**AGENDA /NOTES**

**External Web Services, Workshop III**

**In-Person and WebEx**

**September 29, 2015; 1:30 PM-4:00 PM**

ERCOT Austin

Room 168

7620 Metro Center Dr.

Austin, TX 78744

<http://ercot.webex.com>

Meeting Number:    621 670 094

Meeting Password:   Ews3

Audio Dial-In: 1.877.668.4493

Attendees

Julie Thomas – Luminant

Kaci Jacobs – TXU Energy

Murali Sithuraj – Austin Energy

Taylor Woodruff – Oncor

Michael Juricek – Oncor

Tru Robertson – Garland Power & Light

Jack Brown – Garland Power & Light

Carolyn Reed – CenterPoint

Daniel Spence –

Michael Stanley – PUM Resources

Lloyd Prichard – ERCOT

Jamie Lavas – ERCOT

WebEx

Thayanidhi Nagendran – PNM Resources

Zaida Morales – Austin Energy

Todd Oliver – Brazos Electric

David Hubbard - NBU Texas

Susan Jinright – ERCOT

Justin Foster – Appianway Energy

Sachin Jasani – Red Wolf Energy Trading

Mickey Morton – EFH

Anil Saini - PNM Resources

Venkata Rachapudi – TXU Energy

Weijun Ji – Austin Energy

Tayor Locke – Appian Way Energy

Sherry Looney – Luminant

Sonya Gustafson – Yes Energy

Tim Lamb – Morning Star

Greg Glover – NRG

Mike M. – LCRA

Ming Shen – LCRA

Edna Tovar – Morning Star

Madjid Zehani – LCRA

Monica Mitchell – Mid-American

Sharon Higgins – Duke Energy

Doug Scott – OATI

Shanna Lazarine – TXU Energy

Rob Hays – Calpine

Kevin Kentner – Calpine

Jayasree Kannala – CenterPoint

Thomson Thayil – PCI

John Hutchison – BT Utilities

David Vander Leest - Mid-American

Chad Singer – Fellon McCord

Tracy Richter – ERCOT

Kim Perry – STEC

Sirisha Pinnaka – Calpine

Suma Rani – CenterPoint

Mark Czigan – Austin Energy

Brett Brown – LCRA

Amin Ahmed – Luminant

Karthik Marupedd - ?

Jane Cates – ERCOT

Roarke Wells – Energytics

Ram Dokka – Austin Energy

Nikhil Baware – Calpine

Yunong Chen - OATI

Borislav Ganov - Calpine

Kelly Crist – EDPR

Irene Mwathi – Austin Energy

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| **1.** | **Antitrust Admonition -** read | **Julie Thomas** | **1: 30 PM** |
| **2.** | **Introductions -**  | **Julie Thomas** |  |
| **3.** | **Overview –** City of Garland approached ERCOT requesting to receive the information in a more “modern way”. 2nd workshop was for what potential solutions are available. A survey was taken on where the interest was specificallyfor potential platform changes. Review of demo details and further discussion points are below. |  |  |
| **4.** | **Review of Survey Results –** Brian Brandaw reviewed survey results that were taken after 2nd workshop. Multiple individuals from the same entity were represented as one ‘response’ for the survey. Documentation around entry points for Market Participants is not available. Last meeting it was acknowledged that other ways for MPs to obtain information needs to be explored. Notification of report publication with a subscription service is the clear winner regarding functional changes. Whatever the choice is by the Market it will be a long slow transition as there is no project currently in the works. |  |  |
| **5.** | **Demonstration of WebSockets – Broadcast of price data –** Reviewed presentation provided, Brian will discuss with MISUG leadership on best ways to move forward and how to collect data from MPs. ERCOT welcomes feedback on ways companies are obtaining data with others today. Specifically:Is there something not viable at all? Policy or practice that prevents doing certain things?Is there a better way of doing it?Websockets: (See Powerpoint)* Protocol provides fully duplexed over single TCP connection
* Bidirectional – can send and receive on same connection
* Fully duplexed
* Persistent connection which could simplify monitoring
* Leverages port 80 & 443 but not HTTP traffic
* Provide more flexibility over what is provided today
* Once token is established, the connection remains
* PTP connections. Scalability would be an issue. Broadcasting can be done.
* Less likely to receive slow listener type issues
* Messaging server connected to integration layer

