



MAKE EVERY STEP COUNT

Energy Review

Site: NL

Date: June 2024

Content Energy Review

I. Energy situation:

- ✓ Technical: Building, facilities, processes
- ✓ Organisation: energy team, energy management systems

II. Energy performance:

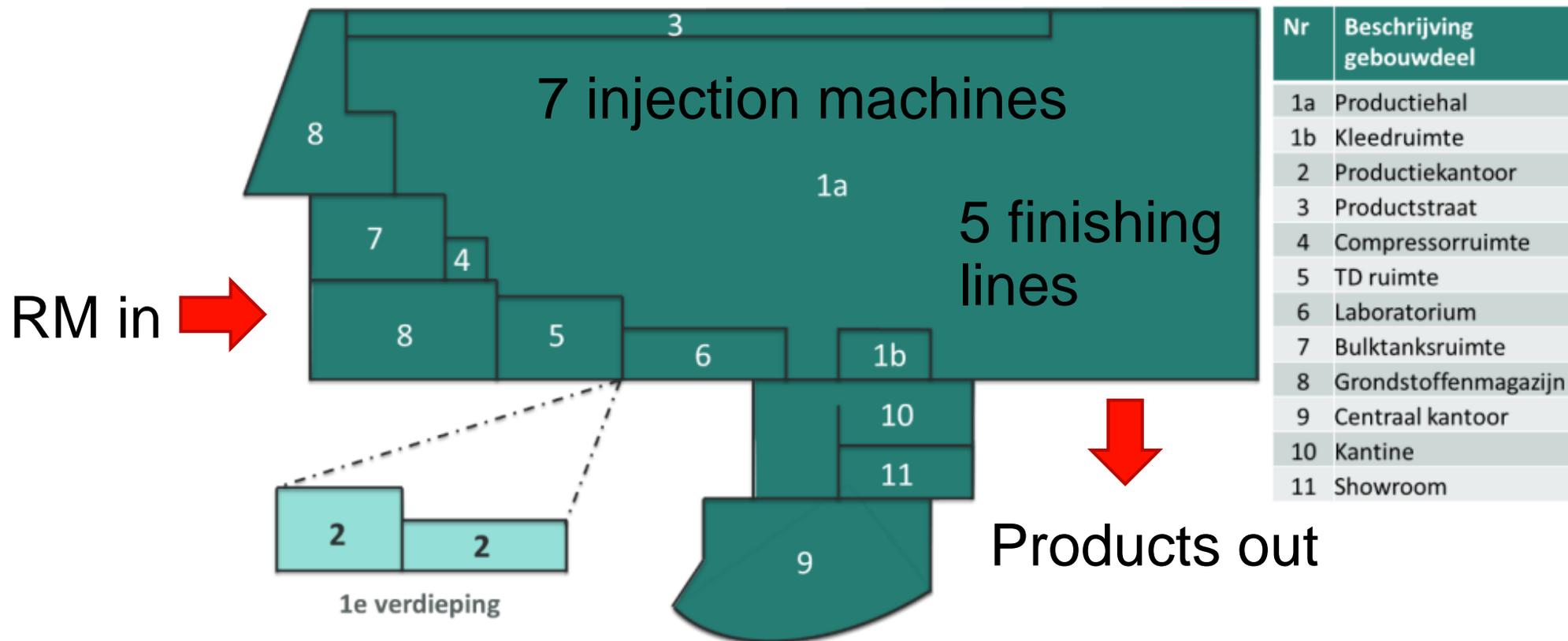
- ✓ Consumption: Energy, Electricity, Gas, per volume/years
- ✓ Analysis: consumption versus SEU's, time, temperature, weekdays

