





Refrigeration and air conditioning technology solutions

Francisco Raya

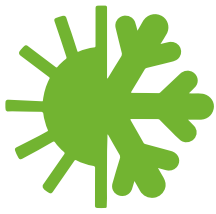
Commercial and Marketing Director

fraya@keyter.com

Hanin Benayad

Business Development Manager Africa & ME

hbenayad@keyter-intarcon.com



Corporate Organization



Design, manufacturing, solutions sales and service for industrial HVAC markets

HVAC



Design, manufacture and sale of solutions for the commercial and industrial refrigeration sector

REFRIGERATION

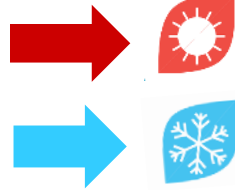


Design, manufacture and sale of atmospheric water generation solutions

AWG
WATER GENERATION

Key Technology for Energy Transition

Heat Pump



Based on thermal exchange from
AIR – WATER - GROUND

Heat Pump provides
Cooling
Heating



RENEWABLE ENERGY

Sustainable

Efficient

Reliable

COMFORT – Cooling & Heating | Ventilation



RESIDENTIAL AND TERTIARY BUILDINGS

- HOUSEHOLDS
- OFFICES, RETAIL
- HOSPITALS
- HOTELS
- MUSSEUMS, CINEMAS, SCHOOLS
- SPORT CENTERS,



Radiating floor



Fancoils



Radiator

DOMESTIC HOT WATER (DHW)



HOT WATER PRODUCTION

- District Heating
- High temperatures for Industry: Cleaning, Chemical, Paper, Metallurgical, etc.



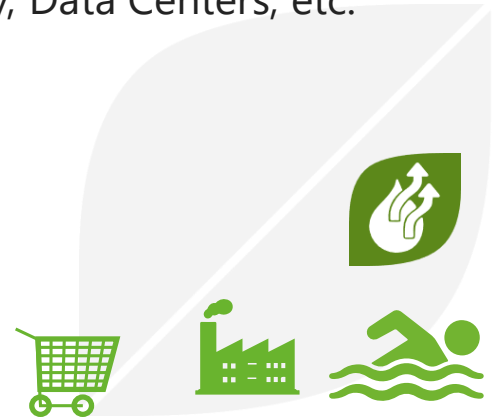
REFRIGERATION

- Supermarkets, Food Distribution, → Cold Chain
- Industrial applications – Automotive industry, Chemical Industry, Data Centers, etc.

