

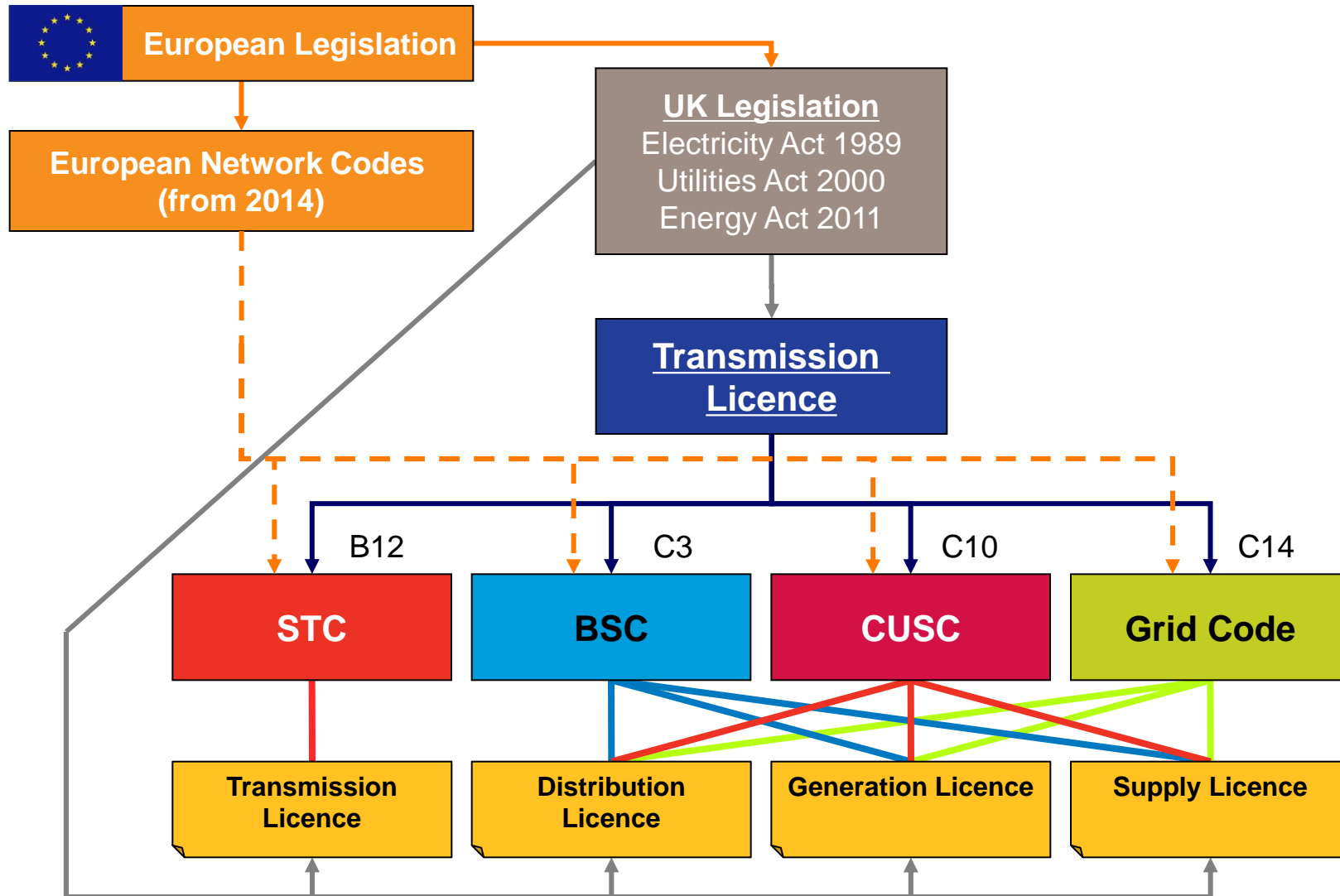
Electricity Codes:



Damian Clough

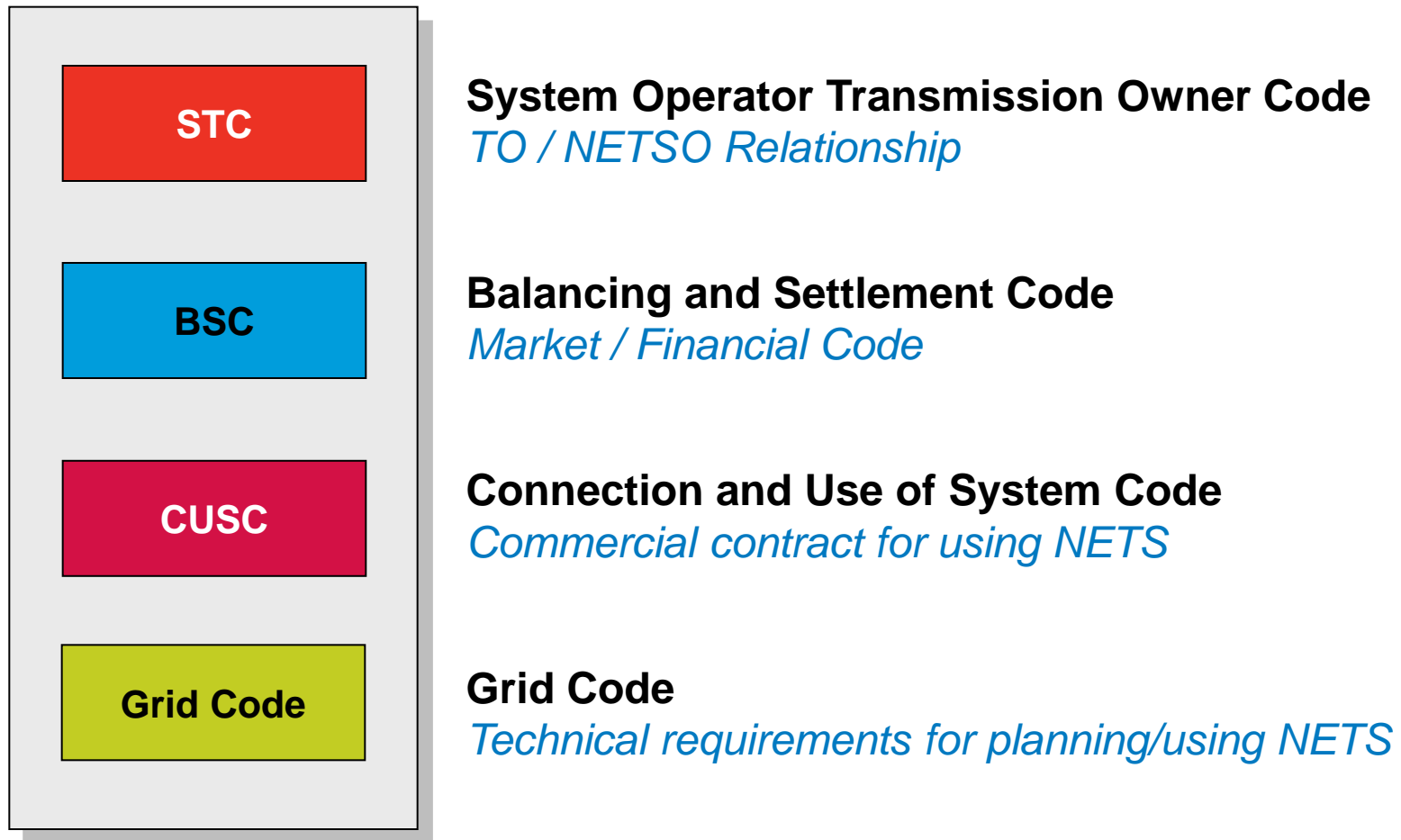
Transmission Network Service | Commercial Frameworks – Electricity
July 2015

Where do the Codes come from



Each Code covers an area of the industry...

- The Codes together form a set of rules for the industry.



Connection and Use of System Code (CUSC)



Overview

- Developed in 2001, coinciding with the introduction of NETA.
- License based code that outlines the principal rights & obligations.
- Provides the contractual arrangements for connection to and use of the transmission system.
- Bilateral agreements set up the rights and obligations, including the obligation on Users to pay transmission charges.

Code Structure / Chapters

- The CUSC is divided into 3 key sections:
 - The **CUSC**,
 - **Exhibits** to the CUSC,
 - **Schedules** to the CUSC,
- The main body of the CUSC is divided into 15 sections that are applicable to various categories of User
- General introduction provides an overview of the CUSC and its interactions, but does not form part of the CUSC itself or have any legally binding effect.

Structure Continued

- The **Schedules** and **exhibits** form part of the CUSC documentation and contain proformas of the bilateral agreements associated with the CUSC.
- The exhibits also include examples of application forms and offer letters.



