



SOURCE OF
CLEAN POWER

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RePG Energy

Renewable Energy Power Generation
Using Relative Humidity And Heat Differences

Electricity - Heating – Cooling-AWG

Smart Energy
Production & Consuming

 **Introduction**

 **Product**


 **How it Works**


 **Applications**


RePG Technology is a


- *%100 new generation renewable energy technology* that can use *Latent Heat* and very '*Low Waste Heat*' to produce electricity
- mobile, very easy relocatable in a little space at home, office, factories, cars, drones, yachts, HVAC & datacenters
- can be connected to different waste heat sources,
- produce water,
- and emits zero carbon

Sources of Energy



Latent Heat



Solar Thermal



Waste Heat



Geothermal


Specifications


Remote Monitoring & Management System


IoT based IOS – Android Mobil App control system


Heat Pump & HVAC basic functions


ON-GRID / OFF-GRID Applications


Zero CO2 Emission, Zero GWP (Global Warming Potential), Green Design

Applications

Home/Office

- Renewable Energy Power Generator
- Water Produce & Treatment Applications
- Hidden Heat, Waste heat and Sun heated

Industrial

- Energy-Intensive Industries
- Low Waste Heat Industries
- Air Using Renewable Energy
- Latent heat applications

Patent



National Patents
International Patents
TUBITAK BIGG
Istanbul Technical University Project

RePG Energy and Water R&D and IP Power RePG R&D Team- Achievements



RePG®

RePG Aqua: Production of devices that utilize waste heat from residential buildings, hotels, commercial establishments, and factories to produce water (potable, utility, and purified).

RePG Industry: Production of devices that generate energy between 25 kW and 1 MW by utilizing air or varying levels of waste heat in industrial environments.

RePG Buildings: Production of devices that generate energy between 0.1 kW and 25 kW by utilizing heat in open environments such as homes, hotels, and offices (only air & solar-thermal).

RePG Vehicle: Production of devices that generate distance-extending energy between 0.1 kW and 25 kW by utilizing air and waste heat in electric vehicles.

RePG HVAC: The production of devices such as heating, cooling, ventilation, and air conditioning systems using RePG technology.

RePG Data Center: Production of devices that generate energy and provide cooling by utilizing air, waste heat, and solar thermal energy in stationary or mobile data centers or rack cabinets.

⦿ A New Renewable Energy

⦿ Patented 100% Domestic Technology

⦿ Energy and Water Production from Air

⦿ 'Wireless Energy Transfer' and 'Pipeless Water Transfer'

⦿ New Products and Applications

⦿ Strong R&D Experience

⦿ Product Development

⦿ Energy Farmer

⦿ Zero Waste Heat



IP:
25 Registered Patents
18 Registered Trademarks
4 Proprietary Industrial Design

Tubitak/ Kosgeb Projects:
4 Completed Projects
1 Ongoing Project

R&D Projects:
20 Completed Projects
6 Ongoing Project
5 Planned Projects

Scientific Studies:
6 Papers
2 Articles

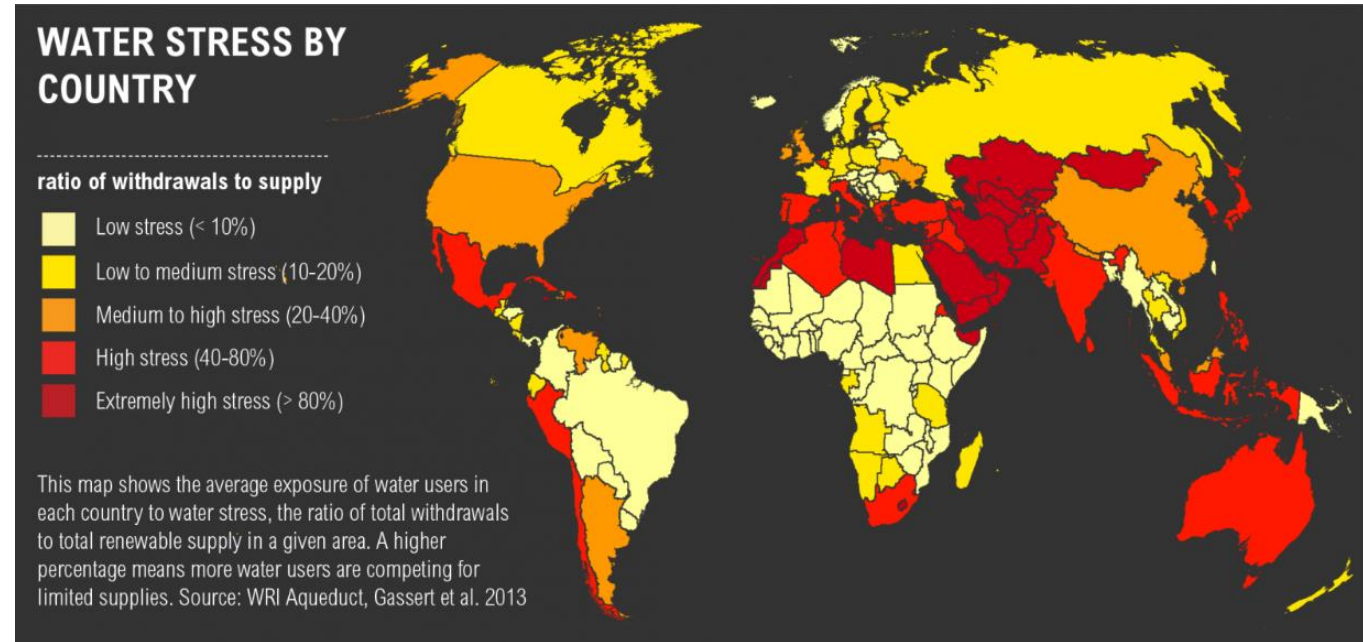
Events:
8 Congress
9 Fairs

Certificates:
5 CE Certification
6 Quality Certificates
2 Domestic Goods Certificate

Awards:
WIPO Global Awards 2023 Finalists
7 Project Awards
5 Patent Awards
4 Achievement Awards

Climate change cause difficulties to access clean water. Because of this difficulties all around the world AWG(Atmospheric Water Generation) products getting more popular. The growth expectations of this market are very high, which encourages manufacturers to invest in this area

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In the last decade, the effect of global warming has caused a dramatic increase in the number of manufacturers and research for AWG products.



