

Results of User Survey:

Functional and Information Needs for a Transaction Management System Market Interface (OASIS Phase 2)

June 12, 1998

Prepared for EPRI

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1.0 Introduction

FERC's mandate for "Open Access" to transmission networks requires new information systems to support implementation of a deregulated market. OASIS (Open Access Same time Information System) is one of these systems. Its main purpose is to allow Transmission Customers to reserve transmission service and arrange ancillary services. In order to meet the start date required by FERC for open access, a phased approach was agreed upon for OASIS. Initially, there was to be Phases 1 and 2. This was changed to Phases 1, 1a and 2 to accommodate interim changes required by FERC's policy on price negotiations for transmission service.

The OASIS How Working Group decided to utilize a survey to gain an understanding of what the various market participants believed the OASIS needs to be in 2-3 years. This information would be useful in preparing a draft document by November 1998 for FERC, defining requirements for the development of a Phase 2 OASIS/Market Interface. The survey would also be useful in establishing the user needs for the Transaction Management System (TMS) conceived by the North American Electric Reliability Council (NERC). Part of the TMS is a Market Interface, which is the equivalent to the OASIS Phase 2 Interface.

The survey was sponsored by the How OASIS Working Group and the NERC Security Process Support System Task Force (SPSSTF). It was facilitated by EPRI and NERC.

2.0 Objectives

The objectives of the Phase 2 OASIS survey were:

1. Determine the additional needs of the various market participants in 2-3 years for Phase 2 OASIS.
2. Determine market participants' views on where technology standards are heading in 2-3 years.
3. Compare information needs among the different market participants e.g. time to complete a transmission reservation etc.
4. Identify any concerns on data confidentiality and security.
5. Identify necessary interfaces to other systems (existing and new) in order to meet performance requirements.
6. Determine the need to standardize systems and Graphical User Interfaces to facilitate operations and reduce errors and the need for special software applications.

3.0 Methodology

Users of Phase 2 OASIS information will expand in the future as a more fully defined and functioning process for electronic energy scheduling is defined. Therefore, the OASIS Phase 2 Survey focus was on gathering information from the following market participants:

- Transmission Customers
- Transmission Providers
- Control Areas

- Security Coordinators
- Independent System Operators
- Power Exchanges
- Others

The Phase 2 OASIS survey is based on the Phase 2 OASIS/Market Interface encompassing four broad functional areas. These four areas were described in a report filed on November 3, 1997, entitled "Industry Report to the Federal Energy Regulatory Commission on the Future of OASIS". The first two of the functional areas are presently supported in full or part by Phase 1 OASIS. The latter two functional areas are new. The four functional areas are:

1. **Reserving Transmission Capability** - Transmission Customers may reserve transmission capability for the purpose of scheduling its usage at a later time.
2. **Arranging Ancillary Services** - Transmission Customers may arrange for ancillary services in association with transmission services.
3. **Scheduling Energy Interchange Transactions** - Transmission Customers may schedule the flow of energy using reserved or existing transmission rights.
4. **Constraint Management** - Transmission Customers have access to system constraints, transaction curtailments, and mitigation alternatives, in order to more efficiently schedule transmission uses and to manage risk.

The survey consisted of 209 questions divided into eight sections. The first section was used to establish the background and affiliation of the respondent. The next six sections were then used to evaluate the needs of each of the classes of OASIS Users listed above. Section 8 provided a list of possible OASIS Phase 2 information requirements and asked all the respondents to rate these items based on importance. Many questions asked for a response based on both present operations and what the respondent expects in 2-3 years.

The survey was widely distributed in an attempt to include as many market participants as possible. Those that received the surveys were asked to respond by April 30, 1998.

Surveys received were audited for completeness, data responses and if respondents answered applicable sections of the survey. The surveys were entered into a Microsoft EXCEL data base for archiving and for ease of data manipulation for averaging answers, determining ranges etc. The data base can also be a useful tool for continued support of the project and to compare how well the survey information matches with actual future results. The database is provided as part of the report, with the identity of respondents removed.

An average of the responses was calculated for each survey question. A range of responses is indicated, where applicable. The Results section of the report analyzes the survey responses to all of the questions. This analysis identifies areas in which there was broad agreement in the average values and areas in which there were wide disparities in the responses.

4.0 Survey Results

As previously stated, the survey had sections specific to each type of market participant, as well as a section for all to answer. The sections were as follows:

- Section 1 Tell Us About Yourself
- Section 2 Transmission Customers
- Subsection 2a Transmission Reservations
- Subsection 2b Next Hour Business
- Subsection 2c Energy Transaction Scheduling
- Section 3 Transmission Providers
- Section 4 Control Areas
- Section 5 Security Coordinators
- Section 6 Independent System Operators
- Section 7 Power Exchanges
- Section 8 Phase 2 OASIS/Market Interface Information Requirements
- Subsection 8a Administration
- Subsection 8b Transmission Reservations
- Subsection 8c Energy Transaction Scheduling
- Subsection 8d Ancillary Services
- Subsection 8e Constraint Management

Detailed responses for each question are provided in Appendices A and B.

4.1 Survey Response Overview

Listed below is a summary of the respondents to the survey. Some surveys contained responses which integrated multiple departments of an entity, so the organization types add up to more than the total number of surveys received.

- 57 surveys in Excel data base
- 37 responses from Transmission Customers
- 21 responses from Transmission Providers
- 22 responses from Control Areas
- 9 responses from Security Coordinators
- 3 responses from ISOs
- 1 response from PX

Survey responses entered into the EXCEL data base include:

- APS Resource Operations
- AYP Energy Inc.
- Allegheny Power Co.
- Aquila Energy
- BC Hydro Grid Operations
- Board of Public Utilities

- Boston Edison
- Carolina Power & Light
- Central Illinois Light Co.
- Central Maine Power Co.
- Cinergy Corporation
- Commonwealth Edison
- Commonwealth Electric Co.
- Dayton Power & Light
- Detroit Edison Co.
- Duke Energy
- Ener Z Corp.
- Florida Power Corp.
- Florida Power & Light
- Florida Municipal Power Agency
- Idaho Power Co.
- ISO New England Inc.
- Kansas City Power & Light
- City of Lakeland
- Missouri Basin Municipal Power Agency
- Montaup Electric
- Montana Power
- Northern States Power
- Nevada Power
- New York Power Pool
- New York State Electric & Gas
- Power Resource Managers
- PJM Interconnection
- Public Service New Mexico
- Public Service Electric & Gas
- Rochele Municipal Utilities
- SCANA
- South Carolina Electric & Gas
- Santee Cooper
- Western Area Power Administration
- Southern Company
- Southwest Power Pool
- Tuscon Electric Co.
- Tennessee Valley Authority
- Utility Service Corp.,
- Vermont Electric Power Co.
- Western Resources
- Wisconsin Electric Power
- Wisconsin Public Service
- Wisconsin Public Power

The detailed summary in Appendix A provides averages response for each survey question. Comments are provided for those answers for which a simple average may be misleading. This would include an average between extremes, or where there are few responses to questions.

Appendix B contains the priority rankings information needs. This Section 8 summary is integrated for all classes of OASIS Phase 2 Users.

