



Networks Brazil

November 2019

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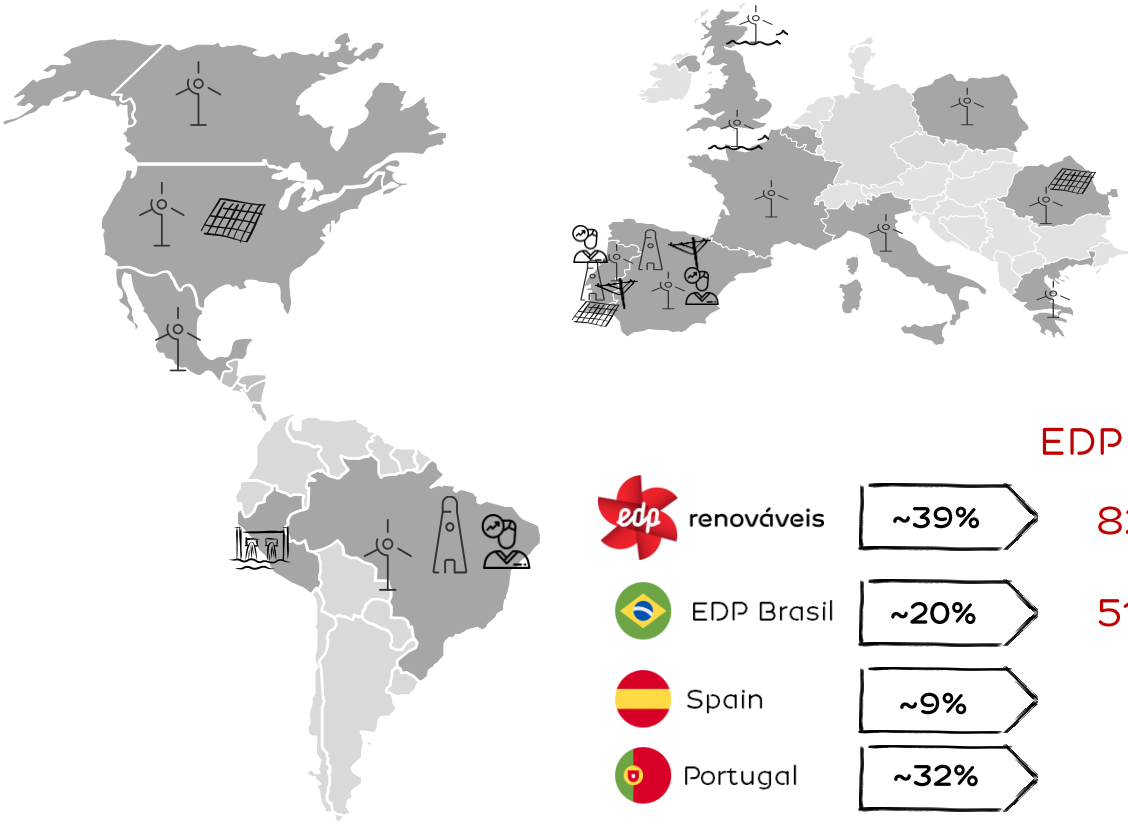
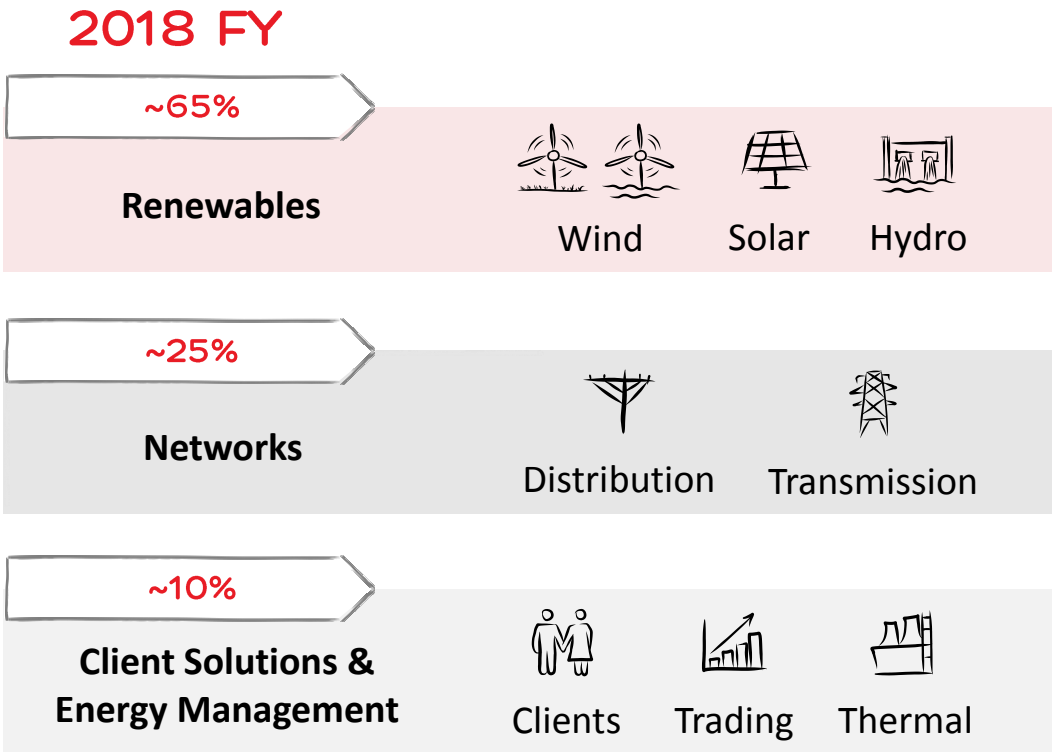
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- 1 Context
- 2 Distribution
- 3 Transmission

- 1 Context
- 2 Distribution
- 3 Transmission

EDP is a leading integrated energy utility, with networks representing 25% of EBITDA



Key figures⁽¹⁾: Installed Capacity | 28.1 GW EBITDA | €3.3 Bn Net Profit | €0.5 Bn Employees | 11.6k Customers | 9.8 Mn

 % Weight EBITDA as of YE2018

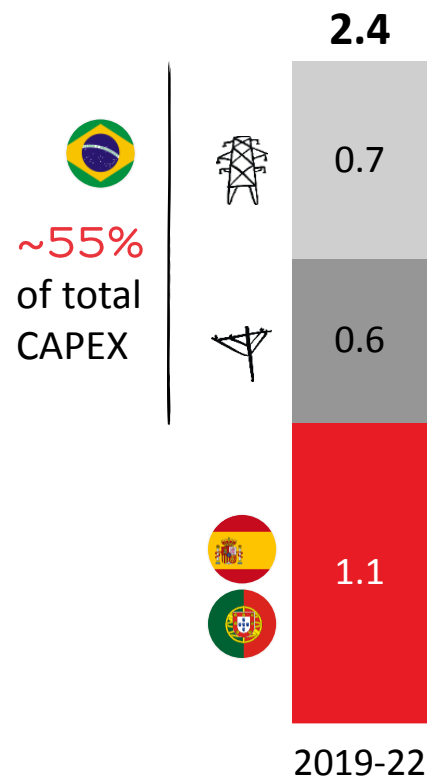
1 All figures reported as of YE2018

EDP networks: Brazil will be the engine of growth, representing 40% of EBITDA by 2022



