

## **THE CASE FOR PROVIDING A MEANS TO ENSURE SAFE TEMPORARY ISOLATION IN DOMESTIC AND SIMILAR PREMISES**

### **Introduction**

The Smart Meter programme presents a valuable opportunity to address a longstanding barrier-to-trade problem related to home electrical installations across Great Britain. This issue concerns the temporary de-energisation of electricity supplies to domestic and similar premises to enable electricians to carry out certain electrical installation work safely, including the replacement of consumer units (fuseboxes). It is estimated that over 400,000 temporary de-energisations need to be made each year for this purpose.

The ESC originally recommended that the safest and most convenient solution would be the inclusion of an isolating switch in the smart meter specification (Option A). However, with both the first and second iterations of that design now agreed, it is clear that another path must be used to resolve this long-standing issue. This document sets out that alternative approach and concludes by recommending a solution is sought through extending the provisions of Part P Competent Persons Schemes (Option C).

### **Current routes for electricians**

At present, electricians have four choices when carrying out work for which they require a temporary de-energisation of the supply:

1. Arrange for the cut-out fuse to be withdrawn (and later replaced) by the electricity supplier/meter operator
2. Arrange for the electricity supplier/meter operator to install an isolator between the meter and the consumer unit
3. Remove and replace the cut-out fuse themselves
4. Work live

Options 1 and 2 are the only ones currently authorised by electricity suppliers, meter operators and distributors. ([www.dcusa.co.uk/Public/ViewDocument.aspx?id=2303](http://www.dcusa.co.uk/Public/ViewDocument.aspx?id=2303))

Despite some effort made by suppliers to improve the availability and level of service, Option 1 is generally considered to be impractical in terms of time, effort and normal domestic electrical installation working practices, particularly given that most electricians are time and resource-pressed SMEs. Also, consumers have to pay the supplier's/meter operator's charges for this service (understood to be at least £35 - £45 per visit, at least two of which are required – the first to de-energise and the second to re-energise).

With regard to Option 2, if the isolator is not installed at the same time as a meter, the cost to the property owner can be around £130 (using the example of Scottish Power) which, compared with Options 3 and 4, is not particularly cost effective for either electricians or property owners.

Option 3 is believed to be by far the most common approach currently taken by electricians though this is not without risk, especially where the service head is metallic. No supply industry data has been made available to enable the annual number of unauthorised de-energisations to be estimated, but it is believed that they may make up around 90% of the total (so up to 360,000), and is likely to be widely viewed as standard practice.

Option 4 carries a significant safety risk to the electrician, and is likely to be in direct breach of the Electricity at Work Regulations 1989 and the Health and Safety at Work etc Act 1974.

## Assumptions

- The number of smart electricity meters to be installed during the programme – 28 million
- Service life of smart electricity meters – at least 15 years
- Number of temporary de-energisations required in Great Britain by electricians – at least 400,000 per year (based on Building Regulations notification data).

## Future options

### **Option A – A manually-operated isolating switch incorporated in smart meters to provide for isolation by a competent person**

*Note: This is ESC's preferred option but was effectively ruled out in Government's response to the SMETS 1 consultation, although DECC did note they would work with stakeholders to find an alternative solution.*

#### Benefits:

- Avoids the need to call out meter operators to effect temporary isolations, avoiding wasted time for electricians and additional third party costs for consumers
- Proven technology and method of working - electricity meters with integral isolating switches and unsealed outgoing terminals have been in service for the past 20 years
- Distributor's cut-out fuse remains secure and unaffected
- Reduces the likelihood of illegal abstraction by ensuring that all necessary seals can remain intact

#### Disadvantages:

- Increase in the smart meter unit cost, which is indirectly borne by the consumer through increased energy bills
- Increase in the overall size of the meter to accommodate the isolating switch as clearance distances are not sufficient for safe inclusion into the present design
- This option is no longer under consideration by DECC

#### Costs:

- An estimated additional cost of £5 per meter, according to the British Electrotechnical and Allied Manufacturers' Association (BEAMA), compared to an estimated overall cost of over £100 per meter (DECC).
- The total additional cost would be around £140m. Benefits are spread over at least 15 years, i.e. around £9.3m per year.

## **Option B – Continue to rely on the service provided electricity suppliers/meter operators**

### Benefits:

- None likely to be perceived by electricians, meter operators or householders.

