Welcome (10:00-10:05)
Jim Gluck, PJM, reviewed the agenda and provided an overview for the Tech Change Forum – Day 2 – Technical Implementation session.

Maintaining PJM Tool Availability (10:05-10:25)
1. Foluso Afelumo, PJM, presented on the new web policy created to ensure equitable access to PJM systems for members. Focus was set on the protection from unsupported usage patterns. Mr. Afelumo indicated there will be two separate approaches on ensuring equitable access to PJM: limit to 25 concurrent sessions and enforcing usage rates.

Limit to 25 Concurrent Sessions
Mr. Afelumo reviewed a few implementation options and requested feedback from the members. David Pratzon, GT Power Group, questioned if the multiple sessions relates to the same application or across multiple applications. Mr. Afelumo indicated that the multiple sessions typically relate to backend automated systems where the same user account is utilized for connections across various applications. The user interface (browser-based) access utilizes one session per browser open.

Based on the various implementation options, Mr. Pratzon provided an additional option/suggestion where if multiple sessions are open the oldest session open for that specific application is then dropped to open up for the new session. Mr. Afelumo indicated that feedback will be discussed with the development team to see if that is a potential option.

Mr. Pratzon expressed concerns with standard workflow that would need to be done by market participants for submitting data. If there is any way to recognize the situation it would greatly assist the market participants.

Mark Hurwich, Elliott Bay Energy Trading, LLC, mentioned that he could not state a preference on the options provided but indicated it would be helpful to provide users awareness that this was occurring. He stated that if PJM decided to go with option 2 that an email to the end user stating they were logged out because they exceeded the max sessions would be helpful. Mr. Afelumo will take this information and look into opportunities to improve this feature.

Mr. Afelumo stated PJM will reach out to users exceeding the threshold through the month of October to allow timely adjustments. The feature plans to be enabled in the PJM Train environment by mid-October.
Applications that will not be part of the 25 concurrent sessions upon initial roll-out include eCredit, eRPM, MSRS, OASIS and eDataFeed.

**Enforcing Usage Rates**

Mr. Afelumo then discussed enforcing request rates to PJM tools. The action required by users is to adjust usage patterns to meet the terms of use as indicated on the tool page within PJM.com. The terms of use are also on slides 12 and 13. If the application allows for secure authentication the enforcement will be tracked on the user account level. For non-secure (public) areas, the enforcement will be tracked at the Internet Protocol (IP) level.

Mr. Pratzon asked if the request per minute is per user or per application. Mr. Afelumo indicated the request is per minute per user for secure authentication or per IP address for non-secure (public) areas.

Mr. Afelumo indicated that this will not be an issue for the majority of users. During August, the eDataFeed team noticed performance issues based on usage and worked with specific users to adjust their request rates. PJM is currently working with users accessing the oasis.pjm.com site prior to putting the usage restriction in place.

He also indicated several applications have not been identified within the presentation. These applications will be reviewed at the Tech Change Forum meeting held on December 1st and 2nd.

Mr. Pratzon indicated this was a great idea and would be helpful for users to understand better if PJM publishes documentation on this effort including what the member action required is once they are locked out including details for after-hours support. Mr. Afelumo indicated this documentation will be available for the next forum meeting held in October.

**Web API Updates (10:25-10:55)**

2. Jim Reynolds, PJM, reviewed the eCredit Reporting API that was made available in early August. The target audience for these reports is eCredit users with credit and cash access. Mr. Reynolds indicated there are numerous reports available for use within the application that will now be available via API. This feature was created based on usage, feedback requests as well as scraping metrics. At this time the results are only available in CSV format.

He mentioned that eCredit does not currently enforce requests or sessions so please be mindful when utilizing the new report feature as some of these job requests are intensive. Based on the information taken reports should not be needed more than a couple of times an hour.

Mr. Reynolds reviewed the reports that were available in the system stating that Credit Read Only access is required for any Credit reports where Cash Read Only access is required for Cash reports. For any questions please contact credit@pjm.com.

A question regarding the location of this API information was asked. Mr. Reynolds stated this is a work in progress and users are able to utilize the slide deck presented during the session. The team is
working to get the details regarding the API posted to the eCredit web page on PJM.com within a few weeks.

3. Glenn Long, PJM, reviewed on the use of the new DR Hub API. The API connection currently utilizes SOAP and is being developed to utilize REST. He mentioned that moving to REST will provide the access of web services down to the user level. Users that have not connected with the SOAP message creation will be able to connect to the REST requests fairly quickly.

Mr. Long stated that PJM will continue to provide the Command Line Interface (CLI) for users in addition to the REST services. The CLI will assist those that do not have a lot of technical support. He also provided numerous links available on slide 4 of the presentation for user guides, examples as well as the DRHubSupport@pjm.com email address for questions relating to DR Hub.

Product Feature Design (10:55)

4. Glenn Long provided a demonstration of the PJM CLI connecting to DR Hub. He was able to quickly generate a result set and show the group how to upload data. DR Hub training is available on the Training Events page of PJM.com. Links to the Train environment will be provided in the near future.

Feedback (11:00-11:15)

Robbie Staples, Old Dominion Electric Cooperative, had a question regarding system ID account restriction to user interfaces and if that would be implemented in Train and Production environments. Jim Gluck stated that the restriction will take place in all environments. It is currently in place in Train. Mr. Staples followed up if a new user will be required to access the user interface. Mr. Gluck indicated that for any account requiring access to the user interface must be a user account. If that account does not exist then yes, a new user account must be created.

A request from the chat area of the WebEx was received regarding CAMs receiving daily performance metrics on account usage to assist with tracking applications that are exceeding their usage. It was also requested that CAMs be notified at the same time as PJM client managers when issues arise so they are aware of the situation. Mr. Gluck indicated that work will be done to get metrics for all CAMs.

Future Forum Topics (11:15)

No future forum topics were brought up at this time.

Future Forum Dates

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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>October 27, 2016</td>
<td>10:00 a.m.</td>
<td>PJM Conference &amp; Training Center/ WebEx</td>
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<tr>
<td>December 2, 2016</td>
<td>10:00 a.m.</td>
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<tr>
<td>January 25, 2017</td>
<td>10:00 a.m.</td>
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<tr>
<td>February 28, 2017</td>
<td>10:00 a.m.</td>
<td>PJM Conference &amp; Training Center/ WebEx</td>
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