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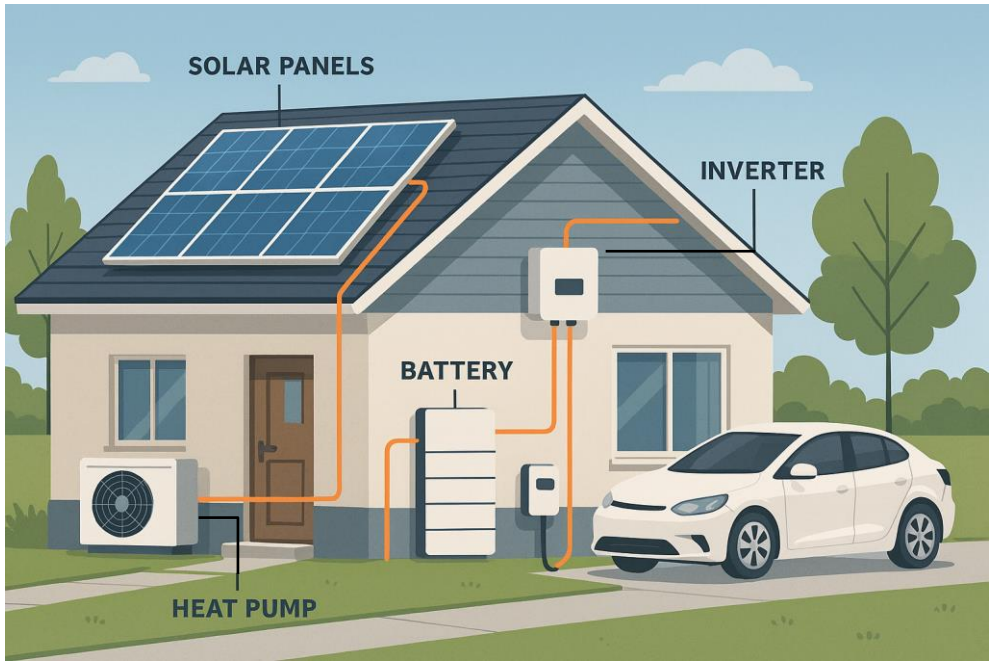


# SSES: Interoperable Consumer-Led Flexibility in Great Britain

*March 2026*

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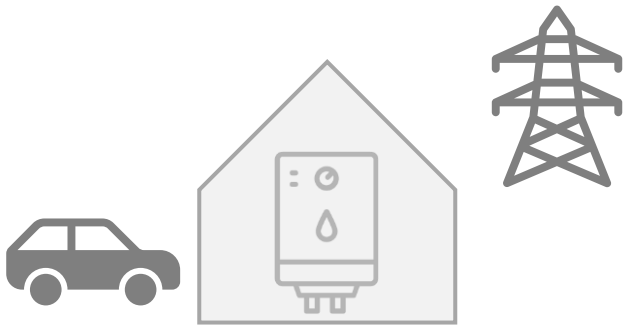
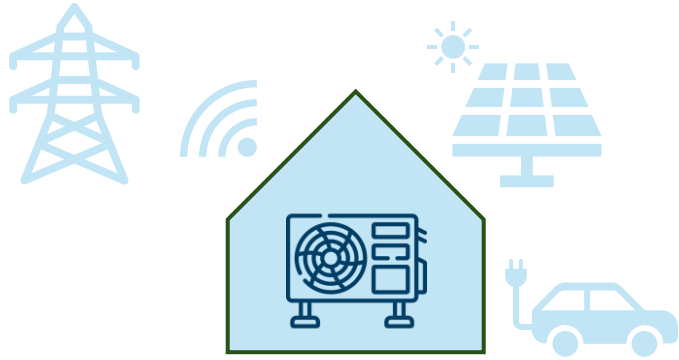
# Why Domestic-Scale Consumer-Led Flexibility Matters

Traditional Grid



- 10 million electric vehicles by 2030
- 600,000 heat pumps installed annually by 2030
- Without intervention peak demand could rise by 15GW by 2050

Smart Grid



*The Challenge*

- Electrification = higher demand
- Without flexibility: higher costs and more infrastructure needed to meet demand

