



هيئة تنظيم الكهرباء - عمان
AUTHORITY FOR ELECTRICITY REGULATION, OMAN



ENERGY REGULATORS
REGIONAL ASSOCIATION

**ERRA Tailor-made Workshop for
Authority for Electricity Regulation, Oman (AER):
Power System Basics for Non-Engineers**

Power Market Differences

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ERRA Tailor-made Educational Workshop: Power System Basics for Non-Engineers

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Some concepts

- What is cost, price and value?
- Are we pricing cost or value?
- Cost
 - Cost of generating electricity
- Price
 - Price of retail electricity
- Value
 - Value of electricity to customers



From the consumer side

- WTP
 - Willingness to pay (for more secure electricity)
- WTA
 - Willingness to accept (an outage)
- VoLL
 - Value of lost load



Security parameters

- Reliability
- Resilience
- Security of Supply



What kind of market?

- Different pricing schemes
 - Marginal pricing
 - Pay as bid
 - Average
 - Tender (lowest/highest)



Pricing product or services

- Pricing
 - Energy (more like a product)
 - Capacity (more like a service)
 - Plastic/Hybrid resources
 - Demand response (product & service)
 - Storage (product & service)
- Time span is important



Why spot market?

- Spot market generally 12-24 hours in advance
- Historical dispatch requirements
- Make dispatch one day in advance
 - Spot price
- Balance it in real time
 - Balancing charges / SMP (system marginal price)
- Why?
 - No storage / contingencies



Why balancing?

- No stock
- Constant balancing
 - Within security limits
 - Automated systems
- With renewables
 - Flexibility needs increase



Missing money

- Theory
 - $MP=MC$ is optimum point
- If system is constantly optimum
 - Price is marginal
 - Marginal power plant never earns money
- How many hours per year a Nat Gas PP need to work?
 - function(electricity price)
- Will it recover fixed costs?



Power market ahead

- More financial contracts
 - Indexed based
 - FTR (transmission rights)
 - LT contracts
 - Options (call/put)
- More flexibility hedging
 - Renewables



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