**via posting**

**TO:** Interested Industry Parties

**FROM:** Elizabeth Mallett, Director, Wholesale Gas and Retail Markets Quadrants, and

Caroline Trum, Director, Wholesale Electric Quadrant

**RE:** Final Minutes from October 5, 2023 WEQ Business Practices Subcommittee (BPS), RMQ BPS, and WEQ Cybersecurity Subcommittee (CSS) Meeting

**DATE:** October 16, 2023

**WHOLESALE ELECTRIC QUADRANT**

**RETAIL MARKETS QUADRANT**

**Business Practices Subcommittees and Cybersecurity Subcommittee**

**Conference Call**

**October 5, 2023 – 10:00 AM to 12:00 PM Central**

**FINAL MINUTES**

1. **Welcome**

Mr. Buccigross welcomed the participants to the meeting. Ms. Mallett provided the antitrust and meeting policies reminder. The participants introduced themselves. Mr. Buccigross reviewed the agenda. Mr. Sappenfield moved to adopt the agenda as final. Mr. Brooks seconded the motion which passed without opposition.

1. **Discuss** **2023 WEQ Annual Plan Item 3.d 2023 RMQ Annual Plan Item 4.a – Review cybersecurity protections, such as Public Key Infrastructure (PKI), that may be necessary to secure electronic communications for distributed energy resources (DERs), and develop business practices as needed**

Mr. Buccigross noted that two documents from Mr. Brooks were posted for the meeting, the [CATSS Work Paper](https://naesb.org/pdf4/weq_rmq_bps_weq_css100523w1.pdf) and the [Cybersecurity Excerpt](https://naesb.org/pdf4/weq_rmq_bps_weq_css100523w2.docx) document. Mr. Brooks reviewed the Cybersecurity Excerpt document with the participants. He stated that a bulk of the exchanges between distributed energy resources (DERs), DER aggregators, utilities, and system operators to communicate information takes place electronically, over open networks. Mr. Brooks explained that the majority of guidance that has been developed for the industry regarding DERs operational and interoperability requirements but that there is a gap in standards addressing command and control and authentication of parties. He stated that an industry standard in this area could help support uniform integration of DERs at both the wholesale and distribution level. Mr. Brooks noted that the WEQ-012 Public Key Infrastructure (PKI) Business Practice Standards are used to control access to industry tools such as the Open Access Same Time Information Systems (OASIS) and the NAESB Electric Industry Registry and suggested the subcommittees consider developing standards that could apply this framework to control access to DERs and ensure only authorized parties perform command and control activities.

Mr. Rendon stated that the digital certificates issued by NAESB Authorized Certification Authorities (ACAs) under the WEQ-012 PKI Business Practice Standards could be impacted by changes currently being considered by the CA/Browser Forum. Ms. Trum stated that if corresponding modifications are needed to the NAESB Accreditation Requirements for ACAs or the WEQ-012 PKI Business Practice Standards, the WEQ Cybersecurity Subcommittee should consider the issue separately from the current agenda item. She stated that she would work with the chair of the WEQ Cybersecurity Subcommittee, Mr. Buccigross, to schedule a meeting.

Ms. Kee stated that there is an industry need for DER cybersecurity-related standards, including those focused on preventing and mitigating denial of service attacks and party authentication. She expressed agreement with Mr. Brooks proposal, noting that PKI is a mature cybersecurity framework, already in use by the industry and scalable for DER applications. Ms. Lee asked if the use of PKI certificates for authentication of parties at the device level would require an assumption that the device itself is not malicious. Mr. Rendon stated that the security checks included as part of the issuance, installation, validation, and auditing processes for both client-level and device-level PKI digital certificates help to ensure the installed certificate is associated with the correct device or user and not been compromised. Mr. Brooks stated that the use of PKI digital certificates could be used to secure the processes for the installation of software patches and configuration changes for DERs by helping to ensure that only authorized parties are accessing the device and making modifications. He suggested that the development of standards in this area would be consistent with the annual plan items.

