Using landlord and tenant data to identify energy saving opportunities

EDIS, which is funded by Innovate UK, has been developed by Ricardo Energy & Environment in partnership with Coventry and Oxford City Councils.

EDIS enables landlords and tenants to make better use of the data about their property portfolio to cost-effectively provide wide-ranging energy saving advice and suggest actions to improve energy efficiency. Examples include:

- A commercial tenant that used EDIS to understand the impact of investing in energy saving measures in the properties it occupied (relative to turnover); and to identify those where energy saving measures cannot be implemented and, in such cases, to negotiate rent reductions.
- A landlord with a diverse property portfolio who used EDIS to identify where investments may be needed to improve the energy efficiency and asset value of properties or where to dispose of those that are too costly to improve.
- A landlord who used EDIS to identify where tenants were not operating a property in an energy efficient manner or who would benefit from energy saving advice.

Applicable data

EDIS makes use of diverse data to develop a detailed understanding of a building's commercial performance, including information about the structure, energy consumption and human activity (such as occupancy, footfall or sales in retail properties).

Data analysis

Until now, analysing property data to identify opportunities for energy efficiency interventions has largely been done by using models that are based on estimating thermal loss relative to maintaining a desired internal temperature. Over the years, these models have become very complex, but they often fail to show a good correlation between measured and calculated consumption. This is because they do not account for the influence of occupancy behaviour.

Because of these problems, a radical new diagnosis-based analysis approach has been developed for use in EDIS. This relates measured energy consumption to various parameters contributing to it including building structure, occupancy and activities. This produces an 'Energy Signature' that describes an individual property's energy-demand profile. In turn, this can be used to identify the interventions required to change the profile. This enables properties with similar Energy Signatures, within a portfolio, to be isolated, identifying groups that are amenable to a particular intervention.

EDIS is very flexible and provides a powerful way of understanding and interrogating multivariant datasets. It allows a filter dashboard to be generated using any of the various data fields available across landlord and/or tenant datasets. Filters can be applied across several data fields and to show instantly how well correlated the data fields are.

What is EDIS?

The Energy Data Integration System (EDIS) is a data platform for power and heat usage that enables community trends and individual usage patterns of domestic and commercial buildings to be identified. Please visit the EDIS website (www.edis-ricardo.com) to find out more.

Applications of EDIS

Identifying tenants who would benefit from energy saving advice

EDIS was used to analyse data from a block of 120, one and two-bedroom flats in a three-storey building. These were occupied by between one adult and two adults with up to two children. The screenshot below illustrates the filter dashboard that was generated by EDIS for a range of data.
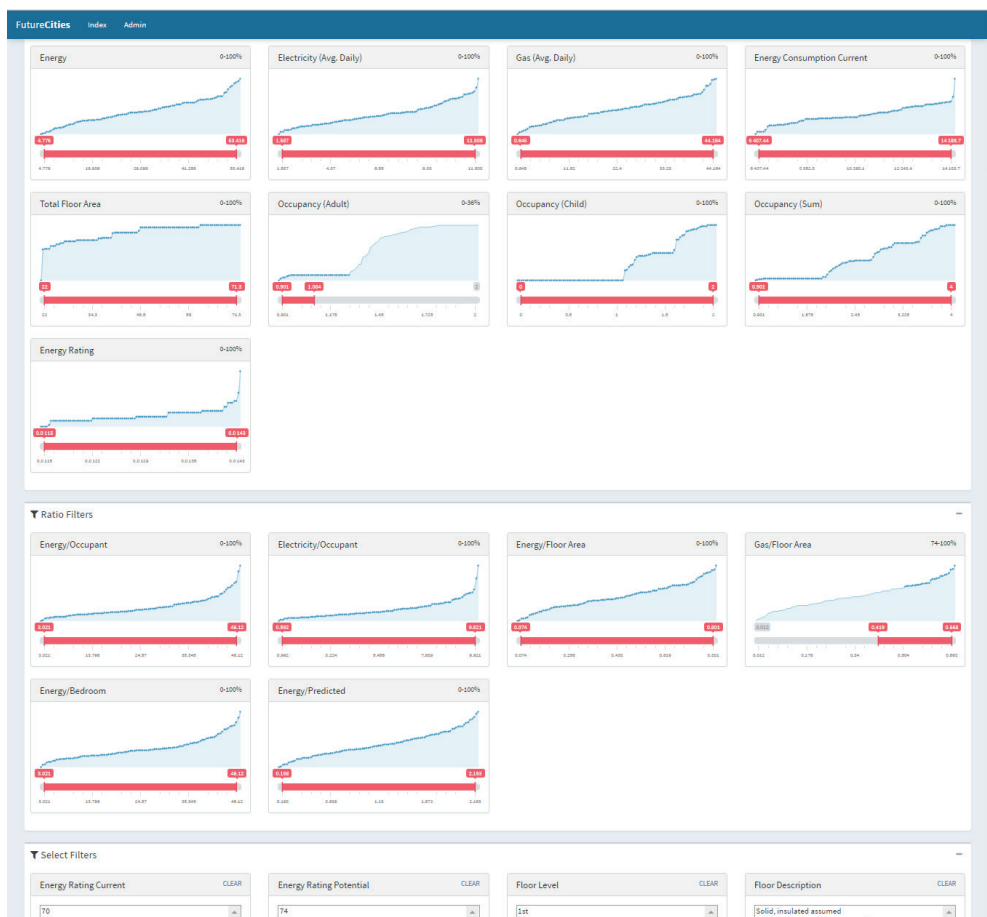
Identifying priority targets for a particular intervention required the logical selection of the appropriate filters. The screenshot shows how just two filters were required to be adjusted to identify those flats that are occupied by one adult, but are in the highest quartile for gas use/floor area. By applying different filters to the same data, those in the low gas-use group, who may be using electricity instead of gas for

space heating can be identified. People in these two groups are likely to benefit from having the operation of their heating controller checked and/or be given advice on its operation to reduce their heating costs.

Identifying opportunities for tenants to consider their energy investment

This example involves a portfolio of 100 retail outlets. The requirement was to identify properties that would benefit from investment in energy efficient technology or, where this is not possible, to negotiate lower rents on the basis of poor energy performance relative to sales and footfall. The screenshot below illustrates the filter dashboard generated by EDIS for these data.

By applying a logical approach to the selection of filters, a ranked list of poorly performing buildings was easily generated for the client.

Benefits of using EDIS

EDIS does not involve modelling. It is easily tailored to unlock the full value of data, flexibly segmenting even complex mixtures of properties to identify those most suited to intervention opportunities without the need for costly, large-scale surveying activities. However, the contribution from EDIS will not end there. By inputting updated data into EDIS, the impact of interventions can be evaluated and next-step interventions identified.

For more information about EDIS, please contact one of our experts at
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