



Department for
Business, Energy
& Industrial Strategy

CONSUMER-FUNDED POLICIES REPORT

Actual and projected expenditure of BEIS' consumer funded energy policies for recent financial years.



November 2016

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1. Introduction and Scope

1. A number of BEIS' ¹ policies place obligations on energy suppliers. It is expected that suppliers will reflect the cost of compliance with these policies in the energy tariffs they offer.
2. This Report sets out the actual expenditure and outcomes of BEIS' consumer funded policies for recent financial years, including up to financial year 2015/16, and their projected expenditure over the planning horizon for each individual policy. Its purpose is to collate the gross costs and outcomes of these policies in a single, easily accessible document to provide greater transparency than would otherwise be possible.
3. The Report provides an update to the Command Paper published in November 2014 as part of the former DECC's Annual Energy Statement 2014² and covers the Renewables Obligation (RO), Feed-in Tariffs (FITs), Contracts for Difference (CFDs) (including Investment Contracts awarded under the Financial Investment Decision (FID) Enabling for Renewables process), Warm Home Discount (WHD), the Capacity Market (CM), and the Energy Company Obligation (ECO). It complements the former DECC's Annual Accounts and provides a more comprehensive picture than can be reflected in the Accounts under internationally-accepted accounting rules, which would exclude the ECO, RO, FITs and WHD by virtue of the fact that their cash-flows do not pass through the Department's Accounts.
4. Where possible, the Report sets out the actual spend under each consumer funded policy as well as the Government's latest spend projections. It goes on to describe the impact of these policies against Government objectives. It should be noted that the Report does not set out the net impact of all BEIS energy policies on consumer bills. This analysis of the cumulative net impact of energy and climate change policies on gas and electricity bills paid by households and businesses, including costs and

¹ On 14 July 2016 the Department of Energy and Climate Changes responsibilities were transferred to the new Department for Business, Energy and Industrial Strategy (BEIS)

² <https://www.gov.uk/government/organisations/department-for-business-innovation-skills>
<https://www.gov.uk/government/publications/annual-energy-statement-2014>

savings, has previously been set out separately in the report '*Estimated impacts of energy and climate change policies on energy prices and bills: 2014*³.

5. In addition, this report does not cover the core energy company costs of delivering energy to consumers and associated initiatives to reform and modernise the energy system, the modernisation of the metering system (i.e. smart metering), or the work to enable faster switching processes.
6. In its Spending Review in November 2015⁴ the Government announced a package of measures to reduce the projected cost of green policies on the average annual household energy bill by £30 from 2017. The bulk of these savings will come from reforms to the current ECO scheme. This will be replaced from April 2017 with a new cheaper domestic energy efficiency supplier obligation which will run for 5 years. The new scheme will upgrade the energy efficiency of over 200,000 homes per year, saving those homes up to £300 off their annual energy bill, tackling the root cause of fuel poverty and delivering on the Government's commitment to help 1 million more homes this Parliament. It also announced help to ensure that households at risk of fuel poverty can afford to heat their homes; the Government will extend the WHD to 2020-21 at current levels of £320 million a year, rising with inflation.
7. On 16 March 2016⁵, the Government announced that it will auction Contracts for Difference of up to £730 million this Parliament for up to 4 gigawatts of offshore wind and other less established renewables⁶, with a first auction of £290 million. Support for offshore wind will be capped initially at £105/MWh (in 2011-12 prices), falling to £85/MWh for projects commissioning by 2026. On 9th November 2016 the Government set out further details in relation to the next round⁷.

³ <https://www.gov.uk/government/publications/estimated-impacts-of-energy-and-climate-change-policies-on-energy-prices-and-bills-2014>

⁴ <https://www.gov.uk/government/news/spending-review-and-autumn-statement-2015-key-announcements>

⁵ <https://www.gov.uk/government/publications/budget-2016-documents/budget-2016>

⁶ For delivery years 2020/21-2025/26

⁷ <https://www.gov.uk/government/publications/draft-budget-notice-for-the-second-cfd-allocation-round>

2. Supporting Renewable and Low Carbon Electricity Generation within the Levy Control Framework

(a) The Levy Control Framework

8. Expenditure on policies to support the deployment of renewable and low carbon electricity generation is managed through the Levy Control Framework (LCF). The LCF allows Government to manage public expenditure paid for through consumers' energy bills, and reflects the importance this Government places both on keeping bills affordable and supporting renewable and low carbon electricity generation. It sets an annual budget for projected costs of all BEIS' low carbon electricity levy-funded schemes until 2020/21. Annual budgets are absolute (not cumulative) and rise year on year to £7.6bn in 2020/21 (in 2011/12 prices). Due to the high degree of uncertainty attached to future expenditure, LCF limits are subject to 20% headroom in a given year. However, if the LCF budget is projected to be exceeded in any year, the Department is required to take action to bring spending down.⁸
9. There is a balance to be struck for the LCF between giving investors sufficient clarity to allow the backing of large infrastructure projects versus retaining sufficient flexibility to respond to changes where necessary in order to protect the interests of the consumer; the Government considers the issue carefully when taking decisions on LCF spend. By their nature, the assumptions underpinning the LCF projections are uncertain and can change as and when technologies become more efficient, fossil fuel prices change and as the industry responds to Government policies – in particular by deploying faster and at a higher level than expected as has been the case under the RO and FITs. Such changes to the evidence underpinning the LCF assumptions in 2015 led to an increase in projected LCF spend which was reported by the Office for Budget Responsibility in July⁹, November¹⁰ last year and March 2016^{11,12}. In line with the LCF agreement, the

