Structuring electricity supply contracts for high voltage customers

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Needs of customers and suppliers

- Customers need:
  - Lowest possible tariff
  - Security and quality of supply
- Suppliers need:
  - Reimbursement of fixed costs
  - Sustainable allocation of risks
  - Returns to support debt and equity

Contracts must reflect both sets of needs

Different types of market

- Competitive
  - Requirements to buy through power pool
  - Usually co-exists with bilateral contracts
- Vertically integrated supplier
  - Usually regulated or government controlled
  - Social and universal service obligations
- Single buyer
  - Own generation or IPPs
  - Power Purchase Agreements

Gross Power Pools

- Generators offer supply at specified price, variable by trading period
- Offer prices determine dispatch and pool price
- Major users can buy from pool or through bilateral contracts (in some countries)
- Prices can ‘spike’ to very high levels in times of shortage
- Capacity additions occur if generators can recover costs

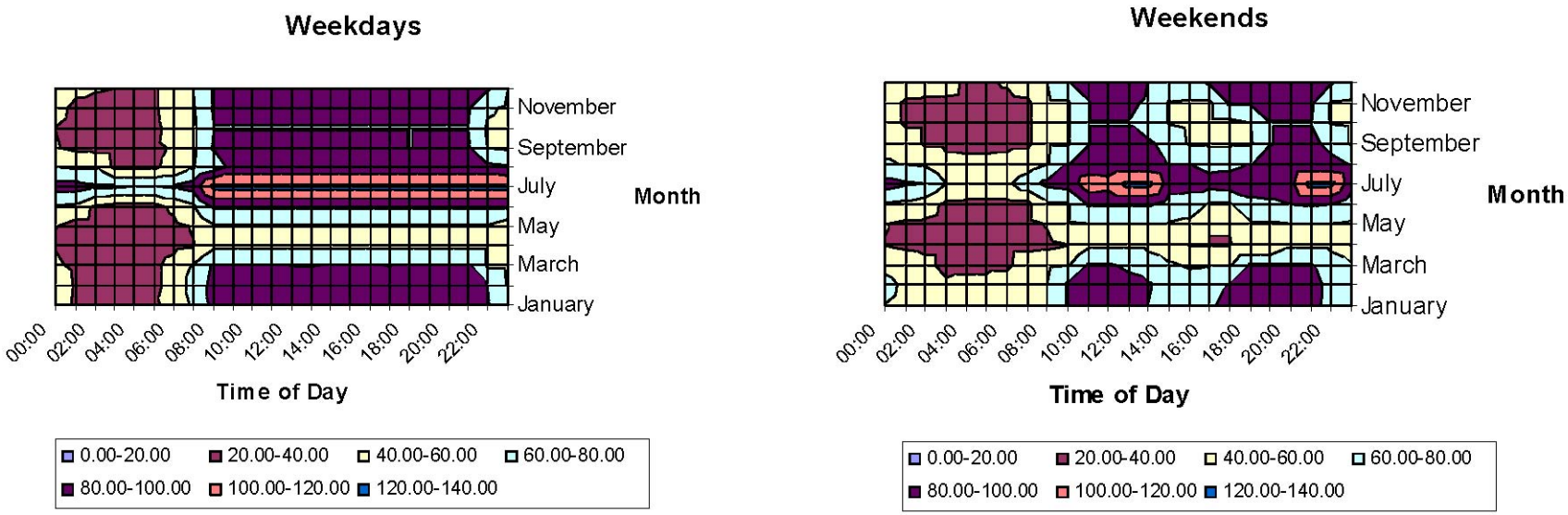
Single Buyer model

- All supply is through a single utility
- Tariffs regulated and social/universal service obligation
- Difficulties where single buyer also controls dispatch
- Sustainable risk allocation requires ‘back-to-back’ purchase and supply contracts
- Effective cost pass-through and incentive requirements

Typical problems

- Effective pricing of peak capacity
  - Particularly when dominated by hydro
- Monthly capacity charges
  - Provide no incentive to limit use in peak periods
  - Time of use/seasonal charges may work better
- Charges for reactive power
  - Not necessary when power factor controlled by grid code
- Fuel cost pass-through/risk sharing
  - Necessary to protect generators, but may cause problems when fuel prices volatile

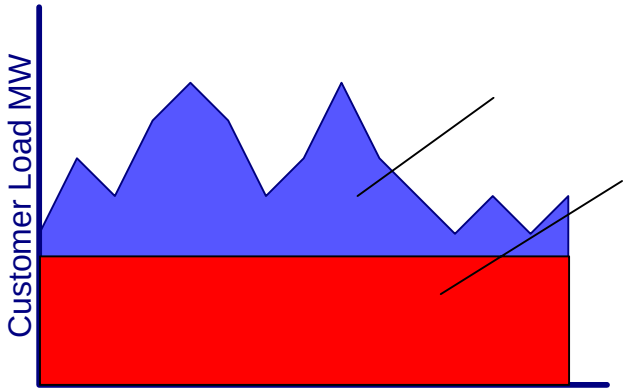
Variations in generation costs



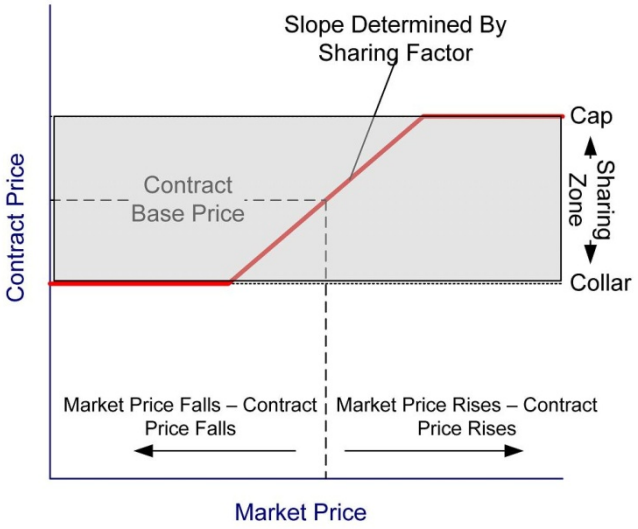
Source: IPA modelling of Greek generation costs (SMP Euro/MWh)

Risk Sharing

- May be difficult for supplier or customer to bear the whole fuel price risk



- Risk sharing contracts can combine fixed price and market price products, or use cap and collar methodology
- Multiple-year risk sharing is also possible, with suitable indexation



Load Management Contracts

- Allow the user to share in the benefit of avoiding both high energy prices and capacity charges
- In the UK customers are charged Transmission Charges based on their average consumption from the network at 3 half hours (known as ‘Triad periods’) which represent the peak in system demand and the next two highest periods separated by 10 clear days each.
- Can provide strong incentives to manage load

Thank you

Questions and Discussion