CUSC at a Glance

Who are the CUSC parties

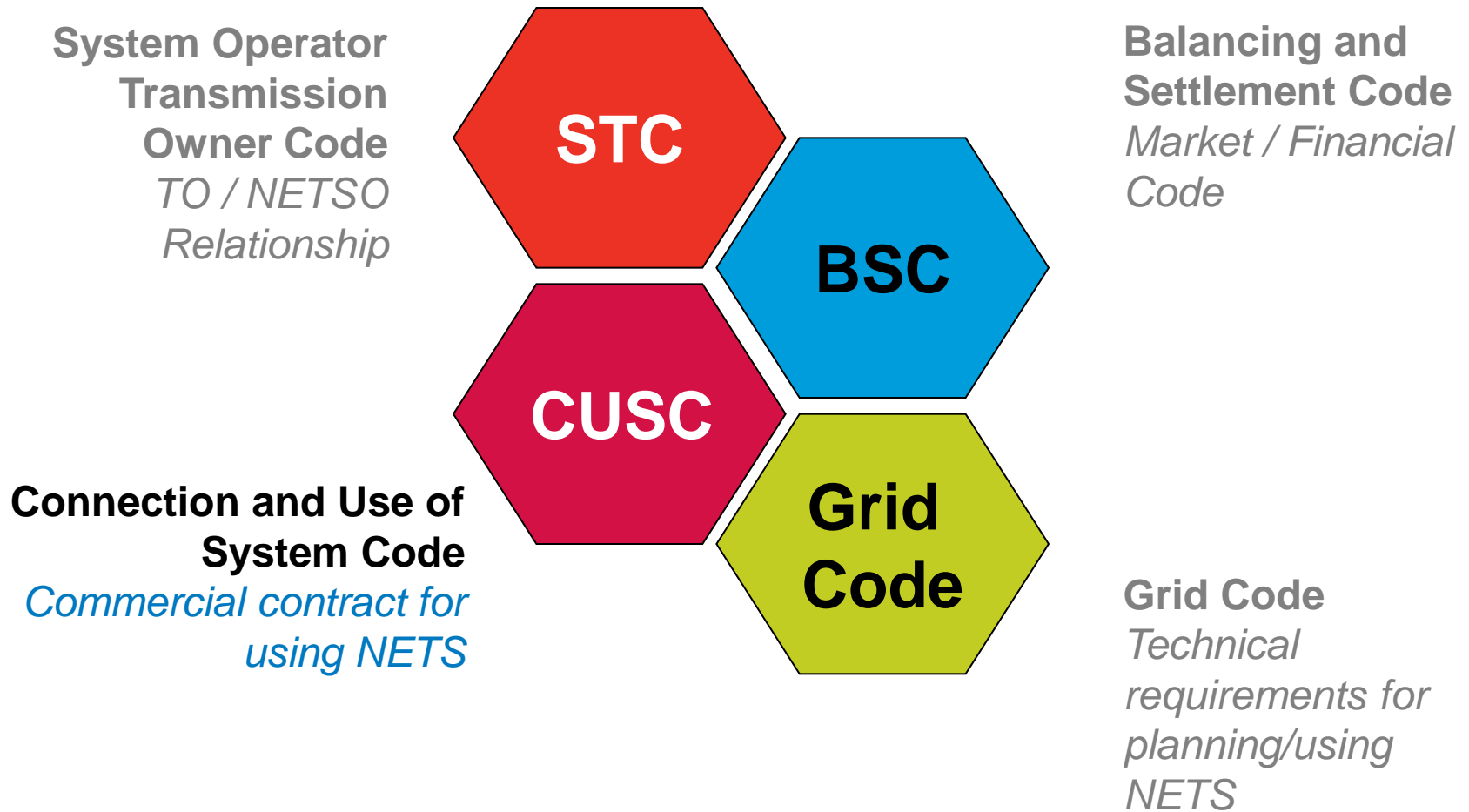
- All parties must sign up to the CUSC in order to connect to the NETS.
- Holders of a generation, distribution or supply licence are required to be a party to the CUSC Framework Agreement and comply with the CUSC.

CUSC Panel

Meets every last Friday in the month

- 7 industry members, each eligible to vote
- 2 National Grid members (1 vote between them)
- 1 National Consumer Council (Consumer Focus) member, eligible to vote
- Independent Chairman
- Ofgem Representative

Building the Jigsaw



Grid Code



Overview

- The Grid Code is designed to permit the development, maintenance and operation of an efficient, economical and coordinated electricity transmission system.
- It facilitates competition in the generation and supply of electricity
- It promotes the security and efficiency of the system as a whole
- National Grid and users of the National Electricity Transmission System are required to comply with the Grid Code.

Code Structure

Glossary and Definitions (G&D)

Planning Code (PC)

Connection Conditions (CC)

Compliance Processes (CP)

Operating Code (OC1- OC12*)

Balancing Code (BC1, BC2 and BC3)

Data Registration Code (DRC)

General Conditions (GC)

