



KEY DEFINITIONS AND ACRONYMS

Abbreviation	Meaning
ACE	Area Control Error
AECO	Alberta Energy Company, a natural gas hub in Alberta, Canada
AFUDC	allowance for funds used during construction
AGC	automatic generation control
AIM	Area Investment Model, used to calculate financial performance indicators for projects.
aMW	The average number of megawatt-hours (MWh) over a specified time period; for example, 175,200 MWh generated over the course of one year equals 20 aMW (175,200 / 8,760 hours).
AOC	Administrative Order Of Consent
AURORA	One of the models PSE uses for integrated resource planning. AURORA uses the western power market to produce hourly electricity price forecasts of potential future market conditions.
BA	Balancing Authority, the area operator that matches generation with load
BACT	Best available control technology, required of new power plants and those with major modifications.
BART	best available retrofit technology, an EPA standard
balancing reserves	Reserves sufficient to maintain system reliability within the operating hour; this includes frequency support, managing load and variable resource forecast error, and actual load and generation deviations. Balancing reserves do not provide the same kind of short-term, forced-outage reliability benefit as contingency reserves, which are triggered only when certain criteria are met; balancing reserves must be able to ramp up and down as loads and resources fluctuate instantaneously each hour.
BcF	billion cubic feet
BOP	balance of plant, work inclusive of project substations, turbine foundations, collection system, roads and the operations and main building
BPA	Bonneville Power Administration
BSER	best system of emission reduction, an EPA standard
BTA	Best Technology Available
CAGR	compounded average growth rate



Abbreviation	Meaning
CAIR	Clean Air Interstate Rule
CAISO	California Independent System Operator
capacity factor	The ratio of the actual generation from a power resource compared to its potential output if it was possible to operate at full nameplate capacity over the same period of time.
case	A set of assumptions designed to test the economic viability of an existing resource under a variety of regulatory conditions.
CARB	California Air Resources Board
CCCT	combined cycle combustion turbine
CCR	coal combustion residuals
CCS	carbon capture and sequestration
CEC	California Energy Commission
CFL	compact fluorescent light
CI	confidence interval
CNG	compressed natural gas
CNGC	Cascade Natural Gas Corporation
CO ₂	carbon dioxide
COE	U.S. Army Corps of Engineers
COL	construction and operating license
contingency reserves	Reserves added in addition to balancing reserves; contingency reserves are intended to bolster short-term reliability in the event of forced outages and are used for the first hour of the event only. This capacity must be available within 10 minutes, and 50% of it must be spinning.
Council	Northwest Power and Conservation Council
CPUC	California Public Utility Commission
CRAG	Conservation Resource Advisory Group
CSAPR	Cross State Air Pollution Rule
CT	natural gas-fired combustion turbine
CT peaker	A natural gas-fired, simple-cycle combustion turbine used for meeting peak resource need (also simply referred to as a “peaker”)
CVR	conservation voltage reduction

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demand-side resources	resources that originate on the customer or “demand” side of the meter, primarily involving different types of energy efficiency
demand-response	Demand-response resources are comprised of flexible, price-responsive loads, which may be curtailed or interrupted during system emergencies or when wholesale market prices exceed the utility’s supply cost.
DOE	Department of Energy
draw	simulation
DSO	dispatch standing order (BPA’s protocol to manage a growing amount of wind on its system)
DSR / DSM	demand-side resources, demand-side measures
Dth	dekatherms
EIA	U.S. Energy Information Agency
EIA	RCW 19.285, Washington’s state’s Energy Independence Act, also commonly known as Initiative 937, sets the state’s renewable portfolio standard (RPS).
EIM	Energy Imbalance Market. A voluntary, within-hour energy market operated by the California Independent System Operator (CAISO) that trades in very small increments such as 5 and 15 minutes.
EISA	Energy Independence and Security Act
ELCC	equivalent load carrying capability
EPA	Energy Policy Act (2005)
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
EPS	Washington state’s Emissions Performance Standard
ESP	electric service provider
ESP	electro-static precipitator
EUE	Expected unserved energy, a reliability metric measured in MWhs focused on magnitude of electric service curtailment events (how widespread outages may be).
FERC	Federal Energy Regulatory Commission
FIP	Federal Implementation Plan
firm capacity	Firm pipeline transportation capacity carries the right, but generally not the obligation, to transport up to a maximum daily quantity of gas on the pipeline from a specified receipt point to a specified delivery point. Firm transportation requires a fixed payment, whether or not the capacity is used, plus variable costs when physical gas is transported.