*Our Solution*

- **UK has committed to net zero by 2050 and Clean Power by 2030.**
- **Clean Power Action plan** commits to decarbonising energy system by 2050
- **Flexibility is key** – Government aims to achieve 10-12 GW of CLF by 2030. **Flexibility Roadmap** set outs how to achieve this.
- **SSES Programme** – smart secure electricity system that powers our clean energy superpower mission whilst keeping bills low



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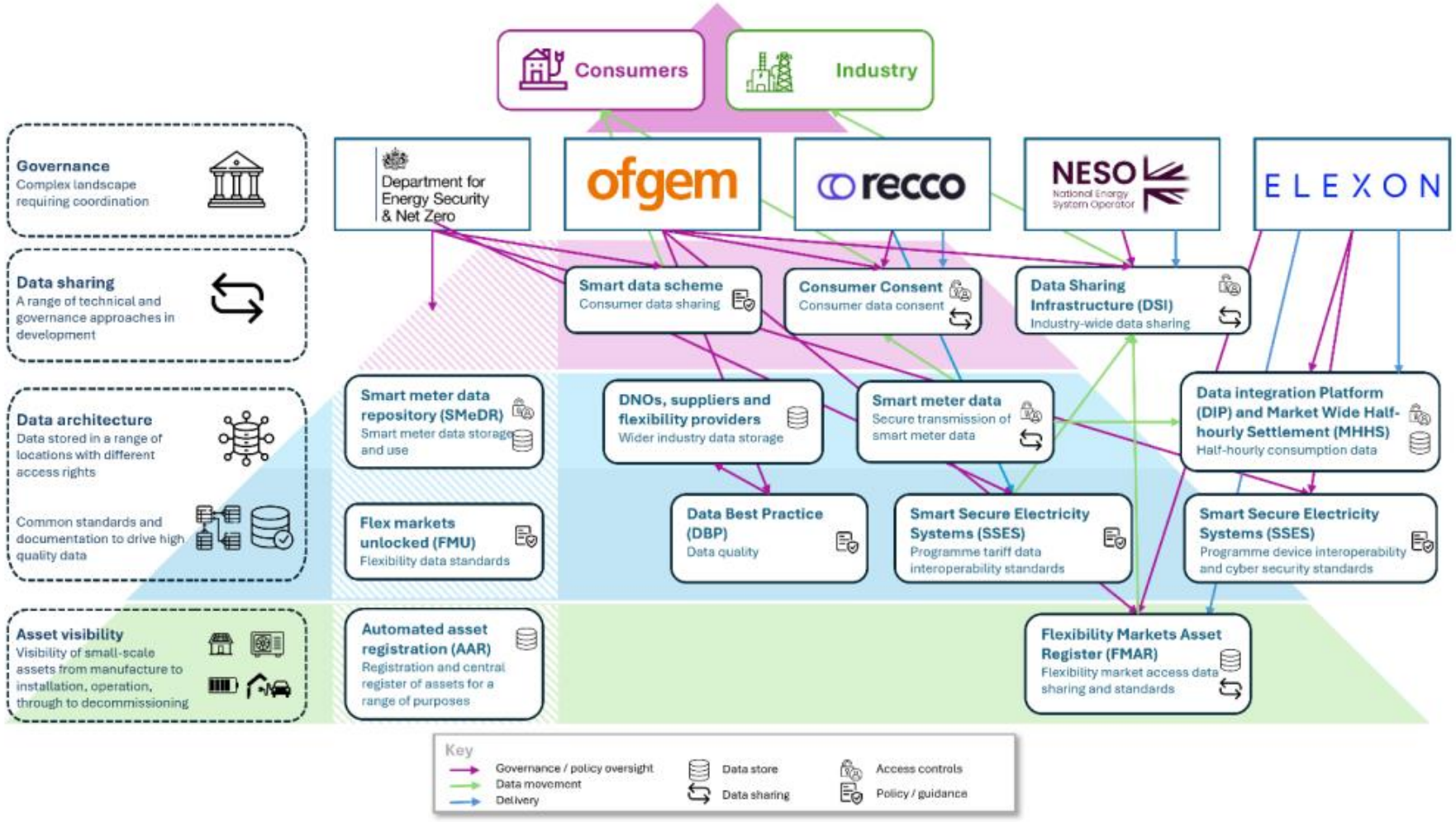
# Energy digitalisation initiatives




