

## Glossary for Williams Power Tutorial

**AES 4000** - Williams Power's approximately 4,000 MW, 20-year tolling agreement that began in May 1998, covering power plants in the Los Angeles Basin. AES refers to this position as AES Southland.

**Ancillary Services (Ancillaries)** -- Those services from electric generating resources necessary or beneficial to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of a transmission system in accordance with good utility practice. Ancillaries include: spinning reserve (“hot stand-by”), non-spinning reserve, regulation, replacement reserves and operating reserves.

**Arbitrage** - The simultaneous or near simultaneous purchase of one commodity against the sale of similar or identical commodities in order to profit from fluctuations in the usual price relationships. By its nature, arbitrage generally has little to no risk with relatively minimal reward.

**Baseload generating plant** - A baseload generating unit is normally used to satisfy all or part of the power demand that generally exist all of the time within the system and, as a consequence, produces electricity at an essentially constant rate and runs continuously.

**Basis**- The difference between the prices of a commodity at two different locations or at two different times, e.g., between the cash (or “spot”) price and the price of the nearest futures contract for the same or a related commodity.

**CAISO – California Independent System Operator**. The not-for-profit entity that manages transmission systems belonging to the state’s major electric utilities. Although it is FERC-jurisdictional, the CAISO has reported to a board appointed by California government officials. Note that the CAISO does not manage the transmission assets of the city of Los Angeles, and other local governments have not chosen to participate.

**Capacity** - (a) With respect to pipelines, the maximum volume of liquid or gas that can be transported through a pipeline; (b) with respect to electricity generation, the maximum load that a generating unit or station can carry under specific conditions for a given period of time; (c) with respect to storage, the total storage space or volume of a warehouse or storage container or tank farm.

**CDWR Product D** - Williams Power's resale of tolling contract in California with a term through 2010 covering a quantity from 415MW to 1,175 MW.

**CDWR Products AB&C** - Williams Power's forward power sales contracts in California. Product A is a 7x24 contracts for 200MW through 2007; Product B is a 6x16 contract for 175-450MW through 2010; and Product C is a 6x16 contract for 50 MW from 2008-2010.

**Combined Cycle Unit**: An electric generating unit that consists of one or more combustion turbines and one or more boilers with a portion of the required energy input to the boiler(s) provided by the exhaust gas of the combustion turbine(s).

**Combined Cycle**: An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one more gas (combustion) turbines. The exiting heat is routed to a conventional boiler or to a heat recovery steam generator for utilization by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit.

**Confidence interval (Confidence level)** - is the desired degree of assurance when measuring probability. Confidence level is given as the odds, out of 100%, of a particular outcome or range of outcomes.

**Congestion** – Condition where the transmission system has more scheduled load or supply than it is capable of carrying at a given point in time, resulting in application of administrative procedures to allocate available capacity. Congestion solutions or responses may include curtailment of transmission service, redispatch of generation resources, reconfiguration of the transmission grid, and/or shedding load. See Curtailment, FTRs, LMP.

**Curtailment** – A reduction in firm or non-firm transmission service in response to a transmission capacity shortage as a result of system reliability conditions.

**Delta** - The sensitivity of an option's value to a change in the price of the underlying futures contract, also referred to as an option's futures-equivalent position. Deltas are positive for calls, and negative for puts. Deltas of deep in-the-money options are approximately equal to one; deltas of at-the-money options are 0.5; and deltas of deep out-of-the-money options approach zero.

**Demand payments** – Regular -- typically monthly – payments under a tolling (or other supply) arrangement to the supplier for the right to dispatch a power generation (or other commodity production) facility.

**Derivatives** - A security whose value is "derived" from the performance or movement of another financial security, index or investment. Put another way, derivatives are a financial instrument derived from a cash market commodity, futures contract, or other financial instrument. Derivatives can be traded on regulated exchange markets or over-the-counter. For example, futures contracts are derivatives of physical commodities, options on futures are derivatives of futures contracts. Derivatives include the following: Futures/forwards - An agreement to buy or sell a set amount of a commodity in a designated future month at a price agreed upon today by the buyer and seller; Options - The right, but not the obligation, to buy or sell a commodity at a specified price within a specific time period; and Swaps - An exchange of one forward cash flow stream for another; most often fixed for floating.

