

Session Name: Power System Flexibility

Speaker

Name: Yves BARLIER & Luc WANNIARACHCHI

Designation & Organization :

Yves BARLIER – Director Smart Grid (Enedis - EDF Group)

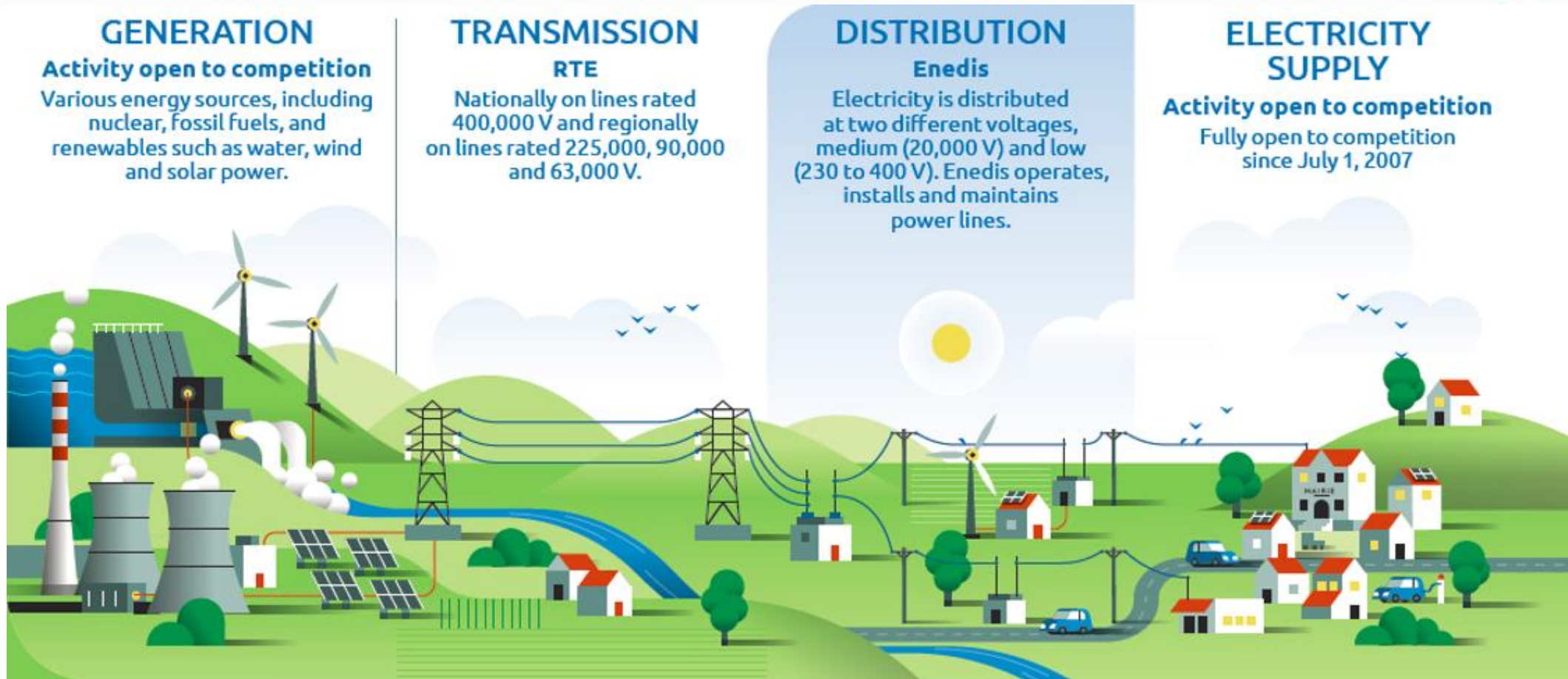
Luc WANNIARACHCHI – Director (EDF IN India – EDF Group)