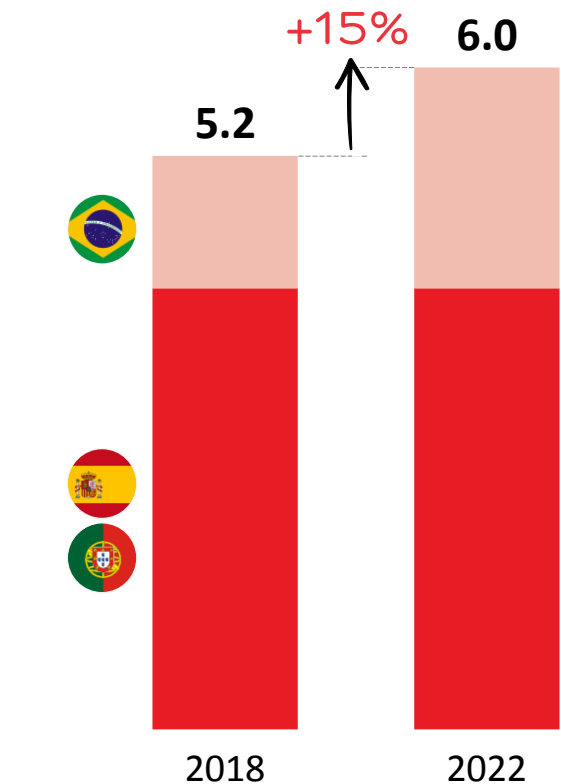
~€0.6 Bn annual CAPEX in Networks

CAPEX, € Bn



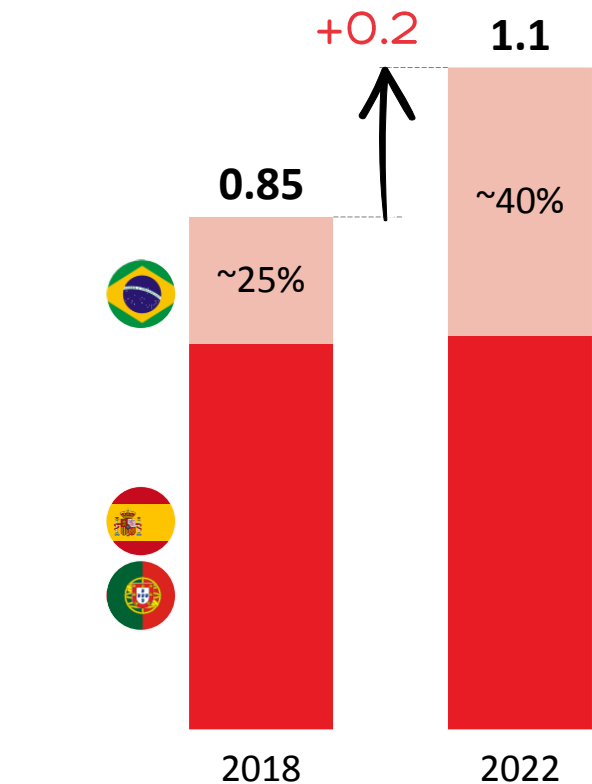
Regulated Asset Base to increase 15%

RAB¹, € Bn



EBITDA to grow driven by investments in Brazil

EBITDA, € Bn²



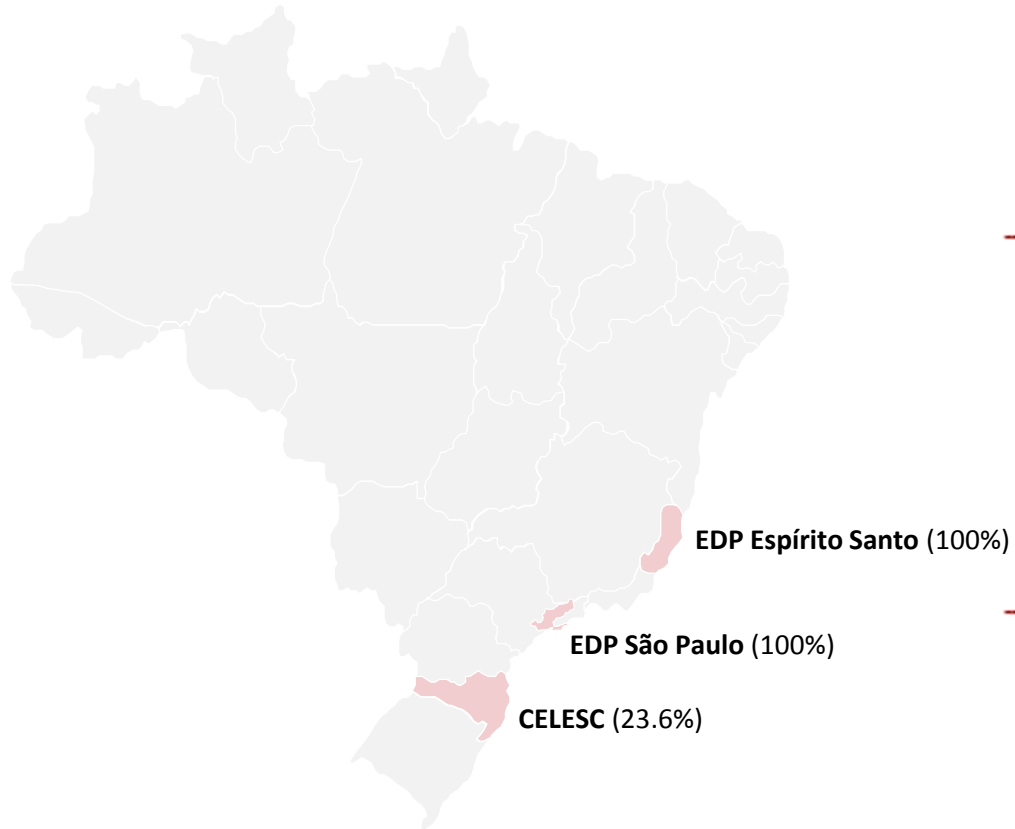
+XX Growth, 2019-22













Note: figures as of Mar-18 (at Strategic Update presentation)

1 Includes 23.56% of CELESC and invested capital in Transmission in Brazil (RAB valued under different economic model than distribution) | 2 Disposals included in proportion of EBITDA of each platform

- 1 Context
- 2 Distribution
- 3 Transmission

Distribution Portfolio

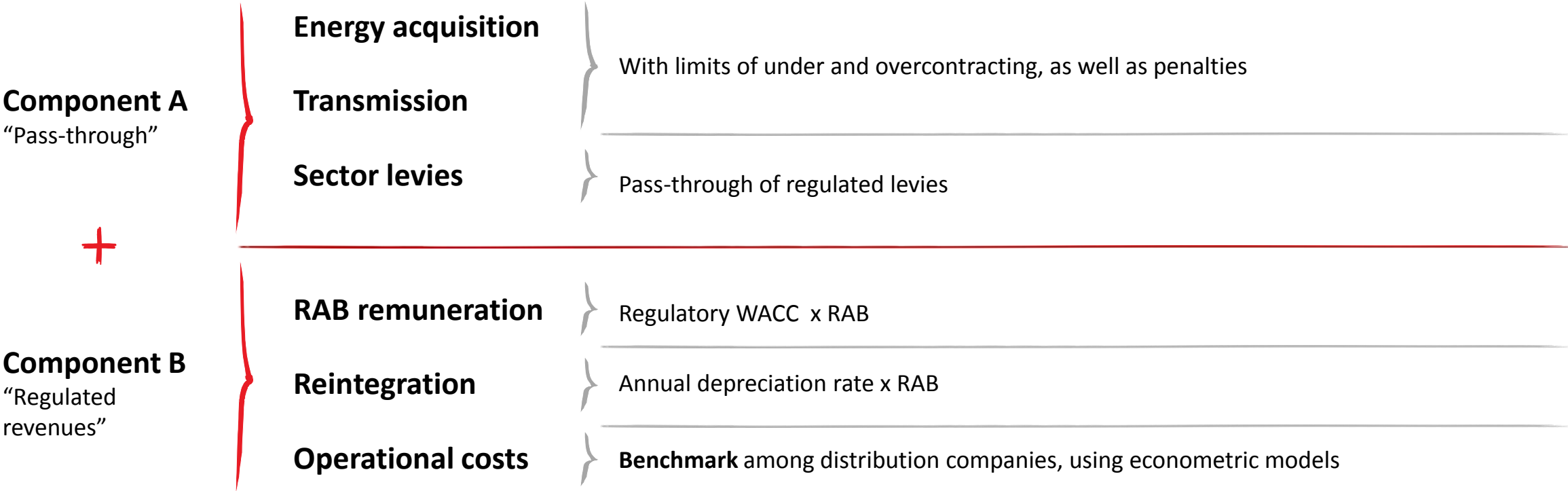


Espírito Santo	 1.5 Mn clients	 Concession Concession term: July 2025 Revision: every 3 years Net RAB: R\$2,581 million	 State qualitative data 11 th highest nominal household income per capita in Brazil R\$ 1,295 2018* 7 th highest HDI in Brazil 0.740 2010*
	 9.8 TWh		
São Paulo	 1.8 Mn clients	 Concession Concession term: October 2028 Revision: every 4 years Net RAB: R\$2,423 million	 State qualitative data 2 nd largest nominal household income per capita in Brazil R\$ 1,898 2018* 2 nd highest HDI in Brazil 0.783 2010*
	 15.2 TWh		
Santa Catarina	 3.0 Mn clients	 Concession Concession term: July 2045 Revision: every 5 years Net RAB: R\$3,007 million	 State qualitative data 5 th largest nominal household income per capita in Brazil R\$ 1,660 2018* 3 rd highest HDI in Brazil 0.774 2010*
	 24.4 TWh		