4.2 Section 2 Transmission Customers

Subsection 2.a Transmission Reservations

- The peak and average number of reservation requests is expected to double in the next two to three years for hourly, daily, weekly, monthly and yearly service.
- Most reservations are made one hour to one day ahead of the start time, followed by less than one hour, and then by more than one day and less than one week . A small percentage (6.5%) of reservations are made more than a month before start time.
- The vast majority of reservation requests (91%) are presently made using the Internet GUI interface. In two-three years, it is expected that this will decline as more use cpu-cpu (1% to 11%) and Value Added Service Providers (2.9% to 13.9%).
- The number of OASIS connections is expected to double in the next two to three years.
- There is great concern regarding the OASIS process responsiveness for reserving transmission one hour or less before start time in two to three years. Most feel that private rather than Internet connections will be needed to increase capability of OASIS process for next hour reservations (4.1 vs 3.2 on a scale of 1-6, with 6 being strong agreement)
- The average time required in two to three years to complete the overall transmission reservation process including approval and confirmation is expected to be:

hourly	13.9 minutes	range of answers 1-60 minutes
daily	54.3 minutes	range of answers 3-240 minutes
weekly	8.4 hours	range of answers 5min.-2days
monthly	4.7 days	range of answers 1-90 days
yearly	14.8 days	range of answers 1-180 days

It is interesting to note that there is a wide disparity in the ranges of answers. It may be worthwhile to investigate the reasons for this.

- There is no agreement on the use of one Transmission Provider for the majority of transmission reservations in two to three years. This is true as well for the number of OASIS nodes that will be used for reservations.
- Most Ancillary Services (AS) are either self provided or purchased from the Transmission Provider (42% and 60%). This is expected to hold true in two to three years, as well. This says that Third Parties are not expected to be major players in the AS market. It is interesting to note that the sum of the percentages for the three possible answers add up to over 100%.
- There is strong agreement on Customers being told what AS are required, but Customers would like to have flexibility in buying AS (4.9 on a scale of 1-6)
- Most have great difficulty in identifying transmission paths that meet their operational needs.

- There is strong agreement that OASIS information is less than adequate for ATC, record keeping, audit logs and pricing for transmission services and AS.
- Very strong agreement on having standard software and GUI packages
- Flexibility in changing points of receipt/delivery to alternative points of receipt/delivery is desired.
- The importance of the secondary transmission market will be of greater interest to most companies in two to three years.

Subsection 2b Next Hour Business

- Most next hour energy scheduling uses non-firm hourly transmission service arranged at about the same time as the schedule is arranged, as opposed to a day or more ahead of time.
- An one-stop reservation and scheduling capability is a high priority for Transmission Customers.
- Most prefer to complete the next hour energy transaction process in less than five minutes.
- The ability to conduct next hour business is greatly hampered by the present OASIS. Major concerns are response time from when request is submitted, number and complexity of steps to make a reservation and the multiple systems needed for reservation and scheduling.
- Organizations believe that negotiating transmission and AS prices, as well as issuing a separate confirmation are not needed for next hour transmission reservations.

Subsection 2c Energy Transaction Scheduling

- Most energy interchange transactions are between two adjacent control areas (47.2%), followed by a single control area or transmission provider (35.9%) and more than two control areas or transmission providers (26.3%). In two to three years the expectations are about the same.
- There is a strong desire for a single system for purchasing and selling of transmission and AS, energy interchange transaction scheduling and curtailment notification.
- Would like in future to have NERC security tagging automatically handled as a component of schedule management.
- Negotiating price for transmission service is not considered a key factor in consummating an energy deal.
- There is strong concern for using an OASIS-like system for energy transaction scheduling. All items were rated 4.4 and above on a scale of 1-6. Major items were: response times, number of steps and information needed, as well as lack of notification when there are status changes.
- Most don't want information on their energy transactions disclosed to all parties to the transaction, including other merchants.
- Strong consensus on keeping energy prices confidential (5.3 on a scale of 1-6). All other items rated between 3.3 and 4.6.
- If transactions are to be curtailed due to system constraints, most believe it would be on one specific transmission providers system. That is not expected to change appreciably in two to three years.
- Most want the option to pay for re-dispatch to relieve a constraint rather than curtailment. This is true for both firm (5.3 on a scale of 1-6) and non-firm (4.5).
- There is not a strong desire (3.6 on a scale of 1-6) in two to three years to be able to reserve transmission and schedule energy flow based on actual flows versus contract path.
- Use of standard scheduling systems across North America is strongly preferred to the continued use of custom systems.

- Most prefer to use transmission system models including AC load flows with parallel flows and voltage effects of transmission that more closely match the physical system in two-three years.
- This is also true for commercial model of the transmission system used for reservations and scheduling to be more closely aligned with the physical models used for security assessment and curtailments.

4.3 Transmission Providers

- While most presently use the OASIS front end and the Internet to input and retrieve information, there is no consensus on continued use of them in the future. There was a split in how the respondents rated this item between 1 and 6.
- Some don't use OASIS at the present.
- Most expect to increase the number of transmission customers for whom they will provide services by one third in two to three years.
- The number of private, other than Internet, OASIS connections is expected to increase greatly in the future.
- A large increase in the number of peak and average reservations is expected in two to three years. The range is from 200 to 600% for hourly, daily, weekly and monthly reservations.
- The average time required in two to three years to complete the overall transmission reservation process including approval and confirmation is expected to be:

hourly	10.3 minutes	range of answers	.1-60 minutes
daily	45.4 minutes	range of answers	.1-240 minutes
weekly	8.2 hours	range of answers	.1min.-12 hours
monthly	5.4 days	range of answers	.1min.-60 days
yearly	19.8 days	range of answers	.1min.-120 days

There was a wide disparity in times that were given for the transmission customers. A range of .1 minutes to 120 days is very large, although the .1 minute answer was from one company. There was fairly close agreement on the average answers between the transmission customers and providers on this question. The average answers appear to express the desired requirements for most of the market participants.

- As with the transmission customers, most providers presently use the Internet GUI, but expect an increase in two to three years in cpu-cpu connections with the transmission customer. Not much anticipated use of Value-Added Resellers in the future.
- Major performance areas of concern are the Internet, data bases and interfaces to other systems. There is not a large concern for cpu and hardware system performance and their own back end applications.
- Strong preference for one system for customers to use for transmission services, AS and energy scheduling.
- Most prefer a single transaction for the above, as well.
- Most want transmission tagging to be an OASIS capability.
- There is a desire to use WEB based technology for customers to input their transaction schedules.
- The areas of concern for providers using a system similar to OASIS for scheduling is:
 - timeliness in receiving critical information;
 - security of their systems connected to OASIS;

- reliability of data input by customers;
- back end requirements to integrate new OASIS with existing energy
- scheduling functions.

4.4 Control Areas

- There was no consensus as to the increase expected in two to three years in the number of entities that will schedule energy transactions into or out their control area. About half thought it will increase, while the other half thought it would remain about the same.
- The majority expect interchange transaction schedules to be approximately double the present number in two to three years for both peak and average.
- Most control areas use either phone (45.8%) or NERC tagging form (40.4%) to process transaction schedules. Most expect a large increase in electronic systems, both Internet (13.6% to 34.1%) and non-Internet (11.9% to 24.8%), in two-three years.
- Average time needed to evaluate and approve a request to schedule an energy transaction:
 - simple transaction with pre-approved transmission 15.2 minutes range of answers 1-60 minutes.
 - complex transaction requiring system study 6.5 days range of answers 1 minute - 28 days.
 - transaction submitted for next hour with pre-approved transmission reservations 14.5 minutes range of answers 1-60 minutes.
- Once again, as with the transmission customers and providers there is strong agreement on a single system for processing transmission services, AS and energy scheduling.
- Agreement on use of WEB technology to allow transmission customers to input transaction schedules.
- As with transmission providers, desire transaction tagging to be included in the next generation OASIS.
- Control Areas have the same concerns as transmission customers and providers on the use of OASIS (timeliness, data reliability and back end integration).
- Would like to be able to use phase 2 OASIS data for scheduling and confirmation with other Control Areas.

