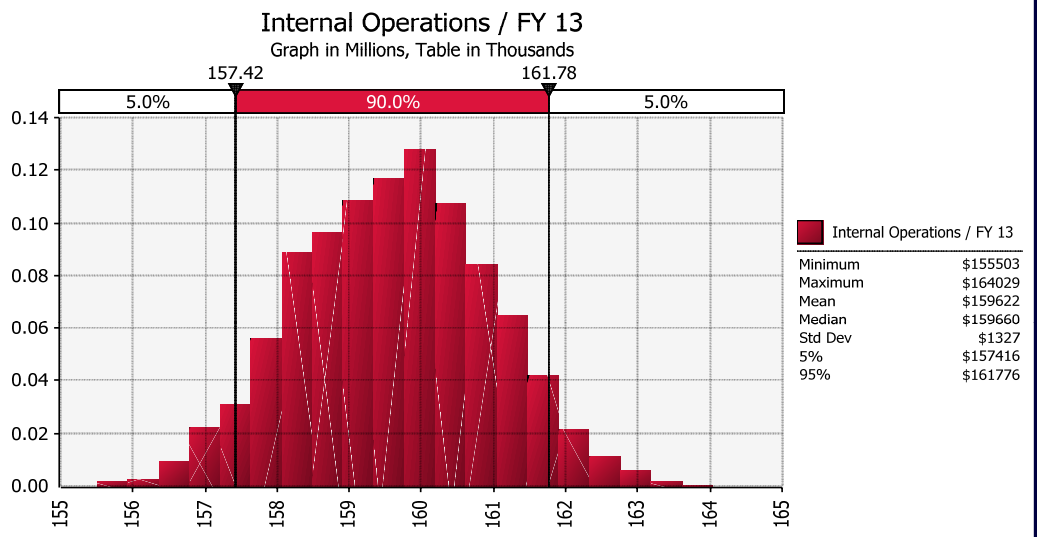


Figure 25: Internal Operations Expense Distributions





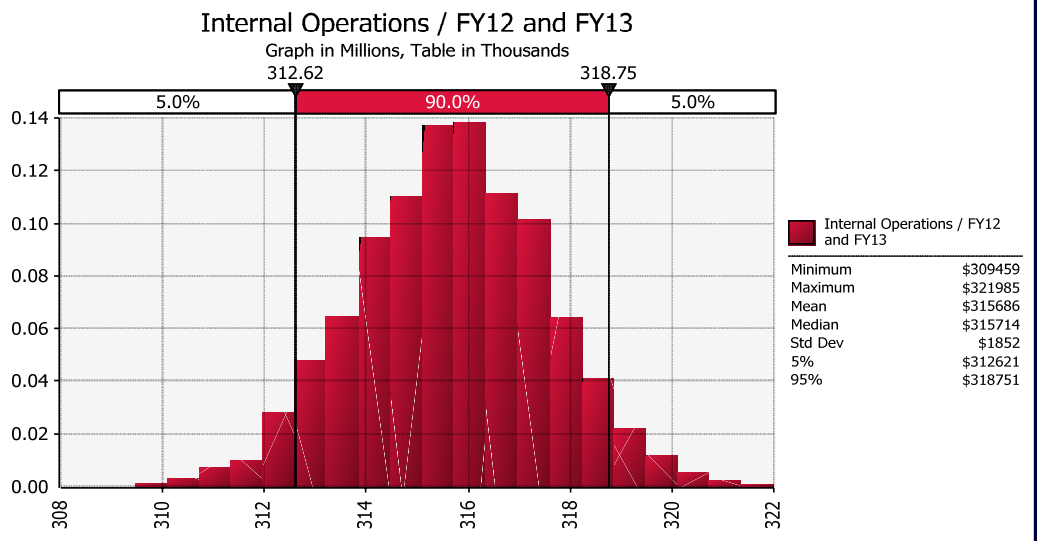
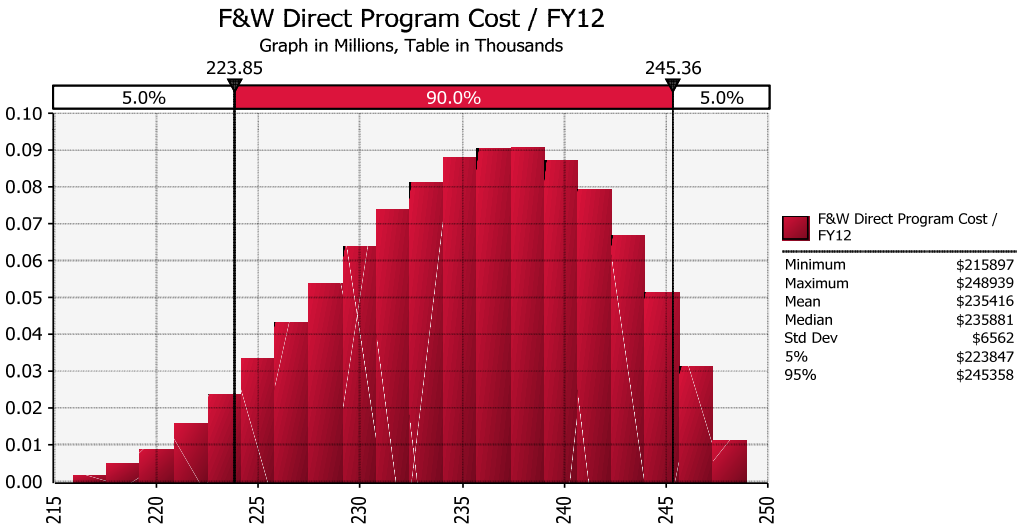
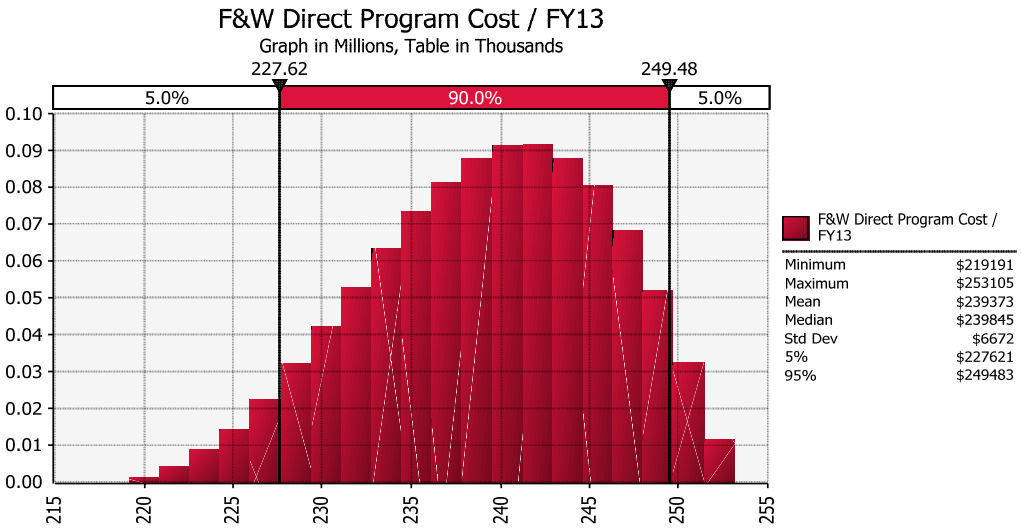


