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The Brattle Group

**Beating the queue – connection policies
for a liberalised market**

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June 2008**

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Contents

- Current problems with connection policy.
- The Policy Tools:
 - Facilitate market transactions;
 - Generator payments;
 - TSO Decisions.
- Conclusions.

Grid capacity is getting scarce

- Several countries are experiencing problems with generator connection policy. Typical problems are:
 - Many developers want to connect in the same place, creating a connection queue.
 - Current connection policy does not distinguish between ‘real’ and ‘fantasy’ projects – the latter can hold up the former.
 - Generators can ‘play games’, deliberately holding up rival projects in the connection queue.
 - Grids make investments for generation projects which never happen.
- The focus of this talk is on connection policies that can help solve these problems.

Recent problems – the UK

- In the UK, National Grid noted that *“reforms and government incentives to encourage renewable generation has led to a significant queue for transmission capacity clustered in specific areas”*
- *“there may be little incentive for ... [u]sers to fully consider the viability of projects before Bilateral Agreement signature. This could lead to unviable projects being accepted and included in the background against which transmission reinforcements are planned”*.

Recent problems – the US

- In a December 2007 speakers at a Federal Energy Regulatory Commission conference described the system for interconnecting new generation resources to the power grid as ‘broken’.
- The existing system relies on a:
 - ‘first-in, first-out’ approach that can leave viable projects stuck in line behind projects of questionable viability.
 - heavy financial commitment of the first developer at a site to pay for the transmission upgrades serving that site. This creates reluctance and delays.

The Netherlands



- TenneT in the Netherlands has experienced a large volume of connection requests in Maasvlakte and Eemshaven.
- There is about 10,000 MW of new generation connection planned in NL from now until 2013.
- TenneT began investments of €400 mln to increase capacity, but was outpaced by requests.
- TenneT will connect new generators on an interruptible basis until re-enforcements are complete.

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Three policy 'tools'

Facilitate markets

There are existing market mechanisms – try and make them work better

Generator Payments

Give generators better 'signals'

TSO Decisions

Perhaps the TSO's connection policy can be improved

Policy options Considered

Facilitate Market

Forced site auctions

Tradable rights

Auction available capacity

Publish more information

Generator Payments

Deep charges

Up-front payments ↑

Bring back G charges

TSO Decisions

Just say YES: all firm

Start saying NO

Say YES to small units

Advanced planning/building

- *International Precedent*: UK regulator obtained commitment from dominant generators.
- *Policy Goal*: Stop the strategic behaviour of hoarding ‘retired’ sites and their grid connections.
- *Assessment*:
 - ✗ If there is market power, incumbents would simply out-bid new entrants.
 - ✗ ‘Dead parrot’ problem – owners could claim the plant is not retired, it’s just mothballed.
- *Recommendation*: Probably ineffective. Better to leave site sales to *ex post* regulation by the competition authorities.

- *International Precedent:* Some US TSOs publishes substantial information on the connection queue and available capacity. Elia publishes data on available capacity.
- *Policy Goal:* Improve transparency without violating confidentiality.
- *Assessment:*
 - ✓ Available capacity– publish existing and forecast, with a map of network.
 - ✓ Length of queue– indicate position, estimated time, likelihood of getting capacity.
- *Recommendation:* Yes. TSO can keep data ‘live’ on the web.

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- *International Precedent:* US requires generators to “lend” TSO the “deep charges”, subject to refund. UK cancellation payments exceed the connection costs.
- *Policy Goal:* Deter artificial requests for connection capacity.
- *Assessment:*
 - ✓ Add milestones– necessary for effective cancellation policy.
 - ✓ Deter frivolous applications– also deter requests for more capacity than needed at a site.
- *Recommendation:* Yes. Focus on cancellation payments.