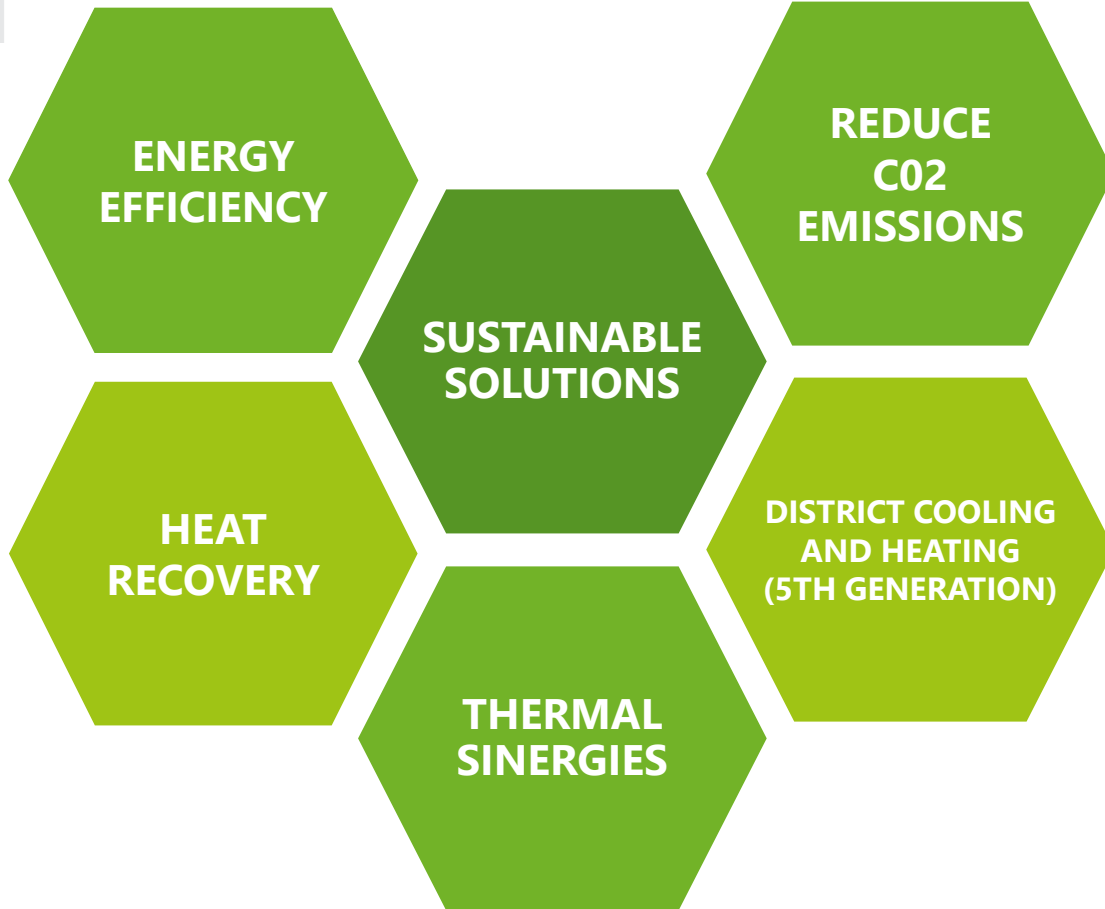


DEHUMIDIFICATION

- Air conditioning for Indoor Swimming Pools
- Drying industrial processes as tobacco, food, wood, etc
- Water Atmospheric Generation



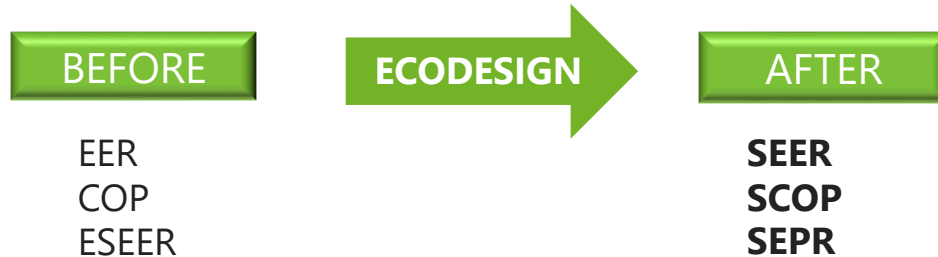
Main Drivers & Trends in HVAC&R



ECODESIGN

Introduce Seasonality - Measure efficiency during the whole year

- **SEER** = Seasonal Energy Efficiency Ratio (Comfort Cooling)
- **SCOP** = Seasonal Coefficient Of Performance Ratio (Comfort Heating)
- **SEPR** = Seasonal Energy Performance Ratio (Process Cooling)



How to improve Seasonal Energy Efficiency?