4.5 Security Coordinators

- The number of control areas and transmission providers in each area of responsibility is not expected to increase in two to three years. The number of transmission customers and merchants selling transactions is expected to double in that time frame.
- Most presently use ICCP or TCP/IP for data exchange. An increase in the use of TCP/IP is expected in two to three years. Note that the use of ICCP or TCP/IP are not exclusive to one another. ICCP can transport using either the OSI seven layer stack or TCP/IP.
- Majority of respondents believe most of system security data will originate within their region in two to three years.
- Respondents think additional information regarding energy interchange transactions occurring on systems in adjacent regions and certain types of interchange transaction occurring on systems in

adjacent regions will be needed to perform their function properly. It was not thought necessary for the same information to be available for remote regions

4.6 Independent System Operators

- Most believe that scheduling requirements are unique to their organization, and, therefore, prefer to use systems that are custom rather than a common scheduling interface throughout North America.
- Most feel it would be difficult to adapt their scheduling processes to accommodate national standards for interstate commerce.
- Information needed from Phase 2 OASIS/Market Interface includes transmission reservations, but not transaction details, AS arrangements or IDC.
- All strongly believe that in two to three years the following will be in use: vendor supplied EMS customized to their unique needs, in-house developed software applications and Internet based information systems.
- Most transactions will continue to be internal (within ISO), versus external (cross ISO boundary) in two to three years. Presently 73% internal, 27% external; future 63% internal, 37% external.
- The transaction scheduling period within the ISO is and will remain hourly and day ahead.

4.7 Power Exchange

There was only one PX response. The results reflect that single view.

- The PX questions were the same as the for the ISOs. The responses given match those of the ISO above, except that the PX believed they needed Phase 2 OASIS/Market Interface information on transaction details and AS arrangements as well as transmission reservations to perform their function.

4.8 Information Requirements

Of the 63 questions in this section, only nine (14.3%) received an average answer of less than four on a scale of 1-6. Using a cutoff of 5.0, only 16 items (25.4%) received an average answer of five or higher. These highest priority items are listed below by subsection.

Administration

- Standard product names
- Standard path names
- Standard Points of Receipt/Points of Delivery

Transmission Reservations

- Current ATCs for future time horizons for each path
- ATC values adjusted within minutes following reservations
- Their own reservation records
- Transmission customer confirm reservation request which was approved

Energy Transaction Scheduling

- Identify each transaction by unique transaction ID number
- Sending and receiving control areas for transaction
- Status of transaction (approved, denied, reasons etc)
- Modify an existing transaction prior to scheduling period

Ancillary Services

- Description of which ancillary services are necessary

Constraint Management

- Curtailment priority of their transactions
- advance notice of pending curtailments/system constraints
- Immediate notification of their transactions which are curtailed
- Preferences for re-dispatch and curtailment options

5.0 Implications for TMS Requirements

The survey results allow several key conclusions related to the design and architecture of the NERC TMS:

- Most transaction business will take place in the next hour. In fact, the estimates show there will be four times as much hourly business as there will be all other time horizons combined. Next day business will be the second most significant.
- Transmission customers expect a fast response time (14 minutes) from the time a reservation and schedule are submitted until the entire deal is confirmed.
- Transmission customers appear willing to forego price negotiation and are willing to pre-confirm these transactions in order to achieve the fast turn around times.
- One-stop processing is critical - the reservation and energy schedule must be combined for the next hour business (which as mentioned above is most of the business).
- Key elements of the Constraint Management interface ranked very high: fast notification of curtailment, information about problems on the transmission system that may impact curtailments, and flexibility in redispatch options and curtailment options.

6.0 Conclusions

The Results section of this report contains information to guide Phase 2 OASIS design and development. The detailed responses from the market participants in Section 4 for the most part clearly state the present and future needs of the various participants. The following conclusions are meant to point out some aspects that are in conflict and where further investigation and/or work would be beneficial to a successful implementation for Phase 2 OASIS.

Some of the results show a conflict in what respondents would like to have versus the reality of what they presently have. This is clearly brought out by the very strong desire for standard software systems and GUIs to support market functions, as well as a one system does all required functions. This is in

contrast to the strong expectation that EMSs and in-house software applications “customized for specific needs” will continue to play a dominant role in the future. This once again the question of “How do you proceed to systems based on standards without throwing out all of the legacy systems?” It is a question that needs to be answered in a way that will allow the market to continue to function without undue operational or financial consequences.

There were also instances of lack of consensus on the size and requirements of the market in two to three years. While, most market participants thought the market transactions would double, there were a number of response that believed there would be little change from the present. The averages clearly support a market that will double in size in two - three years.

There was a split in the answers of those who presently and in two - three years want information for transaction, transmission and generation information. Between ICCP and TCP/IP. ICCP is a top layer protocol, while TCP/IP is a transport protocol. ICCP can transport over either TCP/IP or OSI . It was not a question that is either or. A better question is will ICCP support the exchange of information required for the new market,

There is a strong emphasis on each participants own needs that are internal to its own organization’s operational needs. This is to be expected, but brings out the need for an oversight body to focus on the large picture of coordination and standardization for all the market participants.

Another area of note is the continuing concern for the ability of the Internet to support present and future market functions, while at the same time there is a strong desire to expand the role of WEB based technology. This shows a comfort with the technology, but uncertainty for its ability to meet the requirements for security, response time and data integrity.

The continued use of OASIS was also questioned by a number of respondents. It focused on Internet concerns, but also the lack of needed information from OASIS to support market participants data requirements. This leads to the question of whether a phase 2 OASIS can be designed and implemented to meet the needs of all market participants. The answer is this can be accomplished if the necessary resources and oversight are applied. Standardization must proceed, if we are to have a viable market.

Survey Instructions

Please complete the appropriate sections of the enclosed survey and return your response by April 30, 1998 to the address below.

It is preferred that each company responding provide a single consolidated response for each of the target audiences listed below. If the answers to the survey would be similar for more than one target audience, then a single response for multiple areas is preferred. For example, a company with an affiliated power marketer and serving as a transmission provider should submit one survey response as a Transmission Customer and a separate response as a Transmission Provider. A company that serves as a Control Area, Transmission Provider, and Security Coordinator may consolidate those responses into a single survey, if the answers would be consistent across all three responsibility areas.

Target Audience: (One survey response per company per area, or consolidate several areas if appropriate.)

- 1) Wholesale Transmission Customer (TC)
- 2) Transmission Provider (TP)
- 3) Control Area Operator (CA)
- 4) Security Coordinator (SC)
- 5) Independent System Operator (ISO)
- 6) Power Exchange Coordinator (PX)

Please return survey responses by April 30, 1998 to:

OASIS Survey
ENERGYPRO Services
1427 Montelegre Drive
San Jose, CA 95120

Responses may also be returned electronically by email to:
<gcauley@worldnet.att.net> and <tdevaney@worldnet.att.net>

For questions regarding the survey, please contact Terry Devaney at 408-532-7185. Some respondents may be called for more detailed information. If you feel that a telephone interview would be helpful in defining Phase 2 OASIS / Market Interface requirements, please indicate so at the end of the survey.

Proceed to the next page to start the survey.

