

Planning in a changing economic climate

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National Grid – About us

50 : 50



UK



US



Transmission



Distribution



Electricity



Gas

Largest utility in UK
- 2nd largest in US
- 10th largest in world

Own & operate high voltage electricity network
– England and Wales.

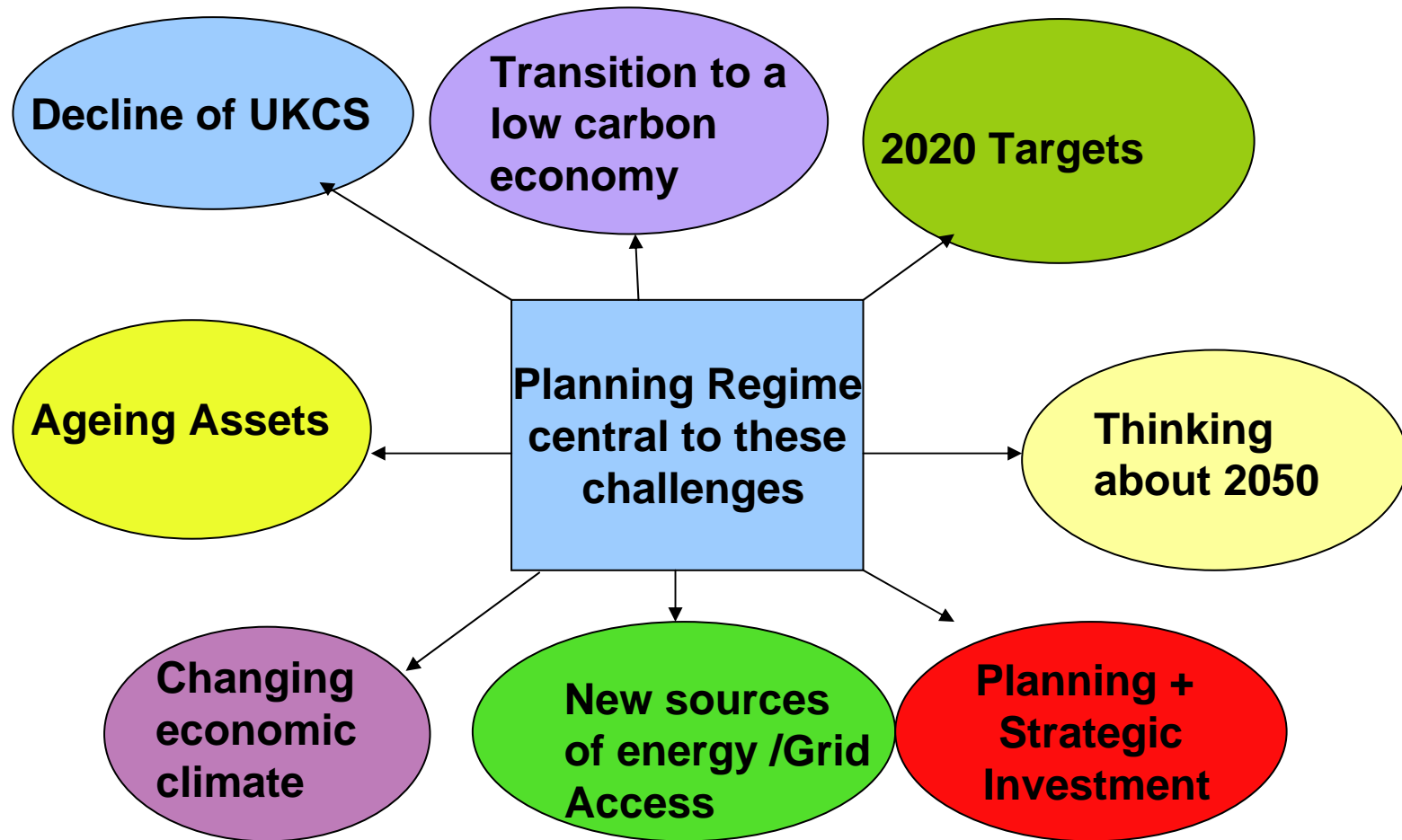
Electricity system operator
– Great Britain

