Title: Widening eligibility for energy intensive industries in the schemes providing relief from the indirect costs of renewable energy policies **IA No:** BEIS013(C)-18-IM **RPC Reference No:** N/A **Lead department or agency:** BEIS **Other departments or agencies:** N/A	**Impact Assessment (IA)** **Date:** **Stage: Consultation** **Source of intervention: Domestic** **Type of measure:** Secondary legislation **Contact for enquiries: Amy Richards (Amy.Richards@beis.gov.uk)**

Summary: Intervention and Options — **RPC Opinion:** Not Applicable

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANDCB in 2017 prices)	**One-In, Three-Out**	**Business Impact Target Status**
0	N/A	N/A	Not applicable	Not applicable

What is the problem under consideration? Why is government intervention necessary?

The UK provides eligible electricity intensive businesses with relief for the indirect costs of the Renewables Obligation (RO), Small Scale Feed in Tariff (FIT) and the Contract-for-Difference (CFD) schemes. Some businesses have suggested that current eligibility requirements result in intra-sectoral competitive distortions but evidence on the magnitude of this impact is limited. This IA assesses the impact of widening the eligibility criteria for the relief exemption schemes, enabling a greater number of businesses to benefit from the relief.

What are the policy objectives and the intended effects?

The key objective is to reduce existing intra-sectoral competitive distortions. This could occur in a particular sector, where some businesses are just below and some just above the eligibility threshold for the relief schemes. Eligible businesses could face a competitive advantage compared to ineligible competitors as they pay a lower cost per unit of electricity. Since many of these businesses operate internationally, a prolonged distortion could change the flow of businesses' internal investments away from UK sites and towards other international locations, negatively impacting UK employment and GDP.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

A business is eligible for the relief schemes if they produce an eligible product and meet the 'business level test', where their electricity intensity must be at or above 20%. The government is considering adjusting the threshold for the business level test:

- Option 1: 'Do Nothing', retain the 20% threshold.
- Option 2: Adjust the threshold to 17% for certain businesses*.
- Option 3: Adjust the threshold to 15% for certain businesses*.
- Option 4: Adjust the threshold to 10% for certain businesses*.
- Option 5: Adjust the threshold to 17% for certain businesses* but lower the percentage of aid to 50% for newly eligible businesses.
- Option 6: Adjust the threshold to 15% for certain businesses* but lower the percentage of aid to 50% for newly eligible businesses.
- Option 7: Adjust the threshold to 10% for certain businesses* but lower the percentage of aid to 50% for businesses with a threshold between 15% and less than 20%, and to 35% for businesses with a threshold between 10% and less than 15%.

Will the policy be reviewed? It will not be reviewed. **If applicable, set review date: N/A**

Does implementation go beyond minimum EU requirements?		Yes		
Are any of these organisations in scope?	**Micro** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded: N/A**	**Non-traded: N/A**	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: ..... Date: .....

Summary: Analysis & Evidence

Policy Option 2

Description: Adjust the electricity intensity threshold to 17% for certain businesses.

FULL ECONOMIC ASSESSMENT

Price Base Year 2017	PV Base Year N/A	Time Period Years N/A	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £1 for a household, £100 for a small business energy user, £3,000 for a medium business energy user, and £30,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £5,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands. Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests this will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses will face lower electricity prices by up to 85% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £2.8m per business. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m: N/A			Score for Business Impact Target (qualifying provisions only) £m: N/A
Costs: N/A	**Benefits:** N/A	**Net:** N/A	

Summary: Analysis & Evidence

Policy Option 3

Description: Adjust the electricity intensity threshold to 15% for certain businesses.

FULL ECONOMIC ASSESSMENT

Price Base Year 2017	PV Base Year N/A	Time Period Years N/A	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £2 for a household, £100 for a small business energy user, £6,000 for a medium business energy user, and £50,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £8,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands. Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses will face lower electricity prices by up to 85% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £2.8m per business. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m: N/A			Score for Business Impact Target (qualifying provisions only) £m: N/A
Costs: N/A	**Benefits:** N/A	**Net:** N/A	

Summary: Analysis & Evidence

Policy Option 4

Description: Adjust the electricity intensity threshold to 10% for certain businesses.

FULL ECONOMIC ASSESSMENT

Price Base Year 2017	PV Base Year N/A	Time Period Years N/A	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £4 for a household, £300 for a small business energy user, £12,000 for a medium business energy user, and £110,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £17,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands. Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses will face lower electricity prices by up to 85% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £2.8m per business. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m: N/A			Score for Business Impact Target (qualifying provisions only) £m: N/A
Costs: N/A	**Benefits:** N/A	**Net:** N/A	

Summary: Analysis & Evidence — Policy Option 5

Description: Adjust the electricity intensity threshold to 17% for certain businesses but lower the percentage of aid to 50% for newly eligible businesses.

FULL ECONOMIC ASSESSMENT

Price Base Year N/A	PV Base Year N/A	Time Period Years N/A	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £1 for a household, £100 for a small business energy user, £2,000 for a medium business energy user, and £20,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £3,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands (especially if different businesses have different aid intensity entitlements). Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses will face lower electricity prices by up to 50% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £1.6m per business. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks — **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 5)

Direct impact on business (Equivalent Annual) £m: N/A			Score for Business Impact Target (qualifying provisions only) £m: N/A
Costs: N/A	**Benefits:** N/A	**Net:** N/A	

Summary: Analysis & Evidence

Policy Option 6

Description: Adjust the electricity intensity threshold to 15% for certain businesses but lower the percentage of aid to 50% for newly eligible businesses.

FULL ECONOMIC ASSESSMENT

Price Base Year N/A	**PV Base Year** N/A	**Time Period Years** N/A	**Net Benefit (Present Value (PV)) (£m)**		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Cost** (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £1 for a household, £100 for a small business energy user, £3,000 for a medium business energy user, and £50,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £5,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands (especially if different businesses have different aid intensity entitlements. Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Benefit** (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses will face lower electricity prices by up to 50% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £1.6m per business. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 6)

Direct impact on business (Equivalent Annual) £m: N/A			**Score for Business Impact Target (qualifying provisions only) £m: N/A**
Costs: N/A	**Benefits: N/A**	**Net: N/A**	

Summary: Analysis & Evidence

Policy Option 7

Description: Adjust the electricity intensity threshold to 10% for certain businesses but lower the percentage of aid to 50% for businesses with a threshold between 15% and less than 20%, and to 35% for businesses with a threshold between 10% and less than 15%.

