



Guardians of the Grid: Key Players in the US Electricity Sector

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- Understanding the roles and interactions of these key players is essential to comprehend the complexities and opportunities within the US electricity sector.
- FERC is an independent regulatory agency that regulates the interstate transmission of electricity within the US.
- The collaborative efforts of regulatory agencies, ISOs/RTOs, and utilities are indispensable to the vitality and sustainability of the US electricity sector

The electricity sector in the US, one of the largest in the world, is continuously evolving in the way different stakeholders interact with each other. The role of different [market players](#), including regulatory agencies, utilities, and independent system operators/regional transmission organizations, is largely dictated by federal and state legislation. Understanding the roles and interactions of these key players is essential to comprehend the complexities and opportunities within the US electricity sector. The article discusses the key players and their roles in the US electricity sector in detail.

Key Players in the Electricity Sector

Regulatory agencies, independent system operators/regional transmission organizations, and utilities define the [power sector's landscape](#) in the US.

Regulatory Agencies

Multiple regulatory agencies regulate the electricity sector in the US, including the Federal Energy Regulatory Commission, North American Electric Reliability Corporation, and State regulatory agencies (State Public Service Commission and State Department of Environmental Protection).

FERC

FERC is an independent regulatory agency that regulates the interstate transmission of electricity within the US. Other than it regulates the wholesale of electricity among states. It reviews mergers and acquisitions of electricity companies, reviews the siting application of transmission projects, and monitors and investigates energy markets, among others.

To maintain FERC's regulatory independence, the president and Congress cannot review the agency's decisions. However, the Federal Courts have the power to review FERC's decisions. Furthermore, regulation of retail electricity sales, approval of construction of generation assets, regulation of nuclear power plants, and reliability assessment of distribution networks do not fall under the ambit of FERC.

NERC

NERC is a not-for-profit international regulatory authority that aims to maintain the reliability of bulk power systems in North America. In the US, NERC is the government's electric reliability organization (as designated by FERC), which has the power to oversee and regulate the electricity market as per set reliability standards. NERC is responsible for the continental United States, Canada, the northern portion of Baja California, and Mexico. It has jurisdiction over users, owners, and operators of bulk power system.

State Regulatory Agencies

In the US, in addition to federal and international regulatory bodies, there are State regulatory agencies, including State Public Service Commissions and the State Department of Environmental Protection. The names of these agencies can vary from state to state.

Within their jurisdiction, State commissions decide on fair and reasonable rates for electric service. These commissions adopt and enforce regulations that ensure the safety and interest of consumers, evaluate the economic and environmental impact of utility operations, and mediate disputes between the utility and consumers.

The State Department of Environmental Protection regulates the State's air, land, and water resources. It issues permits for the construction of pollutant-emitting assets, ensures public safety by cleaning contaminated sites, and monitors companies' emissions.

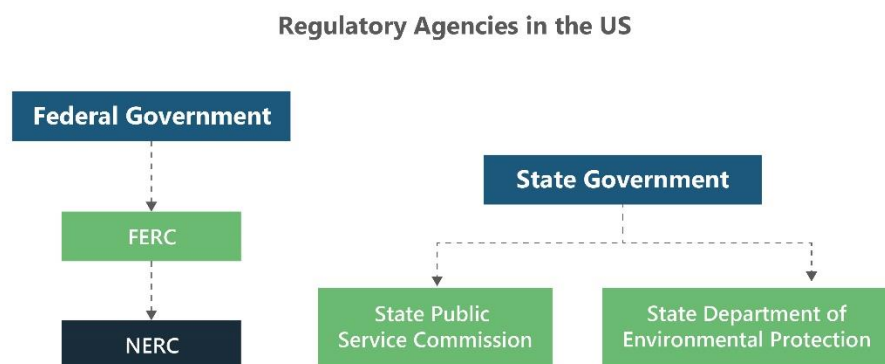


Figure 1: Regulatory agencies in the US.

Source: PTR Inc.

Independent System Operators/Regional Transmission Organizations

Several regional entities, referred to as independent system operators and regional transmission organizations, lie within three main interconnections in the US. FERC directs or recommends the formation of ISOs and TSOs. An ISO is responsible for operating the region's electricity grid, followed by administering the wholesale electricity market and providing reliability planning for the bulk power system. An ISO either doesn't meet the minimum criteria set by FERC to hold the status of RTO or hasn't applied for the status of RTO.

On the other hand, RTO performs functions similar to an ISO, but the extent of responsibility for the transmission network, as decided by the FERC, is on the higher side. RTOs are responsible for the coordination, control, and monitoring of the power system within their territory. ISOs/RTOs are also involved in regional planning to make sure that the requirements of the system in terms of infrastructure are adequately met.

Earlier, when there weren't any ISOs/RTOs, utilities were responsible for transmission planning. In areas that do not fall under the ambit of ISOs/RTOs, utilities are still carrying out transmission planning themselves.

