

Empowering Smart Home Owners

Using Data Analysis to provide greater
understanding and control of power
consumption

WHY SMART HOME ANALYTICS?

Energy monitoring of a property can be a powerful tool for both building managers and tenants.

Collecting data on energy consumption within a property can assist in both accurate billing of tenants as well as identifying areas to implement better energy efficiencies.

By deploying multi-circuit metering solutions facility owners and managers can keep close tabs on HVAC systems, large manufacturing equipment and other devices, circuit by circuit. This allows for a very granular view of energy consumption within a facility.

The Development of the Statistics

First Approach

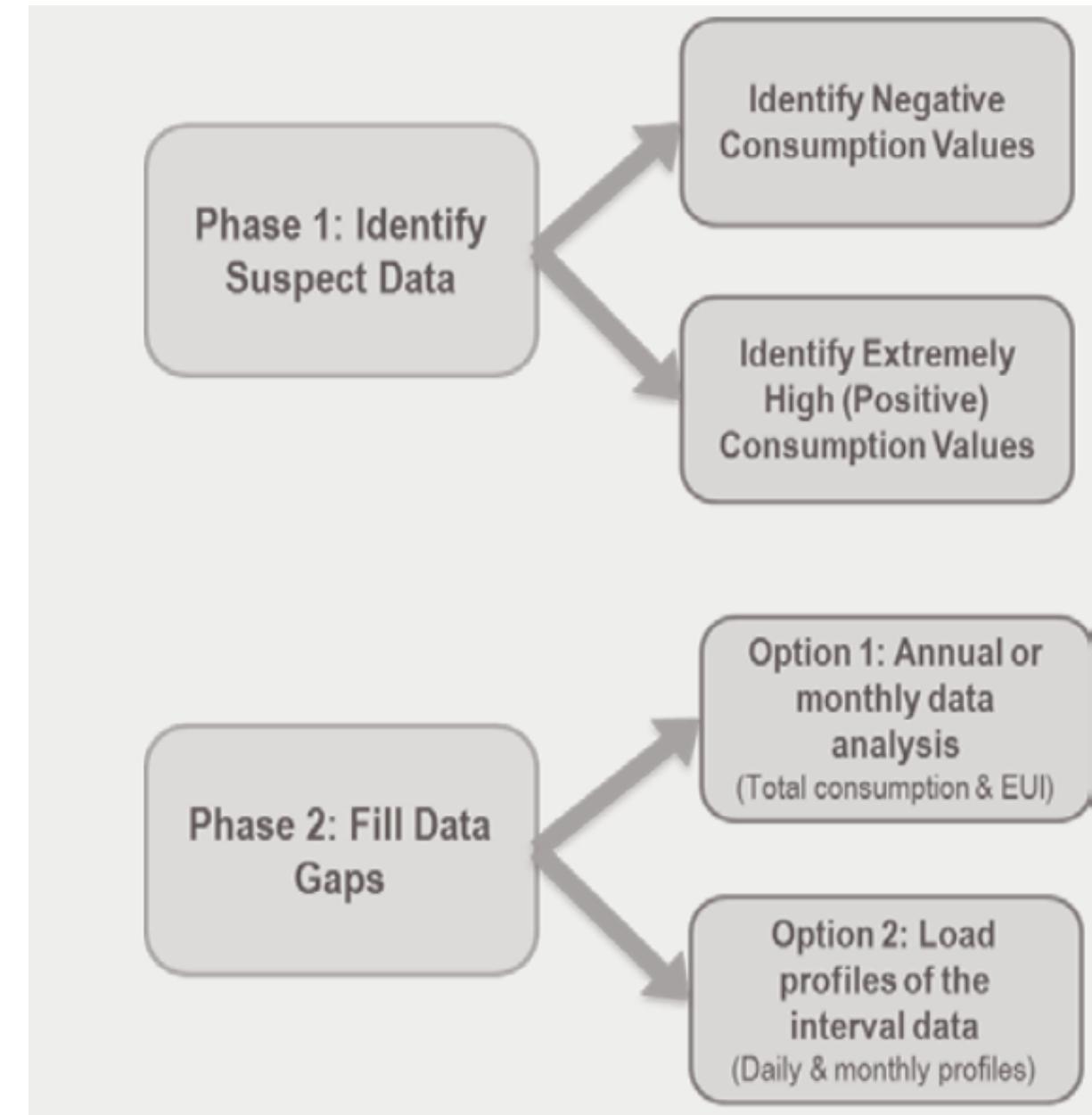
Pre-Processing

Once the data format is confirmed, it is essential to determine how you want to use the data, as the type of processing depends on what questions the data will be used to address or what summary will be generated using the data.

The more you know about a building's operations the more you can tailor the processing method.



SUSPECT DATA AND MISSING VALUES



There are numerous reasons for suspect or missing data – loss of power, equipment failures, human error, and weather-related failures cover the most common reasons.

SUSPECT DATA

The data processing method presented in this presentation was designed to process data for annual or monthly consumption analysis or to create daily and monthly load profiles of the interval consumption data. If an analyst wants to know exactly what the metered values are, no data processing should occur.