*There is no OC3 or OC4

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Grid Code at a Glance

Who is affected by the Grid Code

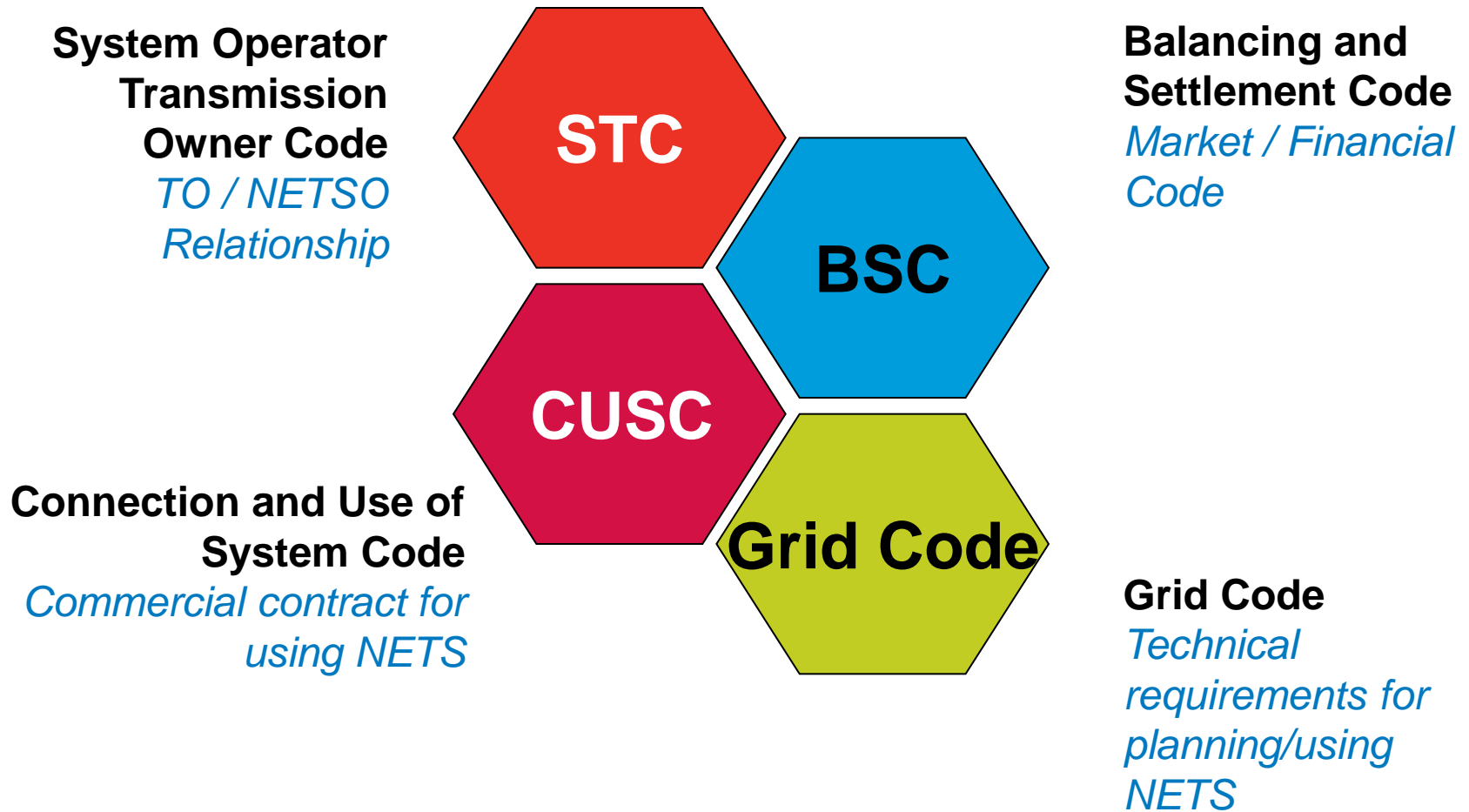
- Generators
- Non-embedded customers
- DNOs
- Suppliers
- Manufacturers
- Trade Bodies
- Transmission Owners

Only NGET can raise modifications to the Grid Code. Industry can flag issues, but NGET must propose any modifications

Grid Code Review Panel (GCRP)

- Chairman and Technical Secretary (NGET)
- Up to 4 NGET Members
- Ofgem
- 3 persons representing Large Power Stations (>3GW)
- 1 person representing Large Power Stations (<3GW)
- 2 Distribution Networks in England and Wales
- 1 Distribution Network in Scotland
- 1 person representing Non-Embedded Customers
- 1 person representing Small and/or Medium Power Stations
- BSC Panel representative (Elexon)
- 1 person representing Externally Interconnected System Operators
- 1 person representing Generators with Novel Units
- 2 Other Transmission Owners
- 1 Supplier representative

Building the Jigsaw



Balancing and Settlement Code



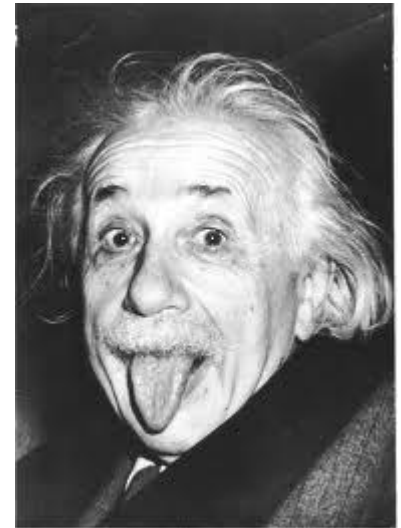
Balancing and Settlement Code

- The BSC was introduced in 2001 (NETA).
- The code is concerned with the financial settlement of power entering and exiting the National Electricity Transmission System.
- Generation and Supplier Licensees must become BSC parties and are then bound by the code (as is National Grid).
- BSC is administered by the Balancing Settlement Code Company, which is Elexon.



