



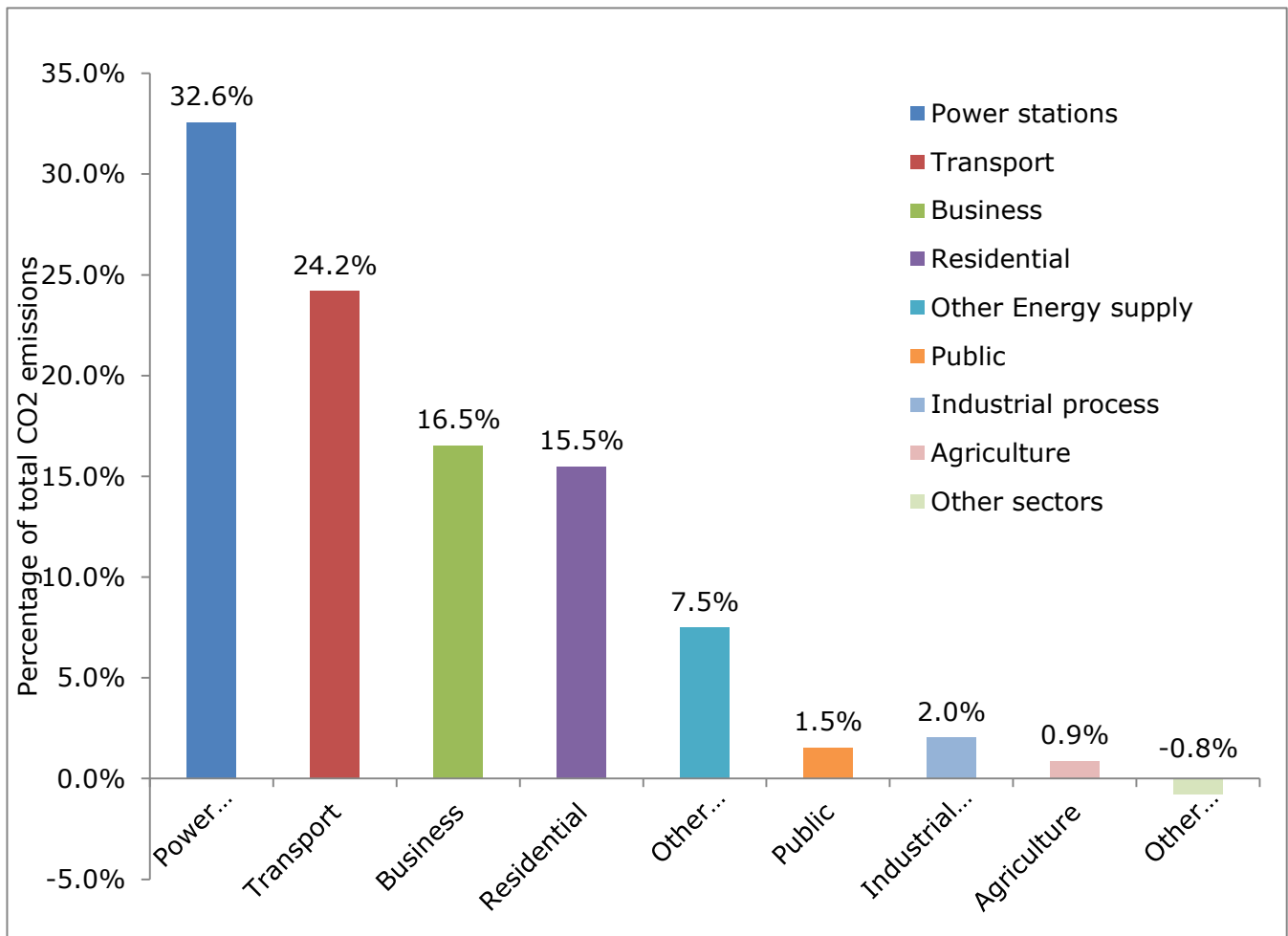
The UK Government and Devolved Administrations set out a strategy for sustainable development, *Securing The Future*, in 2005. Drawing on this framework and stakeholder feedback, we focus on the five themes which we think capture how the Gas and Electricity Markets Authority should contribute to the sustainability challenges of the 21<sup>st</sup> century.

The first of the five themes is managing the transition to a low carbon economy. We are responsible for the framework for the efficient functioning of gas and electricity markets. Our decisions on the industry rules governing the wholesale and retail markets and the regulation of monopoly networks facilitate the development of lower carbon technologies. We are clear that any assessment of economic efficiency should incorporate the environmental costs associated with a proposal.

