

# Arizona Independent Scheduling Administrator Association

*Review of Draft Protocols Manual  
for Retail Direct Access*

Final Report — October 4, 1999



PRICEWATERHOUSECOOPERS 

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## Appendix A: Detailed Protocols Manual Review

On August 19, 1999, the Arizona Independent Scheduling Administrator Association (AZ ISA) engaged PricewaterhouseCoopers LLP (PwC) to perform a review of its draft Protocols Manual. Our evaluation focused on identifying the following types of issues:

- ⇒ Technical issues that may adversely affect a Control Area Operator's (CAO) ability to effectively operate the transmission system or a Scheduling Coordinator's (SC) ability to submit Balanced Schedules that meet the CAO's validation criteria;
- ⇒ "Gaps" in the protocols that require further development or clarification to remove ambiguities or are inconsistent between the protocols;
- ⇒ Stakeholder and potential Federal Energy Regulatory Commission (FERC) issues regarding whether the Protocols Manual facilitates non-discriminatory retail transmission access without adversely affecting wholesale transmission uses; and,
- ⇒ Identification of the types of data that should be collected by the AZ ISA and retention guidelines to manage the data that will enable the AZ ISA to resolve disputes between Scheduling Coordinators (SCs) and CAOs.

Our observations and recommendations, based on our experience gained from other engagements, include items we believe should be considered by the AZ ISA prior to the Protocols Manual being finalized and filed with the FERC for its consideration. In addition to our overall observations and recommendations, we have included comments and recommendations on the draft Protocols Manual in Appendix A of this report.

## SUMMARY OF WORK PERFORMED

Our observations and recommendations are based on our review of the Protocols Manual, discussions with AZ ISA management, interviews with various AZ ISA stakeholders and the monitoring of one of the AZ ISA's ad hoc Technical Work Group meetings.

On September 1, 1999, PwC attended a meeting of the Technical Work Group to gain a better understanding of the types of data that the CAOs and SCs will need to provide to the AZ ISA to enable it to perform its intended function of ensuring non-discriminatory access to the Arizona transmission system operated by the CAOs.

PwC, in conjunction with the AZ ISA Executive Director, conducted stakeholder interviews from August 27, 1999 to September 10, 1999 to ascertain stakeholder concerns relative to the Protocols Manual; these interviews were conducted both in person and via teleconference.

This work resulted in the observations and recommendations contained in the following sections of this report.

## SCOPE OF WORK PERFORMED

The Protocols Manual is intended to guide the implementation of certain provisions contained in legislation enacted by the State of Arizona and proposed rules promulgated by the Arizona Corporate Commission (ACC). Our project scope was limited to a review of draft Protocols Manual dated August 2, 1999 and did not include the review of individual CAO Open Access Transmission Tariffs, ACC rules or State legislation.

# Observations and Recommendations

## General Recommendations

This section of the report highlights general recommendations for consideration by AZ ISA management as it considers possible changes to the draft Protocols Manual prior to the Protocols Manual being submitted to the AZ ISA Board of Directors for its consideration.

### DELINEATION OF THE AZ ISA ROLE AND RESPONSIBILITIES

As stated in Introduction section of the draft Protocols Manual, the intent of the authors of the Protocols Manual was to define the duties to be performed and the procedures to be followed by the AZ ISA, CAOs and SCs. Based upon our review and discussions, the role of the AZ ISA is not clearly defined and expectations of the AZ ISA contained in the draft Protocols Manual and expressed by stakeholders are not consistent. For example, certain stakeholders believe that the Protocols Manual may allow the AZ ISA some limited ability to take on an appellate function in the resolution of disputes, while others believe that the AZ ISA should be making transmission-related decisions and reviewing the results of scheduling outcomes on a real-time basis.

Based on our analysis of the draft Protocols Manual, we believe that it does not provide definitive guidance on the role and responsibilities of the AZ ISA. Although we did not perform a comprehensive review of the AZ ISA's October 29, 1998 draft tariff filing to the FERC, we read the filing and noted that it sets forth specific duties to be undertaken by the AZ ISA. We recommend that these duties be reviewed, updated (as appropriate) and be incorporated into the Protocols Manual. For example, the Protocols Manual should contain additional details on the mechanics of the dispute resolution process, including timelines, parties affected (i.e., AZ ISA members and/or other parties not affiliated with AZ ISA that could be affected by a dispute) and situations under which the AZ ISA Executive Director (ED) may decide not to initiate the dispute resolution process. A detailed description of the roles, responsibilities

and authorities of the AZ ISA in the Protocols Manual will result in a more transparent process through which the AZ ISA will measure SC and CAO compliance with the Protocols Manual.

