UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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Carbon Pricing in Organized	)	Docket No. AD20-14-000
Wholesale Electricity Markets	)	
	)	

Opening Statement of Devin Hartman
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Mr. Chairman and Commissioners, thank you for hosting this technical conference.

Harmonizing state policy and wholesale electricity markets became a clear imperative in 2017, when FERC last hosted a technical conference on the subject.[1] The discussion we are having now is, in many ways, a more refined outgrowth of that theme.

Since the demise of a Congressional effort to price carbon dioxide a decade ago, climate change policy pivoted mostly to the states. States have since exhibited a large variance in their degree of prioritization for carbon reductions and their selection of policy instruments. Most intervention-prone states have elected to use clean energy industrial policy[2] as the primary catalyst with cap-and-trade programs serving largely as a backstop.[3]

Ad hoc state policy has often led to mounting costs and anti-competitive concerns, which has renewed interest in exploring carbon pricing as the centerpiece of an economically sound climate strategy. This has turned attention to alternative carbon pricing mechanisms, including those administered by regional transmission organizations (RTOs). Recent scholarship suggests that RTO carbon pricing would have to provide clear economic efficiency and/or state-wholesale electricity market harmonization benefits.[4] Both are worthy objectives, but even an "affirmative" carbon pricing rule under the Federal Power Act would require state buy-in.[5]

As such, the Commission is on-point to recognize in the conference notice that states are in the driver's seat. [6] It is important that the Commission clarify its proper role in the electricity-climate policy milieu; namely, to leave climate policymaking to Congress and the states, but to take leadership in providing

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[1] R Street's comments in Docket No. AD17-11-000 are available here: https://www.rstreet.org/wp-content/uploads/2017/06/FERC-state-policy-conference-response_FINAL.pdf.
[2] See, e.g., standards and subsidies are the primary tools identified as state climate leadership in a report by the Center for American Progress and the League of Conservation Voters available here: https://cdn.americanprogress.org/content/uploads/2020/04/29135758/StatesClimate-brief.pdf?_ga=2.75148818.1441541678.1599588937-672308308.1599588937
[3] For example, see: https://www.nrel.gov/docs/fy10osti/48258.pdf.
[4] Matt Butner et al., "Carbon Pricing in Wholesale Electricity Markets," Institute for Policy Integrity, March 2020, p. 3. https://policyintegrity.org/files/publications/Carbon_Pricing_in_Wholesale_Electricity_Markets_Report.pdf
[5] Ibid.
[6] For the conference notice, see: https://www.ferc.gov/sites/default/files/2020-08/AD20-14-Second-Suppl-Notice.pdf.

information about how market design affects state policy objectives and how state policies affect wholesale electricity market outcomes. Initiating this dialogue is an important first step in proactive federalism.

The most compatible state climate policy for wholesale electricity markets is explicit carbon pricing, and the Commission should be commended for starting the dialogue there. In short, explicit carbon pricing creates synergies with competitive electricity market structures by allowing investors to assemble accurate market data and better assess risk-return trade-offs in lower emission technologies, while driving dispatch and investment decisions in lower-carbon technologies in an economically efficient manner.[7] Further, since carbon pricing merely adjusts economic offers in the supply curve, the market design executes in a manner that satiates reliability parameters, unlike policies that circumvent market design irrespective of reliability conditions.[8]

This dialogue will have contentious elements, which places a premium on identifying mutual goals and objectives between states and the Commission. I suggest four categories tied to economic efficiency that blend the interests of electricity policy and climate policy: costs, reliability, innovation and environmental effectiveness.[9] The effect of carbon pricing on the four categories depends greatly on 1) elements of the pricing instrument[10] and 2) the prevailing institutional context. On the first point, Dr. Bill Hogan notes that "[e]nvironmental policies that put an explicit price on carbon would fit naturally with efficient markets" but warns that variant mechanisms could fundamentally undermine the operation of electricity markets.[11] For example, imposing an RTO carbon adder that adjusts economic dispatch but is excluded from dispatch settlement could create false arbitrage opportunities, similar to those that have been tied to market manipulation and reliability problems.[12] Variances in revenue allocation can also have a pronounced effect on incentives and cost incidence to market participants, as well as overall performance along the evaluation categories.

Key variables defining the institutional context include state regulatory status and the interactive effects with other state policies. States need information tailored to their circumstances to make informed decisions. It is also helpful to present information in a format that suits states' views of the role of carbon pricing; some view it as a complement to other state policies while others view it as a substitute.

State regulatory status alone may alter the fundamental choice of carbon pricing instrument. Cost-of-service footprints have shown generator price insensitivity—even a willingness to operate units at a

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[7] Navigant Consulting, Inc., "Price Signals and Greenhouse Gas Reduction in the Electricity Sector," prepared for the COMPETE Coalition.

[8] Based on R Street conversations with industry stakeholders, some expect ambitious clean industrial policy to induce conditions that threaten reliability, whereby reliability institutions will employ out-of-market reliability mechanisms (e.g., reliability must-run agreements) on a widespread basis that will translate into cost problems and stunt signals for new entry.

