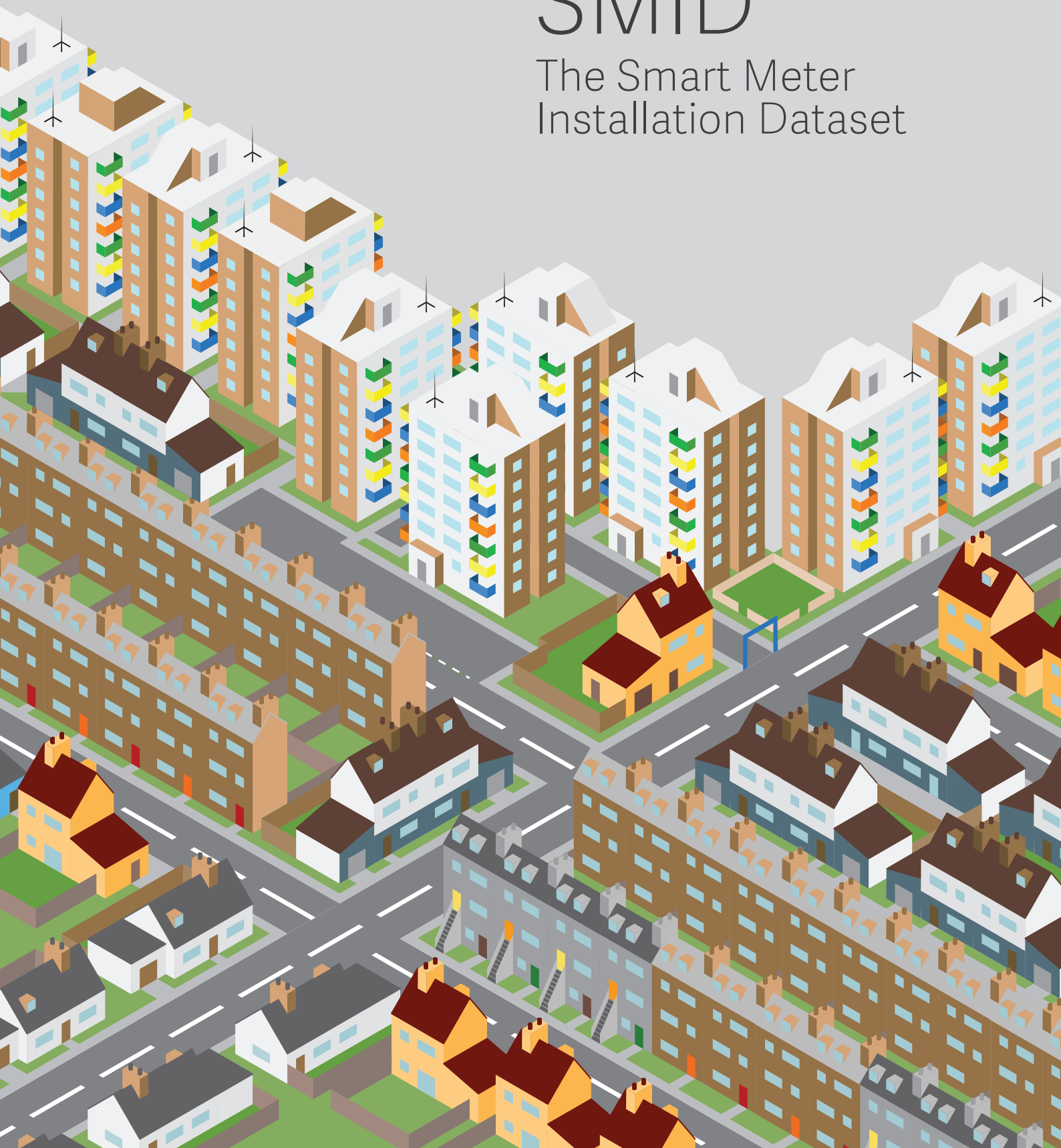
ElectraLink

energy saving trust

SMID

The Smart Meter Installation Dataset



ElectraLink

ElectraLink is an energy industry owned, client focused organisation that operates at the heart of the UK energy industry, with unique access to industry data for the benefit of the industry.

