

# Overview of available data from chosen components at chosen location, data collection, processing, and distribution.

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## 1 Overview

This report summarizes a selection of potential energy optimization and renewable integration cases across various industrial and commercial sites. Each case outlines the existing situation, potential technologies, and follow-up considerations for further assessment or implementation.

This list is compiled based on the Oktow customer portfolio and has been discussed (in multiple stages) with the partners. These cases are identified as potential cases for modelling based on customer interaction and expert evaluation. As multiple customers expressed concerns about data sharing to external parties, the company names are redacted and replaced with Oktow internal client numbers.

Three high potential cases have been identified in this first year of the project: case 04, case 299 and case 270. Case 04 has been used to set up the first model, based on data provided through this work package. Other clients will require some more work to convert into active participation in the project.

Case 299 was also identified as high potential, but this has been partially postponed. The client was more concerned about data security and which data could be shared, initially delaying the data sharing process. Due to economic reasons, the Instaflex cooperation has been put on hold with this client. Since the beginning of the project, the client has reduced working days to 4 days a week and in 2025 even to 3 days a week. Hence the capacity for innovation has been startled. The however are hopeful that in 2026 some more capacity will become available to restart this project.

Case 270 has been identified as the third case to elaborate further as a multi-site optimisation case. This client is also working with other partners to build digital twins and will compare results from the Instaflex project with other (commercial) proposals.

## 2 Case Summaries

### 2.1 Case 04 – Pharmaceutical Warehouse

#### Opportunities:

- Heat pump integration
- Cooling optimization
- Photovoltaic (PV) installation

Case 04 was the first case taken up by the consortium. Oktow compiled a list of data points of currently available meters with the partners. From these data points, a year of data has been extracted and shared. Oktow and Prophesea are working together to set up an automated data transfer so the dataset will be automatically extended every 15 minutes with live data. Currently, only offline data has been shared with the partners to build and test the modelling.

Not only the raw data has been shared with the partners, but also the P&ID. Other key elements have been more difficult to obtain, such as detailed building plans. Currently, as construction details are not available for modelling, a black box model has been created based on the available P&ID.

Based on input from the initial modelling and data, building cooling has been identified as a high potential case for optimisation. However, no detailed cooling data is currently available. Also, the cooling installation was not connected to the network, and could only be controlled on/off. Together

with other (external) partners, the cooling installation has been networked and should become digitally controllable by next summer.

Additionally, Oktow and Prophesea are in discussions with the client to integrate additional metering equipment to complete the dataset. This proposal is under review with the client as of October 2025. If accepted, this proposal could lead to the first case under WP3.

## 2.2 Case 132 – Wood Processing

### Opportunities:

- Combined Heat and Power (CHP)
- Cooling solutions
- PV integration

## 2.3 Case 165 – Meat Processing

### Opportunities:

- Cooling systems
- CHP unit
- PV installation

## 2.4 Case 172 – Metal Processing

### Opportunities:

- PV installation with curtailment plan
- Fuel switch for oven (from gas to infrared heaters)
- EV charging infrastructure (50 charge points)

### Status:

- Two PV installations already in place
- Significant energy injection; curtailment strategy required
- MINT system for EV charging (currently grid-charged; cars full by 10h)
- Focus areas: oven insulation and EV charging shift, water treatment plant
- Past issue: IT malfunction caused 100 kW capacity tariff exceedance

### Technical Notes:

- Complex grid configuration
- Approx. 720 kW total capacity
- Grid consumption and injection data available since Sept. 2024

Although Oktow had identified this client as high potential, the client has identified other focus areas before energy flexibility will be investigated. As of September 2025, they will focus on energy efficiency first, before integrating flexibility.

Oktow presented several times potential low tech optimisations such as time shifting EV charging to align with the PV and postponing water treatment from Friday night to Saturday afternoon, but the client is not yet convinced.

## 2.5 Case 227 – Assembly Facility

### Opportunities:

- High peak power heat pump integration
- Replacement of gas heaters in production hall
- PV potential for office building

### Considerations:

- Evaluate heating load and peak power management
- Six existing EV chargers on-site

## 2.6 Case 235 – Aluminium Extrusion

### Opportunities:

- Induction ovens
- PV installation potential

## 2.7 Case 250 – Wood Processing

### Opportunities:

- PV installation
- Production process optimization

## 2.8 Case 257 – Metal Processing

### Opportunities:

- Battery installation (1 MW / 2 MWh proposal)
- PV excess utilization in summer
- Peak load management in winter

### Challenges:

- Metal shredders create additional electrification load
- Requires balancing between summer and winter operations

Oktow started analysing the potential of PV curtailment on a local scale with this client. As will be discussed in WP2, many technical challenges have been identified in order to activate this potential. The client is also in negotiations with third parties to implement a battery, but no timeline is clear as of the writing of this report. This client also has plans to further electrify certain machines. However, although data analysis has shown that peak power could be lowered by more than 100 kW. However, even as this has been shown as having less than 10h per year of an impact on production, the client is hesitant to implement flexibility in his process planning.

## 2.9 Case 270 – Multisite Office Buildings

### Opportunities:

- Heat pumps
- PV integration
- EV chargers

### Status:

- 13 buildings, most with existing PV and heat pumps
- Limited roof space restricts further PV expansion
- Ongoing work with digital twin models for energy optimization
- Gradual progress observed

## 2.10 Case 289 – Industrial Assembly Site

### Opportunities:

- Battery module production and testing lab
- On-site wind turbine
- Potential for factory-level energy balancing

### Challenges:

- Sensitive client with multiple internal stakeholders
- Limited data currently available

## 2.11 Case 299 – Metal Processing

### Opportunities:

- PV installation
- Oven fuel switch (gas → infrared heaters)

### Status:

- Second PV installation since July 2025 (no grid injection yet)
- Focus on grid interaction

- Client engagement currently on hold but remains promising
- Oven data (electric mode) available since Sept. 2024

## 2.12 Case 305 – Multisite Office/Warehousing

### Opportunities:

- PV installations
- Heat pumps

## 2.13 Case 364 – Hotel

### Opportunities:

- PV sharing through energy community model

## 3 Key Insights

- **Common themes:** PV adoption, heat pump integration, fuel switching, and energy storage.
- **Emerging focus:** Battery systems and EV charging management.
- **Challenges identified:** Limited roof space, curtailment management, and data availability.
- **Next steps:** Further feasibility studies, client engagement, and technical validation per site.