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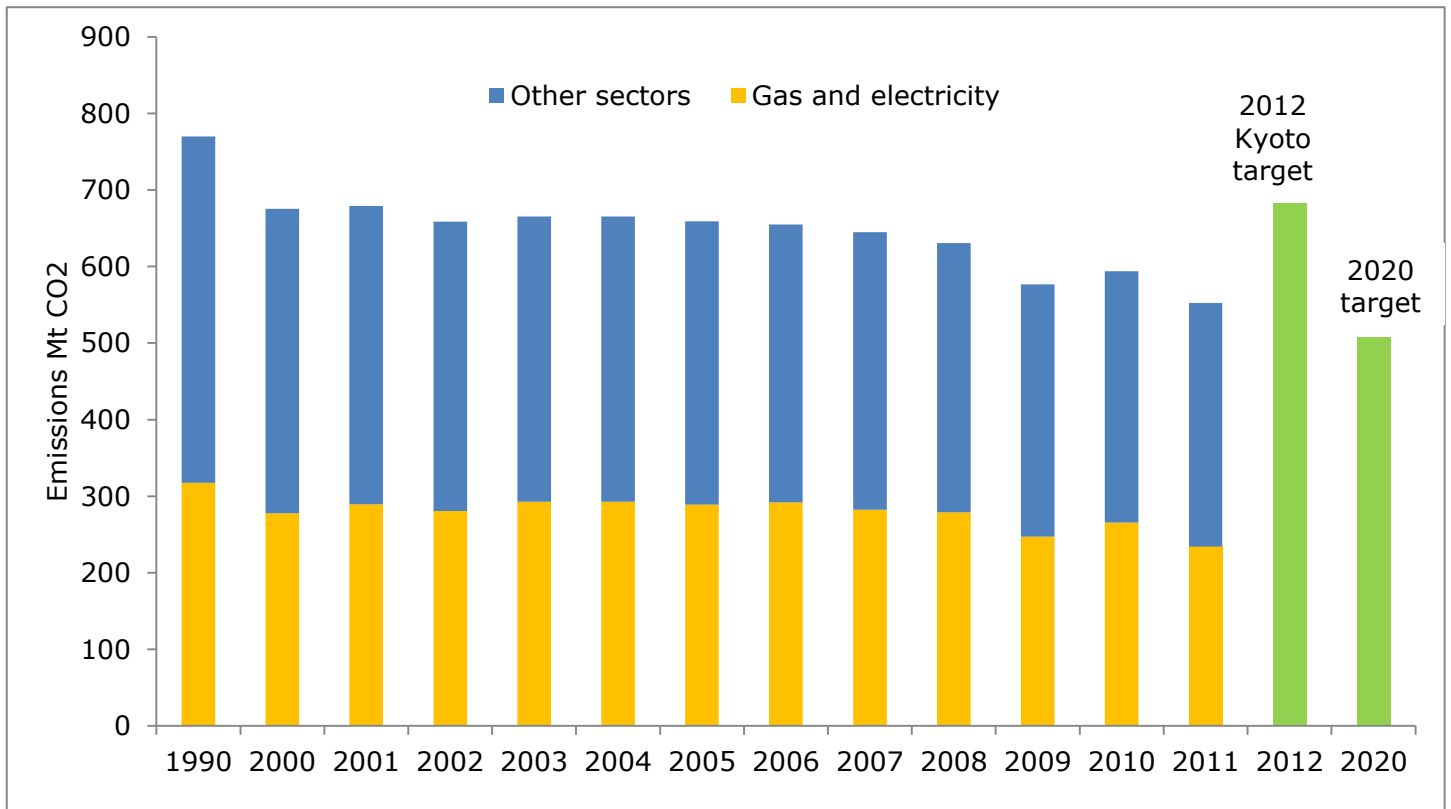
## Indicator 1: Electricity and gas sector greenhouse gas emissions



**Figure 1 - CO2 emissions by end user (updated July 2013)**

Source: DECC Energy Trends, 2012 predicted

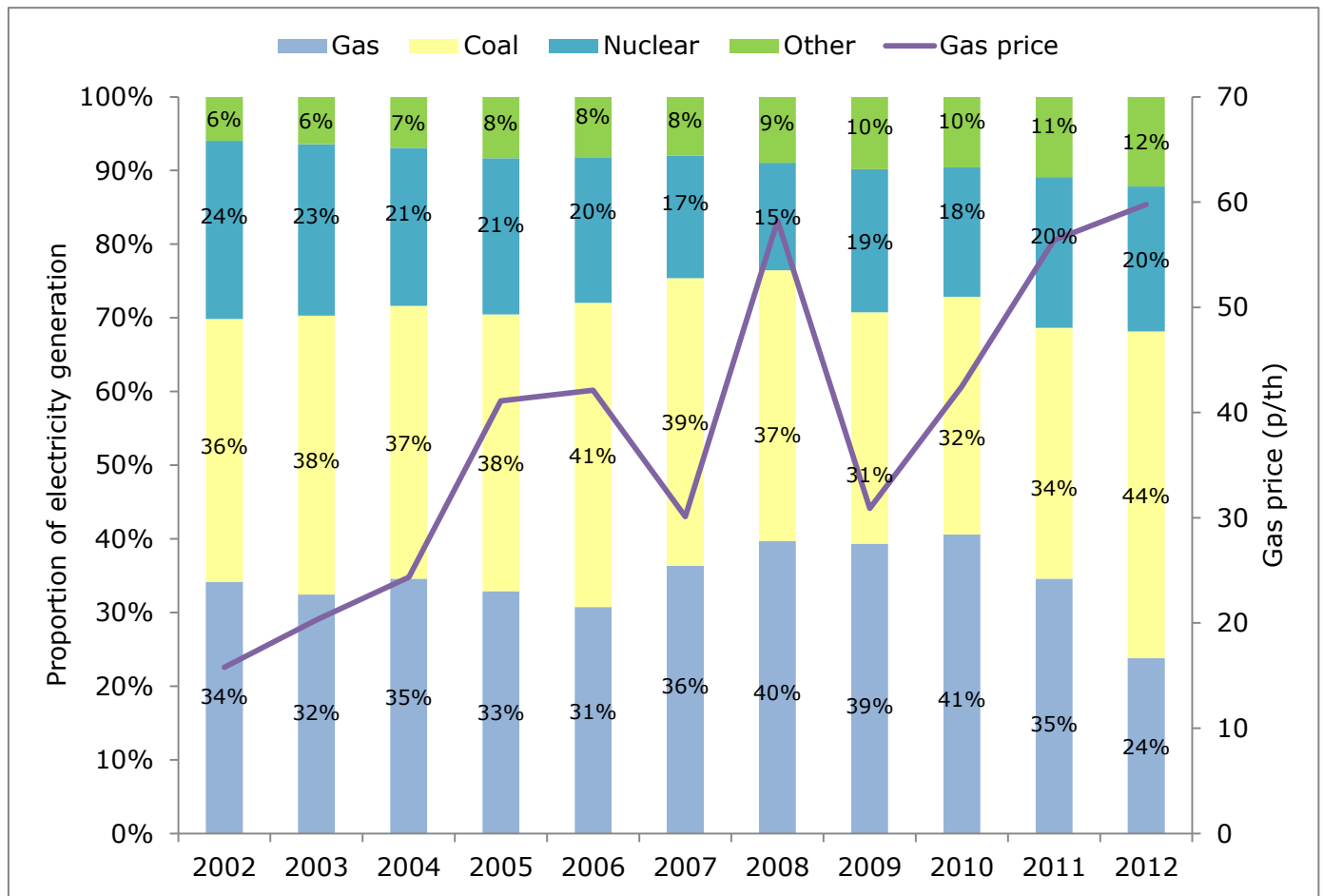
Power generation, transport, residential and business sectors remain the main contributors to greenhouse gas emissions. The relative contributions of both power generation and residential sector emissions have both increased in the last year, whilst the relative contributions of transport emissions and emissions from other energy supply have both decreased.