ElectraLink was established in 1998 to procure and manage the Data Transfer Service (DTS) to meet the market interoperability requirements of the newly deregulated electricity market.

Energy Saving Trust

Formed in 1992, Energy Saving Trust (EST) is the UK's leading organisation for providing energy saving solutions. In its role as an independent and impartial organisation, it provides a source of trusted expert energy advice to empower millions of people to lead affordable, low-energy lifestyles. This covers how to reduce carbon emissions, use water more sustainably, make more sustainable transport choices and save money on energy bills.

Overview

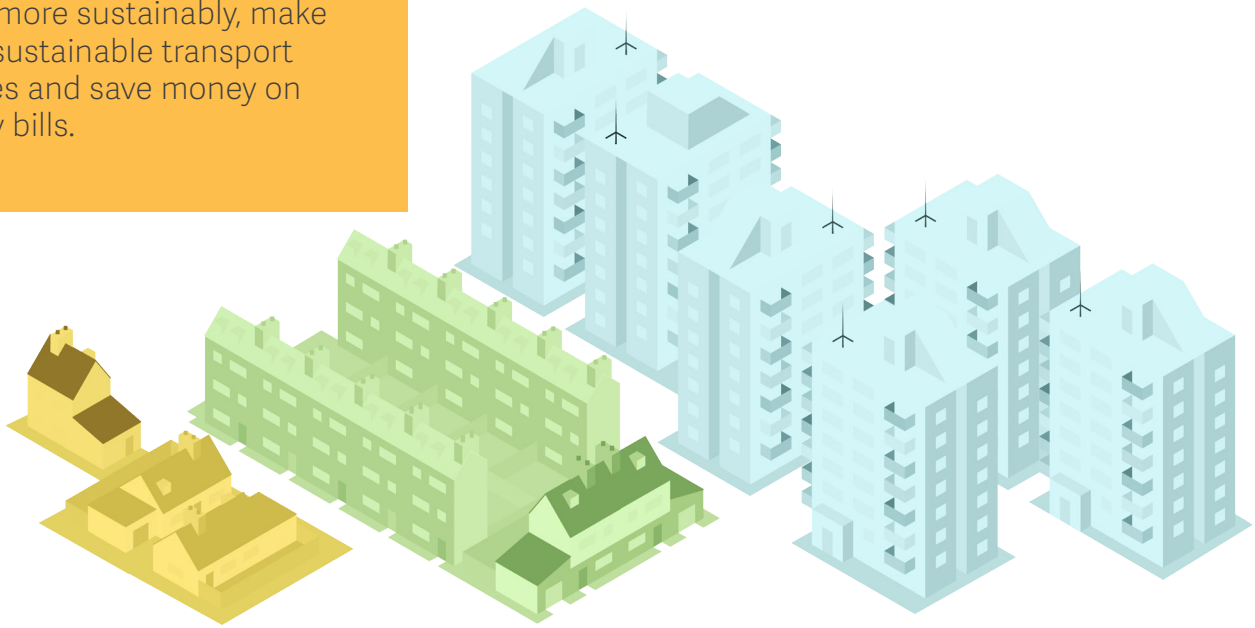
The Smart Meter Installation Dataset (SMID), provides the industry with a tool to predict, on a property by property basis, how easy or difficult smart meter installation will be, sharing data from across the industry to save cost, reduce risk and improve the customer experience.

ElectraLink, a central body in the electricity industry, and the EST, a charitable body, both have unique access to market and property data. They have identified some of the major difficulties British energy suppliers and meter operators must overcome and have launched the Smart Meter Installation Dataset (SMID) to help the industry respond efficiently.

The SMID combines unique data from ElectraLink, derived from the inter market participant electricity industry messages such as meter installation activities, with the EST's unique database of property information, derived from identifying potential efficiency measures across the country.

The SMID includes actual and, where actuals values are not available, predicted values using sophisticated statistical and geo-spatial modelling techniques.

The smart meter rollout calls for a total of 53 million existing gas and electricity meters to be removed and replaced with the new smart meters. Such a large scale rollout is unprecedented in Britain and the responsibility for succeeding, in this difficult challenge, belongs to the energy suppliers and their agents.