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GDP	gross domestic product
GHG	greenhouse gas
GPM	Gas portfolio model. PSE currently uses the SENDOUT model from ABB Ventyx as its GPM.
GRC	General Rate Case
GTN	Gas Transmission Northwest
HDD	heating degree days
Heat rate	a measure of the thermal efficiency of a power plant or generator
HHV	high heating value
HVAC	heating, ventilation and air conditioning
I-937	Initiative 937, Washington state's renewable portfolio standard (RPS), a citizen-based initiative codified as RCW 19.285, Energy Independence Act.
ICE	Incremental capacity equivalent, the peak capacity contribution of a resource relative to that of a gas peaker. It is calculated as the change in capacity of a generic natural gas peaking plant that results from adding a different resource with any given energy production characteristics to the system while keeping the target reliability metric constant.
iDOT	Investment Optimization Tool, to identify a set of projects that will create maximum value.
IGCC	Integrated gasification combined-cycle, generally refers to a model in which syngas from a gasifier fuels a combustion turbine to produce electricity, while the combustion turbine compressor compresses air for use in the production of oxygen for the gasifier.
IOU	investor owned utility
Interruptible capacity	See non-firm capacity.
IPP	Independent power producers
IRP	Integrated Resource Plan
IRPAG	Integrated Resource Plan Advisory Group
ISO	independent system operator
KORP	the Kingsvale-Oliver Reinforcement Project (KORP) pipeline proposal sponsored by Fortis BC and Spectra
kV	kilovolt
kW	kilowatt
kWh	kilowatt hours
LADWP	Los Angeles Department of Water and Power

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LBNL	Lawrence Berkeley National Laboratory
LNG	liquefied natural gas
load	the total generated demand plus planning margins and operating reserve obligations
LOLH	Loss of load hours, a reliability metric focused on the duration of electric service curtailment events (how long outages may last).
LOLP	Loss of load probability, a reliability metric focused on the likelihood of an electric service curtailment event happening.
LP	linear program
LP-Air	vaporized propane air
MATS	Mercury Air Toxics Standard
MDEQ	Montana Department of Environmental Quality
MDQ	maximum daily quantity
MDth	thousand dekatherms
Mid-Columbia (Mid-C) market hub	The principle electric power market hub in the Northwest and one of the major trading hubs in the WECC, located on the Mid-Columbia River.
MMBtu	million British thermal units
MSTI	Northwestern Energy's Mountain States Transmission Intertie
MW	megawatt
MWe	megawatts electric
MWh	megawatt hours
NAAQS	National Ambient Air Quality Standards, set by the EPA, which enforces the Clean Air Act, for six criteria pollutants: sulfur oxides, nitrogen dioxide, particulate matter, ozone, carbon monoxide and lead.
NARUC	National Association of Regulatory Utility Commissions
NEEA	Northwest Energy Efficiency Alliance
NEEDS	National Electric Energy Data System
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
net maximum capacity	The capacity a unit can sustain over a specified period of time – in this case 60 minutes – when not restricted by ambient conditions or deratings, less the losses associated with auxiliary loads.
NGV	natural gas vehicles

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Non-firm capacity	Non-firm service is subordinate to the rights of shippers who hold and use firm transportation capacity, hence it is “interruptible.” The rate for interruptible capacity is negotiable, and is typically billed as a variable charge.
NOS	Network Open Season, a BPA transmission planning process
NO _x	nitrogen oxides
NPV	net present value
NRC	Nuclear Regulatory Commission
NREL	National Renewables Energy Laboratories
NSPS	New source performance standards, new plants and those with major modifications must meet these EPA standards before receiving permit to begin construction.
NUG	nonutility generator
NWGA	Northwest Gas Association
NWP	Northwest Pipeline (only pipeline directly to west WA)
NPCC	Northwest Power & Conservation Council
NWPP	Northwest Power Pool
NYMEX	New York Mercantile Exchange
OASIS	Open Access Same-Time Information System
OATT	Open Access Transmission Tariff
OFM	Washington state Office of Financial Management
OTC	once-through cooling
PCA	power cost adjustment (electric)
PCORC	power cost only rate case
peak capacity value	A measure of a resource’s ability to contribute to meeting peak need.
peaker	Natural gas-fired combustion turbine used for meeting peak resource need (also sometimes referred to as a simple-cycle combustion turbine, SCCT or CT peaker, or reciprocating engine).
PEFA	ColumbiaGrid’s planning and expansion functional agreement, which defines obligations under its planning and expansion program
PGA	purchased gas adjustment
PG&E	Pacific Gas & Electric
PGE	Portland Gas Electric
PIPES Act	Pipeline Inspection, Protection, Enforcement, and Safety Act (2006)
planning margin or PM	These are amounts over and above customer peak demand that ensure the system has enough flexibility to handle balancing needs and unexpected events.

