Summary

national**grid**

- Definitions have been formulated around the same principles currently used in the Grid Code (eg Power Station, Generating Unit, Electricity Storage Module, Electricity Storage Unit, Power Park Module, etc

- Configurations and Definitions will largely drive the minimum technical requirements and will ensure consistency with other technologies

- Examples of Various Storage Configurations - for discussion

- EU Implications for Synchronous Power Generating Modules?

- Acknowledgements – Eric Lewis for use of some of the topologies and representations
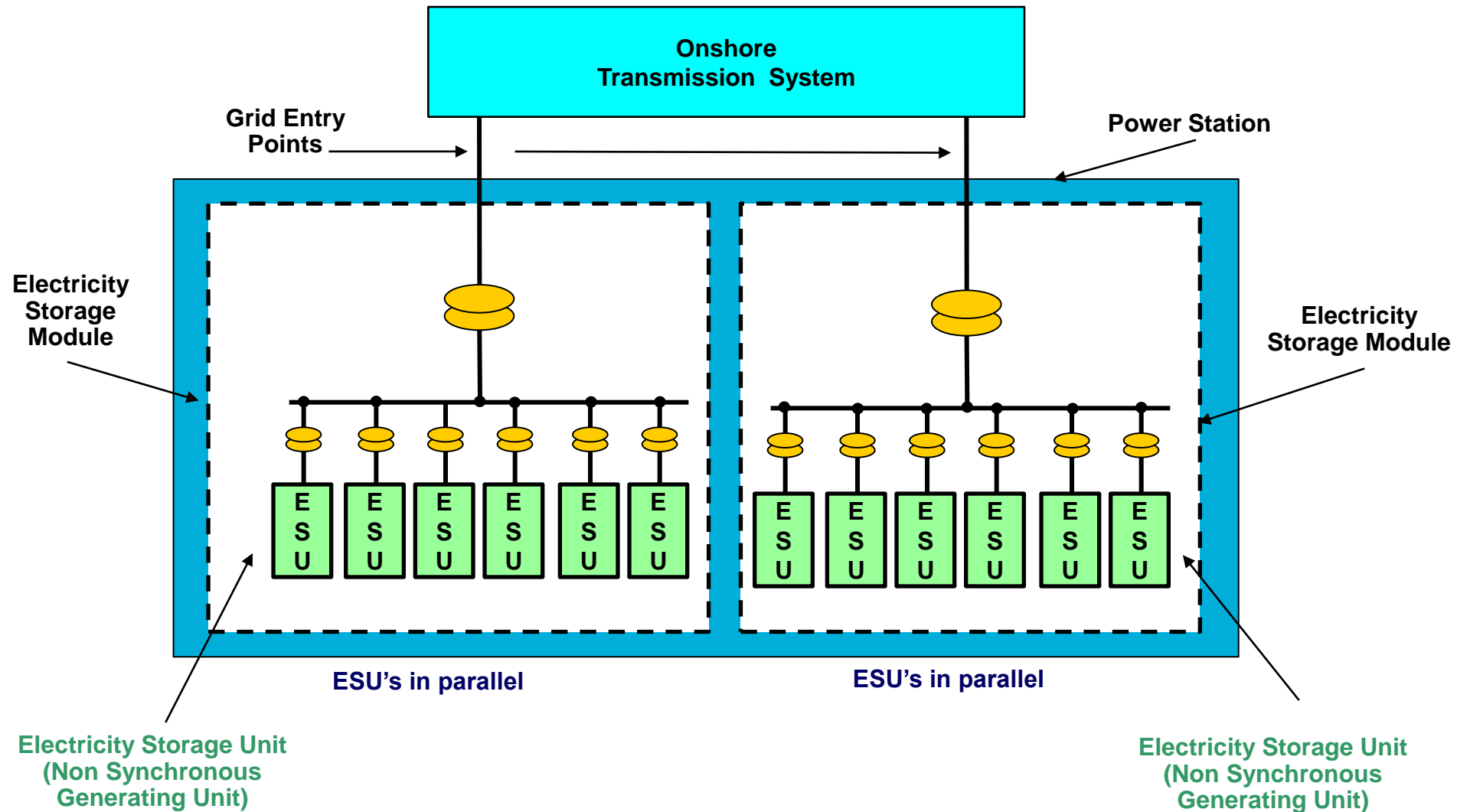
- Next Steps

Configurations and Definitions
Series connected Storage Devices with HVDC connection

national**grid**

Onshore Transmission System

Grid Entry Points

Power Station

Electricity Storage Unit (Non Synchronous Generating Unit)

Electricity Storage Unit (Non Synchronous Generating Unit)