⁸ For background see http://webarchive.nationalarchives.gov.uk/20130129110402/http://www.hm-treasury.gov.uk/d/control_framework_decc250311.pdf and https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48244/3290-control-fwork-decc-levy-funded-spending.pdf

⁹ <http://cdn.budgetresponsibility.independent.gov.uk/July-2015-EFO-234224.pdf>

¹⁰ http://cdn.budgetresponsibility.independent.gov.uk/EFO_November_2015.pdf

¹¹ <http://cdn.budgetresponsibility.org.uk/March2016EFO.pdf>

¹² More detail on the drivers behind the LCF projections is at section (d)

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Government therefore announced changes to the RO and FIT schemes (the demand-led schemes subsidised through the LCF) to reduce the projected spend.

10. The sections below present the actual outturn data from the FITs and RO schemes between 2011/12 and 2014/15 (Table 1) as well as the Government's latest expectation of projected spend to 2020/21 in both 2011/12 and nominal¹³ prices (Tables 3 and 4). Assumptions and the key drivers underpinning these projections are also presented, taking into account the need to protect commercially sensitive information (section 2(d)).

(b) Levy Expenditure 2011/12 – 2015/16, Capacity and Electricity Generation

11. Table 1 below shows the actual expenditure under the RO, FITs and the administration costs incurred by the CFD administrator, the Low Carbon Contracts Company¹⁴. There is no expenditure on the CFD contracts in this period.

Table 1: LCF Actual Reported spend to date between 2011/12 to 2015/16 (£m, 2011/12 prices)

Scheme (£m, 2011/12 prices)	2011/12	2012/13	2013/14	2014/15	2015/16
RO¹⁵	1,460	1,895	2,395	2,785	3,265
FITs^{16,17}	150	480	635	775	985
CFD administration costs¹⁸				5	10
Total Expenditure	1,610	2,375	3,030	3,565	4,260

Figures are rounded to the nearest £5m. Totals may not sum due to rounding.

¹³ Costs based on current prices including inflation expectations out to 2020/21
¹⁴ The LCCC is a private limited company, wholly owned by the Secretary of State for Energy and Climate Change and was created to deliver a key element of the Government's Electricity Market Reform Programme. The LCCC was established to be the counterparty to CFDs.
¹⁵ RO spend data are calculated as obligation multiplied by the buy-out price. 15/16 Figures at: <https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-total-obligation-201516>
¹⁶ FITs data are available from the FITs annual reports <https://www.ofgem.gov.uk/environmental-programmes/feed-tariff-FIT-scheme/feed-tariff-reports-and-statistics/annual-reports>
¹⁷ FITs data for 2015/16 is available in the Ofgem Feed in Tariff annual Levelisation Notice <https://www.ofgem.gov.uk/publications-and-updates/feed-tariff-annual-levelisation-notice-2015-2016>
¹⁸ CFD Admin costs comprise LCCC actual costs (https://lowcarboncontracts.uk/sites/default/files/publications/LCCC_AR_web_aw.pdf)

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12. Table 2 below shows the total installed capacity¹⁹ and the total electricity generation resulting from the expenditure set out in Table 1 for the different schemes.

Table 2: LCF Total Capacity Installed and Total Electricity Generation 2011/12 to 2014/15

Scheme	2011/12	2012/13	2013/14	2014/15	2015/16
RO (total Capacity Installed) (GW)	12.5 ²⁰	16.3 ²¹	19.0 ²²	22.6 ²³	23.3 ²⁴
RO (total electricity generation) (TWh)²⁵	30.7	35.5	48.0	55.7 ²⁶	69.0
FITs (total Capacity Installed) (GW)²⁷	1.1	1.8	2.4	3.3	4.4
FITs (total electricity generation) (TWh)²⁸	0.5	1.7	2.6	3.8	5.8
Renewable generation relative to total electricity consumption (%)²⁹	8.6	10.0	13.7	16.5	20.2

¹⁹ Total Installed Capacity means the maximum capacity at which an Eligible Installation could be operated for a sustained period without causing damage to it (assuming the Eligible Low-carbon Energy Source was available to it without interruption)

²⁰ From the RO Annual Report 2011-12, page 39 figure 19

²¹ From the RO Annual Report Summary 2012-13, page 2

²² From the RO Annual Report 2013-14, page 16 figure 5

²³ From the RO Annual Report 2014-15, page 6

²⁴ All 2015/16 numbers are from Ofgem interim figures which include already accredited stations and a forecast of new build stations. Final figures are expected to be published by Ofgem in Spring 2017. We receive cost numbers from Ofgem prior to generation and capacity which is why we have final costs for 2016/16 but interim numbers for capacity and generation.