FULL ECONOMIC ASSESSMENT

Price Base Year N/A	PV Base Year N/A	Time Period Years N/A	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate: N/A**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised costs by 'main affected groups'

Consumers who are not eligible for the relief schemes see an increase in their electricity bills as they pay more of the RO, FIT and CFD policy costs. The average estimated annual bill increase is: £2 for a household, £100 for a small business energy user, £6,000 for a medium business energy user, and £60,000 for an ineligible business operating in an energy intensive industry. Currently eligible businesses also see a rise in their bills of £8,000 per business. These are all transfers so the Net Present Value is nil.

Other key non-monetised costs by 'main affected groups'

The UK government, electricity suppliers, Ofgem and Elexon could face additional administrative burdens as the number of businesses in the schemes expands (especially if different businesses have different aid intensity entitlements). Further, higher electricity costs may decrease households' disposable incomes, this will have a disproportionately large effect on poorer income groups but analysis suggests will not increase the number we consider 'fuel poor'.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	N/A		N/A	**N/A**

Description and scale of key monetised benefits by 'main affected groups'

Newly eligible businesses with an electricity intensity between 15% and less than 20% will face lower electricity price by up to 50% of the RO, FIT and CFD policy costs. Newly eligible businesses with an electricity intensity between 10% and less than 15% will face lower electricity prices by up to 35% of the RO, FIT and CFD policy costs. There will be a fall in their electricity bills by an estimated average of £1.6m and £1.2m per business, respectively. These are all transfers so the Net Present Value is nil. This assumes FIT will become an exemption by 1st April 2019.

Other key non-monetised benefits by 'main affected groups'

There may be greater investment flows in the UK, since newly eligible firms face a fall in their production costs. This may help to retain high skilled labour in the UK. There may be a reduction in supply chain costs for businesses using products manufactured by energy intensive industries. This could increase employment and UK investment, resulting in a rise in the rate of growth of UK GDP.

Key assumptions/sensitivities/risks **Discount rate** N/A

The key assumptions are: a). all businesses that are currently eligible for the schemes receive the exemptions; b). all newly eligible businesses apply for the schemes; c). there is no correlation between electricity intensity and electricity consumption; d). electricity consumption is stable over the time period considered; and e). the FIT relief scheme will become an exemption on 1st April 2019.

BUSINESS ASSESSMENT (Option 7)

Direct impact on business (Equivalent Annual) £m: N/A			Score for Business Impact Target (qualifying provisions only) £m: N/A
Costs: N/A	**Benefits:** N/A	**Net:** N/A	

Evidence Base

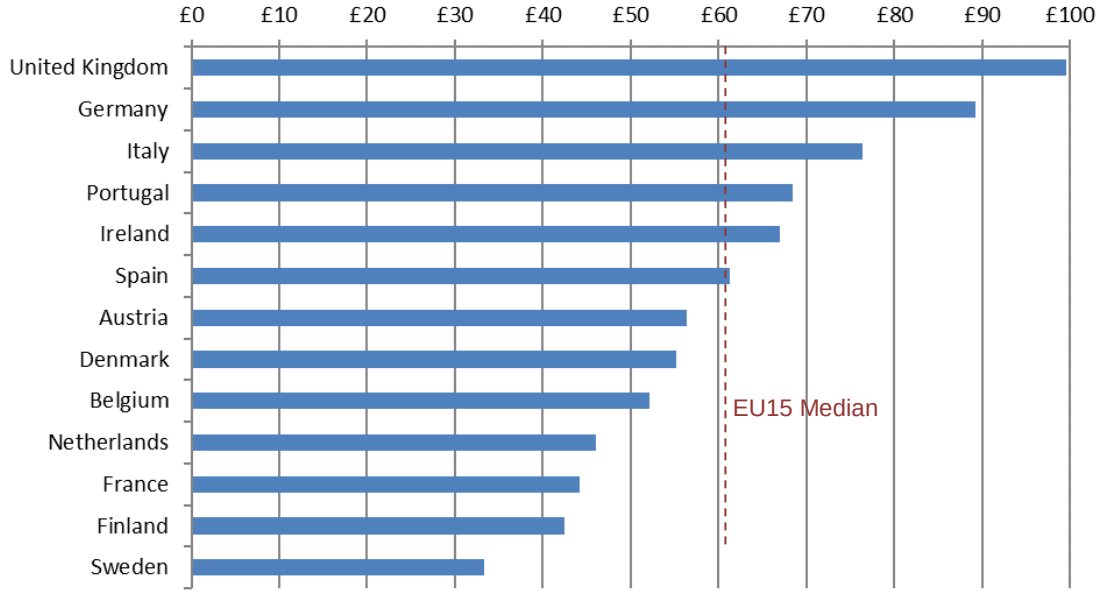
Description of status quo

1. The UK government is committed to meeting legally binding targets to reduce greenhouse gas emissions by at least 80% by 2050 against 1990 levels. At the same time, the government is committed to ensuring that the UK economy remains both competitive and innovative.

2. Policies designed to incentivise generation of electricity from renewable and low carbon sources are a key element of the government's approach. Specifically, the government has put in place the Contract-for-Difference (CFD), Renewables Obligation (RO) and the Small Scale Feed in Tariff (FIT) schemes to support financing deployment of renewable electricity. The RO scheme closed in 2017, subject to certain grace periods. The costs of these schemes are paid for through consumers' electricity bills. For more details on these policies, see Annex 1.

3. The UK government recognises that the RO, FIT and CFD schemes contribute to higher retail electricity prices relative to other countries. Higher retail electricity prices in the UK risks putting electricity intensive businesses at a significant competitive disadvantage. As Chart 1 shows, UK extra-large industrial electricity prices are the highest in the EU15, 77% higher than the EU15 median. Electricity-Intensive Industries (EIIs) are hardest hit by these schemes[1], particularly those operating in internationally competitive markets since costs are unable to be passed onto their consumers.

Chart 1: Retail electricity prices for extra-large industrial users[2] in the EU (£/MWh)



[1] Since rises in retail electricity prices significantly increase an EII business' input costs as electricity is a key component in their manufacturing process. For example, energy costs amount to around 32% of overall costs in the steel and iron sector and over 100% of Gross Value Added.

