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# Information Note

## An Analysis of Data from DECC's *Renewable Energy Planning Database*

### Overview

Examination of the April 2014 figures from DECC's Renewable Energy Planning Database (REPD)[1] shows that 35 GW of renewable electricity capacity across all renewable technologies has now been consented by the planning system. This capacity would generate about 111 TWh of energy, which is sufficient to meet the required 110 TWh contribution from electricity towards the UK's 2020 European Union Renewable Energy target. Thus, the additional 1,000 planning applications totaling 18 GW of further capacity is surplus to requirements.

Moreover, the REPD data underestimates the total output from renewables probable in 2020 since it omits some older generators, such as larger hydro, and also generation that is not recorded in the planning system (for example rooftop solar constructed as permitted development). When other DECC data relating to existing large hydro and to photovoltaic is taken into account, the potential output from all renewable electricity capacity in 2020 can be estimated at 116 TWh, giving a comfortable 5% margin over the 110 TWh target.

Thus, five and half years ahead of schedule the UK is in a position to meet its renewable electricity targets, even though no further nationally binding EU targets have been set beyond 2020 and when it is the UK government's position that there should be no technologically specific low carbon energy targets after that date

However, there is sufficient renewable electricity generation capacity (18 GW) currently pending in the UK's planning system to overshoot the 2020 target by approximately

[1] https://restats.decc.gov.uk/cms/planning-database/

50%. Such an overshoot would also cause a breach of the Treasury's "Levy Control Framework" that caps the cost to consumers of subsidizing renewable generators.[2]

It is clear from DECC's data that generous subsidies have overheated the renewable electricity sector, resulting in very significant oversupply relative to the agreed EU targets and the Levy Control Framework. **In fact, even allowing for some attrition of consented sites, if all capacity in the pipeline were refused immediately, the 2020 target would still be met, and could continue to be met by repowering of existing sites.**

Oversupply on this scale is clearly undesirable for investors and consumers alike. It also has important implications for decision makers in the planning system, who should now be giving greater weight to negative local impacts and less weight to the achievement of the European Union targets.

## Data Source and Analysis

In the National Renewable Energy Action Plan (NREAP) of 2009, DECC estimated that electricity generated from renewable sources would provide about 117 TWh towards a total target of 238.5 TWh, with the balance being made up of renewable transport fuel and heat.[3] DECC has subsequently revised its estimate of the total target magnitude down to an upper limit of 225 TWh (see *Renewable Energy Roadmap* Update 2013). Assuming the same proportional share, of 49%, this would result in an electricity requirement of about 110 TWh.

In assessing whether there is sufficient plant to meet this target, REF extracted the entire dataset from DECC's Renewable Energy Planning Database (REPD) on the 24th of April 2014, and calculated total capacities in each of the categories, *Operational*, *Under Construction*, *Awaiting Construction*, and *Submitted to the planning system*, for the technologies covered by the data set.

It is very likely that those awaiting construction will actually be built, with many projects aiming to register under the Renewables Obligation before 2017 when the system closes to new entrants and projects must register under the less generous Feed-in Tariff with Contracts for Difference (FiTs CfDs). Therefore, the capacity potentially

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[2] The National Audit Office study of the LCF is a useful starting point, with detailed references: http://www.nao.org.uk/wp-content/uploads/2013/11/10303-001-Levy-Control-Framework.pdf

[3] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47871/25-nat-ren-energy-action-plan.pdf

already available to meet the 2020 target is the sum of that already operational and that under or awaiting construction, in other words the "consented"capacity.

It is possible to calculate the probable output from this consented capacity by employing technology specific load factors from DECC's own data, as summarized in the table below.

