# OUTLOOK 2018 / 2022

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Iberdrola, "utility of the future":

Building the foundations for growth in the next decade

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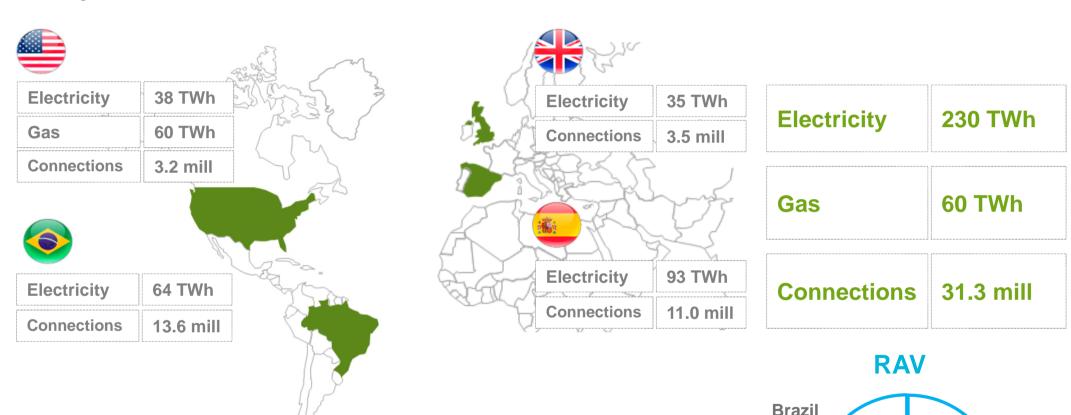
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### Networks Today: 2017 Key figures

# Geographically diversified business with regulated revenues and strong cash flow performance in all countries



**Net Capex EUR 2.1 Bn** 

EUR 4.2 Bn (EUR 4.6 Bn with 12m Neoenergia) **EBITDA** 

UK

33%

Spain

16%

28%

USA

**EUR 29.0** Bn

24%

## **Key Business Areas**

Long term Regulatory frameworks deliver transparent and secure revenues in all geographic areas



Delivering value to **customers** with best-in-class customer service through quality of supply and new smart grid services



