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Director of Reliability  
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March 5, 2010

TO: RELIABILITY COORDINATORS  
INDUSTRY STAKEHOLDERS

**Request for Public Comment on Data Request for  
NERC Reliability Metric ALR3-5 IROL/SOL Excursion**

The North American Electric Reliability Corporation (“NERC”) is hereby requesting public comment by April 19, 2010 on this proposed Data Request for the ALR3-5 Interconnection Reliability Operating Limit/System Operating Limit (“IROL/SOL”) Excursion. Please respond to the questions in Sections B to facilitate the development of data to be requested in Section A that will be collected on a quarterly basis, and submit your responses in a word document to [metrics@nerc.net](mailto:metrics@nerc.net) by April 19, 2010.

In accordance with Section 1600 of the NERC Rules of Procedure,<sup>1</sup> NERC may request data or information that is deemed necessary to meet its obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of the Federal Energy Regulatory Commission’s (“FERC”) regulations. This is a proposal for such a request. Section 1600 requires NERC to provide the proposed data request to FERC’s Office of Electric Reliability at least twenty-one days prior to posting the data request for public comment. NERC provided this proposed data request to FERC on February 12, 2010. Accordingly, NERC is hereby posting this proposed data request for public comment. After consideration of comments received, NERC will present this proposed data request to the NERC Board of Trustees for approval, as required by Section 1602 of the NERC Rules of Procedure. Upon NERC Board of Trustees’ approval, this data request will become mandatory for all Reliability Coordinators (“RCs”) in the U.S. who are registered on the NERC Compliance Registry. Non-U.S. RCs who are NERC members are also required to comply with NERC’s *Rules of Procedure*. Therefore, because this data is being requested in accordance with Section 1600, non-U.S. RCs that are NERC members must also provide the requested IROL/SOL data.

Under the direction of the Planning Committee, the Reliability Metrics Working Group develops metrics for use by the industry to help assess the reliability of the bulk power system. The report “*2009 Bulk Power System Reliability Performance Metric Recommendations*”<sup>2</sup> recommended by the Operating Committee and approved by the Planning Committee on September 16, 2009, identified a number of metrics. Most of these measures can be determined from data available from existing data sources. However, ALR3-5, quantifying IROL/SOL limit excursions,

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<sup>1</sup> NERC’s Rules of Procedure are available at:

[http://www.nerc.com/files/NERC\\_Rules\\_of\\_Procedure\\_EFFECTIVE\\_20100121.pdf](http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20100121.pdf)

<sup>2</sup> The report is available at [http://www.nerc.com/docs/pc/rmwg/RMWG\\_Metric\\_Report-09-08-09.pdf](http://www.nerc.com/docs/pc/rmwg/RMWG_Metric_Report-09-08-09.pdf).

requires new data to be supplied to NERC by Reliability Coordinators (“RCs”) when limits are exceeded.

This is a mandatory request for data to be submitted on a quarterly basis beginning January 1, 2011. The details of the data request are summarized in Section A. Because this is a new metric and definitions will vary between Interconnections, voluntary reporting is being requested for the pilot period beginning January 1, 2010 and ending December 31, 2010. The specific data definitions may be modified upon review of the pilot results. In the U.S., the parameters of the data needed to fulfill this request were previously identified in the August 17, 2007 data request to comply with FERC’s Order No. 693, Requirements Interconnection Reliability Operating Limits.<sup>3</sup> Canadian Reliability Coordinators may need to develop new reporting processes to provide the requested data.

Both IROLs and SOLs are identified in this data request to recognize that, while the IROL is used in the Eastern, ERCOT and Québec Interconnections, there are no pre-identified IROLs in the Western Interconnection. Through this data request, the RCs in the Eastern and Québec Interconnections are required to submit quarterly IROL excursion data only; the RCs in the Western Interconnection are required to submit quarterly SOL excursion data; and the RC in the ERCOT Interconnection is required to submit the IROL and SOL excursion data until its IROL method is changed.

The metric ALR3-5 is a data request, not a Reliability Standard, and therefore this request for public comment is being made pursuant to Section 1600 of NERC’s Rules of Procedures. The information required for a data request is defined in Section 1602.1.1 and is provided in Section A, below.

Comments in response to Section B are due to NERC on April 19, 2010 and must be submitted in a Word document to [metrics@nerc.net](mailto:metrics@nerc.net). If you have any questions, please contact Rhaiza Villafranca (609) 524-0620 or by email at [rhaiza.villafranca@nerc.net](mailto:rhaiza.villafranca@nerc.net).

Regards,



Mark Lauby  
Director of Reliability Assessment & Performance Analysis

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<sup>3</sup> Official data request to fulfill FERC order No. 693 is available at <http://www.nerc.com/files/PublicFinalFiled-IROL-Data-Request-10312008.pdf>.

