
TSS 4U
SOLID SOLAR SOLUTIONS
www.tss-4u.com
World's most trusted
off-grid solar hybrid solutions


Solar hybrid solutions
Telecom
Oil & Gas
Industrial Microgrids

About TSS

Solar power you can trust

Founded in 2003, TSS has extensive global experience designing and delivering reliable and high performance solar power solutions.

Extreme heat, explosion-proof, wet offshore conditions, off-grid, standalone, hybrid solar power, remote locations?
TSS has you covered … Always.

TSS solar power solutions are designed for reliability and our expertise will keep you up and running, even in the harshest conditions.

We have deployed solar and hybrid off-grid solutions for mission-critical applications including telecom cell towers, oil and gas platforms, water treatment plants and industrial microgrids.

Smart solar design for each application

TSS works closely with each customer to design the right solar power solution to suit the application, location and solar insolation.

- TSS smart design delivers reliability and low operating costs together with high standards on safety, quality and lifetime expectancy
- A dual battery system set-up provides built-in redundancy via our unique controller
- In-house developed components ensure easy system integration, high reliability, and performance
- TSS solar hybrid solutions significantly reduce OPEX and carbon footprint

Professional services

From design to after sales, TSS engages with customers and provides ongoing support and professional services:

- Project management
- Engineering
- After sales advice
- System health checks
- Commissioning
- Training programs
- Remote monitoring
- Installation
- System integration

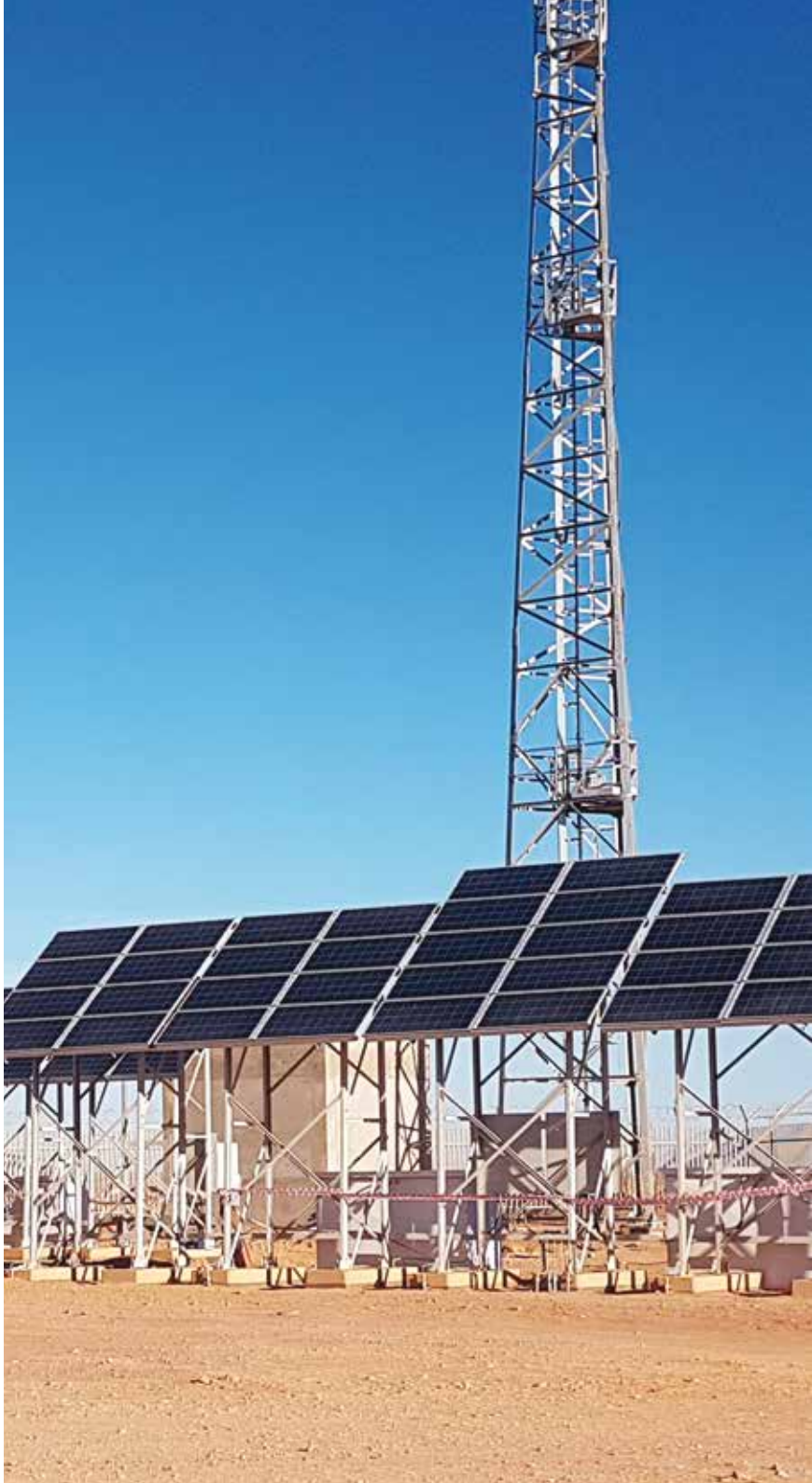
Local partners backed by TSS global expertise

