

RESIDENTIAL ELECTRICITY & GAS

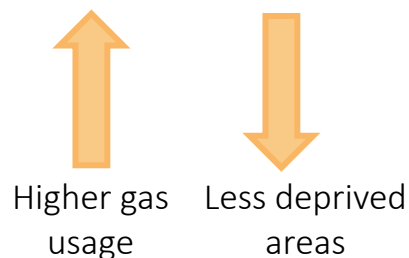
LEARNING FROM THE DATA

PURPOSE

- The domestic Energy usage of the wider Hampshire area was mapped and local trends where identified.

KEY FINDINGS

1. HIGHER GAS CONSUMPTION IN LOW DEPRIVATION AREAS

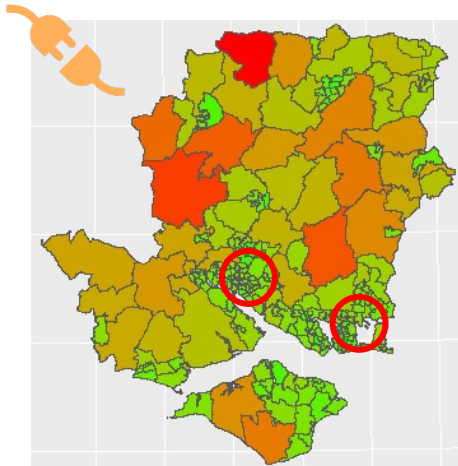


Strong **negative relationship** between gas consumption & deprivation



Higher gas usage in **less deprived** areas

2. HIGHER ELECTRICITY CONSUMPTION IN RURAL AREAS



Domestic electricity consumption 2019 (MSOAs)

Large rural areas not connected to the gas grid – rely on oil and **electricity for heating and hot water**

Potential for shared technologies such as district heating systems in cities is likely to exaggerate the trend of lower consumption in cities

3. NO RELATIONSHIP BETWEEN AGE & ENERGY CONSUMPTION

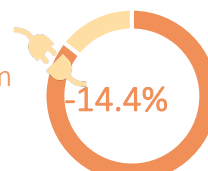
Originally 'older' areas were expected to use less energy. However, this was reversed due to the **relationship** between **over 65s** and **deprivation**. Areas with more over 65s were found to be less deprived and have higher energy use.



SUMMARY STATISTICS



Gas decrease from 2010 to 2019



Electricity decrease from 2010-2019

INSIGHTS & IMPLICATIONS

From the key findings, the two areas which need to be focused on are:

1. LOW DEPRIVATION

To address the higher gas usage in the low deprivation areas, there needs to be a focus on the 'able to pay market.'

Despite the name it does **not** currently make **economic sense** for these households to invest in **retrofitting and low carbon technology** such as heat pumps to support the **electrification of heat**.

The **installation of heat pumps** often requires **additional work on the existing building fabric** to ensure it is compatible. This brings further costs.



2. RURAL AREAS

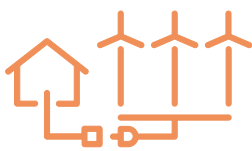
High electricity usage in rural areas is likely to increase. The focus needs to be on **increasing efficiency** and **distributed generation** to avoid capacity problems. This is also true in urban areas where **electricity demand for heat and electric vehicle charging** will increase.

With more **efficient electric heat and better insulation**, **more comfort** can be obtained with **less electricity**, decreasing the electricity needed.

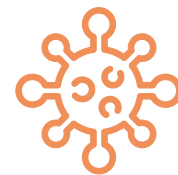
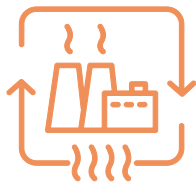
Grid-edge technologies such as **solar panels or battery systems** allow **rural households** to **generate and sell their own electricity**



NEXT STEPS



Update and collate existing research into the **generation** of the area



Research into the **long & short term impacts** of COVID-19



Research into trends in **other areas** to see **how unique** these **findings are** to Hampshire

ABOUT

UNIVERSITY OF
Southampton



Hampshire
County Council

This research was undertaken by Meghan Kingsley-Walsh as part of an MSc in Sustainable Energy Technologies dissertation, Faculty of Engineering and Physical Sciences, University of Southampton, September 2021. The dissertation was supervised by Dr Ben Anderson.

Contact: b.anderson@soton.ac.uk. Maps and plots © 2021 Meghan Kingsley-Walsh, all other material © University of Southampton. Published under ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/))