## A. ALR3-5 Data Request Information

1. *A description of the data or information to be requested, how the data or information will be used, and how the availability of the data or information is necessary for NERC to meet its obligations under applicable laws and agreements.*

*a. A description of the data or information requested.*

The mandatory request for data is scheduled to be provided on a quarterly basis beginning on January 1, 2011. To pilot this metric and data collection, voluntary data submittal is requested beginning January 1, 2010 and ending December 31, 2010. In the U.S., the data needed to fulfill this request was previously identified in the August 17, 2007 data request that was issued to comply with FERC's Order No. 693 Requirements Interconnection Reliability Operating Limits.<sup>4</sup> However, in Canada, Reliability Coordinators may need to develop new reporting processes to provide the requested data.

For each Reliability Coordinator that experiences an IROL/SOL<sup>5</sup> excursion event within their footprint, the Reliability Coordinator shall provide the following information. The attached NERC spreadsheet template can be used to submit this information on a voluntary basis for excursions occurring from January 1, 2010 to December 31, 2010. Beginning on January 1, 2011, this information shall be provided in accordance with the mandatory data request to NERC on a quarterly basis.

- Submitting Reliability Coordinator Name
- Within the quarter being reported, count of the number of times an IROL/SOL was exceeded for greater than 10 seconds, and less than or equal to 10 minutes
- Within the quarter being reported, count of the number of times an IROL/SOL was exceeded for greater than 10 minutes, and less than or equal to 20 minutes
- Within the quarter being reported, count of the number of times an IROL/SOL was exceeded for greater than 20 minutes, and less than or equal to 30 minutes
- Within the quarter being reported, count of the number of times an IROL was exceeded for greater than 30 minutes

The individual data submissions should be sent to NERC at [metrics@nerc.net](mailto:metrics@nerc.net) by the end of the month following each calendar quarter. The first quarterly voluntary data submittal is requested on April 30, 2010 and the last on January 31, 2011.

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<sup>4</sup> The official data request issued by NERC to comply with FERC order No. 693 is available at <http://www.nerc.com/files/PublicFinalFiled-IROL-Data-Request-10312008.pdf>. While Reliability Coordinators are not being asked to provide NERC with the additional, more detailed data described in the August 17, 2007 data request, they are encouraged to collect and retain this data to facilitate their own analysis of the metric results.

<sup>5</sup> Both terms IROL and SOL are used in this data request to recognize that, while the IROL is used in the Eastern, ERCOT and Quebec Interconnections, there are no pre-identified IROLs in the Western Interconnection. Through this data request, the RCs in the Eastern and Quebec Interconnections are required to submit quarterly IROL excursion data only; the RCs in the Western Interconnection are required to submit quarterly SOL excursion data; and the RC in ERCOT Interconnection is required to submit the IROL and SOL excursion data until its IROL method is changed.

In order to gather a complete data set and project accurate trends, the first mandatory data collection will be due April 30, 2011. Reliability Coordinators will be required to use a NERC secure web interface to upload the data to a NERC database. This metric will be reviewed by NERC and the Planning Committee after five years from first implementation to assess whether it provides useful information for determining the performance of the bulk power system in the context of the ALR definition filed with FERC. If it does not, the requirement to record the data supporting this metric will be rescinded, unless such data is being used to support other metrics.

*b. How the data or information will be used*

The data will be used to calculate the ALR3-5 IROL/SOL Excursion reliability metric. The intent, as described in the document entitled *2009 Bulk Power System Reliability Performance Metrics Recommendations*, is to track the number of IROL/SOL excursions, grouped according to the time frames described above. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations that may exist. The Reliability Metrics Working Group will document metrics in its annual reports posted to the NERC website, after approval by NERC's Planning and Operating Committee.

*c. How the availability of the data or information is necessary for NERC to meet its obligations under applicable laws and agreements*

As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. To minimize data submittal effort and cost, NERC is not requesting detailed data for each IROL/SOL excursion. Over time, as trends become evident, NERC, Regional Entities, the Operating or Planning Committees may undertake initiatives to commence detailed analysis of metrics.

Both terms IROL and SOL are used in this data request to recognize that, while the IROL is used in the Eastern, ERCOT and Québec Interconnections, there are no IROLs pre-identified in the Western Interconnection due to its higher operating performance level requirements. The WECC Standard TOP-007-WECC-1 – System Operating Limits has requirements for reducing actual flows to within System Operating Limits (SOL) on Major WECC Transfer Paths.<sup>6</sup> These major paths are significant components for reliable delivery of power in the Western Interconnection. ERCOT uses both SOLs and IROLs and is in the process of revising its SOL method, which may result in the ERCOT Interconnection no longer having any IROLs.

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<sup>6</sup> WECC Standard TOP-007-WECC-1 – System Operating Limits is available at <http://www.wecc.biz/Standards/Pending%20Standards/TOP-007-WECC-1.pdf>.

Because of these operating differences, it will not be possible or meaningful to compare Interconnections. However, the data will be useful in identifying trends over time within each Interconnection.