**Table 1: Renewable Electricity Generation Capacities, Operational, Under and Awaiting Construction, and Submitted to the planning system, together with estimated outputs. Sources: DECC Renewable Energy Planning Database (REPD); *Digest of United Kingdom Energy Statistics* (2013).**

| Project Status | Biomass | Hydro | Solar | Tidal | Waste | Wind Offshore | Wind Onshore | Total |
|---|---|---|---|---|---|---|---|---|
| Operational (GW) | 3.0 | 0.4 | 1.1 | 0.0 | 0.5 | 3.7 | 7.3 | 16.1 |
| Under Construction (GW) | 0.3 | 0.01 | 0.6 | - | 0.5 | 1.4 | 1.5 | 4.3 |
| Awaiting Construction (GW) | 2.9 | 0.1 | 1.5 | 0.1 | 0.9 | 4.3 | 5.1 | 15.0 |
| Total Consented Capacity (GW) | 6.2 | 0.5 | 3.2 | 0.1 | 1.9 | 9.4 | 13.9 | 35.3 |
| Submitted in the Planning System (GW) | 0.5 | 0.02 | 1.4 | 0.3 | 0.2 | 9.1 | 6.5 | 17.9 |
| Load factor | 66% | 36% | 10% | 8% | 68% | 34% | 26% | – |
| Est. output from consented capacity (TWh) | 36.0 | 1.7 | 2.8 | 0.1 | 11.3 | 27.8 | 31.1 | 110.8 |
| Est. output from capacities in planning (TWh) | 2.9 | 0.1 | 1.2 | 0.2 | 0.9 | 26.7 | 14.6 | 46.6 |

*Notes: a) Load factors derived from DECC, Digest of United Kingdom Energy Statistics* (2013)*, Table 6.5, use the conservative unchanged configuration data where possible. b) For reasons of concision, Geothermal and Wave data have been removed from the table, though their minor contributions are recorded in the totals.*

It can be seen that the 35.3 GW of consented capacity could generate about 111 TWh of electrical energy, which is sufficient to meet the 2020 electricity target.

However, DECC's REPD data does not include all renewable generation eligible to meet the target. Namely it omits:

a) Smaller solar photovoltaic and other generation that is constructed as permitted development and does not pass through the planning system

b) Existing large, unsubsidized, hydro.

c) Generation that is below 10 kW, regardless of whether it is visible in the planning system.

We are also aware from planning data obtained from local authorities in some areas, mostly in Scotland, that the REPD under-reports planning applications even in those

areas which it endeavours to cover. This is not entirely surprising, since the numbers of applications are large and difficult to track.

Employing data from DECC's *Digest of United Kingdom of Energy Statistics,* Table 6.4 we estimate that there is a further 1.2 GW of hydro generating about 3.9 TWh that is not recorded in the Renewable Energy Planning Database. Similarly, examination of the Renewables Obligation and Feed-in Tariff records, held by Ofgem, reveals that there is a further 1.2 GW of solar generation not recorded by REPD. We estimate that this would generate about 0.86 TWh.

Thus, the generation not recorded in REPD would add a further 4.8 TWh of generation in 2020, a roughly 5% surplus over the target.

Crucially, as the table shows, there is a further 18 GW of renewable capacity pending in the United Kingdom planning system. This is equivalent to half of the currently consented capacity. If we apply the same load factors to this pending capacity as were used to estimate output from the consented generators, we see that it could generate nearly 47 TWh of energy, which is equivalent to 42% of the projected electricity component of the renewable electricity target. This capacity if consented would breach the Levy Control Framework, which limits the consumer burden to £7.6bn in 2020, a burden that we judge to be in itself economically unsustainable.

**Thus we conclude that the planning system is bringing forward an oversupply of renewable electricity projects. This development effort is obviously premature, and the capital deployed is in jeopardy.**

**Furthermore, the necessity of assessing these planning applications leads to waste of valuable resources and increased costs for local authorities, statutory consultees, and local communities.**

**These capital and other resources could be more usefully directed towards meeting energy efficiency targets, or invention and innovation to drive down costs in the renewables sector.**

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