

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

North American Electric Reliability  
Association

Docket No. RD14-2-000

**MOTION TO INTERVENE, PROTEST AND INITIAL COMMENTS OF THE  
ELECTRICITY CONSUMERS RESOURCE COUNCIL (ELCON),  
AMERICAN FOREST & PAPER ASSOCIATION (AF&PA),  
COUNCIL OF INDUSTRIAL BOILER OWNERS (CIBO), AND  
AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS (AFPM)**

Pursuant to Rules 211 and 214 of the Commission's Regulations (18 C.F.R. 385.211, 385.214), ELCON, AF&PA, CIBO, and AFPM ("ELCON *et al.*") file this motion to intervene, protest, and initial comments on the Petition ("Petition") filed by the North American Electric Reliability Association ("NERC") on December 13, 2013, for approval of revisions to the definition of "Bulk Electric System" ("BES"). In particular, NERC states that the revised definition "addresses the Commission's directives in Order Nos. 773 and 773-A, and responds to industry concerns..." Of particular concern to ELCON *et al.* and our members is the addition of Note 2 to Exclusion E1 (Radial Systems), which as proposed functionally allows for a configuration with a loop, but only one of 50 kV or less, to qualify for Exclusion E1. The Exclusion is of critical importance to the numerous retail industrial or manufacturing facilities that, for their own reliability purposes, are served by multiple utility feeds and have looped inside-the-fence conductors. In many cases these facilities are simply retail customers of the BPS with no generation but, absent change to NERC's proposal, they could be brought under the revised BES definition contrary to reliability needs and to their expectations as retail customers as well as those of the Commission and NERC.

As discussed below, ELCON *et al.* urge the Commission to remand to NERC the issue of Note 2 to Exclusion E1 and to direct NERC to consider replacing its proposed 50 kV threshold with a 70 kV threshold for loops that are inside the fence of industrial or manufacturing facilities. Such a narrowly focused remand could be addressed expeditiously by NERC and would not delay the July 1, 2014 effective date of the revised BES definition.

ELCON is the national association representing large industrial consumers of electricity. ELCON member companies produce a wide range of products from virtually every segment of the manufacturing community. ELCON members operate hundreds of major facilities and are consumers of electricity in the footprints of all organized markets and other regions throughout the United States. ELCON has actively participated in the Commission's and NERC's proceedings respecting the BES definition.

AF&PA serves to advance a sustainable U.S. pulp, paper, packaging, and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - *Better Practices, Better Planet 2020*. The forest products industry accounts for approximately 4.5 percent of the total U.S. manufacturing GDP, manufactures approximately \$200 billion in products annually, and employs nearly 900,000 men and women. The industry meets a payroll of approximately \$50 billion annually and is among the top 10 manufacturing sector employers in 47 states.

CIBO is a trade association of industrial boiler owners, architect-engineers, related equipment manufacturers, and University affiliates with over 100 members representing 20 major industrial sectors. Since its formation, CIBO has been active in the development of technically sound, reasonable, cost-effective energy and environmental regulations for industrial boilers. CIBO supports regulatory programs that provide industry with enough flexibility to modernize - effectively and without penalty - the

nation's aging energy infrastructure, as modernization is the key to cost-effective environmental protection.

AFPM represents high-tech American manufacturers — fueling and building America's future. AFPM members produce virtually all refined petroleum products and petrochemicals manufactured in the United States, serving the American people responsibly and effectively. These manufacturers provide jobs, directly and indirectly, to 2 million Americans, economic and national security, and thousands of vital products to families and businesses throughout the United States.

Accordingly, ELCON *et al.* and our members have interests which may be directly affected by the outcome of this proceeding, and ELCON *et al.*'s participation in this proceeding is in the public interest. Therefore, ELCON *et al.* request that the Commission permit their intervention in this proceeding, as provided by Rule 214.