*2. How the Data Will Be Collected and Validated*

The individual data submissions will be sent to the NERC at [metrics@nerc.net](mailto:metrics@nerc.net) by the end of the month following each calendar quarter. The enhanced reporting process will be implemented in the future, applying a Web-based reporting mechanism. Data validation occurs both when data is entered and when it is processed. Submitted data will be subjected to specific rules embedded within the reporting form. Data is subject to a thorough NERC staff review and the results will be vetted by the RMWG.

*3. A description of the entities that will be required to provide the data or information (“reporting entities”).*

All NERC Reliability Coordinators will be required to provide the data.

*4. The schedule or due date for the data or information.*

Reliability Coordinators are to report the requested data by the end of the month after the close of the calendar quarter for IROL/SOL events occurring during the previous quarter.

*5. A description of any restrictions on disseminating the data or information (e.g., “confidential,” “critical energy infrastructure information,” “aggregating” or “identity masking”).*

All data collected will be aggregated at the Interconnection level only. The data will be annotated to describe the IROL/SOL differences in each Interconnection. Because no details describing each IROL/SOL excursion are being reported, this data is not considered confidential energy infrastructure information and can be reported to the public.

*6. An estimate of the relative burden imposed on the reporting entities to accommodate the data or information request.*

For Reliability Coordinators in the United States, costs to develop the necessary reporting processes is expected to be less than the cost incurred to meet the August 17, 2007 official data request to fulfill FERC Order No. 693 Requirements Interconnection Reliability Operating Limits, as much less detail is being requested. Canadian Reliability Coordinators may need to develop new reporting processes to provide the requested data. Underlying data should be available in existing operating logs.

Some Reliability Coordinators may need to modify their monitoring systems, or develop applications to track IROL/SOL excursions as specified. Further, Reliability Coordinators may need to train their personnel on this request and provide resources to validate potential

IROL/SOLs. Minimal ongoing cost is expected for Reliability Coordinators to collect, compile, and report to NERC the requested data.

## **B. Comment Questions**

While commenters are not restricted in the format of their comments, we would appreciate your answers to the following questions:

1. *If you are the Reliability Coordinator, do you currently collect your IROL/SOL excursion information? If “no”, please explain.*
2. *Is the data being requested in Section A of this data request reasonable and obtainable? If “no”, please explain.*
3. *Is the metric appropriate? If “no,” please explain.*
4. *Is the data request schedule in Section A.1.a of this data request reasonable? If “no” please explain.*
5. *Please provide any other comments you may have about this data request.*

## Appendix I – Responses to ALR3-5 Data Request Comments

### 1. Introduction

The NERC March 5, 2010 request for public comment resulted in the submittal of eight sets of comments, the five of which were filed by the Reliability Coordinators or the ISO/RTO Council. The list of commenters is shown below.

|   | Commenter                             | Reliability Coordinator | Other |
|---|---------------------------------------|-------------------------|-------|
| 1 | Bonneville Power Administration (BPA) |                         | X     |
| 2 | CORE, Inc.                            |                         | X     |
| 3 | Hydro Québec TransEnergie             | X                       |       |
| 4 | IESO                                  | X                       |       |
| 5 | ISO New England                       | X                       |       |
| 6 | ISO/RTO Council                       | X                       |       |
| 7 | Southern Company Transmission         | X                       |       |
| 8 | Vectren Energy Delivery of Indiana    |                         | X     |

### 2. Comments That Resulted in ALR3-5 Metric Changes

We appreciated the responses by the eight entities that provided comments. Each comment was evaluated and discussed by the RMWG. For the comments that were not accepted, we explain our reasons in this document. Others made comments that were favorable and supportive of the data request or comments that did not require a response. We did not respond to those comments. However, several comments suggested changing the word “Excursion” to “Exceedance”. The RMWG adopted that suggestion and will recommend the change to OC and PC for approval. The revised metric form with the word change is attached in Appendix II.

### 3. Responses to the Comments

The request included the following five specific questions in the Section B of the Data Request. Most commenters (7 of 8) followed that format. All comments have been considered and responses are provided below.

Question:

1. *If you are the Reliability Coordinator, do you currently collect your IROL/SOL excursion information? If “no”, please explain.*

| Organization/Comment   | RMWG Response  |
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| <p><a href="#">Bonneville Power</a></p> <p>BPA is not an RC, however, we collect data on a small number of SOL's (16) on a 1 minute basis with roll-up of a: total excursion time by month, b: number of unique excursions, c: greatest proportion of time within 20% of SOL, d: least proportion of time within 20%</p> | <p>Even though your entity is not an RC, the RMWG assumes that to determine whether a system has had any IROL/SOL exceedances, the entity must monitor for them and then track any that occur. Since BPA is not an RC, BPA is not expected to report on this metric to NERC.</p> |
| <p><a href="#">Southern Company Transmission</a></p> <p>No, we have not had any IROL's.</p>  | <p>We assume that a response of “had no IROL/SOL” means that data may be collected for exceedances.</p>  |
| <p><a href="#">ISO New England</a></p> <p>We are a Reliability Coordinator and do currently collect IROL “excursion” (we interpret this to mean “exceedances”) data.</p>   | <p>The RMWG meaning for excursion is to exceed an IROL/SOL for the period of time listed in the metric.</p> <p>RMWG agreed to replace the word “Excursion” with “Exceedance”.</p>  |
| <p><a href="#">IESO</a></p> <p>The IESO is a Reliability Coordinator. We currently collect IROL/SOL excursion information but will need to make some system modifications in order to readily extract this information for reporting purposes.</p>   | <p>We appreciate your comments.</p>  |