ERCOT Streaming demo:* Client side can be a web browser, mobile app or java class on a server
* Connect to websocket server, receive files, process to pick up from folder, write to JMS queue and java class behind the scenes to pick up and write data to the client. New file updates.
* Process is very quick end to end.
* Currently focusing on public data sets, not certified data.
* This demo is a push based on subscriptions

Q&A:* Would this be applicable to all files that are available in MIS today? Yes there is potential to implement any report that ERCOT has.
* Pricing is definitely most appealing for this approach. Others would work well too, but this is not suited for reports with large data sets or sizes.
* Notifications of events that took place where the data set was available would be another good idea through a subscription service. I.E, this reporttypeid is available to pick-up. This would be pushed from the web sockets. Allows you to choose what you want to receive.
* Could this be for both the public and private sites for MPs? Could be done with the private data as well if we focus on report publications. More complicated but this model could be pushed conceptually on the public entity side as well. Could affect policies though.
* Are there thoughts around a notification message persisting so if MP systems were down there was a message queue or persistence? Good point that we would need a visible audit trail so that MPs experiencing issues unable to receive for a duration would see what was missed and so that you could verify that you were getting what you were expecting as well. Two tier system could help to ensure this works especially considering the wide range of connectivity issues seen across all MPs.
* To address the above bullet, ERCOT would need to build a system that is resilient and fault tolerant. A possible workshop to cover infrastructure would be held with architects to ensure that issues on both ends were discussed.
* ERCOT would not use ListServe but create a separate client list.
* MIS/ERCOT.com is static and has prices pushed from backend report systems to MIS and ERCOT.com today.
* Public access, MIS user interactions and EWS are the three access points used today.
* MIS application is a TIBCO portal builder application and is backbone retrieving content and brokered through integration layer. EWS requests from most reports are pulled from a Java application using an integration layer which is managing and distributing content from requests and in turn being posted to a repository.
* Most reports are from a java app pulling from markets system. Integrations sytems managing traffic and posting to repository. From that repository, reports are pulled and distributed based on request.
* Websockets for notifications – once a piece of content is published to repository, we use the subscription infrastructure to determine who uses that service and would push out the content directly to end users.
* For demo: websockets receive content as posted and integrations system would push out to whoever is polling or has a subscription to that messaging server.
* Where and how do you obtain information on a new notifications service on EWS? The information is embedded in the web services info, specifically the XSDs zip file which has the info needed to implement for your notification listener.
* Would websockets replace current EWS, notifications and web interfaces if we were interested in pursuing? It could but that is not necessarily the path we will take. Nothing has been decided yet.
* ERCOT has asked for feedback. How compelling is this? Should we stick to more traditional? Daniel Spence noted ICE uses websockets API. A solution would be to have MP invoke API and obtain data. Brian noted that there was nothing that prohibits us from using that route too. Concerns are around the amount of work this one change would cause across multiple organizations. We could look at this transaction as one way to a proper API and then extend functionality later.
* Roarke Wells noted that it was a great direction and would like to see that the new notification process be tried while we run approach in parallel with current for metrics. Later we would work to transition users off the “old” way and then discuss removing the “old” way if this new way is determined to be working better. Polling is inefficient for everyone involved.
* Goal is to know as soon as information is available and the best way to go about getting it, just the one time.
* Is there anything that MPs need to do? Provide Feedback.
 | **ERCOT** |  |
| **6.** | **Discuss requirements for notification service for report publication and self-service subscriptions  -** * **This is the functionality that most MPs are interested in seeing.**
* **Suggestions:**
	+ Develop a cohesive (preferably Restful) API so when building a listener you are following a contract and have a point to manage subscriptions for notifications and a set end point for actual delivery to post to registered IP for the data set. If looking at existing functionality, REST and JSON would be more efficient way especially for onboarding new MPs. Infrastructure needs to support bot existing and new MPs.
	+ A portal to pass an array of report ids to subscribe and delete to unsubscribe.
	+ Give all reports from date/time, receive historical
	+ In general, a subscription management process through the API or other transport process. UI? Service Layer?
	+ Which attributes are needed?
		- Report Type ID
		- Doc ID
		- Posted date/date range
		- End Date or expiration (message indicating not available would indicate that it isn’t avail). Confusion around what that date represents.
		- URI/URL for download – similar to response from GetReport
		- File size –MD5checksum for integrity of the file
		- DUNs? This would be a broader conversation regarding authentication and access since duns is centered in the ldap and file download systems. Instead, could you provide the duns in the response so that we would know for which duns to download. How would you manage access since notification is going to user that has duns access?? Depends on method chosen.
			* Cluster of listener access points?
	+ Open sourced API – ERCOT has this today
* **Transport or connection mechanisms:**
	+ Interest in keeping existing mechanisms in place
	+ ERCOT leaning toward API model to build client across mainstream platforms and distribute to MPs in their applications
	+ Frees up the transport discussion
	+ Would eliminate arcane processes to secure connections
	+ Make onboarding easier
	+ Looking at amazon services for ideas on how to go about simplifying processes.
	+ Would there be different versions of API for any other platform? ERCOT would have to support Java and MS platforms at a minimum. Some php users but mostly java and .net from survey.
	+ If someone has a different platform, that would need to be handled, but no one would be ruled out due to technology choice.
	+ For a different platform preference, (NOJS??) how would we go about exploring those options? Definitely a more modern approach and we would look into it. We would need to flesh out how we would go about reviewing other platforms and providing guidance and support in setup.
	+ How much work to have an open source API – use MPs and ERCOT to contribute to all aspects, especially code review. This precedent has been set and we see value in it for feature, functions and technology.
	+ ERCOT isn’t always using the most current version and this would allow others to help bug test.
	+ ERCOT should be leading technology, not behind the curve.
	+ Allow multiple layers so MPs can control on implementation end using an API.
	+ Could we support UI and API to ensure access to all? We would almost need to provide something in both instances to reach all.
	+ In regards to format, JSON is typically the easiest to use for small data sets.
* **Subscription service:**
	+ Chose to receive some or all notifications
	+ Subscribe and unsubscribe from reports should be possible
	+ Subscription management is needed
	+ Can be API or UI based on using same underlying code
	+ Include a new MIS page instead of a new UI.
	+ CRUD based, platform agnostic
	+ Manage rollup of subs to umbrella entities and use process similar to extract subscription – Are there legal ramifications to this?
	+ API Key for actual client authentication tied to a DUNS/DC on the client side? SSL and API key tied to your duns possibly?
	+ Is there data on ERCOT public that doesn’t require a digital certificate? They are on the website but classified as MIS public and in order to access through MIS or EWS, you must have a certificate. Only option to pull without DC is for ERCOT .com
	+ Need a CRSS token for cross reference site attacks