Delivering the energy transition to your socket

How Enedis turned into #1 Smart Grid



Enedis: France's main Discom



An EDF subsidiary

2300 HV & MV
substation

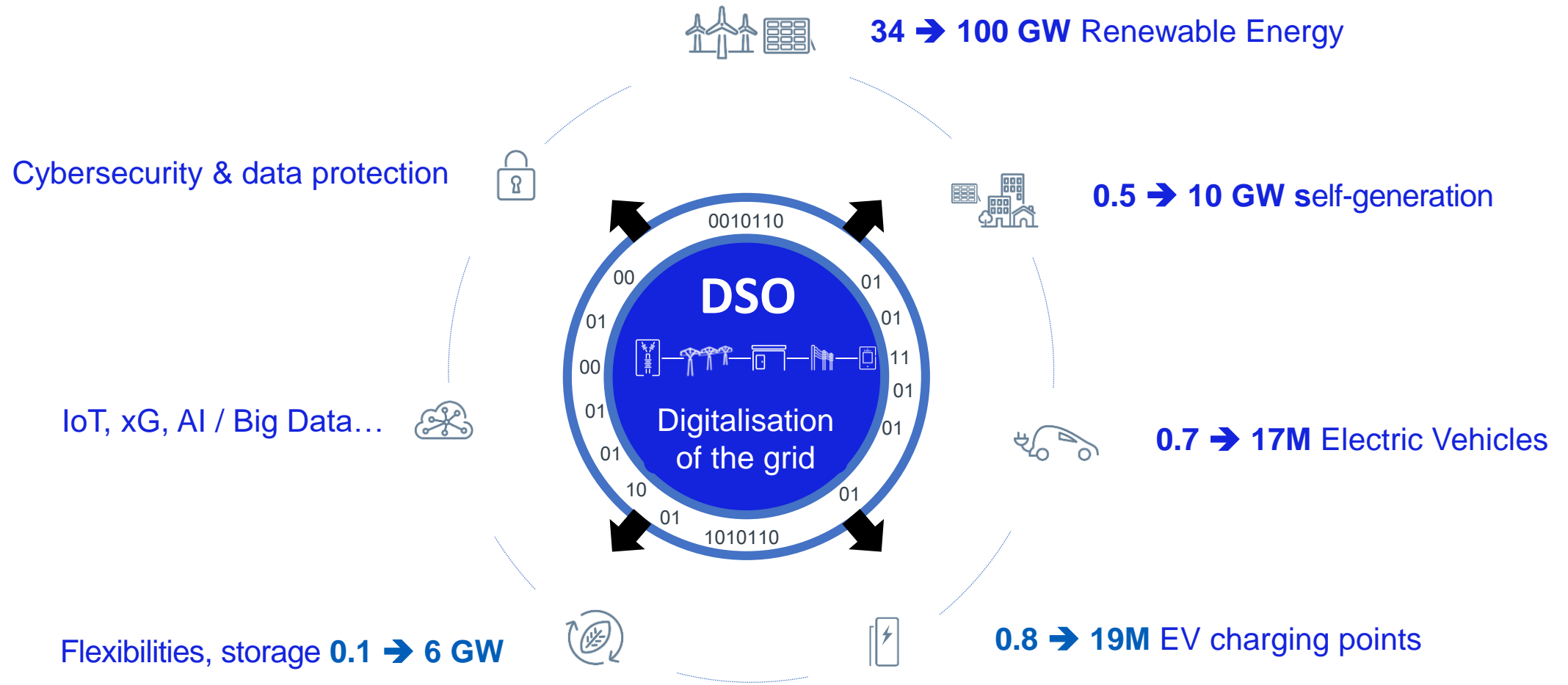
1.4m km MV & LV
grids

780,000 MV & LV
substation

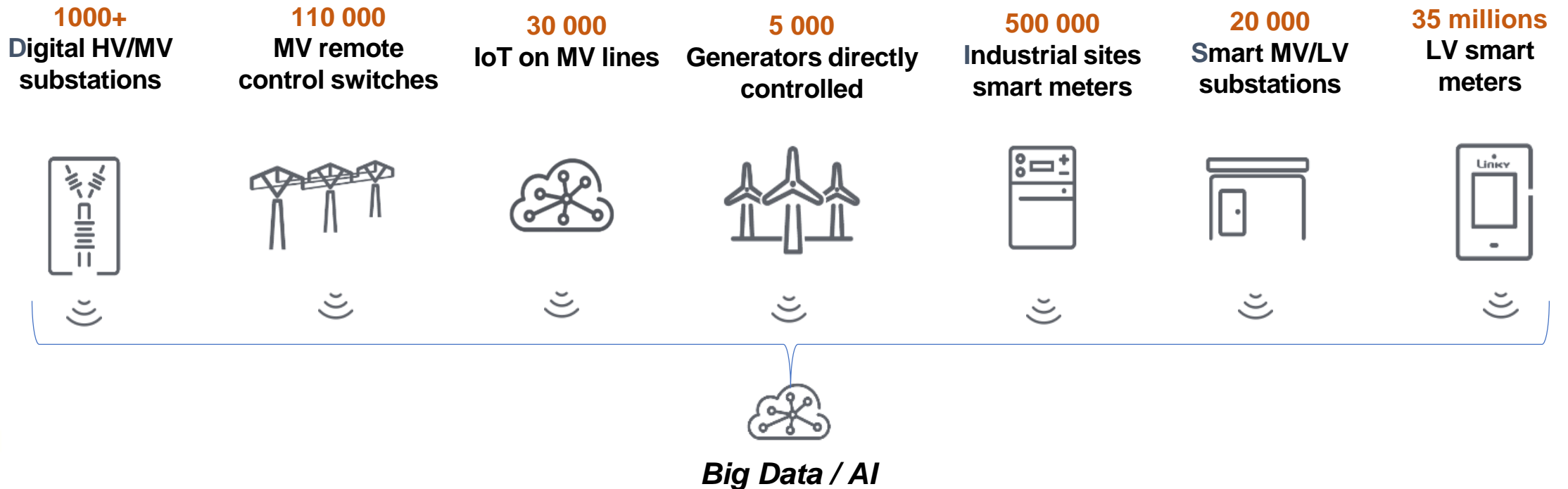
37.2m customers



Connecting the dots for a green world

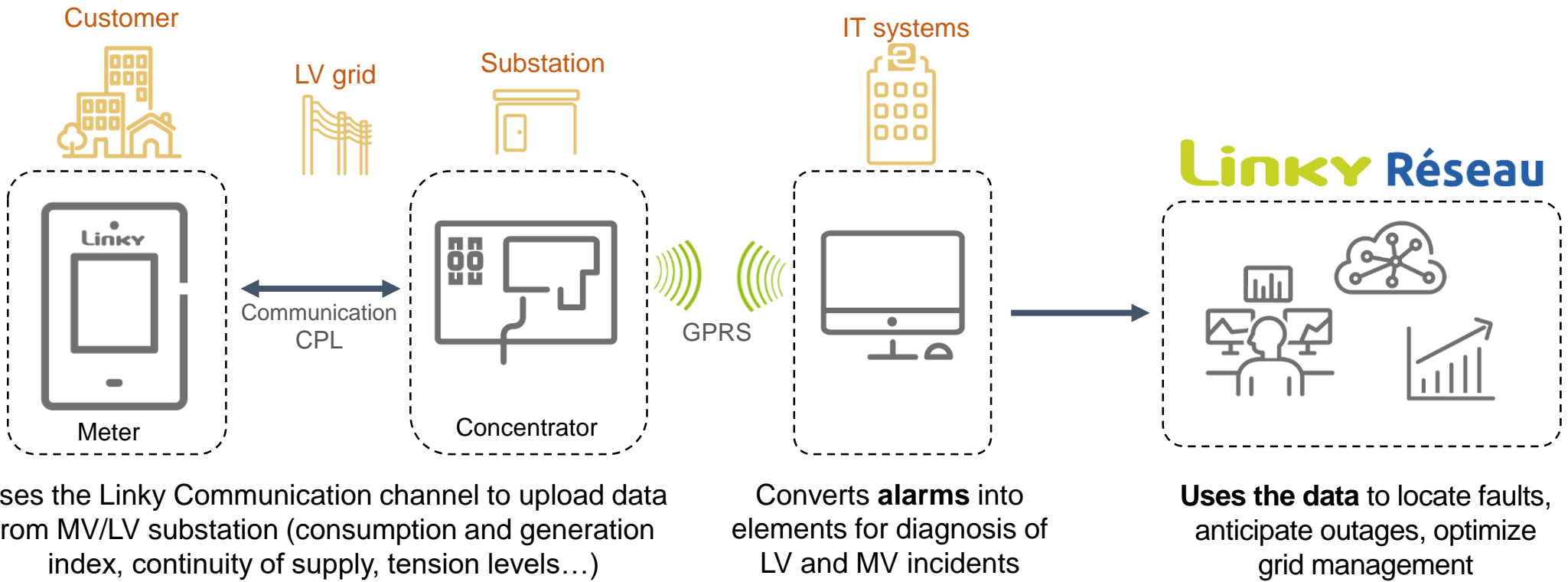


