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BEFORE THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
Chairman
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Commissioner
MARC SPITZER
Commissioner

IN THE MATTER OF THE GENERIC PROCEEDINGS CONCERNING ELECTRIC RESTRUCTURING	DOCKET NO. E-00000A-02-0051
IN THE MATTER OF ARIZONA PUBLIC SERVICE COMPANY'S REQUEST FOR VARIANCE OF CERTAIN REQUIREMENTS OF A.A.C. 4-14-2-1606	DOCKET NO. E-01345A-01-0822
IN THE MATTER OF THE GENERIC PROCEEDINGS CONCERNING THE ARIZONA INDEPENDENT SCHEDULING ADMINISTRATOR	DOCKET NO. E-00000A-01-0630
IN THE MATTER OF TUCSON ELECTRIC POWER COMPANY'S APPLICATION FOR A VARIANCE OF CERTAIN ELECTRIC POWER COMPETITION RULES COMPLIANCE DATES	DOCKET NO. E-01933A-02-0069
IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS STRANDED COST RECOVERY.	DOCKET NO. E-01933A-98-0471

DIRECT TESTIMONY
OF
KENNETH R. SALINE
K.R. Saline & Associates, PLC.

PPL Southwest Generation Holdings, LLC

PPL EnergyPlus, LLC

PPL Sundance Energy, LLC

Arizona Corporation Commission
DOCKETED

MAR 29 2002

DOCKETED BY nor

Q1. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

A1. My name is Kenneth R. Saline. My business address is 160 N. Pasadena, Suite 101, Mesa, Arizona 85201. I am the managing partner of K. R. Saline & Associates, PLC, a consulting engineering firm.

Q2. PLEASE DESCRIBE YOUR PROFESSIONAL QUALIFICATIONS AND EXPERIENCE.

A2. The summary of my professional qualifications and experience is included in the Statement of Qualifications attached as KRS Exhibit A to my testimony.

Q3. ON BEHALF OF WHOM ARE YOU SUBMITTING TESTIMONY IN THIS PROCEEDING?

A3. I am submitting testimony on behalf of three indirect subsidiaries of PPL Corporation, namely: PPL Southwest Generation Holdings, LLC; PPL EnergyPlus, LLC; and PPL Sundance Energy, LLC (collectively "PPL"). PPL is a member of the Arizona Competitive Power Alliance and is participating in this proceeding in coordination with the Alliance and its other members.

Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A4. My testimony addresses transmission reliability issues with regard to non-APS generators, such as PPL. I explain that the non-APS merchant generators are electrically indistinguishable, with respect to transmission reliability, from APS generation interconnected at the Palo Verde/Hassayampa common bus. In addition, I discuss how other generators also have reliable access to the Phoenix 230kV loop and the regional grid, the combination of which provides a diversity of generation resources and delivery capability to the APS load. I also address portions of APS' filing and testimony that do not present a clear picture of the transmission issues with regard to merchant plants.

Q5. CAN YOU DESCRIBE THE PPL PARTIES AND THEIR GENERATION PROJECTS IN ARIZONA?

A5. Yes. PPL EnergyPlus is a power marketer authorized by the Federal Energy Regulatory Commission ("FERC") to sell energy, capacity and certain ancillary services at market-based rates, including the more than 10,000 megawatts of generation owned and operated by PPL Corporation affiliates, and to resell transmission rights and associated ancillary services to wholesale customers. PPL EnergyPlus also sells electricity, natural gas and energy services to competitively acquired retail customers in the Northeastern and Western regions of the country.

PPL Southwest Generation was formed for the purpose of owning an indirect 50% interest in Griffith Energy LLC ("Griffith Energy").[1] Griffith Energy is an exempt wholesale generator ("EWG") authorized by FERC to sell electricity at market-based rates. Griffith Energy was formed for the purpose of owning and operating the Griffith Energy Project, a gas-fired, combined cycle generating plant located in Mohave County, Arizona, with a baseload capacity of approximately 500 MW and a peak capacity of approximately 600 MW. Griffith is interconnected to the regional electric grid through both the Western Area Power Administration ("Western") 230 kV Parker-Davis system at McConnico Switchyard and the jointly-owned 345 kV Intertie System at Peacock substation.

The Parker-Davis transmission system spans across Arizona from northwest substations, such as Hoover Dam on the Colorado River, to substations such as Coolidge, Saguaro and Apache southeast of Phoenix. The Intertie

[1] PPL Southwest Generation owns a 50% interest in Southwest Power Partners, LLC, which in turn holds a 100% ownership interest in Griffith Energy. Duke Energy Mohave, LLC owns the remaining 50% interest in Southwest Power Partners, LLC.

System links Mead and Market Place substations, near Hoover Dam, to points of delivery such as Liberty, Pinnacle Peak and Westwing, near Phoenix.

PPL Sundance Energy controls a 100% interest in the PPL Sundance Energy Project, located in Pinal County, Arizona. PPL Sundance is expected to synchronize with the transmission grid in late April 2002 and to begin commercial operation in the summer of 2002. It will be a simple-cycle gas-fired plant with ten turbines and will have a generating capacity of 450 MW. PPL Sundance will interconnect to the Phoenix 230 kV transmission loop at the Sundance Switchyard, owned by Western Area Power Administration, and has delivery capability to various delivery points in the Phoenix metropolitan area. PPL Sundance differs from many other new merchant plants in that PPL Sundance's simple cycle gas turbine technology allows it to provide supplemental reserves to the market. PPL Sundance's individual units can ramp from cold start to full load within 10 minutes. This quick-start peaking capability can provide supplemental reserves and ancillary service products to load serving entities.

Q6. ARE YOU FAMILIAR WITH ANY OTHER NEW GENERATION FACILITIES IN ARIZONA?

A6. Yes, I have some familiarity with the Panda Gila River ("PGR") generating facility being constructed near Gila Bend.

Q7. CAN YOU BRIEFLY DESCRIBE THAT PROJECT?

A7. PGR will be a gas-fired, combined cycle generating facility comprising four units with a total nominal capacity of 2,300 MW. The Project will be interconnected to the APS grid at the newly-constructed Jojoba Substation, located about 20 miles southeast of the Palo Verde/Hassayampa Switchyards. The Jojoba Substation will be interconnected with the Palo Verde – Kyrene transmission line jointly

owned by APS, the Salt River Project ("SRP"), Public Service Company of New Mexico and El Paso Electric Company. There is also a 230 kV interconnection on the Gila Bend – Liberty 230 kV transmission line. To my understanding, APS recognized this alternate interconnection in its Facilities Study dated April 2000. I have not, however, been directly involved with the transmission arrangements for PGR, nor did my firm perform studies for that project.

Q8. ON PAGE 3 OF THE VARIANCE FILING, APS MAKES THE FOLLOWING STATEMENT: *"NONE OF THE MERCHANT PLANT OWNERS UPON WHOM APS CUSTOMERS WOULD BE DEPENDENT UNDER RULE 1606 HAS ANY RESPONSIBILITY FOR APS SYSTEM RELIABILITY."* DO YOU AGREE WITH THAT STATEMENT?

A8. No. I disagree.

First, it is important to remember that we are no longer dealing with vertically integrated utilities, but with an unbundled electric system comprising several component parts. Each component has its separate and distinct role in providing total "system reliability" down to the end use customer. The generation resources component is only one part at issue here. In the unbundled market there is no distinction between a generator owned and operated by APS/Pinnacle West, and another generator owned by PPL, PGR, Duke, or whomever. All of those generators must comply with reliability criteria, insofar as the generation function is concerned. The other functions of reliability pertaining to serving APS native load customers must be carried out by the parties responsible for those functions, i.e., the transmission owner, the distribution wires owner, and/or the utility distribution company ("UDC").

All generators, whether APS-owned or merchant-owned, must interconnect to the grid in compliance with Western System Coordinating Council ("WSCC") criteria. Such transmission interconnection services are FERC jurisdictional. In 2000, FERC Docket No. ER01-463-000, APS, as a transmission provider, filed an amendment to its Open Access Transmission Tariff ("OATT") to provide procedures for interconnecting generators to APS' integrated transmission system (at Attachment M), and a pro forma "Interconnection and Operating Agreement".

I wish to incorporate by reference APS' OATT, which is not attached because of its extensive volume, about 250 pages, but may be downloaded from APS' OASIS, at http://www.azpoasis.com. A copy of the above noted Attachment M, however, is attached as KRS Exhibit B.

In APS' response dated April 12, 2001 to the FERC, a copy of which is attached as KRS Exhibit C, APS stated: "The Interconnection Study criteria will be completed in accordance with NERC and WSCC standards, which can be found at the following websites: http://www.nerc.com;~filez/pss-psg.html and http://wscc.com. Section 3.3 of Attachment M has been updated to include this language."

Therefore, when interconnection to APS' integrated transmission system is completed and the merchant plants commence commercial operation, the merchant plants will have complied with the same WSCC and NERC criteria as APS' own plants with regard to generation reliability responsibility. Reliability responsibility for the load delivery transmission system, distribution system, etc., will remain with the transmission owner or UDC, respectively.

Q9. IS THAT TRUE FOR MERCHANT PLANTS INTERCONNECTING TO APS' TRANSMISSION SYSTEM AT THE PALO VERDE HUB?

A9. Yes. For any generator, whether APS-owned or merchant-owned, interconnecting to APS' transmission system, it is the responsibility of APS, as the transmission owner granting the interconnection, to perform studies and demonstrate that the generator interconnection will meet WSCC criteria. APS' OATT imposes requirements upon APS, as the transmission owner, and upon the generator to demonstrate by studies that any plant interconnecting to APS' transmission system does, in fact, meet or exceed the WSCC criteria for reliable interconnection to the transmission system. Through such studies, APS, the transmission owner, is ultimately responsible for approving electrical facility interconnections. I also conclude, simply as a practical matter, that APS would not allow electrical interconnection of a generator unless APS' system could safely accommodate that generation into the transmission network if that generator were dispatched to serve load.

Q10. DO YOU HAVE ANY DIRECT EXPERIENCE WITH INTERCONNECTION OF MERCHANT GENERATORS?

A10. Yes. Our firm represented the PPL Sundance Energy Project ("PPL Sundance ") before the Arizona Corporation Commission Siting Committee.

Q11. WHAT WERE THE TRANSMISSION RELIABILITY ISSUES ADDRESSED IN THAT PROCEEDING?

A11. ACC staff requested studies to demonstrate that PPL Sundance could deliver its output to serve Metropolitan Phoenix loads and would not be limited by current import constraints at access points into the Phoenix area 230 kV loop.

Q12. WHAT WAS THE RESPONSE OF PPL SUNDANCE?

A12. Our Firm provided PPL Sundance and Western with studies that demonstrated the electrical stability of PPL Sundance interconnecting to Western's 230 kV transmission system near the Coolidge Substation (near Coolidge Arizona). PPL Sundance submitted those studies to the ACC staff, demonstrating that its plant output could be delivered across Western's transmission system to various points on the Phoenix-area 230kV loop. The studies confirmed that the PPL Sundance generation output is deliverable into the Phoenix area integrated electrical system and sustainable under the WSCC (N-1) criteria and stability analyses (performed by Western). Such demonstration was prerequisite to PPL Sundance being able to contract with Western for interconnection and for firm transmission service in accordance with WSCC Criteria and Western's OATT.