Profitable **growth** based on T&D investments in core areas



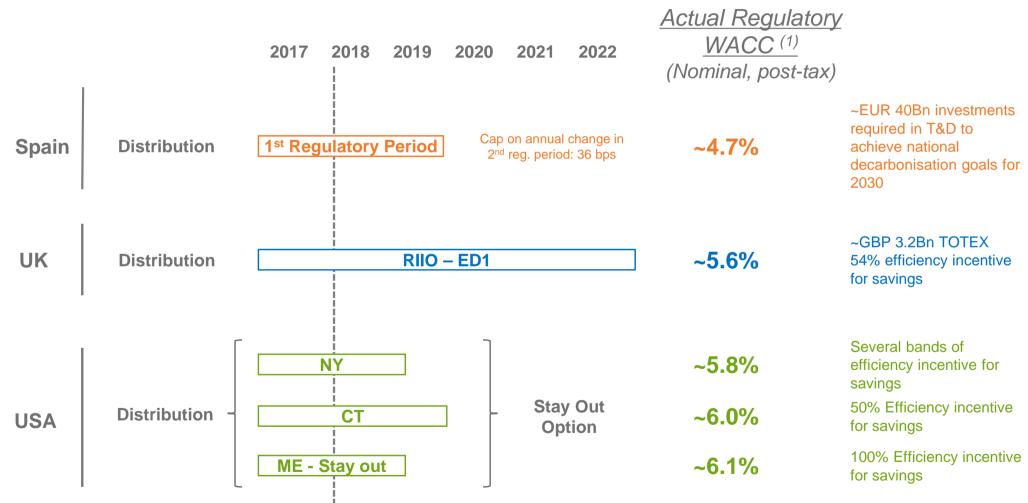
Improving operational efficiency



Driven by innovation, technology and global best practices

## Visibility of Revenues (1/2)

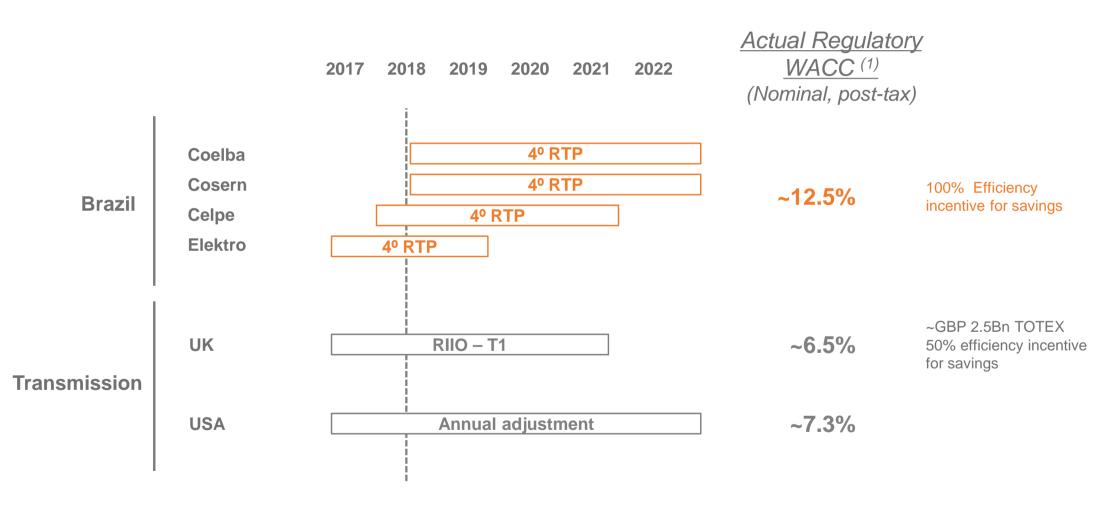
Long term regulatory frameworks and reasonable rates of return in all jurisdictions are the foundations of a balanced investment mix in T&D across countries



(1) Nominal WACC post-tax has been calculated based on each country's specific remuneration framework. ESP: 6.5% Nominal WACC pretax; UK: 6% Real COE post-tax; USA-NY 9% USA-CT 9.15% USA-ME 9.45% Nominal ROE post-tax.

## Visibility of Revenues (2/2)

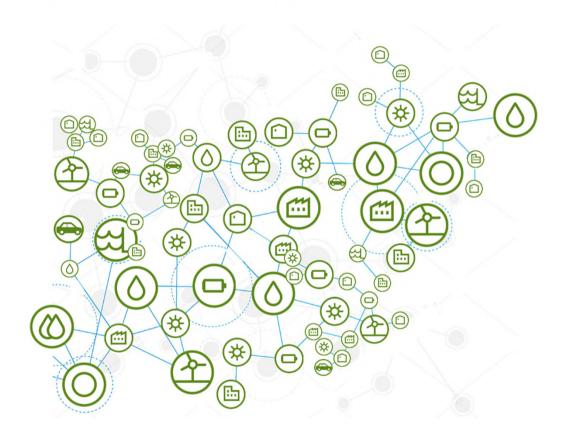
Long term regulatory frameworks and reasonable rates of return in all jurisdictions are the foundations of a balanced investment mix in T&D across countries



<sup>(1)</sup> Nominal WACC post-tax has been calculated based on each country's specific remuneration framework. BRA: 8.09% Real WACC posttax; Transmission UK: 7% Real COE post-tax; Transmission USA: 10.57% Nominal ROE post-tax

#### Our vision of Networks

# Distribution Networks have the <u>central role</u> in energy transition and need to adapt to new challenges



**Optimise planning and Network deployment** in a context of electrification of transport and heat

**Ensure system operability and reliability** with large penetration of intermittent generation

**Integrate Distributed Energy** Resources (Renewables, EV, storage)

Facilitate active demand response and supply balancing services

Investments on Distribution Networks are key for an efficient, safe and reliable **Energy Transition** 

## Smarter Networks: A history of continuous improvement (1/2)

# EUR 3 Bn invested in networks digitalization to date, with projects delivered setting the blueprint for a global Smart Grid model...

#### **Achievements**

# Network **Operation**

Virtual operation. Patented self healing Al algorithm.

↑ Reliability **↑ Safety ⊥** Costs



**Mobility:** Digital field forces management



1.8X improvement on fault recovery 59% load recovery < 3min vs 33% in 2010

# Advanced **Analytics**

70+Th of data analyzed

Big data tools for decision making



#### **Demand Forecasting**

85% new connections allowed automatically vs 50% in 2016



EUR 17M/y due to fraud reduction 60% efficiency on field activities



BRL 8M/y OPEX savings in field activities

## **Smart Meters**\*



10.4M Smart Meters in service in 2017



1.3M Smart Meters in CT/MF

**↑ Prosumer** monitoring



240M of hourly customer load curves per day

<sup>\* 0.8</sup> Million of smart meters deployed by Retail in the UK



## Smarter Networks: A history of continuous improvement (2/2)

EUR 3 Bn invested in networks digitalization to date, with projects delivered setting the blueprint for a global Smart Grid model...

