

National Grid Overview

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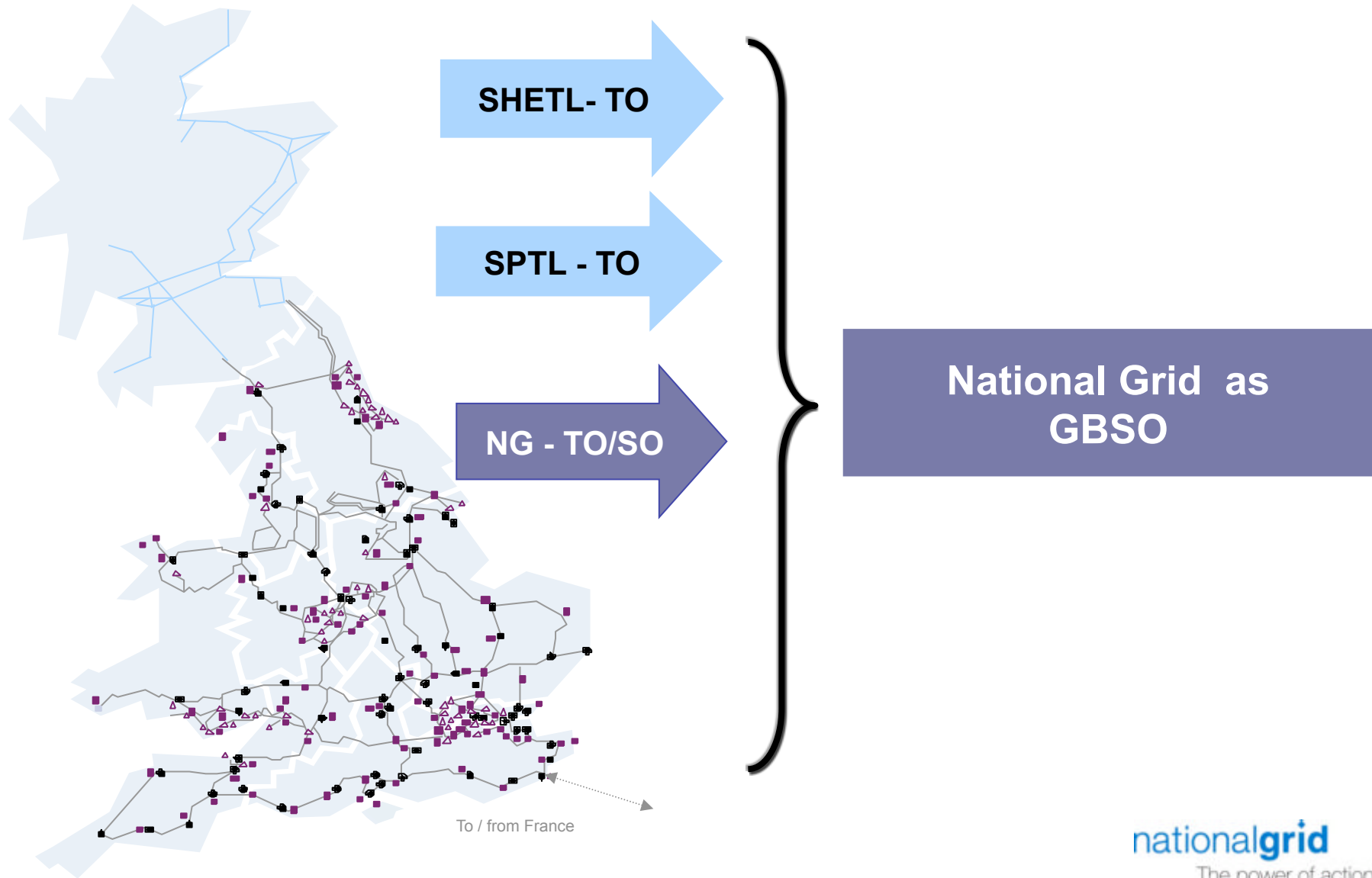
nationalgrid

The power of action.