### **PROTEST AND INITIAL COMMENTS OF ELCON *et al.***

#### **I. EXCEPT FOR NOTE 2 TO EXCLUSION E1, ELCON *et al.* SUPPORT THE PETITION**

Other than Note 2 to Exclusion E1, ELCON *et al.* generally support the Petition. Orders 773 and 773-A left NERC with significant challenges. Although as explained in its petition for rehearing of Order 773, ELCON had some significant disagreements with FERC's directives, with the one exception addressed herein ELCON *et al.* believe that NERC has reasonably addressed them.

#### **II. NOTE 2 TO EXCLUSION E1 SHOULD BE REMANDED TO NERC**

In Orders 773 and 773-A, the Commission directed NERC to modify its proposed local network exclusion to remove the 100 kV minimum operating voltage to allow systems that include one or more looped configurations connected below 100kV

to be eligible for the local network exclusion.<sup>1</sup> The Commission stated in Order No. 773-A that “[i]t strikes us as unreasonable to characterize lines as radial by ignoring connecting facilities below 100 kV.”<sup>2</sup> The Commission further directed NERC to consider factors beyond the level of impedance -- including voltage, the system configuration, type of conductors, length of conductors, and proximity of the networked system in the interconnected transmission network -- in assessing these configurations.<sup>3</sup>

In response to these directives of the Commission, in the Petition NERC proposes the addition of a Note 2 to Exclusion E1 that would state: “The presence of a contiguous loop, operated at a voltage level of 50 kV or less, between configurations being considered as radial systems, does not affect this exclusion.”<sup>4</sup> NERC states that this provision is “responsive to the Commission’s concerns.”<sup>5</sup>

ELCON *et al.* understand the concept behind proposed Note 2 but disagrees that the threshold is properly set at 50 kV – at least for loops that are inside the fence of industrial or manufacturing facilities.<sup>6</sup> Instead, as would be supported by a risk-based assessment of the data gathered by NERC and appropriate consideration of the respective roles for the Exclusions and the Exception Request process, and as was supported by several of the participants in the NERC process, a 70kV threshold would be appropriate.

#### **A. NERC Failed to Properly Assess a 70 kV Threshold**

NERC states that it engaged in a two-step process in setting the voltage threshold. First, NERC identified 30 kV as “a reasonable starting point” as it reflected the “minimum voltage level . . . that industry experts consider necessary to monitor and

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<sup>1</sup> Order 773 at P 155.

<sup>2</sup> Order 773-A at P 125.

<sup>3</sup> Order 773 at P 155 n.139.

<sup>4</sup> Petition at p. 20 (emphasis added).

<sup>5</sup> Petition at p. 22, quoting Order 773-A at P 125.

<sup>6</sup> In Order 773, FERC suggested that generic relief for industrial end-users could be sought in NERC’s Phase 2. Order 773 at P 54.

facilitate the operation of the Bulk Electric System.”<sup>7</sup> Second, NERC states that it employed a “technical sensitivity analysis . . . with the goal of determining the voltage level below which single Contingencies on the transmission system would not result in power flow from a low voltage distribution or sub-transmission loop to the BES.”<sup>8</sup> Applying this unnecessarily stringent, zero tolerance standard, the Petition concludes that “a 50 kV threshold . . . does not preclude the application of Exclusion E1.”<sup>9</sup> However, there is no discussion in the Petition of the extent to which NERC considered in any other way the relative reliability risk to the BES that would be posed by a threshold higher than 50 kV, such as 70 kV. Thus, NERC has not properly determined that 50 kV is the maximum threshold that would allow for reliability of the interconnected transmission network or that a 70 kV threshold would not allow for such reliability, particularly when the Exceptions Process to account for any outlier configurations is taken into account.

NERC’s proposal is an overly conservative approach that is inconsistent with the ERO’s ongoing efforts to transform the current zero-tolerance compliance and enforcement program into “one that is forward looking, focuses on high reliability risk areas and reduces the administrative burden on registered entities.”<sup>10</sup> It would needlessly sweep many more industrial facilities than would be appropriate into the time-consuming and expensive Exception Process, while being subject to full compliance with the applicable reliability standards (which could well mean the hundreds of TO/TOP requirements) pending the grant of an Exception.