²⁵ Based on ROCs presented by suppliers equivalent generation, from Energy Trends table ET 6.3, available at: <https://www.gov.uk/government/statistics/energy-trends-section-6-renewables>

²⁶ From the RO Annual Report 2014-15, page 19

²⁷ Monthly Central Feed in Tariff Register Statistics, available at: <https://www.gov.uk/government/statistical-data-sets/monthly-central-feed-in-tariff-register-statistics>

²⁸ FITs annual reports, 2011/12 to 2014/15, at: <https://www.ofgem.gov.uk/environmental-programmes/feed-tariff-FIT-scheme/feed-tariff-reports-and-statistics/annual-reports>

²⁹ From Digest of UK Energy Statistics: Table 6.7 <https://www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes>

(c) Projected Levy Expenditure 2016/17 to 2020/21

13. Table 3 below shows projected spend by scheme from 2016/17 to 2020/21. For all of the years considered, if there are no further cost-control measures beyond the ones referred to in this report, the projection is that the total cost will exceed the annual budget for each year by between 5% and 15%. In no year, however, is the 20% headroom exceeded. These reflect our central assumptions around the key drivers of LCF expenditure. In practice, the outturn expenditure is driven by market-based factors which are inherently uncertain.

14. Overspend of the LCF is judged relative to the budget without the headroom included to ensure maximum transparency and cost control. This is unusual for large infrastructure projects which would normally include the overhead in the overall budget.

Table 3: LCF Projected expenditure between 2016/17 and 2020/21 (£m, 2011/12 prices)

Scheme	2016/17	2017/18	2018/19	2019/20	2020/21
LCF Budget	4,900	5,600	6,450	7,000	7,600
LCF Budget including headroom	5,880	6,720	7,740	8,400	9,120
RO	3,945	4,605	5,060	5,125	5,095
FITs	1,105	1,125	1,140	1,140	1,140
CFD³⁰³¹	130	655	1,150	1,615	2,195
Total expected cost	5,185	6,380	7,355	7,880	8,435
Percentage of budget used including headroom (%)	90%	95%	95%	95%	90%

³⁰ Sum of CFDs, Investment Contracts, and LCCC operating costs

³¹ NB: the forecast cost of CFDs included in the LCF differs from the cost of those CFDs included in the Department's annual accounts. This is because the Fair Value of the CFD costs in the annual report are based on the full life of the CFD contract (typically 15yrs of state support has been given) but the LCF forecasts are only prepared for 5 years and for the purposes of LCF forecasting some of the modelling assumptions may differ from the assumptions used to value the CFD, as the valuation for financial reporting under accounting standards should be from a market participants perspective- which is not always aligned to the modelling assumptions used in the LCF- which can reflect assumed impacts of government policy.

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Percentage of budget used (%)	105%	115%	115%	115%	110%
Amount above annual cap	285	780	905	880	835

Figures are rounded to the nearest £5m or the nearest five percentage points. Totals may not sum due to rounding.

15. Table 4 shows the nominal prices for the projected LCF expenditure showed in Table 3, these numbers are published in the November OBR report that came out alongside the Autumn Statement³²³³.

Table 4: LCF Projected expenditure between 2016/17 and 2020/21 (£m, nominal prices)

£m, nominal prices	2016/17	2017/18	2018/19	2019/20	2020/21
LCF Budget	5,645	6,545	7,750	8,655	9,630
LCF Budget including headroom	6,775	7,855	9,300	10,385	11,555
RO	4,565	5,420	6,150	6,450	6,615
FITs	1,260	1,315	1,380	1,430	1,470
CFDs	140	720	1300	1,860	2,575
Total	5,970	7,455	8,825	9,735	10,665
Percentage of budget used including headroom (%)	90%	95%	95%	95%	95%
Percentage of budget used (%)	105%	115%	115%	110%	110%
Amount above annual cap	325	910	1,080	1,080	1,035

Figures are rounded to the nearest £5m or the nearest five percentage points. Totals may not sum due to rounding.

³² LCF projections for the OBR were produced ahead of Budget, and before HMT's decision on the level of Carbon Price Support (CPS) in 2020/21 was known. The level of CPS assumed in the projections of electricity wholesale prices was therefore slightly incorrect. This has a very small impact on the projection of CFD costs.

³³ <http://budgetresponsibility.org.uk/efo/economic-and-fiscal-outlook-november-2016/>

(d) Key Drivers of projected future LCF Expenditure, including changes since November 2014

16. The projections in Table 3 represent an assessment of future LCF expenditure in 2011/12 prices. They are based on the Renewable Energy Planning Database, commercial intelligence and consultancy advice relating to potential renewables deployment and load factors, and BEIS' modelling of wholesale electricity prices, drawing on BEIS' projections of electricity demand and fossil fuel prices assumptions. These reflect our central assumptions around the key drivers of LCF expenditure. In practice, the outturn expenditure is driven by market-based factors which are inherently uncertain.

17. There are four main assumption categories that drive the spend projections:

(i) Deployment

18. Deployment assumptions can be split into two categories: project start dates and capacity levels. There are particular uncertainties around the deployment of the RO and FITs, both of which are demand-led schemes which are sensitive to the prevailing economic climate, changes in the costs of technologies and reactions of the public and developers to proposed policy changes.