**Actors**

- National Energy System Operator (NESO): Whole-system planning & balancing
- Distribution System Operators (DSOs): Local constraints
- Suppliers: Tariffs & consumer interface
- Code bodies: Elexon, RECCo, SECCo



**Source:** Clean Flexibility Roadmap, July 2025

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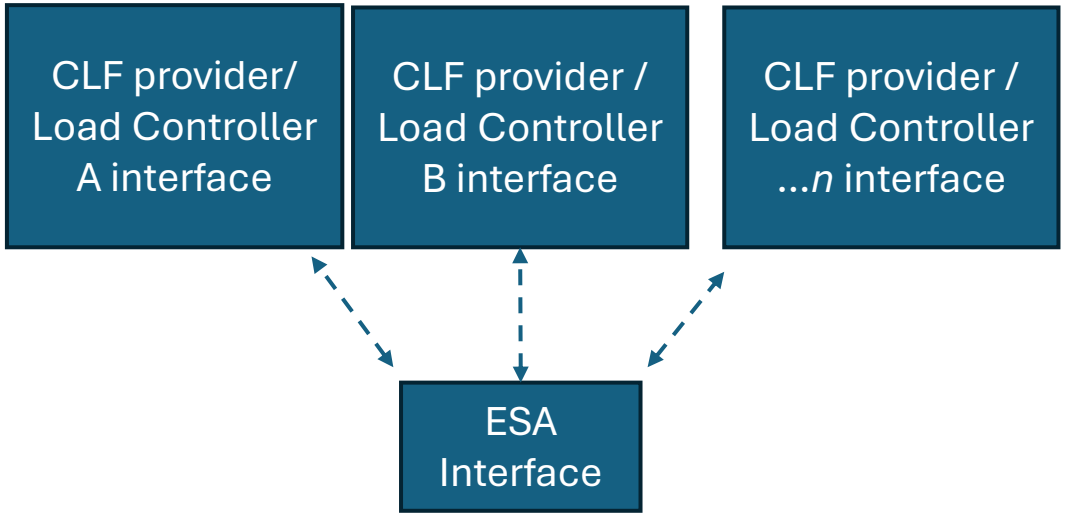
# Unlocking Consumer-Led Flexibility for Great Britain

In GB we are prioritising consumer choice: Energy Smart Appliances (ESAs) must be able to talk to multiple providers to avoid consumer lock-in or lock-out.




## The SSES Programme aims to:

**Create the right technical frameworks to unlock the benefits of CLF for domestic-scale consumers in a competitive market**

**Protect the security of the energy system, ensuring with suitable risk mitigations for the remote control of electrical load**

**Ensure that consumers are confident in engaging with CLF service providers within a growing and sustainable market**

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# General Information: Interoperability Requirements

Why do interoperability requirements require a different approach to traditional product standards?

- It's not just about whether products (in this case ESAs) work, but whether they work with other systems.
- The technical requirements are evolving as this is a nascent sector.

## Who & What is in Scope?

- ✓ Communication between the ESA interface and the Load Controller interface
- ✓ Communication between the ESA interface and the Flexibility Service Provider interface

**ESA Devices**
Electric Vehicle Supply Equipment, Smart Heating Technology, Battery Energy Storage Systems

**Flexibility Service Providers (FSPs)**
Contract with consumer for load control of ESA

**Load Controllers**
Create, change and / send load control signal to ESA

## Desired Outcomes:

- ✓ Technical Interoperability
  ESAs can send, receive and respond to signals from load controllers.
- ✓ Commercial Interoperability
  Consumers can switch easily between different flexibility service providers.

## How?

- ✓ Using legal powers we will set appropriate requirements for ESAs, FSPs and Load Controllers.

