ngesolarbox

FOSSIL FUEL-FREE HEAT & ENERGY SYSTEMS

ZERO FUEL, ZERO WASTE, ZERO CARBON

GREENHOUSE HEATING AND VENTILATION SYSTEM WITH SOLAR HEAT PUMP

HEATING AND VENTILATION SYSTEM WITH SOLAR HEAT PUMP

TECHNICAL SPECIFICATIONS OF THE SYSTEM

Our Enge Solar heating units are smarter, more useful, healthier and more profitable than other heating methods. With this system, you can avoid damages of fossil fuels and provide high savings by using an eco-friendly heating system.

With Enge Solar Heat Pumps, you can provide heating and ventilation of the areas by using the desired rate or 100% fresh air.

This solution is not only economical but also extremely beneficial in terms of protecting nature. With their high efficiency and clean energy use, Enge Solar Heat Pumps and Units reduce the energy costs of the areas to be used, while at the same time meeting the heating and ventilation needs without harming the environment.

COMPARISON TABLE

	Enge SolarBox Solar Heat Pump	Solid Fuel Boiler	Air Heater System
Energy Recovery	Yes	N/A	N/A
Amount of Energy Recovery	60-90%	N/A	N/A
Efficiency	100%	60%	75%
Combustion Process	Outside	Outside	Inside
Fire Risk	N/A	Yes	Yes
Ventilation with 100% Fresh Air Usage	Yes	N/A	N/A
CO2 Emission	N/A	Yes	Yes
Environmental Pollution	N/A	Yes	Yes
Maintenance Cost	Low	High	High
Dust and Particle Filter	Yes	N/A	N/A
Expulsion of Dirty Air	Yes	N/A	N/A
Remote Control System	Yes	N/A	N/A
Energy Consumption and Data Monitoring	Yes	N/A	N/A

BENEFITS AND EFFECTS OF SOLAR HEAT PUMP SYSTEMS IN GREENHOUSES

Our systems offer solutions to three basic problems:

HEATING

It provides heating by recovering energy from the sun and waste heat.

VENTILATION

It provides natural ventilation with 100% fresh air by expelling polluted air.

HUMIDITY

It works as a partial humidity balancer and dehumidifier.

- Its plant-safe heating system minimizes losses during the production process. Maintenance and repair costs are very low. It provides safe use for many years as long as periodic maintenance is performed on time.

- In case of improper heating, plant growth and the production of healthy products are hindered. It also has a decreasing effect on the total annual efficiency of greenhouses.

- The plant grown under the right conditions both grows healthy and gives more and better quality products per unit time. Thus,in modern technological greenhouse structures, it is mandatory to keep the indoor environmental conditions at the temperature and humidity values required for the plants to grow and give quality products in all months of the year.

- Conventional systems involve a high labor workload due to cleaning, solid fuel loading and other tasks. There is no cleaning and labor workload in the use of ENGESOLARBOX® products.

BENEFITS AND EFFECTS OF SOLAR HEAT PUMP SYSTEMS IN GREENHOUSES

- Greenhouse heating systems should provide the optimum temperature by taking into account the climatic conditions in which the greenhouses are located.

- In ENGESOLARBOX® Solar Heat Pump systems, heating and ventilation can be performed simultaneously. Therefore, no need for external ventilation.

- While the system is working, it reduces the humidity of the clean air it takes from the outside and expels the dirty and humid air inside. Thus, it balances the air and humidity of the environment.

- With the ENGESOLARBOX® Solar Heat Pump system, there is no need for the axial fans on the walls to work.

- It saves both electricity and fuel.

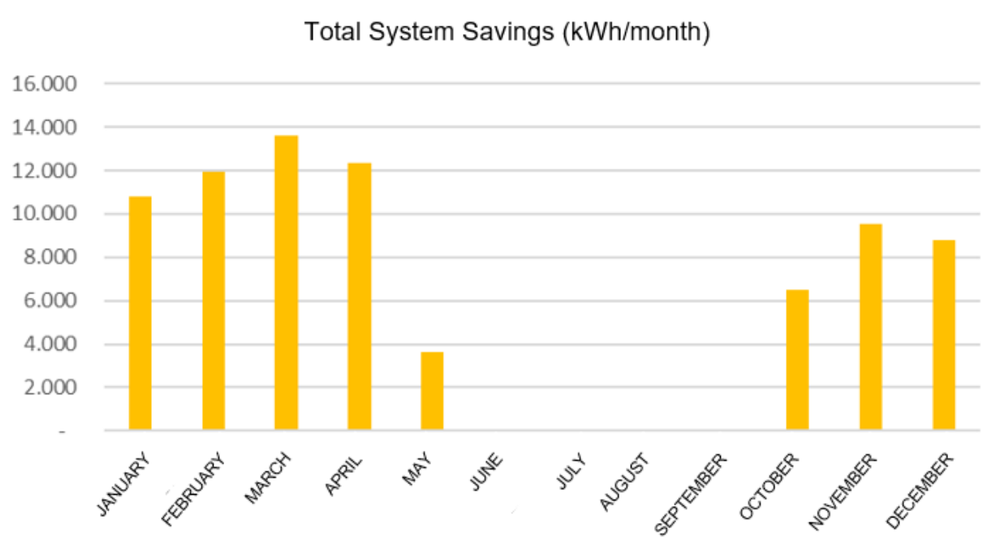
- It reduces carbon emissions and eliminates the factors that cause global warming.