Own & operate high pressure gas network
– Great Britain

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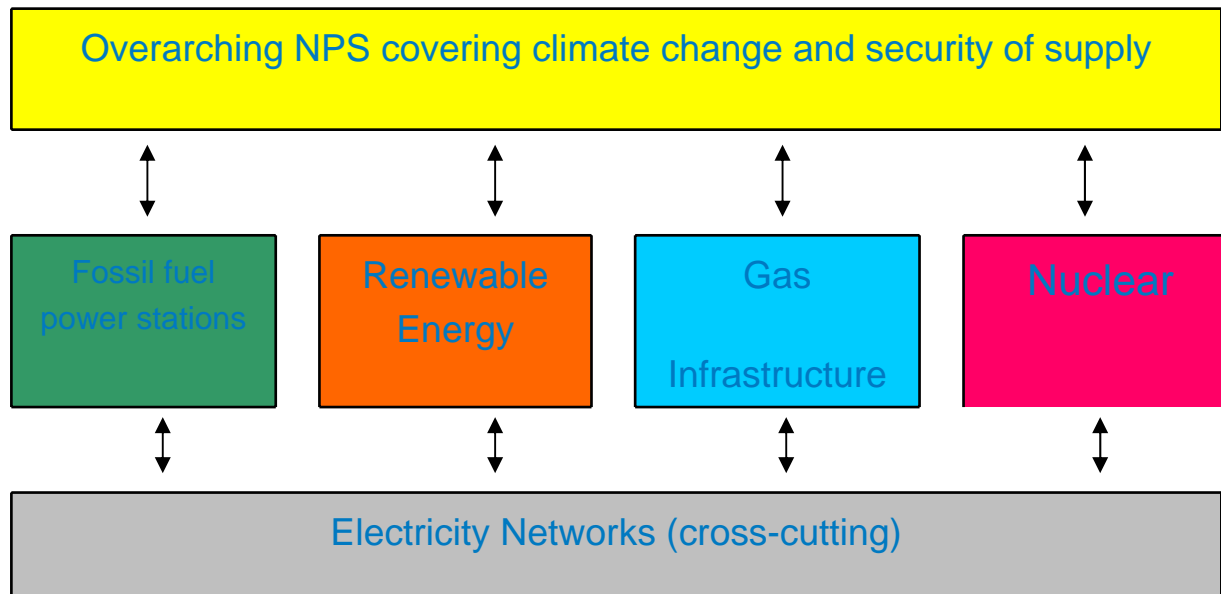
The power of action.

Planning and the challenges of today and tomorrow



Effective Planning Regime is essential

- ◆ National Policy Statements for the energy sector
- ◆ Intended to address ‘national need’ – avoiding repeated discussion on those aspects at Public Inquiries
- ◆ All NPSs to be subject to consultation & parliamentary scrutiny



The scale of the challenge

Some power stations are due to close over the next 5-10 years

- ◆ 12 GW coal/oil (EU emissions legislation)
- ◆ 7.5 GW nuclear (stations have reached the end of their lives)

Much of network reaching end of life

Energy demand is growing steadily at a rate which would require around 30 GW of new generation by 2020

The EU target on renewables requires us to have 15% of UK energy to come from renewables by 2020.