[2] Extra-large industrial users are defined as those consuming between 70,000 MWh and 150,000 MWh of electricity.

Source: Eurostat, season 1 2017 data

4. In recognition of this, the government exempts or compensates EIIs who risk being put at a significant competitive disadvantage from the indirect costs of the RO, FIT and CFD schemes, in line with the European Commission's guidelines[3].

5. The CFD relief scheme currently operates as an exemption, where the costs of up to 85% of the CFD scheme that would otherwise be borne by eligible EIIs are passed on to non-exempt consumers through higher retail electricity prices. The RO relief scheme has operated as an exemption since April 2018.The FIT relief scheme remains a compensation scheme, where the cost of the scheme will be borne by BEIS. Government has not yet published a decision on the proposed move from compensation to exemption for this scheme. This Impact Assessment assumes the FIT exemption will come into force on 1st April 2019.

6. The eligibility criteria for the RO, FIT and CFD relief schemes consists of two steps:

   - The applicant must manufacture a product in the UK with an eligible NACE code[4]. These are listed in the schemes' guidance documents[5].
   - The applicant must also satisfy a business level test. Businesses will need to show that their implied mean electricity costs amount to 20% of their mean Gross Value Added (GVA)[6].

7. Current eligibility criteria may result in competitive distortions and disincentives, discussed below. This IA lays out policy options designed to reduce the competitive distortion (assuming it exists) and appraises the potential costs and benefits of each option. In line with the European Commission's state aid guidelines[7], eligibility criteria can only be adjusted for NACE codes in Annex 3 of the commission's guidelines. For businesses manufacturing products in Annex 5, the electricity intensity threshold must remain at 20%.

Rationale for intervention

8. The second step for assessing eligibility, the 'business level' test, could have a number of unintended consequences. Lowering the eligibility threshold intends to reduce the magnitude of these effects.

Creation of Intra-Sectoral Competitive Distortions

9. By creating a threshold for classifying businesses as eligible and ineligible, currently at 20% electricity intensity, there could be a competitive advantage as businesses eligible for the scheme face a lower cost per unit of electricity relative to ineligible businesses. This is a particular concern for businesses operating in the same sector, where some are just below and above the threshold.

10. Electricity costs are an important factor in an electricity intensive business' operating costs and hence can play a large role in a business' profitability. For example,

[3] The European Commission's guidelines on State Aid for Environmental Protection and Energy 2014-2020: (http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29)

[4] Eligible sectors and sub-sectors are determined in line with the framework provided by the European Commission. Eligible sectors and subsectors aim to focus relief scheme aid to businesses that are most trade-intensive and at the most significant risk of carbon leakage. Further information can be found in the guidance documents for each scheme.

[5] Guidance documents for the exemption schemes can be found here: https://www.gov.uk/government/consultations/energy-intensive-industries-exemption-from-indirect-costs-of-the-contracts-for-difference-scheme

[6] GVA is defined as earnings before interest, taxes, depreciation and amortisation and staff costs including employers' pension and national insurance contributions.

[7] See Annex 3 of the European Commission's State Aid Guidelines for Environmental Protection and Energy (http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52014XC0628(01)&from=EN).

electricity costs are 32% of overall expenditure in the iron and steel sector and over 100% of GVA[8]. The relief schemes reduce the impact of RO, FIT and CFD policies on these businesses' electricity bills by up to 85%. Therefore, those businesses receiving the relief can face lower operating costs compared to their ineligible competitors, putting them at a competitive advantage.

11. Some ineligible EII businesses have raised competitive distortion concerns with the government and suggested a lowering of the business level test. Since many of these businesses operate internationally, a prolonged intra-sectoral competitive distortion may result in a change in the flow of businesses' internal investments away from UK sites and towards other international locations. In some cases these locations may have less ambitious climate change and energy policies increasing the risk of carbon leakage.

12. This risk is most considerable to businesses which fall just below the eligibility threshold; since these businesses are likely to feel the strongest impact of competitive distortions and their electricity costs have the largest impact on total operating costs.

13. Through industry discussions we are aware of a number of valid cases where a potential distortion exists. It is not clear how many exists for all sectors in Annex 3. We will be considering the information provided in consultation to help fill this evidence gap. A lower eligibility threshold will still result in intra-sectoral distortions, however, since the impact of electricity price differentials lessens as a business' electricity intensity decreases, the businesses that would continue to remain ineligible are deemed to be less affected by these intra-sectoral competitive distortions.

Disparities with International Competitors

14. As set out above, UK EIIs face the highest electricity prices in the EU15. Where EIIs operate in global markets they may be less able to pass through these higher costs onto customers. To do so would make their products relatively more expensive compared to European and international competitors, thus placing them at a competitive disadvantage.

15. The relief schemes help to reduce the gap between the UK's electricity price and other countries and reduce this competitive disadvantage. For EIIs with an electricity intensity below 20%, and therefore not eligible for the relief schemes, they continue to face an uneven playing field with international competitors. Extending the relief schemes' eligibility would improve the international competitiveness of more UK-based EIIs.

Disincentives for Carbon Abatement

16. There may be a reduced incentive for businesses who are marginally eligible for the relief schemes to invest in carbon abatement technologies, as this may lower their electricity consumption and result in the business becoming ineligible. As these technologies are considered to be one of the most cost-effective means to reduce greenhouse gas emissions, is it important we try not to discourage investment in this area. This will primarily affect new businesses in the scheme since eligibility is reassessed at each quarter when new data is provided by the business until three years of data is available, and prospective applicants. However, eligibility is reassessed every 5 years for eligible businesses already within the scheme, so they are affected too.

[8] Analysis based on: ONS Input-Output Supply and Use Tables; and ONS Annual Business Survey.

Description of options

17. There are seven options the government is considering in adjusting the business level test:
    - Option 1: 'Do Nothing', retain the 20% electricity intensity threshold in the business level test.
    - Option 2: Adjust the electricity intensity threshold to 17% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines.
    - Option 3: Adjust the electricity intensity threshold to 15% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines.
    - Option 4: Adjust the electricity intensity threshold to 10% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines.

18. The following three options consider a tiered approach, reducing the electricity intensity threshold but providing a lower level(s) of aid intensity for the newly eligible businesses. This option aims to balance the reduction of competitive distortions in target industries against rises in non-eligible consumers' electricity bills.

