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# Energy Management and actions to reduce the carbon footprint at Syngenta's Enofyta Site

# Energy Efficiency in Manufacturing 2024

Βαγγέλης Αρμπάρας
Health Safety Environment & Quality Manager

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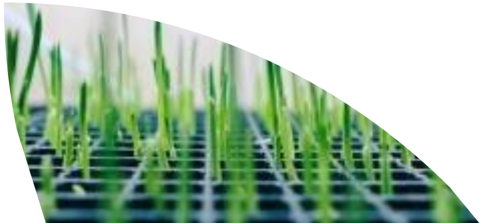
# Syngenta Group


syngenta Crop Protection | syngenta Seeds | ADAMA | Syngenta Group China

Helping farmers feed the world with safe, nutritious and tasty food

# **Syngenta Crop Protection is a leader in agriculture,** innovating for a more sustainable future for all

| | |
|---|---|
| **#1** | in Crop Protection |
| **17 900** | Employees globally |
| **> 90** | Countries worldwide |



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# Crop Protection Global Production & Supply

**Operating in 150 countries**

**Over 100 key suppliers**

**HSE is a deeply held value (Goal Zero)**

**Functional capability is the bedrock from which we ensure delivery**

**We have built a customer-centric supply chain with end-to-end visibility**

**7** Active Ingredient (AI) sites manufacturing over 30 AI's.

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**22** Formulation sites

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Over **700,000** deliveries managed annually


**5,500**

people securing supply of **15,000** end items globally, from a cost base of **$6bn**





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# Enofyta Site – Bird's Eye View




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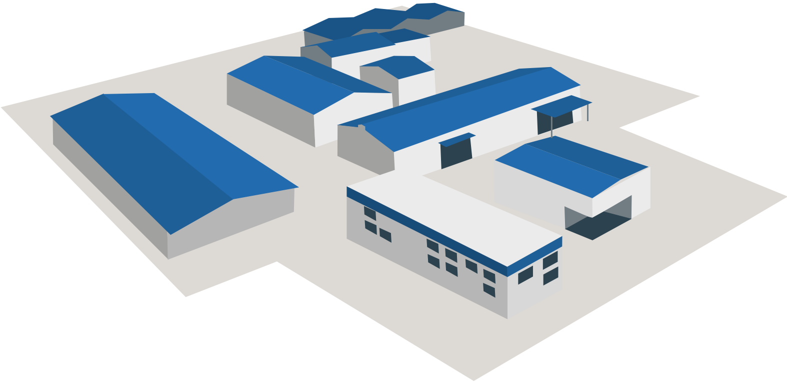
# Enofyta CP FFP EAME Site - Mission

In last 12 months we served:

- ✓ *Countries 82*
- ✓ *Different Sku’s 867*
- ✓ *Formulations 92*

# ISO Certification – Enofyta Long Journey



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# SUSTAINABILITY PRIORITIES

Higher yields, lower impact

Regenerate soil and nature

Improve rural prosperity

Sustainable operations

Priority 4

# SUSTAINABLE OPERATIONS

## Our targets

Reduce Scope 1 and 2 emissions by 38% by 2030 vs. 2022

Set Scope 3 emissions target, starting with Syngenta Crop Protection and Syngenta Seeds by 2025

**Zero incidents target in our operations** – Interim target is for the Injury and Illness Rate to be below 0.25 by 2025 across all four business units

# How to achieve the target

- Energy Management System – ISO 50001 and 14001
- Set Specific Targets
- Projects and Improvement Plans
- Monitoring and measurement


IQNET

Building trust together.

Certificate

MIRTEC S.A. has issued an IQNET recognized certificate that the organization:

**SYNGENTA HELLAS SINGLE MEMBER S.A.C.I.**

Headquarters & Storage : Anthousa Avenue, GR-153 49 Anthousa, Attica
Plant : 2nd km Oinofyta - Agios Thomas, GR-320 11 Oinofyta, Viotia

has implemented and maintains a
**Energy Management System**

for the following scope(s):

- Import, Repackaging, Storage, Sales, Distribution & Exports of Crop Protection & Public Health Products
- Formulation of Rodenticides
- Sales & Storage of Seeds

which fulfils the requirements of the following:

**ELOT EN ISO 50001:2018**

Issued on: 2023-03-23
First issued on: 2023-03-23
Expires on: 2026-03-23

Registration Number: MIRTEC1-01-0602CER11.6032301103

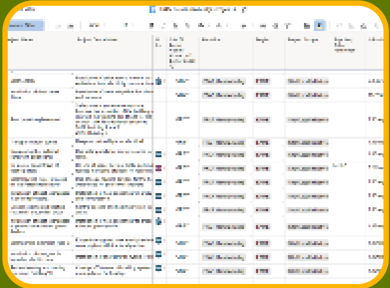
Alex Stoichitoiu
President of IQNET

Ioannis Dimitriadis
General Director of Inspection & Certification of MIRTEC S.A.