Why is the BSC needed?

- **Simple Answers: Laws of Physics.**
- Unlike most commodities, electricity must either be delivered to all or none – risk of losing the system.
- The BSC therefore formalises the rules around settlement of this ‘deliver to all’ operation.
- BSC provides the appropriate rules to ensure the **right incentives** are on parties to enable good operation of the wholesale electricity market.



BSC covers.....

- The BSC covers many of the areas needed to make the market work:
 - Metering Systems
 - Balancing Mechanism Units
 - Energy Contract Volumes and Metered Volume Reallocation
 - Credit
 - Balancing Mechanism Activities
 - Supplier Volume Allocation
 - Settlement and Trading Charges
 - Transmission Losses
 - BSC charges and
 - The change process

BSC at a Glance

What does the BSC Achieve?

Provides the commercial mechanism through which NGET balances the system through the Balancing Mechanism

Provides the incentives through Imbalance Cash-Out arrangements for parties to ensure they have contracted sufficiently to meet their physical positions

BSC Panel

Chairman of the Panel

Up to 5 trading parties

Up to 2 from Consumer focus

1 National Grid

2 independent appointed by Chair

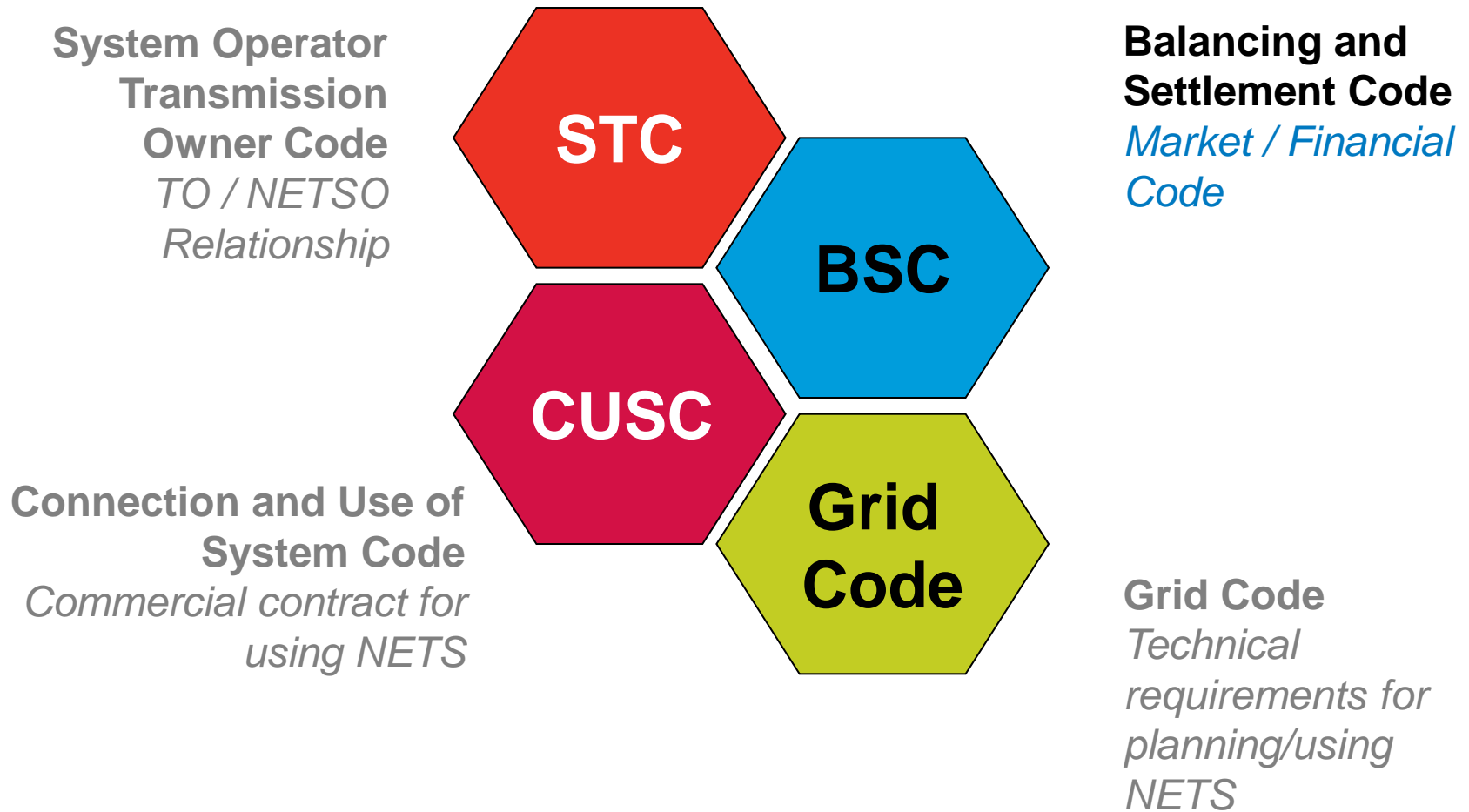
1 further 'other industry' rep.