Figure 26: F&W Direct Program Cost Distributions





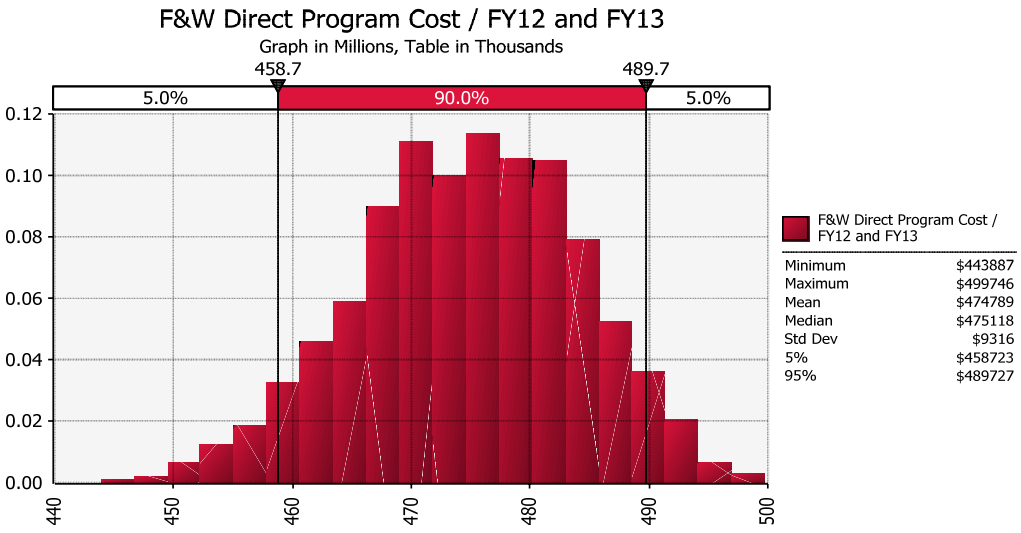
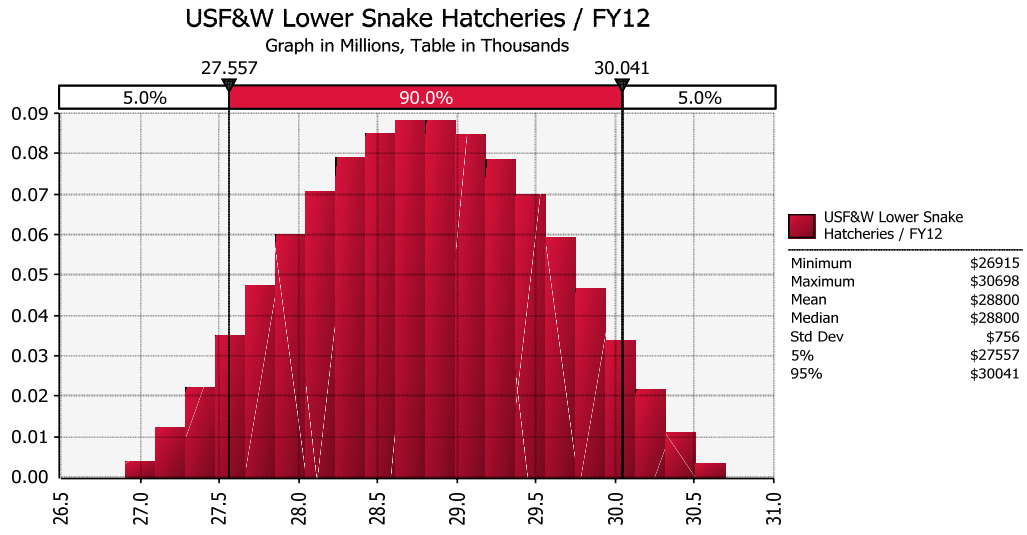
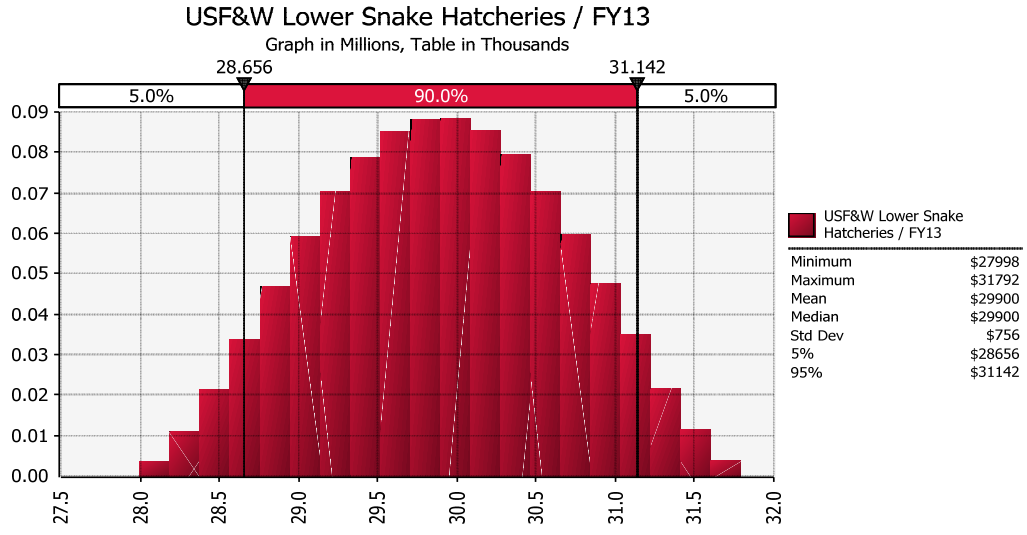


Figure 27: Lower Snake River Hatcheries Expense Distributions





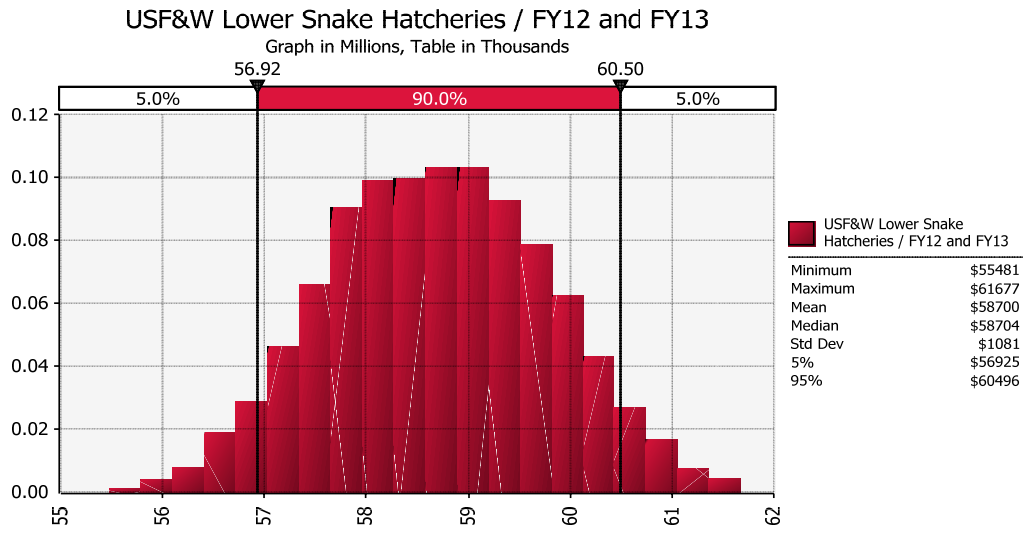
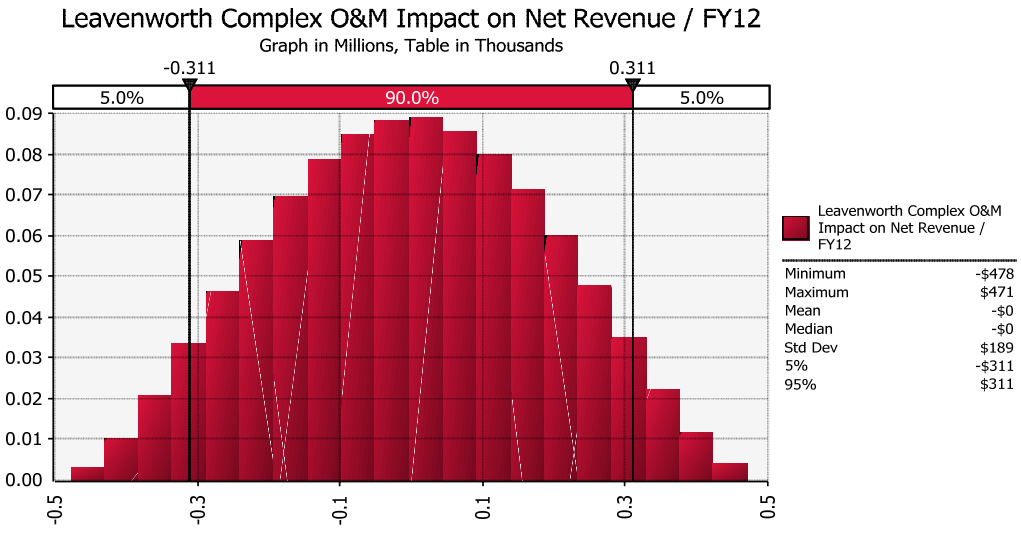
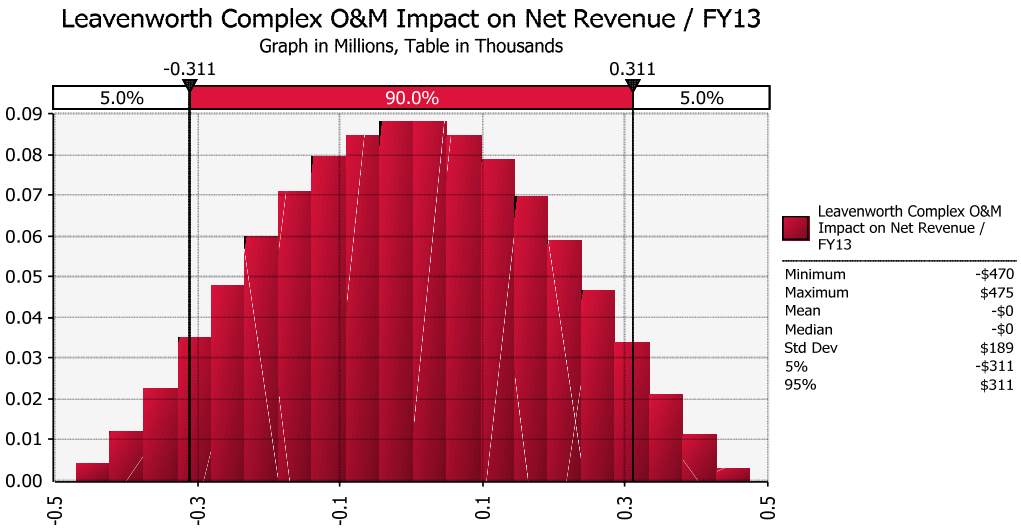