Section 1 – Tell Us About Yourself

<i>Question</i>	<i>Fill in response</i>
1 a. Your name	a. _____
b. Your job title or brief description.	b. _____
c. Your organization name	c. _____
d. Your phone number	d. _____
e. Your email address	e. _____
2 For which responsibility area(s) are you responding?:	<i>Circle 'Yes' for all that apply.</i>
a. Transmission Customer	a. Yes (complete Sections 2 & 8)
b. Transmission Provider (OASIS Node: _____)	b. Yes (complete Sections 3 & 8)
c. Control Area	c. Yes (complete Sections 4 & 8)
d. Security Coordinator	d. Yes (complete Sections 5 & 8)
e. Independent System Operator	e. Yes (complete Sections 6 & 8)
f. Power Exchange	f. Yes (complete Sections 7 & 8)
g. Other: (_____)	g. Yes (complete appropriate sections)

Remember - you are answering the survey from your organization's perspective. The responses that you provide will remain confidential. Only aggregated results will be made public.

Turn to the appropriate section and proceed. All respondents should complete Section 8.

Section 2 – Transmission Customer

<u>Section 2a Questions – Transmission Reservations</u>		<u>Response/Ranking</u>
1.	What is the number of OASIS reservation requests of <u>all types</u> that your organization submits <i>now</i> and <i>expects to submit in 2-3 years</i> :	<i>Now</i> / <i>in 2-3 Years</i>
	a. <u>Peak</u> number of reservations submitted in any one hour?	a. <u>7.8 / 15.6</u>
	b. <u>Peak</u> number of reservations submitted in any one day?	b. <u>57.6 / 139.0</u>
	c. <u>Peak</u> number of reservations submitted in any one week?	c. <u>272.4 / 551.7</u>
	d. <u>Peak</u> number of reservations submitted in any one month?	d. <u>1233.5 / 1657.6</u>
	e. <u>Average</u> number of reservations submitted per month.	e. <u>611.0 / 1169.6</u>
2.	For each type service, how many reservations does your organization make <i>now</i> or <i>expect to make in 2-3 years</i> on a <u>per month average</u> ?	<i>Now</i> / <i>in 2-3 Years</i>
	a. Hourly service	a. <u>459.0 / 843.5</u>
	b. Daily service	b. <u>108.5 / 195.8</u>
	c. Weekly service	c. <u>8.1 / 26.3</u>
	d. Monthly service	<u>6.1 / 24.5</u>
	e. Yearly service	<u>1.2 / 4.2</u>
3.	What percentage of your organization's transmission reservations are made (<i>be sure the answers add to 100% in each column</i>):	<i>Now</i> / <i>in 2-3 Years</i>
	a. More than one year before the start time?	a. <u>3.6 / 5.2</u>
	b. Between one month and one year before the start time?	b. <u>2.9 / 5.3</u>
	c. Between one week and one month before the start time?	c. <u>11.5 / 10.7</u>
	d. More than one day and less than one week before the start?	d. <u>22.0 / 17.6</u>
	e. More than one hour and less than one day before the start?	e. <u>35.1 / 37.3</u>
	f. Less than one hour before the start time?	f. <u>30.9 / 27.7</u>

<u>Section 2a Questions – Transmission Reservations</u>	<u>Response/Ranking</u>
4. What percentage of your reservation requests does your organization make through (<i>be sure the answers add to 100% in each column</i>):	<i>Now / in 2-3 Years</i>
a. The Internet GUI interface (Web Browser)?	a. <u>91.0 / 72.3</u>
b. Computer-to-computer data exchanges?	b. <u>1.0 / 11.4</u>
c. A value-added service provider?	c. <u>2.9 / 13.9</u>
d. Other (e.g. phone, fax, or _____)?	d. <u>11.5 / 9.0</u>
5. OASIS connections right <i>now</i> and <i>expected</i> in 2-3 years:	<i>Now / in 2-3 Years</i>
a. How many Transmission Providers does your organization typically purchase transmission services from using public Internet access?	a. <u>8.2 / 19.9</u>
b. How many private, dedicated OASIS connections (i.e. not through the public Internet) does your organization have with Transmission Providers?	b. <u>0.9 / 1.9</u>
c. How many OASIS nodes does your organization typically conduct business on?	c. <u>3.9 / 8.2</u>
d. With how many Transmission Providers does your organization routinely make reservations verbally or by fax?	d. <u>1.6 / 2.0</u>
6. You expect that <i>in 2-3 years</i> the OASIS process will be able to respond quickly enough for you to reserve transmission one hour or less ahead of the schedule start time, if your organization uses:	<i>1 – Strongly Disagree ... 6 – Strongly Agree</i>
a. Private connections	a. N/A 1 2 3 4 5 6 (4.1)
b. The Internet	b. N/A 1 2 3 4 5 6 (3.2)
c. Only selected OASIS nodes	c. N/A 1 2 3 4 5 6 (3.3)
d. This statement is not true - OASIS will not work for next hour reservations.	d. N/A 1 2 3 4 5 6 (3.0)
e. This statement is true - OASIS already works for next hour.	e. N/A 1 2 3 4 5 6 (3.0)

<u>Section 2a Questions – Transmission Reservations</u>	<u>Response/Ranking</u>
<p>7. Your expectation is that <i>in 2-3 years</i>, the overall transmission reservation process starting from the initial request, including review and approval by the Provider, and ending with confirmation by the Customer, must be how long for each type of service?:</p> <ul style="list-style-type: none"> a. Hourly transmission service b. Daily transmission service c. Weekly transmission service d. Monthly transmission service e. Yearly transmission service 	<p><i>Enter number and circle one</i> <i>Example:</i> <u> 3 </u> Min/Hr/D/W/Mo</p> <ul style="list-style-type: none"> a. <u>13.9 Min</u> Min/Hr/D/W/Mo b. <u>54.3 Min</u> Min/Hr/D/W/Mo c. <u>506.4 Min</u> Min/Hr/D/W/Mo d. <u>4.7 D</u> Min/Hr/D/W/Mo e. <u>14.8 D</u> Min/Hr/D/W/Mo
<p>8. How well do these statements describe your transmission reservation business <i>2-3 years from now</i>?</p> <ul style="list-style-type: none"> a. Nearly all of your organization’s reservations will be with one specific transmission provider on a single OASIS node. b. Nearly all of your organization’s reservations will be on a single OASIS node with multiple providers. c. Your organization’s reservations will be generally made on 5 or less OASIS nodes. d. You will make reservations on more than 5 OASIS nodes. e. Your organization’s reservation business will be on a system other than OASIS. 	<p><i>1 – Strongly Disagree ...</i> <i>6 – Strongly Agree</i></p> <ul style="list-style-type: none"> a. N/A 1 2 3 4 5 6 (2.2) b. N/A 1 2 3 4 5 6 (3.0) c. N/A 1 2 3 4 5 6 (4.0) d. N/A 1 2 3 4 5 6 (3.1) e. N/A 1 2 3 4 5 6 (2.4)
<p>9. What percentage of your organization’s ancillary service arrangements are:</p> <ul style="list-style-type: none"> a. Purchased from the Transmission Provider with whom you reserve transmission? b. Self-provided by yourself c. Purchased from a third party? 	<p><i>Now / in 2-3 Years</i></p> <ul style="list-style-type: none"> a. <u>60.5 / 51.8</u> b. <u>42.0 / 40.3</u> c. <u>5.4 / 14.6</u>

