

# City of London / Barbican Estate UFH Audit

## Draft Report

08.08.2024

- PCMG have analysed billing data from Total Gas & Power for the period 1<sup>st</sup> April 2020 – 31<sup>st</sup> March 2024.
- We have supplemented this data with:
  - Half hourly metered data from Stark
  - Connection/networks data obtained from UK Power Networks
  - Network plans obtained from Linesearchbeforeudig
  - A site survey in which each meter in scope was inspected
  - Pricing data from LASER/Total Gas & Power
- Combining data from these sources, we have identified a wide range of potential and confirmed billing discrepancies, which can be categorized as follows:
  1. TG&P Billing vs. Industry Data
  2. LV Substation Error
  3. Stark HH Data vs. Consumption Benchmark
  4. TG&P Price Profiling Discrepancies
- In the report that follows we aim to explain and quantify the impact of discrepancies within each of these categories.

# Summary of Findings (All Categories)

CoL Site Name	TG&P Billing vs. Industry Data (1)	LV Substation Error (2a + 2b)	Cons. Benchmark Variance (3)	Price Profiling Variance (4)	Total Variance
ANDREWS HOUSE	-£6,869	-£18,998	£29,006	£552	<b>£3,691</b>
BEN JOHNSON HOUSE	-£17,478	-£19,485	-£16,965	£2,322	<b>-£51,606</b>
BRANDON MEWS	£59	-£5,400	-	-£117	<b>-£5,458</b>
BRETON HOUSE	-£30,075	-£7,120	-£17,373	-£277	<b>-£54,845</b>
BRYER COURT	£28	-£5,436	-	£1,127	<b>-£4,281</b>
BUNYAN COURT	-£27	-£8,038	-	-£20	<b>-£8,085</b>
CROMWELL TOWER	-£208	-£16,268	-	£1,929	<b>-£14,547</b>
DEFOE HOUSE	-£6,789	-£19,365	-£33,730	-£543	<b>-£60,427</b>
GILBERT HOUSE	-£154	-£10,092	-£12,813	£2,076	<b>-£20,982</b>
JOHN TRUNDLE COURT	£8,246	-£7,915	-£5,038	£509	<b>-£4,198</b>
LAUDERDALE TOWER	-£67,888	-£16,370	-£57,479	£1,230	<b>-£140,507</b>
MOUNTJOY HOUSE	£46	-£7,983	-	-£2	<b>-£7,940</b>
SEDDON HOUSE	-£236	-£9,951	-	£2,102	<b>-£8,085</b>
SHAKESPEARE TOWER	-£129	-£16,181	-£55,476	£3,615	<b>-£68,170</b>
SPEED HOUSE	-£127	-£11,460	-	£2,671	<b>-£8,917</b>
THOMAS MORE HOUSE	-£15,945	-£17,080	-£5,626	-£380	<b>-£39,031</b>
WALLSIDE	-£121	-£6,418	£13,146	£1,148	<b>£7,755</b>
WILLOUGHBY HOUSE	-£9,788	-£16,162	-	£1,238	<b>-£24,712</b>
<b>TOTAL</b>	<b>-£147,455</b>	<b>-£219,722</b>	<b>-£162,348</b>	<b>£19,180</b>	<b>-£510,345</b>

(1) See sheet City of London - Barbican UFH Audit Backing Data - 1. TG&P Billing vs. Industry Data

(2a) See sheet City of London - Barbican UFH Audit Backing Data - 2a. LV Substation Error

(2b) See sheet City of London - Barbican UFH Audit Backing Data - 2b. LV Substation Error RAG Units

(3) See sheet City of London - Barbican UFH Audit Backing Data - 3. Stark HH Data vs. Consumption Benchmark

(4) See sheet City of London - Barbican UFH Audit Backing Data - 4. Price Profiling Discrepancies

## NOTES

- Period covered is 01/01/2020 - 31/03/2024

- A positive figure represents an OVERCHARGE by the supplier, a negative figure represents an UNDERCHARGE.

# 1. TG&P Billing vs. Industry Data

- PCMG compared the billing issued by TG&P against the available industry data on which the billing is based, i.e.
  - TG&P billed kWh vs. Stark HH data
  - Capacity/fixed charges vs. DNO capacity/fixed charges
- We identified significant discrepancies in these areas, which are summarized by site overleaf.
- The day/night unit variances appear to mainly be due to misalignment between the TG&P billed units and the Stark HH data.
- The capacity charge variances appear have resulted from the incorrect aggregating of MPANs under a single capacity charge, when in fact they should be separated due to being supplied by separate substations.
  - For example, Andrews House has 3 MPANs, 1200020487810, 1200020487820, 1200020487839. TG&P have grouped them together and applied a single capacity charge of 101kVA.
  - In fact, MPAN 1200020487810 is situated in the ANDREWS HOUSE EAST substation whilst MPANs 1200020487820 and 1200020487839 are situated in the ANDREWS HOUSE WEST substation, on the other side of the building.
  - This means that technically MPAN 1200020487810 should be charged 101 kVA for capacity and MPANs 1200020487820 and 1200020487839 should be charged for a separate 101 kVA of capacity.

