Ripasso Concentrated Solar Power

a viable solar energy solution

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Huge potential in solar insolation

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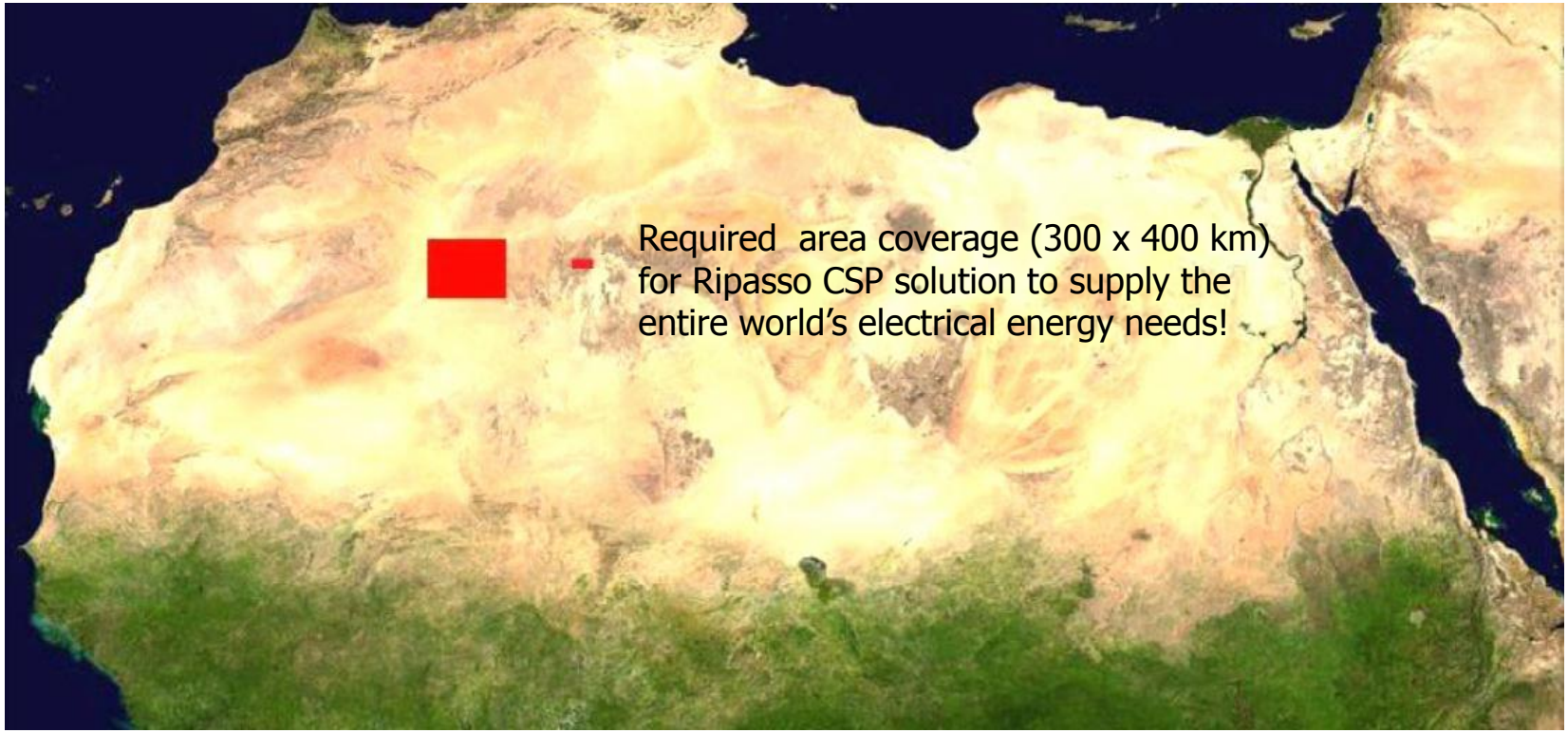
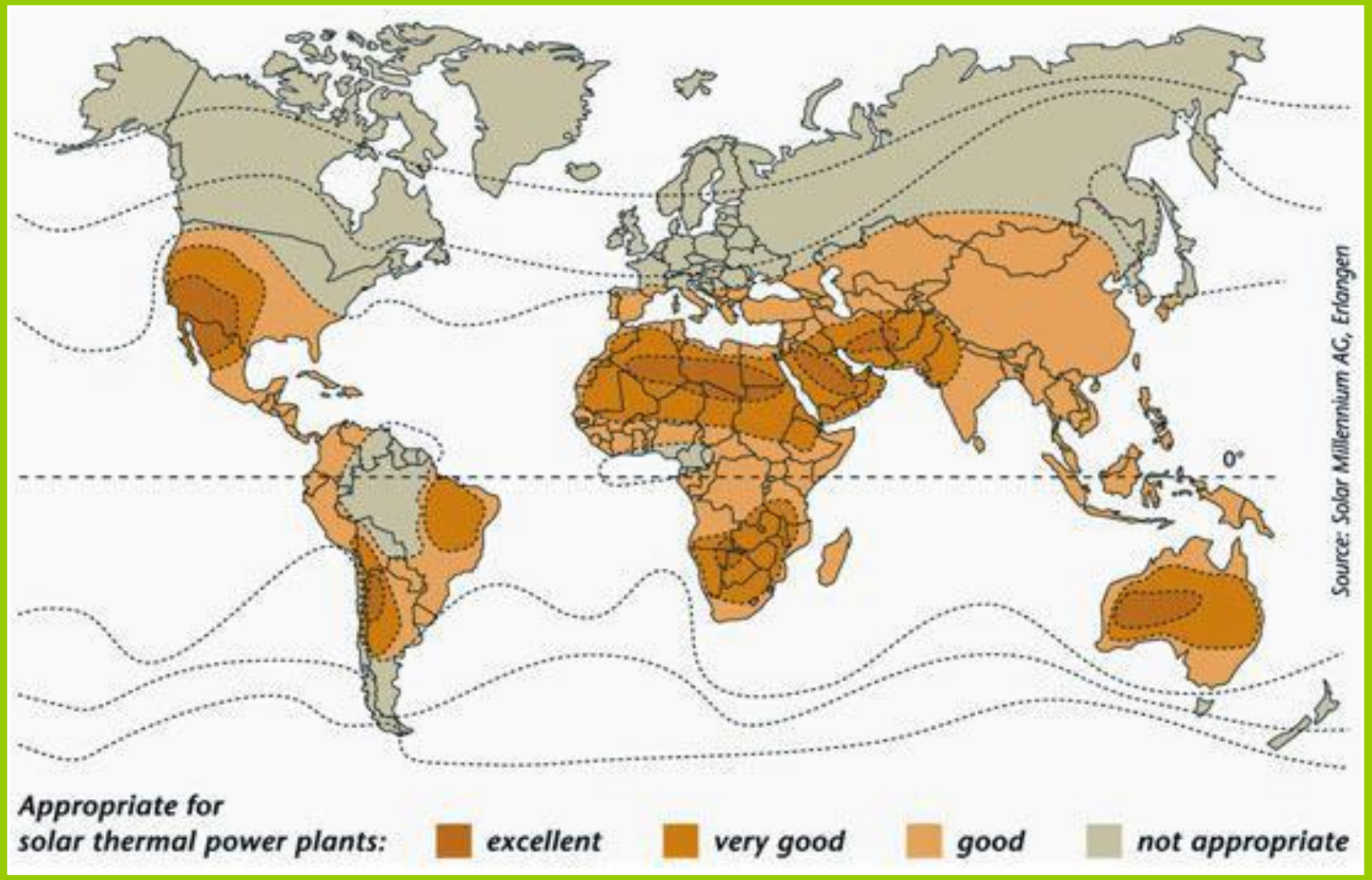