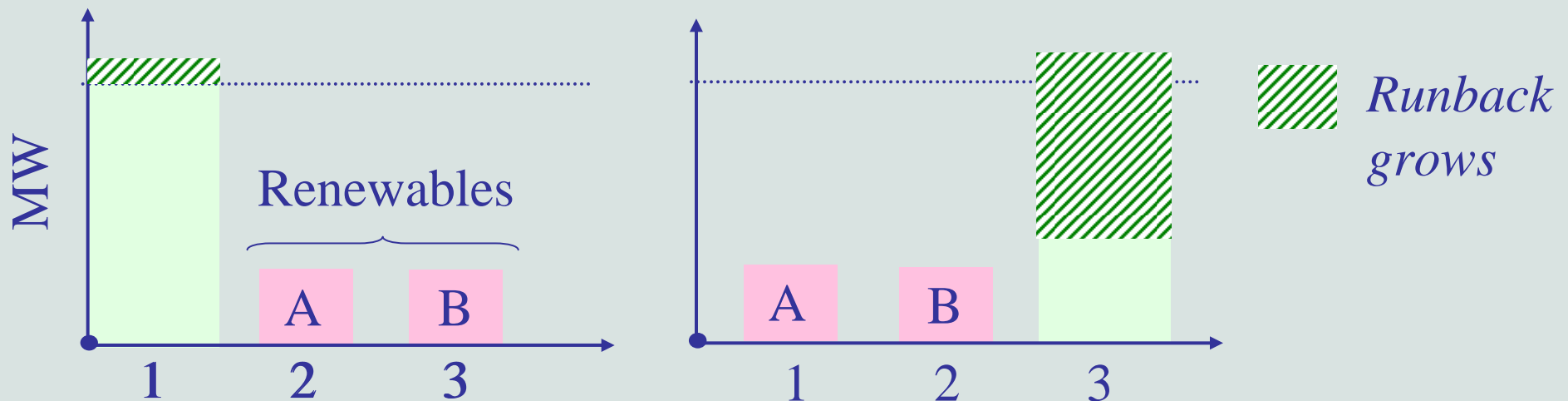
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- *International Precedent*: UK has special rules for generators < 100 MW.
- *Policy Goal*: stop a “first-come” large unit from blocking e.g. smaller renewables.
- *Assessment*:
 - ✗ Doesn't solve problems (see next slide)
- *Recommendation*: No.

Doesn't solve problems

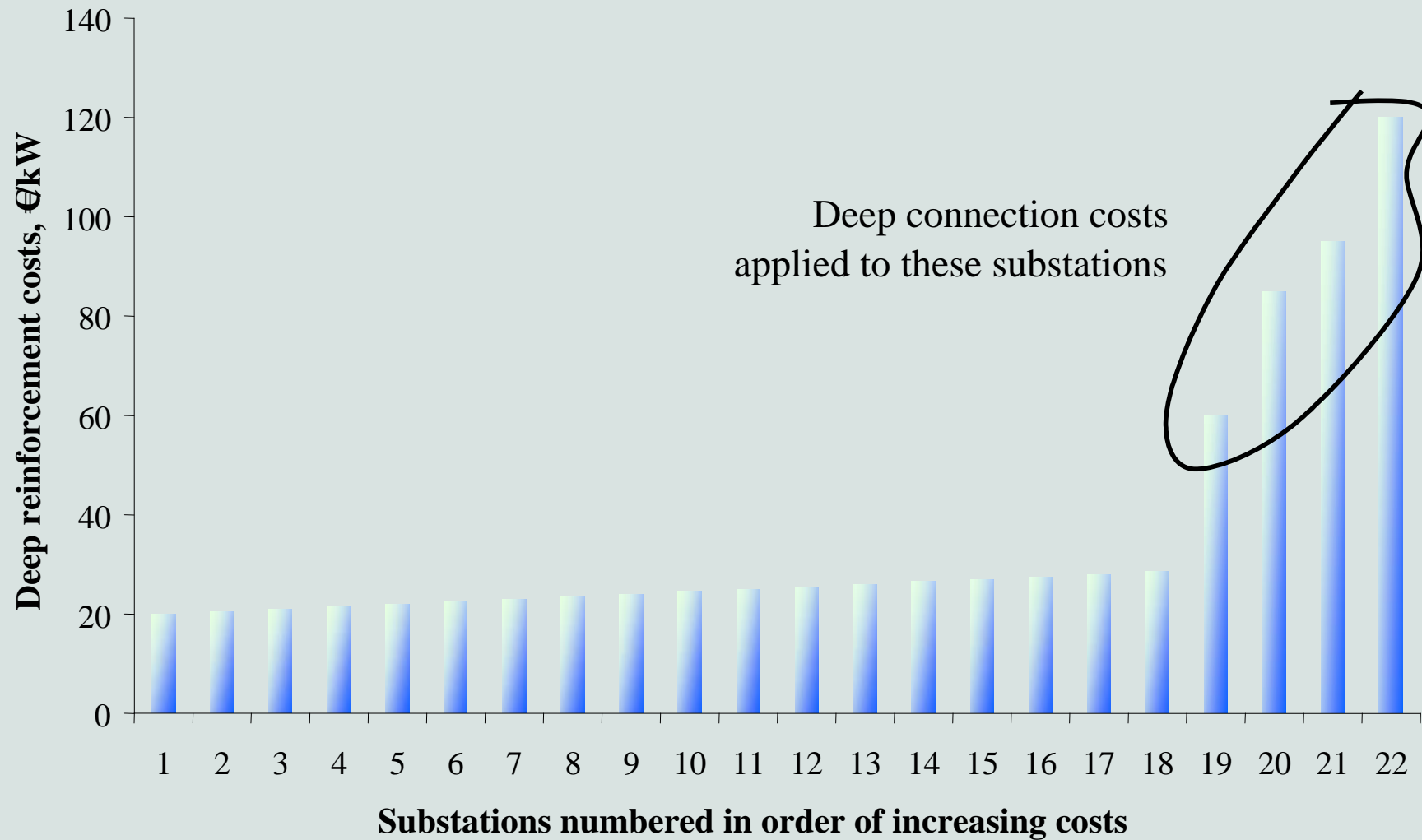
- *Distortions:* UK now has a lot of 99.9 MW units.
- Can't help small units without harming big one.



