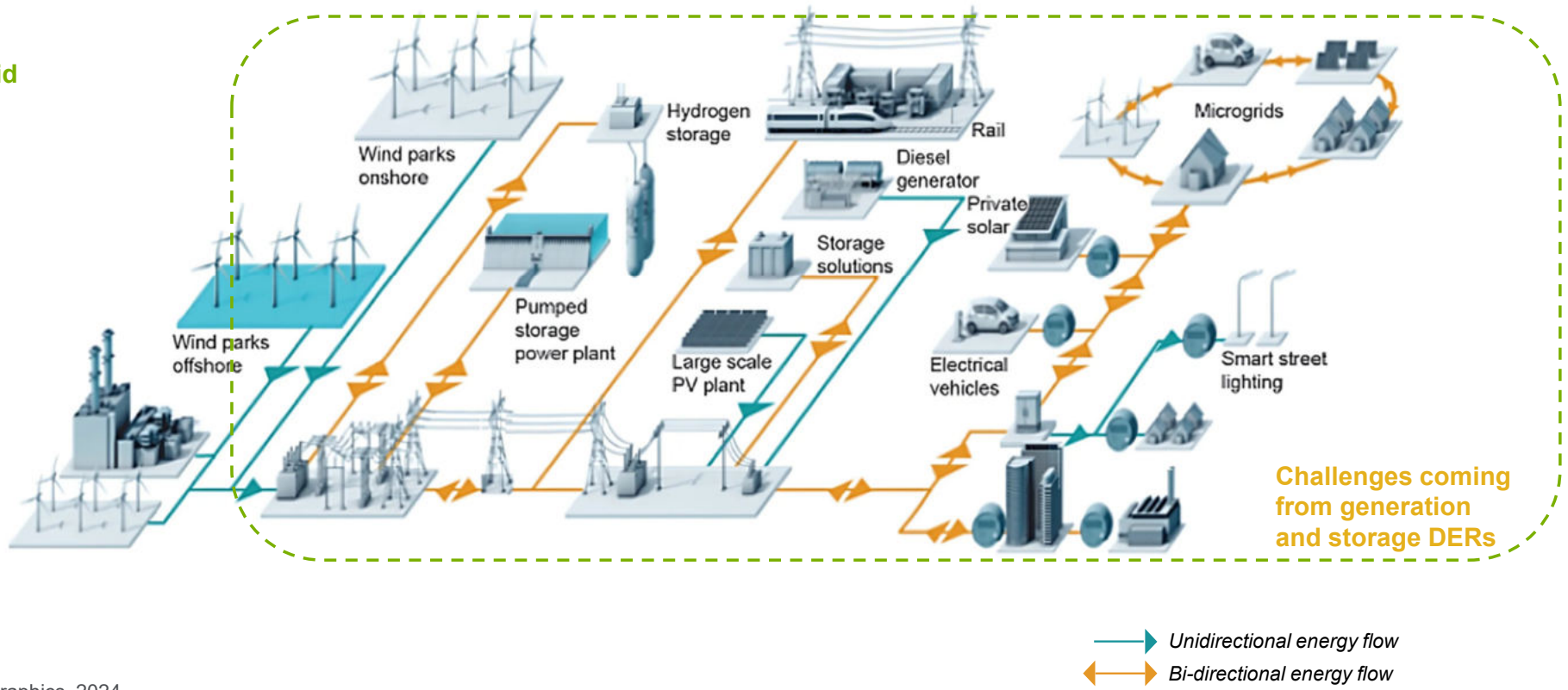
Industrial and Grid Metering for 2026 and Beyond

Tamás Pintér | Head of Product Management ICG

We must address key challenges in decentralized energy networks

Our future-proof portfolio is rapidly evolving alongside major grid transformations

Dynamic Grid



Source: IEC Report Graphics, 2024

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Evolution of Metering: what's next?










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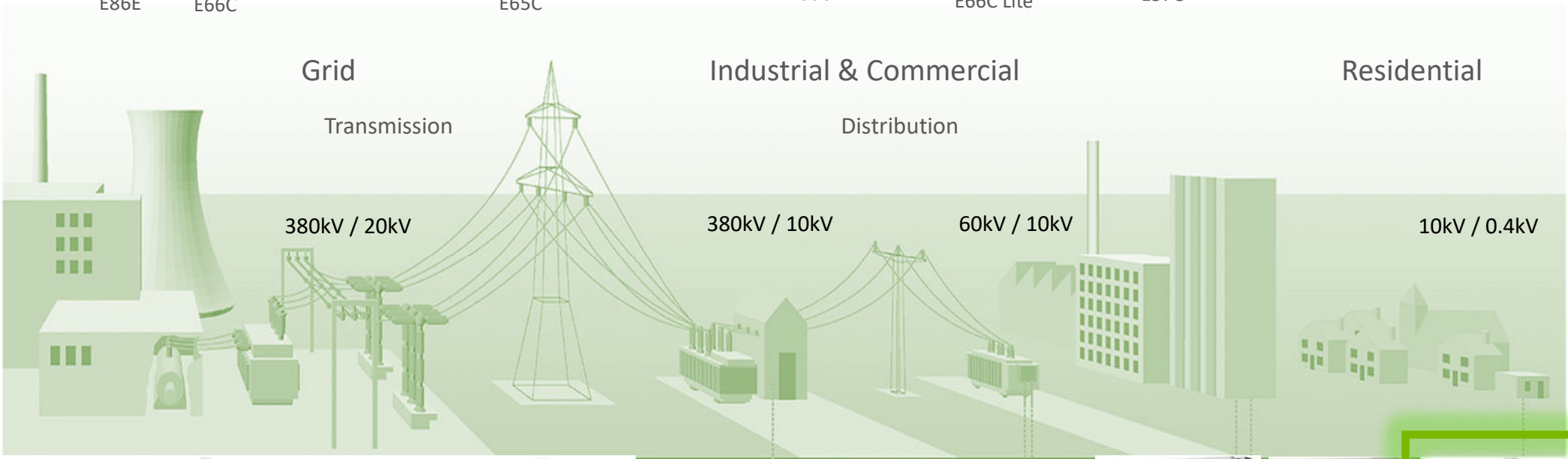
E86E E66C

