WIRELESS
BASE STATIONS

MEET THE COST AND CARBON CHALLENGE

WITH eco px HYBRID POWER SOLUTIONS

AEG
POWER SOLUTIONS

TELECOM POWER SOLUTIONS FOR AN ECO-CONSCIOUS WORLD

The telecom division of AEG Power Solutions, delivers a steady stream of innovative products and services tuned to customers' changing needs. Building on six decades of expertise and customer service, we offer a full range of premium DC systems for telecom and power supplies designed to meet the challenges of an increasingly environmentally-conscious world.

AEG Power solutions telecom experience is built upon the heritage of Saft Power Systems, Harmer & Simmons and Alcatel Converters which have been integrated in our group.

eco^{PX} Hybrid System

The cost and carbon challenge for wireless base stations

Communications Service Providers continue to expand their network coverage into rural and remote areas lacking access to reliable electrical grid power. These base station sites are traditionally powered by diesel generators.

An estimated more than 460,000 diesel-powered base stations operate around the world today, with the number expected to grow significantly over the next four years. Diesel fuel consumption and generator management present significant OPEX challenges to network operators. They can even make the difference between profit and loss in low ARPU markets.

Diesel generators are:

- **Costly to operate:** A diesel genset typically accounts for 35% of the total operating cost of a wireless base station (BTS), including skyrocketing fuel and expensive on-site maintenance costs
- **Inefficient:** Gensets usually run at only 20-25% of their load; this is inefficient, inducing frequent maintenance and high fuel consumption. One result is that genset lifespans are inevitably shorter than manufacturer specs
- **Unreliable:** Genset failures are responsible for a whopping 65% of BTS outages
- **Environmentally unfriendly:** Gensets burn fossil fuel and emit high volumes of CO_2 as well as noise and odors

WIRELESS BASE STATIONS

The AEG PS ecopx hybrid power solution combines renewable solar or wind energy with battery storage and, if needed, a stand-by, diesel generator. The result is an innovative, highly-reliable solution that optimizes the entire energy system.

Reduce costs & energy consumption, increase reliability

The ecopx hybrid power solution delivers a world of benefits for your network:

- Use any combination of diesel, solar and wind power sources
- A single controller (ACMi1000e) manages the power solution end-to-end, seamlessly selecting the appropriate source
- The flexible, modular solution can easily adapt as your needs evolve
- Innovative, autonomous redundancy enhances reliability and site availability
- MPPT-enabled solar converters maximize solar energy production and protect your PV investment
- High temperature-rated components avoid the need for special cooling
- Innovative, embedded N+1 redundancy means that, just like standard telecom power systems, a single-event fault will not compromise system performance or availability. In the unlikely event of a component failure, the controller identifies the failed component, isolates the failure and flags an alarm. There is no impact on revenue generation and you choose when to schedule a service visit

Powerful ecopx controller manages all energy sources to maximize production & minimize consumption

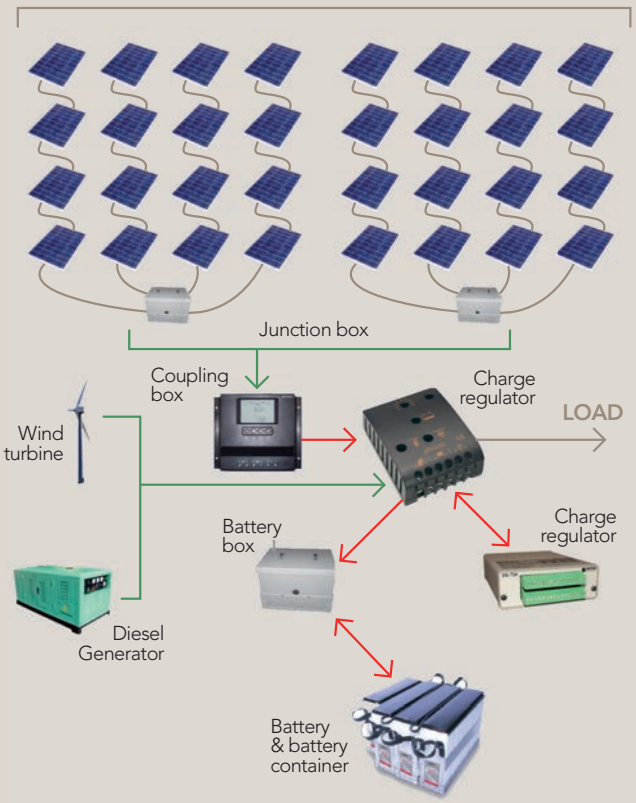
- Intelligent diesel generator management reduces fuel consumption by 50% or more in generator/battery hybrid configurations by operating the generator for short periods at optimum load to charge the battery. The results include reduced fuel consumption, less frequent servicing and prolonged generator lifetime - all of which help further reduce OPEX
- A single controller manages the complete power solution, seamlessly selecting the appropriate power source for lowest OPEX
- By constantly monitoring load demand and battery charge, the controller eliminates unneeded energy production during low traffic periods
- Wini1000e Manager provides remote monitoring, control and system optimization