- Can't offer more than one run-back without creating allocation problems. Note: first in "queue" could always reduce project size.

- *International Precedent:* The US energy regulator has approved advanced building for renewables in California.
- *Policy Goal:* Improve the investment climate reducing network congestion.
- *Assessment:*
 - ✓ Reduce lead time
 - ✓ Efficient for renewables
 - ✗ TSO risk
- *Recommendation:* Allowing TSOs to recover the costs of advanced permitting would strike a good balance between speeding up new build and avoiding the risk of stranded investments.

- *International Precedent:* Central planning in many countries.
- *Policy Goal:* Optimize use of transmission network.
- *Assessment:*
 - ✓ Reject costly locations– can work if the TSO is neutral.
- *Recommendation:*
 - Useful supplement to “advanced plan/build”, to reduce TSO risk.
 - However, saying NO seems harsh relative to a “deep” connection offer.
 - Perhaps offer “deep” in congested area as long as “shallow” available elsewhere.



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Summary

Facilitate Market

Forced site auctions

- ✗ Threat of illiquidity
- ✗ Easily evaded

Auction available capacity

- ✗ Market power abuse

Tradable rights

- ✓ Efficient retirement
- ✓ But with limits

Publish more info

- ✓ Available capacity
- ✓ Length of queue

Generator Payments

Deep charges

- ✗ Market too small
- ✗ Harsh on renewables

Bring back G charges

- ✓ Locational signals possible
- ✗ International distortions

Up-front payments ↑

- ✓ Add milestones
- ✓ Deter frivolous applications

TSO Decisions

Just say YES: all firm

- ✗ Re-dispatch nightmare
- ✗ Market power problems

Say YES to small units

- ✗ Doesn't solve problems

Start saying NO

- ✓ Reject costly locations

Advanced plan/build

- ✓ Reduce lead time
- ✓ Efficient for renewables
- ✗ TSO risk

Recommended policies

Facilitate Market

Tradable rights

- ✓ Efficient retirement
- ✓ But with limits

Publish more info

- ✓ Available capacity
- ✓ Length of queue

Generator Payments

Up-front payments ↑

- ✓ Add milestones
- ✓ Deter frivolous applications

TSO Decisions

Start saying NO

- ✓ Pay for costly locations

Advanced plan/build

- ✓ Reduce lead time
- ✓ Efficient for renewables
- ✓ For permits only

Conclusions

- Many TSOs are experiencing high levels of connection request and increasingly constrained grid capacity.
- There is no ‘silver bullet’, but a mixture of policies could greatly help reduce the current problems.
 - Publishing more information;
 - Use of milestones and payments to deter ‘phantom’ plants;
 - Make developers pay deep costs for very costly locations;
 - Permit in advance.