E65C

E66E E66C

E66C
E66C Lite

E57C



E860 f6
E860 f9
E860 DRM

E850 f6
E850 f9
E880 f9

E660

E650 s6

E570

E450

E360

Landis+Gyr

E360 S3 Flagship Residential Metering - Coming soon!

Optimized TCO:
Industry leading power self-consumption, efficient communication & building penetration, optimized installation time

Smart push:
Near-real-time demand and grid data availability for smart grid readiness

Reliable and future-proof:
Reliable and durable meters with a lifetime of +15 years with secured FW upgrades for future applications

Fast sampling metrology:
The fastest and most powerful measurement system in a residential meter for advanced Power Quality and Grid monitoring

Highest security for your critical infrastructure:
Designed with the highest industry security standards and embedded HW anti-tampering features to ensure end-to-end security from device to cloud

Residential | Commercial | Industrial | Grid

Coming in Q2 this year

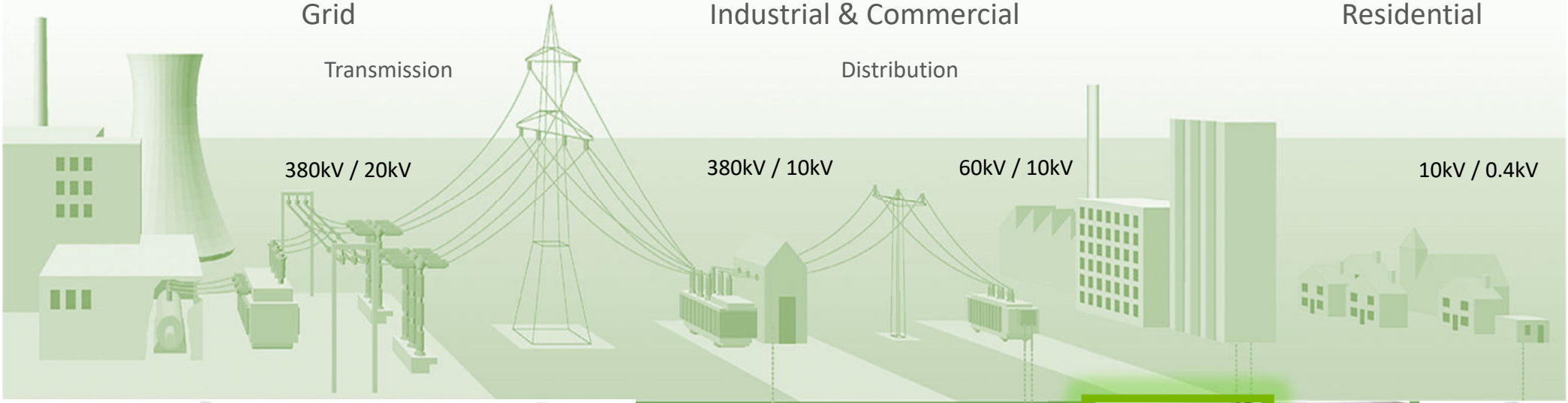
E86E E66C

E65C

E66E E66C

E66C
E66C Lite

E57C



E860 f6
E860 f9
E860 DRM

E850 f6
E850 f9
E880 f9

E660

E650 s6

E570

E450

E360

Landis+Gyr

E570 S2: Trusted Commercial Meter

1. Versatile transformer connectivity

- One of the most versatile CT/VT meters (**Active 0.5S, Reactive 1S**)
- Wide and robust power supply and multifrequency support
- Battery or auxiliary power supply to operate under power cuts

2. Communication Efficiency

- Flexible communication features based on modularity concept: Exchangeable units (**RS485, PLC, LTE CAT 1, MBUS**)
- Supports: DLMS, IEC 62056-21
- Readiness for new technologies

3. Safety and Security E2E

- Data are protected from unauthorized access (Anti-tampering, impermeability and high-level security)
- Easy to upgrade for future security requirements.
- Compliant with the latest standards
- Secure solution to connect to IT

4. Flexibility, agility and longevity

- Exchanging regulatory environment request future adaptation (Functionalities and communication technologies), due to modularity concept (FW and HW).
- Durability and reliability product design and production.
- Experience, support and stability provided by the world's largest meter vendor

5. Power Quality Functionalities

- Market demand higher liabilities of supply
- Increase of fluctuation (renewal production and more devices connected to network) must be monitoring.

6. System integration

- Easy System Integration,
- Support efficient and reliable data transfer.