Agenda

- ◆ National Grid Role
- ◆ Commercial Framework
- ◆ Securities and Charging Arrangements
- ◆ Challenge of new generation connections
- ◆ Transmission Access
- ◆ Interim Connect & Manage

National Grid Electricity Transmission



National Grid Electricity Transmission

What we do...

- ◆ System Operator
- ◆ Real time operation and energy balancing
- ◆ Transmission Owner in E&W responsible for network investment
- ◆ Facilitate competition via connection of new generation

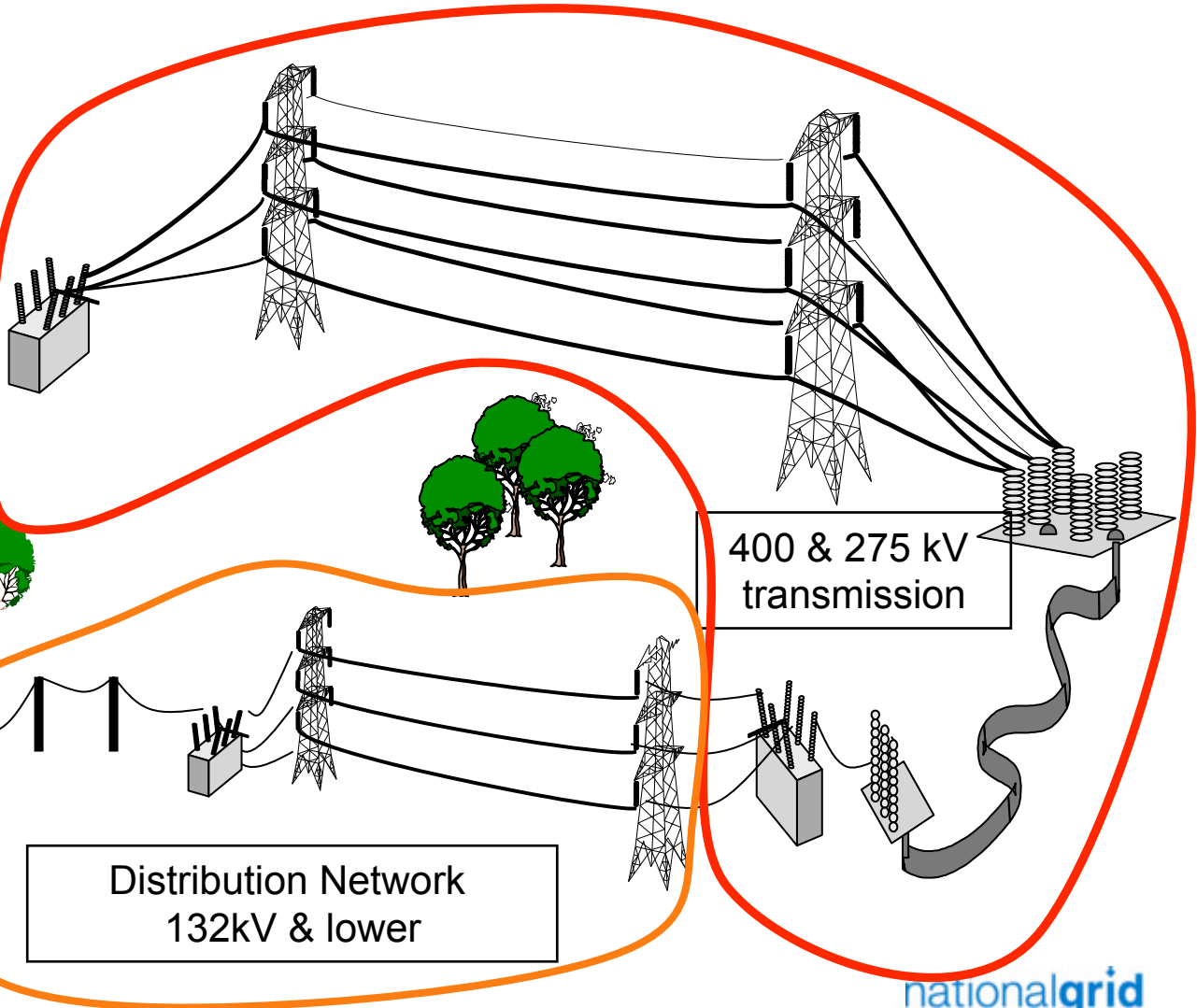
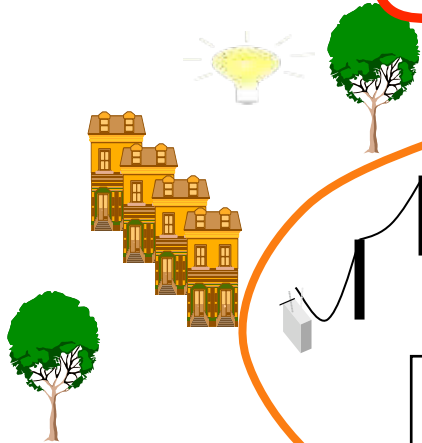
What we don't do...