**Economic hedging** – Hedging undertaken to reduce economic uncertainty. Economic hedges are contracts whose value changes equal and opposite to the changes in value of the underlying position they are meant to hedge. (See Hedging)

**EET** - Edison Electric Institute. Also refers to standardized forms of contracts for power transactions.

**EITF 00-17** (Measuring the Fair Value of Energy-Related Contracts in Applying EITF Issue No. 98-10). Requires energy related contracts to be reported at fair value on financial statements. Energy related contracts include tolling, storage, transportation, and full requirements or load serving contracts valued as a stand-alone or individual contract basis. Provides guidance on estimating fair value when quoted market price not available.

**EITF 98-10** (Accounting for Contracts Involved in Energy Trading and Risk Management Activities) defines what a trading company looks like; also requires that all energy trading contracts be reported at fair value on the financial statements on a stand alone or individual contract basis. Characteristics of a Trading Company are: 1) Traded markets have liquidity, 2) Transactions are denominated in energy terms, 3) Competitors are primarily other traders, 4) Contracts have the "look and feel" of financial instruments, 5) Contracts have a firm term, 6) Contracts have a measurable quantity and price, 7) Strategy and trades are based upon market conditions, not the availability of physical supply from a trader's hard assets or the needs of an affiliate, 8) Business is managed off of bid/ask curves, 9) Primary assets and liabilities are derived from contract commitments and financial instruments, not capital assets. Energy Related Contracts include: Transportation, Storage, Tolling, and Load Serving or Full Requirements Agreements

**Expected Value** – The value booked to financial statements, net of credit adjustments before risk adjustment.

**Fair value** - the amount at which a financial instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale

**Firm Service** - Power or power-producing capacity intended to be available at all times during the period covered by a guaranteed commitment to deliver, even under adverse conditions.

**FTRs – Fixed Transmission Rights**. A financial instrument used to hedge congestion charges related to transmission service. Holder of FTRs may be entitled to receive compensation for certain transmission charges when the grid is congested and differences in locational prices result from redispatch of generators out of merit order. NOTE: allocation of FTRs is a critical issue when implementing Locational Marginal Pricing system in evolving markets.

**Full requirements arrangement** - Arrangement with a counterparty that consistently includes two elements: a load serve agreement and some type of resource optimization agreement (which can be a tolling agreement, fixed price strikes or other configurations). Result: Williams Power takes on the obligation to meet 100% of the counterparty's load demand at the wholesale level. Williams also must economically dispatch the counterparty's resources on its behalf and market any excess energy produced by the counterparty's resources, cover their short positions and share benefits with the counterparty.

**Futures contract** – An exchange-traded contract, standardized as to quantity, quality and delivery point, for the purchase and sale of a commodity at a later date. Futures contracts are most often liquidated prior to the delivery date and are generally used as a financial risk management and investment tool rather than for supply purposes.

**Gamma** - The sensitivity of an option's delta to changes in the price of the underlying futures contract.

**Heat rate** - Natural gas fired plants convert fuel to electricity at different rates that are expressed as "heat rates". The lower the heat rate, the higher the efficiency of the plant. Put another way, it is the amount of fuel energy required by a power plant to produce one kilowatt-hour of electrical output. It is a measure of generating station thermal efficiency, generally expressed in Btu per net kWh (or alternatively MM Btu per net MWH), computed by dividing the total Btu content of fuel burned for electric generation by the resulting net kWh generation.

**Hedging** - Activities undertaken with the intent of reducing risk and uncertainty. The initiation of a position in a futures or options market that is intended as a temporary substitute for the sale or purchase of the actual commodity. For example: the sale of futures contracts in anticipation of future sales of cash commodities as a protection against possible price declines, or the purchase of futures contracts in anticipation of future purchases of cash commodities as a protection against the possibility of increasing costs.

**Intermediate load plant** - Intermediate-load generating units meet system requirements that are greater than base load but less than peak load. Intermediate-load generating units are used during the transition between baseload and peak load requirements.