Regulatory model of distribution



Economic Revenue of distribution activities

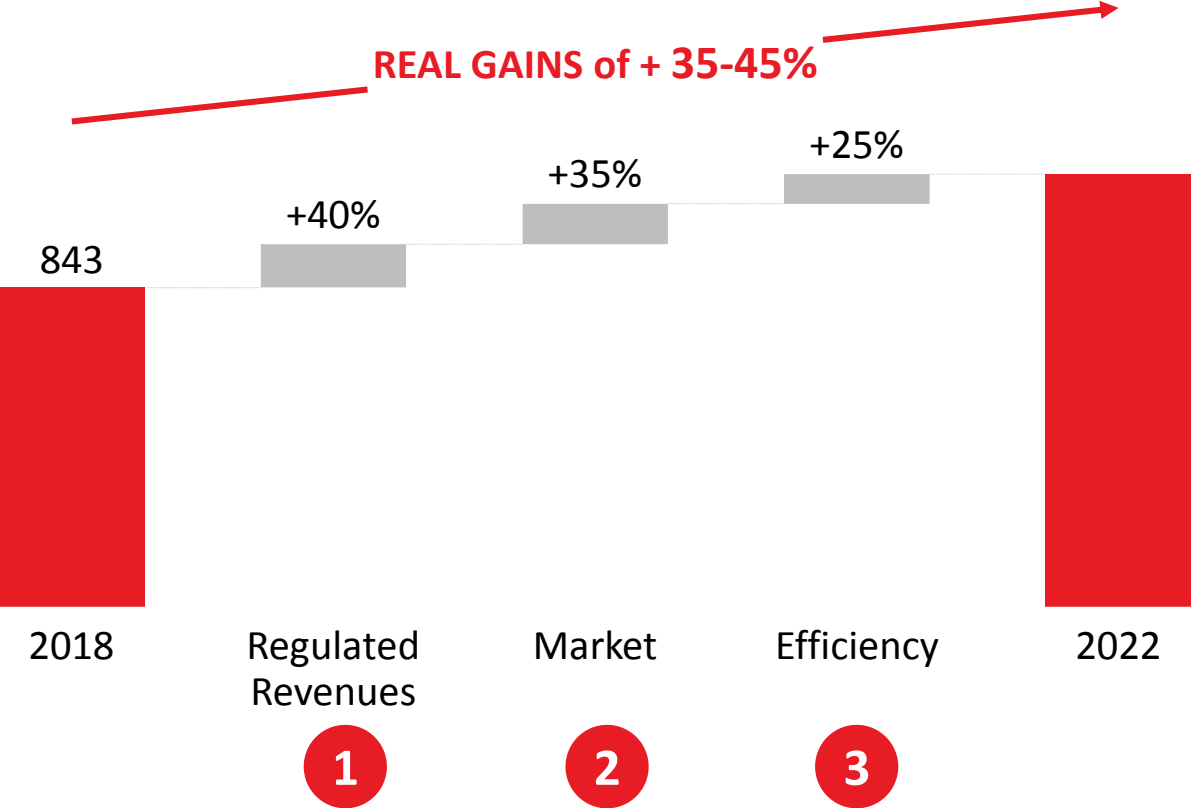


Strong EBITDA growth in distribution, supported by efficient investments and operational drivers

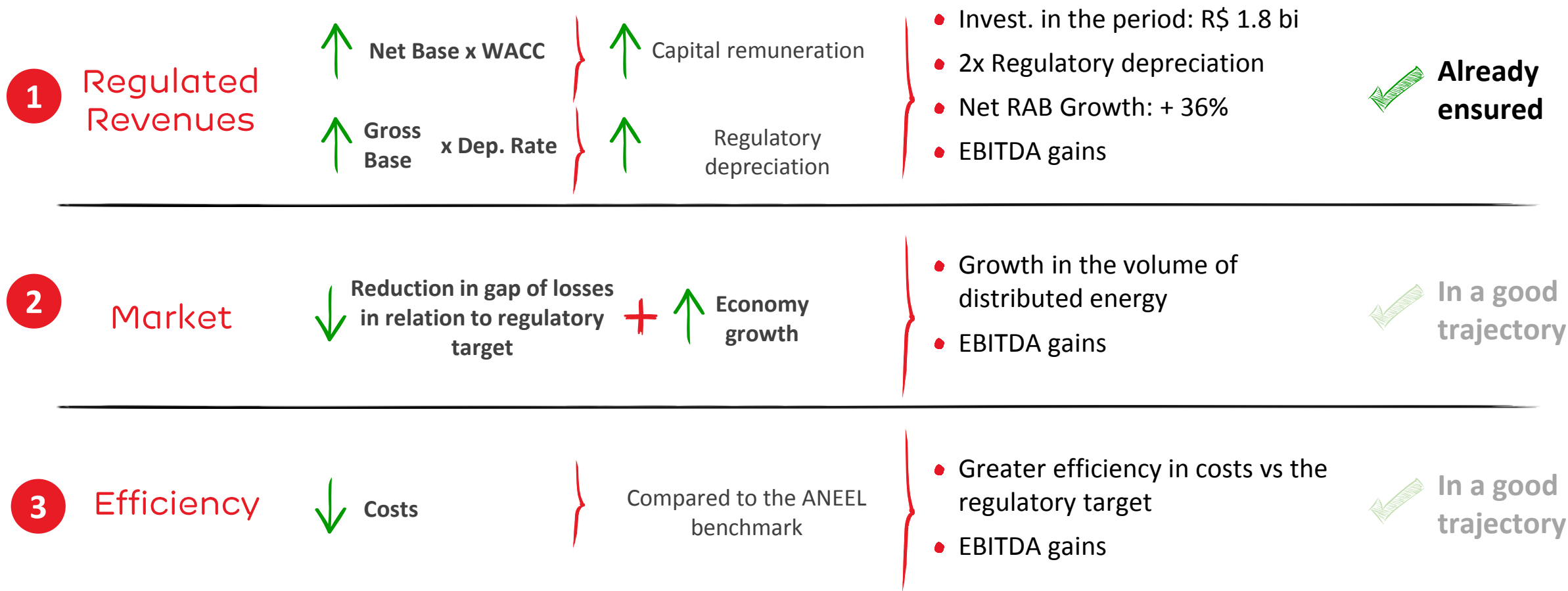


EBITDA

R\$ Mn



Value added in the tariff cycle: Improvement in all levers of value creation



30.7% growth in Regulated EBITDA (2015-2019)

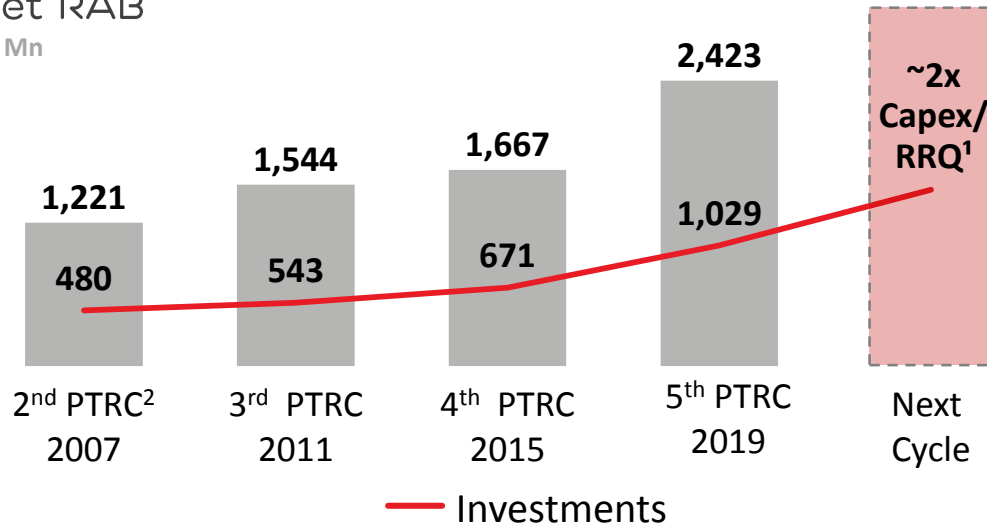
RAB growth supported by recognition of value-added investment