Role of Elexon

Elexon are responsible for the governance and maintenance of the BSC, as the Balancing and Settlement Code Company (BSCCo)



Building the Jigsaw

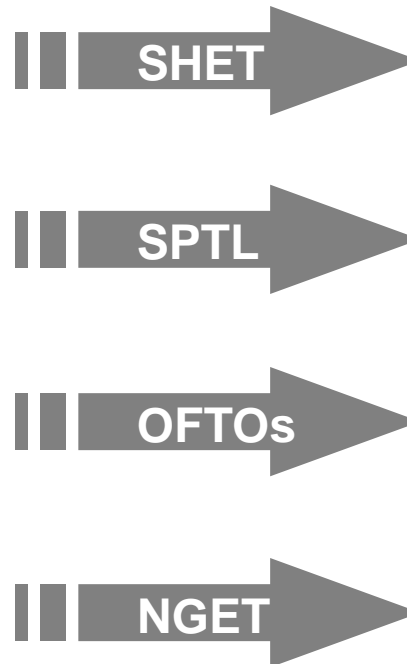


System Operator Transmission Owner Code (STC)

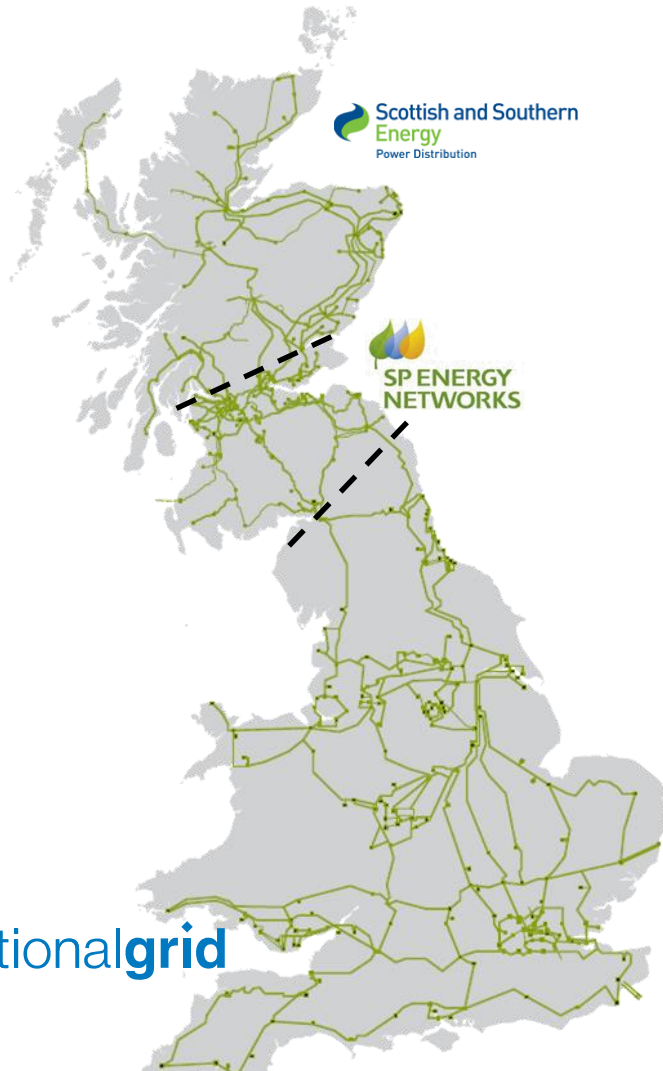
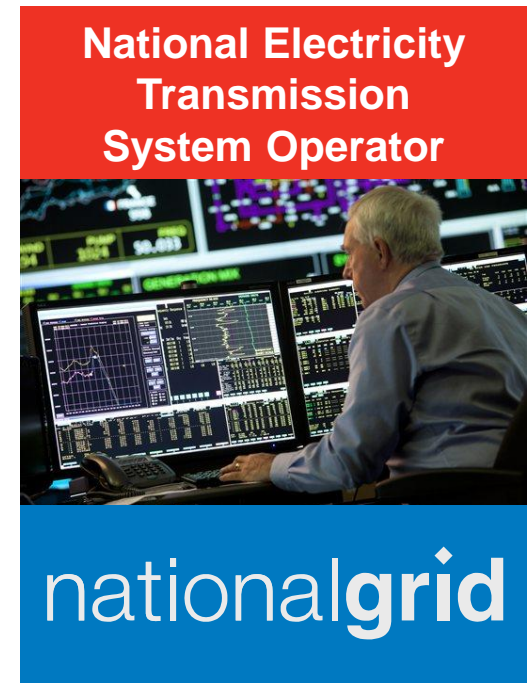


Transmission GB - Electricity

Multiple TOs



One NETSO



STC Overview

The STC is a licence based code, describing the Transmission Licensees' obligations and interactions.