Category	Specification		Value
		Metric	Imperial
Dimensions	Length	270mm	10.6"
	Width	250mm	9.8"
	Height	1000mm	39.3"
	Weight (full of water)	30 kg	66.12 pounds
	Weight (no water)	11 kg	24.24 pounds
	Internal Tank	19 L	5 Gallon
Operation, storage and transportation climate	Operation	15°C - 40°C	59°F -104°F
		≥ 15%	
	Storage and transportation	- 10°C to 75°C	14°F-167°F
Air Filters	Filtration method	Single hydro- oleophobic barrier air filtration	
Water production and purification	Ph	6.5-8.5	
	Filtration Method	Removing heavy metals, particles filtration , biological treatment, organic compounds(VOC ,SVOC) and mineralization by cutting edge technologies	
	Production Capacity Per Day	2.64 gallons (26.6°C /60%RH)	10 L (26.6°C /60%RH)
		3.96 gallons(Max)	15 L(Max)
	Refrigerant	R134A	
Acoustic	Noise Levels	≤ 36 dBA	
Lifting and transportation platform	Transportation	Standard cargo	
	Lifting	Standard - Forklift	
Electricity	Nominal Operation Voltage	EU	1 Phase -3 Phase, 230/400 Vac ,50 Hz
		US	3 Phase, 120/208 Vac ,60 Hz
	Allowed Deviation on individual phases, Self Protected	Voltage ± 5% Frequency ± 1Hz	
	Power Consumption	Nominal	0.15 kW
		Max	Up to 0.36 kW
	Energy Efficiency (26.6 C° , 60%RH)	350 Wh/L	
	Circuit Breaker Current	Standard: IEC 60884- 2P+E	
		230/400 Vac: 1 x 16 A Slow	
	Mains Power Connector	Standard: IEC 60884- 2P+E	
		120/208 Vac: 3 x 16A 230/400 Vac :3 x 16A	
	Electrical connection	An industry - approved electrical wire (to suit 110V/400V)is required to connect to the RePG Aqua connection box	

AWG Products

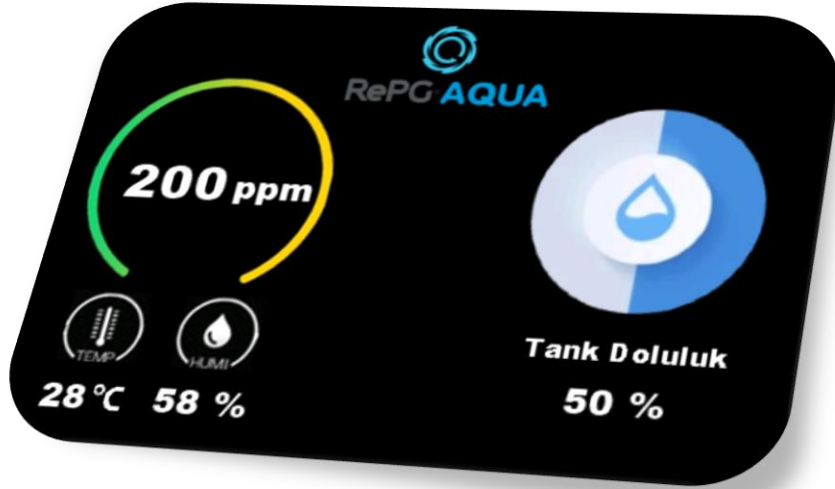


Residential Water Generation	Service Water Daily	Drinking Water Daily	Combined Daily
Service Water Production	25-400 L/Day	-	12.5-200 L/Day
Drinking Water Production	-	1-50 L/Day	0.5-25 L/Day

Semi Industrial Water Generation	Service Water Daily	Drinking Water Daily	Combined Daily
Service Water Production	100-1000 L/Day	-	50-500 L/Day
Drinking Water Production	-	25-400 L/Day	12.5-200 L/Day



Industrial Water Generation	Service Water Daily	Drinking Water Daily	Combined Daily
Service Water Production	1000-10000 L/Day	-	350-3500 L/Day
Drinking Water Production	-	100-1000 L/Day	35-350 L/Day