Luminant, Energetics, Denton, Brookshire and others were proponents of using API. Not many entities were vocal about using something other than an API though we did express concern that a mechanism (UI?) be made available for those that couldn’t or didn’t prefer to use an API.Send questions or suggestion to Marketinfoservices@ERCOT.com |  |  |
| **7.** | **Next Steps –** * Brian to format and return at next MISUG meeting for review, Tuesday, October 27, 2015, 9:30am – 12:00pm
* IS there anything in a binding document? EIP specifications are out there but there are no language changes to anything out there today.
* ERCOT would need to identify what their opinion is and would have to go through executive management and identify if to be added to PPL as an internal effort and as capitalized or O&M. ERCOT to provide avenue of engagement. IF determined this would go through market driven SCR process it would land at PRS. If through MISUG it would go through COPS.
* Group would like to see this socialize in house to ensure adequate support and sense of urgency so as not to come as a surprise when brought to subcommittee meetings that this is MP agnostic making sure that those representing at PRS level are aware.
* Recommended that all shops listening are prepared for this and well informed.
* Acknowledgements given to ERCOT’s efforts in putting this information together
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| **8.** | **Adjourn** |  | **4:00 PM** |

| **Open Action Items** | **Responsible Party** |
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| Identify MD5s? | Brian Brandaw |
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