It would have been particularly important for NERC to properly assess a 70 kV threshold because its relevance to numerous currently unregistered industrial or manufacturing facilities that have 69 kV flows on loops inside their fencelines. In particular, major industrial or manufacturing facilities almost invariably are served by

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<sup>7</sup> Petition at p. 23.

<sup>8</sup> Petition at pp. 23-25.

<sup>9</sup> Petition at p. 25.

<sup>10</sup> See description of Reliability Assurance Initiative (RAI) at <http://www.nerc.com/pa/comp/Pages/Reliability-Assurance-Initiative.aspx>

multiple utility feeds. The main reason for such configurations is the need of industrial processes for a higher level of electric power reliability than what is typical outside the fence. A poll of our member companies reveals that looped, inside-the-fence conductors rated 69 kV and higher are relatively common, including industrial or manufacturing facilities that do not cogenerate electricity and steam, and are not already NERC registered entities. These facilities were not designed or intended to be inside-the-fence extensions of the BPS. They are retail customers of the BPS with the not unreasonable expectation that they will receive load following services from their host public utility regardless of the direction of flows at the interconnection with the TO/TOP.<sup>11</sup> FERC and NERC's presumption that the revised BES definition should not significantly change the registration status of entities<sup>12</sup> may be true for the entire class of entities that operate 69 to 99 kV elements, but that presumption is likely to fail for the smaller subclass of industrial or manufacturing facilities.

The bright-line nature of the BES definition's Exclusions (and Inclusions) require that any threshold level be judiciously set so as not to unduly burdensome and costly with no commensurate benefit to reliability. The right balance is achieved by recognizing the relative risk and capturing the most likely outcomes under the Exclusions and limiting and allowing Exception Requests to the more unusual or less frequent situations<sup>13</sup>

#### **B. NERC's Own Data Would Support a 70 kV Threshold**

In support of the Petition, NERC attached a public version of its document entitled "White Paper on Bulk Electric System Radial Exclusion (E1) Low Voltage Loop Threshold" dated September 2013 (the "NERC White Paper"). The data presented NERC White Paper show that a 70 kV threshold would not pose significant reliability risk.

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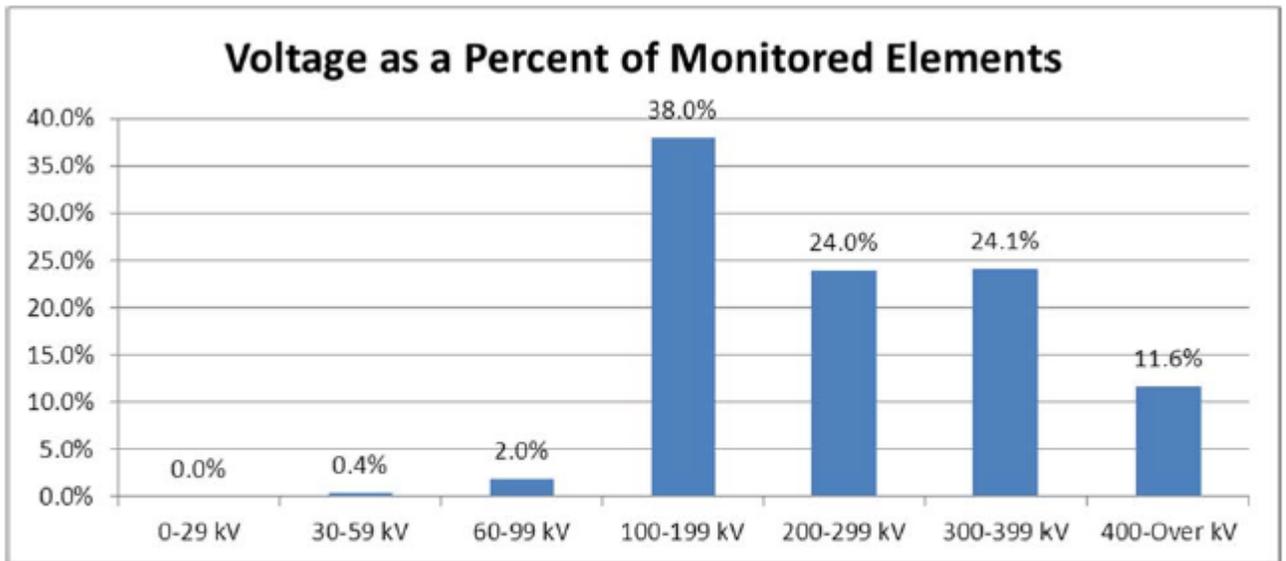
<sup>11</sup> Large manufacturing facilities typically self-provide reactive services and hence the need for BES Exclusion E4.

