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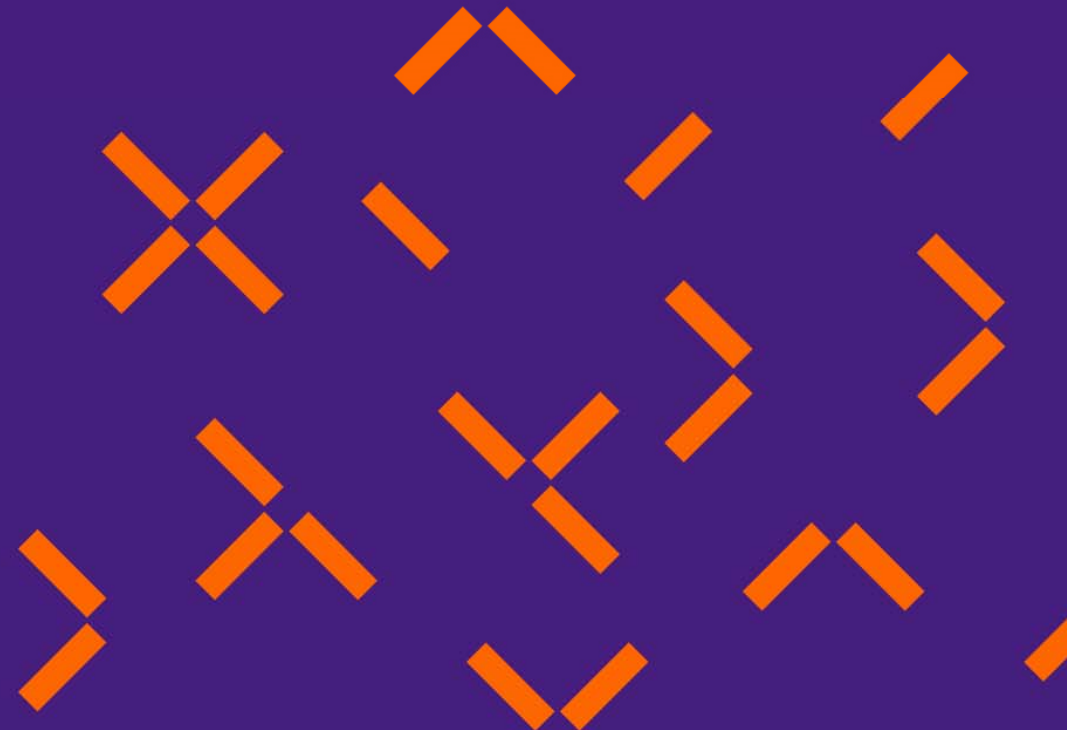**Enel X vision
e-Energy solutions and industry 4.0**