Q13. WERE SIMILAR STUDIES PERFORMED FOR OTHER GENERATORS?

A13. Yes. Similar studies were performed by others for PGR. It is my understanding that PGR satisfied the ACC Siting Committee that the facility demonstrated the required electrical stability and that PGR's generation output was deliverable into the network. I did not participate in that proceeding.

Q14. DOES THE OPERATION OF AN APS PLANT, AS OPPOSED TO A NON-APS PLANT, TO PROVIDE APS RETAIL STANDARD OFFER SERVICE RESULT IN ANY DIFFERENT TREATMENT WITH REGARD TO TRANSMISSION SYSTEM ACCESS?

A14. No. Let me explain. Under FERC Order 888 requirements, APS, the transmission owner, must provide service for its own affiliate's retail loads on the same basis as it provides service to other entities.

APS, the retail service provider, effectively takes network transmission service for APS' own retail loads. APS' power plants (ultimately to become

Pinnacle West plants upon completion of the pending transfer) are "Network Resources" under APS' OATT. Therefore, if APS, in compliance with ACC rules, purchases generation from a merchant power plant as part of the Retail Standard Offer Service portfolio of supplies, APS would accordingly include that merchant plant as part of APS' Network Resources for purposes of transmission service used by APS under its OATT. That merchant plant would then be scheduled by APS, just like APS' (Pinnacle West's) own plants, on a security constrained network basis to the APS Retail loads.

From a transmission standpoint, the merchant power plant could be scheduled on a comparable basis to APS' other Network Resources and, from a transmission standpoint, should be electrically equivalent to Red Hawk or other plants interconnecting in the vicinity of Palo Verde. Therefore, whether APS scheduled Red Hawk or one of the other merchant plants to serve load should be only a matter of selection among several resources, not a transmission reliability issue.

Q15. IS THERE ANY DIFFERENCE IF THE LOAD AT ISSUE IS A RETAIL DIRECT ACCESS CUSTOMER INSTEAD OF A STANDARD OFFER CUSTOMER?

A15. There is no difference, and I don't believe that electrically there could be. If a Scheduling Coordinator ("SC") requests transmission service from APS under its OATT to deliver power from a merchant generator to a direct access customer, then, electrically, the reduced flows from APS generation resources previously supplying the retail load will have the effect of releasing, on a network basis, transmission capacity to accommodate the supply from the merchant generator on behalf of the SC. The FERC requires that the transmission service provided by APS must be made available on a comparable basis for all users -- APS for

Standard Offer Service Loads, SCs for Retail Direct Access Customers, and other wholesale transmission customers.

Therefore, if a merchant generator becomes designated as a network resource by an SC, then APS has an obligation to deliver that resource on the same basis as it delivered APS' own network resources that previously served that load. If such comparable transmission service is not provided by APS under its OATT, then one must conclude either (1) APS has not planned its transmission system to reliably serve its native loads; (2) APS did not interconnect the new merchant plants consistent with its OATT and WSCC reliability criteria; or (3) APS is withholding transmission that was previously used for one of its own network resources. Electrically on the transmission system, the merchant generators should be indistinguishable when using APS transmission facilities to serve Retail Direct Access Customers.

APS raises a remaining issue regarding the potential redispatch of APS' units to accommodate the other network resources. The answer to this issue is also provided in the APS OATT, under which any such redispatch that can be verified can be charged to the appropriate transmission customer. Therefore, if there is a reliability issue resulting in a redispatch, then the impact will be quantified in real costs, and such costs will be reimbursed to APS as the transmission owner.

Q16. IS THERE ANY DIFFERENCE FOR SERVICE TO A RETAIL CUSTOMER OF A WHOLESALE LOAD SERVING ENTITY?

A16. Again, I don't think it can be any different. Under FERC policy, APS is required to treat all wholesale entities on a comparable basis, including APS affiliates. Therefore, all wholesale power delivered over APS' transmission system -- for example, to a municipal utility or irrigation district -- must also be transmitted just

as reliably as APS power transmitted to APS' own retail loads. APS is required to plan its transmission system to provide reliable service for all of its native loads, including APS retail loads, retail direct access loads, and wholesale utility loads in APS' control area. Essentially, the transmission system must provide reliable service to all customers using the system, be they wholesale or retail customers. Every firm transaction on the system, wholesale or retail, should be equally reliable. The OATT does not distinguish electrically between wholesale and retail transactions. In demonstration of this point, I have attached as KRS Exhibit D, a copy of the Network Service Agreement for APS' transmission function to provide Network Service to APS' merchant function (as seller of power at wholesale) on behalf of a number of Arizona wholesale entities that serve retail loads over APS transmission and distribution facilities, side-by-side with APS' own retail loads. Therefore, APS is currently responsible for planning its transmission system (and distribution system) to reliably serve its native load obligations for resources and loads of wholesale entities connected to its system on a comparable basis to APS' own retail loads. APS' wholesale network integration transmission service customers may purchase power at wholesale from a merchant generator and designate the merchant generator as a network resource. Because APS and merchant generators use the same transmission paths, de-selection of APS generators would physically free up sufficient network transmission capability to permit the network customer to designate the merchant generator to supply the same wholesale loads previously supplied by APS generation.

Q17. ARE THERE SOME EXCEPTIONS TO THIS STATEMENT?

A17. Yes. Of course. If the network customer wants to purchase power from a plant outside the state, say Nevada or California, there must be available transmission capacity on all intermediate systems to make delivery to APS. But to the extent

the plant is electrically connected to the APS system in the same location, like Palo Verde, is deliverable to Palo Verde, or has firm transmission rights to Phoenix area substations like Pinnacle Peak (as do APS' own Cholla and Four Corners plants), then the interconnected merchant plant should be as able to reliably deliver its output to the load as APS' facilities interconnected at the same point. In other words, from a transmission reliability standpoint, there is no difference between Red Hawk and another generation facility interconnected at or deliverable to Palo Verde, or between Four Corners and another plant able to obtain firm transmission to Pinnacle Peak.

Q18. ARE THERE OTHER PORTIONS OF THE APS VARIANCE FILING ABOUT WHICH YOU WOULD LIKE TO PROVIDE ADDITIONAL TESTIMONY?

A18. Yes. On page 6, the bottom paragraph of the Variance Filing, APS makes the following statement: *"In contrast, the open market carries with it significant reliability risk. On the transmission side, APS has joined with other transmission-owning entities in forming West Connect in an effort to better address reliability concerns based on transmission availability and adequacy. However, on the supply side, merchant plant owners would not want to assume responsibility for APS system reliability. If their plants fail to operate (either due to mechanical failure or gas supply problems), or transmission paths from their plants to the APS system become constrained, APS will be on its own in the scramble to obtain replacement resources."*

Q19. WHAT ARE YOUR COMMENTS ON THIS STATEMENT?

A19. First, there is no reason to believe that merchant generators would not also be participants in any such organization, and be involved in addressing reliability issues side by side with the transmission owners. I support the statement that the formation of a FERC approved Regional Transmission Operator ("RTO") that will

file a FERC approved Transmission Tariff and continue to enforce WSCC and NERC reliability criteria will result in improved reliability to the transmission system. In fact, coordination to eliminate constraints between control areas is currently being addressed by the FERC in new rule makings that propose to eliminate transmission control areas, *per se,* such that the transmission system is operated on a fully integrated basis. Such integration should increase the reliability of the system and eliminate the seams problems between control areas and regionally re-dispatch generation to eliminate constraints that may exist today. The proposed Locational Marginal Pricing model of the FERC implicitly addresses the redispatch feature I mentioned above. The model will include physical flow constraints and provide a uniform method of calculation of security constrained dispatch costs across the constrained path. This will permit full utilization of the grid and send appropriate price signals where physical constraints actually exist, and will compensate those parties that relieve the congestion. Today, the lack of such an integrated congestion clearinghouse and quantification of redispatch costs between control areas permits constraints between control areas due to their separate operations, separate dispatch, and separate calculation of constraints. The separate operations do not necessarily recognize the full physical capabilities of the interconnected system.

I do not agree, however, with the last sentence of APS' statement quoted above. This is not my understanding of how reserves are handled. The physical system reacts to the loss of any power plant unit through regulation and spinning reserve arrangements until additional resources (supplemental reserves) are dispatched. The system is planned to adjust within 10 minutes by utilizing supplemental reserves that are dispatched to make up for the initial loss of generation. These requirements are set forth in WSCC criteria and are applied

across the western grid to all control areas to assure that appropriate contingency reserves are maintained by every WSCC control area. APS, the Salt River Project ("SRP") and all other Arizona control area operators have chosen to jointly share these system reserve obligations through participation in the Southwest Reserve Sharing Group ("SRSG"). Therefore, while APS control area operators may "scramble", this is the normal function of control area operators as necessary to restore the grid to balanced schedules after a generation or transmission outage. By virtue of participating in the SRSG, APS will not be "on its own" to provide the total reserve resource.

Control area operators are required to carry adequate reserves for their systems and APS' OATT specifically provides for APS to be compensated for any reserves that APS provides, through separate OATT Ancillary Service charges[2]. Therefore, APS will not be "on its own in the scramble to obtain replacement resources" unless APS has contractually accepted such responsibility, *e.g.* through the sale of Spinning Reserves and/or Supplemental Reserves under its OATT. Assuming the merchant generators will also be required to operate under the FERC-approved OATT, they will be subject to the same conditions for supplying reserves as APS generators.

Generally, each generator making firm sales must arrange for the reserves by (1) joining a reserve sharing group such as the SRSG; (2) self-providing the reserves; or (3) purchase reserves from the control area operator. If a generator fails to do so, its product will be tagged as a non-firm or "interruptible" resource, which the market discounts below a firm power price. If APS purchases a non-firm product, APS will have assumed the responsibility for having utilized a

[2] See Section 3 of APS' OATT.

contingent resource in its portfolio of supplies. Conversely, if APS purchases a firm resource from a merchant generator APS will have acquired the same quality of reserve characteristics, in the event of an outage, as if it acquired that resource from one of its own plants.

Q20. DO YOU HAVE ADDITIONAL STATEMENTS IN APS' FILING THAT YOU WOULD LIKE TO ADDRESS?

A20. Yes. I would like to address several points raised by Jack Davis' Direct Testimony.

Q21. WHAT IS THE FIRST PORTION OF MR. DAVIS' TESTIMONY THAT YOU WILL ADDRESS?

A21. On page 6 of Mr. Davis' Testimony, Mr. Davis states in the second paragraph: "*Another fact is that it is not presently possible to obtain 50%, let alone 100%, of APS' requirements from the Palo Verde hub to the Company's primary and secondary load centers, and yet it is precisely in the Palo Verde area that most of the Merchant Intervenors have elected to either build their plants or to interconnect with the Arizona grid. Others, although located far from Palo Verde, are also positioned far from the APS transmission system, with no practical way to reach APS load.*"

I disagree with several points and implications in this statement.

With regard to the Palo Verde area generators, electrically, I cannot distinguish between APS' plants located at Palo Verde and the merchant plants interconnecting or deliverable there. APS' Red Hawk generator, for example, is, by virtue of its interconnection at Palo Verde/Hassayampa, susceptible to the same allegations of deficiency that APS makes against other merchant generators interconnecting at the same location.

