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BEFORE THE ARIZONA CORPORATION COMMISSION

JIM IRVIN
COMMISSIONER-CHAIRMAN
RENZ D. JENNINGS
COMMISSIONER
CARL J. KUNASEK
COMMISSIONER

IN THE MATTER OF THE COMPETITION IN)
THE PROVISION OF ELECTRIC SERVICES)
THROUGHOUT THE STATE OF ARIZONA.)

DOCKET NO. U-0000-94-165

NOTICE OF FILING

Staff of the Arizona Corporation Commission hereby files a report submitted
by The ISO & Spot Market Development Working Group, in the above-captioned matter.

RESPECTFULLY SUBMITTED this 19th day of November, 1997.

ARIZONA CORPORATION COMMISSION

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Original and ten copies of the foregoing filed this 19th day of November, 1997.

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All parties on the service list for Docket No. U-0000-94-165



**REPORT TO THE
ARIZONA CORPORATION COMMISSION**

**IN THE MATTER OF THE COMPETITION
IN THE PROVISION OF ELECTRIC SERVICE
THROUGHOUT THE STATE OF ARIZONA
DOCKET NO. RE-0000C-94-165**

Submitted By

The ISO & Spot Market Development Working Group

November 18, 1997

JIM IRVIN
COMMISSIONER-CHAIRMAN
RENZ D. JENNINGS
COMMISSIONER
CARL J. KUNASEK
COMMISSIONER



JACK ROSE
EXECUTIVE SECRETARY

ARIZONA CORPORATION COMMISSION

November 18, 1997

To The Commissioners:

Decision No. 59943, issued by the Commission on December 26, 1996, contained rules "Rules" providing for a phased-in transition to retail electric competition in Arizona, beginning on January 1, 1999. Such "Rules" required the creation of special Working Groups to address several key issues related to the introduction of competitive power markets in this State. One such group was the Working Group on Independent System Operator (ISO) & Spot Market Development.

Consensus was achieved on the objectives set forth by the ISO & Spot Market Working Group. It was unanimously agreed by the participants that no formal Power Exchange was needed for the Desert Southwest region. Consensus was also reached on the ISO design features desired to facilitate retail access in Arizona.

The Commission Staff monitored the activities of Desert STAR (Southwest Transmission And Reliability Operator), the ISO under consideration in the Desert Southwest. Desert STAR finished its feasibility study September 30, 1997. The Executive Summary of the Desert STAR Feasibility Report is included as Appendix B in the ISO & Spot Market Working Group report (attached herewith). It appears that Desert STAR will move forward as a Phase 2 effort, and address a number of unresolved issues, which reflect both the complexity of the issues and diversity of competing stakeholder interests. For this reason, the Working Group recommends that Commission Staff continue to monitor and evaluate any further activities of Desert STAR. It is also recommended that the Commission support the continued development of Desert STAR, to the extent its design is compatible with facilitation of the Commission's retail access program, achieves independent governance, and is cost effective.

Respectfully submitted,

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Utilities Consultant
Working Group Leader
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**THE ISO & SPOT MARKET DEVELOPMENT WORKING GROUP
REPORT TO THE COMMISSION**

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EXECUTIVE SUMMARY

In April 1996, the Federal Energy Regulatory Commission (FERC) issued Order-Nos. 888 and 889, which required jurisdictional electric utilities to provide open transmission access for *wholesale* power transactions on a non-discriminatory basis. In Order No. 888, FERC encouraged the formation of regional Independent System Operators (ISOs), and enumerated eleven principles it believed should be used in guiding the operations of an ISO. The main objectives of the ISO structure for operation of the transmission grid are:

- Eliminate the potential market power of vertically integrated utilities.
- Provide open transmission access on a non-discriminatory basis.
- Maintain short-term system reliability, and capture operational and economic efficiencies in controlling operations of the integrated transmission grid.
- Ensure timely and efficient planning for grid expansion to meet reliability and commercial needs.
- Eliminate pancaked transmission charges.

The ISO & Spot Market Development Working Group (Working Group) was established by the Arizona Corporation Commission (ACC or Commission) in April 1997. The Working Group was formed in response to the requirements of the Retail Electric Competition Rule promulgated by the Commission on December 26, 1996, and its purpose was to investigate the formation of an ISO and the development of a spot market for facilitating retail electric competition in Arizona.

About the time the Working Group was formed, an independent ISO Work Group, called Desert Southwest Transmission and Reliability Operator (Desert STAR), was formed. Its participants included representatives from the electric utilities in Arizona, New Mexico, southern Nevada, and west Texas, and its specific charge was to conduct a six month feasibility study of the formation of an ISO. (It was decided by the Arizona utilities that an ISO for Arizona alone would not be cost effective nor would it solve the problem of pancaking of rates over several control areas which customers may choose to cross when importing power. The Staff concurs with their decision.)

The participants of the Working Group agreed on the following objectives in compliance with the Commission directive in the Retail Electric Competition Rule:

1. Define the meaning of "Independent" in "Independent System Operator" governance structure.
2. Identify additional ISO design features to facilitate retail competition in Arizona.
3. Investigate the establishment of a formal power exchange or development of the spot market for energy transactions over the interconnected grid.

4. Monitor the activities of Desert STAR to assess whether its proposed design would facilitate Arizona's retail electric competition program.

CONCLUSIONS

The Working Group concluded the following:

1. The formation of a multi-state ISO, with responsibility for security coordination, scheduling, OASIS, and congestion management, and with pricing policies designed to eliminate the anti-competitive effects of pancaked rates, would facilitate the implementation of retail access in Arizona.
2. It was concluded that no formal power exchange was needed for the southwest region, and creation of one would unnecessarily add to the cost of the ISO infrastructure without much benefit. The Working Group felt, however, that an ISO could utilize market-based mechanisms for obtaining ancillary services, daily energy imbalances, and congestion management. In addition, the Arizona retail market may be able to utilize Palo Verde and California WEPEX spot markets.
3. Desert STAR, the ISO under consideration in the southwest, has completed its Phase 1 feasibility study. The framework developed in that study is consistent with the ISO design features recommended by the Working Group. If Desert STAR is developed in accordance with its proposed framework, it would facilitate the implementation of retail access in Arizona.
4. No binding commitments have been made to form Desert STAR. Even with a full commitment to go forward with Phase 2 development after November 20, 1997, Desert STAR will not be operational on January 1, 1999, the starting date of retail access in Arizona. With this in mind, the Reliability & Safety Working Group has identified a number of protocols and operating/coordination agreements which should be put in place over the next year to implement retail access prior to (or in the absence of) an ISO. The Working Group concurs in supporting the development of these protocols and operating/coordination agreements.
5. Prior to the formation of an ISO, or absent any other independent transmission entity, transmission service will be under the immediate control of the transmission owning utilities (TOUs). Under FERC Order No. 888, TOUs are required to separate their transmission operations and merchant functions to achieve non-discriminatory wholesale access to the transmission grid. To achieve more independent oversight, it may be beneficial to form an "Independent Transmission Operator" (ITO) in the state of Arizona. This ITO will perform certain functions in support of retail access in the state of Arizona, including scheduling, administration, and operation of the OASIS, in its early stages, pending evaluation of other oversight mechanisms. While these functions will fall short of full ISO responsibilities, they may be helpful in supporting retail access. Furthermore, since Desert STAR has proposed a phased-in approach for the development of the ISO, the ITO should be designed with the ISO goals in mind.

RECOMMENDATIONS

The Working Group made the following recommendations:

- It is recommended that the Commission Staff continue to monitor and evaluate any further activities of Desert STAR, and report to the Commission one month after Desert STAR files with FERC, which is expected to be in the first half of 1999.
- It is recommended that the Commission support the continued development of Desert STAR, to the extent its design is compatible with facilitation of the Commission's retail access program, achieves independent governance, and is cost effective.
- The following ISO design features are recommended:
 1. ISO governance must be truly independent and structured in a manner which ensures fair representation of stakeholder customer interests.
 2. The ISO must ensure non-discriminatory access for retail transactions. ISO access charges should be based on the reasonable and necessary costs of providing transmission service and must not discriminate against retail transactions.
 3. The ISO tariff should be uniform across all transmission and sub-transmission facilities, included in the ISO's geographic territory, though only designated transmission and sub-transmission facilities will be placed under the operational control of the ISO.
 4. ISO scheduling protocols should be designed in a manner which properly reflects retail access requirements while preserving the scheduling protocols and rights of existing wholesale entities until revised contracts between the ISO and said entities are agreed upon.
 5. The ISO should play the role of a truly independent organization which is responsible for taking actions to ensure system reliability (e.g., curtailing schedules in an emergency) and for performing operations necessary to facilitate transactions for all users of the system (e.g., scheduling, congestion management, maintenance coordination, etc.). Serious consideration should be given to the concept of the ISO operating as a single control area.
 6. Congestion management procedures need to be developed by the ISO in a manner by which all schedules are accepted and congestion is resolved through least-cost market mechanisms.
 7. The ISO should operate the OASIS for all transmission under its jurisdiction.

8. The ISO should provide, or require self-provision of, ancillary services for customers in compliance with FERC Order Nos. 888 and 888a. Ancillary services obtained by the ISO for the benefit of (and resale to) customers should be procured in a least-cost manner. In conjunction with this function, the ISO should be responsible for ensuring that necessary operating reserves are provided on a day-ahead basis.
9. The ISO should establish procedures and protocols in the scheduling of transmission maintenance, and in coordinating transmission maintenance schedules with generation maintenance schedules.
10. The ISO should comply with regional reliability standards and have an active role in the planning of new transmission. It should be responsible for maintaining short-term system reliability and should facilitate cost-effective congestion management.

