Trilliant's passion is providing innovative technologies that deliver
OPEN & SECURE Communications Solutions.

Rollout of 250 Million Smart Meters –
Progress and Challenges

Sandip Sinha
Vice President – Sales , India
3rd November 2023

DISCOVER THE *Power Of Choice*

Trilliant

Trilliant Profile

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Trilliant - 30+ years of providing mission-critical solutions to Energy Companies, Utilities and Cities that drive financial outcomes

Proven, device-independent communications platform

- **Multi-tiered network** drives optimal outcomes: WAN, NAN, LPWAN, or Cellular
- End-point and device-independent, enabling customers to experience the **Power of Choice**

Advanced Smart Grid & Smart City Solutions

- Trilliant for Smart Grid solutions: **AMI 2.0**, Data & Analytics Services, Distribution Automation, Demand Response
- Trilliant for Smart Cities solutions: Smart Lighting, Suite Metering, IIoT Gateway and more

200+ customers drive smart initiatives

- **Electric, gas and water** clients worldwide across smart grid, smart cities and IIoT deployments
- **Blue chip customers** across APAC, EMEA, Canada and the Americas

Strategic Partner eco-system

- Highly experienced, **trusted partners** include suppliers, SI's, technology providers
- Seamless, standards-based integrations
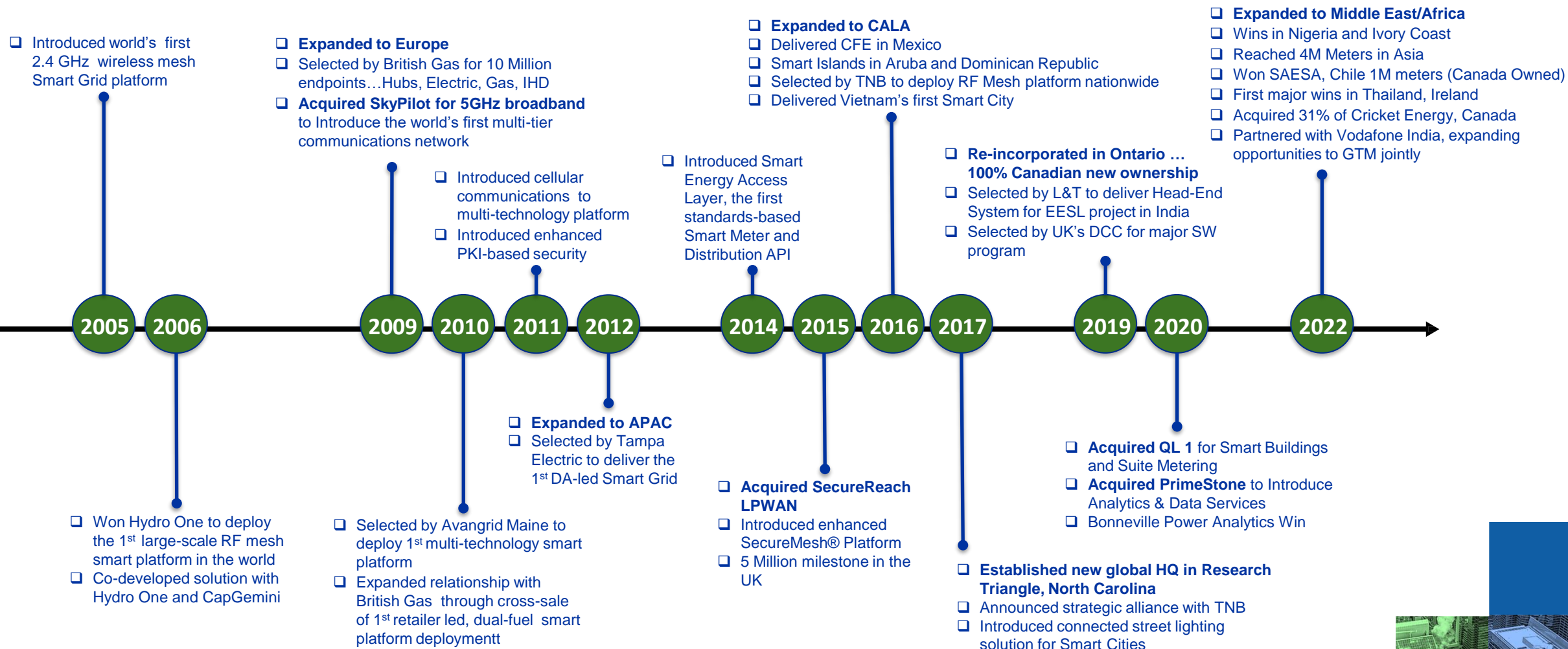
Committed to Sustainability