**Figure 2 - Gas and electricity sector contributions to UK emissions (updated November 2013)**

Source: DECC DUKES, NAEI emissions data and Government emissions target commitments.

Emissions fell sharply in 2009, thanks to a significant reduction in demand due to the recession affecting most sectors. This was followed by a slight rise in 2010 as the economy began to recover. However, emissions fell again between 2010 and 2011 primarily as a result of a decrease in residential gas use and a reduction in demand for electricity. As the graph shows, the UK has exceeded its 2012 target and is well on the way to meeting the 2020 emissions target.

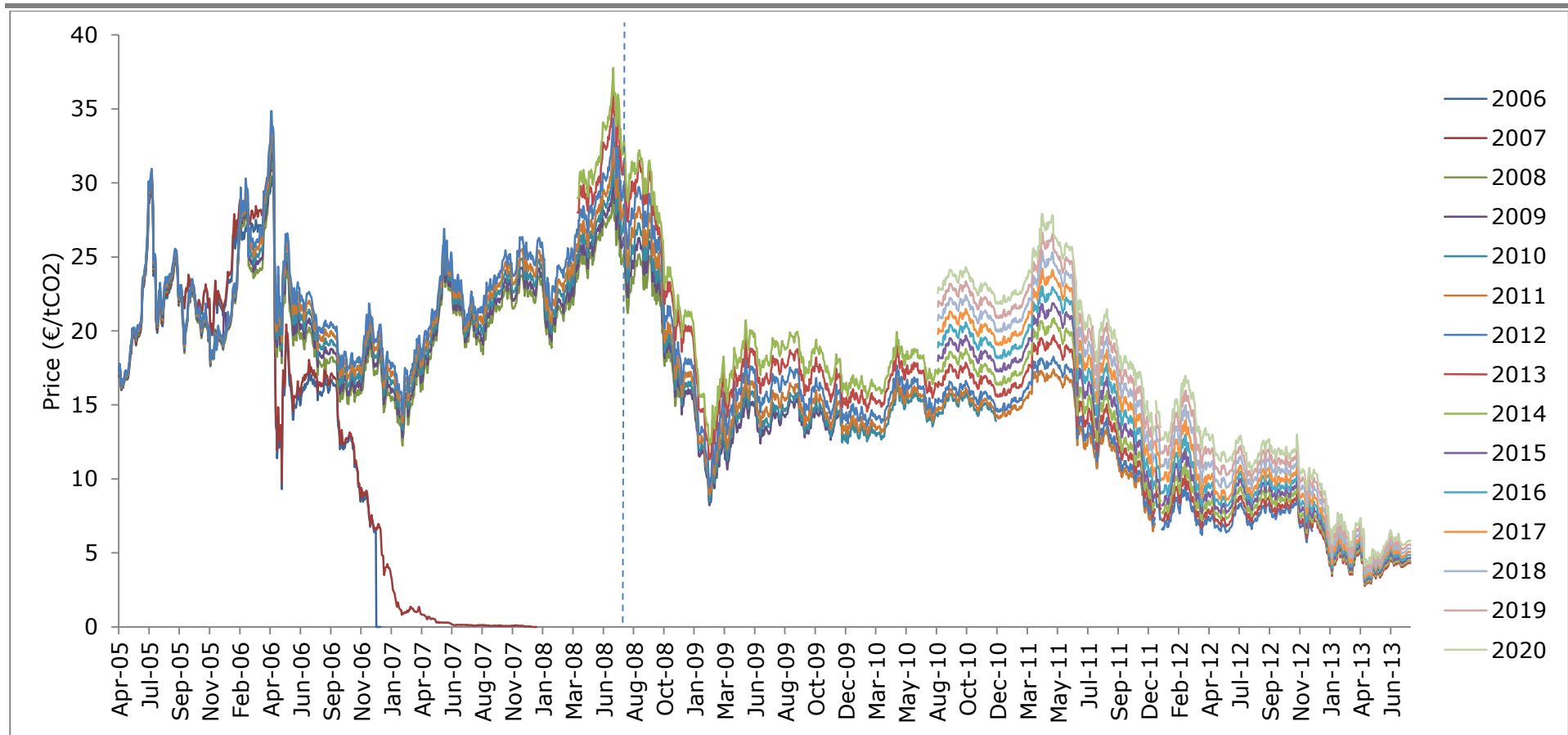


**Figure 3 - Fuel used in electricity generation (updated November 2013)**

Source: DECC Energy Trends table 5.1, Bloomberg professional

2012 saw a large increase in the use of coal to generate electricity at the expense of gas. This was due in part to the increasing price of gas which rose above the previous peak in 2008. Coal stations also have a lower thermal efficiency compared with gas, meaning more fuel is required to generate each unit of electricity.