# 1. TG&P Billing vs. Industry Data

CoL Site Name	Day Variance	Night Variance	EBRS Variance	Capacity Variance	Site Total Variance
ANDREWS HOUSE	£187	£12	-£82	-£6,986	<b>-£6,869</b>
BEN JOHNSON HOUSE	-£4,289	-£6,214	-£76	-£6,899	<b>-£17,478</b>
BRANDON MEWS	£33	£37	-£14	£3	<b>£59</b>
BRETON HOUSE	-£10,416	-£19,638	-£24	£3	<b>-£30,075</b>
BRYER COURT	£35	£4	-£14	£3	<b>£28</b>
BUNYAN COURT	-£14	£10	-£26	£3	<b>-£27</b>
CROMWELL TOWER	£60	£58	-£78	-£248	<b>-£208</b>
DEFOE HOUSE	£176	£10	-£76	-£6,899	<b>-£6,789</b>
GILBERT HOUSE	£49	£20	-£41	-£182	<b>-£154</b>
JOHN TRUNDLE COURT	£1,796	£6,662	-£30	-£182	<b>£8,246</b>
LAUDERDALE TOWER	-£22,363	-£45,196	-£81	-£248	<b>-£67,888</b>
MOUNTJOY HOUSE	£68	£4	-£29	£3	<b>£46</b>
SEDDON HOUSE	£30	£24	-£42	-£248	<b>-£236</b>
SHAKESPEARE TOWER	£186	£10	-£77	-£248	<b>-£129</b>
SPEED HOUSE	£98	£4	-£47	-£182	<b>-£127</b>
THOMAS MORE HOUSE	-£3,384	-£5,599	-£63	-£6,899	<b>-£15,945</b>
WALLSIDE	£52	£9	£0	-£182	<b>-£121</b>
WILLOUGHBY HOUSE	£262	-£3,041	-£59	-£6,950	<b>-£9,788</b>
<b>Total</b>	<b>-£37,434</b>	<b>-£72,824</b>	<b>-£859</b>	<b>-£36,338</b>	<b>-£147,455</b>

## 2. LV Substation Error

- PCMG conducted a site survey in which all meters were inspected, with assistance from Ray Sibson.
- We found that every single meter within the scope of the audit is situated adjacent to the substation from which it is supplied.
- This means that the DUoS (Distribution Use of System) charges should be billed using the LV Substation tariff (Line Loss Factor Code 082), however UK Power Networks has consistently applied the LV Network tariff (Line Loss Factor Code 072).
- Whilst the Red/Amber/Green unit rates and distribution losses for LV Substation are cheaper than LV Network, Capacity and Excess Capacity charges are significantly higher. As a result, this error works out to be an undercharge across the estate.

