



EPA CO2 RULE – ISO/RTO COUNCIL RELIABILITY SAFETY VALVE AND REGIONAL COMPLIANCE MEASUREMENT AND PROPOSALS

I. Introduction

ISO/RTO Council (IRC) members play a key role in maintaining electric system reliability and operating wholesale markets for electricity in North America.¹ Accordingly, the IRC has an interest in ensuring that the promulgation of environmental regulations is consistent with bulk electric system reliability and the economic efficiencies reflected in regional dispatches of electric power executed by ISOs/RTOs.

Typically, the IRC does not take positions on substantive policy issues related to the compliance structure of EPA programs. However, the IRC members can serve as a resource to policymakers at the state and federal level to facilitate informed decisions that recognize the relationship between proposed environmental rules, electric system reliability, and economically efficient dispatch. To this end, the IRC is interested in working with EPA, the States and all interested parties to implement a CO2 rule that respects electric system reliability and is compatible with efficient dispatch of the electric grid. The proposals discussed below are intended to support this outcome.

- “Reliability Safety Valve” – a proposal to ensure that any federal CO2 rule or related State Implementation Plan (“SIP”) includes a process to assess, and, as relevant, to mitigate, electric system reliability impacts resulting from related environmental compliance actions.
- “Regional Compliance Measurement” – a proposal for EPA to consider allowing states through their SIPs to adopt a regional measurement mechanism for determining compliance with CO2 rule obligations.²

A general discussion of the proposals is presented below. These are preliminary concepts intended to promote further dialogue among policymakers, RTOs/ISOs and interested stakeholders; if adopted, the implementation details would have to be further developed.

¹ The IRC is comprised of the Alberta Electric System Operator (“AESO”), the California Independent System Operator, Inc. (“CAISO”), Electric Reliability Council of Texas, Inc. (“ERCOT”), the Independent Electricity System Operator of Ontario, Inc., (“IESO”), ISO New England, Inc. (“ISO-NE”), Midcontinent Independent System Operator, Inc., (“MISO”), New York Independent System Operator, Inc. (“NYISO”), PJM Interconnection, L.L.C. (“PJM”), and Southwest Power Pool, Inc. (“SPP”). The IESO and AESO are not subject to EPA jurisdiction and are not joining these comments.

² This paper focuses on the above proposals, which are intended to mitigate the impact of the CO2 rule and/or state SIPs on electric system reliability and economically efficient dispatch. The proposals call for reliability assessments of compliance impacts, where relevant, and the provision of an option for regional measurement associated with reductions directed by states through their individual SIP plans. The participating ISOs/RTOs take no position on policy or legal matters related to the substantive structure of the CO2 rule / state SIPs beyond the matters discussed herein.

II. Reliability Safety Valve Proposal

A. CO2 RSV Proposal Overview

The potential electric system reliability impacts of the CO2 rule cannot be determined until the compliance parameters of the program are proposed. However, there are preventative measures that could be put in place in the proposed Rule to mitigate potential impacts to electric system reliability regardless of the final CO2 rule compliance policies and rules. Specifically, a “reliability safety valve” (RSV) that provides for reliability assessments and solutions, as well as the requisite compliance and/or enforcement flexibility to implement the reliability solutions, would achieve this goal.

The RSV proposal can help to ensure outcomes that address reliability issues without affecting the policies underlying the CO2 rule compliance design. In 2012, the IRC worked with EPA to establish an enforcement policy related to the MATS rule that reflects the RSV concept. Although the RSV proposal for the CO2 rule differs slightly, the underlying reliability proposition is the same – allow for electric system reliability impact reviews related to compliance requirements and, where relevant, provide for appropriate compliance and/or enforcement flexibility to accommodate solutions to mitigate issues that would otherwise compromise reliability requirements.

The final rule could allow implementation of this proposal by incorporating a reliability review conducted by the relevant system operator,³ working with the states and relevant reliability regulators, prior to finalization and approval of the SIP.⁴ The review would identify the reliability issues and solutions.⁵ The RSV process would then provide for appropriate regulatory review and approval of the reliability assessment and solution. Next, the RSV process would accommodate the reliability solution under the CO2 rule and/or SIP by providing for appropriate compliance and/or enforcement flexibility while a long-term reliability solution is developed and implemented.

