

Derivation of Proposed Changes to SRP's Transmission and Ancillary Services Prices Effective May 1, 2019

**Salt River Project Agricultural Improvement
and Power District**

December 20, 2018

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Derivation of Proposed Changes to SRP's Transmission and Ancillary Services Prices

Effective: May 1, 2019

In conjunction with the "Proposed Adjustments to SRP's Standard Electric Price Plans Effective with the May 2019 Billing Cycle", this document provides financial details in support of the proposed adjustments to prices for retail ancillary services, and SRP's prices for wholesale transmission and ancillary services.

Specifically, Management proposes that the prices associated with Schedules 1 through 8, Schedule 10, and Attachment H of SRP's Open Access Transmission Tariff be adjusted to reflect current costs and loads.

Schedules 1 through 8, Schedule 10, and Attachment H include the prices for Ancillary Services, Firm Point-to-Point Transmission Service, Non-Firm Point-to-Point Transmission Service, and the Annual Transmission Revenue Requirement for Network Integration Transmission Service. The prices for ancillary services are based on a historical test year, SRP's Fiscal Year 2017 (financial reporting year ending April 30, 2017). The prices for transmission are based on a projected test year, SRP's fiscal year 2020 (budgeting year ending April 30, 2020). SRP's prices for transmission and ancillary services were calculated using data from SRP's Fiscal Year 2017 accounting data, the *Cost Allocation Study in Support of Proposed Adjustments to SRP's Standard Electric Price Plans Effective with the May 2019 Billing Cycle (Cost Allocation Study)*, Power Operations data, audited financial and accounting records, and budgets.

Management's proposed changes which would be effective May 1, 2019, are summarized below followed by the proposed prices and supporting cost tables.

I. Prices for Ancillary Services

Schedule 1: Scheduling, System Control and Dispatch Service

Scheduling, System Control and Dispatch Service is required to schedule the movement of power through, out of, within, or into a Balancing Area Authority. The rate for Scheduling, System Control and Dispatch Service is determined from FERC Account 561, Load Dispatch for Transmission and SRP's Transmission System Peak for retail and long-term wholesale commitments.

The proposed rate is \$2.80/kW-year, an increase from the current rate of \$1.14/kW-year. Exhibit A in the Cost Support Exhibits and Tables section of this report contains the calculation of the rate for Scheduling, System Control and Dispatch Service.

Schedule 2: Reactive Supply and Voltage Control from Generation Sources Service

The shared production plant costs associated with Reactive Supply and Voltage Control from Generation Sources Service were determined from the cost of Turbogenerator Systems and Accessory Electric Equipment and the ratio of the VAR rating squared to the sum of the VAR rating squared and the MW rating squared of the generation units supplying this service. This share is applied to fixed production cost to determine the annual cost of supplying this service.

The proposed rate is \$1.67/kW-year, an increase from the current rate of \$1.16/kW-year. Exhibit B in the Cost Support Exhibits and Tables section of this report contains the calculation of the rate for Reactive Supply and Voltage Control from Generation Sources Service.

Schedule 3: Regulation and Frequency Response Service

Regulation and Frequency Response Service is accomplished by committing on-line generation whose output is raised or lowered (predominantly through the use of automatic generating control equipment) as necessary to follow the moment-by-moment changes in load. The annual cost for Regulation and Frequency Response Service is based on the fixed costs of the generating resources providing this service.

A regulation reserve of 123 MW was applied to the average hourly load of SRP's network system customers to determine the required regulation reserve of 3.72%. The regulation reserve for a Transmission Customer is determined by multiplying the Transmission Customer's hourly load by the required regulation reserve of 3.72%.

The proposed rate is \$9.45/MW-hour, an increase from the current rate of \$7.82/MW-hour. The rate is applied to the customer's required regulation reserve. The increase in the rate is primarily attributable to the new Frequency Reserve Obligation per NERC. Exhibit C in the Cost Support Exhibits and Tables section of this report contains the calculation of the rate for Regulation and Frequency Response Service.

Schedule 4: Energy Imbalance Service – Network Integration Service

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Balancing Area Authority, or deliveries of power and energy out of the Balancing Area Authority from generation resources located within the Balancing Area Authority, over a single hour. SRP must offer this service when the transmission service is used to serve load within its Balancing Area Authority. The Transmission Customer must either purchase this service from SRP or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Energy Imbalance Service obligation.

Schedule 5: Operating Reserve – Spinning Reserve Service

Operating Reserve – Spinning Reserve Service is needed to serve load immediately in the event of a system contingency. Spinning Reserve Service may be provided by generating units that are on-line and loaded at less than maximum output. The annual cost for Spinning Reserve Service is based only on the fixed costs of the resources providing this service since this service requires generating units to “spin” unloaded. A study performed by SRP Transmission and Generation Operations determines the resources used to provide spinning reserves. A spinning reserve of 3.0% in every hour, consistent with regional reliability requirements, is required. The spinning reserve for a Transmission Customer is determined by multiplying the Transmission Customer's hourly load by the required spinning reserve of 3.0%.

