

**ADS****Automated dispatching system**

Helps businesses reduce their reliance on manual processes that come with traditional dispatching methods. Automated dispatching helps reduce human errors, minimize delays, and cut down the time spent on constant repetition of manual tasks.

**A&G****Administrative and general**

A finance department term for all expenses incurred that are not directly allocated to capital or assignable to fuel, production, transmission or DER. These expenses include those related to human resources, finance, communications, facilities, community and government affairs information technology, general counsel and the general manager. The largest component of this expense is personnel, which includes salaries and benefits.

**AS****Ancillary services**

Ancillary services are the services necessary to support the transmission of electric power from generators to consumers given the obligations of control areas and transmission utilities within those control areas to maintain reliable operations of the interconnected transmission system.

**BA****Balancing authority**

The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a balancing authority area and supports interconnection frequency in real time. Xcel Energy is the BA for our region.

**CCA****Community Choice Aggregator**

A local government entity that operates within the service area of an investor-owned utility and purchases power on behalf of the community.

**CEP****Clean energy plan**

A federal initiative to develop a strategic road map for eliminating coal as a fuel source for electricity and cutting carbon emissions by 90 percent from 2005 levels by 2040 while maintaining affordability and reliability.

**CIP****Critical Infrastructure Protection**

Security systems and procedures established by the North American Electric Reliability Corporation to protect utility infrastructure.

**CP****Coincident peak**

A generation facility's demand during the time when electricity demand systemwide is the highest.

**CT****Combustion turbine**

Combustion turbines are designed to meet peaks in power demand very quickly. They operate much like a jet engine, drawing in air at the front of the unit, compressing it, mixing it with fuel and igniting it. The combustion occurs immediately allowing gases to then expand through turbine blades connected to a generator to produce electricity.

**DA Market****Day-ahead market**

A financial market where market participants purchase and sell electric energy at financially binding day-ahead prices for the following day.

**DR****Demand response**

Incentive-based programs that encourage electric power customers to temporarily reduce their demand for power at certain times in exchange for a reduction in their electricity bills.

**DRC****Disaster recovery center**

Accessible facilities and mobile offices set up after a disaster.

**DG****Distributed generation**

The generation of electricity for use on-site (versus transmitting energy over the electric grid from a large, centralized facility).

**DER****Distributed energy resources**

Physical or virtual devices or systems that can be deployed on the electric distribution system or on customer premises that can be used to provide value to all customers through electric system optimization or individual customer benefits.

**DERMS**

A distributed energy resources management system (DERMS) is a hardware and software platform that provides the ability to manage DERs. Management functions include customer enrollment, device registration, aggregation of devices, monitoring, forecasting, optimization, control/dispatch and data presentation.

**DSM****Demand-side management**

Utility action that reduces or curtails end-use equipment or processes

**EIM****Energy imbalance market**

A real-time energy supply market that offers electricity generation and transmission services. It automatically balances demand every 15 minutes and dispatches power plants to meet demand every five minutes with the lowest cost energy.

**EE****Energy efficiency**

Programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided.

**EMF****Electric and magnetic fields**

Invisible fields of force that surround any electrical device; found everywhere electricity is used, such as many common household appliances, including but not limited to, microwaves, clothes washers and dryers, stoves, lamps, hair dryers, TVs, computers, cell phones, and more.

**EMS****Energy management system**

Automation systems that collect energy measurement data from the field and making it available to users through graphics, online monitoring tools, and energy quality analyzers, thus enabling the management of energy resources.

**ERO****Electric Reliability Organization**

An organization (the North American Electric Reliability Corporation (NERC)) that, subject to Federal Energy Regulatory Commission (FERC) oversight, promotes bulk power system reliability and security responsible for compliance monitoring and enforcement and overseeing reliability planning and assessments.

**EV****Electric vehicle**

A vehicle powered solely by electricity from an onboard battery storage system.

**HE****Hour ending**

A consecutive sixty-minute period ending at :00.

