NATIONAL NARROWBAND NETWORK Co.

In collaboration with CISCO

# Street lighting gets smart

"NNNCo and Cisco share a vision to design a robust and feature-rich network, delivering IoT needs of today and into the future for applications such as smart lighting, parking and waste management. The economic benefits to cities are significant."

Rob Zagarella,
Founder and CEO, NNNCo

The Internet of Things (IoT) is creating a fundamental shift in Smart Street Lighting. Early lighting innovations provided for timely information on remote light failure through a network. A range of different capabilities are becoming available for smart street lighting from simple checking for light failure to more sophisticated capabilities including:

- Defect detection. Issues that can be detected early include: Luminaire failure, day burners, preventive maintenance, over voltage detection, transient detection and damage to light pole(s);
- Remote dimming on a fixed and/or adjustable time schedule;
- Remote switching (on/off) of lights; and
- Energy/voltage monitoring.

The costs and benefits of the different capabilities vary. The most compelling financial business case is delivered by the most basic requirement - knowing whether a light is on/working or off/not working. Replacing current streetlights with LED lighting alone can cut energy costs by 50% or more. Networking those lights can save a further 25% over the life of the lights through remote management and faster response to outages. The capital and operational savings per endpoint (light) that come from this base capability are the most compelling.

While other more complex capabilities can be critical for some lighting use cases, the capital and operational costs per endpoint can be significantly higher.

The most common requirement is likely to be the most basic/cheapest and suitable for most street lighting applications. Being able to manage multiple types of streetlight controls on a single network, depending on the business case, offers councils and utilities greater choice and greater benefits.

## Smart Lighting needs an intelligent IoT network

NNNCo is Australia's LoRaWAN network operator, dedicated to building and operating Australia's narrowband network for IoT. We're working with some of the world's leading energy and water utilities, technology providers and innovators to roll out large-scale, carrier-grade network solutions. We provide the capability to choose the best smart lighting solution for different needs and different areas.

As Australia's Long Range Wide Area Network (LoRaWAN) operator, our vision is to support the rapid and collaborative growth of IoT in Australia by providing an end-to-end, low-cost, reliable and secure eco-system that:

- Supports more effective operation of infrastructure and services
- Enables innovation across industries as diverse as agriculture, logistics, manufacturing and health
- Collects and shares information that can make people's lives safer, healthier and easier

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Australia's Narrowband Network

NNNCo has taken the lead in Australia and implemented LoRaWAN global standard technology. LoRaWAN standards for low cost, low power networks give utilities immediate cost and longevity advantages over other communications methods. LoRaWAN standards are mature across most functions with strong, relevant capabilities including:

### Long range
Essential to support very large distribution areas such as utilities networks

### Low power
Battery-powered devices with a battery life of several years

### Low cost
Low lifetime and installation cost for devices / sensors containing the compact module from Murata

### Open
Open standards enable the network to connect to others over time and build an ecosystem rather than a silo solution

### Secure
Very strong privacy and security enables companies to meet the most stringent government, regulatory and customer-based guaranteed service levels

### Reliable
A resilient Radio Frequency modulation scheme offers reliable coverage for remote locations, tall buildings and deep basements

### Two way
- Verifies device operation
- Transmits control signals to remote devices
- Device configuration management
- Remote update firmware

Not just a receiver, two way capability gives control, confidence and the capacity to upgrade

## Big on capability

We understand the importance of flexibility and function, not just low cost. Our network provides the following capabilities:

- Two-way communication enables greater flexibility in managing lights with different use cases across the same network.
- Multicast transmission enables grouping of lights for control purposes.
- Smart street lighting with On/Off function and status reporting.
- Dimming schedule feature, facilitates grouping of lighting points for ease of programming.
- Lighting programs may be edited and updated on the go.
- With built-in weather-proofing and environmental bolstering, units are capable of withstanding high ambient temperatures and marine/coastal environments.
- With accuracy of 0.5% units provide metering accuracy in line with standard metering guidelines.

## Planning smart lighting?

If your organisation is interested in participating, visit us at
**nnnco.com.au**