³ The proposals presented herein are IRC proposals and are based on the IRC members’ functional ISO/RTO roles in the context of organized electricity markets – i.e., ISO / RTO regions. Although vertically integrated regions may differ in the manner of dispatch, the dispatch is still done on a regional basis. Therefore, the proposed reliability reviews could also be accomplished in non-RTO regions albeit with certain additional safeguards if deemed necessary by the appropriate regulator. The IRC is not representing that these proposals are in any way supported or endorsed by any other entities other than the IRC members.

⁴ Reliability issues typically arise when environmental regulations impact the availability of generation capacity to the system operator in executing its security constrained economic dispatch function. RSV reliability reviews would usually only be necessary if the CO2 rule and/or related SIPs affect the availability of generation capacity. Accordingly, different compliance approaches will likely vary with respect to potential electric system reliability impacts.

⁵ Proposed reliability solutions would be narrowly tailored to minimize deviations from applicable environmental compliance/enforcement obligations. Although reliability reviews would estimate how long a solution is needed, the process should include periodic reassessments of the need for the solution. Potential reliability solutions include, but are not limited to, short term retention of capacity where such capacity may otherwise be unavailable due to the application of the CO2 rule and prospective transmission solutions.

B. Differences between CO2 RSV Proposal and MATS RSV Process

The MATS reliability safety valve (RSV) proposal allowed non-compliant capacity needed for reliability to operate beyond the scheduled compliance date of the rule. Because the MATS rule was applied on a unit specific basis relative to set compliance dates, the reliability/resource adequacy impacts could be identified and addressed in a timeframe proximate to the initial compliance date without the need for ongoing reliability assessments. Static reliability assessments may not be adequate in all cases for compliance with CO2 regulation. The final rule should allow for the use of a “rolling” RSV process to assess system reliability on a prospective basis at multiple stages both prior to the SIP being finalized and approved and at various steps during its implementation, as necessary.

C. CO2 RSV Process Should Address Conflicts Between SIPs

It is possible that compliance approaches in one SIP can create a regional reliability issue affecting another state. For example, a SIP could restrict the output of a generator within its borders. When that limitation is reflected in the regional dispatch, it could create a transmission security issue in another state(s) within the region, or even in a neighboring region. Similarly, that SIP limitation on the unit could compromise the regional reserve margin obligation. The CO2 rule RSV can be used to address potential conflicts that could arise between state SIPs and RSV reliability assessments/solutions in multi-state regional dispatch areas. To mitigate potential conflicts between state SIPs and system reliability/reserve margin assessments, the CO2 rule should allow for SIP plans that may impact neighboring states (regardless of the region) to be structured so that regional reliability issues and solutions can be identified and developed, respectively, pursuant to the RSV process.

Details for the CO2 rule RSV mechanism(s) would have to be developed, but a reasonable approach would be for the RSV framework, as introduced in the following section, to be generally described and allowed for under the EPA rule, with implementation procedures established via the state SIPs.

D. CO2 Rule RSV Structure / Use Summary

Consistent with the above discussion, the core components of the proposed CO2 rule RSV proposal would include the following:

- The CO2 rule should establish an ongoing RSV process to assess and address electric system reliability/resource adequacy issues that may arise as a result of compliance impacts related to the EPA rule and state SIPs. The basic structure of this process would include the following:
 - A reliability review procedure conducted by the relevant system operator that can be used on a rolling basis, as necessary, within the context of the CO2 rule and/or SIPs;
 - Long-term reliability solutions that accommodate the new carbon rules would need to be sought; but if a long-lead time is necessary to implement such a solution, interim measures, such as keeping units on line until the long-term solution is available, may be necessary;
 - Appropriate regulatory review and approval of the reliability assessments and solutions performed pursuant to the reliability review procedure (proposed reliability solutions would be narrowly tailored to accommodate the interim reliability assessment/solution);