Figure 28: Leavenworth Complex O&M Expense Distributions





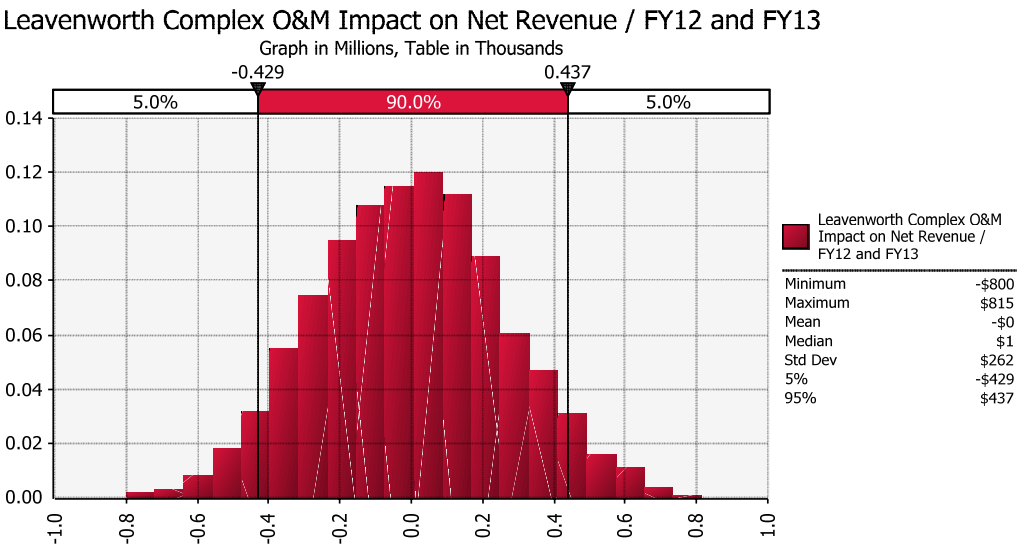
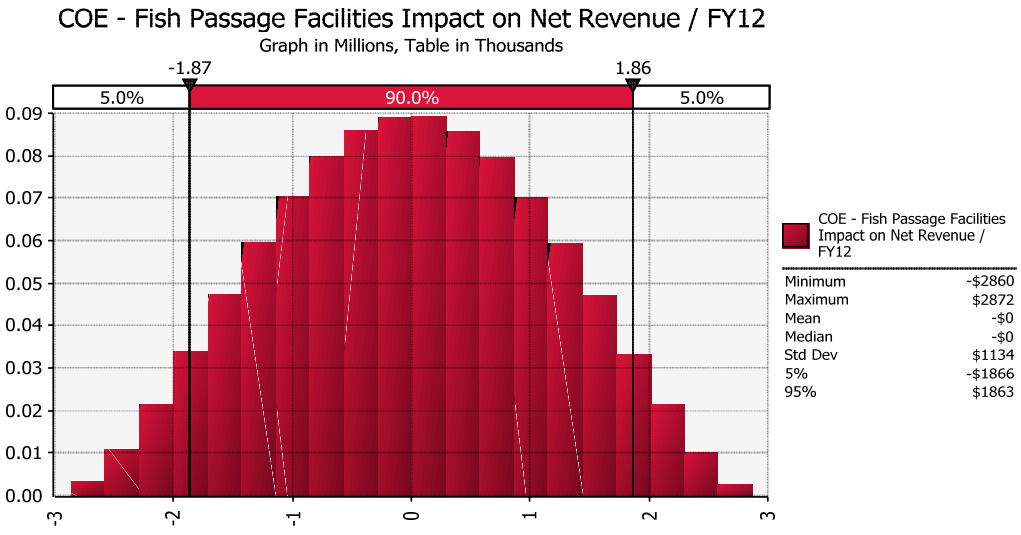
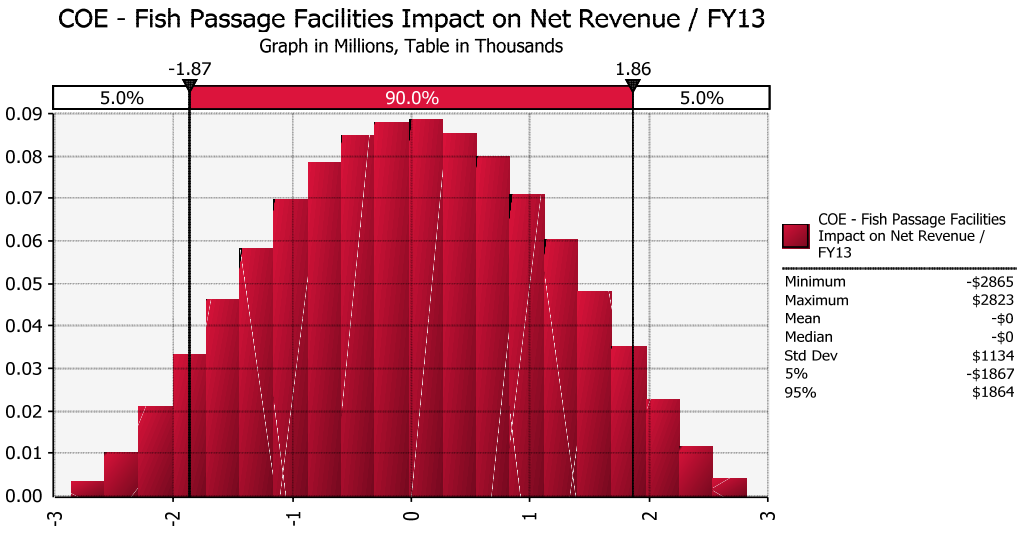


Figure 29: Fish Passage Facilities Expense Distributions





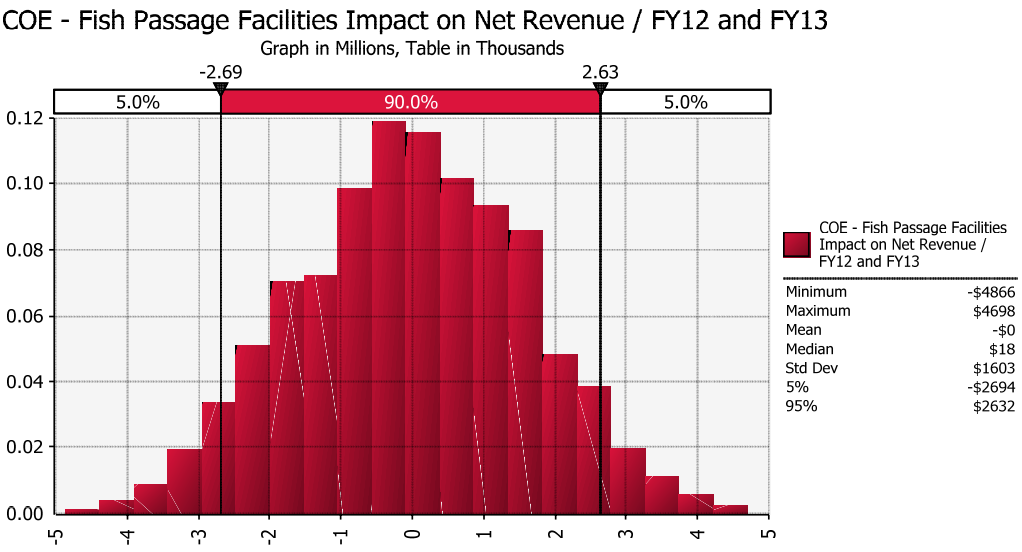
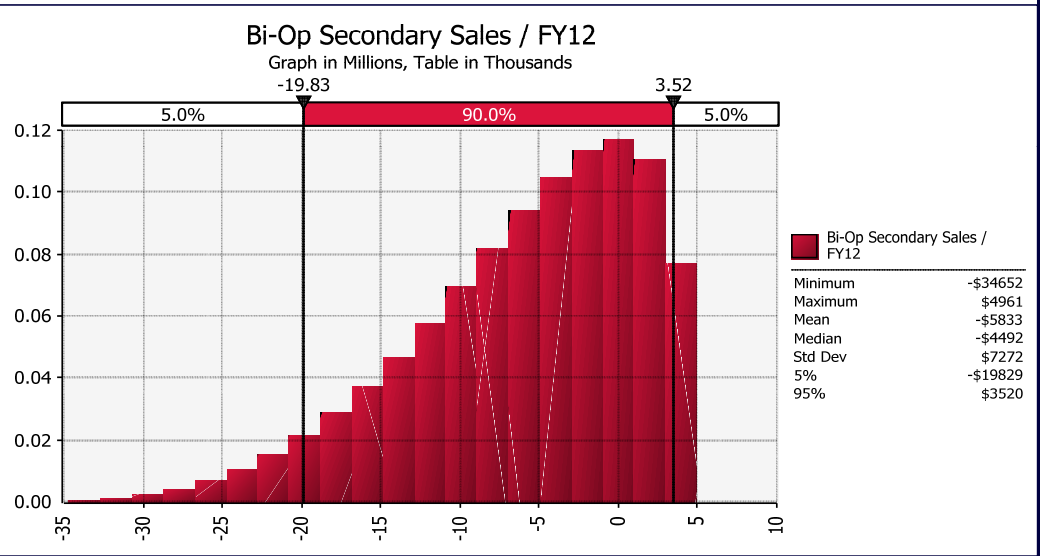
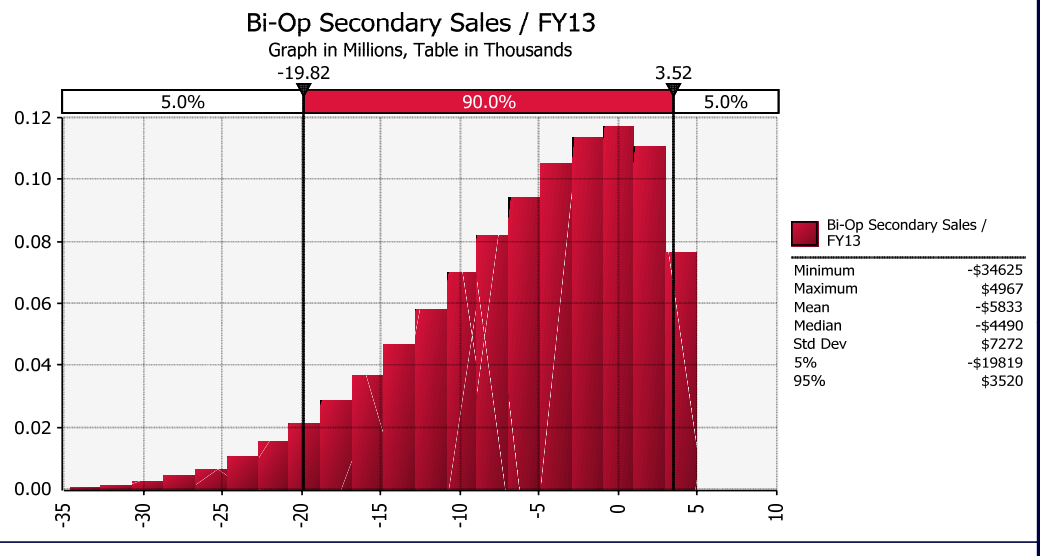