I. INTRODUCTION

The last decade has seen dramatic changes in technological, economic, and political developments, which are reshaping the U.S. electric power industry from a monopolistic to a competitive industry. Armed with enhanced authority provided by the Energy Policy Act of 1992, the Federal Energy Regulatory Commission (FERC) issued Order Nos. 888 and 889 in April 1996, which required jurisdictional electric utilities to provide open transmission access for *wholesale* power transactions on a non-discriminatory basis. FERC Order No. 889 established a code of conduct intended to functionally segregate the transmission operations and merchant functions of utilities and mandated that transmission access information for energy transactions be displayed on electronic bulletin board systems called Open Access Same-time Information Systems (OASIS).

In order to provide a level playing field for all market participants to foster true competition in the generation market, FERC also encouraged the formation of Independent System Operators (ISOs) on a regional basis. The main objectives of the ISO are:

- Eliminate market power of vertically integrated utilities.
- Provide open transmission access on a non-discriminatory basis.
- Eliminate pancaked transmission charges.
- Maintain short-term system reliability, and capture operational and economic efficiencies in controlling operations of the integrated transmission grid.
- Ensure timely and efficient planning for grid expansion to meet reliability and commercial needs.

These objectives can be achieved by following FERC's eleven principles of ISO operation. These principles are enumerated in Figure 1.

II. ACC RETAIL ELECTRIC COMPETITION RULE

The Arizona Corporation Commission ("ACC" or "Commission") promulgated the Retail Electric Competition Rule on December 26, 1996, opening up the service territories of jurisdictional utilities for retail competition, to be effective January 1, 1999, on a limited basis. (Decision No. 59943; Docket No. RE-0000C-94-165.)

Retail competition will occur in three phases. The first phase, starting on January 1, 1999, obligates the affected utilities to release 20% of their 1995 peak load for competition; the second phase, starting on January 1, 2001, requires the affected utilities to open up 50% of their 1995 peak load for competition, and in the final phase, starting on January 1, 2003, all customers (100% of load) of the affected utilities will have the option to choose a supplier of energy services other than their respective host utilities.

The Retail Electrical Competition Rule in R14-2-1630, covering the issues of Spot Markets and the ISOs, states that:

- A. The Commission shall conduct an inquiry into spot market development and independent system operation for the transmission system.
- B. The Commission may support development of a spot market or independent system operator(s) for the transmission system.
- C. The Commission may work with other entities to help establish spot markets and independent system operators.

III. ISO & SPOT MARKET DEVELOPMENT WORKING GROUP

The Commission Staff established an ISO & Spot Market Development Working Group (Working Group) on a collaborative basis, in response to the requirement in the above-mentioned Retail Electric Competition Rule. This group had a broad stakeholder participation, including investor-owned utilities, rural electric power cooperatives, public power utilities, municipalities, state and federal power marketing agencies, power marketers, independent power producers, organizations representing residential and industrial customers, and other interested parties. The ISO Working Group held four meetings: April 11, May 29, June 30 and October 14, 1997. The list of attendees is included as Figure 2.

About the time the Working Group was created, an independent ISO Work Group, called Desert Southwest Transmission and Reliability Operator (Desert STAR or DSTAR), was formed. Representatives from the electric utilities in Arizona, New Mexico, southern Nevada, and west Texas served on Desert STAR, and its specific charge was to conduct a six month feasibility study regarding the formation of a regional ISO. (It was decided by the Arizona utilities that an ISO for Arizona alone would not be cost effective nor would it solve the problem of pancaking of rates over several control areas which customers may choose to cross when importing power. The Staff concurs with their decision.)

After preliminary discussions by the Working Group's participants, it was agreed that duplicating the efforts of Desert STAR was impractical and unnecessary. Accordingly, it was agreed that the Commission Staff should monitor the activities of the Desert STAR.

IV. ISO & SPOT MARKET WORKING GROUP'S OBJECTIVES

The Working Group defined four objectives in the investigation of forming an ISO and of development of a spot market in compliance with the Commission directive in the Retail Electric Competition Rule. They are:

1. Define the meaning of "Independent" in "Independent System Operator" governance structure.
2. Identify additional ISO design features needed to facilitate retail competition in Arizona.
3. Investigate the feasibility of establishing a formal Power Exchange or the feasibility of development of a Spot Market for energy transactions over the interconnected grid.
4. Monitor the activities of Desert STAR to assess whether its proposed design would meet FERC's principles of ISO operation and facilitate Arizona's retail competition program.

The following pages will describe the consensus, conclusions and recommendations by the Working Group participants in regards to the above noted objectives, and Desert STAR.

V. THE MEANING OF INDEPENDENT GOVERNANCE

It was the consensus of the participants that in order to effectively exercise its authority to maintain and enhance system reliability in the deregulated environment, the ISO must be truly independent of any undue influence by any market participants. This feature is critical to achieving non-discriminatory transmission access. In addition, reliability is critical to all stakeholders. Achievement of this goal should not be hampered by conflict of economic interests of various parties. The participants believe that is why one organization in a region or a sub-region can do a much better job of operating and maintaining the complicated integrated grid than those entities that are involved with commercial power transactions and financial interests at stake.

As many state legislatures and regulatory commissions are engaged in processes to develop and implement policies to open electric markets to greater competition, they have expressed their intent to ensure that the transmission system is operated and developed to meet the needs of society. Their policy is to allow appropriate entities to have fair and equal access to such a system in ways that both enhance reliability and foster increased competition.

"Declaration of Independence"

To support a restructured, competitive electric industry envisioned by FERC, ten state utility regulators, including Commissioners from Arizona and New Mexico, jointly issued a "Declaration of Independence" for the ISO. This statement was presented at the NARUC/DOE convention on restructuring of the electric power industry in Santa Fe, New Mexico on October 21, 1996. The statement calls for state and federal authorities to adopt rigorous safeguards to ensure the efficient, impartial and reliable operation of the nation's electric transmission grid. The Declaration does not prescribe mandatory divestiture or any particular model for an ISO governance structure. The full text of the "Declaration of Independence" is included as Appendix A.

VI. ISO DESIGN FEATURES TO FACILITATE RETAIL ACCESS

The formation of a multi-state ISO, with responsibility for security coordination, scheduling, OASIS, and congestion management, and with its pricing designed to eliminate pancaked rates, would facilitate the implementation of retail access in Arizona.

The following ISO design features are recommended by the Working Group to facilitate retail access in Arizona, in compliance with the Commission directive in the Retail Electric Competition Rule.

1. ISO governance must be truly independent and structured in a manner which ensures fair representation of all stakeholder interests.
2. The ISO must ensure non-discriminatory access for retail transactions. ISO access charges should be based on transmission cost-of-service and must not discriminate against retail or wholesale transactions.
3. The ISO tariff should be uniform across all transmission and sub-transmission facilities in the ISO's geographic territory, though only designated transmission and sub-transmission facilities are placed under the operational control of the ISO.
4. ISO scheduling protocols should be designed in a manner which properly reflects retail access requirements while preserving the scheduling protocols and rights of existing wholesale entities until revised contracts between the ISO and said entities are agreed upon.
5. The ISO should play the role of a truly independent organization which is responsible for taking actions to ensure system reliability (e.g., cutting schedules in an emergency) and for performing operations necessary to facilitate transactions for all users of the system (e.g., scheduling, congestion management, maintenance coordination). Serious consideration should be given to the concept of the ISO operating as a single control area.
6. Congestion management should be performed by the ISO in a manner in which all schedules are accepted and congestion is resolved through least-cost market mechanisms.
7. The ISO should operate the OASIS for all transmission under its jurisdiction.
8. The ISO should provide, or require self-provision of, ancillary services for customers in compliance with FERC Orders 888 and 888a. Ancillary services obtained by the ISO, for the benefit of (and resale to) customers, should be procured in a least-cost manner. In conjunction with this function, the ISO should be responsible for ensuring that necessary operating reserves are provided on a day-ahead basis.
9. The ISO should establish procedures and protocols in the scheduling of transmission maintenance and in coordinating transmission maintenance schedules with generation maintenance schedules.

10. The ISO should comply with regional reliability standards and have an active role in the planning of new transmission. It should be an advocate for maintaining system reliability and should facilitate cost-effective congestion management.

VII. FORMAL POWER EXCHANGE OR SPOT MARKET

The Working Group considered the feasibility of instituting a formal power exchange comparable to the California model and concluded that such an institution would add another layer of administrative bureaucracy which is unnecessary for efficient grid operation in the desert southwest region. The group felt, however, that an ISO could utilize market-based mechanisms for obtaining ancillary services, daily energy imbalances, and congestion management. In addition, the Arizona retail market may be able to utilize Palo Verde and California WEPEX spot markets.

VIII. DESERT STAR

A short time before the Working Group was established, Desert STAR process was started. Initial participants included electric utilities in Arizona, New Mexico, southern Nevada, and west Texas. A Memorandum of Understanding (MOU) directing the performance of a six-month feasibility study to investigate the formation of an ISO in the desert southwest was signed. The MOU included the following conditions for the formation of an ISO:

- Avoid, to the extent practicable, cost shifting
- Assure cost recovery
- Use cost-based and non-pancaked rates
- Incorporate congestion management mechanisms

A Steering Committee and Four Work Groups were established . They were:

- 1) Governance/Regulatory; 2) Operations/Implementation; 3) Planning; and 4) Pricing /Tariff.

All meetings were open to all stakeholders, regulatory agencies and other interested parties. As of October 8, 1997, there was a total of 27 signatories to the MOU, representing transmission owning utilities (TOUs), transmission dependent utilities (TDUs), public power district, municipalities, rural electric cooperatives, federal and state agencies, power marketers, and consumer interest groups

The feasibility study was completed at the end of September 1997. Its major conclusion was that Desert STAR should *only* be an ISO without being a Power Exchange.

The study results were presented to stakeholders at five public meetings held in Tucson, Phoenix, Las Vegas, Albuquerque, and El Paso in September 1997. Comments from the attendees were presented to the Steering Committee on October 8, 1997.