**IOU****Investor-owned utility**

Private enterprise acting as public utilities.

**IPP****Independent Power Provider**

A corporation, person, agency, authority or other legal entity that owns or operates facilities for the generation of electricity to be sold as wholesale to utilities that provide service to end-use customers, not an electric utility.

## IRP

### **Integrated resource plan**

A document produced by a utility every four or five years as a forward-looking plan of resource needs to meet forecasted energy demand.

## JAA

### **Joint Action Agency**

A state-authorized organization serving power supply needs of municipal utilities. Platte River is a JAA.

## JDA

### **Joint dispatch agreement**

A contractual energy market that includes Black Hills Energy, Xcel Energy and Platte River. In this micro-EIM, the participants offer available resources based on cost. Xcel Energy uses the offered resources to optimize hourly dispatch for the lowest-cost solution to serve the participants collective loads across the hour.

## LMP

### **Locational marginal price**

A way for wholesale electric energy prices to reflect the value of electric energy at different locations, accounting for the patterns of load, generation, and the physical limits of the transmission system.

## MMU

### **Market monitoring unit**

Engages with generators and operators to monitor compliance with market rules.

## NCP

### **Noncoincident peak**

The sum of the individual maximum demands regardless of time of occurrence within a specified period.

## NG

### **Natural gas**

A fossil energy source that formed deep beneath the earth's surface.

## OP

### **Operating day**

The aggregate of all days on which the Project is in operation or could have been in operation commencing on the date the Project first processes material.

## PSO

### **Power system operator**

an operator is on the front lines ensuring the reliable delivery of electricity to consumers, businesses and industry.



## RA

### **Resource adequacy**

The ability of a utilities' reliable capacity resources (supply) to meet the customers' energy or system loads (demands) at all hours within the study period.

## RC

### **Reliability Coordinator**

The entity that has the highest level of authority and is responsible for the reliable operation of the BES. The RC has a wide-area view of the BES uses a specific set of operating tools, processes, procedures, and authorities to carry out its responsibilities, including authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The California Independent System Operator is the RC for part of the Western Interconnection; the Southwest Power Pool is the RC for the remainder.

## RDP

### **Resource Diversification Policy**

This policy, adopted by the Platte River Board of Directors in December 2018, calls for Platte River to work proactively to achieve a 100% noncarbon energy mix by 2030 while maintaining Platte River's three pillars of reliability, financial sustainability, and environmental responsibility. The policy contains several must-achieve caveats before the goal can be reached.

## RF

### **Radiofrequency**

The oscillation rate of an alternating electric current or voltage or of a magnetic, electric or electromagnetic field or mechanical system in the frequency range from around 20 kHz to around 300 GHz.

## RT market

### **Real-time market**

When information about trades and prices is accessible almost instantly after an event takes place.

## RTO / ISO

### **Regional transmission organization / Independent system operator**

An organization, regulated by FERC, that manages transmission services and operates electricity markets over a portion of the transmission grids.

## SCADA

### **Supervisory control and data acquisition**

Supervisory control and data acquisition (SCADA) is a system of software and hardware elements that allows industrial organizations to:

- Control industrial processes locally or at remote locations
- Monitor, gather, and process real-time data
- Directly interact with devices such as sensors, valves, pumps, motors, and more through human-machine interface (HMI) software
- Record events into a log file

**SOP****Standard operating procedure**

A set of written instructions that describes the step-by-step process that must be taken to properly perform a routine activity.

**SIP****State Implementation Plan**

A collection of regulations and documents used by a state to implement, maintain and enforce federal regulations

**TCR****Transmission congestion right**

Financial instruments related to congestion on transmission lines.

**Virtual Power Plant**

A virtual power plant is a system of networked DERs that can be operated in coordinated fashion by a DERMS to support reliable and efficient operation of the electric system (distribution, transmission and generation).



### APCD

#### **Air Pollution Control Division**

Division of the Colorado Department of Public Health and Environment that handles air-related permitting and inspections of Colorado's regulated entities and proposes new regulations under existing state laws.