SD

SD

SD

SD

SD

SD

SD

SD

SD

SD

Electricity Storage Module

Electricity Storage Module

Storage Devices in series
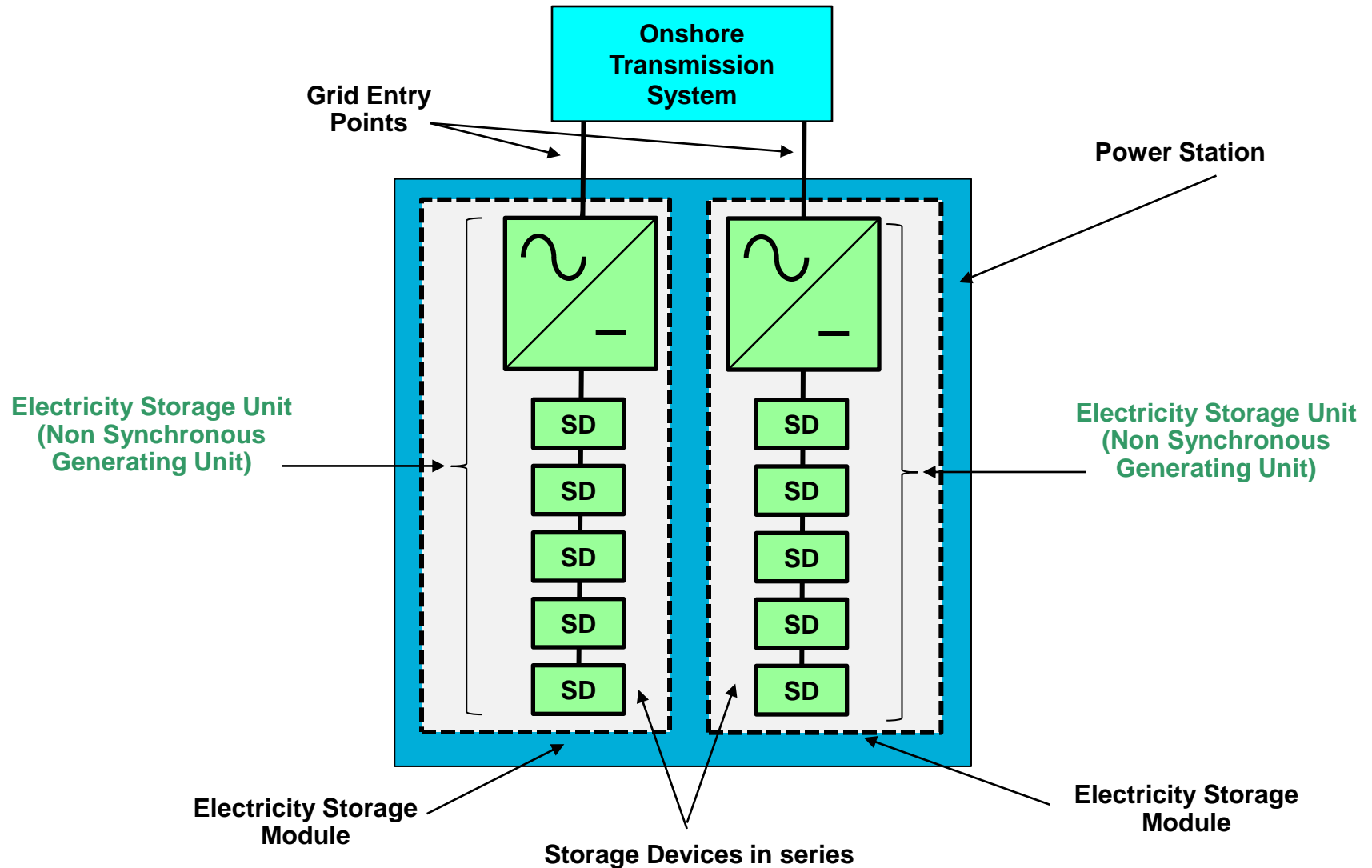
Configurations and Definitions
Parallel connected Electricity Storage Units

national**grid**

Onshore Transmission System

Grid Entry Points

Power Station

Electricity Storage Module

Electricity Storage Module

E S U E S U E S U E S U E S U E S U

E S U E S U E S U E S U E S U E S U

ESU's in parallel

ESU's in parallel

Electricity Storage Unit (Non Synchronous Generating Unit)

Electricity Storage Unit (Non Synchronous Generating Unit)