Hypothetically, it would take a surface of 50 times 100 kilometers in the Sahara desert to supply the entire world with electric energy (assuming no conversion losses). The equivalent area when applying Ripasso's technology is 300 times 400 kilometers

Suitable geographical areas



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Unique CSP Technology

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A parabolic shaped mirror focus sun energy into the stirling engine.

The stirling engine converts heat to mechanical movement that drives a generator that yields about 30 kW of grid quality electrical energy.

The most efficient system in the world to convert sunlight to electrical energy!

- **A global Technology License agreement with Kockums AB (world leading stirling engine supplier) enables Ripasso Energy to commercialize the technology for renewable applications**

Concentrated Solar Power (CSP) - a viable solution

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Ripasso's CSP concept

- **Proven technology** – test sites have been in operation in the U.S. since the 1980's
- **Demonstrated peak efficiency** of more than 30%, almost twice the efficiency compared to any other technology
- **No water consumption** during operation
- **Occupies less land** and requires **minimal land preparation**
- **Expedient Roll out**
- Modularity allows for **customized gradual expansion**
- Based on **state of the art technology** licensed by **Kockums**
- **Automotive supply chain**

Ideally suited for volume production and with an outstanding conversion efficiency gives a cost level that can compete with all other current options for generation of electricity

Comparison of Competing Solar Technologies

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		Efficiency	Cost	Flexibility	RollOut	Availability	Maintenance	Water	Maturity	Co_2	Land
Stirling CSP		30%	Low	High	Good	High	Good	Low	Med	Low	Low
Parabolic Troughs		10–15%	Med	Low	Poor	Low	Fair	High	High	High	High
Solar Tower		10–15%	Med	Low	Poor	Med	Fair	High	Med	Low	Med
Photo-voltaic		<10%	High	Med	Fair	High	Good	Med	Med	Med	High

Stirling CSP Demo Plant at Sege Park, Malmö

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- Upgraded from original 1980 design
- Plant operational in Sept 2010
- Output limitations due to dish and latitude
- Power output achieved14 kW (rated 25kW)

Kockums Stirling technology,
further developed by Ripasso Energy

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- Original Stirling engine design - Kockums

- New generation - Ripasso Energy

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Highlights!

RIPASSO
Concentrated Solar Power

- Exceptional modularity and conversion efficiency gives competitive cost
- Key stirling technology and competence
- Proven and reliable market leading technology
- Automotive supply chain:
  - High quality
  - High reliability
  - Low risk