## 2. LV Substation Error

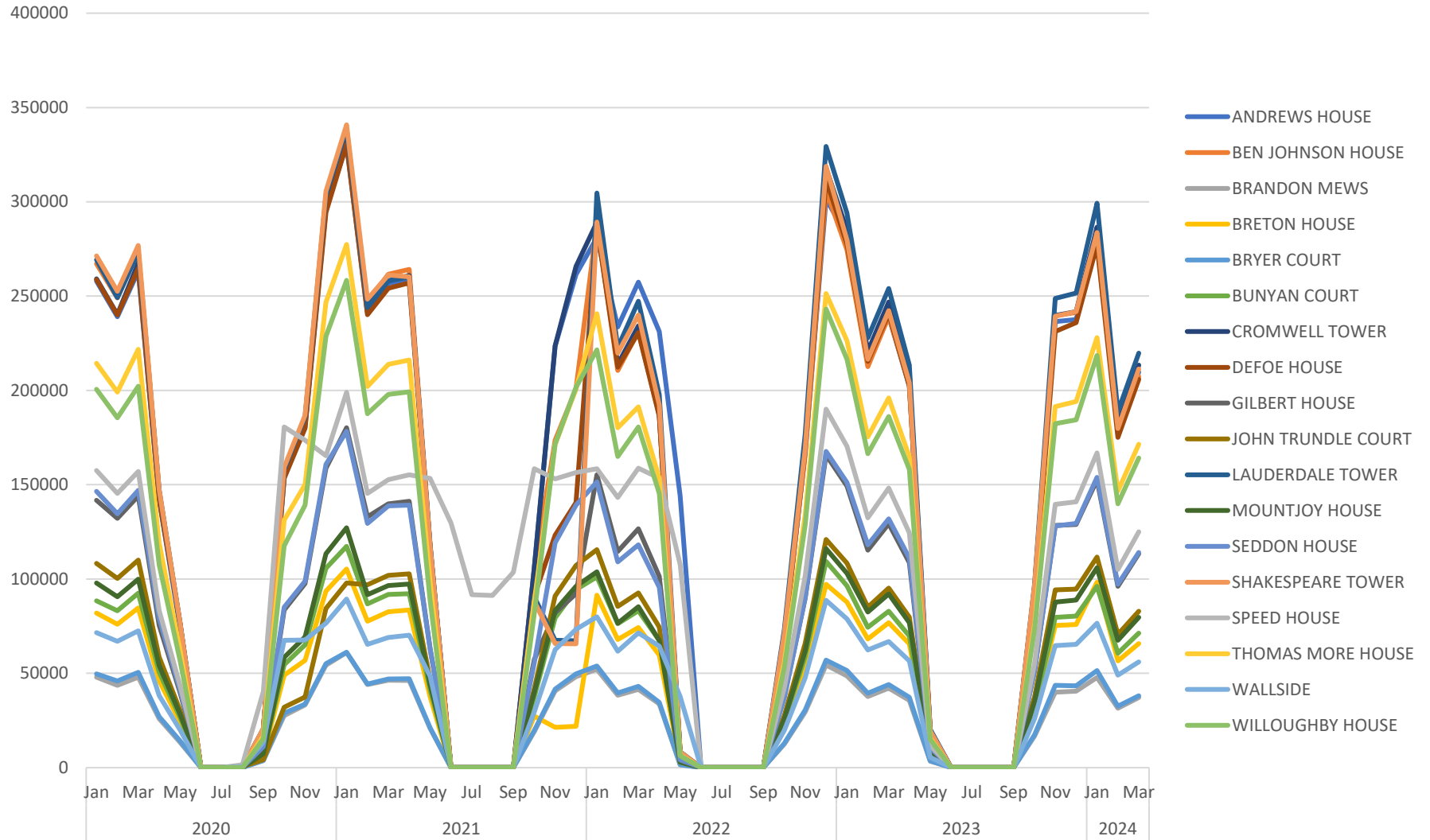
CoL Site Name	LV Sub Capacity/Excess Capacity/Distribution LossesVariance (2a)	LV Sub Red/Amber/Green Variance (2b)	Total
ANDREWS HOUSE	-£22,000	£3,002	<b>-£18,998</b>
BEN JOHNSON HOUSE	-£22,276	£2,791	<b>-£19,485</b>
BRANDON MEWS	-£5,857	£457	<b>-£5,400</b>
BRETON HOUSE	-£7,977	£857	<b>-£7,120</b>
BRYER COURT	-£5,916	£480	<b>-£5,436</b>
BUNYAN COURT	-£8,948	£910	<b>-£8,038</b>
CROMWELL TOWER	-£19,043	£2,775	<b>-£16,268</b>
DEFOE HOUSE	-£21,901	£2,536	<b>-£19,365</b>
GILBERT HOUSE	-£11,636	£1,544	<b>-£10,092</b>
JOHN TRUNDLE COURT	-£8,952	£1,037	<b>-£7,915</b>
LAUDERDALE TOWER	-£19,183	£2,813	<b>-£16,370</b>
MOUNTJOY HOUSE	-£8,960	£977	<b>-£7,983</b>
SEDDON HOUSE	-£11,541	£1,590	<b>-£9,951</b>
SHAKESPEARE TOWER	-£19,079	£2,898	<b>-£16,181</b>
SPEED HOUSE	-£13,696	£2,236	<b>-£11,460</b>
THOMAS MORE HOUSE	-£19,255	£2,175	<b>-£17,080</b>
WALLSIDE	-£7,372	£954	<b>-£6,418</b>
WILLOUGHBY HOUSE	-£18,286	£2,124	<b>-£16,162</b>
<b>TOTAL</b>	<b>-£251,878</b>	<b>£32,156</b>	<b>-£219,722</b>

### 3. Stark HH Data vs. Consumption Benchmark

- As part of our analysis, we looked at the consumption profiles of each MPAN, using the Stark HH data.
- We quickly identified discrepancies in metered consumption between MPANs, which was unexpected, as each heating supply operates from the same central switch.
- We tried to create a usage benchmark using local temperature data, but found that the publicly available data was not suitable.
- As an alternative, we created a benchmark using an MPAN for which the usage profile throughout the audit period appears to align closely with expected usage (MPAN 1200020488196 WILLOUGHBY HOUSE).
- For the most part, metered data aligned closely ( $\pm 1\%$ ) with the benchmark. However, we identified periods for several MPANs in which larger discrepancies were evident. We have reported monthly discrepancies of  $\geq \pm 15\%$ , as these would seem likely to represent errors.
- We have not reported on the discrepancy at SPEED HOUSE, as we understand that this issue has been separately resolved by City of London.