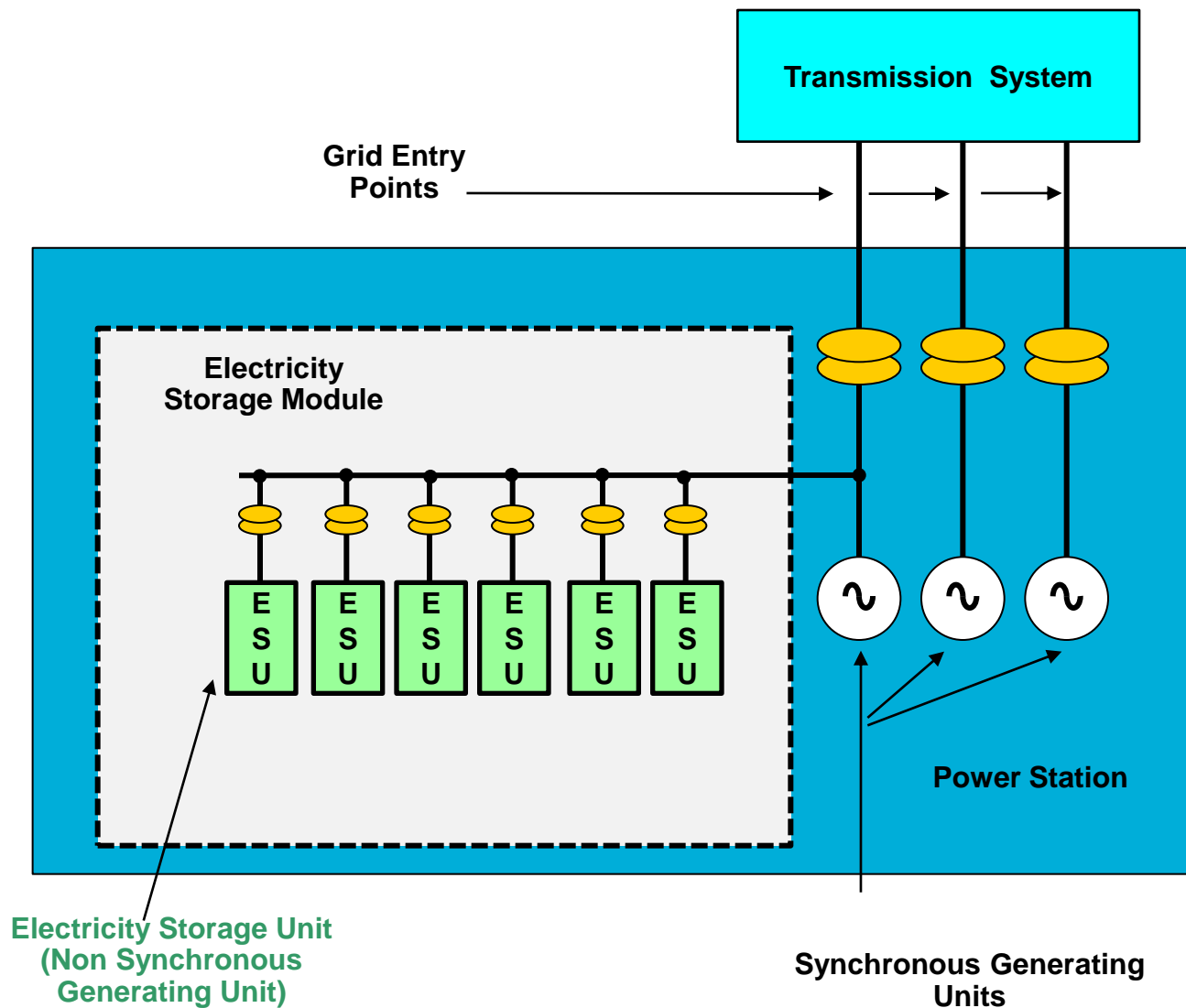# Configurations and Definitions
Electricity Storage Units within a
## *New or existing Power Station with a direct connection*

national**grid**

Transmission System

Grid Entry Points

Electricity Storage Module

E S U

E S U

E S U

E S U

E S U

E S U

Power Station

Electricity Storage Unit (Non Synchronous Generating Unit)