ScaleUp Summit
Milan March 11th 2019

The evolution of the energy sector

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Decarbonization

79% of new generating capacity by 2050 will be Renewables

Electrification

Global electricity demand will increase by 60% by 2040

Digitalization

By 2025 digital investments in the energy industry are expected to reach 81$ billion
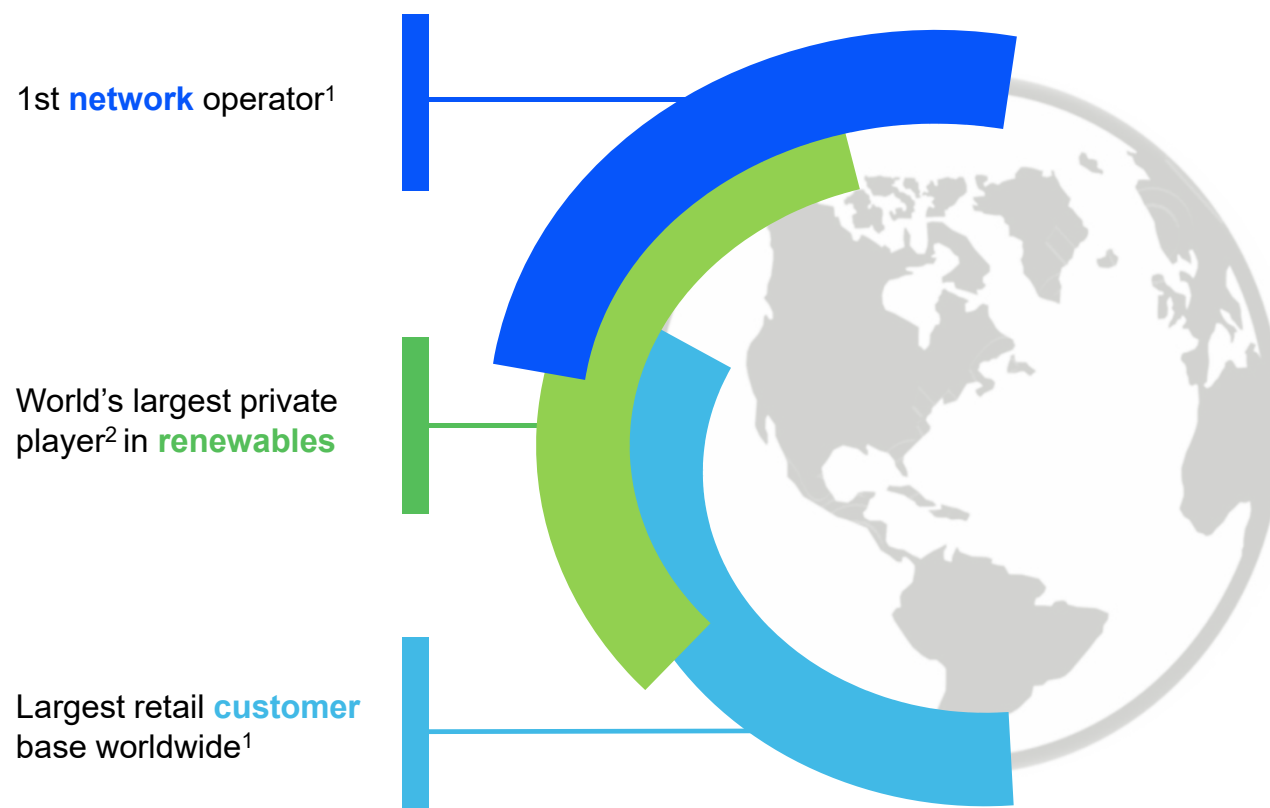
New customer needs

New customer needs lead to customized services development with sustainable approaches

The energy sector is experimenting a deep transformation
Digitalization and customer centricity will change the sector paradigm

Enel Group today

We are a leader in the new energy world

enel x

1st **network** operator[1]

World's largest private player[2] in **renewables**

Largest retail **customer** base worldwide[1]

- 73 mn end users
- 43 GW capacity[2]
- 46.5 GW capacity[3]
- 6.1 GW demand response
- ~ 64 mn customers[4]

1. By number of customers. Publicly owned operators not included
2. By installed capacity. Includes managed capacity for 4.2 GW
3. It includes nuclear
4. Includes customers of free and regulated power and gas markets
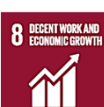
Note: 2018 forecast closing figures

Strong commitment to our SDGs targets
Enel Group delivery

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SUSTAINABLE DEVELOPMENT GOALS

Engaging local communities (mn beneficiaries)	2018E[1]	2020[1]
High-quality, inclusive and fair education	0.9	0.8
Access to affordable and clean energy mainly in Africa, Asia and Latin America	2.2[2]	3.0
Employment and sustainable and inclusive economic growth	1.8	3.0

Climate change	2018E	2020
Reduction of CO_2 specific emissions (kg/kWh_{eq})	0.39	<0.35

1. Cumulated figures since 2015
2. In the whole Group perimeter, 4.9 mn beneficiaries were reached
Note: 2018E referred to 2018 forecast figures

Enel X
Our mission

The mission of **Enel X** is to provide innovative technological solutions to help businesses, cities and people around the world to create **New Value** by changing the paradigms of the energy industry.

