Electricity auctions

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CWC’s Iraq Power 2013, London
Iraqi electricity supply: central, insufficient, inefficient

- MoE produces, distributes and transmits directly
- SIGIR quarterly report to Congress (Oct 2012)
  - average MoE supply c. 7,300 MW in Sept 2012, including imports and powerships
  - supply consistently below forecasts
  - over $\frac{1}{3}$ of supply is lost before reaching end users: ME’s worst
- Oct 2012 USAID report for Prime Minister’s Advisory Commission
  - supply expected to fall short of demand until at least 2015
  - per capita production half of Jordan’s
  - 15 Iraqis required to generate 1MW of electricity, v. 3:1 regionally, and 1:1 in developed world
  - 11 cents (US)/kWh to cover costs (UK wholesale spot market price c. 8 cents)
How might auctions help?

- short-term supply, or long-term capacity
- in the market: diversify ownership of existing capacity to increase competition (virtual power plants)
- for the market: competively add new capacity
  - winner signs agreement against which it can borrow for build
- transparent process with low transaction costs
  - less likelihood of challenge
- efficient energy use if consumer prices reflect production costs
- raise revenue for the state
Common auction designs

1. **sealed-bid**
   - first price most common (also uniform price, pay-as-bid, ...)
   - hinders price discovery
     - *winner's curse* reduces revenues
     - may help competition by attracting less confident bidders

2. **descending clock**
   - price discovery reduces winner’s curse, fosters aggressive bids
   - more transparent, allows bidders time to adjust
   - but can aid **collusion** (hence clock, activity rules)

Example (US spectrum auction)

US West suddenly bids $313,378 and $62,378 for licenses in Iowa; McLeod concedes lot #378 in Minnesota

3. **hybrid**: competition and efficiency?
   - clock phase until supply = demand: aids price discovery, efficiency
   - sealed-bid attracts longshot bidders

4. **combinatorial** or **package**
   - e.g. bid on consecutive supply contracts: solves exposure problem
Other design and institutional factors

- effective competition felt to matter more than auction design
- requires strong competition authority, credible penalties

**Example (Dutch 3G licence auction)**

- 6 bidders competing for 5 licences, each allowed to win at most one
- Versatel dropped out after Telfort’s legal threats if it kept bidding
- only 30% of expected revenue earned; no government investigation

**Example (Austrian 3G licence auction)**

- 6 bidders competing for 12 blocks
- largest incumbent, Telekom Austria announces it would only bid for 2 of the 12 if the others bid similarly, “to get the frequencies on sensible terms”, but would bid for a third if any rival did

- reserve price can substitute somewhat for competition
Electricity auctions in the Middle East

- largely statist, non-market based with exception of Turkey
  1. trial supply auctions with Bulgaria, Greece since June 2011
     - active firms in Bulgarian auction rose from three to 10 by Nov 2012
     - calls for the system to apply to all Turkey’s borders
  2. completed auction of distribution grids in March as part of privatisation push since 2008
  3. excess supply generated by state incumbent expected to be auctioned to private bidders in 2013

- Iraq’s advantages
  1. MoO has experience with oil and gas development auctions
  2. DPM Shahristani has MoO auction experience, responsibility for energy
  3. first mover can run most competitive auctions (à la UK’s 3G auction)
Conclusions

1. growing use of auctions globally to ensure efficient energy supply
   - also: oil development, spectrum, airport slots, etc.

2. World Bank encourages competitive energy procurement, including via auctions
   - the Bank must approve the design in advance

3. all agree: no ‘one size fits all’

4. I have not seen pre- and post- auction price comparisons
   - no evidence of resale of contracts?

5. Iraq may be in a good position to use electricity supply auctions to solve a persistent, major problem
Maurer and Barroso [MB11] review international experience with electricity auctions, focusing on Latin America, a leader in the area.

- 2004 - 2010: Brazil runs 31 auctions for existing and new supply, contracting 57GW of new capacity to install between 2008 - 2015.

Klemperer [Kle04] provides an introduction to auction theory, design and practice.
References