Inverter Technology



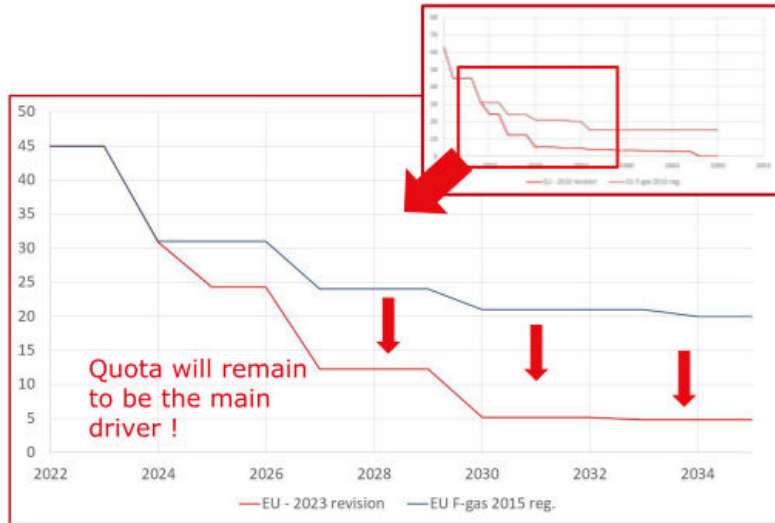
Inverter Compressors + EC Fans + Electronic Expansion Valves

F-GAS

Control emissions from fluorinated greenhouse gases (F-gases)

GWP = Global Warming Potential, developed to allow comparisons of the global warming impacts of different gases.

European phase-down – quota as main driver and restrictions in GWP



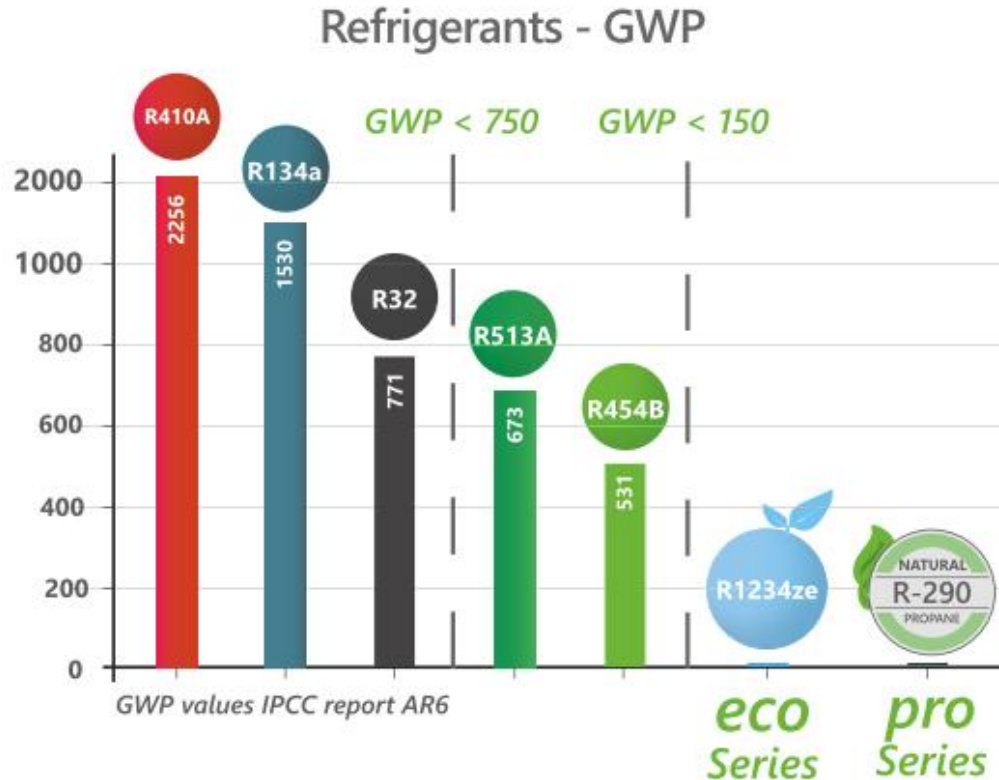
How to reduce Ton CO₂ equivalent?