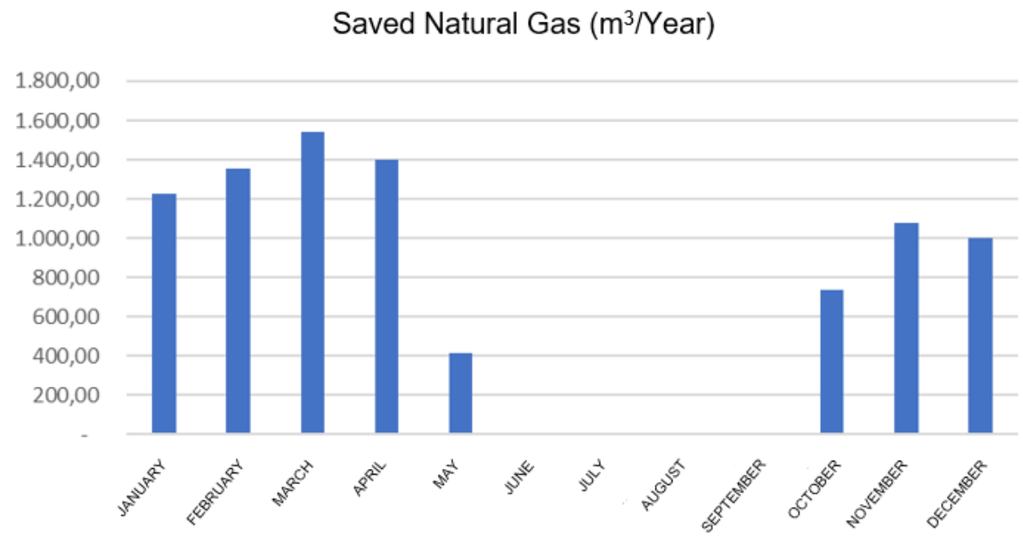
ENERGY EFFICIENCY OF GREENHOUSE HEATING SYSTEM WITH SOLAR HEAT PUMP

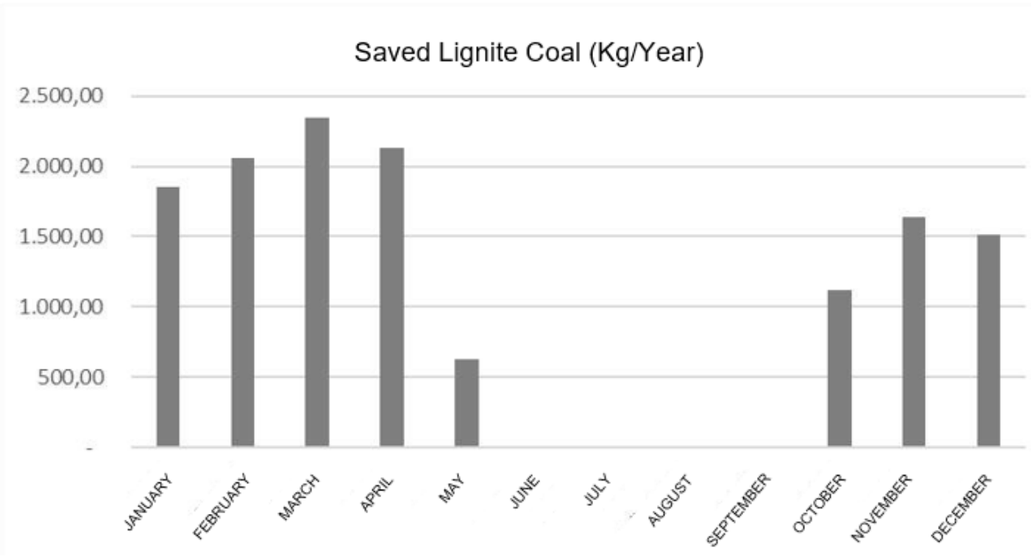
SOLAR HEAT PUMP SYSTEM EFFICIENCY

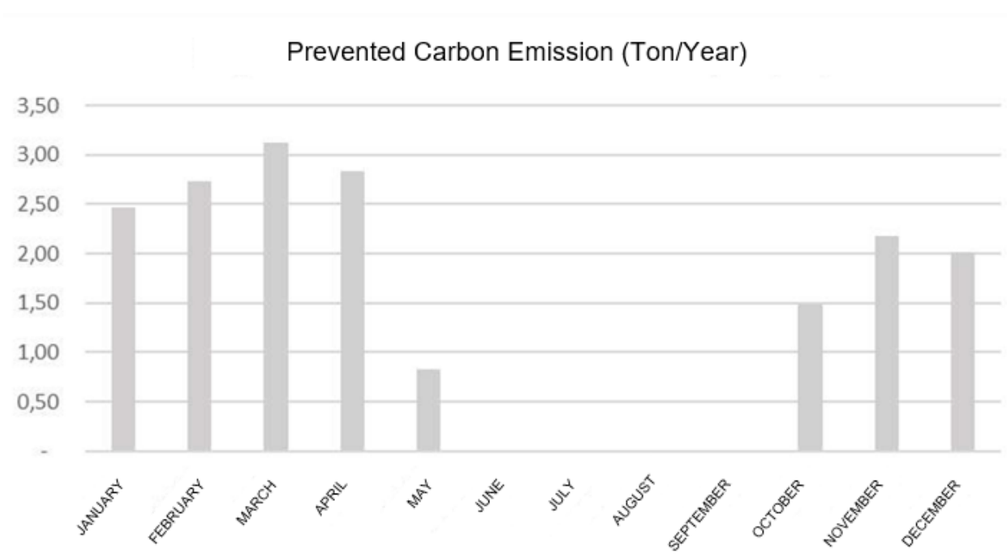
The table below has been prepared based on a flow rate of 7,500 m³/h The calculations were based on the general climate data for Türkiye.

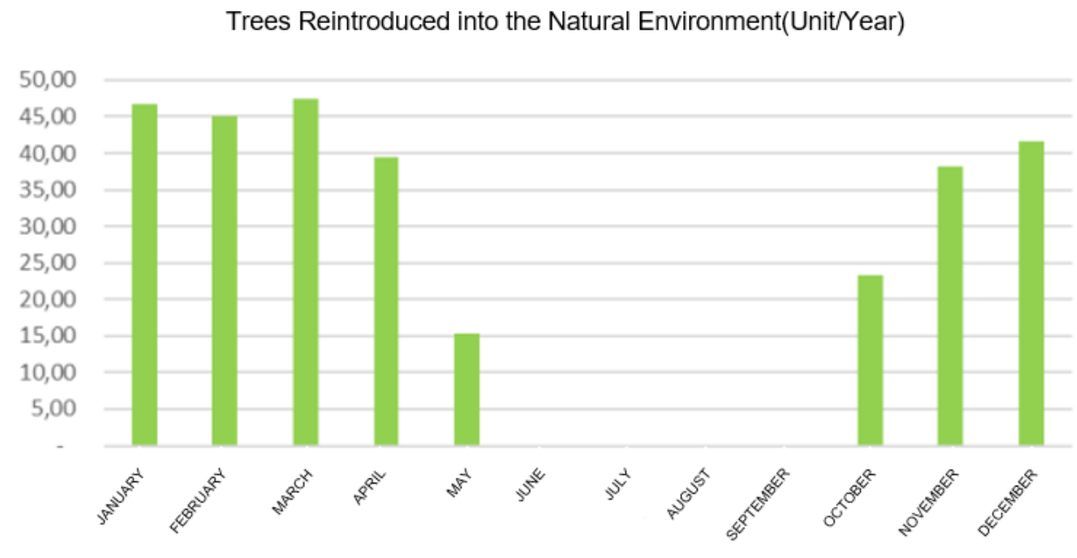
ACROSS TÜRKİYE	Total System Savings (kWh/month)	Saved Natural Gas (m³/Year)	Saved Lignite Coal (kg/Year)	Prevented Carbon Emission (Ton/Year)	Trees Reintroduced into the Natural Environment (Unt./Year)
JANUARY	10.793,48	1.222,98	1.856,48	2,47	5,99
FEBRUARY	11.948,78	1.353,88	2.055,19	2,73	6,64
MARCH	13.625,97	1.543,92	2.343,67	3,12	7,57
APRIL	12.368,51	1.401,44	2.127,38	2,83	6,87
MAY	3.624,40	410,67	623,40	0,83	2,01
JUNE	-	-	-	-	-
JULY	-	-	-	-	-
AUGUST	-	-	-	-	-
SEPTEMBER	-	-	-	-	-
OCTOBER	6.485,78	734,88	1.115,55	1,48	3,60
NOVEMBER	9.518,25	1.078,48	1.637,14	2,18	5,29
DECEMBER	8.808,14	998,02	1.515,00	2,02	4,89
TOTAL	77.173,31	8.744,27	13.273,81	17,66	42,86