7. Corporate Social Responsibility

- Devices meets the strictest social environmental and safety criteria
- Lowest TCO
  - Optimized self-consumption
  - High Quality and Low failure rate

8. Grid Edge: interaction with local devices

- Readings and actuation with Gas, Water, Heat meters
- Multiples auxiliary relays for external actuation

Residential | **Commercial** | **Industrial** | Grid

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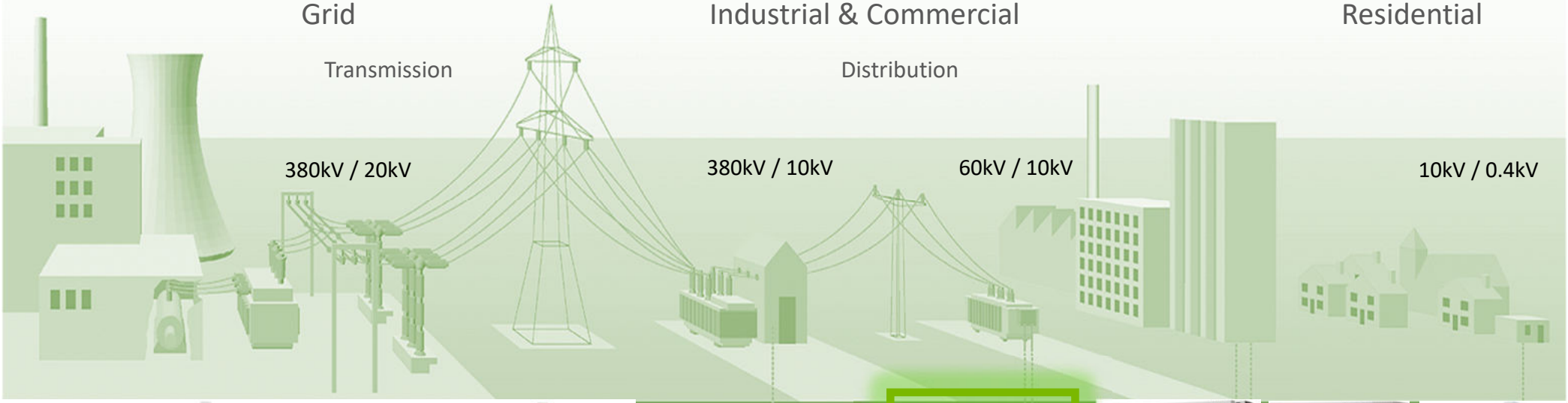
E86E E66C

E65C

E66E E66C

E66C
E66C Lite

E57C



E860 f6
E860 f9
E860 DRM

E850 f6
E850 f9
E880 f9

E660

E650 s6

E570

E450

E360

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E650 S6: new generation of industrial metering

1. Flexibility and versatility

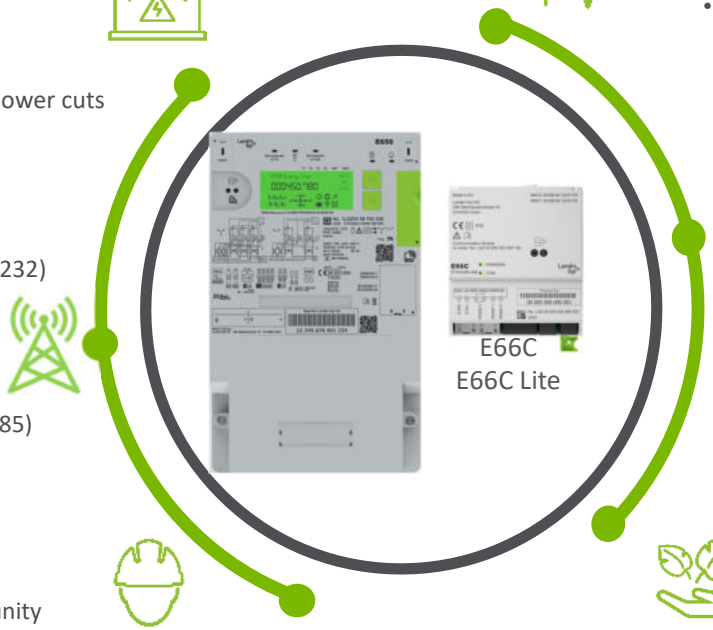
- Easy and flexible installation, screw-type terminals and up to 4 mounting positions
- Unique combination of I/Os in 4 variants
- For all network, current and voltage applications
- Battery and auxiliary power supply to operate under power cuts

2. Communication

- Local communication:
  - Integrated serial interfaces (RS-485, powered RS-232)
  - Optical port
  - Wired/wireless Mbus
  - P1 port
- Remote Exchangeable communication unit via CU (E66C and E66C Lite, 4G CAT 1, CAT M1, ETH, 3x RS485)

3. Safety and Security

- Data and device integrity protected via
  - High-level ingress protection
  - Anti-tampering features
  - Optional improved magnetic immunity
- Remote upgrade for evolving security needs
- Compliant with the latest standards and practices



4. Fundamental Power Quality Features

- Market demand higher reliability of supply
- Increase of power fluctuation (renewable production and more devices connected to the network) must be monitored

5. Interaction with local devices

- Load management (heating, coolers…)
- Up to 8 relays for external actuation

6. Environmental compliance

- Devices meet the latest environmental standards (RoHS, REACH, POP, Conflict minerals,…)