19. Details on RO and FITs deployment supporting BEIS projections are available on Ofgem's website³⁴ and renewables project details are published by BEIS each month in the Renewable Energy Planning Database³⁵. Future projections will be published by BEIS. Previous FITs deployment assumptions were published in the Impact Assessment for the FITs review on 27 August 2015 and updated as part of the Government's decision on the future of RO and FITs published in December 2015³⁶. The projections have been updated to reflect these changes.

20. The FID Enabling for Renewables process awarded eight Investment Contracts to developers in 2014. Seven of these Investment Contracts have now received State Aid approval from the European Commission and have been transferred to the Low Carbon Contracts Company. At the time of publication, one contract, the Drax Unit #1 biomass conversion Investment Contract, was still awaiting State Aid approval.

³⁴ <https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0>
³⁵ <https://www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract>
³⁶ <https://www.gov.uk/government/consultations/consultation-on-a-review-of-the-feed-in-tariff-scheme>

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21. In early 2015, the results of the first competitive CFD allocation round were announced³⁷. A total of 27 projects from a range of developers across Great Britain were successful in the auction and 25 went on to sign the contracts. Since the auction, two projects have had their contracts terminated, and some have adjusted their installed capacity estimates; the most recent estimate of capacity is therefore 1.6GW across 23 projects.
22. The Low Carbon Contracts Company closely monitors the expected start dates and deployment capacities for projects holding CFDs and Investment Contracts, using a combination of notifications from specific projects and other commercial intelligence.³⁸ Spend projections are updated accordingly.
23. Estimated capacities of key renewable technologies in 2020/21 in line with the latest LCF projections are at Tables 7 and 8 in section 2(e) below.

(ii) Load Factors

24. Load factors are a measure of the average output of an electricity generating plant relative to the maximum possible output. They can vary by both technology and by project. BEIS' assessment of load factors is supported through historic data, publically available through the annual Digest of UK Energy Statistics (DUKES) publication and the ROCs register, commercial intelligence and consultancy advice.³⁹ Load factor assumptions were published as part of the RO budget setting exercise for 2017/18⁴⁰. There is evidence that previous LCF load factor assumptions were underestimates which may have further contributed to the projected LCF spend exceeding the cap set.

(iii) Wholesale Price

25. The way the LCF treats CFD projects is sensitive to changes in the wholesale price of electricity. A generator with a CFD is paid the difference between the 'strike price' – a price for electricity reflecting the cost of investing in a particular low carbon technology – and the 'reference price', a measure of the average market price for electricity in the GB market. Therefore reductions in the wholesale price of electricity increase the difference payment and thus increase spending under the LCF budget.

³⁷ <https://www.gov.uk/government/statistics/contracts-for-difference-cfd-allocation-round-one-outcome>

³⁸ <https://lowcarboncontracts.uk/cfds>

³⁹ Arup (2016): Review of Renewable Electricity Generation Cost and Technical Assumptions
<https://www.gov.uk/government/publications/arup-2016-review-of-renewable-electricity-generation-cost-and-technical-assumptions>

⁴⁰ The LCF spending projections in the CFP report take account of asymmetric risk in load factor assumptions. There is evidence that previous LCF load factor assumptions were underestimates. BEIS's initial assessment is that load factors at the midpoint of ARUP's central and high scenarios represent a reasonable proxy for this risk (see Arup report link), and this is the approach taken in the CFP report. BEIS is undertaking further internal analysis to update its assumptions on future plant load factors across technologies.

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26. Wholesale electricity price scenarios are published annually as part of DECC's Energy and Emissions Projections update (future publications will be by BEIS). In order to reflect the fall in gas prices, in April 2015 DECC's low 2014 wholesale price scenario⁴¹ was assumed for the LCF projections, which as a consequence increased the projected cost of CFD subsidies. In November 2015, DECC published updated wholesale price scenarios⁴², which were reflected in the OBR's projections at that time. On the 9th November 2016 BEIS published updated fossil fuel price assumptions⁴³. This has resulted in an updated wholesale electricity price series (see Tables 5 and 6) used for the November OBR projections to be published alongside the Autumn Statement. BEIS will continue to regularly monitor and review the fossil fuel price assumptions in order to ensure projections are based on the most robust view of prices.

Table 5: 2016 Gas Price Assumption (p/therm, 2016 prices)

p/therm	Central
2016	39
2017	32
2018	32
2019	32
2020	32
2021	35

Table 6: 2016 Coal Price Assumption (USD/tonne, 2016 prices)

USD/tonne	Central
2016	44
2017	40
2018	40
2019	40
2020	40
2021	44

⁴¹ <https://www.gov.uk/government/publications/fossil-fuel-price-projections-2014>

⁴² <https://www.gov.uk/government/publications/fossil-fuel-price-projections-2015>

⁴³ <https://www.gov.uk/government/publications/fossil-fuel-price-assumptions-2016>

(iv) Policy Changes

27. Policy changes and proposed changes to policy also have effects on the deployment of projects and consequential changes to assumptions in the forecasts. For example, in light of the increasing LCF forecasts in 2015, the Government introduced a number of cost control measures to reduce costs, improve bill payer value for money and limit the effects on consumers who ultimately pay for renewable energy subsidies.