Synchronous Generating Units
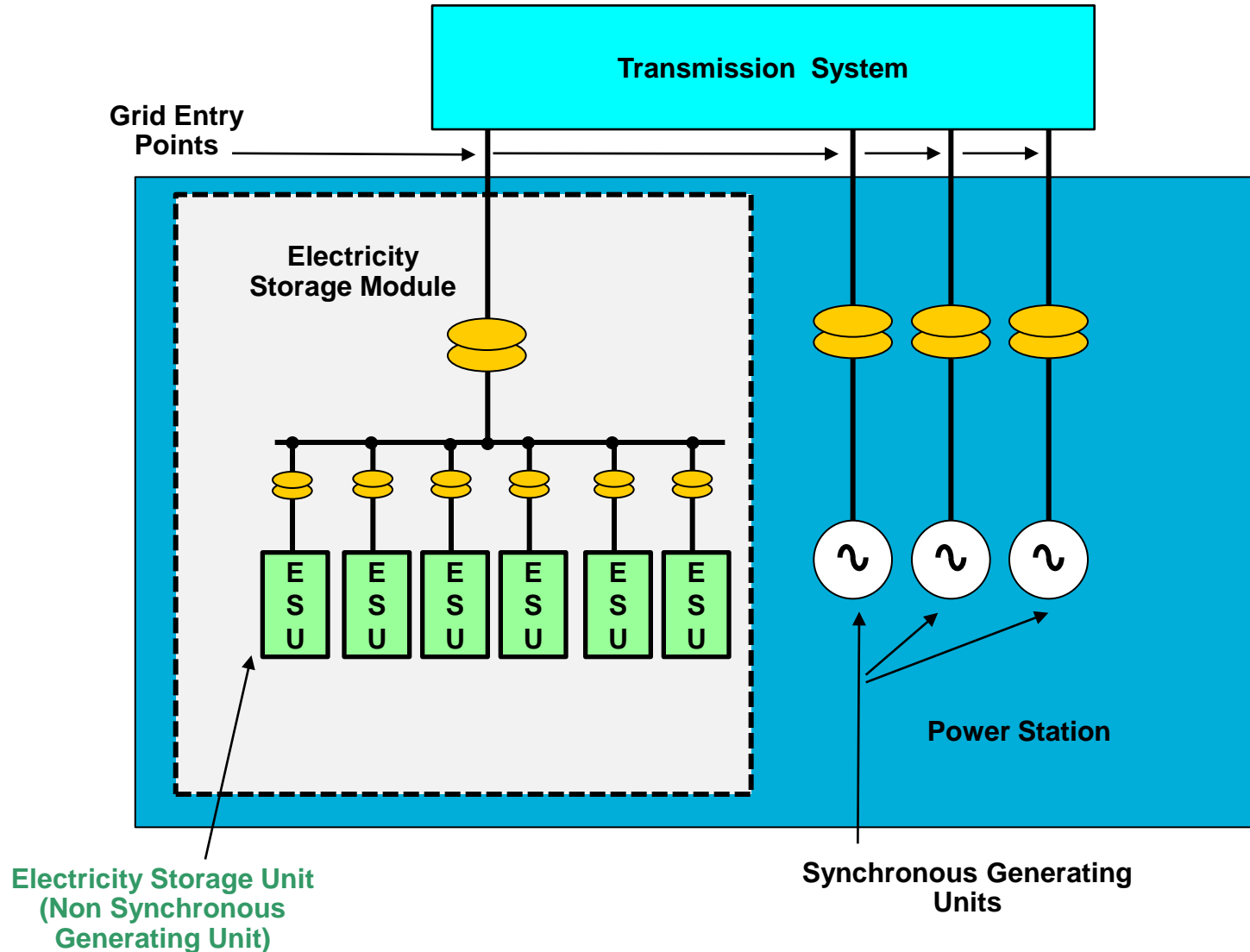
Configurations and Definitions
Electricity Storage Units Integrated within a New or existing Power Station

national**grid**

Transmission System

Grid Entry Points

Electricity Storage Module

E S U   E S U   E S U   E S U   E S U   E S U

Power Station

Electricity Storage Unit (Non Synchronous Generating Unit)

Synchronous Generating Units

Configurations and Definitions
Electricity Storage Module and Power Park Modules

national**grid**

Configurations and Definitions
Electricity Storage Units Integrated into a Power Park Module