<sup>12</sup> See, e.g., Order 773 at P 55; Order 743 at P 144; 139 FERC ¶ 61,247 at P 132 ("consistent with NERC's explanation, we do not expect a significant number of registered entities outside of the NPCC region to identify new elements under the revised bulk electric system definition").

<sup>13</sup> See Section 11.C. below for a more detailed discussion of this point.

First, the NERC White Paper presented the results of its survey of the operating entities in the eight regions, which were “requested to provide the key groupings of elements they monitor to ensure reliable operation of the interconnected transmission system” so that NERC could “identify the lowest voltage element in the major element groupings monitored by operating entities in the eight Regions.”<sup>14</sup> This voltage “provides an indication of the lower limit which operating entities have historically believed necessary to ensure the reliable operation of the interconnected transmission system.”<sup>15</sup>

The results are stark: “the number of below 100 kV transmission line elements comprised less than 2.5% of the total monitored key element groupings.”<sup>16</sup> The following Figure 1 from the NERC White Paper summarizes the results:



**Notes:**

1. Data/Chart includes Transmission Lines only.
2. Data/Chart is a summary of individual elements (interfaces not included)

<sup>14</sup> NERC White Paper at p. 4.

<sup>15</sup> NERC White Paper at pp. 3-4.

<sup>16</sup> NERC White Paper at p. 5.

These data present strong support for a 70kV threshold, as only a very small percentage of elements at voltages below that level have been deemed to raise a potential reliability issue that warrants monitoring. As noted above, it would be far more efficient to establish a 70 kV threshold and apply the Exception Process to those few outlier elements if and as necessary.<sup>17</sup> Instead, by inappropriately adopting an unduly conservative, “zero tolerance” approach, NERC’s takeaway from this step of its assessment was a threshold of 30 kV.<sup>18</sup>

NERC then performed a “technical sensitivity analysis” applying a range of voltages and impedances, which NERC said “account[s] for a range of physical parameters such as conductor length, conductor type, system configuration, and proximity of the loop to the transmission system” to two model configurations: a distribution loop and a sub-transmission loop.<sup>19</sup> As previously noted, NERC analyzed the results using a zero tolerance approach -- its key parameter was to assess whether there were any instances of power flow reversal, of any magnitude, from the distribution system back to the transmission system. There was no qualitative assessment of the significance of any flow reversal.

For the distribution loop configuration, which is more akin to potential conditions inside the fence of an industrial facility, the assessment found no flow reversal whatsoever at any of the assessed voltages – 12.5 kV, 23 kV, 34.5 kV or 46 kV – under any of the multiple impedance conditions that were analyzed.<sup>20</sup> Accordingly, nothing in the presented results contraindicates a threshold of 70 kV.

The other configuration considered by NERC – a so-called “sub-transmission loop” -- was a more extreme example with very long lines resulting in high impedance:

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<sup>17</sup> Instead, the 50 kV threshold exposes the very large universe of 60 to 99 kV elements to seek an exception if Exclusion E3 is not applicable. It would be extremely useful if the BES classification process takes advantage of the regional monitoring documented in the NERC White Paper. For all practical purposes it is a first approximation of where the BES classification process should end with respect to transmission elements.