The Steering Committee will meet on November 20, 1997, to announce its decision of whether to proceed further continued development of Desert STAR in Phase 2. The Executive Summary of the Desert STAR Feasibility Report is attached as Appendix B.

Not all parties agreed on certain issues. It is expected that consensus will develop during the next phase of Desert STAR development.

It is noted that the framework for Desert STAR developed in its Feasibility Report is consistent with the ISO design features recommended by the Working Group. If Desert STAR were developed in accordance with its proposed framework, it would facilitate the implementation of retail access in Arizona.

Tentative Conclusions and Overall Assumptions- Desert STAR Feasibility Study

Tentative conclusions and overall assumptions of the Desert STAR Feasibility Report are highlighted below. According to this report, Desert STAR will possess the following characteristics and features:

Governance

- Be a non-profit organization
- Have an independent "unaffiliated" or "affiliated" Board of Directors.
- Have a Board that will be elected by the member classes
- There will be three committees to assist the Board members:
 - Advisory Committee
 - Nominating Committee
 - Budget Review and Board Compensation Committee

All proposals for Desert STAR governance include representation for retail customers, *consistent with the Working Group recommended design feature #1. (See page 4)*

Operation

- Have operational control over applicable transmission facilities (generally 230 kV and above)
- Transition to a single control area, possibly by 2004, though Desert STAR could function with multiple control areas, *consistent with recommended design feature #5*
- Be a member of the Western System Coordinating Council (WSCC) and the designated WSCC Security Coordinator for the Southwest
- Be the designated OASIS Node for the Southwest, *consistent with recommended design feature #7*
- Coordinate with other ISOs and control areas to resolve certain issues, such as access charge, scheduling protocols, etc., at their interconnection interfaces ('seams' issues)
- Facilitate direct access scheduling, *consistent with design feature #4*

- Facilitate congestion management, *consistent with design feature #6*
- Provide or effectuate ancillary services, some of which could be self-provided, *consistent with recommended design feature #8*
- Ensure transmission maintenance and coordinate transmission and generation maintenance schedules, *consistent with recommended design feature #9*

Planning

- Be responsible to institute long range planning of new transmission facilities to meet reliability-related needs and commercial needs, but will not own any existing or new transmission facilities. To achieve that end, Desert STAR could order the transmission user groups to develop the plan (California Model) or become a member of Southwest Regional Transmission Association (SWRTA) and utilize the SWRTA/WICF (Western Interconnection Coordination Forum) planning process, *consistent with recommended design feature #10.*
- Comply with regional reliability standards and applicable regional planning processes, *consistent with recommended design feature #5*
- Utilize the SWRTA Alternative Dispute Resolution (ADR) process, with authority to take advance action in emergency situations.

Pricing

- Adopt a cost-based access charge pricing mechanism which will recover all annual transmission revenue requirements (ATRR). Such access charge will be load-based and will guarantee access anywhere within Desert STAR, with no additional charge except congestion management costs and cost of losses. *This pricing proposal is consistent with recommended design features #2 and #3.*

Congestion Management

- Accept all schedules and manage congestion, if any, by arranging counter schedules. This arrangement is analogous to the automobile 'License Plate' fee whereby one can travel anywhere in the country, except there may be toll charges on specified roads. By the same token, by paying one access charge, the load could be served by any generation source across the ISO grid without any additional charge except a congestion charge for transporting power over congested paths, *which is consistent with recommended design feature #6.*
- Some participants in the ISO & Spot Market Working Group felt that the concept of the ISO accepting all schedules needed further discussion and evaluation. Two approaches have been discussed: centralized and decentralized, as explained on the following page.

- “Centralized” option, under which DSTAR would manage congestion by arranging the counter schedules on a least cost basis, utilizing market based mechanisms. *This is consistent with recommended design feature #6.*
- “Decentralized” option, under which other market mechanisms would be active in managing counter flows to eliminate congestion on the interconnected transmission grid.

The preferred alternative would be decided in the next phase of the Desert STAR development.

- Use financial instruments such as “Tradable Transmission Rights” (TTRs), to provide financial certainty through congested inter-zonal interfaces.

Desert STAR Phase 2

It appears likely that participants in Desert STAR will proceed on a collaborative basis in the next phase of its development with a FERC filing in the first half of 1999 as a principal objective. Desert STAR’s further development activities in Phase 2 will address the *unresolved* issues, which include:

- DSTAR’s role in local transmission planning process
- DSTAR’s role in ensuring compliance with state and local rules and regulations
- DSTAR’s role in siting new transmission facilities
- Incorporating retail access into DSTAR’s planning process
- Develop/refine DSTAR regional reliability criteria
- Establishing lines of communications and coordination with other ISOs and Control Areas in the western region (“seams” issues)
- Review existing contractual obligations to establish proper access charges and mitigate the potential for cost shifting
- Evaluate consolidation of some of the initially recommended zones (pricing areas)
- Evaluate on ‘centralized’ versus ‘decentralized’ congestion management
- Develop mechanism for obtaining ancillary services
- Develop open access grid-wide tariff
- Calculate and recover cost of losses

Desert STAR Implementation

Desert STAR’s schedule for operational implementation, if approved by the Steering Committee, is:

- Security Coordination by October 2000;
- OASIS by March 2001; and
- Scheduling and Congestion Management by October 2002.
- Full implementation as a single Control Area, possibly by 2004.

The phased-in approach of forming the ISO would be the preferred approach. Security coordination, OASIS administration and operation, scheduling, and congestion management are the four requirements to meet FERC's definition of an ISO.

IX. PRE-DESERT STAR MEASURES

To the extent that the Phase 2 analysis proceeds, it will not constitute a binding commitment to form Desert STAR. Even with a full commitment to go forward, Desert STAR will not be operational on January 1, 1999, the starting date of retail access in Arizona. As a result, the Reliability & Safety WG has identified a number of protocols and operating/coordination agreements which should be established during the next year to accommodate the implementation of retail access prior to (or in the absence of) the creation of an ISO.

Prior to the formation of an ISO, or absent any other independent transmission entity, transmission service will be under the immediate control of the transmission owning utilities (TOUs). Under FERC Order No. 888, TOUs are required to separate their transmission operations and merchant functions to achieve non-discriminatory wholesale access to the transmission grid. To achieve more independent oversight, it may be beneficial to form an "Independent Transmission Operator" (ITO) in the State of Arizona. This ITO will perform certain functions in support of retail access in the State of Arizona, including scheduling, administration, and operation of the OASIS, in its early stages, pending evaluation of other oversight mechanisms. While these functions will fall short of full ISO responsibilities, they may be helpful in supporting retail access. Furthermore, since Desert STAR has proposed a phased-in approach for the development of the ISO, the ITO should be designed with the ISO goals in mind.

X. OTHER INDEPENDENT SYSTEM OPERATORS ACROSS U.S.

The following is a brief description of other ISOs established or in the development phases across the U.S. Figure 3 shows nationwide ISOs, both approved and proposed. Figure 4 shows the ISO development and implementation schedules. Figure 5 compares ISO features, including DSTAR's features, in terms of governance, pricing model, and congestion pricing.

California ISO and Power Exchange (PX)

The basic elements of California's restructured electricity market confirmed by its legislature include:

- ISO
- PX
- Direct Customer Access to generation
- Full recovery of Stranded Costs

On October 30, 1997, FERC granted conditional approval to the California ISO and the PX to proceed into initial operation on November 1, 1997.

ISO

The California ISO is a new, independent, separate, non-profit California Corporation beginning full implementation on January 1, 1998. The ISO will initially combine three existing control areas into a single control area with a dispatch of 58,000 MW of resources, providing service to a population of 31.2 million people. It will provide operational control, open and comparable access to a common carrier ISO-controlled transmission grid; procure and manage ancillary services, manage reliability, and enforce mandatory operating protocols. Participating utilities will retain ownership of the transmission facilities but will transfer operational control of facilities forming the transmission grid for the California ISO. In accordance with contractual arrangements with the ISO, the utilities will perform physical operation and maintenance of the ISO grid. Transmission owning utilities will collect their annual revenue requirements through a transmission access charge.

Power Exchange (PX)

The PX will be separate from and independent of the ISO. The PX will create a competitive day-ahead and hour-ahead spot market for power. The PX will operate independently of generation participants and the ISO, and act as a price clearinghouse. The PX will provide for both generator bidding and demand bidding. The PX will conduct bid-price auctions, open to all buyers and sellers, and will allow free entry into and out of the energy markets.

Although participation in the PX is voluntary, the IOUs are required to bid all generation into the PX and purchase all their needs from the PX for the first five years. "Must run" units are handled outside the PX. Least-cost schedules are prepared based on the PX's ranking and evaluation of the bids and submitted to the ISO. As exists with other Scheduling Coordinators, the ISO can adjust schedules for generation and load, if so required, to ensure system reliability. ISO-accepted schedules become the basis for the market-clearing price in each zone thereby creating a visible market price.

ERCOT

ERCOT is an independent, non-profit Texas Corporation supported by dues and other fees collected from its members. Membership in ERCOT is voluntary and is open to all electric utilities, non-utility generators and power marketers in the state. ERCOT membership is composed of nine Cooperatives and River Authorities, six Municipalities owning generation or transmission, four IOUs, four IPPs, 26 Power Marketers, and nine Transmission Dependent Utilities.

ERCOT ISO is a key element of ERCOT. ERCOT ISO commenced operations on September 11, 1996. It is intrastate only, serving 85% of the Texas electrical load. Facilities include over 300 generating units linking to over 5,000 load serving points. Ten control areas, connected through 34,000 transmission circuit miles with generation capacity of 56,000 MW and a recorded 1997-summer peak load of 50,400 MW, physically handle transmission while ERCOT ISO functionally controls transmission operations and transmission access.