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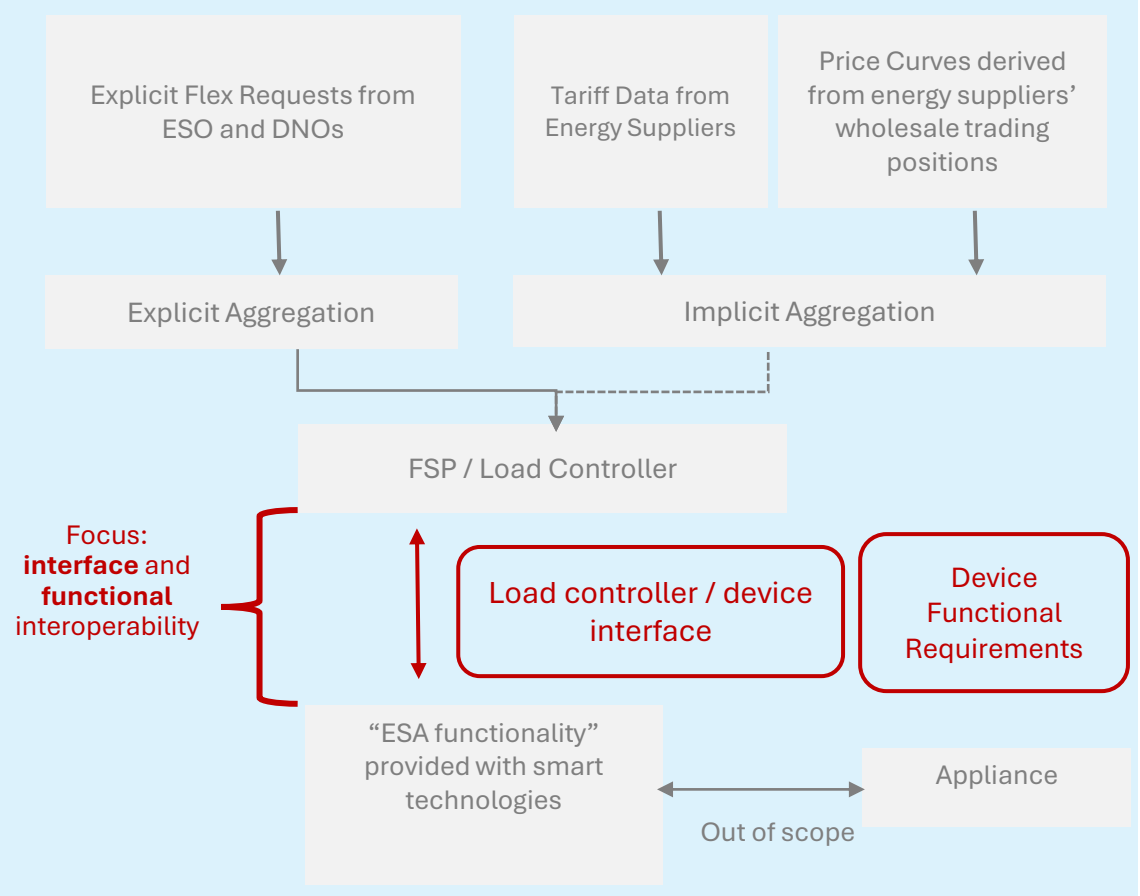
# What are the interoperability requirements?

## Companion Specification

- Developing a Companion Specification that will be an implementation guide on against a given existing standard to help deliver interoperability
- The Companion Specification will be based on OADR v3.1 for interface requirements and PAS 1878 for Device Functional requirements
- It will include testing and assurance approaches (incl. test scripts/scenarios)
- It will be governed by Elexon who are a code body appointed by UK Government to deliver the SSES programme.
- Appliance manufacturers will be required to follow the Companion Specification in regulation.




Other examples of Companion Specifications include: GBCS, IDIS, G3, CSIP-AUS.

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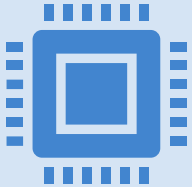
# The Load Control Licence

Why is government introducing a load control licence?