- Dedicated to **delivering sustainable solutions** to support the acceleration of the Energy Transition for our customers
- UN Global Compact Participating Member
- 2022 EcoVadis Silver Certification
- 2022 DEKRA Recertification for Environmental, Quality Compliance
- Certified Level One EcoResponsible
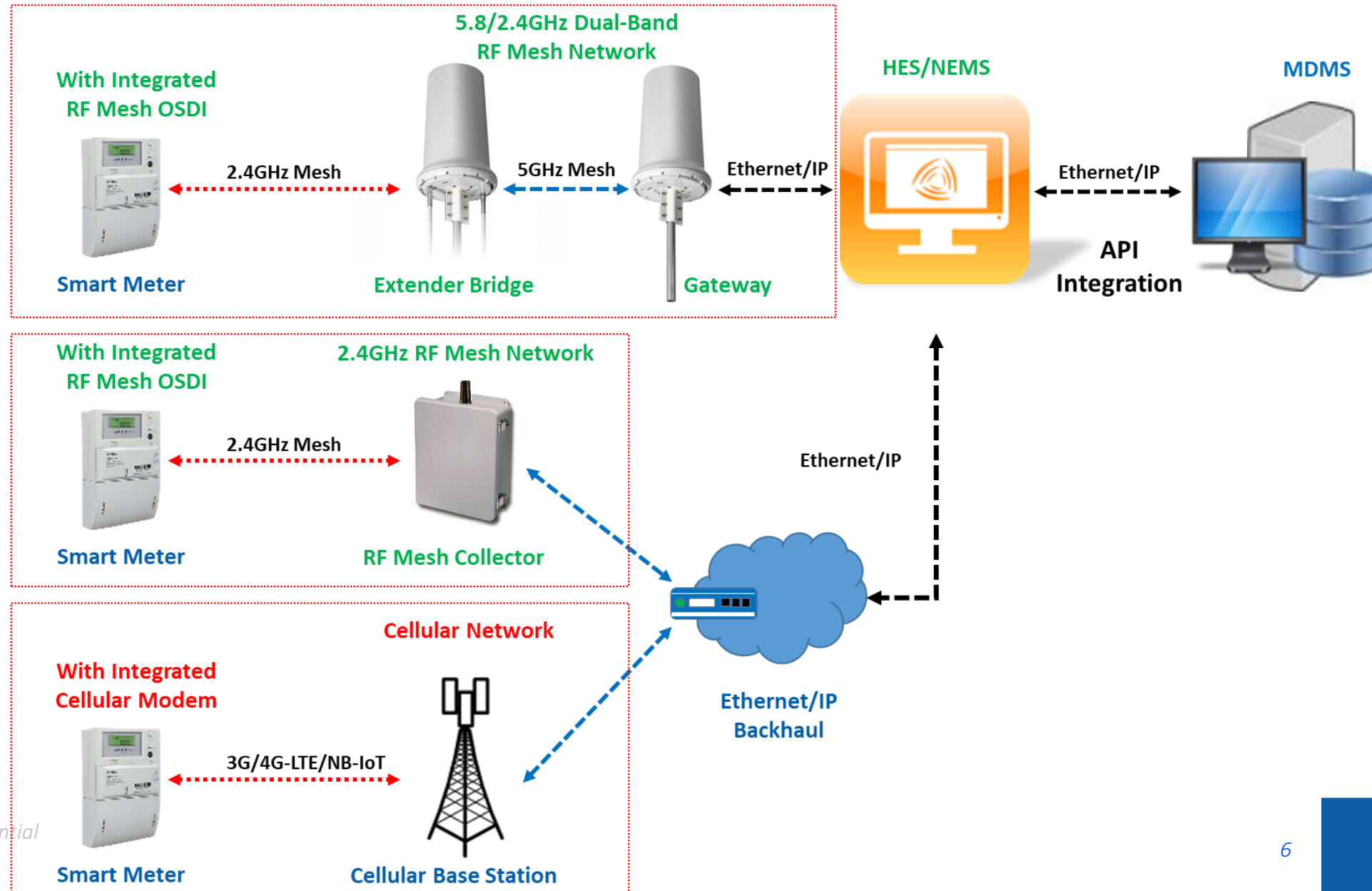- ISO Certified 9001, 14001, 27001, 45001