III. Energy review and measures:

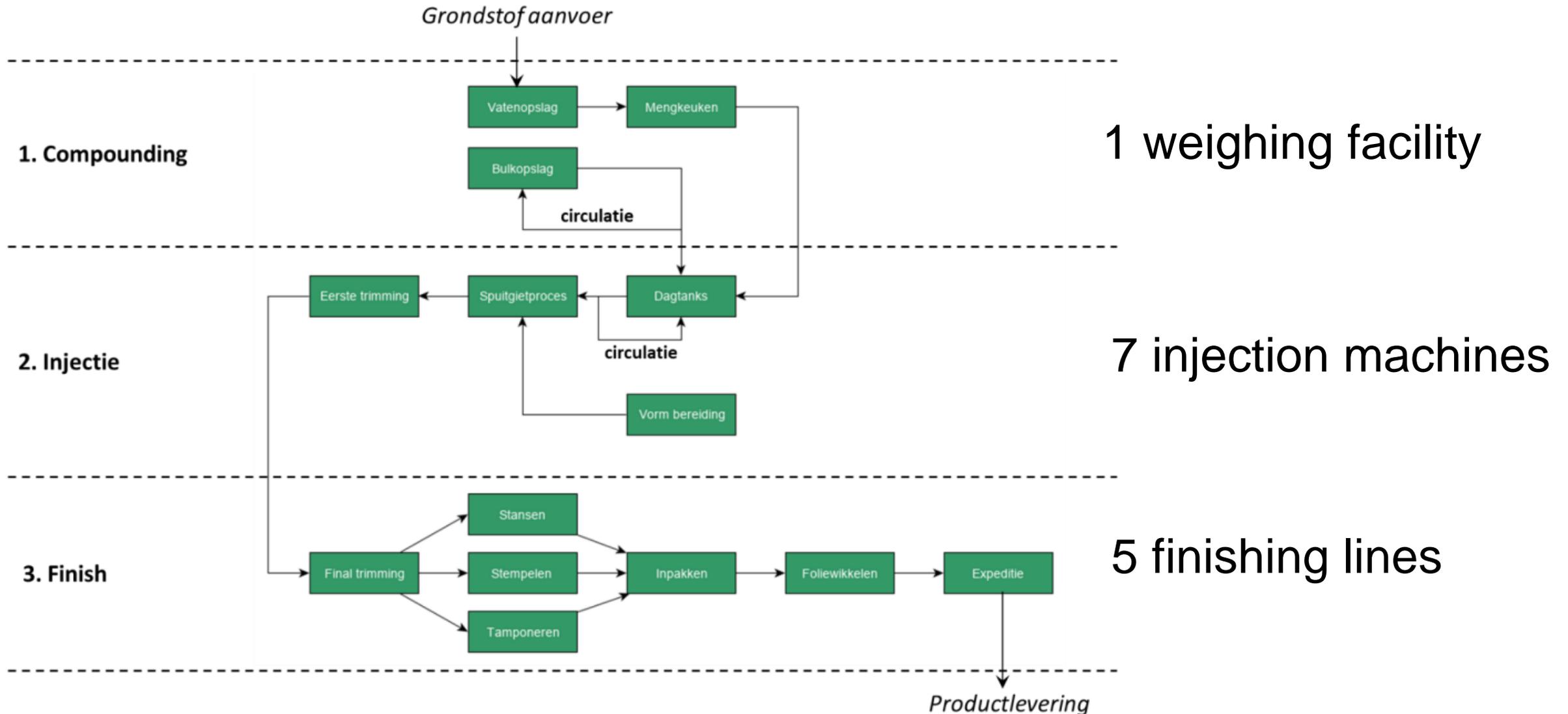
- ✓ Review Energy consumption and projects
- ✓ Future outlook of energy consumption