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planning standards	The performance targets for a system's operation.
PM	particulate matter
PNUCC	Pacific Northwest Utilities Coordinating Committee
portfolio	A specific mix of resources to meet gas sales or electric load.
PPA	Purchased power agreement, a bilateral wholesale or retail power short-term or long-term contract, wherein power is sold at either a fixed or variable price and delivered to an agreed-upon point.
PTP	Point-to-point transmission service, meaning the reservation and transmission of capacity and energy on either a firm or non-firm basis from the point of receipt (POR) to the point of delivery (POD).
PTSA	Precedent Transmission Service Agreement
PSE	Puget Sound Energy
PSIA	Pipeline Safety Improvement Act (2002)
PSM	Portfolio screening model, a model PSE uses for integrated resource planning, which tests electric portfolios to evaluate PSE's long-term revenue requirements for those portfolios.
PSO	power supply operations
PTC	Production Tax Credit, a federal subsidy for production of renewable energy that applied to projects that began construction in 2013 or earlier. When it expired at the end of 2014, it amounted to \$23 per MWh for a wind project's first 10 years of production.
PUD	public utility district
PV	photovoltaic
R&D	research and development
RAM	Resource Adequacy Model. RAM analysis produces reliability metrics (EUE, LOLP, LOLH) that allow us to assess physical resource adequacy.
RAS	remedial action scheme
rate base	The amount of investment in plant devoted to the rendering of service upon which a fair rate of return is allowed to be earned. In Washington state, rate base is valued at the original cost less accumulated depreciation and deferred taxes.
RCRA	Resource Conservation Recovery Act
RCW	Revised Code of Washington
RCW 19.285	Washington's state's Energy Independence Act, commonly referred to as the state's renewable portfolio standard ("RPS")

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REC	Renewable energy credit, RECs are intangible assets that represent the environmental attributes of a renewable generation project – such as a wind farm – and are issued for each MWh of energy generated from such resources.
REC banking	Washington’s renewable portfolio standard allows for RECs unused in the current year to be “banked” and used in the following year.
recip	Short for reciprocating engine, a small four-stroke gas engine that uses a lean burn method to generate power. Used as a peaker.
regulatory lag	The time that elapses between establishment of the need for funds and the actual collection of those funds in rates.
revenue requirement	Rate Base * Rate of Return + Operating Expenses
RFP	request for proposal
RPG	Renewable Portfolio Goal
RPS	Renewable portfolio standard. It requires electricity retailers to acquire a minimum percentage of their power from renewable energy resources. Washington state mandates 3% by 2012, 9% by 2016 and 15% by 2020.
RTO	regional transmission organization
SCADA	supervisory control and data acquisition
SCCT	Simple-cycle combustion turbine, natural gas-fired unit used for meeting peak resource need (also sometimes referred to as a “peaker”)
SCR	selective catalytic reduction
scenario	A consistent set of data assumptions that defines a specific picture of the future; takes holistic approach to uncertainty analysis.
SENDOUT	PSE’s model used to help identify the long-term least cost combination of gas resources to meet stated loads.
sensitivity	A set of data assumptions based on the Base Scenario in which only one input is changed. Used to isolate the effect of a single variable.
SIP	State Implementation Plan
SNCR	selective non-catalytic reduction
SNL	A company that collects and disseminates corporate, financial and market data on several industries including the energy sector (www.snl.com). The letters SNL stand for savings and loan.
SO ₂	sulfur dioxide
SOFA system	separated over-fire air system

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supply-side resources	Resources that originate on the utility side of the meter. Electric supply-side resources include primarily coal and gas-fired generation, hydro power and transmission. Gas supply-side resources include pipeline capacity and gas supplies.
TAG	Technical Advisory Group
TailVar90	A metric for measuring risk defined as the average value of the worst 10 percent of outcomes.
TEPPC	WECC Transmission Expansion Planning Policy Committee
TCPL-Alberta	TransCanada's Alberta System (also referred to as TC-AB)
TCPL-British Columbia	TransCanada's British Columbia System (also referred to as TC-BC)
TF-1	Firm gas transportation contracts, available 365 days each year.
TF-2	Gas transportation service for delivery or storage volumes generally intended for use during the winter heating season only.
T&D	transmission and distribution
TOP	transmission operator
transport loads	In the gas utility, this refers to customers who buy gas supplies from PSE but transport those supplies using their own resources
transportation loads	The natural gas or electricity that is used to fuel vehicles like cars, trucks, boats and ships.
Treasury Grant	The Treasury Grant ("Grant") is a federal subsidy in the form of a cash payment that amounts to 30% of the eligible capital cost for renewable resources; it expires at the end of 2013. For projects placed in service in 2013, construction must have started in 2009, 2010 or 2011 and the project must meet eligibility criteria.
UPC	use per customer
VERs	Variable energy resources
VectorGas	facilitates the ability to model price and load uncertainty
WAC	Washington Administrative Code
WACC	weighted average cost of capital
WCI	Western Climate Initiative
WECC	Western Electricity Coordinating Council
WECo	Western Energy Company
WEI	Westcoast Energy, Inc.
WIEB	Western Interstate Energy Board
WUTC	Washington Utilities and Transportation Commission