Interestingly, ERCOT ISO offers the following "Lessons Learned" perspective:

1. Reliability is the #1 priority, but market flexibility is a very close #2.
2. To get buy-in, all market participants must be involved on an equal basis.
3. To reduce conflict and confusion, procedures should be relatively simple and standardized.
4. Communication, education, and a reasonable implementation period are all critical factors for success.

IndeGO

Development of IndeGO, which stands for Independent Grid Operator, was initiated on July 11, 1996, when seven parties signed an MOU. As of August 7, 1997, there were 21 signatories to the MOU. These 21 entities represent a broad spectrum of stakeholder participation, including transmission owning utilities, transmission dependent utilities, power marketers, government agencies, and others. IndeGO's six Work Groups are: Legal; Pricing; Financing; Planning; Operations; and Facilities Management. Work Groups' progress was presented to all interested parties at three rounds of public meetings from October 1996 through August 1997. Meetings and proceedings of all the work groups were conducted on an open basis, and, based on the input from the stakeholders and general public, IndeGO Bylaws were developed in August 1997. IndeGO's aim is to file the Bylaws with FERC for approval by the first quarter of 1998, and start ISO operation by the middle of 1999.

Mid-Continent Area Power Pool (MAPP)

MAPP is an association of electric utilities, which includes 73 Members, 20 Associate Members and six Regulatory Participants. MAPP's members serve 16 million customers in all or part of eight Upper Midwest states and two Canadian provinces, Manitoba and Saskatchewan. The organization encompasses three important regional functions:

It is a regional transmission group, providing open access to the regional transmission system, administering a regional tariff, and producing a biennial transmission plan for the region.

- It is one of ten NERC Reliability Councils, safeguarding the region's bulk electric system by establishing standards, procedures and guidelines for operation.
- It is a power and energy market, establishing a wholesale market for the trade of electric energy in the region.

MAPP ISO Proposal

In early July 1997, MAPP members received the first draft of a MAPP ISO Proposal, which includes a revised MAPP Restated Agreement and a new document called a Transmission System Control Agreement. Members were asked to return comments on the draft to the MAPP ISO Task Force by the end of July 1997. The principal changes to the Restated Agreement are found within the Regional Transmission Committee (RTC) structure and responsibilities. The MAPP ISO would be established as a non-profit corporation by the RTC.

Upon FERC approval of the revised Restated Agreement, actions, decisions or directives of the ISO would be subject to review by an ISO Subcommittee, under the authority of the RTC. This subcommittee would consist of six transmission owning members, six transmission using members, plus the chairs of the MAPP Regional Reliability Committee, the MAPP Power and Energy Market Committee and the MAPP Regional Transmission Committee. The Regional Transmission Committee would have the authority to assign additional duties to the ISO.

Under the MAPP ISO, each member of the MAPP Regional Transmission Committee, who owns transmission facilities, would be required to enter into a Transmission System Control Agreement (TSCA) with the ISO. Through this agreement, the Member-Owner transfers Operational Authority to the ISO, i.e., the right of the ISO to provide access to and direct the operation of the Member-Owner's regional transmission facilities. The responsibility for physical operation would remain with the Member-Owner. The responsibilities of the ISO closely follow the ISO Principles from FERC Order 888. The MAPP Task Force also took into consideration recent FERC comments on other ISO proposals. In addition, a Rates and Tariffs Subcommittee is developing a regional tariff for all transactions to be filed with the ISO proposal. MAPP currently administers a regional transmission tariff for transactions of two years or less.

At MAPP's August 27-29, 1997 Technical Conference, the cost of implementing the MAPP ISO was estimated at \$11 million - to be allocated in two phases. Based on the comments received from the members on the first ISO draft, MAPP expects to release a revised ISO proposal during the week of October 5, 1997.

MAPP plans a public meeting on its revised proposal some time in November 1997, and expects members to vote on it by the end of the year. The ISO proposal will be filed with FERC in the first quarter of 1998.

MidWest ISO

As proposed, the MidWest ISO will be a new, independent Delaware Limited Liability Company. It is one of the largest ISOs in terms of area with facilities in 10 states, links to 25 companies, composed of 90,000 transmission circuit miles, and controls \$12 billion in gross transmission investment serving a peak load of 110,000 MW.

MidWest ISO expects to file with FERC in November 1997. The members have been through many drafts and the currently proposed filing documents can be found at the web-site, *midwestiso.org*. The MidWest ISO has more similarities to the western ISOs than the north and northeast ISOs, such as PJM, NY ISO, and New England ISO.

New England ISO

The FERC gave conditional approval to the New England ISO in June 1997, and deferred action on the pool-wide open access transmission tariff and policies for pricing transmission and ancillary services. Those issues will be addressed in a separate order.

The FERC required the New England ISO to make the following changes:

- Lower the definition of an affiliate from 50% to 10%;
- Ensure that ISO employees and board members are divested of market participant interests;
- Adopt a self-funding mechanism, such as a transaction-based fee;
- Open membership beyond New England entities without restriction.

New York Power Pool (NYPP)

On January 31, 1997, the eight electric member systems of the NYPP, as filed with FERC, will dissolve the existing NYPP structure and replace it with an ISO, Power Exchange, and New York State Reliability Council (NYSRC). Objectives to be met by the new structure are: (1) preserve reliability; (2) continue to satisfy FERC's standards regarding open, non-discriminatory access; and (3) establish an efficient wholesale electricity market.

New York ISO (NY ISO)

NY ISO will be a not-for-profit New York corporation subject to FERC jurisdiction. The New York Public Service Commission has jurisdiction where appropriate. It will be intrastate only, serving most or New York's entire electrical load. There are seven individual company control areas connected through over 10,700 transmission circuit miles with generation capacity of approximately 35,000 MW and a recorded 1997-summer peak load of 28,700 MW. Transmission owners physically handle transmission operations while NY ISO functionally controls transmission operations and transmission access. Due to the existence of a

considerable amount of transmission constraints in the state, NY ISO has adopted a Locational Based Marginal Pricing (LBMP) protocol for managing congestion and establishing market clearing prices. The ISO is responsible for committing units and dispatching generation to ensure the overall system reliability. NY ISO is expected to commence operation by mid 1998, pending FERC approval.

New York Power Exchange (NYPE)

The NYPE is open to all generators, loads, and marketers, subject to standards of creditworthiness. The role of the NYPE is to facilitate commercial transactions in the wholesale market on behalf of the load serving entities and the generation suppliers. The NYPE provides the ISO with information regarding generation available or loads to be served. The NYPE complies with NY ISO rules and provides the ISO with required operation information about commercial transactions. Finally, the NYPE facilitates and settles transactions between participants.

New York State Reliability Council (NYSRC)

Unique to New York is the NYSRC. Its role is to ensure the reliability of electric service on the bulk power system in New York State. To fulfill this role, the NYSRC is responsible for setting of standards and implementation of rules to ensure reliability. The NYSRC will use NERC, NPCC, NRC and PSC reliability criteria as the basis for the standards.

The NYSRC is also responsible for addressing reliability issues not covered by NERC or NPCC either locally or regionally, and for monitoring the compliance of reliability standards by the NY ISO.

PJM Interconnection, L.L.C. (PJM)

PJM is a limited liability corporation. It serves 8.7 % of the entire U. S. population in covering five states and Washington, D. C. Facilities include 540 generating units. PJM is a single control area containing 7,000 transmission circuit miles with generation capacity of 56,000 MW. Transmission owners physically handle transmission operations while PJM functionally controls transmission operations and transmission access.

PJM ISO evolved from the tight power pool of PJM. The tightly integrated operations handled economic dispatch of generation, transmission pathing and pricing, congestion management, and regional planning for generation and transmission owners. PJM ISO has reinvented itself to disintegrate the transmission access from the generation control. PJM operates the ISO as one control area and provides system balancing. To balance, PJM takes bids for generators and loads and uses locational based-marginal pricing (LBMP) to relieve congestion.

The second and most recent FERC filings occurred in June 1997. Interestingly, again two divergent sets of FERC filings offered alternative ISO proposals. The nine Supporting Companies' proposal creates a non-profit ISO governed by an independent Board of Managers and a Members' Committee representing all market participants. In contrast, PECO Energy, the tenth PJM utility, proposes a staggered restructuring plan envisioning a For-Profit "TransCO".

The most significant difference in the filings is in the selection of pricing models. The Supporting Companies still proposes a zonal approach with locational-based marginal pricing for congestion management, while PECO Energy favors a single grid-wide postage stamp rate.

Southwest Power Pool (SPP)

SPP consists of 67 members, serves more than 6.6 million customers and covers 500,000 square miles. It serves a population greater than 25 million. SPP membership includes 18 IOUs, nine municipal systems, 11 generation and transmission cooperatives, three state authorities, one federal government agency, three wholesale generators, and 22 power marketers. Twenty-one of the 151 control areas in North America are members of SPP. The board of the SPP approved a regional tariff during the first week of October 1997, and will file with FERC by the end of 1997. Implementation of the tariff is expected no sooner than April 1, 1998.

SPP continues to move ahead with the tariff along with a parallel path of consolidation discussion with MAPP into MAPP-SPP ISO. The tariff is designed to allow seamless operation with MAPP, with it being more similar than different to the MAPP-designed tariff. SPP's tariff includes both point-to-point and network services. Furthermore, SPP's pricing is distance sensitive. Not all parties in SPP region agree with it. It will be interesting to get FERC's review comments and conditions, if any.

The question of whether to form a power exchange is still unresolved. Currently a power exchange is not expected to be a part of the SPP ISO but consensus has not been reached.

SPP ISO's Proposal covers five functional areas: coordinated planning; constraint identification and control; organizational administration; transmission tariff administration and compliance monitoring.

