

Session 4

Discussion of Alternatives and Implementation Activities for Real-Time Operations

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July 15, 2010

Review of May 5 Technical Conference

- **Overview of Balancing Authority (BA) functional requirements**
 - Potential EAI BA configuration
 - Preliminary cost estimates to establish a BA for the EAI area
 - Implications for generation requirements
- **Preliminary estimate of cost to establish a separate BA and Stand-Alone operations for EAI:**

	<u>(\$ 2009)</u>
Startup Cost:	≈ \$23 MM
Run Cost:	≈ \$14 MM/year
Less ESI Charges:	≈ (\$ 6) MM/year
=====	
Net Run Cost:	≈ \$8 MM/year

Outline for July Presentation

- **Focused on short-term or real-time operation functions**
- **Provide more details on our preliminary cost and labor estimates**
 - Major Functions
 - Organizational Breakdown
- **Describe savings that could be realized by utilizing ESI for certain functions**
- **Discuss how RTO participation could affect the cost estimates**
- **Discuss our next steps**

Current Options

- **Many Options:**
 1. Stand-Alone Operations with ICT or enhanced ICT.
 2. SPP RTO with day-ahead and real-time market and consolidated BA
 3. SPP RTO as it is today – Multiple BAs
 4. MISO which already has a consolidated BA
 5. Wholesale arrangement with other Entergy OPCOS
 6. Wholesale arrangements with other third parties
 7. Combinations of the above options

- **All of these different options could have some impact on the infrastructure and human resources that EAI will need to begin operations in December 2013**

- **Many of the stand-alone implementation activities are common to all options**

- **The goals:**
 - Be ready to operate by December 2013
 - Be flexible to adapt as we move forward
 - Minimize implementation risk

August 2009 EAI Stand-Alone Implementation Study

- **Assumed full duplication of facilities and staff that are now provided by ESI System Planning and Operations (SPO)**
- **Assumed Energy Delivery (ESI Transmission Operations) would modify software, add staff, and upgrade metering systems and RTUs needed to operate a new balancing area.**
- **Provided three sensitivity cases**
 - Reduce staffing by 10%
 - Lease vs. Build
 - Locate EAI generation operations group at the same location as ESI generation operations group
- **In total, sensitivity cases reduced estimated implementation cost from \$23 MM to \$17 MM**

Organization of the Entergy Operating Companies' planning and operating groups today

System Planning and Operations (ESI)

- Long-Term Generation Planning
- Fuel Procurement
 - Gas / Oil / Coal
- Generation Operations Planning
- Wholesale Purchases and Sales
- Real-Time Generation Operations
- Settlements and Reporting (power and fuel)

NERC Functional Model

Resource Planner
Generation Owner
Generator Operator
Load Serving Entity
Purchase-Selling Entity

Energy Delivery [ESI Transmission] (some functions provided via ICT contract)

- Transmission Planning
- Trans. Operations Planning
- Real-Time Monitoring
- Outage Coordination
- Congestion Management
- OATT Tariff Administration
- Generator Imbalance Monitoring
- Data Acquisition and Energy Accounting
- Settlements and Reporting
- Switching and Supervisory Control

NERC Functional Model

Transmission Planner
Transmission Service Provider
Transmission Owner
Transmission Operator
Reliability Coordinator
Interchange Authority
Balancing Authority

August 2009 EAI Stand Alone Implementation Study

Entergy Arkansas (EAI)

- Long-Term Generation Planning
- Fuel Procurement
 - Gas / Oil / Coal
- Generation Operations Planning
- Wholesale Purchases and Sales
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- Settlements and Reporting (power and fuel)

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NERC Functional Model

Resource Planner
Generation Owner
Generator Operator
Load Serving Entity
Purchase-Selling Entity

Implementation: \$18 MM
On-going Labor: 64 FTEs

Sensitivity Cases

Implementation: (\$5 MM)
On-Going Labor: (8 FTEs)

Energy Delivery Operations (some functions provided via ICT contract)

- Transmission Planning
- Trans. Operations Planning
- Real-Time Monitoring
- Outage Coordination
- Congestion Management
- OATT Tariff Administration
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NERC Functional Model