Our Journey

Trilliant

Company Milestones

- Introduced world's first 2.4 GHz wireless mesh Smart Grid platform

- **Expanded to Europe**
- Selected by British Gas for 10 Million endpoints…Hubs, Electric, Gas, IHD
- **Acquired SkyPilot for 5GHz broadband** to Introduce the world's first multi-tier communications network

- Introduced cellular communications to multi-technology platform
- Introduced enhanced PKI-based security

- Introduced Smart Energy Access Layer, the first standards-based Smart Meter and Distribution API

- **Expanded to CALA**
- Delivered CFE in Mexico
- Smart Islands in Aruba and Dominican Republic
- Selected by TNB to deploy RF Mesh platform nationwide
- Delivered Vietnam's first Smart City

- **Re-incorporated in Ontario … 100% Canadian new ownership**
- Selected by L&T to deliver Head-End System for EESL project in India
- Selected by UK's DCC for major SW program

- **Expanded to Middle East/Africa**
- Wins in Nigeria and Ivory Coast
- Reached 4M Meters in Asia
- Won SAESA, Chile 1M meters (Canada Owned)
- First major wins in Thailand, Ireland
- Acquired 31% of Cricket Energy, Canada
- Partnered with Vodafone India, expanding opportunities to GTM jointly

2005 2006   2009 2010 2011 2012   2014 2015 2016 2017   2019 2020   2022

- Won Hydro One to deploy the 1st large-scale RF mesh smart platform in the world
- Co-developed solution with Hydro One and CapGemini

- Selected by Avangrid Maine to deploy 1st multi-technology smart platform
- Expanded relationship with British Gas through cross-sale of 1st retailer led, dual-fuel smart platform deploymentt

- **Expanded to APAC**
- Selected by Tampa Electric to deliver the 1st DA-led Smart Grid

- **Acquired SecureReach LPWAN**
- Introduced enhanced SecureMesh® Platform
- 5 Million milestone in the UK

- **Established new global HQ in Research Triangle, North Carolina**
- Announced strategic alliance with TNB
- Introduced connected street lighting solution for Smart Cities

- **Acquired QL 1** for Smart Buildings and Suite Metering
- **Acquired PrimeStone** to Introduce Analytics & Data Services
- Bonneville Power Analytics Win

Discover the value of Global Reach & Local Expertise

Toronto, ON

Granby, QC

Windsor, UK

Global HQ – Cary, NC

Hong Kong China

New Delhi India

Bangkok, Thailand

Kuala Lumpur, Malaysia

Bogota, Colombia

Singapore

Jakarta, Indonesia

Santiago, Chile

AMI with RF Mesh & Cellular – Hybrid Architecture

5.8/2.4GHz Dual-Band RF Mesh Network

With Integrated RF Mesh OSDI

2.4GHz Mesh

5GHz Mesh

Ethernet/IP

Smart Meter

Extender Bridge

Gateway

HES/NEMS

Ethernet/IP

MDMS

API Integration

With Integrated RF Mesh OSDI

2.4GHz RF Mesh Network

2.4GHz Mesh

Smart Meter

RF Mesh Collector

Ethernet/IP

Cellular Network

With Integrated Cellular Modem

3G/4G-LTE/NB-IoT

Smart Meter

Cellular Base Station

Ethernet/IP Backhaul

Confidential

Smart Metering – Deployment and Challenges

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Smart Metering Deployment Status

All India Smart Metering Status *As on 20th October 2023*

Total Sanctioned: 229,743,139
Total Awarded: 79,972,794
Cumulative Achievement: 7,247,534

Legend: Total Sanctioned, Awarded, Cumulative Achievement

States (x-axis): Andaman and Nicobar, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Kerala, Ladakh, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, West Bengal