## 5 Year Plan in place


- Clear roadmap with annually projects
- Regular review and finetuning

## Sustainability Project Management



- Central database for better monitoring
- Share information between sites

## Sustainability Network

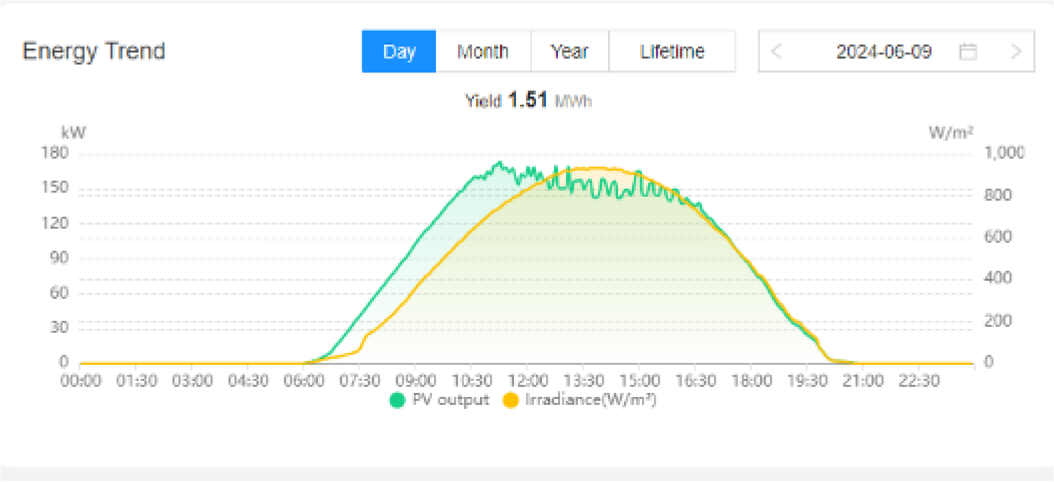
- Participants from many areas
- Regular Team meetings

