MOBILE LIGHTING TOWER FLEET MANAGEMENT

1. The Challenge

Popa supplies temporary lighting towers across the Netherlands and Europe for construction projects, roadworks, events, emergency services and security applications. With towers frequently deployed to changing locations, fleet visibility and operational efficiency are essential.

Figure 1 - POPA lighting towers in action

Without remote monitoring, determining the location, operating status or fuel level of a lighting tower requires manual inspection or customer contact. Unexpected outages, low fuel and unnecessary service visits increase operating costs and can affect customer satisfaction.

Popa's newest towers are hybrid units, combining a diesel generator with a battery pack so that lights can run silently fuel-free and CO2 reduction all night long. Getting the most out of this hybrid design requires more than visibility alone: the generator must run at the right moments to keep the battery charged, without running longer than necessary. Popa required a telemetry solution that would provide real-time visibility of every lighting tower, actively manage the hybrid charging cycle, and integrate with their existing business systems.

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2. The Solution

Working with Techno Gamma, Senquip telemetry was integrated into Popa's lighting towers to provide continuous visibility, remote management and intelligent hybrid control of every asset.

The system monitors:

- GPS location
- Engine operating hours
- Fuel level
- Battery voltage
- Generator status
- Lighting operation
- Generator and controller alarms

Using the Senquip Portal, operators can remotely switch individual lighting towers or entire groups on and off simultaneously, simplifying the management of large deployments across multiple sites. A complete weekly schedule can be uploaded to a single tower or to a whole group at once, after which the Senquip device runs that schedule autonomously, switching the lights on and off at the programmed times. This removes the need to visit each tower and set a timer by hand, and ensures every tower in a deployment follows exactly the same lighting plan.

On hybrid towers, the Senquip device does more than monitor. Running a custom application on the device, it continuously tracks the battery state of charge and starts the generator only when needed, running it just long enough to carry the battery through the scheduled lighting period. This keeps run hours, fuel use and noise to a minimum while ensuring the lights never go out. A voltage-based safeguard provides an independent fallback should the battery run low unexpectedly. Senquip's API also enables Popa to integrate telemetry directly into their own business systems and customer-facing applications, giving them complete flexibility over how operational information is presented to their own customers.

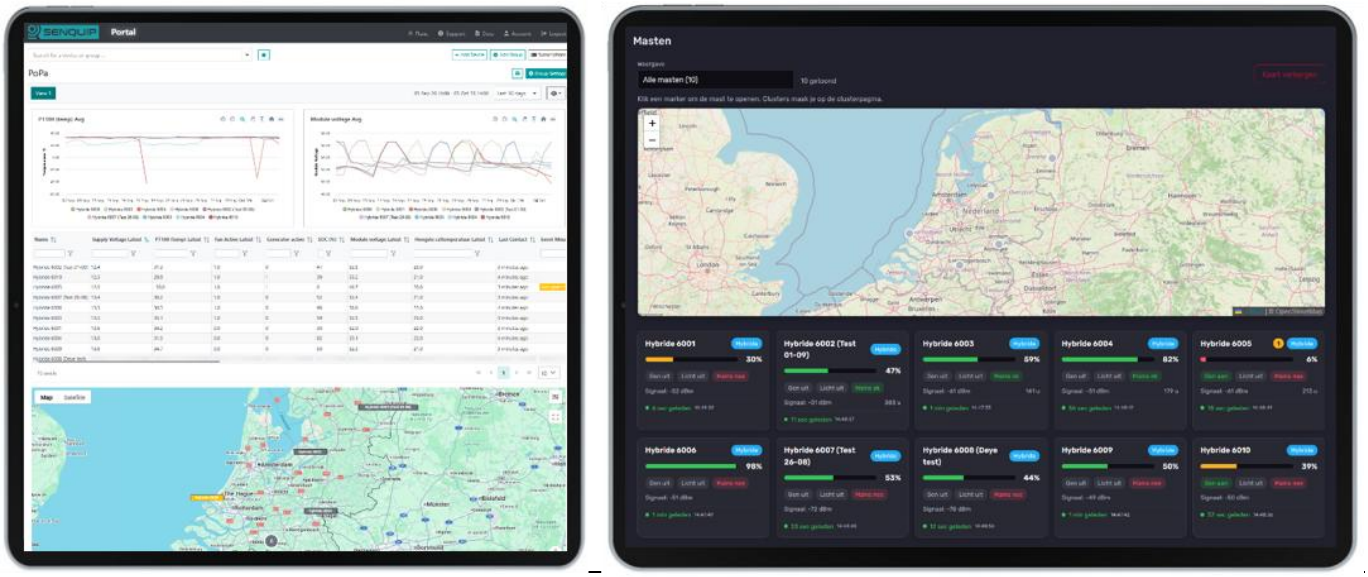

Figure 2 - Typical Monitoring Dashboard on the Senquip Portal, Right: API fed web interface developed for POPA

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3. The Outcome

Senquip provides Popa with complete visibility of their hybrid lighting towers, allowing operators to monitor location, operating status and equipment health without unnecessary site visits. Automated generator control keeps the batteries charged and the lights running while minimising fuel consumption, run hours noise and CO2 reduction.

Remote monitoring enables low fuel levels, unexpected shutdowns and generator faults to be identified early, often before they affect the customer, improving fleet availability while reducing operating costs. Operating hours are automatically recorded to simplify maintenance scheduling, and the ability to remotely switch individual towers or entire groups on and off improves operational efficiency across large deployments.

By combining rugged hardware, flexible integration and secure connectivity, Senquip provides a scalable platform that continues to evolve with Popa's business, supporting future technologies such as Direct-to-Cell satellite connectivity for deployments beyond regular cellular coverage.

Figure 3 - Festival Illuminated by POPA Lighting Towers

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