- Compliance and/or enforcement flexibility to accommodate the interim reliability assessment(s)/solution(s);
- Periodic reassessments of the need to continue the interim reliability solution;
- The CO2 rule RSV process should be utilized to support the establishment of compliance dates that are consistent with maintaining electric system reliability while long-term carbon-compliant reliability solutions are implemented;
- The CO2 rule and state SIPs should establish compliance program measures that recognize the need to maintain electric system reliability and resource adequacy requirements on an ongoing basis;⁶
- A process to align state SIPs in multi-state regional dispatch areas with regional reliability issues involving multiple states that are identified in the RSV process. This would include issue identification via the RSV process and a coordination process between EPA, its sister agencies charged by federal or state law with ensuring bulk power reliability, the affected states and the RSV reliability assessment entities (i.e. the relevant system operators). This review would facilitate the identification of cross-state reliability impacts associated with specific SIPs, and would enable the coordination of all requisite authorities to ensure they are managed efficiently and effectively under the CO2 rule.

III. Regional Compliance Measurement Proposal

The involvement of states is central to the regulatory program embodied in Section 111(d) of the Clean Air Act. SIPs are the key vehicles under Section 111(d) for regulating the affected pollutant – in this case greenhouse gases.⁷

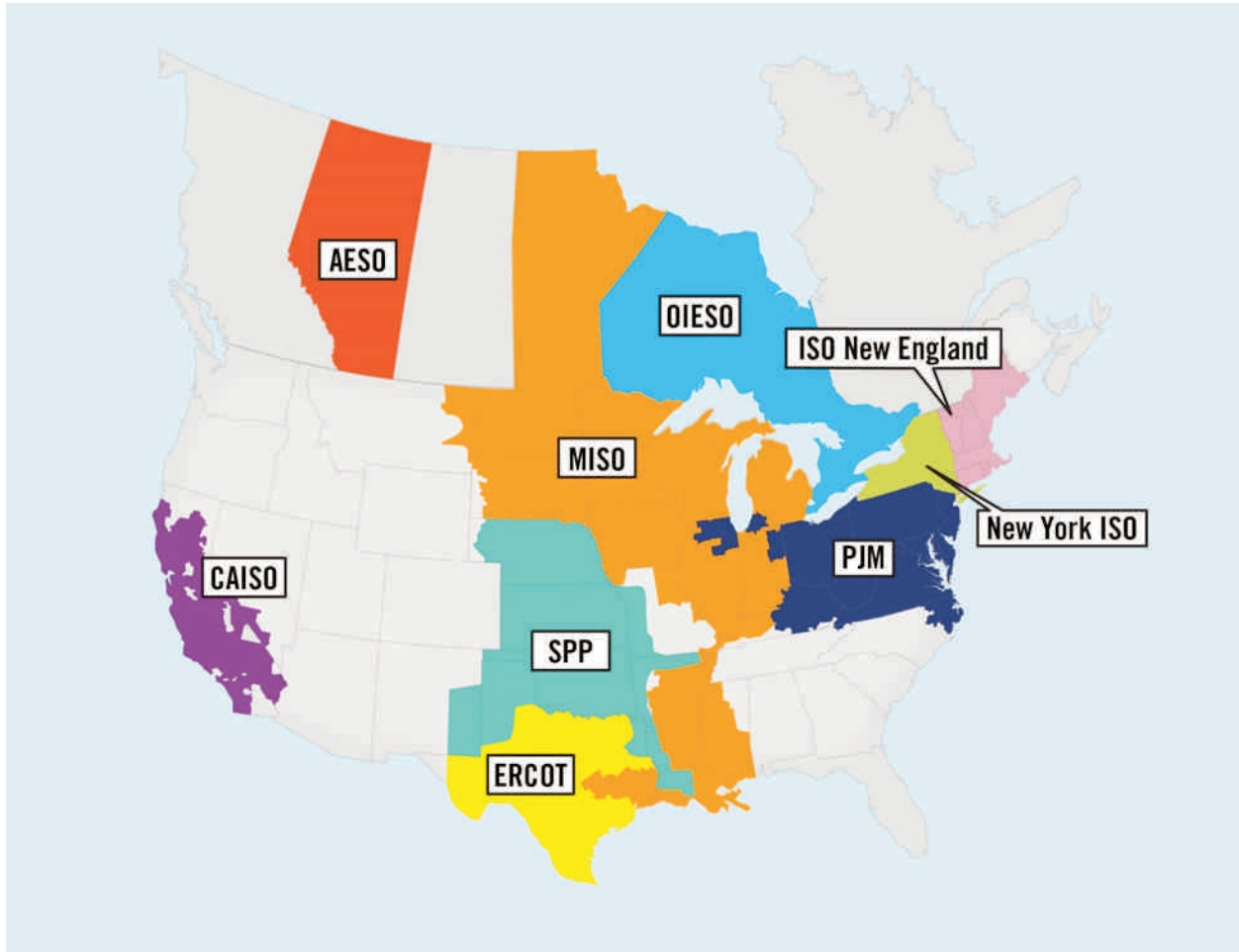
Although this paradigm contemplates individual state controls on GHG emissions, the nature of GHG is such that the location of specific emission sources is not nearly as relevant as the overall nationwide (if not worldwide) reduction in GHG emissions. As a result, coordinated regulatory programs among states can help to ensure that the efficiencies of least cost compliance across a regional, if not national, footprint can be maximized.

