7th Smart Grids & Cleanpower 2016
Cambridge 27-28 June
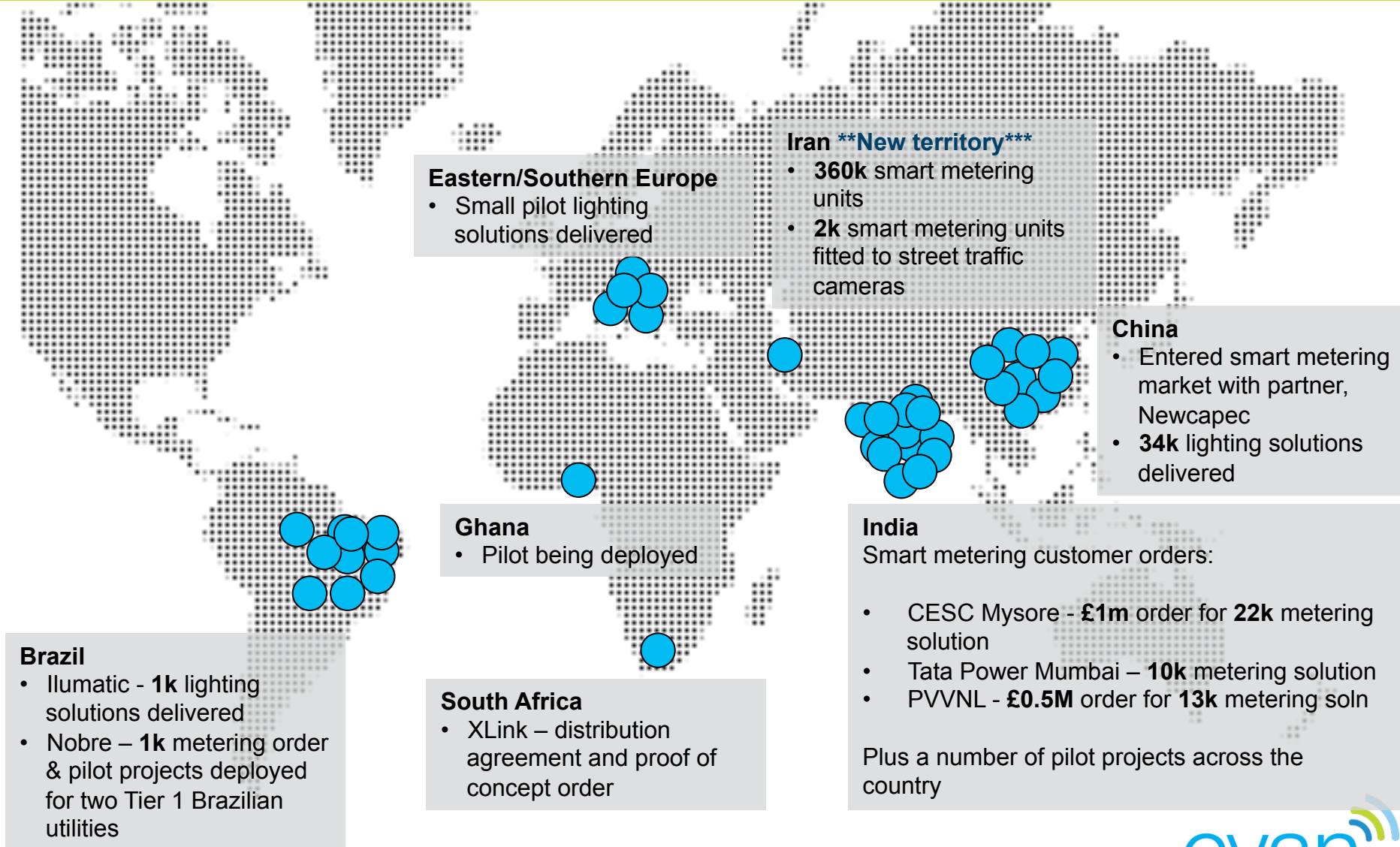www.cir-strategy.com/events