- ◆ Own electricity networks in Scotland
- ◆ Discriminate between customers (pick winners, prefer renewables)
- ◆ Make speculative network investments

GB Electricity System



Generators



Distribution Network
132kV & lower

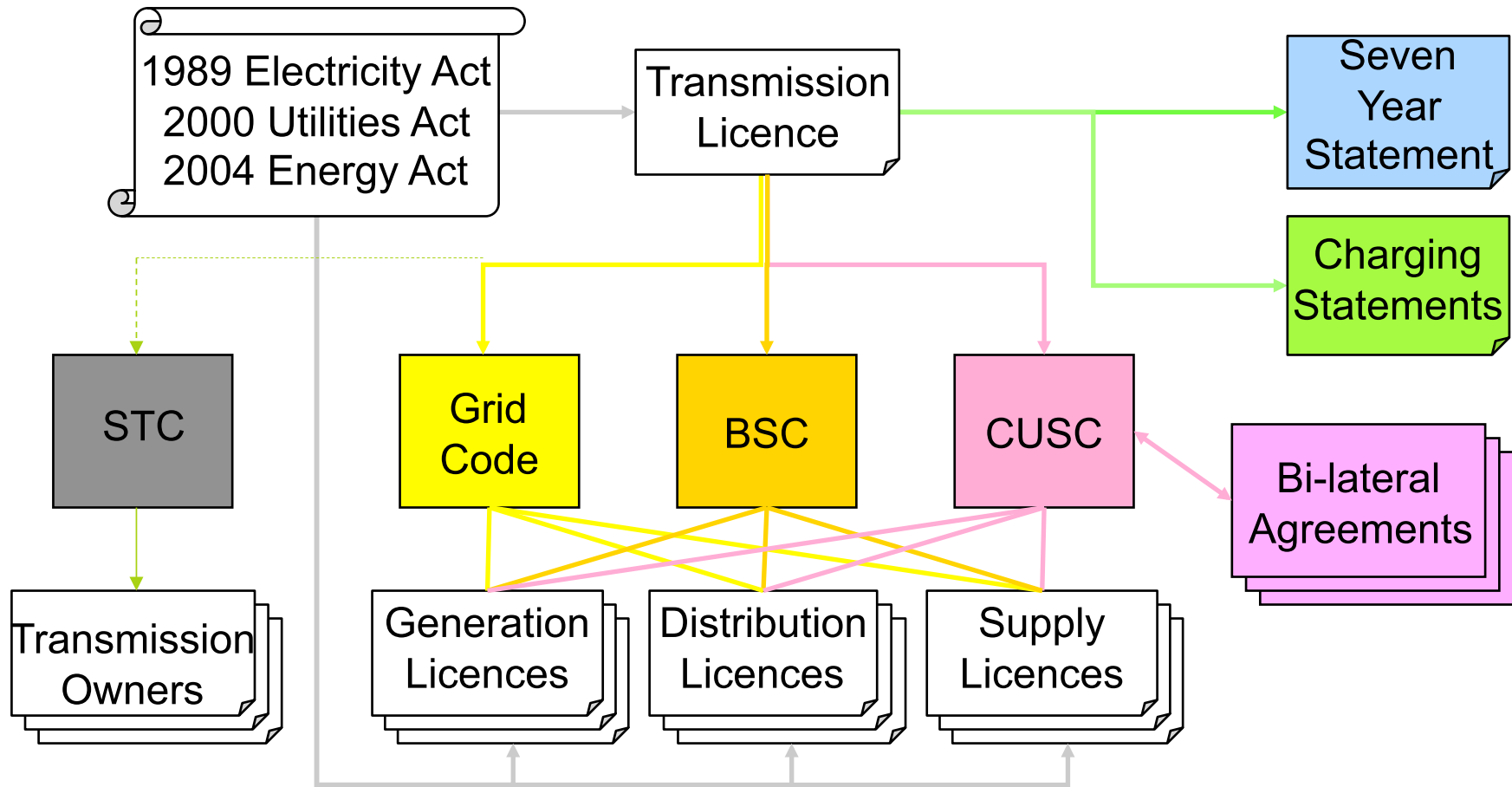
400 & 275 kV
transmission

NB in Scotland 132kV is
classed as Transmission

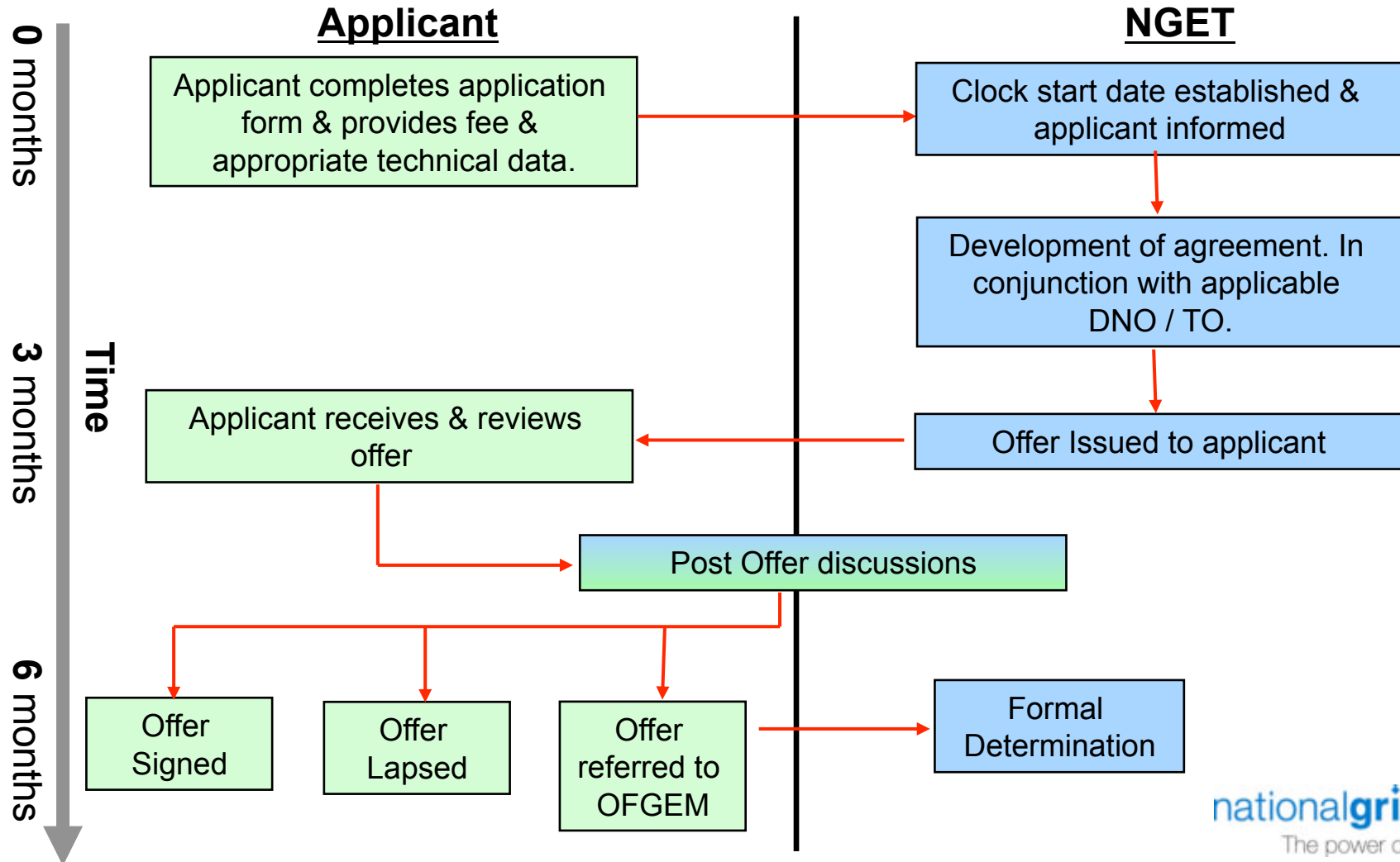
Who contracts with us?