The STC Framework Agreement gives contractual effect to the licence based STC. All Transmission Licensees must accede to the STC Framework Agreement.

The STC Accession Agreement is the agreement that all parties need to sign in order to be admitted as an additional party to the STC Framework Agreement.

- The STC sets out the **detailed roles and responsibilities** of the National Electricity Transmission System Operator (**NETSO**) and each Transmission Owner (**TO**) with regard to the planning and operation of the National Electricity Transmission System.

Code Structure

- The STC is divided into 2 Key Areas:
 - Sections,
 - Schedules.
- The main body of the STC is divided into 11 Sections all of which are applicable to the Transmission Licensees,
- 15 Schedules that describe how the STC will function in an Operational Environment:
 - STC Procedures provide additional guidance to how these requirements are met.

STC at a Glance

Who is the Code for...

TO / NETSO Relationship:
Scottish TOs – SHET and SPTL
Offshore TOs

STC Panel

4 National Grid
2 SPTL
2 SHET
2 OFTO
1 Ofgem

NGET are responsible for Governance

Arrangements for admission of Transmission Licensees and Offshore

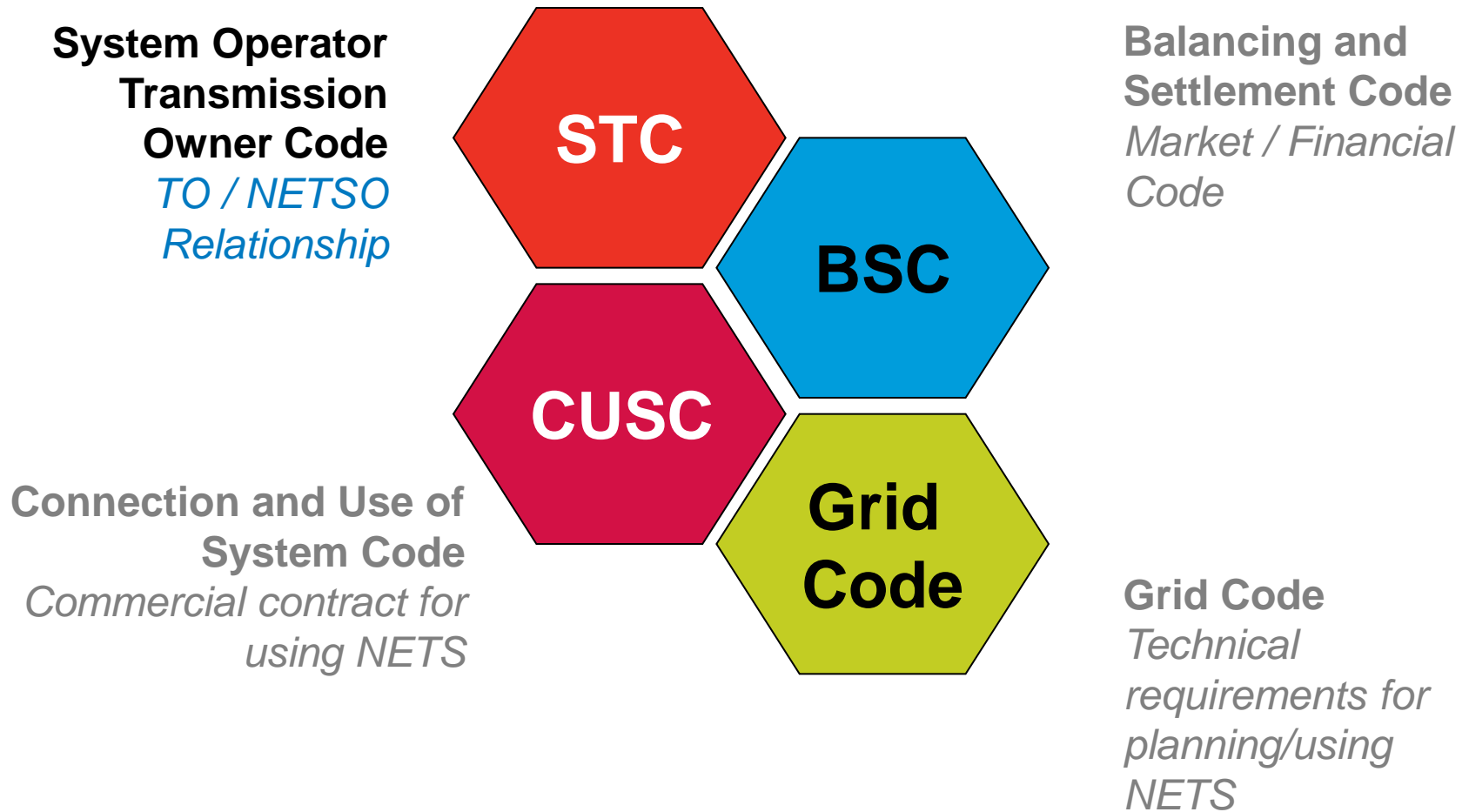
Arrangements for withdrawal of Parties from the Code;