28. The projections set out in Table 3 above reflect a number of cost control measures⁴⁴ including:

- a. The Renewables Obligation (RO) closed to large-scale solar PV on 1 April 2015. This early closure was due to large-scale solar deploying much faster than previously expected and threatening to exceed the levels of deployment anticipated by the EMR delivery plan. Without intervention, deployment would have cost approximately £270m (£210-400m) a year more than our projections⁴⁵;
- b. Withdrawal of grandfathering for new biomass conversions under the RO was announced in July 2015, which protects against the risk of an additional cost of up to £500m per year by 2020/21⁴⁶;
- c. Removal of pre-accreditation under FITs on 1 October 2015 helped limit the risk of deployment surges, preserve budget for the future scheme and prevented developers locking into tariffs which evidence suggested offered poor value for money. Although we are not able to state exactly the cost impact of these changes, we have seen recent deployment surges of up to £120m per year⁴⁷;
- d. The recent FITs Review set out several measures to put the scheme on a sustainable, affordable footing. It ensured renewables projects were not overcompensated, particularly given estimated deployment for wind, hydro and anaerobic digestion had exceeded our 2020 projections from the 2012 FITs Review and we expect to be within the projected deployment range for solar PV by 2015/16. The measures included reducing generation tariffs for new entrants and introducing a system of deployment caps for each type of installation under the scheme. The Review also reintroduced pre-accreditation, as a means of enabling deployment under the revised, cost-controlled scheme. Changes came into effect on 8th February 2016 and are expected to save between £380m and £430m per year⁴⁸.

⁴⁴ All savings stated are in 2011/12 prices

⁴⁵ Table 1 in https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360305/141001_-_RO_closure_IA_government_response_v0_6_IAG_2014.pdf

⁴⁶ See Government response to consultation on changes to grandfathering policy with respect to future biomass co-firing and conversion projects in the Renewables Obligation at:

www.gov.uk/government/uploads/system/uploads/attachment_data/file/447327/Biomass_RO_Govt_Response.pdf

⁴⁷ <https://www.gov.uk/government/consultations/changes-to-feed-in-tariff-accreditation>

⁴⁸ <https://www.gov.uk/government/consultations/consultation-on-a-review-of-the-feed-in-tariff-scheme>

29. The updated projections also take into account the decision made by the then Secretary of State for Energy and Climate Change on the number of renewables obligation certificates (ROCs) that electricity suppliers are required to produce during the 2016/17 obligation period. Details were published on 30th September 2015⁴⁹. The budget is set annually and has increased since the RO was introduced in 2002. (The details of the 17/18 obligation period were published on 1st October 2016⁵⁰ and will be included in the estimates published by the Office for Budget Responsibility at the Autumn Statement 2016).
30. In the 2015 Spending Review, the Government confirmed that the £1 billion ring-fenced capital budget to support the CCS Competition was no longer available. Following discussions with both bidders, and confirmation from them that the projects will not be able to continue in the near term, the Government took the decision to end the CCS Competition, and the updated estimates on CFD spend in 2019/20 and 2020/21 reflect this.
31. Additional actions since the production of the projections included in Table 3, which will further reduce the costs of the LCF include:
- a. the RO in Great Britain closed to new onshore wind from 13 May 2016, reducing spend under the LCF by around £20m per year; and
 - b. closing the RO early to solar PV of 5MW and below will reduce forecast spending under the LCF of between £60m and £100m per year⁵¹. This measure is in response to small-scale solar deploying much faster than anticipated.

(e) Renewables Capacity by Technology

32. Table 7 below shows that the estimated capacity of selected renewable technologies in 2020/21 after our cost control measures are implemented⁵² is still projected to be within

⁴⁹ <https://www.gov.uk/government/publications/renewables-obligation-level-calculations201617>

⁵⁰ <https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201718>

⁵¹ <https://www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation>

⁵² Announced cost control measures are the early closure of the RO to sub 5MW and over 5MW solar and the removal of grandfathering for biomass conversions under the RO. The capacity excludes the impact of the proposed closure of the RO early to onshore wind and the proposed reduction in support levels for solar PV generating stations at 5MW and below under the RO (note: cost projections in Tables 3 and 4 do not include these impacts).

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or above the expected deployment ranges published in the 2013 Electricity Market Reform (EMR) Delivery Plan⁵³.

Table 7: 2020/21 estimated renewable deployment compared to EMR Delivery Plan ranges (GW)

<i>GW, 2020/21. Includes delivery under Contracts for Difference (including Investment Contracts) and the Renewables Obligation (RO)</i>	Total	EMR Delivery Plan range
Offshore wind⁵⁴	10.4	8 – 15
Onshore wind	13.4	11 – 13
Solar	8.0	2.4 – 4
Biomass Conversions	2.3	1.7 – 3.4

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/181213_2013_EMR_Delivery_Plan_FINAL.pdf

54 Excludes Hornsea phase 3, estimated capacity 400 MW as Target Commissioning Date is after 2020/21

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33. Table 8 also compares the current estimated capacity for solar and onshore wind under FITs to the level of expected deployment set out in the FITs Review in 2012 and takes into account announced cost control measures⁵⁵.

Table 8: 2020/21 estimated FITs deployment compared to 2012 FITs Review expectations (GW)

<i>GW, 2020/21 capacity estimates under FITs</i>	Total	2012 FITs Review estimate
Onshore wind	0.7	0.3
Solar	4.7	3.5 - 21.1

⁵⁵ These are: the FITs Review and the removal of pre-accreditation for FITs projects in September 2015 and its reintroduction in December 2015.

