

Title: ECO3: Improving consumer protection consultation IA IA No: BEIS017(F)-19-EEL RPC Reference No: Lead department or agency: Department for Business, Energy and Industrial Strategy Other departments or agencies:	Impact Assessment (IA)
	Date: 26/10/2019
	Stage: Final Stage
	Source of intervention: Domestic
	Type of measure: Secondary Legislation
Summary: Intervention and Options	RPC Opinion: Green

Cost of Preferred (or more likely) Option (in 2016 prices)			
Total Net Present Social	Business Net Present Value	Net cost to business per year	Business Impact Target Status
-£49.6m	-£49.6m	£17.1m	£59.9m

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

The Each Home Counts Review was launched in 2015 to consider issues relating to consumer advice, protection, standards and enforcement in relation to home energy efficiency and renewable energy measures in the UK. The review was in response to too many instances of poor-quality installations that can create problems with the integrity of buildings; exacerbate issues such as damp and mould leading to health problems, which in turn led to the need for expensive remedial work. Systemic failures across the market, including gaps in standards and skills, risk destroying consumer and investor confidence in energy efficiency retrofit.

The Each Home Counts Review made recommendations concerning consumer protection and building standards in relation to energy efficiency measures installed to domestic properties in the UK. The review has a total of 27 recommendations and sets out a new quality and standards framework for all those operating in the sector. The government is taking forward these recommendations by proposing a new delivery framework to protect consumers and improve the quality of retrofit installations. These proposals will impose a small additional upfront cost to business of £3.1m and additional delivery costs of £59m (undiscounted). The benefits (not quantified in this assessment) are expected to help mitigate these costs to some extent by improving consumer protection, reducing remedial work and achieving higher standards of design and performance of installation.

What are the policy objectives and the intended effects?

A regulatory amendment is due to come into effect in January 2020 stipulating that all measures (apart from certain district heating systems and Demonstration Actions) delivered under the current Energy Company Obligation (ECO3) must be delivered by TrustMark registered businesses. Companies participating in delivery of ECO3 subsidised measures will therefore need to sign up to a TrustMark Government Endorsed Quality scheme. TrustMark defines the framework and standards scheme providers and their registered businesses must meet. The framework covers consumer protection and a data warehouse to capture details of energy efficiency measures installed under ECO.

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

The Each Home Counts Review detailed findings and recommendations for action developed through engagement with several hundred stakeholders, including trade bodies, energy providers, manufacturers, installers, trainers, standards bodies and consumer groups. Following the Review, the government has worked closely with industry to turn the recommendations into tangible outputs aimed at driving up quality, consumer protection and skills. This was taken forward through the EHC Implementation Board who harnessed industry working groups to turn the recommendations into practical solutions. The industry led EHC Implementation Board, with the support of BEIS, established that TrustMark (2005) Ltd were best placed to take forward the development of this new quality mark framework under its Master Licence Agreement held by BEIS. In March 2018, the government consulted on including the quality mark in ECO3 as the method of demonstrating installer eligibility and as a key way of improving the installation and consumer protection standards of ECO measures. The responses to the consultation showed overall support for the introduction of both a new EHC quality mark and new technical standards into ECO3 once finalised. The new TrustMark Government Endorsed Quality scheme was launched by BEIS Minister Claire Perry during Green Great Britain week in October 2018. The new technical standards (PAS 2035) were published in June 2019. This consultation advocates a regulatory amendment to enable the incorporation of TrustMark Government Endorsed Quality scheme and PAS 2035 into the current energy company obligation.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: n/a

Does implementation go beyond minimum EU	N/A
Is this measure likely to impact on trade and	No

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
MINISTER

Date: 25 Oct 2019



Description:

installers to have to be TrustMark registered businesses to deliver eligible ECO3 measures

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate:
COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition)	Total Cost (Present Value)	
Low	Optional		Optional	Optional	
High	Optional		Optional	Optional	
Best Estimate				-£53.2m (2016 prices)	
<p>Description and scale of key monetised costs by ‘main affected groups’</p> <p>Businesses engaged in delivering energy efficiency measures and claiming subsidy from the energy company obligation are the main affected group. Businesses will pay an annual subscription charge of £40 plus any additional administrative costs imposed by their scheme provider. Scheme providers will pay a one off £2,000 lodgement fee to TrustMark when they first join. Businesses will need to upskill retrofit co-ordinators and deliver retrofit measures inline with the TrustMark framework.</p> <p>Delivery costs are expected to increase by an average of £350 per measure reflecting additional assessment, design and evaluation requirements. The costs will vary widely depending on the type of measure and project but in the majority of cases will be up to £350.</p>					
<p>Other key non-monetised costs by ‘main affected groups’</p> <p>Time it takes business to become familiarised with new TrustMark framework.</p>					
BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition)	Total Benefit (Present Value)	
Low	Optional		Optional	Optional	
High	Optional		Optional	Optional	
Best Estimate				0	
<p>Description and scale of key monetised benefits by ‘main affected groups’</p> <p>None.</p>					
<p>Other key non-monetised benefits by ‘main affected groups’</p> <p>The TrustMark framework is designed to protect not just consumers but also help businesses ensure they’re aware of the wider risks around retrofitting a domestic building. The framework will help to ensure installers implement an appropriate design specification and complete post installation checks. This should lead to less remedial work which will save business money.</p>					
Key assumptions/sensitivities/risks				Discount rate	3.5
<p>The additional costs imposed by PAS 2035 affecting the cost of upskilling, design evaluation and specification of the measure and associated works to be carried out. A further consideration is the extent to which the PAS 2035 standard is adopted amongst the supply chain and whether this could lead to fewer participants in the market.</p>					

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual)			Score for Business Impact Target (qualifying provisions only) £m:
Costs:	Benefits:	Net: £17.1m	
			£59.9m

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1. Problem under consideration

The UK is facing a significant but exciting infrastructure challenge: the retrofit of its housing stock to meet government ambitions for fuel poverty and carbon reduction and the desire for everyone to live in warm, comfortable and energy-efficient homes.

In July 2015, the Secretaries of State for the Department of Energy and Climate Change (DECC), now part of the Department for Business, Energy and Industrial Strategy (BEIS), and the Department for Communities and Local Government (DCLG) jointly commissioned an independent review¹ of consumer advice, protection, standards and enforcement (*Review hereon*) for home energy efficiency and renewable energy measures in the United Kingdom.

In the past, energy efficiency interventions were not always well-targeted to suitable properties and, in a minority of cases, poor practice and sub-standard work was carried out. Ofgem's Technical monitoring Report showed that 6.9% of the almost 1.5 million measures installed during the first ECO period between January 2013 and March 2015 were inspected. Of these, 9.9% did not meet the necessary installation standards in the first instance and required additional work to be undertaken. The majority of these failures are not thought to be due to intentional poor performance, but the result of gaps in standards or training provided. A new Publicly Available Specification (PAS) will address these failures by implementing a checks process that will help installers avoid poor design specification and incomplete installation whilst ensuring consumers are protected in the event things still go wrong.

The Review identified a set of recommendations (listed in the Annex) designed to improve consumer protection, advice, quality and standards, skills and training, compliance and holistic consideration of the property. The Review recommended a quality mark for the domestic retrofit sector is established to work in conjunction with other brands and indicate the holder is delivering to best practice standards in the sector. To obtain the quality mark, installers, designers and assessors will need to show they have been certified by an approved certification body and meet the requirements of three key elements of the quality mark: a Code of Conduct; defined Codes of Practice and standards; and a Consumer Charter.

In order to meet the review's recommendations, the government is consulting on changes to the Energy Company Obligation by making it mandatory for suppliers to register to the TrustMark Government Endorsed Quality scheme as a route for demonstrating compliance with technical standards and consumer advice and protection. This will form part of a new certification process called PAS 2035:2019.

2. Rationale for intervention

Energy efficiency installations can cause bigger issues than the problems they seek to solve if they're not done correctly, potentially creating detrimental health impacts on occupants, possible property damage, short term remedial costs, and longer-term damage to the industry's reputation and consumer trust. The market failure is the installation of energy efficiency measures to substandard specification or simply not installed to the correct places resulting in problems in people's homes such as damp, mould and water ingress. This has caused consumers considerable stress and financial loss.