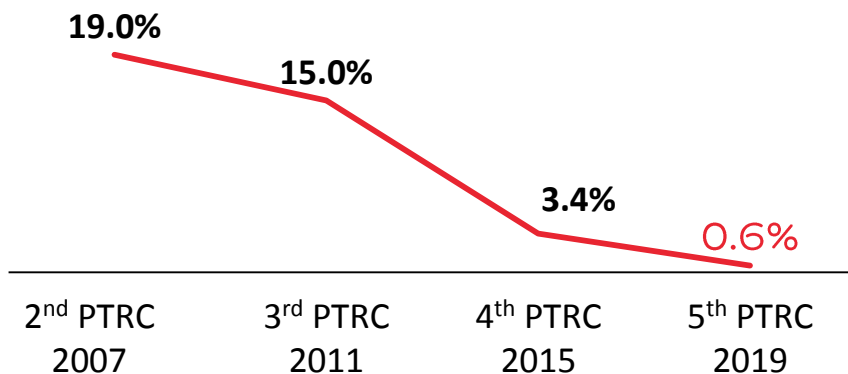
1

EDP São Paulo

Net RAB
R\$ Mn

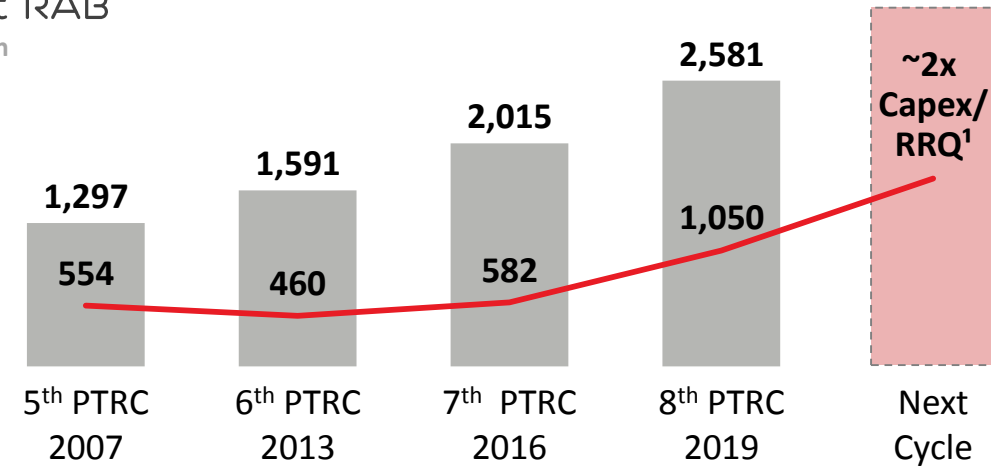


Regulatory haircut over investments

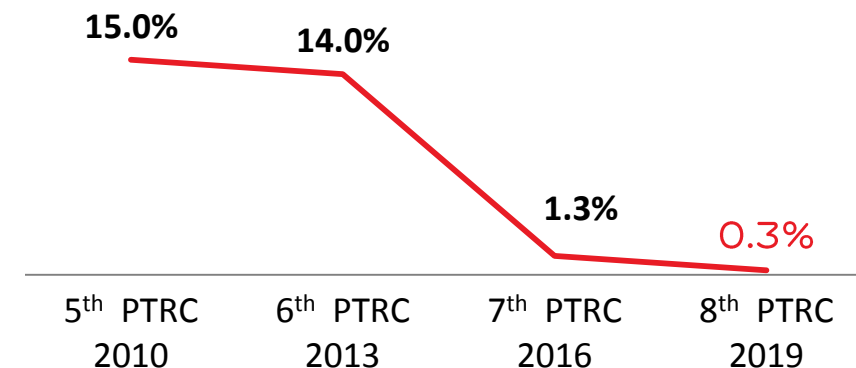


EDP Espírito Santo

Net RAB
R\$ Mn



Regulatory haircut over investments



¹ Regulatory Reintegration Quota. ² Periodic Tariff Review Cycle.

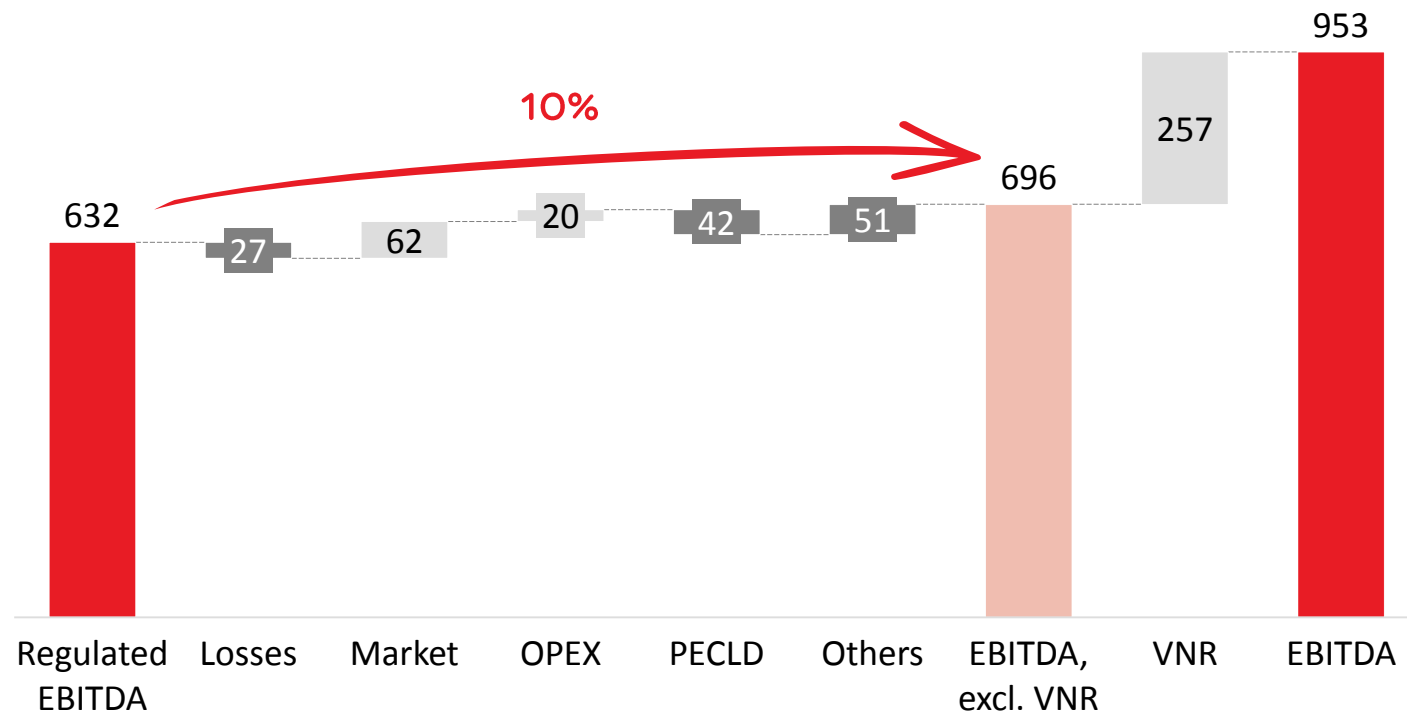
EBITDA in 9M19 grew 10% excluding VNR, due to market expansion and OPEX savings