Residential | **Commercial** | **Industrial** | Grid

Coming in Q4 this year

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E86E E66C

E65C

E66E E66C

E66C
E66C Lite

E57C

Grid

Industrial & Commercial

Residential

Transmission

Distribution

380kV / 20kV

380kV / 10kV

60kV / 10kV

10kV / 0.4kV

E860 f6
E860 f9
E860 DRM

E850 f6
E850 f9
E880 f9

E660

E650 s6

E570

E450

E360

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E660 S2: New advanced industrial grid sensor

1. Versatile transformer connectivity

- One of the most versatile meters to cover multiple user-case
- Wide and robust power supply and multifrequency support
- Battery and auxiliary power supply to operate under power cuts
- Spring type terminal connectivity

2. Communication Efficiency

- Flexible communication features based on **double modularity** concept:
  - Comms (E66C): Cat 1, Cat M1, NB-IoT, 2G fallback, Ethernet and multi protocol support
  - Extensions (E66E): traditional I/Os
- Readiness for new technologies

3. Safety and Security E2E

- Data and device integrity protected via
  - Anti-tampering features
  - High-level impermeability protection
  - High-level security
- Easy to upgrade for evolving security needs
- Compliant with the latest standards and practices
- Secure solution to connect to IT and OT

4. Flexibility, agility and longevity

- Changing regulatory and technical environments require future adaptations (functionalities and communication technologies) that are possible through modularity concept in FW and HW + remote FW upgrade
- Durable, reliable design and production

5. Advanced Power Quality Functionalities

- Increased capabilities in monitoring power generation including renewable sources
- Provides enhanced power quality features and is officially **Certified PQI Class S** instrument

6. System integration

- Easy System Integration
- Supports efficient and reliable data transfer
- Interoperable protocols over cellular or ethernet

7. Corpore Social Responsibility

- Devices meets the strictest social environmental and safety criteria
- Lowest TCO (Total Cost of Ownership)
  - Optimized energy consumption
  - Easy to install to save time
  - High quality translates into low failure rate

8. Grid Edge Intelligence

- Near-real time event and measurement data acquisition
- Load management (Street light, heating, cooling…)
- Multiples auxiliary relays for external actuation

Residential | **Commercial** | **Industrial** | Grid

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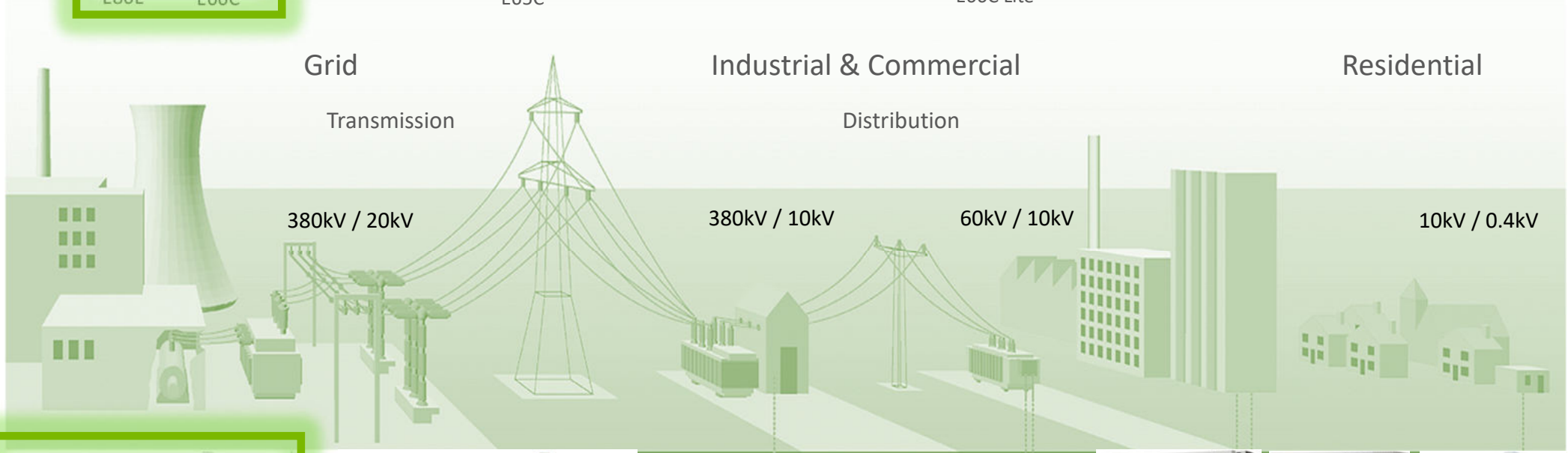
E65C


E66E E66C


E66C
E66C Lite


E57C




E660


E650 s6


E570


E450


E360

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E860 S1: New offering for generation and transmission

1. Versatile transformer connectivity

- **Flagship** device for high and medium voltage installations
- Wide and robust power supply and multifrequency support
- Battery and auxiliary power supply to operate under power cuts
- Class accuracy of **0.1 S (active energy)** and **0.5 S (reactive energy)**

2. Communication Efficiency

- Flexible communication features based on **double modularity** concept:
  - Comms (E66C): Cat 1, Cat M1, NB-IoT, 2G fallback, Ethernet and multi protocol support
  - Extensions (E86E): various I/O options
- Readiness for new technologies