<u>Section 2a Questions – Transmission Reservations</u>	<u>Response/Ranking</u>
10. How well do these statements describe your organization's ancillary services business <i>in 2-3 years</i> ?	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i>
a. You want ancillary services purchase to be bundled with the transmission reservation - Providers should just give you whatever ancillary services you need with the reservation.	a. N/A 1 2 3 4 5 6 (2.9)
b. You would like to know what ancillary services are required, but you would like to retain the flexibility to buy ancillary services from whom you would like.	b. N/A 1 2 3 4 5 6 (4.9)
c. You expect strong markets to develop for buying and selling ancillary services, including third party sellers and secondary resale markets.	c. N/A 1 2 3 4 5 6 (3.4)
11. You find it easy to identify transmission paths which can meet your transaction needs by looking at information posted on OASIS.	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i> N/A 1 2 3 4 5 6 (2.5)
12. The types of information available on OASIS (not the quality or accuracy of the data for specific Transmission Providers) is satisfactory to your organization in the following areas:	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i>
a. ATC	a. N/A 1 2 3 4 5 6 (3.5)
b. Transmission service prices and discounts	b. N/A 1 2 3 4 5 6 (3.5)
c. Ancillary service prices and discounts	c. N/A 1 2 3 4 5 6 (2.7)
d. Records of your own reservations and ancillary services	d. N/A 1 2 3 4 5 6 (3.6)
e. Audit logs (historical information for accounting or audit)	e. N/A 1 2 3 4 5 6 (2.9)
13. Your organization would be more productive and efficient if display interfaces on OASIS are:	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i>
a. More uniform from one node to another.	a. N/A 1 2 3 4 5 6 (5.2)
b. Allowed to vary to accommodate regional differences	b. N/A 1 2 3 4 5 6 (2.6)

<u>Section 2a Questions – Transmission Reservations</u>	<u>Response/Ranking</u>
14. It is important for your organization to be able to change your points of receipt/delivery to alternative receipt/delivery points.	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i> N/A 1 2 3 4 5 6 (4.8)
15. The secondary transmission market (i.e. reselling unused transmission) will be of great interest to your organization <i>in 2-3 years</i> .	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i> N/A 1 2 3 4 5 6 (4.3)

Continue to Section 2b on the next page.

<u>Section 2b Questions – Next Hour Business</u>	<u>Response/Ranking</u>
1. Most, if not all, of your organization's next hour energy scheduling uses non-firm hourly transmission service that you arrange at about the same time as you arrange the schedule.	1 – Strongly Disagree ... 6 – Strongly Agree N/A 1 2 3 4 5 6 (5.0)
2. Most, if not all, of your next hour energy scheduling utilizes transmission reservations which have been previously arranged a day or more ahead of time.	1 – Strongly Disagree ... 6 – Strongly Agree N/A 1 2 3 4 5 6 (1.8)
3. For most, if not all, of your next hour business your organization would like to:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Reserve ancillary services automatically with transmission.	a. N/A 1 2 3 4 5 6 (4.3)
b. Reserve transmission and schedule energy at the same time.	b. N/A 1 2 3 4 5 6 (5.0)
c. Schedule to the full amount of the reservation.	c. N/A 1 2 3 4 5 6 (4.8)
d. Submit a reservation pre-confirmed to save time and steps.	d. N/A 1 2 3 4 5 6 (4.7)
4. For most next-hour energy transactions, your organization needs to be able to complete the transmission reservation and schedule (from request to confirmation) within:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Less than a minute	a. N/A 1 2 3 4 5 6 (3.3)
b. 1-5 minutes	b. N/A 1 2 3 4 5 6 (4.9)
c. 5-30 minutes	c. N/A 1 2 3 4 5 6 (2.8)
d. 30 minutes or more is acceptable	d. N/A 1 2 3 4 5 6 (1.5)

<u>Section 2b Questions – Next Hour Business</u>	<u>Response/Ranking</u>
5. The ability to conduct next hour business on the existing OASIS is primarily hampered by:	1 – Strongly Disagree ... 6 – Strongly Agree
a. The response time from when the request is submitted.	a. N/A 1 2 3 4 5 6 (5.1)
b. The number and complexity of steps to make a reservation.	b. N/A 1 2 3 4 5 6 (4.8)
c. The fact that multiple systems are needed for reservation and scheduling.	c. N/A 1 2 3 4 5 6 (4.9)
d. The need to negotiate terms and prices.	d. N/A 1 2 3 4 5 6 (3.0)
6. For next hour transmission reservations, your organization needs to:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Negotiate transmission and ancillary service prices.	a. N/A 1 2 3 4 5 6 (2.6)
b. Issue a separate confirmation (i.e. you would not pre-confirm)	b. N/A 1 2 3 4 5 6 (2.5)

Continue to Section 2c on the next page.

<u>Section 2c Questions – Energy Transaction Scheduling</u>	<u>Response/Ranking</u>
1. What percentage of the energy interchange transactions that your organization schedules remain (from source to sink) within:	Now / in 2-3 Years
a. A single control area or transmission provider?	a. <u>35.9 / 33.9</u>
b. Two adjacent control areas or transmission providers?	b. <u>47.2 / 45.7</u>
c. More than two control areas or transmission providers?	c. <u>26.3 / 28.8</u>
d. A single NERC region or ISO?	d. <u>64.5 / 64.8</u>
e. Two adjacent NERC regions or ISOs?	e. <u>35.6 / 36.0</u>
f. More than two NERC regions or ISOs?	f. <u>16.1 / 17.4</u>
2. In the future, your organization would prefer to have <u>all</u> of your purchasing and selling of transmission and ancillary services, energy interchange transaction scheduling, and curtailment notification integrated into a common software environment.	1 – Strongly Disagree ... 6 – Strongly Agree
	N/A 1 2 3 4 5 6 (5.4)
3. In the future, your organization would prefer to have <u>next hour business</u> for the purchasing and selling of transmission and ancillary services, energy interchange transaction scheduling, and curtailment notification integrated into a common software environment.	1 – Strongly Disagree ... 6 – Strongly Agree
	N/A 1 2 3 4 5 6 (5.2)
4. In the future, you would prefer to have NERC security tagging automatically handled as a component of schedule management.	1 – Strongly Disagree ... 6 – Strongly Agree
	N/A 1 2 3 4 5 6 (5.6)
5. The ability to negotiate price for transmission service is a key factor in consummating a successful energy deal.	1 – Strongly Disagree ... 6 – Strongly Agree
	N/A 1 2 3 4 5 6 (3.9)

<u>Section 2c Questions – Energy Transaction Scheduling</u>	<u>Response/Ranking</u>
6. Your concern about using a system similar to the OASIS for energy transaction scheduling is:	1 – Strongly Disagree
	...
	6 – Strongly Agree
a. Response time for receiving critical information.	a. N/A 1 2 3 4 5 6 (5.4)
b. Number of steps required.	b. N/A 1 2 3 4 5 6 (5.2)
c. Amount of information required.	c. N/A 1 2 3 4 5 6 (4.8)
d. Confidentiality of schedule information.	d. N/A 1 2 3 4 5 6 (4.4)
e. Reliability of the public Internet.	e. N/A 1 2 3 4 5 6 (5.1)
f. Lack of notification when status changes.	f. N/A 1 2 3 4 5 6 (5.3)
g. Other _____	g. N/A 1 2 3 4 5 6 (5.0)
7. Your organization believes that the details of your energy transactions, including source and sink but excluding energy price, should be disclosed to all parties to the transaction, including other merchants.	1 – Strongly Disagree
	...
	6 – Strongly Agree
	N/A 1 2 3 4 5 6 (3.1)