# Energy Monitoring

- Monitoring of Energy consumption in Key Areas
- Analysis of measurements

2023

| Area | Energy Consumption kWh | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | YTD |
| TOTAL VOLUME (kg/lt) | 684.267 | 587.729 | 860.590 | 451.179 | 494.444 | 214.273 | 344.051 | 63.088 | 490.787 | 372.053 | 403.202 | 213.250 | 5.178.913 |
| Total Heron kWh | 45.158 | 42.829 | 55.178 | 36.517 | 39.805 | 36.792 | 12.780 | 0 | 1.012 | 18.325 | 37.441 | 31.843 | 357.681 |
| Total central meter kWh | 44.140 | 41.880 | 50.040 | 35.590 | 38.500 | 37.520 | 12.780 | 20.050 | 19.103 | 17.290 | 36.810 | 30.740 | 384.443 |
| kWh/kg (Total) | 0,065 | 0,071 | 0,058 | 0,079 | 0,078 | 0,175 | 0,037 | 0,318 | 0,039 | 0,046 | 0,091 | 0,144 | 0,074 |
| Solar Panels (kWh) | | | | | | | 35.879 | 47.010 | 32.527 | 29.954 | 18.774 | 15.200 | 179.343 |
| Production (KTIII) (kWh) | 23.937 | 22.530 | 26.259 | 18.210 | 19.024 | 17.820 | 20.847 | 11.985 | 18.020 | 17.019 | 17.949 | 17.082 | 230.680 |
| Compressed Air (kWh) | 5.332 | 5.684 | 8.645 | 5.343 | 3.734 | 4.423 | 4.254 | 1.763 | 7.018 | 7.460 | 7.321 | 5.737 | 66.713 |
| Without compressed air | 18.605 | 16.846 | 17.614 | 12.866 | 15.290 | 13.397 | 16.593 | 10.222 | 11.002 | 9.559 | 10.628 | 11.345 | 163.966 |
| Production Quantity (KTIII) (lt/kg) | 651.274 | 581.969 | 836.838 | 419.787 | 463.386 | 204.777 | 303.123 | 60.213 | 419.276 | 306.259 | 276.588 | 136.225 | 4.659.715 |
| kwh/kg | 0,037 | 0,039 | 0,031 | 0,043 | 0,041 | 0,087 | 0,069 | 0,199 | 0,043 | 0,056 | 0,065 | 0,125 | 0 |
| ETP (KT V&VIII)(kWh) | | | | 659 | 1.746 | | | 980 | 1.312 | 1.745 | 1.834 | 828 | 9.103 |
| One Dose (KT I)(kWh) | 6.128 | 7.393 | 9.566 | 6.749 | 5.714 | 9.758 | 14.883 | 7.502 | 16.281 | 14.277 | 15.357 | 13.886 | 127.493 |
| Production Quantity (KTI) (lt/kg) | 160 | 2.560 | 2.360 | 11.400 | 3.000 | 5.680 | 22.600 | 0 | 60.000 | 63.250 | 72.150 | 61.050 | 304.210 |
| kwh/kg | 38,303 | 2,888 | 4,053 | 0,592 | 1,905 | 1,718 | 0,659 | #DIV/0! | 0,271 | 0,226 | 0,213 | 0,227 | 0,419 |
| Pellet (KT VIb)(kWh) | 1.878 | 32 | 2.861 | 199 | 2.300 | 103 | 1.471 | 287 | 1.646 | 4 | 5.360 | 1.168 | 17.309 |
| Production Quantity (Formulation) (kg) | 32.823 | 3.200 | 31.684 | 10.700 | 28.058 | 1.880 | 22.432 | 2.875 | 11.511 | 2.544 | 54.464 | 15.975 | 218.146 |
| F&P KLERAT (kg) | 17.300 | 3.200 | 11.200 | 9.700 | 13.800 | 900 | 11.400 | 2.875 | 4.710 | 0 | 26.000 | 6.940 | 108.025 |
| FORMULATION KLERAT (kg) | 15.523 | 0 | 20.484 | 1.000 | 14.258 | 980 | 11.032 | 0 | 6.801 | 2.544 | 28.464 | 9.035 | 110.121 |
| kwh/kg | 0,057 | 0,010 | 0,090 | 0,019 | 0,082 | 0,055 | 0,066 | 0,100 | 0,143 | 0,002 | 0,098 | 0,073 | 0 |
| Offices (KT VII)(kWh) | 2.658 | 2.485 | 2.393 | 2.201 | 2.110 | 2.056 | 2.583 | 2.690 | 3.704 | 3.727 | 4.026 | 3.695 | 34.327 |
| kwh/working day | 127 | 131 | 104 | 129 | 96 | 98 | 136 | 299 | 176 | 169 | 183 | 246 | 149 |
| Total Μετρητών kWh | 34.601 | 32.439 | 41.080 | 28.017 | 30.894 | 29.737 | 39.783 | 23.443 | 40.962 | 36.771 | 44.527 | 36.658 | 418.912 |
| Remaining kWh (μετρητών) | 9.539 | 9.441 | 8.960 | 7.573 | 7.606 | 7.783 | -27.003 | -3.393 | -21.859 | -19.481 | -7.717 | -5.918 | -34.469 |
| Working days | 21 | 19 | 23 | 17 | 22 | 21 | 19 | 9 | 21 | 22 | 22 | 15 | 231 |



# Energy KPI's

| |
|---|
| Energy consumption (kWh)/ produced (l/kg) or pack |
| Energy consumption kWh compressed air |
| Solar Energy production (kWh) |
| Diesel Consumption |
| Produced tnCO2 |