Supplier led rollout challenges

- Lack of local knowledge of properties;
- Uncertainty of what problems will be found;
- Difficulty in accurately scheduling appointments because of variety in times for installation.

The Challenge of Smart Meter Rollout

The Smart Metering Implementation Programme will require suppliers and their agents to replace approximately 53 million meters with smart meters by 2020.

The scale of the programme and rollout will require a considerable effort by retail market participants to ensure that it is a success. A significant element of the rollout will be planning installations both at a macro/strategic level and on a site by site basis. The task of planning and delivering the rollout will depend on the effective and efficient use of data to direct the planning tools that participants use.

In the interests of keeping costs to a minimum and making sure the amount of disruption felt by homes and small businesses is minimised, the ideal and most efficient situation for energy suppliers would be one visit to each property to replace easily accessible existing meters, with with new smart meters.

Participants involved in the rollout will need to better understand the customers and sites they will be visiting in order to effectively manage costs and the customer experience.

What are the challenges facing smart meter planners?

The installation teams will face a number of challenges including the need to implement the whole operation in a cost effective and efficient manner.

Some of the challenges will include:

- Meters in difficult to reach locations
- Multi-dwelling units
- Network asset replacements
- Asbestos
- Occupants not at homes

Operators need to know when and where problems may arise in order to keep costs down by avoiding aborted visits and unnecessarily long implementation times.

The Service

Inputs

- Supplier or Meter Operator Estate
  - UPRNs
  - MPANs

Outputs

- Area Level Reports
- Detailed Property Reports
- Report Data Items
  - UPRN
  - MPAN
  - Address
  - Electricity Meter Location
  - Distribution Asset Issue Likelihood
  - Asbestos Likelihood
  - Site Access Issue Likelihood
  - Property Type
  - Property Age
  - Property Tenure
  - Fuel Type

The SMID Service

The SMID service is designed to support Energy Suppliers and Meter Operators with their smart meter rollout planning.

Two different types of reports can be created for the Supplier or Meter Operator. In both cases the reports are provided on the specific Supplier or Meter Operator's estate.

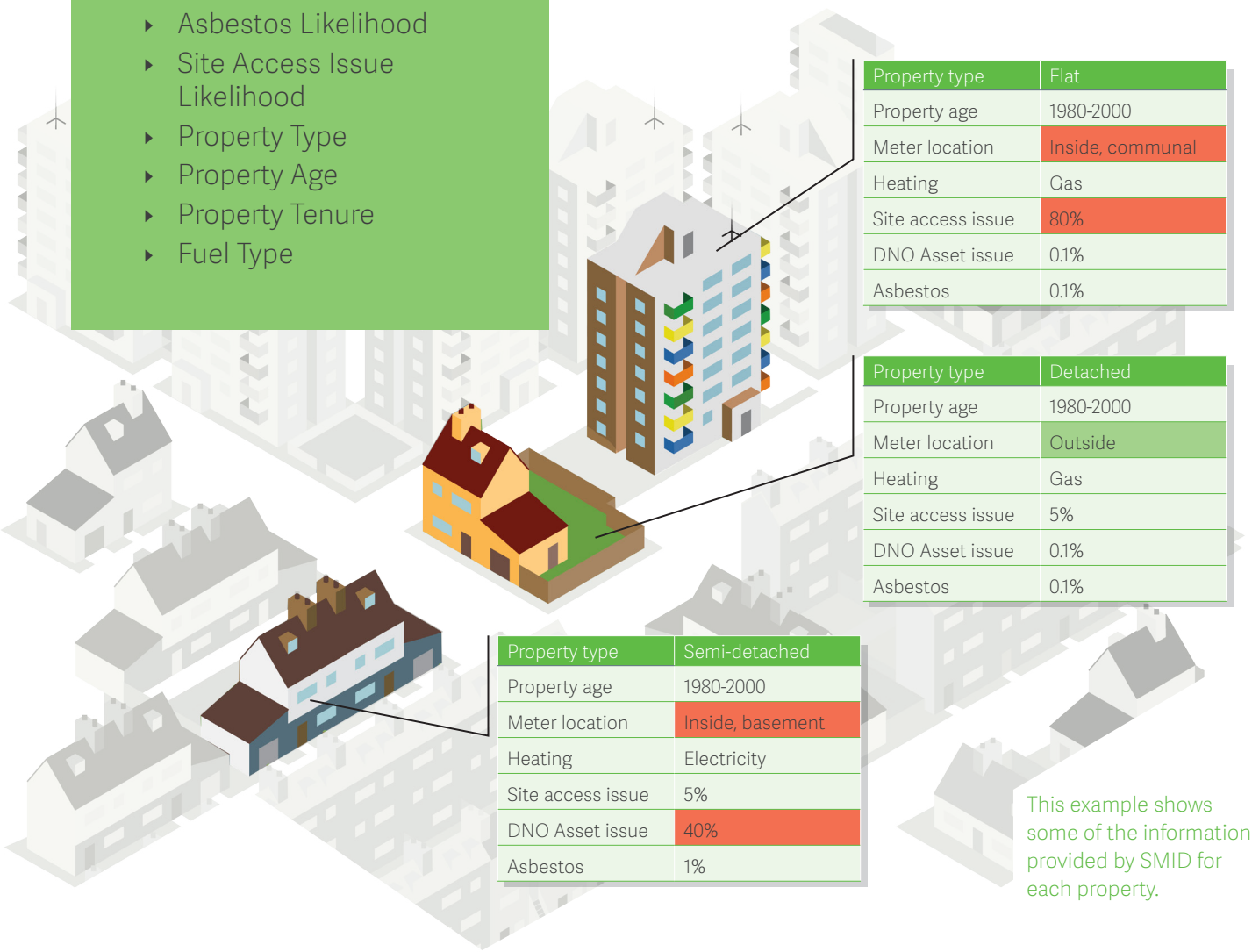
The estate is provided to ElectraLink by the Supplier or Meter Operator as a set of MPAN and UPRNs.