**In-the-money** – As to an option, when it is profitable relative to the market price of the commodity in question. I.e., as to a call, when the exercise price is below market; as to a put, when the exercise price is above market.

**IPP (Independent Power Producer)** - A non-utility power generating company.

**ISDA** - International Swaps and Derivatives Association. A global trade association for OTC derivatives, and maintainers of the industry-standard **ISDA** documentation. Also refers to standardized forms of contracts for power transactions.

**ISO** - an entity sanctioned by the Federal Energy Regulatory Commission (FERC) for the purpose of managing the transmission system as the electric industry in the United States is restructured. An ISO controls the power system without special interest, and owns no generation, transmission or load. Therefore, the ISO is intended to run the system fairly, for the benefit of all market participants.

**ITC – Independent transmission company.** Potentially a for-profit entity which manages the transmission assets of contributing transmission owners (electric utilities). Under FERC guidelines this for-profit transmission owner/operator would be subordinate to an RTO with specifically defined responsibilities. GridAmerica is most recent notable example, encompassing several Midwest transmission systems, subordinate to MISO.

**Liquid** - A market characterized by a high level of trading activity and open interest. Buying and selling is performed with relative ease. Power and natural gas markets are liquid approximately 6 years out; crude oil and refined products approximately 2 years; and NGLs one year.

**LMP** – Locational Marginal Pricing. Market-based solution to managing congestion on transmission systems, where the hourly integrated market clearing price for energy is differentiated at specific locations on the transmission grid. This method was first implemented in PJM and is the prevalent market-based solution to congestion, despite concerns by some traditional utilities serving load along congested or remote sections of the integrated grid.

**Load** – Related to power, the amount of power carried by a utility supplier or subsystem or the amount of power consumed by an electric device, at a specified time. Load is often referred to as demand.

**Load pocket** - A concentration of load (i.e. demand) isolated from the balance of the electrical system by transmission constraints (i.e. congestion). Load pockets typically produce higher prices.

**Load serving agreements** - Arrangement to meet the energy demands within a control area on a real-time basis. Fulfilling this requirement mandates the procurement of energy supply on a 24-hour, 7-day-a-week basis to follow or match the load or energy demand. Also referred to as load following.

**Long** – When purchases/supplies are greater than sales. Positive benefits from upward movements in price.

**Market maker** – An independent trader or trading firm which is prepared to buy and sell in a designated market. Market makers provide a two-sided (bid and ask) market and greater liquidity.

**Mark-to-Market Accounting (MTM)** - the process of estimating, recording, and reporting the fair value of physical and financial transactions; records the net present value of all expected future cash flows adjusted for risk components such as credit and market uncertainties.

**MISO – Midwest Independent System Operator.** The first officially recognized RTO – as opposed to an ISO – although the extent of its operational control for the transmission assets in its footprint is less comprehensive than that of PJM. To date the MISO does not operate markets, but is evolving toward that goal. Headquartered in Carmel, Indiana, encompassing Cinergy, First Energy, Ameren, etc.

**MMU – Market Monitoring Unit**. An office in the FERC-regulated RTO with authority to monitor market activity and market participants to identify and propose solutions to market power or other market inefficiencies. Works closely with FERC’s Office of Market Oversight to identify, investigate, and mitigate market flaws. Tends to be functional where RTOs administer markets.

**NAESB** - North American Energy Standards Board Also refers to standardized forms of contracts for power transactions.

**Naked** - A long- or short-term market position taken without having an offsetting position. For options, the term “uncovered” is used interchangeably and refers to a position that is taken without the benefit of an offsetting position in the futures market.

**NERC - North American Reliability Council**. A not-for-profit company formed by the electric utility industry in 1968 to promote the reliability of the electricity supply in North America. Has been the standard-setting organization for reliability and operating protocols. NERC consists of nine Regional Reliability Councils and one Affiliate: ESCAR - East Central Area Reliability Co-ordination Agreement; ERCOT - Electric Reliability Council of Texas; MAAC - Mid-Atlantic Area Council; MAIN - Mid-America Interpool Network; MAPP - Mid-Continent Area Power Pool; NPCC - Northeast Power Coordinating Council; SERC - Southeastern Electric Reliability Council; SPP - Southwest Power Pool; WSCC - Western Systems Coordinating Council

**Net position** - The difference between an individual’s or firm’s open long contracts and open short contracts in any one commodity.

