

Statement of Dr. Jennifer Chen
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Before the Select Committee on the Climate Crisis
U.S. House of Representatives
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Chair Castor, Ranking Member Graves and Members of the Committee—thank you for the opportunity to participate in this roundtable on electricity markets. I’m Jennifer Chen, Senior Counsel on Federal Energy Policy at the Duke University Nicholas Institute.

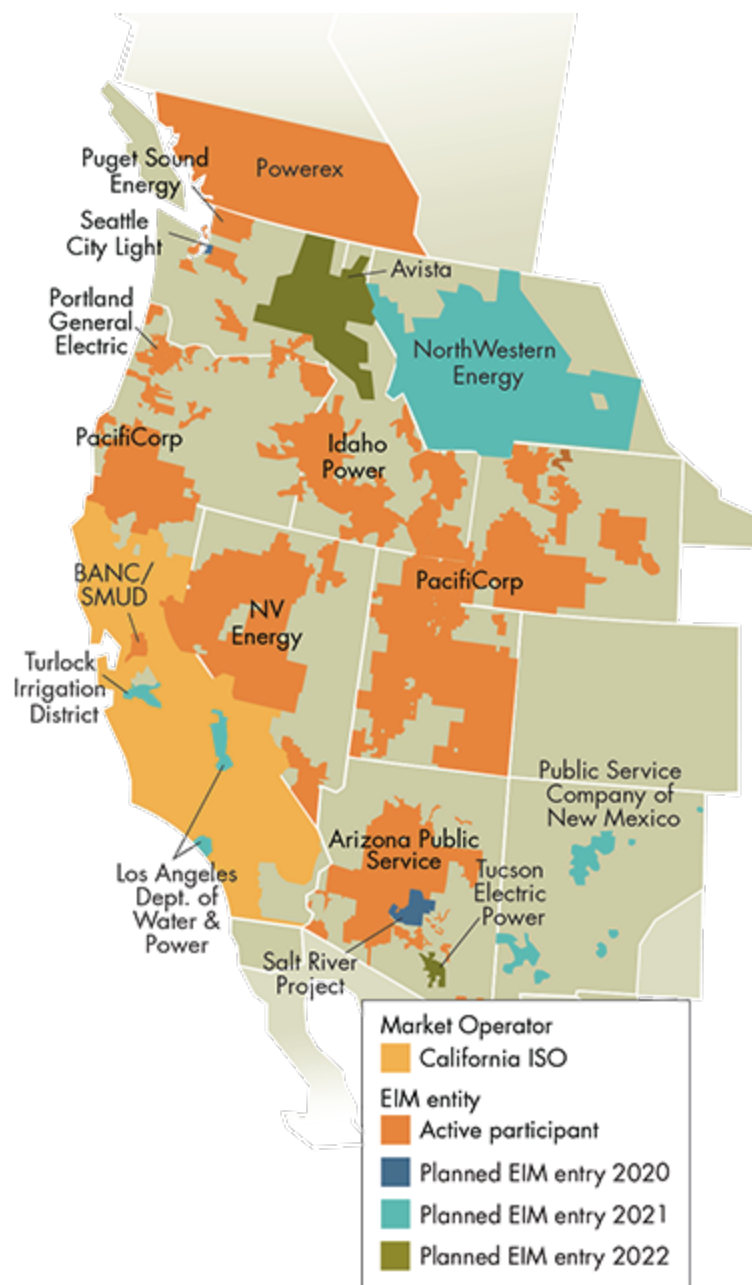
Why are the wholesale electricity markets important for addressing climate change?

The wholesale electricity markets regulated by FERC and operated by regional transmission organizations (RTOs) are a key puzzle piece to decarbonizing the U.S. power sector. Well-designed market rules can facilitate achieving policy goals, whether they pertain to greenhouse-gas reductions or resilience to extreme weather events. Poorly designed market rules can frustrate these goals and result in higher consumer costs.

Wholesale electricity markets offer energy, ancillary services, and capacity products. Energy markets schedule the most efficient resources to balance supply and demand in real time and a day ahead. Ancillary services stabilize the grid to maintain a certain frequency and voltage. The Eastern RTOs that cover Maine to the northeastern tip of North Carolina also operate mandatory capacity markets requiring all customers to purchase commitments from suppliers to deliver energy, months to years in advance. (The Midcontinent Independent System Operator has a voluntary capacity market.)