The proposed rate is \$11.72/MW-hour, a decrease from the current rate of \$16.29/MW-hour. The rate is applied to the customer's required spinning reserve. Exhibit D in the Cost Support

Exhibits and Tables section of this report contains the calculation of the rate for Operating Reserve – Spinning Reserve Service.

Schedule 6: Operating Reserve – Supplemental Reserve Service

Operating Reserve – Supplemental Reserve Service is needed to serve load in the event of a system contingency; it is not available immediately to serve load but rather within a short period of time. SRP's supplemental reserves are provided by generating units and firm wholesale purchases. Only the fixed (demand-related) costs associated with these resources are included in the annual cost of Operating Reserve – Supplemental Reserve Service. SRP's Southwest Reserve Sharing accounting data are used to determine the resources used to provide supplemental reserves.

A supplemental reserve of 3.0% in every hour, consistent with regional reliability requirements, is required. The supplemental reserve for a Transmission Customer is determined by multiplying the Transmission Customer's hourly load by the required supplemental reserve of 3.0%.

The proposed rate is \$10.70/MW-hour, a decrease from the current rate of \$20.51/MW-hour. The rate is applied to the customer's required supplemental reserve. Exhibit E in the Cost Support Exhibits and Tables section of this report contains the calculation of the rate for Operating Reserve – Supplemental Reserve Service.

II. Prices for Wholesale Transmission Services

The proposed prices for Firm and Non-Firm Point-to-Point wholesale transmission services have increased. While the annual transmission revenue requirement (numerator) has decreased, the transmission system peak (denominator) used to calculate prices also has decreased.

The prices in Schedules 7 and 8 are applicable to wholesale entities. Prices for transmission service applicable to retail customers are included in SRP's "Proposed Adjustments to Standard Price Plans Effective with the May 2019 Billing Cycle."

Schedule 7: Long-Term Firm and Short-Term Firm Point-to-Point Transmission Service

SRP's rate for Firm Point-to-Point Transmission service is a rate applicable to all parts of SRP's transmission system 69kV and above. The proposed Annual Firm Point-to-Point Transmission Rate is \$30.78/kW-year, an increase from the current rate of \$19.48/kW-year. The rate is based on SRP's annual transmission related costs. Exhibit F of the Cost Support Exhibits and Tables contains the calculation of the Firm Point-to-Point Transmission Rate. The proposed prices for Firm Point-to-Point transmission services represent the maximum rates that may be charged for such service. Discounts may be applied.

Consistent with SRP's Standard Electric Price Plans effective June 1, 2004, a Transmission Cost Adjustment Factor (TCAF) may be applied to both wholesale and retail customers to collect any new costs resulting from the establishment of regional transmission entities and/or new rules established for the wholesale market. Much discussion continues relating to these topics nationally, and it is possible that new entities or rules may emanate from regulatory or legislative action. If SRP does not incur any such new costs, SRP will not charge the TCAF. As of the effective date of these proposed new prices, the TCAF is set to zero.

Schedule 8: Non-Firm Point-to-Point Transmission Service

The prices for Non-Firm Point-to-Point Transmission Service are capped at the prices for Firm Point-to-Point Transmission Service. In addition to the rate caps calculated for Firm Point-to-Point Transmission Service, hourly rate caps have been calculated for On- and Off-peak Non-Firm Point-to-Point Transmission Service. Exhibit G of the Cost Support Exhibits and Tables contains the calculation of the Non-Firm Point-to-Point Transmission Prices.

Customers under this service schedule also are subject to the TCAF.

Attachment H: Annual Transmission Revenue Requirement for Network Integration Transmission Service

Attachment H in SRP's Open Access Transmission Tariff describes the annual transmission revenue requirement for the wholesale Network Integration Transmission Service. SRP uses the ratio of the Network Customers' Network Load to SRP's total transmission load to allocate SRP's annual transmission revenue requirement to network customers. The annual transmission

revenue requirements for Network Integration Transmission Service is found on Attachment H of this document.

Customers under this service schedule also are subject to the TCAF.

III. Real Power Losses

Schedule 10: Real Power Loss Service

Real Power Losses, identified in Schedule 10, are associated with all transmission service. SRP is not obligated to provide Real Power Losses. The Transmission Customer is responsible for replacing losses associated with all transmission service as calculated by SRP.

The proposed Real Power Loss factor is 3.24%.

Proposed Price Schedules

Schedule 1

Scheduling, System Control and Dispatch Service

Scheduling, System Control and Dispatch Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 1 at a rate not to exceed:

Annually:	\$2.80/kW-year
Monthly:	\$0.23/kW-month
Weekly:	\$0.05/kW-week
Daily:	
Monday through Saturday	\$0.009/kW-day
Sunday	\$0.008/kW-day
Hourly:	
On-Peak*	\$0.56/MW-hour
Off-Peak**	\$0.32/MW-hour

*On-Peak Hours for the months of April through September are Monday through Friday beginning hour ending (HE) 0700 through HE 2200, Mountain Standard Time (MST). On-Peak Hours for the months of October through March are Monday through Friday beginning HE 0800 through HE 2300, MST.