- ◆ National Grid (as GBSO) provides the contractual interface for all parties connected to or using the GB transmission system (400/275kV in GB and 132kV in Scotland)
 - Generators
 - Distribution Networks Owners (DNOs)
 - Large consumers - Network Rail, Steelworks etc
- ◆ New connections
- ◆ Modifications to existing connections
- ◆ Use of Transmission System

The Legislative & Contractual Framework



How Do Customers Apply for Connection?



What does the contract cover?

Key points in the Construction Agreement...

- ◆ Connection date
- ◆ Transmission reinforcement works
- ◆ Financial securities
- ◆ Re-openers, key consents, who does what, 3rd party works etc

The Connection Agreement covers...

- ◆ Enduring rights (e.g. use of system)
- ◆ Charges

Financial Security

Final Sums

- ◆ Asset based
- ◆ User is liable for costs if they terminate

User Commitment

- ◆ Generic - not based on actual works
- ◆ User provides financial commitment based on £x/MW

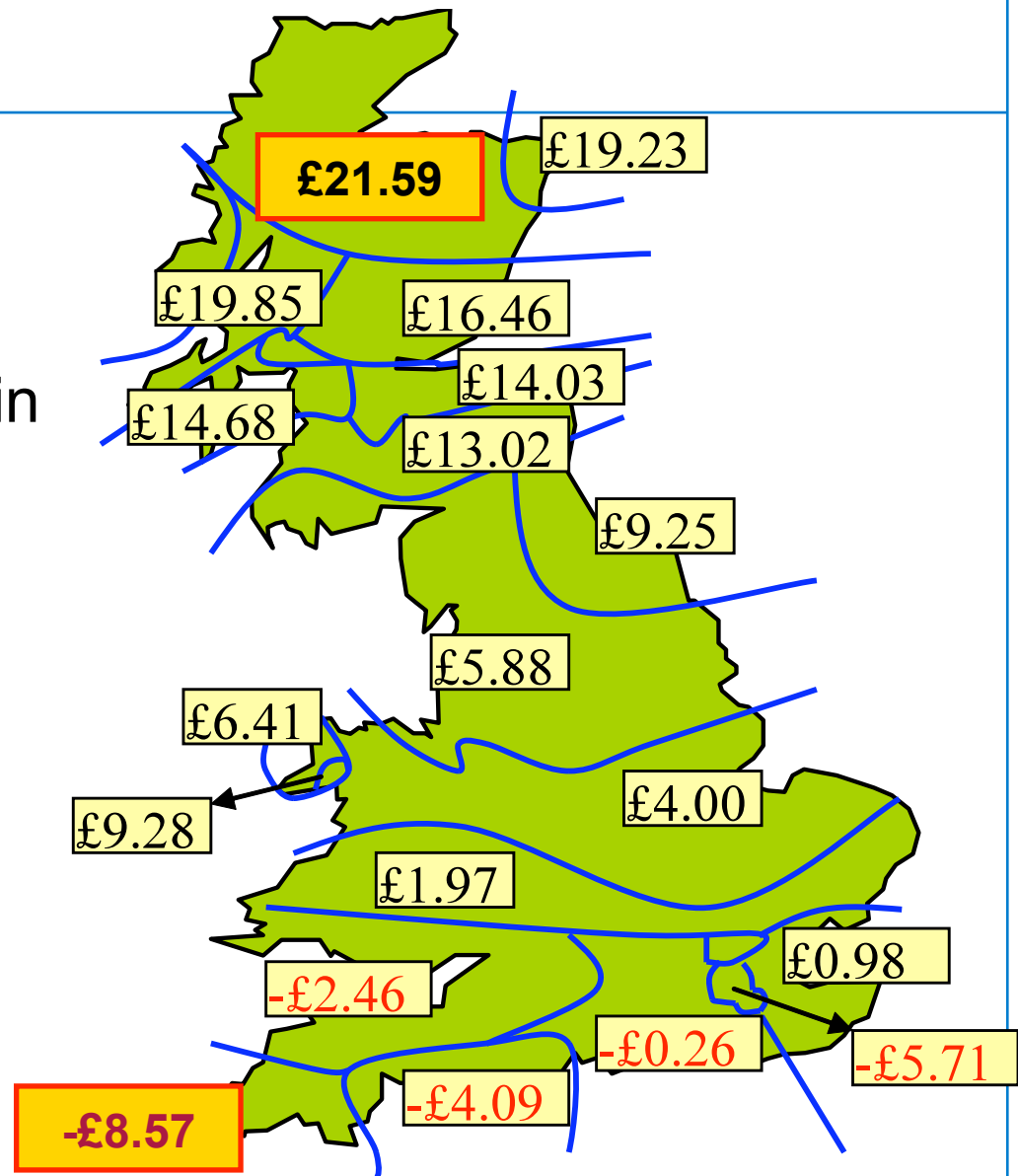
- ◆ Credit rating or financial security
- ◆ Financial security...
 - Parent Company Guarantee (PCG)
 - Letter of Credit from a bank
 - Cash