19. Currently, businesses receive a reduction of up to 85% of their RO, FIT and CFD costs, with 85% representing the aid intensity level. The aid intensity chosen for the tiered options has been chosen to keep price and bill impacts roughly in line with the price and bill impacts of non-tiered options. i.e. tiered option 6 holds around the same price and bill impact as non-tiered option 2; and tiered option 7 holds around the same price and bill impact as non-tiered option 3.
    - Option 5: (Tiered Option 1) Adjust the electricity intensity threshold to 17% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines but offer a lower aid intensity of 50% to newly eligible businesses (i.e. those businesses with an electricity intensity at or above 17% and below 20%).
    - Option 6: (Tiered Option 2) Adjust the electricity intensity threshold to 15% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines but offer a lower aid intensity of 50% to newly eligible businesses (i.e. those businesses with an electricity intensity at or above 15% and below 20%).
    - Option 7: (Tiered Option 3) Adjust the electricity intensity threshold to 10% for businesses manufacturing products that are eligible under the relief schemes and are listed in Annex 3 of the European Commission's State Aid guidelines but offer a lower aid intensity of 50% for firms with an electricity intensity at or above 15% and below 20% and an aid intensity of 35% to newly eligible businesses with an electricity intensity at or above 10% and below 15%.

20. The distribution of businesses below the 20% electricity threshold is unknown; therefore there is a risk with each of the options 2 to 7 that lowering the electricity intensity threshold would introduce a larger number of businesses to the relief schemes than anticipated, resulting in higher costs to non-eligible users than expected by the policy option. Equivalently, at each of the lower threshold levels considered, fewer businesses may become eligible for the relief schemes than expected, which may result in the chosen policy option being less effective than desired. Tiered

approaches (Options 5-7) balance these opposing risks by limiting the impact on non-exempt bill payers at lower electricity intensity thresholds.

20. However, when we look at tiered options, these newly eligible businesses receive a smaller amount of relief due to the lower aid intensity compared to options 1 to 4. Therefore, businesses just below the 20% will still face a greater disadvantage against those above 20% compared to options 1 to 4, but will still benefit compared to the current status quo.

21. Due to State Aid guidelines, we are only able to change the electricity intensity thresholds for businesses manufacturing products listed in Annex 3 of the State Aid guidelines. For companies manufacturing products listed in Annex 5 of the State Aid guidelines, the electricity intensity threshold must remain at 20%.

22. As a business' electricity intensity decreases, they are less impacted upon by electricity price differentials. Therefore, it is considered that the costs would outweigh the benefits for reducing the business level test threshold below 10%.

Description of costs and benefits

23. Lowering the electricity intensity threshold in the business level test has different impacts depending on the stakeholders considered.

Newly Eligible Electricity Intensive Businesses

24. The relief schemes would lower electricity costs faced by newly eligible businesses by up to 85% of the RO, FIT[9] and CFD policy costs. Of these three policies, relief from the costs of the RO scheme is the most effective as it is the most costly policy.

25. Since, for these industries, electricity costs are a key input cost, it is likely that newly eligible businesses will be able to better compete on both domestic and international markets. Further to this, the savings made through reduced electricity costs can be used to boost the size of the UK economy. These businesses could choose to extend production, increasing profits and workers' wages. Alternatively, they could increase their investment, leading to higher and more sustained profits in the future. These benefits have not been quantified in this Impact Assessment due to a lack of empirical data that would allow this to be done robustly.

26. Because eligible sectors have high international trade intensity[10], it is assumed businesses will be more willing to pass savings on to customers to compete.

Currently Eligible Electricity Intensive Businesses

27. An extension in eligibility increases the number of direct competitors also receiving relief. This will lower the competitive advantage of businesses currently receiving relief and is likely to increase the strength of domestic competition faced by these businesses. This may have adverse effects on business and investment decisions, lowering their rate of growth or ability to invest in research and innovation.

28. The cost of RO, FIT and CFD policies are paid for by spreading the costs across all non-exempt electricity consumed. The extension of the relief schemes will also see currently eligible businesses pay an additional amount per unit of electricity used as the costs are spread over a smaller amount of non-exempt electricity. However, since these businesses are already exempt from up to 85% of the costs from RO (from April

[9] On the assumption FIT moves from a compensation scheme to an exemption scheme.

[10] Eligible NACE codes were determined by the European Commission in part, by having high trade intensity. This is set out in the "Guidelines on certain State aid measures in the context of the greenhouse gas emission allowance trading scheme post 2012" (Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012XC0605(01)&from=EN).

2018) and CFD, and potentially in the future FIT[11], the extent to which these businesses feel the rise in retail electricity prices will be smaller than for other consumers.

Non-eligible Businesses in Electricity Intensive Sectors

29. As none of the options completely remove the electricity intensity threshold, there will always be some ineligible businesses in electricity intensive sectors. Since there are fewer businesses ineligible for the scheme, those remaining ineligible may be less competitive compared to more of their peers in the sector and might face larger difficulties when competing on price. The lower the threshold is set, the less this is an issue as electricity costs will form a smaller proportion of a business' total costs so will play a smaller part in determining a business' ability to compete.

30. As with those who are currently benefitting from the relief schemes, extending the numbers of businesses receiving the RO, CFD and future FIT exemptions results in the cohort of ineligible businesses paying more per unit of electricity use, further hampering their competitiveness. Nevertheless, businesses with lower electricity intensities, by definition, face a smaller impact from higher electricity costs. Their competitiveness may not be hampered as much as businesses just below the 20% electricity intensity threshold.

Other Non-eligible Businesses

31. Businesses are faced with an increase in their electricity bills as they pay more of the share of the RO, FIT and CFD policy costs. This includes charities and not-for-profit organisations operating in the UK.

32. Some businesses may benefit from the extension of the relief schemes. Improvements in domestic competitiveness amongst EIIs may cause eligible EIIs to continue to invest in the UK. This may provide businesses using eligible EII products in their production process more domestic choice at an internationally competitive price. This would be likely to lower the cost of production for these businesses through reduced shipping costs.

Households

33. Households will also face an increase in their electricity bills as they pay more of the share of the RO, FIT and CFD policy costs. This could be particularly concerning for those considered to be 'fuel poor' in the UK and could lead to an increase in the number of fuel poor households.