¹ <https://www.gov.uk/government/publications/each-home-counts-review-of-consumer-advice-protection-standards-and-enforcement-for-energy-efficiency-and-renewable-energy>

The existing certification requirements (PAS 2030:2017 and its earlier versions) mandated by energy efficiency schemes are not always followed properly or give adequate consideration of a home's suitability² for certain measures. PAS2035:2019 will introduce a framework that mandates a design is drawn up by a retrofit co-ordinator requiring them to consider the ventilation requirements in part F of building regulations, make an assessment of risk and if necessary perform ventilation tests including post installation following any improvement in ventilation strategy specified in the design. The framework also requires the retrofit co-ordinator to consider interactions with other energy efficiency measures specified in the design. Lastly, the retrofit co-ordinator must provide advice to the household and explain the correct process to follow if things do go wrong.

The Review identified clear and specific recommendations intended to address these issues by protecting the consumer using such a framework and the regulatory changes to ECO3 will mandate the framework during the last phase of the scheme. The intended outcome of the regulatory change aims to maintain consistently high standards across the supply chain, improve installation standards in respect of indoor air quality, pass on the right advice to consumers, put in safeguards such as guarantees and continue to professionalise the industry.

Beneficiaries of the scheme:

- Vulnerable and low-income households living in fuel poverty will be better protected by the increased protection requirements and these improvements may also help to increase uptake of energy efficiency under ECO.
- Scheme delivery costs should be cheaper in some respects owing to less remedial action from improved quality of installation and design specification. Whilst this impact assessment doesn't attempt to quantify these cost savings, they're expected to be significant if you consider the reduction in hassle cost to consumers and higher reputational standards across the industry.
- Considered design specification will safeguard deep retrofit which is expected to become more common place as the housing market transitions to net zero.

Alternatives to regulation:

- impose tougher requirements on energy companies but this wouldn't tackle the root cause of the problem within the supply chain or follow the recommendations of the Review.
- Promoting training might be another approach though this is the intention of the framework which is aiming to ensure consistently high standards across all market participants and create a functioning market in preparation for further ambition to retrofit a significant number of homes over the next decade in order to achieve the government's aspiration of moving all homes to EPC C by 2035.
- Impose a voluntary framework but this wouldn't ensure best practice was adhered to or create a viable business accreditation model.

The alternative approaches to regulation were deemed to not satisfy the recommendations from the Each Home Counts review because a voluntary framework, for example, would only recognize good practice that is already in place and not address market failures.

² Suitability covers the state of repair of the existing building fabric, absence/presence of appropriate ventilation, interaction with other energy efficiency measures, exposure to wind driven rain, etc.

3. Policy Objective

A regulatory amendment to the Energy Company Obligation (ECO3) stipulating all measures delivered under the current scheme must be delivered by TrustMark registered businesses from 1 January 2020. Companies participating in delivery of ECO3 subsidised measures will therefore need to sign up to a TrustMark Government Endorsed Quality scheme. TrustMark defines the framework and standards scheme providers must meet. The framework covers consumer protection and a data warehouse to capture details of energy efficiency measures installed under ECO. A key requirement on TrustMark registered businesses is that all energy efficiency measures must be installed to current applicable Publicly Accessible Specification (PAS) standards. Measures installed under the existing ECO3 scheme are already required to be installed to PAS 2030:2017 standards but this impact assessment considers the changes arising from the requirements of the new PAS 2035:2019 framework that imposes design specification, advice, assessment and post installation review.

- I. The current PAS 2030:2017 sets out how the installation of specific energy efficiency measures should be carried out in existing domestic buildings. This will be superseded by PAS 2030:2019 which will provide updated technical building specifications.
- II. A new PAS 2035:2019 standard will run alongside PAS 2030:2019 and cover the whole life-cycle of a retrofit project, from the initial engagement with a client, through assessment, design, install and evaluation stages that should be undertaken to ensure suitable energy efficiency measures are installed correctly to the right premises. PAS2035:2019 should be considered as a framework promoting good practice and PAS 2030:2019 reflects updated technical standards.

The TrustMark framework is designed to promote good practice by ensuring companies are aware of their responsibilities to customers and the standards that energy efficiency measures must meet. **An 18-month transitional period will run from the 1st Jan 2020 to 30th June 2021** to allow companies to begin working to the new PAS 2035:2019 framework. All measures delivered from 1st July 2021 must be in accordance with the PAS2035:2019 framework and delivered by an installer certified to PAS 2030:2019.

4. Counterfactual

This impact assessment considers the change in cost of delivering ECO3 arising from the new PAS 2035:2019 framework. The assessment in section 7 estimates the change in cost of delivering the ECO3 scheme once the increased delivery cost of PAS 2035:2019 is factored into delivery costs.

The counterfactual is the cost of delivering ECO3 prior to the change in cost from PAS2035:2019. The counterfactual makes a prediction about the cost of delivering the current scheme based on carryover³ from the previous scheme and actual phase 1 delivery achievement. The counterfactual delivery cost is presented in table 6 and predicts ECO3 will cost £2.15bn prior to the impact of PAS 2035:2019.

³ The delivery cost of carryover is attributed to the previous ECO2t scheme.

5. Analytical Approach

This impact assessment measures the cost impact to business of the regulatory proposal to impose the PAS 2035:2019 framework by distinguishing between:

- I. upfront direct costs to business (explained section 6.3).
- II. Increases in delivery costs (explained in section 6.4).

These respective costs are considered together and feed into the EANDCB calculation presented in section 8.

The analytical approach to calculating the impact of increases in delivery costs from PAS2035:2019 technical requirements is made by considering the delivery costs and remaining obligation in each phase of ECO 3 set out in table 1.

Table 1: ECO phases and delivery costs

ECO 3 Phase	ECO3 delivery costs (price per LBS)	Obligation delivery lifetime bill savings (LBS) £m
Phase 1 (3 Dec 18 – 31 Mar 19):	17 pence	£531m
Phase 2 (1 Apr 19 – 31 Mar 20):	25 pence	£2,168m
Phase 3 (1 Apr 20 – 31 Mar 21):	Counterfactual cost: 26 pence Policy cost: 28 to 31 pence	£2,701m
Phase 4 (1 Apr 21 – 31 Mar 22):	Counterfactual cost: 27 pence Policy cost: 29 - 31 pence	£2,306m
Carryover	Excess access from previous ECO scheme that count toward ECO 3 obligation target.	£543m
Total during entirety of ECO 3	See section 5	£8,253m ⁴

Phase 1 delivery costs and obligation lifetime bill savings (LBS) are based on actual delivery statistics⁵.

Phase 2 delivery costs are based on averages from discussions with energy companies and LBS are based on a projected forecast based on phase 2 delivery (depicted in figure 1).

Phase 3 delivery costs (in the absence of PAS 2035) assumes a counterfactual cost from the Oct 18 Impact Assessment of 26 pence. The analytical approach considers the speed at which measures adopt the new framework during the transition and the cost imposition to energy companies. During phase 3 a proportion of measures will adopt PAS 2035 and attract a higher cost of 31 pence which was modelled in the Affordable Warmth model (See Annex for further detail). The proportion of measures complying to PAS 2035 is depicted in figure 2. Figure 2 shows the rate of compliance according to the transition proposal put forward at consultation

⁴ home-heating cost reduction target is £8.253 billion as per the Electricity and Gas (Energy Company Obligation) Order 2018

⁵ <https://www.gov.uk/government/statistics/household-energy-efficiency-statistics-headline-release-september-2019>

stage compared to the final proposed transition period (Jan 2020 – Jun 2021). The LBS in phase 3 assumes the rate of delivery in March 2020 is sustained (flat lined) into phase 3.

Phase 4 delivery costs adopt the higher PAS 2035 costs as almost all measures become compliant from the start of the final phase. The assumed LBS is simply the residual amount energy companies need to achieve to meet the remainder of the obligation target.