I do agree that there is potential for constraint between Palo Verde and the Phoenix metropolitan loads, if all of the APS load serving resources were to come from that hub. APS has not installed sufficient transmission to serve 100% of its load from Palo Verde. APS has indicated, however, that APS is undertaking significant transmission capital construction that will increase the capability along this path. Therefore, the transmission system capability must be fairly evaluated taking into account the capability of the system after those APS upgrades are completed. As to the deliverability of resources from the Palo Verde hub, such considerations would presumably be entailed in APS' competitive bidding process.

To the extent that merchant generation being constructed west of Phoenix interconnects at the Jojoba Switchyard on the Palo Verde to Kyrene line instead of at the Palo Verde/Hassayampa switchyard, such plants are positioned to, in fact, increase the diversity of supplies. For example, as noted earlier in my testimony, the PGR project interconnects to the Jojoba switchyard about 20 miles southeast of the Palo Verde/Hassayampa switchyards. In the event of a catastrophic outage of the Palo Verde switchyard, the PGR project could be dispatched in order to maintain reliable flows to Kyrene, thus sustaining generation supplies to serve load.

Additionally, there are firm transmission arrangements in place to deliver substantial merchant resources on a reliable basis to the APS loads over paths other than through the Palo Verde hub. I am familiar with the transmission arrangements of several generators located geographically outside the Phoenix Metropolitan area and interconnected with the federal transmission systems, owned by Western Area Power Administration. Those contracts include the

following firm delivery rights on the Intertie and Parker-Davis transmission systems.

240 MW to Pinnacle Peak 230 kV substation

265 MW to Liberty 230 kV substation

695 MW to Mead 230 kV substation

240 MW to Market Place/McCullough substation

APS currently accesses generation resources through these substations and other Western owned or jointly owned substations to supply a significant portion of the resources serving APS retail loads today. Furthermore, plants that deliver at various delivery points around the region, just as APS' remote plants addressed by Mr. Davis' Testimony, add diversity to support the system in the event of a catastrophic outage of some other portion of the transmission system.

From a delivery perspective the entire system operates on an integrated basis to deliver all the various resources to the numerous load substations. The issue boils down to a question of which generating plant is dispatched or scheduled. To argue otherwise, as APS implies, is to suggest that if, as a result of the competitive bidding requirement, APS did not get to use all of its units, APS generators would still fully consume the capacity of the transmission grid to make sales to other entities, leaving the Phoenix metro area without sufficient transmission to serve load. Such an assertion is unrealistic, since APS resources are currently the only network resources serving APS load. That designation can be changed by APS to the extent that a merchant plant successfully bids to supply APS' UDC with resources to meet a portion of the APS load. In that case, the other generator would also be a network resource of APS, and would have comparable access to the transmission system as necessary to supply the APS UDC loads.

Q22. DO YOU HAVE OTHER COMMENTS ON MR. DAVIS' TESTIMONY?

A22. Yes. On page 20 of Mr. Davis' Testimony, he indicates in the first full paragraph: *"The Dedicated Units are located throughout the state (several are actually in New Mexico) and do not have to go through the Palo Verde hub to reach APS customers. This not only makes them less vulnerable to a catastrophic loss of one or two switchyards or lines (whether due to natural or manmade disasters), it allows these resources to avoid the transmission constraints that limit access from the Palo Verde hub to Metro-Phoenix."* Mr. Davis' statement implies that a competitive bidding process under Rule 1606 will somehow require APS to eliminate geographic diversity of resources, and purchase everything from the Palo Verde area. I find no such requirement implicit in the concept of competitive bidding. One would logically assume that APS' bidding processes would entail reasonable criteria that would provide a portfolio of geographic diversity, peaking and baseload capacity, etc. in proportions consistent with good utility practice and reliability standards. As discussed earlier in my testimony, PPL Sundance and Panda Gila River are two examples of merchant generation that can provide such diversity.

Q23. DO YOU HAVE OTHER COMMENTS ON MR. DAVIS' TESTIMONY?

A23. Yes, on page 29 of Mr. Davis' Testimony starting on line 6, he states "*I'm sure they would have asked APS about making transmission available to reach the APS service area or the best location to site the plant to take advantage of existing transmission into the APS load centers. If a merchant generator were interested primarily in serving APS load, they should locate their plant within the Metro Phoenix area. They did not."*

Merchant generators have been sited based upon a regional market expectation. Most of APS' <u>own</u> new generation is being constructed outside

metro-Phoenix, near Palo Verde. Conversely, not all merchant generation has been sited solely to access the Palo Verde hub. As discussed above, some generators have chosen sites based upon availability of, and have secured firm transmission rights to, access to the Phoenix area loads from locations other than Palo Verde.

Q24. DO YOU HAVE OTHER COMMENTS ON MR. DAVIS' TESTIMONY?

A24. Yes. On page 29 of Mr. Davis' Testimony starting on line 24, he states "*Some of the plants are being located in areas such as Mohave County that have no significant available transmission access to the APS service area. Those that are seeking to interconnect at Palo Verde are no doubt aware that the available transmission capacity from Palo Verde west to California exceeds that coming east to Metro Phoenix.*"

As discussed above, approximately 500 MW of firm transmission rights to substations accessing Metro Phoenix loads have been secured by merchant generators that are not interconnecting at Palo Verde. For example, as noted earlier, PPL Sundance has firm transmission rights on the Phoenix 230 kV loop from which APS and SRP distribution systems are served. This fact, alone, makes this statement of Mr. Davis incorrect, or at best, misleading.

Q25. DOES THAT CONCLUDE YOUR TESTIMONY?

A25. Yes, it does.

J:\jim\ppl\KRS testimony3/29/2002 11:00:12 AM

EXHIBITS

A

KENNETH R. SALINE

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PROFESSIONAL EXPERIENCE

Kenneth R. Saline is the managing partner in K.R. Saline & Associates, PLC, a consulting engineering firm located in Arizona. Mr. Saline provides electrical power consulting services to numerous irrigation districts, electrical districts, federal, state and municipal utilities located in Arizona, California, New Mexico and Nevada. Mr. Saline is a registered professional electrical engineer in the State of Arizona.

Mr. Saline graduated from New Mexico State University in 1980 with a Bachelor of Science degree in Electrical Engineering with power system emphasis. Mr. Saline worked for four years at San Antonio Public Service Company, a municipal electric and gas utility, as a transmission planning engineer. At San Antonio, Mr. Saline performed planning studies of the city's transmission systems including interconnected EHV transmission and stability studies in various Electric Reliability Counsel of Texas (ERCOT) committees. Mr. Saline represented the city in the ERCOT Engineering Subcommittee, Loadflow Task Force, EHV Task Force, Power Transfer Task Force and Transient Stability Task Force. During this period, these ERCOT task forces established the wholesale power brokerage system, Megawatt-mile transmission wheeling methodology, and the first transient stability analysis of the interconnected ERCOT EHV system.

Following San Antonio, Mr. Saline worked for R.W. Beck and Associates for seven years as an engineering consultant. At R. W. Beck, Mr. Saline assisted public utilities in applying for allocations of federal hydropower power and assisted in the start-up of five new municipal utilities that were established to utilize Hoover power entitlements in Arizona. Mr. Saline assisted R. W. Beck clients in wholesale power supply and wheeling contract negotiations, power supply planning, FERC wholesale rate interventions, system planning studies and development of customer policies, rates and regulations for service to their retail customers.

Currently Mr. Saline provides ongoing consulting engineering services and management consulting to various clients in the southwest with regard to their long-term and short-term electric operations and advises clients regarding transmission access matters, FERC Open Access Transmission matters, and industry restructuring matters.

TESTIMONY

Imperial Irrigation District

United States of America, Before the Federal Energy Regulatory Commission, San Diego Gas & Electric Company vs. Sellers of Energy and Ancillary Service Into Markets Operated by the California Independent System Operator Corporation and the California Power Exchange, and the Investigation of Practices of the California Independent System Operator and the California Power Exchange, Docket Nos. EL00-95-045 and EL00-98-042. Written testimony supporting Imperial Irrigation District's position related to the California energy market refund proceedings in this docket, November 6, 2001.

Arizona Transmission Dependent Utility Group (TDU Group)

Before the Arizona Corporation Commission, Docket Number RE-00000C-94-0165, Stranded Cost Proceedings. Written testimony supporting the TDU Group and their position in relation to stranded costs resulting from retail electric deregulation and open access in Arizona, January 21, 1998.

Arizona Transmission Dependent Utility Group (TDU Group)

Salt River Project Public Process on Customer Choice. Written testimony supporting the TDU Group in their unique relationship to SRP and their resulting perspective on wholesale stranded cost issues in the promulgation of retail direct access by SRP.

OTHER PROFESSIONAL ACTIVITIES

Member of IEEE
Member of NSPE

EXHIBITS

B

ATTACHMENT M

Requirements for the Interconnection of Generating Facilities to Arizona Public Service Company's Transmission System

The following requirements outline the procedures that shall be followed in order for APS to process requests for entities constructing or planning to construct new generation facilities ("Applicant") and desiring to interconnect their generating facility to the Transmission System, whether or not such Applicant may be affiliated with APS.

Requests to interconnect new generation facilities to the Transmission System need not be submitted concurrent with nor require an Application for Transmission Service under the Tariff.

Existing generation facilities, owned by non-affiliated entities or co-owned by affiliated and non-affiliated entities, that are already interconnected with the Transmission System are not subject to these requirements nor Attachment N of the Tariff. Furthermore, these requirements shall not apply to new requests for interconnection to jointly-owned transmission facilities, inasmuch as such interconnections will be governed by existing procedures adopted by the joint owners of such facilities.

These requirements are not intended to be binding on any transmission provider, ISO or RTO, other than APS, that may subsequently offer transmission service utilizing APS' Transmission System.

1. **Requests To Interconnect Generation Facilities**
To initiate a request to interconnect generating facilities with the Transmission System, Applicant must send by mail or facsimile a written request ("Request") to the current address and mail station or facsimile number as posted on the APS OASIS at www.azpsoasis.com.

If the Applicant's request to interconnect with the Transmission System is not part of a request for firm transmission service in accordance with the Tariff, which also includes as part of such request the interconnection of the Applicant's facility, Applicant shall submit a written request to interconnect with the Transmission System as directed above. When an Applicant's request to interconnect with the Transmission System is included as part of an Application for Transmission Service pursuant to the Tariff, the Applicant shall also be required to fulfill the obligations under Attachment M and Attachment N of the Tariff.

1.1 **Interconnection Information Requirements:**
An application to interconnect generation facilities with the Transmission System ("Interconnection Application") shall include the following information:

1.1.1 The identity, address, telephone number, and facsimile number of the party requesting interconnection, and the same information, if different, for the party's contact person or persons.

1.1.2 A statement that the entity requesting interconnection is, or will be upon commencement of commercial operation of the Applicant's generating facility,

an Eligible Customer under the APS Transmission Tariff. However, this requirement will be waived if the Applicant states it does not intend to apply for transmission service over the Transmission System upon commercial operation of its generating facility.