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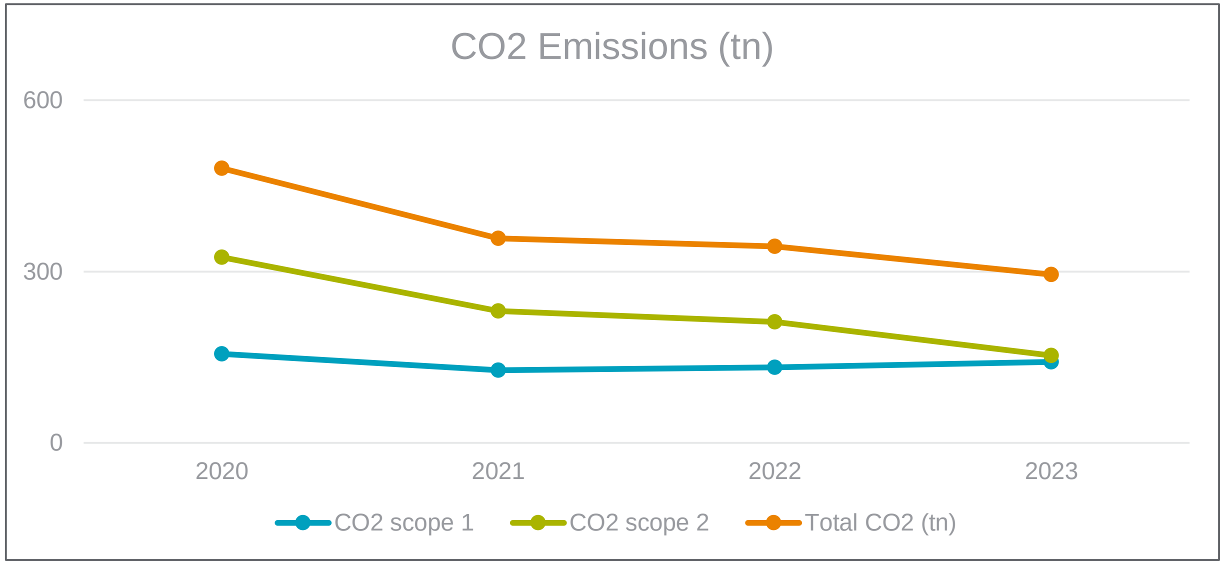
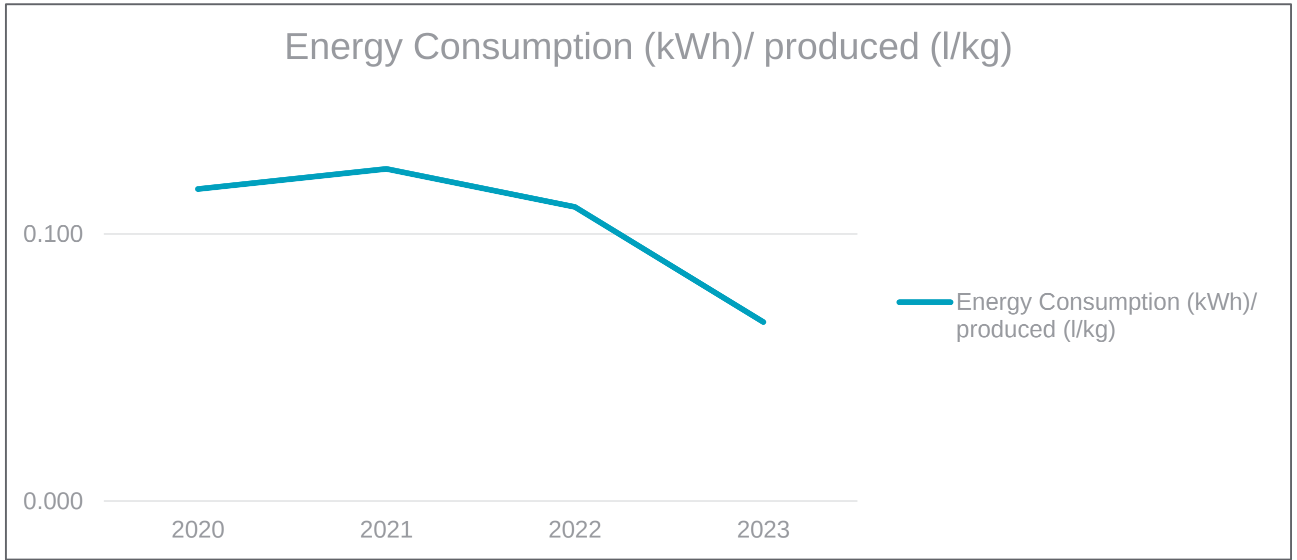