Source: www.nsgm.gov.in/en/sm-stats-all

Challenges of AMI Rollout

- Capacity
  - In span of 4-5 years for deployment
- Communication Network reliability and resiliency
  - Selection of right technology
  - High bandwidth to meet all the use cases defined by the utilities
  - Public Network meeting the SLA requirement
- Scalable Cloud Infrastructure
  - Application platform must be scalable
  - Provide Hyper Scalar environment to offer Application as a Service
- Data Management
  - Effective use of captured Metering data for useful analytics and application beyond billing
- Standardization
  - Standardization of Communication Module for field swappable
  - Standardization of Application Integration

Trilliant Reference Projects

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EESL Project - India

India (Uttar Pradesh & Haryana)

- Largest AMI project in India

- Deploying 5M total. 1.7M deployed to date, performing at ~99% (Cellular)

- 6 meters brands integrated using IS15959 standards

- Proven results: average monthly revenue from consumers in high loss areas have increased by more than 35% through NTL reduction

Trilliant, Larsen & Toubro support largest AMI deployment in India

By **Claire Volkwyn** - Sep 4, 2019

Trilliant and Larsen & Toubro have reached a milestone of the largest AMI deployment in India scaling to more than 5 million meters across Haryana and Uttar Pradesh

Communications solutions company Trilliant, a global provider of secure, enterprise-wide smart energy communications solutions, and Larsen & Toubro (L&T), have signed an agreement to support the Energy Efficiency Services Limited (EESL) smart meter rollout across Haryana and Uttar Pradesh.

L&T will back integration of the Trilliant Head End System (HES) to reach the deployment target of 5 million smart meters.
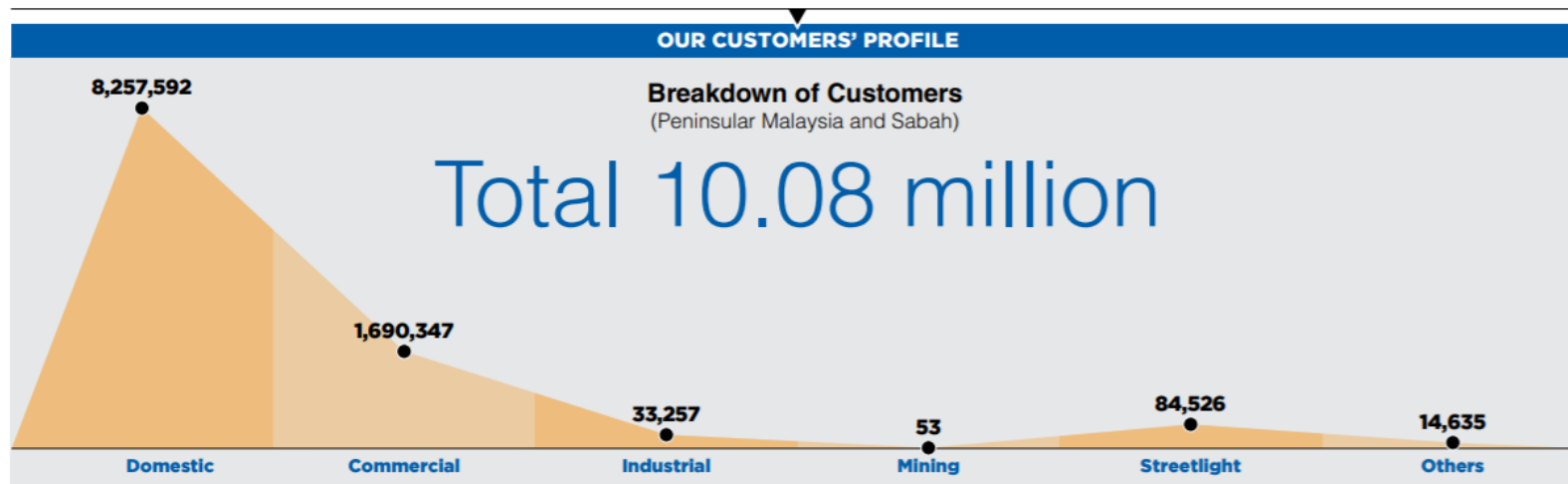
https://www.smart-energy.com/industry-sectors/smart-meters/trilliant-larsen-toubro-support-largest-ami-deployment-in-india/