1.1.3 The location of:

1.1.3.1 Each planned generation facility (town, county, street address or plat number);

1.1.3.2 The anticipated Point(s) of Interconnection;

1.1.4 Generating Facility Information:

1.1.4.1 Number of proposed generating units and proposed maximum rated capacity of each unit in megawatts (MW) and megavolt-amperes (MVA) at each power plant site.

1.1.4.2 The date the facility is expected to commence firm transmission service and the expected date(s) the generating facility will begin testing procedures. If the generating facility is to be comprised of multiple generating units, the phase-in dates that each unit will begin testing procedures and commercial operation.

1.1.5 An estimate of the capacity and energy expected to be transmitted over the Interconnection Facilities.

1.1.6 A description of the supply characteristics of the capacity and energy to be transmitted over the Interconnection Facilities.

1.1.7 To the extent it is known or can be estimated, a description of the expected transaction profile including capacity factors for each planned generating unit, load factor data describing the hourly quantities of power and energy the Applicant expects to deliver over the Interconnection Facilities.

1.1.8 What portion, if any, of the generation output of the facility is to be transmitted on a non-firm basis.

1.1.9 Specify the expected duration of term of the Interconnection and Operating Agreement.

1.1.10 Any other information that might facilitate the expeditious processing of the Applicant's Interconnection Application.

APS will treat information confidentially except to the extent that certain information (1) will be posted on the OASIS as set forth in Section 2, or (2) disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice or pursuant to Regional Transmission Group transmission information sharing agreements. APS shall treat this information consistent with the Standards of Conduct contained in Part 37 of the Commission's regulations.

The date and time at which APS receives a valid request will establish Applicant's priority position in a queue of applicants making such requests. Retention of Applicant's position in the queue will require continuing compliance with the subsequent provisions of these procedures and the interconnection agreement.

For all Applicants that have requested interconnection of generating facilities to the Transmission System prior to the effective date of this Attachment, APS has established a priority queue based on the date on which the Applicant submitted a request for (i) interconnection to the Transmission System, or (ii) firm transmission service, which also included a request for interconnection. The queue establishes priorities among competing requests for purposes of determining interconnection facilities requirements as explained in Section (4) hereof, and for any other aspect of these procedures where two requests cannot be processed simultaneously. Within 15 days of the Commission's acceptance of this Attachment M, APS shall post this queue on the OASIS in accordance with Section (2) hereof, thereby specifying the date on which the Applicant's priority position is based. Any such Applicant must, to retain its position in the queue, comply with Sections (3) through (10) of these requirements.

2. **OASIS Posting**

Upon receipt of an Applicant's Interconnection Application, APS will post the following information on its OASIS:

- Date and time of Applicant's request
- The total capacity in MW of power requested to be transmitted over the Interconnection Facilities
- The county in which the Facility is located
- The proposed Point of Interconnection
- The proposed date of commercial operation of each generating unit at the Applicant's Facility
- Such other information as deemed pertinent by APS

The Applicant's name will not be included in the posting; Applicant instead will be referenced by number, e.g., Applicant 1, Applicant 2, etc.

3. **Study Requirements**

In the event the Applicant's request for interconnection with the Transmission System requires APS to perform an Interconnection Study, it shall inform the Applicant as soon as practicable. APS shall study all requests for interconnection to the Transmission System, whether such requests are from APS affiliates or non-affiliates, using the same base case and pursuant to the same assumptions. Within thirty (30) days of receipt of the information required in Section 1, APS will tender an Interconnection Study Agreement ("ISA") pursuant to which the Applicant shall agree to reimburse APS for performing the required Interconnection Study.

Within 15 days of receipt of the ISA, the Applicant must execute and return to APS, the ISA to maintain its priority in the queue. If Applicant fails to execute and return the ISA within the prescribed 15 days, the Applicant's queue priority date will be the date the Applicant's executed ISA is received by APS; provided however, if Applicant fails to return an executed ISA within 90 days of receiving it from APS, its request for interconnection will be deemed withdrawn.

3.1 The ISA will specify APS' estimate of the actual costs, and anticipated time for completion. The final charge to the Applicant shall not exceed the actual cost of the study. In the event the Applicant revises or modifies any aspect of the Interconnection Study that APS performs based on the original information submitted in response to Section 1 requirements, the Applicant shall bear the additional study costs associated with such changes, as well as any costs associated with revisions to other Applicant's studies that may be required as a result of such actions. Any requested revision(s) or modifications to the original information proposed by an Applicant that does not materially change the Applicant's interconnection study or affect studies being performed for other interconnection requests, the Applicant's queue position will not change. However, the actual time for completion of the study shall be adjusted accordingly. If an Applicant proposes revisions or modifications to its original request, and such changes would affect other Applicant's interconnection requests, such action will result in APS' adjustment of the Applicant's queue priority to the date of the requested revision and will also, accordingly, adjust the actual time for completion of the study.

3.2 Upon receipt of an executed ISA, APS will use due diligence to complete the required Interconnection Study within sixty (60) days. The Interconnection Study shall identify or contain the following: all permitting/siting requirements, identify the necessary rights-of-way, describe regulatory and citing processes, a detailed description of the required Interconnection Facilities and the associated costs, a detailed description of all System Protection Facilities required and the associated costs, diagrams detailing how APS proposes to interconnect Applicant's generating facility to the Transmission System, details requiring upgrades to the Transmission System if required (but not reflective of potential Transmission System upgrades that may be required pursuant to a request for firm transmission service), applicable cost responsibilities, APS' good faith estimate for completion of all regulatory and siting hearings and rights-of-way acquisition, and a good faith estimate of the lead time needed to order the equipment and construct the facilities in order to meet the in service date of the Applicant's Facility. The Interconnection Study will assume the interconnection to the Transmission System of all generation facilities holding queue priority over the Applicant's request under Section 1 hereof.

If APS is unable to complete the Interconnection Study within the prescribed time, it shall so notify the Applicant and provide an updated estimated completion date along with an explanation for the delay. A copy of the completed Interconnection Study shall be made available to the Applicant upon payment of all study costs still due. The Applicant will retain its priority in the queue during the additional time needed to complete the Interconnection Study.

3.3 The Interconnection Study criteria will be completed in accordance with NERC and WSCC standards, found at the following web sites: http://www.nerc.com/~filez/pss-psg.html and http://wscc.com. The Interconnection Study will not evaluate, nor provide any indication or estimate of, the ability of the Applicant's generating facility to deliver power and energy to any load at specific Point(s) of Delivery. Furthermore, the Interconnection Study in no way will assure or guarantee that available transfer capability ("ATC") will be available for delivery to loads at specific Point(s) of Delivery (or tie points) on the Transmission System. A request for Transmission Service for the delivery of power and energy over the Transmission System from the Applicant's generating facility requires a request for Transmission Service in accordance with the requirements in the Tariff.

4. Decision Period

Following receipt of the Interconnection Study, Applicant will have 30 days to decide ("Decision Period") whether to enter into the pro forma Interconnection and Operating Agreement ("IOA") set out in Attachment N to the Tariff, or in accordance with Section 5 hereof, request in writing that APS file with the Commission an unexecuted IOA and enter into a letter agreement. During the 30-day Decision Period, the Applicant will not be subject to additional studies, and no changes to the Interconnection Study will occur. Upon written request and mutual consent, APS will grant the Applicant up to a 30-day extension in the Decision Period recognizing the needs of the Applicant, APS' requirements, and consideration such extension in time may have on lower-queued interconnection requests. During the Decision Period the Applicant's priority in the queue will not be affected by any lower priority competing interconnection applications.

If the Applicant fails to return an executed IOA or request that APS file an unexecuted IOA and enter into a letter agreement within the Decision Period, the Interconnection Application shall be deemed terminated and withdrawn.

The executed IOA or the Applicant's written request to file an unexecuted IOA and enter into a letter agreement serves to preserve the Applicant's priority in the queue and, subject to Section 5 enables APS to interconnect the Applicant's Interconnection Facilities to the Transmission System upon the completion of such facilities. To retain its position in the queue, Applicant will be required to meet the milestones identified in its IOA.

5. Interconnection and Operating Agreement

Prior to physical interconnection of the Interconnection Facilities, the Applicant shall (i) execute the pro forma "Interconnection and Operating Agreement" contained in Attachment N to the Tariff, or (ii) request in writing that APS file an unexecuted IOA provided the Applicant executes a letter agreement with APS that legally binds the Applicant to all terms of the unexecuted IOA in Attachment N of the Tariff as such unexecuted IOA may be revised by the Commission. The letter agreement shall preserve the Applicant's right to protest the unexecuted IOA. APS shall file the executed or unexecuted IOA with the Commission within 30 days of receipt of the executed IOA from the Applicant or Applicant's request to file an unexecuted IOA.

Applicant shall provide APS with a letter of credit or other reasonable form of security

acceptable to APS equivalent to the Applicant's cost responsibility associated with the Interconnection Facilities consistent with commercial practices as established by the Uniform Commercial Code, notwithstanding its request for APS to file an unexecuted IOA. APS shall not undertake any expense or otherwise act to provide interconnection service under the unexecuted IOA unless Applicant has provided security acceptable to APS to protect against non-payment.

6. Transmission Service

Interconnection of the Applicant's generating facility with the Transmission System does not confer any right to use the Transmission System to transmit electric power and energy from Applicant's generating facility to Point(s) of Delivery within or outside of APS' Control Area. Access to the Transmission System requires submittal of an Application for Transmission Service to APS pursuant to the terms and conditions of the Tariff. Applications for Transmission Service must be submitted to APS' OASIS, which can be accessed at www.azpsoasis.com.

EXHIBITS

C

APS A subsidiary of Pinnacle West Capital Corporation

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DISKETTE ENCLOSED WITH FILING

April 12, 2001

ORIGINAL

FILED
OFFICE OF THE SECRETARY
01 APR 13 PM 1:02
FEDERAL ENERGY REGULATORY COMMISSION

Mr. David P. Boergers, Secretary
Federal Energy Regulatory Commission
Dockets Room 1A, East
888 First Street, N.E.
Washington, D.C. 20426

Re: Revised Attachments M and N to Arizona Public Service Company's ("APS" or "Company") Open Access Transmission Tariff ("Tariff" or "OATT") in Compliance with Commission Order on Rehearing in Docket No. ER01-463-~~001~~ 003

Dear Mr. Boergers:

On November 16, 2000 APS filed proposed revisions to the Company's OATT that set forth procedures for generation facilities requesting interconnection to APS' integrated transmission system (Attachment M) and an Interconnection and Operating Agreement (Attachment N). By an Order issued January 12, 2001 the Commission accepted APS' proposed revisions with certain modifications and ordered APS to submit a Compliance Filing. APS made this Compliance filing on February 13, 2001.

On March 14, 2001 the Commission issued an Order on Rehearing. In the Order on Rehearing the Commission directed APS to make changes to four areas within the OATT.

Switching and Tagging Rules

The Commission directed APS to file its switching and tagging rules. APS does not have generic switching and tagging rules or procedures, thus they cannot be filed with the Commission. The switching and tagging coordination that is in Attachment N (Article 5.6.1) refers to individualized operations between the Generator and APS. The guidelines are mutually agreed upon between the Parties, and are specific to each site, as the facilities, and switching and tagging coordination are unique for each location. The Company has changed Articles 1.26 and 5.6.1 to reflect this.