Smart Services through Smart Meters



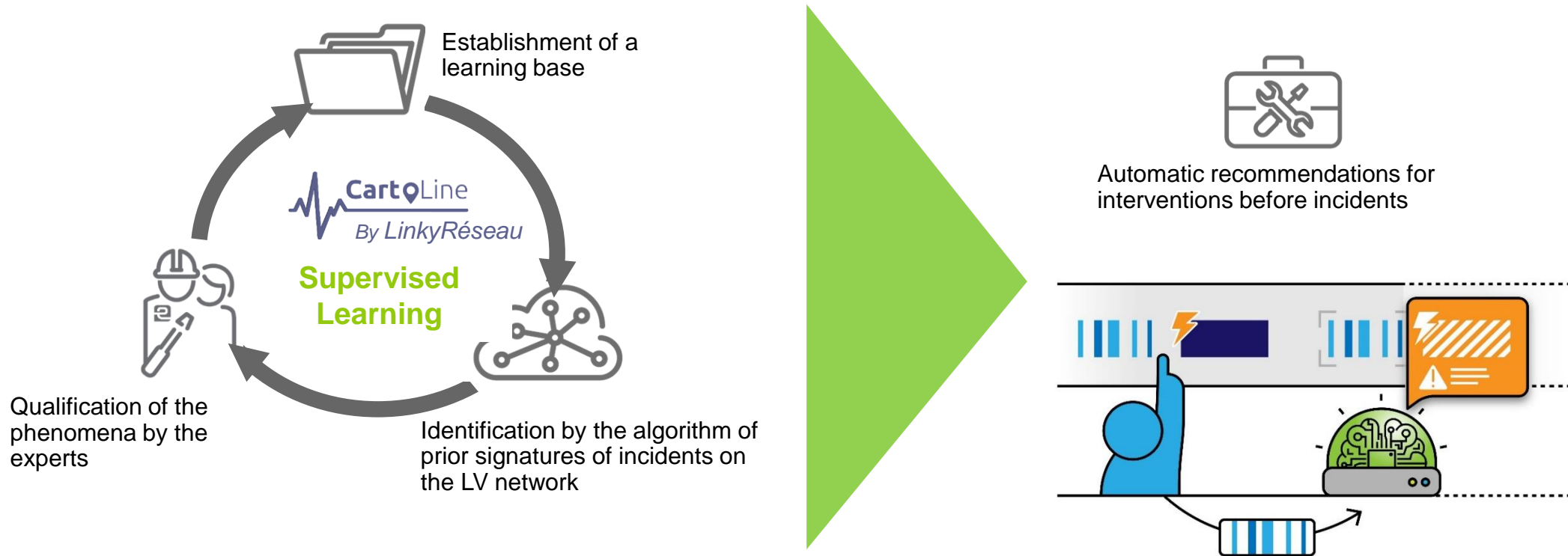
Linky smart meter: More than a meter

Linky uses data collected by Smart Meters and their IT infrastructure to **detect, locate and diagnose a wide array of possible incidents**, enhancing our **ability to anticipate** for improved LV customer care.



Grids growing brains

The CartoLine AI uses Linky datas to identify outage signatures on the LV network, and to treat failures as preventive, without waiting for incidents.



Let the Sunshine in

Principle : the power produced by a PV plant is shared among consumers that live in the neighbourhood (same LV feeder).

ENEDIS measures consumptions and generated energy, shares it among customers and transmits metering data to complementary suppliers.



