Electric industry restructuring: a *tabla rasa* approach

A free electricity market, with no single firm controlling the entire process from generation to distribution, is an attractive possibility, but can only work with the right market structure in place. Lawrence J Spiwak, president of the Phoenix Centre for Advanced Legal and Economic Public Policy Studies, explains why this is good news for any country privatising its power infrastructure.

Developing countries are currently attempting to privatise their electric utility industries. This represents a 'once in a lifetime' opportunity to approach the complex issues associated with restructuring a key sector of their economies with a clean slate before political pressures get in the way. More importantly, developing countries can learn from the mistakes of industrial countries and get the process right.

While there are many different theories on the specifics of restructuring, one point is absolute – the end goal of any restructuring effort must be to maximise the consumer's (rather than any one individual competitor's) welfare. That is to say, public policies should seek to promote good market performance. Good market performance is usually characterised by the presence of static economic efficiencies (declining prices), dynamic economic efficiencies (innovation in new services or technologies), or a combination of both. If a market is performing well, then consumers enjoy other benefits such as full employment and the long-term growth of real income per person. More importantly, if a market is performing well then the need for stringent government intervention should be unnecessary.

Therefore, if we are truly serious about promoting deregulation and competition, we need to formulate policy paradigms designed to establish a structural framework conducive to competitive rivalry, under which firms would be unable to engage in strategic, anti-competitive conduct, even if they tried.

The concept of transaction cost economics

Transaction cost economics attempts to determine the optimal organisational arrangements that minimise transaction costs under different sets of circumstances. Transaction cost economics is based on the assumption of 'bounded rationality' (economic actors are assumed to be rational, but only to a limited extent). For example, a vertically integrated utility has the incentive to engage in strategic anti-competitive conduct by foreclosing rivals' access to transmission to protect its sunk generation investments. In contrast, a firm that is in the exclusive business of selling transmission has the incentive to sell as much transmission as possible because as more firms use its grid, the more profitable its business becomes.

Transaction cost economics also suggests that corporate internal governance (a 'firm') and markets are alternative methods of resource allocation, therefore the most efficient organisation of a business is either to enter the market and contract with other businesses for goods and services on a transaction-specific basis, or to bring transactions 'out of the market' and 'into a firm'.

Every transaction can be viewed in respect of three criteria:

- Frequency of transaction – how often is it to be carried out? If the transaction is to be carried out with great frequency, then perhaps it is better to bring the transaction into the firm (for example, the need for a reliable and inexpensive source of bulk power). Alternatively, if the transaction is infrequent (for example, new plant construction), then the most efficient allocation of resources would be to go into the market and complete the transaction by contract.
- Asset specificity – how unique is the asset in facilitating a particular transaction? Again, the more specific the asset (for example, sunk generation facilities, bulk power lines), the more sense it makes

to bring the asset out of the market and into the firm. Conversely, the less asset specificity required (for example, emergency power), the more efficient it is for a firm to transacton the open market.

- Degree of uncertainty – how big is the risk? If the risk is large, then vertical integration into a firm is the more efficient organisation of the business. If the product is easily replicated, however, then the more efficient organisation of the business is to conduct the transaction on the open market. Given the severe repercussions of failing to meet stringent 'obligation to serve' mandates, it is more efficient for utilities to ensure reliable power either via integration or by long-term contract, rather than by purchasing the majority of their base-load power on an hourly or daily basis. Conversely, if a utility has conducted its load forecasts accurately, then the risk that it will have insufficient power to meet demand will be small, and therefore it will be more efficient for the utility to purchase emergency power on an individual, case-by-case basis.

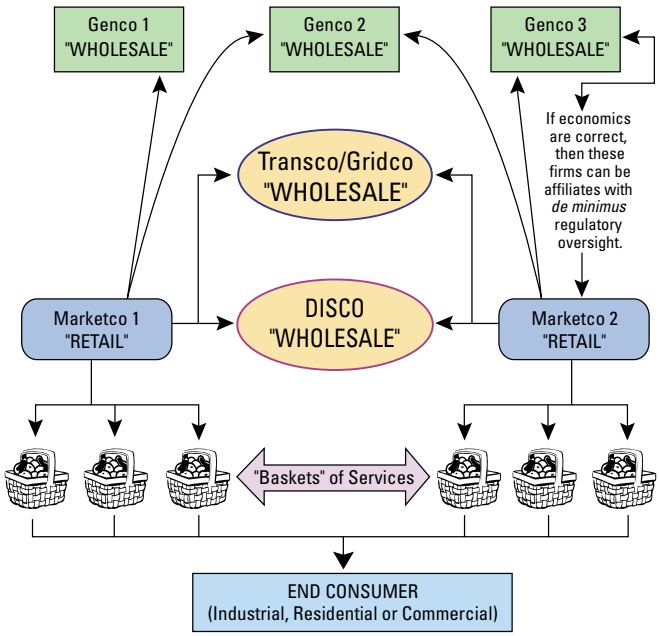
An efficient versus an inefficient structure

In the case of the USA, the Federal Energy Regulatory Commission (FERC) wants to create a market structure where all transactions are out of the firm and purchased in the market. Contrary to economic literature, FERC believes that all vertical integration is unlawful. It is attempting to turn electricity into a commodity so that firms will find it more efficient to contract for power on the open market rather than on a vertically integrated basis. To accomplish this goal, FERC insists that utilities must:

- Provide 'open-access' on a 'network service' basis.
- File homogeneous *pro forma* tariffs (that is, post their prices).
- Price transmission on a short-run marginal cost basis, making any entry into transmission totally unprofitable.
- Join a regional transmission organisation to co-ordinate sales.