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| <p><a href="#">ISO/RTO Council</a></p> <p>We represent several Reliability Coordinators and do currently collect IROL “excursion” (we interpret this to mean “exceedances”) data.</p>   | <p>RMWG agreed to replace the word “Excursion” with “Exceedance”.</p>   |
| <p><a href="#">Hydro Québec</a><br/><a href="#">TransEnergie</a></p> <p>Yes, HQT collects IROL/SOL excursion information.</p>   | <p>We appreciate your comment.</p>  |
| <p><i>Question:</i><br/>2. Is the data being requested in Section A of this data request reasonable and obtainable?<br/>If “no”, please explain.</p>  |   |
| <p><b>Organization/Comment</b></p>  | <p><b>RMWG Response</b></p>   |
| <p><a href="#">Bonneville Power</a></p> <p>It could be data intensive with a large number of SOLs (it takes time to do this).</p>   | <p>The RMWG believes that the data is important and useful for system reliability.</p>  |
| <p><a href="#">Southern Company</a><br/><a href="#">Transmission</a></p> <p>It is not reasonable, but it is obtainable. This data doesn’t provide any meaningful information to the industry and could possibly be used for purposes outside this scope. Monthly reporting is already done by the RC for any IROL’s</p> | <p>The RMWG has debated this issue and does feel that it is meaningful.</p> <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent</p> |

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| <p>exceeding 30 minutes.</p>  | <p>to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.</p>   |
| <p><a href="#"><u>ISO New England</u></a></p> <p>There appears to continue to be inconsistent definition of what constitutes an IROL or how an “excursion”/“exceedances” would be defined. How, then, is this data to be used meaningfully? Shouldn’t these inconsistencies be rectified as a first critical path step?</p> | <p>Also, the RMWG has discussed the differences in the definition of IROL/SOLs in each of the Interconnections, and made the determination (as stated in the metric) that IROLs would be reported in the Eastern and Québec Interconnections and SOLs would be reported in the Western Interconnection. In WECC specifically, there is a list of facilities for which the SOLs would be reported. ERCOT uses both SOLs and IROLs and is in the process of revising its SOL method, which may result in the ERCOT Interconnection no longer having any IROLs.</p> <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.</p> |

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| <p><u>IESO</u><br/>Yes, with some system modifications mentioned above.</p>  | <p>We appreciate your comment.</p>  |
| <p><u>ISO/RTO Council</u><br/>The data requested is obtainable; however, the cost of providing the data has yet to be justified. Until a clear reliability benefit is provided for collecting the data and a plan for analyzing the data, NERC should refrain from collecting the data to avoid expending scarce resources both within NERC and the industry and to allow those resources to focus on other efforts that have a clear reliability benefit. There continues to be inconsistent definition of what constitutes an IROL or how an “excursion”/“exceedances” should be defined. How, then, is this data to be used meaningfully? Shouldn’t these inconsistencies be rectified as a first ‘critical path’ step?</p> <p>We also believe it is unreasonable to request data be reported prior to the formal data request being distributed to the industry. We would suggest, if this data request moves forward, the submittal would not be required (even voluntarily) until at least one month after the request is distributed to the industry.</p> | <p>For RCs in the United States, costs to develop the necessary reporting processes are expected to be less than the cost incurred to meet the August 17, 2007 official data request to fulfill FERC Order No. 693 Requirements on Interconnection Reliability Operating Limits, as much less detail is being requested. Canadian RCs may need to develop new reporting processes to provide the requested data. Underlying data should be available in existing operating logs. Some Reliability Coordinators may need to modify their monitoring systems, or develop applications to track IROL/SOL exceedances as specified. Minimal ongoing cost is expected for Reliability Coordinators to collect, compile, and report to NERC the requested data. The metric reporting template can be viewed at <a href="#">ALR3-5 Reporting Template</a>.</p> <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.</p> <p>Since RCs may need to develop or modify new reporting processes to provide the requested data from existing operating logs, the voluntary submittal simply offers an opportunity for RCs to perform trial runs to uncover any unforeseen issues before the mandatory reporting goes into effect.</p> |