### Disadvantages:

- Bureaucratic, time-consuming, costly, inefficient and impractical, so avoided wherever possible by electricians
- Often difficult to identify and contact the appropriate party (electricity supplier or meter operator)
- Increases the cost of jobs for electrical contractors and their customers
- Meter operator resources would need to be increased significantly if smart meter alarms result in electricians having to use the authorised service on every occasion, resulting in increased direct and indirect costs to consumers
- Extends the time needed to complete each job significantly, as commencement and completion is dependent upon supplier/meter operator contractor. Future delays could be substantial when meter operator resources are heavily loaded during the roll-out phase.

### Costs:

- A typical call-out cost is £35 - £45 per de-energisation
- The total cost would be £210m to £270m over a 15 year period, i.e. between £14m and £18m per year
- Plus distributors' costs for the repair of service heads damaged during the unauthorised removal of cut-out fuse assemblies.

## **Option C – Introduce a system authorising registered competent non-supply industry personnel to withdraw cut-out fuses**

### Benefits:

- More efficient use of electricians' time and resources than option B – effectively cuts red tape to small businesses.
- The common practice of electricians removing cut-out fuses would become legitimate, better controlled and safer. Electricians would also be encouraged to register with a recognised Competent Person Scheme, in turn supporting best practice in other areas.
- Third party attendance costs would be eliminated in most cases.
- A non-engineering solution that could be efficiently implemented through a "bolt-on" to the existing Part P self-certification scheme assessment process, which would result in significant cost savings.
- A similar scheme is already in existence and has been used successfully by SSE. Under this scheme, notification of fuse removal is handled by the existing customer advice service, and the process is controlled by the supply of sealing tags and specialist pliers by the operator.

### Disadvantages:

- Distributors would need to put a system in place to accept notifications of cut-out fuse withdrawal; however a system such as this has been implemented by SSE, so it is reasonable to assume this could be replicated.

### Costs (based on tagging to an existing personnel certification scheme):

- Initial training and off-site assessment of each individual as a pre-cursor to registration and authorisation – one day course £180 including VAT (assuming individual is a competent electrician). Total cost\* over first 5 years = £5.4m (if incorporated into the existing Part P framework and certification this cost could be significantly reduced).
- Initial training and assessment of new electricians joining the scheme, based on a 5% churn, ie 1,500 per year over 14 years = £3.8m
- Small increase in annual site surveillance visits to confirm individual is following safe and appropriate isolation practices and procedures - £17 per person including VAT. Estimated total cost over 15 years = £7.7m

- Re-assessment of competence every 5 years for continued registration – half-day off-site refresher training and assessment - £90 plus £40 re-certification fee including VAT. Total cost\* over next 10 years = £7.8m
- Cost to electrical contractors\* for specialist sealing pliers and soft metal tags. The pliers are available from various outlets for roughly £30-40; the tags themselves are also low cost items. Estimated cost = £1 m
- Operation by networks of a reporting scheme for intended fuse withdrawals – £1.50 per electronic notification to distributors (400,000 per year). Total cost over 15 years = £9m.
- Total cost over a nominal 15 year period £34.7m = £2.3m per year.

\* Assumption: At least one person from 75% of the Part P registered firms in England and Wales will elect to adopt this for practical and business reasons over the first 5 years (when unauthorised cut-out fuse removals will no longer go unnoticed) - estimated 30,000 including electricians in Scotland.

**Note: Some costs from our original business case (Submitted to DECC in May 2012) have been reconsidered or removed due to the fact that they were based on the premise that any such authorisation scheme would have to be “stand alone”. However, assuming a so called “bolt-on” amendment to Part P of the Building Regulations, they will no longer apply. As the costs will be incorporated into the existing Part P framework of training, assessment and certification, they can be minimized.**

#### Cost summary:

Option	Description	Total cost	Cost per year
A	Incorporate an additional manually-operated isolating switch in the smart meter	£140m over minimum 15 year meter life	£9.3m
B	Continue to rely on the service provided by electricity suppliers/meter operators	£210m to £270m over a nominal 15 year period	£14m to £18m
C	Introduce system for the authorisation of non-supply industry personnel to withdraw cut-out fuses	£34.7m over a nominal 15 year period	£2.3m

#### Conclusions

- With option A ruled out, there is a clear cost/benefit and logical case for selecting Option C.
- Selecting Option C has no impact on the physical smart meter installation process and requires no design changes to smart meters.
- The investment in Option C would be small in relation to the on-going costs to businesses imposed by the do-nothing option B.
- A form of Option C is already in operation.
- Whilst Option C is not the ESC’s preferred solution, it is based upon sound existing practice and would be the safest, most cost effective and least disruptive remaining option to implement. This is important given the Department of Energy and Climate Change’s stated aim to resolve this issue despite having ruled out an engineering solution.