Smart diesel genset usage means lower fuel consumption ... longer maintenance intervals ... longer genset life

Smart battery management lowers maintenance costs & extends battery life:

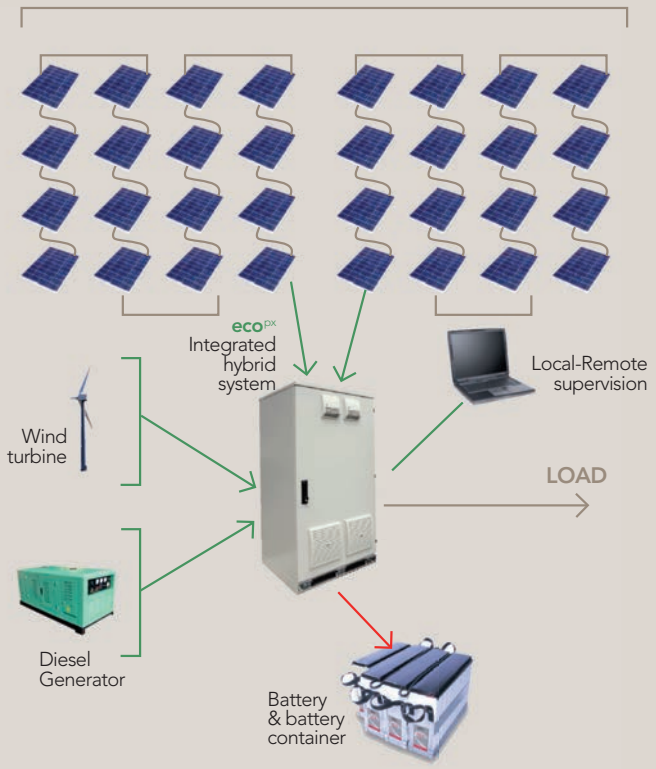
- Battery charge rate optimised according to discharge history
- Extended maintenance intervals
- Battery life extended by up to 25%

TRADITIONAL SOLAR SOLUTION



Traditionnal Regulator systems process only one type of power source. They are an assembly of heterogeneous products which makes hybrid very complex and requires many options. The cabling is also very complex (large cable sections, junction boxes, coupling boxes, egulators… are required). The system has no redundancy.

ecopx NEW HYBRID TELECOM ARCHITECTURE



The ecopx solution manages network site power from end-to-end: from energy generation to energy storage, load surveillance and remote management. ecopx offers unmatched OPEX, security and reliability benefits.

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Compare Our ecopx Solution

- As a telecom power expert, AEG PS offers an integrated solution, designed and backed by more than six decades of telecom expertise
- Our solutions are specifically designed for use in hybrid telecom systems - in autonomous, remote off-grid systems and grid-connected configurations
- Our specialists will optimize the sizing of each power source to provide the best balance of system (BOS) equipment for each site
- Find a complete solution for all your needs; consulting, system design, products, installation and maintenance

Be ready

With our off-grid and grid-connected hybrid solutions, optimized cost of ownership, network design/build and sophisticated data acquisition expertise, you're ready for the migration to distributed generation and smart grid energy for your telecom network

WIRELESS BASE STATIONS

Turn to a Telecom Power Expert for a Reliable Solution

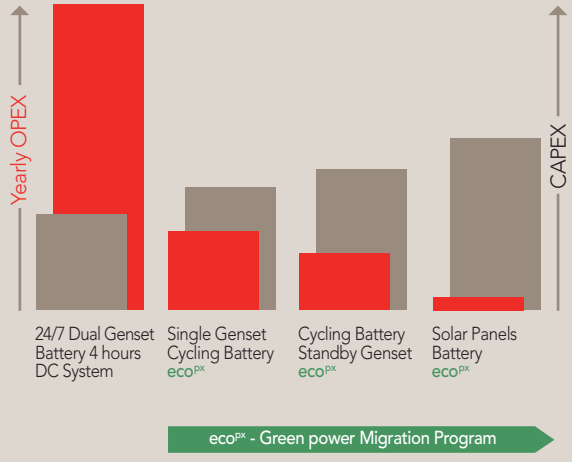
Environmentally-sound power solutions, combining renewable energy sources with back-up batteries, enable network operators to lower costs by reducing reliance on diesel gensets.

- Reduce operating costs by selecting the best hybrid combination for each base station site
- Grow revenues and profit margins
- Expand your customer base through reliable network coverage extension
- Improve ARPU and customer loyalty by improving network service and reliability
- Benefit from a rapid return on investment
- Reduce your carbon footprint while supporting Corporate Social Responsibility initiatives and enhancing brand value.

Hybrid eco^{px} program Complete turn-key integrated solution

- Integrated hybrid solution
- Selection and engineering of all power elements (panels, genset, wind turbine, batteries)
- Installation
- Commissioning and site acceptance
- Training
- Maintenance
- Factory repairs
- Spares
- Industrial partnerships

eco^{px}: Flexible Hybrid Migration Road Map



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For more information or to contact us,
please visit our website:

www.aegps.com

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