Bidding in good faith rule change request

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Professor Jeff Borland

University of Melbourne

1. The fundamental problem

- **(a) Efficiency in the market**:
- Efficient outcome = Qty traded and distribution of output amongst suppliers that reflect value to consumers of item being traded and opportunity cost of supplying that item.
- Hence when consumers' valuations or opportunity cost of supply change -> Efficient quantity traded and/or distribution of output are likely to change.

- **If we assume a competitive market then:**
- **(b) Allowing rebidding**:
- (1) Can improve efficiency
- Suppliers have a profit incentive to rebid to incorporate new information on demand or opportunity cost of supply.
- Eg., Coal generator rebids capacity into lower price bands in response to lower price to ensure can continue to operate. Decrease in gas price induces gas generator to supply; Decrease in opportunity cost of water induces hydro generator to supply.
- Through rebidding the suppliers improve market efficiency – Eg., Promote least-cost mix of generation.

- **Hence: Scope for improvement in market efficiency from rebidding is due to change in relevant information after initial bids.**

- (2) Can worsen efficiency
- Supplier can engage in strategic rebidding. Exists where there is a profit incentive for a supplier to rebid to change price even in absence of new relevant information.
- Eg., Rebid volume into high price bands to raise spot price; Rebid volume into low price bands to obtain higher share of returns from high spot price.

- Strategic bidding potentially gives rise to efficiency costs:
- Higher-cost mix of generation (within and across states);
- Higher price volatility -> Increased costs of hedging; Reduced incentives for participation by demand-side and by small generators; Sub-optimal decisions by generators about whether to be online;
- Might induce over-investment.

- **Opportunity for strategic rebidding due to hard time limit on bidding period**.
- In absence of time limit, and provided there is sufficient competition between suppliers in the market, we would expect that strategic rebidding by a supplier would be undone by other suppliers. Eg., Undercutting of marginal supplier where there is a high dispatch price. That strategic bidding will be undone means there is a reduced incentive to engage in that rebidding.
- This why auction processes generally have a rule that a new bid by a supplier extends the length of the auction by some fixed amount of time.

- This argument depends on there being a sufficient degree of competition in the market.
- Where suppliers have market power this would be an alternative explanation for why strategic rebidding occurs.

2. The design problem

- Want to allow rebidding;
- But to minimise the opportunity and/or incentive for a supplier to engage in strategic rebidding.

- A trade-off in choosing the extent to which rebidding should be allowed:

- The more that there is new information on demand or costs after initial bids -> Greater efficiency gains from allowing rebidding;
- The greater incentive that suppliers have to engage in strategic rebidding (eg., role of hedge contracts) -> Greater efficiency losses from allowing rebidding.

- **Hence** optimal policy would balance these two forces: Eg.,
- Suppose there is no new information after initial bid -> Optimal policy is to not allow rebidding;
- Suppose there is no incentive for strategic rebidding -> Optimal policy is to not restrict rebidding.

- **General point**: Extent to which would want to regulate rebidding depends on relative size of potential efficiency gains and efficiency losses.

3. The SA proposal

- **My interpretation of the proposal**:
- A set of rules that seek to restrict rebidding to be efficiency-improving.
- Rebidding required to be based on new information that will affect the efficient market outcome – Eg., change in demand or supply conditions.
- Implemented via:

- Change in default interpretation of supplier rebidding;
- Specification of what information is an allowable basis for rebidding; and
- Specification of the time at which a supplier must incorporate that information into a rebid.

- **Some issues:**
- Difficulty of defining what is allowable information (What is a significant change? Administrative costs of quantifying 'other material circumstances' basis for rebid).
- Difficulty of defining required timing of response to new information (Difficulty of verifying when information was known. When does an accumulation of new information become significant?)
- Default interpretation – Impact likely to depend on how implemented by regulator; But initial uncertainty, and possible consequences for administrative burden and incentive to rebid in response to new information.

4. Other options to consider

- There is no magic bullet.
- Game theory suggests that the way to get bidders to make bids that are based on actual opportunity cost of supply is a ‘Vickrey auction’.
- But many problems with applying this type of auction to an electricity market.
- Hence need to adopt other approaches: Main objective is to preserve sufficient scope for rebidding while reducing incentive for rebidding.

- **(1) Vickrey auction**
- Main insight: By making the price received by a bidder independent of its own offer price, marginal cost bidding can be induced.
- Example: Each supplier is paid a price for each unit accepted by the market operator determined by the intersection of the demand curve with a 'residual' supply curve determined by offers of all other suppliers. Supplier's bid then affects only its probability of being dispatched. Will induce bidding equal to marginal cost of supply.

- But some **major problems**:
- Clarity and transparency of mechanism;
- Is there sufficient capacity to always define a price when you take away one supplier?;
- Market operator is likely to run a deficit – Payments will be in excess of revenue;
- A single market clearing price is not defined.

- **(2) Limited version of SA proposal**:
- Opportunity for strategic rebidding only occurs at end of time period -> Implement SA proposal (or parts of proposal) only in interval at end of bidding period.

- **(3) 5 minute/30 minute price-setting rule**:
- Rule appears to create extra incentive for strategic rebidding -> Pay spot price for each 5 minute interval.

- **(4) Set earlier end to bidding period + Introduce opportunities to respond to strategic rebidding**:
- Need earlier end to bidding period to create opportunity for response to strategic rebidding.
- Difficult to see how this could be done in a way that allows rebidding after the end of bidding period by other suppliers.
- Hence:
- (a) Allow responses by other market participants: Any possibility of response by demand-side participants or by market operator (reserve trading)?

- (b) ‘Force’ a change in supply behaviour – Eg., Regulation of ramp rates: Ramp rates are related to incentive to engage in strategic rebidding. Hence may be chosen strategically by suppliers. By giving market operator greater discretion over ramp rates could decrease incentive for strategic rebidding.

- **(2)-(4)** are suggestions to consider. Would want to evaluate each proposal against the criterion of allowing sufficient scope for rebidding while reducing incentive for strategic rebidding. Also, would there be other adverse consequences associated with each proposal?