Figure 1: ECO 3 phase forecast projection

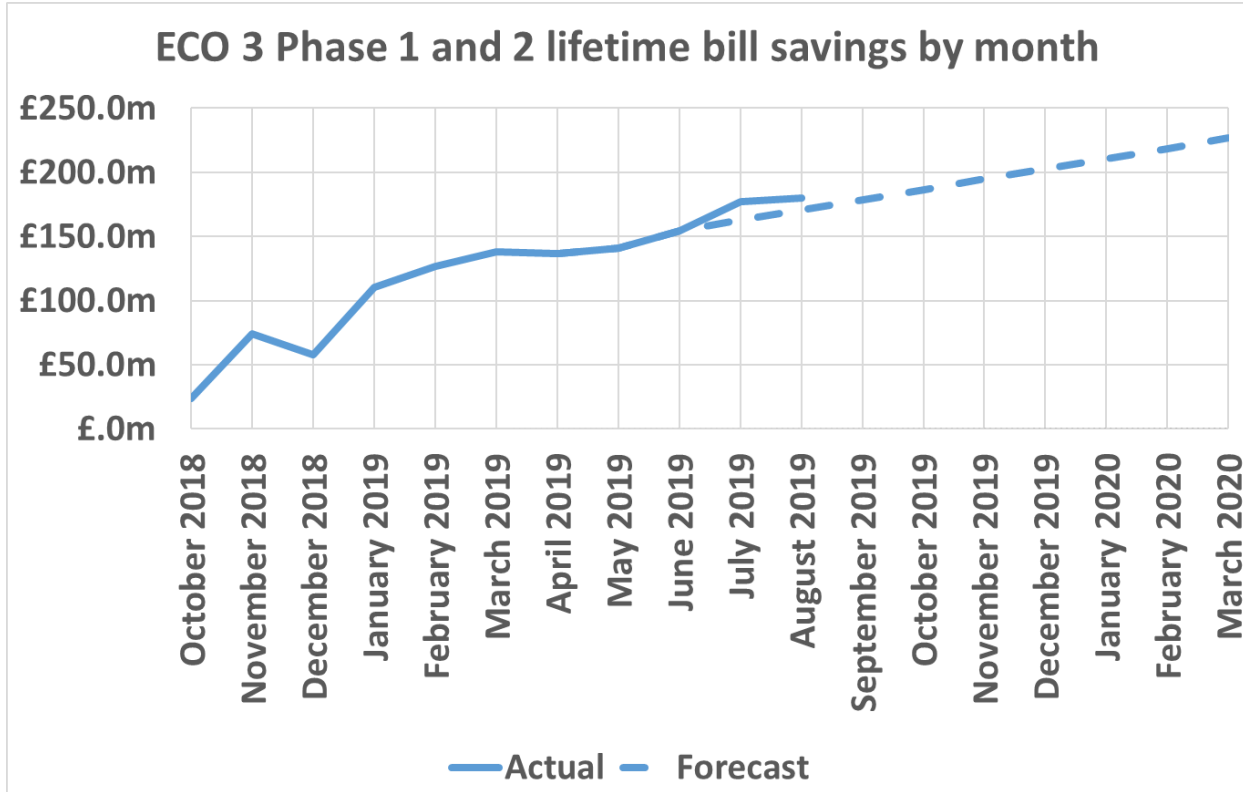
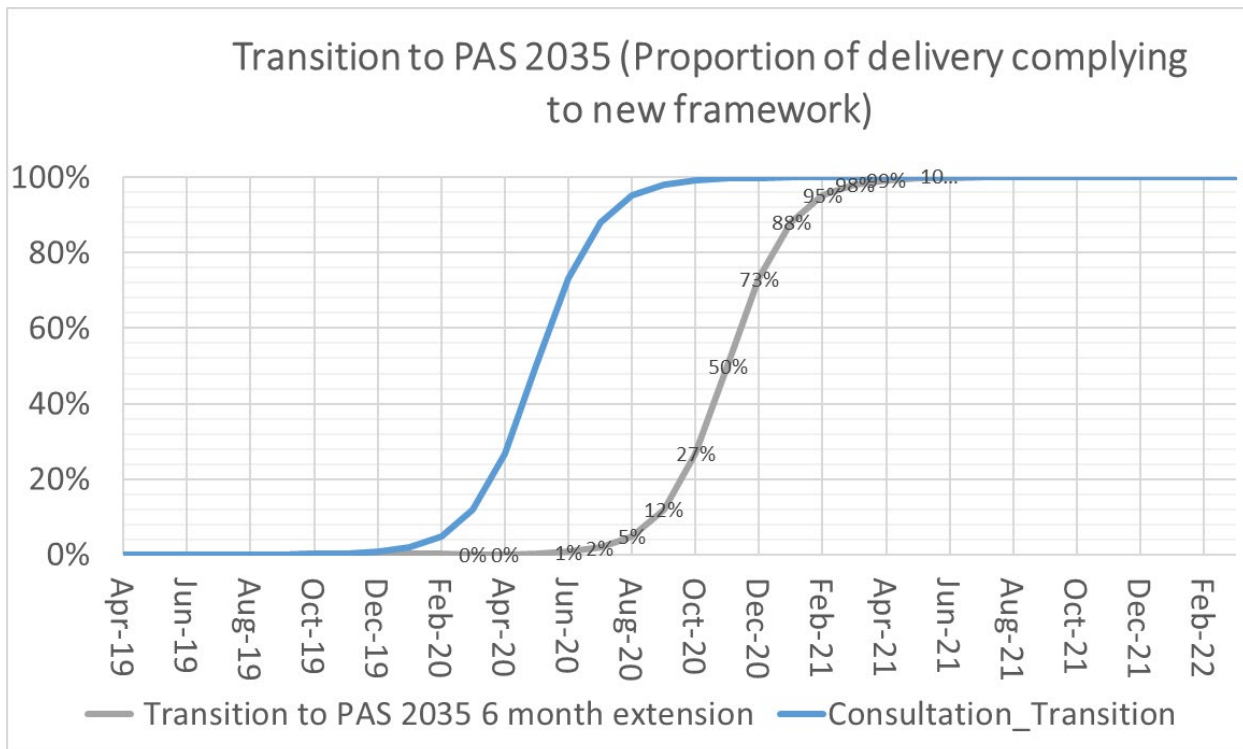


Figure 2: Proportion of ECO3 measures adopting PAS 2035 framework



The subsidy cost in each phase is the delivery cost per LBS multiplied by Obligation delivery (delivery costs and obligation delivery are set out in Table 1). The cost impact of PAS 2035 is the difference in subsidy cost before (Table 6) and after the introduction of PAS 2035 (Table 8).

Delivery costs for measures that conform to the PAS 2035 framework are assumed to be higher due to additional costs set out in table 3. An uplift to lifetime bill savings will be available to incentivise suppliers to adopt the PAS 2035 framework during the transition. The uplift is in response to consultation feedback that PAS 2035 will make the scheme unaffordable and less attractive to the supply chain. The impact of the uplift on delivery costs is reflected in section 7 table 8. The updated delivery costs accounting for PAS 2035 before after policy changes are summarised in table 9.

6. Assumptions

6.2 Transition to PAS 2035

The supply chain may begin adopting the new PAS 2035 framework from Jan 2020 but from 1st July 2021 it will be mandatory. Delivery partners will need time to become familiar with the new framework and appoint staff to the role of retrofit co-ordinator to manage projects. The speed at which ECO 3 measures adopt the PAS 2035 framework is reflected by the percentage proportions in figure 2 which was discussed and agreed with stakeholders at an Energy UK meeting in February 2019.

6.1 Carryover

This impact assessment assumes excess actions from ECO2t count towards a suppliers ECO3 obligation target. Excess actions are listed in Ofgem's final determination report⁶ and show energy companies achieved excess actions of 8% and 7% against their respective CERO and HHCRO obligation targets.

Suppliers deliver excess actions for several reasons;

1. to insure the energy company against non-compliance (1.07% of all HHCRO measures notified had their savings revoked or refused for non-compliance)
2. allow carryover toward a successive obligation in order to prevent a delivery hiatus should suppliers complete early against a current obligation target.

The cost of excess actions are attributable to the obligation period they were carried out in, not the obligation they count toward and this is reflected in the way delivery costs are reported in official statistics⁷. This means the subsidy costs of excess actions that carry over to ECO3 are counted against ECO2t delivery costs.

There was a delay between the start of ECO3 and the end of ECO2t as the previous scheme ended on 31st September, but ECO3 didn't come into force via regulations until 3rd December 2019. Any measures delivered after the end of ECO2t (from 1st October 2019) **do** count toward ECO3 delivery costs as these are not counted as excess actions from the previous scheme. Household energy statistics⁸ provide further detail on actual ECO3 delivery that is costed (see table T6.1) and counted (see table T2.1) from 1st Oct 2019.