Macro reports

These provide postcode district level analysis of the proportion of each data item in the area.

Micro reports

These provide detailed predictions for each of the Supplier or Meter Operator's properties.



Property type	Flat
Property age	1980-2000
Meter location	Inside, communal
Heating	Gas
Site access issue	80%
DNO Asset issue	0.1%
Asbestos	0.1%

Property type	Detached
Property age	1980-2000
Meter location	Outside
Heating	Gas
Site access issue	5%
DNO Asset issue	0.1%
Asbestos	0.1%

Property type	Semi-detached
Property age	1980-2000
Meter location	Inside, basement
Heating	Electricity
Site access issue	5%
DNO Asset issue	40%
Asbestos	1%

This example shows some of the information provided by SMID for each property.

Benefits of the SMID

- Reduced costs
- Reduced risk
- Not starting from scratch
- Learning from everyone's experience
- A shared requirement
- Better customer experience

Benefits

Reduced costs

Using the SMID will give improved quality of estimates on how long installations will take. This means better scheduling of jobs leading to more efficient use of workforce and fewer aborted visits, thus saving significant cost.

Reduced risk

Higher quality data will lead to better understanding of the target installation estate and better predictions of outcomes, thereby reducing the risk of large numbers of unexpected problems.

Not starting from scratch

Whilst at the start of the rollout, individual companies may have little experience to build on, by using the SMID predictions you are able to build your plans using data from the whole country.

Learning from everyone's experience

As the rollout continues, ElectraLink's dataset will continue to be updated reflecting the new knowledge gained across the industry, so the benefits of using SMID and the efficiencies achieved will increase as the rollout progresses.

A shared requirement

By using a service developed to meet a shared industry requirement, the cost of the development is shared across multiple parties thus reducing individual company's costs.

Better customer experience

Using the SMID as part of the rollout planning will give a much better consumer experience at the same time as reducing costs.

The dataset will help ensure accurate appointment making and job scheduling, thus helping to ensure jobs are started and finished on time. Missed or rescheduled appointments due to unexpected over runs will be significantly reduced. Happier consumers will make the whole rollout simpler and easier.

Creating the SMID

ElectraLink and EST combine their datasets to create a detailed national picture. This is then used to provide critical data items by using predictive analysis methods.

This method identifies patterns across the British housing stock and network activity to predict values and outcomes.

These predictions are then combined with actual data to generate the SMID giving the full national property level picture.