Section 2c Questions – Energy Transaction Scheduling**Response/Ranking**

8. The identity of the following parties or transaction information should remain confidential from your market competitors until *after the schedule begins*:
- 1 – *Strongly Disagree*
...
6 – *Strongly Agree*
- | | |
|---|------------------------------------|
| a. Transmission Providers and Control Areas on the path | a. N/A 1 2 3 4 5 6
(3.3) |
| b. Merchants party to the transaction | b. N/A 1 2 3 4 5 6
(4.4) |
| c. Sink (load) | c. N/A 1 2 3 4 5 6
(4.6) |
| d. Source (generator) | d. N/A 1 2 3 4 5 6
(4.6) |
| e. Energy price | e. N/A 1 2 3 4 5 6
(5.3) |
| f. Transmission reservation information | f. N/A 1 2 3 4 5 6
(3.5) |
| g. Loss information | g. N/A 1 2 3 4 5 6
(3.7) |
9. The identity of the following parties or transaction information should remain confidential from your market competitors until *30 days or longer after the schedule*:
- 1 – *Strongly Disagree*
...
6 – *Strongly Agree*
- | | |
|---|------------------------------------|
| a. Transmission Providers and Control Areas on the path | a. N/A 1 2 3 4 5 6
(2.9) |
| b. Merchants party to the transaction | b. N/A 1 2 3 4 5 6
(3.3) |
| c. Sink (load) | c. N/A 1 2 3 4 5 6
(3.8) |
| d. Source (generator) | d. N/A 1 2 3 4 5 6
(3.7) |
| e. Energy price | e. N/A 1 2 3 4 5 6
(4.8) |
| f. Transmission reservation information | f. N/A 1 2 3 4 5 6
(3.2) |
| g. Loss information | g. N/A 1 2 3 4 5 6
(2.9) |

<u>Section 2c Questions – Energy Transaction Scheduling</u>	<u>Response/Ranking</u>
<p>10 If your organization has or expects to have transactions curtailed due to system constraints, what percentage of your curtailments would you expect to be:</p> <ul style="list-style-type: none"> a. On one specific Transmission Provider's system? b. Within one specific NERC region or ISO? c. Within two specific NERC regions or ISOs d. In multiple (more than two) NERC regions or ISOs 	<p style="text-align: center;"><i>Now / in 2-3 Years</i></p> <p>a. <u>52.8 / 46.2</u></p> <p>b. <u>48.6 / 48.7</u></p> <p>c. <u>37.6 / 33.7</u></p> <p>d. <u>19.9 / 20.1</u></p>
<p>11 In most cases, your organization would prefer to have an option to pay for re-dispatch to relieve a constraint rather than have your transaction curtailed, for each type of service:</p> <ul style="list-style-type: none"> a. Firm b. Non-firm 	<p style="text-align: center;"><i>1 – Strongly Disagree ... 6 – Strongly Agree</i></p> <p>a. N/A 1 2 3 4 5 6 (5.3)</p> <p>b. N/A 1 2 3 4 5 6 (4.5)</p>
<p>12. You prefer to use scheduling systems which are common across North America rather than ones which are custom to each region.</p>	<p style="text-align: center;"><i>1 – Strongly Disagree ... 6 – Strongly Agree</i></p> <p style="text-align: center;">N/A 1 2 3 4 5 6 (4.9)</p>
<p>13. Your organization prefers <i>in 2-3 years</i> to be able to reserve transmission and schedule energy flow based on actual flows, rather than on a contract path basis.</p>	<p style="text-align: center;"><i>1 – Strongly Disagree ... 6 – Strongly Agree</i></p> <p style="text-align: center;">N/A 1 2 3 4 5 6 (3.6)</p>
<p>14. Your organization prefers <i>in 2-3 years</i> that the commercial model of the transmission system used for reservations and scheduling be more closely aligned with the physical models that are used for security assessment and transaction curtailments.</p>	<p style="text-align: center;"><i>1 – Strongly Disagree ... 6 – Strongly Agree</i></p> <p style="text-align: center;">N/A 1 2 3 4 5 6 (4.3)</p>
<p>15. In 2-3 years, market participants will expect to use transmission system models that more closely resemble the physical system, including AC load flows that would show parallel flows and voltage effects of transactions.</p>	<p style="text-align: center;"><i>1 – Strongly Disagree ... 6 – Strongly Agree</i></p> <p style="text-align: center;">N/A 1 2 3 4 5 6 (4.4)</p>

Section 3 – Transmission Service Provider

	<u>Response/Ranking</u>
1. With respect to using the OASIS 'front end' and Internet communications and tools to input and retrieve information to and from OASIS, your organization:	1 – <i>Strongly Disagree ...</i> 6 – <i>Strongly Agree</i>
a. Uses the OASIS front end today to input and/or retrieve information from OASIS.	a. 4.3
b. Prefers to use the OASIS front end to input and/or retrieve information from OASIS in the future.	b. 3.1
2. OASIS connections right <i>now</i> and <i>expected</i> in 2-3 years:	<i>Now / in 2-3 Years</i>
a. How many private (other than public Internet access) OASIS connections with Transmission Customers does your OASIS node support?	a. <u>1.1</u> / <u>15.9</u> _____
b. How many Transmission Customers do you actively sell services to using the Internet?	b. <u>90.6</u> / <u>125.9</u> _____
c. How many reservations do you handle over phone and fax?	c. <u>18.6</u> / <u>31.1</u> _____
3. What is the number of OASIS reservation requests <u>of all types</u> that your organization receives <i>now</i> and <i>expects to receive in 2-3 years</i> :	<i>Now / in 2-3 Years</i>
a. <u>Peak</u> number of reservations submitted in any one hour?	a. <u>17.6</u> / <u>48.3</u> _____
b. <u>Peak</u> number of reservations submitted in any one day?	b. <u>76.9</u> / <u>413.0</u> _____
c. <u>Peak</u> number of reservations submitted in any one week?	c. <u>259.3</u> / <u>1944.5</u> _____
d. <u>Peak</u> number of reservations submitted in any one month?	d. <u>1083.7</u> / <u>3147.9</u> _____
e. <u>Average</u> number of reservations submitted per month.	e. <u>679.0</u> / <u>1677.7</u> _____

4. How many reservation requests do you receive now or expect to receive in 2-3 years on a per month average, for each type of service below? *Now / in 2-3 Years*
- | | |
|--------------------|---------------------------------|
| a. Hourly service | a. <u>517.9</u> / <u>1095.0</u> |
| b. Daily service | b. <u>61.9</u> / <u>234.1</u> |
| c. Weekly service | c. <u>15.9</u> / <u>291.9</u> |
| d. Monthly service | d. <u>39.8</u> / <u>913.9</u> |
| e. Yearly service | e. <u>2.7</u> / <u>12.4</u> |

5. Your expectation is that *in 2-3 years*, the overall *Enter number and circle* transmission reservation process from receipt of ~~the~~ *the* initial request to confirmation by the customer should take how

- | | |
|--------------------------------|-----------------------|
| Hourly transmission service | a. 10.3 minutes _____ |
| b. Daily transmission service | <u>45.4 minutes</u> |
| Weekly transmission service | |
| Monthly transmission service | |
| e. Yearly transmission service | |

- | | |
|--|---|
| 8. Your organization would prefer to have Customers use one system to input requests for transmission services, ancillary services, and energy scheduling. | 1 – Strongly Disagree ...
6 – Strongly Agree
5.2 |
| 9. Your organization would prefer to combine the purchase of transmission services, ancillary services, and energy scheduling as one transaction. | 1 – Strongly Disagree ...
6 – Strongly Agree
4.8 |
| 10. Your organization would prefer to have transaction tagging automatically handled by Phase 2 OASIS. | 1 – Strongly Disagree ...
6 – Strongly Agree
5.4 |
| 11. Your organization would prefer to use Web-based technology similar to the current OASIS system to allow Transmission Customers to input transaction schedules. | 1 – Strongly Disagree ...
6 – Strongly Agree
4.6 |
| 12. Your organization's biggest concern about using a system similar to OASIS for scheduling is: | 1 – Strongly Disagree ...
6 – Strongly Agree |
| a. Timeliness in receiving critical information | a. 5.4 |
| b. Breaches in confidentiality | b. 4.0 |
| c. Security of your other systems connected to the OASIS | c. 4.6 |
| d. Reliability of data input by customers | d. 5.0 |
| e. Back end requirements to integrate this new system with your existing energy scheduling functions. | e. 5.2 |

Continue to Section 8 of the survey.

