



Dieter Helm is the author of  
Burn Out: The endgame for fossil fuels

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LECTURE FIVE

# MARKET DESIGN

WHOLESALE MARKETS FITs, CfDs AND CAPACITY CONTRACTS

PRESENTED BY

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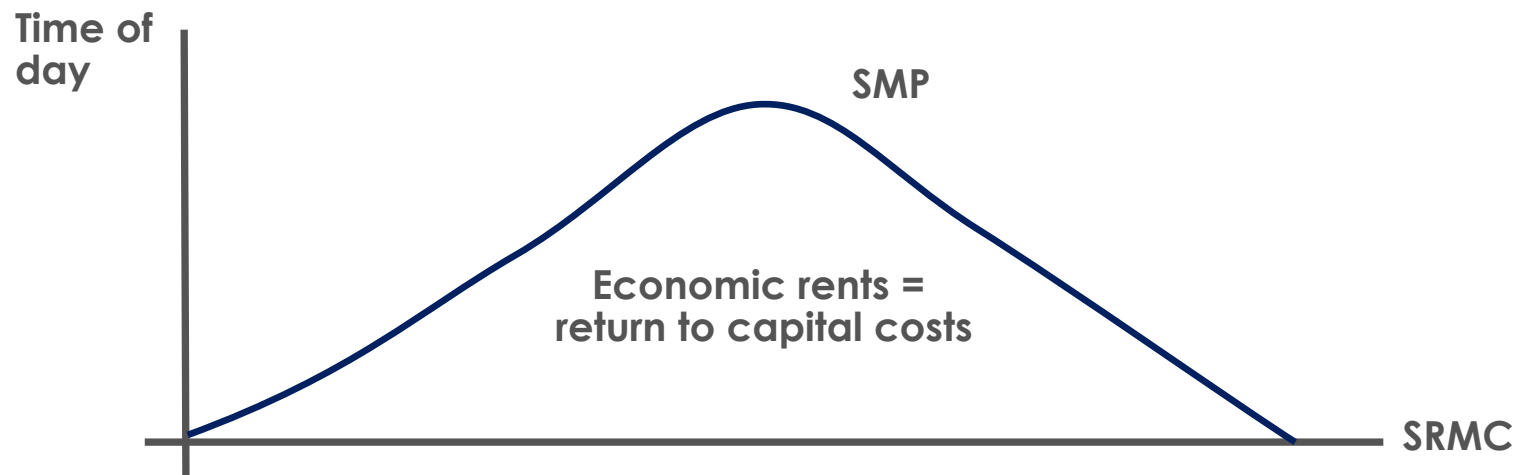
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# OUTLINE