### IMPLEMENTATION AND MONITORING OF THE PROTOCOLS

We believe that actual implementation and monitoring of the Protocols Manual will be difficult without further detailed development of the Protocols Manual, as well as the development of detailed operating procedures to support each CAO's implementation of the Protocols Manual. In Appendix A, we have provided detailed observations and recommendations to improve or further develop the Protocols Manual. However, due to the scope and time requirements for this engagement, our review cannot be considered comprehensive from an implementation perspective.

The draft Protocols Manual was developed through a participatory process open to all stakeholders. Consideration and incorporation of our recommendations will require decisions that will affect stakeholders both positively and negatively. The AZ ISA must consider methods and options for making timely, independent judgements with the proper authority and responsibility relative to further development of the Protocols Manual. For example, the TTC Principles in Section 2.5 states that the AZ ISA ED shall lead the AZ ISA Operating Committee (OC) for consistent application of Committed Use determinations within Arizona. Similarly, the ED should chair the OC in the further development of the Protocols Manual. Responsibility for modifications and additions to the Protocols Manual would be the responsibility of the ED. This would serve to centralize responsibility and authority (the ED now has the authority to propose changes to the Board) for development of the Protocols Manual with the AZ ISA staff.

# Observations and Recommendations

## PROTOCOLS MANUAL STRUCTURE, ORGANIZATION AND DISTRIBUTION

We understand that development of the draft Protocols Manual was an extensive process that required more than a year's worth of work by a stakeholder group, known as the OC. In order to improve the implementation of the Protocols Manual while maintaining the intent of the OC, the following recommendations should be considered by management prior to the Protocols Manual being submitted to the AZ ISA Board of Directors:

⇒ *Remove the historical information from the Protocols Manual*

We recommend that management remove the historical information from the introductory section (Section I) of the Protocols Manual. Most of this historical information, albeit important, would be better included in the transmittal letter that would accompany the AZ ISA Tariff and Protocols Manual that must be filed with the FERC. Other information in Section I, including the requirement that SCs are required for the scheduling of energy with CAOs, should be included in the AZ ISA Tariff filing.

⇒ *Eliminate Ultimate Features from the Protocols Manual*

We recommend that management consider removing from the Protocols Manual all references to "Ultimate Features" that are expected to be implemented sometime in the future. Our experience has shown that the FERC has required other entities to remove from their tariffs and protocols functions that cannot be put into practice on the first day of operations.

Inclusion of the Ultimate Features also may lead to confusion and misinterpretation of the Protocols Manual in certain instances. For example, in the Energy Imbalance Protocol, Section 5 outlines an Initial

Features methodology by which Energy Imbalance will be calculated. However, Sections 6 and 8 contain both Initial Features as well as Ultimate Features. Finally, Section 7 discusses Ultimate Features only. Each of these sections contain references to terminology and other sections within the protocol that makes consistent interpretation of the protocol difficult.

In addition, experience gained by all parties during the initial period of AZ ISA operations may result in needed modifications to both the Initial Features and the Ultimate Features. Removal of the Ultimate Features should be done in conjunction with the following recommendation to develop a strategic planning document.

⇒ *Develop a strategic planning document and staging plan that incorporates Ultimate Features concepts*

If management decides to remove the Ultimate Features from the Protocols Manual, these features should be incorporated into a strategic planning document and staging plan that outlines the AZ ISA's short-term and long-term goals and provides details on how the AZ ISA's functions will be incorporated into the planned regional Independent System Operator, Desert STAR. This strategic planning document should clearly delineate for all stakeholders what is "planned" versus what the AZ ISA is "obligated" to put in place at some future time. This will ensure that the OC's intent regarding negotiated items imbedded in the Ultimate Features will be maintained for future consideration by AZ ISA management and the Board of Directors.

