



NORTH AMERICAN ENERGY STANDARDS BOARD

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January 30, 2023
via: electronic submission

Mr. David P. Pekoske
Transportation Security Administration
c/o U.S. Department of Transportation
Docket Management Facility (M-30)
1200 New Jersey Avenue SE
West Building Ground Floor, Room W12-140
Washington, DC 20590

RE: Transportation Security Administration Enhancing Surface Cyber Risk Management (Docket No. TSA-2022-0001)

Dear Mr. Pekoske,

Thank you for the opportunity to offer these comments regarding the Transportation Security Administration's (TSA) Advance Notice of Proposed Rulemaking (ANPRM) *Enhancing Surface Cyber Risk Management* issued in Docket No. TSA-2022-0001. We are offering these comments to describe the North American Energy Standards Board (NAESB) cybersecurity-related standards applicable to the wholesale gas market, to identify which of these standards has been incorporated by reference into the Federal Energy Regulatory Commission (FERC) regulations, and to describe the related cybersecurity standards development efforts NAESB is currently undertaking. NAESB is voluntarily submitting these comments for informational purposes.

As background, NAESB is an American National Standards Institute (ANSI) accredited, non-profit 501(c)(6) corporation formed with the support of the U.S. Department of Energy (DoE) to propose, develop, and adopt voluntary standards and model business practices designed to promote more competitive and efficient natural gas and electric service that streamline the transactional processes of the natural gas and electric industries. NAESB and its predecessor organization, the Gas Industry Standards Board, have developed voluntary consensus-based standards for nearly thirty years with the support of the FERC, the DoE, the North American Electric Reliability Corporation, the National Association of Regulatory Utility Commissioners (NARUC) and state utility commissions, among other governmental and industry agencies.

NAESB maintains a membership of nearly three hundred corporate members that represent interests in the wholesale gas, wholesale electric, retail gas and retail electric markets. In addition, NAESB has more than two-thousand member and non-member participants active in various standards development efforts that address a wide range of subjects and levels of technical detail. While NAESB is primarily funded through its corporate memberships, the NAESB standards development process allows for all interested parties to participate and vote in the standards development activities regardless of membership status. This practice is vital to ensure that all NAESB standards have been properly vetted by the industry prior to adoption. All NAESB standards developed for the wholesale gas and wholesale electric markets are filed with the FERC, and all NAESB standards developed for the retail gas and retail electric markets are submitted to NARUC and made available to all state commissions. With few exceptions, all NAESB wholesale market standards



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have been adopted by the FERC and mandated as federal regulation for jurisdictional entities through the FERC process of incorporation by reference. Additionally, a number of the NAESB retail market standards have been adopted by state commissions or serve as the basis for regulation.

Again, we are grateful for the opportunity to provide comments as part of the TSA's ANPRM process. We hope you find this information helpful and should you need additional information, please do not hesitate to contact the NAESB office.

With Best Regards,

Jonathan Booe, Executive Vice President & COO, NAESB

cc via email: Michael D. Desselle, Chairman of the Board of Directors, NAESB
Valerie Crockett, Vice Chair of the Wholesale Gas Quadrant, NAESB
Rae McQuade, President, NAESB
William P. Boswell, General Counsel, NAESB



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UNITED STATES OF AMERICA TRANSPORTATION SECURITY ADMINISTRATION

Enhancing Surface Cyber Risk Management

Docket No. TSA-2022-0001

COMMENTS OF THE NORTH AMERICAN ENERGY STANDARDS BOARD

The North American Energy Standards Board (NAESB) is voluntarily submitting comments regarding the November 30, 2022 Advance Notice of Proposed Rulemaking (ANPRM) *Enhancing Surface Cyber Risk Management*, issued by the Transportation Security Administration (TSA) in Docket No. TSA-2022-0001. Included within this document is information on NAESB, the organization's consensus-based standards development process, and access to the NAESB Business Practice Standards. The comments also provide an overview of existing cybersecurity-related standards maintained by NAESB and an initial summary of the organization's future standards development efforts, with a specific focus on areas supporting the wholesale natural gas market. These comments are not meant to advocate for any particular position or the adoption of any NAESB standard or body of work but rather are solely intended to be informational in nature.