Current electric industry market structures provide a platform for capturing the efficiencies of a coordinated regulatory scheme across multiple states. Specifically, regions subject to a single integrated dispatch can provide an effective measurement area for relevant state implementation plans and measuring their impact. States that choose to adopt such an approach already participate in a regional electric system dispatch. Use of a regional measurement of emissions reductions in their SIPs across that same footprint is consistent with their existing participation in regional dispatch to meet the state's load requirements. In the 2/3rds of the nation that have embraced Independent System Operators and Regional Transmission Organizations ("ISOs/RTOs"), the ability to measure and maximize efficiencies can

⁶ This flexibility will facilitate effective and efficient reliability solutions regardless of whether the state is a single state regional dispatch area or part of a multi-state regional dispatch area.

⁷ EPA has designated greenhouse gases a "pollutant" for purposes of Clean Air Act Section 111(d) regulation.

occur over very large individual RTO/ISO regions. Presently, RTOs/ISOs geographic footprint covers approximately 2/3rds of the nation, encompassing regions that cover all or parts of 38 of the 50 states plus the District of Columbia. ISOs/RTOs serve approximately 75% of national demand.



ISOs/RTOs centrally dispatch power plants within their footprint based on the marginal cost of operation of each individual unit as reflected in bids submitted to the ISO/RTO on a day-ahead basis.⁸ By dispatching generation resources across the ISO/RTO footprint based on the marginal cost to produce the next MW of electricity, the economic efficiencies of the generation fleet is maximized for each hour of the operating day across the entire RTO footprint.⁹ Supply bids submitted by generators effectively internalize environmental compliance costs while still ensuring least cost compliance with

⁸ Each ISO/RTO also addresses real time deviations from the load and generation forecast by accepting bids to balance load and demand each hour in real time.

⁹ Moreover, through coordinated dispatch embodied in seams agreements, efficiencies are also captured to manage congestion across ISO/RTO borders.

environmental requirements.¹⁰ The regional centralized dispatch undertaken by ISOs/RTOs is known as Security Constrained Economic Dispatch (SCED).¹¹

The footprint over which units are dispatched pursuant to SCED provides a ready measurement area usable by states, *at their option*, for determining a least cost compliance program over a very large multi-state region---one that can optimize the efficiency and effectiveness of a compliance program across a broad fleet of generators and demand response resources.

In short, states in ISO/RTO regions already share in the benefits and costs of the efficient dispatch of the fleet, notwithstanding state boundaries, making the regional measurement option a consideration that is consistent with their participation in a regional SCED. Moreover, the regional dispatch can serve as an efficient regional measurement area that can be utilized by existing regional greenhouse gas initiatives or any such future multi-state agreements.