⇒ *Development of additional protocols*

We have found that the draft Protocols Manual does not provide sufficient detail on the method of communications to be utilized, the types of data to be transmitted or the parties to whom information is to be

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directed. PwC recommends that the AZ ISA develop a stand alone communications protocol or operating procedure (not filed with FERC) that provides users of the Protocols Manual specific information on how communications will be accomplished. This protocol or operating procedure should include specification of the necessary information to be communicated between the CAOs, SCs and the AZ ISA including, but not limited to, the systems to be used to transmit data (e.g., proprietary network, e-mail, internet, telephone, facsimile), content of any instructions issued by CAOs to SCs, the types of information that should be sent to the AZ ISA (i.e., pre-scheduled, real-time or settlement information) and any timing deadlines that must be observed for such communications.

⇒ *Communication of changes and distribution of the Protocols Manual*

Based upon our experience, we have found that one of the most prevalent problems encountered by stakeholders is their inability to track changes made to protocols and operating procedures. We recommend that the AZ ISA develop and implement a procedure for making changes to the protocols that includes a notice period and a forum for input from interested parties. As the AZ ISA considers changes to the draft Protocols Manual resulting from this report as well as other changes in the future, a document and change control process should be developed and used to ensure that all interested parties have the most up-to-date, official Protocols Manual and other information. The AZ ISA management should consider the use of its website as a bulletin board to post this type of information.

## Protocols Manual Issues

This section of the report discusses overall observations regarding specific protocols or

principles contained in the Protocols Manual. This section should be read in conjunction with Appendix A when considering changes to the Protocols Manual.

### **TTC DETERMINATION PRINCIPLES**

Based on our review of the Total Transmission Capability (TTC) Determination Principles, our understanding is that the CAO is responsible for determining TTC and Committed Uses for its transmission system and the role of the AZ ISA in determining TTC and Committed Uses is limited to CAO “consultation” with the AZ ISA OC.

The TTC Determination Principles also outline specific responsibilities of the AZ ISA ED. These duties include participation in the determination of TTC and Committed Uses within the Western Systems Coordinating Council (WSCC) and leading the AZ ISA Operating Committee for consistent application of Committed Use determinations within Arizona.

It is not clear as to how the AZ ISA and the Executive Director will accomplish its duties and responsibilities to monitor and assess comparability and non-discriminatory access to the transmission system under these conditions.

We recommend that the AZ ISA be responsible for approving each CAO’s application of the methodology developed through the Western Interconnection process to determine TTC and Committed Uses. This will provide stakeholders an independent assessment of transmission capabilities and allocations. In the alternative, the TTC Principles should be removed from the Protocols Manual and the Protocols Manual should explicitly state that the AZ ISA’s role is limited to the monitoring of the allocation of transmission based on pre-determined TTC and Committed Uses calculations determined by the CAOs.

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## ARNT PROTOCOL

We are concerned that a SC's prorata allocation of network transmission capacity based on the respective Standard Offer SC's (SO SC) generation resource mix (i.e., the transmission which has been set aside as a committed use for Retail Network Integrated Transmission Service) may impair the SC's ability to access competitive generation resources to serve retail customers. This may result in a barrier for Competitive SCs and Electric Service Providers to enter the retail market in Arizona. A SC will not necessarily have the same resource mix as the SO SC and, therefore, will not have the same need for the mix of Allocated Retail Network Transmission (ARNT) on each line. Since all SCs will have the same mix of ARNT, either the SCs will be encouraged to purchase resources from the same resources as the SO SC (often at illiquid trading points or from resources owned or controlled by the SO SC) or the SCs will be forced to trade ARNT or generation amongst themselves in an attempt to obtain ARNT on the lines most suitable for their resulting resource mix.

Furthermore, it is not clear to us that a SC's ability to trade ARNT (Ultimate Features) will rectify this apparent impairment. Since allocated transmission capacity at points of interconnection with illiquid markets inherently will be considered by most SCs to be of lower value, it is unlikely that SCs will trade lower valued transmission capacity for higher valued transmission capacity that has access to liquid energy markets.

We understand that the issues of transmission allocation go to the heart of providing for a competitive retail market. Without access to competitive generation resources, a Competitive SC would most likely be unable to serve a retail load at competitive market prices. On the other hand, compensation for increased generation redispatch costs incurred by SO SCs in order to provide transmission access to Competitive SCs on congested paths linking loads to liquid trading points must also be addressed.