Enel X wants to accelerate the transition to **sustainable mobility**, **conscious** and **efficient consumption**, and the generation of electricity from **renewable sources**, helping companies, cities and individuals to live, work and grow.
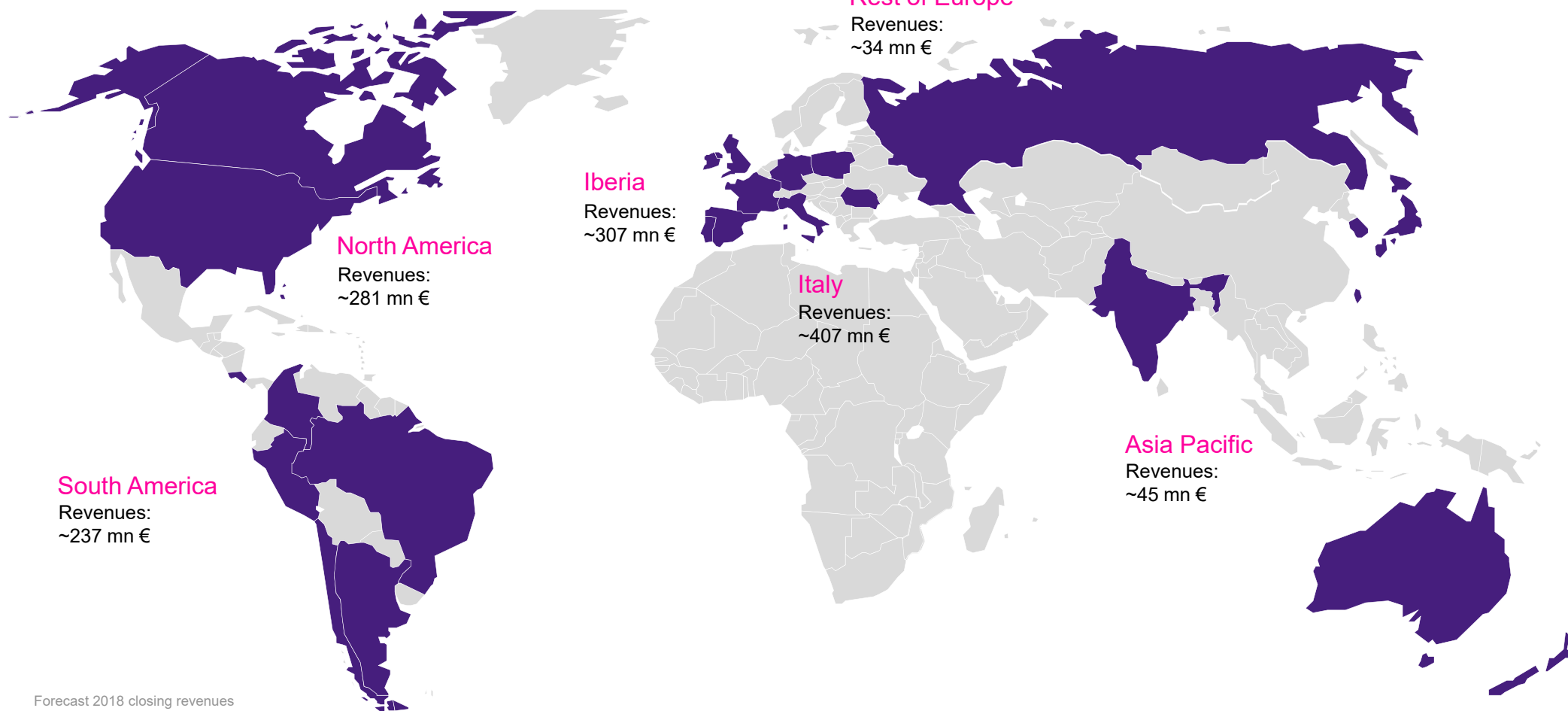
Enel X was born to create the new power economy transforming energy into power for everyone

Enel X's presence

Where we are in the world

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Rest of Europe
Revenues:
~34 mn €