Transmission Charges (TNUoS)

- ◆ Based on capacity (TEC) of generator, or demand taken by supplier
- ◆ Cost reflective, based on:
 - ❑ distance travelled by power (MW*km)
 - ❑ cost of assets involved (lines / cables / transformers)
- ◆ Allocation
 - ❑ 73% to demand
 - ❑ 27% to generation

Generation Zones

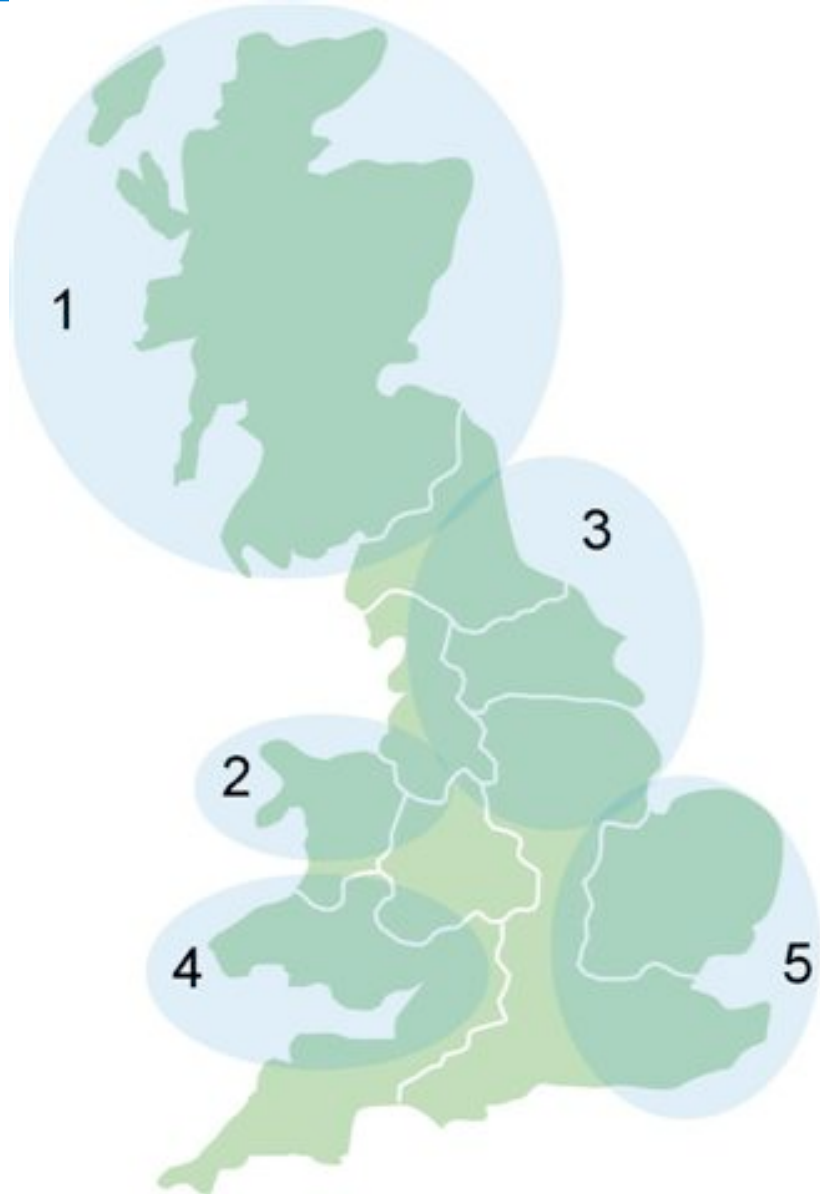
- ◆ Typical charges in £/kW based on TEC
- ◆ Generation tariffs higher in the North and negative in the South
- ◆ Parties with a BCA or BEGA > 100MW pay
- ◆ BEGA's < 100MW get embedded benefit
- ◆ BELLA's not charged