NAESB is an American National Standards Institute (ANSI) accredited, consensus-based standards development organization focused on the development of voluntary business practice standards that add transparency, uniformity, and security to market transactions and promote a more efficient and competitive marketplace for the wholesale and retail natural gas and electric industries. Originally formed as the Gas Industry Standards Board with the support of the U.S. Department of Energy (DoE) and Federal Energy Regulatory Commission (FERC), NAESB has been an active standards development organization for nearly thirty years, facilitating industry collaboration on over four-thousand voluntary business practices. As an ANSI accredited organization, NAESB is obligated to adhere to ANSI principles of standards development, including openness, balance of interest, and due process. As such, all interested parties, regardless of membership status, have the opportunity to participate in standards development within NAESB, including voting at the subcommittee level. Additionally, the NAESB standards development process, as established by the NAESB governance documents, ensures that no one group has the ability to exert undue influence over any decision in the standards development process.

As with many other standard development organizations, NAESB retains the copyrights to its standards. However, in recognition that a number of NAESB Business Practice Standards are part of federal regulations and some state regulations, NAESB provides ample opportunities for interested parties to access its standards. As a benefit of NAESB membership, NAESB members may obtain the standards free of charge. Non-members, which include agents, subsidiaries, and affiliates of NAESB members, can purchase the standards through the NAESB website. Standards are available for purchase by an entire publication, by topic, or by final action prior to the publication of a new version. The costs of standards and final actions are available on the NAESB website. Additionally, non-members may obtain access to the copyrighted standards through a no-cost limited copyright waiver. The limited copyright waivers are issued by the NAESB office and granted on a case-by-case basis for the purpose of evaluating standards prior to purchase and/or reviewing the standards to prepare comments to a regulatory agency.



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Since NAESB's inception, cybersecurity protections have been a fundamental element of the NAESB Business Practice Standards. The security related standards define requirements intended to strengthen the cybersecurity practices utilized by the energy industry with a focus on mitigating potential vulnerabilities and incorporating secure communication and encryption methodologies. These NAESB requirements are reflective of industry cybersecurity guidance, including recommendations from the NIST SP-800-63 Digital Identity Guidelines and FIPS Security Requirements for Cryptographic Modules, among others.

Through the use of digital signatures, self-certification, and provision for public-private keys to access and protect market information, the NAESB Wholesale Gas Quadrant (WGQ) Business Practice Standards facilitate an infrastructure of secure electronic communications with mutual entity authentication under which both the electronic transmission of data via Electronic Data Interchange (EDI) and browser-based transactions are protected. Every day, the infrastructure of secure electronic communications created by the NAESB standards support more than fifty separate transactions identified for: nominations, confirmations, scheduling of natural gas; capacity release, and the measurement, allocations and imbalances that are included in flowing gas transactions. The list continues with invoicing related transactions such as invoices, remittances, and statements of account. As other electronic transactions in the wholesale natural gas market are determined to require such electronic protection, they too can be included as applicable.

Currently, the cybersecurity related standards applicable to the wholesale natural gas market are included within the NAESB WGQ Electronic Delivery Mechanism (EDM) Business Practice Standards, and the NAESB WGQ Internet Electronic Transport (IET) Business Practice Standards, which together define the electronic communication protocols, including cybersecurity protections, for commercial transactions within the wholesale gas market. The NAESB WGQ EDM Business Practice Standards establish the framework for the electronic dissemination of information between parties and provide a high-level guide to the development, implementation, and testing of the communication methods, including protocols, security, and transmission requirements. The NAESB WGQ IET Business Practice Standards define requirements for the implementation of technologies necessary to electronically communicate transactions and other data between trading partners, including security guidelines that address data privacy, data integrity, authentication, and non-repudiation.