Figure 30: BiOp Secondary Sales Risk Distributions





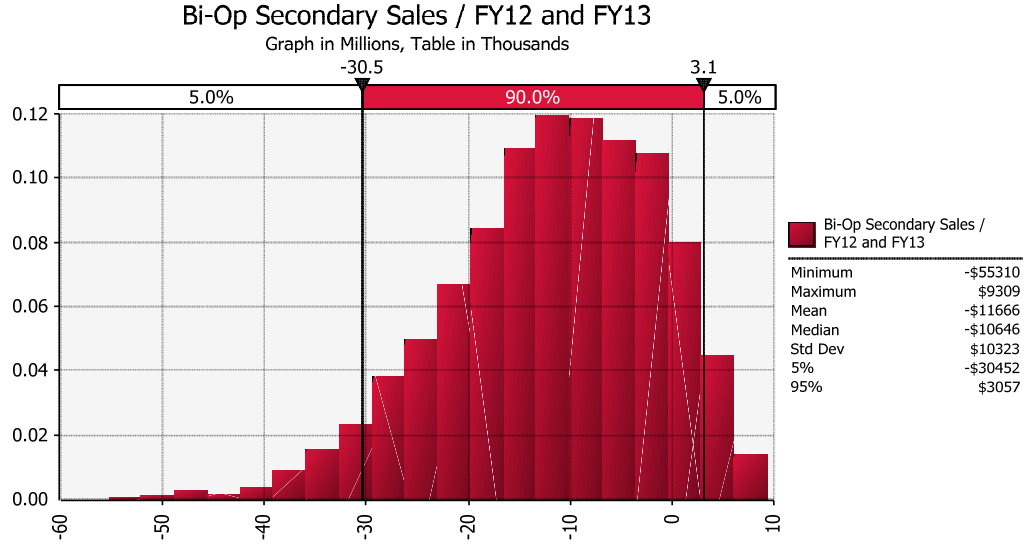
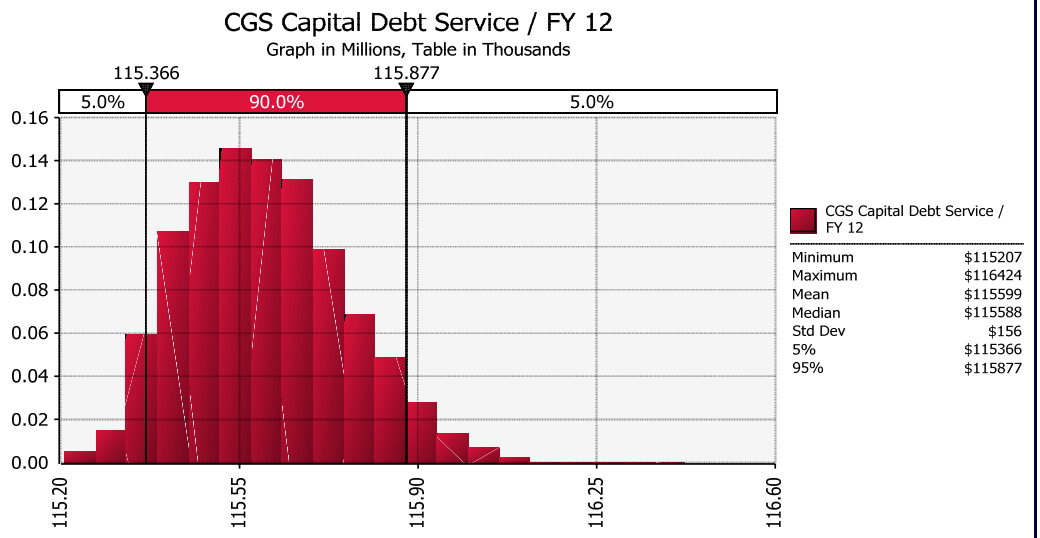
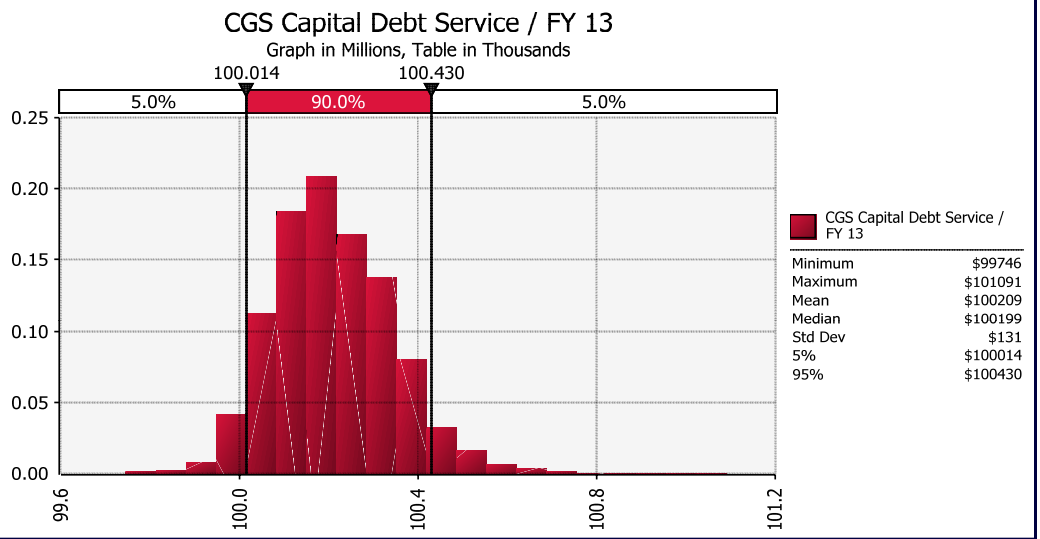


Figure 31: CGS Capital Debt Services Distributions





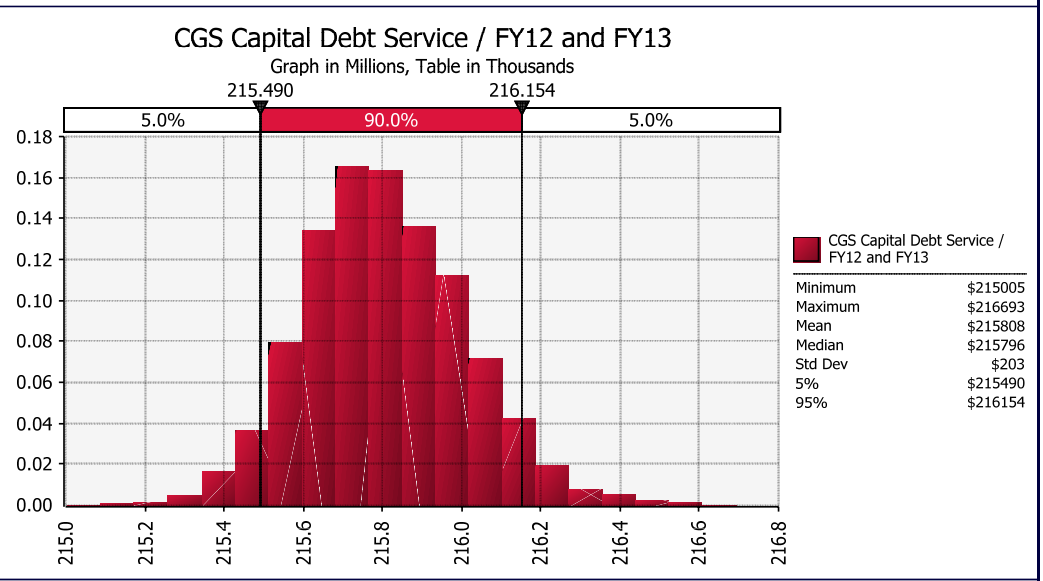
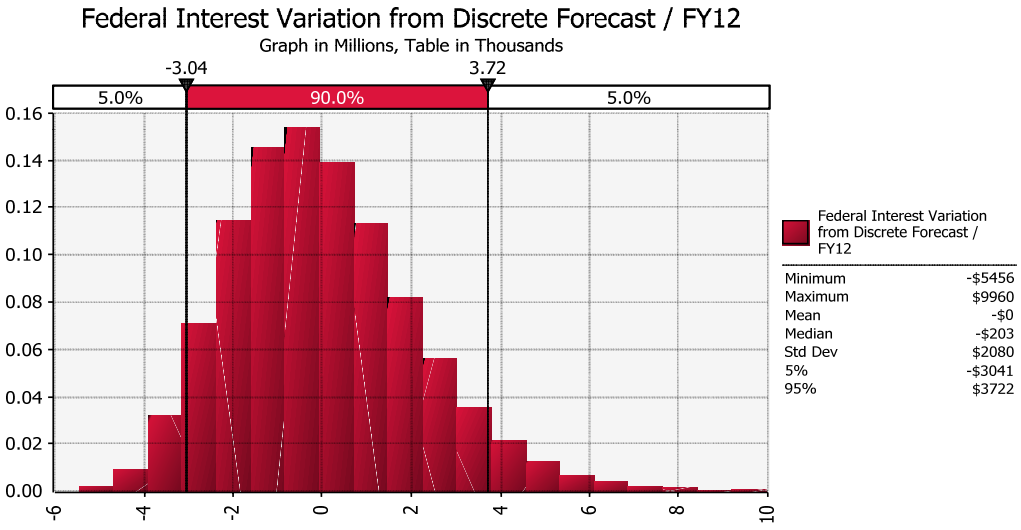
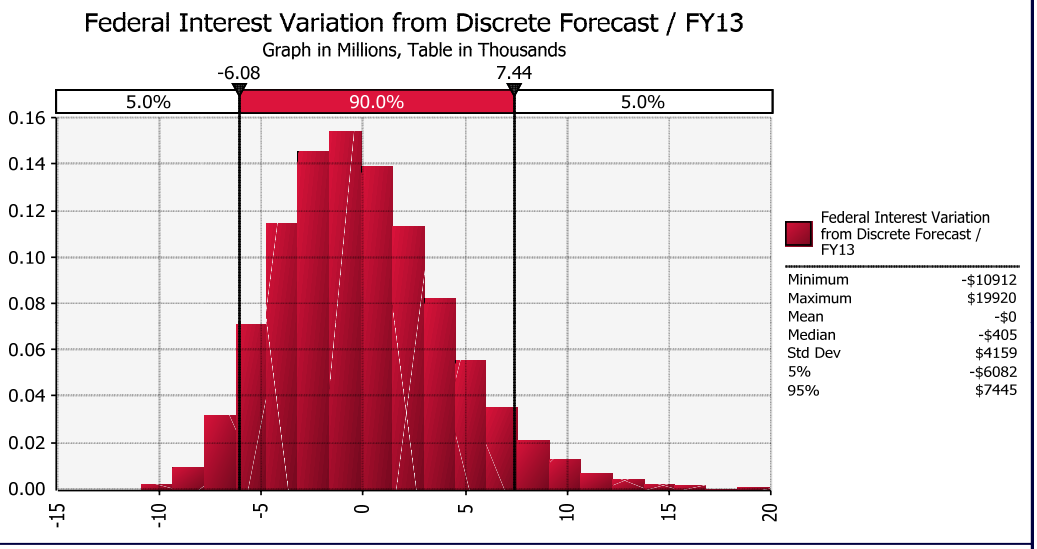