TSS is headquartered in The Netherlands with local offices in United Arab Emirates and Malaysia. We also work together with a network of experienced local partners across the Middle East, Africa and Asia Pacific.

Solar power protection meets rigorous quality standards

TSS is IECEx an ATEX certified worldwide for explosion-proof systems in hazardous areas.

TSS is ISO 9001:2015 certified.



Telecom

Hybrid off-grid solar power for telecom
High reliability and performance
Significant OPEX savings

With the increasing demand for internet access and mobile services globally, telecom operators need to bring connectivity to remote and rural areas without a grid connection. This presents network reliability and performance concerns and puts operators under pressure to control the impact of ongoing high energy costs on bottom line profitability.

There is growing interest in deploying renewable solar power systems to tackle the energy-related costs and operating challenges at remote off-grid telecom sites.

A hybrid off-grid solar power solution maximizes the use of solar power and batteries for energy storage. This boosts overall reliability and performance, while significantly reducing fuel expenses and transportation costs, together with CO_2 emissions.

TSS hybrid off-grid solar solution

The TSS hybrid off-grid solar solution combines solar, and any other renewable energy source, with energy storage batteries. The hybrid system also supports the integration of a diesel generator as back-up. A hybrid controller optimizes the dispatch of energy resources, allowing the system to maximize renewable energy usage and storage, while minimizing fossil fuel costs.

Optimizing battery charging and minimizing diesel generator runtime together greatly reduces fuel consumption and refueling costs, as well as the frequency of costly on-site visits for maintenance and upgrades.

TSS focus on designing solar solutions with high reliability and performance in remote and off-grid areas

- TSS hybrid off-grid solar solutions are designed and tested for ultra-reliability and energy efficiency, including our in-house engineered charge controller and advanced battery management

- We focus on ease of operation, our systems are designed to operate independently and reliably for prolonged periods in extreme conditions

Key Benefits:

- Minimizes OPEX and CO_2 footprint
- Diesel generator runtime reduction of 80% or better
- Refueling and maintenance interval 6 months or better
- Energy efficient – no cooling of batteries and controllers required

Oil & Gas

Solar power specialists
Engineered for resiliency
IECEx and ATEX certified

TSS understands the challenges of running critical oil and gas applications in remote off-grid locations and we focus solely on designing solar power systems that run reliably in extreme conditions.

For the past 15 years, TSS has delivered solar power solutions to clients in the oil and gas industry in the Middle East and Africa, as well as offshore locations in the North Sea.

The world's largest EPC contractors, e.g., Petrofac, Technip, L&T, Dodsal, Tecnicas Reunidas, Samsung and JGC, trust TSS to design and build solar solutions for oil and gas companies such as Adnoc, Shell, Total, Pertamina, KOC, PDO and Petronas.