## Indicator 2: Impact of carbon price on costs of generation

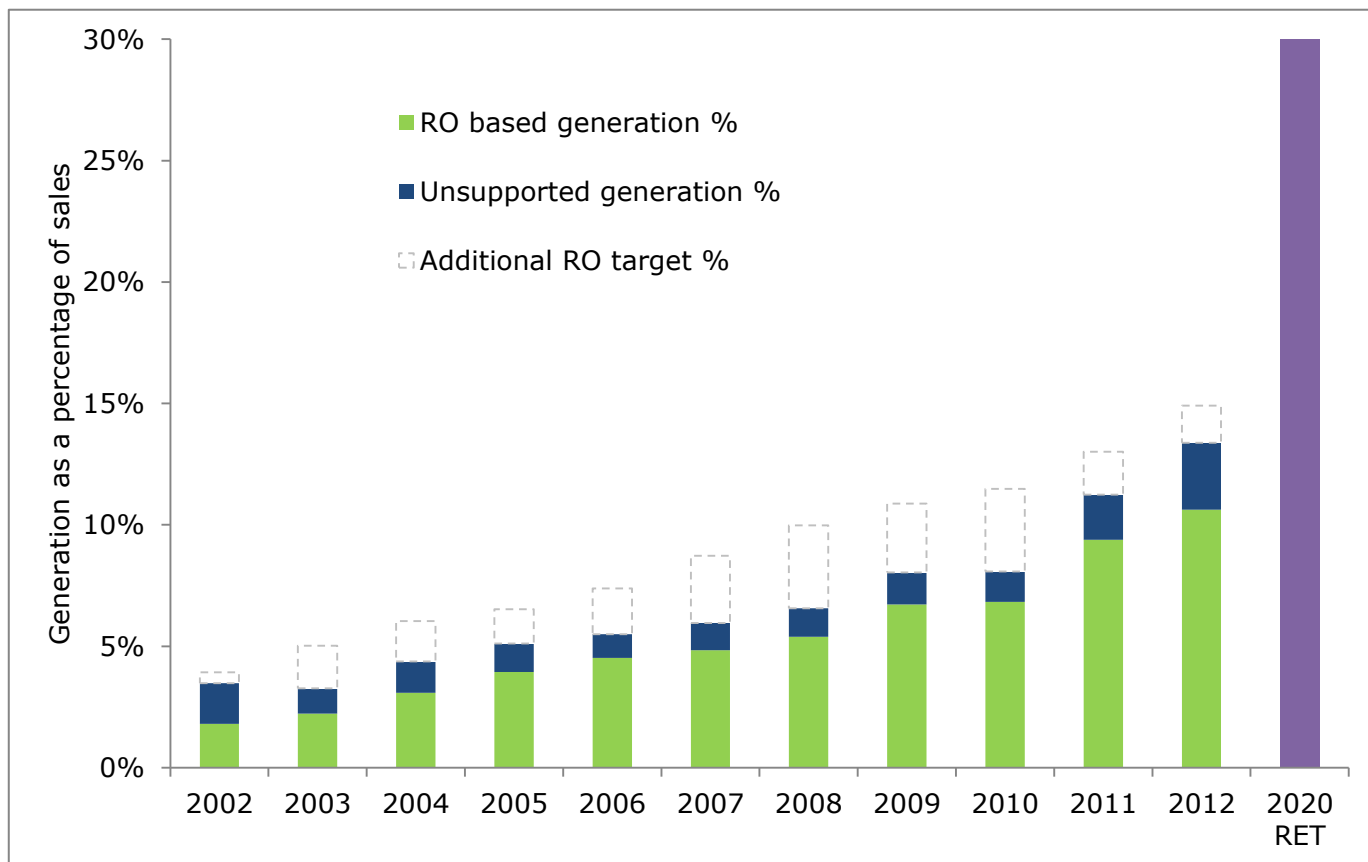


**Figure 4 - EU ETS carbon price (updated November 2013)**

Source: theice.com

The European Union Emissions Trading System (EU ETS) covers about half of the EU's carbon dioxide emissions and includes the power sector as well as much of heavy industry. Prices for 2015-2020 were introduced in August 2010. The sharp price decrease in June 2011 was due in part to discussions regarding new energy efficiency legislation in the EU which would increase the supply of (and therefore reduce demand for) carbon credit. Prices have remained low over the last year reflecting the excess supply of permits and lack of demand. The EU ETS is also highly sensitive to political uncertainty, which contributed to the record low permit price witnessed earlier this year.