For EDI based transactions, the NAESB wholesale natural gas cybersecurity standards utilize PGP (Pretty Good Privacy), a process that encrypts and decrypts transactional data and is also used to create encrypted digital signatures. PGP provides: (1) confidentiality: the assurance that no one can read a transaction except the intended receiver(s), (2) authentication: the assurance that an entity is who it claims to be, (3) integrity: the assurance that data has not been altered (intentionally or unintentionally) from sender to recipient and from time of transmission to time of receipt, and (4) technical non-repudiation: that a party cannot deny having engaged in the transaction or having sent the electronic message. PGP employs public-private key pairs, and the NAESB cybersecurity standards rely upon OpenPGP as defined by Internet Engineering Task Force (IETF) RFC 4480 protocol, or if parties mutually agree, PGP version 9 or greater using the RSA algorithm to generate the key pairs. The trading partners using PGP are self-certified and key policies, including policies for exchanges, are communicated between trading partners. The lifecycle of the encryption keys is suggested to be no more than one year and is determined by the key's owner. The key exchange procedures are identified in NAESB's Trading Partner Agreement (NAESB WGQ Standard 6.3.3).



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For transactions utilizing Internet web sites, servers, and browsers, HTTP Basic Authentication (IETF RFC 7617) and minimum 128-bit RSA encryption Transport Layer Security (TLS) (IETF RFC 7919 and RFC 8446) are used to secure the transport of electronic information between trading partners. The public and private keys (asymmetric) are used to create the symmetric session key. The session key is used to encrypt all transmitted data, thus providing protection and not adversely impacting transaction speed. Further, access to the underlying data is protected by user login and password requirements.

Additionally, the NAESB WGQ Business Practice Standards identify the specific allowable Transmission Control Protocol (TCP) Ports and contain recommended best practices for wholesale natural gas market participants in relation to firewalls and in establishing security protections and internal protocols. These standards provide guidance on the implementation timeline for new software versions or patch releases intended to address security vulnerabilities, communications between trading partners regarding known vulnerabilities that impact security and integrity of data transmission, maintenance of a business continuity plan for instances of critical system failures, and the use of certain security controls, such as malicious activity detection and proactive identification of hardware and software risks.

As part of the most recent version of the NAESB WGQ Business Practice Standards (NAESB WGQ Version 3.2), published on August 15, 2020, NAESB made several revisions to strengthen the cybersecurity-related standards, reflected in the above descriptions. These modifications were based on recommendations provided by Sandia National Laboratories as part of a surety assessment, funded by the U.S. DoE, to analyze cybersecurity elements within the NAESB Business Practice Standards. This surety assessment, completed in 2019, was the third such assessment of the NAESB Business Practice Standards sponsored by the DoE and performed by Sandia National Laboratories. Both prior assessments, conducted in 2000 and 2006, respectively, resulted in recommendations that led to modifications of the cybersecurity elements contained within the NAESB Business Practice Standards. These independent surety assessments conducted by the recognized experts of Sandia National Laboratories are crucial to the credibility of NAESB work products and the safety of the electronic transactions that use NAESB standards. In short, it was a tremendous benefit, and we are grateful to DoE and Sandia National Laboratories for providing such a service.

Following the publication of NAESB WGQ Version 3.2, NAESB submitted an informational filing regarding the standards to the FERC as part of Docket No. 96-1-042, on August 17, 2020.¹ On July 15, 2021, FERC issued Order No. 587-Z, adopting the standards, with few exceptions, through incorporation by reference, for inclusion within its regulations under 18 C.F.R. §284.12.² As such, these standards are mandatory for entities that are jurisdictional under the Natural Gas Act, specifically any interstate pipeline that transports gas under 18 C.F.R. §284 Subparts B or G. Per FERC Order No. 587-Z, industry compliance with the standards was required beginning on June 1, 2022. These standards, as is true for all NAESB standards, are reviewed against current market requirements, and are provided to FERC as they are updated.