We recommend that the AZ ISA OC address the issue of ARNT allocation taking into account the following observations:

- ◆ Competitive SCs must have access to competitive generation resources to economically and competitively serve retail customers.
- ◆ At the current time, liquid trading points with access to the competitive generation market are limited.
- ◆ Costs for redispatch of generation resources (and other verifiable costs) by SO SCs to provide access on a congested path must be considered. Such costs should be considered a transition cost to be recovered by the Utility Distribution Company or otherwise generally applicable to all customers.

## SCHEDULING PROTOCOL

We recommend that management consider increasing the scope of the current Scheduling Protocol by incorporating all deadlines applicable to CAOs and SCs for the scheduling of energy, ancillary services, transmission service and local generation requirements. PwC observed that the protocols are interdependent and include certain duplicative information and sometimes conflicting scheduling requirements. We believe that a more fully developed Scheduling Protocol will ensure consistency of actions and will minimize potential misunderstandings between the CAOs, SCs and the AZ ISA. In the alternative, management should consider developing an appendix to the Scheduling Protocol that provides a timeline account of each function required by all protocols and/or principles from the initial load forecast by CAOs on the 15<sup>th</sup> of the month prior to schedule implementation.

## CONGESTION MANAGEMENT PRINCIPLES

Based on our review of the Congestion Management Principles, we believe that the

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principles do not provide the Protocols Manual users adequate information on how the principles are to be implemented and communicated to affected parties.

The provisions regarding planned or forced outages, curtailments, other unexpected system conditions or unit redispatch required to relieve transmission path loading, should be expanded to include information on how SCs and the AZ ISA will be informed by the CAO of schedule curtailments. At a minimum, these provisions should specify the length of time and types of information that will be retained by CAOs to enable the AZ ISA to facilitate resolution of any disputes. As to which transmission paths are designated as a WSCC Qualified Paths and the potential effect on SCs associated with the implementation of the WSCC Unscheduled Flow Mitigation Procedure, these issues should be addressed in these principles.

## OTHER PROTOCOLS

Our comments and recommendations in Appendix A have been made to clarify and to add specificity to the protocols in order to reduce the possibility of misinterpretation and to clarify the protocols' intent. We also recommended development of detailed procedures and additional definition of terms in order to implement the protocols and to ensure common understanding.

## Potential FERC Issues

This section of the report summarizes the major potential issues that the FERC may identify with regard to the Protocols Manual and its comparability to FERC Order 888. Other potential FERC issues are included in the detailed review of the draft Protocols Manual in Appendix A. These observations are based on our experience working with other clients and should not be construed as legal arguments for the purposes of filings with FERC without proper legal review.

## RESERVATION OF TRANSMISSION CAPACITY

FERC may consider the Protocols Manual's reservation of transmission capacity for retail use (i.e., CU1) for up to one year for SCs based on CAO and SC retail network load projections to be in conflict with Order 888. FERC requires that available capacity reserved for native load be posted on the Open Access Same-Time Information System (OASIS) and be available to others "except when actually needed to serve native load." The AZ ISA should verify through its FERC counsel that reservations of transmission capacity (on specific transmission lines) as CU1 can be made upon these load projections as opposed to contracted generation resources.

## FIRM ENERGY AND OPERATING RESERVES

The Protocols Manual indicates that a SC's spinning or non spinning reserve obligations will not be reduced by any firm purchases (i.e., firm imports into the control area). The effect of this provision is that the SCs must either self-provide or pay the CAO for additional operating reserve. We understand that WSCC operating criteria (for wholesale transactions imported by the CAO to serve retail load) provide that firm exports over firm transmission include the obligation by the exporting CAO to include these exports in its calculations of operating reserve requirements. In addition, the WSCC operating criteria allow the importing CAO to exclude the firm import from its calculations of operating reserve requirements relative to total demand calculations (not single largest contingency calculations). Hence this firm import may reduce the importing CAO's obligations to provide operating reserve (if (1) the CAO's operating reserve is based on a percentage of total CAO load and (2) the import does not increase the CAO's Most Severe Single Contingency (MSSC), as defined by WSCC over this percentage total). Conversely, if the import is over a transmission element that constitutes the CAO's MSSC and the CAO's operating reserve



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requirements are based on this amount, the operating reserve requirement for the CAO will increase on a one-to-one basis with the firm import.

