



## Nokia ConnectSite 10™ Solution supported by Naps Solar Power Systems



GSM users have greater demand for network coverage in remote areas than ever before. Operators are asking for low investment, high quality and wider coverage network construction in rural villages. In those areas where electric power infrastructure is lacking or the grid is not stable, solar electricity technology, featuring exceptional reliability and flexibility, is becoming an ideal choice for power supply.

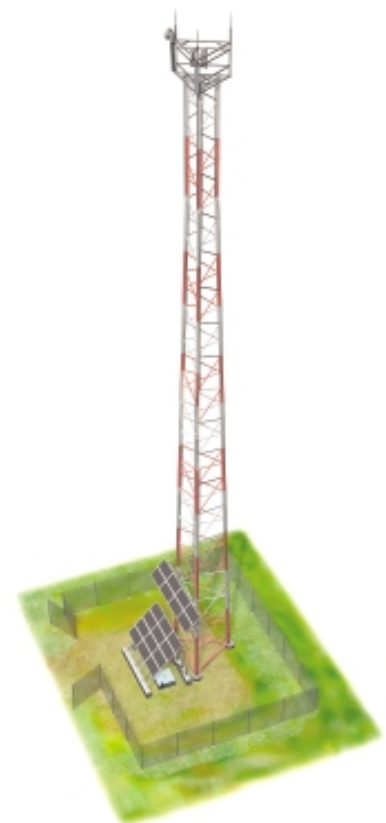
Naps Systems Group is a world-leading solar power system house that provides customized and meticulously designed top-quality solar electricity system solutions for a variety of telecom applications, including GSM telecommunication base stations, repeater stations, microwave links, satellite communications, etc.

Naps has delivered more than 200,000 solar electricity systems to more than 50 countries. Naps is an ISO9001:2000 certified company.

Tailor-made Nokia-Naps solution brings many benefits with value-added features for customer's GSM and also WCDMA applications. The system consists of Nokia's state-of-the-art equipment for mobile telecommunication.

### Nokia-Naps solution features:

- Specially designed for the Nokia rural sites
- Great flexibility in selecting site locations, not limited by the distance to grid
- Suitable for variety of installations, e.g. on guyed towers, concrete mast, wood, etc.
- No need for dedicated equipment room
- Modular design to cope with different power needs
- High reliability and very long lifetime
- Low initial investment and minimum operation and maintenance cost
- Environmentally friendly



## System description

The solar system is an operational stand-alone power system that mainly consists of Naps solar modules, intelligent control units and back-up batteries.

The solar arrays provide needed power to the load and at the same time charge the battery during daytime; the battery will discharge to power the load during night time.

The system will be customized according to the power and characteristics of the load, irradiance and environmental conditions of the site, as well as reliability requirements in order to ensure non-interrupted and stable operation of the load and extend the battery lifetime.



### Solar Array

Naps comprehensive range of high efficiency solar modules combine power, efficiency and quality construction in highly dependable solar generators.

- Especially designed for telecom applications, suitable for 24V, 48V communication equipment
- Higher energy conversion efficiency
- High reliability and long lifetime
- Modular design to allow flexible configuration
- Fast installation, maintenance free
- Certified to IEC61215 and TUV standards
- Able to withstand extremes of weather conditions, e.g. temperature, humidity, strong wind and hail impact
- 25 years warranty
- Low self power consumption
- RS485 communication
- LED indication for system status, optional remote display monitoring unit



### Controller

Naps NCC11 series controller is the brain that keeps the entire system running safely. It optimizes battery lifetime by controlling its charging and by preventing excessive discharging, thus ensuring continuous and stable operation of load equipment.

- Highest design standards, highly reliable with MTBF>500,000hrs
- Cassette type modular mechanical construction, convenient for testing and maintenance
- Compliance with 89/336/EEC (EMC)
- Enclosure protection class IP55
- Smart temperature compensation



### Battery

The 2volt single cell sealed (valve-regulated) tubular plate lead acid battery with gelled electrolyte are specially designed for solar applications, an optimal back-up solution for communication systems in remote areas.

- Tubular positive plate to achieve excellent corrosion resistance and cycling capability
- Very good recovery capability from discharge
- Higher and stable capacity over entire lifetime
- Safe operation and maintenance free
- Operating temperature range of -20°C to +55°C degrees
- Design lifetime is approximately 20 years
- Comply to IEC 896, DIN 40 742 and VDE 0510

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