1

EBITDA of EDP distribution activities in Brazil in 9M19

R\$ Mn



VNR

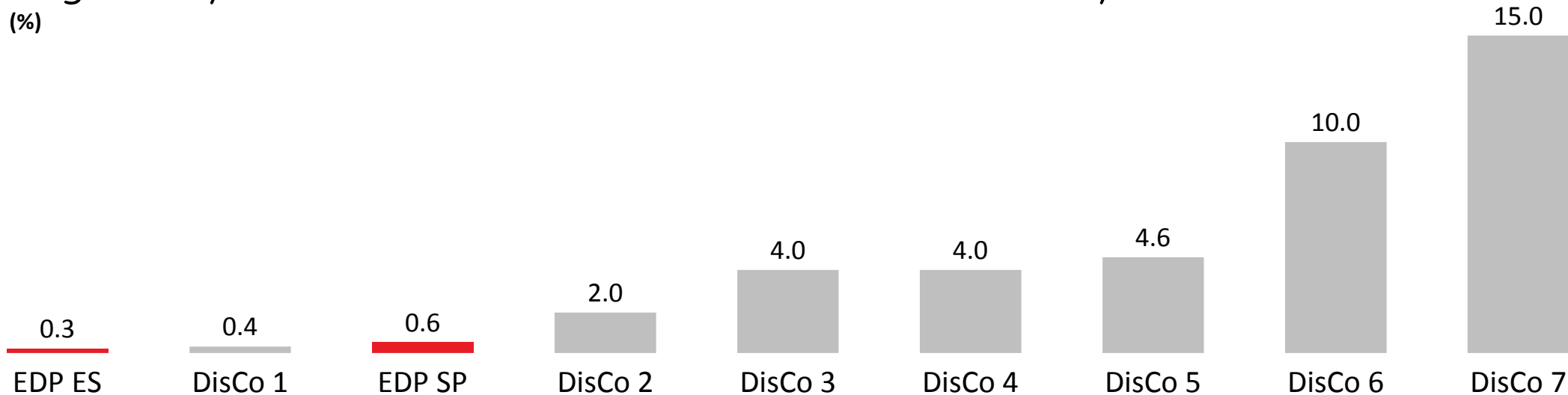
- EDP SP and EDP ES have a **credit to be received at the end of the concession** related to investment in fixed assets that were not recovered
- These financial assets are valued based on **Asset Replacement Value (VNR)**, which is revised every 3/4 years based on RAB
 - In this quarter, we had the revision for both of our concessions
- In this method, each **asset is valued at current prices, for all needed expenses to replace it for a similar one**

High efficiency regarding regulatory acceptance of investments



1

Regulatory haircut over investments in the last tariff cycle (%)



Main initiatives

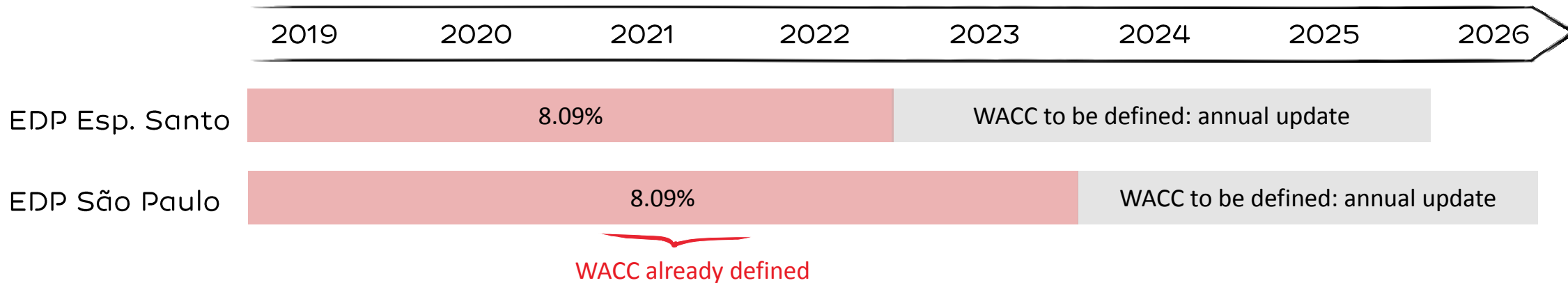
- Careful evaluation of investments concluded
- Consistency of technical, regulatory and accounting basis
- Previous inspection of Fixed Assets in Service
- Training of business teams
- Harnessing of electrical assets

Visibility on WACC up to 2022/23



1

Regulatory WACC



WACC revision

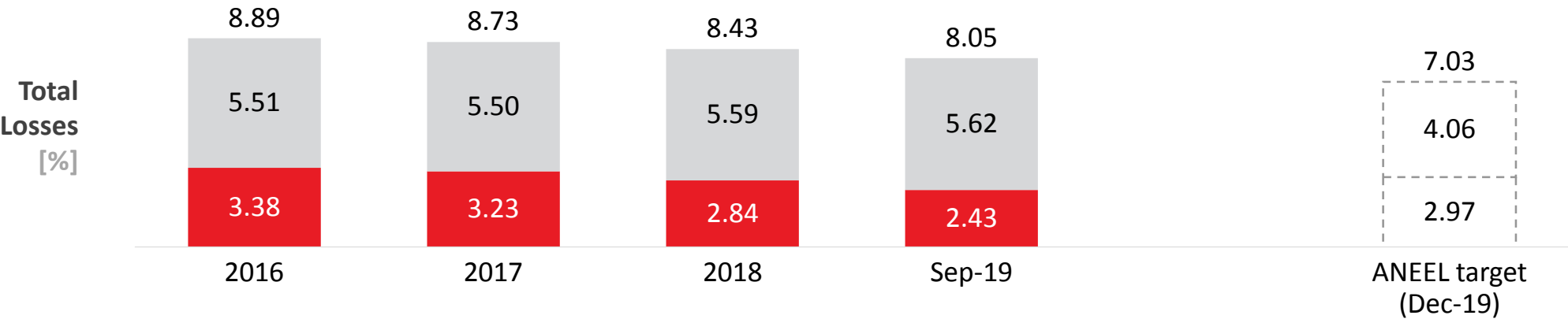
- ANEEL is currently revising the Regulatory WACC: the public hearing is still opened and companies can send contributions until December 2nd.
- The agency plans to update the WACC annually, and use this reloaded rate for all tariff reviews happening in a given year
- Tariff revisions in 2020: proposed WACC at **7.17% real post-tax**
- EDP tariff revisions: EDP ES in 2022 and EDP SP in 2023