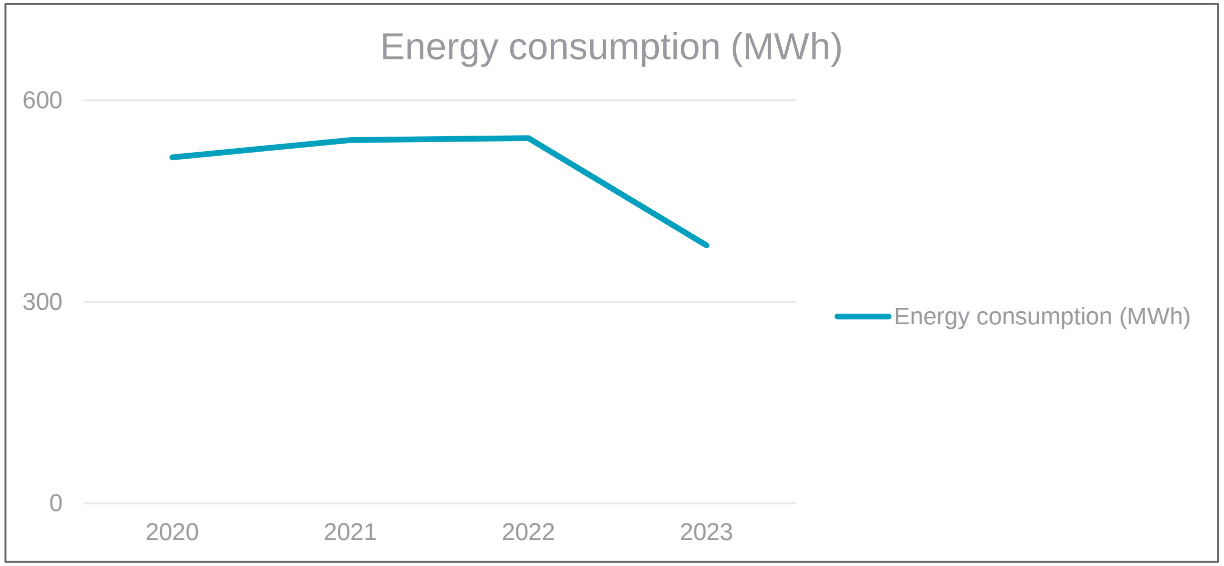
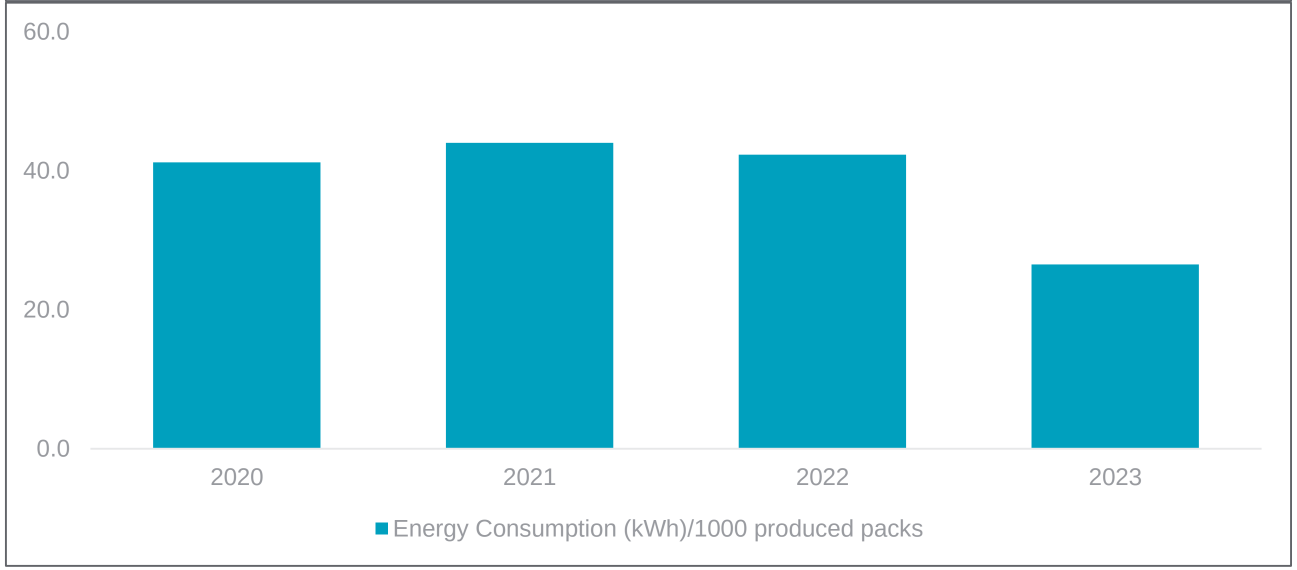
# Main Energy KPI’s



