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Bilateral Contracts for Power

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What is a Bilateral Contract?

- Basically it is a written agreement between two parties in which each party promises a performance. In other words, one party agrees to provide power to the other party for a payment. The general characteristics of these contracts include price, time limits, and defining the two parties.



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Definitions

- 1. Power – Energy and/or capacity
- 2. Megawatts (MW or Mwe)– megawatts electrical
- 3. Energy (kWh) - amount of kilowatts generated/used over a period of time; kilowatt-hour, megawatt-hour
- 4. Capacity (kW) – amount of kilowatts or megawatts available, generating unit capability.
- 5. Heat Rate – the efficiency of a generating unit, how much fuel/energy does it take to generate a kilowatt.
- 6. O&M – Operating and maintenance costs associated with a generating unit.



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Definitions (cont)

- 7. Market price – The price of a hourly sale or purchase available in any point in time which is available to multiple parties. Typically set by Regional Transmission Operator/Independent System Operator such as SPP, Midwest ISO, PJM.
- 8. Generating unit – Boiler/turbine, combustion turbine, wind turbine, etc.
- 9. Generating plant – Several generating units at a site. May include several types of generating units.



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Types of Contracts

- 1. Sale Contract – Utility signs contract/agreement with other utility/entity to provide a certain amount of power for a price. Considered off system sales.
- 2. Purchase Contract – Utility signs an contract/agreement with another utility/entity to purchase a certain amount of power for a price. Referred to as purchased power.



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Types of Contracts (cont)

- 1. Why would a utility enter into a sales contract?
 - a) Utility has excess capacity/energy.
 - b) Utility needs additional revenue.
- 2. Why would a utility enter into a purchase contract?
 - a) Utility needs capacity/energy.
 - b) Utility needs less cost capacity/energy.
 - c) Utility needs a known cost for capacity/energy and/or delivery.



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Types of Contracts (cont)

- 3. Energy Contract – Can be either a sale or purchase. Contract/agreement is for energy only. No expectation of capacity as part of transaction. A contract without capacity, may result in energy not being available at all times.
- 4. Capacity Contract – Can be either a sale or purchase. Contract/agreement includes energy and capacity. A contract with capacity has the possibility of providing energy at all times.



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Items of a contract

- 1. Source of energy/capacity
 - a) Generating unit specific – the contract specifies that the energy and/or capacity will be generated by a specific generating unit. Typically means when the generating unit is not available due to outages the energy/capacity is not available.
 - b) Non generating unit specific – the contract does not specify that the energy/capacity will be generated by a specific generating unit. Typically means that any available unit could be used for contract. Which also eliminates the outage concerns.



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Items of a contract (cont)

- c) Multiple unit specific – the contract specifies that the energy/capacity will generated by one or more specific generating units. This type also is used for a site that has multiple units such as wind turbines, or other renewable energy units, and are not usually dispatchable.



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Items of a contract (cont)

- 2. Energy/capacity amount
 - a) Fixed amount not to exceed
 - b) Fixed amount must take
 - c) Variable amount with minimum and maximum limits
 - d) Variable amount based on output – hydro, wind, solar



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Items of a contract (cont)

- 3. Time period of contract
 - a) length of contract – weeks, months, years
 - b) Length of commitment for energy/capacity
 - 1) Hours in a day – such as the term 5x16, which means available 5 days a week, 16 hours a day.
 - 2) Days of a week
 - c) Extensions – may include any changes to the terms of the contract, such as cost.



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Items of a contract (cont)

- 4. Energy Cost Determination
 - a) Fixed rate per kWh
 - 1) Long term may include escalators in costs.
 - 2) May be slightly lower than market price.
 - b) Variable rate for kWh
 - 1) Calculated based on known or expected variables such as: heatrate, fuel cost, O&M:
 - $[(\text{mmBTU/kW}) \times (\$/\text{mmBTU}) + (\$/\text{kWh})] \times \text{kWh}$
 - 2) Market price
 - c) Other - Tolling agreement



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Items of a contract (cont)

- 5. Capacity Cost Determination – Demand Charge
 - a) Fixed rate per kW
 $(\$/kW\text{-month}) \times \text{months} \times kW$
 - b) Typically paid regardless of amount of energy taken.
 - c) Capacity costs may be determined by the level of energy costs. Higher capacity costs may result in lower energy costs, or the opposite may occur.



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Items of a contract (cont)

- 6. Environmental Costs
 - a) SO_x and NO_x credits
 - b) Limestone for scrubbers
- 7. Transmission Costs – who pays
- 8. Delivery point
- 9. Ownership of renewable Energy Certificates



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Handouts

- Examples of contracts:
 - Example 1: Station participation contract
 - Example 2: Unit participation contract
 - Example 3: Wind contract
 - Example 4: Short term capacity & energy contract
 - Example 5: Request for proposal