Ms. Kee asked whether an electronic vehicle (EVs) fast charging devices could be considered a DER. Mr. Brooks stated that there are a growing number of industry activities regarding EVs and EV fast charging devices and noted a Duke pilot project to dispatch EVs as DERs. Mr. Watson noted that the pilot program is mainly focused on the use of EVs to support demand side management programs. Mr. Brooks stated that in determining the scope of standards development, the participants should consider the types of devices that are currently being used or contemplated for use as DERs by the wholesale and retail electric markets and suggested that EVs could be a unique form of DERs. He explained that the EV as a DER would not be a stationary resource, meaning that while a parking lot for EV charging would be a stationary DER resource, the ability of such a resource to perform when called upon may be dependent on several factors. Mr. Watson stated that another example is the ability of electric school buses to provide energy during the summer peak demands. Mr. Buccigross asked whether a PKI digital certificate would be provided to each EV or to a DER aggregator. Mr. Rendon stated that for DERs and DER aggregations, there are several points of communication with various entities that would need to be protected. He explained that for EVs, as well as a majority of other Internet of Things (IOT) devices, a TLS certificate is usually installed at the point of manufacture or shortly thereafter to protect communications between the device and a server but that it is possible to install additional certificates, such as a PKI digital certificate, at the device level post-manufacturing.

Ms. Kee stated that NIST and NCCoE recently released a Cybersecurity Framework Profile Electronic Vehicle Extreme Fast Charging Infrastructure, a reference architecture to assist entities in assessing risk management processes and procedures around EV charging. She explained that the framework addresses areas such as encryption and authentication processes to protect communications between parties such as EVs, aggregators, service providers, and utilities, and is an application of the NIST Cybersecurity Framework to the EV and fast charging ecosystem. Ms. Kee noted that the NAESB PKI Business Practice Standards align with guidance and recommendations provided in the NIST Cybersecurity Framework and suggested that the development of additional NAESB Business Practice Standards in this area could be beneficial. Mr. Brooks stated that while the application of PKI to DERs and DER-related communications has been discussed in the past, the identification of gaps in cybersecurity guidance, combined with industry focus on the deployment and integration of DERs and DER aggregations, supports renewed consideration by the subcommittees. Mr. Sappenfield expressed agreement. He stated that NAESB Business Practice Standards addressing cybersecurity protections and protocols would support interoperability of DERs and DER aggregations, which can participate in both wholesale and retail markets, and improve upon the ability of a resource to perform when called upon.

Ms. Hunt asked what NAESB Business Practice Standards in this area could look like and if there would be a need to involve other WEQ or RMQ Subcommittees. Mr. Buccigross responded that standards could incorporate both business process and more technically-based requirements and that continuing to hold joint meetings between the WEQ and RMQ should allow the subcommittees to draw upon participants with the needed subject matter expertise in these areas. He encouraged participants to reach out to DER and cybersecurity subject matter experts within their companies who may have insights or be able to contribute to standards development.

Mr. Buccigross stated that, based on discussions during the meeting, the majority of participants appear to favor moving forward the development standards. He noted that the next steps would likely include identifying the DER-related communications and interactions that could be supported through cybersecurity-related NAESB Business Practice Standards and asked if there was any objection to moving forward in this manner. None was offered. Mr. Brooks motioned to move forward on the development of cybersecurity standards for DERs. Mr. Sappenfield seconded the motion. Mr. Buccigross asked for any opposition. There was no opposition to the motion.

1. **Other Business**

Mr. Buccigross stated that it may be helpful if the next meeting was educational in nature, such as presentations or a review of white papers on relevant topics. Ms. Trum noted that participants could contact the NAESB office with work paper and presentation suggestions and that she and Ms. Mallett would work with the subcommittee co-chairs.

1. **Adjourn**

The meeting adjourned at 11:04 AM Central on a motion by Mr. Brooks, seconded by Mr. Williams.

1. **Attendance**

| **First Name** | **Last Name** | **Organization** |
| --- | --- | --- |
| Tanner | Brier | Bonneville Power Administration |
| Dick | Brooks | Reliable Energy Analytics |
| Jim | Buccigross | Group 8760, LLC |
| Michelle | Coon | OATI |
| Keith | Dalia | Bonneville Power Administration |
| Kate | Davis | Bonneville Power Administration |
| Pedrom | Farsi | Arizona Public Service |
| Eva | Hunt | AvistaCorp |
| Alan | Johnson | NRG |
| Lila | Kee | GlobalSign |
| Darren | Lamb | CAISO |
| Annabelle | Lee | Nevermore Security |
| Elizabeth | Mallett | North American Energy Standards Board |
| Catherine | Meiners | ERCOT |
| Farrokh | Rahimi | OATI |
| Cory | Rasmussen | OATI |
| Daniel | Rendon | SSL.com |
| Ron | Robinson | Tennessee Valley Authority |
| Keith | Sappenfield | Corpus Christi Liquefaction |
| Lisa | Sieg | LG&E and KU |
| Karen | Stampfli | Tennessee Valley Authority |
| Scott | Stewart | Bonneville Power Administration |
| Caroline | Trum | North American Energy Standards Board |
| Sam | Watson | North Carolina Utilities Commission |
| Jason | Williams | Southern Company |