XI. CONSOLIDATION OF MAPP AND SPP

On September 26, 1997, MAPP and SPP officials jointly announced an investigation of consolidating some or all of the functions of the two organizations. Over the next three months, the combined management staffs of MAPP and SPP will develop a recommendation for consideration by the SPP and MAPP governing bodies in January 1998. They will examine operating reserves, capacity margins, coordinated planning, facility ratings and practices, databases, and communication systems.

Consolidation also raises the possibility of one seamless transmission tariff from Manitoba to the Gulf of Mexico and from the eastern border of Montana to the western border of Illinois.

XII. FUTURE ISO MERGERS

It is FERC's vision and desire that ISOs embrace as large a geographic area as possible. Experience of ISO operations, as presently designed and formed, will show in the future how much economic gains and operational efficiencies are achieved. If the results of larger regional ISOs' operation are positive and cost beneficial, we might see mergers of ISOs with smaller sub-regional jurisdiction, such as California ISO and Desert STAR, with larger ISOs, such as IndeGO.

XIII. CONCLUSIONS

1. The formation of a multi-state ISO, with responsibility for security coordination, scheduling, OASIS, and congestion management, and with pricing policies designed to eliminate the anti-competitive effects of pancaked rates, may facilitate the implementation of retail access in Arizona.
2. It was concluded that no formal power exchange was needed for the southwest region, and creation of one would unnecessarily add to the cost of the ISO infrastructure without much benefit. The Working Group felt, however, that an ISO could utilize market-based mechanisms for obtaining ancillary services, daily energy imbalances, and congestion management. In addition, the Arizona retail market may be able to utilize Palo Verde and California WEPEX spot markets.
3. Desert STAR, the ISO under consideration in the Southwest, has completed its Phase 1 feasibility study. The framework developed in that study is consistent with the ISO design features recommended by the Working Group. If Desert STAR is developed in accordance with its proposed framework, it would facilitate the implementation of retail access in Arizona.
4. No binding commitments have been made to form Desert STAR. Even with a full commitment to go forward in Phase 2 feasibility study after November 20, 1997, Desert STAR will not be operational on January 1, 1999, the starting date of retail access in Arizona. With this in mind, the Reliability & Safety Working Group has identified a number of protocols and operating/coordination agreements which should be put in place over the next year to implement retail access prior to (or in the absence of) an ISO. The Working Group concurs in supporting the development of these protocols and operating/coordination agreements.
5. Prior to the formation of an ISO, or absent any other independent transmission entity, transmission service will be under the immediate control of the transmission owning utilities (TOUs). Under FERC Order No. 888, TOUs are required to separate their transmission operations and merchant functions to achieve non-discriminatory wholesale

access to the transmission grid. To achieve more independent oversight, it may be beneficial to form an "Independent Transmission Operator" (ITO) in the state of Arizona. This ITO will perform certain functions in support of retail access in the state of Arizona, including scheduling, administration, and operation of the OASIS, in its early stages, pending evaluation of other oversight mechanisms. While these functions will fall short of full ISO responsibilities, they may be helpful in supporting retail access. Furthermore, since Desert STAR has proposed a phased-in approach for the development of the ISO, the ITO should be designed with the ISO goals in mind.

XIV. RECOMMENDATIONS

The Working Group made the following recommendations:

- It is recommended that the Commission Staff continue to monitor and evaluate any further activities of Desert STAR. The Staff will submit a report to the Commission, one month after Desert STAR files with FERC, which is expected to be in the first half of 1999.
- It is recommended that the Commission support the continued development of Desert STAR to the extent its design is compatible with facilitation of the Commission's retail access program, achieves independent governance, and is cost effective. The Working Group recommends that Desert STAR incorporate the following ISO design features :
 1. ISO governance must be truly independent and structured in a manner, which ensures fair representation of stakeholder customer interests.
 2. The ISO must ensure non-discriminatory access for retail transactions. ISO access charges should be based on the reasonable and necessary costs of providing transmission service and must not discriminate against retail transactions.
 3. The ISO tariff should be uniform across all transmission and sub-transmission facilities, included in the ISO's geographic territory, though only designated transmission and subtransmission facilities will be placed under the operational control of the ISO.
 4. ISO scheduling protocols should be designed in a manner which properly reflects retail access requirements while preserving the scheduling protocols and rights of existing wholesale entities until revised contracts between the ISO and said entities are agreed upon.
 5. The ISO should play the role of a truly independent organization which is responsible for taking actions to ensure system reliability (e.g., curtailing schedules in an emergency) and for performing operations necessary to facilitate transactions for all users of the system (e.g., scheduling, congestion management, maintenance coordination, etc.). Serious consideration should be given to the concept of the ISO operating as a single control area.

6. Congestion management procedures need to be developed by the ISO in a manner by which all schedules are accepted and congestion is resolved through least-cost market mechanisms.
7. The ISO should operate the OASIS for all transmission under its jurisdiction.
8. The ISO should provide, or require self-provision of, ancillary services for customers in compliance with FERC Order Nos. 888 and 888a. Ancillary services obtained by the ISO for the benefit of (and resale to) customers should be procured in a least-cost manner. In conjunction with this function, the ISO should be responsible for ensuring that necessary operating reserves are provided on a day-ahead basis.
9. The ISO should establish procedures and protocols in the scheduling of transmission maintenance, and in coordinating transmission maintenance schedules with generation maintenance schedules.
10. The ISO should comply with regional reliability standards and have an active role in the planning of new transmission. It should be responsible for maintaining short-term system reliability and should facilitate cost-effective congestion management.

XV. REFERENCES

1. FERC Stats. & Regs. at 31,730-32; mimeo at 279-86.
2. Commissioner William L. Massey, Federal Energy Regulatory Commission, "The Future for ISOs," NRRQ Quarterly Bulletin Vol. 17 No. 4.
3. NARUC Summer Meetings, San Francisco, July 18-23, 1997.
4. Desert STAR Feasibility Report, October 1997.
5. "Development of ISOs Around the U.S. -- An Update," Prem K. Bahl and Stephanie Hamilton, to be presented at the Power Delivery '97 Conference, Dallas, December 9-11, 1997.
6. Committee for Regional Electric Power Cooperation Briefing Book for the October 22-23, 1997 meeting.
7. "Open Access, Spot Markets and the Role of the ISO in New York," Scott M. Harvey presented to the Arizona Corporation Commission ISO & Spot Market Working Group, May 29, 1997.
8. "PJM Interconnection" - presentation by Bruce Balmat to the Arizona Corporation Commission ISO Spot Market Development Working Group, May 29, 1997.
9. California ISO & PX- presentation by Skip Helm to the Arizona Corporation Commission ISO & Spot Market Working Group, May 29, 1997.
10. ERCOT ISO - Presentation by Sam Jones to the Arizona Corporation Commission Working Group, May 29, 1997.
11. Summary Overview of California Restructuring - Independent System Operator and Power Exchange. Tom Delaney, Enron, August 24, 1997
12. "California ISO and NYPP," presentation by Ali Ipekchi, to the Arizona Corporation Commission Working Group, October 14, 1997.
13. "Role of an ISO in Enhancing System Reliability", Prem K. Bahl, Arizona Corporation Commission, presented at the Electric System Reliability Conference, Electric Utility Consultants, Inc., Denver, September 30 - October 1, 1997.
14. "Reliability-Related Activities in a Competitive Environment: Recommendations." Report of the Electric System Reliability and Safety Working Group, established by the Arizona Corporation Commission, November 15, 1997.
15. "Maintaining Reliability in a Restructured Electric Power Industry: The Role of Transmission System Operators (ISOs or TransCos)," (Draft Report), ICF Resources, Inc., September 30, 1997.
16. Dan Nix, California Energy Commission, Notes taken at the WSCC Mandatory Compliance Implementation Policy Group Meeting, July 21, 22, 1997.
17. ELCON, Profiles on Electricity Issues, Independent System Operators, March 1997
18. ISO Reference Book, EEI Staff Summaries.
19. Edison Times, July 1997.
20. Electric Utility Week, October 6, 1997.
21. "The MidWest ISO," John Procario, Power-Gen '96 Conference, Orlando, December 6, 1996.
22. "The NEPOOL ISO - One Year Old and Growing," Draft Report.
23. Amended and Restated Articles of Incorporation of Electric Reliability Council of Texas, Inc. (A Non-Profit Corporation).
24. Restructuring of the New York Power Pool, ER97-986-000, December 30, 1996.

25. Southwest Power Pool, ISO Technical Conference, New Orleans, October 2-3, 1997.
26. "SPP Board Approves Tariff Filing; Task Force Advances ISO", Dow Jones International News Service, October 3, 1997.
27. SPP Board -2: "Tariff Designed with MAPP in Mind", Dow Jones International News Service, October 3, 1997.
28. SPP Board-3: "ISO Proposal Covers Five Functions", Dow Jones International New Service, October 3, 1997.
29. "MAPP, SPP Officials Set Next Week For Merger Evaluation", Dow Jones International News Service, October 1, 1997.
30. "Trends in ISO Pricing," Mark J. Volpe, Centerior Energy, presented at the Independent System Operators (ISOs) Conference, sponsored by Electric Utility Consultants, Denver, October 2-3, 1997.

WEBSITES

California ISO	caiso.com
DesertSTAR	swarta.org/destar
ERCOT	ercot.com
IndeGO	idahopower.com
MAPP	mapp.com
MidWest	midwestiso.org
New England	iso-ne.com
New York Power Pool	nypowerpool.com
PJM	pjm.com
SPP	spp.com

FIGURES

Figure 1
ISO PRINCIPLES

In the Final 888 Open Access Rule, the FERC set out certain principles that will be used in assessing ISO proposals that may be submitted to the Commission in the future. The Commission emphasized that these principles are applicable only to ISOs that would be control area operators, including any ISO established in the restructuring of power pools.