New Connections

- ◆ European Union: by 2020 one-fifth of all Europe's energy should come from renewable sources
- ◆ European Commission: proposes a target of 15% for UK
- ◆ Achieving this could require renewable generators to provide between 30 and 40% of our electricity supplies
- ◆ A significant proportion of our existing generation will also need to be replaced over the same period
- ◆ Unprecedented challenge for electricity networks

New Generation Applications



	No. of Contracts	GW
Cluster 1	112	10
Cluster 2	15	3
Cluster 3	15	8
Cluster 4	13	10
Cluster 5	20	13
Total	175	44

Grand total contracted Gen >50GW (~67% of current installed capacity of 74GW)

The Challenge

Two issues to solve...

1. Build more transmission capacity faster

2. Allocate available transmission capacity more sensibly

The proposals...

1. “Strategic Investment” in transmission

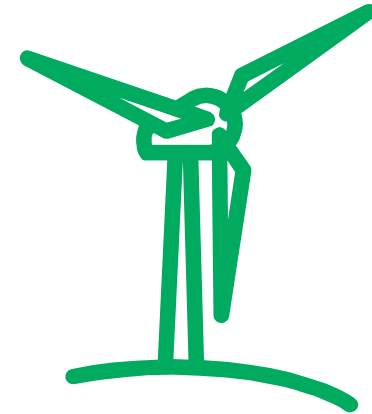
2a. Interim Connect & Manage

2b. Transmission Access Reform

The approach

2b. Transmission Access Reform

- ◆ National Grid has proposed a suite of framework changes that could be used to implement three access straw men
- ◆ National Grid has organised these proposals into three working groups which consider access (CUSC) and charging together



What's wrong?

2b. Transmission Access Reform

New generation can't get timely access to the transmission system

- ◆ GB queue stretching out beyond 2020
- ◆ Closure uncertainty

May not be appropriate with increased volume of renewable generation

- ◆ Characteristics of wind mean that sharing of capacity (between wind and conventional) much more important

What are the models?

2b. Transmission Access Reform

Connect & manage

- ◆ Firm connection date provided by S&P as a condition for firm financial commitment
- ◆ Operational costs caused when transmission investments cannot be completed are socialised

Evolutionary change

- ◆ Flexible, cost-reflective short-term access regime
- ◆ Finite, tradable long-term access rights

Capacity and

- ◆ As expected, capacity change, but long-term access rights are all based on production

All models get new generation connected more quickly

Interim measures

2a. Interim Connect & Manage

- ◆ National Grid has been working with Ofgem to define a process in which derogations from GBSQSS can be used to provide access ahead of the completion of certain reinforcements
- ◆ Short term measure only for projects with consents
- ◆ Authority to consider requests on assessment of costs and benefits (lower emissions)
- ◆ Time limited/bound derogations
- ◆ Allows projects to be considered where no or limited capacity is available

Questions