To maintain confidentiality, property level predictions are only provided for individual organisation's specific portfolios.

Predicting the data – sample correlations

Data item	Prediction relies on:
Electricity Meter Location	Meter Location (at other similar properties) Property Age Property Type Address/Location Details Meter Type
Distribution Asset Issue Likelihood, including Asbestos	Asset Condition Code (at this and other similar properties) Property Type Property Age Multiple Dwelling Unit indicator
Site Access Issue Likelihood	Site Visit Check Code (at this and other similar properties) Property Type Property Tenure IMD Rural/Urban Census data Number of failed Meter Readings Consumption Address/Location Details
Fuel Type	Property Type Fuel Type (at other properties) Address/Location Details Rural/Urban
Property Type	Address/Location Details Property Age Property Type (at other properties in vicinity) Rural/Urban
Property Age	Address/Location Details Property Type Property Age (at other properties in vicinity) Rural/Urban Multi Dwelling Unit Indicators

Predicted data values

Electricity Meter location	Property tenure	Fuel type	Property type
Inside, Basement Inside, Communal cupboard Inside, Under stairs Inside, Ladder required Inside, Other Outside, Box with restricted access or pole Outside, Out building, Barn, Garage or Greenhouse	Owner Occupied Privately Rented Social/Housing Association	Mains Gas Electric Oil Coal Communal	Detached house Semi-detached house Mid terraced house End terraced house Flat in mixed use building Small block of flats/dwelling converted in to flats Block of flats Large block of flats

Predicting values

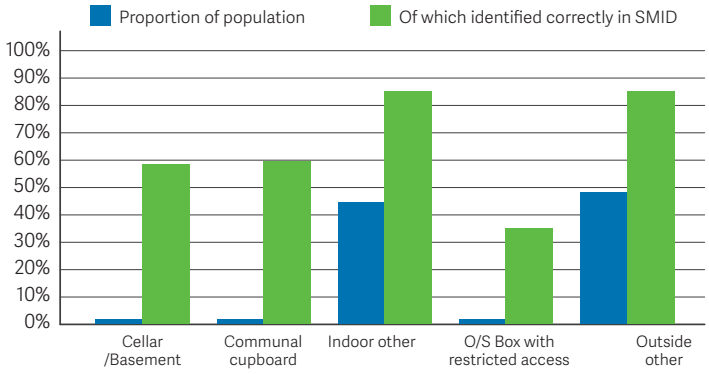
- Predictive modelling of unknown data utilising ElectraLink's unique full market view and Energy Saving Trust's Home Analytics database has enabled significant increases in accuracy of values above random sampling alone.
- As the volume of DTS transaction relating to meter installs increases, it is expected that predicted values within the SMID will further increase in accuracy.

Predictive analytics – SMID accuracy

Electricity Meter Location

Across Great Britain, there is an approximately 50/50 split between meters located indoors and outdoors. This is often the extent of the available information. The SMID provides enhanced meter location data for all MPANs, with the values for 'Cellar/Basement' and 'Communal Cupboard' being over 27 times more accurate than random sampling alone.

Accuracy of Meter Location values in the SMID



Distribution Asset Issue Likelihood

Despite the rare occurrence of these issues they have the potential to delay and significantly increase the cost of an individual smart meter installation. SMID can predict with over 35% accuracy where these problems are likely to occur. Data in the SMID for asbestos related issues is almost 150 times more accurate than random sampling alone, accurately identifying over a third of these issues.

Accuracy of Asset Condition Code values in the SMID

Summary

ElectraLink and the Energy Savings Trust recognised and analysed some of the major difficulties UK energy suppliers must overcome in order to remove and replace 53 million meters with smart meters by 2020.

Nationwide knowledge and experience will be key to planning the rollout of smart meters in the UK, and this is where the Smart Meter Installation Data set will be of great value.

The SMID contains comprehensive energy industry data on every domestic property in the UK. It will help alleviate the problems highlighted in this paper.

Created by ElectraLink, an organisation dedicated to supporting the energy industry, and by the Energy Saving Trust, the SMID combines both organisations' data and analytical expertise to create a hugely valuable predictive tool.

The SMID will increase the efficiency of the energy suppliers and meter operators smart meter rollout process and improve customers experience.

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