Section 4 – Control Area Operators

Response/Ranking

- | | |
|---|---|
| <p>1. How many entities schedule energy transactions into or out of your Control Area?:</p> <ul style="list-style-type: none"> a. In a given hour (Average/Peak) b. In a given weekday (Average/Peak) c. In a given weekend (Average/Peak) d. In a given week (Average/Peak) e. In a given month (Average/Peak) | <p><i>Now /In 2-3 years</i></p> <p>a.A_11.8_/P_20.7_
/A_15.6_/P_31.9_</p> <p>b.A_14.8_/P_24.0_
/A_21.8_/P_37.1_</p> <p>c.A_11.2_/P_19.9_
/A_18.4_/P_33.1_</p> <p>d.A_21.2_/P_31.6_
/A_29.0_/P_37.8_</p> <p>e.A_27.2_/P_40.4_
/A_38.2_/P_57.1_</p> |
| <p>2. How many interchange transaction schedules do you process into or out of your Control Area?:</p> <ul style="list-style-type: none"> a. In a given hour (Average/Peak) b. In a given weekday (Average/Peak) c. In a given weekend (Average/Peak) d. In a given week (Average/Peak) e. In a given month (Average/Peak) | <p><i>Now /In 2-3 years</i></p> <p>a.A_57.3_/P_88.2_
/A_74.0_/P_144.4_</p> <p>b.A_134.1_/P_233.2_
/A_221.9_/P_568.5_</p> <p>c.A_163.6_/P_234.7_
/A_231.2_/P_314.6_</p> <p>d.A_665.9_/P_1072.6_
A_1098.6_/P2498.5</p> <p>e.A_2347.6_/P_3621.8_
A_2304.4/P_5631.8</p> |

3. How many interchange transactions do you schedule internal to your Control Area?: *Now /In 2-3 years*
- | | |
|--------------------------------------|---|
| a. In a given hour (Average/Peak) | a.A_15.6_/P_31.1_
/A_33.1_/P_49.3__ |
| b. In a given weekday (Average/Peak) | b.A_27.6_/P_43.4_
/A_282.5_/P_396.1__ |
| c. In a given weekend (Average/Peak) | c.A_37.0_/P_54.6_
/A_113.5_/P_174.6__ |
| d. In a given week (Average/Peak) | d.A_160.6_/P_218.6_/
A_1819.9_/P2220.5 |
| e. In a given month (Average/Peak) | e.A_674.5_/P_854.5_/
A_7750.9/P11369.1 |
4. What percentage of your transaction schedules do you process by?: *Now / in 2-3 Years*
- | | |
|--|-----------------------|
| a. Phone. | a. _45.8___/ _27.3___ |
| b. Faxed paper form customized to your Control Area. | b. _29.6___/ _21.1___ |
| c. NERC tagging form faxed or by email. | c. _40.4___/ _33.8___ |
| d. Non-Internet-based electronic system. | d._11.9___/ _24.8___ |
| e. Internet-based electronic system. | e._13.6___/ _34.1___ |
5. How long do you require to evaluate and approve a request to schedule an energy transaction? *Enter a number of:*
Example: 1 Min/Ⓜ/D
- | | |
|---|-----------------|
| a. Simple transaction with pre-approved transmission. | a. 15.2 minutes |
| b. Complex transaction requiring system study. | b. 6.5 days |
| c. A transaction submitted for next hour with pre-approved transmission reservations. | c. 14.5 minutes |
6. Your organization would prefer to have only one system to handle the selling of transmission services, ancillary services, and energy scheduling. *1 – Strongly Disagree ...
6 – Strongly Agree
5.1*
7. Your organization prefers to have transaction tagging automatically processed by the next generation of OASIS/Market Interface. *1 – Strongly Disagree ...
6 – Strongly Agree
4.8*
8. Your organization prefers to use Web-based technology similar to the current OASIS system to allow Transmission Customers to input transaction schedules. *1 – Strongly Disagree ...
6 – Strongly Agree
4.4*

-
9. Your organization's biggest concern about using a system similar to the OASIS for energy scheduling is:
- a. Timeliness in receiving critical information
 - b. Breaches in confidentiality
 - c. Security of your other systems connected to the OASIS
 - d. Reliability of data input by customers
 - e. Back end requirements to integrate this new system with your existing energy scheduling functions.
10. If transaction details were provided to you electronically from the Phase 2 OASIS/Market Interface, you would use them for Control Area scheduling and confirmation with neighboring Control Areas.
- 1 – *Strongly Disagree ...*
6 – *Strongly Agree*
- a. **5.2**
b. **3.9**
c. **4.3**
d. **4.8**
e. **5.1**
- 1 – *Strongly Disagree ...*
6 – *Strongly Agree*
4.8

Continue to Section 8 of the survey.

Section 5 – Security Coordinators

	<u>Response/Ranking</u>
1. How many of the following entities do you have in your area of responsibility?:	<i>Now / in 2-3 Years</i>
a. Control Areas.	a. <u>4.6</u> / <u>4.4</u> _____
b. Transmission Providers	b. <u>6.8</u> / <u>6.9</u> _____
c. Transmission Customers	c. <u>55.6</u> / <u>95.7</u> _____
d. Merchants scheduling transactions	d. <u>60.6</u> / <u>132.3</u> _____
2. How do you prefer to receive transaction information?	<i>Now / in 2-3 Years</i>
a. Using ICCP over the Inter-Regional Security Network.	The responses were split between ICCP and TCP/IP now and 2-3 yrs. ICCP can transport over TCP/IP or OSI. They are not exclusive to each other
b. FTP	
c. TCP/IP and Internet Protocols	
d. Other _____.	
3. How do you prefer to receive transmission and generation status information and updated PTDFs?	<i>Now / in 2-3 Years</i>
a. Using ICCP over the Inter-Regional Security Network.	Same answer as 5.2 above
b. FTP	
c. TCP/IP and Internet Protocols	
d. Other _____.	
4. <i>In 2-3 years</i> , what per cent of your security related data (system status and conditions) will originate within your region vs. outside your region?	<i>Enter percentages</i>
	<u>99.4</u> % Int. / <u>23.1</u> % Ext.
5. <i>In 2-3 years</i> , the ability to perform the security coordinator function in your region will rely on:	<i>1 – Strongly Disagree ... 6 – Strongly Agree</i>
a. Having information for most of the energy interchange transactions occurring on systems in adjacent regions.	a. 4.8
b. Having information for certain types of interchange transactions occurring on systems in adjacent regions.	b. 4.7
c. Having information for transactions occurring in systems remote from your region, but which may affect your region.	c. 3.8