Air Quality Indicator

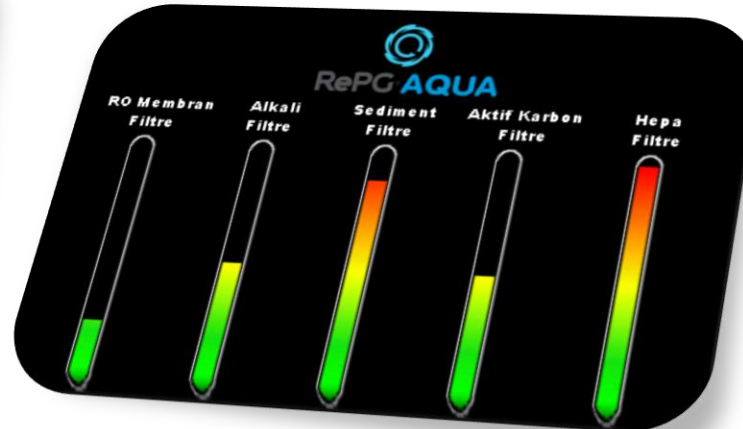
Drinking Water Tank Level Indicator

Air Temperature Indicator

Relative Humidity Indicator

Power Analyzer

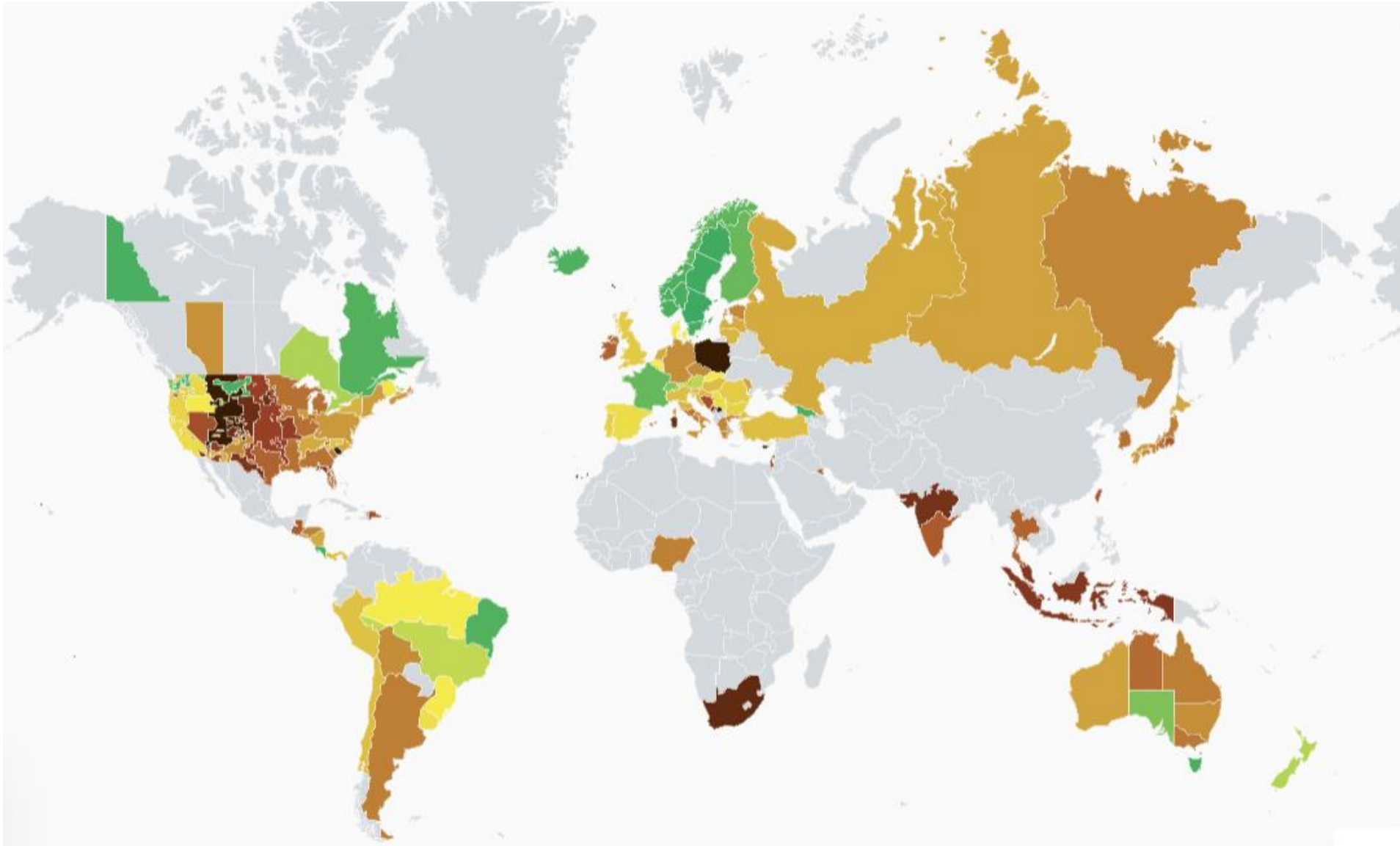
Filters Status Indicator



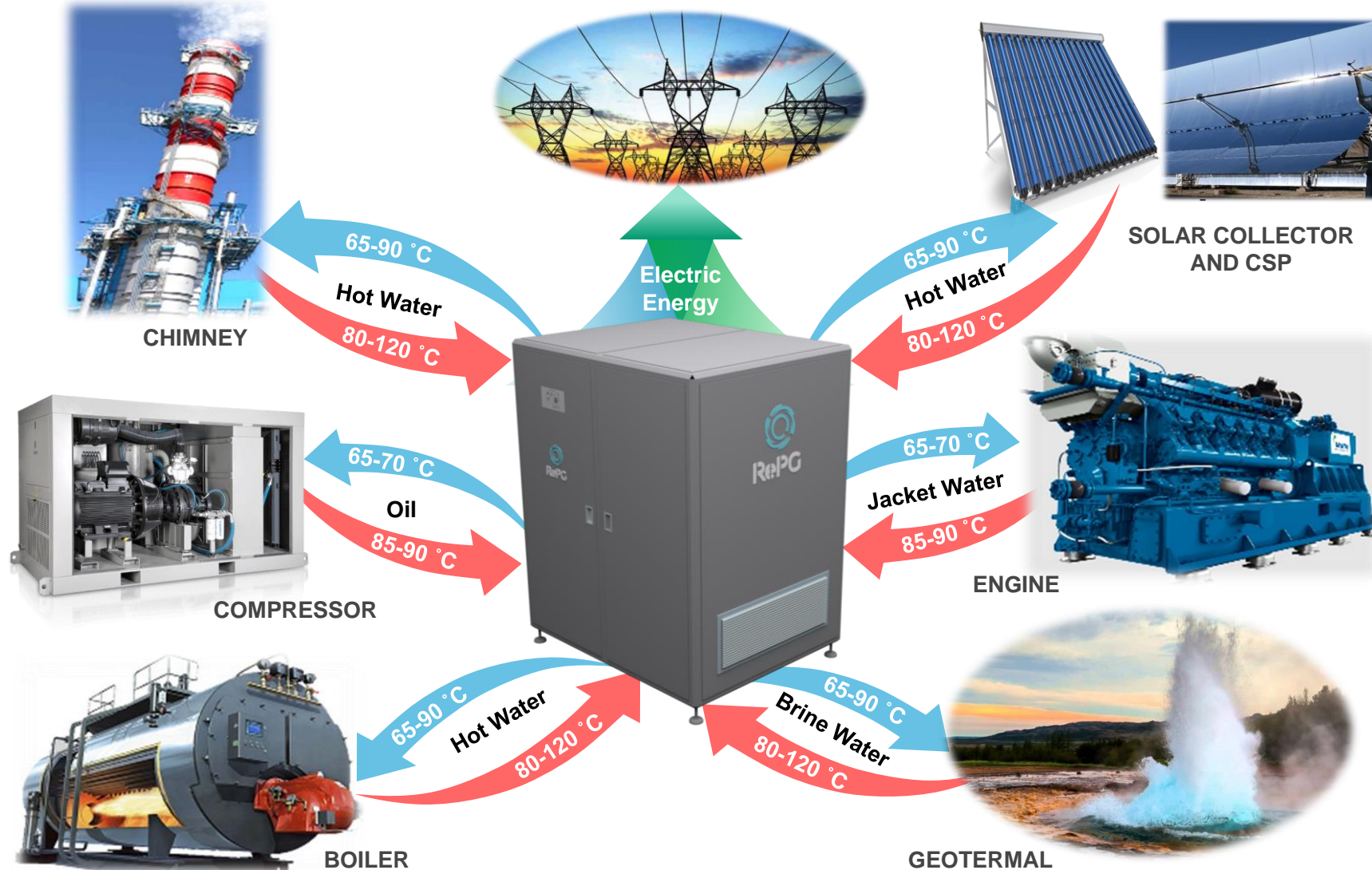
Waste Heat and CO2 per kWh



RePG®

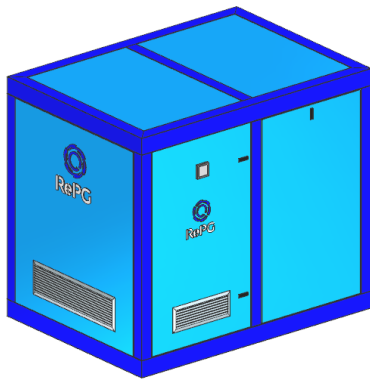


Industrial Products Application Areas

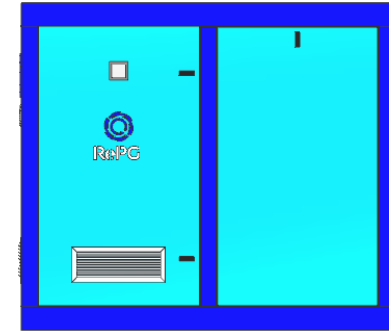


Industrial Products

- Renewable Energy Production Based on Relative Humidity and Temperature Change
- High-Efficiency Energy Generation from Low-Temperature Waste Heat
- Development of Hardware and Software Suitable for Renewable Energy Systems
- Development of IoT-based Mobile Applications
