National Priorities for the UK Energy Sector

Liz Hooper
Loughborough University

Powering Up!
East Midlands Councils and Energy Technologies Institute
16 July 2014
Objectives

* Overview of UK energy policy

* Identify opportunities for East Midlands
UK energy policy has three objectives

* **Security of supply** - keeping the lights on

* **Sustainability** - transition towards a low-carbon world

* **Competitiveness** - maintain affordability for consumers and industry

... which have profound implications for electricity sector
UK context is particularly challenging

Security of Supply
- Electricity demand may double by 2050
- Ageing infrastructure and generation plant – 20% to retire by 2020

Climate Change
- 2050 – 80% reduction in carbon emissions (c.f. 1990)
- 2020 – 15% energy from renewable sources

Affordability
- Minimize cost to taxpayer
- Keep down energy bills for households and industry

And the transition requires vast investment
UK Electricity Generation Mix 2010

Some distance from low-carbon generation sector
£110bn required investment by 2020

£75BN new generation capacity
£35BN transmission/distribution
New policy framework to attract investment in renewables - fast

**Electricity Market Reform**
Feed in Tariffs with Contracts for Difference
- guaranteed price over project life for low-C generation

**Capacity mechanism**
- keep lights on by incentivising investment in flexible capacity

**Emissions performance standard**
- 450g CO2/KWh - carbon capture and storage on new coal stations

**Carbon price floor**
- boost EUETS carbon price giving more certainty on carbon price - reduces investment risk

**RIIO**
- Incentivise innovation through new regulatory framework for transmission and distribution
What is likely to happen?

* Diversification of electricity generation sources
  - Biomass
  - New nuclear
  - Clean coal - with carbon capture and storage
  - Offshore wind
  - Solar PV

* Energy efficiency “fifth fuel” - buildings

* Distributed generation e.g. rooftop solar

* Grid upgrades - to cope with large volumes renewables and distributed generation

Strong emphasis on technology - renewables and clean fossil
In fact it is already happening

* £1bn to commercialise carbon capture storage
* Significant funds already committed
  - Convert to biomass £3.8bn lifetime cost
  - Offshore wind £12.8bn lifetime cost
* National Grid upgrades - 7000 new jobs (mainly construction) in England
* UK seen as outstanding centre for renewable energy
  - Siemens investing £310m Hull wind turbine factory 1,000 direct jobs
  - Drax investing £800m in biomass storage and links to Immingham saving 1,200 direct jobs
UK reforms receiving qualified support

IEA 2012 Review UK Energy Policy

* Pioneering

* Untested combination of policies

ONS 2014

* Early contracts for renewables awarded by DECC on non-competitive basis

* 58% funds for renewables already awarded
“If we don’t change direction soon, we’ll end up where we’re heading” (IEA 2012)

£110bn investment is a HUGE opportunity for a region with strong low carbon energy credentials - the East Midlands