⁶ <https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-eco2-final-determination-report>

⁷ <https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics>

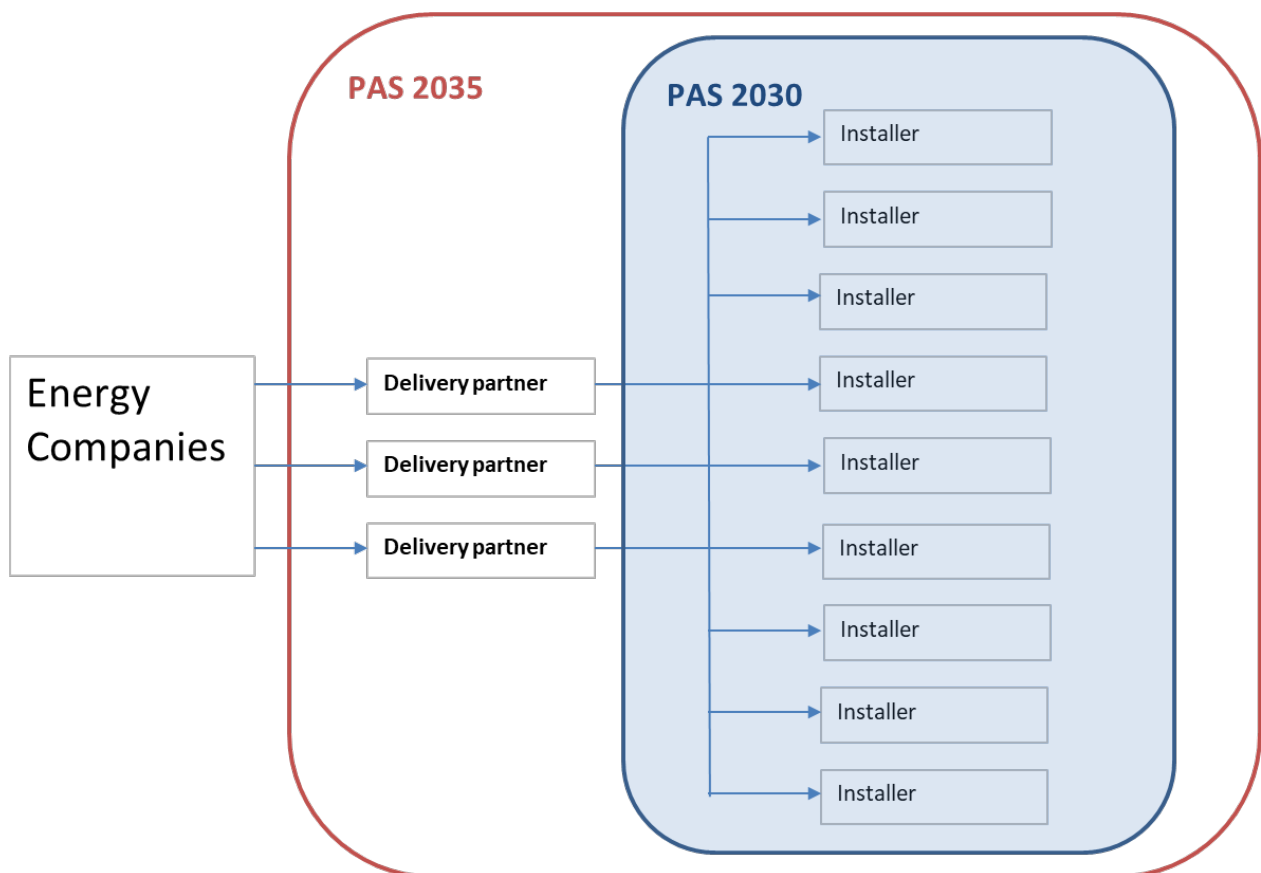
6.2 Supply Chain impact

Energy companies procure energy efficiency measures through delivery partners who in turn sub-contract with installers across the supply chain (see figure 3). It is estimated there are several hundred delivery partners⁹ working with energy companies, the majority of which are small businesses with a regional focus and a minority comprising large businesses operating across Great Britain. Some of the larger energy companies also have their own delivery arms that provide specific energy efficiency products such as boilers and wall insulation. Delivery partners sub-contract by working with an estimated 2,300¹⁰ installers across the local supply chain. Delivery partners are most affected by the regulatory amendment because the PAS 2035 framework requires retrofit projects to be managed by a retrofit co-ordinator. Installers who are sub contracted are less affected by this as they will continue to participate in projects organised by delivery partners.

The impact to installers is the change from PAS 2030:2017 to PAS 2030:2019. Certification to current PAS technical standards is already a requirement of ECO and therefore the change to PAS 2030:2019 does not impose additional costs to business that are not already accounted for in previous impact assessments.

This impact assessment is therefore primarily concerned with the cost imposition of the PAS 2035:2019 framework to business.

Figure 3: ECO supply chain illustration



⁹ Estimated from discussions with energy companies.

¹⁰ Derived from business population estimates.

6.3 Direct costs to business

There are upfront costs that delivery partners and installers will need to meet in order to subscribe to PAS 2035:2019.

1. Lodgement costs are paid by Trustmark registered businesses to record details of the measure(s) on TrustMark's data warehouse at a cost of £8 (plus VAT) per household. ECO delivers approximately 1.5 measures per household which implies lodgement costs are £5.70 (plus VAT) per measure. These lodgement costs will run in parallel to existing Ofgem reporting mechanisms during the transition, meaning these will impose additional cost to business in the short term but supersede existing reporting mechanisms after the transition. Lodgement costs form part of the additional delivery costs described in section 6.4 but are only accounted for during and after the transition. Some companies, however, may choose to use the data warehouse before the transition period, either to test it or simply adopt the new process early. Therefore lodgement fees arising prior to the transition period are captured in table 2 and fall to zero in phase 3 onwards (2021) because they're captured in the increased delivery costs discussed in section 6.4.
2. Scheme providers will pay a one-off joining fee of £2,000 with TrustMark to sign up certified businesses to the TrustMark standard. These costs are reflected in the onboarding costs in table 2.
3. TrustMark will charge an annual subscription of £40 per individual registered business. BEIS estimate around 2,300¹¹ small businesses engage in the ECO market and will therefore need to subscribe to TrustMark through their accreditation body. These costs are reflected in the subscription costs in table 2 and include additional admin charges that may or may not be imposed by the accreditation body.

The annual costs to business arising from Trustmark subscriptions and lodgement are presented in Table 2.

Table 2: Annual costs to business arising from Trustmark

	2019	2020	2021	2022	Total
1. Measures lodged on TrustMark data warehouse before transition.	1,300	162,000			163,300
2. Lodgement costs ⁱ	£13,000	£1,620,000	£0 – see footnote ¹²		£1,633,000
3. Subscriptions	£324,000	£324,000	£324,000	£324,000	£1,295,000
4. Onboarding for Scheme providers		£200,000			£200,000
Total cost to business	£337,000	£2,144,000	£324,000	£324,000	£3,129,000

The estimated direct cost to business (excluding delivery) arising from the new TrustMark framework is £3.1m (£2.6m present value).

¹¹ Estimates derived from business population statistics

¹² Costs arising from lodgement of measures on TrustMark's data warehouse will add to business cost during the transition but should be cost neutral (non-additional) from 2021 onwards because TrustMark will take over technical monitoring from Ofgem. However, these lodgement costs are treated as additional costs for the purposes of this impact assessment.

6.4 PAS 2035:2019 delivery costs

The PAS 2035 framework comprises the following steps and the cost impact of each these will depend on the level of risk:

1. Risk Assessment
2. Dwelling Assessment including ventilation
3. Improvement option
4. Advice
5. Design
6. Monitoring and evaluation in accordance with PAS 2035.

The level of risk will depend of the complexity and / or scale of the project and is described in more detail below. The lowest risk projects will adopt Path A whilst the highest risk projects will adopt Path C. The processes required in each Path and their total assumed cost impact to delivery costs are listed in table 3. These were provided by Industry during consultation.

