

East Anglia THREE

# Chapter 2

## Need for the Project

**Environmental Statement**

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Author – Royal HaskoningDHV  
East Anglia THREE Limited  
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## 2 NEED FOR THE PROJECT

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### 2.1 Introduction

1. The United Kingdom (UK) requires a range of energy generation infrastructure in order to ensure it has a secure and affordable energy supply and can meet its binding commitments to addressing the climate change. Offshore wind as a source of renewable energy offers the UK a wide range of benefits from an economic growth, energy security and climate change perspective. The proposed East Anglia THREE project would make a large contribution to renewable energy supply and consequently help provide these benefits to the UK and globally.
2. This chapter presents a summary of how the proposed East Anglia THREE project would help meet the UK policy commitments for renewable energy and wider policy objectives for energy security, climate change and sustainability. Further detail on the relevant UK commitments and the policy and legislation designed to implement them are discussed in Chapter 3 Policy and Legislative Context.

### 2.2 The Need for Renewable Energy

3. There are four key drivers for the shift in energy production to renewable sources in the UK and these form the basis for the relevant National Policy Statements (NPSs) which cover energy policy. The drivers – which are described below – are as follows:
  - The need to provide a secure , dependable and affordable energy supply for the UK;
  - The need to tackle climate change;
  - The need for bring new energy generating infrastructure on stream to replace more polluting sources of energy; and
  - The need to maximise economic opportunities for the UK.

#### 2.2.1 The Need to Secure Energy Supply

4. Energy consumers need to have access to reliable, secure and affordable energy supplies. Without action the UK will continue to become ever-more reliant on imported energy sources and increasingly exposed to global energy price fluctuations.
5. The UK is facing closure of existing generating capacity as older, more polluting, plants go offline and the power system decarbonises (DECC 2014a). Consequently, the UK needs to secure large scale, low carbon sources of energy. The proposed East

Anglia THREE project can make a significant contribution to securing the UK's home grown energy supplies for decades to come.

### 2.2.2 The Need to Tackle Climate Change

6. Studies suggest that if the current levels of global emissions of greenhouse gases such as carbon dioxide (CO<sub>2</sub>) continue, there could be an average global temperature rise of up to 6°C by the end of this century (DECC 2011a). The UK is committed to making a proportionate contribution to reduce the effects of climate change. The UK has put in place a legally binding framework to cut emissions by 80% from 1990 levels by 2050. The framework is designed to deliver emission reductions through a system of five year carbon budgets (DECC 2011a).
7. The changes associated with such a global temperature rise include increased frequency of extreme weather events such as floods and drought which in turn may cause an increase in global instability, conflict, public health-related deaths and migration of people to levels beyond any recent experience (DECC 2014b).
8. Offshore wind is expected to provide a significant proportion of the UK's 2020 and 2030 renewable energy generation targets (DECC 2011b) and the European Commission's new climate and energy targets up to 2030 (European Commission 2015), and the proposed East Anglia THREE project would contribute to these.
9. The Overarching NPS for Energy (EN 1) states that to minimise the worst effects of climate change, the average global temperature rise would need to be kept to 2°C; such a target therefore requires an urgent reduction in global emissions (DECC 2011a). Legally binding targets described above have been put in place to try and achieve this.
10. The UK Government has made firm commitments to ensuring that the UK meets its carbon reduction targets and creates a low carbon economy with renewable energy generation at its core. Offshore wind, especially large projects such as the proposed East Anglia THREE project, would help the UK meet its obligations.

### 2.2.3 The Need for New Energy Generation Infrastructure

11. Within the Low Carbon Transition Plan White Paper (HM Government 2009b), it is recognised that in addressing the UK's energy challenges there is a requirement for an unprecedented overhaul of the UK's energy sector with significant amounts of new generating and transmission infrastructure needing to be built over the next 10-15 years (DECC 2011a). NPS EN 1 notes that on 2011 projections, 59GW of new generating capacity is required, of which over half, 33GW, will need to be from

renewable sources (DECC 2011a). Further information on how the UK government aim to meet the need for new energy infrastructure is presented in section 2.3.3.

#### 2.2.4 Maximising Economic Opportunities

12. A key commitment within the UK's Low Carbon Transition Plan is to assist in making the UK a centre of green industry by supporting the development, adoption and deployment of clean technologies (HM Government 2009a).
13. The energy sector in the UK plays a central role in the economy and renewable energy can play a major part in boosting the economy and providing new jobs and skills:
  - The renewables sector (covering electricity, heat and transport) currently supports around 110,000 jobs directly and in immediate supply chains, with another 160,000 jobs supported further along the supply chain in the UK (DECC 2012). By 2020, the sector could support around 400,000 direct and immediate supply chain jobs and many more indirectly (HM Government 2009a). Offshore wind has the potential to provide the UK with an estimated up to 70,000 jobs and £8bn in annual revenue (DECC 2012); and
  - The Offshore Wind Developers Forum has subscribed to a vision for a minimum of 50% UK content (50% of the total value of the windfarm is spent in the UK) from offshore wind projects (DECC 2012).
14. The offshore wind sector is seen as one of the key low carbon sectors in helping to secure this growth potential (HM Government 2009a).

### 2.3 East Anglia THREEs Contribution to Meeting Targets

15. If built, East Anglia THREE would operate for 25 years, after which it may be repowered. During its operation the project (along with other projects in the East Anglia Zone) would contribute to reaching global, European and national targets on CO<sub>2</sub> reduction and renewable energy production.