**Off-Peak Hours: All hours other than On-Peak Hours

Schedule 2

Reactive Supply and Voltage Control from Generation Sources Service

Reactive Supply and Voltage Control from Generation Sources Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 2 at a rate not to exceed:

Annually:	\$1.67/kW-year
Monthly:	\$0.14/kW-month
Weekly:	\$0.03/kW-week
Daily:	
Monday through Saturday	\$0.005/kW-day
Sunday	\$0.005/kW-day
Hourly:	
On-Peak*	\$0.33/MW-hour
Off-Peak**	\$0.19/MW-hour

*On-Peak Hours for the months of April through September are Monday through Friday beginning hour ending (HE) 0700 through HE 2200, Mountain Standard Time (MST). On-Peak Hours for the months of October through March are Monday through Friday beginning HE 0800 through HE 2300, MST.

**Off-Peak Hours: All hours other than On-Peak Hours

Schedule 3

Regulation and Frequency Response Service

Regulation and Frequency Response Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 3 at a rate not to exceed:

\$9.45/MW-hour of Regulation and Frequency Response reserved

A Transmission Customer purchasing Regulation and Frequency Response Service will be required to purchase an amount of reserved capacity equal to 3.72% of the Transmission Customer's network load responsibility in each hour for Network Integration Transmission Service. The billing determinants for this service shall be reduced by any portion of the 3.72% purchase obligation that a Transmission Customer obtains from third parties or supplies itself.

Schedule 4

Energy Imbalance Service – Network Integration Service

Energy Imbalance Service – Network Integration Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 4. SRP shall establish charges for energy imbalance based on the deviation bands as follows: (i) deviations within +/- 1.5 % (with a minimum of 2 MW) of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s) will be netted on a monthly basis and settled financially, at the end of the month, at 100% of the Hourly Proxy Price; (ii) deviations greater than +/- 1.5% up to 7.5% (or greater than 2 MW up to 10 MW) of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s) will be settled financially, at the end of each month, at 110% of the Hourly Proxy Price for under scheduling or 90% of the Hourly Proxy Price for over scheduling; and (iii) deviations greater than +/- 7.5% (or 10 MW) of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s) will be settled financially, at the end of each month, at 125% of the Hourly Proxy Price for under scheduling or 75% of the Hourly Proxy Price for over scheduling.

For purposes of this Schedule, the Hourly Proxy Price is calculated using the published day ahead Intercontinental Exchange ("ICE") Price Index for the hub pricing and volumes at Palo Verde for firm on-peak and off-peak prices. The hourly prices used for calculating Energy Imbalance Services for the billing month will be posted on SRP's Open Access Same time Information System (OASIS) 10 days after the last day of the billing month. If the Energy Imbalance Service is provided during a time where no volumes were reported at the Palo Verde hub, the most recent firm on-peak and off-peak prices will be carried forward. If the ICE Index permanently ceases to report day-ahead pricing for the Palo Verde hub, if the methodology used to determine the index at the Palo Verde hub is materially modified, or if the ICE Index is otherwise no longer commercially acceptable, SRP shall select a permanent replacement index, reported by a reputable third party, that reflects the actual same-day firm transactions at an appropriate hub.

Schedule 5

Operating Reserve – Spinning Reserve Service

Operating Reserve – Spinning Reserve Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 5 at a rate not to exceed:

\$11.72/MW-hour of Spinning Reserve Capacity

A Transmission Customer purchasing Spinning Reserve Service will be required to purchase an amount of reserved capacity equal to 3.0% of the Transmission Customer's network load responsibility in each hour for Network Integration Transmission Service. The billing determinant for this service shall be reduced by any portion of the 3.0% purchase obligation that a Transmission Customer obtains from third parties or supplies itself.

Schedule 6

Operating Reserve – Supplemental Reserve Service

Operating Reserve – Supplemental Reserve Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 6 at a rate not to exceed:

\$10.70/MW-hour of Supplemental Reserve Capacity

A Transmission Customer purchasing Supplemental Reserve Service will be required to purchase an amount of reserved capacity equal to 3.0% of the Transmission Customer's network load responsibility in each hour for Network Integration Transmission Service. The billing determinant for this service shall be reduced by any portion of the 3.0% purchase obligation that a Transmission Customer obtains from third parties or supplies itself.