FERC DOCKETED
APR 13 2001

3 DISKS 2/OMTR 1/OSEC

010417-0021-1

Termination Upon Default

The Commission directed APS to add a safe harbor provision to Article 2.2.2 consistent with that filed in Consumers Energy Company ("Consumers").[1] APS has added clarification language to Article 2.2.2 pursuant to the Commission's directive that APS add a "safe harbor" provision to the termination upon default language. However, APS notes that this is already covered in Article 19, which references default and sets forth the provisions for curing a breach. Article 19.3 explicitly states that the Parties shall continue to operate and maintain, as applicable and as reasonably necessary, the Transmission System and Facility in a safe and reliable manner. Article 19.4 explicitly states that a 30-day cure period is available for a breach, and Article 19.5 references the right to exercise legal or equitable rights upon default. APS makes the change in this compliance filing to make it more explicit that such remedies exist in Article 19.

Interconnection Studies

The Commission required APS to specify the criteria it proposes to use in conducting interconnection studies. The Interconnection Study criteria will be completed in accordance with NERC and WSCC standards, which can be found at the following websites: http://www.nerc.com/~filez/pss-psg.html and http://wscc.com. Section 3.3 of Attachment M has been updated to include this language.

Study Requirements

On rehearing, the Commission directed APS to include in its OATT when a Generator will no longer be subject to additional studies and charges. APS has added in Section 4 of Attachment M:

> "During the 30-day Decision Period, the Applicant will not be subject to additional studies, and no changes to the Interconnection Study will occur."

Attached please find six copies of the revised Attachments M and N, pursuant to the Commission's Order as discussed above. Included in this filing are the red-lined pages with the ordered changes, a conformed copy of the Attachments, and a Notice of Filing suitable for publication in the *Federal Register*.

[1] 93 FERC ¶ 61,339 (2000), order on reh'g, 94 FERC ¶ 61,230 (2001).

Please address copies of all correspondence in this matter to:

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Copies of this filing have been served on all parties to the official service list.

Sincerely,

Jane Daly
for Joel R. Spitzkoff, Manager
Federal Regulation & Pricing

Enclosures (diskette)

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DISKETTE OF FILING ENCLOSED IN WORDPERFECT 5.1 FORMAT

December 29, 1997 ER 98-1242-000

FILED
OFFICE OF THE SECRETARY
97 DEC 30 AM 9:40
FEDERAL ENERGY
REGULATORY COMMISSION

Ms. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
Dockets Room 1A, East
888 First Street, N.E.
Washington, D.C. 20426

RE: Service Agreement for Network Integration Transmission Service under Arizona Public Service Company's ("APS" or "Company") Open Access Transmission Tariff ("Tariff")

Dear Ms. Cashell:

In accordance with Section 29.5 of the APS' Pro Forma Open Access Transmission Tariff, APS is required to file all Service Agreements along with an updated list of all current subscribers.

Enclosed for filing pursuant to 18 C.F.R. §35.13 are six copies of the transmission Service Agreement under the Tariff with Arizona Public Service Company Merchant Group ("APS Merchant"). A current list of all entities that have executed Service Agreements ("Attachment I"), a Notice of Filing suitable for publication in the *Federal Register* and a diskette in WordPerfect 5.1 format of this filing is also enclosed.

Inasmuch as services will be provided in conformance with APS' Tariff, APS requests waiver of any otherwise applicable reporting requirements under 18 C.F.R. § 35.13.

APS also requests waiver of the Commission's Notice Requirements pursuant to 18 C.F.R. § 35.3 in order to allow the proposed Service Agreement to become effective as specified in Attachment I pursuant to the terms of the Service Agreement. APS believes that this request complies with the Commission's general policy with regard to such "tariff applications."

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DEC 30 1997

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As part of a comprehensive settlement agreement with the "Majority Districts"[1] in APS' recent transmission rate case[2], existing wholesale power agreements were renegotiated and superseded by new arrangements to be furnished under APS' Market Rate Tariff.[3] In the negotiated settlement agreement, APS' Merchant Group agreed to obtain all the necessary Network Transmission service and ancillary services needed in order to facilitate the delivery of all the Majority Districts' power and energy from their designated network resources. This Service Agreement for Network Transmission Service is intended to satisfy APS Merchant Group's obligation to secure Network Transmission Service on behalf of the Majority Districts.

Lastly, it should be noted that the Service Agreement provides that APS' Merchant Group will be responsible for costs associated with developing a load profiling program needed to determine hourly transmission load that is essential in order to bill for monthly Network Transmission Service and for certain applicable ancillary services. Because current metering at the Majority Districts points of delivery are incapable of providing the necessary information, for purposes of this particular agreement, APS' Transmission Group is in the process of developing and implementing a load profiling program where meters capable of recording the needed information will be installed at sampled points of delivery and the hourly kW loads at the non-sampled points of delivery will be determined using a load profiling methodology based on the available kWh metered information.

It is anticipated that the necessary work needed to implement the load profiling program will be completed by the end of the first quarter of 1998. Consequently, the final cost associated with the load profiling program is currently unknown. The Transmission Customer, in this case the APS Merchant Group, shall be responsible for these costs. Upon implementation of the load profiling program, APS' Transmission Group will make another filing with the Commission showing the proposed monthly charge that shall be directly assigned to APS' Merchant Group for load profiling. In the interim period until the load profiling program is functional, APS' Transmission Group intends to base the monthly billing for transmission services on historic load research coincidence factors that have historically been the basis of determining Majority Districts loads under their previous agreements.

Copies of this filing have been sent to the APS Merchant and the Arizona Corporation Commission.

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[1] The Arizona Majority Districts include the following: Aguila Irrigation District, Buckeye Water Conservation & Drainage District, Electrical District No. 6 of Pinal County, Electrical District Number Seven of Maricopa County, Electrical District No. 8 of Maricopa County, Harquahala Valley Power District, Maricopa County Municipal Water Conservation District No. 1, McMullen Valley Water Conservation & Drainage District, Roosevelt Irrigation District, and Tonopah Irrigation District.

[2] Consolidated Docket Nos. OA96-153-000 and ER96-2401-000.

[3] A service agreement for this service was filed by letter dated December 15, 1997.

Please address copies of all correspondence in this matter to:

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Sincerely,

Joel R. Spitzkoff

Joel R. Spitzkoff, Manager
Federal Regulation

Enclosures (diskette)

cc:

Director, Utilities Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

Mr. Dennis Beals
Arizona Public Service Company
Power Marketing/Risk Management
P.O. Box 53999, Station 9860
Phoenix, AZ 85072-3999

NOTICE OF FILING

UNITED STATES OF AMERICA
Federal Energy Regulatory Commission

Arizona Public Service Company Docket No.

NOTICE OF FILING
( )

TAKE NOTICE THAT on , Arizona Public Service Company ("APS") tendered for filing a Service Agreement to provide Network Integration Transmission Service under APS' Open Access Transmission Tariff to the Arizona Public Service Company – Merchant Group.

A copy of this filing has been served on APS' Merchant Group and the Arizona Corporation Commission.

Any person desiring to be heard or to protest said filing should file a Motion to Intervene or protest with the Federal Energy Regulatory Commission, 888 First Street N.E., Room 1A, East, Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 C.F.R. §§385.211, 385.214). All such motions or protests would be filed on or before . Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a Motion to Intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell
Secretary

SERVICE AGREEMENT

ATTACHMENT F

Service Agreement For
Network Integration Transmission Service

1. This Service Agreement, dated as of December 12, 1997, is entered into by and between Arizona Public Service Company ("Transmission Provider"), an Arizona public service corporation, and Arizona Public Service Company Merchant Group ("Transmission Customer").

2. Transmission Customer has been determined by Transmission Provider to be a Transmission Customer under Part III of this Tariff and has submitted a Completed Application for Network Integration Transmission Service in accordance with Section 29.2 of this Tariff.

3. Transmission Customer has provided to Transmission Provider an Application deposit in the amount of $372,775.26, in accordance with the provisions of Section 29.2 of this Tariff. ($372,775.26 for services to Majority Districts)

4. Transmission Customer has executed a Network Operating Agreement with APS.

5. Service under this Service Agreement shall commence on the later of (1) the first day of the billing month following the effective date of the Market Tariff Service Agreement between Arizona Public Service Company Merchant Group and the Majority Arizona Districts, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed. Service under this Service Agreement shall terminate on December 31, 2005.

6. Transmission Provider shall provide and Transmission Customer shall take and pay for Network Integration Transmission Service in accordance with the provisions of Part III of this Tariff, this Service Agreement, and the Network Operating Agreement, as they may be amended from time to time. Exhibit 1 to this Service Agreement lists initial Network Resources, Network Loads, points of interconnection between Transmission Customer's facilities and Transmission Provider's Transmission System, and Transmission Customer's initial Load Ratio Share.

7. Transmission Provider shall provide and Transmission Customer shall take and pay for Scheduling, System Control and Dispatch Service and Reactive Supply and Voltage Control from Generation Sources Service. In addition, Transmission Provider shall provide and Transmission Customer shall take and pay for other services indicated below:

   7.1 Regulation and Frequency Response Service:

7.1.1 For Service to Majority District's Load:
Shall apply to the total of all power transmitted to delivery of the Majority Electric Districts, APS Merchant Group supplied power plus third-party power. Charges for this will be per Schedule 3 of the Transmission Provider's open access transmission tariff.

7.2 Energy Imbalance Service:

7.2.1 For Service to Majority District's Load:
Not applicable; power under the Market Rate Tariff Service Agreement shall supplement Majority Districts' load requirements over and above WAPA preference power schedules thereby precluding an energy imbalance.

7.3 Operating Reserve - Spinning Reserve Service:

7.3.1 For Service to Majority District's Load:
Shall apply only to the Majority District's monthly coincident peak load being served by the APS Merchant Group under the Market Rate Tariff Service Agreement. Charges for this will be per Schedule 5 of the Transmission Provider's open access transmission tariff.

7.4 Operating Reserve - Supplemental Reserve Service:

7.4.1 For Service to Majority District's Load:
Shall apply only to the Majority District's monthly coincident peak load being served by the APS Merchant Group under the Market Rate Tariff Service Agreement. Charges for this will be per Schedule 6 of the Transmission Provider's open access transmission tariff.

7.5 Losses Service:

7.5.1 For Service to Majority District's Load:
In accordance with Section 15.7 and Schedule 10 of the Transmission Provider's open access transmission tariff, the Transmission Customer elects to supply all the capacity and/or energy necessary to compensate the Transmission Provider for such losses. The total loss factor for transmission service utilizing both transmission facilities and local distribution facilities is 0.068 (6.8%).

7.6 Standby Power Service:

7.6.1 For Service to Majority District's Load:
Not applicable

7.7 Distribution Wheeling Service:

7.7.1 For Service to Majority District's Load:
Direct Assignment charges as set forth in Exhibit 2.

7.8 Details of charges for all applicable redispatch costs:

7.8.1 For Service to Majority District's Load:
Charges applicable to redispatch costs shall be determined in accordance with Section 8 of Attachment G ("Standard Form of Network Operating Agreement").