nationalgrid

Transmission System

Grid Entry Point
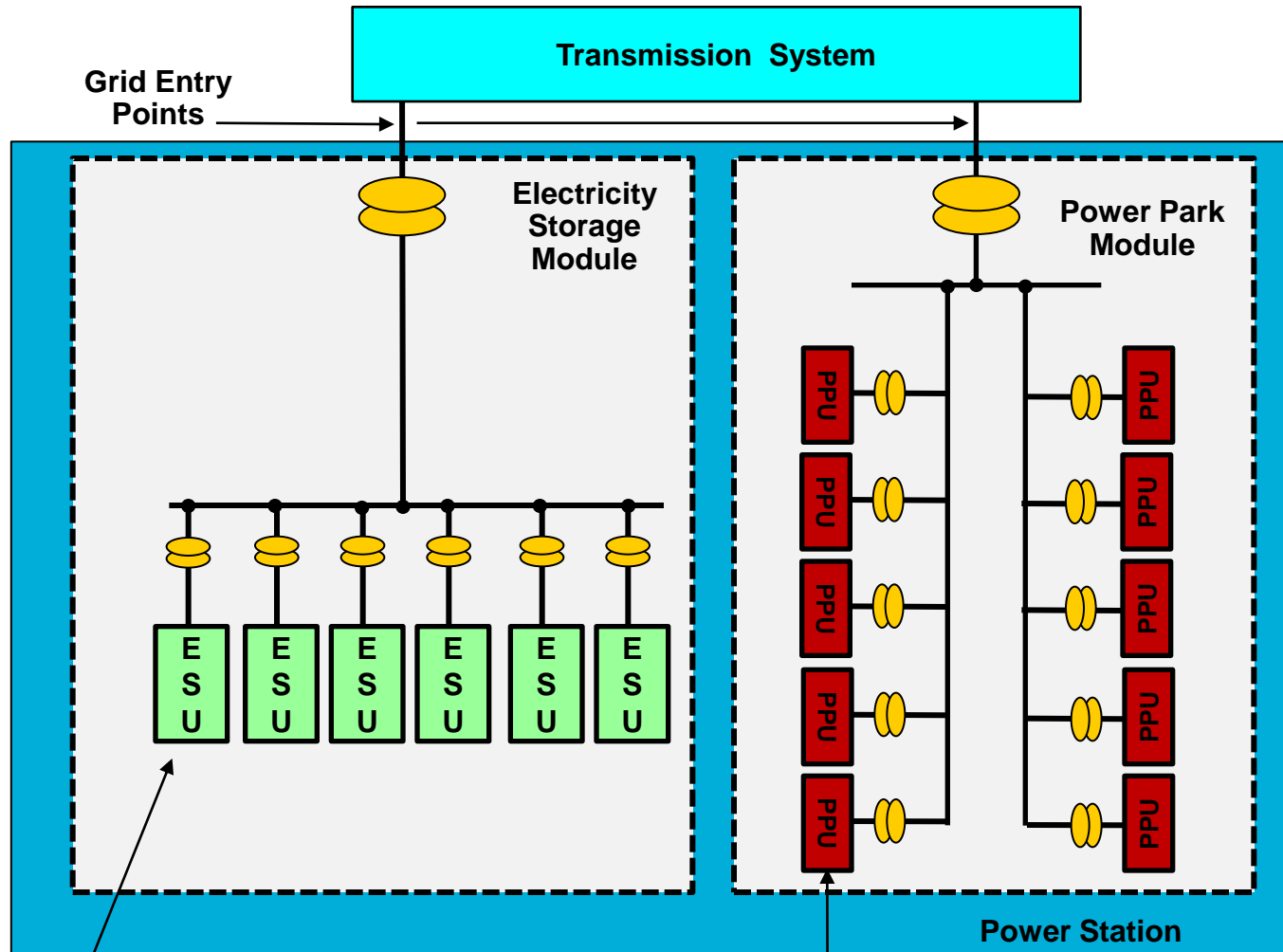
Power Park Module

Electricity Storage Unit
(Non Synchronous Generating Unit)

Power Park Unit
(Non Synchronous Generating Unit)