Figure 32: Federal Interest Expense Distributions





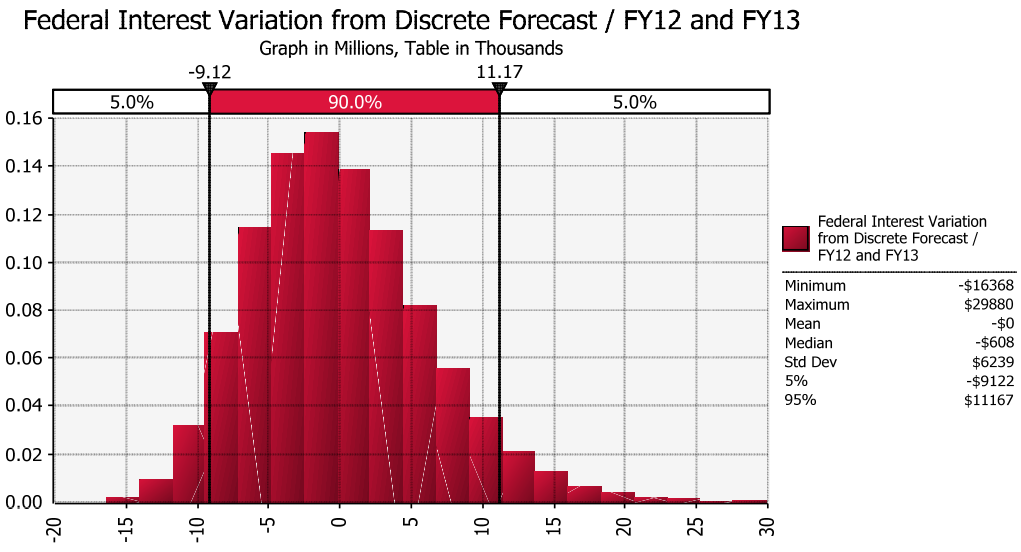
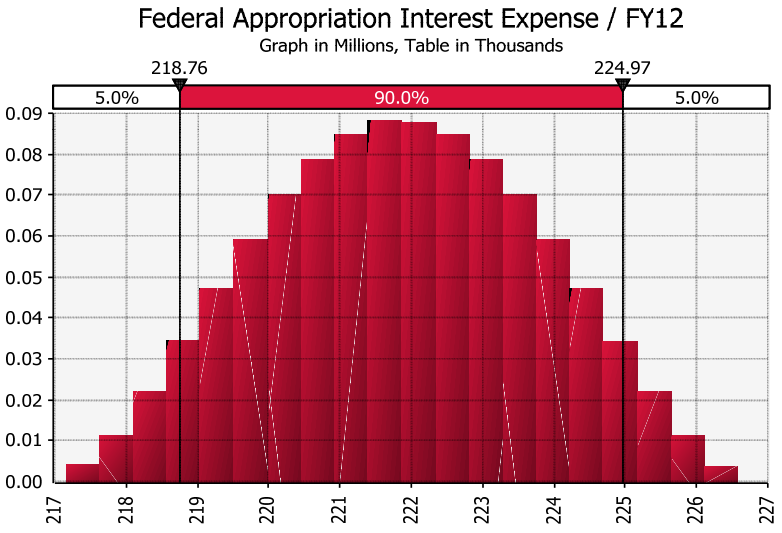
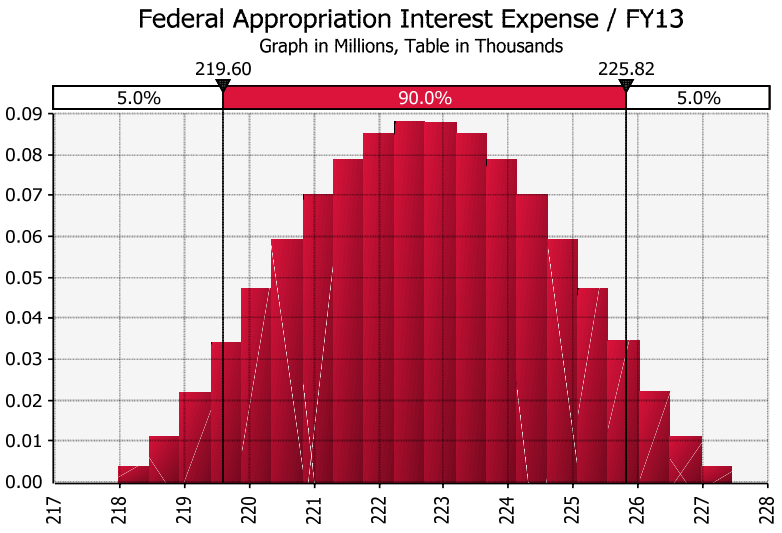


