Background

This note provides an overview of key facts and trends emerging from the publication of updated energy generation statistics for Scotland by the UK Department of Energy & Climate Change (DECC) on 25th September 2014. The September publication includes provisional renewable electricity generation estimates for Q2 2014, a final annual estimate for 2013 as a whole, as well as an estimate for 2012 total final energy consumption. Also, a summary of all renewable electricity generation projects by planning status, technology type, and local authority in Scotland is presented in this note, and will be available on the Scottish Government website.

All the statistics summarised below are sourced from:

- DECC's Quarterly Energy Trends reports:
  https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-trends
- DECC quarterly renewable electricity generation tables (see table ET 6.1):
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65859/et6_1.xls
- DECC's annual sub-national total final energy consumption tables:
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358034/sep_2014_sub_national_total_final_energy_consumption_statistics_final.xlsx
- DECC Renewable Energy Statistics Database (RESTATS):
  https://restats.decc.gov.uk/cms/welcome-to-the-restats-web-site/

Summary of Key Results

Renewable electricity generation

Q2 2014 Estimates:

- Scotland generated **3,607 GWh** of renewable electricity in Q2 2014. This is a **4.1% decrease** (153 GWh) from that generated in the same quarter last year (Q2 2013). However, generation over the first half of 2014 (Q1 and Q2) is **29.6% higher** (2,368 GWh) than the generation over the first half of 2013.
- The overall decrease is primarily due to a **fall in wind output, 17.7% lower** than the same quarter last year (Q2 2013).
- At the end of Q2 2014, there was 7,083 MW of installed renewable electricity capacity in Scotland, an **increase of 10.5%** (671 MW) from the end of Q2 2013.

Annual figures for 2013:

- Renewable electricity generation in Scotland was 16,974 GWh in 2013 – **a record high level**, up 16.4% on 2012 (previous record year for renewables) and **more than double** the output of 2006.
- Wind generation in 2013 was **at a record high level** –11,151 GWh, up 36.2% on 2012 (previous record year for wind) and is more than five times the level of wind generation in 2006.
- Scottish renewable generation now makes up **approximately 32% of total UK renewable generation** (previously 35% in 2012).

Energy Consumption Target (12% reduction by 2020)

In 2012, final energy consumption was **11.8% lower** than the 2005-2007 baseline adopted for the Scottish Government's 12% energy efficiency reduction target. Over the year to 2012, final energy consumption **decreased by 3.1%**.

Renewable Heat target (11% of heat demand by 2020)

In 2012, renewable heat generation equated to **3.0%** of Scotland's non-electrical heat demand, **up from 2.7%** in 2011.

Renewable Electricity Targets (50% of demand by 2015, 100% by 2020)

The Scottish Government target for renewable electricity generation is for renewables to generate the equivalent of 100% of gross annual consumption by 2020, with a new interim target of 50% by 2015. Annual generation statistics for 2013 are now available, but consumption figures will not be published until December. For background purposes, table 1 provides the latest consumptions levels up to 2012.

Using 2012's gross consumption as a proxy for 2013, it is estimated that the equivalent of **46.4 per cent** of Scotland's electricity needs came from renewables in 2013.

Table 1: Renewable Electricity generated (GWh)[1], Scotland, 2000-2013

Year	Wind[1]	Hydro	Wave/Tidal	Solar PV	Landfill	Sewage	Other biofuels	Total	Gross Consumption (GWh)	Renewables as a % of gross consumption
2000	216.7	4,665.3	-	-	68.5	-	21.1	4,971.6	40,801	12.2%
2001	245.2	3,737.5	-	-	109.3	-	110.4	4,202.4	40,446	10.4%
2002	406.1	4,455.4	-	-	157.0	-	80.1	5,098.7	41,619	12.3%
2003	448.9	2,902.0	-	-	228.0	-	145.5	3,724.5	41,238	9.0%
2004	848.4	4,474.8	-	-	339.2	-	169.8	5,832.2	41,364	14.1%
2005	1,280.9	4,612.2	-	-	395.4	-	197.2	6,485.7	41,923	15.5%
2006	2,022.9	4,224.9	-	-	424.0	-	291.0	6,962.8	41,309	16.9%
2007	2,644.0	4,692.9	-	-	486.5	-	402.7	8,226.1	40,718	20.2%
2008	3,361.5	4,704.5	0.0	0.0	494.0	20.3	478.1	9,058.5	41,132	22.0%
2009	4,555.1	4,858.9	0.1	0.0	526.4	25.8	616.1	10,582.4	39,028	27.1%
2010	4,872.6	3,258.1	0.0	0.8	529.1	31.9	726.5	9,419.1	39,669	23.7%
2011	6,951.5	5,321.7	0.4	8.3	509.4	35.3	715.6	13,542.2	37,871	35.8%
2012	8,189.2	4,838.4	0.1	67.1	547.1	35.4	909.8	14,587.3	36,602	39.9%
2013	**11,151.3**	**4,366.0**	**2.5**	**92.4**	**562.8**	**30.2**	**769.2**	**16,974.4**	**-**	**-**

Note

1. Between 2000 and 2008 the wind generation figure may include a small quantity of wave, tidal and solar.

Energy Consumption Target

The DECC Energy Trends report also provides data on final energy consumption in Scotland for 2011. This can be used to update progress toward the Scottish Government's 12% Energy Efficiency Target published in the Energy Efficiency Action Plan and established under the Climate Change (Scotland) Act 2009.