- 100% Domestic Turbine Production
- Range Extender Production
- Heating - Cooling - Air Conditioning Systems Production
- Relocatable design



Industrial Products



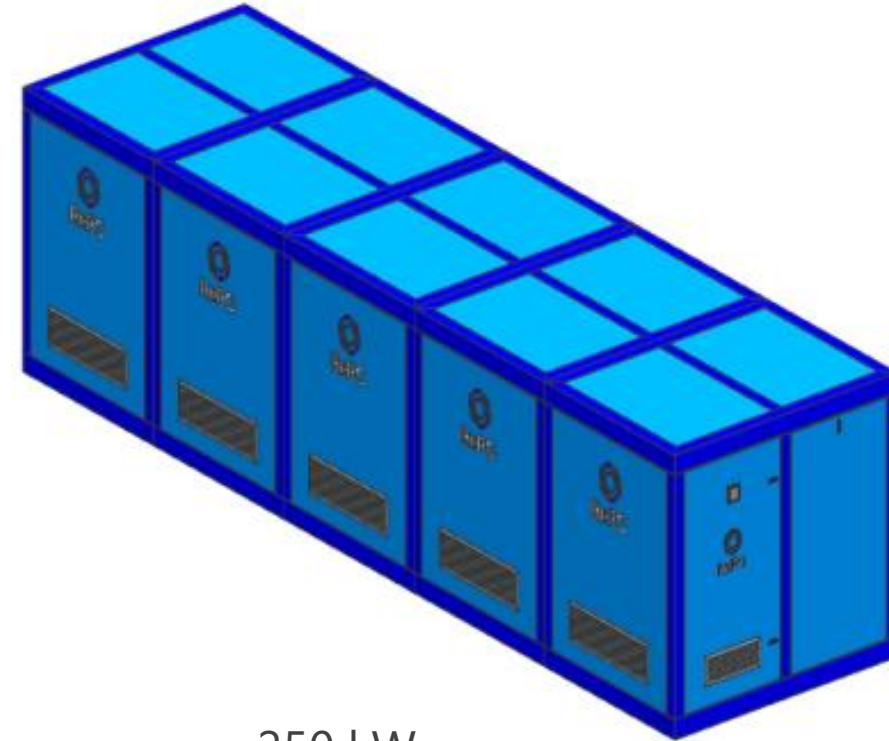
Energy Production Capacity	1-5 kWh	5-15 kWh	5-25 kWh
Heat Transfer Fluid	Water/Oil/Gas	Water/Oil/Gas	Water/Oil/Gas
Fluid Temperature	60-200 °C	60-200 °C	60-200 °C
Heat Transfer Fluid Connection	1" – Threaded or Flanged	2" – Threaded or Flanged	2" – Threaded or Flanged
Operating pressure	Max. 45 bar	Max. 45 bar	Max. 45 bar
Operating Frequency	50-60 Hz	50-60 Hz	50-60 Hz
Operating Voltage	400V AC	400V AC	400V AC
Phase Value	3	3	3
Size	850x850x1500 mm	1100x1450x1500 mm	1150x1650x1500 mm
Weight	250 kg	500 kg	750 kg



