

Smart Meters in the UK

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Smart meter rollout in the UK

- national program to replace traditional energy meters with smart meters
- offering more accurate information on energy usage and costs to both suppliers and households

Our thoughts?

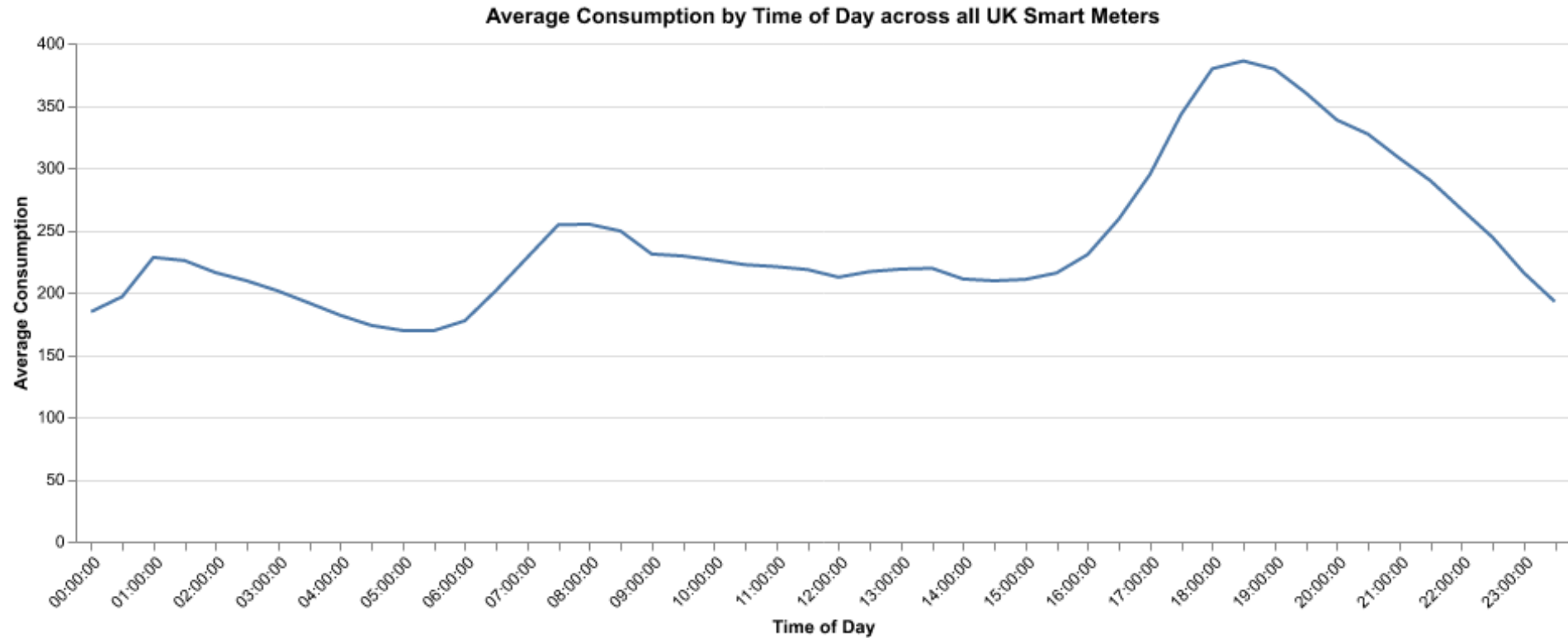
- better transparency on energy consumption + live information on energy → more accurate decisions about how much electricity to consume
- This can reveal patterns like the price or income demands of elasticity, which can be used for peak pricing.

Data Sources and Methodology

- Weave: open access data parquet on UK smart meters
 - EPN: a specific distributor in the UK (used for case study)
 - UKPN: UK power networks (geographic network boundaries)
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1. Aggregate data by time of day
 2. Aggregate data by substation
 3. Observe variations temporally and geographically

What we found

- Trends:



Same trends observed regionally

Smart Meter Energy Consumption: Bedford/Cambridge Region

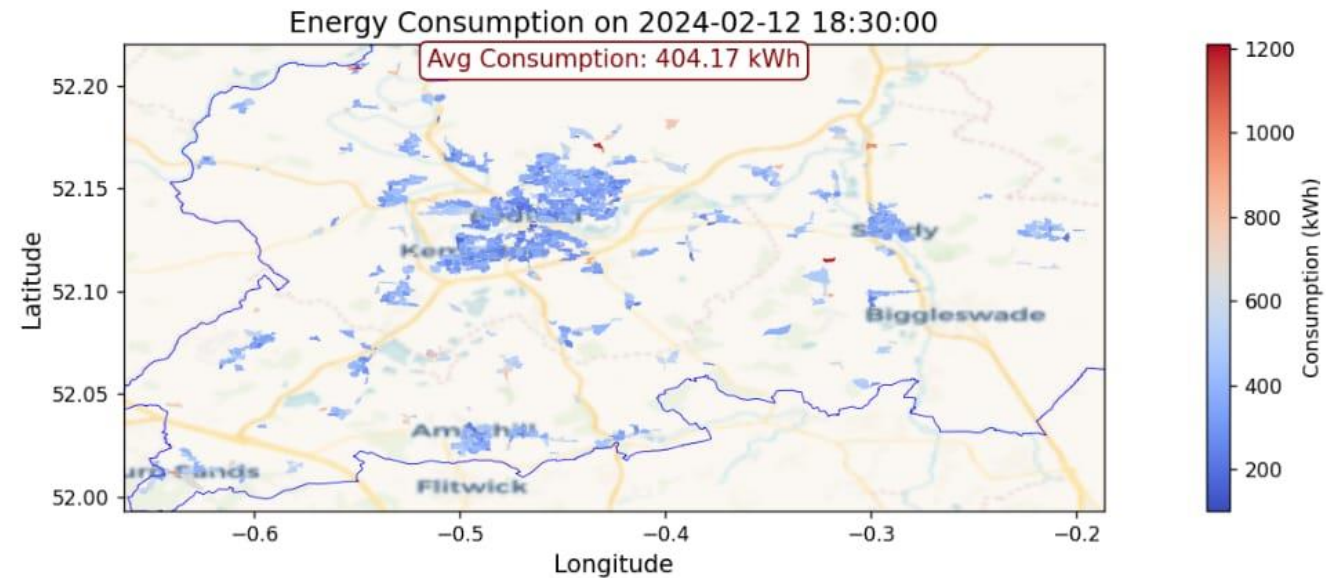
Half Hour Intervals from 00:30 to 24:00

0

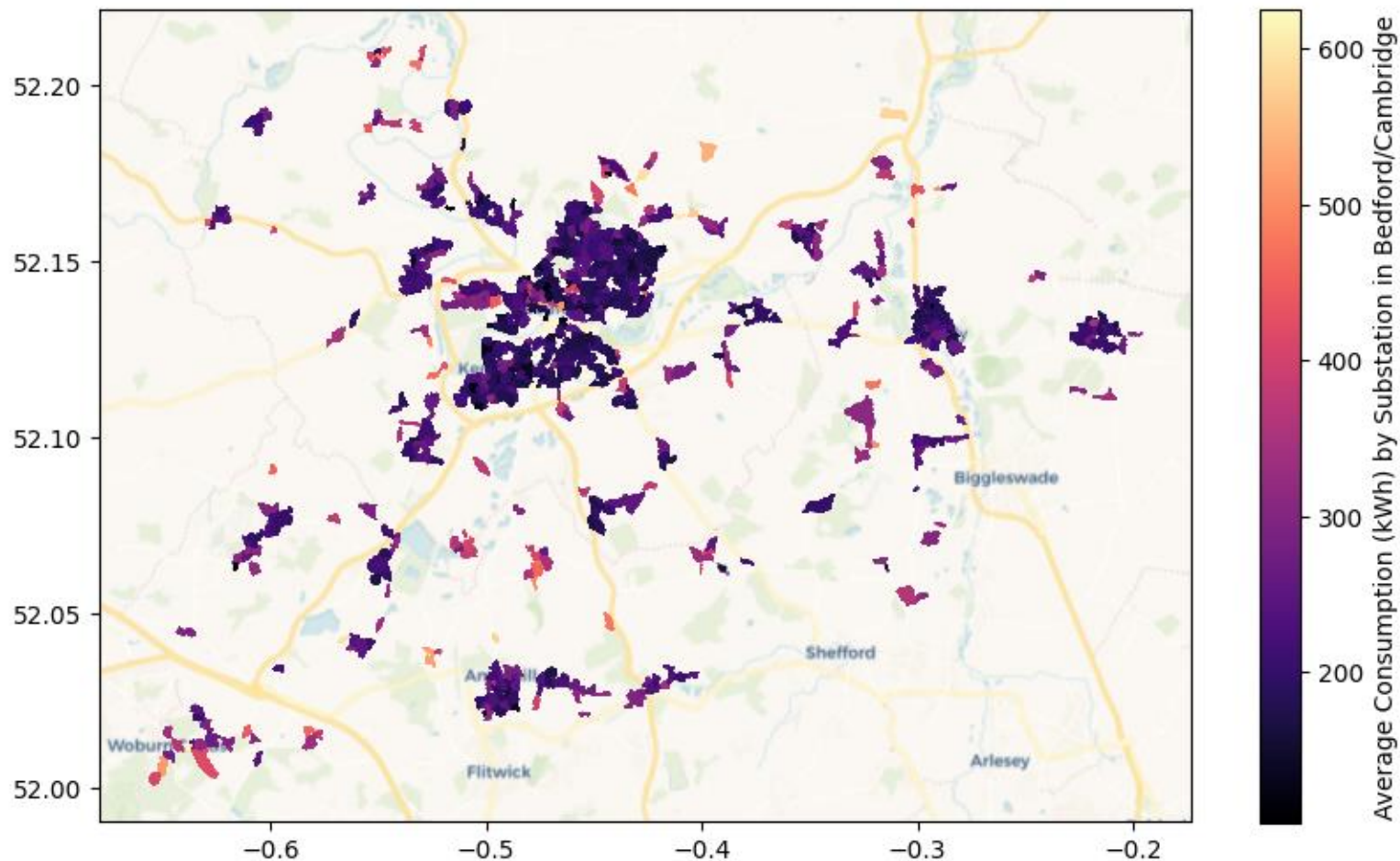
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Average consumption by substation



Policy Recommendation

- Peak pricing during:
 - 5:00pm-9:00pm
 - Greater than 275 kWh
- Current pricing: 24.50p per kWh
- Recommended peak pricing: 30p per kWh (22.45% increase)
- Price demand elasticity for electricity: -0.607 (for every 1 percent increase in electricity price, demand decreases by 0.607%)
 - Estimated to reduce demand during peak priced hours by 13.63%

Potential Improvements

- Study percentiles of consumption
 - We can put additional pricing on the top X% of consumers during peak hours
- Understand variability by day of the week
 - Should peak pricing be different on weekdays vs weekends?
- Add demographic variability, i.e. income, to study various consumption rates
 - We can better understand where more people are consuming and do income-based pricing