Perugina: The Sweet Trigeneration

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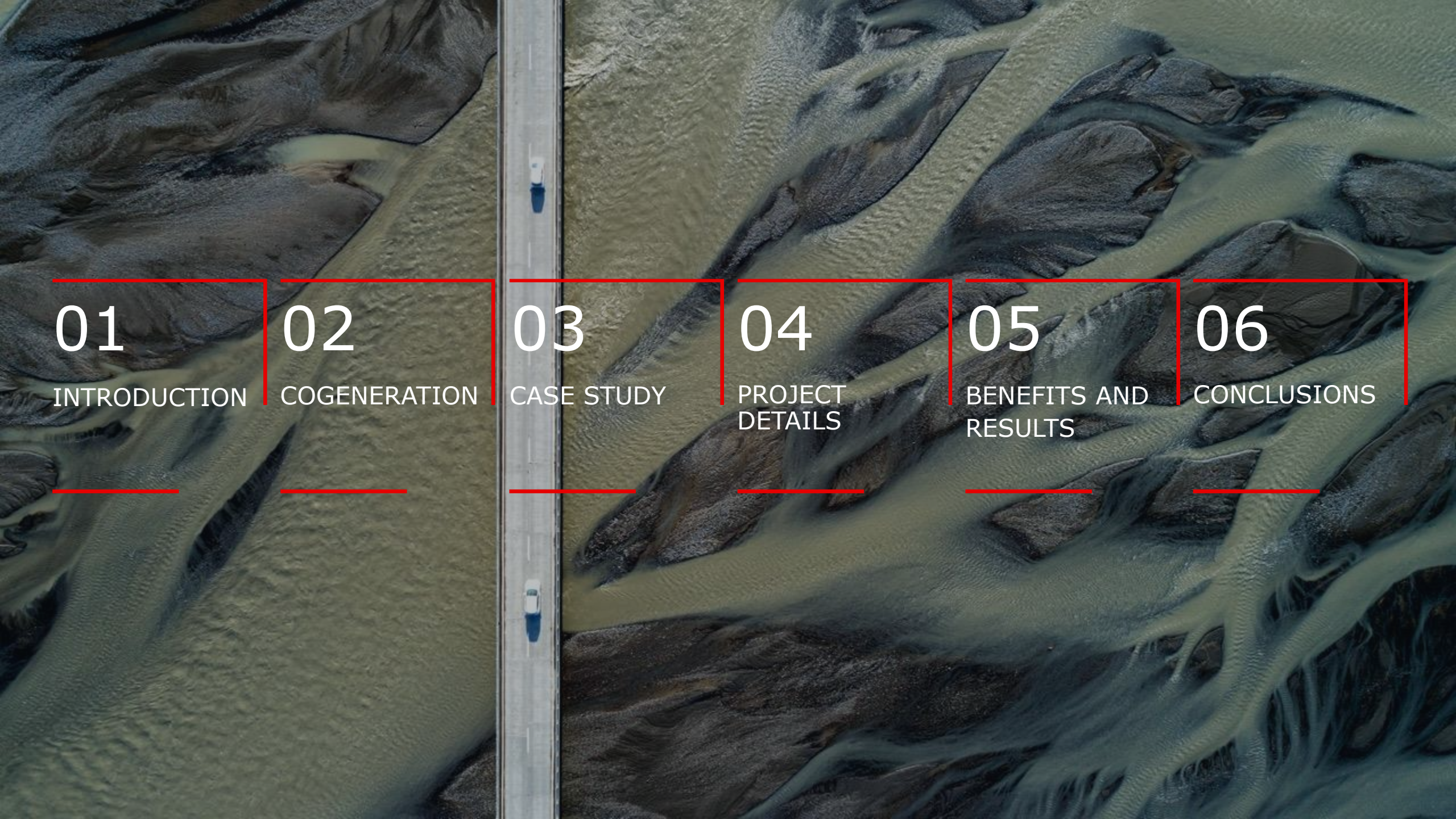
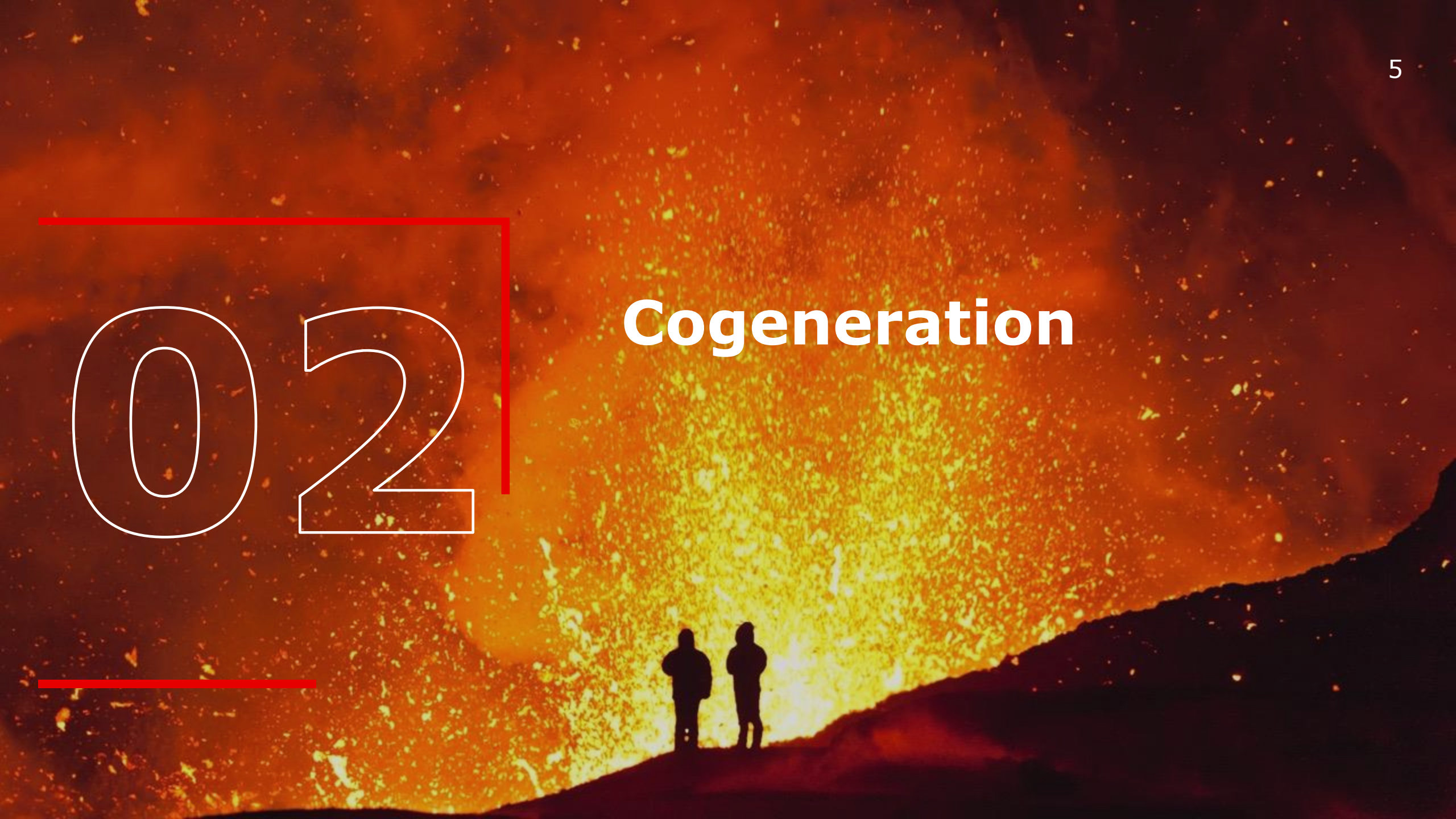