TNB Project - Malaysia (APAC)

- Trilliant exclusive RF for AMI, DA, Streetlighting…19-meter brands
- Largest RF Network of 3.2Million end points with 99.8% availability

OUR CUSTOMERS' PROFILE

Breakdown of Customers
(Peninsular Malaysia and Sabah)

Total 10.08 million

8,257,592	1,690,347	33,257	53	84,526	14,635
Domestic	Commercial	Industrial	Mining	Streetlight	Others

Meter Deployment Plan

- Melaka rollout (2018) – 238K
- 2021 cumulative target – 1,800,000 (Completed)
- 2022 cumulative target – 2,600,000 (Completed)
- 2023 cumulative target – 4,000,000 (In progress)
- 2027 cumulative target - 9,000,000 (TNB and Govt Announced)
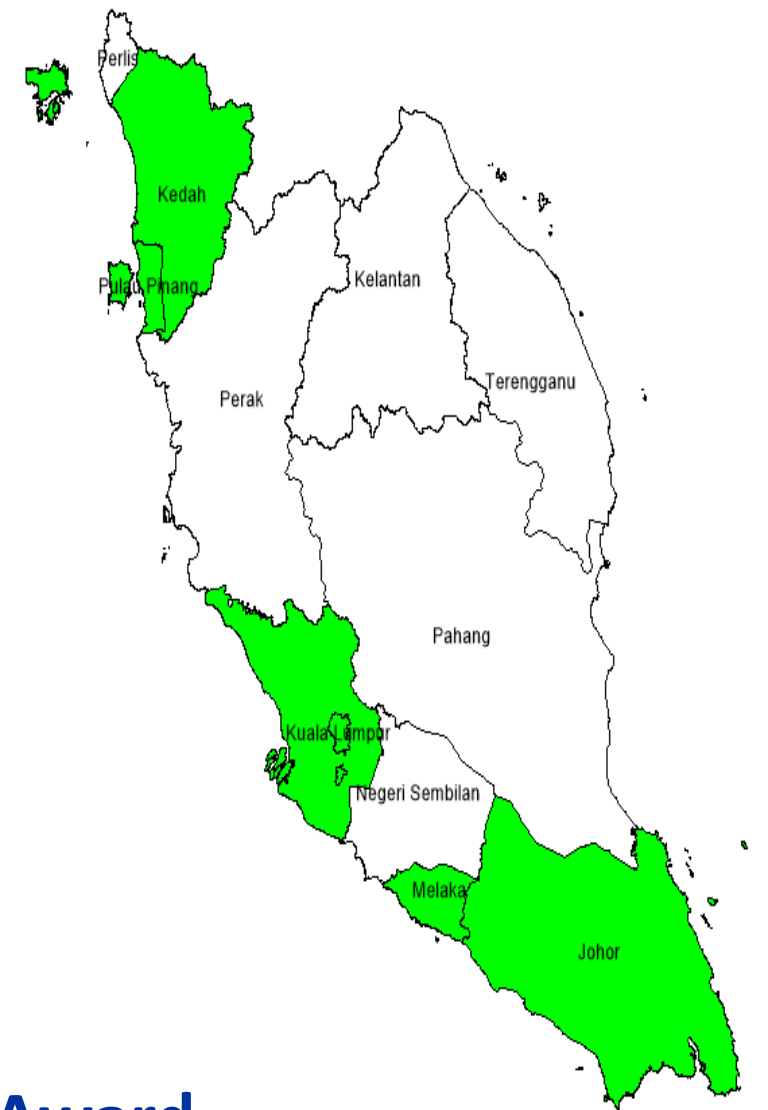
TNB Wins 2022 AMI Project of the Year Award

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Summary

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Key take away for AMI Deployment

- **Build technical competency in the industry**

- **Communication Network – High bandwidth with capacity**

- **Application platforms – Scalable and support multiple technologies**

- **Supplier agnostic**

- **Standardization of meter and application integration**

- **Cloud environment – Hyper scalar offering applications as a service**

- **Reliable end to end network to meet the defined SLA**

THANK YOU!

For more information:
- **Website: https://trilliant.com**