Markets can cost-effectively facilitate achieving public policy goals

A great example of markets facilitating climate policy goals at least cost is the [Western Energy Imbalance Market](#). There, the California Independent System Operator opened its real-time energy market to voluntary participation from neighboring utilities in the Western Interconnection.



The real-time energy market balances supply and demand every five minutes with the least-cost resources. Balancing resources over a larger geographic region helps avoid curtailment of low-cost variable renewable energy, hedges against fuel-price spikes, and reduces the amount of flexible reserves needed—all of which saves consumers money. Since its inception in November 2014 through the first quarter of this year, this voluntary market has realized [\\$650.26 million](#) in benefits. From 2015, avoided curtailments of renewable generation has saved [346,649](#) metric tons of CO₂, roughly equal to the emissions from 72,881 passenger cars driven for one year.

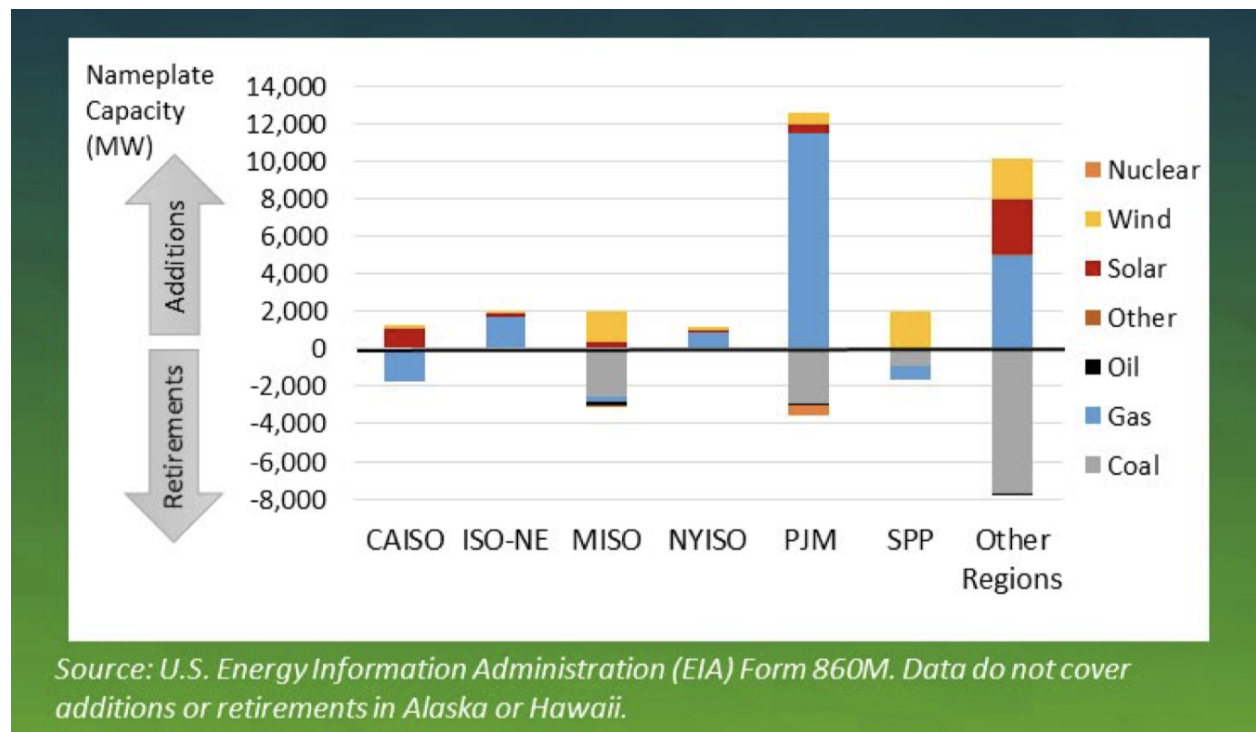
The Energy Imbalance Market is helping states with climate policies to cost-effectively achieve their goals and states that are not in RTOs access a broader customer base through the market. Every state, regardless of its position on climate change, has low-cost renewable resources.

Other RTOs could also open their energy markets to participants outside of their footprints, whether these sellers are located in non-RTO regions or neighboring RTOs. Doing so could help encourage low-cost renewables development across the U.S.

Market rules need to keep up with newer technologies

Key to a well-functioning market is the ability for all resources to compete in it. Today, some markets are largely designed with traditional generation in mind, which favors incumbents over non-emitting newer technologies. This inertia can frustrate public policy goals by crowding out investments in non-emitting and flexible technologies, result in generation build that will become stranded as energy policy changes, and increase costs to consumers.

