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Impact of Vesting Contracts on the Efficiency of Singapore Electricity Market

Introduction

- In Jan 2004, vesting contracts were introduced to the new electricity market of Singapore (NEMS) to:
  - Mitigate market power
  - Promote competition in the electricity market

- This project aims to examine:
  - The behaviour of uniform Singapore electricity price (USEP) under the impact of vesting contracts from 2004 to 2012
  - Potential of market power exercised by the large generation companies

Half Hour Market Clearing Equilibrium

- Supply Function Equilibrium (SFE)
- Half Hour Market Clearing Equilibrium mechanism

Results

- Sustained price spikes starting since 2nd quarter 2009
- Contributing factors to these high USEP periods
  - Oil price movements
  - Planned outages
  - Demand fluctuations
- A surge of USEP over vesting contract hedge price (VCHP) for the 3 last quarters of 2009 based on public data acquired from EMC website
- In general, steady trend of USEP

Further Research

- Are vesting contracts effective in curbing market power?
  - Construction of competitive benchmark price
  - Price cost mark-up index
- Impact of electricity futures market and LNG imports on pricing behaviour?

Company Authorised Generation Capacity (%)

- Senoko Energy
- PowerSeraya
- Tuas Power Generation
- SembCorp Cogen
- Island Power Company
- Keppel Merlimau Cogen

Monthly USEP from 2004-2012

- Half hour USEP in 2009

Project Title: How efficient is Singapore Electricity Market?
Supervisor: Asst Prof Chang Youngho