3. Safety & Security E2E

- Data is protected from unauthorized access (anti-tampering measures and high-level security features)
- Easy to upgrade for future security requirements
- High grades of impermeability
- Compliant with the latest standards and goes extra

4. Flexibility, agility and longevity

- Changing regulatory and technical environments require future adaptations (functionalities and communication technologies) that are possible through modularity concept in FW and HW + remote FW upgrade
- Durable, reliable design and production

5. Advanced Power Quality Functionality

- Increased capabilities in monitoring power generation including renewable sources
- Provides enhanced power quality features, exceeding PQ Class S
- **PQ Class A certified!**

6. System integration

- Easy system Integration
- Enables efficient and reliable data transfer
- Interoperable protocols over mobile or ethernet

7. Corpore Social Responsibility

- Devices meets the strictest social environmental and safety criteria
- Lowest TCO (power consumption, easy to install, low failure rate…)

8. Interaction with local devices

- Near-real time information
- Multiples I/Os for local connectivity

Residential | Commercial | Industrial | **Grid**

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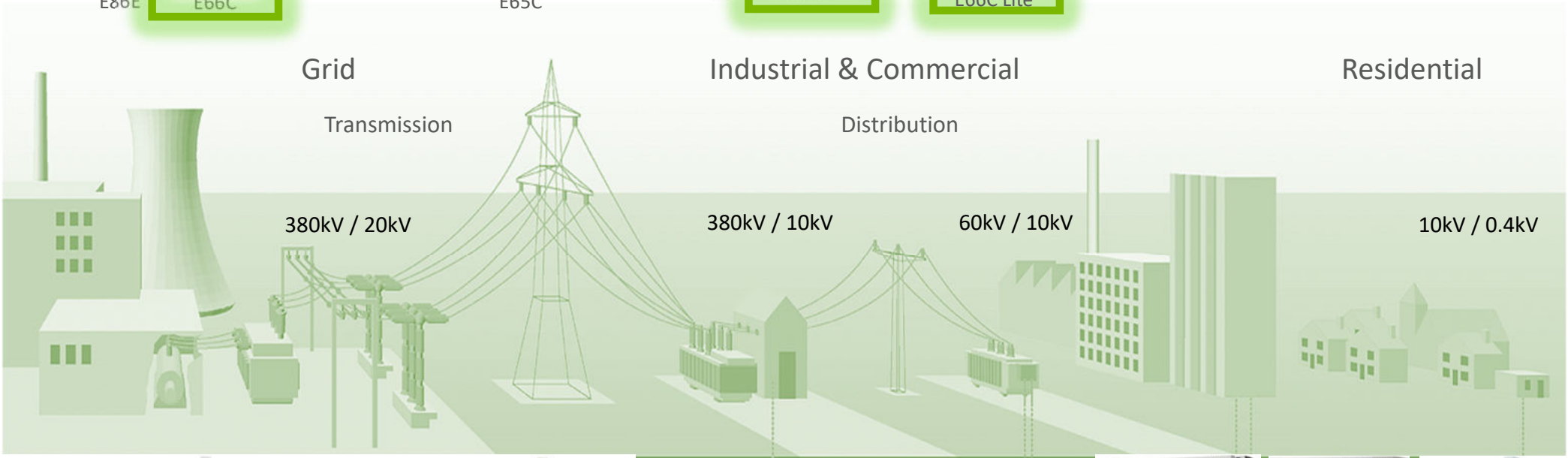
E86E E66C

E65C

E66E E66C

E66C
E66C Lite

E57C



E860 f6
E860 f9
E860 DRM

E850 f6
E850 f9
E880 f9

E660

E650 s6

E570

E450

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E66C capabilities at a glance

1. Standardized, IP-based, secure communication interfaces
2. Keeping pace in 4G communication: LTE CAT-M1 & LTE Cat-1
3. Parallel communication to different systems and entities e.g. HES for ICG and SCADA for grid
4. Ethernet meter room capability for low effort and secure creation of multi-meter ecosystems

E66C-xx-ELFE…

2xETH + RS 485 +
+ LTE Cat M1 / Cat 1

E66C-xx-00FE…

2x ETH + 3 x RS485

5. Multi-domain protocol transformer
   DLMS-COSEM, Modbus,
   IEC 60870-5-104, and
   IEC 61850 with ongoing expansion of supported protocols & data classes PQDIF
6. Processing capability for local processing and autonomous action at the Grid Edge
7. License model for features that may only optionally be required or used in only a few installations. License model also creates capability for additional customer Grid Edge use case features to be developed and deployed in an agile way

- Secure and simultaneous access for all registered users
- Stable, reliable communication
- Simple local and remote access
- 1 device for data distribution to different systems

