Regulating Capacity in England and Wales

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The Context

- Restructured in 1990
- Two privatised generators owned 80% of capacity (proportion fell over time)
- The Pool was a compulsory daily auction with a uniform energy price in each half-hour
- Capacity Payments were very non-linear in the amount of spare capacity
Capacity Payments and Demand

Capacity Payment (£/MWh)

Ratio of demand to expected capacity (XMaxMean)
How to manipulate the market

• Withhold plant to raise capacity payments
  > Summer 1991
  > Rules changed: 8-day outage needed to affect payments

• Withhold plant to raise energy prices while still bidding at close to marginal cost
  > Withholding means a higher-cost plant is marginal
  > Suggested by Wolak and Patrick in 1997

• Competitive behaviour should include shutting plant that is not expected to cover its costs
Average monthly capacity payments in winter

Frequency

“Competitive range”

Monthly capacity payment in £/kW

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Average monthly capacity payments – simulated 97/8
Fitting generation to demand

The test is to see how the mis-match between the generators’ outputs (stacked in merit order, and shaded) and the load-duration curve varies over time.
“Truly excess output” before and after 1990

Source: R.J. Green “Did English Generators Play Cournot?” from HEPG web site
Withholding in practice

- Small-scale withholding was (anecdotally) common (prolong maintenance outages)
- Actual annual capacity payments not inconsistent with expected payments at a competitive level
- Generation became a better fit to the load-duration curve after reform – no sign of withholding there!
Regulating capacity

- Condition 9A introduced into big generators’ regulatory licences in early 1992
- Tell regulator their policy on availability
- Produce forecast and actual data
- Tell regulator about plans to close plant
- Regulator could appoint independent assessor to decide if plans were reasonable
1993 Assessor’s Report

• NP and PG each wanted to close several small stations
• Touche Ross concluded that those stations’ costs exceeded their predicted revenues
• Generators had not tried hard to find buyers
• Touche Ross did not believe buyers would have been found
• Regulator published summary, not report
1998 Assessor’s Report

• NP and PG each wanted to close units at stations which would remain open
• Merz & McLellan agreed units had costs > revenues at expected output levels
  > Some would be economic at higher load factors
• Partial closure usually not cost-effective
• Selling individual units would be impractical
• Tolling contracts should have been explored
Later events

- Regulator criticised short-notice closures
  > Unable to take effective action against the company for what had become a past breach of its licence

- A general report on Pool Prices and market power paved the way for (more) divestitures
  > NP/PG each agreed 4GW and sold more plant voluntarily

- Generation now fragmented & “competitive”

- Condition 9A (now 18) has been disapplied
Conclusion

• NP and PG shut 22 GW of plant (of 50 GW)
• Little evidence of large-scale uncompetitive impact on prices
• Regulator applied pressure on capacity decisions, via requests for information
• Did not affect style of closures
• Maybe evidence leading to divestitures and greater competition from 1999 onwards