Figure 33: Federal Appropriations Expense Distributions





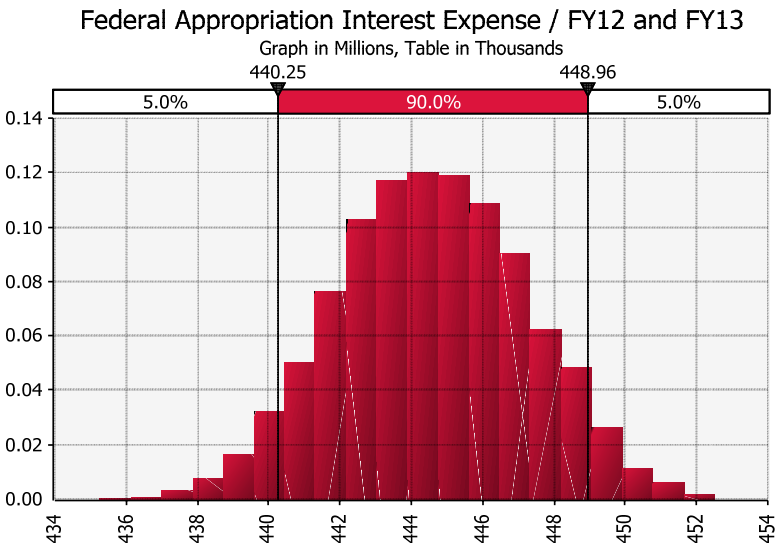


Figure 34: CGS Condenser Replacement Outage Duration

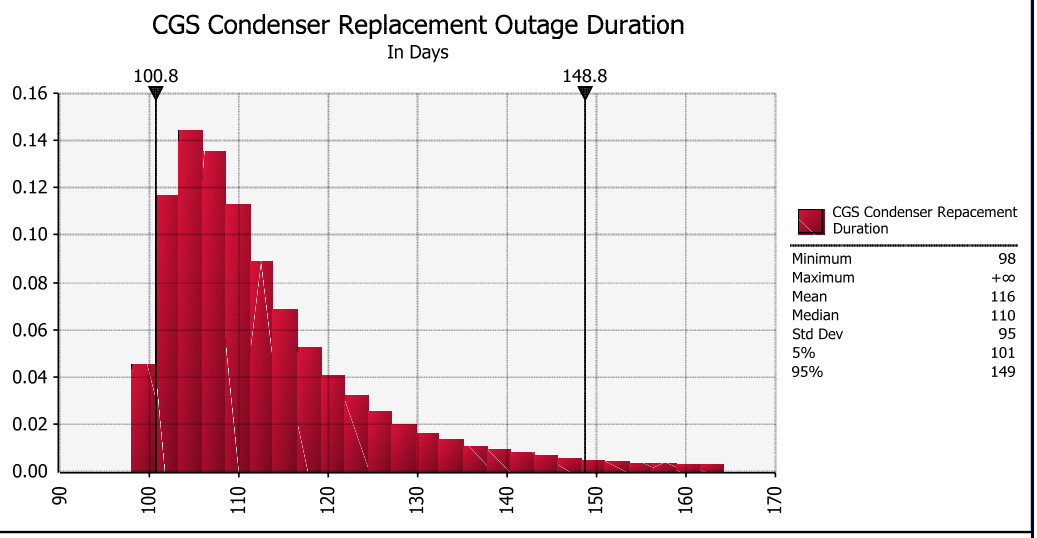
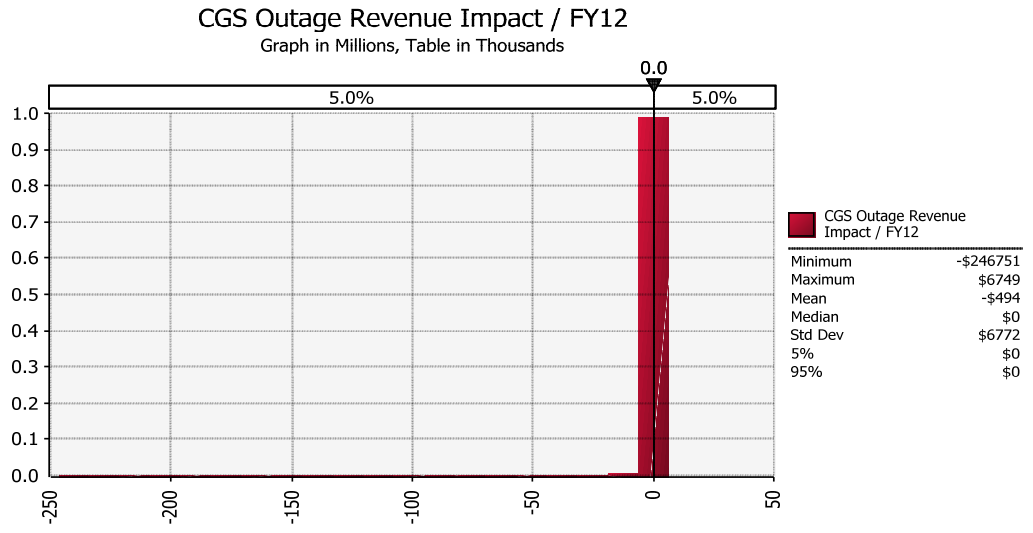
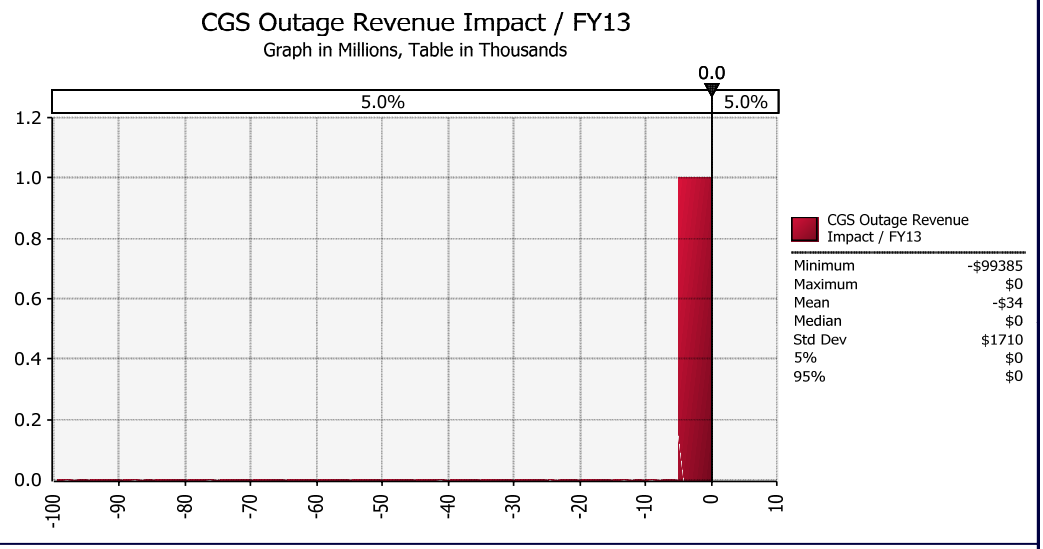