01

Introduction

The Sweet Trigeneration

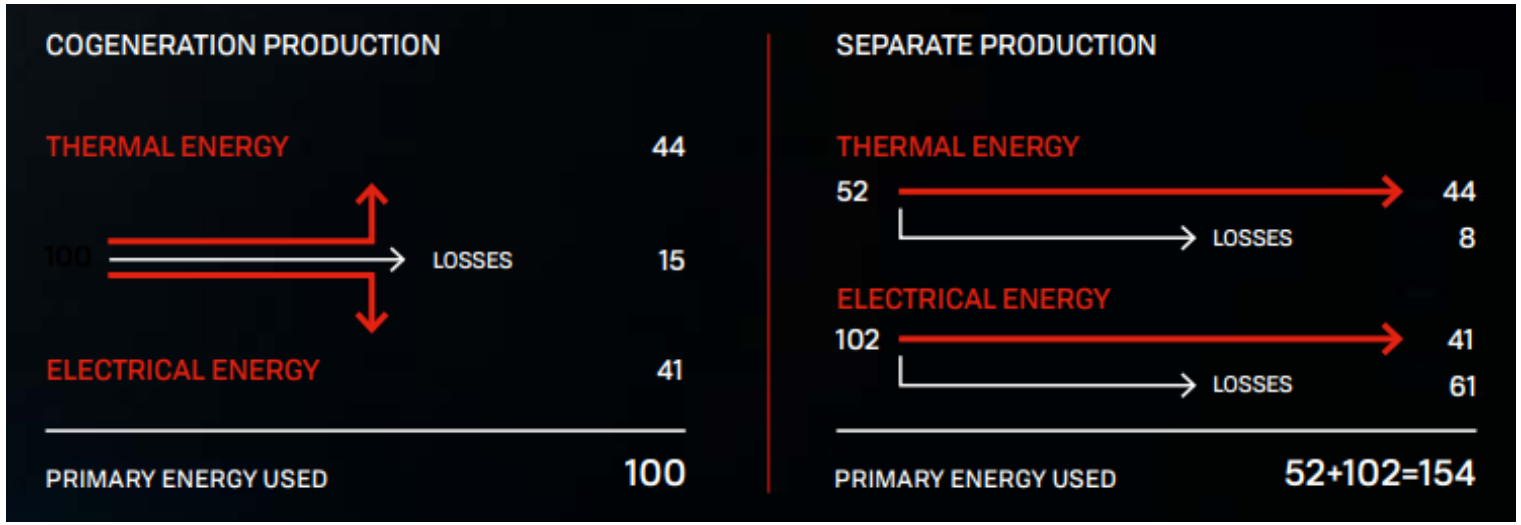

Bacio
La vera felicità non dipende
ma da quanto essi valgono.
True happiness doesn't depend on how many
but on how important they are to you.
(S. Johnson)
Baci
PERUGINA



02

Cogeneration

Definition →



The cleanest energy is the one that is not burned!

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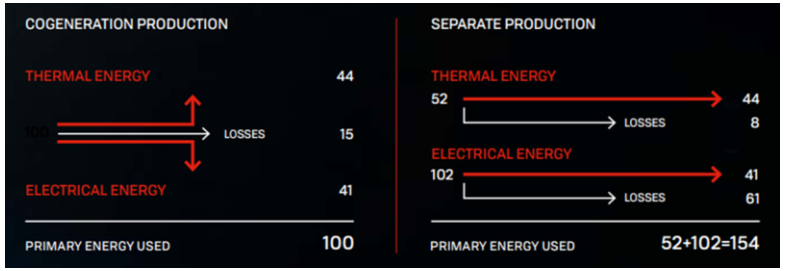
Fuel saving: CHP vs Photovoltaic



Photovoltaic

→ It is pure green

→ It doesn't produce thermal energy, so it works 7/7

→ Good for 1 or 2 working shifts

→ Primary energy fuel **saving**:

- 4000 hr/y = 1100 hr/y peak equivalent
- **102** kW * 1100 hr/y = **112.200 kWh/y**