We understand that under direct access, the CAO will no longer be financially responsible for providing operating reserves for loads served by a third party. However, the CAO must physically consider all load within its control area when calculating necessary operating reserves. Therefore, the SC becomes financially responsible for operating reserves related to the load it serves. The issue of whether operating reserves associated with firm energy imports should be treated differently under direct access versus a wholesale transaction should be described in the AZ ISA's tariff filing. This should include the rationale for requiring SCs to purchase operating reserves according to the CAO's Open Access Transmission Tariff schedule (i.e., at a fixed percentage amount) when the requirements for such reserves for reliability purposes (as defined and described by the WSCC) will vary between zero and one hundred percent, dependent upon the CAO's total demand level and MSSC.

### ENERGY IMBALANCE PRICING

The draft Energy Imbalance Protocol's method used to calculate Energy Imbalance prices results in charges to Competitive SCs at the higher of System Incremental Cost (SIC) or Market Price for under generation, and payments at the lower of SIC or Market Price for over-providing generation. The definition of System Incremental Cost is computed as "the highest-cost dispatchable generation and/or third-party purchases made by the real-time operators incurred by the Control Area Operator up to an amount of energy equal to the system net energy imbalance." The "third-party purchases" referred to in this computation may or may not include the Market Price (as defined). Therefore, the CAO will always recover its costs (real or opportunity costs) or make a profit (when Market Price is greater than SIC) when supplying

imbalance energy and the CAO will always pay the lowest available cost when taking imbalance energy. In addition, to the extent that a CAO's decremental cost or the Market Price is lower than the SIC, the CAO may profit from taking imbalance energy. Since the CAO also has control over the contractual requirements to self provide imbalance energy, this may be a market power issue with the FERC.

We understand that the owner of generation providing imbalance energy may incur either a real cost (to increase generation from its Automatic Generation Control (AGC) resources) or an opportunity cost (loss of the ability to otherwise sell generation at a market price higher than the real cost to increase generation from its AGC resources) when supplying imbalance energy. We understand this to be the reason for the "higher of" provisions when accounting for under supply. However, the inclusion of "third-party purchases" in the calculation of SIC (as opposed to the system lambda of the AGC resources) creates circumstances under which the imbalance energy provider may realize an excess profit above its opportunity costs. Therefore, we recommend that third party purchases be excluded from the definition of SIC.

### Data Requirements

Our engagement for this project included the identification of the types of data that should be collected by the AZ ISA and retention guidelines to manage the data that will enable the AZ ISA to resolve disputes between SCs and CAOs. However, as described above, the role and responsibilities of the AZ ISA are not well defined. Hence, at this time we have not fully defined the types of data required by the AZ ISA to perform its functions.

Currently, the AZ ISA has no system to collect and analyze electronic data that is transmitted between CAOs and SCs. The AZ ISA must have access to certain types of scheduling data for it to fulfill its oversight mission of ensuring non-discriminatory transmission access to entities

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servicing retail load. For example, the Scheduling Protocol defines day-ahead and hour-ahead scheduling activities that are to be undertaken by both CAOs and SCs and real-time system operations to be performed by CAOs. The iterations and final results of these activities must be communicated to the AZ ISA for it to analyze parties' compliance with the Protocols Manual and to resolve any disputes that may arise.

We understand that two of the CAOs, Arizona Public Service and Tucson Electric Power, and one transmission provider, Arizona Electric Power Cooperative, have been developing a system based on the use of North American Electric Reliability Council (NERC) Tags (or E Tags in the future) that would be used by the CAOs<sup>1</sup> and SCs to schedule retail transactions for both day-ahead and hour-ahead energy scheduling. In addition, we understand that Salt River Project, as a CAO, currently operates a communication system called SRP CAOnet that allows SCs to schedule retail transactions with SRP.

Ultimately, each SC will be responsible for ensuring that each schedule and associated NERC Tag is correct and that the sum of its schedules is submitted to the CAO in a balanced schedule.