Steady decline of total losses

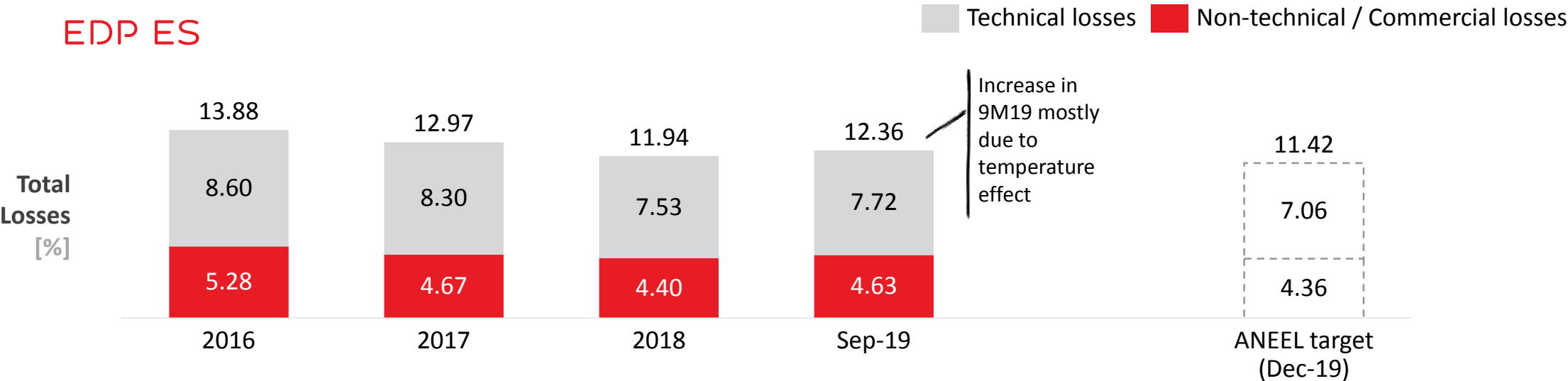


2

EDP SP



EDP ES

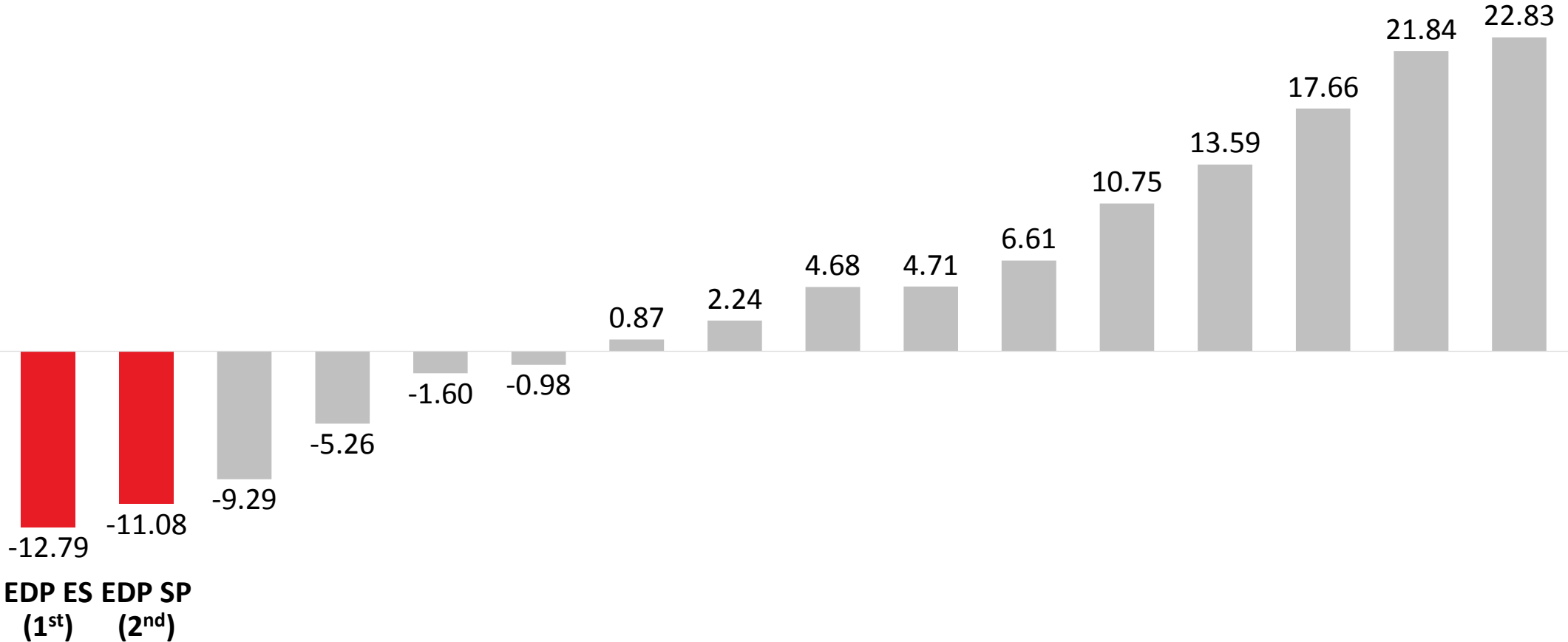


Total losses evolution benchmark



2

2018 vs. 2014 change (%)



Several initiatives in place to reduce grid losses

2



Actions to reduce grid losses



Inspection, with insourcing of inspection activities



Telemetry for clients with high levels of demand



Meter Replacement for more advanced ones



Project “Boa Energia”, reinforcing engagement with communities



Centralized Metering system



Public Lighting Recount to prevent unbilled energy



Efficient management of Clients' bad debt



2

R\$ Mn

	2018	9M19
(+) Revenue (fine/interest + fee to reconnect)	125	114
(+) Tariff recognition	62	51
(-) Opex collection	-28	-20
(-) PECLD ¹	-85	-91
Result	+74	+54

¹ Provision on estimated losses for doubtful accounts

Sustained operating costs declining in real terms



3

Example of initiatives



Field team management

- Centralized dispatch
- FSA project
- Productivity management
- Tree pruning truck



Readings

- Optimization of readings' route
- New RFP



Customer Care

- New RFP for Call Center
- New RFP for service agencies
- Video customer support

OPEX growth below inflation, despite increase in activity level

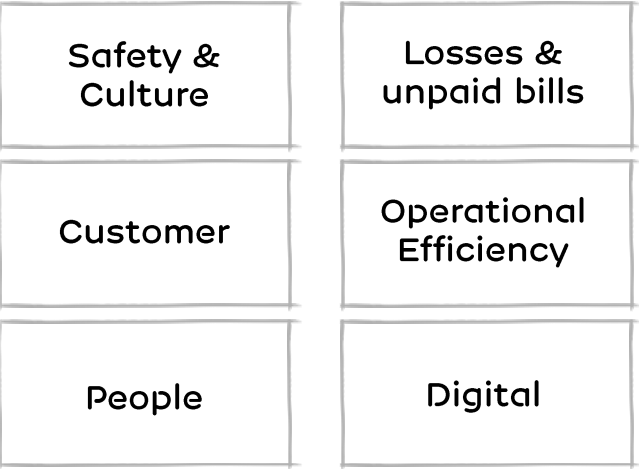
Technological Development Plan: focus areas for Innovation



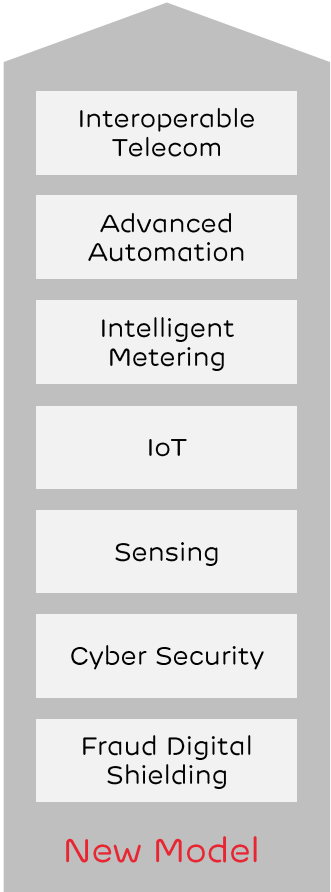
3

Strategic Map of Distribution (EDP Brasil)

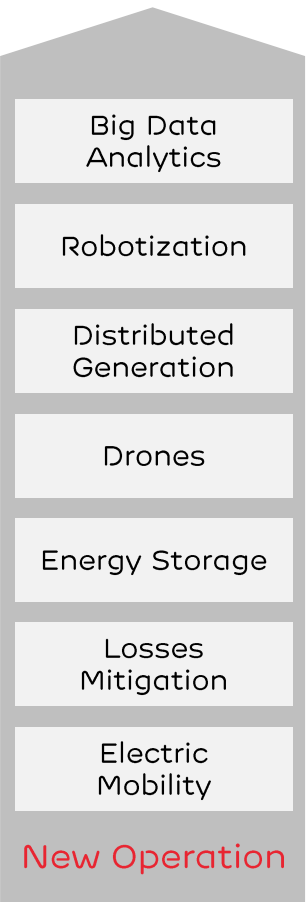
“Distribution must be prepared for the technological challenge and the need to increase both efficiency and quality of service that the market will require”



