



Carbon Trading and Correlation Complications

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Introduction

- Who we are:
 - Energy Edge
 - Energy Edge and E3 International Alliance
 - Carbon Services
 - » Enterprise Wide Carbon Action Plan
 - » Training
 - » Offset Strategies
- Presentation Objective
 - Look at risk management issues arising from NET and likely correlation complications

Commodity Risk Management

- First Rule – Understand the nature of the commodity and its implications
- Second Order fundamentals
 - Correlations
 - Correlations and
 - More correlations

Correlation Complications

- In all commodities correlations provide the most complex risk management issues
 - Price correlations
 - Correlated or common market fundamentals
- Cannot identify correlations let alone manage them if the nature of the commodity is not understood.
- Correlations are commonly overlooked or mismanaged

Trail of Destruction

- 1980's – Financiers and Corporations, interest rates and foreign exchange
- 1990's – Mining Companies, commodity prices and foreign exchange
- 1st Decade of 21st Century – first energy victims, electricity and water

2nd Decade of the 21st Century??

There are three major risks for energy companies already on the horizon

- Water (still) – need market based signals and rational allocations
- Infrastructure and fuel costs – looming issue yet to reach a critical mass
- Carbon – prices are volatile and its impact on energy prices is significant

Characteristics of Carbon as a Commodity

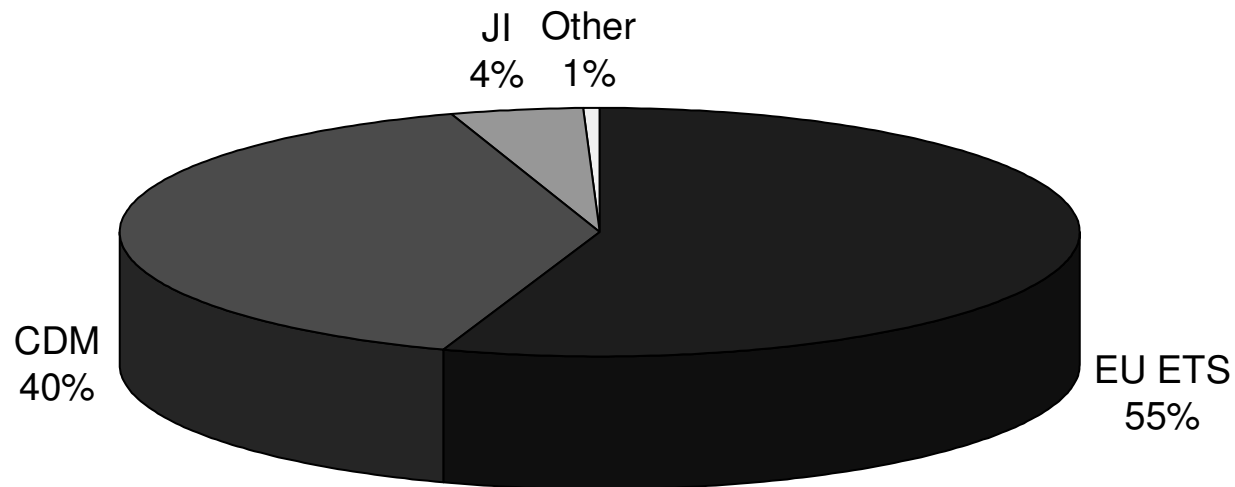
- Demand driven by politics and perception
- Storable and transportable
- Supply
 - » Response to politics and perception
 - » Grandfathering, allocations or auctions
 - » R & D and technology dependent
- Players and Stakeholders (everyone!!)
- International and fungible
- Reliant on correlations to be effective

Market Structure

- Complexity = Inefficiency, transaction costs and administration costs
- Cap and trade – inherently more liquid
- Arbitrage – Do not corrupt the rules of arbitrage
- A singular policy objective
- International Links

Market segments for forecast physical volumes on 2006

Physical Volume (1,584 Mt CO₂e)