**Origination** - customized contractual services designed to meet each customer's specific needs.

**Out-of-the-money** – As to an option, when it has no value relative to the market price of the commodity in question, i.e., when it has no “intrinsic value.”

**Peaking** – A term used to describe the act of supplying power during periods of high power demand.

**Peakload generating plant** - A peakload generating unit is normally the least efficient of the three unit types (baseload, peakload & intermediate-load). Used to meet requirements during the periods of greatest or peak load on the system

**PJM** – The nation’s premier independent system operator (ISO), now an RTO. Regulated by the FERC, this not-for-profit organization manages the aggregated transmission systems throughout Pennsylvania, New Jersey, Maryland, Delaware, and the District of Columbia and operates various markets for energy products in the region. It is governed by an independent board, features well-developed stakeholder processes and enjoys the strong support of the respective state public utility commissions in those states.

**Position** – The net total open contracts, either long or short, in a particular underlying commodity.

**Proprietary trading** – Trading activities undertaken as a result of market intelligence, quantitative modeling capabilities or a need/desire to reduce risk in the portfolio. Can take the form of market making or speculation.

**Put** - An option contract that gives the holder the right to sell a certain quantity of an underlying security or commodity to the writer of the option, at a specified price (the strike price) up to a specified date (the expiration date).

**Risk management solution** – Custom-tailored solution to meet a customer’s unique set of needs.

Solutions include specified terms and conditions with a counterparty over a multiple-year time period. Terms and Conditions could encompass, but are not limited to: combination of transaction scope, payment, price, term, volume, delivery point, scheduling/dispatch, transmission, line losses, ancillaries, reserve requirements, load forecasting, load additions, thresholds, call rights, resource planning, facility assumptions, availability, permitting, emissions, credit, insurance, taxes, billing, assignment, warranties, covenants, exclusivity, confidentiality.

**Risk-adjusted value** - The value booked to financial statements, net of credit adjustment and other adjustments. It is less than expected value due to risk inherent in the deal for which a third party would expect to be compensated in acquiring the transaction(s).

**RTO – Regional Transmission Organization.** The FERC concept for an independent operator of transmission systems in logical physical pods, comprised of transmission systems owned by electric utilities who surrender operational control to facilitate non-discriminatory access, coordinated planning and efficient region-wide operation of adjacent and overlapping transmission systems. May operate markets in the respective area, as does PJM and the NYISO.

**RTO or RTG - Regional Transmission Operator/Group.** Voluntary organization of transmission owners and users created to coordinate transmission planning and use on a regional basis. RTO’s are beginning to replace ISO’s

**SAB 101** - The SEC’s interpretation of when to recognize revenue in financial statements. States that revenue should not be recognized until it is realized or realizable and earned. A deal may be recognized as realizable if: Persuasive evidence of an agreement exists; Delivery has occurred or services have been rendered; Seller’s price is fixed or determinable; and Collectibility is reasonably assured.

**Scheduling Coordinators** - Entities certified by the Federal Energy Regulatory Commission that act as a go-between with the Independent System Operator on behalf of generators, supply aggregators (wholesale marketers), retailers, and customers to schedule the distribution of electricity.

**SeTrans – Southeastern Independent Transmission Organization.** The proposed RTO in the Energy/Southern-dominated southeastern portion of the country. Not operational, not likely to commence operations before 2006 at the earliest.

**7x24** - Seven days a week, 24 hours a day. Used in power sales contracts.

**SFAS 133** (Accounting for Derivative Instruments and Hedging Activities) - FASB’s statement establishing reporting standards including: all derivatives recognized on balance sheet at fair value; hedge accounting treatment; formal hedge documentation required.