- Using efficient refrigerants with lower GWP & Natural Refrigerants
- Reducing the amount of refrigerant in the installations with indirect systems

Low GWP refrigerant and Natural refrigerants



- R1234ZE – ECO Series**
- R290 Propane – PRO Series**
- R600 Isobutane**
- R744 CO₂ – ECO2Watt**
- R717 Ammonia - Ammolite**



Supply of High Temperature

Control emissions from fluorinated greenhouse gases (F-gases)

Reduces fossil fuels and CO2 emissions with an efficient and renewal solution

available 2023



ziran pro *KWR*

33-203 kW 43-267 kW

semi-hermetic

70°C

NATURAL R-290 PROPANE

Air-to-water chillers and heat pumps for cold climates



argia *KWHA*

27-107 kW 29-116 kW

Multiscroll tandem compressors

70°C

R513A R134a

High temperature air-to-water heat pumps for mild climates up to 70°C



medea maxima *KZVH*

75-288 kW

Multiscroll tandem compressors

78°C

R513A R134a

High temperature water production up to 78°C



oneida eco Q *KZT*

283-1683 kW

Inverter screw compressors

85°C

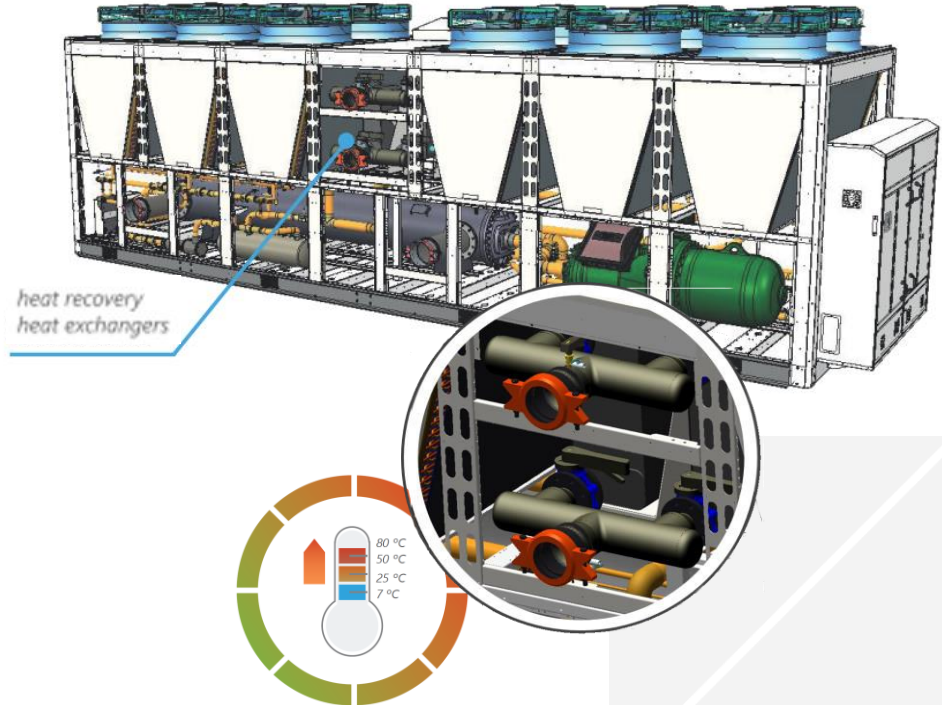
R1234ze LOW GWP

High temperature water production up to 85°C

Total or Partial Heat Recovery on Chillers

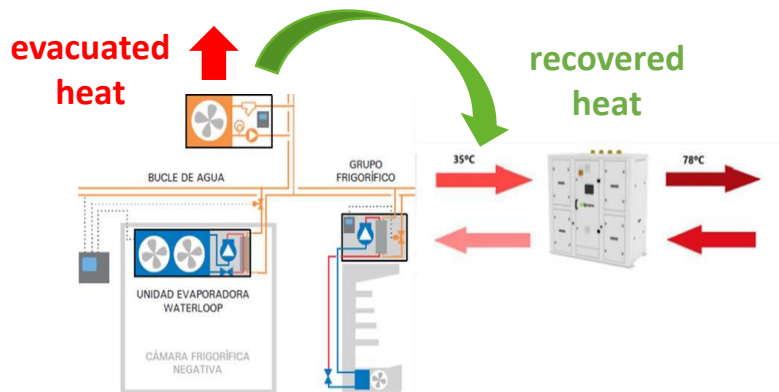
A system that utilizes waste heat to heat water for both domestic hot water and industrial applications.