25 kW



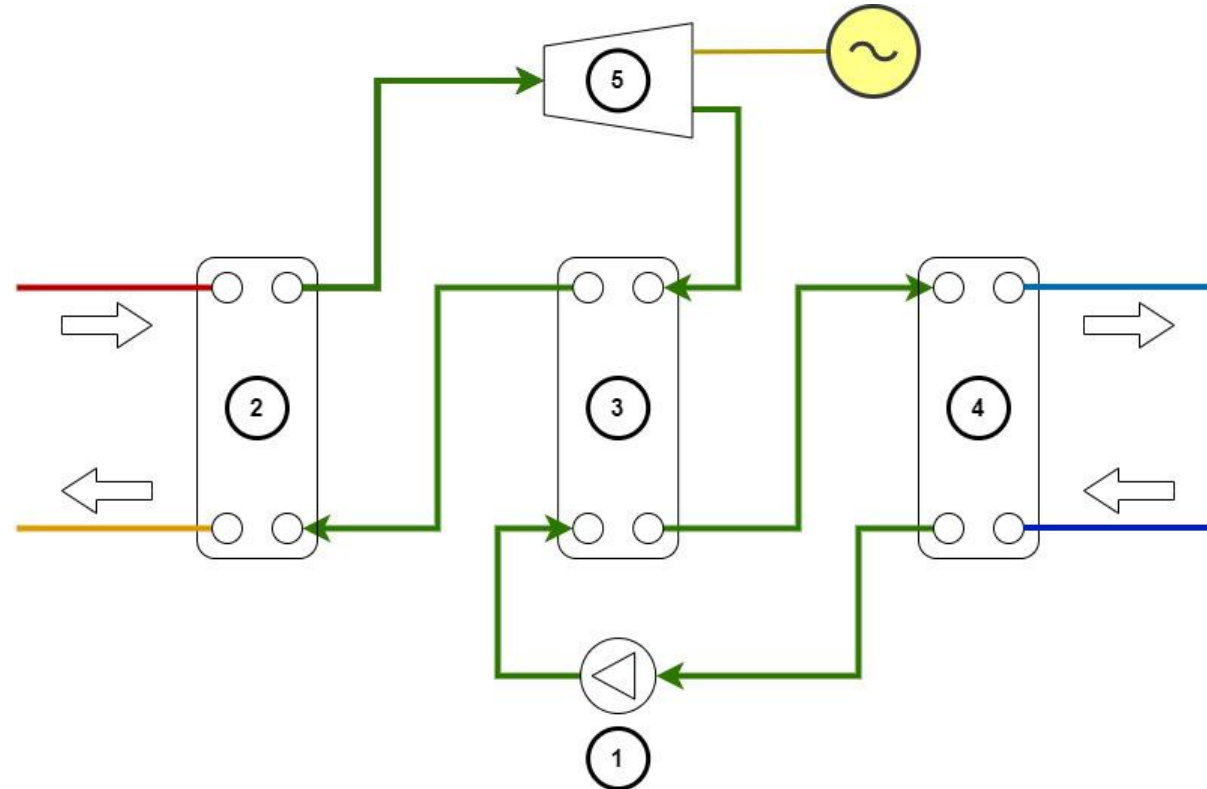
100 kW



250 kW

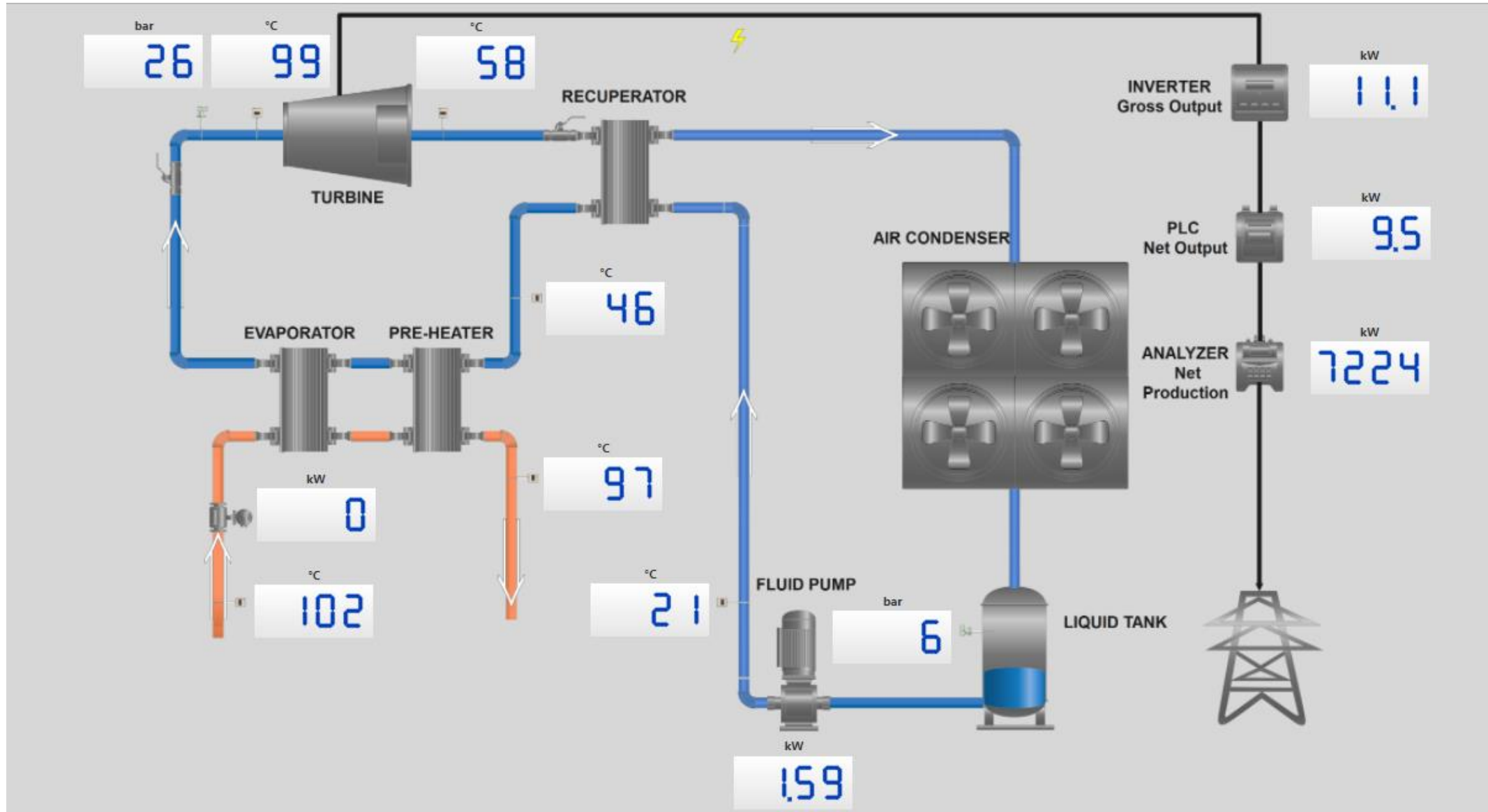
- **1) Pump:** It is used to pressurize the RePG fluid in the system.
- **2) Evaporator:** It is used for heat energy transfer from heat sources such as factory chimneys, geothermal resources, solar heating systems to RePG fluid.
- **3) Recuperator:** While increasing the overall efficiency of the system, it is used to provide heat transfer between the hot gas at the turbine exit and the cold fluid pressurized by the pump.
- **4) Condenser:** While providing the cooling of the gas at the turbine exit, it creates useful heat. This energy can be used in the water phase in heating systems.
- **5) Turbine:** It is used to generate electrical energy with high efficiency during the expansion of the RePG fluid.

