

**A few comments inspired by  
Anton Eberhard's paper  
on the South African  
electric power system**

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## Nice job

As with the other papers we've seen, I very much enjoyed this paper.

It provides a nice summary of the background and evolving state of the South African electric power system.

I, and I am sure others at this conference, learned a lot.

Thanks!

## As I implied yesterday...

...I think several of the authors in this project need to think more carefully about the question:

Once financial or other considerations have stimulated a process of "reform," what industry model should that reform seek to achieve?

# I have the impression...

...that both this paper and some of the others make the assumption that truly successful restructuring entails, at a minimum, achieving:

- Competition on the supply side among a set of privately owned suppliers.
- A competitive market in which end-users can choose their supplier.

## I want to remind us...

...that for the past 50 years the industrialized world has done very well with two very different models:

- a system of well regulated and well managed vertically integrated investor-owned firms with exclusive service territories (AEP, Duke, etc.)
- a system of well regulated and well managed state companies (Ontario Hydro, Hydro Quebec, EdF)

Sometimes, as in the case of TVA and BPA, the two have even co-existed.

## Note too that...

...the competitive market model being pursued in the UK, parts of the US, and elsewhere, requires some very sophisticated institutional, legal and regulatory arrangements.

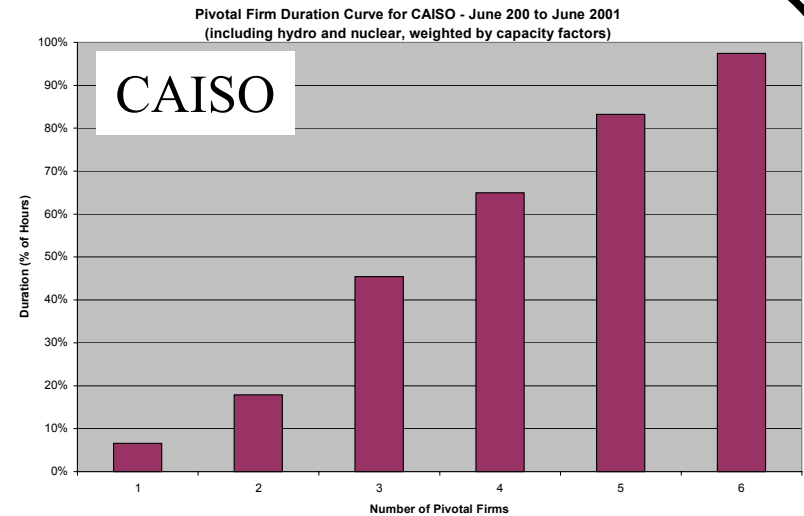
In addition, the jury is still out on whether, given the technical constraints of electric power systems, it is truly possible to overcome issues of market power and create real supply-side competition.

In a recent paper in the *Electricity Journal* my colleagues Seth Blumsack, Dmitri Perekhodtsev and Lester Lave have reported results that raise serious questions on this score.

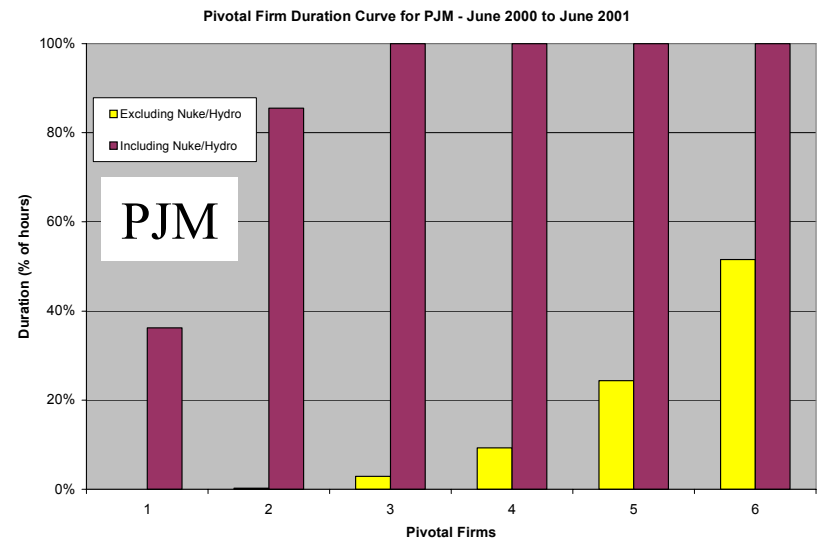
## The conventional measure...

