

Power System Operation Control Restructuring

Power system operations and control

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Power system operations is a term used in electricity generation to describe the process of decision-making on the timescale from one day (day-ahead operation) to minutes prior to the power delivery. The term power system control describes actions taken in response to unplanned disturbances (e.g., changes in demand or equipment failures) in order to provide reliable electric supply of acceptable quality. The corresponding engineering branch is called Power System Operations and Control. Electricity is hard to store, so at any moment the supply (generation) shall be balanced with demand ("grid balancing"). In an electrical grid the task of real-time balancing is performed by a regional-based control center, run by an electric utility in the traditional (vertically integrated) electricity market...

Voltage control and reactive power management

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Voltage control and reactive power management are two facets of an ancillary service that enables reliability of the transmission networks and facilitates the electricity market on these networks. Both aspects of this activity are intertwined (voltage change in an alternating current (AC) network is effected through production or absorption of reactive power), so within this article the term voltage control will be primarily used to designate this essentially single activity, as suggested by Kirby & Hirst (1997). Voltage control does not include reactive power injections to dampen the grid oscillations; these are a part of a separate ancillary service, so-called system stability service. The transmission of reactive power is limited by nature (loss of VARs along a high-voltage transmission...

Electricity market

but are essential for overall operation of the system (frequency control market, voltage control and reactive power management, inertial response and

An electricity market is a system that enables the exchange of electrical energy through an electrical grid. Historically, electricity has been primarily sold by

companies that operate electric generators, purchased by electricity retailers, and sold to customers.

The electric power industry began in the late 19th and early 20th centuries in the United States and United Kingdom. Throughout the 20th century, and up to the present, many countries have made changes to their system of supplying and/or purchasing electricity. Change has been driven by many factors, ranging from technological advances (on both the supply and demand side) to politics and ideology.

Around the turn of the 21st century, several countries restructured their electric power industries, replacing the vertically integrated...

Electric power industry

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The electric power industry covers the generation, transmission, distribution and sale of electric power to the general public and industry. The commercial distribution of electric power started in 1882 when electricity was produced for electric lighting. In the 1880s and 1890s, growing economic and safety concerns lead to the regulation of the industry. What was once an expensive novelty limited to the most densely populated areas, reliable and economical electric power has become an essential aspect for normal operation of all elements of developed economies.

By the middle of the 20th century, electricity was seen as a "natural monopoly", only efficient if a restricted number of organizations participated in the market; in some areas, vertically integrated companies provide all stages from...

Victorian Power Exchange

The Victorian Power Exchange (VPX) was established in 1995 by the Victoria State Government as part of a restructuring of the State Electricity Commission

The Victorian Power Exchange (VPX) was established in 1995 by the Victoria State Government as part of a restructuring of the State Electricity Commission of Victoria (SECV) and the establishment of a competitive electricity market.

ITT 465L Strategic Air Command Control System

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The ITT 465L Strategic Air Command Control System (SACCS, SAC Control System, 465L Project, 465L Program) was a Cold War "Big L" network of computer and communication systems for command and control of Strategic Air Command "combat aircraft, refueling tankers, [and] ballistic missiles". International Telephone and Telegraph was the prime contractor for Project 465, and SACCS had "Cross Tell Links" between command posts at Offutt AFB, March AFB, & Barksdale AFB (SACCS also communicated with the Cheyenne Mountain Complex and Air Force command posts. The 465L System included IBM AN/FSQ-31 SAC Data Processing Systems, Remote (RCC) and Simplex Remote Communication Systems (SRCC), SAC Network Control Office, "4-wire, Schedule 4,

Type 4B alternate voice-data operation", and one-way communication...

Electric power transmission

and predictable operation, system components are controlled with generators, switches, circuit breakers and loads. The voltage, power, frequency, load

Electric power transmission is the bulk movement of electrical energy from a generating site, such as a power plant, to an electrical substation. The interconnected lines that facilitate this movement form a transmission network. This is distinct from the local wiring between high-voltage substations and customers, which is typically referred to as electric power distribution. The combined transmission and distribution network is part of electricity delivery, known as the electrical grid.

Efficient long-distance transmission of electric power requires high voltages. This reduces the losses produced by strong currents. Transmission lines use either alternating current (AC) or direct current (DC). The voltage level is changed with transformers. The voltage is stepped up for transmission, then...

National Power Corporation

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The National Power Corporation (Filipino: Pambansang Korporasyon sa Elektrisidad, also known as NAPOCOR, NPC or National Power) is a Philippine government-owned and controlled corporation that is mandated to provide electricity to all rural areas of the Philippines by 2025 (known as "missionary electrification"), to manage water resources for power generation, and to optimize the use of other power generating assets.

Prior to the effectivity of the Electric Power Industry Reform Act (EPIRA) law or Republic Act No. 9136 on March 1, 2003 two years after its June 8, 2001 approval by President Gloria Macapagal Arroyo which deregulated the power

industry and turned over the operations, maintenance, and ownership of the Philippine power grid from NAPOCOR/NPC to another government-owned corporation...

Davis-Besse Nuclear Power Station

necessary maintenance for safe operations. The NRC imposed an over \$5 million fine, its largest fine ever to a nuclear power plant, against FirstEnergy for

Davis-Besse Nuclear Power Station is an 894 megawatt (MW) nuclear power plant, located northeast of Oak Harbor, Ohio, United States. It has a single pressurized water reactor. Davis-Besse is operated by Vistra Corp.

Throughout its operation, Davis-Besse has been the site of several safety incidents that affected the plant's operation. According to the Nuclear Regulatory Commission (NRC), Davis-Besse has been the source of two of the top five most dangerous nuclear incidents in the United States since 1979. The most severe occurring in March 2002, when maintenance workers discovered corrosion had eaten a football-sized hole into the reactor vessel head. The NRC kept Davis-Besse shut down until March 2004, so that FirstEnergy was able to perform all the necessary maintenance for safe operations...

Argentine debt restructuring

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The Argentine debt restructuring is a process of debt restructuring by Argentina that began on January 14, 2005, and allowed it to resume payment on 76% of the US\$82 billion in sovereign bonds that defaulted in 2001 at the depth of the worst economic crisis in the nation's history. A second debt restructuring in 2010 brought the percentage of bonds under some form of repayment to 93%, though ongoing disputes with holdouts remained. Bondholders who participated in the restructuring settled for repayments of around 30% of face value and deferred payment terms, as well as warrants that paid investors based on annual economic growth as part of the same offer, and began to be paid punctually; the value of their nearly worthless bonds also began to rise. The remaining 7% of bondholders were later...

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