

# 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**: competitively 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 Shahrstani 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

## Further reading

- Maurer and Barroso [MB11] review international experience with electricity auctions, focussing 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

- [Kle04] Paul Klemperer. *Auctions: theory and practice*. Princeton University Press, 2004.
- [MB11] Luiz T. A. Maurer and Luiz A. Barroso. *Energy auctions: an overview of efficient practices*. Washington, DC: The World Bank, 2011.