Cogeneration

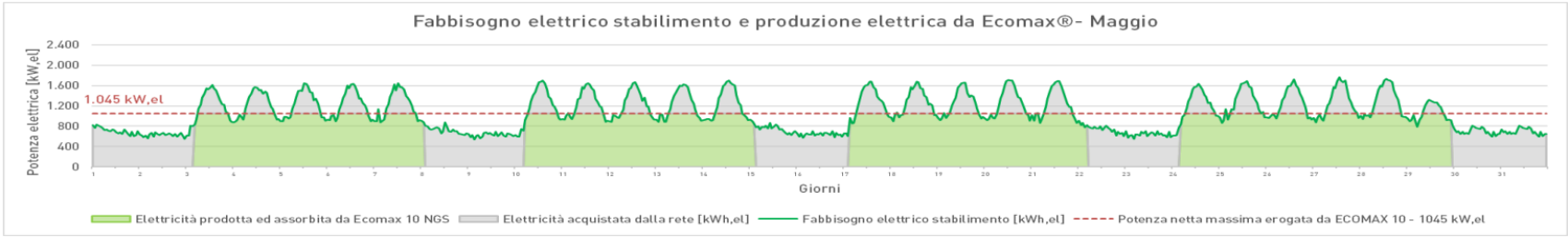
→ It produces energy efficiency

→ Heat and Power production

→ Good for 3 working shifts

→ Primary energy fuel **saving**:

- 6300 hr/y
- **54** kW * 6300 hr/y = **340.200 kWh/y**



So, what to do?

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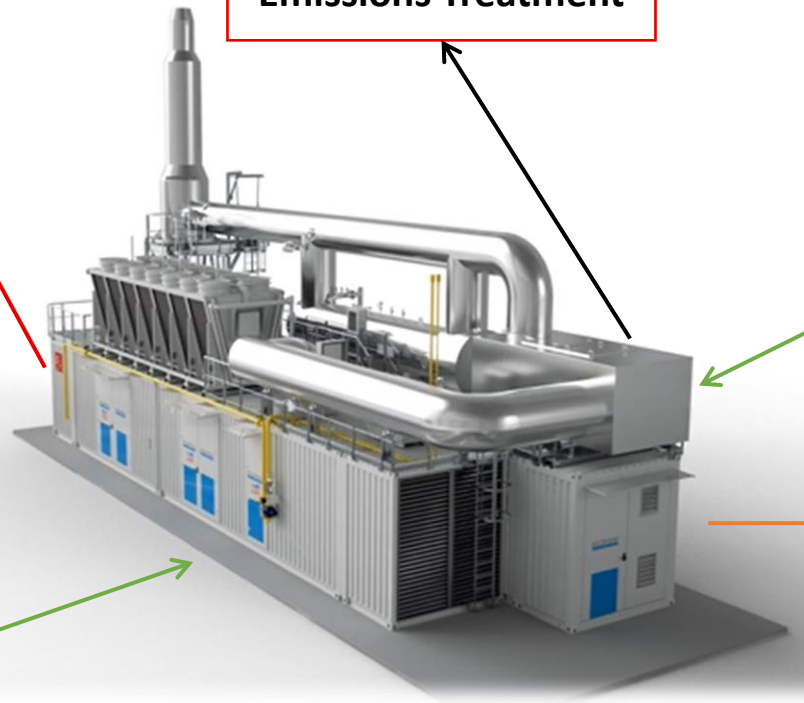
Sustainable solutions combining technologies

Utility Grid Stabilization

Emissions Treatment

Renewables Technologies

Biofuels



Battery Storage

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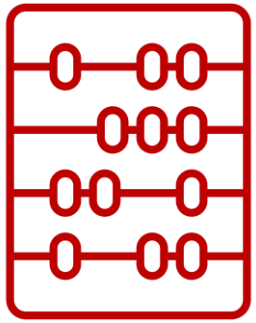
CHP Advantages

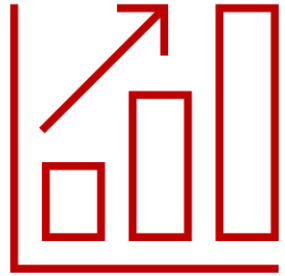
→ For the environment and for companies’ reputation

→ Costs reduction

→ Competitiveness increase

→ A responsible and sustainable answer to the energy crisis





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Case Study

Case Study: “Perugina: The Sweet Trigeneration”

The old CCHP plant

→ 2x **ECOMAX 30 NGS**
- Pel 3.034 kWe cad. @42,6% ETAel.
- Steam 1.426 kWt, 2,16 ton/h, 10 bar
- Hot water 1.638 kWt

→ Absorption chiller 1.380 kWf

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The new solution

After deep dive the project and run some simulations, together with the customer we identified the best solution to maximize the benefits in terms of energy and money saving:

1x ECOMAX 27 NGS

→ Pel: 2.678 kWe

→ Steam: 831 kWt, 1,25 ton/h, 8 barg

→ Hot water: 1.663 kWt

→ Electrical efficiency: 44,7%

1x ECOMAX 33 NGS

→ Pel: 3.352 kWe

→ Steam: 1.042 kWt, 1,566 ton/h, 8 barg

→ Hot water: 2.059 kWt

→ Electrical efficiency: 44,7%

1x Absorption chiller 1.500 kWf

→ Delta T: 5-10°C

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Project's goal

- → Plant renewal with **better electrical efficiency**
  - **44,7% vs 42,6%**
- → Engine different size to increase the **scalability** and to have better **flexibility** in managing the production site loads
- → **ECOMAX 33** uses the J620, where other than the **better efficiency**, it has an increased production (+318 kWe)
- → Installing a new plant in Italy is possible to obtain the **white certificates**.

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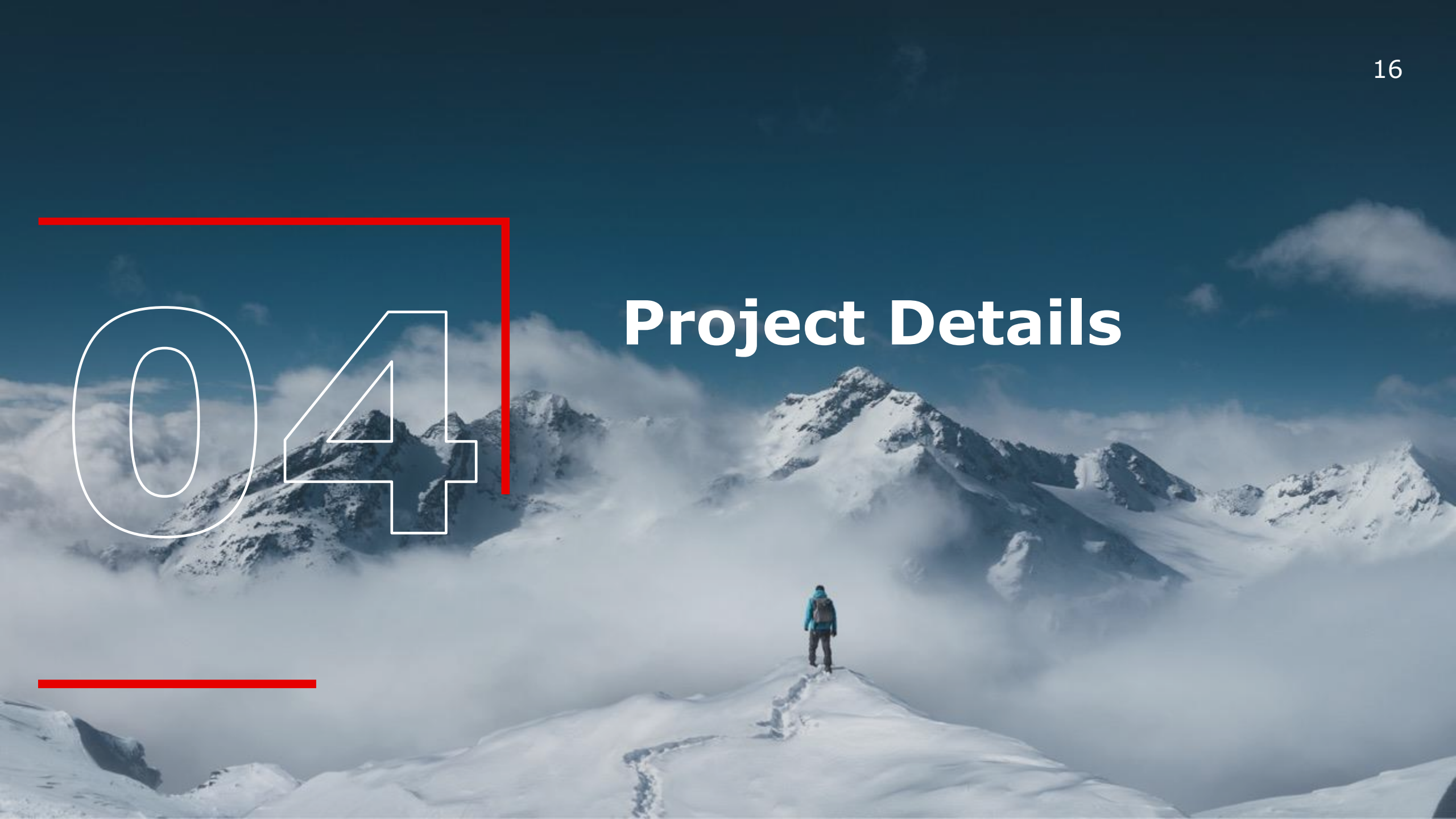
CCHP + Photovoltaic 1,2 MWe