Table 3: PAS 2035 Path¹³

	Path A	Path B	Path C
Lodgement fee ¹⁴	A lodgement fee for each property treated	A lodgement fee for each property treated	A lodgement fee for each property treated
Design Assessment	Design by System Specialist/Review by Retrofit Co-ordinator	Retrofit co-ordinator	Design by Chartered Architectural Technologist, or Architect plus Structural engineers report if required
Retrofit options	Single recommendation made to household	Option Evaluation & Agreement	Option Evaluation & Agreement
Overheating Assessment	Retrofit co-ordinator	Retrofit co-ordinator	Retrofit co-ordinator
Air tightness test	Assessment only by Retrofit co-ordinator	Assessment only by Retrofit co-ordinator	Air tightness test undertaken by 3 rd party plus any remedial work required (e.g. extractor fan)
Basic Monitoring & Evaluation using questionnaire	Retrofit co-ordinator	Retrofit co-ordinator	Retrofit co-ordinator
Intermediate to advanced monitoring requiring home inspection		5% of measures may require intermediate monitoring and evaluation	2% of measures may require advanced monitoring and evaluation
Guarantee costs			
Total cost per household	£400	£500	£1,000
Total cost per measure ¹⁵	£280	£350	£700

¹³ Table B.1— Risk assessment table for determining PAS 2035 Path.

¹⁴ A lodgement fee for each property (£8+VAT) will directly fund audit and compliance activities and, in future, technical monitoring. Technical monitoring under the current scheme falls under administration costs but under PAS 2035 it becomes an embedded cost within delivery since each home must have their measures lodged on the TrustMark warehouse. Energy companies must recoup their costs by levying the cost of the ECO scheme to household energy bills. We have captured the lodgement costs within the additional £350 costs that increases supplier's delivery costs. Therefore, the change is cost neutral in the long run because the additional amount paid to the market will be offset by lower administration costs, both of which are levied on household bills. However, this impact assessment treats lodgement as an additional cost since it will run in parallel to existing Ofgem monitoring for most of the scheme.

¹⁵ There were approximately 1.5 measures per household delivered in the first 8 months of the ECO 3 scheme. Figures are rounded.

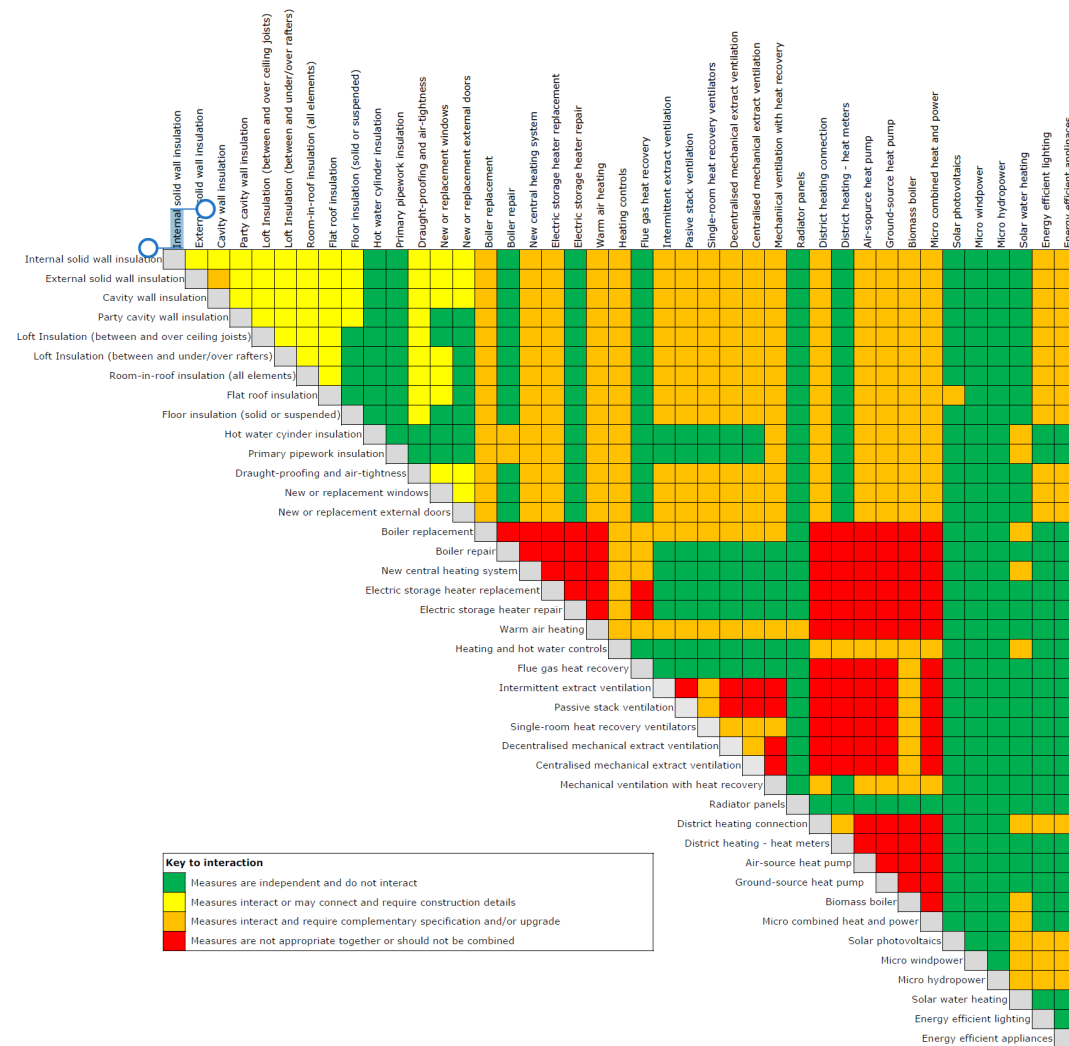
Stakeholders queried the omission of guarantee costs in the consultation impact assessment. After reviewing these assumptions, it was decided the length of guarantees should be reduced, in most cases, to 2 years. The cost of guarantees is expected to reflect a small portion of delivery cost as the guarantee lifetimes have been shortened from the proposed 6 years to 2 years. Additionally, we have taken upper estimates of the expected increase to delivery costs (from evidence provided by industry) to provide a buffer for unaccounted costs such as guarantees.

The level of risk of a project and the subsequent Path that measures fall under depends on:

- The extent to which measures interact with other measures being installed alongside them.
- The constructions typology of the building (e.g. conventional, protected, high-rise, system built, or traditional)
- Whether the building is listed.
- The scale of the project (i.e. number of dwellings).
- Number of measures being installed.

Figure 3 illustrates the interaction risk level between specific measures.

Figure 3: The measures interaction matrix¹⁶



¹⁶ Reproduced with permission from BSI (<https://www.bsigroup.com/en-GB/>)

Measures delivered under ECO3 such as insulation and boiler upgrades will tend to fall under path B as these measures are judged to interact with other measures. The situations in which path C will arise are:

- a whole house retrofit project involving 5 or more measures;
- a project involving more than 30 dwellings; or
- a project involving buildings with a protected status.

BEIS have assumed the costs associated with path B will add to the cost of delivering measures when they adopt the PAS 2035:2019 framework. The assumption that measures typically follow Path B is based on the following:

- I. Conversations with industry about typical pathways affecting ECO. Typical measures comprise primary insulation (loft, cavity, etc) or combinations of two measures such as boiler replacement alongside insulation. These measure combinations are judged to interact with one another according to the Interactions matrix (see figure 3) and are therefore deemed medium risk which qualifies them to Path B. Singular measures, which are common under ECO, are judged to be low risk and will therefore follow Path A but we have assumed Path B costs against all measures in order to build some headroom into the cost impact or cover for situations in which the house received treatment on a previous occasion.
- II. Large scale projects (+30 dwellings) or whole house retrofit projects involving 5 or more measures will be deemed high risk and need to follow path C. Whole house retrofit projects are uncommon under ECO and therefore very few path C whole house projects are expected. Large scale projects to multiple dwellings such as solid wall insulation to housing association properties benefit from significant economies of scale which are not reflected in our cost assumptions (e.g. solid wall insulation costs reduce by several thousand pounds). PAS 2035 costs would also reduce because a retrofit co-ordinator would specify a design that could be rolled out across all dwellings in a project such as a row of terraced housing or apartment block. Therefore, these economies of scale¹⁷ will outweigh Path C costs, so it was judged unnecessary to reflect Path C costs when not accounting for such significant economies of scale or wholesale retrofit design.

BEIS have discussed the cost of path B with stakeholders and assumed delivery costs will increase by an average of £350 per measure as a result of compliance to PAS2035. These costs were provided by industry and reflect lodgement fee, the additional time spent in a property providing advice to the consumer, producing a risk assessment and carrying out pre and post installation checks. The government anticipate these cost impacts to be lower once the supply chain becomes familiar with the new PAS 2035 framework, but we have used the figures provided by Industry in order to allow for some headroom in our assumptions.