Although the data fields to be added to NERC Tags that will be used in Arizona to implement retail access have yet to be finalized by the CAOs and the AZ ISA, it is important to point out that each schedule submitted by a NERC Tag may consist of approximately twelve data points (i.e., product type, resource ramp rates, beginning and ending times, etc.). Depending on the quantity of retail schedules originated under the Protocols Manual and the quantity of wholesale transactions, it may become difficult

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<sup>1</sup> For the purpose of this discussion on data requirements, the term "CAO" should also include reference to the transmission provider.

for the AZ ISA to manage the flow of data in the early months of its operation.

We recommend that prior to the AZ ISA finalizing the format of NERC Tags for retail transactions, that all stakeholders be given the opportunity to review the content of the proposed Tags and provide input to the AZ ISA and CAOs.

Based on the NERC Tagging format for retail schedules not being completed, the existence of gaps in the scheduling timeline, protocols and principles, and the specific responsibilities of the AZ ISA not yet delineated, we recommend that PwC's identification of the data requirements and retention guidelines be postponed until these issues have been addressed.

## Stakeholder Issues

This section of the report outlines some of the major concerns expressed by stakeholders during our interviews. This is not a complete listing of issues brought to our attention nor does this listing indicate PwC's perspective relative to the issues raised. However, all issues and concerns that were brought to our attention during the stakeholder interviews have been considered for information during our analyses.

### Must-Run Generation

Some stakeholders expressed concerns that the methodology used to calculate fixed and variable must-run generation charges are not clearly defined for each of the CAOs and that the Protocols Manual allows for these costs to be allocated to both retail and wholesale end-use customers. In addition, some stakeholders expressed concern over market power issues relative to CAOs being the sole provider of must-run generation in their respective control areas, at least until planned merchant plants are constructed.

### ARNT

Most participants indicated that the methodology used to allocate ARNT would result in an

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operationally complex process that ultimately may not be workable until a mechanism to trade ARNT is established. More specifically, stakeholders are concerned with the allocation of small percentages of transmission capacity on numerous paths that may be insufficient to transmit energy from the specific generation resources of the stakeholder to retail loads. In addition, stakeholders expressed concern that the concept of exchanging generation output among SCs to align generation to available transmission allocations may not be workable.

## Committed Uses

Several stakeholders are concerned that the methodology to determine Committed Uses for the various CAOs is unclear, may adversely affect existing wholesale transmission customers and will lead to disputes.

One stakeholder is concerned that the process to allocate transmission capacity annually based on CAO and SCs retail network load forecasts and retail generation resources may be in conflict with the requirements of FERC Order 888 that requires the specific identification of resources or contracts in order for transmission capacity to be reserved for retail use.

## Congestion Management

One participant pointed out that the Protocols Manual contains only principles associated with transmission congestion, not specific details on how congestion will be mitigated. The application of pro-rata curtailments to many small SC schedules may be operationally complex and unworkable. This stakeholder proposed that AZ ISA should develop a simple congestion management program that is easy to administer and monitor, leaving the more difficult aspects of transmission congestion to Desert Star.

## Energy Imbalance Service

Several participants are concerned that Competitive SCs are exposed to Energy Imbalance charges and penalties whereas Standard Offer SCs serving bundled customers

are not since these Standard Offer SCs are “deemed” to have balanced schedules. Also problematical is the concept of CAOs charging Competitive SCs the higher of System Incremental Cost or the Market Price of energy, but only paying Competitive SCs the lower of SIC or Market Price.

## Firm Imports

Stakeholder comments regarding firm energy imports and the statement in the protocols that SC’s operating reserve obligations will not be reduced by firm purchases identify a point of contention. Some stakeholders believe that the reserves should be used to satisfy a portion of the importing control area’s operating reserve requirements while others believe that the importing control area’s inability to “activate” these reserves diminishes their value.

## Scheduling Coordinator Certification

One stakeholder expressed its preference that the AZ ISA develop one statewide SC certification process that would be used by all CAOs. In the alternative, this same stakeholder indicated that if the CAOs develop individual SC certification criteria, the AZ ISA should not establish yet another certification criteria that would be in addition to the CAOs. Lastly, one stakeholder expressed that it does not want to take on the obligations of a SC that defaults, rather this stakeholder believes that the CAO should be the party that assumes the functions of a SC that is in default.