Figure 35: CGS Condenser Replacement Revenue Impact Distributions





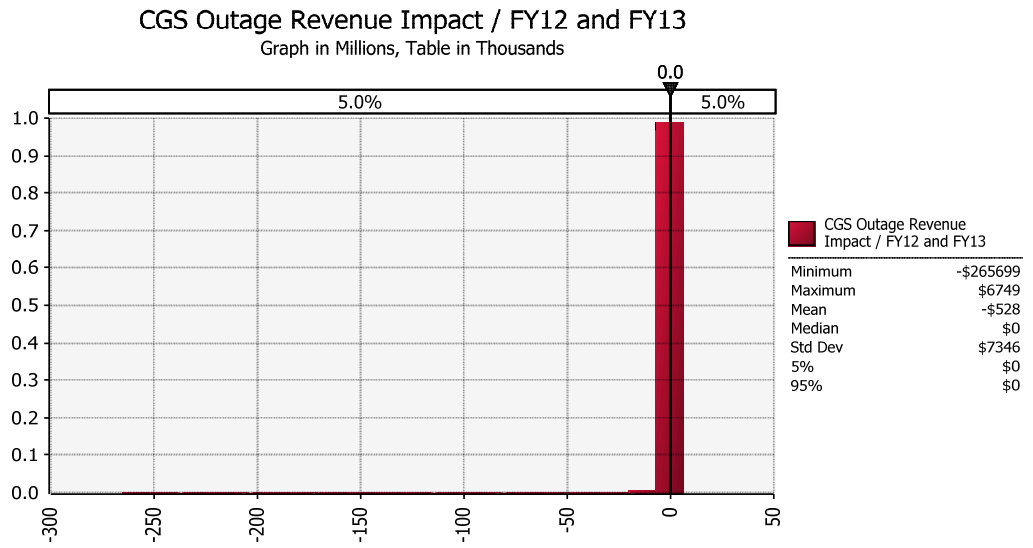


Figure 36: Services for Wind Generators Revenue Distributions

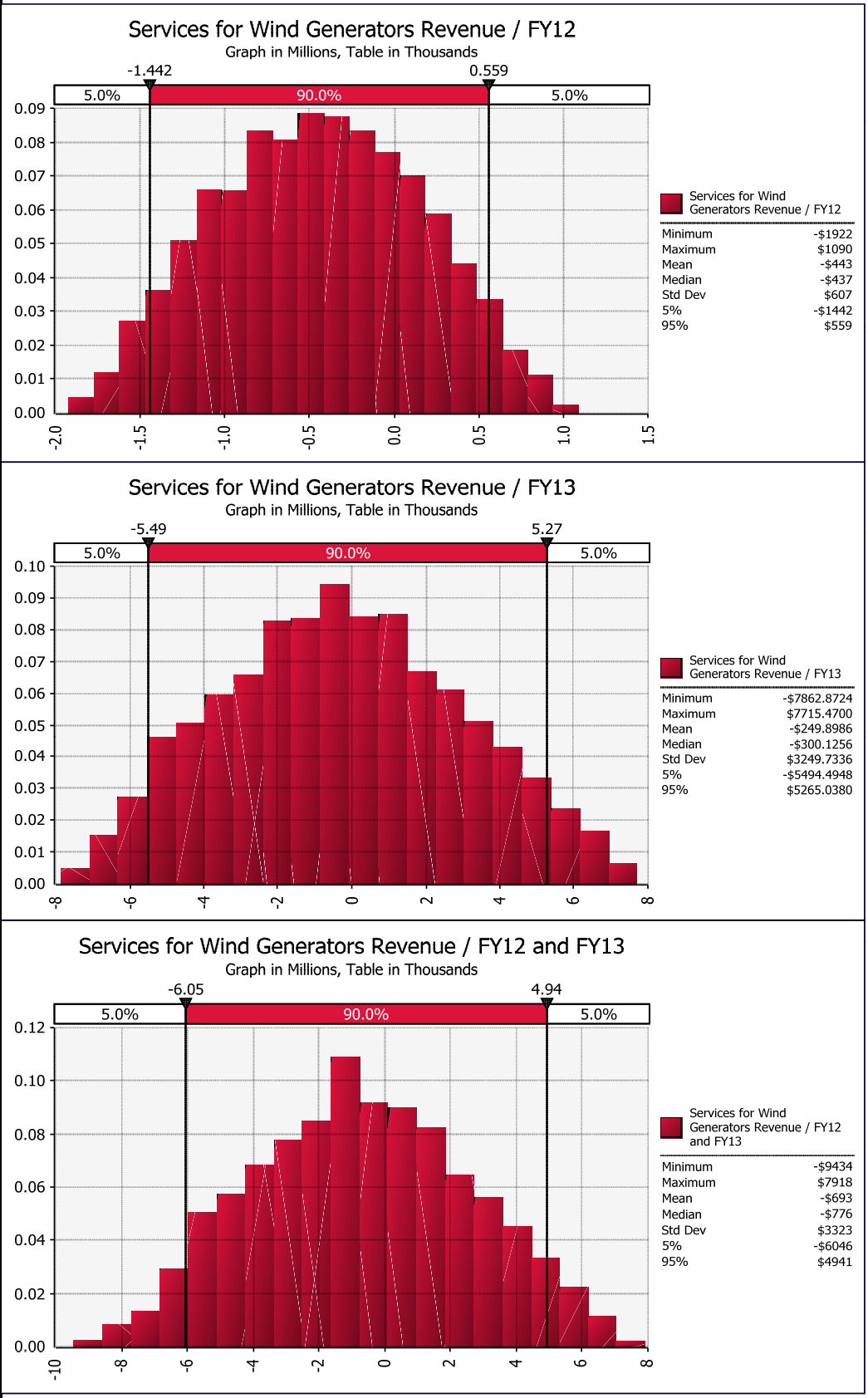
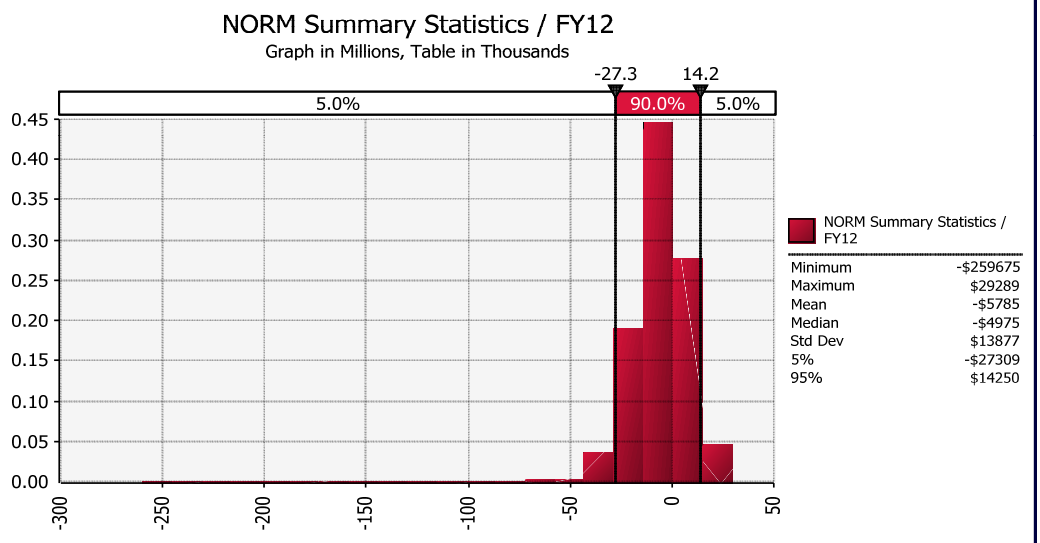
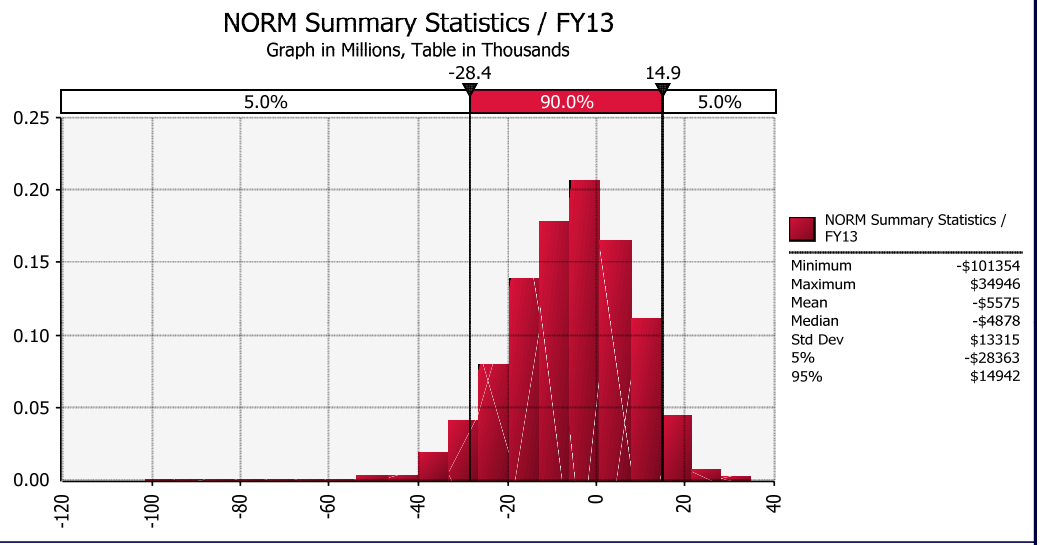


Figure 37: NORM Output Summary Distributions





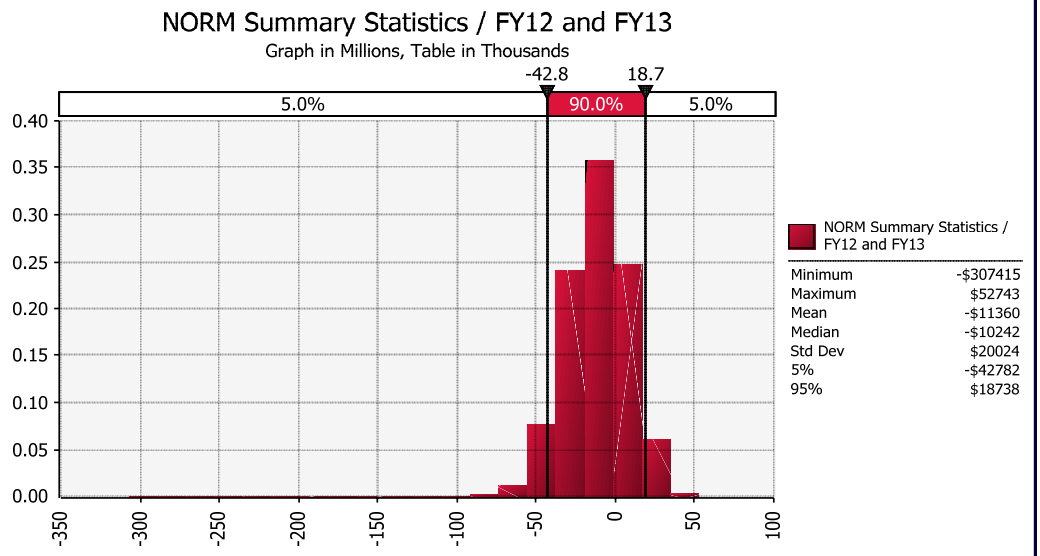


Figure 38: ToolKit "Main" Sheet

ToolKit v. 4.8, (11-22-2010) | Study title: **Final Study, BP-12 | PS reserves**

Time of run: 2:50:51 PM on 7/12/2011 | 2 -yr TPP = 97.11% | Run Type: PS-only run

Input Files	
PS	http://internal.bpa.gov/sites/risk-mgmt/DBE/Documents/Risk_Models/ToolKit/11-07_July/08_Final_v1/RM_FINAL_BP12FP_FY11HydSim14_07-12-11_UNL.xls
NORM	http://internal.bpa.gov/sites/risk-mgmt/DBE/Documents/Risk_Models/ToolKit/11-07_July/08_Final_v1/NORM_Output_2011_07_12.xls
TS (or Split)	

Split Percentile

PS Only (no TS)	Start in TK Year	Stop in TK Year	Start TPP in TK Yr	Starting Iteration	No. of Iterations	Deferral Logic	Ask For PNRR Adj	Sec Rev Rebate	AutoPrint Res Grph	AutoPrint This Page	CRAC Stats
TRUE	1	3	2	1	3,500	Hybrid	FALSE	FALSE	FALSE	FALSE	FALSE

PS Starting Resrves Bal	TS Strt Rsrv Bal	PS Starting ANR	PS LiqRes	TS LiqRes	TS to PS Res Allocation	Treasury Facility	"Small" Def. Size	Starting PNRR Adj	Sec. Rev. Rebate Description
233.0		0.00	0	20	0	450	$200	0	n / a

TK Year	Fiscal Year	Probabi-listic?	BPA Fund Int. Rates IOC	BPA Fund Int. Rates Tr.Specials	Tr. Facility Int. Rate	Treasury Pmt Sched Amort	Treasury Pmt Sched Interest	Interest Credit Sched PS	Interest Credit Sched TS	Other Cash Only Adj	Cash Lag for PNRR	PS Cash Tmg Adj	TS Cash Tmg Adj
1	2011	TRUE	2.24%	2.24%	0.96%	162.2	259.8	13.60		0.0	0.0	4.8	0.0
2	2012	TRUE	3.60%	3.60%	2.52%	194.2	279.5	12.48		0.0	0.0	7.4	0.00
3	2013	TRUE	4.77%	4.77%	3.82%	181.6	297.5	16.65		0.0	0.0	7.4	0.00

Year	Fiscal Year	Div. Dist. Threshold	Div. Dist. Lim/Year	CRAC Threshold	CRAC Lim/Year	CRAC Rev Basis	CRAC Type	PNRR Shape	PNRR Risk Mod	PNRR Calc'd in TK	PNRR Sum	Other Misc Adjustements to Cash and NR
1	2011	-126.0	0	-876.0	300		100%	0.0		0	0	
2	2012	562.4	1,000	-187.6	300		StepA	1.0		0	0	
3	2013	606.6	1,000	-143.4	300		StepA	1.0		0	0	