[9] Note that the co-optimization of these elements largely addresses economic efficiency. For the benefit of stakeholders, it may be easier to break it down into digestible constituent parts. For example, static efficiency may prioritize cost per emissions reduction outcomes holding the state of technology constant, whereas dynamic efficiency emphasizes the inducement of productive innovation. Any reliability concerns can incorporate the value of lost load as a metric within the economic efficiency framework.

[10] Namely design and stringency.

[11] William W. Hogan, "Electricity Markets and the Clean Power Plan," *Electricity Journal* 28.9 (November 2015), pp. 9-32. https://www.hks.harvard.edu/publications/electricity-markets-and-clean-power-plan-0.

[12] Ibid.

loss—and limited consumer responsiveness to price signals.[13] Further, resource entry and exit are determined by state administrative utility resource planning, which do have a track record of capturing forward price expectations well. Tellingly, this perverse incentive structure has resulted in underperformance of the cap-and-trade system's anticipated cost advantages over command-and-control regulation under the Acid Rain Program.[14] This portends a downward adjustment for cost savings from carbon pricing compared to other instruments when applied to cost-of-service areas. Some traditionally regulated states have explored using a carbon cost adder in their administrative processes,[15] which may prove more effective and efficient[16] than RTO carbon pricing, especially in footprints like SPP and MISO. However, if states pivot to more performance-based utility asset management overview and utility resource planning based on third-party verified RTO price projections, then RTO carbon pricing may more efficiently drive utility investment and behavior.

In contrast, for RTOs spanning states with competitive generation and retail choice, market participant behavior is consistent with economic theory. That is, they cut costs, increase efficiency and make prudent investments based on expected price signals.[17] This premise of economic behavior lies at the core of why economists prefer carbon pricing relative to other policy instruments. Given the composition of the eastern RTOs and perhaps California, it is likely they would see carbon pricing induce supply- and demand-side behavior that efficiently internalizes the pollution externality in short-run operations and unleash dynamic innovation in the long-run.

A key driver of economic performance in the eastern RTOs and California is the interactive effects of carbon pricing with other state policies. Importantly, these states have already implemented a form of quantity-based carbon pricing, or cap-and-trade systems, whereas RTO carbon pricing would likely utilize a price-based instrument. First, there is an issue with duplicative carbon pricing instruments. Second, these states have already enacted robust policies intended to be complementary to carbon pricing. Critically, economists have identified that interactive effects between complementary policies and carbon pricing vary between price-based and quantity-based carbon pricing instruments.[18]

Complementary policies under a price-based system may achieve additional emissions reductions, albeit at a higher cost that may result in net negative benefits.[19] However, complementary policies under a quantity-based system tend to merely reallocate emissions reductions under a binding cap, which raises costs, creates no additional emissions reductions and undermines innovation incentives. From a

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[13] See, e.g., Joe Daniel et al., "Used, But How Useful?," Union of Concerned Scientists, May 2020, pp. 11-13. https://www.ucsusa.org/sites/default/files/2020-05/Used%20but%20How%20Useful%20May%202020.pdf.

[14] For example, see work by Resources for the Future on why some entities are not cost minimizers and how that explains an ex ante vs. ex post discrepancy of cap-and-trade under the Clean Air Act at: https://www.rff.org/news/press-releases/new-episode-resources-radio-lessons-50-years-clean-air-act-maureen-cropper.

[15] See also: https://media.rff.org/documents/RFF-Rpt-Carbon20Adders.pdf.

[16] Generally, cost-of-service entities also do not demonstrate wholesale market manipulation behavior, which reflects their incentive of indifference to net revenues.

[17] See, e.g., Lucas W. Davis and Catherine Wolfram, "Deregulation, Consolidation, and Efficiency: Evidence from U.S. Nuclear Power," National Bureau of Economic Research, August 2011. http://www.nber.org/papers/w17341.pdf.

[18] See, e.g., Dallas Burtraw et al., "Quantities with Prices," *Resources for the Future Working Paper* 18-08, March 2018. https://www.rff.org/publications/working-papers/quantities-with-prices.

[19] See, e.g., Robert Stavins, "Transitioning to Long-Run Effective and Efficient Climate Policies," Resources for the Future, April 2019, p. 8 https://media.rff.org/documents/WP_19-10_Stavis_Schatzki_Scott.pdf.

textbook economics perspective, the only means for complementary policies to enhance welfare is if they target market failures *unrelated* to the emissions externality, such as the spillover benefit of research and development or learning-by-doing, which can have an *indirect* effect in reducing emissions.[20]

Of course, states operate under conditions that are a far cry from economic textbooks. This requires research to adapt to institutional contexts to remain relevant to policymakers. Research on the interaction of carbon pricing and other policies is limited and often focused on prospective considerations for complementary policies added to an existing carbon pricing regime, rather than considerations for improving existing carbon pricing or introducing a new mechanism (i.e., RTO carbon pricing) in context of a variety of clean energy industrial policies. The same policy can have opposite effects on economic efficiency depending on the preexisting policy landscape. For example, some standards layered on top of a cap-and-trade system can increase costs and emissions.[21]

A key challenge to achieving economic efficiency under any carbon pricing system is containing leakage. Leakage concerns are most obvious within an industry where geographic segments face differential emissions pricing levels. This could prove problematic to a bottom-up approach to RTO carbon pricing, given the likely variations between interconnected RTOs and potentially variations within RTOs.