7.9 Other Direct Assignment Charges:

7.9.1 For Service to Majority District's Load:
Transmission service to Majority Districts points of delivery will not have interval metering capable of metering kilowatts, kilowatt-hours and vars. Rather than summarily requiring expensive interval metering at each of the individual delivery points, APS agrees to determine the hourly loads utilizing a load profiling concept whereby the kWh readings from the watt-hour meters currently utilized for measuring energy consumption at each Majority District point of delivery will be load profiled in order to determine applicable hourly demands (kW). The Transmission Customer shall be responsible for any sample meters, existing meter relocations, computer software development, telecommunications equipment and related expenses, and hardware needed to perform the load profiling of these loads. The monthly charge for this service shall be $_____/month.

Until such time as all load research is completed and required sample metering is installed, the transmission customer's hourly demands (kW) shall be estimated based on available historic load research information. There shall be no charges until all the requisite procedures, equipment and processes needed to effect load profiling is operational.

8. Any notice or request, other than requests to schedule specific transactions, made to or by either Party regarding this Agreement shall be made to the representative of the other Party as indicated below:

Transmission Provider:

Arizona Public Service Company
Box 53999, Station 2260
Phoenix, Arizona 85072-3999
Prescheduling Telephone No.: (602) 250-1361
Real Time Scheduling Telephone No.: (602) 250-1318
Telefax No.: (602) 250-1155

Transmission Customer:

Arizona Public Service Company-Merchant Group
Dennis Beals, Manager
P.O. Box 53999, Station 9860
Phoenix, Arizona 85072-3999
Telephone No.: (602) 250-3101
Telefax No.: (602) 250-2325

9. The Tariff is incorporated herein and made a part hereof.

10. Payments for Network Integration Transmission Service provided to Transmission Customer by Transmission Provider under this Agreement shall be sent (or electronically transferred) to the name and address indicated on the bill provided to Transmission Customer.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: C B Olsen
Name
Director Transmission Planning/Operations
Title
12/12/97
Date

Transmission Customer:

By: Dennis L Beals
Name
Manager
Title
December 10, 1997
Date

ATTACHMENT G

STANDARD FORM OF NETWORK OPERATING AGREEMENT

THIS NETWORK OPERATING AGREEMENT ("Operating Agreement") between Arizona Public Service Company ("APS") and the Customer ("Customer") is made and entered into this first day of December, 1997.

1. **Recitals**

1.1 The Customer has requested and APS has agreed to provide Network Integration Service under APS' Network Integration Service Transmission Tariff ("Tariff");

1.2 APS and the Customer have agreed to enter into this Operating Agreement to set forth certain operating understandings in order for APS to provide the requested network service.

NOW, THEREFORE, APS and the Customer agree as follows:

2. **Definitions**

Along with the definitions set forth below, the definitions in APS' Network Integration Service Tariff are hereby incorporated into this Operating Agreement.

2.1 **Data Acquisition Equipment:** Supervisory control and data acquisition ("SCADA"), remote terminal units ("RTUs") to obtain information from a Party's facilities, telephone equipment, leased telephone circuits, fiber optic circuits, and other communications equipment necessary to transmit data to remote locations, and any other equipment or service necessary to provide for the telemetry and control requirements of the Tariff.

2.2 **Data Link:** The direct communications link between the Customer's energy control center and APS' control center that will enable APS' control center to receive real time telemetry and data from the Customer(s) and the Customer(s) to receive real time telemetry and data from APS' control center.

2.3 **Metering Equipment:** State-of-the-art high accuracy, solid state kW and kWh meters, metering cabinets, metering panels, conduits, cabling, high accuracy current transformers and high accuracy potential transformers, which directly or indirectly provide input to meters or transducers, meter recording devices (e.g., Solid State Data Receivers), telephone circuits, signal or pulse dividers, transducers, pulse accumulators, and any other metering equipment necessary to implement the provisions of the Tariff.

2.4 **On Peak Hours:** The On-Peak hours are the hours during the On Peak Period; the On Peak Period is Mondays through Saturday beginning hour ending 0700 through hour

ending 2200, MST, excluding NERC-recognized holidays and the day after Thanksgiving.

2.5 **Off Peak Hours:** All other hours besides the "On-Peak hours".

2.6 **Party or Parties:** Means APS or Customer or both APS and Customer.

2.7 **Protective Equipment:** Protective relays, relaying panels, relaying cabinets, circuit breakers, conduits, cabling, current transformers, potential transformers, coupling capacitor voltage transformers, wave traps, transfer trip and fault recorders, which directly or indirectly provide input to relays, fiber optic communication equipment, power line carrier equipment and telephone circuits, and any other protective equipment necessary to implement the protection provision of this Tariff.

3. **Term of Service**

The term of this Operating Agreement between APS and the Customer shall be concurrent with the Service Agreement.

4. **Points of Interconnection**

Network Transmission Service will be provided by APS at the points of interconnection specified in the Service Agreement signed by APS and Customer, as amended from time to time. Each point of interconnection in this listing shall have a unique identifier, meter location, meter number, metered voltage, terms on meter compensation and designation of current or future year of in service.

Additional studies may be required before approval if Customer request changes to the interconnection points. The Customer will be responsible for the cost of these studies.

5. **Customer Control Area**

5.1 **Customer Control Area:** The Customer shall: (i) operate as a Control Area and fully comply with all criteria, policies, procedures and requirements of the North American Electric Reliability Council (NERC) and the Western Systems Coordinating Council (WSCC) or (ii) satisfy its Control Area requirements, including all Ancillary Services by contracting with APS; or (iii) satisfy its Control Area requirements, including Ancillary Services, by contracting with another entity which can satisfy those requirements in a manner that is consistent with Good Utility Practice and satisfies, but not be limited to, all criteria, policies, procedures and requirements of NERC and WSCC; provided, however, that APS will not require adherence to any such criteria, policies, procedures and requirements to the extent that APS does not adhere to such criteria, policies, procedures and requirements. The Customer shall plan, construct, operate and maintain its facilities and system in accordance with Good Utility Practice, which shall include, but not be limited to, all applicable guidelines of the NERC and the

WSCC, as applicable, as they may be modified from time to time, and any generally accepted practices in the region that are consistently adhered to by APS.

5.2 **Changing Control Areas:** If the Customer desires to change how it satisfies its Control Area requirements, the Customer must submit a new application for service under the Tariff.

5.3 **Control Area Operations:** APS and the Customer (or the Customer's host control area entity in the event the Customer is in another entity's control area) shall operate and maintain their respective control areas in a manner that will allow APS to safely and reliably operate the transmission system in accordance with the Tariff and with Good Utility Practice, so that either Party shall not unduly burden the other Party; provided, however, that notwithstanding any other provision of the Tariff, APS shall retain the sole responsibility and authority for all operating decisions that could affect the integrity, reliability and security of the transmission system.

5.4 **Control Area Equipment:** The Customer shall be responsible for the purchase, installation, upgrading, operation, maintenance and replacement of all Data Acquisition Equipment, Metering Equipment, Protection Equipment, and any other associated equipment and software, which may be required by either Party for the Customer to operate a Control Area in accordance with Good Utility Practice. APS shall have the right to review and approve such equipment and software as may be required to ensure conformance with Good Utility Practices, prior to its installation.

5.5 **Scheduling:** Scheduling, the procedure to establish use of resources and transmission facilities to meet anticipated loads (including interchange), is a service the Customer must obtain from APS any time that there is an energy transaction between it and another entity. The Customer shall notify APS of intended transactions, individual generator loading and Network load at each point no later than 10:00 a.m. MST, or mutually agreed to time, the last business day prior to Schedule implementation.

Schedules with APS may be either static or dynamic. Dynamic Schedules are updated in real time through telemetry and control equipment. Static schedules are metered and updated manually, changes to these will be by voice and can occur no later than twenty (20) minutes before the schedule goes into effect.

Customer shall preschedule, confirm and implement its schedules with APS all interchange and transmission service transactions in accordance with APS standards, and practices and the terms and conditions of the Tariff.

5.6 **Control Area Data:** The Company shall incorporate the Customer's Metering Equipment and Data Acquisition Equipment into the Company's energy control center as the Parties determine to be necessary to incorporate the Member Systems into a single Control Area operating within the APS transmission system consistent with the terms and conditions of the Tariff.

5.7 **Regulation:** The Customer shall be responsible for insuring its system is operated in a manner to provide for its network load at all times, and to hold deviations from net interchange schedules to a minimum in accordance with the NERC and the WSCC requirements.

5.8 **Data Link Operations:** The selection of real time telemetry and data to be received by APS and the Customer shall be as necessary for reliability, security, economics, and/or monitoring of real-time condition that affect APS' transmission system. This telemetry shall include, but is not limited to, loads, line flows (real and reactive power), voltages, generator output, and breaker status at any of the Customer's transmission and generation facilities. To the extent that APS or the Customer requires data that is not available from existing equipment, the Customer shall, at its own expense, install any Metering Equipment, Data Acquisition Equipment, or other equipment and software necessary for the telemetry to be received by APS or the Customer via the Data Link. APS shall have the right to inspect equipment and software associated with the Data Link in order to assure conformance with Good Utility Practice.

5.9 **Computer Modifications:** Each Party shall be responsible for implementing any computer modifications or changes required to its own computer system(s) as necessary to implement the provisions of the Tariff. APS modifications for this shall be at the Customers expense.

5.10 **Metering:** The network load shall be metered on an hourly integrated basis in accordance with APS' standards or practices for similarly determining APS' load. The actual hourly network load during each calendar month shall be provided to APS by the Customer by the seventh day of the following calendar month.

5.11 **Real Time System Data Requirements:** The Customer shall provide or cause to be provided to APS via the Data Link, at least once every ten (10) seconds with data not being older than twenty (20) seconds, loads, line flows, voltages, generator outputs, breaker status, etc. as necessary for APS to provide service under the Tariff and ensuring the security and reliability of the APS transmission system.

5.12 **Disturbances:** Each Party shall, insofar as practicable, protect, operate and maintain its system and facilities so as to avoid or minimize the likelihood of disturbances which might cause impairment of or jeopardy to service to the customers of the other Party, or to other interconnected systems.

5.13 **Maintenance Of Control Equipment:** The Customer shall, on a regular basis or at APS' request, and at its own expense, test, calibrate, verify, and validate the Metering Equipment, Data Acquisition Equipment, and other equipment or software used to determine Network Load. APS shall have the right to inspect such tests, calibrations, verifications, and validations of the Metering Equipment, Data Acquisition Equipment, and other equipment or software used to determine the Network Load. Upon APS' request, the Customer will provide APS a copy of the installation, test, and calibration records of the Metering Equipment, Data Acquisition Equipment, and other equipment

or software. APS shall, at the Customer's expense, have the right to monitor the factory acceptance test, the field acceptance test, and the installation of any Metering Equipment, Data Acquisition Equipment, and other equipment or software used to determine the Network Load.

5.14 **Loss of the Data Link**: Whenever an outage of the Data Link occurs, all parties responsible for the component that is out should make every effort possible to correct the problem and minimize the outage time. An outage of the data link could result in the Customer receiving services from APS that it or a third party would normally provide. If the Customer or one of its contractors are responsible for the outage and it receives services from APS that it would not normally receive, APS will charge the Customer for these services at the rate allowed in the Tariff.