TSS solar solutions power critical applications

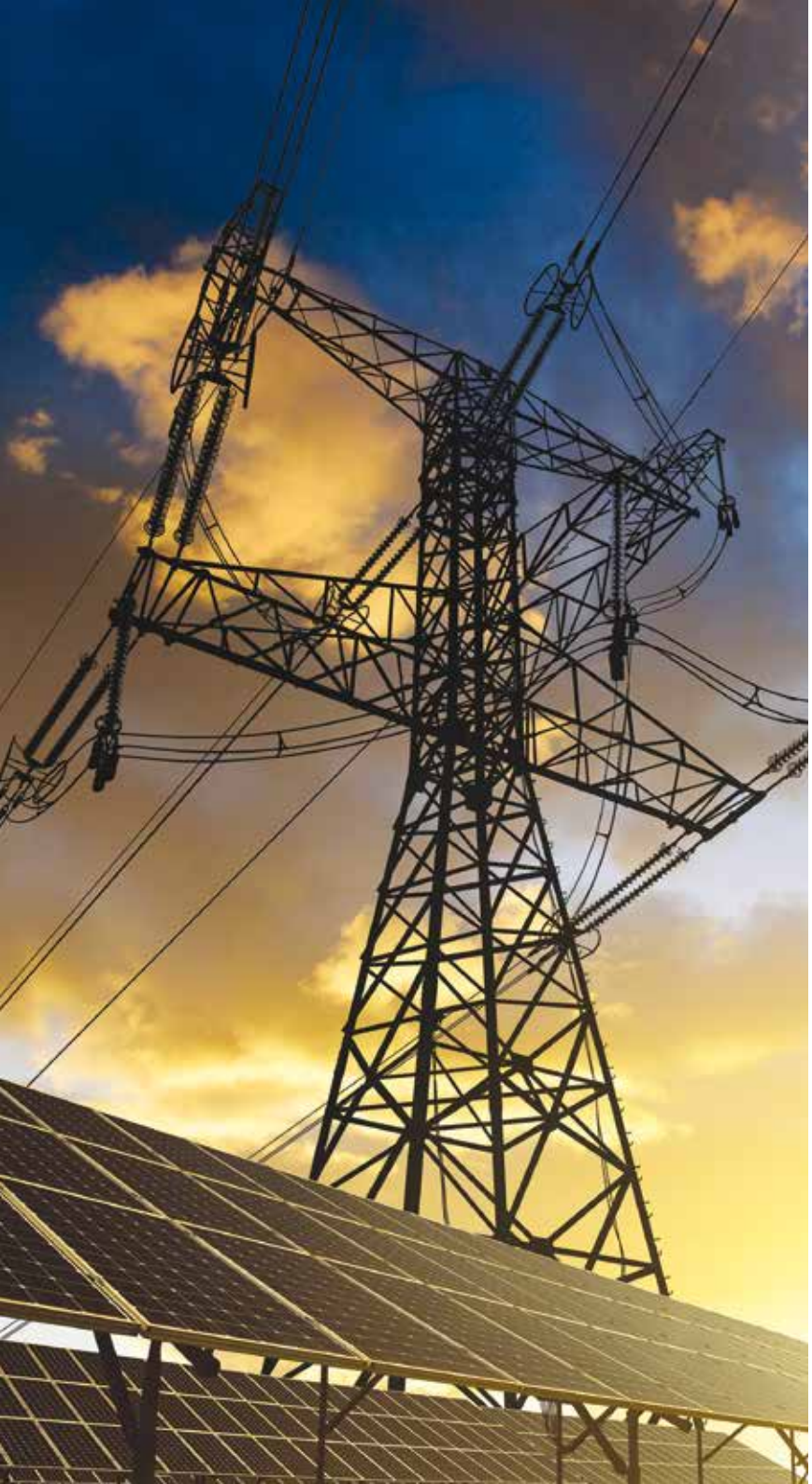
- Well head control panels
- SCADA
- Cathodic protection systems
- RTU
- Chemical injection systems
- Offshore platforms

Benefits of working with TSS

We customize solar power solutions to suit your location, energy availability and operational needs. We focus on lowering your operating costs and designing systems that are highly reliable and also easy to integrate and support remotely.

Our smart design charge controller uses components that can operate in high temperatures of up to 85ºC. The solar system has a unique dual system with built-in redundancy. Even if you shut down half the system, you will still retain 100% of the power to keep you going... Always.

- Efficient CAPEX – TSS systems are resilient with a life expectancy of 20 years or more
- Unique in-house R&D keeps your power running in extreme conditions
- Our skilled engineers have practical industry experience to support your applications
- IECEx and ATEX worldwide certified for explosion-proof systems in hazardous areas.



Industrial Microgrids

TSS solar hybrid microgrid solutions
Reliable power supply for industry
Minimizes OPEX and CO_2 footprint

In rapidly developing countries, electricity supply from the grid is often insufficient resulting in frequent power outages that have a negative economic impact on the business sector. Industrial manufacturers that rely on a stable power supply for critical applications often make use of diesel generators as a back-up to keep operations up and running.