#### **Achievements**

## **DFR** integration

Integrate & control intermittent renewable capacity within distribution Network

**MW** integrated ↑ Quality



2.4GW in central region (1.6GW Peak) Interruptions 157%, 131 to 57 min 2007-17



150MW in Dunbar & Berwick (25MW Peak)

# **District Storage**

Utility scale storage projects to provide network services

**New Services:** Balancing, **Flexibility** 



5 Projects in NY / CT on line in 2018



2 Projects on line in 2018

# **Microgrids**

Solution to improve resiliency or electrify isolated areas

**New Services** 



**Woodbridge** → to harden local network



S. Agustín → to test DER control



21k customers electrified in State of Bahia ("Luz para todos")

## Moving forward: Global Technology Platform 2018-2022

# + EUR 3.9 Bn net investments for growing and expanding our global technology platform...

**Empowered** Digital Mngmt. & **Global Technology Platform Platform** Customer **Data Analytics** 0.4 EUR ~500 M **Systems & Applications EFFICIENCIES & Smart Grids INCENTIVES** Cibersecurity Current 2018-2022 **Telecommunication Network 120%** Level SERVICE QUALITY **Automation IMPROVEMENT Networks assets 2.7** Bn **1.2** Bn **FUR** 

Global development adapted to local environments



## Customer at the Center: Today and expected results

# Improving best-in-class quality of supply

#### Minutes interruption vs peers average

-25% vs peers avg

Source: Minetad

-6% vs peers avg UK

Source: Ofgem

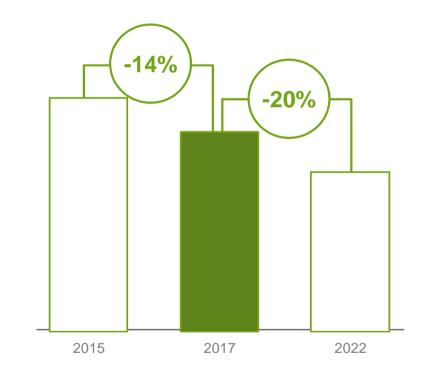
-39% vs peers avg USA

Source: Ranking ANEEL

Source: internal calculations for urban areas

-21% vs peers avg **ELEKTRO** COSERN Room to **COELBA** improve

Minutes interruption



Note: US comparison only with urban OpCos (RGE and UI)