Schedule 7

Long-Term Firm and Short-Term Firm Point-to-Point Transmission Service

Long-Term Firm and Short-Term Firm Point-to-Point Transmission Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 7. The Transmission Customer shall compensate SRP each month for Reserved Capacity at prices not to exceed:

Yearly Delivery:	One-twelfth of the demand charge of \$30.78/kW-year, billed monthly
Monthly:	\$2.56/kW-month
Weekly:	\$0.59/kW-week
Daily:	
Monday through Saturday	\$0.10/kW-day
Sunday	\$0.08/kW-day
Hourly:	
On-Peak*	\$6.17/MW-hour
Off-Peak**	\$3.51/MW-hour

Transmission Cost Adjustment Factor: SRP may increase the Transmission Cost Adjustment Factor to recover transmission-related costs or charges incurred by SRP resulting from standardized wholesale market designs, regional transmission organizations, or related activities.

*On-Peak Hours for the months of April through September extend from hour ending (HE) 0700 through HE 2200, Mountain Standard Time (MST). On-Peak Hours for the months of October through March extend from HE 0800 through HE 2300, MST.

**Off-Peak Hours: All hours other than On-Peak Hours

Schedule 8

Non-Firm Point-to-Point Transmission Service

Non-Firm Point-to-Point Transmission Service will be provided in accordance with SRP's Open Access Transmission Tariff Schedule 8. The Transmission Customer shall compensate SRP for Reserved Capacity at prices not to exceed:

Monthly:	\$2.56/kW-month
Weekly:	\$0.59/kW-week
Daily:	
Monday through Saturday	\$0.10/kW-day
Sunday	\$0.08/kW-day
Hourly:	
On-Peak*	\$6.17/MW-hour
Off-Peak**	\$3.51/MW-hour

Transmission Cost Adjustment Factor: SRP may increase the Transmission Cost Adjustment Factor to recover transmission related costs or charges incurred by SRP resulting from standardized wholesale market designs, regional transmission organizations, or related activities.

*On-Peak Hours for the months of April through September extend from hour ending (HE) 0700 through HE 2200, Mountain Standard Time (MST). On-Peak Hours for the months of October through March extend from HE 0800 through HE 2300, MST.

** Off-Peak Hours: All hours other than On-Peak Hours

Schedule 10

Real Power Loss Service

Capacity and energy losses occur when a Transmission Provider delivers electricity over its transmission facilities for a Transmission Customer. Beginning October 2, 2000, SRP began offering a Real Power Loss Service to any customer taking Point-to-Point Transmission Services under Part II of the SRP Open Access Transmission Tariff. The Transmission Customer must either purchase this service from SRP or make alternative comparable arrangements to satisfy its Real Power Loss obligation. The amount of, and charges for, Real Power Loss Services are to be based on the prices posted on SRP's OASIS as may be changed from time to time.

A Transmission Customer electing this service shall purchase an amount of energy equal to 3.24 of the total kilowatt-hours of energy provided by the Delivering Party(ies) at the Point(s) of Receipt. This service may be elected at the time the reservation is made or any time up to the time the energy is scheduled. A Transmission Customer electing to purchase Real Power Loss Services must do so for all energy scheduled for a particular reservation on a given day.

The Transmission Customer will compensate SRP based on the prevailing market price of energy. Such market price is equal to published day-ahead Intercontinental Exchange ("ICE") Price Index for the hub pricing and volumes at Palo Verde for firm on-peak and off-peak prices. If Real Power Loss Service is provided during a time where no volumes were reported at the Palo Verde hub, the most recent firm on-peak and off-peak prices will be carried forward. If the ICE Price Index permanently ceases to report day-ahead pricing for the Palo Verde hub, if the methodology used to determine the index at the Palo Verde hub is materially modified, or if the ICE Price Index is otherwise no longer commercially acceptable, SRP shall select a permanent replacement index, reported by a reputable third party, that reflects the actual same-day firm transactions at an appropriate hub.

Attachment H

Annual Transmission Revenue Requirement for Network Integration Transmission Service

The annual transmission revenue requirement for purposes of the Network Integration transmission service shall be \$244,716,359.

SRP may increase the Transmission Cost Adjustment Factor to recover transmission-related costs or charges incurred by SRP resulting from standardized wholesale market designs, regional transmission organizations, or related activities.

Cost Support Exhibits and Tables

Exhibit A: Ancillary Service Scheduling, System Control and Dispatch Service

				<u>SOURCE/COMMENT</u>
1. Scheduling, System Control and Dispatch Costs		\$	22,250,909	SRP Accounting data Acct 561
2. Transmission System Peak			7,951,000 kW	Table 1
3. Annual Charge		\$	2.80 /kW-Year	Ln. 1/ Ln. 2
4. Monthly Charge		\$	0.23 /kW-Month	Ln. 3/ 12
5. Weekly Charge		\$	0.05 /kW-Week	Ln. 3/ 52
6. Daily Charge	Monday through Saturday	\$	0.009 /kW-Day	Ln. 3/ (52 * 6)
	Sunday	\$	0.008 /kW-Day	Ln. 3/ (52 * 7)
7. Hourly Charge	On-peak	\$	0.56 /MWh	Ln. 3/ (52 * 6 * 16) * 1000
	Off-peak	\$	0.32 /MWh	(Ln. 3/ 8760) * 1000