## Indicator 3: Renewable electricity generation

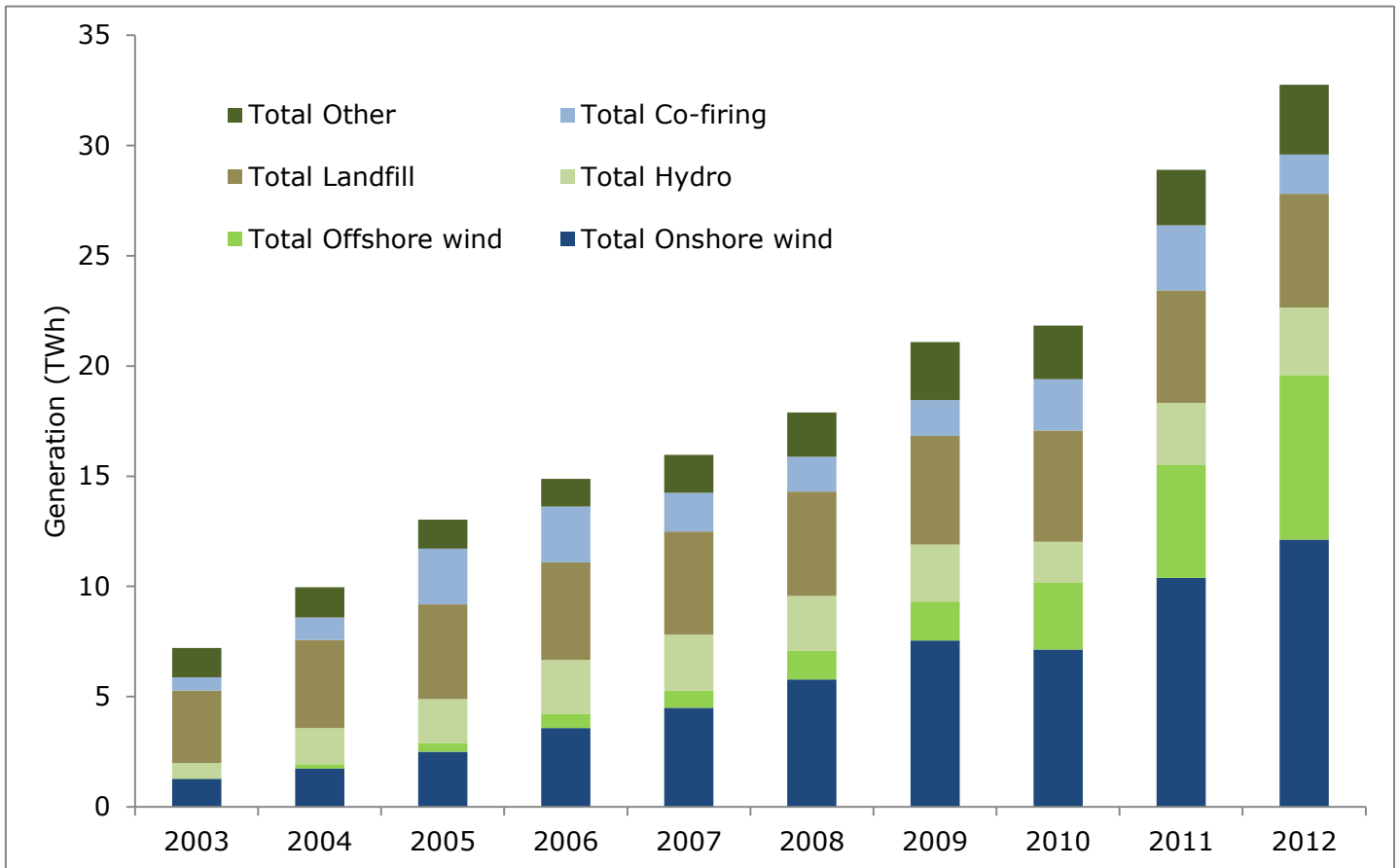


**Figure 5 - Renewable electricity generation (updated November 2013)**

Source: DECC DUKES

Over ten percent of UK electricity now comes from renewables. Renewable electricity generation supported by the Renewables Obligation (RO) is increasing year-on-year. Electricity generated from RO-eligible sources grew by 3.9 TWh in 2012, compared to 7.1 TWh in 2011. Electricity generated from unsupported generation grew in 2012 by 2.8 TWh compared to 1.7 TWh in 2011.