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| <p><a href="#">Hydro Québec TransEnergie</a></p> <p>HQT believes that the data requested in Section A of the data request is obtainable. However, HQT’s opinion is this data request is already addressed in NERC Audits process while auditors ask the SOL/IROL excursion list for the audited period when auditing NERC Reliability Standard TOP-007.</p> | <p>This metric goes beyond the reporting of IROL/SOL that exceed 30 minutes as required in standard TOP-007. The metric will collect IROL/SOL exceedances that occur and are less than 30 minutes, which is currently not required in the standard.</p>   |
| <p><i>Question:</i><br/> 3. Is the metric appropriate? If “no,” please explain.</p>   |   |
| <p><b>Organization/Comment</b></p>  | <p><b>RMWG Response</b></p>   |
| <p><a href="#">Bonneville Power</a></p> <p>The metric is OK but allow for data error correction.</p>  | <p>The RMWG will allow for data error correction after initial reporting.</p>   |
| <p><a href="#">Southern Company Transmission</a></p> <p>No, it provides no meaningful information to the industry, and it could possibly be used for purposes outside this scope.</p>   | <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.</p> |

### ISO New England

We see the value in collecting and evaluating this data, but would note that the same data was collected for an entire year at a more granular level than that being proposed. No lessons learned or summaries of what was gleaned from this data were ever provided to the industry. We believe this type of information/analysis should be used to implement more reliable operating practices or setting better requirements in NERC Standards, but there appears to be no “deliverable” in this metric. Additionally, as commented in response to #2, above, we caution NERC that the usability of this data, if not consistently defined, may be questionable.

In the U.S., the RCs submitted much more detailed IROL data in 2008 to meet the August 17, 2007 official data request and fulfill FERC Order No. 693 Requirements on Interconnection Reliability Operating Limits. As of May 2010, no responses have been received from FERC on this specific data collection. Therefore, no lessons learned or summaries from the previous survey are available at this time. We agree it would be preferable if FERC would share the results.

### IESO

We believe that there is some merit to capturing this metric so that we can observe trends over time. However we would be concerned if any IROL/SOL excursion is viewed as a risk to reliability.

Reliability Coordinators and Transmission Operators develop operational plans and operate their areas with an objective to stay within established limits. Owing to uncertainties and external activities, it is not unusual that IROLs and SOLs are temporarily exceeded for

As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.

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| <p>reasons beyond the RCs' and TOPs' control. Some have suggested that an operating margin be applied so that the IROL/SOLs will not be exceeded under a wide range of unexpected operating conditions. This approach lends itself to inefficient and costly operation without commensurate reliability gain. Further, there is no guarantee that even with a margin, whose size is hard to determine to begin with, IROL/SOLs will never be exceeded since system events and external influence can cause unpredictable changes to power flow, particularly the parallel flows in the tightly meshed Eastern Interconnection.</p> <p>It should be noted that the current IRO and TOP standards require the Reliability Coordinators and Transmission Operators to operate within IROs and SOLs, and correct exceedances within a specific time. We believe the current standards are appropriate and that IROL/SOL excursions within the allowed 30 minutes do not expose the interconnected system to unacceptable risk.</p> | <p>The RMWG has not viewed the data collection of this metric to measure the risk to reliability. The RMWG has not developed any benchmarks for any metrics, at this time.</p> |
| <p><a href="#"><u>ISO/RTO Council</u></a></p> <p>We are unable to comment on the <u>appropriateness</u> since we do not believe that the four groups</p>   | <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or</p>  |

of IROL/SOL excursion are in themselves reliability metrics. They are simply groups of data that serve to indicate past events, not necessarily operating trends, until such time one or a combination of the four is selected to represent an adequate level of reliability.

We anticipate there may be value in collecting and evaluating this data, but would note that the same data was collected for an entire year at a more granular level than that being proposed. No lessons learned or summaries of what was gleaned from this data were ever provided to the industry. We believe this type of information/analysis should be used to implement more reliable operating practices or for developing better requirements in NERC Standards, but there appears to be no “deliverable” in the collection of this data and the development of the metric. Absent any results or analysis, we are unable to understand the need for this follow up survey, and suggest that a follow-up survey not be initiated until after an analysis of the data collect to date has been completed. Additionally, as commented in response to #2, above, we caution NERC that the usability of this data, if not consistently defined, may be questionable.

It should be noted that the existing IRO and TOP standards require the Reliability Coordinators and Transmission Operators to operate within

mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.

In the U.S., the RCs submitted much more detailed IROL data in 2008 to meet the August 17, 2007 official data request and fulfill FERC Order No. 693 Requirements on Interconnection Reliability Operating Limits. As of May 2010, no responses have been received from FERC on this specific data collection. Therefore, no lessons learned or summaries from previous survey are available at this time. We agree it would be preferable if FERC would share the results.

The RMWG has not viewed the data collection of this metric to measure the risk to reliability. The RMWG has not developed any benchmarks for any metrics, at this time.