Residential | Commercial | **Industrial** | **Grid**

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Digital Revenue Metering

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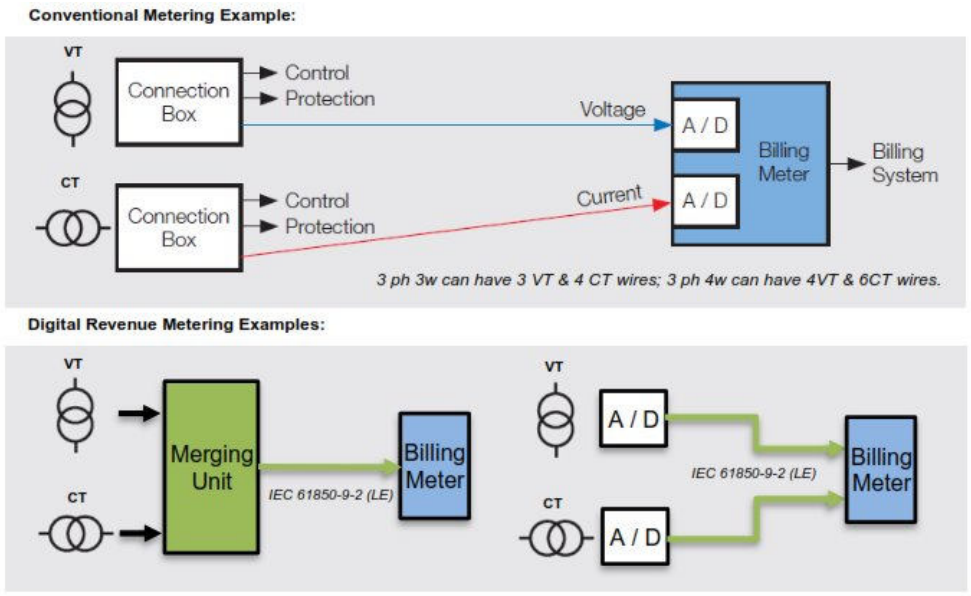
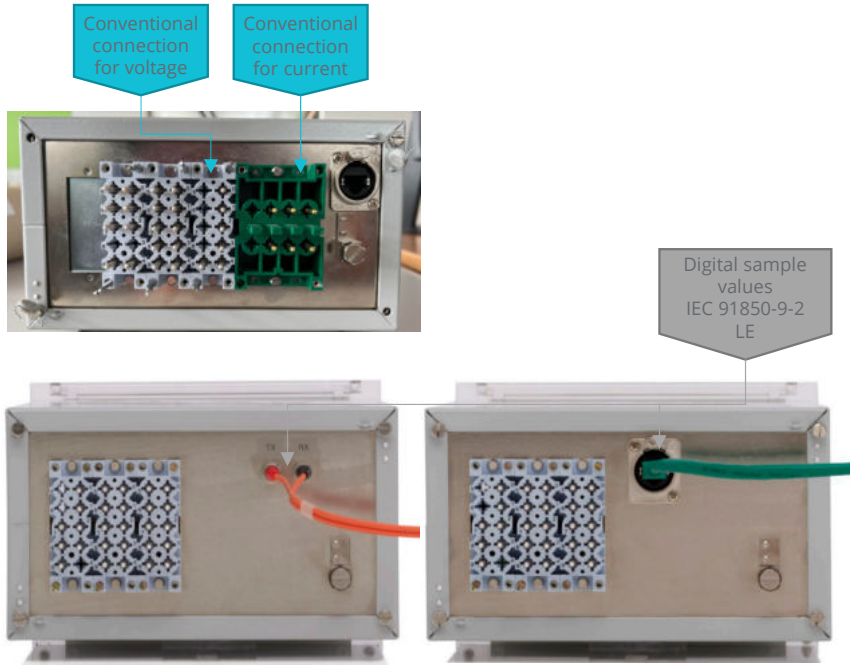
What is the difference of conventional vs. digital?

In simple terms:

- Conventional meter is using analogue signals of voltage and current, and digitalises these signals within the device itself for energy data processing and preparation for billing system
- Digital meter works with sample values provided by IEC 61850-9-2 (LE) protocol, where values of current and voltage come from LPITs already digitalised, and MU/SAMU is responsible for structuring them against the standard