However, given the unique role of RTOs in cultivating transactions within and between regions, they may serve as an excellent venue to rectify leakage.[22] For example, further improvements to coordinated transaction scheduling is a potential pathway to incorporate granular, especially unit-specific, emissions parameters into leakage adjustments more efficiently than a blunt import adjustment tool. Carbon pricing revenues can also be used to offset leakage effects. In certain contexts, carbon pricing can even have "negative leakage" effects, such as those researchers at Resources for the Future modeled for NYISO.[23,24]

Leakage can also occur across sectors, which RTOs and the Commission are likely unable to address. The extent of this depends on numerous variables, such as long-run price elasticities of electricity across industries. Non-electric leakage may appear outside the scope of the Commission, but it may affect states' climate policy decisions that in turn affect wholesale electricity markets under Commission oversight. Further, what may improve economic efficiency in the electric industry viewed in isolation may not necessarily do so in the broader economy.

Inter-sector leakage is particularly salient in context of the climate movement's emphasis on a "grid first" strategy, whereby electric decarbonization drives economy-wide carbon reduction as the transportation and industrial sectors presumably electrify. To the extent decarbonization increases electricity costs it increases carbon abatement costs for other sectors, resulting in foregone emissions

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[20] The textbook environmental economics approach is to use one instrument per market failure.

[21] See, e.g., Todd Schatzki and Robert Stavins, "GHG Cap-and-Trade: Implications for Effective and Efficient Climate Policy in Oregon," Harvard University, November 2018. https://scholar.harvard.edu/files/stavins/files/dp_92_schatzki-stavins.pdf.

[22] Butner et al., p. 14. https://policyintegrity.org/files/publications/Carbon_Pricing_in_Wholesale_Electricity_Markets_Report.pdf.

[23] Daniel Shawhan et al., "Benefits and Costs of Power Plant Carbon Emissions Pricing in New York," Resources for the Future, July 18, 2019, p. 8. https://media.rff.org/documents/NY_C_adders_body.pdf.

[24] Michael Kuser, "'Negative Leakage' from NY Carbon Charge, Study Shows," *RTOInsider*, Sept. 28, 2018. https://rtoinsider.com/nyiso-carbon-charge-negative-leakage-100627.

reductions by diminishing substitution effects. Similarly, reforms that lead to reductions in electricity costs and emissions can have a multiplier benefit of reducing emissions indirectly in other industries.

Although carbon pricing in isolation raises electricity costs, policymakers may wish to pursue it in concert with other reforms that create a net decrease in costs and emissions with added innovation and reliability benefits to boot. This strategy has already been praised by energy-intensive, trade-exposed industry.[25] Suffice to say that cost concerns have become particularly acute as the economy reels in the wake of the pandemic. This is coinciding with states realizing that the scaling-up of clean energy industrial policy can cost well in excess of any common social cost of carbon estimate, which may prompt a search for more economically sound approaches to reduce emissions, including carbon pricing.[26]

All told, the Commission can move the dialogue forward with states by fostering an evidence-building process around mutual objectives. This may include a matrixed approach to evaluating different carbon pricing options across a variety of sensitivities indicative of the heterogeneity of state circumstances. The Commission must listen and respond to state leaders' concerns if harmonization is to advance.

Beyond a state forum, there is exceptional international significance in identifying pathways to improve the quality of our electricity institutions and climate policies. Greater emphasis should be placed on dynamic economic efficiencies, which often go unassessed in prospective RTO carbon pricing assessments but drive abatement cost reductions, which is the key to deep and global decarbonization.[27] As other countries pursue emissions reductions consistent with their self-interests, they routinely look to the United States—including foreign delegations meeting with the Commission—for lessons on how to best orient their domestic institutions. It is time to demonstrate on a global stage that the clear path to economic and climate success is to advance the state of electricity competition and efficient emissions pricing.[28]

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[25] See comments of the Electricity Consumer Resource Council in Devin Hartman, "Is subnational carbon pricing the off-ramp for MOPR?," *UtilityDive*, June 2, 2020. https://www.utilitydive.com/news/is-subnational-carbon-pricing-the-off-ramp-for-mopr/579001.

[26] As a general rule, policies with avoided carbon costs exceeding $100/ton very likely produce negative net benefits, unless co-benefits are very substantial, in which case another instrument is probably a more efficient choice.

[27] Namely, this is the catalyst to overcome the free-rider effect. This improves the benefit-cost ratio of abatement to a single country. The result is an increased likelihood of voluntary reductions or facilitating an international agreement and maintaining compliance. For evidence, look to the success of the Montreal Protocol, which is largely attributed to the availability of low-cost emissions abatement technologies.

[28] Devin Hartman, "Environmental Benefits of Electricity Policy Reform," *R Street Policy Study* No. 82, January 2017, p. 10. https://2o9ub0417chl2lg6m43em6psi2i-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/82-1.pdf.