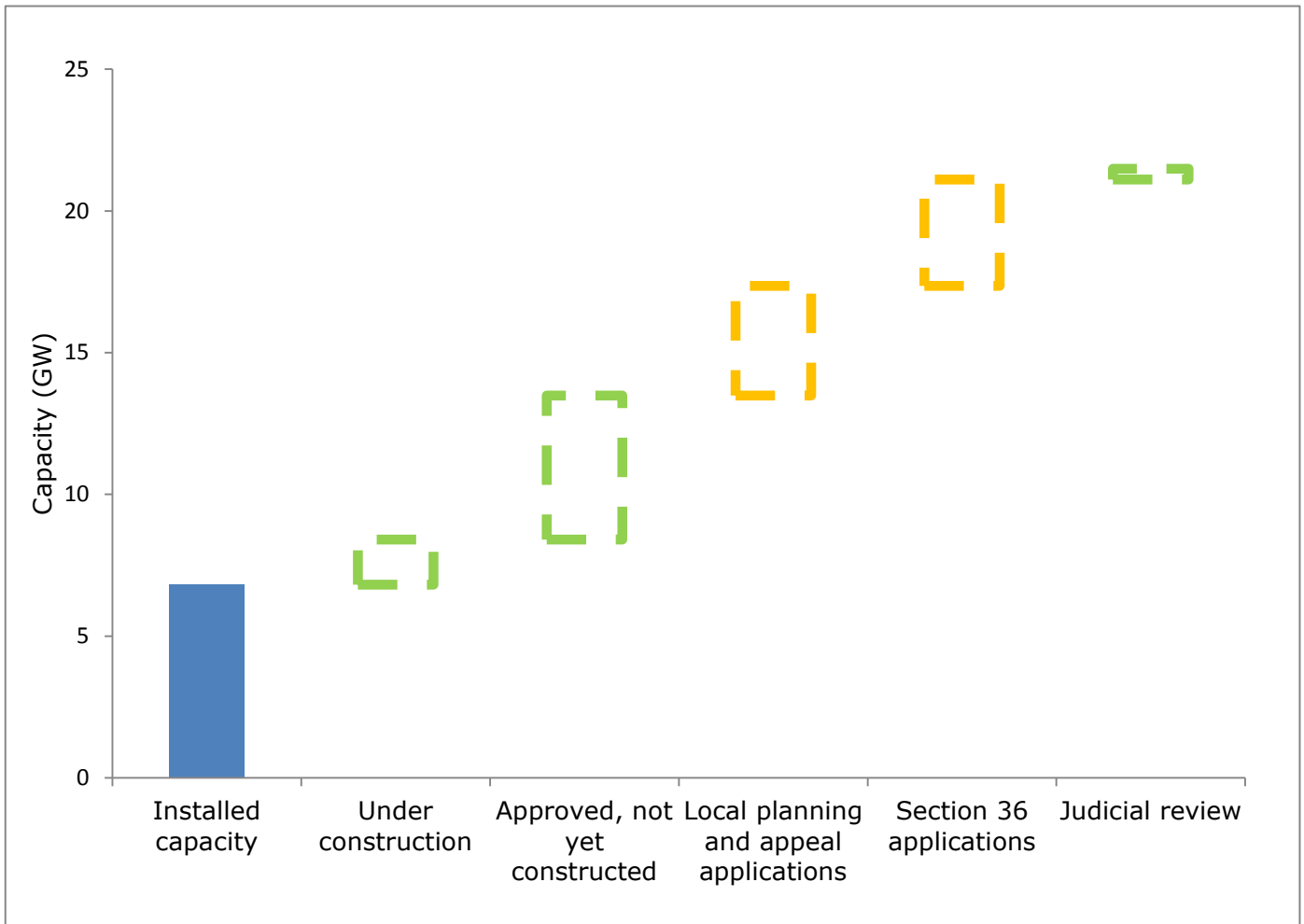
An indicative renewable electricity target of 30% by 2020 is shown for context. This is the contribution that the government expects renewable electricity to make to meeting the UK's wider 2020 renewable energy target, which applies to heat, electricity and transport. The UK must supply 15% of its heat, electricity and transport from renewable sources by 2020.



**Figure 6 - Supported generation technologies (updated November 2013)**

Source: DECC

Electricity generation from renewable sources continued to increase between 2011 and 2012 as the UK makes progress against the 15% target introduced in the 2009 EU Renewable Directive. Wind is the fastest growing of the supported generation technologies; it has grown by 1424% since 2003 and accounted for almost 60 percent of renewable generation in 2012.