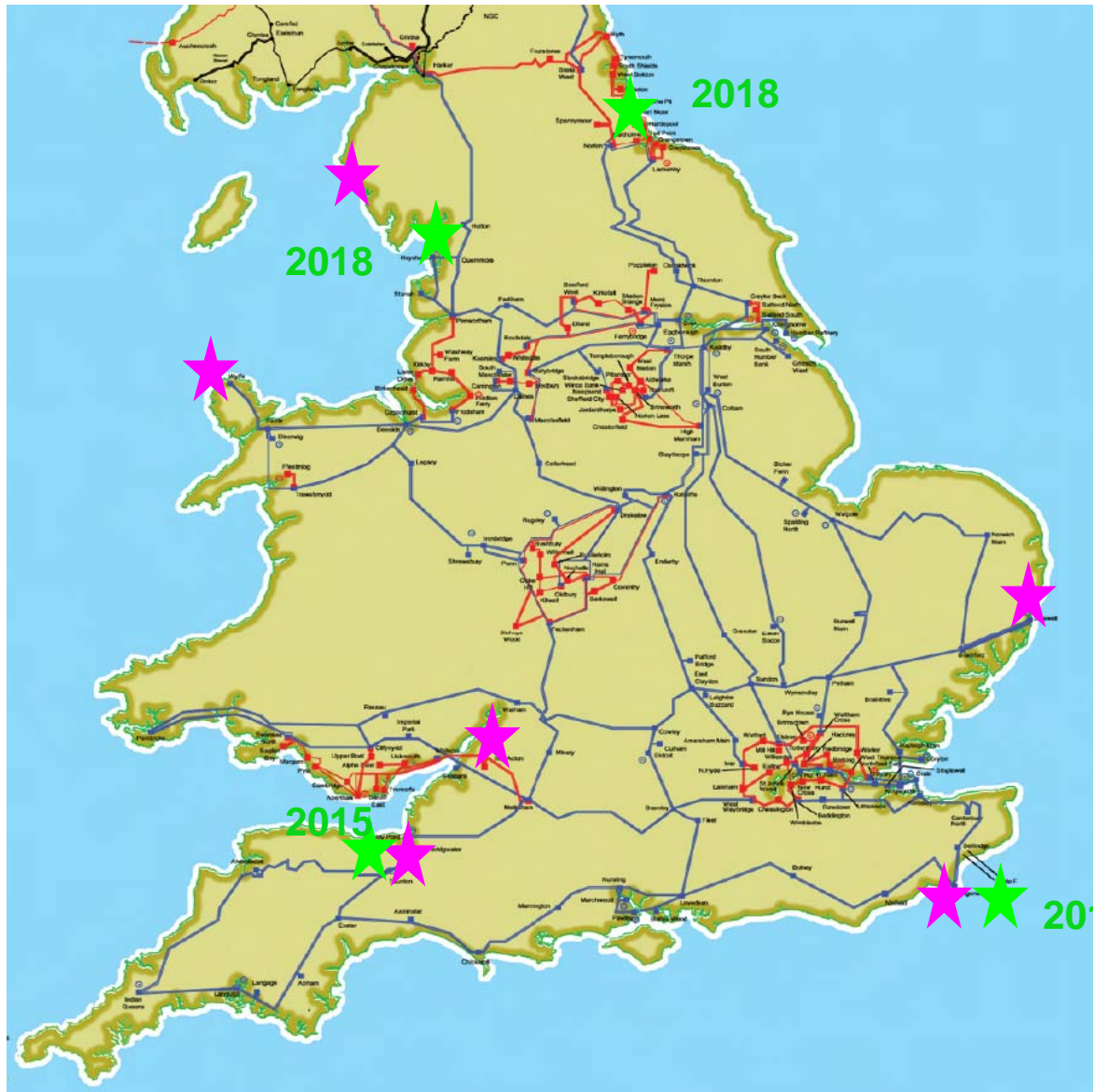
The scale of the challenge, from London to Rome...



The length of time it will still take to build an overhead high voltage transmission line

Project Phase	Optioneering	Route/Siteing Evaluation	EIA & Detailed Design	IPC Process	Construction
Typical Timescale	6 months	6-9 months	15-18 months	12 months+	10-21 months
Key elements	<ul style="list-style-type: none"> • High level options analysis • Early analysis of planning & environmental issues • Initial stakeholder strategy 	<ul style="list-style-type: none"> • Feasibility study to determine preferred route/location • Consultation with statutory consultees • Discussion of consultation plan with LPAs 	<ul style="list-style-type: none"> • Development of detailed route design • Production of Environmental Statement • Consultation with stakeholders and communities • Acquisition of land/rights 	<ul style="list-style-type: none"> • Application process • Potential hearing • IPC consideration and decision 	<ul style="list-style-type: none"> • Mobilisation • Construction • Post-project review and consultation • Ongoing community liaison

Nominated nuclear sites

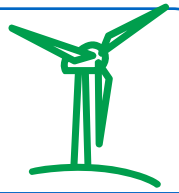


- ★ Nuclear closures
- ★ Nuclear openings

Nominated sites:

- Hinkley Point (Somerset)
- Sizewell (Suffolk)
- Dungeness (Kent)
- Wylfa (Anglesey)
- Oldbury (Glos)
- Bradwell (Essex)
- Hartlepool (Durham)
- Heysham (Lancs)
- Cumbrian coast x 3