- Recovery of up to 100% of condensation heat.
- Free production of high-temperature hot water with partial recovery of hot gases.
- Reduction of electricity consumption in the hot water production system.
- Reduction of fossil fuel consumption and CO₂ emissions with an efficient and renewable solution.

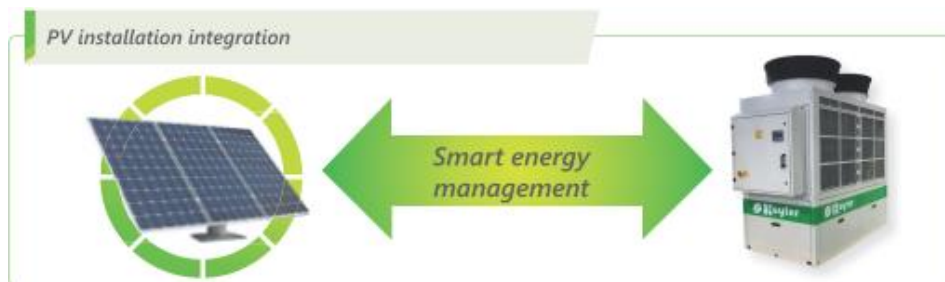


Heat Pumps Hybridization with Renewable / Residual Energy

Heat Recovery from Refrigeration Units with Water/Water Heat Pump



Solar with Water/Water Heat Pump

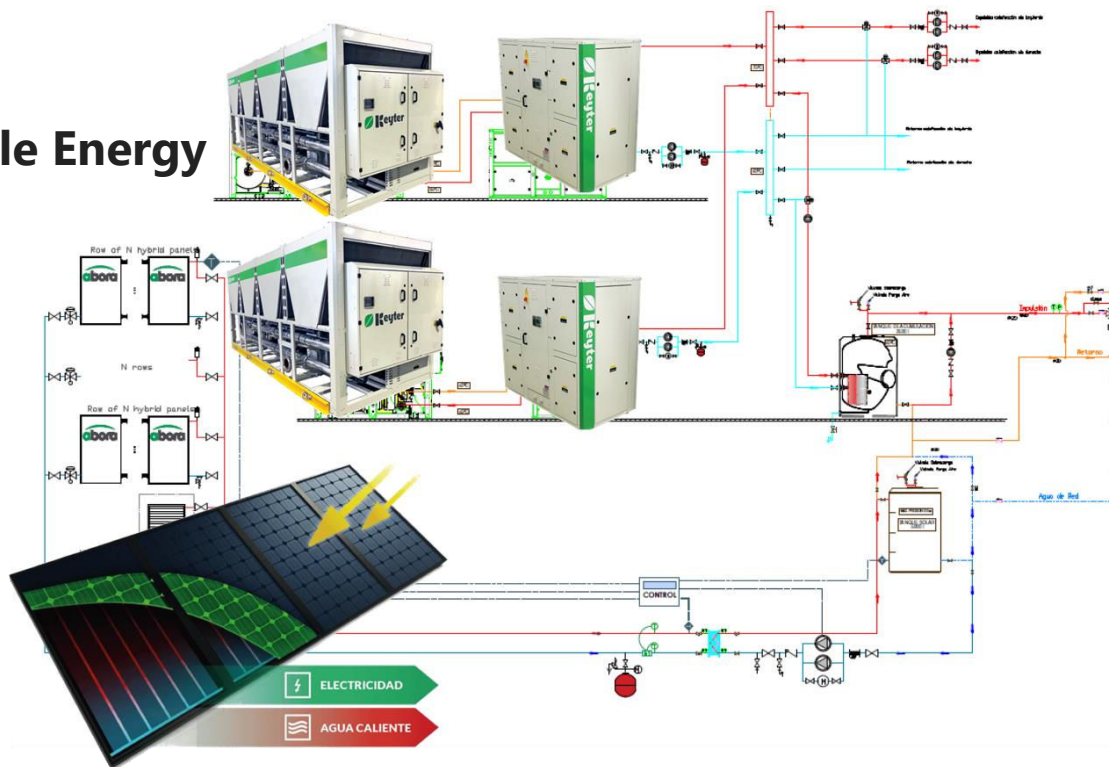


THERMAL SYNERGIES – HYBRID solutiona



Heat Pumps Hybridization with Renewable / Residual Energy

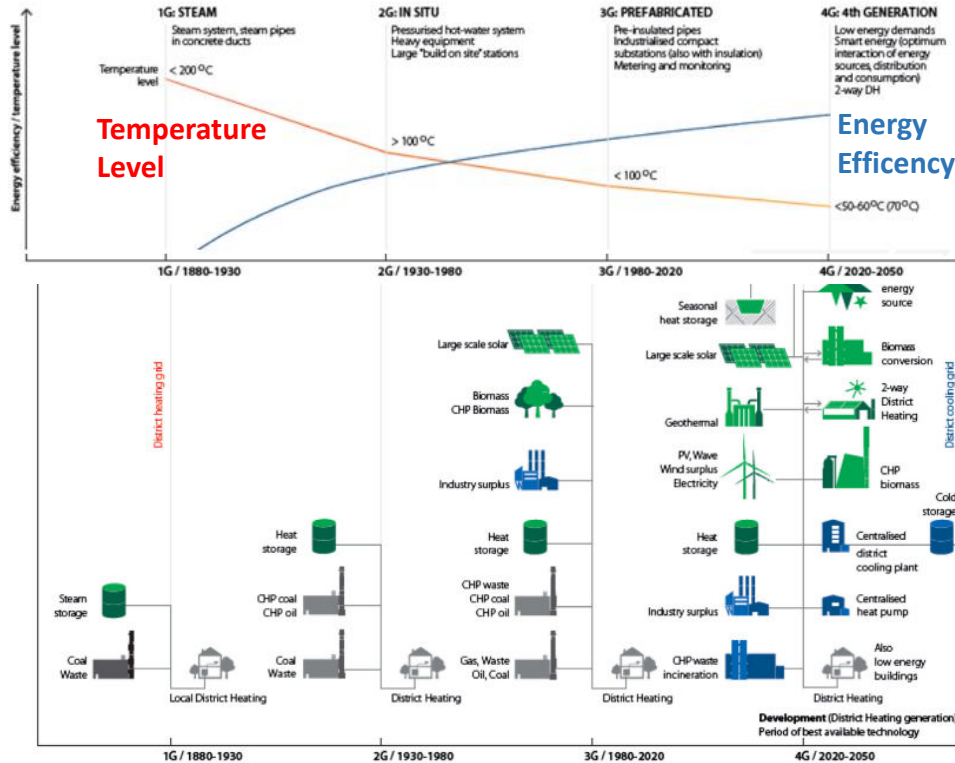
Cooling
Heating
DHW
Renewable Energy



Heat Pump
4 pipe + W/W
+
Thermal Solar
+
PV Solar

DISTRICT COOLING & HEATING (5th generation)