Solar hybrid microgrids offer a more sustainable and reliable distributed energy system that is easy to operate and maintain, while improving energy availability, Levelized Costs of Energy (LCOE) and CO_2 footprint.

Besides reducing a factory's carbon footprint, solar hybrid microgrids are a great way to reduce costs for diesel and grid electricity e.g., during peak hours, and at the same time increase energy reliability in a sustainable way.

Solar hybrid microgrids compare very favorably with microgrids based solely on fossil fuels. Despite relatively low initial investment costs, microgrids that depend on fossil fuels have downsides including high CO_2 emissions, exposure to high fuel price volatility, as well as ongoing operation and maintenance costs. Transporting diesel also poses logistics risks in certain locations.

TSS solar hybrid systems for industrial applications

The TSS solar hybrid system for commercial and industrial manufacturers optimizes usage of renewable solar energy and a battery energy storage facility, together with factory diesel generators and utility power from the grid. This increases the power supply reliability in a sustainable way.

Key Benefits:

- Reduces LCOE and diesel fuel and utility electricity costs
- Minimizes OPEX and CO_2 footprint
- Improves air quality and reduces noise pollution
- Increases availability and reliability of power supply
- Maximizes operational performance and profitability

Hybrid system

TSS hybrid solar power systems
Reduce carbon footprint
Energy security at lower costs

Hybrid power systems combine one or more sources of electricity generation together with a battery storage system and hybrid power controller, distributing uninterrupted power 24/7 and optimizing energy costs.

The hybrid set up also scales to provide extra power during peak hours to handle the increased load. This makes it well suited for mission critical applications that are remote and off-grid or connected to an unreliable utility grid.

Increasing demand for energy and the risks of harmful emissions has sparked a global shift towards cleaner energy. Making use of renewable solar energy and battery storage in a hybrid system reduces the air pollution, noise and costs associated with diesel fuel generators.

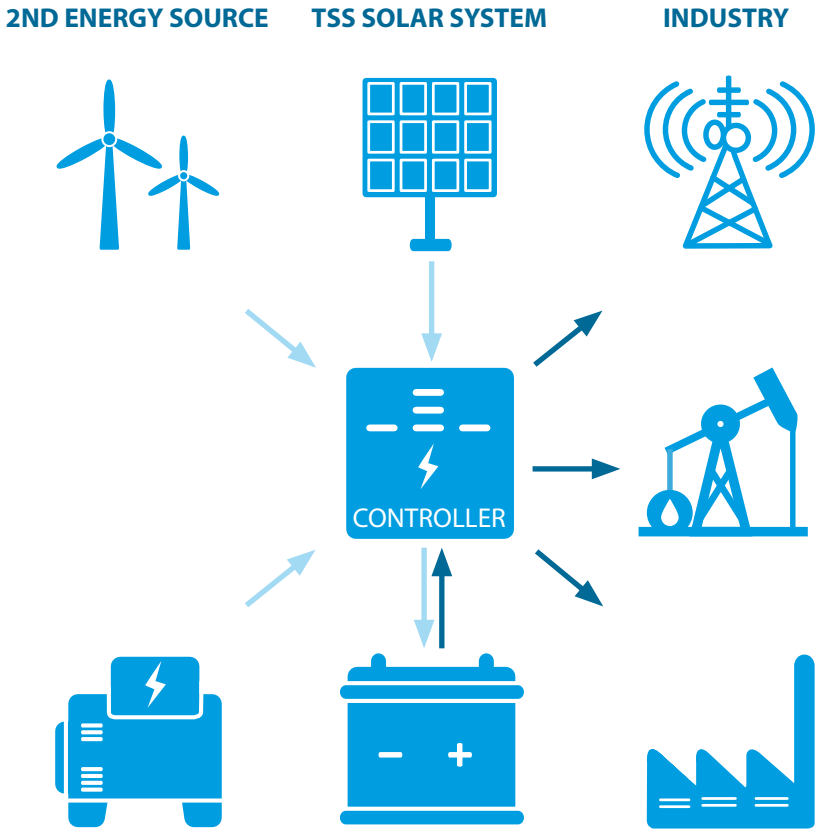
TSS hybrid solar power systems are tailored for the application and deliver outstanding reliability, performance, durability and unrivalled energy efficiency even in the harshest environments.