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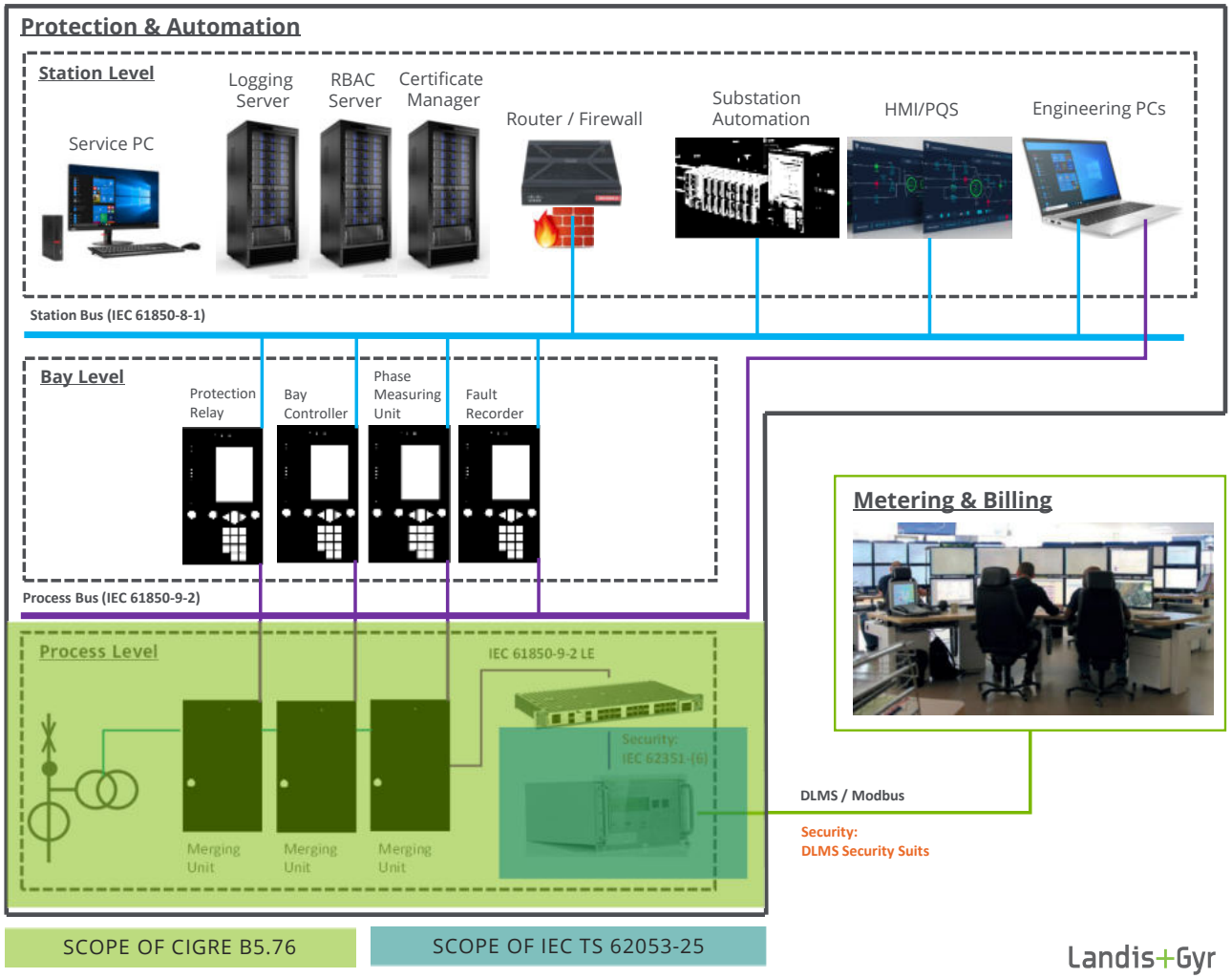
Understanding IEC 61850 Architecture

- **PROCESS LEVEL:** in this level there are different devices such as switchgears, like circuit breakers, switches, a current transformer and a voltage transformer.
- **BAY LEVEL:** here we can find intelligent electronic devices called IEDs. IEC 61850 defines a process bus to allow communications between IEDs and intelligent instruments and switchgears.
- **STATION LEVEL:** contains SCADA and HMI systems; used for substation control and monitoring. Station level uses a station bus to be able to communicate with IEDs located in a bay level.

(SGRWIN, 2021)



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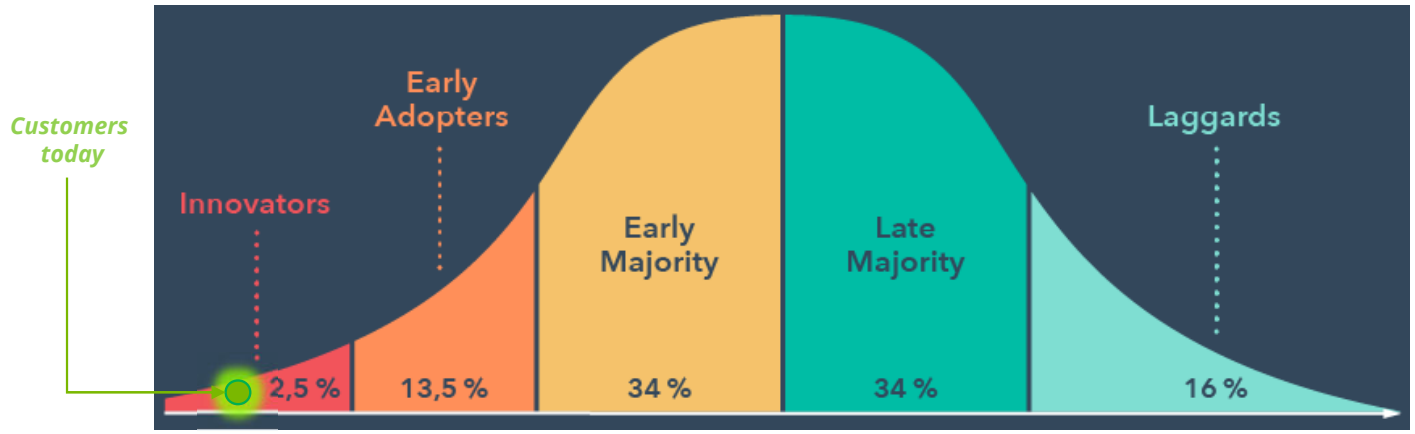
DRM Market



Rogers' Diffusion of Innovation

(1) Currently, technology cannot ramp up due to regulatory barriers – no standard for digital revenue metering!

(2) There is not enough trust in practical technology application – not enough industrial or research references.

(1) Landis+Gyr leads the development of **IEC TS 62053-25**, appointed project lead.

(2) Landis+Gyr leads industry practice deliverable development and popularisation of DRM via CIGRE SC B5 WG B5.76; appointed WG convener.

- Currently, due to the above-mentioned entry barriers, the technology struggles to be widely adopted
- It is imperative to do the standardisation work, develop published best practices and standards at the same time, as developing the new best-in-class measuring instrument!