Exhibit B: Reactive Supply and Voltage Control from Generation Sources Service (Continued)

				<u>SOURCE/COMMENT</u>
1. Reactive Supply and Voltage Control Costs		\$13,286,535		Table 3
2. Transmission System Peak		7,951,000 kW		Table 1
3. Annual Charge		\$ 1.67 /kW-Year		Ln. 1/ Ln. 2
4. Monthly Charge		\$ 0.14 /kW-Month		Ln. 3/ 12
5. Weekly Charge		\$ 0.03 /kW-Week		Ln. 3/ 52
6. Daily Charge	Monday through Saturday	\$ 0.005 /kW-Day		Ln. 3/ (52 * 6)
	Sunday	\$ 0.005 /kW-Day		Ln. 3/ (52 * 7)
7. Hourly Charge	On-peak	\$ 0.33 /MWh		Ln. 3/ (52 * 6 * 16)) * 1000
	Off-peak	\$ 0.19 /MWh		(Ln. 3/ 8760) * 1000

Exhibit C: Regulation and Frequency Response Service

			<u>SOURCE/COMMENT</u>
1. Regulation and Frequency Response Costs	\$	10,180,574	Table 3
2. SRP Annual Average Hourly Load		3,306,523 kW	Table 2
3. Regulation Reserve Requirement (+/- 50,000kW)		3.72%	
4. Hourly Charge	\$	9.45 /MWh	Ln. 1 * 1000 / (Ln. 2 * Ln. 3 * 8760)

Exhibit D: Operating Reserve - Spinning Reserve Service

			<u>SOURCE/COMMENT</u>
1. Spinning Reserve Costs	\$	10,180,574	Table 3
2. SRP Annual Average Hourly Load		3,306,523 kW	Table 2
3. Spinning Reserve Requirement		3.00%	
4. Hourly Charge	\$	11.72 /MWh	Ln. 1 * 1000 / (Ln. 2 * Ln. 3 * 8760)

Exhibit E: Operating Reserve - Supplemental Reserve Service

			<u>SOURCE/COMMENT</u>
1. Supplemental Reserve Costs	\$	9,296,552	Table 3
2. SRP Annual Average Hourly Load		3,306,523 kW	Table 2
3. Supplemental Reserve Requirement		3.00%	
4. Hourly Charge	\$	10.70 /MWh	Ln. 1 * 1000 / (Ln. 2 * Ln. 3 * 8760)

Exhibit F: Firm Point-to-Point Transmission Service

				<u>SOURCE/COMMENT</u>
1. Annual Transmission Related Costs		\$ 244,716,359		SRP's Embedded Cost of Service Study Appendix Schedule A-1
2. Transmission System Peak		7,951,000 kW		Table 1
3. Annual Charge		\$ 30.78 /kW-Year		Ln. 1/ Ln. 2
4. Monthly Charge		\$ 2.56 /kW-Month		Ln. 3/ 12
5. Weekly Charge		\$ 0.59 /kW-Week		Ln. 3/ 52
6. Daily Charge	Monday through Saturday	\$ 0.10 /kW-Day		Ln. 3/ (52 * 6)
	Sunday	\$ 0.08 /kW-Day		Ln. 3/ (52 * 7)
7. Hourly Charge	On-peak	\$ 6.17 /MWh		Ln. 3/ (52 * 6 * 16)) * 1000
	Off-peak	\$ 3.51 /MWh		(Ln. 3/ 8760) * 1000

Exhibit G – Non-Firm Point-to-Point Transmission Service

				<u>SOURCE/COMMENT</u>
1. Annual Transmission Related Costs		\$ 244,716,359		SRP's Embedded Cost of Service Study Appendix Schedule A-1
2. Transmission System Peak		7,951,000 kW		Table 1
3. Annual Charge		\$ 30.78 /kW-Year		Ln. 1/ Ln. 2
4. Monthly Charge		\$ 2.56 /kW-Month		Ln. 3/ 12
5. Weekly Charge		\$ 0.59 /kW-Week		Ln. 3/ 52
6. Daily Charge	Monday through Saturday	\$ 0.10 /kW-Day		Ln. 3/ (52 * 6)
	Sunday	\$ 0.08 /kW-Day		Ln. 3/ (52 * 7)
7. Hourly Charge	On-peak	\$ 6.17 /MWh		Ln. 3/ (52 * 6 * 16)) * 1000
	Off-peak	\$ 3.51 /MWh		(Ln. 3/ 8760) * 1000

Table 1: Monthly Peaks

Monthly Coincident Peak Demands (MW)	Retail	Wholesale	Total
June-18	6,174	1,342	7,516
July-18	7,120	1,401	8,521
August-18	6,895	1,390	8,285
September-18	6,127	1,355	7,482
4 CP Average	6,579	1,372	7,951

Source:

* Transmission Services

Notes:

* Wholesale includes long-term firm contracted capacity

Table 2: Annual Average Hourly Load Fiscal Year 2017

		<u>Source/Comment</u>
1. Sale to Ultimate Customers (MWh)	28,056,123	System Sales for FY17, Management Operating and Financial Report, April 2017
2. Transmission Losses (@ 3.24%) (MWh)	909,018	Ln. 1 * 3.24%
3. Average Hourly Load (kW)	3,306,523	((Ln. 1 + Ln. 2) / 8760) * 1000

Table 3: Revenue Requirements

Revenue requirements for the following:

Reactive Supply and Voltage Control from Generation Sources Service

Regulation and Frequency Response Service

Spinning Reserve

Supplemental Reserve

Fiscal Year 2017 (Year Ending April 30, 2017)

Table 3

Generating Units providing Ancillary Services

Cost of Plant	Agua Fria	Coronado	Craig 29%	Four Corners 10%	Hayden 50%	Kyrene
1 Investment in Plant - Gross	\$ 90,595,360	\$ 1,713,584,324	\$ 298,264,000	\$ 170,557,507	\$ 178,713,378	\$ 177,352,213
2 Investment in Plant - Net of Accumulated Depreciation	\$ 11,148,269	\$ 635,853,736	\$ 5,543,999	\$ 38,589,800	\$ 44,045,444	\$ 91,077,939
3 Allocation of Common & General and Intangible Plant - Gross	\$ 5,705,127	\$ 63,047,766	\$ 10,099,351	\$ 5,336,300	\$ 5,150,945	\$ 40,506,995
4 Allocation of Common & General and Intangible Plant - Net	\$ 939,764	\$ 27,895,230	\$ 463,424	\$ 1,328,967	\$ 1,487,729	\$ 23,640,826
5 Total Net Plant (2 + 4)	\$ 12,088,034	\$ 663,748,965	\$ 6,007,423	\$ 39,918,767	\$ 45,533,173	\$ 114,718,765
6 Committed Capital Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7 Total Committed Capital (5 * 6)	\$ 12,088,034	\$ 663,748,965	\$ 6,007,423	\$ 39,918,767	\$ 45,533,173	\$ 114,718,765
8 Rate of Return	6.01%	6.01%	6.01%	6.01%	6.01%	6.01%
9 Annual capital Cost (7 * 8)	\$ 726,491	\$ 39,891,313	\$ 361,046	\$ 2,399,118	\$ 2,736,544	\$ 6,894,598
10 O&M Demand Related	\$ 6,581,376	\$ 28,264,959	\$ 5,548,119	\$ 5,133,835	\$ 3,242,013	\$ 5,074,925
11 O&M Fuel	\$ 15,525,120	\$ 114,892,870	\$ 31,076,396	\$ 25,860,954	\$ 19,178,430	\$ 24,865,525
12 O&M Energy Related	\$ 7,161,376	\$ 33,563,229	\$ 8,114,098	\$ 5,699,929	\$ 2,162,187	\$ 857,765
13 Property Taxes	\$ 999,434	\$ 10,867,353	\$ 83,980	\$ 1,723,890	\$ 114,959	\$ 2,776,214
14 Depreciation Expense	\$ 838,486	\$ 43,863,139	\$ 483,511	\$ 8,970,522	\$ 6,995,416	\$ 6,301,616
15 A&G	\$ 1,061,992	\$ 5,260,571	\$ 1,356,270	\$ 1,227,850	\$ 645,641	\$ 617,635
16 Total Annual Cost (9 + 10 + 11 + 12 + 13 + 14 + 15)	\$ 32,894,275	\$ 276,603,434	\$ 47,023,419	\$ 51,016,098	\$ 35,075,188	\$ 47,388,277
17 Total Demand Related Cost (9 + 10 + 13 + 14 + 15)	\$ 10,207,780	\$ 128,147,335	\$ 7,832,926	\$ 19,455,215	\$ 13,734,572	\$ 21,664,987
18 Reactive Supply and Voltage Control	10.51%	0.47%	0.00%	0.00%	0.00%	5.47%
19 Regulation	0.10%	2.47%	0.00%	0.98%	0.00%	0.59%
20 Operating Reserves - Spinning	0.10%	2.47%	0.00%	0.98%	0.00%	0.59%
21 Operating Reserves - Supplemental	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
22 Reactive Supply and Voltage Control Revenue Requirement (17 * 18)	\$ 1,073,221	\$ 597,853	\$ -	\$ -	\$ -	\$ 1,184,668
23 Regulation Revenue Requirement (17 * 19)	\$ 9,739	\$ 3,159,869	\$ -	\$ 190,758	\$ -	\$ 127,663
24 Operating Reserves - Spinning Revenue Requirement (17 * 20)	\$ 9,739	\$ 3,159,869	\$ -	\$ 190,758	\$ -	\$ 127,663
25 Operating Reserves - Supplemental Revenue Requirement (17 * 21)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,800

Sources:

SRP Accounting Data

SRP Power operations Identified Generating Units providing Ancillary Services

SRP's SRSG Reserve Accounting Data

Table 3: Revenue Requirements (Continued)

Revenue requirements for the following:

Reactive Supply and Voltage Control from Generation Sources Service

Regulation and Frequency Response Service

Spinning Reserve

Supplemental Reserve

Fiscal Year 2017 (Year Ending April 30, 2017)

Table 3

Generating Units providing Ancillary Services

Cost of Plant	Navajo 42.9%	Palo Verde 17.49%	Santan	Desert Basin	Coolidge	Mesquite	Springerville
1 Investment in Plant - Gross	\$ 798,648,430	\$ 1,514,022,221	\$ 654,881,300	\$ 333,727,807	\$ 516,955,041	\$ 395,624,820	\$ 1,103,673,772
2 Investment in Plant - Net of Accumulated Depreciation	\$ 92,231,996	\$ 433,594,036	\$ 381,143,104	\$ 189,533,973	\$ 362,945,331	\$ 245,699,327	\$ 831,664,643
3 Allocation of Common & General and Intangible Plant - Gross	\$ 28,912,149	\$ 49,681,719	\$ 50,531,155	\$ 21,165,294	\$ 14,629,455	\$ 11,634,486	\$ 31,580,343
4 Allocation of Common & General and Intangible Plant - Net	\$ 4,812,392	\$ 15,161,793	\$ 31,087,942	\$ 12,120,080	\$ 12,259,257	\$ 8,606,760	\$ 28,408,735
5 Total Net Plant (2 + 4)	\$ 97,044,388	\$ 448,755,829	\$ 412,231,046	\$ 201,654,052	\$ 375,204,588	\$ 254,306,087	\$ 860,073,378
6 Committed Capital Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7 Total Committed Capital (5 * 6)	\$ 97,044,388	\$ 448,755,829	\$ 412,231,046	\$ 201,654,052	\$ 375,204,588	\$ 254,306,087	\$ 860,073,378
8 Rate of Return	6.01%	6.01%	6.01%	6.01%	6.01%	6.01%	6.01%
9 Annual capital Cost (7 * 8)	\$ 5,832,368	\$ 26,970,225	\$ 24,775,086	\$ 12,119,409	\$ 22,549,796	\$ 15,283,796	\$ 51,690,410
10 O&M Demand Related	\$ 24,769,709	\$ 65,556,313	\$ 18,375,493	\$ 13,641,328	\$ 7,990,334	\$ 8,660,752	\$ 23,184,890
11 O&M Fuel	\$ 143,085,984	\$ 45,177,286	\$ 75,211,074	\$ 22,398,101	\$ 14,311,952	\$ 48,871,184	\$ 60,903,329
12 O&M Energy Related	\$ 17,407,147	\$ 30,640,486	\$ 6,974,283	\$ 107,407	\$ -	\$ -	\$ 13,175,004
13 Property Taxes	\$ 5,211,415	\$ 14,314,096	\$ 7,218,146	\$ 3,394,362	\$ 3,331,455	\$ 4,756,497	\$ 8,305,929
14 Depreciation Expense	\$ 10,340,800	\$ 8,148,975	\$ 22,600,920	\$ 8,908,145	\$ 25,848,124	\$ 11,715,986	\$ 46,967,960
15 A&G	\$ 3,677,079	\$ 9,813,066	\$ 2,831,523	\$ 1,214,840	\$ 802,678	\$ 765,184	\$ 3,284,142
16 Total Annual Cost (9 + 10 + 11 + 12 + 13 + 14 + 15)	\$ 210,324,502	\$ 200,620,449	\$ 157,986,525	\$ 61,783,590	\$ 74,834,338	\$ 90,053,399	\$ 207,511,665
17 Total Demand Related Cost (9 + 10 + 13 + 14 + 15)	\$ 49,831,371	\$ 124,802,676	\$ 75,801,168	\$ 39,278,083	\$ 60,522,386	\$ 41,182,215	\$ 133,433,332
18 Reactive Supply and Voltage Control	2.79%	0.00%	5.42%	4.19%	0.00%	1.17%	2.10%
19 Regulation	0.77%	0.00%	0.87%	0.28%	0.28%	2.08%	2.12%
20 Operating Reserves - Spinning	0.77%	0.00%	0.87%	0.28%	0.28%	2.08%	2.12%
21 Operating Reserves - Supplemental	0.00%	0.00%	0.00%	0.00%	5.42%	0.00%	0.00%
22 Reactive Supply and Voltage Control Revenue Requirement (17 * 18)	\$ 1,389,638	\$ -	\$ 4,110,235	\$ 1,644,717	\$ -	\$ 479,902	\$ 2,806,301
23 Regulation Revenue Requirement (17 * 19)	\$ 385,173	\$ -	\$ 660,286	\$ 109,785	\$ 170,828	\$ 858,472	\$ 2,827,096
24 Operating Reserves - Spinning Revenue Requirement (17 * 20)	\$ 385,173	\$ -	\$ 660,286	\$ 109,785	\$ 170,828	\$ 858,472	\$ 2,827,096
25 Operating Reserves - Supplemental Revenue Requirement (17 * 21)	\$ -	\$ -	\$ -	\$ -	\$ 3,277,661	\$ -	\$ -

