

# GRID LINES

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## Protecting electricity retailers against price volatility

### The Electricity Tariff Equalization Fund in New South Wales

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**M**ost commentators agree that the benefits of competitive electricity markets will materialize only if wholesale prices are allowed to fluctuate more or less freely so as to provide adequate pricing signals to generators. Most also agree, however, that small electricity users need to be protected against wholesale price volatility through stable, predictable retail rates. That raises a difficult question about whether the retailers or distributors, caught in the middle, also need some protection, especially early in the development of competitive markets. The Australian state of New South Wales has used a transitional mechanism to provide such protection. Lessons learned from this experience could be of interest for other countries.

New South Wales introduced full retail competition for electricity in 2002, allowing all customers to switch to competitive suppliers. Wholesale prices were allowed to fluctuate widely, up to a cap of \$A 10,000 per megawatt-hour, but regulated “default” rates remained in place for customers using no more than 160 megawatt-hours a year. Customers could switch retailers, switch to a new tariff with their existing retailer, or remain on the regulated default tariffs. This “protection” was considered necessary to make retail competition politically palatable. It was also decided that the standard retailers—those that have to offer regulated rates to small users—needed some protection against wholesale price risks. The Electricity Tariff Equalization Fund (ETEF) was established to provide that protection.

#### The fund's main features

ETEF had three main requirements: to protect small retail customers and standard retailers from

excessive price volatility, to be fully compatible with the functioning of the spot market, and to be financially self-sustainable.

All standard retailers in New South Wales are government owned and, like other retailers, purchase energy through the national electricity market. They have to offer small users a regulated electricity tariff that includes a regulated energy cost component, both of which are set by the state's Independent Pricing and Regulatory Tribunal (IPART).

In setting the regulated energy cost, IPART was directed by the government to take into account the long-run marginal cost of generation. The ETEF mechanism is designed so that retailers supplying customers at regulated rates must contribute to the fund when spot market prices fall below this reference price and are compensated by the fund when spot market prices rise above it (figure 1). Thus, a retailer's positive or negative settlement amount with ETEF is: (regulated energy cost - spot price) \* (quantity of regulated load, i.e. load on regulated tariffs). In effect, surpluses from lower wholesale market prices are “banked” for periods of higher prices.

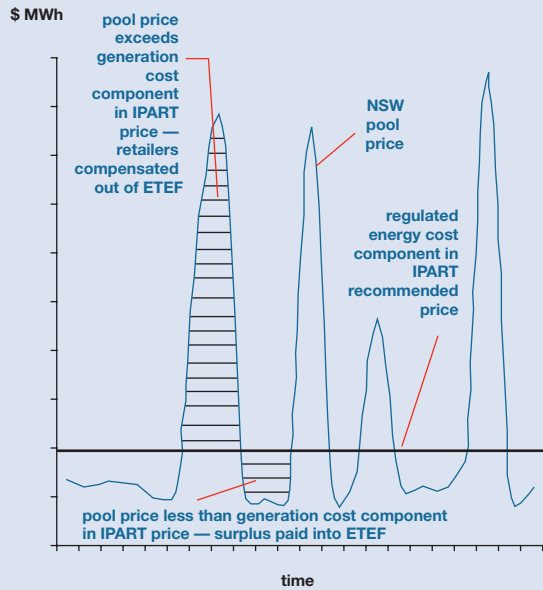
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**FIGURE 1**  
**How the Electricity Tariff Equalization Fund Operates**  
 Operation of the ETEF



Source: New South Wales Treasury.

## The fund “banks” surpluses from lower market prices for periods of higher prices

Funding shortfalls—which occur if the fund lacks sufficient reserves to compensate retailers when wholesale spot market prices are above the regulated energy cost—are made up by publicly owned generators. Each generator’s mandatory contribution to the fund is proportional to its previous benefit from high spot market prices. When funds again accumulate in ETEF, the fund transfers money to the generators to reimburse them for the payments they made into the fund. In effect, ETEF offers a two-way financial hedge against the spot price for the retailers. While such contracts are common, in this case:

- The volume is more flexible to allow for demand uncertainty from default customers.
- The “strike” price is the regulated energy cost set by IPART.
- The “contracts” are with the fund, not generators.

ETEF started operations in January 2001. The state government has indicated that it will start progressively phasing out both ETEF and the default retail tariff controls in October 2008, eliminating both by June 30, 2010.