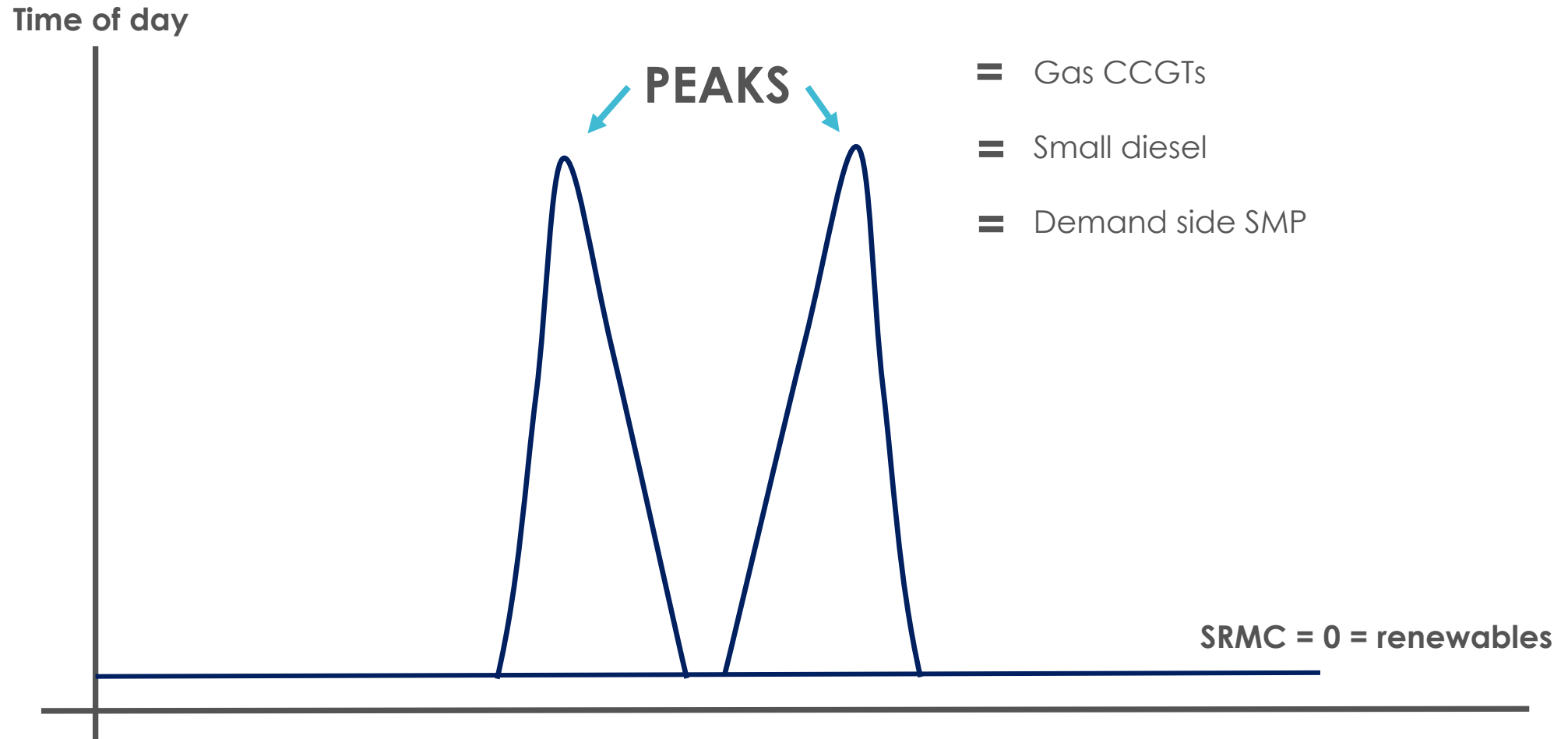
- The conventional wholesale market
- ROCs and FiTs
- Nuclear and CfDs
- Capacity auctions
- The equivalent Firm Power Auctions

# CONVENTIONAL WHOLESALE MARKETS

- Marginal costs and prices
  - For oil and monopoly rents
  - For coal – the contract pass through
  - For gas – short and long term contract prices
- SRMC and SMP
- The missing money problem and the need for excess capacity



# ALONG COME RENEWABLES



# THE RENEWABLES CHALLENGE TO WHOLESALE MARKETS

- Guaranteed price
- Guaranteed price and wholesale price
- Priority grid access
- Always run when can run
- Destroys the wholesale market
- Don't pay cost of intermittency or full network costs

# INITIAL EXPENSIVE RENEWABLES

- Out-of-the-market renewables
- Banding the ROCs
- Costs gradually fall and the coming of auctions

# NUCLEAR AND CfDs

- The lumpy capital problem
- Long construction period
- Time inconsistency
- Vulnerability to technical change
- Political and regulatory risk

- Non commercial investments

- Guaranteed contract price and/or state ownership

# THE £92.5 mWh PROBLEM

- Where does the CfD strike price come from?
- BEIS and the modelling problem
- Investment driven modelling
- Falling long run oil and gas prices
- Destruction of wholesale market
- New technologies
- Waste management and liabilities



# CAPACITY AUCTIONS

- Missing money problem

- Renewables cannibalise wholesale market

- Gas un-investable

- Capacity contracts

# BUT WHAT IS CAPACITY?

- Time periods
  - Nuclear = 60 years
  - Picking plant = 1 year
  - CCGT = 10 years
- Firm Power and de-rating
- Certainty and penalties
- Embedded generation vs. large system power generation

# THE EQUIVALENT FIRM POWER AUCTION

- Merge FiTs and CfDs and capacity auctions
- Liquid, deep and transparent
- Need a carbon price
- Incentivise back up storage and demand side
- Secondary markets
- Subsidy free renewables



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