Local generation
Sharing rules defined by participants
Power quality
Reliable and certified data
Free choice of power supplier

Enedis ranked first in SGI ranking

The Smart Grid Index (SGI) measures the smartness of electricity grid globally, in seven key dimensions. The benchmarking also identifies best practices to build smarter grids that deliver better value to customer



BENCHMARKING RESULTS 2021

Utility	Country/Market	Score	+/-	Best Practices	Utility	Country/Market	Score	+/-	Best Practices
Enedis	FRA	96.4	17.9%		Chubu	JPN	71.4	3.6%	
ConEd	USA	94.6	5.4%		State Grid Chongqing	CHN	71.4	7.1%	
TaiPower	TWN	94.6	12.5%		CenterPoint Energy	USA	69.6	-5.4%	
UKPN	GBR	94.6	0.0%		Fluvius	BEL	69.6	1.8%	
CitiPower	AUS	92.9	5.4%		Liander	NLD	69.6	3.6%	
WPD	GBR	92.9	1.8%		PSE	USA	69.6	1.8%	
DEWA	ARE	89.3	10.7%		Dominion Energy	USA	67.9	5.4%	
PG&E	USA	87.5	-5.4%		EDP	PRT	67.9	-1.8%	
SDGE	USA	87.5	0.0%		Eversource	USA	67.9	-1.8%	
SP Energy Networks	GBR	87.5	3.6%		EVN HCMC	VNM	67.9	16.1%	
e-distribuzione	ITA	85.7	1.8%		MEA	THA	67.9	14.3%	
ENWL	GBR	85.7	7.1%		TNB	MYS	67.9	5.4%	
FPL	USA	85.7	7.1%		Vattenfall	SWE	67.9	1.8%	
Radius	DNK	85.7	23.2%		ESB	IRL	66.1	8.9%	
SCE	USA	85.7	0.0%		State Grid Sichuan	CHN	66.1	3.6%	
Stedin	NLD	85.7	5.4%		EVN CPC	VNM	64.3	8.9%	
ComEd	USA	83.9	3.6%		NIEN	GBR	64.3	8.9%	
Northern Powergrid	GBR	83.9	1.8%		HK Electric	HKG	62.5	1.8%	
TEPCO	JPN	82.1	7.1%		Kahramaa	QAT	62.5	10.7%	
Jemena	AUS	80.4	8.9%		State Grid Hubei	CHN	62.5	1.8%	
LADWP	USA	80.4	1.8%		State Grid Nanjing	CHN	62.5	0.0%	
SSEN	GBR	80.4	3.6%		State Grid Tianjin	CHN	62.5	0.0%	
State Grid Beijing	CHN	80.4	7.1%		Stromnetz Berlin	DEU	62.5	10.7%	
Tata power-DDL	IND	80.4	5.4%		EVN Hanoi	VNM	60.7	5.4%	
Westnetz	DEU	80.4	0.0%		Helen	FIN	60.7	0.0%	

1 MONITORING & CONTROL

- SCADA • DMS/ADMS



2 DATA ANALYTICS

- Smart Meter Coverage
- Data Analytics Application



3 SUPPLY RELIABILITY

- SAIDI • SAIFI



4 DER INTEGRATION

- Management of DER Integration
- Grid Scale Energy Storage



5 GREEN ENERGY

- Renewable Energy Penetration
- EV Facilitation



6 SECURITY

- IT Cyber Security
- OT Cyber Security



7 CUSTOMER EMPOWERMENT & SATISFACTION

- Real-Time Data to Customers
- Customer Satisfaction Feedback



Enedis ranked first in SGI ranking

EDF International Networks offers engineering solutions and operation capabilities to power distribution companies

1

We propose 3 types of contract structure:

- 1 **Consulting** – Audit & assessment services for all business areas of a distribution company
- 2 **Project management** on specific technical developments (for ex. AMI deployment, smart meter network application, smart grid features...)
- 3 **Long Term Technical Service Agreement** Management and operation & maintenance services of specific or all business process(es) of the DSO

2

We operate worldwide

EDF IN Smart Services proposal is a global answer to network digitalization and energy transition challenges



Success story: 5 million smart prepaid meters in India

The Smart Metering solution developed by EDF International Networks is a global solution that meets all the challenges of digitalisation