In North America, there are seven ISOs and four RTOs. Seven ISOs include California ISO, New York ISO, Electric Reliability Council of Texas, Midcontinent Independent System Operator, ISO New England, Alberta Electric System Operator, Independent Electricity System Operator. Four RTOs include PJM Interconnection, Midcontinent Independent System Operator, Southwest Power Pool, and ISO New England.

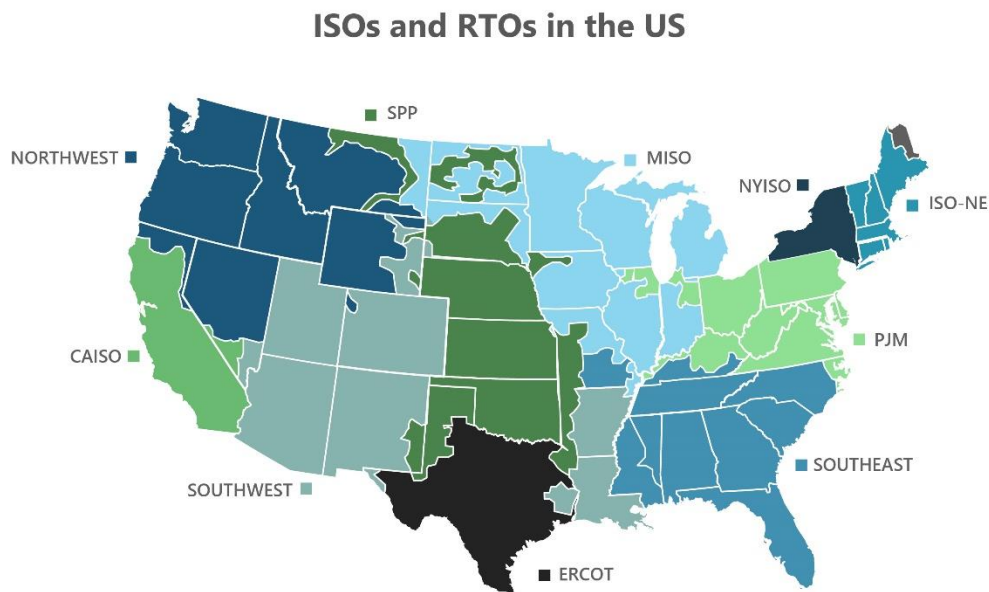


Figure 2: ISOs and RTOs in the US.

Source: PTR Inc.

Utilities

There are currently more than 3000 utilities that generate, transmit, and distribute electricity to consumers in the country. However, not all utilities are expected to perform all three functions. There are different types of electric utilities in the US, including investor-owned utilities, public power utilities, cooperatives, federal power programs, and independent power producers.

Investor-Owned Utilities

Investor-owned utilities (IOUs) are for-profit companies owned by shareholders that can service territories in one or more States. IOUs obtain licenses to operate within specific areas of the State from the State commissions. Interstate generation, transmission, and power sales are regulated through the FERC and distribution system, and retail sales are regulated through State commissions.

Public Power Utilities

Public power utilities are not-for-profit utilities owned by cities and counties. Municipal utilities are usually not regulated by FERC or State commissions but through the local government. Universities and military bases are allowed to own and operate their utilities.

Cooperatives

Cooperatives are not-for-profit entities that require democratic governance and operate at cost. The Board of Directors oversees the operations of cooperatives, and members elect their representatives through a vote. Co-op utilities serve rural areas that are not served by other utilities.

Federal Power Programs

Federal power programs are wholesale-only entities that provide several electricity service operations to other utilities, mainly municipals, for distribution to end users. Federal Power Programs include the Bonneville Power Administration (BPA), the Tennessee Valley Authority (TVA), the Southeastern Power Administration (SWPA), the Southeastern Power Administration (SEPA), and the Western Area Power Administration (WAPA).

Independent Power Producers

IPPs are privately owned companies that own and operate generation assets to supply electricity to other utilities or end users. There are currently 11,000+ IPPs in the US.



Figure 3: Types of utilities in the US.

Source: PTR Inc.

Looking Ahead

In conclusion, the collaborative efforts of regulatory agencies, ISOs/RTOs, and utilities are indispensable to the vitality and sustainability of the US electricity sector. Regulatory oversight ensures adherence to standards of fairness and efficiency, promoting a competitive marketplace that benefits consumers and encourages technological advancement.

ISOs/RTOs facilitate the seamless transmission of electricity across diverse geographic regions, enhancing grid reliability and resilience against disruptions. Utilities, operating at the forefront of energy delivery, continue to diversify their portfolios with cleaner, [renewable energy sources](#) while maintaining the stability of existing infrastructure.

As these key players adapt to emerging challenges such as climate change and technological innovation, their collective efforts will shape a resilient electricity sector capable of meeting the needs of future generations.

About PTR:

"With over a decade of experience in the Power Grid and New Energy sector, [PTR Inc.](#) has evolved from a core market research firm into a comprehensive Strategic Growth Partner, empowering clients' transitions and growth in the renewable energy landscape and E-mobility, particularly within the electrical infrastructure manufacturing space. "

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