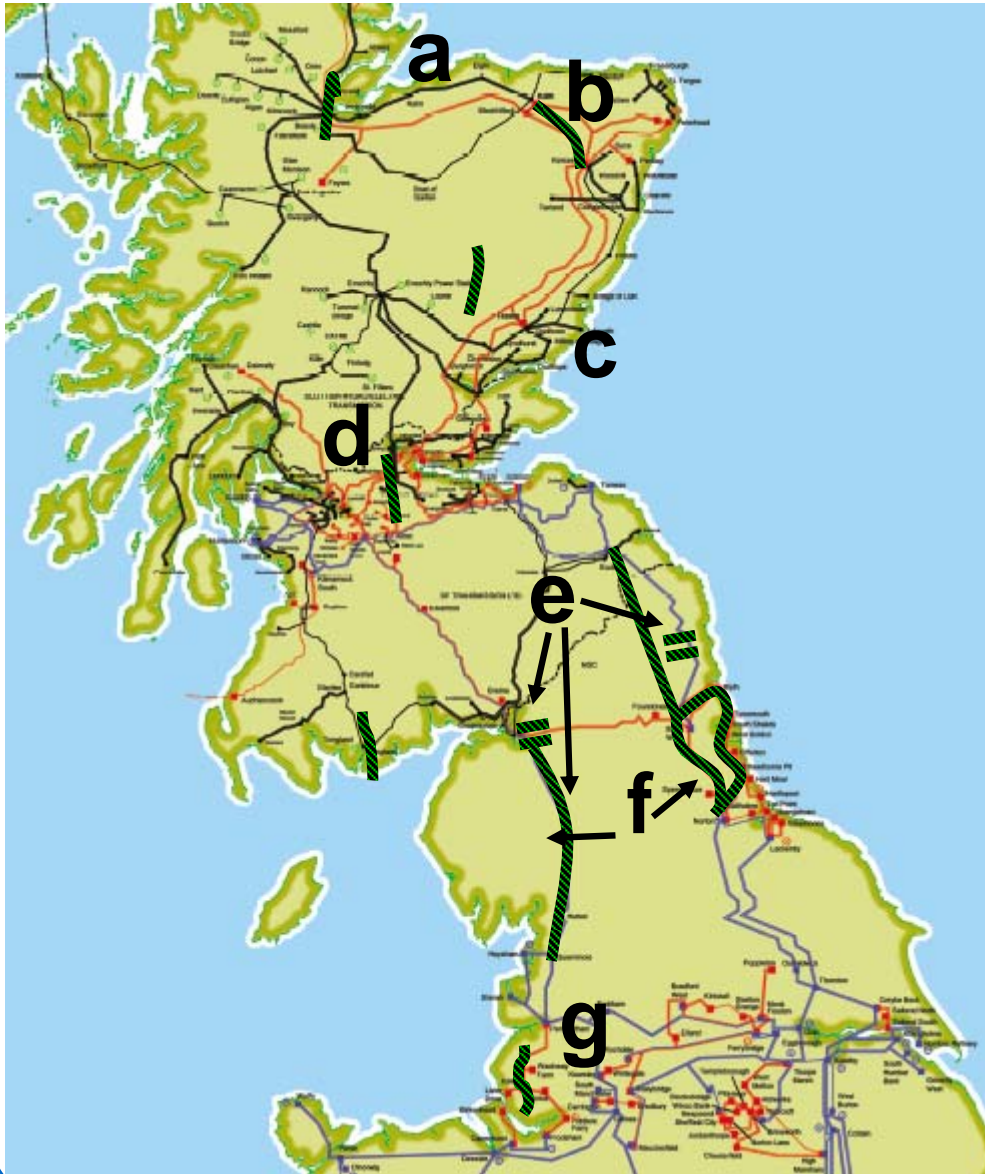
Connecting Onshore Windfarms in Wales



WAG Route Map & TAN 8
Strategic areas in Wales
Up to 1 GW may connect
in B, C & D

Getting Renewables from Scotland

Incremental Onshore Reinforcements



Accommodates 10 GW of renewables from Scotland

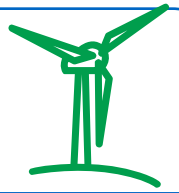
Option of connecting 2 GW of offshore wind

Significant proportion of cost is advanced asset replacement

Beaulieu – Denby line is a pre-requisite

Getting Renewables from Scotland

Possible solutions, Offshore HVDC



- ◆ Accommodates 10 GW of renewables from Scotland
- ◆ Option of connecting 4 GW of offshore wind
- ◆ Onshore network can be optimised if full need does not materialise (avoid future asset replacement costs)
- ◆ Cost of local connections not included
- ◆ Beaulieu – Denny line is a pre-requisite