Electricity Suppliers, Elexon and Ofgem

34. Electricity suppliers, Elexon and Ofgem would face additional administrative burdens as their billing and information management processes would have to deal with a larger volume of businesses receiving the exemptions.

The UK Government

35. The government would face an additional administrative burden (new businesses would need to be assessed for eligibility; more exemption certificates would need to be processed, etc.). This burden could place additional cost pressures on BEIS since more resources would need to be devoted to the relief schemes, limiting the scope of other potentially more beneficial activities that could be undertaken.

Impact on UK emissions

36. With newly eligible businesses facing a lower cost per unit of electricity, they could increase their production resulting in a rise in their greenhouse gas. The overall impact

[11] On the assumption that FIT becomes an exemption scheme.

on UK emissions is ambiguous however since all other business stakeholders listed above will face a rise in their cost per unit of electricity, which may decrease their production and in turn, their greenhouse gas emissions.

Monetisation of costs and benefits

37. We conduct the assessment in two stages. Firstly, we estimate the additional electricity that would be eligible for the relief schemes under each of the proposed options. We then calculate the distribution of electricity costs faced by different consumers due to lowering the electricity intensity threshold. This section analyses options 1 to 4, option 5 is considered separately below. To provide additional rigour and validity to our results, we undertake sensitivity analysis.
38. Results given assume the FIT compensation scheme will move to an exemption scheme on 1st April 2019. If this is not the case, the price and bills impact for each considered option will be smaller as stakeholders will not have to face the FIT part of these impacts.

Total electricity consumption for the eligible sectors

39. The first step is to estimate the total electricity consumption in 2016, the latest for which data is available, for the sectors that are eligible for the RO, FIT and CFD relief schemes. The sectors are defined at 4-digit Standard Industrial Classification (SIC) code level. However, the latest published data on electricity consumption by 4-digit SIC code sectors is based on 2007 data, from BEIS' statistical release, Energy Consumption in the UK (ECUK)[12]. This is used for the basis of this analysis.
40. Using this source, we calculate the 2007 consumption of electricity by each eligible SIC code for the relief schemes.
41. Next we scale 2007 data to 2016 using the Digest of UK Energy Statistics 2017 (DUKES 2017). This provides annual data on electricity consumption at a broader, 2-digit classification level. We take the percentage change in electricity consumption between 2007 and 2016 for each 2-digit sector. We apply the change to each eligible 4-digit SIC code sector by matching it with the relevant 2-digit sector. However, as the 2-digit codes are less specific than the 4-digit codes, this does not provide an exact match.
42. Also, it is likely that the change in electricity consumption between 2007 and 2016 from DUKES 2017 is heavily influenced by the largest businesses in the sectors, and those which are likely to already benefit from the relief schemes. The scaling of 2007 electricity consumption to 2016 levels needs to be as representative as possible of the ineligible businesses' change in electricity consumption.
43. In our EU ETS (European Union Emissions Trading System) and CPS (Carbon Price Support) compensation scheme, businesses provide annual data on electricity costs, starting in 2005. Hence we collate the 2007 and 2016 electricity consumption of all businesses participating in this scheme who also receive relief for the RO, FIT and CFD policy costs. In total, this was 26 businesses[13]. It was not possible to use data from the RO, FIT and CFD relief schemes themselves as companies do not report

[12] *Energy Consumption in the UK (ECUK) 2017 Data Tables (Table 4.05): https://www.gov.uk/government/statistics/energy-consumption-in-the-uk*

[13] The EU ETS and CPS compensation schemes only have some crossover eligible sectors with our RO, FIT and CFD relief schemes. There are far fewer eligible sectors in the EU ETS and CPS compensation schemes compared to the RO, FIT and CFD relief schemes. This is due to a difference in state aid guidelines.

2007 electricity consumption. We then remove this from each of the relevant DUKES classification codes. The new percentage changes in electricity consumption between 2007 and 2016 gives more representative scaling factors which we apply to the eligible sectors. This gives total 2016 electricity consumption for all eligible sectors.

44. On average, estimated electricity consumption in 2016 for the eligible sectors is around 31% lower than in 2007, with 2016 consumption an estimated 44 TWh. For the eligible sectors listed in Annex 3 of the European Commission's state aid guidelines[14], to whom any new eligibility threshold will apply, our estimate is 34 TWh.

Electricity consumption for currently ineligible electricity-intensive businesses

45. We assume that the RO, FIT and CFD relief schemes capture all businesses that are at or above the 20% electricity intensity threshold in the eligible sectors. Therefore, removing their electricity consumption from the 2016 electricity usage for the eligible sectors gives estimated electricity that is currently ineligible for the relief schemes (i.e. fails the current 20% electricity intensity threshold). For eligible sectors in Annex 3, we calculate this as 25 TWh.

46. We assume that this electricity usage is distributed evenly over electricity intensities below 20% (i.e. for each percentage point reduction in the electricity intensity threshold below 20% an equal amount of additional electricity becomes eligible). We test this approach using the available data we hold on current participants in the RO, FIT and CFD relief schemes. We plot their electricity intensity against 2016 electricity consumption to see whether there is a significant correlation between these variables. Results find there is no significant trend, therefore it is deemed appropriate to apply a uniform distribution to the remaining electricity in respect of the electricity intensity.

Accounting for non-grid electricity and aid intensity

47. Non-grid electricity consumption is ineligible for the RO, FIT and CFD relief schemes, as these policy costs are levied only on electricity imported from the grid. Therefore, we remove the non-grid electricity consumption from the currently ineligible electricity. We use DUKES 2017 figures, comparing the 2016 grid to non-grid ratio of electricity consumption for broad 2-digit classification codes. These values are then assigned to the relevant eligible sectors in the relief schemes to provide estimates of grid consumption.

48. However, it is likely that the grid to non-grid ratio data is skewed by the largest businesses in the sectors since larger businesses tend to acquire a greater proportion of electricity from non-grid sources and most eligible large businesses already benefit from the relief schemes. Therefore, the grid to non-grid ratio will not be representative of the currently ineligible businesses. Therefore, in order to improve the validity of our estimates, we total the grid and non-grid electricity consumed by businesses currently enrolled in our RO, FIT and/or CFD relief schemes. We then remove this electricity from the DUKES 2017 data to create a more representative grid to non-grid ratio by sector. Grid electricity for the currently ineligible electricity-intensive businesses manufacturing eligible products in Annex 3 is estimated at 20 TWh.