Iberia
Revenues:
~307 mn €

Italy
Revenues:
~407 mn €

North America
Revenues:
~281 mn €

Asia Pacific
Revenues:
~45 mn €

South America
Revenues:
~237 mn €

Forecast 2018 closing revenues

Enel X portfolio of solutions
4 Global Product Lines
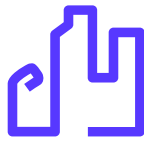
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e-Industries

Consulting and auditing service
Distributed generation on/off site
Energy efficiency
Demand response and storage solutions

e-City

Smart lighting
Fiber optic wholesale network
Distributed generation & energy services
Demand response and storage solutions

e-Home

Installation, maintenance and repair services
Automated home management
Financial services
Home 2 Grid

e-Mobility

Charging infrastructure (public & private)
Maintenance and other services
OEM back-end integration
Vehicle Grid Integration

Flexibility

Addressing new customer needs with innovative technologies

e-Industries
Mission

enel X

e-Industries' mission is to enable the global transition to a sustainable energy economy by realizing value for businesses through innovative energy solutions. e-Industries aims to be the preferred energy solutions partner for C&I customers across the globe.

Key figures*

Total e-Industries

Customer base (#k)	18.4

Demand Response

Customer base (#k)	5.7
GW sold	6.1

Smart Billing Management

Bills Managed (#mn annually)	1.4

* 2018 forecast closing figures

e-Industries
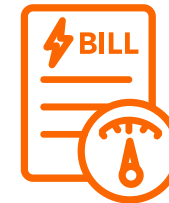## Portfolio of solutions

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ADVICE

Consulting Services
Strategic advisory services on energy usage and costs, identifying energy portfolio improvement.

Smart Billing Management
Automatic control of utility bill management.

SUPPLY

Distributed Generation & Microgrids
Design and turnkey delivery of sustainable and resilient solutions for client energy generation (e.g. CHP, PV and Microgrid).

Energy Infrastructures
Design and turnkey delivery of tailored electricity and gas infrastructure suited for clients needs.
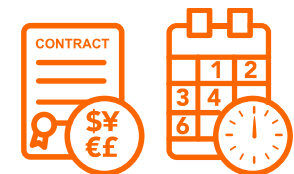
OPTIMIZE

Energy Management System
Software for energy intelligence and real-time monitoring and verification aimed to improve energy efficiency and reduce CO_2 emissions.

Energy Efficiency solutions
Design and installation of suitable, innovative and efficient technologies to reduce energy need.
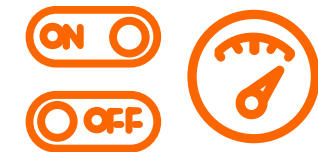
FLEXIBILITY

Demand Response
A flexible service that provides opportunity to transform energy into a source of revenues by easing the demand during times of grid stress.

Storage EaaS
The DEN.OS™ platform as a solution aimed to optimize revenue streams derived by bill reduction, grid services and resiliency.

e-City
Mission

e-City offers to public administrations and municipalities integrated services and connectivity solutions, like the public lighting services and the wholesale offer of fiber optic services. Our aim is to become the key infrastructural city player, being the one-stop solution provider for multiple energy related services across the different layers composing the urban context.

Key figures*

Total e-City

B2G Clients	~ 3,250

Public Lighting

Lighting points (#mn)	2.5

open fiber

Household passed (#mn)	4.2

* 2018 forecast closing figures

e-City
Portfolio of solutions

enel x

Smart Lighting Solutions

e-City counts more than **2.5 mn** of **lighting points worldwide**. In Italy about 1,700,000; in Chile 280,000; in Colombia 410,000 and in Spain 100,000.

Artistic lighting: portfolio of solutions targeting architectural "attractions" driving both artistic/decorative enhancement and energy savings

Smart City Solutions

e-City offers to governments, public administrations and municipal utilities the most comprehensive portfolio of **energy related digital solutions.**

Energy efficiency, video surveillance, urban analytics, urban advertising, e-Bus services and other lighting related ancillary services.

UBB

e-City aims to become a **multi-regional wholesale fiber operator in LATAM,** leveraging synergies with Enel's power distribution network.