Dr Sean Cochrane, Technical Director

June 2016

Cyan Overview

- End-to-end solution provider

- Enabling technology that connects devices with Enterprise software

- Focus on energy, lighting and emerging applications in the wider 'Internet of Things'

- Developed smart metering and lighting solutions for emerging markets

- Cyan's enabling technology is delivered through its eco-system of partners

- Award winning technology proven by commercial deployments

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Cyan Customer Orders and Pilot Deployments

Eastern/Southern Europe
- Small pilot lighting solutions delivered

Iran **New territory***
- **360k** smart metering units
- **2k** smart metering units fitted to street traffic cameras

China
- Entered smart metering market with partner, Newcapec
- **34k** lighting solutions delivered

Ghana
- Pilot being deployed

India
Smart metering customer orders:

- CESC Mysore - **£1m** order for **22k** metering solution
- Tata Power Mumbai – **10k** metering solution
- PVVNL - **£0.5M** order for **13k** metering soln

Plus a number of pilot projects across the country

Brazil
- Ilumatic - **1k** lighting solutions delivered
- Nobre – **1k** metering order & pilot projects deployed for two Tier 1 Brazilian utilities

South Africa
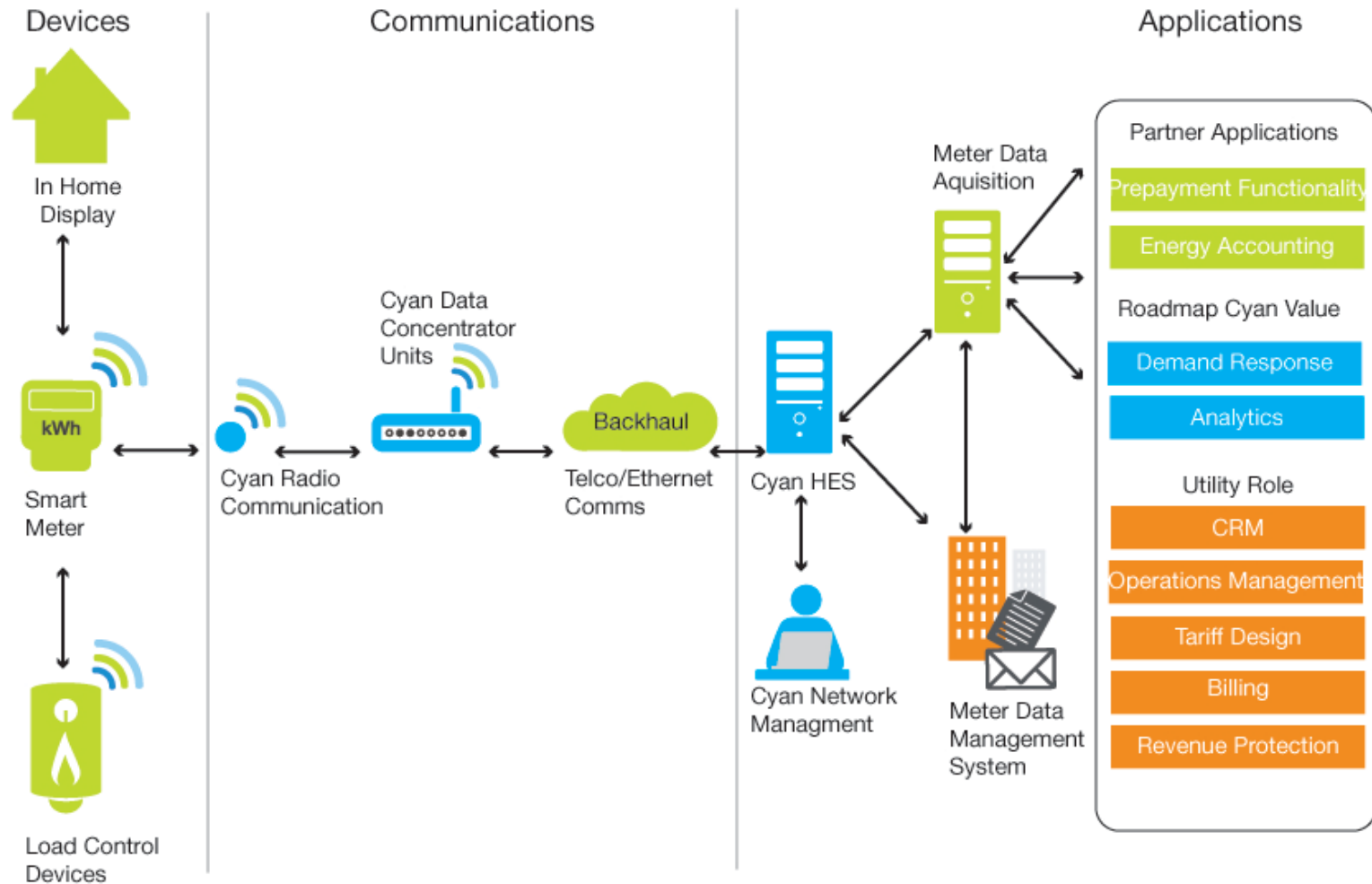- XLink – distribution agreement and proof of concept order