3. Other Consumer Funded Schemes

(a) The Capacity Market

34. The Capacity Market⁵⁶ ensures security of electricity supply by providing a payment for reliable sources of capacity, alongside their electricity revenues, to ensure they are able to deliver electricity when needed. It is not a policy subsidy but effectively an element of the competitive energy market, dealing in capacity where the parallel wholesale market deals in delivered output. It encourages the investment we need to replace older power stations and provide backup for more intermittent and inflexible low carbon generation sources.
35. The Capacity Market is part of the Levy Control Framework (LCF), but Capacity Market spend is in addition to the existing £7.6 billion (2011/12 prices) LCF cap for low carbon electricity. The first payment for the main Capacity Market scheme will be made in 2017⁵⁷, although payments under the Transitional Arrangements⁵⁸ commenced in 2016.
36. Auctions are run four years in advance of delivery (T-4 auctions) to enable sufficient lead-in time for any necessary new capacity to be built and commission before the delivery year. Due to the difficulties in precisely predicting demand four years ahead of time, additional auctions will be run one year ahead of delivery (T-1 auctions) in order to top up capacity if needed.
37. Auction clearing prices and bill impacts in the below sections are expressed in 2015 prices (except Table 9 which is in nominal terms).
38. The first T-4 capacity auction in December 2014 cleared at a price of £20/kW/yr and procured 49.3GW of capacity for delivery in 2018/19.⁵⁹ This means that the total cost of the capacity procured for 2018/19 is £1bn. An initial estimate of the gross cost for an average household of the first auction is around £12 for delivery year 2018/19.

⁵⁶ <https://www.gov.uk/government/collections/capacity-market-2016>

⁵⁷ Due to the introduction of the Early Auction. Further detail available at <https://www.gov.uk/government/collections/capacity-market-parameters-for-t4-auction-for-202021-and-early-auction-and-transitional-arrangements-auction-for-20172018>

⁵⁸ Pilot Capacity Market auction for Demand Side Response.

⁵⁹ The clearing price was £19.4/kW/year in 2012 prices. Further information is available at <https://www.emrdeliverybody.com/Capacity%20Markets%20Document%20Library/T-4%202014%20Final%20Auction%20Results%20Report.pdf>

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However, this figure does not take into account the wholesale electricity price reduction that is expected with the introduction of the Capacity Market. This reduction is caused by avoiding price spikes that would have occurred had the Capacity Market not been there.

39. The second T-4 capacity auction in December 2015 cleared at a price of £18/kW/yr and secured 46.4GW for delivery in 2019/20.⁶⁰ This means that the auction will cost a total of around £834m which will add around £10 to the average household bill in the 2019-20 delivery year. Again, the security that the capacity market provides is expected to reduce spikes in the wholesale energy price, meaning bill payers are expected to pay less than that.
40. As part of the development of the Capacity Market, the Government developed policy for holding two Transitional Arrangement auctions targeted specifically at Demand Side Response (DSR). Transitional Arrangement auctions are designed to encourage enterprise in this important emerging sector, and increase levels of DSR participation in the two years preceding full Capacity Market delivery in 2018/19.
41. The first Transitional Arrangement auction, for delivery in 2016/17, was completed in January 2016, contracting 803MW of capacity at a clearing price of £27.50/kW/yr.⁶¹ A second Transitional Arrangement auction is planned for delivery in 2017/18.
42. Following a consultation in March 2016, a package of reforms to the Capacity Market was confirmed. Responses to the March consultation reflected clear support from industry and investors for three key reforms which will ensure the Capacity Market continues to deliver energy security:
- Buying more capacity and buying it earlier;
 - Toughening sanctions for firms which go back on their Capacity Market agreements;
 - Bringing forward the Capacity Market by one year to the winter of 2017/2018.
43. In light of these responses, the Government will hold an auction this winter for delivery in 2017/2018 and will proceed with its other core proposals in the consultation, giving both bill-payers and the energy industry more certainty for the coming winters. As with all previous Capacity Market auctions the Early Auction is a competition and the final cost will depend on the clearing price; for this reason it is difficult to predict exact costs.

⁶⁰ Further information available at <https://www.emrdeliverybody.com/Capacity%20Markets%20Document%20Library/T-4%20Final%20Results%202015.pdf>

⁶¹ Further information available at <https://www.emrdeliverybody.com/CM/TAUpdates.aspx>

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However, BEIS modelling analysis suggests that the Early Auction could cost between £2bn and £3bn.⁶²

44. The net cost impact of the new auction on an average annual household bill for 2017/18 could be between around £10 and £21 where the number of plant closures is in line with those already announced. This is a single year cost and acts as an insurance policy against future spikes in prices by securing supply in advance.
45. Table 9 shows the actual costs of the Capacity Market auctions already held⁶³, expressed in financial year (FY), not capacity market delivery year (which runs from October to September). It is therefore worth noting that costs for FY 2016/17 and 2017/18 are primarily only those of the small-scale first Transitional Arrangements auction; costs for FY 2018/19 to 2020/21 are primarily the costs of the first and second T4 auctions. As the T4 auctions buy most, but not absolutely all, of the capacity expected to be needed for their delivery years, those figures may eventually need to be supplemented with the costs of any additional capacity procured at the one-year ahead “T1” stage. The table also includes an estimate for institutional costs⁶⁴ starting from 2015/16.