### AQCC

#### **Air Quality Control Commission**

A board, appointed by the governor, that oversees Colorado's air quality program according to the Colorado Air Pollution Prevention and Control Act.

### AQE

#### **Air Quality Enterprise**

An enterprise that, through the department of contractors, conducts science-based, unbiased air quality modeling and monitoring and provides emission mitigation services.

### APPA

#### **American Public Power Association**

A professional public power association that provides education, networking and advocacy services.

### ARPA

#### **Arkansas River Power Authority**

A generation and transmission organization based in southeast Colorado.

### AWEA

#### **American Wind Energy Association**

A trade association for the wind energy industry.

### CAISO

#### **California Independent System Operator**

An ISO in the western states that also provides EIM services.

### CAMU

#### **Colorado Association of Municipal Utilities**

An advocacy association for Colorado public power utilities.

### CDPHE

#### **Colorado Department of Public Health and Environment**

A Colorado agency responsible for public health and environmental regulation.

**COSSA****Colorado Solar and Storage Association**

A nonprofit association for Colorado's solar and storage industries.

**DORA****Department of Regulatory Agencies**

An umbrella regulatory agency in Colorado charged with managing licensing and registration for multiple professions and businesses, implementing balanced regulation for Colorado industries and protecting consumers. The Colorado PUC and OCC are agencies within DORA.

**EPA****Environmental Protection Agency**

A federal regulatory agency established in the 1970s to protect human health and the environment.

**FERC****Federal Electricity Regulatory Commission**

An independent agency of the government that regulates the interstate transmission of electricity, natural gas and oil. FERC also licenses hydropower projects.

**LPPC****Large Public Power Council**

Composed of 27 of the largest consumer-owned utilities in the U.S., the LPPC provides education, networking and advocacy services.

**NERC****North American Electric Reliability Corporation**

Subject to oversight by the FERC, NERC (which Congress has designated as the ERO for the United States) is responsible for establishing and regulating reliability standards concerning the bulk electric system in the U.S. It audits owners and operators for preparedness and assesses overall system adequacy on an annual basis.

**OCC****Office of Consumer Counsel**

An agency within DORA that advocates on behalf of taxpayers (and utility customers) in front of other state regulatory agencies.

**PUC****(Colorado) Public Utilities Commission**

A board, appointed by the governor, that regulates investor-owned utilities and other public services.

**RMEL****Formerly Rocky Mountain Electric League (now known only by acronym)**

A professional utility organization that provides education and networking opportunities.



**SPP****Southwest Power Pool**

An RTO in 14 southern and southwestern states in the Eastern Interconnection that also provides EIM services in the Western Interconnection.

**WAPA****Western Area Power Administration**

WAPA is a power marketing administration within the U.S. Department of Energy that markets and transmits wholesale electricity from multi-use water projects. Platte River is a WAPA customer.

**WECC****Western Electricity Coordinating Council**

WECC is the bulk electric system reliability coordinator for the entire Western Interconnection system.

**WEIS****Western Energy Imbalance Service**

Through the Southwest Power Pool (SPP), WEIS will balance generation and load regionally and in real time for participants in the Western Interconnection. SPP began administering WEIS on a contract basis February 2021.

**Alternating current**

An electric current or voltage that reverses its polarity or direction many times a second at regular intervals.

**Ampere**

The unit of measurement of electrical current produced in a circuit by 1 volt acting through a resistance of 1 Ohm.

**Capacitor**

A device made with two conductive plates separated by an insulator or dielectric.

**Carbon dioxide**

A colorless, odorless, incombustible gas that occurs normally in Earth's atmosphere. Fossil fuel combustion, fermentation, respiration or chemical reactions produce carbon dioxide.

**Carbon neutral**

A concept focused on net zero energy operation and on reducing the use of fossil fuels achieved through a variety of energy reductions and generation of renewable energy and through the purchase of carbon offsets.