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Global/Local Eco-System of Partners

- Cyan provides its enabling technology through a collaborative engagement model

- Cyan establishes an eco-system of in-country partners

  - Enables the transfer of its skills and experience to facilitate customer ownership

  - Empowers Cyan's target market, creating new skills, expertise and jobs to support government initiatives and economic development

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CyLec Smart Metering Solutions

- Low cost, low power scalable solutions for smart metering systems

- Integrated and retrofit solutions:

  - Integrated solution allows utilities to incorporate CyLec with new and replacement meter installations

  - Retrofit technology provides smart metering functionality to existing static meters

- CyLec system delivers:

  - Enterprise level Head End Server software

  - Data Concentrator Unit

  - ISM band RF mesh network

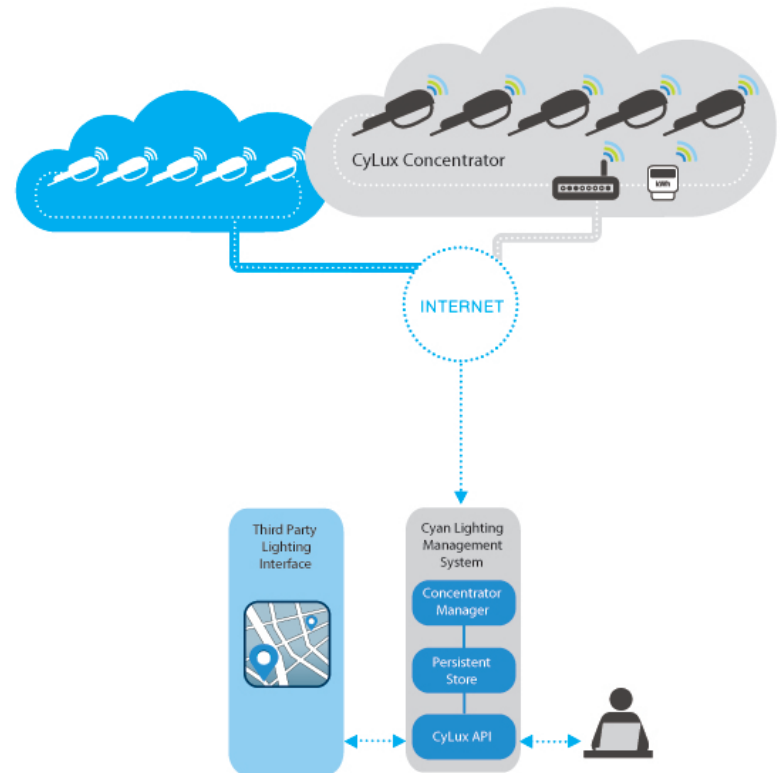cyan

Smart Metering – The Value Chain

Devices
- In Home Display
- Smart Meter (kWh)
- Load Control Devices

Communications
- Cyan Radio Communication
- Cyan Data Concentrator Units
- Backhaul — Telco/Ethernet Comms
- Cyan HES
- Cyan Network Managment
- Meter Data Management System