⁶² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/521302/CM_Impact_Assessment.pdf

⁶³ These figures do not include any estimates for auctions yet to be held, i.e. the T-4 Auction scheduled for December 2016, the scheduled January 2017 Early Auction for delivery in 2017/18, or the second Transitional Arrangement auction planned for the 2017/18 delivery year. Any subsequent auction estimates are also excluded.

⁶⁴ Administrative costs of the Electricity Settlement Company (ESC) which administers the capacity market. These were first incurred in 2014/15, with an impact of roughly £1m

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Table 9: Estimated Costs (£m, nominal) from T-4 and TA Capacity Market auctions already held – Financial Years

£m, nominal	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
T-4 auctions (2014-2016) (1 Year contracts)	-	-	-	496	910	978
2014 T-4 auctions (2014-2016) (multi-year contracts)	-	-	-	63	129	160
Transitional Arrangements Auctions (2016-2017)	-	12	11	-	-	-
Institutional costs	4	4	4	4	4	4
Total - Capacity Market actual spend	4	16	15	563	1,043	561

*Estimate of institutional costs starting from 2015/16

(b) Tackling Fuel Poverty: The Warm Home Discount Scheme

46. Under the Warm Home Discount Scheme (WHD), set up in 2011, energy companies and the Government work together to provide financial support to customers who are in, or at risk of being in, fuel poverty. The scheme usually runs from April to March, though most support is provided from August to March and means that qualifying customers obtain a rebate on their winter electricity costs.

47. WHD is also classified as a levy and was included in the original Levy Control Framework agreement of 2011. However, the WHD was not included in the £7.6bn LCF cap, agreed in 2012, which applies to renewable and low carbon electricity only.

48. In 2014/15, total spending on the WHD by suppliers was £326 million. Of the total, £306 million was spent on direct rebates resulting in nearly 2.2 million households receiving £140 off their electricity bills.

49. The Scheme actual spend on 2015/16 was £315m, when more than 2 million households received £140 off their electricity bills. The Scheme has a spending target of £321m for 2016/17.

Table 10: WHD Actual Spend and Target Spend (£m, Nominal)

£m, nominal	2013/14	2014/15	2015/16	2016/17
Warm Home Discount actual and target spend	291	326	315	321 (spending target)

50. To help ensure that households at risk of fuel poverty can afford to heat their homes, the Government will extend the WHD to 2020-21 at current levels of £320 million a year, rising with inflation.

51. Ofgem has published annual reports for the first four years of the scheme.⁶⁵ The Government consulted on the scheme for 2016/17 and 2017/18 this year, and published the response to that consultation on 29th June 2016⁶⁶.

⁶⁵ <https://www.ofgem.gov.uk/environmental-programmes/social-programmes/warm-home-discount/warm-home-discount-reports-and-statistics>

⁶⁶ <https://www.gov.uk/government/consultations/warm-home-discount-scheme-201617>

(c) Improving Energy Efficiency: The Energy Company Obligation

52. The Energy Company Obligation (ECO) is classified as a regulation and does not form part of the LCF, therefore it is not included in the £7.6 billion LCF cap. However, it is ultimately funded by energy consumers, since the activity needed to meet the obligation imposes costs on energy suppliers. It is therefore appropriate to consider its costs in this report.
53. ECO falls on larger energy suppliers (those with more than 250,000 gas and electricity customer accounts), however obligations are based on the volumes of electricity and gas they supply to incentivise them to recover the cost through the unit rate rather than the standing charge. ECO targets are expressed not as expenditure but as set levels of carbon emissions reductions, and reductions in notional household heating bills, which the companies have to meet by funding energy efficiency improvements in homes across Great Britain⁶⁷.
54. As the targets are non-financial, compliance costs cannot be set out with certainty. The Department has worked closely with the obligated companies to create a degree of transparency on the actual incurred costs of the obligation, and this information is published quarterly in the National Statistics series⁶⁸. However there are inevitable uncertainties around projected future costs and the figures should be treated with caution.
55. The 2015 Spending Review announced a package of measures to reduce the projected cost of green policies on the average annual household energy bill by £30 from 2017, with the bulk of these savings coming from reforms to the ECO scheme. It announced that there will be an energy efficiency supplier obligation in place until 2022. A consultation on a one-year transition to a long-term scheme was published on 29th June 2016.⁶⁹ BEIS estimates that households receiving ECO improvements will save up to £300 off their heating bill per year, depending on the measures installed.
56. Legally-binding targets have been set for the period to March 2017, when the current ECO scheme ends. Estimated costs for the scheme up to March 2017 were published in the Impact Assessment alongside the Government's 2014 consultation response⁷⁰.

⁶⁷ For more background please see Ofgem's website <https://www.ofgem.gov.uk/environmental-programmes/energy-company-obligation-eco>

⁶⁸ <https://www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics#detailed-statistics>;

⁶⁹ <https://www.gov.uk/government/consultations/energy-company-obligation-eco-help-to-heat>

⁷⁰ <https://www.gov.uk/government/consultations/the-future-of-the-energy-company-obligation>

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Table 11 also includes figures from April 2017 onwards based on the 2015 Spending Review.

