The focus of this year’s committee meeting was regionalization of the western electrical grid and technology for the grid in the 21st century.

**What is Regionalization of the Grid**

The first panel of speakers to address the committee were John White, Executive Director of the Center for Energy Efficiency and Renewable Technologies, and Stefan Bird, CEO of Pacific Power.

Mr. White emphasized the importance of integrating the grid across a larger balancing region as it leads to greater efficiencies, better utilization of infrastructure, and allows for and compensates for variations in load. He indicated that there are currently 35 balancing authorities in the West. Two of the key factors in regionalization will be the politics surrounding the issues of governance and cost allocation because states have different levels of embedded costs.

Mr. Bird stated that the customers of Pacific Power want cleaner and more reliable power at lower costs. Data centers, he noted, want 100% renewable power, and they want it immediately. Pacific Power can reach a goal of 100% renewable power in Iowa because they can leverage power through the regional market of the Mid-Continent Independent System Operator (ISO). Mr. Bird estimates that the current Energy Imbalance Market (EIM) in the west is saving customers $200 million a year. Regionalization and cost savings will also be dependent on increased investment in modernizing/automating the grid, more transmission lines, and newer, flexible fuel resources. He stated that the modern economy of the future demands increased coordination and collaboration in the delivery of power.

**Regionalization and State and Federal Laws**

State Representative Jeff Morris (WA) and Steve Rodgers, Director of the Division of Electric Power Regulation-West of the Federal Energy Regulatory Commission (FERC), made up the second panel. Both speakers discussed possible changes in state and federal laws that would make regionalization possible.

Mr. Rodgers stated that state laws govern what the state Public Utility Commissions can determine about who can or cannot join a regional transmission organization (RTO). Mr. Rodgers said that the FERC supports RTO’s but does not mandate them. He recognized that market characterizations differ greatly from the West to the East. The West has large amounts of public power, more hydro, and very long distances from supply to load centers. He stated that there are many benefits to RTOs, such as lower production costs, reduced capital costs, more market participants, lower renewable integration costs, and more cost-effective transmission planning. There are no new federal laws required to regionalize the western grid. He urged state legislators to work with fellow state regulators and their counterparts elsewhere in the country who have been through the RTO process when beginning to look at a western RTO.

Representative Morris commented that the slowest pace of technological change is what is happening today, and that the pace of that change will only continue to increase in the future.
This should be understood by all partners in the grid. Representative Morris believes that the current EIM should be the tool of last resort in getting to a preventative and predictive market. Representative Morris stated that optimization of intra-state balancing authorities should come first, and then build from there to regionalize the grid. Representative Morris advised that a dialogue about regionalization needs to be begin with the National Association of Regulatory Utility Commissioners, FERC, state regulators and others to discuss transmission and distribution interface and pathways to reach predictability in the system. He suggested that governance could be addressed through a state compact. He also stated that governance is not the hardest problem to solve; rather, it will be addressing transmission and distribution interface questions.

Technology for a 21st Century Grid
The participants in the third panel of the committee meeting were Steve Chadima, Senior Vice President for External Affairs at Advanced Energy Economy, and Steven Martin, Vice President and Chief Digital Officer with General Electric – Energy Connections.

Mr. Chadima stated that the face of electricity is changing. Today there is greater customer engagement, new products and services, greater focus on value vs cost of energy, digitalization of the grid, and two-way energy flows. Mr. Chadima said that there are obvious trends and expectations that will change the face of energy distribution. For example, customers want environmental sustainability and resiliency, and the energy infrastructure is aging and susceptible to more cyber-attacks. Power generation has changed from simply building more plants to changing load management with existing generation, which creates more efficiencies for consumers. Other impacts are energy opportunities created by better storage, the challenge to the grid of transportation electrification, and increasing distributive energy resources. Mr. Chadima said that his organization has resource guides on 52 different evolving technologies for the grid.

Mr. Martin stated that 40% of people in the energy sector today will be retiring within the next ten years. The energy sector needs to involve the next generation in energy careers soon. Mr. Martin also said that clean energy and new technologies are now being driven by consumer demand, and that the power grid is becoming more diverse while the distribution is becoming more complex. Solar is the fastest-growing generation technology. Battery storage is becoming more economical, which will allow for hybrid generation/storage units that can reduce price variability. Microgrids will continue to become more prevalent and there will be a strong convergence of the energy and transportation sectors. Mr. Martin said there is a revolution coming in the energy sector that will see major changes in software and increasing dependence on machine learning models. He concluded that a major future challenge will not be dealing with energy curtailment, but instead excess capacity, as the marginal cost of energy reaches zero.

Regionalization and Governance
The panelists of the fourth panel were Brian Tulloh, Executive Director of External Affairs, North Region, with Mid-Continent ISO, and Stacey Crowley, Vice President of Regional and Federal Affairs with the California ISO.

Mr. Tulloh gave an overview of the Mid-Continent ISO (MISO), and explained that it serves fifteen states, 42 million people, and has four hundred market participants. MISO has three main goals which are to assure reliability, administer wholesale markets, and conduct transmission planning. He added that since MISO is a nonprofit for the promotion of social welfare, it has a
value proposition that ensures that all actions must ultimately result in a value that exceeds costs. Mr. Tulloh explained that there is a governance document—the Transmission Owners Agreement—that is the charter of rights and duties. There is a board of nine directors that oversees the budget and strategic plans; an advisory board representing ten energy sectors that gives recommendations to the nine-member board; and an organization of state regulators from the fifteen states and the Canadian Province of Manitoba that also offers recommendations. These three entities offer a robust stakeholder process that allows for unbiased management and a well-grounded, open governance process.

Ms. Crowley outlined the governance of the current EIM, explaining that it also has a 5-member board and, like MISO, a group of regulators from each participating state. Ms. Crowley noted four observations when talking to people about regionalizing the western grid. She explained that there is a desire to preserve certain state authority; that there is a recognition of variations in state policies; that states must participate in a process relating to transmission cost allocation and resource adequacy; and that there should be an open, transparent process for governance engagement.