EUA Prices

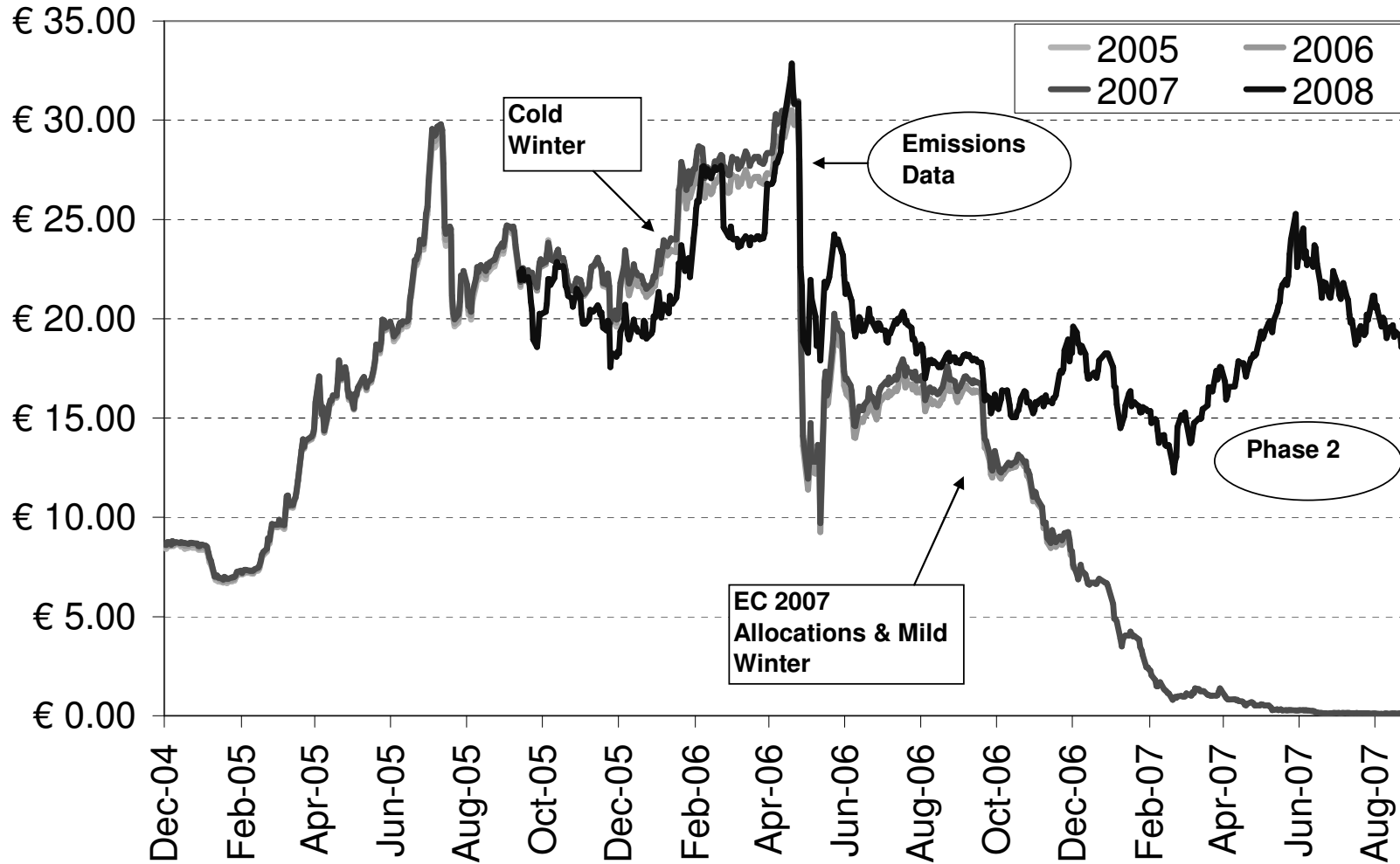