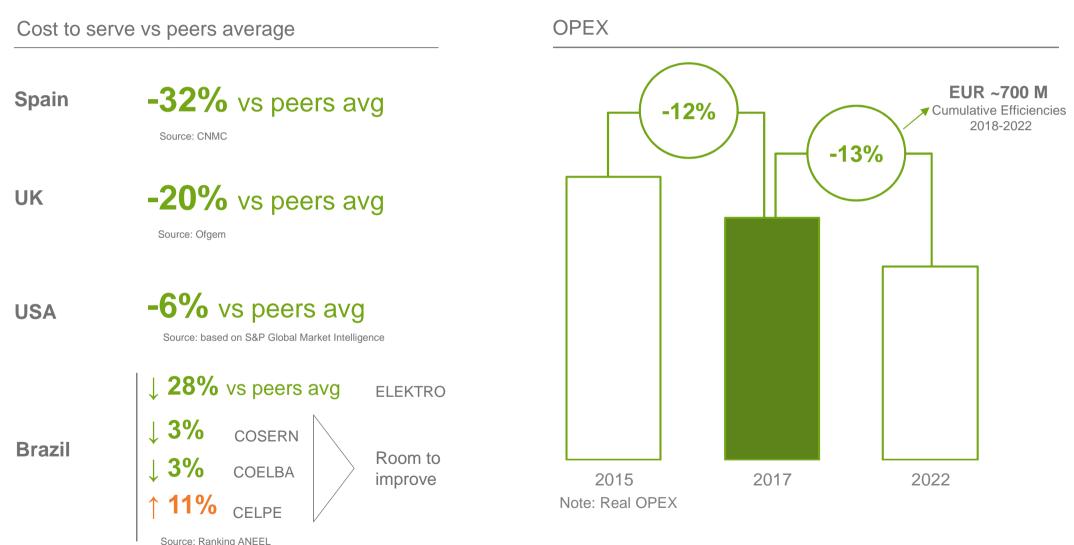


**Brazil** 

**Spain** 

## Operational Efficiency: Today and expected results

## Total cumulative efficiencies of EUR 700 M during the period, partially shared with customers

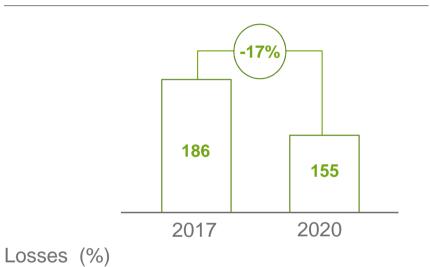


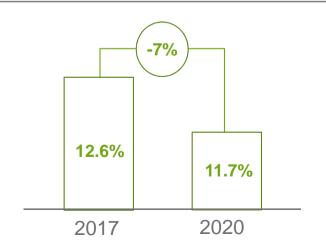
... and are key to foster business integration and best practice sharing

## Operational Efficiency: Neoenergia Case Study / Brazil

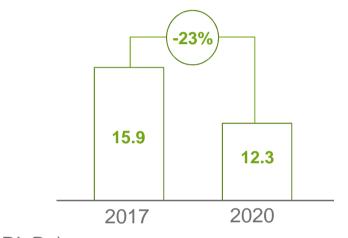
# Ambitious plan for the integration of Neoenergia: improving efficiency, service quality and losses based on Iberdrola's global networks expertise

Cost to serve (BRL / customer)

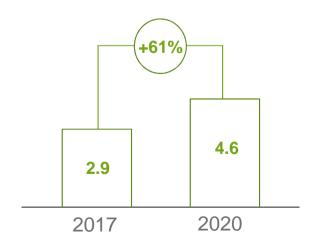




DEC (hours interruption)



Net CAPEX (BRL Bn)



#### Profitable Growth 2017-2022: Transmission

Solid background as transmission operator in UK and US subsidiaries...