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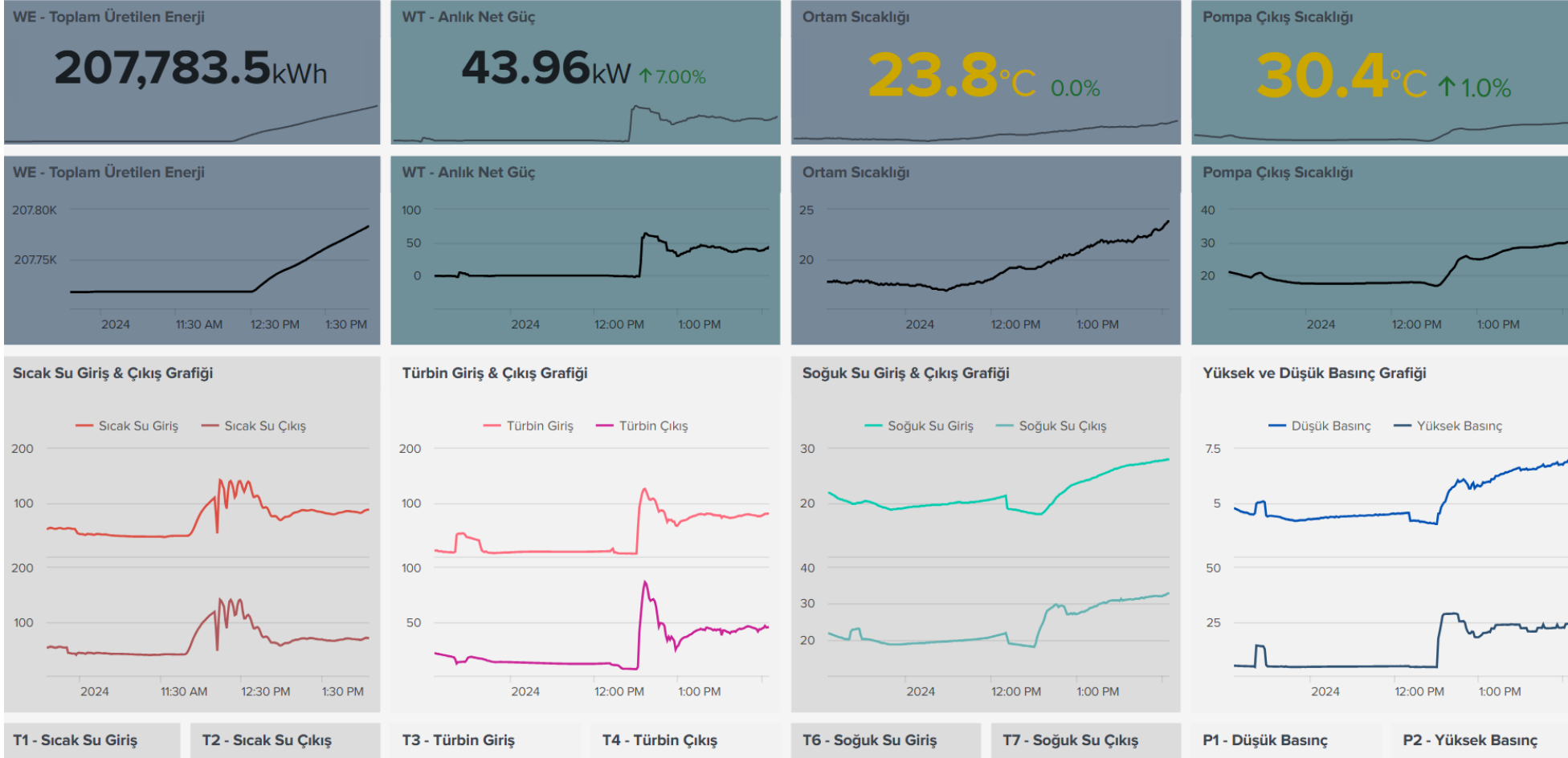


The RePG system evaporates the low-boiling fluid, which is pressurized with a pump, in the evaporator with the heat energy coming from the heat source. It provides electricity generation as a result of the pressurized fluid in the gas phase turning the turbine. The temperature of the fluid leaving the turbine is lowered in the recuperator to increase the overall cycle efficiency. Then, the fluid is liquefied by means of the condenser and transmitted to the pump suction. In this way, electricity is produced in a completely closed cycle without loss of fluid. 15