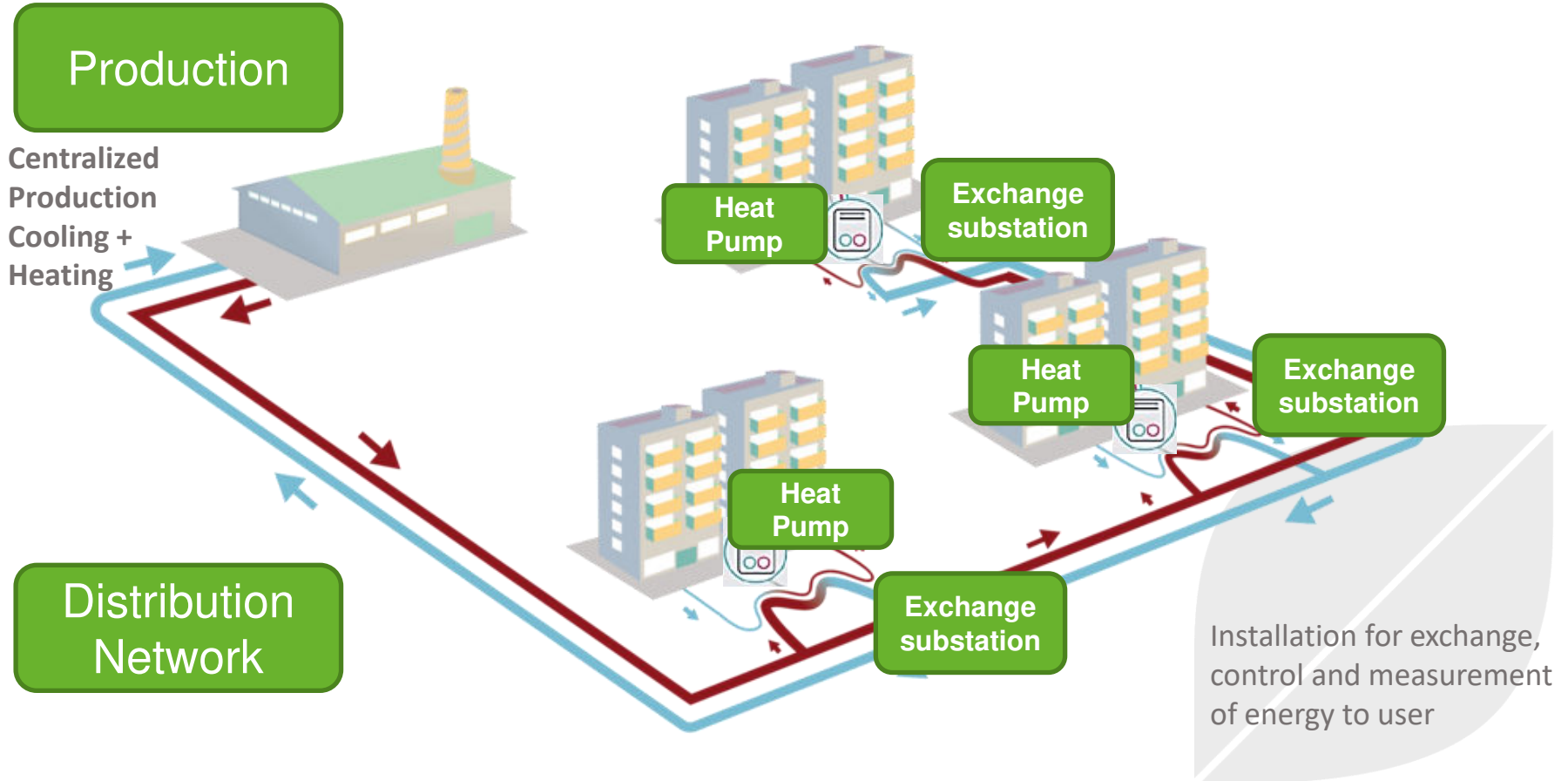
5th generation district networks operate with temperatures close to the environment (35°C), requiring the application of elements that adapt the thermal level of heating/cooling at the substation/user level



symbiosis between thermal and electrical energy networks

symbiosis between different technologies

DISTRICT COOLING & HEATING (5th generation)





www.keyter.com