Advantages of the TSS hybrid solar power system:

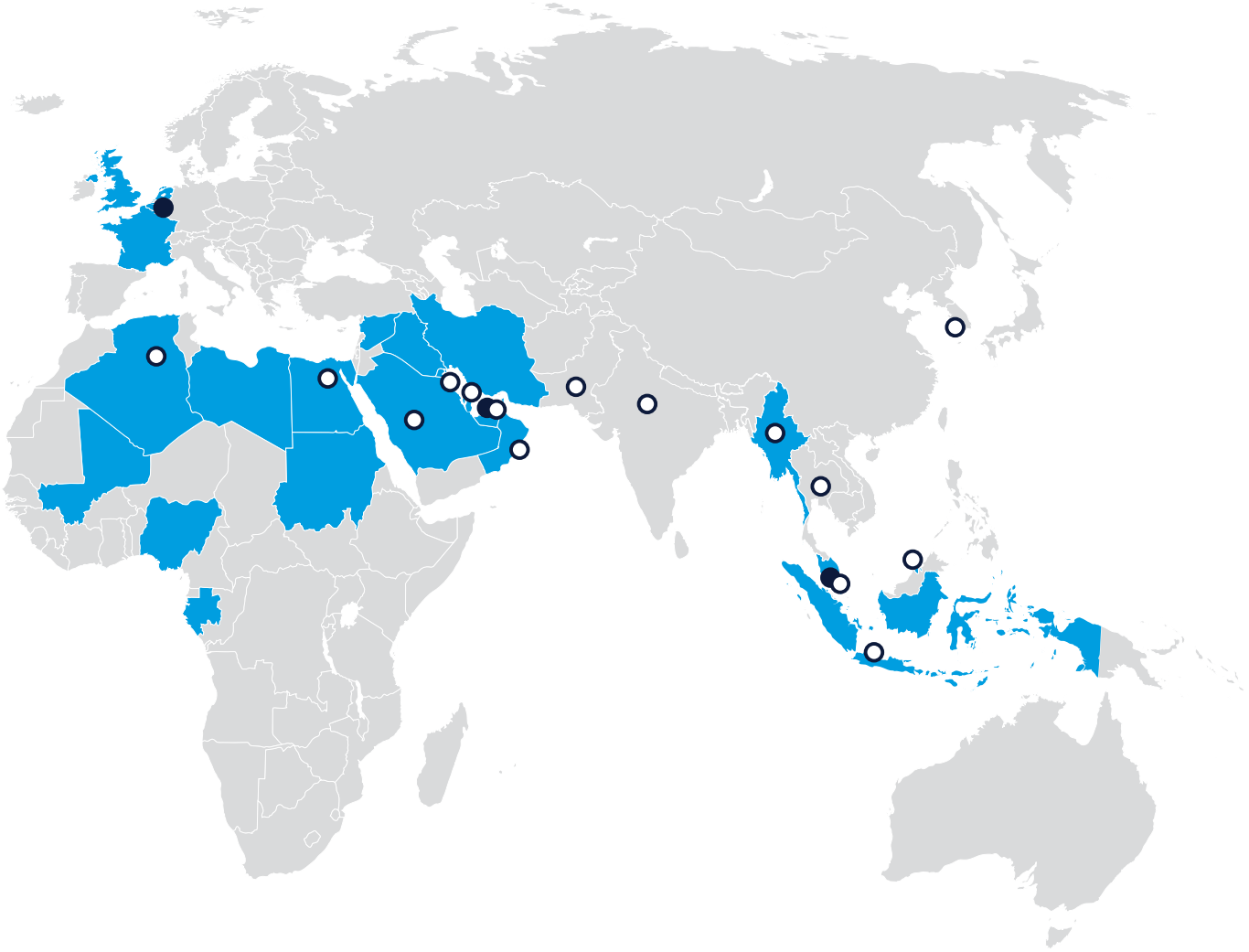
- Specialist experience and smart design based on in-house developed components, e.g., the TSS charge controller.
- Energy efficiency of 99.75% and high reliability based on the multi-array input which eliminates a single all-or-nothing connection.
- Battery management is optimized for each specific application and load profile which reduces the number of cycles increasing the lifetime of your batteries.

Key benefits

- 24/7 Uninterrupted energy supply
- Lower OPEX and reduced maintenance schedule
- Reduced diesel fuel consumption and CO_2 emissions
- Reduced air and noise pollution
- Modular design allows for future expansion to support increased loads
- Integrates with existing off-grid and industrial microgrid applications



You'll keep going...
Always



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