Industrial Products

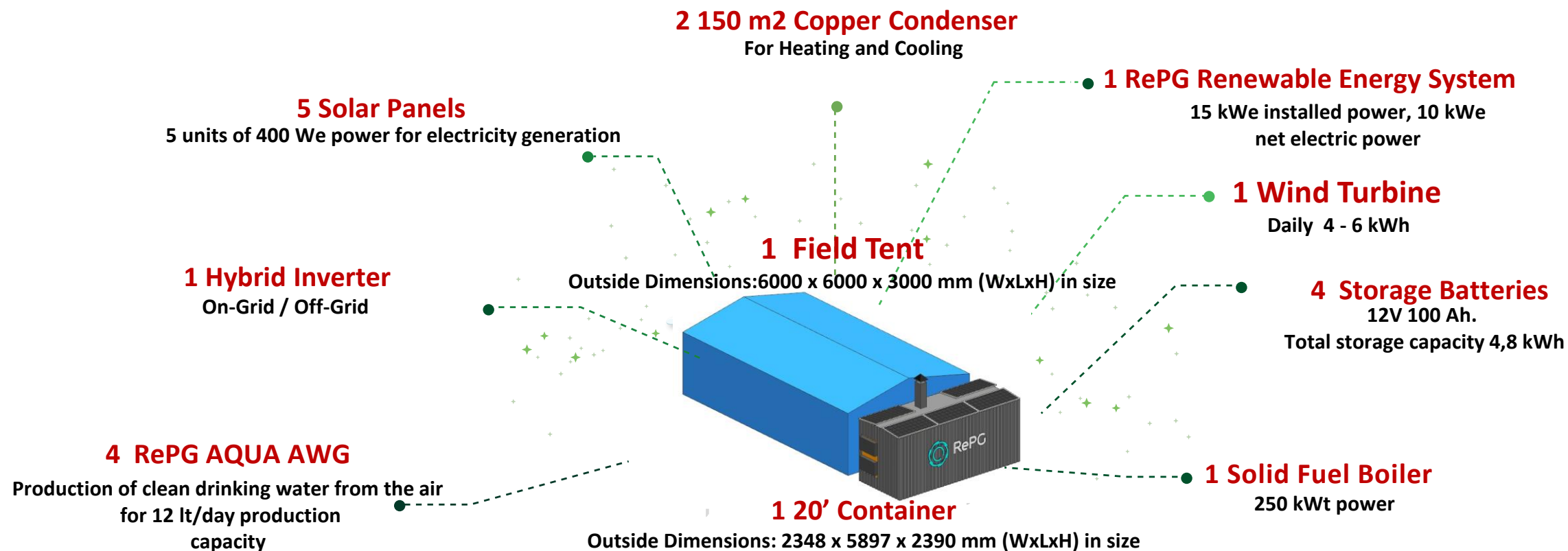


Industrial Products

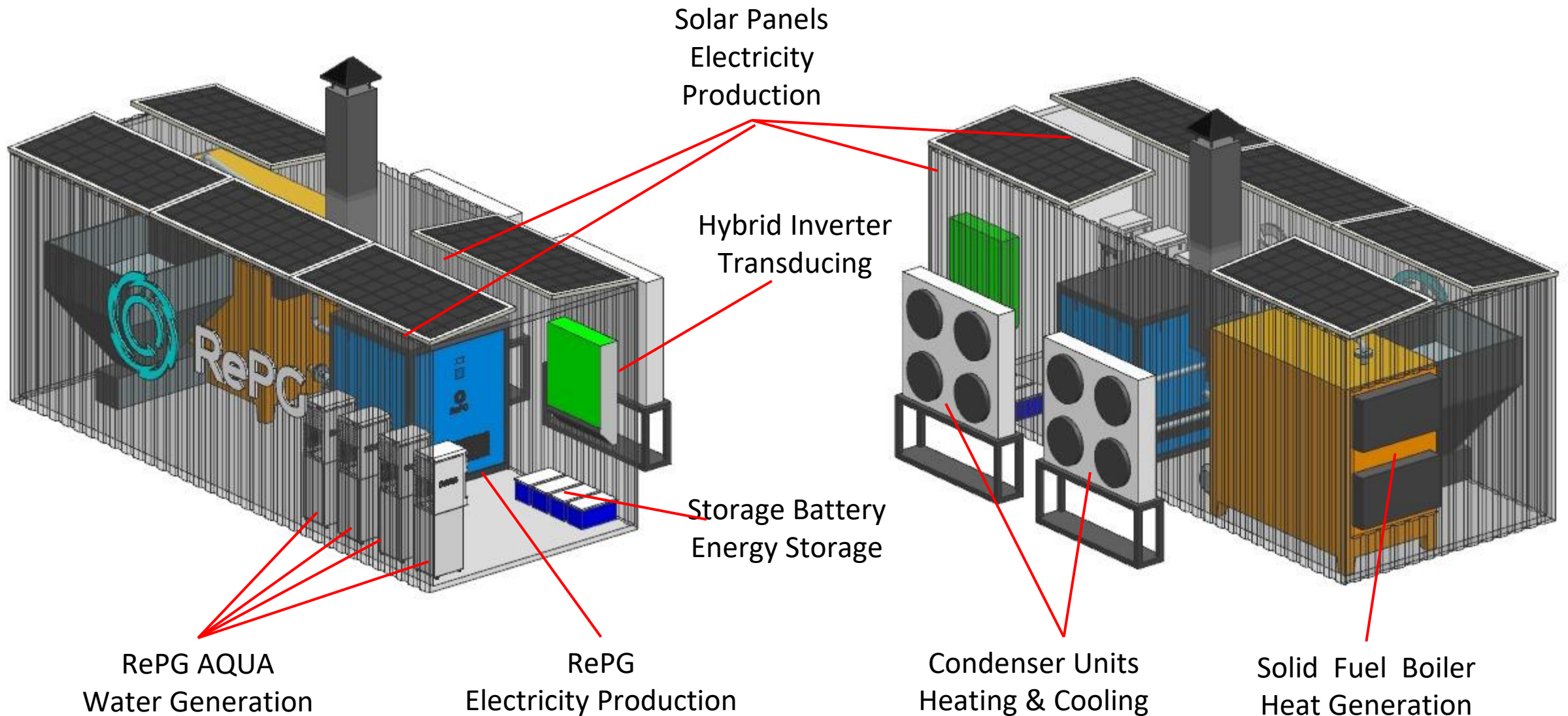


With the Splunk software, users can access all the information of their devices and get retrospective data.

RePG Disaster Container



Infrastructure Systems, Components and Architecture



Solar UPS

Solar Panel with an integrated battery pack.

Onboard output 220V plug, 12V DC and 5V USB Type B



Latent Heat Home Product

- ✓ RePG Systems can generate electricity using relative humidity and heat changes in ambient air.
- ✓ **Latent Heat Turbine Type: T0 (Turbine Zero)**
- ✓ Zero CO2 Emission, Zero GWP (Global Warming Potential), Green Design
- ✓ Dimensions/Weight :L600 mm X H1200 mm X D600mm 40 kg @ 5 kWh/day
- ✓ ON-GRID / OFF-GRID Applications
- ✓ IoT based IOS – Android Mobil App control system
- ✓ **Remote Monitoring and Management System**