Chart 2. Gas, coal and carbon prices in euros

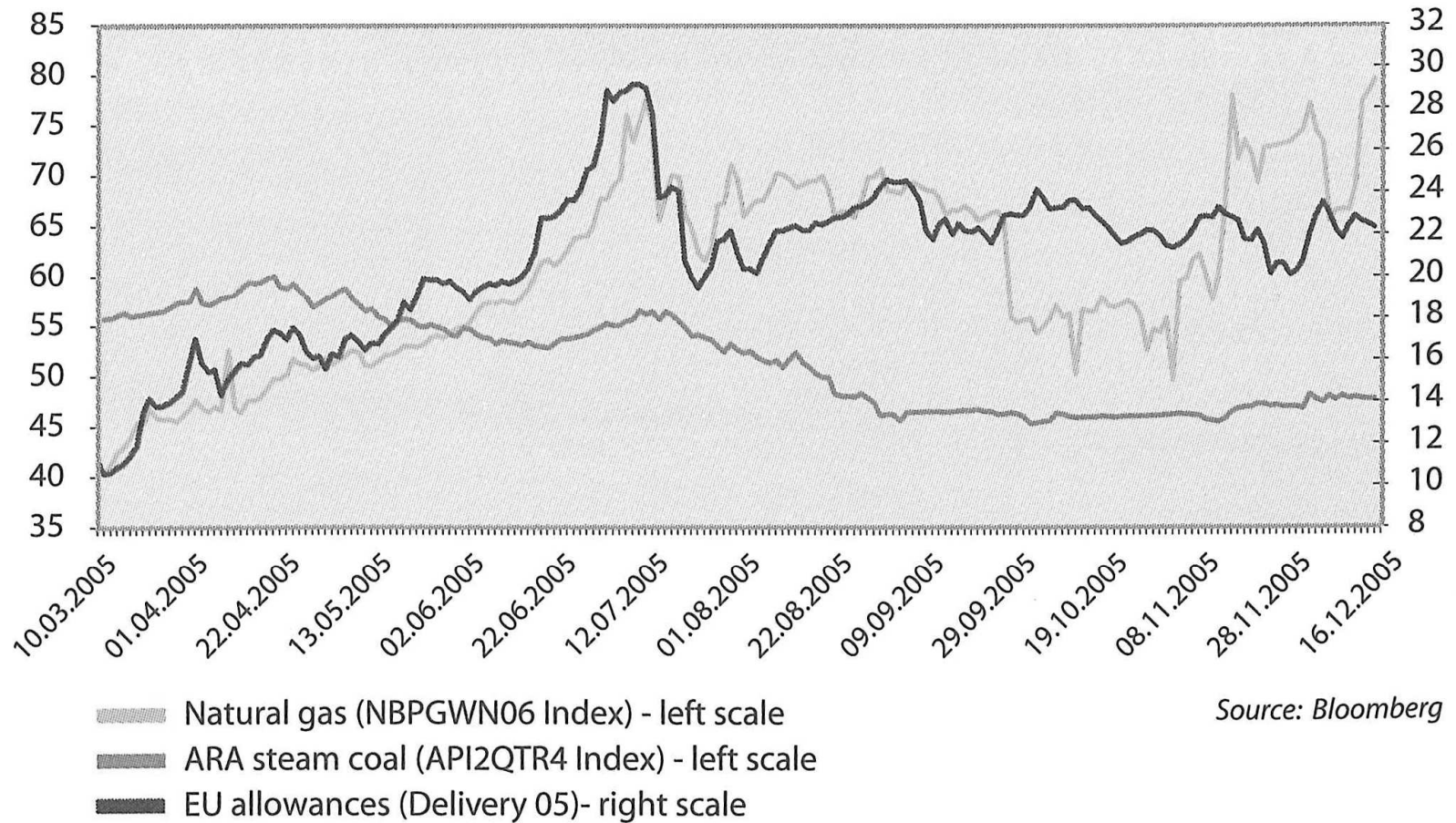