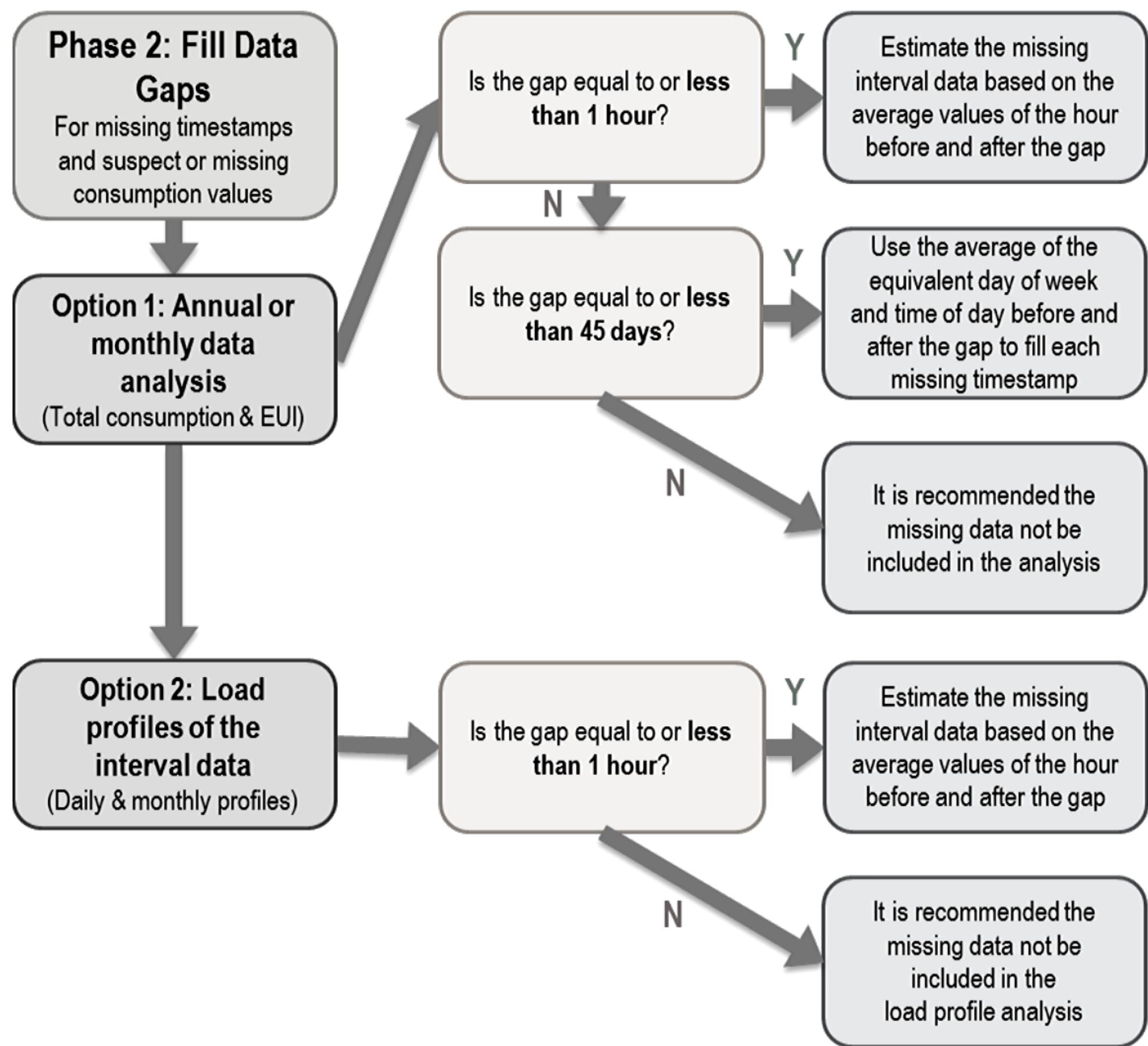
Types of Suspect Data	Possible Reasons for Suspect Data
Negative consumption with offsetting positive consumption	Meter, sensor, or communication errors because of broken equipment or software malfunctions
Negative consumption with no offsetting positive consumption	Loss of power or service to the building, meter, or data communication device
Large positive consumption values with no offsetting negative consumption	Meter, sensor, or communication errors because of broken equipment, software malfunctions, equipment replacement, or reset/restart
"0" consumption	Meter, sensor, or communication errors because of broken equipment or software malfunctions
Missing timestamps or data gaps	No electricity use during that time period Loss of power or service to the building, meter, or data communication device

SUSPECT DATA

Observe Sub-Metering 3 Values.