Energy situation

1 building at Dunlop NL



Energy situation

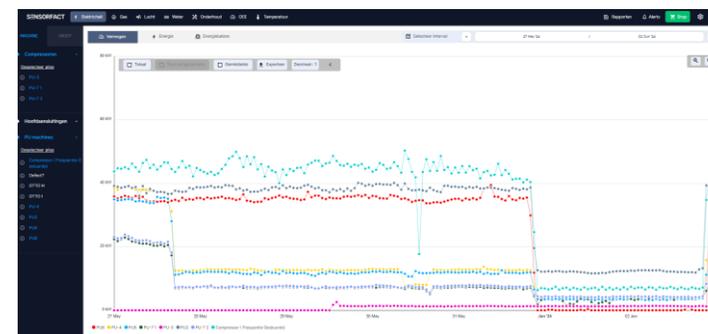
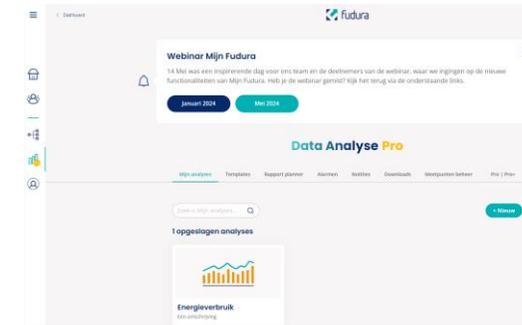


Figuur 5 Schematisch overzicht productieprocessen

Energy situation

➤ Energy organisation

- Energy team: Maintenance supervisor and Global Q&I manager
- Energy systems: Fudura supplier, Sensorfact