5.15 **Control Area Costs:** The Customer shall be responsible for all costs to establish, operate and maintain the Customer's Control Area services, including, but not limited to, engineering, administrative and general expenses, material, and labor expenses associated with the specifications, design, review, approval, purchase, installation, maintenance, modification, repair, operation, replacement, checkouts, testing, upgrading, calibration, removal, relocation of equipment or software.

6. **Operating Requirements**

6.1 **Conditions:** A Customer interconnecting with the APS transmission system is obligated to follow the same practices and procedures for interconnection and operation that APS uses for its own load and resources.

Where Customer purchases Ancillary Services from third parties, the Customer shall have the responsibility to secure contractual arrangements with such third parties that are consistent with the Tariff, this Operating Agreement, any applicable rules and procedures of the Operating Committee, NERC and WSCC criteria, policies, procedures, and requirements.

6.2 **Generation**

6.2.1 **Customer's Generation:** The Customer shall operate its generating resources in a manner consistent with that of APS, including following voltage schedules, unblocked governors, and meeting power factor requirements at the point of interconnection with APS' system and other such criteria required by NERC and WSCC and consistently adhered to by APS.

6.2.2 **Cogeneration and Small Power Production Facilities**: If a Qualifying Facility is located or locates in the future on the system of the Customer, and the owner or operator of such Qualifying Facility sells the output of such Qualifying Facility to an entity other than the Customer, the delivery of such Qualifying Facility's power shall be subject to and contingent upon transmission

arrangements being established with APS prior to commencement of delivery of any such power and energy.

6.3 **Loss Compensation**: Losses for the Customer's transmission shall be supplied by the Customer, APS, or a third party. The method used by the Customer to supply the losses will be determined and agreed to by APS and the Customer prior to this Agreement becoming effective. When it is agreed that the Customer can use more than one of the above methods to serve its losses, the Customer must notify APS at least one (1) working day before changing its supplier.

6.4 **Voltage Support:** The Customer will have sufficient reactive compensation and control to meet the power factor requirements specified below (such range to be adhered to except for momentary deviations or at APS' written consent) at each interconnection or point of delivery with each Member System. If the Customer does not provide the necessary reactive compensation and control to comply with the objectives described in this section, APS shall have the unilateral right to install such equipment to meet these standards at the Customer's expense.

POWER FACTOR REQUIREMENTS
0.985 (lagging) to 0.985 (leading)

6.5 **Operating Reserve:** Customer shall meet its share of Operating Reserve by either: (i) providing its Operating reserves from its resources; or (ii) purchasing Operating Reserves from APS; or (iii) arranging to have a third party meet the Operating Reserve requirement.

Firm transmission rights on a path between the resource and the Customers load shall be in place before a third party can supply Operating Reserves. The operation and dispatch of third party resources used for the Operating Reserves must be coordinated with APS. Procedures for coordination will be developed by the Operating Committee.

Customer's Operating Reserve requirements will be determined in the following manner: APS shall calculate its Operating Reserve requirement under WSCC or the Inland Power Pool (IPP) guidelines, as applicable, for network load and resources and network loads and resources of all previously committed Tariff customers. The same calculation shall be performed including the Customer's network load and resources. The difference between the calculated amounts is the Transmission Customer's Operating Reserve obligation.

6.6 **Energy Imbalance**: The customer should operate its system at all times such that energy imbalances are minimized and stay within the acceptable deviation band of plus or minus 1.5%. When the Customer keeps its imbalance within the acceptable range,

the imbalances will be corrected in the future by either APS or the Customer returning the energy in-kind as may be applicable. This will be done with preschedules as soon after the imbalance occurs as practical. Should the imbalance exceed the 1.5% band such that APS is supplying the Customer energy, the Customer will be charged for the energy above 1.5% at the rate specified in the Tariff. Should the Customer schedule an excess amount of energy and exceed the 1.5%, APS will return 85% of the energy above the 1.5%, at APS' convenience.

6.7 **Load Shedding:** APS and the Customer shall implement load shedding programs to maintain the reliability and integrity of the electrical system, as provided in Section 33.6 of the Tariff. Load shedding shall include: (1) automatic load shedding; (2) manual deep load shedding; or (3) rotating interruptions of customer load. APS will order load shedding to maintain the relative sizes of load served, unless otherwise required by circumstances beyond the control of APS or Customer. Automatic load shedding devices will operate without notice. When manual deep load shedding or rotating interruptions are necessary, APS will notify Customer's dispatchers or schedulers of the required action and the Customer shall comply immediately. Compliance will be monitored and audited as determined by the Operating Committee.C

The Customer shall, at its own expense, provide, operate, and maintain in service high-speed, digital under frequency load shedding equipment. The Customer's equipment shall be: (1) compatible and coordinated with APS' load shedding equipment; and (2) set for the amount of load to be shed, with frequency trips and tripping time shown in Table C-1. In the event APS modifies the load shedding system, the Customer shall, at its expense, make changes to the equipment and setting of such equipment, as required.

Table C-1
Relay Setting for Automatic Load Shedding

	Frequency Set point (Hz)	Fixed Time Delay (Cycles)	Percent Load Shed
1st 10% Block of load	59.1	6	10
2nd 10% Block of load	58.9	6	10
3rd 10% Block of load	58.7	6	10
4th 10% Block of load	58.5	6	10
5th 10% Block of load	57.9	6	10

6.8 In the event the Customer fails to respond to these established Load Shedding and Curtailment procedures, the Customer shall be subject to the following charges and requirements:

6.8.1 For the first failure to respond during a rolling 12 month period, a one time (1x) assessment of the otherwise applicable rate for Point-to-Point transmission service for the billing period during which the failure occurs.

6.8.2 For the second failure to respond during a rolling 12 month period, a two times (2x) assessment of the otherwise applicable rate for Point-to-Point transmission service for the billing period during which the failure occurs.[1]

6.8.3 For the third failure to respond during a rolling 12 month period, a four times (4x) assessment of the otherwise applicable rate for Point-to-Point transmission service for the billing period during which the failure occurs. Additionally, the Transmission Customer shall install supervisory control load interrupting devices, at its own expense, that will preclude any future failures to respond.[2]

7. **Emergency System Operations**

7.1 The Customer, at its expense, shall be subject to all applicable emergency operation standards promulgated by NERC, WSCC, and APS which may include but not be limited to under frequency relaying equipment, load shedding equipment, and voltage reduction equipment.

7.2 APS reserves the right to take whatever action it deems necessary to preserve the integrity of the APS transmission system during emergency operating conditions. If the Network Transmission service at the points of interconnection is causing harmful physical effects to the APS transmission system facilities or to its customers (e.g., harmonics, under voltage, over voltage, flicker, voltage variations, etc.), APS shall promptly notify the Customer. If the Customer does not take appropriate corrective actions immediately, APS shall have the right to interrupt Network Transmission Service under the Tariff in order to alleviate the situation and to suspend all or any portion of Network Transmission Service under the Tariff until appropriate corrective action is taken.

7.3 In the event of any adverse condition or disturbance on the APS electric system or on any other system directly or indirectly interconnected with APS' transmission system, APS may, as it deems necessary, take appropriate action, that may result in the

[1] If more than one failure to respond occurs in the same billing period, the Transmission Customer shall be liable for each applicable assessment.

[2] All such equipment shall conform to standards and requirements established by the Transmission Provider.

automatic or manual interruption of Network Transmission Service in order to: (i) limit the extent or damage of the adverse condition or disturbance; (ii) prevent damage to generating or transmission facilities; (iii) expedite restoration of service; or (iv) preserve public safety.

8. **Redispatch Procedures**

8.1 If APS determines that redispatching Network Resources (including reductions in off-system purchases) to relieve an existing or potential transmission system constraint is the most effective way to ensure the reliable operation of the transmission system, APS will redispatch APS' and the Customer's Network Resources on a least cost basis, without regard to the ownership of such resources. APS will apprise the Customer of its redispatch practices and procedures, as they may be modified from time to time.

8.2 The Customer shall submit verifiable incremental and decremental cost data for its Network Resources, which estimates the cost to the Customer of changing the generation output of each of its Network Resources to APS by data link when submitting its preschedules. These costs will be used (along with similar data for APS' resources) as the basis for least-cost redispatch through the next business day. The APS grid operation staff shall keep these data confidential, including from APS marketing staff. If the Customer experiences changes to its costs during the following day, the Customer must submit those changes to the APS energy control center. APS will implement least-cost redispatch consistent with its existing contractual obligations and its current practices and procedures for its own resources. The Customer shall respond immediately to requests for redispatch from the APS energy control center.

8.3 The Customer may audit particular redispatch events at its own expense during normal business hours following reasonable notice to APS. Either the Customer or APS may request an audit of the other party's cost data by an independent agent at the requester's cost. Once redispatch has been implemented, APS will book in a separate account costs incurred by both APS and the Customer based on the submitted incremental and decremental costs. APS and the Customer shall each bear a proportional share of the total redispatch costs based on their then-current load ratio shares. APS shall bill or credit the Customer's monthly bill as appropriate.

9. **Curtailments**

To the extent that a transmission constraint on the APS Transmission System cannot be relieved through redispatch or other methods, APS will curtail schedules across the constrained area. To the extent practical and consistent with Good Utility Practice, schedule curtailments will be shared by APS and Customer in proportion to the then current load ratio shares of the constrained area. These curtailments will be in accordance with procedures established by the Operating Committee.

10. **Maintenance of Facilities**

10.1 **Notification:** The Operating Committee shall establish procedures to coordinate the maintenance schedules of generating resources, transmission equipment, substation equipment, data link equipment, data acquisition equipment, protective equipment and any other equipment for which maintenance must be scheduled for reliability or economic reasons. By September 1 of each year, the Customer shall provide to APS the maintenance schedules and planned outages for the next year, this information shall be updated at least thirty (30) days in advance of the date specified for the forecasted maintenance.

10.2 The Customer shall obtain concurrence from APS at least three (3) work days before beginning any scheduled maintenance of its facilities.

10.3 The Customer shall obtain clearance from APS when Customer is ready to begin maintenance on a network resource, transmission line, or substation.

10.4 The Customer shall immediately notify APS at the time when any unscheduled or forced outages occur and again when such unscheduled or forced outages end.

10.5 The Customer shall notify and coordinate with APS prior to reparalleling to the network resource, transmission line, or substation with the transmission system.

11. **Network Operating Committee**

11.1 **Network Operating Committee:** Each Party shall in writing appoint a member and an alternate(s) to a Network Operating Committee and to notify the other Party of such appointment(s). Such appointments may be changed at any time by similar written notice. The Network Operating Committee shall meet as necessary and review the duties set forth herein. The Network Operating Committee shall hold meetings at the request of either Party at a time and place agreed upon by the members of the Network Operating Committee. The Network Operating Committee shall meet once each year to discuss the information exchanged pursuant to this Section. Each member and alternate shall be a responsible person working with the day-to-day operations of each respective power system. The Network Operating Committee shall represent the Parties in all operational matters that may be delegated to it by mutual agreement of the Parties hereto.

11.2 **Responsibilities:** The Network Operating Committee shall: (i) adopt rules and procedures consistent with this Network Operating Agreement and the Tariff governing operating technical requirements necessary for implementing the Tariff; (ii) review network resources and network loads on an annual basis in order to assess the adequacy of the transmission network, and; (iii) obtain from APS, APS' operating policies, procedures, and guidelines for network interconnection and operation.