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| <p>IROLs and SOLs, and correct IROL exceedances within the associate T<sub>v</sub>. Reliability Coordinators and Transmission Operators develop operational plans and operate their areas with the objective of staying within established limits. Owing to uncertainties and external activities, it is not unusual that IROLs and SOLs are temporarily exceeded for reasons beyond the RCs' and TOPs' control.</p> <p>Some have suggested that an operating margin be applied so that the IROL/SOLs will not be exceeded under a wide range of unexpected operating conditions. This approach lends itself to inefficient and costly operation without significant reliability gain. Further, there is no guarantee that even with a margin IROL/SOLs will never be exceeded since internal and external system events can cause unpredictable change to power flow, particularly the parallel flows in the tightly meshed Eastern Interconnection. Collected data showing occasional or even frequent exceedances of IROL and SOL should not be taken as a reflection of risk to BES reliability.</p> |                            |
| <p><a href="#">Hydro Québec</a><br/><a href="#">TransEnergie</a></p> <p>HQT has no comments on appropriate metric for this matter.</p>   | <p>No response needed.</p> |

*Question:*

*4. Is the data request schedule in Section A.1.a of this data request reasonable? If “no” please explain.*

| <b>Organization/Comment</b>   | <b>RMWG Response</b>  |
|---|---|
| <p><a href="#"><u>Bonneville Power</u></a></p> <p>Yes, quarterly data is reasonable.</p>  | <p>The RMWG agrees with a quarterly data collection and reporting.</p>  |
| <p><a href="#"><u>Southern Company Transmission</u></a></p> <p>No, it provides no meaningful information to the industry, and it could possibly be used for purposes outside this scope.</p>  | <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The data results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations and inconsistencies that may exist. The RMWG plans to document metrics in its annual reports and post quarterly trend updates on the NERC website.</p> |
| <p><a href="#"><u>Vectren Energy Delivery of Indiana</u></a></p> <p>Comment: Although it may be reasonable this data may not be obtainable from all systems. And, that leads Vectren Energy Delivery to respectfully question the metric. Specifically, Vectren suggests that NERC consider changing the 10 second time to 1 minute. Many SCADA</p> | <p>The RMWG expects that the data would come from the RCs. Currently, all RCs within NERC can supply it. The RMWG does not expect other Registered Entities to provide this data.</p> <p>The RMWG will allow for data error correction after initial reporting.</p>   |

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| <p>systems, particularly older systems, have scan times of 10 seconds or more. And, if that is the case, then, under the recommendation, one or two bad data scans would trigger a report. Those kinds of reports may distract the reliability regulator from the data it seeks pursuant to this Schedule.</p>   |  |
| <p><a href="#"><u>ISO New England</u></a></p> <p>The data will be reviewed after five years to determine if it should continue to be submitted? It seems there should be information available regarding the usefulness of the data prior to five years.</p>   | <p>The RMWG conducts an assessment for every metric annually and posts the analysis results in its annual reports on the NERC website. Since ALR3-5 is a new metric and has no historical trends, statistically it may require five years from first implementation to assess whether it provides useful information for determining the IROL/SOL in the context of the ALR definition filed with FERC.</p>  |
| <p><a href="#"><u>IESO</u></a></p> <p>We do not anticipate any major difficulty in meeting the data request. However, setting up a process and the necessary tools to facilitate ease of data collection could take some time for us and perhaps others in the industry. We therefore ask the RMWG to take this into consideration, seeking inputs from the Reliability Coordinator WG as necessary on realistic implementation schedules, when proposing an effective date to launch this process. Further, we wish to emphasize that short exceedances don't necessarily mean reliability impairment and hence care should be taken when interpreting the data</p> | <p>The RMWG has interfaced with the RCWG and many other NERC groups during the development phase of this metric.</p> <p>As required by the IRO-009-1 Standard, Reliability Coordinators ensure prompt action to prevent or mitigate instances of exceeding IROL/SOLs that might cause instability, uncontrolled separation, or cascading outages. This data will help NERC and its stakeholders monitor the frequency and duration of exceeded IROL/SOLs. Over a period of time, this data will identify trends that may indicate the extent to which the bulk power system is being operated reliably. The analysis results may identify opportunities to enhance RC operating practices or clarify IROL/SOL-related reliability standards to eliminate potential multiple interpretations that may exist. The Reliability Metrics Working Group plans document metrics in its annual reports posted to the NERC website.</p> |

collected, and that any suggested metrics or directions be developed only after sufficient data is available and the industry reaches consensus on the meaning of the data.

The RMWG does not foresee the data collection to be a major effort or have a substantial cost.

For RCs in the United States, costs to develop the necessary reporting processes is expected to be less than the cost incurred to meet the August 17, 2007 official data request to fulfill FERC Order No. 693 Requirements Interconnection Reliability Operating Limits, as much less detail is being requested. Canadian RCs may need to develop new reporting processes to provide the requested data. Underlying data should be available in existing operating logs. Some Reliability Coordinators may need to modify their monitoring systems, or develop applications to track IROL/SOL excursions as specified. Further, Reliability Coordinators may need to train their personnel on this request and provide resources to validate potential IROL/SOLs. Minimal ongoing cost is expected for Reliability Coordinators to collect, compile, and report to NERC the requested data. The metric reporting template can be viewed at [ALR3-5 Reporting Template](#).