49. The relief schemes set an aid intensity level at 85%, where an eligible business cannot be exempted from more than 85% of their RO, FIT and CFD policy costs. We reduce our estimate of additional electricity consumption by 15% to account for this. Note that

this only covers the non-tiered options 1,2,3 and 4. Tiered options are discussed in the section below.

50. We expect around an additional 0.85 TWh of additional electricity to become eligible for the exemptions for each percentile that the business level test is lowered.

Table 1: Additional Eligible Electricity at Different Electricity Intensity Thresholds and the Total Cost Passed onto other Consumers

Policy Option	Threshold	Additional Eligible Electricity (TWh)	Total Cost Passed onto other Consumers (£m)
Option 1	20%	0	0
Option 2	17%	2.55	£90m
Option 3	15%	4.25	£150m
Option 4	10%	8.51	£300m

Calculating eligibility for tiered options 5, 6 and 7

51. In line with calculating the additional eligible electricity in table 1, we reduce our estimate of additional eligible electricity for options 5,6 and 7 based upon the respective aid intensities for each option.

52. At a 50% aid intensity, we expect around an additional 0.50 TWh of additional electricity to become eligible for the exemptions for each percentile that the business level test is lowered. At a 35% aid intensity, we expect around an additional 0.35 TWh of additional electricity to become eligible for the exemptions for each percentile that the business level test is lowered.

Table 2: Additional Eligible Electricity at Different Tiered Electricity Intensity Thresholds and the Total Cost Passed onto other Consumers

Policy Option	Tier	Aid Intensity Tiers	Additional Eligible Electricity (TWh)	Total Cost Passed onto other Consumers (£m)
Option 5	17%-20%	50%	1.50	£50m
Option 6	15%-20%	50%	2.50	£90m
Option 7	15%-20%	50%	2.50	£150m
	10%-15%	35%	1.75	

Impact on prices and bills

53. As stated in the accompanying Consultation Document, we assume that the lower electricity intensity threshold is only applied to exemptions, so not to the existing FIT compensation. We also assume that the FIT compensation moves to an exemption on 1st April 2019 and that at the time any new threshold comes into force, all the RO, FIT and CFD relief schemes will all be exemptions. The impact on price and bills assumes eligibility thresholds are lowered simultaneously for all relief schemes.

54. For simplicity, it is assumed that all businesses which are eligible to apply to the relief schemes under the new threshold do so, so all the additional eligible electricity set out

above is subject to the exemptions. Also, we assume this eligible electricity remains constant throughout the time period considered.

55. Based on internal forecasts for the RO, FIT and CFD policy costs, as well as total electricity consumption, we calculate the impact on different electricity users' bills from lowering the electricity intensity threshold. The results are displayed below, alongside the price and bill impacts of the exemption schemes themselves for comparison. The bill impacts are based on a representative household or illustrative business consumption level[15] and are additional to the cost of the current exemptions. Since these bill impacts are based upon a representative household or illustrative business we are aware that in reality, some households and businesses will be affected more than others. It is assumed price and bill impacts on the average micro business (a

[15] An illustrative small business energy user has an assumed electricity consumption of 260MWh per year. An illustrative medium business energy user has an assumed electricity consumption of 11,000MWh per year. An illustrative EII has an assumed electricity consumption of 100,000MWh per year but EII consumption varies significantly from 2,000,000MWh per year to 2,000MWh per year.

business that employs between 1 and 9 people) would be comparable to the price and bill impacts on the average household.

56. To see the price and bill impact of the RO, FIT and CFD exemptions themselves on each stakeholder group see Annex 2.

Table 3: Price and bill impacts from lowering the business level test threshold under Option 2 (17% threshold), annual average across 2019 – 2025, 2017 prices

	Bill Impact	**Price impact (£/MWh)**	**Percentage of bill**
Households	£1	40p	0.2%
Of which: electricity-only	£1	40p	0.2%
Small business energy users	£100	40p	0.2%
Medium business energy users	£3,000	40p	0.2%
Currently eligible EIIs	£5,000	10p	0.1%
Ineligible EIIs	£30,000	40p	0.3%
Newly eligible EIIs	-£2,800,000	-£31	-24%

Table 4: Price and bill impacts from lowering the business level test threshold under Option 3 (15% threshold), annual average across 2019 – 2025, 2017 prices

	Bill Impact	**Price impact (£/MWh)**	**Percentage of bill**
Households	£2	60p	0.3%
Of which: electricity-only	£3	60p	0.3%
Small business energy users	£100	60p	0.4%
Medium business energy users	£6,000	60p	0.4%
Currently eligible EIIs	£8,000	10p	0.1%
Ineligible EIIs	£50,000	60p	0.5%
Newly eligible EIIs	-£2,800,000	-£31	-24%

Table 5: Price and bill impacts from lowering the business level test threshold under Option 4 (10% threshold) , annual average across 2019 - 2025, 2017 prices

	Bill Impact	Price impact (£/MWh)	Percentage of bill
Households	£4	£1.30	0.7%
Of which: electricity-only	£7	£1.30	0.7%
Small business energy users	£300	£1.20	0.8%
Medium business energy users	£12,000	£1.20	0.9%
Currently eligible EIIs	£17,000	20p	0.2%
Ineligible EIIs	£110,000	£1.20	1.0%
Newly eligible EIIs	-£2,800,000	-£30	-24%

Table 6: Price and bill impacts from lowering the business level test threshold under Option 5 (Tiered 17% threshold) , annual average across 2019 - 2025, 2017 prices

	Bill Impact	Price impact (£/MWh)	Percentage of bill
Households	£1	20p	0.1%
Of which: electricity-only	£1	20p	0.1%
Small business energy users	£100	20p	0.1%
Medium business energy users	£2,000	20p	0.2%
Currently eligible EIIs	£3,000	Close to zero	Close to zero
Ineligible EIIs	£20,000	20p	0.2%
Newly eligible EIIs	-£1,600,000	-£18	-14%

Table 7: Price and bill impacts from lowering the business level test threshold under Option 4 (Tiered 15% threshold) , annual average across 2019 - 2025, 2017 prices