11.3 **Network Operating Committee Agreements:** Each Party shall cooperate in providing to the Network Operating Committee all information required in the performance of the Network Operating Committee's duties. All decisions and agreements, if any, made by the Network Operating Committee shall be evidenced in writing and shall be in accordance with the Tariff. The Network Operating Committee shall have no power to amend or alter the provisions of this Network Operating Agreement or the Service Agreement.

11.4 **Dispute Resolution:** In the event of a dispute arises between the Network Operating Committee concerning the operation or the interpretation of the Operating Agreement, and the parties are unable to resolve it within a reasonable amount of time (not to exceed thirty (30 days), the dispute shall be resolved in accordance with the procedures specified in Section 12 of the Tariff.

12. **Technical Data**

12.1 **Annual Load Forecast:** The Customer shall provide APS by September 1st of each year the Customer's best forecast of the following calendar year's (i) monthly coincident peak network load of the Member Systems expressed in kW along with the power factor of each of the Member Systems at such time and, (ii) each individual Member System's monthly non-coincident peak loads expressed in kW along with the power factor of each of the Member Systems at such time. Such forecast shall be made using prudent forecasting techniques available and generally deemed acceptable in the electric utility industry.

12.2 **Annual Network Resource Availability Forecast:** The Customer shall provide to APS by September 1st of each year the Customer's best forecast of the following calendar year's planned Network Resource availability forecast (e.g. all planned resource outages, including off-line and on-line dates). Such forecast shall be made using prudent forecasting techniques available and generally deemed acceptable in the electric utility industry. The Customer shall inform APS, in a timely manner, of any changes to Customer's planned Network Resource availability forecast.

12.3 **Annual Operating Conflicts Due to Transmission Constraints:** In the event that APS determines that the annual Network Resource availability forecast cannot be accommodated due to a transmission constraint on the APS Transmission System, and such constraint may jeopardize the security of the APS Transmission System or adversely affect the economic operation of either APS or the Customer, to the extent possible, the Network Operating Committee will coordinate the annual Operating Network Resource availability forecast of both Parties to mitigate the transmission constraint.

12.4 **Daily Operations Forecast:** The Customer shall provide APS, at least 36 hours in advance of every calendar day, the Customer's best hourly forecast for the calendar day of the (i) maximum non-coincident flow (both import and export) at each of the APS interfaces with the Customer and/or the Member Systems, (ii) first contingency

maximum non-coincident flow (both import and export) at each of the APS interfaces with each Member System, (iii) any planned transmission or generation outage(s) on the system of any of the Member Systems or on a system other than that of APS where a Network Resource is located, (iv) the individual coincident Member Systems' loads along with the commitment/dispatch of the Network Resources at peak operating period(s) (the peak operating period(s) will be determined by APS operating personnel and may be changed from time-to-time as necessary), (v) operating reserve from each resource and each third party, (vi) transmission path reserved for operating reserves from third party(ies), and (vii) any other information that APS' operating personnel reasonably deem appropriate to safely and reliably operate the APS transmission system. The Customer shall keep APS informed in a timely manner, of any changes to its current daily operating forecast.

12.5 **Daily Operating Conflicts Due to Transmission Constraints:** In the event that APS determines that the daily operating forecast cannot be accommodated due to a transmission constraint on the APS transmission system and such constraint may jeopardize the security and reliability of the APS transmission system or adversely affect the economic operation of either APS or the Customer, the load curtailment provisions of the Tariff will be implemented.

12.6 **Network Planning Information:** In order for APS to plan, on an ongoing basis, to meet the Customer's firm long-term requirements for Network Integration Service the Customer shall provide APS with the information set forth in Sections 6.7 - 6.10. This type of information is consistent with APS' information requirements for planning to serve APS' Native Load Customers and is consistent with APS' ten (10) year planning process.

12.7 **Annual Planning Network Load Forecast:** The Customer shall provide APS by September 1st of each year the Customer's best forecast of the following ten (10) calendar years' (i) monthly coincident Network Load and non-coincident Member Systems' Loads expressed in kW, and (ii) each individual Member System's monthly coincident and non-coincident loads expressed in kW along with the respective power factor. Such forecast shall be made using prudent forecasting techniques available and generally accepted in the electric utility industry.

12.8 **Annual Planning Network Resource Forecast:** The Customer shall provide to APS by September 1st of each year (i) the Customer's best forecast of the next ten (10) years' planned network resources and all pertinent information regarding such Network Resources, (ii) a copy of the Customer's most current firm purchased power commitments (including the underlying agreement for purchased power) for the next ten (10) years on a unit specific basis for any network resource(s) which is a firm unit specific purchased power resource, and (iii) for purchased power commitments that are non-unit specific, any information necessary for APS (including the underlying agreement for purchased power) to model how the purchased power commitment will be dispatched by the Customer to meet the network load; provided, however, that the

information provided by the Customer pursuant to this Section 6.8 shall not be deemed a substitute for written notice required for designating new Network Resources.

12.9 **Annual Planning Network Transmission Facilities:** The Customer shall provide to APS by September 1st of each year plans of any additions or changes to its internal transmission facilities and/or each Member Systems' system (lines, transformers, reactive equipment, etc.) for each of the subsequent ten (10) calendar years.

12.10 **Technical Data Format:** The Customer shall provide APS the best available data associated with network resources and transmission facilities, for modeling purposes in an electronic format specified by APS. The electronic format specified by APS shall be a format commonly used in the electric utility industry.

IN WITNESS WHEREOF, the parties hereto have caused this Operating Agreement to be executed by their duly authorized officers effective as of the date first written above.

ARIZONA PUBLIC SERVICE COMPANY

By: C B Olsen
Title: Director Transmission Planning/Operations
Date: 12/12/97

ARIZONA PUBLIC SERVICE COMPANY
MERCHANT GROUP

By: Dennis J Beals
Title: Manager
Date: December 10, 1997

ARIZONA PUBLIC SERVICE COMPANY
EXHIBIT 1
NETWORK SERVICE AGREEMENT
(For Service to Majority Districts)

I. Network Resources:

a. APS Resources

	Designation	Pt of Receipt	Primary Resource Capacity (kW)	Secondary Resource Capacity (kW)
1	Palo Verde 1	PV 500 kV Bus	0	95,074
2	Palo Verde 2	PV 500 kV Bus	0	95,074
3	Palo Verde 3	PV 500 kV Bus	0	95,074
4	Four Corners 1	FC 230 kV Bus	0	95,074
5	Four Corners 2	FC 230 kV Bus	0	95,074
6	Four Corners 3	FC 230 kV Bus	0	95,074
7	Four Corners 4	FC 345 kV Bus	0	95,074
8	Four Corners 5	FC 500 kV Bus	0	95,074
9	Cholla 1	CH 230 kV Bus	0	95,074
10	Cholla 2	CH 500 KV Bus	0	95,074
11	Cholla 3	CH 500 KV Bus	0	95,074
12	Navajo 1	NV 500 kV Bus	0	95,074
13	Navajo 2	NV 500 kV Bus	0	95,074
14	Navajo 3	NV 500 kV Bus	0	95,074
15	West Phoenix CC 1	WP 230 kV Bus	0	85,000
16	West Phoenix CC 2	WP 230 kV Bus	0	85,000
17	West Phoenix CC 3	WP 230 kV Bus	0	85,000
18	Ocotillo Steam 1	OC 69 kV Bus	0	95,074
19	Ocotillo Steam 2	OC 69 kV Bus	0	95,074
20	Saguaro Steam 1	SA 115 kV Bus	0	95,074
21	Saguaro Steam 2	SA 115 kV Bus	0	95,074
22	Ocotillo CT 1	OC 69 kV Bus	0	56,000
23	Ocotillo CT 2	OC 230 kV Bus	0	56,000
24	Saguaro CT 1	SA 115 kV Bus	0	55,000
25	Saguaro CT 2	SA 115 kV Bus	0	55,000
26	West Phoenix CT 1	WP 69 kV Bus	0	56,000
27	West Phoenix CT 2	WP 69 kV Bus	0	56,000
28	Yucca CT 1	YU 69 kV Bus	0	19,000
29	Yucca CT 2	YU 69 kV Bus	0	19,000
30	Yucca CT 3	YU 69 kV Bus	0	55,000
31	Yucca CT 4	YU 69 kV Bus	0	54,000
32	Douglas	FV 12 kV Bus	0	21,000

b. Third-Party Resources:/1/	Designation	Pt of Receipt	Primary* Resource Capacity (kW)	Secondary Resource Capacity (kW)
1	Western & APA	Eagle Eye Substation, 230 kV	7,540	
2	Western & APA	Buckeye Substation, 230 kV	71,055	2,392 **
3	Western & APA	Coolidge Substation, 12 kV	16,479	
		Total	95,074	2,392 **

II. Network Loads:

Point(s) of Delivery /2/	Network Loads (kW)
	89,021 /3/

* Third Party Primary Resources Includes 6.8% for aggregate losses (transmission plus local distribution facilities) above the maximum demand for 12 month historical load.

** These Secondary Resources restricted to District use only.

/1/ If third-party resource is supplied from another entity's system, then only identify the third-party. If third-party resource is a unit contingent arrangement or some other arrangement (e.g., QF, IPP, Marketer, Broker, etc.) then identify the actual resource (e.g., generation unit name, supplying system, etc.)

/2/ Secondary side of Company's transformers supplying District Customer's load, at the point where Company's service wires connect to each District Customer's installation, or in cases where District owns transformers, that point at which Company's distribution line connects to District customer's transformer structure.

/3/ Exclusive of losses.

ARIZONA PUBLIC SERVICE COMPANY
EXHIBIT 1
NETWORK SERVICE AGREEMENT
(For Service to Majority Districts)

III. Initial Load Ratio Share:

		Total load by kW	Load Responsibility includes 4.3% distribution losses by kW	APS Loads
Twelve Month Historical Loads	October 1996	60,144	62,730	4,428,714
	November 1996	49,022	51,130	3,225,969
	December 1996	52,081	54,320	4,126,763
	January 1997	54,836	57,194	1,993,531
	February 1997	51,134	53,333	3,887,481
	March 1997	75,333	78,572	3,658,578
	April 1997	80,236	83,686	3,876,006
	May 1997	76,255	79,534	4,786,494
	June 1997	84,956	88,609	4,863,742
	July 1997	86,699	90,427	5,324,564
	August 1997	88,021	92,849	5,464,434
	September 1997	81,994	85,520	5,273,390
			73,159	4,242,474
	Load Ratio Share:	73,159 / 4,242,474 =	1.72%	

ARIZONA PUBLIC SERVICE COMPANY
EXHIBIT 2
NETWORK SERVICE AGREEMENT

Direct Assignment Charges for Utilization
of Local Distribution Facilities

Monthly Direct Assignment Charge

For Majority District's Load	$	222,289.54	(Transmission & Distributio Facilities)
			(For Metering Related Costs)
Total	**$**	**222,289.54**	

ATTACHMENT I

ATTACHMENT I

Index Of Integration Transmission Service Customers

Customer	Date of Service Agreement
Ajo Improvement Company	January 6, 1997
Arizona Public Service – Merchant Group	December 12, 1997