The Commission set forth the following principles for ISOs:

1. The ISO's governance should be structured in a fair and non-discriminatory manner.
2. An ISO and its employees should have no financial interest in the economic performance of any power market participant. An ISO should adopt and enforce strict conflict of interest standards.
3. An ISO should provide open access to the transmission system and all services under its control at non-pancaked rates pursuant to a single, unbundled, grid-wide tariff that applies to all eligible users in a non-discriminatory manner.
4. An ISO should have the primary responsibility in ensuring short-term reliability of grid operations. Its role in this responsibility should be well defined and comply with applicable standards set by NERC and the regional reliability council.
5. An ISO should have control over the operation of interconnected transmission facilities within its region.
6. An ISO should identify constraints on the system and be able to take operational actions to relieve those constraints within the trading rules established by the governing body. These rules should promote efficient trading.
7. The ISO should have appropriate incentives for efficient management and administration and should procure the services needed for such management and administration in an open competitive market.
8. An ISO's transmission and ancillary services pricing policies should promote the efficient use of and investment in generation, transmission, and consumption. An ISO or an RTG of which the ISO is a member should conduct such studies as may be necessary to identify operational problems or appropriate expansions.
9. An ISO should make transmission system information publicly available on a timely basis via an electronic information network consistent with the Commission's requirements.
10. An ISO should develop mechanisms to coordinate with neighboring control areas.
11. An ISO should establish an alternative dispute resolution process to resolve disputes in the first instance.

Figure 2

Name	Representing
Steven Ahearn	Az. Department of Commerce
P. J. Anderson	PacifiCorp
Marvin L. Athey	Trico Electric Cooperative, Inc.
A.B. Baarsdon	Nordic Power
Prem Bahl	Arizona Corporation Commission
Jim Bartlett	Arizona Power Authority
Carol Benson	City of Tucson
Michael Block	Goldwater Institute
John Branch	City of Mesa Electric Utility
Peter Breen	Arizona Corporation Commission
DK Brown	Public Service Company of New Mexico
Richard Brown	SWRTA
David Caplow	Economic Energy Alternatives
John D. Chandley	PHB
Kim Clark	WAPA
Ken Craig	Navajo Tribal Utility Authority
Michael Curtis	Arizona Municipal Power Users Association
Mike DeConcini	Tucson Electric Power Company
Cary Deise	Arizona Public Service Company
Dennis Delaney	K.R. Saline & Associates
Tom Delaney	Enron Corporation
John Delgado	WAPA
Robert Easton	WAPA Operatioins
Bruce Evans	AEPCO
Michael Fox	IBEW L.U. 1116
Ron Franquero	Arizona Corporation Commission
Suzanne Gilstrap	Arizona Multihousing Association
Larry R. Graber	Swiss Energy Corporation
Janel Guerrero	Enron Corp.
Stephanie L. Hamilton	Cinergy Corp.

Name	Representing
Skip Helm	Southern California Edison Company
Kevin Higgins	Energy Strategies, Inc.
Thomas Hine	Arizona Municipal Power Users Association
Ronald H. Hubbard	City of Tucson, Dept. of Operations
Barry Huddleston, Manager	NGC Corporation
Vincent Hunt	City of Tucson, Dept. of Operations
Tom Jones	Grand Canyon State Electric Cooperative Ass
Gary Jurkin	AEPSCO
Doug Larson	Western Interstate Energy Board
Ken Liff	Desert Southwest Customer Service Region
Mike Loomis	The American Hydrogen Association
John Loue	ABCO Foods
Michael W. Margrave, Esq.	Margrave Clemins & Verburg
Chuck McEndree	WAPA
Kenneth Mecham	City of Safford
Bill Meeks	Arizona Utility Investors Association
Mark S. Mitchell	Arizona Power Authority
Tony Montoya	WAPA
Jay Moyes	Meyer Hendricks
Bill Murphy	City of Phoenix, Facilities Management
Douglas C. Nelson, P.C.	Electric Competition Coalition
John E. O'Hare	Rate Management
Melinda Ogle	Goldwater Institute
Steve Olea	Arizona Corporation Commission
Tom Parrish	APS
Greg Patterson	Residential Utility Consumer Office
R. Prasad Potturi	NMPUC
Alan Propper	Resource Management International
Michael Raezer	Tucson Electric Power Co.
Matt Rowell	Arizona Corporation Commission