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Transmission Service Provider
Transmission Owner
Transmission Operator
Reliability Coordinator
Interchange Authority
Balancing Authority

Implementation: \$5 MM
On-going Labor: 8 FTEs

Baseline Scenario for Initial Real-Time Operations (2013-2014) to limit Implementation Risk

- **The August 2009 Stand Alone Implementation Study still provides baseline scenario which limits implementation risk**
 - Two year implementation schedule
 - Implementation is largely under EAI's control

- **This is especially true when the sensitivity cases are considered and when other potential synergies with ESI are factored in:**
 - Lease instead of build
 - Same location as ESI staff that will continue to perform the same functions for the other OPCOs [The Woodlands, Texas]
 - Share a single generation management system with ESI.
 - Utilize ESI personnel for support functions
 - » Settlements and Reporting
 - » Fuel Procurements
 - » Training and Compliance
 - » IT and generation management system support
 - » Shared backup facilities

Baseline Scenario for Initial Real-Time Operations

Entergy Arkansas (EAI)

- Long-Term Generation Planning
- Fuel Procurement
 - Gas / Oil / Coal
- Generation Operations Planning
- Wholesale Purchases and Sales
- Real-Time Generation Operations
- Settlements and Reporting (power and fuel)

NERC Functional Model

Resource Planner
Generation Owner
Generator Operator
Load Serving Entity
Purchase-Selling Entity

Implementation: \$18 MM
On-going Labor: 64 FTEs

The above estimates may be reduced by as much as 50%

Energy Delivery

(some functions provided via ICT contract)

- Transmission Planning
- Trans. Operations Planning
- Real-Time Monitoring
- Outage Coordination
- Congestion Management
- OATT Tariff Administration
- Generator Imbalance Monitoring
- Data Acquisition and Energy Accounting
- Settlements and Reporting
- Switching and Supervisory Control