## The fund’s experience so far

To ease the transition to the ETEF regime, the government made an initial contribution of \$A 50 million to the fund. ETEF started operations during the summer peak and in less than four weeks had exhausted that initial balance. Generators were called on to contribute to the fund. In addition, spot price volatility proved every bit as high as expected: prices were sometimes as low as \$A 10 per megawatt-hour, but when the supply-demand balance was particularly tight, they were as high as the cap of \$A 10,000.

Over time, however, periods of high prices alternated with periods of low prices, and money flowed into the fund as well as out (figure 2). The government’s contribution was transferred back to the Treasury after six months as planned. While generators were required to put money into the fund a few times, they tended to be repaid within a few weeks. The financial sustainability of the fund, however, is never ensured once and for all. In 2007, for example, a period of severe drought reduced hydroelectric capacity and caused an increase in electricity prices. As a result, over the course of a few months, the substantial reserves that had accumulated in the fund were wiped out and generators had to contribute to the fund.<sup>2</sup> The regulator itself declared that setting the regulated energy cost at the right level amid rapid and substantial variations in wholesale electricity prices was far from an easy task.<sup>3</sup>

## Criticisms

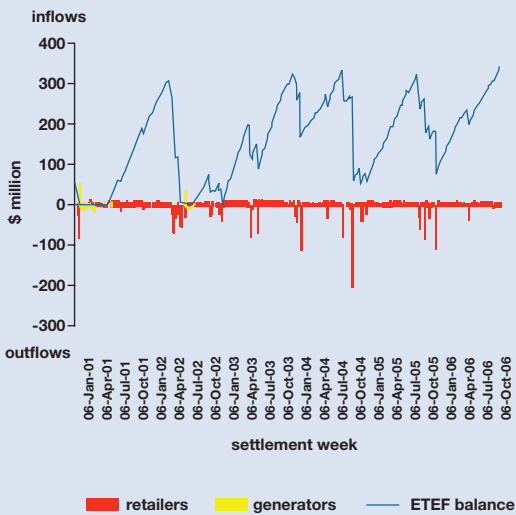
Observers have leveled several criticisms against ETEF. In particular, they have argued that ETEF may discourage retail competition, discourage energy efficiency and load management, and distort the wholesale market.

### Limits on retail competition

In spite of the negative impact on ETEF’s assets of the recent increases in wholesale electricity prices, most observers agree that retail prices tend to be set at a level compatible with ETEF’s long run financial sustainability. Some observers have argued, however, that retail prices have been set too low to enable full retail competition. The purchase arrangements under ETEF eliminate risks for the default retailers as well as the costs of managing contracts with end users. To be competitively neutral, the regulated rate offered to small users should price in these risks faced by other retailers. Some observers argue that the regulated tariff

FIGURE 2

Payments have flowed into as well as out of the Electricity Tariff Equalization Fund



Source: New South Wales Treasury.

Note: Inflows are payments into the fund by retailers and generators; outflows are payments from the fund to retailers and generators

does not reflect these risks and that because of this a smaller share of users chose to switch to a different retailer or to unregulated rates in New South Wales (16 percent) than in such states as South Australia (42 percent) and Victoria (44 percent) after three years of open competition.<sup>4</sup>

### Limits on energy efficiency

Environmental advocates have argued that because ETEF fully protects the standard retailers from market risks for their regulated loads, it removes their incentives to minimize risks by working with customers through load management and energy efficiency programs. Similarly, because the end users do not see the true cost of energy in peak periods, they have no incentive to manage their own energy use.

### Wholesale market distortion

There have been concerns, especially among private generators, about the reduction in demand for contract cover from the standard retailers. A high level of contract cover is generally considered to be a desirable feature of a competitive electricity market, and private generators tend to seek higher contract cover than public generators because of higher debt levels.

## A model for developing countries?

In newly liberalized electricity markets there are good reasons to protect retailers (or distributors) that have to offer regulated rates to end users, especially when they are financially or technically weak or when their failure would mean interruptions in supply—conditions relatively common in developing countries. So an ETEF-type mechanism has some appeal. Moreover, steps can be taken to mitigate the main concerns discussed in the previous section.

### Solutions to the main concerns

As pointed out above, to maintain the potential for *retail competition*, regulated retail tariffs need to include not only the costs of electricity generation, transmission and distribution but also the costs faced by non-standard retailers (or distributors) because of commercial risks and contract management.

To foster *energy efficiency*, ETEF-type mechanisms could be structured to offer less than full protection to retailers. That would increase retailers' incentives to take steps to protect themselves against wholesale price risks and increase end users' incentives to use energy more efficiently.