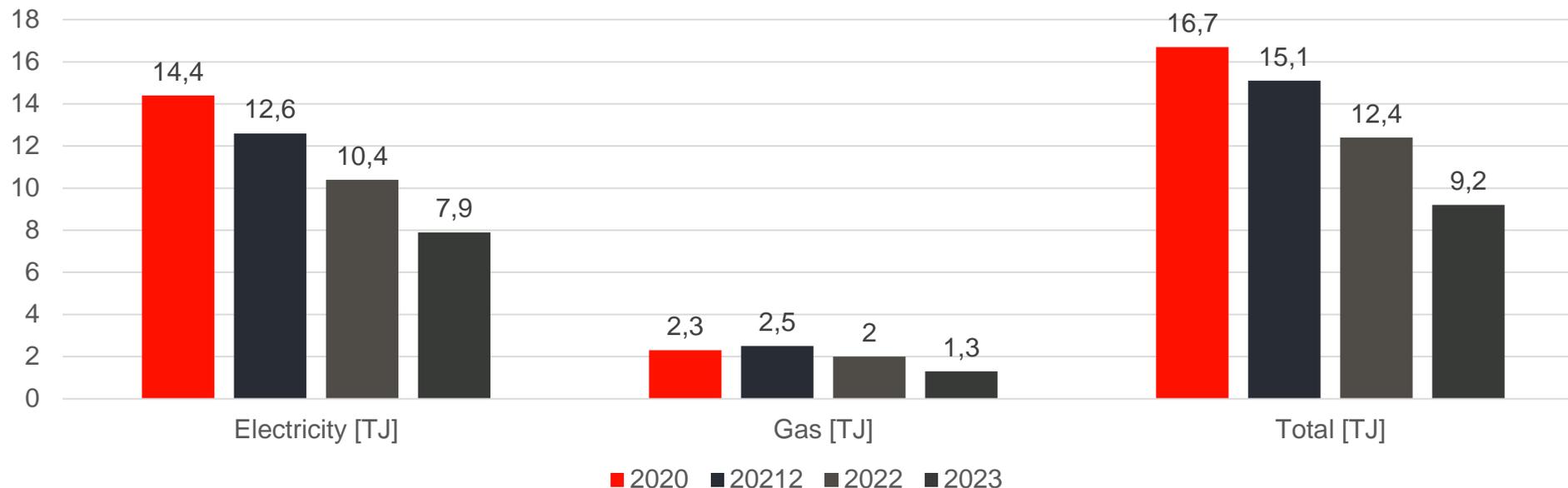


➤ Collection of energy data

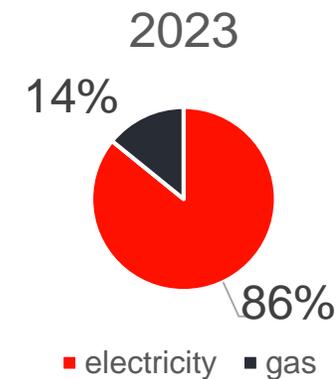
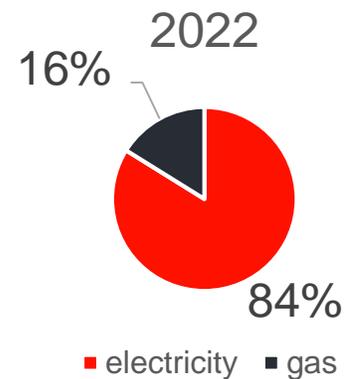
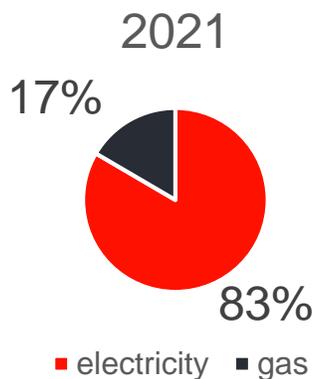
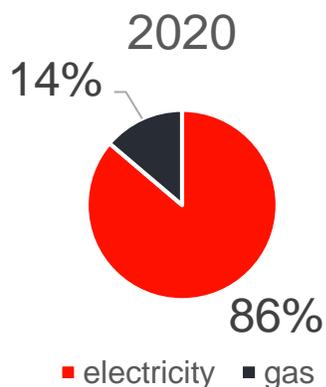
Responsible	Operational Definition	Data Type	When	Recording Method	Comments
Q-department	Electricity & Gas Consumption	kWh M3	Weekly	Fudura dashboard on web	Data input for BSC Dunlop
Maintenance department	Electricity consumption of injection machines and facilities	kWh	Weekly	Sensorfact dashboard on web	Analysis of abnormalities
Q-department	Nett production volume	pairs	Weekly	Internal reporting system	Data input for BSC Dunlop

Energy Performance

Energy usage [TJ] 2020 - 2024

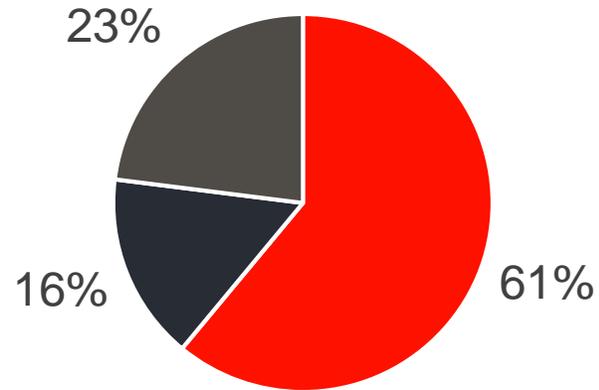


- Energy reduction of -45% in 4 years
- Electricity consumption main driver



Energy Performance

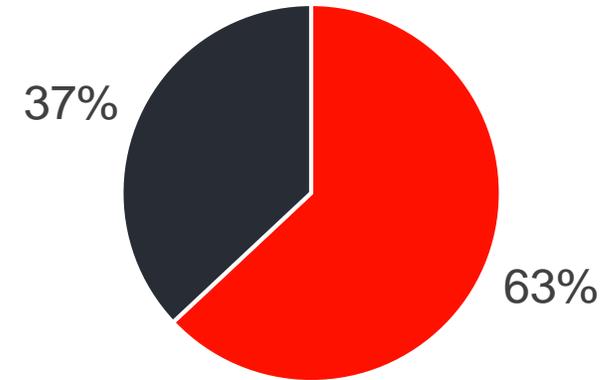
➤ SEU's Electricity consumption



■ Injection machines ■ Compressor ■ Other

- Injection machines and compressor main driver for electricity consumption
- Other includes Finishing lines, RM heating, compounding, Canteen, Offices, Airco's, charge e-vehicles etc..