Since Reliability Coordinators may need to develop or modify new reporting processes to provide the requested data from existing operating logs, the voluntary submittal simply offers an opportunity for RCs to perform trial runs to uncover any unforeseen issues before a mandatory reporting goes into effect.

The RMWG conducts an assessment for every metric annually and posts the analysis results in its annual reports on the NERC website. Since ALR3-5 is a new metric and has no historical trends, statistically it may require five years from first implementation to assess whether it provides useful information for determining the IROL/SOL in the context of the ALR definition filed with FERC.

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| <p><a href="#">ISO/RTO Council</a></p> <p>We do not believe the data review should wait until the end of a five year period. The data collected should be reviewed and analyzed as it is received, with relevant results and potential trends reported back to the industry in a useful and timely manner.</p> | <p>The RMWG conducts an assessment for every metric annually and posts the analysis results in its annual reports on the NERC website. Since ALR3-5 is a new metric and has no historical trends, statistically it may require five years from first implementation to assess whether it provides useful information for determining the IROL/SOL in the context of the ALR definition filed with FERC.</p> |
| <p><a href="#">Hydro Québec<br/>TransEnergie</a></p> <p>Yes. A quarterly basis is an appropriate format.</p>   | <p>The RMWG agrees with a quarterly data collection and reporting.</p>  |
| <p><i>Question:</i><br/>5. Please provide any other comments you may have about this data request.</p>   |   |
| <p><b>Organization/Comment</b></p>   | <p><b>RMWG Response</b></p>   |
| <p><a href="#">Bonneville Power</a></p> <p>Recognize the SOL is a safe number not a panic number. It's OK to have flow at the SOL - the system is safe. Allow a 2% margin but ensure recovery below on a regular basis. (10 second reset???)</p>   | <p>The RMWG appreciates the comment and welcomes any specific proposals and improvement suggestions. Please submit your metric proposals to <a href="mailto:metrics@nerc.net">metrics@nerc.net</a>.</p>   |
| <p><a href="#">ISO New England</a></p> <p>We see no need for the last reporting requirement; this would be captured in a self-reported violation under IRO-009, R4.</p>  | <p>The last report category is included for consistency, so that there would not be two different data sources.</p>   |

|  |   |
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| <p><a href="#"><u>ISO/RTO Council</u></a></p> <p>We see no need for the last reporting requirement; this would be captured in a self-reported violation under IRO-009, R4.</p>   | <p>The last report category is included for consistency, so that there would not be two different data sources.</p>   |
| <p><a href="#"><u>Hydro Québec</u></a><br/><a href="#"><u>TransEnergie</u></a></p> <p>NERC plans to collect data during 5 years. HQT believes that this period of time is too long if it is found that the process needs enhancement or revision. A period of 2 years would be reasonable.</p> <p>As discussed at a RCWG meeting, the quarterly data will be presented by Interconnections. HQT does not support this approach as it is not fair for the ERCOT, Western and Québec Interconnections as there is only one RC in these Interconnections. Data presentation by Reliability Coordinator Area would be appropriate and fair for all RCs.</p> <p>HQT suggests that NERC discuss this NERC Reliability Metric ALR3-5 IROL/SOL Excursion data request with the Québec Energy Board (Régie de l'énergie du Québec) who is the regulator responsible for monitoring NERC Standards Compliance within the province of Québec.</p> | <p>The RMWG conducts an assessment for every metric annually and posts the analysis results in its annual reports on the NERC website. Since ALR3-5 is a new metric and has no historical trends, statistically it may require five years from first implementation to assess whether it provides useful information for determining the IROL/SOL in the context of the ALR definition filed with FERC.</p> <p>The RMWG has considered your suggestion and concluded that initially one North American wide number will be reported. The suggestion has been incorporated in the revised metric template, shown in Appendix II.</p> <p>We will seek input from the Régie de l'énergie du Québec on this matter.</p> |

| General Comment  | RMWG Response   |
|--|---|
| <p><a href="#">CORE, Inc.</a></p> <p><i>Questions:</i></p> <p>1. “actual power flow” metric in WECC Standard TOP-007-WECC-1 – System Operating Limits:</p> <p>Is this calculation based upon a common, uniform standard or measurement method? To be a useful metric, it should be.</p> <p>2. Is the information easy to collect and report? What is the measurement burden? (Trivial, minor, variable, substantial)</p> | <p>The RMWG has discussed the differences in definition of IROL/SOLs in each of the Interconnections, and made the determination (as stated in the metric) that IROLs would be reported in the Eastern and Québec Interconnections and SOLs would be reported in the Western Interconnection. In WECC specifically, there is a list of facilities for which the SOLs would be reported. ERCOT uses both SOLs and IROLs and is in the process of revising its SOL method, which may result in the ERCOT Interconnection no longer having any IROLs.</p> <p>The purpose of the RMWG is to move the North American metric processes in the direction of uniform standard measurements. In this case, the proposal is the best that can be obtained. Minimal ongoing cost is expected for Reliability Coordinators to collect, compile, and report to NERC the requested data. The RMWG does not foresee the data collection to be a major effort or have a substantial cost. The metric reporting template can be viewed at <a href="#">ALR3-5 Reporting Template</a>.</p> |