	Bill Impact	Price impact (£/MWh)	Percentage of bill
Households	£1	40p	0.2%
Of which: electricity-only	£2	40p	0.2%
Small business energy users	£100	30p	0.2%
Medium business energy users	£3,000	30p	0.3%
Currently eligible EIIs	£5,000	10p	0.1%
Ineligible EIIs	£30,000	30p	0.3%
Newly eligible EIIs	-£1,600,000	-£18	-14%

Table 8: Price and bill impacts from lowering the business level test threshold under Option 4 (Tiered 10% threshold) , annual average across 2019 - 2025, 2017 prices

	Bill Impact	Price impact (£/MWh)	Percentage of bill
Households	£2	60p	0.3%
Of which: electricity-only	£3	60p	0.3%
Small business energy users	£100	60p	0.4%
Medium business energy users	£6,000	60p	0.4%
Currently eligible EIIs	£8,000	10p	0.1%
Ineligible EIIs	£60,000	60p	0.5%
Newly eligible EIIs with aid intensity between 15% and 20%	-£1,600,000	-£18	-14%
Newly eligible EIIs with aid intensity between 10% and 15%	-£1,200,000	-£12	-10%

Sensitivity analysis

57. We undertake sensitivity analysis to test our assumptions and add to the validity of our conclusions. Note that sensitivity analysis was only undertaken on options 2, 3 and 4; the non-tiered options. However, since tiered options were chosen to reflect the price and bill impact of non-tiered options (i.e. tiered option 6 holds roughly the same cost impact as non-tiered option 2and tiered option 7 holds roughly the same price and bill impact as non-tiered option 3), results from sensitivity analysis on non-tiered options 2, 3 and 4 give a sense of the uncertainty for the tiered options as well.

58. In total, four additional scenarios are examined:

    1. We assume that between 2007 and 2016, electricity consumption falls by 55% across all sectors. 55% was chosen as this was the largest sectoral fall in electricity consumption between 2007 and 2016, using DUKES 2017 data only. This provides a lowest reasonable scenario.
    2. Our second scenario examines the outcome if electricity consumption rises by 1% between 2007 and 2016 across all sectors. 1% was chosen as this was the largest sectoral rise in electricity consumption between 2007 and 2016, using DUKES 2017 data only.
    3. Since there is also uncertainty over each sector's grid to non-grid electricity ratio, we examine a scenario in which all consumption is grid consumption.
    4. Finally, to provide a reasonable maximum estimate, we look at the scenario in which all consumption is grid consumption and we see a 1% rise in electricity consumption between 2007 and 2016 across all sectors (This is a combination of scenarios 2 and 3).

59. By using these additional "What-if" scenarios we create a range for the additional electricity that may be eligible for the exemptions. The results are displayed in the table below.

Table 9: Additional Eligible Electricity under different "What-if" scenarios (TWh)

Threshold	(1) 2016 electricity consumption down by 55%	(2) 2016 electricity consumption up by 1%	(3) All grid	(4) 2016 electricity consumption up by 1% + all grid
17%	1.26	3.83	3.13	4.59
15%	2.10	6.39	5.21	7.65
10%	4.20	12.78	10.42	15.30

60. We calculate the impact of these "What-if" scenarios on different users' prices and bills based on the same assumptions as above, using 2020 as a reference year. The bill results are displayed below.

Table 10: Bill impacts in 2020 from lowering the business level test threshold under different "What-if" scenarios (£), 2017 prices

Threshold	"What-if" scenario	Households	Small business energy users	Medium business energy users	Currently eligible EIIs	Ineligible EIIs	Newly eligible EIIs
17%	1	60p	<£100	£2,000	£2,000	£20,000	-£2.8m
	2	£2.00	£100	£5,000	£7,000	£50,000	-£2.8m
	3	£1.60	£100	£4,000	£6,000	£40,000	-£2.8m
	4	£2.40	£200	£6,000	£9,000	£60,000	-£2.8m
15%	1	£1.10	£100	£3,000	£4,000	£30,000	-£2.8m
	2	£3.30	£200	£9,000	£12,000	£80,000	-£2.8m
	3	£2.70	£200	£7,000	£10,000	£70,000	-£2.8m
	4	£4.00	£300	£11,000	£15,000	£100,000	-£2.8m
10%	1	£2.20	£100	£6,000	£8,000	£50,000	-£2.8m
	2	£6.80	£400	£18,000	£26,000	£170,000	-£2.8m
	3	£5.50	£400	£15,000	£21,000	£140,000	-£2.8m
	4	£8.20	£500	£22,000	£31,000	£210,000	-£2.8m

61. As shown above, there is a wide variation in results depending on the assumptions used. This means the results in this IA are highly uncertain and should be treated with caution.

Non-monetised impact

62. Through lowering the electricity intensity threshold, positive social and economic impacts may be felt throughout the UK economy:

- Newly eligible businesses could view the UK as a more favourable place to invest since production costs will be lower. In the short to medium run, this may avoid a scaling down of operational activity or disinvestment away from the UK and towards international sites. As well as this, fewer competitive distortions will in turn minimise the potential for businesses operating on a lower cost of production (as a result of the relief schemes) to undercut currently non-eligible businesses and, potentially, over time forcing these businesses out of the market.
- This may help to avoid industry job losses which may retain high-skilled jobs in the UK. Further, due to economies of agglomeration, more businesses may

choose to invest in the UK to take advantage of the skill base and existing infrastructure, which may otherwise deteriorate without government intervention.

- For the EIIs targeted, a large proportion of their customer base is businesses making secondary and tertiary goods. Therefore, effective policy adjustment may result in more competitive industries, lowering prices in turn. This may result in lowering the cost of production along the supply chain. These savings may be passed onto the consumer or be used for business aims, both of which could result in rises in GDP and employment.
- Further to this, showing that the UK government is both responsive and effective in adjusting to industry needs may improve cross-industry views on the UK as a place to invest and do business. This could result in increased flows of investment towards the UK, which could lead to increases in UK GDP as well as improvements in employment.