Power Station
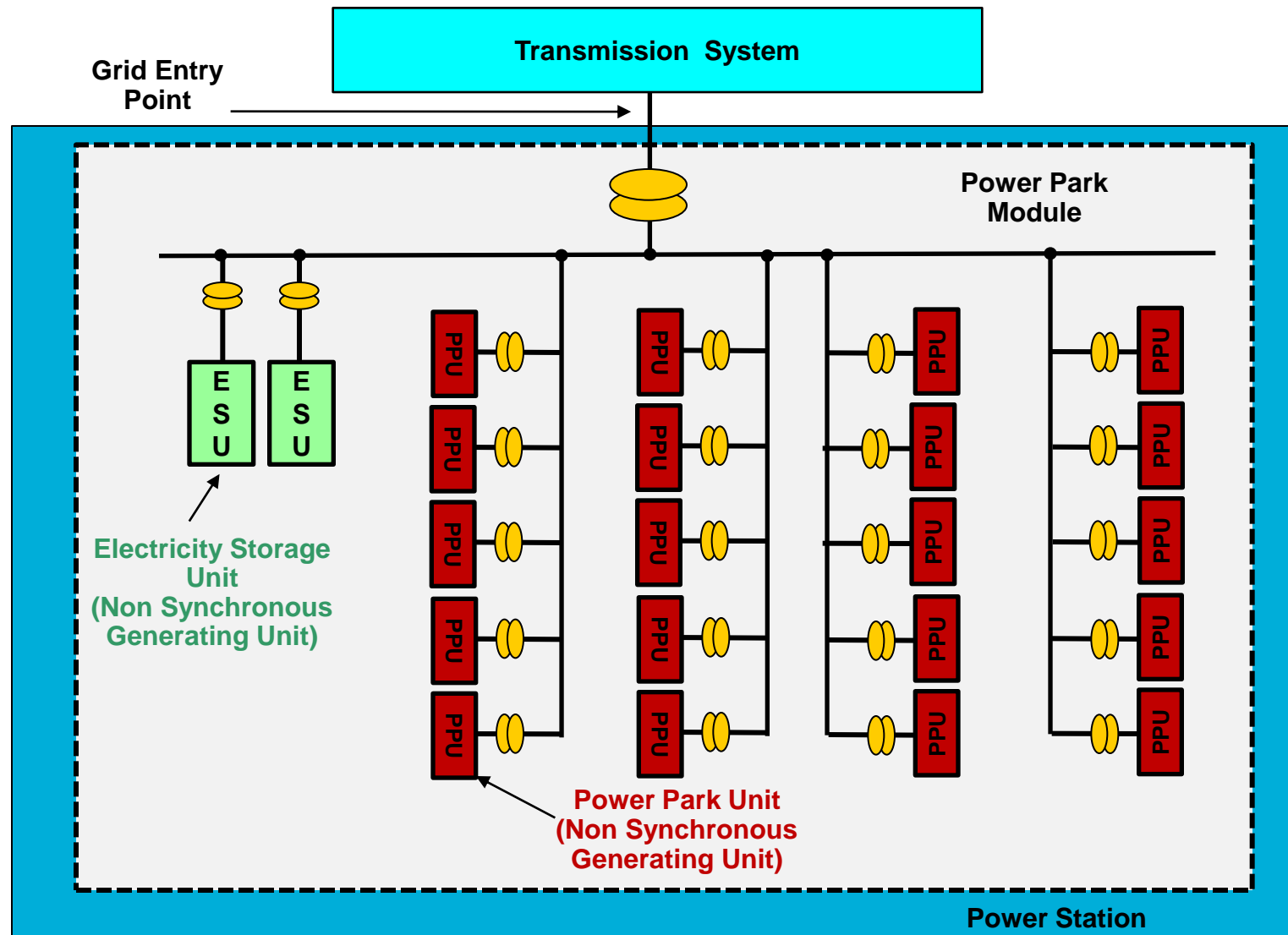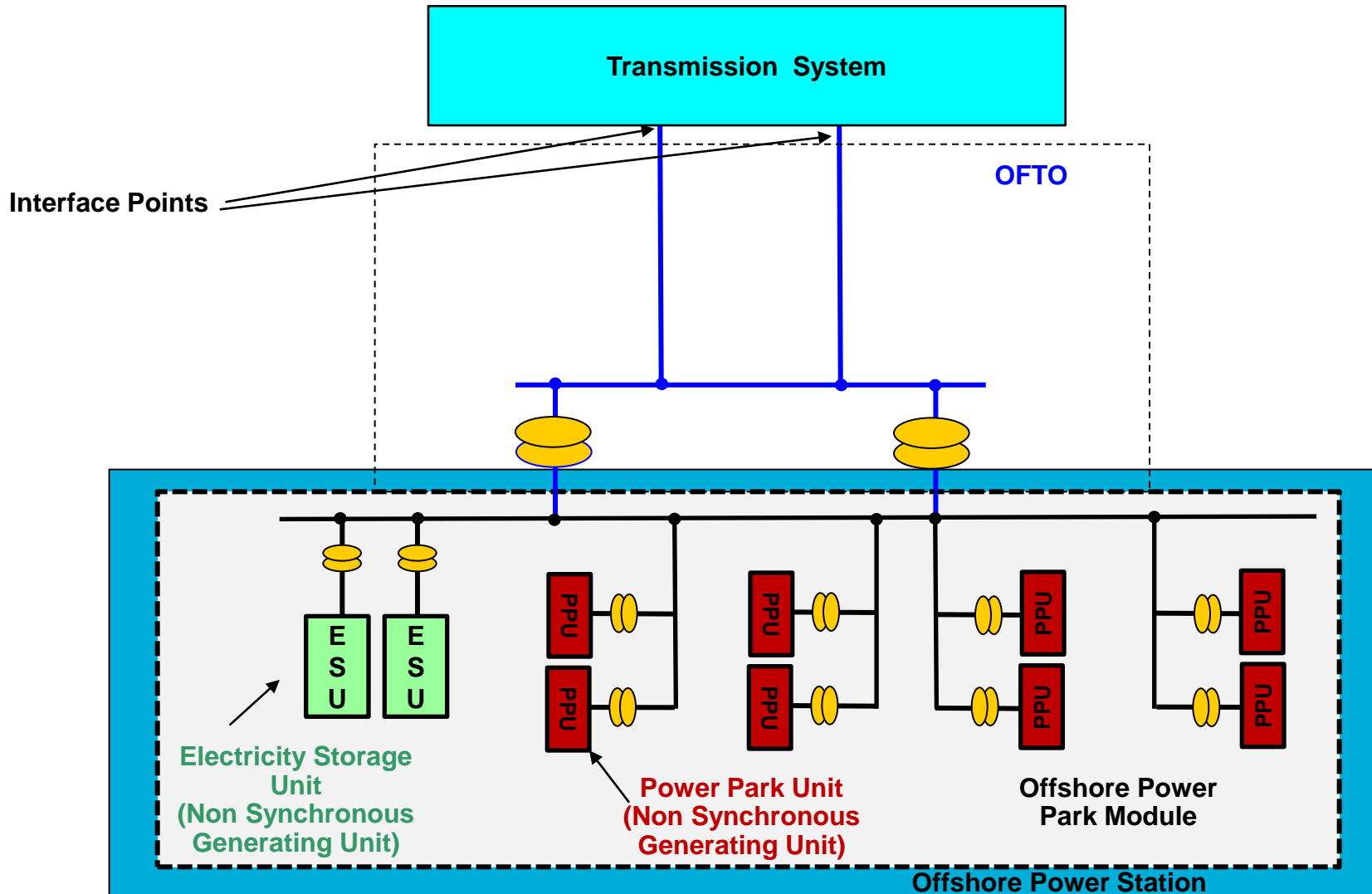