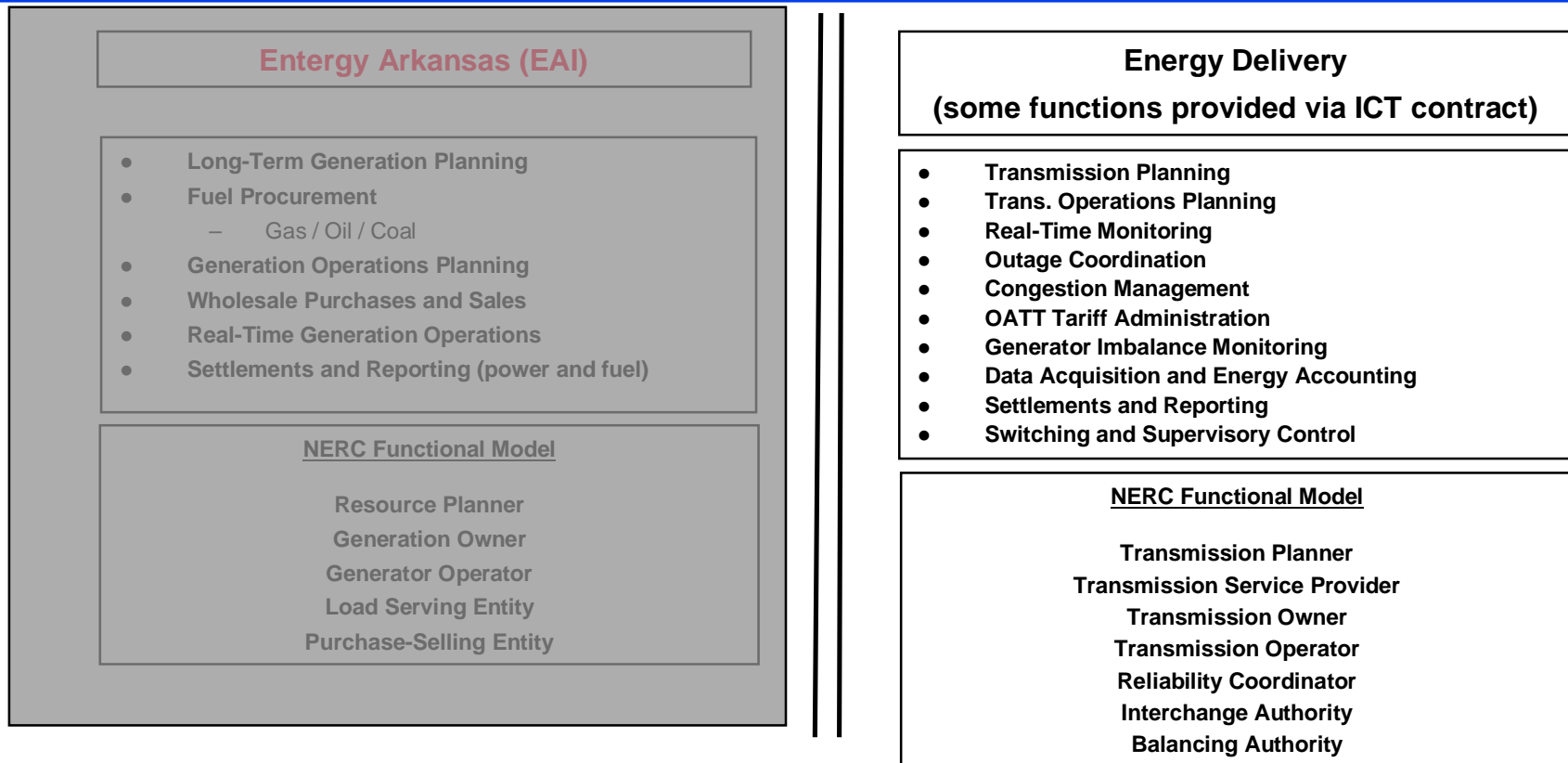
NERC Functional Model

Transmission Planner
Transmission Service Provider
Transmission Owner
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Interchange Authority
Balancing Authority

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On-going Labor: 8 FTEs

August 2009 EAI Stand Alone Implementation Study



- **Energy Delivery is updating its implementation estimates.**
- **RTO participation may have more of an impact on these estimates.**

Implementation: \$5 MM
On-going Labor: 8 FTEs

How would an RTO membership impact the generation functions?

- **The actual impacts would depend on the specific market design**
 - Maturity of the market
 - Proficiency of market interface systems / protocols

- **Most, if not all, of the generation real-time operating functions would still be required:**
 - Outage planning, bilateral procurements, fuel procurements, unit commitment coordination, settlements, monitoring, *etc.*
 - Some changes would be required in carrying out the operating functions

- **Some additional staffing would likely be needed to interface with the market systems, verify settlements, manage financial transmission rights, participate in stakeholder meetings, *etc.***

Successor Arrangements

- **Under the Successor Arrangement Strategic Option many of the Real Time Operations functions would be provided on a common basis for all the Entergy Operating Companies**

- **However, there would be changes from the current way ESI-SPO and EAI operates these functions in the future, and some would depend on the outcomes of several events that will not be resolved until 2011 or after such as:**
 - Entergy System RTO participation (MISO or SPP)

 - The exact terms and conditions of the Successor Arrangements

- **EAI will not develop detailed provisioning plan options for the Successor Arrangements Strategic Option until the above issues have been addressed**

NEXT STEPS

“NO Regrets” Implementation Steps for 2013 and 2014

- **The goals:**
 - Be ready
 - Be flexible
 - Minimize implementation risk

- **EAI will continue to revise and maintain a plan to operate as a separate stand alone utility**

- **Even if other strategic options are chosen, being able to stand alone provides an important “hedge”**

- **EAI will proceed during 2010-2011 with certain “no regrets” implementation activities. These “no regrets” activities are expected to include:**
 - Provide AGC capability for selected EAI generating units
 - Upgrade EAI tie-line metering systems and communication equipment
 - Develop options and plans for flexible generation and fuel supplies
 - Develop options, plans, budgets for the baseline scenario

Other Implementation Plan Activities for 2010-2011

- **Continue to explore opportunities with third parties that may improve the baseline scenario**
- **We will update the status of these efforts in a future technical conference**
- **Questions / Comments**