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E860 DRM: Digital Revenue Meter – Coming soon!

1. Versatile “transformer” connectivity

- **Flagship** device for mainly high voltage installations
- Wide and robust power supply
- Battery and auxiliary power supply to operate under power cuts
- Class accuracy of **0.01 D (active energy)** and **0.01D (reactive energy)**

2. Communication Efficiency

- Flexible communication features
- Comms (E66C): 2x ETH 2x RS485, and multi protocol support
- **2x SFP connector for fiber** or coper connection
- Extensions (E86E): various I/O options
- Readiness for new technologies

3. Safety & Security E2E

- Data is protected from unauthorized access (anti-tampering measures and high-level security features)
- Easy to upgrade for future security requirements
- High grades of impermeability
- Compliant with the latest standards and goes extra

4. Flexibility, agility and longevity

- Changing regulatory and technical environments require future adaptations (functionalities and communication technologies) that are possible through modularity concept in FW and HW + remote FW upgrade
- Durable, reliable design and production

5. Advanced Power Quality Functionality

- Increased capabilities in monitoring power generation including renewable sources (at a later release)

6. System integration

- Easy system Integration – same as E860
- Enables efficient and reliable data transfer
- Interoperable protocols over ethernet
- IEC 61850 – 9 – 2
- **ICD and SCM** file handling

7. Corpore Social Responsibility

- Devices meets the strictest social environmental and safety criteria
- Lowest TCO (power consumption, easy to install, low failure rate…)

8. Interaction with local devices

- Near-real time information
- Multiples I/Os for local connectivity

DRM (Digital Revenue Metering) sampled value metrology based on IEC 61850-9-2, succession to E880 family.

Residential | **Commercial** | **Industrial** | **Grid**

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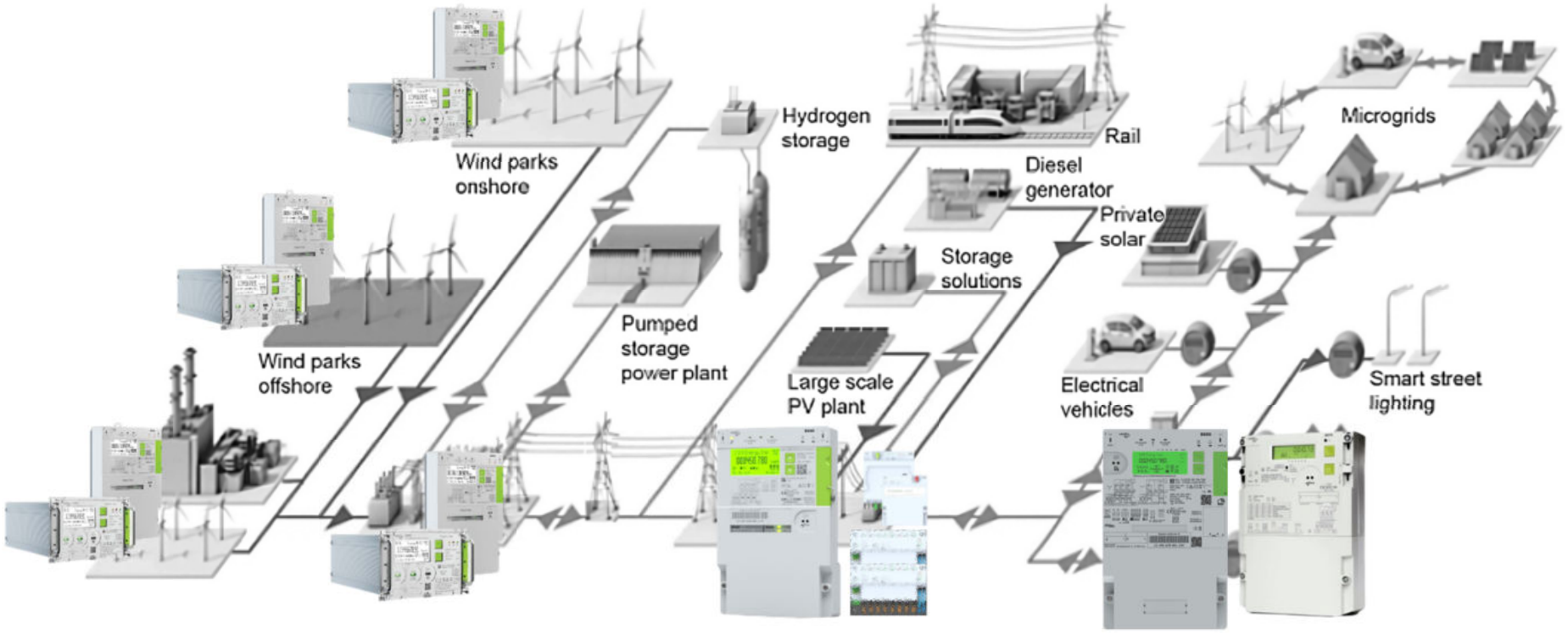
Value Map



Generation	Transmission	Distribution	Consumption
E860 & DRM	**E860 & DRM**	**E660**	**E650, E570**
Highest precision PQ Class A	Highest precision PQ Class A Monitor And Control applications	Higher precision PQ Class S Monitor And Control applications	Entry level ICG measurement High precision Entry level PQ

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Thank You!

Let‘s continue the conversation.

Reach out to tamas.pinter@landisgyr.com