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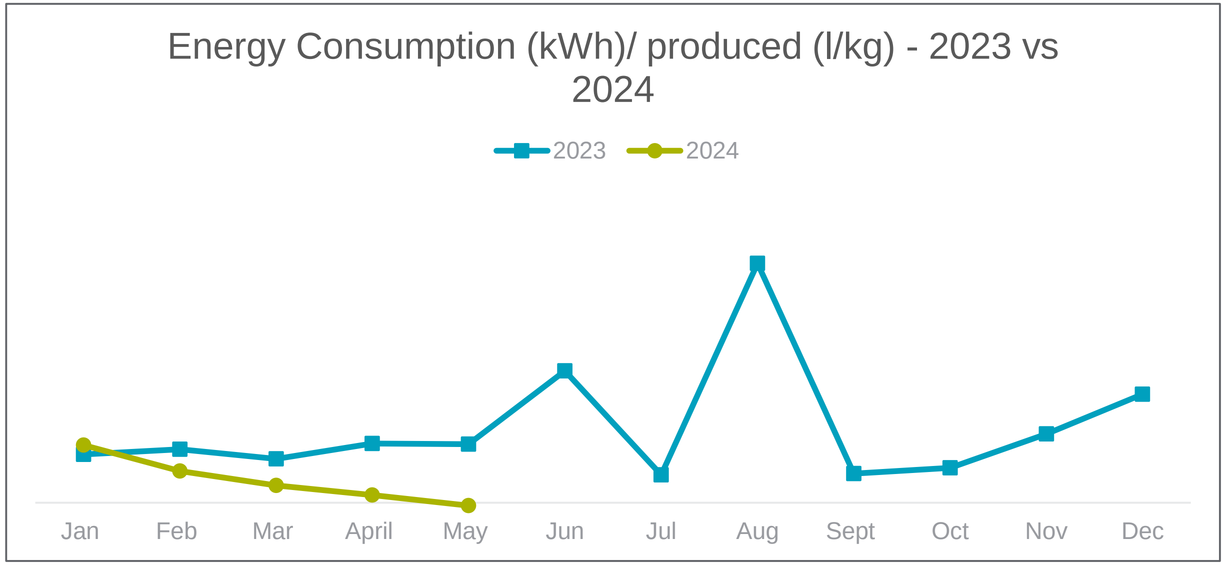