¹ The informational filing made by NAESB regarding NAESB WGQ Version 3.2 may be viewed through the following hyperlink: https://naesb.org/pdf4/naesb_081720_wgq_version_3.2_report.pdf

² FERC Order No. 587-Z may be viewed through the following hyperlink: https://naesb.org/pdf4/ferc071521_final_rule_order587z.pdf



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In recognition of the constantly shifting threat and security landscape, NAESB frequently assesses the cybersecurity-related requirements found within the NAESB Business Practice Standards to ensure cybersecurity protections are continuing to meet the needs of the energy industry. This is done through an annual standard review process. For the WGQ Business Practice Standards, the review includes an assessment in order to update, as necessary, communication and encryption methodologies as well as the minimum hardware and software components identified within the standards. These minimum components include items such as operating systems requirements and versioning of supported internet browsers and related plug-ins utilized in the development and maintenance of customer activities and informational postings websites maintained by natural gas pipelines. The review also encompasses the identification and removal of any legacy functionalities in order to limit potential cybersecurity vulnerabilities.

Beyond this effort, NAESB has underway two additional standard development activities related to cybersecurity elements within the NAESB WGQ Business Practice Standards. First, NAESB is currently reorganizing its cybersecurity-related standards in response to an informal recommendation from the DoE and Sandia National Laboratories. That recommendation, which followed the 2019 Surety Assessment, asked that NAESB, working with FERC, consider methods for which the timeline for implementing cybersecurity standards could be abbreviated. This effort will result in the creation of a new suite of standards applicable to each market to house the cybersecurity-related requirements. Maintaining the requirements in a singular, market-specific suite will expediate the process by which the cybersecurity-related standards can be developed, adopted, and implemented by the industry. NAESB anticipates this effort to be completed during the 1st Quarter, 2023. FERC staff have indicated support for NAESB to include, as part of its next publication of standards applicable to the wholesale natural gas and wholesale electric markets, separate suites of cybersecurity-related standards. While a publication date has not yet been set for the next version of the NAESB WGQ Business Practice Standards, they should be released sometime this year.

The next standards development activity originated from NAESB's 2022 Standards Development Survey. NAESB conducts this survey on a biennial basis to gauge industry interest in the organization's exploration of various standards development or other activities over the next twelve to eighteen months. In last year's survey, one area receiving robust support was the evaluation of further standards regarding cybersecurity. As a direct result of a recommendation made by several survey respondents that participate in the wholesale natural gas market as pipelines, the NAESB Board of Directors decided to undertake consideration of multi-factor authentication (MFA) requirements for inclusion within the NAESB WGQ Business Practice Standards. In a display of industry support for this effort, eight natural gas pipeline companies and their affiliated subsidiaries have submitted a related request for standards development: Boardwalk Pipelines,³ Eastern Gas Transmission & Storage, Inc.,⁴ Enbridge (U.S.) Inc.,⁵ Iroquois Gas

³ With their affiliates Boardwalk Storage Company, LLC, Gulf South Pipeline Company, LLC, and Texas Gas Transmission, LLC

⁴ With their affiliates Cove Point LNG, LP and Carolina Gas Transmission LLC

⁵ With their affiliates Algonquin Gas Transmission, LLC, Big Sandy Pipeline, LLC, Bobcat Gas Storage, East Tennessee Natural Gas, LLC, Egan Hub Storage, LLC, Garden Banks Gas Pipeline, LLC, Gulfstream Natural Gas System, L.L.C., Maritimes & Northeast Pipeline, L.L.C., Mississippi Canyon Gas Pipeline, LLC, Nautilus Pipeline Company, L.L.C., NEXUS Gas Transmission, LLC, Sabal Trail Transmission, LLC, Saltville Gas Storage Company, L.L.C., Southeast Supply Header, LLC, Steckman Ridge, LP, and Texas Eastern Transmission, LP



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Transmission System, L.P., Kinder Morgan, Inc.,⁶ Northern Natural Gas Company, Southern Star Central Gas Pipeline, and TC Energy Corporation.⁷ One focus of the standards development activity will be the potential utilization of MFA as part of identity authentication for users of customer activities websites maintained by natural gas pipelines operating in the wholesale marketplace. NAESB anticipates that this effort will also be completed during the 1st Quarter, 2023, with any new or revised standards adopted by the organization included in the next version of the NAESB WGQ Business Practice Standards.

