



FOCALSUN GROUP
**Executive
Summary**

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FOCAL SUN

FocalSun is a high-tech solar company producing solar concentrators with total efficiency five times that of solar PV panels.

FocalSun has many years of cumulative experience focused in R&D and manufacturing of highly efficient Solar Thermal Concentrators, with biaxial tracking.

FocalSun has two companies, Sun Gen Srl based in Reggio Emilia, Italy and FocalSun Ltd in Cambridge, UK. The Italian entity, Sun Gen Srl will soon be rebranded FocalSun Srl.

FocalSun Srl is post revenue having successfully installed thermal units in Italy. FocalSun was the winner of a prestigious €1m grant to develop an advanced solar solution.



THE PROBLEM

THE PROBLEM WITH EXISTING SOLAR PV AND THERMAL POWER SOLUTIONS.

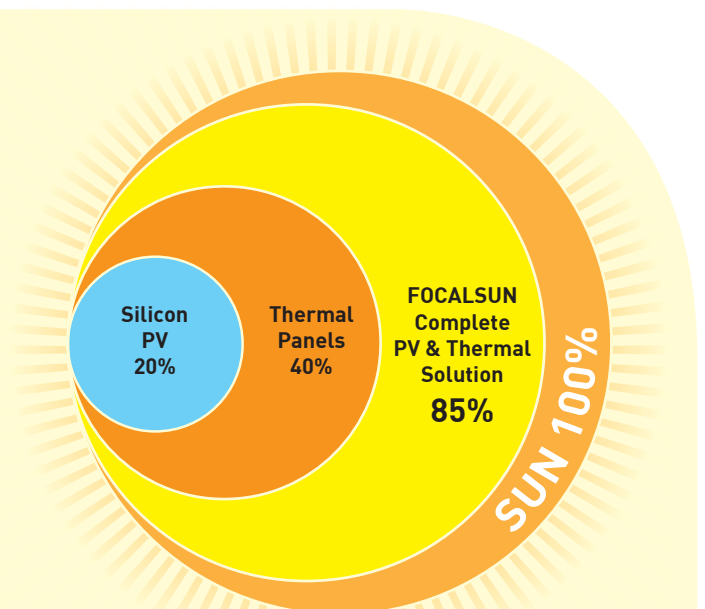
PROBLEMS WITH STANDARD SOLAR PV AND THERMAL	SOLAR CONCENTRATORS ARE EFFICIENT BUT:
Low efficiency: 20% for PV / 40% for thermal	Not available for electric production, only thermal one
Standard Thermal solution is expensive	Negative visual impact, sensitive to strong winds
Negatively impacted from shading and high temperatures	Low productivity of 1-axis concentrators in winter, morning/evening, higher latitudes like Italy
Standard Thermal too heavy to be installed on most industrial roofs	Problematic installation on rooftops due to heavy weight and localized loads

THE SOLUTION

FOCAL SUN'S SUPERIOR SOLAR SOLUTIONS

FocalSun energy solution tracks the movement of the sun and aligns accordingly to give maximum solar output in a day. FocalSun has also been developing a breakthrough novel solar concentrator based on High Concentration Photovoltaic & Thermal (HCPVT) technology capable of producing Combined Heat and Power (CHP) at a cost as low as €0.01 per kWh.

1. Electricity
2. Hot water
3. Air conditioning
4. Generation of Hydrogen





FOCAL SUN'S CORE TECHNOLOGY

FocalSun obtained in January 2018 an international PCT patent on the parabolic cline optical shape used in all FocalSun mirrors. The optic produced an excellent yield greater than 99.5% and a high concentration of 500 times or more.

The optic has very high flow uniformity which is a mandatory requirement for concentration PV applications, such as Concentrator photovoltaics (CPV) and High Concentration Photovoltaic Thermal (HCPVT), as well as high-efficiency thermal applications.

Based on the parabolic cline optic, FocalSun developed two product lines:

1 FOCALHEAT

FocalHeat solar thermal concentrator, large long focus version. The long focus has a 3 x 4.5 meters large mirror with 3.24 meters focal length and height of over 5.5m. FocalHeat has secured the Solar Keymark label and the ISO-9806:2013 certification.

FocalHeat

↓
Thermal Energy
(160°C or 350°C)

86%
ISO Yield

ADVANTAGES:

Extremely high efficiency, up to 86%

Low overall height (← 2.1 meters), thus low visual and wind impact

Uniform weight on roofs, lower than 25 kg per square meter

Elegant design, corrosion proof structure

Possible to upgrade and rejuvenate plants by substituting parts, e.g. mirrors and receiver

Available in a different size to better adapt to the available rooftop area

Low-cost modular design, with small mirrors and standardised parts

2 FOCALGEN

FocalGen solar electric and thermal co-generator. The product is in the final development phase as part of a €1m Horizon 2020 project, in the large long focus version.