- *Ultra Broadband connectivity (FTTx) for residential and enterprise;*
- *4G network densification;*
- *5G introduction;*
- *IOT and smart city infrastructure.*

P PARKING

BILL

Central Office (meet me room) **Residential** **Enterprise**
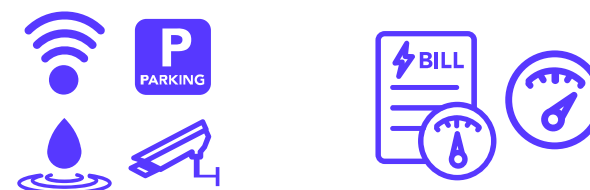
e-Home
Mission

e-Home is dedicated to residential customers, with services like installation and maintenance of advanced technological solutions for the home; e-Home aims to simplify customers' daily life and render their dwelling an efficient, safe and welcoming place.

Key figures*

Maintenance and repair [1]

Customer base (#mn)	2.7

Financial solutions

Credit cards (#mn)	0.9

1. Maintenance contracts (scheduled boiler maintenance) mainly on gas/electrical system
* 2018 forecast closing figures

e-Home
Portfolio of solutions

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Home Service Solutions

Installation, maintenance and repair services - PV, boiler, air conditioning, etc.- exporting Spanish best practices worldwide.

Working on new business model leveraging existing commodity's customer base

Photovoltaic + **Energy Storage** ········ **Commodity**

Home Finance & Insurance Solutions

Financial solutions to low income clients and new micro-insurance services in LATAM.
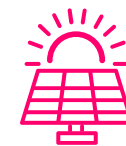
Exporting Colombian best practices

Home Smart Solutions

Developing new smart home solutions, providing an interface to manage new home energy services and access to third party services.
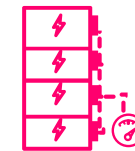
Offering smart home solutions in bundle with installation, maintenance and repair services

e-Mobility
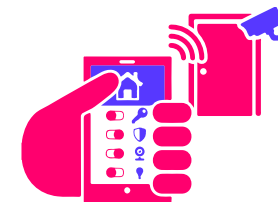## Mission

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e-Mobility, covering every type of customer, aims to become the technological leader in the sector and to promote increasingly widespread and efficient electrical mobility with charging infrastructures, Vehicle-Grid Integration (VGI) and second battery life services.

Key figures*

Public Charging[1]

Public charging points (#k)	5.5

Private Charging

Private charging points (#k)	42.5

1. Including both owned and managed charging stations
* 2018 forecast closing figures

e-Mobility
Portfolio of solutions

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Public Charging

Public charging infrastructure plan launched:
- In **Italy**, the programme calls for **28,000** charging points by 2022
- In **Spain**, the programme calls for **8,500** charging points by 2023
- In **Romania**, the programme calles for **2,300** charging points by 2023.

The plans foresee investments for about € 400,000.

Charging network is made up of Quick (22 kW) Fast (50 kW) and Ultra Fast (up to 350 kW) charging points.

Private charging

Our new smart wallbox can interact with cars, customers and grid. **JuiceNet,** an integrated IOT platform, is able to aggregate the distributed loads of thousands of EVs utilizing their chargers to dynamically balancing the grid.

Charging infrastructure enabling Home to Grid (H2G) business model

VGI

Thanks to **VGI technology** Enel X smart charging stations can interact with the grid providing **flexibility to the system**, by modulating the process of charging according to the status of the grid.