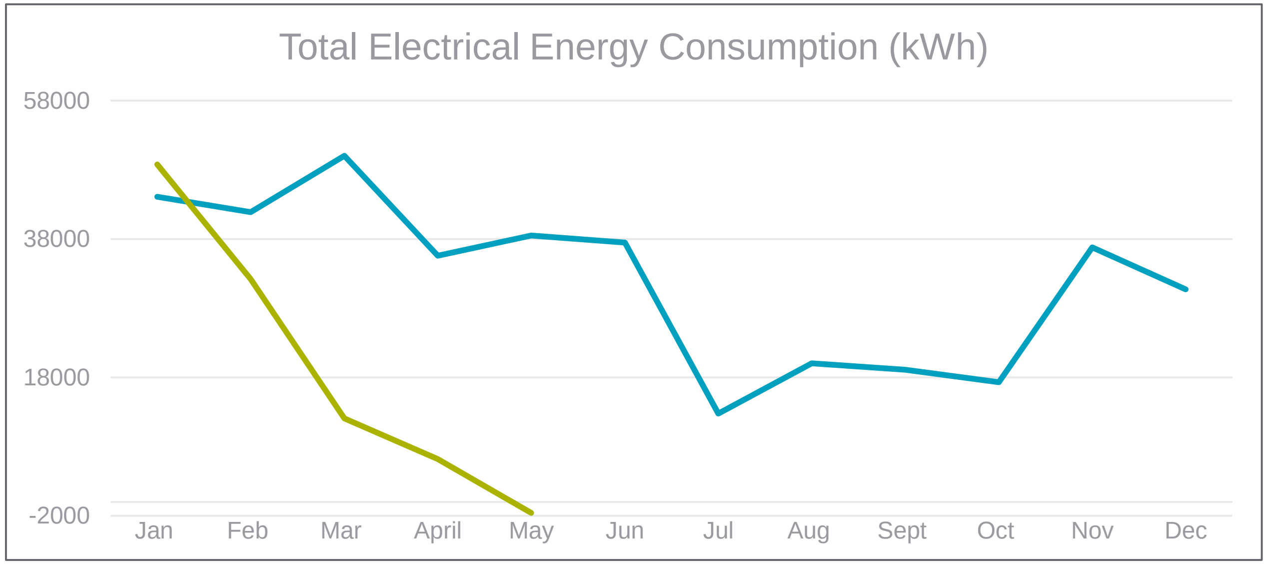


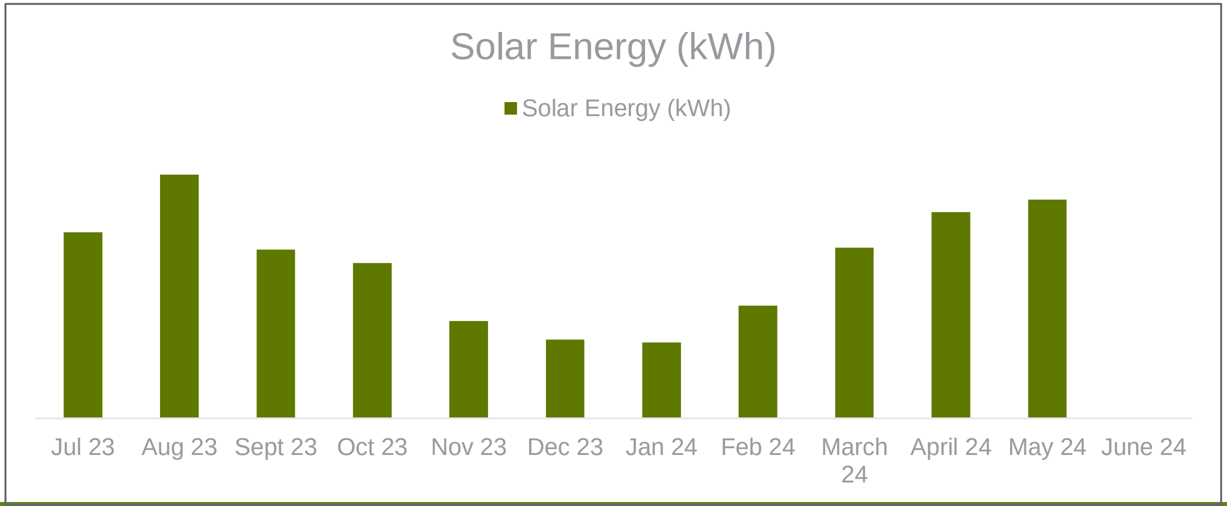

# Solar Panel Project

- In total, five hundred and fifty-five (555) Photovoltaic panels with a power of 540W each will be used in the photovoltaic station, which add up to a total system power equal to 300 kW.

Expected decrease of $CO_2$ is ~100tn/year



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# Modernization of lines and equipment

- Modernization of lines with the installation of new more efficient (Energy, Productivity and Increase Safety)

- Change of 30years old chilling system with a Heat Pump and stop use diesel for heating.

Expected decrease of $CO_2$ is 20tn/year

## Lighting improvement Project

- Installation of Transparent panels
- Use of LED lights
- Installation of photocells in several areas
- Start using Solar Lamps in external areas

# Improvement in Buildings

- Improvement on site buildings increasing the insulation and avoid losses


Roof replacement of buildings

High speed roller doors

# Other Projects

Automatic stop of operation of some equipment (conveyors) when not is use

Air Leaks Measurements with Ultrasound Instruments

Thermo Imaging and Vibration Analysis for the Equipment Condition

Expected decrease of $CO_2$ is ~3 tn/year

solar water heaters for personnel shower

Expected decrease of $CO_2$ is ~10 tn/year

# Decrease of car fuel consumption

- Use of application to improve the driving behavior resulting:

  - Improvement of driver safety
  - Improvement of fuel consumption

Regular training on Safety and Environmentally friendly driving

# Next steps

**The journey continues……**

# Ευχαριστώ!

*Bringing plant potential to life*