#### 2.3.1 East Anglia THREEs Contribution Globally

16. The Kyoto Protocol is an international agreement which sets targets for industrialised countries to cut their greenhouse gas emissions (further detail is provided in Chapter 3 Policy and Legislative Context). The protocol was agreed in 1997, based on principles set out in a framework convention signed in 1992 which came into effect in 2005. At the end of the 2012 United Nations Climate Change Conference, an agreement was reached to extend the protocol to 2020 and to set a date of 2015 for the development of a successor document, to be implemented from

2020. In line with the Kyoto Protocol, signatory states, including the UK, have developed national targets for energy generation from renewable sources (see section 2.5). The proposed East Anglia THREE project would contribute towards these targets.

### 2.3.2 European Targets

17. European energy policy recognises that the use of renewable energy contributes significantly to limiting climate change, and plays a part in securing energy supply and creating employment in Europe (European Commission 2006). In 2007, the European Commission proposed an 'Energy Policy for Europe' (European Commission 2007) as a first step towards becoming a low energy economy. This was followed in 2009 by the European Council (EC) Directive 2009/28/EC 'on the promotion of the use of energy from renewable sources' ('the Renewables Directive', European Council 2009) which imposes a binding target for 20% of overall European Union (EU) energy consumption to be provided by renewable technologies by 2020.
18. The 2030 policy framework for climate and energy proposed by the European Commission in October 2014 builds on the experience of, and lessons learnt from, the 2020 climate and energy framework. The European Commission has proposed new climate and energy targets up to 2030 (European Commission 2015):
  - A 40% cut in greenhouse gas emissions compared to 1990 levels;
  - At least a 27% share of renewable energy consumption within the EU ; and
  - A 27%<sup>1</sup> improvement in energy efficiency (compared to projections).
19. The 2020 targets provided the incentive to establish the East Anglia Zone and subsequently delineate the proposed East Anglia THREE project within that zone. The proposed East Anglia THREE project would not be constructed by 2020; however, it would make a large contribution to the 2030 and subsequent 2050 targets to be discussed at the United Nations Climate Change Conference in Paris in December 2015.

### 2.3.3 How targets have been translated into UK policy

20. There are a number of overarching UK environmental targets/goals, which set the national framework for tackling climate change and renewable energy production (these are discussed in detail in Chapter 3 Policy and Legislative Context), the most relevant of which is:

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<sup>1</sup> To be reviewed by 2020, having in mind an EU level of 30%.

- The world's first ever legally binding target (implemented through The Climate Change Act 2008) to cut carbon and GHG emissions by 80% by 2050, compared to 1990 levels, with real progress by 2020, as laid down in the Carbon Budget Order (HM Government 2011b).
21. The mechanism for the delivery of these targets is set out within The UK Renewable Energy Roadmap (DECC 2013). The Roadmap sets out a comprehensive action plan to accelerate the UK's deployment and use of renewable energy, whilst seeking to reduce the cost of renewable energy over time. The Roadmap identifies the technologies that have either the greatest potential to help the UK meet the targets and sites offshore as one of these technologies.

#### 2.3.3.1 National Policy Statements

22. The Planning Act 2008 makes provision for National Policy Statements (NPSs). NPSs are designed to set the policy framework for determination of nationally significant infrastructure projects (NSIPs) applications. They integrate the government's objectives for infrastructure capacity and development with its wider economic, environmental and social policy objectives, including climate change goals and targets, in order to deliver sustainable development. Further explanation of this is provided in Chapter 3 Policy and Legislative Context.

## 2.4 Benefits of Offshore Wind Energy

23. The UK is well placed to lead the deployment of offshore wind with an estimated 33% of the total European potential offshore wind resource making it one of the most globally attractive locations.
24. The key benefits of offshore wind energy as a contributor to the renewable energy mix are as follows:
- Diversification and security of home grown energy generation capacity making use of an abundant source of energy;
  - A technology with potential to make significant and rapid contributions to the national renewable energy targets;
  - Economic development and job creation, both within the UK and further afield within the supply chain; and
  - Very low lifetime CO<sub>2</sub> emissions per unit of electricity generated.

25. As of September 2015, there is over 5.1GW of operational offshore wind capacity in UK waters, making the UK a world leader in offshore wind energy. In addition a further 14.5GW has planning approval (RenewableUK 2015).
26. The continued development of offshore wind within the UK is therefore seen as critical to ensuring that the UK and Europe are able to meet their binding energy and climate change targets.

#### 2.4.1 Cost of Offshore Wind

27. Energy from offshore wind has often been described as being an expensive alternative to more conventional forms of energy generation such as coal, gas and nuclear. However, recent studies have shown that the cost of offshore wind power is rapidly falling (Catapult 2015) and by 2030 the cost of offshore wind could be as low as £80 per megawatt-hour (BVG Associates 2015). This reduction in cost would make offshore wind a very competitive alternative to other forms of energy generation.

### 2.5 Summary – The Need for the Proposed East Anglia THREE Project

28. The proposed East Anglia THREE project would make a contribution to the achievement of the national renewable energy targets and to global efforts to tackle climate change (see section 2.3).
29. Moreover, the proposed East Anglia THREE project would have a direct positive impact by providing up to 1,200MW of renewable energy, securing supply for up to 770,000<sup>2</sup> households, reducing carbon emissions and contributing to the economy by providing jobs during all phases of the proposed project.

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<sup>2</sup> Calculated using a 31.96% capacity factor (the UK average for offshore wind as supplied by DECC Digest of United Kingdom Energy Statistics) and an annual household consumption of 4,266 kilowatt hours.

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