Sources:

SRP Accounting Data

SRP Power operations Identified Generating Units providing Ancillary Services

SRP's SRSR Reserve Accounting Data

Table 3: Revenue Requirements (Continued)

Revenue requirements for the following:
 Reactive Supply and Voltage Control from Generation Sources Service
 Regulation and Frequency Response Service
 Spinning Reserve
 Supplemental Reserve
 Fiscal Year 2017 (Year Ending April 30, 2017)

Table 3

Generating Units providing Ancillary Services

Cost of Plant	Horse Mesa	Mormon Flat	Roosevelt	Stewart Mountain	Total Steam and Hydro	Retail Interruptible	Total
1 Investment in Plant - Gross	\$ 48,201,376	\$ 41,216,496	\$ 24,068,255	\$ 17,271,615	\$ 8,077,357,913		
2 Investment in Plant - Net of Accumulated Depreciation	\$ 29,737,980	\$ 26,662,655	\$ 10,105,669	\$ 8,617,172	\$ 3,438,195,073		
3 Allocation of Common & General and Intangible Plant - Gross	\$ 3,046,440	\$ 2,332,907	\$ 2,636,360	\$ 1,852,033	\$ 347,848,824		
4 Allocation of Common & General and Intangible Plant - Net	\$ 1,004,464	\$ 920,239	\$ 463,802	\$ 291,509	\$ 170,892,915		
5 Total Net Plant (2 + 4)	\$ 30,742,444	\$ 27,582,894	\$ 10,569,471	\$ 8,908,681	\$ 3,609,087,988		
6 Committed Capital Factor	1.0000	1.0000	1.0000	1.0000	1.0000		
7 Total Committed Capital (5 * 6)	\$ 30,742,444	\$ 27,582,894	\$ 10,569,471	\$ 8,908,681	\$ 3,609,087,988		
8 Rate of Return	6.01%	6.01%	6.01%	6.01%	6.01%		
9 Annual capital Cost (7 * 8)	\$ 1,847,621	\$ 1,657,732	\$ 635,225	\$ 535,412	\$ 216,906,188		
10 O&M Demand Related	\$ 8,503,649	\$ 2,218,199	\$ 2,174,288	\$ 1,253,718	\$ 230,173,900		
11 O&M Fuel	\$ 3,178,186	\$ 2,159,636	\$ 1,082,523	\$ 517,913	\$ 648,296,463		
12 O&M Energy Related	\$ -	\$ -	\$ -	\$ -	\$ 125,862,910		
13 Property Taxes	\$ 421,988	\$ 277,618	\$ 221,877	\$ 222,166	\$ 64,241,379		
14 Depreciation Expense	\$ 735,625	\$ 1,255,807	\$ 1,079,441	\$ 379,620	\$ 205,434,092		
15 A&G	\$ 536,442	\$ 237,334	\$ 192,057	\$ 164,853	\$ 33,689,158		
16 Total Annual Cost (9 +10 +11 +12 +13 +14 +15)	\$ 15,223,511	\$ 7,806,326	\$ 5,385,412	\$ 3,073,681	\$ 1,524,604,090		
17 Total Demand Related Cost (9 +10 +13 +14 +15)	\$ 12,045,325	\$ 5,646,690	\$ 4,302,889	\$ 2,555,768	\$ 750,444,717		
18 Reactive Supply and Voltage Control	0.00%	0.00%	0.00%	0.00%			
19 Regulation	5.19%	5.54%	17.25%	0.00%			
20 Operating Reserves - Spinning	5.19%	5.54%	17.25%	0.00%			
21 Operating Reserves - Supplemental	31.68%	13.03%	5.84%	0.00%			
22 Reactive Supply and Voltage Control Revenue Requirement (17 * 18)	\$ -	\$ -	\$ -	\$ -	\$ 13,286,535	\$ -	\$ 13,286,535
23 Regulation Revenue Requirement (17 * 19)	\$ 625,598	\$ 312,870	\$ 742,436	\$ -	\$ 10,180,574	\$ -	\$ 10,180,574
24 Operating Reserves - Spinning Revenue Requirement (17 * 20)	\$ 625,598	\$ 312,870	\$ 742,436	\$ -	\$ 10,180,574	\$ -	\$ 10,180,574
25 Operating Reserves - Supplemental Revenue Requirement (17 * 21)	\$ 3,816,458	\$ 735,888	\$ 251,179	\$ -	\$ 8,083,985	\$ 1,212,566	\$ 9,296,552

Sources:

SRP Accounting Data
 SRP Power operations Identified Generating Units providing Ancillary Services
 SRP's SRSR Reserve Accounting Data