To minimize *market distortion*, regulated tariffs can be offered to users accounting for only a small part of total energy consumption. In New South Wales the regulated load accounts for less than 10 percent of total energy consumption, which means that ETEF only marginally affects the overall demand for contract cover.

### Potential issues in developing countries

In developing countries, however, three factors might make it difficult to replicate the success of ETEF:

- In many countries retail tariffs tend to be set below costs. In this situation the reference price will likely be set below the long-run marginal cost of generation (or retailers will be unable to cover their costs) and an ETEF-type mechanism will be chronically short of funds. Retailers and distributors (and users) will remain dependent on continued payments by the fund's contributor of last resort.
- Accumulated earmarked revenues, a tempting target, often are diverted to uses other than those originally intended. When that happens, the fund will not be financially sustainable.
- Relying on generators as contributors of last

**The fund offers a potential model for developing countries but only when a number of pre-conditions for the successful development of competitive electricity markets have been met.**

resort might impede the privatization of public generators or the entry of new generators. This is a drawback for developing countries, which often attempt to combine market reform with private participation programs.

Once again, measures can be taken to try to address these concerns. First, the regulatory regime can be designed so as to increase the chances that tariffs will cover costs. In New South Wales regulations state that the regulated energy cost (the reference price) must reflect the long-run marginal cost of generation and that the regulated retail tariff must include the regulated energy cost plus a margin to cover the distribution costs of standard retailers. In addition, IPART has recently decided to review retail tariffs more frequently in order to be able to reflect variations in wholesale prices more quickly.<sup>5</sup> Finally, steps have been taken to protect IPART against undue political pressures to keep electricity prices below costs. For example, the IPART Act requires its members be chosen based on their professional qualifications and that its decisions be independent of any government minister.

Second, governance mechanisms can be designed to help ensure that earmarked resources are allowed to accumulate in the fund. The management of ETEF has been entrusted to a ministerial corporation subject to strict reporting and audit requirements designed to ensure that public resources such as ETEF funds can be used only for their intended purposes.

Third, arrangements can be set up to maintain an attractive environment for investment in generation. The government, rather than generators, can be designated as contributor of last resort. That was the option chosen for the Electricity Tariff Equalization Fund in Argentina. Alternatively, agreements can be reached with generators on adequate compensation for the obligations they are asked to undertake as contributors of last resort.

While it is thus possible to address these three issues, the experience of New South Wales shows that this is far from easy. In particular, maintaining retail tariffs at levels that will ensure the financial sustainability of the fund (and promote retail competi-

tion) will likely prove very challenging in many developing countries. Even a technically competent and politically independent regulator such as IPART admits to finding that task difficult. It is important to point out, however, that the above issues do need to be addressed not only to increase the chances of success for a stabilization fund but more fundamentally to enable competitive electricity markets to function. Indeed, retail prices reflecting market conditions and robust regulatory and governance mechanisms are essential pre-conditions to successful competitive market reforms in the electricity sector.

## Conclusion

A mechanism similar to ETEF—perhaps with modifications to encourage retail competition, promote energy efficiency, maintain sufficient demand for contract cover, and preserve incentives for new entry in generation—deserves consideration as a way to ease the transition to a competitive electricity market. However, such a mechanism will meet its objectives only when certain preconditions—required to make competitive electricity markets sustainable—are met. In particular, retail prices must be compatible with a reference price that reflects conditions in the wholesale electricity market and regulatory mechanisms must be robust enough to ensure that revenues accumulated in the fund remain in the fund to be available during periods of high wholesale prices.

### Notes

1. The authors wish to thank Danny Price of Frontier Economics for sharing his experience in designing the New South Wales Electricity Tariff Equalization Fund and Peter Hoogland of the New South Wales Treasury for commenting on a draft of this note.
2. ETEF's financial reports reveal that as of June 30, 2006, the fund had net assets of SA 271 million, while the net assets of the fund as of June 30, 2007, were a negative SA 822,000. See New South Wales Treasury 2006 and 2007.
3. Keating, Michael, Evaluating Energy Prices in NSW, NSW Energy Summit, 20 November 2007.
4. Moran, Alan. 2006. "The Electricity Industry in Australia: Problems Along the Way to a National Electricity Market." In Feirdoon P. Sioshansi and Wolfgang Pfaffenberger, ed., *Electricity Market Reform: An International Perspective*. Amsterdam: Elsevier Science.

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