<sup>18</sup> NERC White Paper at p. 6.

<sup>19</sup> NERC White Paper at p. 7.

<sup>20</sup> NERC White Paper at pp. 11-12.

In this simplified depiction of a portion of a transmission and sub-transmission system, a 40-mile transmission line connecting two sources with transfer impedance between the two sources representing the parallel transmission network. Each source also supplies a 10-mile transmission line with a load tap at the mid-point of the line, each serving a load of 16 MW. At the end of each of these lines is a step-down transformer to the sub-transmission voltage, where an additional load is served. The two sub-transmission stations are connected by a 25-mile sub-transmission tie line.<sup>21</sup>

NERC presents no basis or justification for the use of this configuration, or any discussion of how it is representative of actual conditions. It is not at all representative of configurations at industrial or manufacturing facilities.

For this “sub-transmission” configuration, NERC ran simulations using a higher range of voltages – 34.5 kV, 46 kV, 55 kV, and 69 kV. Focusing the 69 kV level, NERC found that no power flow reversal occurred at a transmission voltage level of 230 kV but that some flow reversal occurred at transmission voltage levels of 161 kV and below.<sup>22</sup> NERC failed to offer any assessment of the magnitude of the flow reversal, perhaps because it was using a zero threshold approach. However, the data tables included in the NERC White Paper show that even in the most extreme simulation, the magnitude of power reversal was quite modest, representing a small fraction of the load.<sup>23</sup>

Nonetheless, while recognizing that it has “use[d] conservative parameters,” NERC concludes the White Paper as follows:

Simulations of power flows for the cases modeled in this study show there is no power flow reversal into the BES when circuit loop operating voltages are below 50 kV. This study also finds, for loop voltages above 50 kV, certain cases result in power flow toward the BES. Therefore, the study concludes that low voltage circuit loops operated below 50 kV should not affect the application of Exclusion E1.<sup>24</sup>

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<sup>21</sup> NERC White Paper at p. 14.

<sup>22</sup> NERC White Paper at pp. 15-16.

<sup>23</sup> NERC White Paper at pp. 26-27.

<sup>24</sup> NERC White Paper at pp. 16-17.

A more balanced, nuanced and risk-based assessment of the findings would be that, at loop voltages of less than 70 kV, NERC identified the potential for a small amount of power flow reversal only under this configuration that would not be conceivable inside the fence of an industrial facility, including a 40-mile transmission line connecting two sources, two 10 mile transmission lines tapping into each source line, a 25-mile sub-transmission tie line, etc. The simulations therefore confirm the practice in the field – that the Regional Entities have found it necessary to monitor less than 70 kV elements only in the rarest of cases.

**C. NERC Failed to Recognize the Proper Role for Its Own Exception Procedure**

A 70 kV threshold would substantially ease the administrative burden on a number of entities seeking to qualify for an Exclusion. If the Exclusion does not fully capture the impact of a particular situation, NERC and the regional entities could utilize the exception process seeking its inclusion. However, in developing its proposal here NERC inexplicably ignored the proper functioning of the exception process as established by NERC and approved by the Commission

The Exception Process is not a one-way outbound street – it is available to the Reliability Entity and operating entity seeking to include elements that are subject to an Exclusion. In other words, contrary to NERC’s proposal, an Exclusion is not intended to be drafted so narrowly that only elements posing zero risk to reliability of the BES fall within its terms. In its earlier comments in the Order 773 proceeding, as summarized by the Commission, NERC previously has recognized this central function of the exception process:

NERC further explains that the focus of the definition of bulk electric system is on looped or networked connections at or above 100 kV. According to NERC, connections operated below 100 kV, generally do not carry significant parallel flow due to the higher impedance of lower voltage facilities. If such facilities are necessary for the reliable operation

of the interconnected transmission network, NERC states that the exception process can be used to include such facilities.<sup>25</sup>