FocalGen Cogenerator

↓
Thermal Energy
(up to 100°C)
+
Electric Energy

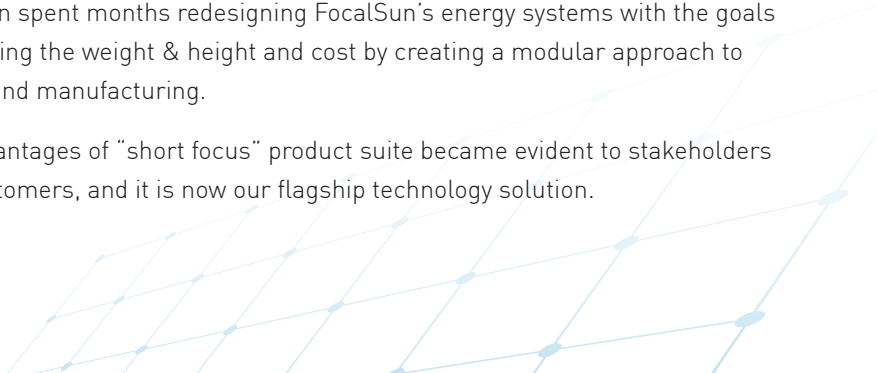
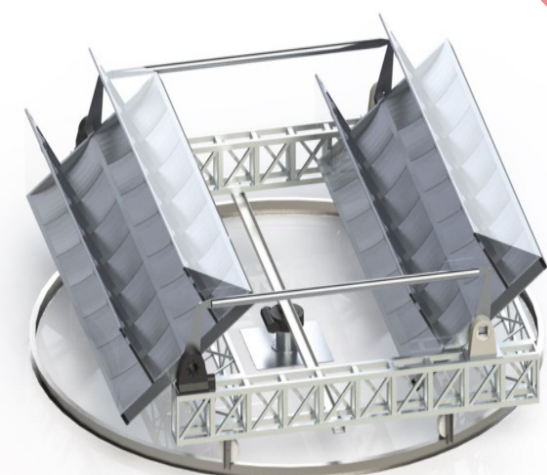
81%
ISO Yield

FOCAL SUN'S SALES AND PRODUCT PILOT

FocalSun successfully sold large long focus FocalHeat units to public schools and public authorities in Italy, providing hot water. However, many potential customers were put off by the large size and weight.

FocalSun spent months redesigning FocalSun's energy systems with the goals of reducing the weight & height and cost by creating a modular approach to design and manufacturing.

The advantages of "short focus" product suite became evident to stakeholders and customers, and it is now our flagship technology solution.



FOCAL SUN'S SHORT FOCUS USP AND FIRST SALE

The FocalGen product can provide more than twice the electric generation as compared to standard PV panels. When combined with thermal generation can produce up to five times the energy of standard panels. FocalSun technology solution can meet the electric generation while also meeting the hot water, heating, air-conditioning and refrigeration needs of the building.

The low weight rooftop energy generation meets the production, social, and environment requirement for companies in both the emerging and developed markets. In addition, for countries such as Italy, there are substantial government incentives to produce solar energy on buildings, with 65% of the capital cost reimbursed.

CVA, an Italian utility company, will pilot the performance of FocalGen on the rooftop in Turin. For this purpose, the utility will fully finance a "pilot plant" with 35 kW electric power, worth €100k.

THE TEAM

Mr Ugo Manfredi, Doctor in Physics (CEO, CTO)

Ugo is the inventor of the parabolic cline concentration optic which is the core of FocalSun solar systems. He held many positions in the ICT and Telecom industry: Software expert in ENI group, co-founder of a software house sold to C&W.

Mr Matteo Del Rio, BSc (CIO)

Matteo has extensive software and ICT skills, used in implementing the control software of the solar plants and the remote-control SCADA functionalities.

Mr Niall Haughian, CFA (CFO)

Niall has a background as a Financial Analyst and Project Manager for Blue Chip banks, such as Credit Suisse. He now provides expertise in finance to start-up companies in renewable energy.



FocalSun's team (from left to right) Matteo, Ugo & Niall

MARKET & BUSINESS MODEL

The PV panel market is valued at \$40B. FocalSun business model is to license our technology and know-how to local manufacturers. The local manufacturers will enter into a license agreement covering certain geographical areas and utilise their existing sales network.

PARTNERS

Enzo Ferrari Engineering Department for structure & weight optimization. Almeco Group to supply low weight robust mirrors. Cambridge Judge Business School for market business analysis. RSE Ricerche Sistema Energetico, to test components and prototypes.

INVESTMENT REQUIRED

The Management team is seeking £100k at a discounted £3m pre-seed valuation to complete the grant project successfully. FocalSun intends to raise seed funding for £400k in June 2019 at a valuation of £5m, to complete developing and certify the short focus technology. The Series A funding round of £1.5m will follow Q1 2020.