Figure 4

ISO Development and Implementation Schedules

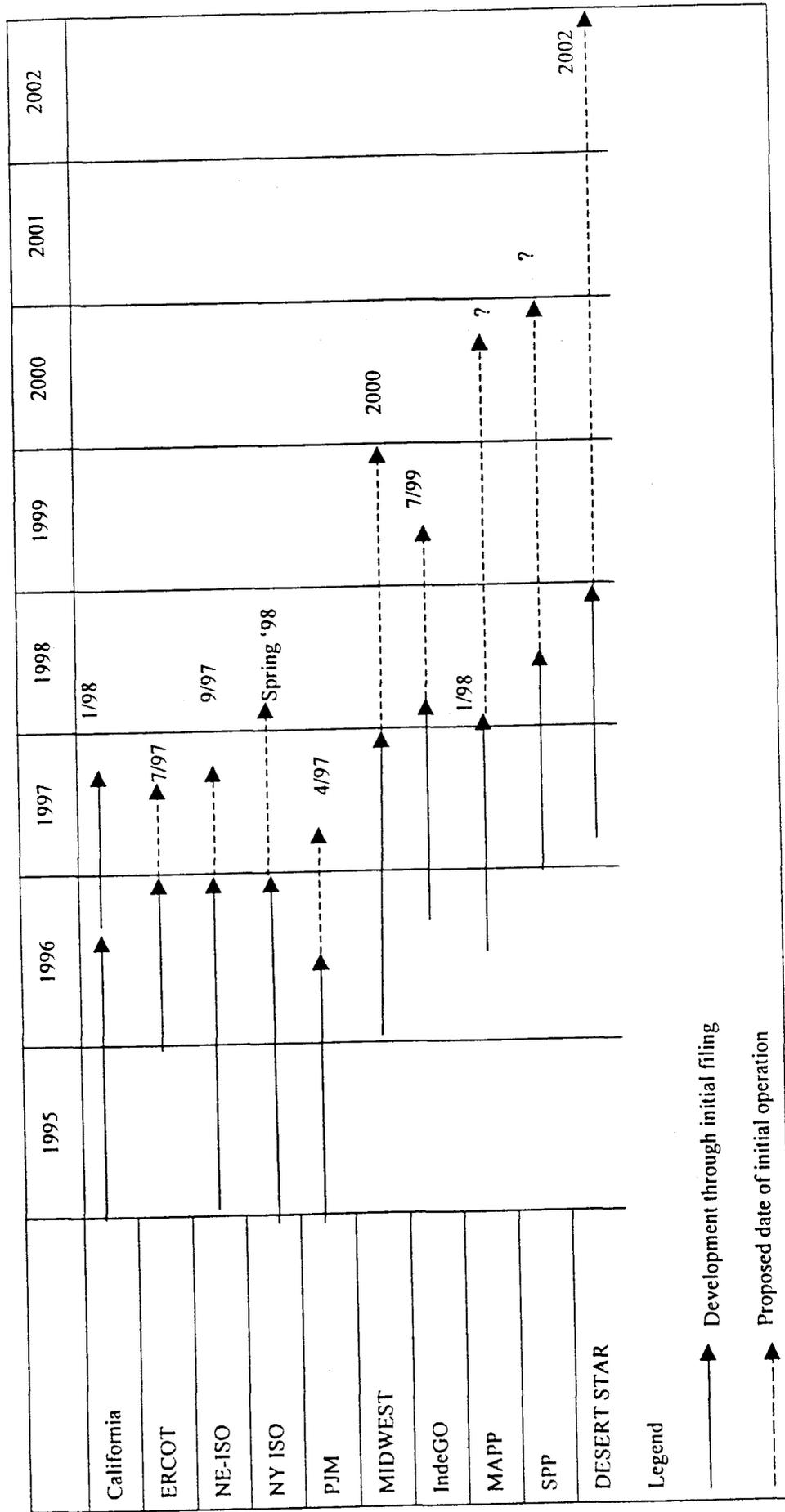


Figure 5

COMPARISON of ISO FEATURES

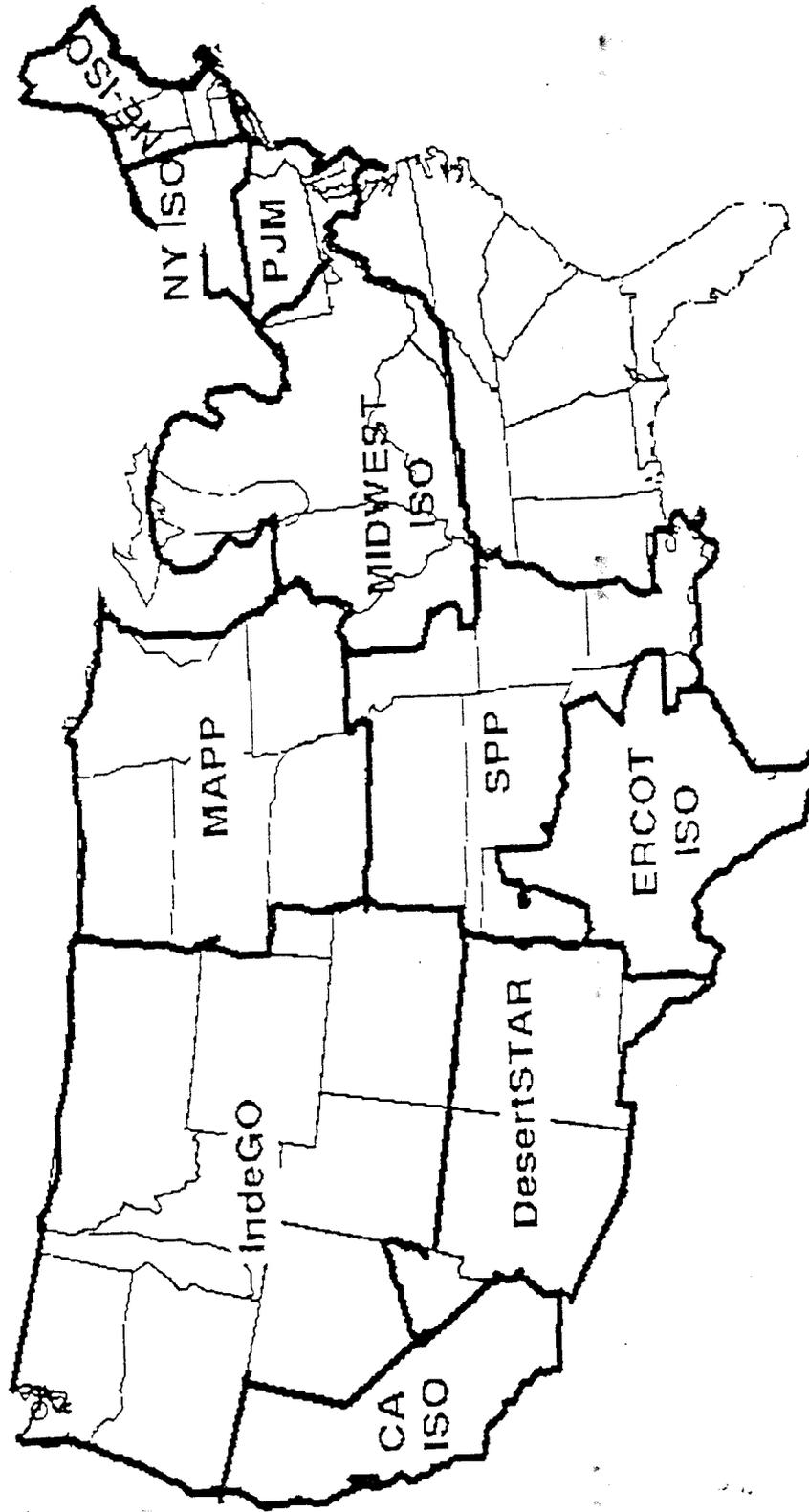
Features of ISO	Calif ISO	DSTAR	ERCOT	IndeGO	MAPP ISO	Mid-West ISO	New England ISO	NYPP	PJM	SPP ISO
Governance Affiliated (A); Unaffiliated (U) Non-Profit (NP), For-Profit (FP)	A NP	U NP	A NP	U NP	U NP	U NP	U NP	U NP	U NP/FP	U NP
Pricing Model 1. Postage Stamp 2. Contract Path 3. MW - Mile 4. Impacted MW - Mile 5. Vector - Absolute MW - Mile 6. Zonal/Nodal 7. Flow Base	6	6	5	6	5, 7	6, 1	1	6	6, 1	5, 7
Congestion Pricing 1. INCs/DECs 2. Counter Schedules 3. LBMP 4. Financial Instruments 5. Redispatch	1, 4	2, 4	5	2, 4	5	5	5	3, 4	3	5

Name	Representing
Ken Saline	K.R. Saline & Associates
Deborah Scott	Residential Utility Consumer Office
Marty Sedler	Intel Corp.
Barbara Sherman	Arizona Consumers Council
Elizabeth Story	Tonopah Irrigation District
Tim Summers	Ajo Improvement Company
Jim Tarpy	Enron
J. T. Underhill	SRP
Ray Williamson	Arizona Corporation Commission
Walter F. Wolf, Jr.	Navajo Tribal Utility Authority
Representative Barry Wong	Arizona House of Representatives

Note: The above summary was prepared from the mailing lists used in connection with the ISO and Spot Market Working Group Mailings. It does not necessarily reflect actual attendance at Group and Subcommittee meetings.

Figure 3

*Independent System Operators
Approved or Being Proposed*



APPENDIX A

A DECLARATION OF INDEPENDENCE

Why Transmission and System Operation Must Be Truly Independent from the Ownership of Generation

Efforts to restructure the electric power industry are based on the conviction that open competition in power supply will advance consumer interests better than traditional economic regulation. The objective of restructuring must be to create conditions that will allow genuine competition to thrive. The ultimate measure of success is whether competition delivers benefits to consumers, not just to those in the electricity business, either competitive electricity suppliers or providers of monopoly wire services.

To succeed, the restructuring process must address the inherent market power problems caused by ownership or control of the monopoly transmission system that connects competitive generators with their customers. The divergent interests of suppliers and customers are clear:

- In competitive electricity markets, all generators will benefit from high prices while customers benefit from low prices;
- In competitive markets, higher prices achieved through any action, including control of the transmission system, by any generator or group of generators, will benefit all generators;
- Decisions regarding transmission pricing, dispatch rules, and new investment in the transmission system can add value to generation. An unnecessarily constrained transmission system will lead to overpriced electricity and excess profits for suppliers;
- Many techniques for leveraging transmission and system operation to add value to generation assets are complex, subtle, and difficult to control through regulatory oversight.

This means that steps taken to deregulate supply could harm rather than advance consumer interests, if not paired with measures to sever suppliers' control over transmission services.

To ensure that the transmission system is operated and expanded to suit the needs of society at large rather than the narrower interest of generators, most nations implementing competition in generation have chosen to completely separate the ownership of power plants from ownership or control of transmission lines. Such separation provides a clear, workable and effective means of protection against the potential for many types of abuse.

However, many US utilities oppose divestiture of either generation or transmission assets. They offer instead to separate ownership from control, by placing control of the transmission system in an "Independent System Operator" or ISO. Unfortunately, most ISO proposals put forth to date have been seriously deficient in one or both of two key areas: (1) the scope of functions entrusted to the ISO is too limited, so it does not effectively control transmission pricing and system operation, and (2) the ISO is not truly independent.

Each ISO should have a mandate to manage and expand the portion of the nation's grid under its control so as to ensure reliability while minimizing costs. The management of the transmission system involves the exercise of hundreds of small and large decisions, many of them pricing of transmission service, construction of new lines, and operations and maintenance of the existing system. All of these decisions should be made by the ISO, subject to regulatory oversight. The transmission system should be operated and expanded so as to encourage rather than limit competitive challenges among suppliers.

Most ISO proposals fall short by giving suppliers substantial, or in some cases, majority control of the system. Independence is not achieved by simply sharing control of the transmission system among different types of suppliers. In the absence of a clear structural solution such as divestiture, we must create solutions equivalent to a non-voting "transmission trust": generating companies must cede all control of their transmission lines to the ISO; they will be entitled to fair compensation on their investment, but afforded no opportunity to influence the use of those lines.

The ISO should, in turn, be subject to appropriate regulatory oversight. This regulatory framework should strive to harmonize the interests of the ISO with those of the public: reliability and stability, low generation and transmission prices, and minimum environmental impact. Such regulation must reflect both federal and state interests, ensuring the development of regional markets while recognizing states' interests in siting, and in shaping regulatory reform to suit local concerns.

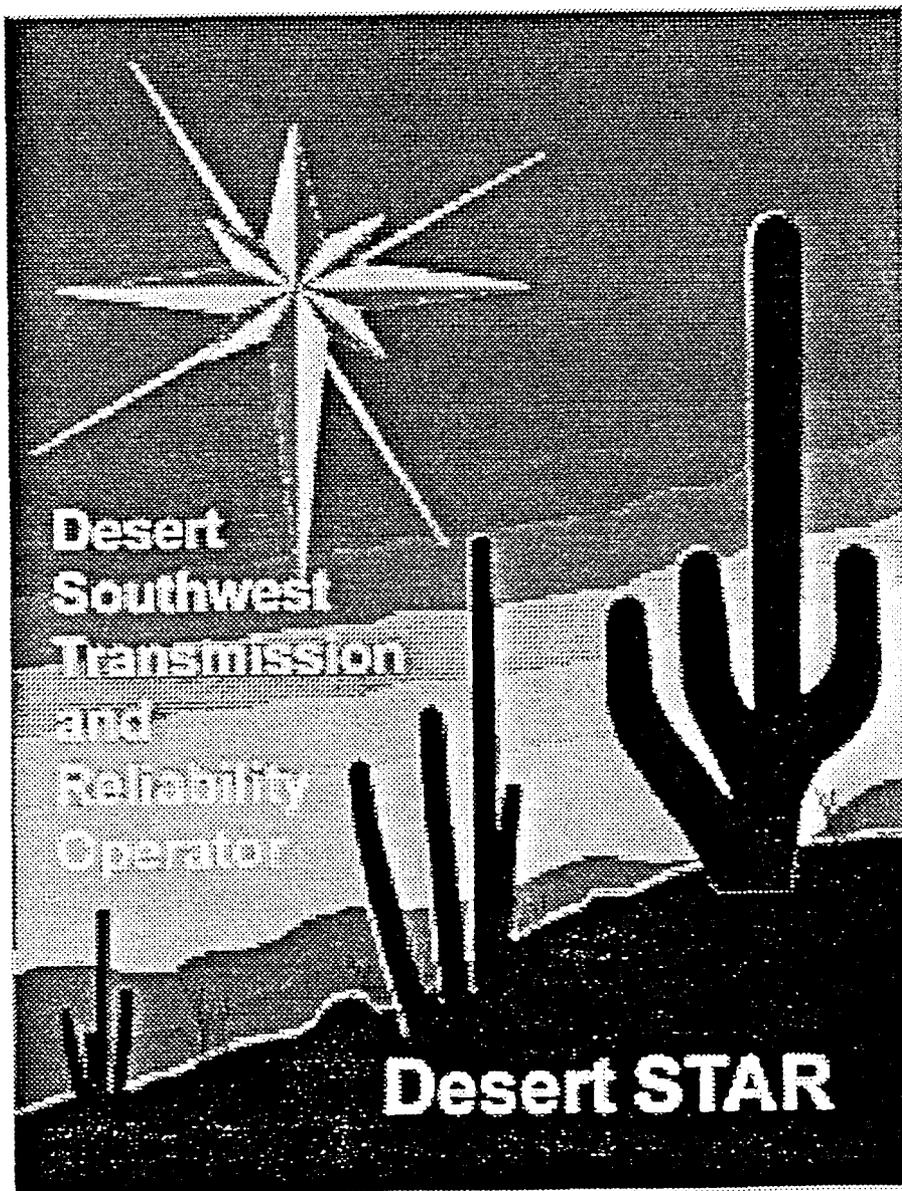
Effective regulation of regional markets and transmission systems may require creation of new regional governance mechanisms, such as regional joint boards or councils under existing or new enabling legislation. However this is accomplished, FERC, the States, and Congress must insist upon creation of ISO's that have authority to operate and improve regional transmission systems, and that are truly independent from the owners of generating resources. Only when transmission constraints cannot be used to leverage above-market value from generation assets will be public's interests in genuine competition be well served.