In Order 773, the Commission concurred, noting that “The exception process . . . provides for involvement of persons with applicable technical expertise in making decisions on Exception Requests.”<sup>26</sup> Expanding on this concept, the Commission stated that:

Regional Entities, planning authorities, reliability coordinators, transmission operators, transmission planners, balancing authorities, and owners of system elements will include, through the exception process, facilities identified in the course of performing planning assessments, from day-to-day operating experience, or assessment of system events that are not included by application of the definition but are necessary for reliable operation of the interconnected transmission network. We believe that entities, having knowledge of their systems and the concomitant planning assessments and system impact studies, will identify an element that is necessary for reliable operation of the integrated transmission network while conducting their day-to-day operations and planning and performing studies.<sup>27</sup>

This is precisely the efficient procedure that the Regional Entity or the operating entity should follow in the rare cases that it believes that a less than 70 kV loop posed a reliability risk, such as the handful of cases in which the Regional Entities have decided to engage in monitoring: Exclusion E1 should be allowed unless the Regional Entity or operating entity deems it appropriate to pursue an Exception Request. In such cases, the burden of proof would appropriately be on the Regional Entity or operating entity because it would have the data, modeling resources, wide-area view, and subject-matter expertise to support the Exception Request. Certainly, by comparison, an industrial end user with a sub-100 kV loop is ill-suited for that analysis.

The alternative proposed by the Petition -- NERC’s conservative approach to setting the threshold at 50 kV – is vastly more burdensome and would not achieve any tangible reduction in risk to reliability. It would trigger far more Exception Requests,

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<sup>25</sup> Order 773 at P 152 (emphasis added).

<sup>26</sup> Order 773 at P 251.

<sup>27</sup> Order 773 at P 269.

and pending action on the Exception Requests impose the burdens of unnecessary compliance with reliability standards, than the alternative of a 70 kV threshold. Therefore, NERC's proposal is inconsistent with its other efforts to abandon its zero-tolerance paradigm and adopt a more risk-based paradigm. The Commission should promote a less subjective process for identifying elements necessary for the reliable operation of the interconnected transmission system and encourage the relevant operating entities to base its assumptions on hard data and analysis.

### CONCLUSION

For the reasons presented herein, ELCON *et al.* urge the Commission to remand the issue of Note 2 to Exclusion E1 to NERC and to direct NERC to consider replacing its proposed 50 kV threshold with a 70 kV threshold – at least for loops that are inside the fence of industrial or manufacturing facilities. With a 70kV threshold set on the basis of a balanced assessment of reliability risk, the existence of 69 kV loops would deny applicability of the radial exclusion unless the Regional Entity or operating entity pursued the BES exception process to address any unusual outlier cases where a reliability risk is perceived. By contrast, NERC's proposal here would require a much larger number under a 50kV threshold to pursue the exception process to opt out of registration (and in the meantime to be subject to the burdens of unnecessary applicability of reliability standards). The Exclusion is of critical importance to the numerous retail industrial or manufacturing facilities that, for their own reliability purposes, are served by multiple utility feeds and have looped inside-the-fence conductors. In many cases these facilities are simply retail customers of the BPS with no generation but, absent change to NERC's proposal, they could be brought under the revised BES definition contrary to reliability needs and to their expectations as retail customers as well as those of the Commission and NERC.

This narrowly focused remand could be addressed expeditiously by NERC and would not delay the July 1, 2014 effective date of the revised BES definition.

ELCON *et al.* reserve the opportunity to submit further comments should the Commission issue a notice of proposed rulemaking in response to the Petition.

### NOTICES AND COMMUNICATIONS

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Respectfully submitted,

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Dated: January 17, 2014

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary of this proceeding.

Dated at Washington, D.C.:            January 17, 2014

/s/ W. RICHARD BIDSTRUP  
W, Richard Bidstrup