Cost-reflective pricing and the electricity distribution networks

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Outline of presentation

• Framework for DNO prices
• Charging principles
• Cost-reflectivity
• Examples and insight related to low-carbon DG
Role of a DNO

- Generation
- Transmission
- National Grid 275/400 kV
- Distribution
- DNOs 132kV – 230V
- Supply / Retail
Role of pricing

• Allowed income – prices to network users
• Regulator sets overall income, but not the individual prices or tariffs
• Each DNO prepares its methodology, Ofgem approves or vetoes
DNO charging methodologies

Connection charges (initial)

versus

Use-of-system charges (ongoing)
Charging principles

• 5 high-level principles
  – Cost-reflectivity, simplicity at point of use, transparency, predictability, facilitating competition

• Licence conditions on DNOs

• Longer-term approach
  – Forward-looking costs, incentivise efficient use and development of network, allow introduction of generator use-of-system charges
Why be cost-reflective?

- Cost-reflectivity is a requirement that prices and charges signal the cost of an activity
- Users exposed to consequences of their actions
- Depend on location, time, pattern of network use, existing network, other network users.
- Allocative efficiency
- Response of user depends on how much they value using the network in that way
Which costs to reflect?

A. The direct costs of providing the network (the cost of the DNO service),
B. The indirect costs/benefits of the network to third parties (not to the DNO),
C. The direct costs of the network user, and
D. The indirect costs/benefits of the network user to third parties (not to DNO)
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Reflect environmental benefit instead of network costs?

• Example - discount or zero charge for low-carbon generators
• Loses the network cost signal and efficiency benefit
  – To still recover total DNO income, distorts charges for DG and others

• Higher network cost for generation in Scotland & N England
• SDC review suggestion – remove locational TNUoS from CHP

• Provides more support to generators in most expensive locations, rather than more for greater environmental benefit
• Better to provide greater support for CHP overall, to reduce costs to generators, encourage innovation
Set prices to reflect network costs?

- Customers drive network costs based on contribution to peak power flow (kW)

→Cost-reflective price depends on kW and kWh, but more on kW

- ‘discriminate against sites with distributed generation’? - no
- Example – switch to a per-kWh charging basis for CHP
- Loses signal for allocative efficiency
- Does not acknowledge argument for reflecting network costs

- CHP already reduces both network charge (kW and kWh) and energy supply charge (kW and kWh)
Cost-reflectivity for local generation

• A real potential benefit to generators

IMPLEMENTATION ISSUES

• Removing regulatory barriers
• Redeveloping charging models and methodologies
Arguments for less cost-reflectivity

• Practice in Germany
  – set use-of-system charges for generators to zero
  – potential benefits?
• Any value to signalling network costs if need to connect all possible generation?
• A realistic extreme, connecting at any cost?
Conclusions

• DNO charging – future framework
• Arguments for a clear understanding of framework, rationale and benefits of cost-reflective pricing
• Network efficiency
• Benefits for DG – limits to this?