

Comments on “Reliability Management in Competitive Electricity Markets (Hung-po Chao and Stephen C. Peck)

Yves Smeers
CORE / UCL
Belgium

March 20, 1998

Three main ideas

- Compute link based TCR prices with reliability constraints
- SO should be financially responsible for reliability
- TCR and ancillary services are instruments to achieve reliability

Compute link based TCR prices with reliability constraints

- Observation: Nodal prices can be quite different when computed with reliability constraints.
 - Nodal prices with strict reliability constraints can cover a large fraction of network costs ! This gives a strong economic signal and avoids distorting the economic significance of nodal prices.
 - The idea applies to different types of transmission prices.

SO should be financially responsible for reliability (1)

- The idea is already discussed in Chao and Peck (1997) and in Wilson (1997).
- It is useful from at least two points of view :
 - in practice: the SO is difficult to control
 - in modelling of institutions: various applications

SO should be financially responsible for reliability (2)

■ The SO is difficult to control :

- reliability criteria are not always clearly stated
- they differ at the network development and operations stages (which loosens cost causality)
- they are not always complied with, (possibly) for many good engineering reasons
- some measures (e.g. changes of configuration) have a direct impact on must run plants

 Does financial responsibility reduce the burden of controlling the SO?

SO should be financially responsible for reliability (3)

■ In modelling of institutions: various applications

– two formulations :

- the SO maximises profit by selling TCRs (Hogan et al)
- the SO is not a profit maximising agent (because of too much market power) (Oren et al, Chao and Peck)

 **Is financial responsibility compatible with not assuming profit maximisation ?**

TCRs and ancillary services are instruments to achieve reliability

- The SO uses TCRs and ancillary services to achieve reliability; they are substitutes.
- This expands the relevant market of TCRs.
 - ➔ Does this give more credibility to the SO as a profit maximising agent ?
 - ➔ If so what are the implications ?

SO should be financially responsible for reliability (4)

- Chao and Peck's idea can be directly inserted in models of competitive markets:
 - TCRs are used in combination with energy on the energy market (as in current models).
 - TCRs are used by the SO to achieve reliability : the SO maximises the merchandising surplus taking reliability into account (this is an extension).

SO should be financially responsible for reliability (5)

- The inclusion of reliability constraints in SO's problem can be extended to computable oligopolistic markets without difficulty.
- The competition between ancillary services and TCR to provide reliability can also be included in computable models albeit with difficulty.

Conclusion

... When I first read
the paper :

such a simple idea

... Now :

such an interesting idea !