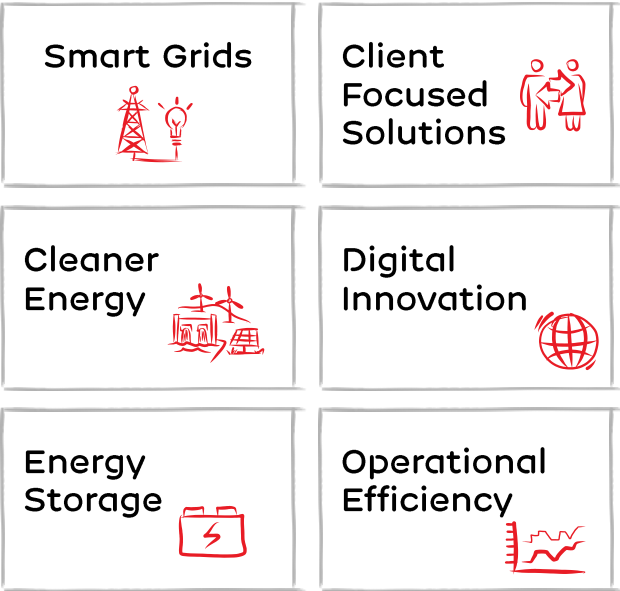
inovgrid
smart energy grid **Brasil**



P&D **edp**¹
Programa de Pesquisa e Desenvolvimento da Distribuição Brasil

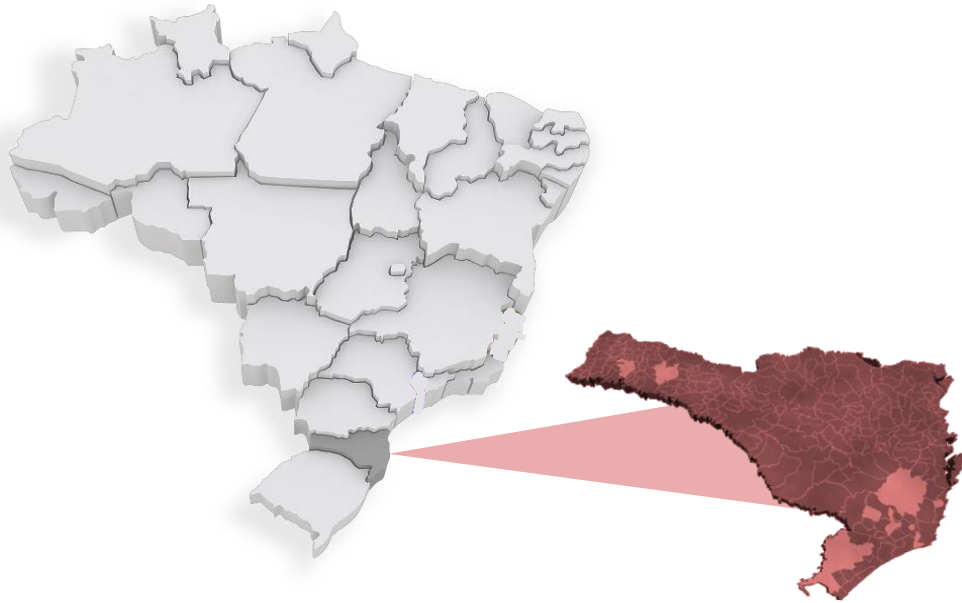


EDP Innovation Focus Areas



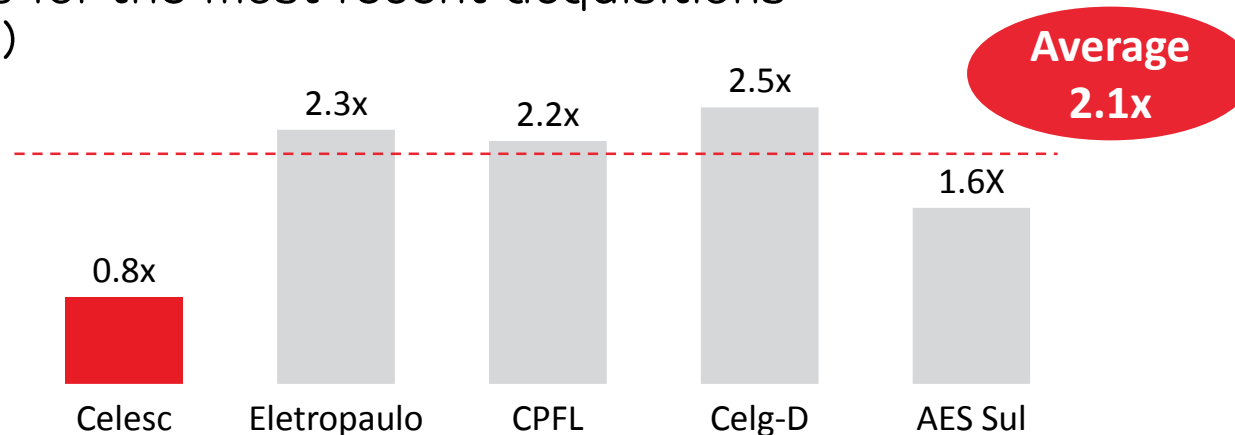
¹ R&D EDP - EDP Brasil Distribution Research and Development Program

Growth option: 23.6% stake in Celesc



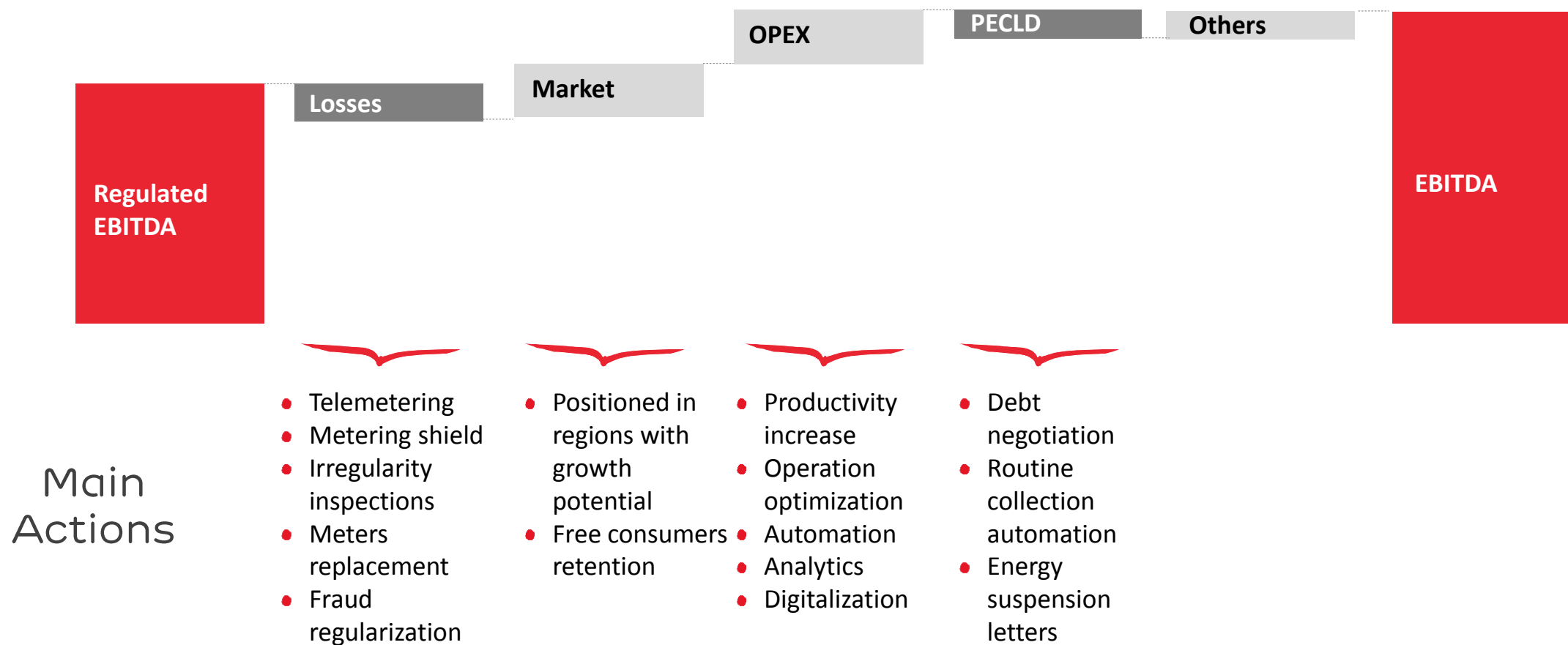
- Acquisition of a stake in Celesc in 2018
- Not only a financial position: 3 seats in the board (out of 11) and 1 seat in executive position
- Strategic partnerships in Santa Catarina

Multiples for the most recent acquisitions
(EV/RAB)