Benefits for end users

Reduced operating costs and non technical losses

Increase revenues

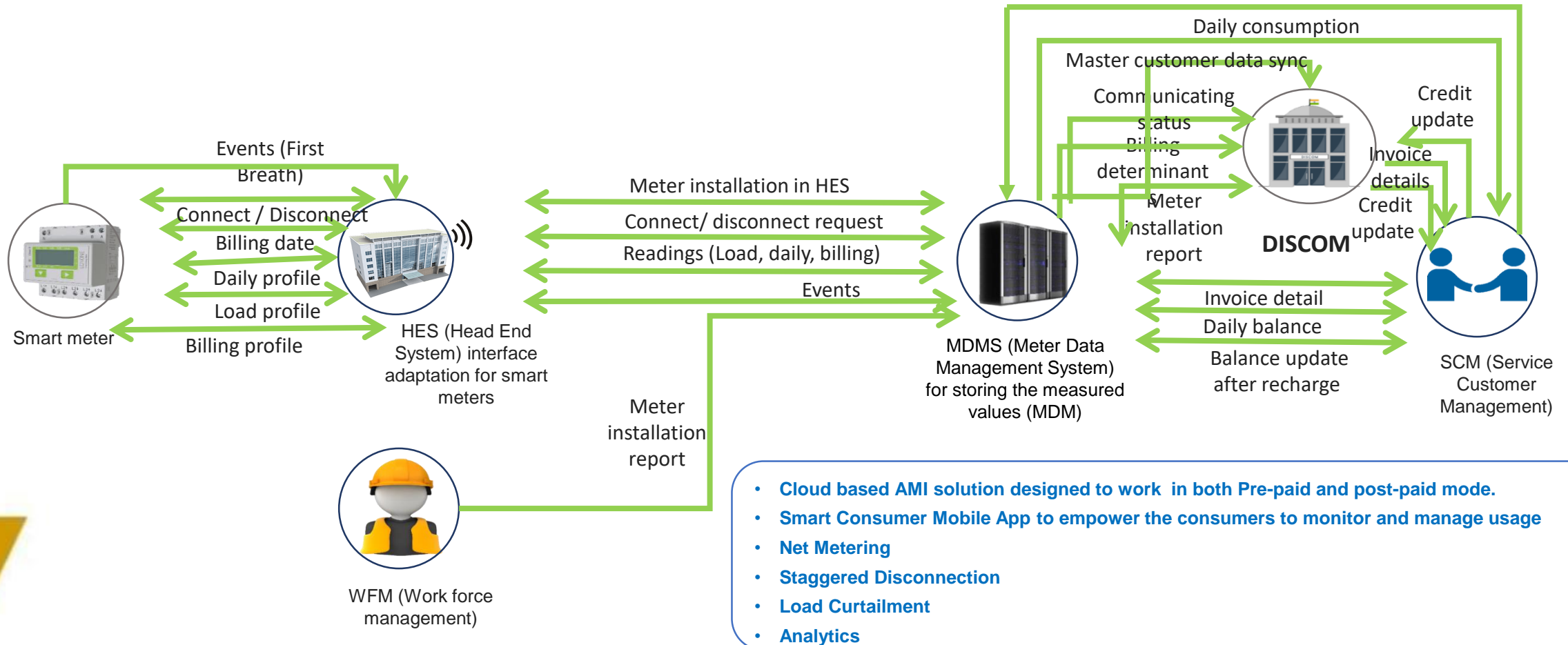
Solution for Renewable Energies

Improved customer satisfaction

Implementation of new offers



Bihar Smart metering project: System architecture



Bihar Smart metering project: Key figures



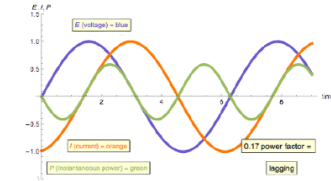
500 000+
Smart Meters Installed



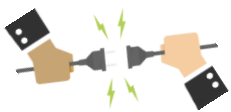
150+ EDF IN India
employees
2,000+ employees of our
service providers



~96%
Communication Rate
**Improving with the use of 4G meters*



60 Million+
Smart Meter events and Parameters
Retrieved Daily



230,000+
Monthly Remote Smart Meter
Disconnection/Re-Connection Operations



+\$55 M
Revenue billed
for Bihar



+\$27.5 M
Revenue handled by
EDF Consumer
Mobile Application



Thank You

*For discussions/suggestions/queries email: www.indiasmartgrid.org
www.isgw.in*

[Links/References \(If any\)](#)

India Smart Grid Forum
CBIP Building, Malcha Marg,
Chanakyapuri,
Delhi-110021
Website: www.indiasmartgrid.org