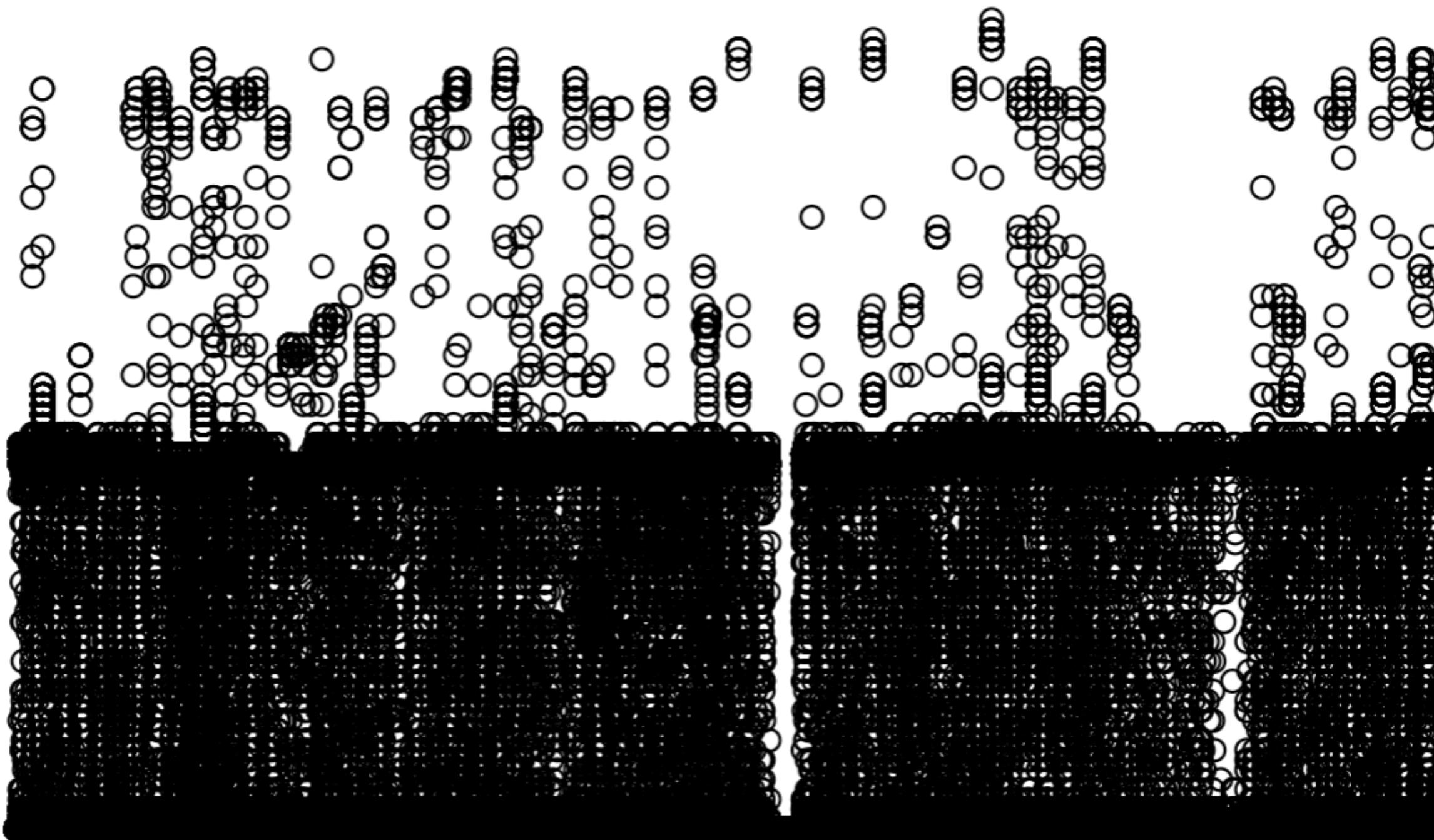
What Could It Be?

2007-01-04 12:59:00	2007-01-04	11:59:00	0	2
2007-01-04 13:00:00	2007-01-04	12:00:00	0	1
2007-01-04 13:01:00	2007-01-04	12:01:00	0	1
2007-01-04 13:02:00	2007-01-04	12:02:00	0	1
2007-01-04 13:03:00	2007-01-04	12:03:00	0	8
2007-01-04 13:04:00	2007-01-04	12:04:00	0	37
2007-01-04 13:05:00	2007-01-04	12:05:00	0	29
2007-01-04 13:06:00	2007-01-04	12:06:00	0	37
2007-01-04 13:07:00	2007-01-04	12:07:00	0	29
2007-01-04 13:08:00	2007-01-04	12:08:00	0	48
2007-01-04 13:09:00	2007-01-04	12:09:00	0	72
2007-01-04 13:10:00	2007-01-04	12:10:00	0	73



DATA GAP

The phrase 'data gap' refers to a missing timestamp or timestamps where no metered values are present, also referred to as a 'null' value. A metered value of 'zero' is not necessarily an error. It is possible that no energy was used over a time interval.



Data Gap on the given data frame.

EARLY RECOMMENDATIONS FOR FUTURE DATA COLLECTION

Detailed tenants information

Detailed building information

Personalized statistics

TAKE YOUR PROFIT TO NEXT LEVEL

Guarantee more savings, tax breaks
and differentiate your company on
the market.





WE ARE 100% COMMITTED TO
GIVING YOU THE BEST RESULTS