➤ SEU's Gas consumption

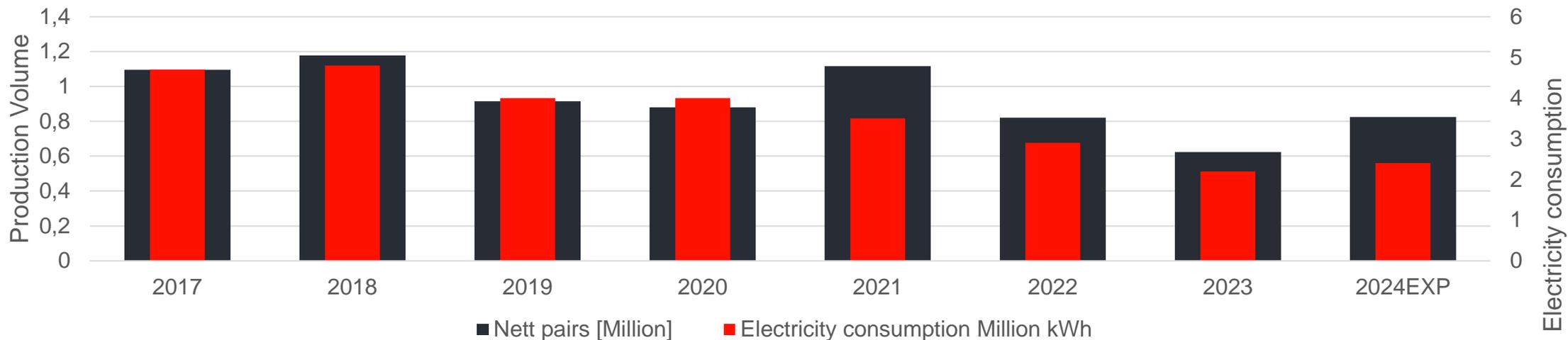


■ Heating factory ■ Heating productstreet

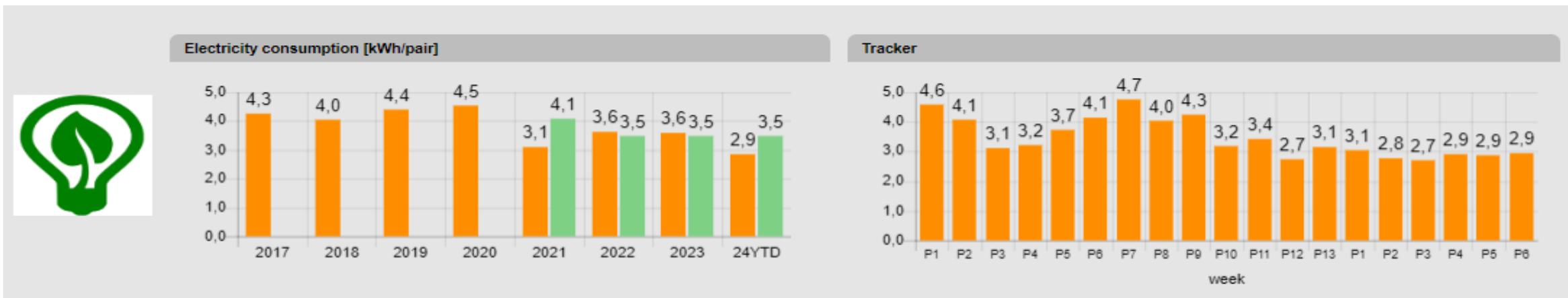
- Gas for heating only used in factory area (1a) and in designated area of productstreet (3)
- Gas for heating factory area mainly during winter period. Gas for heating productstreet continuously to keep area at constant temperature.