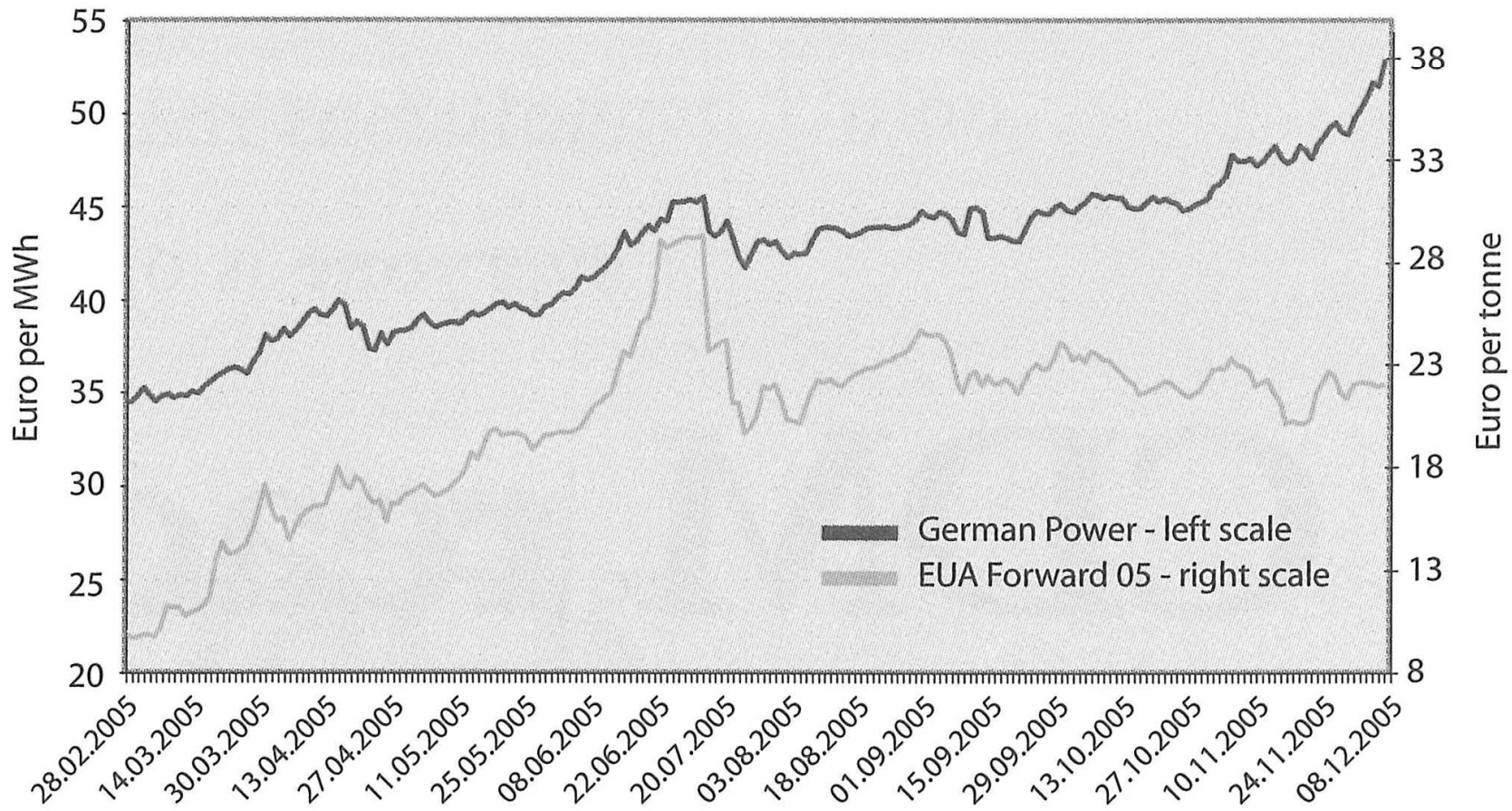