Applications
- Meter Data Aquisition

Partner Applications
- Prepayment Functionality
- Energy Accounting

Roadmap Cyan Value
- Demand Response
- Analytics

Utility Role
- CRM
- Operations Management
- Tariff Design
- Billing
- Revenue Protection

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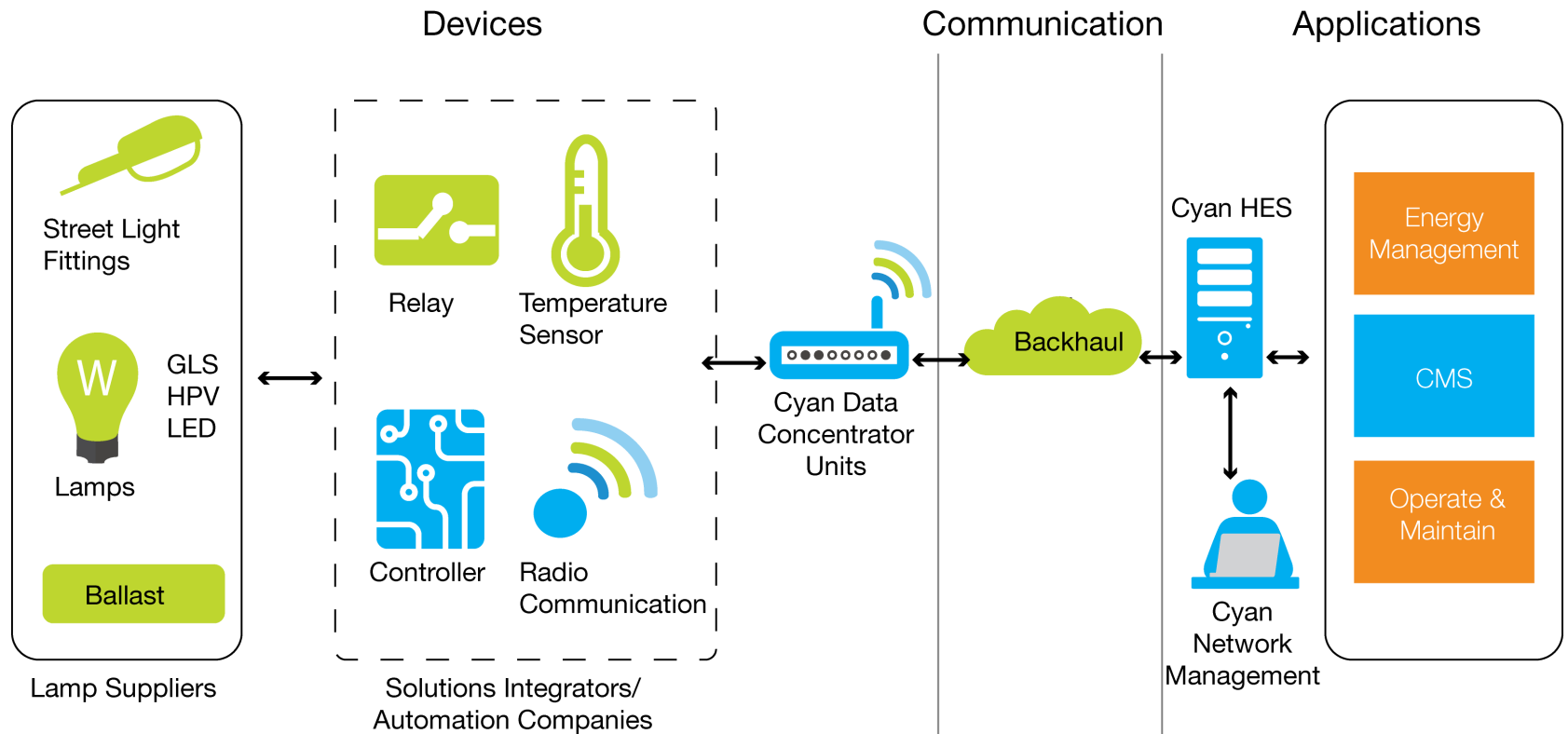CyLec enables smart metering functionality:

- Remote meter reading

- Improved revenue collection and customer control

- Prepayment options managed on meter or via portal

- Reporting and analytics – identify energy usage and loss

- Demand response – e.g. financial incentives for off-peak tariffs

- Grid optimisation – load balancing and constraint management

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The Cyan Proposition – Solutions for Lighting Control

- Integrated solution-level wireless system

- Easy to install in all lamps with dimming

- CyLux-enabled lamps connect to a DCU to support bi-directional communication to lamps via Cyan's WebView, a Graphical User Interface

- Lamps can be controlled individually or in multiple networks

  - Each network consists of 250 lamps that are controlled by a DCU

- Dimming rules for certain times of day can be configured and the system will automatically apply these rules to each network

CyLux Concentrator

INTERNET

Third Party Lighting Interface

Cyan Lighting Management System

Concentrator Manager

Persistent Store

CyLux API

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Smart Lighting – The Value Chain

Devices

Communication

Applications

Street Light Fittings

GLS HPV LED

Lamps

Ballast

Lamp Suppliers

Relay

Temperature Sensor

Controller

Radio Communication

Solutions Integrators/ Automation Companies

Cyan Data Concentrator Units

Backhaul

Cyan HES

Cyan Network Management

Energy Management

CMS

Operate & Maintain

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- Measurement and validation of energy efficiency is primarily on the power saving, however in addition:

  - Resulting deduction in carbon emissions

  - Lower day-to-day running costs and maintenance

- Saving and payback period is highly dependent on the type and power (W) of the lamp deployed as well as dimming patterns applied

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Emerging Markets Opportunity – Recent Cyan Newsflow

April 2016 - 360,000 unit smart electricity metering order in Iran from Micromodje following successful demonstration of Cyan's technology

- Iranian government estimate 33 million smart meters will be required

Feb 2016 – 2,000 unit smart metering implementation, fitted to street traffic cameras in Iran

Jan 2016 - Follow on 5,000 unit order from Larsen & Toubro for Tata Power

- Demonstrates confidence in Cyan's technology for the Indian market
- Framework Order to meet future needs now on the agenda

Dec 2015 - Entered Chinese smart metering market with Newcapec partnership

Nov 2015 - PVVNL Uttar Pradesh - £0.5m order received for AMI deployment

Jul 2015 - Tata Power announce successful rollout of 5,000 Cyan smart meters

May 2015 - $3M LOI signed for smart metering project in Ghana

Jan 2015 - CESC-Mysore £1M order received for commercial deployment

Opportunity to establish leadership position in smart metering, lighting and IoT in emerging markets

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Cyan – Connode Acquisition

- Cyan recently announced its intention to acquire* Connode

- Connode achievements:

  - Leading supplier of standards-based wireless communication for IoT

  - Successfully deployed over 650,000 units with utilities

  - IPv6 6LoWPAN solutions for developed markets in Europe and Asia

  - UKSMIP - radio network for households with no cellular coverage

  - Smart sustainable city network pilot with large Indian energy company that includes: smart meters, streetlights and distribution automation

*subject to shareholder approval

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Cyan – Connode – The Combined Company

- Increased customer value – providing the flexibility and choice required to converge networks for IoT applications

- Cyan's narrowband RF technology, optimised for exceptional performance and lowest total cost of ownership

- Connode's standard-based solutions for rapid IoT innovation, development, integration and consolidation of applications

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Award Winning Solutions

Judges felt that Cyan's approach to providing a real solution to a world-wide energy issue was well worth the recognition of being the winner.

Judges praised the originality, practicality and sustainability of Cyan's CyLec Connect retrofit module.

Judges felt that Cyan is contributing greatly to the future of smart metering, smart cities and more efficient power in emerging economies, by enabling wireless data communication with its CyLec product suite.

Judges felt that Cyan had contributed greatly to the formation of Advanced Metering Infrastructure by enabling wireless data transmission to utilities.

*"CyLec has already demonstrated its practicality in India and Brazil, and has proven to be compatible with existing meters in these countries.*Avimanyu Basu, Senior Research Analyst

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