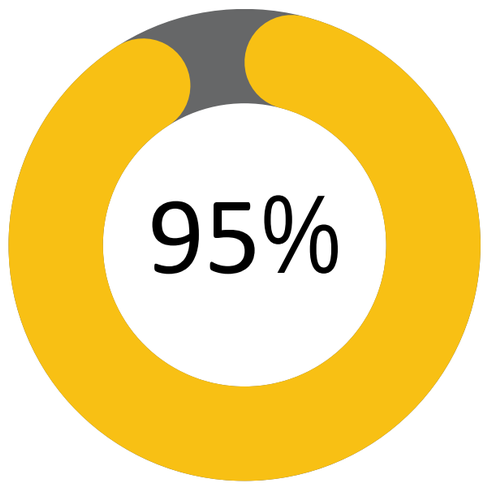
BENEFITS OF GREENHOUSE HEATING AND VENTILATION SYSTEM WITH SOLAR HEAT PUMP

No	Technical Specification	Enge SolarBox
1	Solar Energy Support	Yes
2	Heating Capacity	2-30 kWh
3	100% Fresh Air Usage	Yes
4	Mixed Air Usage	Yes
5	Closed Air Cycle	Yes
6	Waste Energy Recovery	Yes
7	Dust and Particle Filter	Yes
8	Average Power Consumption on Sunny Days (Daytime)	0 kW
9	Average Active Power Consumption	1-10 kWh

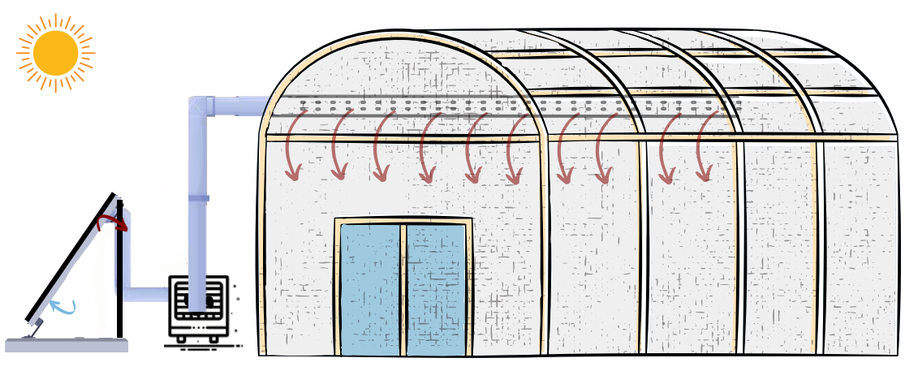
The table below has been prepared based on a flow rate of 7,500 m^3/h.
The calculations were based on the general climate data for Türkiye.

Total System Savings	**€ 3.060/Year**
Trees Saved Per Year	**43 Units**
Prevented CO_2 Emissions Per Year	**18 Tons**

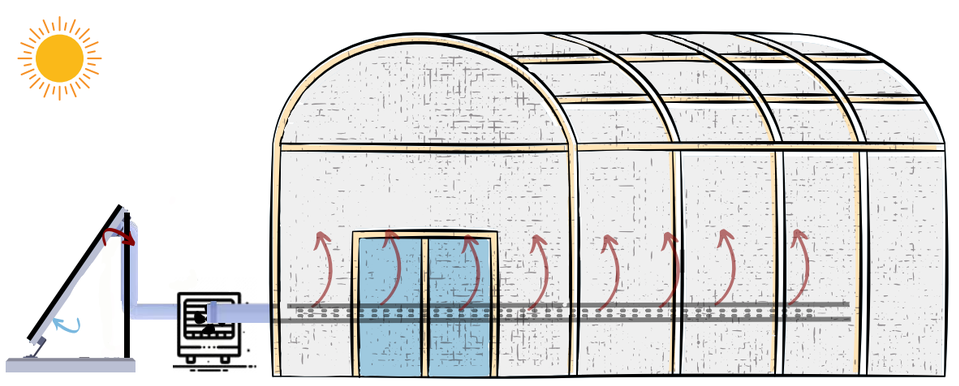
Total System Efficiency



Top-Mounted Greenhouse Heating and Ventilation System



Bottom-Mounted Greenhouse Heating and Ventilation System



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ISI ve ENERJİ SİSTEMLERİ

The ENGESOLARBOX® tracking and monitoring system provides users with access via both web and mobile devices. This allows you to optimize energy consumption, monitor system performance, and adjust settings according to your needs.

ENGESOLARBOX®'s advanced tracking system allows you to monitor how much profit you are making.

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HEAT AND ENERGY SYSTEMS

ENGE ENERJİ ISITMA SOĞUTMA HAVALANDIRMA
SOLAR TEKNOLOJİLERİ SAN. TİC. LTD. ŞTİ.

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