Arrangements for the establishment and operation of the STC Modification Panel;

Arrangements for the appointment of Party Representatives; and

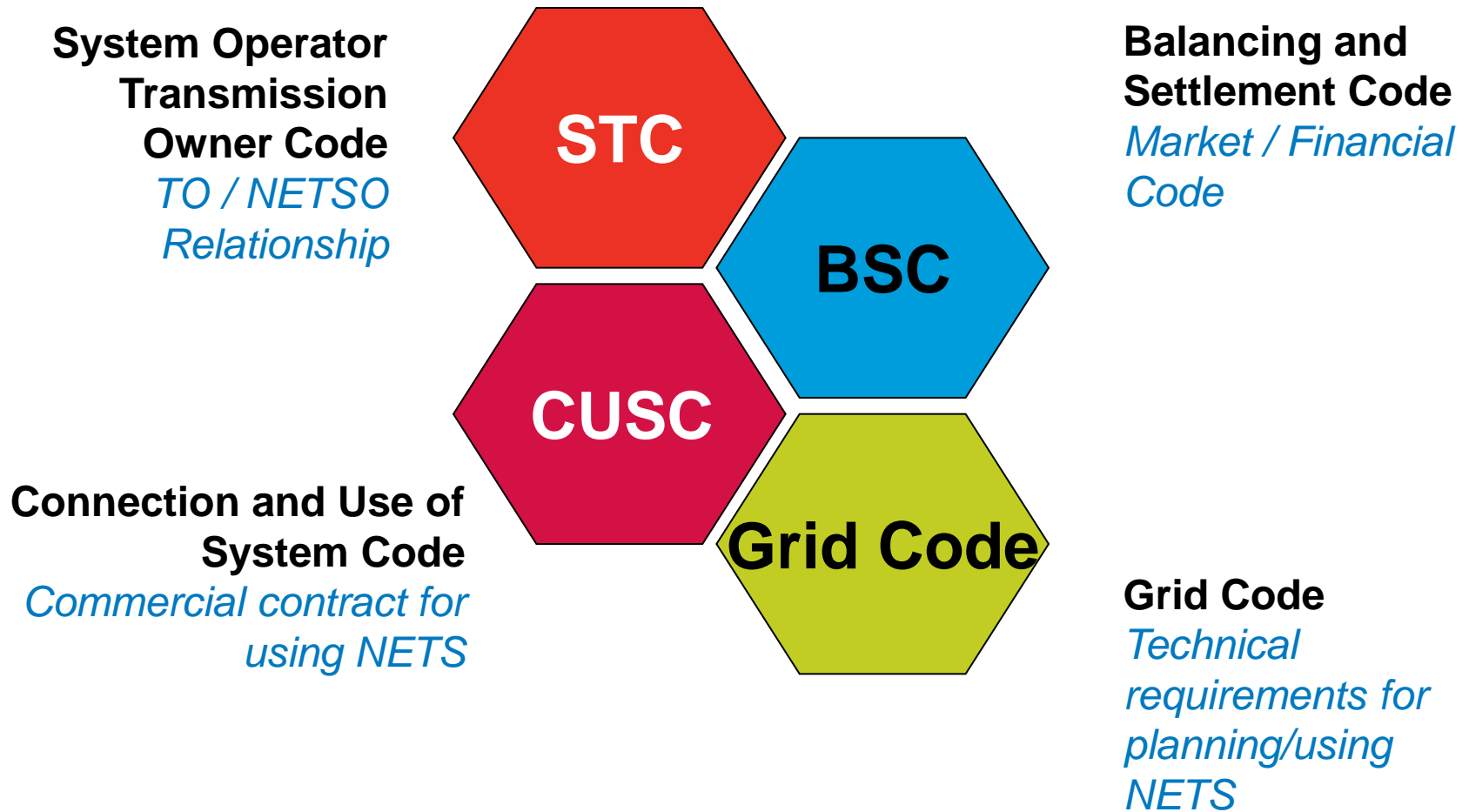
Procedures for making amendments to the Code

Building the Jigsaw



Summary and Conclusions

Building the Code Jigsaw



Electricity Codes...

- Are the rule book that governs the Electricity Industry
- National Grid has a licence obligation to maintain the Grid Code, STC and CUSC
 - Elexon fulfils this role for the BSC
- Codes Team has significant interaction:
 - Across National Grid teams
 - Industry stakeholders
 - Ofgem and DECC
- Documents available on our website:
<http://www.nationalgrid.com/uk/Electricity/Codes/>