**Short** – When sales are greater than purchases/supplies. Negative benefits from upward movements in price.

**6x16** - Six days a week, 16 hours a day. Used in power sales contracts.

**SMD** – Standard Market Design, the ill-fated concept promulgated by the FERC, originally in 2002, as the template for organization and design of RTOs. Was a policy proposal that generated significant opposition from states who claimed that the federal “cookie-cutter” would bludgeon state distinctives and sovereignty. Has been replaced by significantly abridged White Paper on market design, although its influence is clear in various FERC orders approving tariff filings and asserting other decisions.

**Spark spread** - the result of the calculation of the difference between the price for which power can be sold in the market versus the cost of the fuel and what it takes to convert that fuel to electric power in a generating facility. Can be expressed in \$/MWh or \$/Mmbtu. Typically refers to the difference in the Btu market price for electricity and gas in the same market. As a formula, it is:  
$$\text{power price} - (\text{gas cost} \times \text{heat rate}) = \text{spark spread}$$

**Spinning Reserve** - That reserve generating capacity running at a zero load and synchronized to the electric system.

**Spot** – With respect to commodity markets, “current” period and relatively short-term in duration, hence “spot market”, “spot sales.” In the natural gas market, current month transactions with terms under 30 days are considered spot. Coal transactions less than one year out are considered spot.

**Spread (futures)** – The futures contract closest to maturity. The nearby delivery month.

**Spread (options)** – The simultaneous purchase and sale of futures contracts for different months, different commodities, or different grades of the same commodity.

**Storage (Gas storage facility)** – A facility where natural gas is stored, generally under high pressures. Most facilities are underground geological formations conducive to repeated injection and withdrawal of natural gas, although above ground storage is available using vessels to store either liquidified or compressed natural gas.

**Structured deal** – See Risk Management Solution.

**Swap** – An exchange of one forward cash flow stream for another. A custom-tailored, individually negotiated transaction designed to manage financial risk, usually over a period of one to 12 years. Swaps can be conducted directly by two counterparties, or through a third party such as a bank or brokerage house. The writer of the swap, such as a bank or brokerage house, may elect to assume the risk itself, or manage its own market exposure on an exchange. Swap transactions include interest rate swaps, currency swaps, and price swaps for commodities, including energy and metals. In a typical commodity or price swap, parties exchange payments based on changes in the price of a commodity or a market index, while fixing the price they effectively pay for the physical commodity. The transaction enables each party to manage exposure to commodity prices or index values. Settlements are usually made in cash.

**Tenor** - Refers to how far out in time a trade/transaction takes place.

**Theoretical value** – An option’s value generated by a mathematical model given certain prior assumptions about the term of the options contract, the characteristics of the underlying futures contract, and prevailing interest rates.

**Tolling** - A fuel conversion arrangement in which Williams supplies fuel to power plants and markets the electricity output to competitive markets. Alternatively put, an arrangement viewed as an option whereby Williams Power acquires and moves fuel to a power generator and receives kilowatt hours (kWh) in return for a pre-established fee.

**Transmission (System)** – a) The movement of electricity across power lines. b) The network of high voltage lines, transformers and switches used to move electrical power from generators to the distribution systems. Also utilized to interconnect different utility systems and independent power producers together, into a synchronized network.

**Underlying** – The stock, commodity, futures contract, or cash against which the futures, swap, or options contract is valued.

**VaR - Value at Risk**. Generally speaks to the riskiness of a portfolio. VaR is a financial measure of risk that seeks to capture the potential loss one might expect to see in a portfolio or position, if the market or other risk factors were to move in an unfavorable direction. VaR numbers calculated on a daily basis reflect changes in the value of the portfolio or position from one day to the next, not from the original position. Put another way, Given a fair value of a portfolio of \$XXX million, VaR would represent the variability of actually realizing that value given a certain comfort level (i.e., confidence interval). VaR is traditionally calculated using a set confidence interval and a set holding period. At a 95% confidence interval with a one-day holding period, Williams Power is suggesting that a 5% chance exists that Williams could lose \$XXX million in one day given certain historical market movements.

Sources: NYMEX, Power Marketing Association, Williams