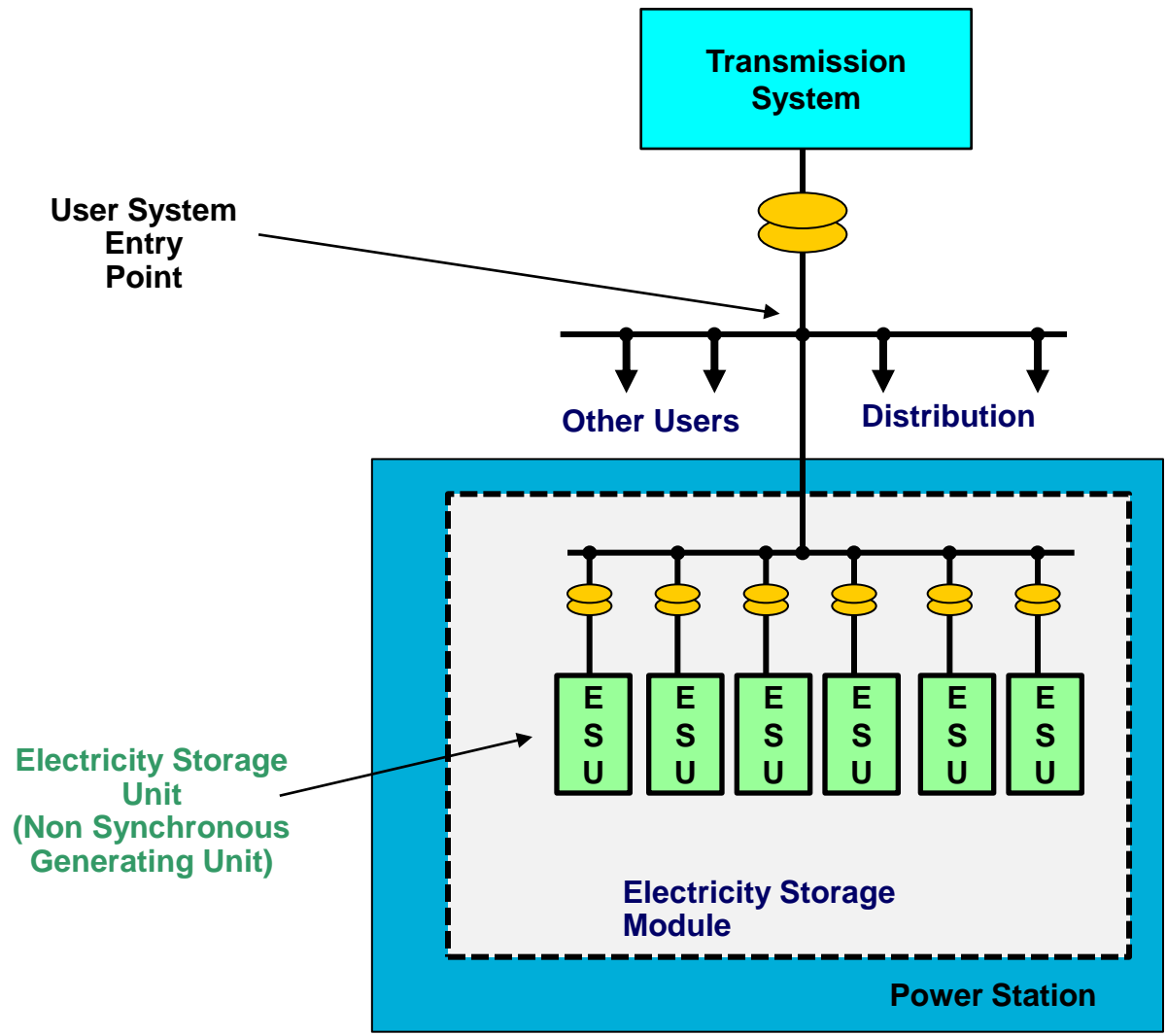
Configurations and Definitions
Offshore Connections