63. Whilst there could be a wide range of benefits felt across both affected industries and the wider economy, there could also be potential costs:

- A rise in electricity bills may decrease household's disposable income and have a disproportionately large effect on poorer income groups; this may conflict with wider government objectives, such as reducing inequality in the UK and tackling fuel poverty. There could be an increase in the number of households in fuel poverty in the UK. However, as analysis on the fuel poverty impact from introducing the RO and FIT exemptions found a statistically insignificant effect, the same result is likely to apply to lowering the electricity intensity threshold. This is because the scale of additional costs is much smaller when lowering the threshold compared to introducing the exemptions themselves.
- Extension of the schemes' eligibility could also increase cost pressures on BEIS and delivery partners via the additional administrative burden from assessing applicants and running the schemes.
- Other businesses who do not benefit from the eligibility extension may feel alienated by the UK government. This could result in flows of investment away from the UK.

Risks and assumptions

64. Here are the key assumptions made in this IA:

a) Electricity consumption in 2016 can be calculated by scaling 2007 data: In order to improve the validity of this assumption, as previously mentioned, we took account of large consumers by utilising data from the EU ETS and CPS compensation scheme. These businesses were then removed from DUKES 2017 data, since the size of these businesses have the potential to skew resulting trends.

b) The electricity currently exempted under the RO, FIT and CFD relief schemes encompasses all electricity that is at or above the 20% threshold: Whilst it is likely that a large proportion of electricity consumption at or above the 20% threshold is already in the relief schemes, there are likely to be some currently eligible companies which have not applied. If that is, and remains, the case, the impact of lowering the business level test threshold will be smaller for all users.

c) All companies that become eligible as a result of lowering the electricity intensity threshold apply to the relief schemes: We have used this assumption to simplify the analysis. In practice, it is likely that some businesses will be unaware of the schemes or judge the administrative costs to be too

burdensome to apply. This means the analysis overestimates the prices and bills impact of lowering the electricity intensity threshold.

d) DUKES 2017 data on grid and non-grid electricity consumption gives a true representation of the grid to non-grid ratio of the currently ineligible electricity consumption: In order to improve the validity of this assumption, as previously mentioned, we removed the grid and non-grid electricity consumption of the current participants in the relief schemes from the DUKES 2017 data. This means we only consider grid and non-grid electricity for the remaining businesses in these eligible sectors which have yet to apply and/or do not pass the business-level test.

e) No correlation between intensity and electricity consumption: We undertook analysis to strengthen the validity of this assumption. It was found that there was no significant relationship between electricity consumption and intensity. There are limitations in the analysis, since data was only available for currently eligible businesses so results have had to be extrapolated to those businesses which are currently ineligible. This allowed us to assume electricity is uniformly distributed across the remaining percentiles below the current 20% threshold.

f) Stable electricity consumption in the eligible sectors over the years considered: We have used this assumption to simplify the analysis. Therefore if EII energy use in future years were to be significantly lower than forecast, the impacts would be an overestimate and vice versa.

g) The FIT relief scheme will become an exemption on 1st April 2019: If it does not come into force on this date, the impact of lowering the business level test threshold will be smaller for all users. This is because the proportion by which FIT exemption for newly eligible businesses would raise the price per unit of electricity would only become effective upon the date the exemption came into force (if at all).

65. In order to consider some of the most important and uncertain assumptions, we have undertaken sensitivity tests. These show a wide variation in the amount of additional electricity eligible for the relief schemes, and hence, the impact on non-exempt consumers' electricity bills. Therefore, caution should be taken when using and interpreting these results.

66. The main risk of these proposals isif newly eligible businesses choose not to invest electricity cost savings, then the GVA impacts will be muted and the extension the schemes' eligibility may deliver a poor value for money.

Summary

67. This document assesses the likely impact of reducing the electricity intensity eligibility threshold for companies manufacturing eligible products in Annex 3 of the State Aid guidelines for the RO, FIT and CFD relief schemes.

68. The key benefits to lowering the eligibility threshold are a decrease in competitive distortions (assuming they exist) between direct competitors, an improvement in these businesses' ability to compete with international competitors and a reduction in the risk of reduced flows of investment towards the UK economy. It is important to appreciate that there is limited analysis that clearly shows competitive distortions exist in electricity intensive industries, evidence is based primarily on anecdotal evidence provided by businesses.

69. The effects are twofold: firstly, more businesses operating in electricity intensive industries will face a significantly lower cost per unit of electricity, reducing their input costs. Second order effects may reduce supply chain costs for businesses using EIIs' products, increase employment and improve UK investment.

70. Non-exempt consumers and businesses, however, will see an increase in their electricity bills. The extent is dependent on the policy option. This raises concerns over increasing fuel poverty and reducing the competitiveness of non-exempt businesses. EIIs currently eligible for the exemptions will also face small increases in their electricity prices (0.3% to 1% of their electricity price).

71. In assessing the impact of the lower eligibility threshold, the analysis made a number of assumptions. We undertook sensitivity analysis to ensure our results were more robust. Alongside the monetised impact of these policy options, it is also important to consider the non-monetised effects and alignment with overall government objectives.

Annex 1

72. The table below details BEIS' renewable electricity policies. Eligible EIIs either currently entitled to, or (in the cast of the FIT relief scheme) are intended to be entitled to, exemptions from part of the costs of these policies.

Policy	***Description of Policy***
Renewables Obligation (RO)	The Renewables Obligation is one of the main support mechanisms for large-scale renewable electricity projects in the UK. It places an obligation on UK electricity suppliers to produce a specified number of Renewables Obligation Certificates per MWh of electricity supplied.
Small-scale Feed-In-Tariff (FIT)	The Feed-in Tariffs scheme is a government programme designed to promote the uptake of renewable and low-carbon electricity generation technologies. The scheme requires participating licensed electricity suppliers to make payments for both generation and export to eligible installations.
Contracts-For-Difference (CFD)	Introduced as part of the now implemented Electricity Market Reform (EMR) programme, a generator in receipt of 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.

Annex 2

73. The table below shows the estimated price and bill impacts of the RO, FIT and CFD exemptions themselves. This can be considered alongside the impact tables in the main body of the IA to better understand the scale of the proposals' impacts.

Current price and bill impact from the RO, FIT and CFD exemption schemes (annual average across 2019 – 2025, 2017 prices)

	Bill Impact	**Price impact (£/MWh)**	**Percentage of bill**
Households	£4	£1.20	0.6%
Of which: electricity-only	£6	£1.20	0.6%
Small business energy users	£300	£1.10	0.7%
Medium business energy users	£11,000	£1.10	0.8%
Eligible EIIs	-£2,700,000	-£30	-33%
Ineligible EIIs	£100,000	£1.10	0.9%