Energy Performance

Production volume vs Electricity consumption



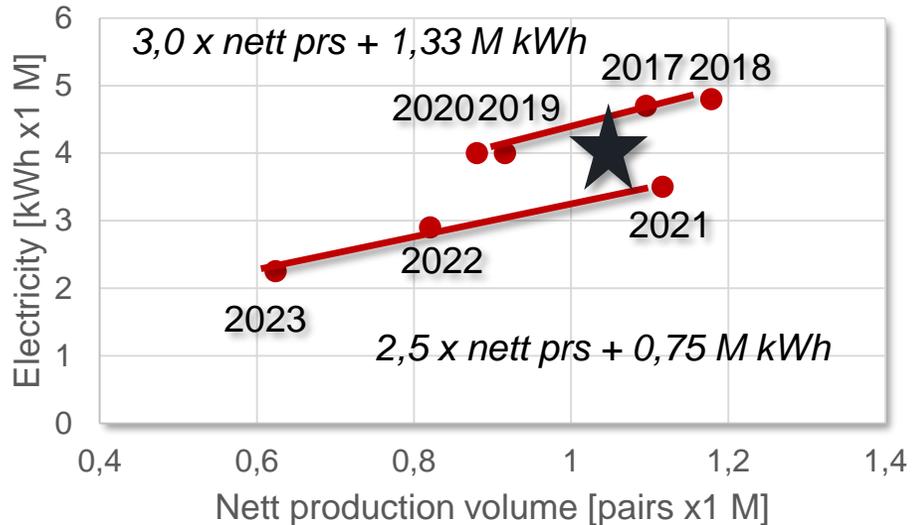
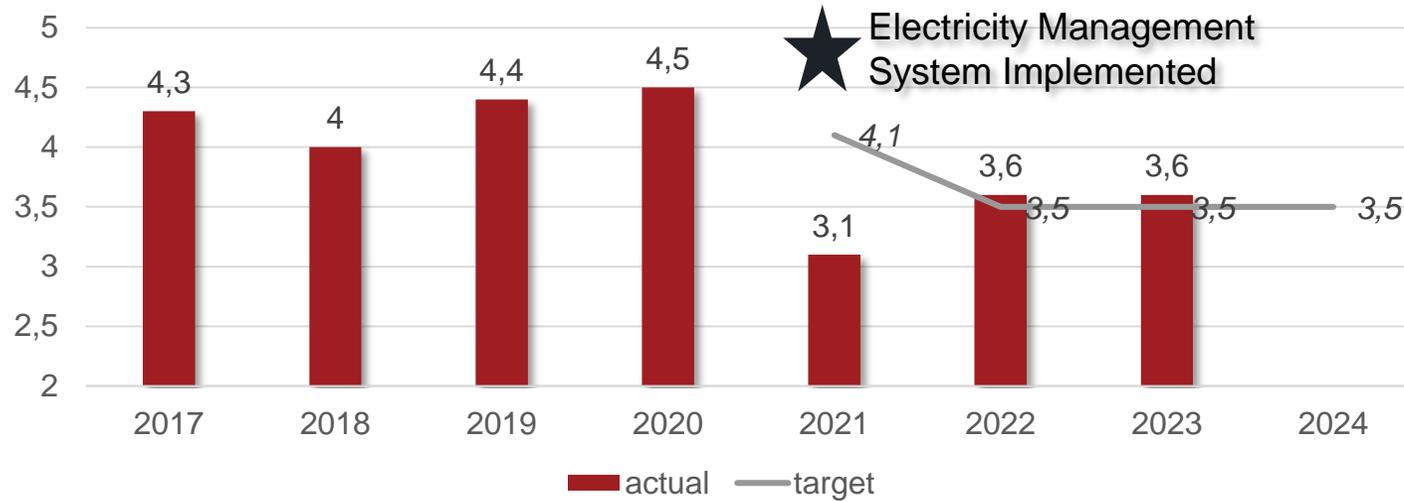
BSC monitor per period of consumption per nett pair



Energy Review - Electricity



Specific electricity consumption kWh/nett pair



2023 Review

- Low volume inefficiency off-set by close monitoring and improvements (mold cleaning, Temp control PU2)
- Fixed electricity consumption reduced with ~50%