**Circuit**

A conductor or a system of conductors through which electric current flows.

**Circuit breaker**

A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent without injury to itself when properly applied within its rating.

**Community solar**

A solar production facility, financially supported by customer subscription, that is fed onto the distribution grid for distribution customers to use.

**Conductor**

A device or material that permits current to flow through it easily.

**Conventional and other technologies**

Technologies that have traditionally made up much of the U.S. generation mix, including coal and nuclear generation.

**Cost to serve load**

The measurement of cost factors that go into the servicing of a customer, or the production of a product.

**Direct current**

An electric current that does not reverse its direction of flow; it is a continuous non-varying current in one direction.

**Dispatchable resource**

An energy source that is professionally managed to generate power when demanded for the amount of time it is needed.

**Electrical circuit**

A system of conductors and devices in which current can exist.

**EMF (Electro-magnetic field)**

A force-induced voltage in a conductor.

**Grounded**

Connected to the earth or to some conducting body that serves in place of the earth. Grounding your electrical systems is critical to protect both building occupants and equipment from the danger of high voltage. When a conductive surface, like metal, is not grounded and becomes electrically energized, it can carry sufficient voltage to administer a fatal shock.

**Intermittent resource**

A renewable energy source used to produce energy that must be consumed when available. The sun and the wind are considered intermittent sources of renewable energy.

**Magnetic field**

A vector field in the neighborhood of a magnet, electric current or changing electric field in which magnetic forces are observable.

**Noncarbon**

The absence of carbon dioxide; the production of electricity without the byproduct of carbon dioxide or if carbon dioxide is captured during the production process.

**Noncarbon generation**

Power supply options that include wind, solar, geothermal, biomass and hydroelectric power.

**Ohm**

A unit of electrical resistance.

## Ohm's law

Formula that describes the relationship of current, voltage and resistance;  $E=IR$  where E is voltage impressed on a circuit, I is current flowing in a circuit and R is circuit resistance.

## Power

The rate of doing work, or the rate at which energy is used.

## Reliability

A measure of the ability of the system to continue operation while some lines or generators are out of service. Metrics include:

- **SAIDI** – System Average Interruption Duration Index
- **SAIFI** – System Average Interruption Frequency Index
- **CAIDI** – Customer Average Interruption Duration Index

## Renewable

A fuel source used to produce energy that can be renewed or replaced.

## Resistance

The property of a material that opposes the movement of electrons.

## Single phase

A term characterizing a circuit energized by an alternating EMF, usually supplied through two wires (second wire is called a neutral wire).

## Solar resource

A renewable energy producing resource (photovoltaic cell) that converts sunlight into electrical energy and is used as a power source.

## Transformational technologies

Emerging technologies that can help enhance decarbonization of the power grid or provide customers with more choice and flexibility in their power supply.

## Transformer

A mechanical device used to increase or decrease voltage by magnetic flux lines.

## Transitional technologies

Power resources that can move the power supply toward a noncarbon future by facilitating the integration of renewable resources or behind-the-meter technologies.

## Volt

A unit of electrical pressure or potential.

- **kV – Kilovolt** – The measure of the capability of a transmission line to deliver electricity.



## Voltage

An electrical measurement of potential difference, electrical pressure or electromotive force.

## Watt

A unit of power or electrical work per unit of time.

- **kW – Kilowatt** – 1,000 watts
- **MW – Megawatt** – 1,000,000 watts
- **kWh – Kilowatt hour** – 1 kilowatt of power expended for 1 hour.



# Platte River Power Authority

Estes Park • Fort Collins • Longmont • Loveland

**Note:** Platte River Power Authority may be shortened to Platte River but should not be referred to as PRPA

## Sources

Edison Electric Institute, U.S. Energy Information Administration (EIA), APPA, RMEL, Merriam-Webster, agency websites and Platte River Power Authority

## More information

EIA: <https://www.eia.gov/tools/glossary/?id=electricity>