¹⁷ PAS 2035 will impose additional checks on homes that are deemed high risk such as ventilation assessment and a more considered design specification that might be commissioned by an architect or structural engineer. These higher risk cases will apply to installations involving a larger number of properties and therefore the design specification, although more costly, will be implemented across multiple properties thereby achieving economies of scale and reducing the additional costs per measure. Air tightness tests need only apply to a sample of dwellings if they form part of the same development so whilst this imposes additional cost it is thinly spread across the project. In pathway C projects involving a single dwelling the costs are spread across multiple measures meaning the additional costs are not per measure but per dwelling and therefore additional costs from riskier projects could work out cheaper per measure than pathway B projects involving singular measures.

7 Cost Impacts

This section explains how the cost assumptions described in section 6 impact upon businesses and feed into the equivalent annual net direct cost to business (EANDCB) calculation presented in section 8 and presents a revised assessment of how much ECO3 will cost energy companies to deliver given we expect delivery costs to rise. This is important to consider so that the regulatory amendment does not push supplier spend above a spending envelope of £2.24bn over the whole ECO3 period.

There are two cost impacts to consider:

1. Direct costs to business of signing up to the TrustMark framework (explained in section 6.3)
2. impact to delivery costs of PAS2035:2019 technical requirements (explained in section 6.4)

The estimated direct costs to business arising from the new TrustMark Framework amount to £3.14m over the 3.5 year scheme. The impact to delivery costs from PAS2035:2019 technical requirements amount to £59m. These costs are additional to any of the delivery costs assumed in the Oct 18 ECO3 Final Stage Impact Assessment and therefore feed into the EANDCB calculation. Table 4 presents these cost impacts in nominal terms.

Table 4: Cost impacts from TrustMark and additional delivery costs (2017 prices)

	Phase 1: Dec 18 - Mar 19	Phase 2: Apr 19 - Mar 20	Phase 3: Apr 20 - Mar 21	Phase 4: Apr 21 - Mar 22	Total during entirety of ECO3
Direct costs	£337,000	£2,144,000	£324,000	£324,000	£3,129,000
Additional delivery costs			£10,000,000	£49,000,000	£59,000,000
Total cost impact	£337,000	£2,144,000	£10,324,000	£49,324,000	£62,129,000

Table 5 shows ECO3 was expected to cost £2.24bn including admin according to the Oct 18 Impact Assessment.

Table 5: lifetime bill savings, ECO subsidies and costs assumed in the Oct 2018 ECO3 Impact Assessment

	Period 1: Dec 18 - Mar 19	Period 2: Apr 19 - Mar 20	Period 3: Apr 20 - Mar 21	Period 4: Apr 21 - Mar 22	Total during entirety of ECO3
lifetime bill savings (LBS) £m	£1,265m	£2,488m	£2,297m	£2,202m	£8,253m
ECO subsidy £m	£293m	£585m	£585m	£585m	£2,048m
ECO cost per LBS (rounded to nearest penny)	0.23	0.24	0.26	0.27	0.25
ECO Subsidy + admin £m	£320m	£640m	£640m	£640m	£2,240m

Table 6 shows delivery costs for ECO3 updated with phase 1 actuals and an estimate for carryover. This forms an updated counterfactual and shows ECO3 is expected to cost £2.16bn to deliver.

Table 6: Counterfactual ECO3 delivery costs

	Phase 1: Dec 18 - Mar 19	Phase 2: Apr 19 - Mar 20	Phase 3: Apr 20 - Mar 21	Phase 4: Apr 21 - Mar 22	Total during entirety of ECO3
lifetime bill savings (LBS) £m	£531m	£2,168m	£2,701m	£2,306m	£8,253m (including carryover)
ECO subsidy £m	£90m	£547m	£705m	£628m	£1,970m
ECO cost per LBS (rounded to nearest penny)	£0.17	£0.25	£0.26	£0.27	£0.25
ECO Subsidy + admin £m	£110m	£602m	£760m	£683m	£2,155m

Table 7 below accounts for the additional cost of PAS2035:2019 by assuming the delivery cost of the 3rd and 4th phase of the scheme will increase as measures conform to the PAS 2035 framework (see figure 1 for the assumed adoption profile). It should be noted that the transition period to the date at which it becomes mandatory to adopt the new PAS framework has been extended by six months from the proposal in the consultation. The extension to the transition is expected to reduce the cost impact of PAS 2035 by £50m because higher costs from PAS 2035 will be imposed on the supply chain later than previously assumed.

Table 7: lifetime bill savings and ECO subsidy after accounting for current delivery costs and subsequent costs arising from PAS 2035:2019

	Oct 18 - Mar 19	Apr 19 - Mar 20	Apr 20 - Mar 21	Apr 21 - Mar 22	Total during entirety of ECO3
Lifetime bill savings (LBS) £m	£531m	£2,168m	£2,701m	£2,306m	£8,253m (including £547m carryover)
ECO subsidy £m	£90m	£547m	£766m	£707m	£2,110m
ECO cost per LBS	0.17	0.25	0.28	0.31 ¹⁸	0.26
ECO Subsidy + admin £m	£110m	£602m	£821m	£762m	£2,295m

¹⁸ 31 pence was derived from the AW model – further information is provided in the Annex.

PAS 2035:2019 technical requirements will increase delivery costs by £140m¹⁹ (prior to inclusion of an uplift described below). ECO3 is therefore expected to cost energy companies £2.3bn which is in excess of the spending envelope for the scheme.

In response to concerns raised during the consultation the government has decided to offer a 20% uplift during the transition to the lifetime bill score for measures conforming to PAS 2035. The uplift is only available during the transition and ceases to apply to measures delivered from 1st July 2021 onwards. Table 8 reflects reduced subsidy expenditure in phase 3 and 4 because of reducing the cost of achieving the same level of lifetime bill saving. If installers are slow to capitalise on the uplift then this also presents an upside risk in cost terms since measures that don't adhere to the new PAS framework will be delivered at lower costs.

As well as reducing the cost of delivering the obligation to energy suppliers it will incentivise installers to work to the new PAS standards earlier than may have been the case otherwise, thereby benefiting the recipients of such measures.

Table 8: lifetime bill savings and ECO subsidy after accounting for current delivery costs, PAS 2035:2019 and a 20% uplift

	Oct 18 - Mar 19	Apr 19 - Mar 20	Apr 20 - Mar 21	Apr 21 - Mar 22	Total during entirety of ECO3
Lifetime bill savings (LBS) £m	£531m	£2,168m	£2,701m	£2,306m	£8,253m
ECO subsidy £m	£90m	£547m	£714m	£678m	£2,029m
ECO cost per LBS (rounded to nearest penny)	0.17	0.25	0.26	0.29	0.25
ECO Subsidy + admin £m	£110m	£602m	£769m	£733m	£2,214m

Table 8 predicts ECO3 delivery costs fall within the spending envelope at £2.21bn. The uplift reduces delivery costs by £51m during phase 3 (which coincides with 12 months of the transition period) and £29m during phase 4 (which coincides with the last 3 months of the transition). **PAS 2035:2019 technical requirements will increase delivery costs by £60m after accounting for the uplift.** Therefore, the uplift has reduced supplier spend by £80m and bought total ECO3 subsidy expenditure below the £2.24bn threshold.

Table 9 summarises these changes in delivery cost prediction between the consultation stage and before and after policy amendments at Final Stage.

¹⁹ The consultation IA stated the cost impact was £198m but this has reduced to £140m due to the transition period ending 6 months later.

Table 9: Summary of anticipated costs of delivering ECO 3 at Consultation and before and after policy amendments at Final Stage.

Policy stage	Cost of scheme
Consultation IA	£2.210bn
Final Stage IA Counterfactual	£2.155bn
Final Stage IA including PAS 2035	£2.343bn (+£188m against counterfactual)
Final Stage IA including PAS 2035 and change to transition date	£2.295bn (+£140m against counterfactual. £48m saving from change in transition period)
Final Stage IA including PAS 2035, change to transition date and uplift applied	£2.214bn (+£59m against counterfactual. £81m additional saving from offering uplift during transition)

8 Equivalent Annual Net Direct Cost to Business (EANDCB)

The estimated total cost to business arising from the new PAS 2035 framework is £62.3m (nominal) and a break down by year can be found in table 4. Table 10 presents the discounted figure adjusted to 2016 prices.