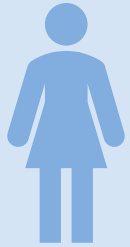
- Government aims to achieve 10-12 GW of CLF by 2030, a significant increase from 2.5 GW in 2023.
- It is recognised for load control to play its part in this a licensing framework is necessary to mitigate market and network risks which could lead to a loss of consumer confidence in CLF.

## Market and network risks licensing seeks to address:



**Cyber security risk:** A malicious cyber attack could lead to a significant number of ESAs being turned up/down at the same time, consequently harming the grid and consumer confidence in flexibility products.

**Grid stability risk:**
Load control can affect grid stability and the management of network constraints. Trade-offs may need to be struck between the degree of flexibility that is afforded to load control and the impact that this might have on the grid.



**Consumer confidence risk:** Poor customer service, rogue traders entering the market or insufficient grid protections could lead to negative consumer perceptions affecting the market's ability to grow and prosper.

## Approach:

- ✓ **License load Controllers** and subject them to proportionate cyber security and grid stability requirements.
- ✓ **License consumer-facing flexibility service providers (FSPs)** and subject them to proportionate consumer protections requirements.

## Technologies in scope:

Domestic-scale EVs, EVSCPs, electrical heating appliances, & BESS

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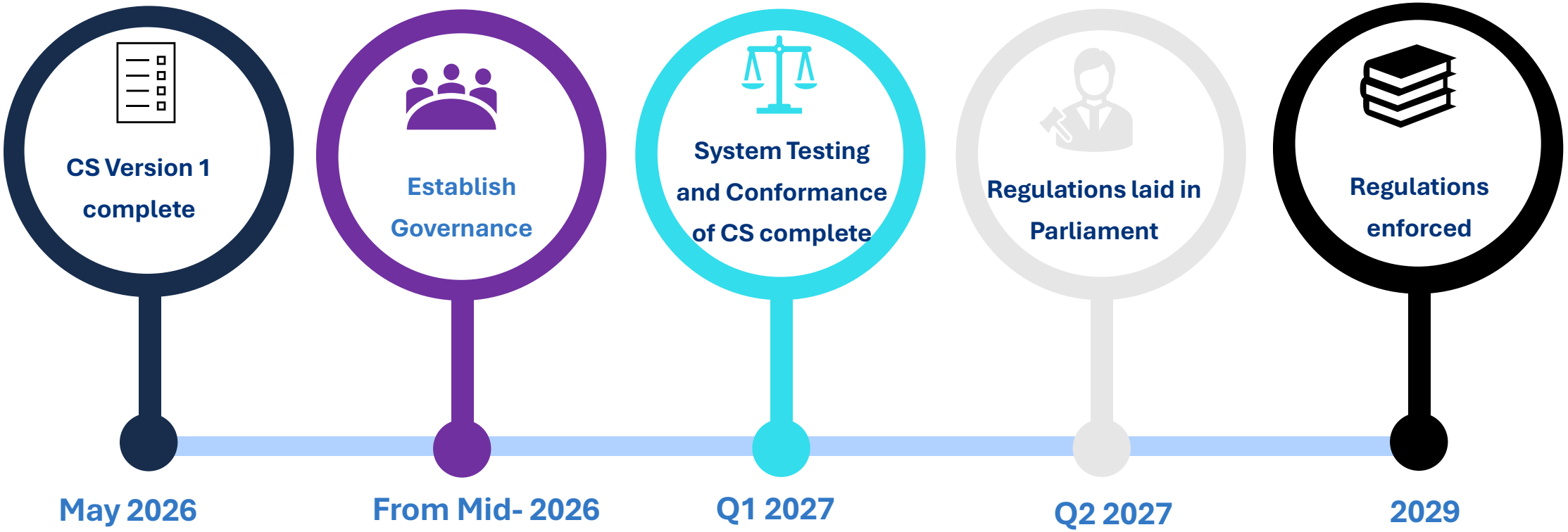
# Timelines



# Thank you

We are interested in how others are unlocking interoperable flexibility for domestic-scale energy smart appliances, if you are working in this area please do get in touch!

**Tamara Dimova**
Head of ESA Standards and Interoperability
Smart Secure Electricity Systems Programme
E: sses.interoperability@energysecurity.gov.uk