Chart 3. GER power prices (BSLD CAL 06) vs. EUA Dec 05



Source: Bloomberg

The evolution of carbon products

- Market Design
- Allocation Mechanisms
- Reluctant Participants
- Information Gap
- Capital Flood
- Sophisticated players
- Correlations

Carbon Products

- EUA
- CER
- EUA/CER Spreads
- Inter-temporal Spreads
- Options of EUA and CER
- Dark Spreads and Spark Spreads
- Clean Spark Spreads
- Clean Dark Spark Spreads

Carbon Correlation Risks in Australia

- Limited correlation issues to date
 - Interregional electricity
 - Weather
 - REC, NGAC and GEC
- Did not fair well in first real test
- Complex matrix of correlations looming
 - Electricity
 - Gas
 - Coal
 - Water
 - Other Environmental schemes
 - Credit Risk

Short Term Gains under NET

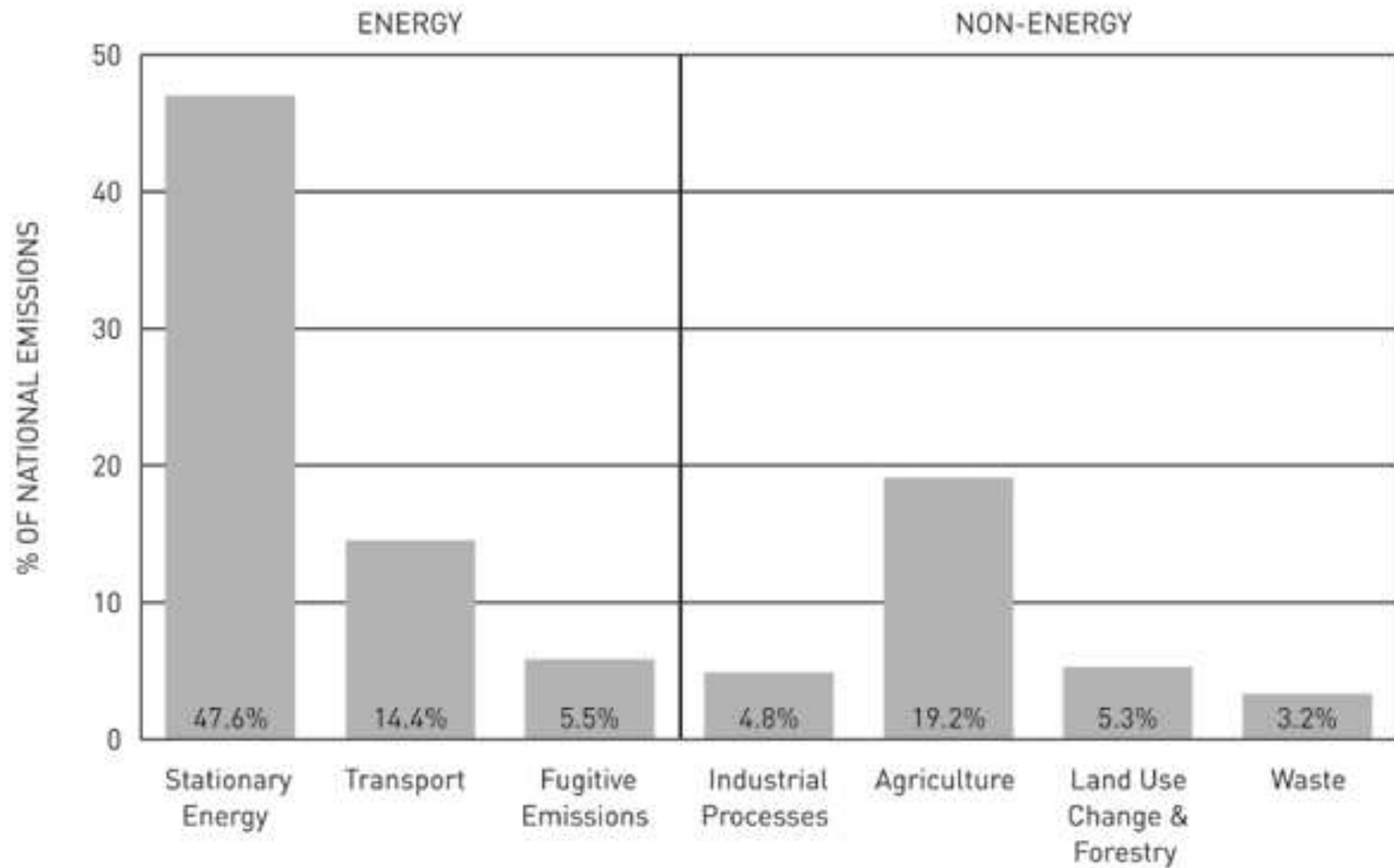
In the immediate future the main sources of reductions will be:

- Energy efficiency measures
- Gas
- Renewable Energy

What will this mean?

- Daily Risks
- Trends in initial years of NET

Sources of Carbon Emissions



Time for Carbon Planning

Move from monitor and lobbying phase –
transacting beyond 2012 now

- Identify enterprise wide sources of risk and opportunity
- Assessment and prioritisation
- Develop a Strategy and Implementation Plan