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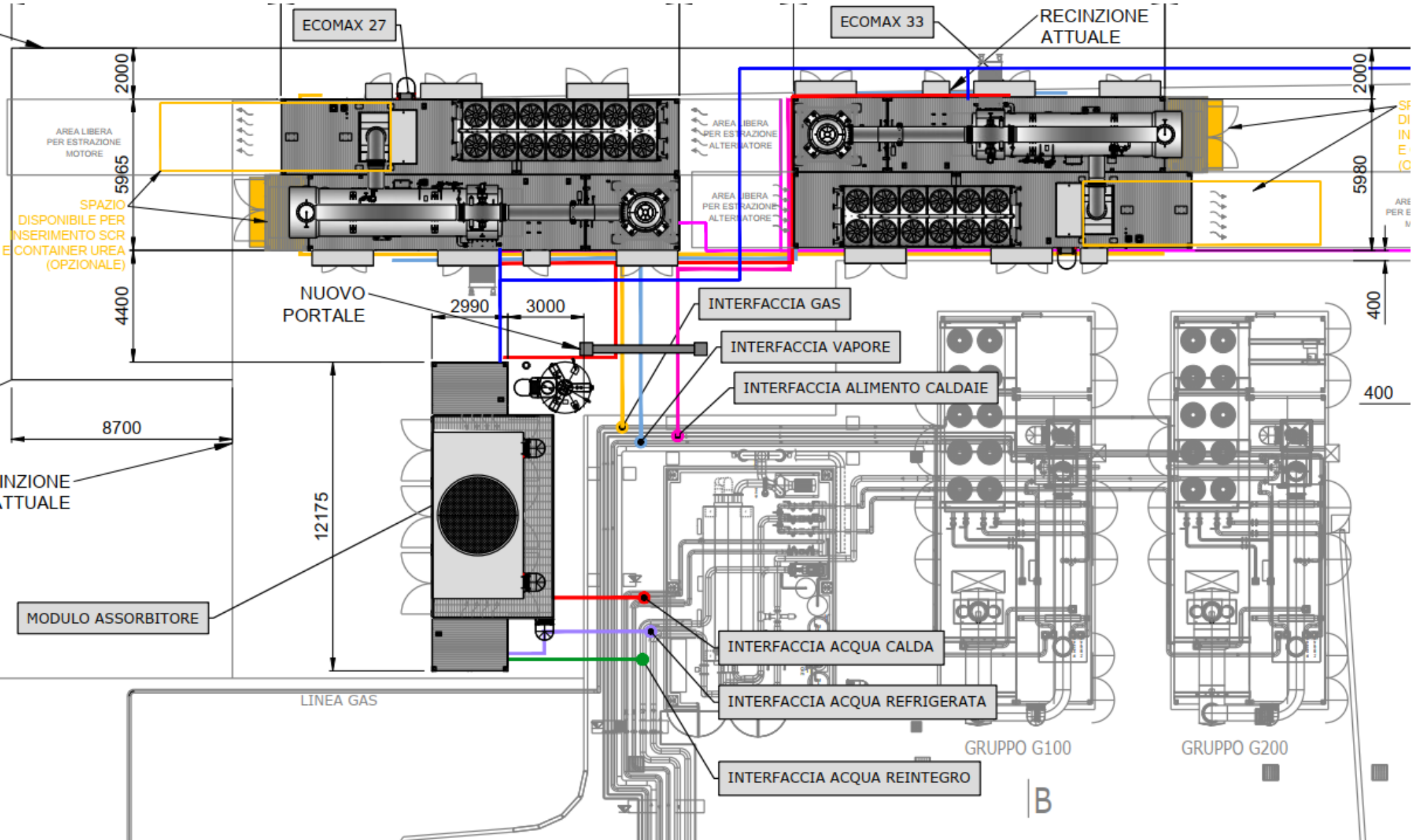
Project Details