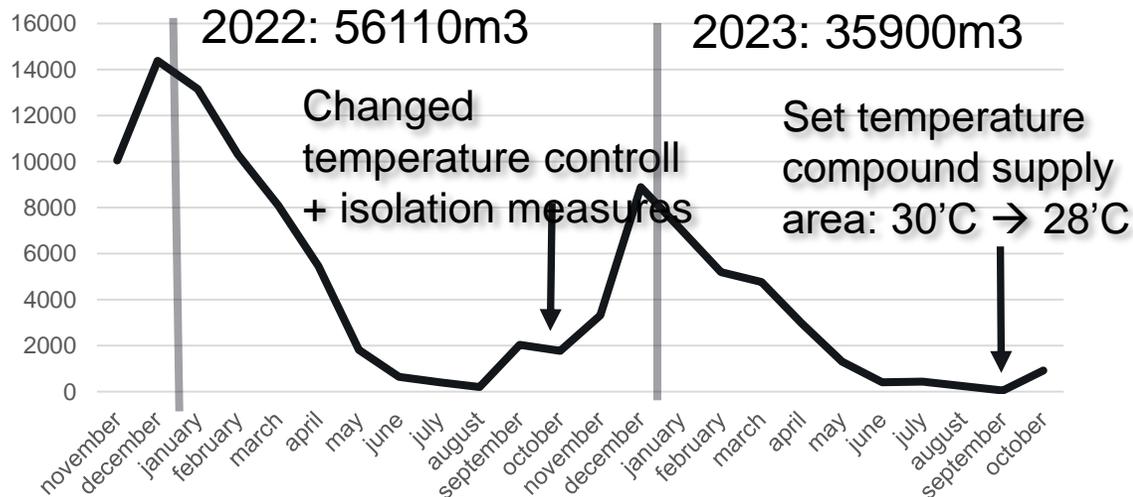
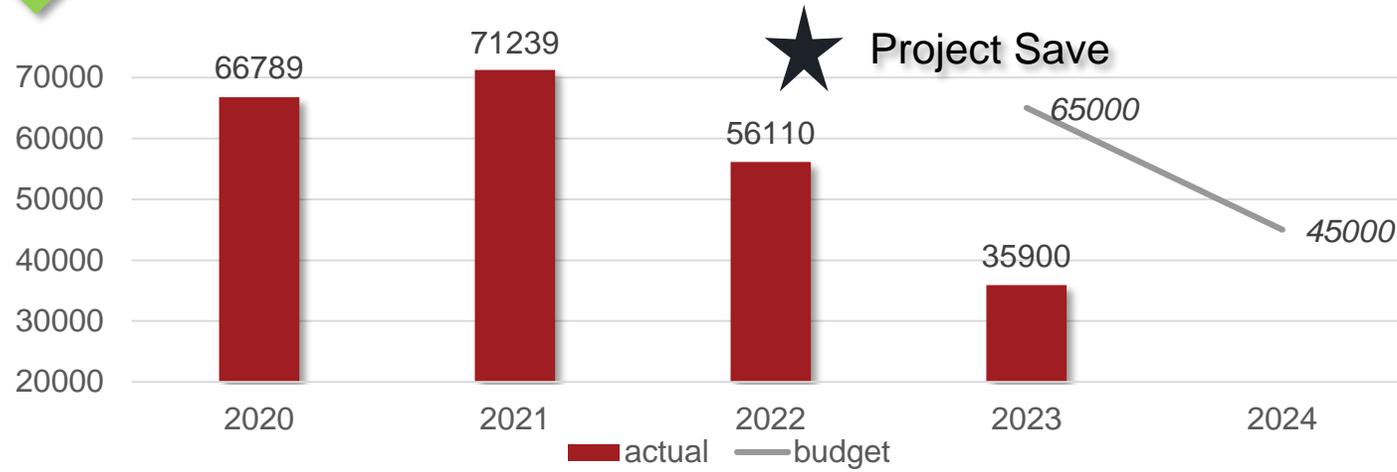
2024 Forecast & Projects

- With increased volume (733k) and 5 active machines target of 3,5 is set for 2024.
- Smart planning of 5 most efficient machines and increase output per machine to reduce electricity consumption
- Smart controlled air extraction at machines to reduce electricity and gas consumption

Energy Review – gas



Gas consumption m3



2023 Review

- Total gas consumption reduced with -36% vs 2022 and cost reduced - 55% vs budget
- Positive impact of implemented measures

2024 Forecast & Projects

- Close monitoring in 2024 continued.
- Further reduction of temperature in productstreet (3) after positive evaluation in 1st half 2024.
- Review and optimize ventilation throughput of production area based on emissions requirements.

Energy links/sources

➤ Energy audit Greenfish

➤ Fudura energy supplier

[Mijn Fudura](#)

➤ Sensorfact

[Sensorfact](#)