Table 10. Equivalent Annual Net Direct Cost to Business – 3.5 year appraisal period (2016 prices).

EANDCB annualised costs	Business Impact Target
£17.1m	£59.9m

9 Risks

9.1 Supply chain

The main risk of the regulatory amendment is discouraging installers to engage in the market for ECO subsidy. This presents a risk to energy companies of meeting their obligation target along with potential upward movements in delivery costs if fewer delivery installers operate in the market. The current low level of delivery observed in the market is mitigated to some extent by carryover from ECO2t but energy companies still need to maintain upward movement in delivery levels to achieve their obligation target in the remaining phases of the scheme. Government will continue to monitor delivery levels and costs of delivery to ensure the obligation is likely to be met and falls within the spending envelope of £2.24bn.

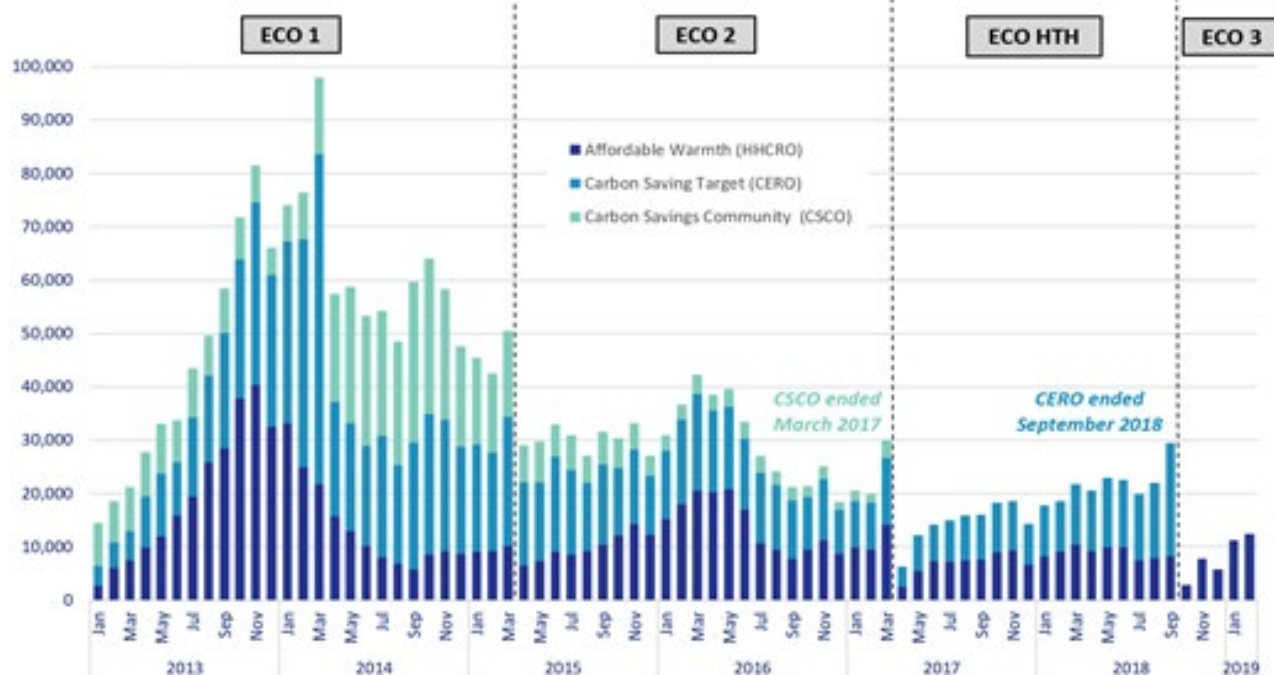
This impact assessment is concerned with the introduction of new PAS standards and has identified upward movement in delivery costs amounting to £188m (prior to the governments intervention of change to the transition period and an uplift to reduce the impact). These cost increases are based on assumptions provided by Industry and reflect generous allowance for additional time needed to complete the checks imposed by the PAS 2035 framework. The Government expects these costs to be lower, at least in the long run, once the supply chain has adapted to the new processes and they become business as usual. Therefore, there is upside risk that the cost impact may be less than assumed in this assessment. Furthermore, the government is offering a time-limited uplift designed to encourage installers to adopt PAS2035 certification earlier in the transition period as they will be able to claim higher subsidy from energy companies and this will encourage suppliers to remain active participants in the market. The uplift is designed to reduce supplier delivery costs by £80m which means PAS2035 should impose additional delivery costs of £60m once the uplift is taken into account. Government expects these costs to fall further once the supply chain has adapted to the new process.

Despite retaining pessimistic cost impact assumptions supplier subsidy spend is predicted to remain within the spending envelope.

9.2 Delivery

The Energy Company Obligation requires obligated suppliers to deliver a lifetime bill savings target of £8.253bn over the 3.5 year scheme. Energy companies can choose how to profile delivery during the course of the scheme. Figure 4 illustrates delivery patterns in previous ECO schemes. A minor risk to consider is the assumed measure delivery profile during the remainder of the 3.5 year scheme. The increased cost arising from PAS 2035:2019 mainly affects the 4th phase of the scheme (Apr '21 – Mar '22) and assumes lifetime bill savings of £2.3bn are achieved at a cost of 34 pence per LBS. If delivery is back-loaded in the way it was in ECO 2t (see figure 4) then this would push up delivery costs if more of the obligation is delivered at this higher cost. Sensitivity analysis suggests the overall cost of the scheme would only increase by £30m if LBS delivery in phase 4 was 30% higher than forecast. Energy companies are unlikely to back load delivery because they are limited by the amount they can profile delivery owing to the price cap which hadn't come into effect during ECO2t.

Figure 4: ECO measures installed, by obligation, by month, up to end February 2019



10. Small and Micro Business Assessment (SaMBA)

There are an estimated 100 – 200 delivery partners²⁰ engaged in the ECO market comprising small, medium and large businesses that project manage and install energy efficiency measures on behalf of energy companies. These organisations vary in size, with a handful comprising medium / large enterprises employing several hundred people but the vast majority are small businesses with 10 – 50 employees. These providers normally comprise agents, installers or a mixture of both and work with smaller businesses (the majority of which are micro sized businesses) in the supply chain through sub-contracting²¹.

Installers operating in the ECO subsidised retrofit market are required to be certified by an accreditation association. This means the certification requirements imposed by TrustMark and PAS 2035 framework will reflect certification practices already present in the retrofit market because installers must be PAS 2030:2017 certified to qualify for ECO subsidy toward energy efficiency installation costs.

There are however changes in the certification requirement stemming from PAS 2035:2019 which imposes a new requirement for a retrofit co-ordinator to design and commission appropriate work involving ECO subsidised energy efficiency measures.

²⁰ Estimated from conversations with energy companies

²¹ It has not been able to break down the specific roles undertaken by companies by their size, which would help assess the specific impact on small and medium sized businesses of these regulations.

Providers who contract for projects that claim ECO subsidy will need to appoint at least one member of staff to the role of retrofit co-ordinator. There are retrofit co-ordinators currently operating in the market who oversee projects and ensure compliance with existing ECO scheme rules and current PAS standards. The requirement of PAS 2035 to appoint a retrofit co-ordinator will therefore, in many cases, formally recognise co-ordination practices that already take place given providers typically manage multi dwelling projects involving sub-contractors. In some cases businesses will need to appoint an extra staff member to fill the retrofit co-ordinator if they can't find the necessary skills or resource in house. It could be argued that smaller providers face disadvantage in ensuring they have suitably trained staff to fulfil the role of a retrofit co-ordinator. The potential disadvantage posed to smaller firms are:

- PAS 2035 will require additional vocational training to enable retrofit co-ordinators to fulfil their role.
- Time needed for staff to familiarise themselves with the PAS 2035 framework which mandates a design specification, advice to consumer, risk assessment and a post installation check.
- Familiarisation with and testing the new lodgement process using TrustMark's data warehouse.
- Familiarisation and certification to the updated PAS2030:2019 technical requirements (this should be considered business as usual).