For example, natural gas has been dominating new capacity additions in RTOs with mandatory capacity markets (PJM, ISO New England, and New York ISO). Other RTOs added mostly wind and solar, and non-RTO regions added roughly equal amounts of variable renewables and gas on a nameplate basis. (Results shown are for 2018, and recent years have been [similar](#)). While other factors may be at play, this outcome is not surprising given that capacity markets are designed with reference to natural gas plants and [favor low capital cost, higher variable cost resources](#). However, as climate policies evolve, these investments in gas may become stranded.



Another indicator that mandatory capacity markets are flawed is that they are incentivizing new investments in regions already [flush with surplus capacity](#). While excess capacity reserves may increase reliability, [studies](#) have shown that the incremental cost of that extra reliability far exceeds its value to the customers who must pay for it.

Capacity oversupply also [dampens investment incentives to resources policymakers are trying to cultivate](#). Renewable resources earning money in the energy markets will see lower prices due to the artificially high supply incented to come online through the capacity market. Similarly, resources that rely on market prices signaling periods of grid stress, like technology-enabled residential demand response and distributed generation, will see little incentive to deploy.

Part of the issue is that RTOs are incentivized to maintain a [high degree of reliability](#) while the Federal Power Act's mandate to ensure "just and reasonable" rates is not well defined, does not require a cost-benefit analysis, and does not always require consideration of alternatives. While this affords FERC flexibility in promulgating new rules, it also means that "just and reasonableness" provides little discipline to over-procuring resources and exceeding reliability standards at higher consumer costs. Further, the statutory focus on rates and not total consumer bills can miss the total impact of having to pay for more capacity overall (albeit at a lower price per unit).

FERC should remove barriers to distributed energy resource participation in its markets

Distributed energy resources (DERs), which include rooftop solar, grid-enabled hot water heaters, and electric vehicles, can provide emissions-reductions and grid flexibility benefits. DERs tend to be sited close to where electricity is consumed, which can reduce energy loss in transport and displace rarely-used and polluting generators. DERs also have resilience-related [benefits](#). As DERs increase their presence on the grid, consumers could save by tapping into these resources' potential for low-cost grid services in the wholesale markets when these resources would [otherwise be sitting idle](#) or underused. But smaller, behind-the-meter resources currently cannot participate in wholesale electricity markets without being aggregated together.

FERC, as part of its proposal leading to Order 841 (which seeks to remove market barriers for energy storage), had proposed to allow DERs to participate in its markets by aggregating into larger resources. This aggregation rule would work like the existing rule for demand response. However, [FERC has yet to finalize this rule](#). After collecting additional information for its rulemaking record through a subsequent [technical conference](#), ***FERC is in good position to finalize this rule, and Congress can direct FERC to do so.***

Achieving market rule outcomes consistent with public policy requires process reform

RTOs conduct stakeholder processes to take input on market rule development or changes. RTO stakeholders largely consist of parties with financial interests, such as sellers and buyers in the markets. To vote on market rule changes, stakeholders typically must fit into one of the defined sectors (generators, transmission owners, end-users, etc.) and pay an annual fee. Companies with affiliates may obtain multiple votes. [States](#) and public interest groups in most cases do not have a vote, and their access to member meetings with the RTO board may be restricted. RTOs can have hundreds of meetings per year, and attending and tracking the various issues is resource intensive. Many of these issues require expert consultants, which add to the expense. Incumbent members interested in protecting their position in the markets against new entrants are better equipped to participate in these stakeholder processes, while states and public interest groups with non-financial interests are typically underrepresented.

Many of these process issues have been described in a [2008 GAO report](#) and still have not been resolved. For example, there is still a strong sentiment among certain stakeholders that RTOs overemphasize ensuring reliability without fully considering lower-cost and cleaner options. And many still believe that RTOs defer more to transmission owners and generators than other stakeholders.

To ensure that market rules are developed transparently and consistent with public policy, ***Congress could direct FERC to create an [Office of Public Participation](#), require that stakeholder and member meetings with the RTO boards are open and accessible to the public, and establish best practices for stakeholder and RTO decision-making processes.***

Conclusion

Markets are key to facilitating climate policy by improving grid flexibility and facilitating renewables integration implementation at least cost. But forward-thinking market rules are only one, albeit critical, piece to a larger puzzle. Markets cannot make policy decisions, such as emissions reduction goals, which innovative technologies deserve R&D dollars, and how to take care of low-income energy consumers. These are critical decisions lawmakers still must make.

Thank you, and I look forward to your questions.