...of market power is the Herfindahl-Hirschman Index (HHI) defined as  $HHI = \sum_i S_i^2$ , where  $S_i$  = market share of firm  $i$ . HHI is bounded between 0 (perfect competition) and 10,000 (monopoly). HHI for CAISO = 664, for NYISO = 637 and for PJM = 1160. All apparently very competitive. Since most products can be stored, HHI does not pay attention to *when* the product is demanded or produced.

Blumsack et al. have computed "pivotal firm duration curves" which give a *very* different picture.



NOTE: Excluding nuclear and hydro has almost no effect in CAISO but a big effect in PJM



Source: Seth Blumsack

## Lots of folks are now working...

...to sort out these and other issues (e.g. related to nodal pricing of transmission etc.) but there is still a long way to go and, at least in my mind, the sign, let alone the magnitude, of the economic and other benefits of competitive supply and consumer choice remain an open question.

Developing countries should think twice before they follow the same uncharted path.



## Let me turn now...

...to a few more specific comments on Anton's draft. I'll go through in page order.

Page 9:

"... stakeholders were becoming aware that a revolution was sweeping through the electricity industry. The old traditional model of a publicly-owned, vertically integrated ESI was being superseded by unbundled, competitive and mostly privately-owned industry. Change was becoming inevitable."

Some change sure. But this kind of change? Why inevitable?

## Page 18

"...restructuring and privatization creates the opportunity to unlock economic value and for reducing public debt"

I don't understand what value is going to be unlocked.  
Hasn't Eskom been providing the lowest cost power on the continent?

"Eskom has had no serious problem financing expansion through raising private capital...though bond issues."

So, what's the need to privatize to "reduce public debt?"

## Page 19

It is implied that privatization would

"...avoid the mistakes of the past when Eskom heavily over-invested in capacity expansion, and...create an industry structure that allocates risk in a manner that encourages [greater] investment efficiency"

Remember that state-owned firms are not the only ones that sometimes misread the future and make poor investment choices.

Consider for example the poor "investment efficiency" reflected in the billions of dollars that private firms have recently poured into a too-rapid expansion in the wireless industry.

## Page 19-20

"...there *may* be specific factors that account for low Eskom prices compared to other international firms and there *may* be little hard evidence of superior efficiency."

I hope that it will be possible to be more definitive in the final draft.

## Page 22

There is a discussion of the need to raise prices so as to finance future generation.

What I have not understood from this discussion is why it is that Eskom has apparently been able to finance a massive rural electrification program (which I assume will be winding down in the years ahead as penetration rates get high), is able to raise capital through private bonds (pg. 18) but is thought not to be able to finance capacity expansion.

## Page 27

"Government has now decided to grant 50kWh per month free to poor consumer who accept load-limited supplies. *The grant is made from National Treasure and is allocated to local government.*"

If it is working, sounds like India and perhaps others could take lessons from this program.

That's the right way to do such a subsidy and not trap the power company in the middle.

## Page 36 - 37

"The White Paper also states that Government believes that Eskom will have to be restructured into separate generation and transmission companies and...separating power stations into a number of companies. Distribution will be rationalized...into a limited number of Regional Electricity Distributors."

Why so radical? What is all this going to accomplish?

"In many respects...the White Paper was ahead of [its] time."

I'd urge you to consider the alternative hypothesis that it was following the trend of the day with insufficient critical independent thought.

## Page 45

"To date [the South African Government] has received little financial return from the vast publicly owned resources that are invested in Eskom..."

We are talking about the lowest cost most reliable power system on the continent. Surely that low cost reliable power has been a major factor in South Africa's economic success, and surely that success has paid enormous social dividends, to say nothing of building a large tax base for government.



# That's all...

...and despite the critical tone of some of these remarks  
let me say again:

Great paper.

Thanks. I, and I am sure others, here learned a lot.

I look forward to seeing the final version.