Table 11: ECO Estimated Costs (£m, 2013 prices)

£m, 2013 prices	Jan 2013 – March 2014	April 14 – March 15	April 15 – March 16	April 16 – March 17	April 17 – March 18 ⁷¹	April 18 – March 19	April 19 – March 20	April 20 – March 21
Energy Company Obligation estimated costs	1,475	787	787	787	600	600	600	600

57. Since the scheme commenced in January 2013, over 1.9 million measures have been installed, benefiting around over 1.54 million homes up to the end of July 2016⁷².

58. By March 2017, assuming energy suppliers meet their targets, they will have delivered 39.2 million notional lifetime tonnes of CO₂ savings under the carbon targets and £7.9 billion notional lifetime heating cost savings under the Affordable Warmth target. We estimated in our Impact Assessment that, to meet these targets, around 1.9 million households will be supported through the installation of around 1.6 million insulation measures and 0.5 million heating measures.

59. The estimated carbon and energy savings relating to measures installed through the Carbon Emission Reduction Obligation and the Carbon Saving Communities Obligation⁷³, up to the end of March 2016 was 25.44 million tonnes of CO₂. We have also estimated that the lifetime bill savings for Affordable Warmth ECO measures installed, up to 31 March 2016 will result in around £6.88bn worth of notional lifetime bill savings⁷⁴.

⁷¹ 2017/18 onwards are spending targets set out in the 2015 Spending Review

⁷² <https://www.gov.uk/government/statistics/household-energy-efficiency-national-statistics-headline-release-october-2016>

⁷³ There are three main sub obligations under ECO (Carbon Emission Reduction Obligation, Carbon Saving Communities Obligation and Affordable Warmth)

⁷⁴ Source: <https://www.gov.uk/government/statistics/household-energy-efficiency-national-statistics-headline-release-june-2016>

4. Affordability

60. The single largest portion of household dual fuel bills comes from the cost to energy suppliers of purchasing gas and electricity (the ‘wholesale cost’)⁷⁵. These costs are, in large part, determined by international markets and are difficult to predict. The costs of energy and climate change policies make up a much smaller proportion of the bill – estimated at around 7% in 2015, excluding the cost of carbon.⁷⁶
61. The Government is committed to maintaining our energy security and decarbonising our energy system in a cost-effective way. It is working to keep bills low by encouraging more competition, making switching energy supplier easier, and managing public subsidies paid for through energy bills.
62. Government support for renewable technologies has driven down their costs. We are focusing our support for low carbon generation, as part of our efforts to maintain downward pressure on costs on consumers’ bills. Cost control measures to put the RO and FITs on a sustainable footing and reduce the impact that increases in deployment would have on future electricity bills are estimated to save the average household around £6 in 2020/21⁷⁷. We have not yet decided whether to pursue any of the proposed options for supporting these more mature technologies through further CFD allocation rounds but continue to welcome input from market participants.
63. The WHD and ECO schemes described in this report make an important contribution to supporting vulnerable households and improving the energy efficiency of our homes. We have made a commitment to insulate one million more homes this Parliament, supporting our commitment to tackle fuel poverty. We are providing support for households to improve their energy efficiency through a reformed domestic supplier obligation (ECO) from April 2017. This will run for five years, and will improve the energy efficiency of over 200,000 homes per year, tackling the root cause of fuel poverty, as well as reducing emissions.

⁷⁵ Ofgem estimate that, in 2015, wholesale costs accounted for around 43% of the average household dual fuel bill. Source: <https://www.ofgem.gov.uk/information-consumers/domestic-consumers/understanding-energy-bills>.

⁷⁶ Source: ibid. Figures exclude the cost of carbon (i.e. the costs of the EU Emissions Trading System and the Carbon Price Support), which is accounted for in the wholesale cost element of the bill in Ofgem’s source data.

⁷⁷ Nominal, as set out in Autumn Statement

2015: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/479749/52229_Blue_Book_PU1_865_Web_Accessible.pdf

64. Section 3(c) above describes the Government's plans for changes to ECO.

Furthermore, the Government continues to work with Ofgem, energy suppliers and others to keep energy bill as low as possible. Ofgem, with Government support, is making changes so that consumers can switch energy supplier and get a better deal in just 24 hours. Also, smart meters in every home and business from 2020 will help support next day switching, make bills more accurate and provide real time data on how much energy households use.

65. Taking into account the impact of the Government's policies to promote energy efficiency and support vulnerable households, the overall impact of energy and climate change policies has been to keep average household dual fuel bills lower than they would have been if the Government had taken no action.

Annex A

Wholesale price and Transmission Loss Multiplier assumptions

Wholesale Price, £/MWh⁷⁸	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
2011/12 prices	39.45	34.57	35.05	34.94	35.33	36.33

Source: BEIS modelling using the Dynamic Dispatch Model and fossil fuel price assumptions as detailed in the main report

Transmission Loss Multiplier	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
2011/12 prices	0.792%	0.792%	0.792%	0.792%	0.792%	0.792%

Source: National Grid Future Energy Scenarios

⁷⁸ wholesale prices are in £2011/12 CPI real prices and are TLM-adjusted