## Appendix II – Revised Metric ALR3-5 IROL/SOL Exceedance

| ALR3-5 IROL/SOL Exceedance                            |   |
|---|---|
| <b>Metric Number</b>                                  | ALR3-5  |
| <b>Submittal Date</b>                                 | February 27, 2009, revised on June 1, 2010  |
| <b>Sponsor Group (OC, PC or subgroup name)</b>        | RMWG  |
| <b>Short Title</b>                                    | Operating Limit Exceedance  |
| <b>Metric Description</b>                             | <p>Simple number count of how many times an IROL/SOL (base case conditions or during a contingency) has been exceeded. To illustrate how quickly IROL/SOLs are returned to within normal limits, the data will be grouped into 4 time segments as follows:</p> <p>10 seconds &lt; time IROL/SOL has been exceeded ≤ 10 minutes<br/>           10 minutes &lt; time IROL/SOL has been exceeded ≤ 20 minutes<br/>           20 minutes &lt; time IROL/SOL has been exceeded ≤ 30 minutes<br/>           30 minutes &lt; time IROL/SOL has been exceeded &lt; ∞ minutes</p>  |
| <b>Purpose</b>  | <p>The NERC Glossary of Terms defines an IROL as a System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System. This metric will provide the industry with data describing how often these events occur, and their duration.</p>   |
| <b>How will it be suited to indicate performance?</b> | <p>It is anticipated that IROLs would be reported under this measure in the Eastern and Québec Interconnections, and SOLs in the WECC Interconnection. Both IROLs and SOLs would be reported in the ERCOT Interconnection until its SOL method is revised, no longer having any IROLs.</p> <p>This metric is a direct measure of the frequency and duration of flows on an interface exceeding the defined limit. Exceeding IROL/SOLs could cause widespread outages if prompt operating control actions are not taken in a timely manner to return the system to within normal IROL/SOLs. For example, NERC standard IRO-009-1 requires that data for all IROL/SOLs be collected, and that those greater than acceptable (i.e. greater than 30 minutes) be reported to its Compliance Enforcement Authority.</p> |
| <b>Formula</b>  | <p>Identify all IROL/SOLs in a Reliability Coordinator area. Count the number of times that an IROL/SOL has been exceeded. For each IROL/SOL event, record the start and end date/time that the IROL/SOL was exceeded so that the elapsed time may be calculated. Retain the times for possible correlation and future study. Identify the number of IROL/SOLs that are exceeded, and separate these into the 4 time segments listed above.</p>   |

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|--|---|-----------------|------------|------------|----------|-------------------|
| <b>Time Horizon</b>                              | Real time operations  |                 |            |            |          |                   |
| <b>Metric Start Time or Baseline and Roll Up</b> | Year 2010, or when data is first available.   |                 |            |            |          |                   |
| <b>Data Collection Interval and Roll Up</b>      | Quarterly data from historical view   |                 |            |            |          |                   |
| <b>Ease of Collection</b>                        | Only Reliability Coordinators need to provide this data. Each Reliability Coordinator currently collects raw IROL/SOL data regularly as required by IRO-009, but likely do not retain it in the format proposed by this metric. The fourth time segment above is currently reported to Regional Entities as required by TOP-007. The first three time segments above are not currently reported to NERC or the Regional Entities. |                 |            |            |          |                   |
| <b>Aggregation</b>                               | Initially data will be aggregated at the NERC level.  |                 |            |            |          |                   |
| <b>Linkage to NERC Standard</b>                  | TOP-004, TOP-007, IRO-009   |                 |            |            |          |                   |
| <b>Linkage to Data Source</b>                    | Reliability Coordinator's data management systems and logs  |                 |            |            |          |                   |
| <b>Need for Validation or Pilot</b>              | No  |                 |            |            |          |                   |
| <b>Data Submitting Entity</b>                    | Reliability Coordinators  |                 |            |            |          |                   |
| <b>SMART Rating</b>                              | Total Score   | Specific/Simple | Measurable | Attainable | Relevant | Tangible / Timely |
|  | 14  | 3               | 2          | 3          | 3        | 3                 |
| <b>Reporting</b>                                 |   |                 |            |            |          |                   |
| <b>Style (look and feel)</b>                     | Line chart for each of the four time segments above   |                 |            |            |          |                   |
| <b>Publications and Documentation</b>            | Future NERC reliability metrics report and quarterly update on NERC website   |                 |            |            |          |                   |