Furthermore, the SCED model can also be used by states to test the economic impacts of various environmental compliance strategies across state lines. RTOs/ISOs have the modeling tools to assist the states in testing various alternative scenarios which they can use as a resource as they look to devise a least cost multi-state solution using the SCED model.

In summary, by participating in the dispatch of all generation across the large ISO/ RTO footprint, states effectively share the costs and benefits of regional dispatch solutions rather than require that generation dispatch occur solely within their state's boundaries. Since environmental costs are inherent in the cost structure of generation resources, the integrated regional dispatch ensures that all loads in a multi-state region collectively fund, in part, the costs of environmental compliance for a power plant in return for being able to share in the lower cost output of that distant unit. This arrangement facilitates the achievement of the lowest cost of power in a given hour consistent with compliance with existing environmental regulations.

Given that the relevant states effectively share the environmental costs in return for maximizing efficiencies and cost reduction across a very large footprint, the IRC proposes that in its Final Rule EPA should allow states, *at their option*, to utilize reductions achieved across the regional dispatch footprint in measuring compliance pursuant to the individual state's SIP. Even if no agreement can be reached among states on particular compliance strategies, EPA can assure that the efficiencies of a multi-state dispatch are explicitly recognized via a regional measurement *option* in the Final Rule when states develop their SIPs so as to make the cost of compliance more efficient and measurable across a large region.¹² At a minimum, in the Final Rule EPA should recognize that for purposes of measuring compliance, it will be open to SIP plans that look at the region over which power plants are dispatched

¹⁰ The only limitation on economic dispatch across the entire fleet results from the need to dispatch units out of merit order to ensure that transmission security is maintained.

¹¹ For a discussion of the benefits of SCED see Attachment A to this report.

¹² For states in more than one RTO, recognition will need to be given that the proper measurement may need to be examined with reference to each of the RTOs serving customers in that state.

using SCED. EPA's recognition of a regional measurement option in its final rule as *one* means for defining the area over which emissions reductions will be measured will help to facilitate cost effective and efficient implementation of the GHG rule under Section 111(d) of the Clean Air Act.

IV. Conclusion

The above discussion describes two conceptual frameworks to address potential reliability impacts resulting from the CO2 rule and provide an efficient and effective regional measurement approach for assessing compliance. These proposals can be implemented without compromising or limiting the potential compliance options available to achieve the goals of the CO2 program. Of course, if adopted, the implementation details would have to be further developed. The IRC looks forward to discussing these proposals with the EPA, the states, and all other interested parties.

ATTACHMENT A – SCED BENEFITS SUMMARY DISCUSSION

In the Energy Policy Act of 2005, Congress directed the FERC and states to undertake a study of the economic benefits of SCED. That study, released on July 31, 2006, included analyses from regional joint boards around the nation. As an example, the regional joint board covering the 26-state PJM/MISO region found:

“The broader regional resources available to the RTOs (as contrasted from individual utility dispatch) results in a dispatch stack containing generators from all generating-owning members of the RTOs and some generation resources outside the RTOs. Uncoordinated and separate dispatches by different individual utility companies in response to constraints (under most circumstances) would not be the same as an area-wide dispatch coordinated by each RTO, given the scope of the RTOs. It is also noteworthy that the sum of stand-alone dispatches by individual utility companies is not the same as a regional least cost dispatch where there are transmission constraints that affect and in turn are affected by the dispatch of multiple utility companies throughout the region. That there are economic and operational benefits from pooling generation resources is almost axiomatic. Other factors held constant, separate dispatches would inevitably result in higher total production costs to serve load.”

Appendix D, p. 8 to “Security Constrained Economic Dispatch: Definitions, Practices, Issues and Recommendations: A Report to Congress Regarding Recommendations of Regional Joint Boards for the Study of Economic Dispatch Pursuant to Section 223 of the Federal Power Act as Added by Section 1298 of the Energy Policy Act of 2005.”¹³

¹³ The entire report can be found at: <http://www.ferc.gov/industries/electric/indus-act/joint-boards/final-cong-rpt.pdf>