Section 6 – Independent System Operator

	<u>Response/Ranking</u>
1. How do the following statements describe scheduling processes in your area:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Scheduling requirements are unique to your organization, so you would prefer to use scheduling systems custom to your region rather than a common scheduling interface across North America.	a. 4.0
b. Your organization's scheduling processes can be adapted to accommodate national standards for interstate commerce.	b. 3.3
2. Your organization needs to have access to the following information from the Phase 2 OASIS / Market Interface	1 – Strongly Disagree ... 6 – Strongly Agree
a. Transmission reservations	a. 4.3
b. Transaction details	b. 3.5
c. Ancillary services arrangements	c. 3.3
d. IDC - transaction flow impact information	d. 3.8
e. Other _____	e. N/A 1 2 3 4 5 6
3. You will be using the following types of systems in 2-3 years:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Vendor-supplied EMS customized to your region.	a. 5.3
b. In-house developed applications and systems.	b. 5.8
c. Internet-based information systems.	c. 6.0
d. Other _____	d. N/A 1 2 3 4 5 6
4. The percent of energy transactions in your system which remain entirely within the ISO (Internal) compared to transactions which cross into or out of the ISO (External) is or is expected to be (<i>fill in the responses</i>).	<p style="text-align: center;"><i>Today</i></p> <p style="text-align: right;"><u>72.5</u> % Int. <u>27.5</u> % Ext.</p> <p style="text-align: center;"><i>In 2-3 years</i></p> <p style="text-align: right;"><u>62.5</u> % Int. <u>37.5</u> % Ext.</p>

5. The transaction scheduling period within the ISO is or will be (*circle the correct responses in the column to the right*):

- a. Hourly.
- b. Day ahead.
- c. Other _____.

Now / in 2-3 Years

Now hourly and day ahead and will be the same in 2-3 years

6. What types of information from the ISO would you envision needing to post over the Phase 2 OASIS / Market Interface.

Fill in responses and use additional sheets if needed:

Continue with Section 8 of the survey.

Section 7 –Power Exchange

	<u>Response/Ranking</u>
1. How do the following statements describe scheduling processes in your area:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Scheduling requirements are unique to your organization, so you would prefer to use scheduling systems custom to your region rather than a common scheduling interface across North America.	a. 4.0
b. Your organization’s scheduling processes can be adapted to accommodate national standards for interstate commerce.	b. 3.5
2. You need to have access to the following information from the Phase 2 OASIS / Market Interface:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Transmission reservations	a. 5.5
b. Transaction details	b. 5.5
c. Ancillary services arrangements	c. 5.5
d. IDC - transaction flow impact information	d. 4.0
e. Other _____	e.
3. You will be using the following types of systems in 2-3 years:	1 – Strongly Disagree ... 6 – Strongly Agree
a. Vendor-supplied EMS customized to your region.	a. 4.5
b. Power exchange programs customized to your region.	b. 5.5
c. Internet-based market information systems.	c. 6.0
d. Other _____	d. N/A 1 2 3 4 5 6
4. The percent of energy transactions in your system which remain entirely within the Power Exchange (Internal) compared to transactions which cross into or out of the Exchange (External) is or is expected to be (<i>fill in the responses</i>).	<p style="text-align: center;"><i>Today</i></p> <p style="text-align: right;"><u>55</u>% Int. 45_% Ext.</p> <p style="text-align: center;"><i>In 2-3 years</i></p> <p style="text-align: right;"><u>45</u>% Int. 55_% Ext.</p>

- | | |
|--|---|
| 5. The transaction scheduling period within the Power Exchange is or will be (<i>circle the correct responses in the column to the right</i>): | <i>Now / in 2-3
Years</i> |
| a. Hourly. | Now hourly and day ahead and will be the same in 2-3 years |
| b. Day ahead. | |
| c. Other _____. | |
| 6. What types of information from the Power Exchange would you envision needing to post over the Phase 2 OASIS / Market Interface. | <i>Fill in responses and use additional sheets if needed:</i> |

Continue with Section 8 of the survey.

Appendix B - Summary of Information Requirements

Section 8 questions ranked in descending order (6-1) by subsection.

Administration

Standard points of receipt and delivery	5.3
Standard product names	5.2
Standard path names	5.2
All entities doing business on OASIS	4.9
On-line audit logs of reservations and transactions	4.5
On-line audit logs of ATC and product postings	4.5
Navigational maps to move around OASIS	4.4
Discretionary exceptions to standards of conduct	4.1
Standards of conduct of Transmission Provider	3.9
Personnel transfers of the Transmission Provider	3.2
informal messages or want ads	2.7

Transmission Reservations

ATC values adjusted within minutes following reservations	5.4
Current ATCs for future time horizons for each path	5.3
Your own reservation records	5.2
Transmission Customer confirm reservation request which was approved	5.1
Status information of transmission network and facilities	4.9
Transmission products offered	4.9
Your own historical reservation records	4.9
NERC or regional curtailment priority for transmission product	4.8
Customer submit reservation pre-confirmed	4.7
Current reservation records of all Transmission Customers	4.7
TC request transmission reservation and TP respond	4.7
Transmission Customer resell previously purchased transmission rights	4.6
Real time line loading information	4.3
Withdraw from transmission negotiations	4.3
Historical reservation records of all Transmission Customers	4.2
Seller reassign transmission rights to another party	4.2
Status information of generators on the network	4.1
Transmission service price negotiation on-line	4.1
Supporting information for ATC calculations	4.0
Historical ATC information for each path	3.6
Transmission service price negotiation off-line	3.5
Conduct futures market for transmission service	3.3

Energy Transaction Scheduling

Identify each transaction by unique transaction number	5.4
Sending and receiving Control Areas for transaction	5.4
Status of transaction (approved, denied, reason, etc)	5.1
Modify an existing transaction prior to scheduling period	5.0
Each Control Area in the transaction chain	4.9
Each Transmission Provider in the transaction chain	4.9
NERC/regional curtailment priority for each segment of transaction chain	4.6
Energy profile for a transaction (MW each hour)	4.6
OASIS reservation for each transmission segment of transaction chain	4.5
Modify source and sink info in a transaction prior to schedule period	4.5
Download transactions automatically to Energy Management System	4.5
Automatically load transaction details into IDC	4.5
Energy product type information in transaction	4.4
View historical records of transactions scheduled	4.4
Specific source(generator) and load for transaction	4.3
Each merchant in transaction chain(holding title to energy)	4.3
Extend a transaction for additional days, weeks or months	4.3
Download transactions for confirmation and Control Area checkout	4.3
Information on transaction losses taken as MW	4.2
Aggregate multiple loads served by one transaction	4.2
Ramp information with energy profile	4.1
Aggregate multiple source/generators into one transaction	4.1
Modify a transaction after the schedule has begun	4.1
View historical records of how transmission reservations were scheduled	4.0
Information on transaction losses not shown as MW	3.6

Ancillary Services

Description of which ancillary services are mandatory	5.0
Automatically link the purchase of ancillary services to transmission	4.8
Ancillary services offered by primary Provider	4.4
Request/respond to purchase of ancillary service	4.4
Confirm purchase of AS (Transmission Customers only)	4.4
Ancillary services offered by third parties	4.1
Negotiate ancillary service prices on-line	3.6
Negotiate ancillary services prices off-line	3.2

Constraint Management

Immediate notification of your transactions which are curtailed (TC)	5.6
Curtailment priority of your own transactions (TC only)	5.2
Advance notice of pending curtailments/system constraints	5.2
Preferences for re-dispatch and curtailment options	5.0

Current curtailment procedures in effect	4.9
Information showing flow margins on reliability or curtailment flowgates	4.8
Curtailment priority of all TC transactions	4.8
Information about all Customers transactions which are curtailed	4.7
Curtailment history of reliability/curtailment flowgates	4.5
Flow impact model information (IDC flow impact distribution factors)	4.3