# 3. Stark HH Data vs. Consumption Benchmark



### 3. Stark HH Data vs. Consumption Benchmark

Site Name	TG&P Cost vs. Benchmark Cost
ANDREWS HOUSE WEST	£29,006.34
BEN JOHNSON HOUSE EAST	-£16,965.41
BRETON HOUSE	-£17,373.65
DEFOE HOUSE WEST	-£33,730.02
GILBERT HOUSE	-£12,813.29
JOHN TRUNDLE COURT	-£5,038.58
LAUDERDALE TOWER	-£57,479.15
SHAKESPEARE TOWER	-£55,476.16
THOMAS MORE HOUSE EAST	-£5,626.32
WALLSIDE	£13,146.01
<b>Total</b>	<b>-£162,350.24</b>

Negative = undercharge, Positive = overcharge

MPAN 1200020488196 (WILLOUGHBY HOUSE) used as benchmark

Only months with a Stark vs. Benchmark kWh variance  $\geq$  +/-15% have been considered

### 3. Stark HH Data vs. Consumption Benchmark

- All of the discrepancies we identified were in 2020, 2021 and 2022.
- Generally, settled metered consumption can only be challenged historically 14 months, and clear evidence has to be provided to support such a challenge.
- As such it is unlikely that you will be exposed to any back-billing of undercharges in this area, or that you would be successful in challenging any overcharged consumption in this area.

## 4. TG&P Price Profiling Discrepancies

- When reviewing your billing, we identified some large and unexpected discrepancies between the unit rates applied at your sites by TG&P.
- Due to the similar/near identical usage profiles and Line Loss Factor Codes, we would expect the rates to be similar across the board, with a tendency towards lower rates for the sites with the highest usage levels.
- We received a breakdown of the unit rates from TG&P, showing how the price for each MPAN during each contract period was made up.
- We identified the main apparent source of the discrepancies as the DUoS (Distribution Use of System) Red/Amber/Green rates, and the Capacity Market Supplier Charge. These charges are both based heavily on peak-period usage, which is minimal due to the time periods during which underfloor heating is switched on.
- However, it appears that peak usage has been somewhat overestimated at some of your sites during the profiling process that is used to calculate the prices, resulting in these discrepancies.
- Your contract with TG&P is fixed price, and rates can only be amended if there is a 'clear and proven error'. It is unclear as to whether these discrepancies would qualify as such.

# 4. TG&P Price Profiling Discrepancies

CoL Site Name	Price Profiling Variance (4)
ANDREWS HOUSE	£552
BEN JOHNSON HOUSE	£2,322
BRANDON MEWS	-£117
BRETON HOUSE	-£277
BRYER COURT	£1,127
BUNYAN COURT	-£20
CROMWELL TOWER	£1,929
DEFOE HOUSE	-£543
GILBERT HOUSE	£2,076
JOHN TRUNDLE COURT	£509
LAUDERDALE TOWER	£1,230
MOUNTJOY HOUSE	-£2
SEDDON HOUSE	£2,102
SHAKESPEARE TOWER	£3,615
SPEED HOUSE	£2,671
THOMAS MORE HOUSE	-£380
WALLSIDE	£1,148
WILLOUGHBY HOUSE	£1,238
<b>TOTAL</b>	<b>£19,180</b>

- The Limitation Act 1980 is used within the energy industry to determine how far back overcharges and undercharges can be historically amended.
- The limitation period is 6 (six) years.
- The below table splits out the various discrepancies identified by category and by year.

Year	1. Total Billing vs Industry Data Variance	2a. LV Sub Variance	2b. LV Sub RAG Variance	3. Cons. Benchmark Variance	4. Price Profiling Discrepancy	Total for Year
2020	£110	-£94,266	£4,578	£2,643	£2,534	<b>-£84,401</b>
2021	-£8,433	-£80,163	£5,474	-£200,703	£6,645	<b>-£277,180</b>
2022	-£126,883	-£78,778	£6,148	£35,709	£1,954	<b>-£161,850</b>
2023	-£10,391	-£17,676	£10,216		£2,775	<b>-£15,076</b>
2024	-£1,863	£19,002	£5,741		£5,281	<b>£28,161</b>

- We have provided a spreadsheet with a more detailed view, splitting discrepancies by site, category, and month. See **City of London - Barbican UFH Audit Backing Data - Appendix A - Discrepancies by Month**