



THE ENERGY MANAGEMENT COMPANY

Kuopio 19.11.2015

NEPAL ROOF TOP

CITY OF KATMANDU

27° 42' 3" N 85° 18' 1" E

CHALLENGE:

- Power cuts up to 16 hours per day
- Telecom sites powered by diesel generators and traditional batteries
- Even 1500 kg batteries on rooftops in high risk earthquake area
- Using diesel generators is costly , noisy and causes high carbon emissions in city environment
- Traditional batteries need to be replaced bi-annually
- Telecom operator's operating expenses high and network availability relative low

AZERBAIJAN RURAL SITE

AZERBAIJAN, AGUSE

39° 11' 53" N 48° 19' 39" E

CHALLENGE:

- Unstable grid is causing power cuts, low voltages and missing phases
- Extreme weather conditions with temperatures from – 20 to + 40 are effecting the life time of traditional batteries
- Diesel generators running 7-12 hours per day requiring continuous fuelling and maintenance
- Isolated remote sites are difficult to maintain – in winter time some sites can not be accessed at all
- High operating expenses and occasionally low network quality



OUR SOLUTION

Old power systems replaced by BluES Advanced Energy Systems with remote monitoring features

Benefits

- No need for diesel generators
- No need for battery replacement in next 7-10 years
- Total weight less than 300 kg
- No need for air-conditioning
- Maintenance free operation
- Easy logistics due to low weight and small size
- Environment friendly and silent

Energy related OPEX saving as high as 80%

- Note: Typical tower site energy costs as high as 40 % of overall network OPEX (GSMA Tower Power Africa, Sep 2014)



SOLUTION FOR DEMANDING CONDITIONS



- Unreliable grid
- Extreme weather
- Challenging logistics

BluES™ cost effective and sustainable solution for demanding conditions

ENERGY MANAGEMENT PORTFOLIO





ENERGY MANAGEMENT PORTFOLIO

INTELLIGENT ENERGY SYSTEMS

- Compact or modular energy systems, based on latest modern Lithium-Ion battery technology
- Environmental friendly and lowest total cost of ownership

REMOTE MANAGEMENT

- Real-time energy and alarm data monitoring and control
- Reporting based on history data of energy consumption and trends

ENERGY CONSULTING

- Energy audit, site surveys and total cost of ownership estimates
- Energy System optimisation, monitoring and reporting

REPORTING AND O&M INTEGRATION

- Energy related analysis and data mining for investment planning and resource planning
- Secure VPN based base station network with energy data server for integration

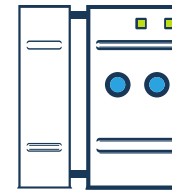
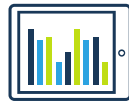
BLUES ENERGY MANAGEMENT SOLUTION

BluES™ Remote Management

Site Energy Dashboard and UI for Operations & Maintenance

Reporting and history data analysis

RMS Data Base



Telecom Operator Network



Operation & Maintenance Systems





OUR STRATEGY

**CLEAR DIFFERENTIATION STRATEGY,
SIMILAR TO BLUE OCEAN**

**VALUE PROPOSITION BASED ON
TOTAL COST OF OWNERSHIP**

**IMPROVE CUSTOMER'S
ENERGY AVAILABILITY**

**MARKET DRIVEN R&D (REMOTE
MANAGEMENT, MODULAR SYSTEM
DESIGN, DATA MINING...)**

**SCALABILITY BY PARTNERING
AND OUTSOURCING**

CUSTOMERS AND TARGET MARKETS



NEPAL

- Ncell



PAKISTAN

- Warid Telecom



MYANMAR

- KSGM (KDDI, Sumitomo, MPT)



AZERBAIJAN

- Azercell



FINLAND

- Finnish Transport Agency



The background is a dark, blue-tinted aerial photograph of a city at night, showing numerous illuminated buildings and streets. At the bottom of the image, there is a decorative horizontal bar composed of a grid of small, light blue squares, some of which are missing, creating a pixelated or bar chart-like effect.

THANK YOU!

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