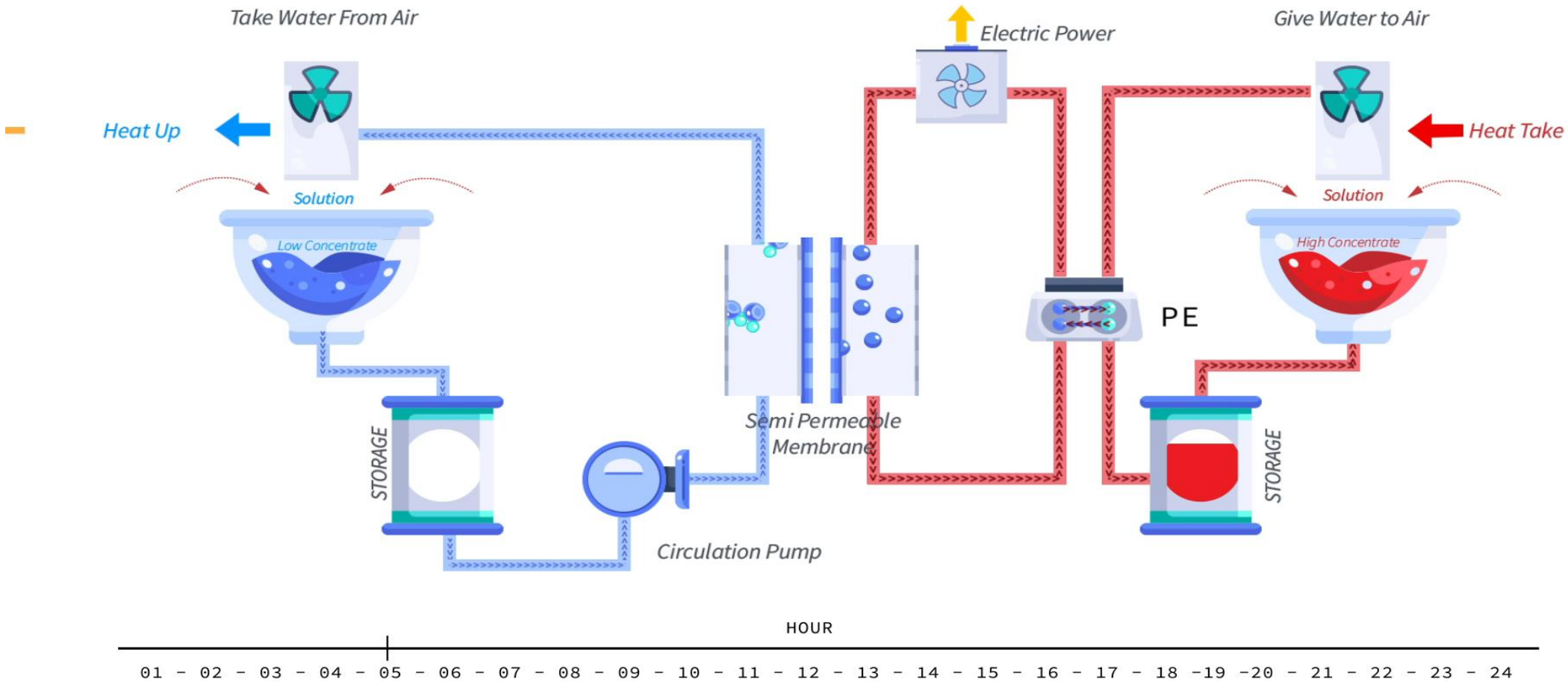


Latent Heat Home Product



Water evaporation extract heat from the air. If you reverse this cycle you can harvest heat from air.

How It Works



ANADOLU SİGORTA



Anadolu Sigorta Genel Müdürlük Binası RePG Solar Energy Application

Technical Specifications:

- Installed Power; 2 kW
- Net Power; 1 kW
- Fluid; Oil
- Inlet Temperature; 85 °C
- Outlet Temperature; 50 °C



ABS Alçı İstanbul RePG Solar Energy Application

Technical Specifications:

- Installed Power; 2 kW
- Net Power; 1 kW
- Fluid; Water
- Inlet Temperature; 85 °C
- Outlet Temperature; 50 °C

* RePG Solar Energy Application converts the thermal energy taken from vacuum tube solar panels into electrical energy and also provides the heat required for heating the buildings.



**Borusan Mannesmann Gemlik Fabrikası
RePG Compressor Application**

Technical Specifications:

- | | |
|-----------------------|----------------|
| - Installed Power; | 6 kW |
| - Net Power; | 4 kW |
| - Heating Fluid; | Compressor Oil |
| - Inlet Temperature; | 95 °C |
| - Outlet Temperature; | 65 °C |



**Alçı Fabrikası
RePG Compressor Application**

Technical Specifications:

- | | |
|-----------------------|----------------|
| - Installed Power; | 4 kW |
| - Net Power; | 2 kW |
| - Heating Fluid; | Compressor Oil |
| - Inlet Temperature; | 90 °C |
| - Outlet Temperature; | 60 °C |

*RePG Compressor Application converts the thermal energy of the hot oil in the oil circuit of the compressors into electrical energy. It provides additional savings by reducing the oil cooling load of the compressors.



İzmir Jeotermal RePG Geothermal Application

Technical Specifications:

- Installed Power; 25 kW
- Net Power; 15 kW
- Heating Fluid; Geothermal Water
- Inlet Temperature; 104 °C
- Outlet Temperature; 85 °C



Umut Otel Jeotermal RePG Geothermal Application

Technical Specifications:

- Installed Power; 75 kW
- Net Power; 50 kW
- Heating Fluid; Geothermal Water
- Inlet Temperature; 115 °C
- Outlet Temperature; 90 °C

*RePG Geothermal Application converts the thermal energy in geothermal into electrical energy.



Haliç Üniversitesi RePG Solar Energy Application

Technical Specifications:

- | | |
|-----------------------|-------|
| - Installed Power; | 2 kW |
| - Net Power; | 1 kW |
| - Heating Fluid; | Oil |
| - Inlet Temperature; | 90 °C |
| - Outlet Temperature; | 50 °C |



Anadolu Hotels RePG Natural Gas Boiler Application

Technical Specifications:

- | | |
|-----------------------|-------|
| - Installed Power; | 10 kW |
| - Net Power; | 6 kW |
| - Heating Fluid; | Water |
| - Inlet Temperature; | 85 °C |
| - Outlet Temperature; | 80 °C |

*RePG Natural Gas Boiler Application generates electrical energy with the heat it provides from the natural gas boiler used in centrally heated buildings, sites and hotels.



RePG Chimney Application

Technical Specifications:

- | | |
|-----------------------|--------|
| - Installed Power; | 25 kW |
| - Net Power; | 15 kW |
| - Heating Fluid; | Water |
| - Inlet Temperature; | 100 °C |
| - Outlet Temperature; | 80 °C |

Limestone Factory



*RePG Chimney Application converts the thermal energy found in the waste heat of the factory chimneys into electrical energy.



Geothermal Site

RePG Chimney Application

Technical Specifications:

- | | |
|-----------------------|--------|
| - Installed Power; | 150 kW |
| - Net Power; | 100 kW |
| - Heating Fluid; | Water |
| - Inlet Temperature; | 120 °C |
| - Outlet Temperature; | 90 °C |

*RePG Geothermal Application converts the thermal energy in geothermal into electrical energy.



Akın Tekstil
RePG Compressör Application

Technical Specifications:

- | | |
|-----------------------|----------------|
| - Installed Power; | 6 kW |
| - Net Power; | 4 kW |
| - Heating Fluid; | Compressör Oil |
| - Inlet Temperature; | 95 °C |
| - Outlet Temperature; | 70 °C |



**Pirelli Prometeon
RePG Flash Steam Application**

Technical Specifications:

- | | |
|-----------------------|-------------|
| - Installed Power; | 40 kW |
| - Net Power; | 25 kW |
| - Heating Fluid; | Flash Steam |
| - Inlet Temperature; | 102 °C |
| - Outlet Temperature; | 90 °C |

Hayat Kimya

RePG Process Water Application

Technical Specifications:

- | | |
|-----------------------|-------|
| - Installed Power; | 75 kW |
| - Net Power; | 49 kW |
| - Heating Fluid; | Water |
| - Inlet Temperature; | 95 °C |
| - Outlet Temperature; | 80 °C |



First Export to Uzbekistan

RePG Steam Application

Technical Specifications:

- Installed Power; 10 kW
- Net Power; 4.2 kW
- Heating Fluid; Water
- Inlet Temperature; 90 °C
- Outlet Temperature; 70 °C



Germany

RePG Process Water Application

Technical Specifications:

- Installed Power; 10 kW
- Net Power; 4.2 kW
- Heating Fluid; Water
- Inlet Temperature; 90 °C
- Outlet Temperature; 70 °C





THANK YOU