Net Zero Transition: Future of electricity markets

Learning and development objectives:

- How the physical electricity system may evolve to enable greater electrification of the economy and meet net zero targets
- Explanation of the potential new electricity market arrangements that may be introduced following the UK government's Review of Electricity Market Arrangements (REMA)
- The pros and cons of current market design and an introduction to Locational Marginal Pricing, central dispatch and proposed market mechanisms to encourage investment in low-carbon generation outcomes
- An overview of some of the key novel technologies that may be play a role in the future electricity market, including Carbon Capture Usage and Storage, modular nuclear generation, and negative emission technologies

Session 1 – Policy, future scenarios and novel technology

10 am	**Introduction & welcome** • Tech check! • Aim and objectives
Module 1	**What is net-zero and what is the latest policy view?** • Climate Change Act ○ Net-zero legal target and Carbon Budgets ***Poll: Which sector of the UK economy has seen the largest emissions reduction?*** • National Grid's Future Energy Scenarios – what could a future electricity system look like? • Update on latest UK government policy to promote a decarbonised electricity sector by 2035
Break	

Module 2	**Overview of novel technological solutions**
	Poll: Which of the following technologies do you think is the most critical to deliver a decarbonised electricity sector?
	• How could the following new technologies play a role in the future and why?
	  ○ Carbon Capture Usage and Storage (CCUS)
	  ○ Bioenergy CCS (BECCS)
	  ○ Electricity storage
	  ○ 'Small' nuclear
	  ○ 'Smarter' consumers

11.45	**Q&A**
12.00	**What we will cover off in future sessions and close**

Session 2 – Current market design challenges and REMA

10 am	**Introduction & welcome** • Tech check! • Aim and objectives

Module 3	**Current market design and the net zero paradox**
	• Challenges with current electricity market design
	  ○ From an 'energy only' market..
	  ○ …to a subsidised market with capacity payments
	• Marginal pricing
	  ○ What is it…
	  ○ …is it fit for purpose?
	Discussion: How do you think the current market design has performed?

Break	

Module 4	**Introducing REMA**
	• What is REMA?
	  ○ Scope
	  ○ Range of options considered
	  ○ Self-dispatch vs. central-dispatch
	  ○ Focus on Locational Marginal Pricing
	Simple worked example of LMP

11.45	**Q&A**
12.00	**What we will cover off in future sessions and close**

Session 3 – Future market design

10 am	**Introduction & welcome** • Tech check! • Aim and objectives

Module 5	**REMA – Low Carbon Support proposals**
	• Support for low carbon generation investment
	  ○ Market splitting
	  ○ Contract for Difference variants
	  ○ 'Dutch' auction
	Poll: Which option do you think has most merit?

Break	

Module 6	**REMA – Capacity adequacy**
	• Supporting capacity Adequacy
	  ○ Reliability options
	  ○ Strategic reserve
	  ○ Optimised Capacity Market
	• Retail market – what next?
	Poll: Will the electricity system be decarbonised by 2035?

11.45	**Q&A**
12.00	**Next steps and close**