Configurations and Definitions
Electricity Storage Units Connected to a Distribution System

national**grid**

Configurations and Definitions
Electricity Storage Units connected to a Synchronous Power Generating Module – EU Code?

nationalgrid

Transmission System

Grid Entry Point

Synchronous Power Generating Module

Electricity Storage Units (Non Synchronous Generating Units)

E S U   E S U   E S U   E S U   E S U   E S U

Power Station
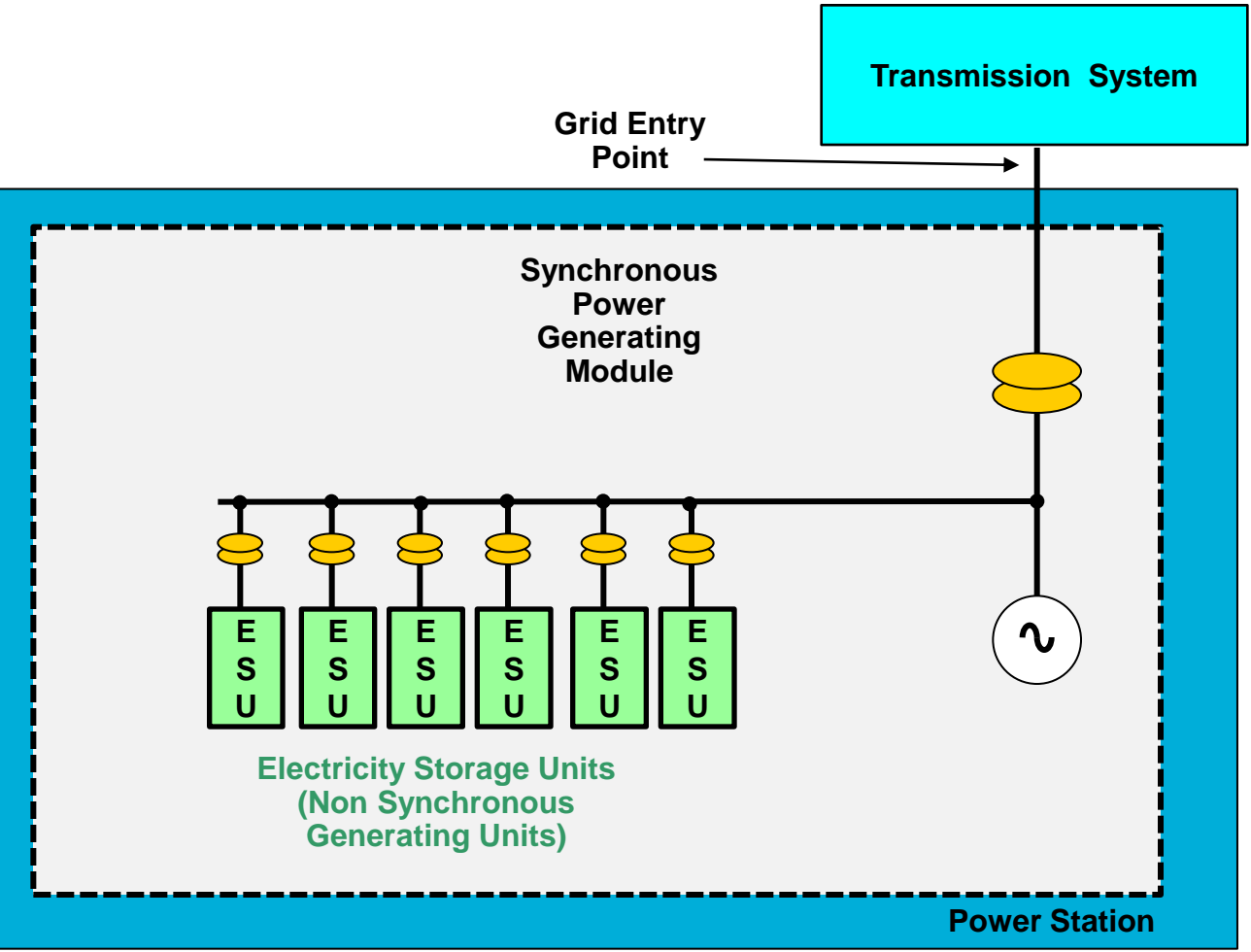
Next Steps

- Agree definition structure captures all possible permutations and combinations

- Consider EU implications of Synchronous Power Generating Modules

- Formulate technical requirements in more detail (ie mapping of storage to equivalent technologies already caught under the requirements of the Grid Code)

- Discussion