... that allows growth opportunities in core areas with T&D synergies

2017 New Projects

**NEOENERGIA** 

BRI 2.7 Bn **Reg CAPEX AWARDED** 

4 lots awarded in Apr-17 + 2 lots in Dec-17



Potential Transmission Projects up to 2030

**USA** 

USD **10** Bn

**New England & New York** 

**USD 75** Bn Source: Brattel Group Other regions in USA



Brazil

BRI **90** Bn

**ANEEL auctions** 

Source: ANFFL

Mexico

USD 7 Bn

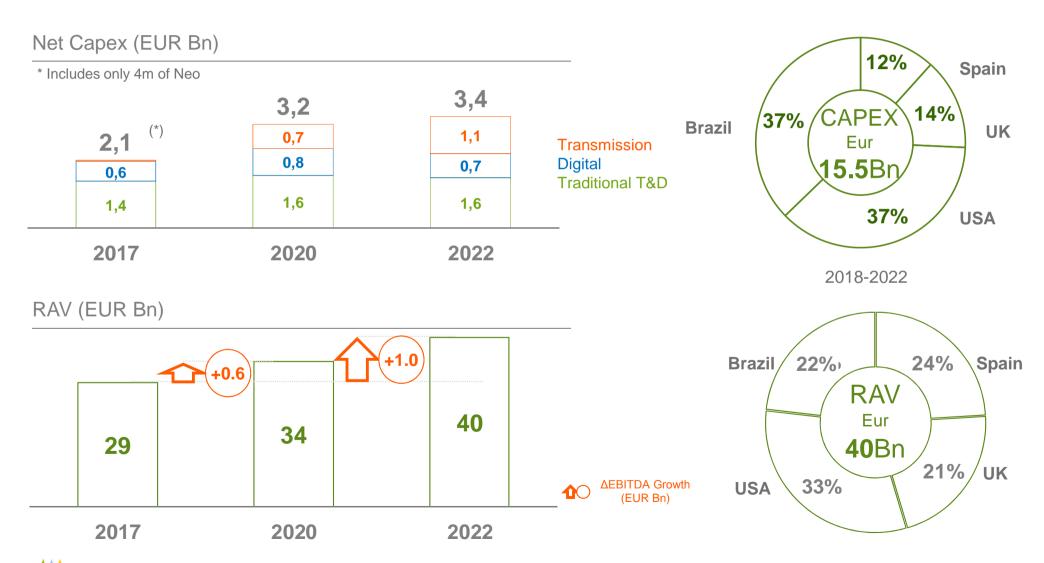
Source: Prodesen

New HVDC transmission projects

**Transmission Projects in or close to our Service Areas** 

> EUR 100 Bn opportunities in Core Areas

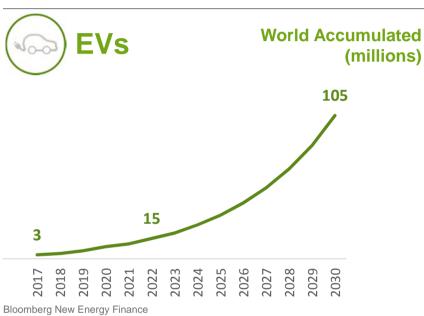
# EUR 15.5 Bn of CAPEX during the period, providing EUR 11 Bn RAV growth and EUR 1,000 M additional EBITDA by 2022



## Further Opportunities: EV

# DSOs will play a key role as enabler of electro-mobility, managing smart charging processes and thus, reducing investments in grid reinforcement

#### Perspective



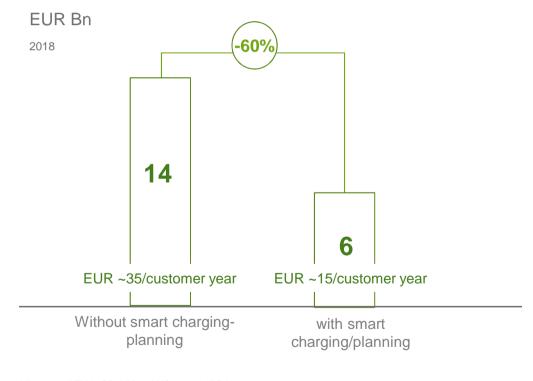
~270M EV in 2035

~280M EV in 2040

(New Energy Policies Scenario EIA)

#### What is IBERDROLA doing?

Required <u>investments</u> in distribution networks to accommodate full EV deployment<sup>(1)</sup> in IBE core markets



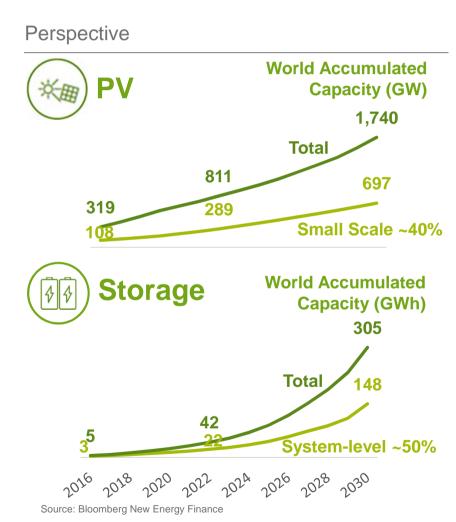
(1) 100% of EV in SP, UK and US, 30% in BRA.

### Early planning and smart technology are key for an efficient deployment



## Further Opportunities: LV DER Integration and Flexibility Services

# Networks will be the key enabler in all scenarios of DER penetration at Low Voltages, integrating at least ~50% of batteries and ~40% of PV



What is IBERDROLA doing?

#### **Spain**

Since 2008, 2.4GW intermittent generation integrated in Central Region (1.6GW Peak demand)

**ALOIS 2018-2021**: Islanding. Safe & Reliable operation in islands within distribution networks

#### UK

Since 2012, with up to 150MW intermittent generation ANM (Active Network Management) in Dunbar & Berwick (25MW peak demand)

- **ANM 2018-20**: Scheme to facilitate ANM roll-out
- >> FUSION 2018-2022: Local flexibility balancing market

Investments in low voltage Network development are key for efficient DER integration



# 100+ Innovation Projects Launched

A fully functional in-house innovation model, solving real problems today

#### Conclusions

Geographically diversified business with regulated revenues in all areas and strong cash flow generation



20% increase in quality of supply from a best-in-class networks business in all areas



Net investments of EUR 15.5 Bn drive an increase in RAV of EUR 11 Bn, with a related EBITDA growth of EUR ~1,000 M

EBITDA 2022

EUR 5.8-6.0 Bn



EUR ~700 M of accumulated efficiency gains, providing EUR ~200 M EBITDA in 2022

And further opportunities for growth through the Energy Transition