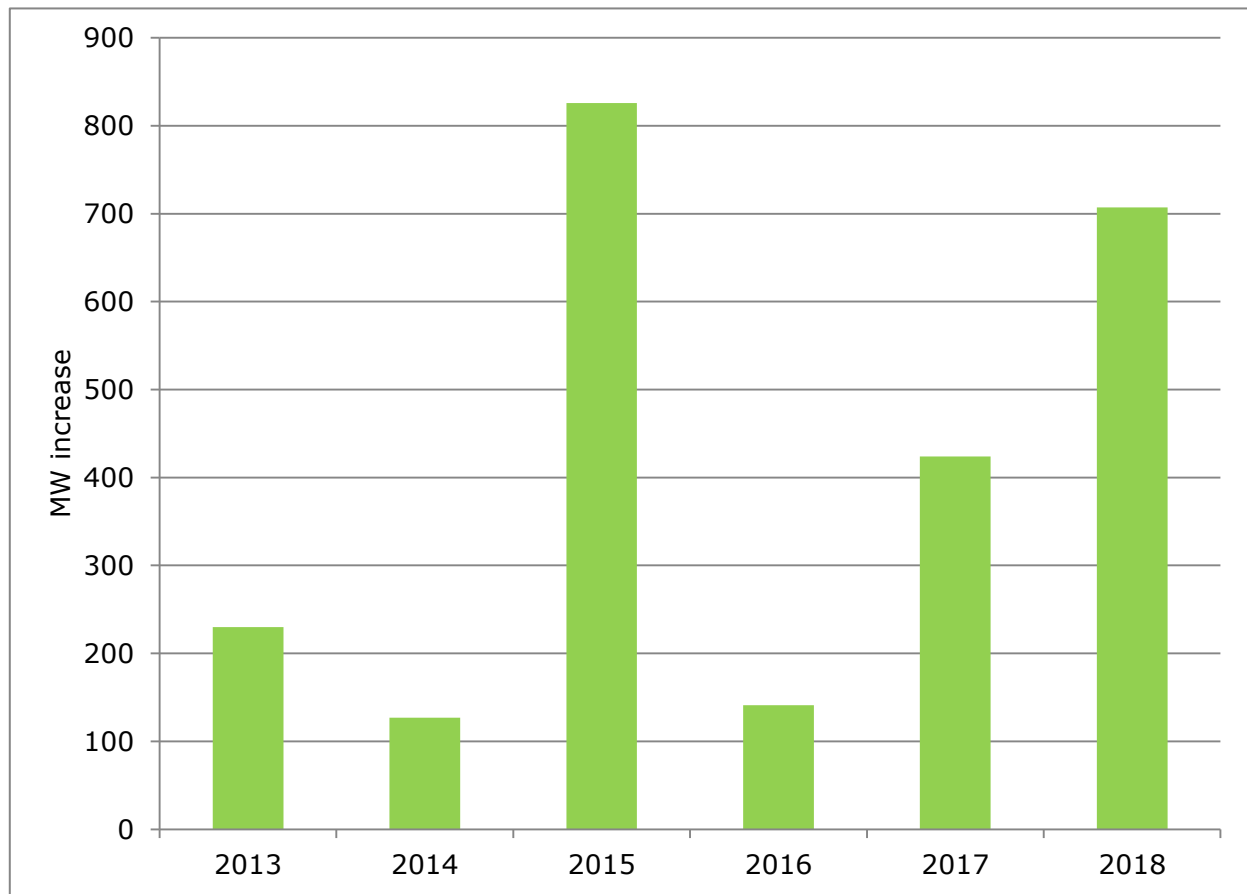


**Figure 7 - Onshore wind developments at November 2013 (updated November 2013)**

Source: Renewable UK

Installed onshore wind capacity increased significantly between 2011 and 2012, rising by just over 36%. The amount of capacity under construction fell slightly from last year but the past 12 months has seen an increase in capacity both at the approval and planning stages.



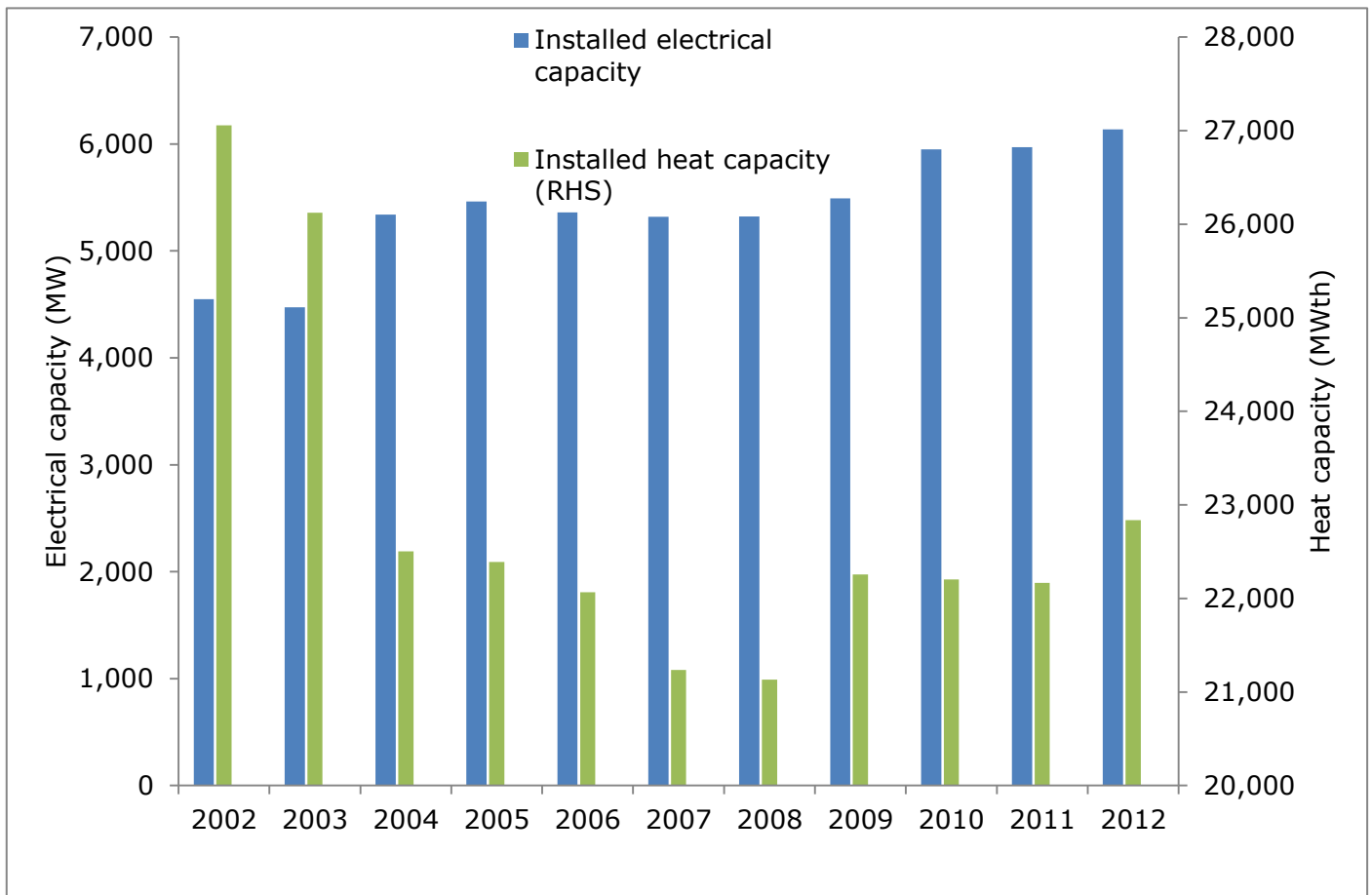


**Figure 8 – Required volume of grid upgrades for onshore wind generation in Scotland (updated November 2013)**

Source: National Grid Electricity Transmission

This graph shows the amount of onshore wind generation which has a contract with National Grid Electricity Transmission and has its consents to be built and connected in the period 2013 to 2018. This demonstrates the developer’s commitment to invest and build renewable generation in Scotland over the coming years. These developments will further increase the transfer of electricity from Scotland to England. The two Transmission Owners, National Grid Electricity Transmission and Scottish Power Transmission, are investing in the connection between the two countries and by 2018 the transfer capability will have nearly doubled from the capability available in 2013.