While the focus of these comments are standards applicable to the wholesale natural gas market, NAESB also maintains cybersecurity-related requirements in support of the wholesale electric and retail natural gas and electric markets. The NAESB Retail Markets Quadrant (RMQ) Business Practice Standards also rely on PGP protocols and contain a number of cybersecurity-related requirements that mirror those found within the NAESB WGQ Business Practice Standards. Cybersecurity-related standard development efforts are often coordinated between wholesale natural gas and retail market participants within NAESB.

Within the wholesale electric market, industry participants have opted to utilize a different cybersecurity scheme and developed standards that incorporate Public Key Infrastructure (PKI) protocols. The NAESB PKI Business Practice Standards, supported by the NAESB Certification Program for Accredited Certification Authorities, establish a cybersecurity framework to ensure secure electronic communications via encryption of data and the electronic authentication of parties to a transaction through the use of a digital certificate issued by a NAESB certified certificate authority. As mandated by FERC, jurisdictional entities participating in the wholesale electric market and market participants that interact with such entities must use the NAESB PKI Business Practice Standards when electronically scheduling transmission service on the bulk electric grid. Additionally, in recognition of the interrelatedness of commercial and reliability aspects of the wholesale electric market, NAESB and the North American Electric Reliability Corporation (NERC), engage in active coordination on a number of topics, including cybersecurity-related requirements. By developing and maintaining supportive and complementary standards, entities that utilize the NAESB Business Practice Standards can ensure that any implemented business practices do not conflict with mandatory NERC Reliability Standards.

NAESB's long-standing support for open standards has created a competitive marketplace of interoperable e-commerce products to serve the energy industry. As with other NAESB Business Practice Standards, the cybersecurity-related standards are intended to facilitate a wide array of implementations utilizing either in-

⁶ With their affiliates Arlington Storage Company, LLC, Cheyenne Plains Gas Pipeline Company, L.L.C., Colorado Interstate Gas Company, L.L.C., El Paso Natural Gas Company, L.L.C., Elba Express Company, LLC, Horizon Pipeline Company, LLC, Kinder Morgan Illinois Pipeline, LLC, Kinder Morgan Louisiana Pipeline, LLC, Midcontinent Express Pipeline, LLC, Mojave Pipeline Company, L.L.C., Natural Gas Pipeline Co of America, Ruby Pipeline, L.L.C., Sierrita, Southern LNG, Inc., Southern Natural Gas Co., Stagecoach Pipeline & Storage Company, LLC, Tennessee Gas Pipeline Company, TransColorado Gas Transmission Company, LLC, Wyoming Interstate Company, L.L.C., Young Gas Storage Company, LTD.

⁷ With their affiliates ANR Pipeline Company, ANR Storage Company, Bison Pipeline LLC, Blue Lake Gas Storage Company, Columbia Gas Transmission, LLC, Columbia Gulf Transmission, LLC, Crossroads Pipeline Company, Gas Transmission Northwest LLC, Great Lakes Gas Transmission Limited, Hardy Storage Company, LLC, Millennium Pipeline Company, LLC, North Baja Pipeline, LLC, Northern Border Pipeline Company, Portland Natural Gas Transmission System, and Tuscarora Gas Transmission Company



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house or third-party software systems, with the applicability of the standards scalable for future business applications as they are identified. These standards undergo frequent internal and third-party review to ensure that they address evolving market needs and threats, and NAESB will continue to endeavor to maintain standards that strengthen overall cybersecurity for not only the wholesale natural gas market but also the wholesale electric and retail markets.

NAESB is appreciative of the opportunity to provide these informational comments to the TSA regarding the NAESB Business Practice Standards. If there are any questions or if additional information is required, please do not hesitate to contact the NAESB office (713-356-0060 or naesb@naesb.org).