Project's layout



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Project’s layout

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05

Benefits and Results

Benefits and results

RELATED TO THE CCHP

→ Spark spread in Italy

→ White certificates

→ Plant renew = performances renew

→ Grid stability thanks to the PV integration

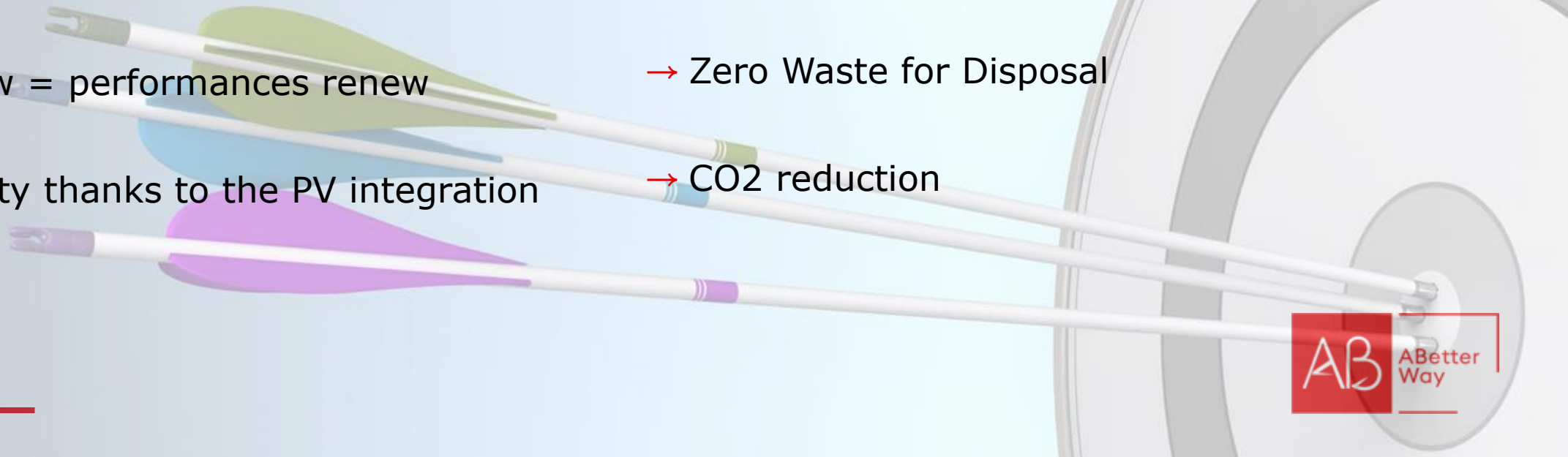
CONTRIBUTION TO THE CORPORATE'S RESULTS

→ Energy savings per Ton of product

→ Water savings per Ton of product

→ Zero Waste for Disposal

→ CO2 reduction



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Conclusions

Conclusions

Trigeneration is a great asset that permits to reach important goals in the transition period:

→ Energy and money savings

→ Technologies combination → CO2 reduction

→ Respect for the environment

→ Good image of a sustainable company

NetZero tube

Biogas channel | Biomethane RNG channel | Cogeneration channel

NetZero Tube: a triple path towards energy sustainability

AB is the publisher of the **NetZero Tube** portal, which consists of three video channels: **Biogas Channel, Biomethane RNG Channel and Cogeneration Channel.**

Through these web channels, AB promotes an international exchange of information and technical-scientific dialogue on natural gas and biogas cogeneration, biomethane, sustainability, energy efficiency and related topics.

A global library of AB's know-how, expertise, and innovation contained in three multimedia channels, available anytime, anywhere.

THANK YOU!

ANY QUESTIONS? NOW OR…

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