Round 3 Wind Farms

Offshore HVDC Link from Scotland

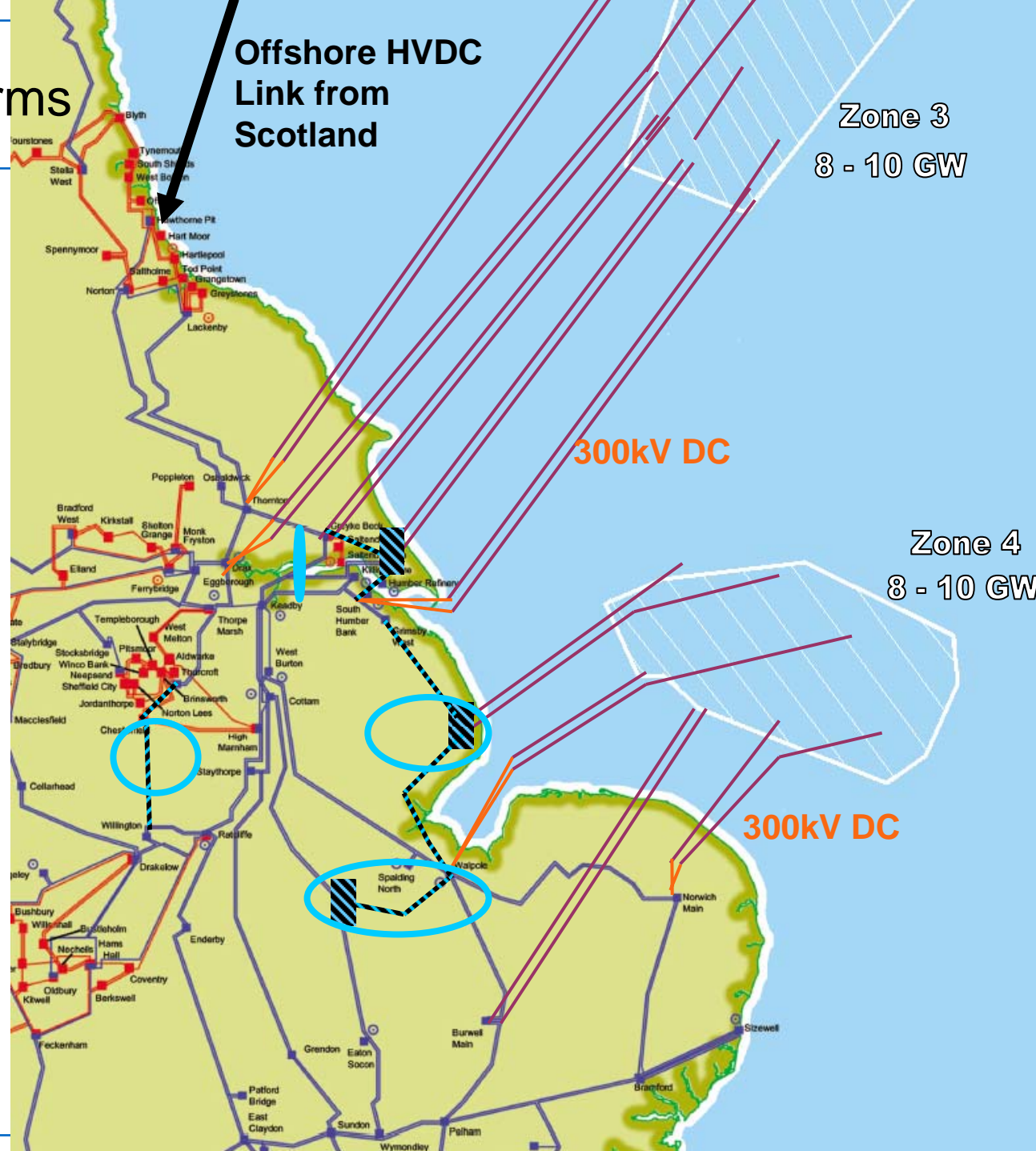
Zone 3
8 - 10 GW

East Coast Scenario 1

300kV DC

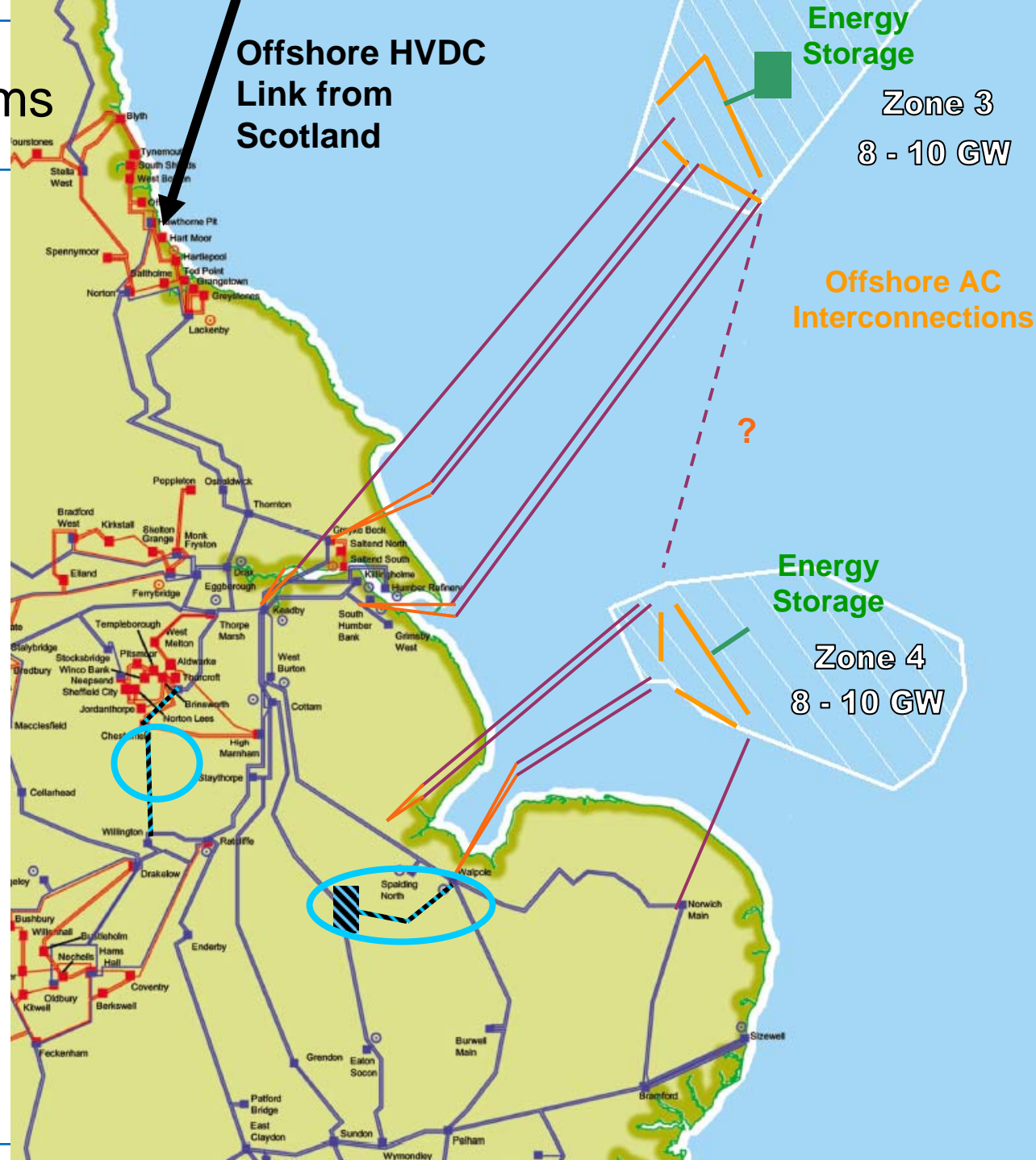
Zone 4
8 - 10 GW

300kV DC



Round 3 Wind farms

East Coast Scenario 2
















Potential Investment

- recent projects & investment
- future investment
- new storage
- new projects



A roadmap to 2050 – Long term energy efficiency challenges

 <h2>Electricity</h2>	 <h2>Heat</h2>	 <h2>Transport</h2>
<p>Simple <i>efficiency</i> measures across all sectors</p>  <h3>Appliance Efficiency</h3>	 <h3>Insulate Homes</h3>	 <h3>Efficient engines & integrated transport</h3>
<p>Decarbonised <i>electricity</i> fuels zero-emission vehicles</p>  <h3>Decarbonised Electricity...</h3>	 <h3>Heat Pump</h3> <p>.heats new homes only...</p>	 <h3>.& decarbonise transport...</h3>
<p>Decarbonise <i>gas</i> using solar thermal & biogas.</p> 	 <h3>Biogas</h3>	 <h3>CNG</h3>  <p>The power of action.</p>

Conclusion

- Very ambitious climate change objectives – still valid in changing economic climate
- Renewal of network is necessary
- Geography of generation is changing
- Network can be developed to facilitate objectives
- But depends on 3 fundamentals:
 - Planning Act enabling
 - Ofgem solutions
 - Demand solutions (our behaviour)
- **Very significant energy investment – very soon.**