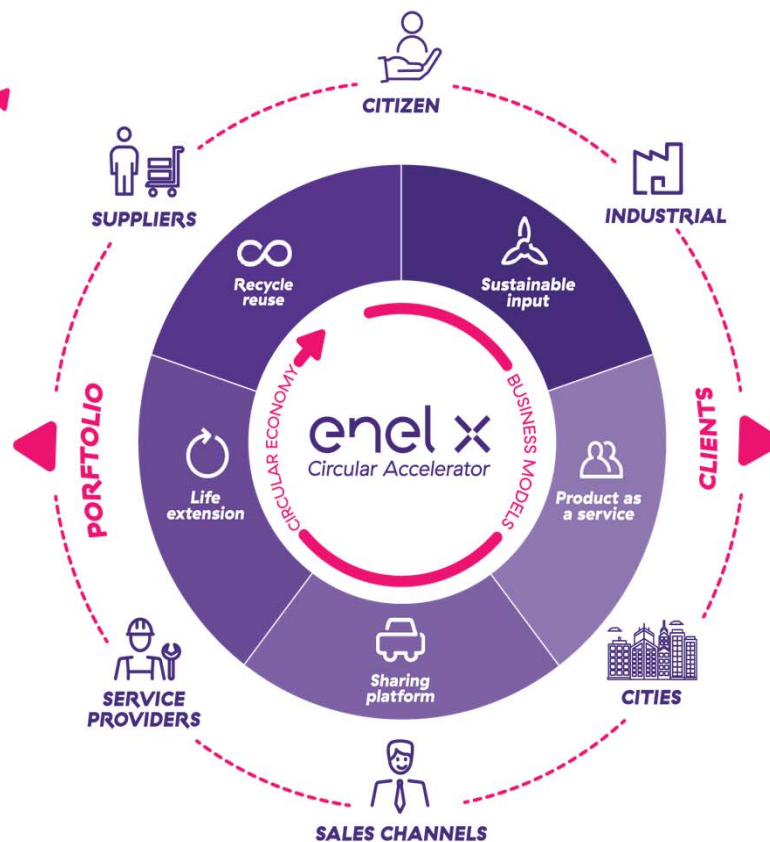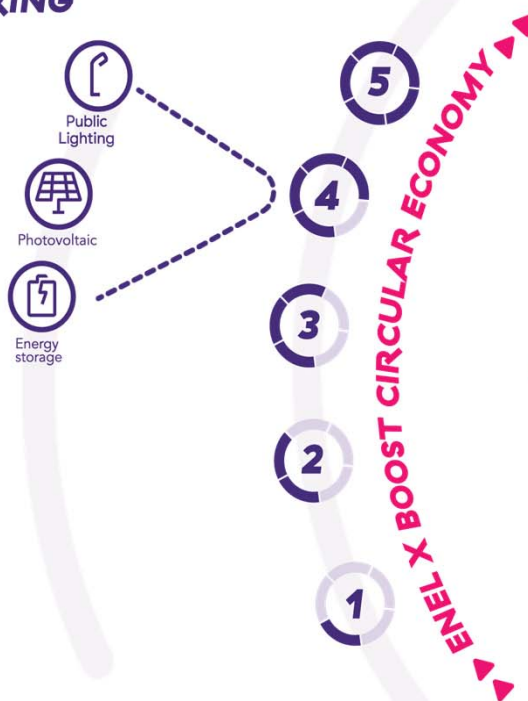| Demand Response | Ancillary services through V1G | Ancillary services through V2G | Energy 2 Grid |

@WORK

@HOME

JUICEBOXC
AC up to 22 kW

JUICEBOX
AC up to 22 kW

JUICESTATION
AC up to 22 kW

INTELLIGENT CHARGING SOLUTIONS

ON THE ROAD

JUICEPUMP
AC up to 43 kW
DC up to 50 kW

JUICEPOLE
AC up to 22 kW

JUICELAMP
AC up to 22 kW

Circular Economy
Our boosting approach

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FY 2018 results[1] and industrial growth by 2021

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e-Industries

		2018[1]	2021
Demand Response	GW sold	5.7	9.9
Storage	MW installed/year	3	173

e-Home

		2018[1]	2021
Maintenance and repair [3]	Customer base (#mn)	2.7	4.0
Credit cards	Credit cards (#mn)	0.9	1.9

e-Mobility

		2018[1]	2021
Public charging[2]	Charging points (#k)	5.5	24
Private charging	Charging points (#k)	42.5	431

e-City

		2018[1]	2021
Smart Lighting	Light points (mn)	2.5	3.4
Fiber deployment [4]	Households passed (mn)	2.4	8.5

1. 2018 forecast closing figures
2. Including both owned and managed charging stations
3. Maintenance contracts (scheduled boiler maintenance) mainly on gas / electrical system
4. Italy, only A & B areas

Thank you

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