Outputs | PS Starting Reserves 233.0

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. Rsrvs	Avg. End. Tr Note Bal	Avg. End. ANR	PNRR Added	Approx PF rates (avg not block) Base	After PNRR	After Var.Rates	Net Liquidity
1	2011	0	0	100.0%	n / a	n / a	0.0	n / a	n / a	189.3	-	1.7	0	not imple-mented	not imple-mented	not imple-mented	639.3
2	2012	0	-	100.0%	-	100.0%	0.00	n / a	n / a	239.95	(27.7)	68.8	0				662.2
3	2013	101	101	97.1%	101	97.1%	1.68	58.3	58.3	315.21	(72.9)	108.5	0				692.3
2	-yr Total	101	101	n / a	n / a	n / a	1.7	n / a	n / a	n / a	n / a	n / a	0.0				
2	-yr Avg.	51	51	n / a	n / a	n / a	0.8	58.3	58.3	n / a	n / a	n / a	0.0				

ToolKit Year	Fiscal Year	Avg. DDC per each	Avg. DDC per Year	No. of DDCs	DDC Frequency	Avg. CRAC per each	Avg. CRAC per Year	No. of CRACs	Ann.Lim. Reached	CRAC Frequency
1	2011	n / a	0.0	0	0.0	n / a	0.0	0	0	0.0%
2	2012	n / a	0.0	0	0%	n / a	0.0	0	0	0%
3	2013	170.4	6.4	132	4%	95.8	22.6	827	0	24%
2	-yr Total	n / a	6.4	132	n/a	n / a	22.6	827	0	n/a
2	-yr Avg.	170	3.2	66	2%	96	11.3	414	0	12%

ToolKit Year	Fiscal Year	NORM Inputs	PBL Inputs	TBL Inputs	A-T-C 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
1	2011	-20.1	24.9		-47.9							6.86	
2	2012	-5.8	71.5		-45.5							10.49	
3	2013	-5.6	28.1		-10.9							13.13	
2	-yr Total	-11.4	99.7		-56.4							23.6	
2	-yr Avg.	-5.7	49.8		-28.2							11.8	

Figure 39: Power Services End of Year Net Reserves
(Reserves Available For Risk Attributed to Power Less Liquidity Borrowing)

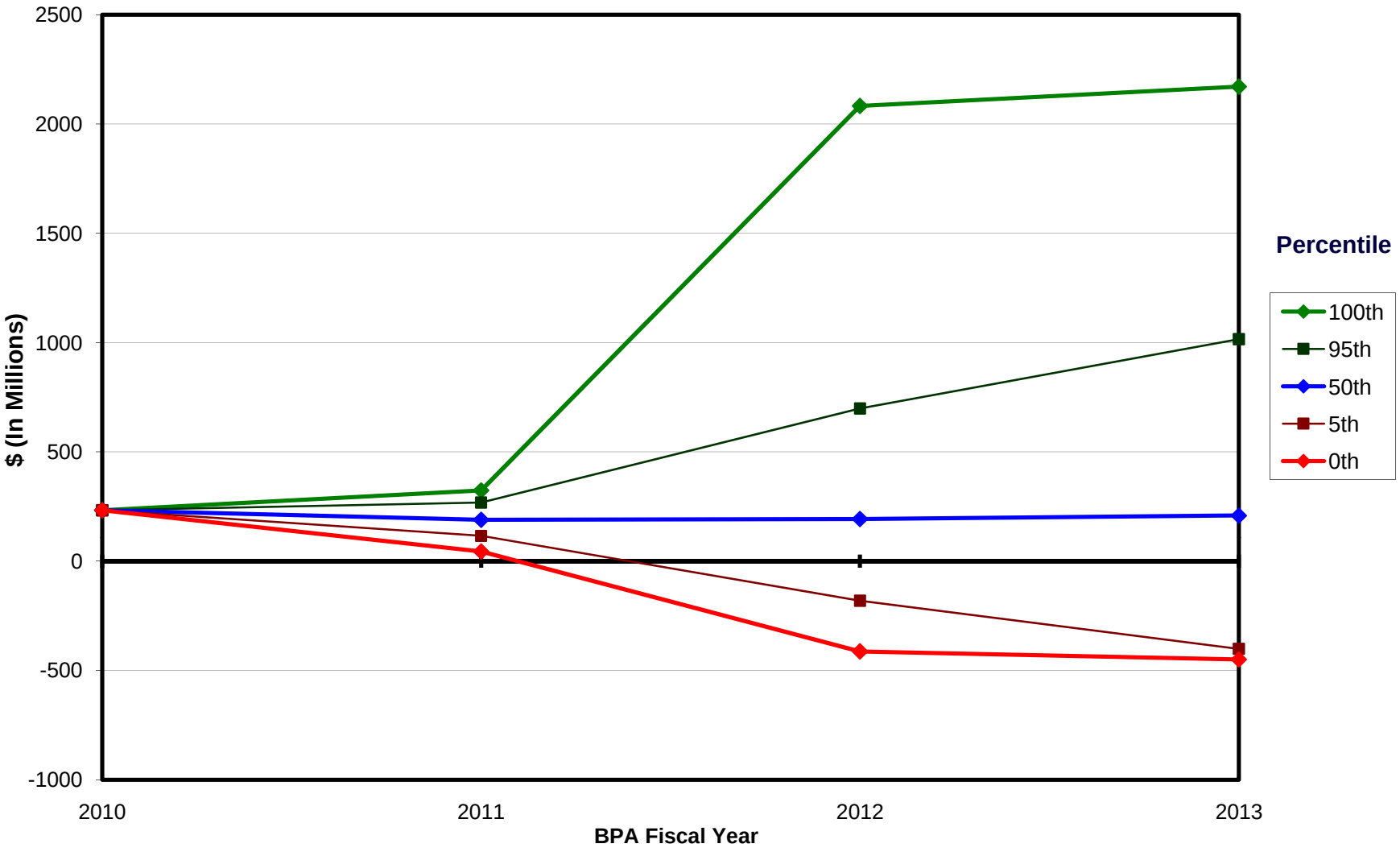


Table 26: PS End of Year Balances, Values in Millions

EOY Reserves Balance				
	2010	**2011**	**2012**	**2013**
Avg	**233.0**	**189.3**	**239.9**	**315.2**
stdev	0.0	45.0	241.3	358.9
100%	233.0	323.4	2082.8	2171.2
95%	233.0	267.8	698.7	1015.5
75%	233.0	217.6	372.2	505.6
50%	**233.0**	**189.6**	**193.0**	**208.6**
25%	233.0	159.3	10.5	0.0
5%	233.0	115.6	0.0	0.0
0%	233.0	44.1	0.0	0.0

Treasury Note Balance				
	2010	**2011**	**2012**	**2013**
Avg	**0.0**	**0.0**	**-27.7**	**-72.9**
stdev	0.0	0.0	62.7	133.7
100%	0.0	0.0	0.0	0.0
95%	0.0	0.0	0.0	0.0
75%	0.0	0.0	0.0	0.0
50%	**0.0**	**0.0**	**0.0**	**0.0**
25%	0.0	0.0	0.0	-91.4
5%	0.0	0.0	-181.5	-401.1
0%	0.0	0.0	-413.2	-450.0

Available Liquidity				
	2010	**2011**	**2012**	**2013**
Avg	**683.0**	**639.3**	**662.2**	**692.3**
stdev	0.0	45.0	274.7	438.9
100%	683.0	773.4	2532.8	2621.2
95%	683.0	717.8	1148.7	1465.5
75%	683.0	667.6	822.2	955.6
50%	**683.0**	**639.6**	**643.0**	**658.6**
25%	683.0	609.3	460.5	358.6
5%	683.0	565.6	268.5	48.9
0%	683.0	494.1	36.8	0.0

Net Reserves				
	2010	**2011**	**2012**	**2013**
Avg	**233.0**	**189.3**	**212.2**	**242.3**
stdev	0.0	45.0	274.7	438.9
100%	233.0	323.4	2082.8	2171.2
95%	233.0	267.8	698.7	1015.5
75%	233.0	217.6	372.2	505.6
50%	**233.0**	**189.6**	**193.0**	**208.6**
25%	233.0	159.3	10.5	-91.4
5%	233.0	115.6	-181.5	-401.1
0%	233.0	44.1	-413.2	-450.0

EOY Accumulated Net Revenue Balance				
	2010	**2011**	**2012**	**2013**
Avg	**0.0**	**1.7**	**68.8**	**108.5**
stdev	0.0	44.0	273.2	434.5
100%	0.0	129.8	1926.6	2009.7
95%	0.0	79.0	553.2	873.2
75%	0.0	28.9	228.4	370.2
50%	**0.0**	**1.6**	**50.4**	**74.4**
25%	0.0	-27.5	-131.0	-219.1
5%	0.0	-69.8	-321.5	-523.5
0%	0.0	-142.8	-555.0	-736.3

Net Revenue				
		2011	**2012**	**2013**
Avg		**1.7**	**67.1**	**39.7**
stdev		44.0	268.6	287.3
100%		129.8	1894.2	1709.0
95%		79.0	535.5	537.1
75%		28.9	226.7	205.1
50%		**1.6**	**46.3**	**19.1**
25%		-27.5	-131.0	-169.3
5%		-69.8	-310.6	-363.8
0%		-142.8	-541.5	-809.3

BONNEVILLE POWER ADMINISTRATION
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