## Indicator 4: Capacity for combined heat and power

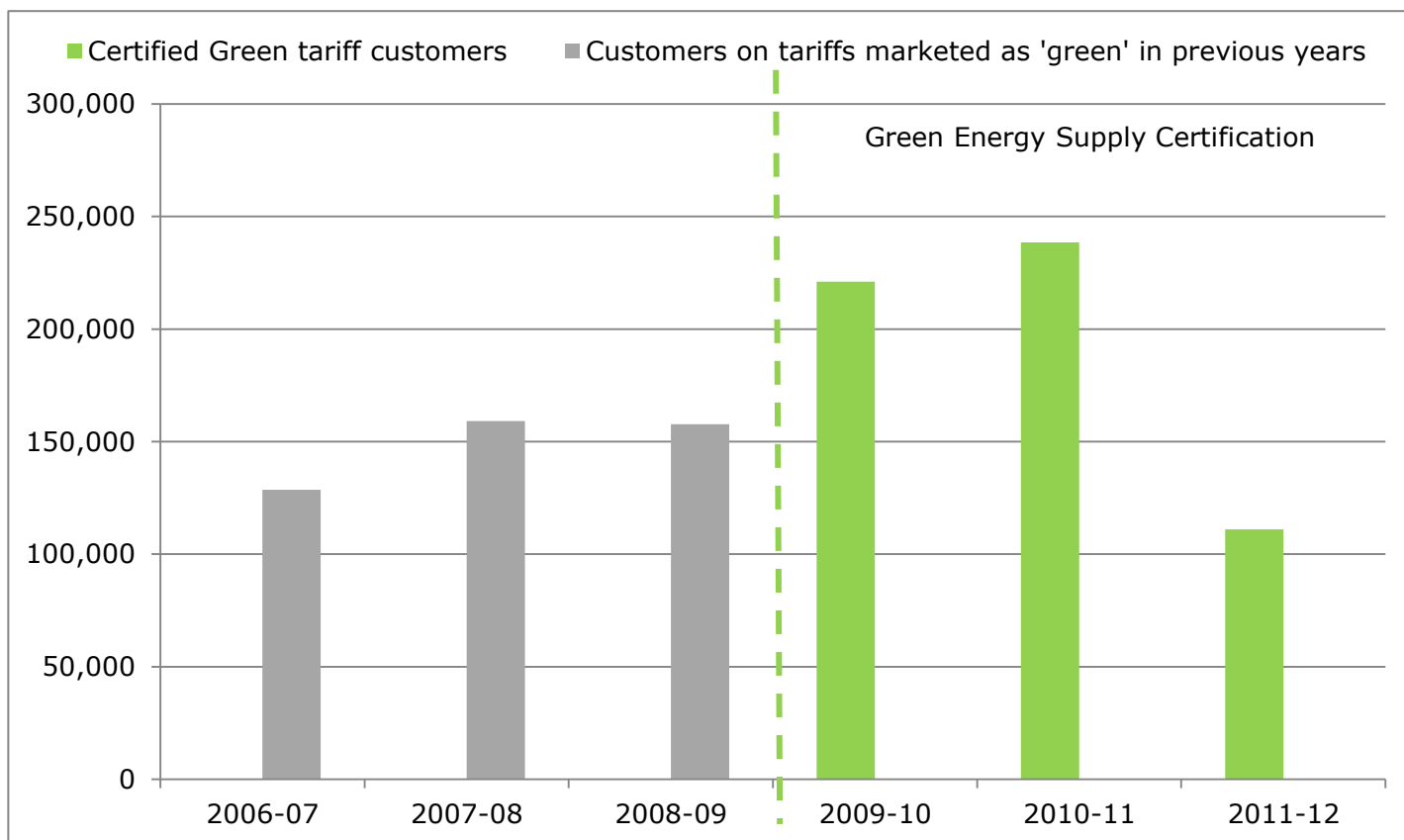


**Figure 9 - CHP capacity 2002 - 2012 (updated November 2013)**

Source: DECC DUKES

Over the last ten years, a higher proportion of Combined Heat and Power (CHP) output has been in the form of electricity rather than heat. Over the last decade, heat capacity has fallen by 3285MWth, whilst electricity capacity has risen by 1,664MW.

## Indicator 5: Green tariffs



**Figure 10 - Number of customers signed up to Certified Green Tariffs (updated November 2012)**

Source: energy suppliers

The graph shows the number of customer accounts signed up to a tariff marketed as having an environmental attribute over the last five years. In February 2010 the Green Energy Supply Certification Scheme and associated 'Green Energy Certified' label was launched. Since that point we have shown the number of accounts signed up to certified tariffs. The drop between 2010-11 and 2011-12 is due to the certification of two tariffs not being renewed.

Figures prior to 2011-12 have been revised due to receipt of more accurate information.