Consumption in 2012 was **3.1% lower** than in 2011, and **11.8% lower** than the 2005-2007 baseline against which the 12% Energy Efficiency Target is measured.

Recognising the importance of economic cycles and weather patterns to energy consumption levels, the energy efficiency target was defined to allow for fluctuations within the longer term trend. The 11.8% fall from the baseline remains well within the 2012 annual maximum associated with the 2020 target.

As reported previously, it is not possible to separately identify the impact of the recession from wider energy efficiency measures at this stage.

To complement the energy efficiency target, we also measure how productively energy is being used in the economy. Energy productivity expresses the gross value added achieved in the economy from the input of one unit of energy. *Increasing* energy productivity means 'squeezing' more out of every unit of energy consumed.

This is measured as the level of GVA per GWh of final energy consumed in Scotland. **Energy productivity in Scotland has increased by approximately 14% between 2005 and 2012**, and this is expected to continue rising as the economy recovers.

Renewable Heat Target

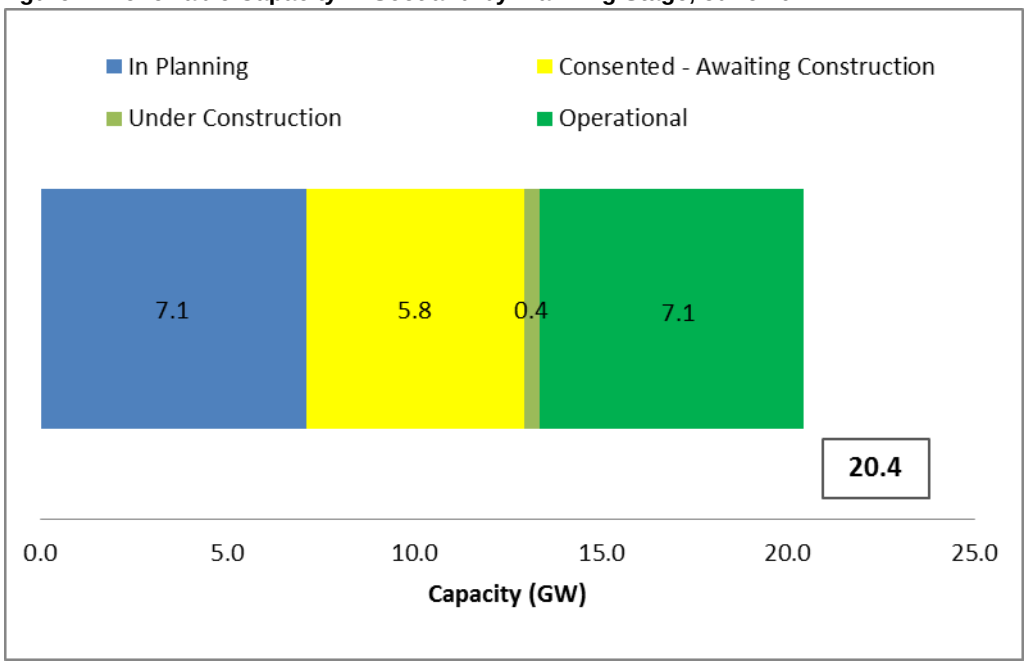
In 2012, renewable heat generation equated to 3.0% of Scotland's non-electrical heat demand. This is up from 2.7% in 2011. Over the year to 2012, renewable heat generation increased by 9.6%, while non-electrical heat demand decreased by 3.1%.

In 2013, an estimated 0.662 GW of renewable heat capacity was operational in Scotland, producing an estimated 2,904 GWh of useful renewable heat. This represents an 18% increase in renewable heat capacity and a 17% increase in heat generated from renewable sources compared with 2012[1].

Renewable Planning Statistics for Scotland

Data as at June 2014 show that Scotland had 7.1 GW of installed renewable electricity generation capacity, with an additional 6.2 GW of capacity either under construction or consented, the majority of which is expected from wind generation, particularly onshore. Taking into account pipeline projects in planning, this figure totals **20.4 GW – nearly three times the level currently deployed**.

Figure 1: Renewable Capacity in Scotland by Planning Stage, June 2014



Sources:
1) DECC, Energy Trends, September 2014
https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-trends
2) DECC, Renewable Energy Planning Database, July 2014
https://restats.decc.gov.uk/cms/planning-database/

[1] Renewable Heat in Scotland 2013, Energy Savings Trust, http://www.energysavingtrust.org.uk/scotland/Take-action/Get-business-funding/Renewable-Heat-in-Scotland-2013