A large delivery partner working at a national level is likely to have resources to draw from that place them at advantage over smaller delivery partners but these medium / large enterprises number just a few and the majority of delivery partners who operate in the ECO market specialise in regional supply chains and face the same degree of imposition as other delivery partners operating elsewhere in the ECO market.

10.1 Requisite skills

Familiarisation and certification to current PAS standards is a prerequisite of the current ECO and covers many of the competences required in the new PAS. Installers participating in the ECO market must already be certified to PAS 2030:2017 so the change to PAS 2030:2019 technical standards reflects a business as usual update in energy efficiency standards and business will continue to be required to gain their annual recertification. The government is working with the construction industry training board (CITB) to ensure any new technical requirements in the new PAS remain compatible with the Competent Persons Scheme (CPS).

The PAS2035:2019 framework will necessitate risk assessment, customer advice and pre and post installation checks by a retrofit co-ordinator. An awareness of the implication of significant changes to the building fabric that impairs air permeability, thereby reducing ventilation and increasing exposure to indoor pollutants is formally recognised in the new PAS and requires an assessment of these risks by the retrofit co-ordinator which may therefore require additional training for project managers. It could be argued that larger delivery partners are more likely to either employ staff with these requisite skills or find it easier than smaller delivery partners to familiarise themselves with the new framework and recruit or retrain staff to the new standards. The consultation did not reveal any objection from stakeholders concerning the cost of hiring or upskilling staff to the role of retrofit co-ordinator, but stakeholders did request a longer transition for businesses to get ready to comply with the new standards. **The government is therefore extending the transition from PAS2030:2017 to PAS2035/2030:2019 until 30th June 2021 to give delivery partners, particularly smaller business, longer to understand and conform to the new standards.**

10.2 Increased costs

PAS 2035:2019 will impose additional delivery costs affecting all measures within its scope²² and across all delivery partners, as is reflected in the cost impacts in section 7. Delivery costs will increase more significantly for projects involving whole house retrofit and / or large-scale projects (in excess of 30 dwellings) because the predesign specification and advice will need to be considered more carefully and involve specialists such as architects, building engineers and surveyors²³. Any business involved at scale or in multi-measure whole house retrofit projects will be disproportionately affected by the increased delivery costs arising from

PAS2035/PAS2030:2019. Typically, larger businesses who carry the range of expertise, scale, and credit worthiness to contract for whole house retrofit and / or large-scale projects engage in such projects. Smaller delivery partners who specialise in the application of specific measure types such as solid wall insulation will face relatively small cost increases arising from the new PAS owing to the relatively high cost of solid wall insulation. Cavity wall and loft insulation installers might be disproportionately affected however because the cost increase relative to the cost of the measure is higher for loft and cavities. The consultation revealed some stakeholders were concerned by the cost increases from PAS2035 on the basis that it could discourage SMEs from engaging in the ECO scheme. **The government is therefore introducing a 20% uplift for all ECO3 measures delivered in compliance with PAS 2035:2019 and PAS 2030:2019 and installed by a certified installer**, which will help to offset delivery cost increases from PAS 2035 in most cases. Table 11 details the cost effectiveness of measures now, their reduced cost effectiveness after PAS 2035 and their improved cost effectiveness following the uplift.

Table 11: illustrative examples of measure costs pre and post PAS 2030/2035

Measure	a) Deemed score ²⁴	b) Cost ²⁵	c) Cost effectiveness now a) / b)	d) Cost after PAS 2035 = b) +£350	e) Cost effectiveness after PAS 2035	Cost effectiveness after PAS and 20% uplift d) / (120% * a)
solid wall insulation	8,433	£7,800 (75% contributed by 3 rd party)	£0.23	£8,150 (75% contributed by 3 rd party)	£0.27	£0.20
cavity wall insulation	5,738	£670	£0.12	£1,020	£0.18	£0.15
room in roof insulation	5,907	£1,250	£0.21	£1,600	£0.27	£0.23
loft insulation	1,981	£370	£0.19	£720	£0.36	£0.30

²² Although Demonstration actions and DHS do not need to be TrustMark certified they still fall under PAS 2030:2019 technical standards.

²³ Section A.4.5 of the PAS2035:2019 document lists the specific requisite qualifications for path C.

²⁴ <https://www.ofgem.gov.uk/publications-and-updates/eco3-deemed-scores>

²⁵ Typical capital cost assumptions used in AW model

The 20% uplift will partially negate the cost impact of PAS 2035 by £81m (~60%). Some measures such as loft insulation have the potential to be the most disadvantaged by the increased delivery costs since it is a relatively cheap measure. However, loft insulation is more likely to fall under path A if it is delivered as a single measure and therefore the cost impact will be less pronounced than suggested in table 11. Furthermore retrofit coordinators and other roles will likely have oversight of multiple projects, so the cost is spread across installations. Delivery partners can mitigate the cost increases of PAS 2035 further by delivering multiple measures to a property. Any costs that do rise for particular measures reflects a trade-off between raising standards and levels of protection for the consumer versus preserving the status quo.

The government has chosen not to exempt small and medium size businesses from the standards that stem from the regulatory changes²⁶ because to do so would exclude almost all delivery partners and installers who participate in ECO and therefore completely undermine standards and consumer protection.

The government has responded to concerns raised in the consultation by offering businesses a 6-month extension to comply with the regulations and an uplift to measures that comply to the new standards to reduce the cost imposition of the PAS framework. Whilst the uplift won't be enough to completely mitigate the cost rises it is designed to keep supplier spend below the agreed spend envelope of £2.24bn.

11. Annex

A1: Each home counts review²⁷

The Each Home Counts review was launched in 2015 to consider issues relating to consumer advice, protection, standards and enforcement in relation to home energy efficiency and renewable energy measures in the UK. The Review identified a set of recommendations that arose from six workstreams:

- I. Consumer Protection
- II. Advice and Guidance
- III. Quality and Standards

²⁶ The regulations in practice only apply to energy suppliers but small businesses who participate in ECO will need to adopt the new standards if they wish to continue to participate in ECO.

²⁷ <https://www.gov.uk/government/publications/each-home-counts-review-of-consumer-advice-protection-standards-and-enforcement-for-energy-efficiency-and-renewable-energy>

- IV. Skills and Training
- V. Compliance and Enforcement
- VI. Holistic Property Consideration

At the heart of the Review findings is a recommendation to establish a **quality mark** for the domestic retrofit sector. This will build further on the recognised consumer brands in the sector, such as the Gas Safe Register, TrustMark and Kitemark.

The review identified a **Code of Conduct** setting out clear requirements and guidance on how companies behave, operate and report in order to be awarded and hold the quality mark.

The **Consumer Charter** will cover the entire consumer journey. This charter acts as the understanding between the consumer and the organisations operating under the quality mark.

Installations or assessments will be undertaken in accordance with defined **Codes of Practice and standards**. These will be brought together under the umbrella of a comprehensive, overarching standards framework which builds on and incorporates existing scheme-specific standards, and includes greater emphasis on the role of design in the installation process, particularly for more complex installations or combinations of measures. An industry led group will revise and develop a new Publicly Accessible Standards (PAS) to compliment and run alongside existing PAS requirements.

The remaining recommendations from the review cover

- **Providing advice to agreed standards**
- **Installers trained to a stronger, more consistent level of core competency**
- **Participate in a robust, transparent and aligned compliance and enforcement landscape which creates trust in the quality mark**
- **Sign up to deliver a simplified and effective redress process, where consumers have a single point of consumer contact**

The reviews recommendations have been accepted by the government and are being implemented through the inclusion of the PAS 2035 framework in ECO delivery.

A2: Modelling the impact of PAS2035 on delivery costs.

The updated delivery cost of 31 pence in phase 4 was calculated using the Affordable Warmth model (AW). The AW model is an Excel based micro simulation model that simulates delivery of energy efficiency measures to households in England. The model simulates uptake based on the relative cost effectiveness of single or packages of measures and chooses the most cost effective mix until a target spend of £640m per annum is achieved. The cost effectiveness of measures is the ratio of their capital cost divided by their notional lifetime bill saving (LBS). The AW model has been updated to account for the additional delivery costs arising from the PAS2035:2019 framework (listed in table 3). By holding the obligation target fixed the model estimates any increased cost of delivery. The AW model does this by calculating increases in the marginal cost paid to achieve a given spend or obligation target. The modelling results show the impact of PAS2035:2019 technical requirements will increase the marginal cost from 27 pence to 31 pence in phase 4.