Richard H. Cowart, Chair Suzanne D. Rude David Coen Vermont PSB	John B. Howe, Chair Janet Gail Besser Massachusetts DPU
Karl Zobrist, Chair Duncan E. Kincheloe	Edward M. Meyers, Com. District of Columbia PSC

Missouri PSC	
Roger Hamilton, Chair Ron Eachus Joan Smith Oregon PUC	Wayne Shirley, Chair New Mexico, PUC
John Hanger Pennsylvania PUC	Renz Jennings Arizona Corp. Commission
James J. Malachowski, Chair Paul E. Hanaway Kate F. Racine] Rhode Island PUC	Graig A. Glazer, Chair Ohio, PUC
David O'Connor, Com. Massachusetts DOER	Karl A. McDermott Illinois Commerce Comm
Sharon L. Nelson, Chair Richard Hemstad William R. Gillis Washington U&TC	

APPENDIX B

Desert STAR Feasibility Study



October 8, 1997

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I. EXECUTIVE SUMMARY

Electric utility industry participants in the Desert Southwest agreed to conduct a six-month feasibility study regarding the formation of an Independent System Operator (ISO) in the Desert Southwest. The name of the ISO would be Desert STAR (Desert Southwest Transmission and Reliability Operator) "DSTAR". These parties signed a Memorandum of Understanding (MOU). This study process was to be open to all parties who wished to participate, even if they had not signed the MOU. The MOU also contained several broad principles which any ISO must conform to.

In order to conduct this feasibility study, four Work Groups were formed to investigate the following areas. Each of the Work Groups was given an initial assignment to investigate several related areas. All of the Work Group meetings were open and meeting notices were posted on the Internet. In addition, in order to ensure the widest possible public involvement, three series of public forums were held.

The purpose of this report is to present the final results of the feasibility study so that the participants can decide whether to proceed with the activities which will be necessary to establish an ISO for the Desert Southwest region.

The major conclusions and recommendations from the Work Groups, taking into account public comments are listed below.

GOVERNANCE AND REGULATORY

Form of Organization. Consensus was reached that a non-profit corporation was the best form of organization for DSTAR.

Governing Documents. Certain provisions of the governing documents are viewed as essential to a member's decision to join the ISO and should not be amended by the Board without member ratification

Classes of Members. Eligible Members will consist of those providing transmission facilities to Desert Star and those qualified to use the transmission system pursuant to FERC Order 888-A, and a retail customer class[es]. The Member will select which class it joins.

Three possible assortments of classes were discussed. There was no consensus favoring one list over the others. All alternatives would also include State electric utility regulatory agencies and other agencies as ex officio Members.

Fees. Before becoming a Member of DSTAR, each applicant shall pay a nominal membership application fee and annual dues.

Standing Committees. There will be three standing committees consisting of representatives of each Member class, elected by a majority of the Members of each class present at the annual meeting of Members.

Advisory Committee. The Advisory Committee will consist of the class Chairs. The

Advisory Committee shall meet at least quarterly with the Board to discuss Petitions that have been filed during the preceding quarter, and such other matters that either the Committee or the Board wish to add to their agenda.

Nominating Committee. Before the annual meeting of Members, the Nominating Committee will select two eligible candidates for each vacant position on the Board. (This would only be necessary where the board is unaffiliated.)

Budget Review and Board Compensation Committee. This Committee will be responsible for reviewing the annual budgets prepared by DSTAR's management and providing written comments to the Advisory Committee for use in its quarterly meeting with the Board immediately before the Board's approval of a final budget for the coming year. The Committee will also review and update the directors' compensation each year. The Board of Directors will not require a salary. However, each Director will be reimbursed for all reasonable expenses incurred in attending Board meetings.

Planning Committee. If a planning committee is established, its membership could be obtained from the member classes in the same manner as the other committees listed above.

Alternative Dispute Resolution ("ADR") Process. The By-laws will provide a process for ADR among the Members, the Member classes, or between a Member, a Member class, or a transmission user and DSTAR. This process will be substantially the same as the ADR process adopted in SWRTA's By-laws. On several occasions it was discussed that some of the disputes may be of a "real-time" operational nature, and that it might be useful to develop some dispute resolution process that could respond to such disputes within a very short period of time. The management of the ISO must have the discretion to make decisions to operate the system regardless of a pending dispute.

Board of Directors. The Board must be independent. There was no consensus between two alternative means of creating an independent Board. An Unaffiliated Board would be composed of members who had no direct relationship or interest in any member. This Board would be elected by a majority of classes with each class having one vote. An affiliated Board would be composed of members elected by each class and could include members of that class.

OPERATIONS AND IMPLEMENTATION

Formation: DSTAR will be responsible for the following activities:

- Maintenance
- Security Monitoring
- OASIS
- TTC/ATC
- Congestion Management
- Transmission Scheduling

Control Area. If it is determined to be economically feasible, the majority favors the DSTAR region *transitioning* from the seven existing control areas structure to a consolidation of control areas for the Southwest. The alternate option would be that the existing control areas continue to function with DSTAR monitoring for compliance to WSCC Reliability Standards.

Covered Electric System Facilities. DSTAR will oversee the operation of the electric system elements which are of regional significance. These facilities generally are characterized as 230kV and above.

Ancillary Services. DSTAR will facilitate the provision of ancillary services. Four of the six FERC defined ancillary services require control of generation resources. Consensus was not reached regarding DSTAR's role in the control of generation, a competitive product.

Congestion Management. Two alternatives have been proposed for congestion management on interfaces and identified transmission paths as part of the scheduling process. In the "centralized" approach, the ISO plays an active role in congestion management by creating counterflow schedules through the use of market bids for incremental and decremental generation from market participants. In the "decentralized" approach, the ISO's role is limited to efficiently allocating unused transmission capacity, and other market mechanisms are used to create counterflow schedules. It is recommended that the relative merits of both approaches be further explored in Phase 2. Conversion of existing Contractual Rights must also be addressed.

Budget Estimate. The startup budget is on the order of \$35 million and the annual O&M costs are on the order of \$18 million. During this feasibility study, no attempt has been made to quantify the benefits or cost savings to the participants which would result from the formation of DSTAR. The completion of this cost/benefit analysis must be part of Phase 2 activities. This analysis must compare the total future electric industry structure costs without DSTAR with the costs that would be incurred when DSTAR is in operation.

Implementation strategy. It is desirable to form DSTAR, in such a manner, to keep the region operating reliably and safely. Three phases have been defined, whereby the various functions will transition from the present system operators to DSTAR, with the goal of having "FERC Approved" operational ISO status by July 2002 when four key functions are operational. The key functions are:

- Security Coordinator [July 1999],
- OASIS Administrator [March 2001],
- Scheduling Administrator [June 2002], and
- Congestion Management Administrator [July 2002].

However the proposed implementation strategy may need to be modified to accommodate retail direct access as it may develop in each affected state.

PLANNING

The general consensus is that DSTAR should play a significant role in the regional transmission planning responsibilities in the southwest and act as the backstop authority to ensure that transmission facilities needed for system reliability are constructed.

The majority of the participants strongly agree that DSTAR should a) not own any transmission facilities, either existing or new, b) be a member of WSCC, and c) comply with all applicable planning criteria and procedures.

There are a number of complex issues dealing with the coordination between DSTAR and interconnected control areas and other ISOs. These issues are under serious discussions in other forums in which members of DSTAR participate. DSTAR parties should continue to actively participate in those discussions and that this task be continued in Phase 2.

Pricing and Tariff

Eight ISO ("Independent System Operator") pricing alternatives were evaluated and a general methodology for pricing transmission services consistent with the DSTAR Memorandum of Understanding ("MOU") is being recommended.

If MOU participants desire to proceed with detailed development of DSTAR, a significant pricing and tariff effort will be required in Phase 2 to ensure existing contractual, regulatory and statutory obligations are equitably met while transitioning to ISO transmission service and resulting pricing requirements. It should be recognized that the cost shifting issue could become so contentious that it actually becomes a major impediment to the successful implementation of an ISO.

Revenue Requirements. To recover the Annual Transmission Revenue Requirement transmission users within DSTAR would pay a transmission access charge. The access charge would allow the transmission user access to any point within the ISO without further charge for revenue requirements. However, there could be additional charges for non-revenue requirement costs such as congestion, losses, ancillary services, etc.

To mitigate the potential for cost shifting, it is recommended that, at least initially, transmission users pay access charges based on their existing transmission provider's pricing area. The transmission user would pay an access charge, which is analogous to a license plate fee, and then have access to all other areas within DSTAR.