However, there are two flaws in FERC's paradigm. First, FERC believes that firms will never be able to produce efficiently on an integrated basis. Second, FERC believes that regulation can intervene and create efficient input markets by unbundling transmission from bulk power sales. However, because USA regulators have not yet resolved the underlying tension between a firm being both a competitor and the primary supplier of its rivals' key input of production (in this case, transmission), vertical integration is still the most efficient way to organise many segments of the industry. As such, the American market is demonstrating dangerously poor economic performance: including a near 50 per cent drop in investments for new bulk transmission facilities; a demonstrable trend in industry reconcentration; no new tangible facilities-based entry; and attempts by some firms to foreclose key inputs of production from would-be rivals.

One of the primary faults with the American approach is that it has incorrectly analysed the market. In FERC's view, there are only two segments: transmission/distribution and generation/marketing. The USA approach demands rethinking because it is, quite simply, an inefficient way to organise the market. If you truly want all transactions to be brought out of the firm and into the market, then the market needs to be divided into three structurally separate sectors: generation, transmission and marketing.



The American energy market can be divided into three structurally separate sectors: generation, transmission and marketing

Generation

A structurally separate generation company (genco) should, by definition, be in the exclusive business of generating bulk electricity. It should neither own any transmission facilities nor be able to sell power directly to the retail mass market. Instead, that function should belong to a structurally separate marketing company (marketco). However, because entry into the generation business is relatively easy (especially as technology continues to improve), there is no need to apply either price or conduct regulation to this sector.

Transmission

The transmission segment should be characterised by firms that exclusively sell either transmission (a transco or gridco) or distribution (a disco) on a full service, wholesale basis from various gencos to end-consumers. These firms must also be prohibited from selling their product directly to the end consumer – again, this function would be performed by a revamped marketco. However, although a firm that is in the business of exclusively selling transmission would want to sell as much as possible, because of the bottleneck characteristics of the transmission segment, owners of these facilities should also be subject to stringent price and conduct regulation. This would mitigate against the possibility that it could successfully raise prices or restrict output.

Marketing

This segment of the market should consist of firms (marketcos) that are structurally separate from both generators and transmission companies. Their only job would be to sell and market delivered power directly to the end consumer (either high-volume customers or the average household). Even the high-volume consumers mentioned here may want to use a marketco to avoid continual negotiation for the cheapest, most reliable source of generation. This arrangement, therefore, would be an efficient use of vertical integration.

The marketco should remain separate from gencos and transcos by contracting with them for sufficient input to create bundles of delivered power that are demanded by its customers. Burdened with few sunk costs, this segment would be relatively easy to enter or exit. Its market structure should therefore demonstrate a variety of pro-competitive characteristics, such as numerous sellers, low switching costs among marketcos and both price and non-price competition.

More importantly, marketcos should bear the obligation to serve in a correctly restructured electric utility industry. If the marketco segment is characterised by numerous players, however, then this obligation to serve should not be a big deal. Consumers should have sufficient alternatives if

an inefficient firm goes out of business. Again, the issue is one of contract between customers and marketcos.

Under a correctly restructured electric utility industry, economic conditions should mitigate most concerns of affiliate self-dealing should a genco elect to have a marketco affiliate. Because the end-user segment will be competitive, a marketco will face a high own-price elasticity of demand, producing the incentive to search for the cheapest, most reliable source of power. If a marketco finds that the cheapest, most reliable power does not come from its genco affiliate but from elsewhere, then choosing its own affiliate under these conditions would be irrational and inefficient.

Finally, this proposed approach removes the issue of reliability from the policy discussion. Marketcos become the only players in the industry that hold themselves out to end consumers. Accordingly, marketcos bear the 'obligation to serve'. As such, the transco/disco companies should have little incentive to unduly discriminate, by price or otherwise. If an outage occurs, then it is most likely not the result of any strategic, anti-competitive conduct on behalf of a transco or disco, but rather the usual type of technical problems associated with running a power grid. If one company suffers, then all companies suffer.

If properly structured, the market – and not the government – will dictate when the costs of vertical integration outweigh the benefits. In other words, given the inherent risk of the market, a marketco under this structure would have little incentive to re-integrate, either by ownership or long-term contract. Rather, regulators would create a legitimately efficient mechanism to achieve its goal of forcing all transactions out of the firm and into the market while, at the same time, creating investment incentives for new capacity. Most importantly, consumers would benefit from good economic performance with minimum regulatory intervention.

ABOUT THE COMPANY:

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