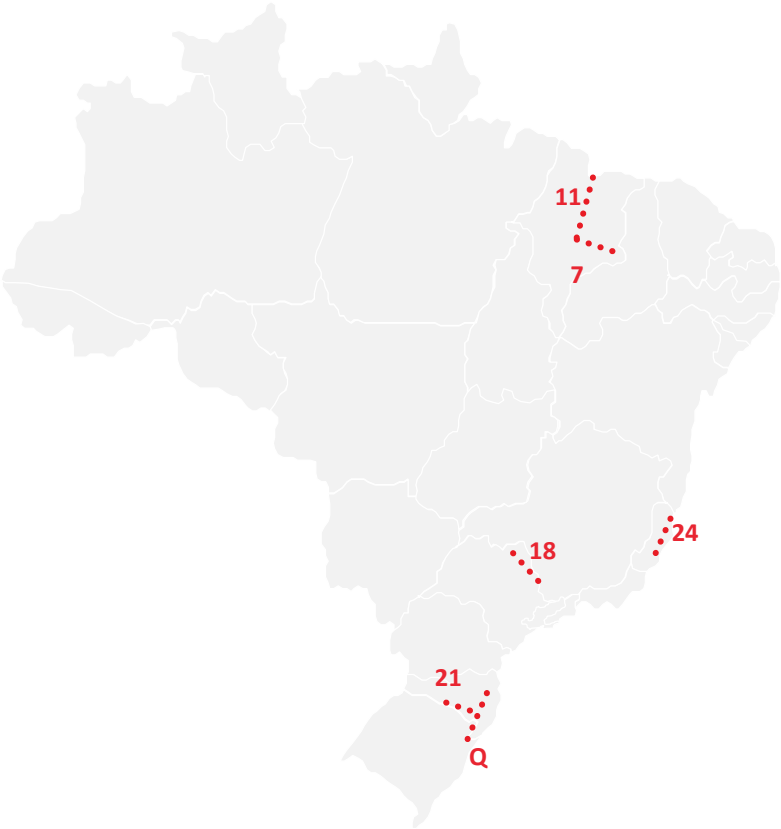
Timing and the transaction structuring process allowed for relevant stake (largest shareholder) with below average multiples

Distribution: Strong focus on value creation drivers



- 1 Context
- 2 Distribution
- 3 Transmission

Transmission Portfolio



Construction ahead of schedule



Funding Optimization



Location



Extension



Start of Operation

Lot 24



Espírito Santo



113 Km and 1 substation



Operational start-up: Dec/18



Lot 7



Maranhão



123 Km and 1 substation



Under construction

Lot 11



Maranhão



203 Km and 1 substation



Under construction

Lot 18



São Paulo - Minas Gerais



375 Km



Under construction

Lot 21



Santa Catarina*



484.5 Km and 1 substation



Under construction

Lot Q



Santa Catarina/Rio Grande do Sul



142 Km and 2 substations



Under licensing process

*Celesc stake: 10%

Note: construction works evolution as of September/2019

Concession

- **Regulated by the Federal Government**, with stable track record
- Concession attributed through **auctions**

Revenues

- **30-year contracts**, with Allowed Revenue (RAP) adjusted by inflation
- **Payment based on availability**, regardless of the transported energy volume

Risks

- **Low counterparty risk**, as Allowed Revenue (RAP) is paid by generators, distributors and consumers in the free-market, with solid warranty mechanism
- **Low level of environmental and construction risks**

Profitable contracted growth: Entrance timing ensuring superior returns



CAPEX
ANEEL
R\$ Mn



Apr/16
(013/2015 I)

Oct/16
(013/2015 II)

Apr/17
(005/2016)

Dec/17
(002/2017)

Jun/18
(002/2018)

Dec/18
(004/2018)

CAPEX ANEEL
TOTAL R\$ Mn

RAP/CAPEX
ANEEL

20%

104

13%

3,740

3,844

14%

Integrated

12%

867

10%

3,948

8%

102

8%

6,806

11,723

9%

CPFL
Neoenergia
Engie

Networks

20%

2,645

19%

8,461

13%

5,942

11%

2,780

7%

4,924

9%

2,086

26,838

14%

Equatorial
Energisa
CTEEP
Alupar
Sterlite
State grid

Financial

20%

2,003

18%

2,467

RAP/CAPEX ANEEL

4,470

18%

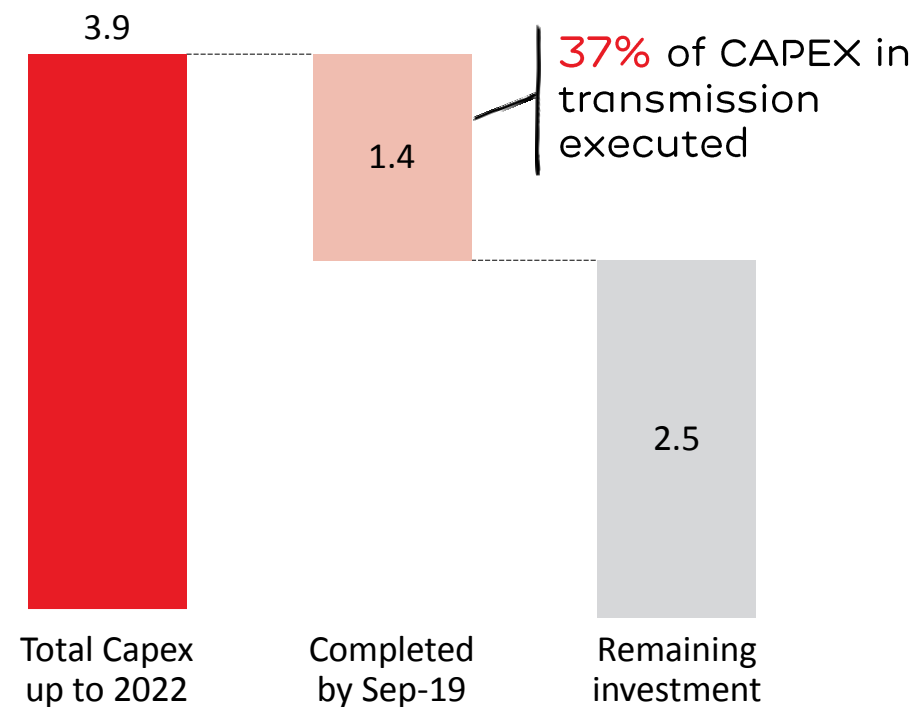
Brookfield
Pátria

CAPEX execution on transmission, while anticipating COD

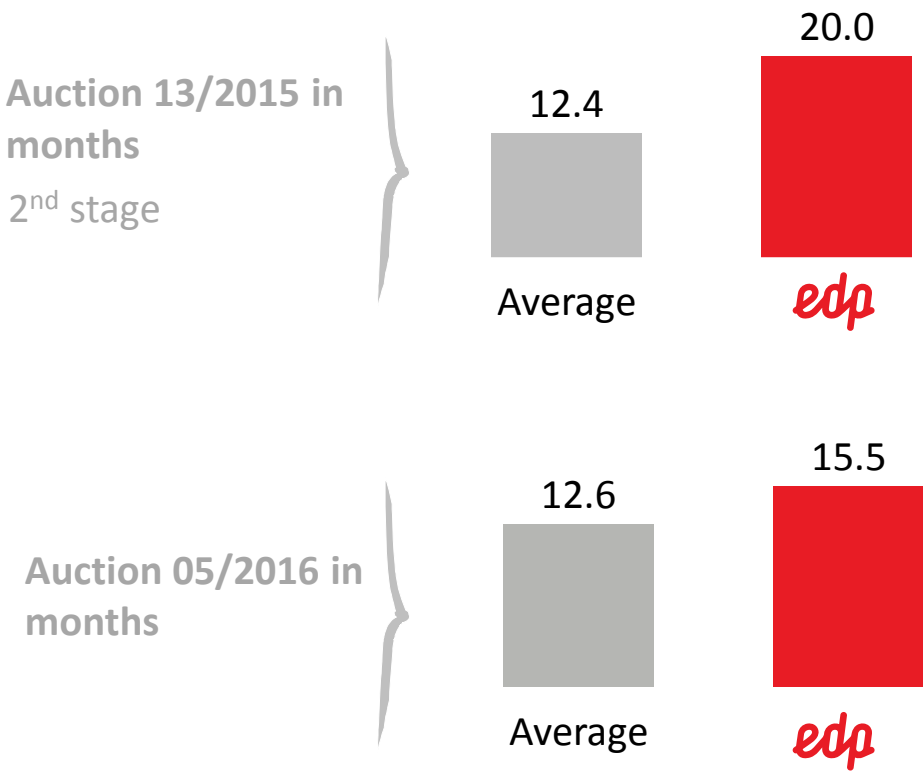


CAPEX in Transmission

R\$ Bn in nominal terms

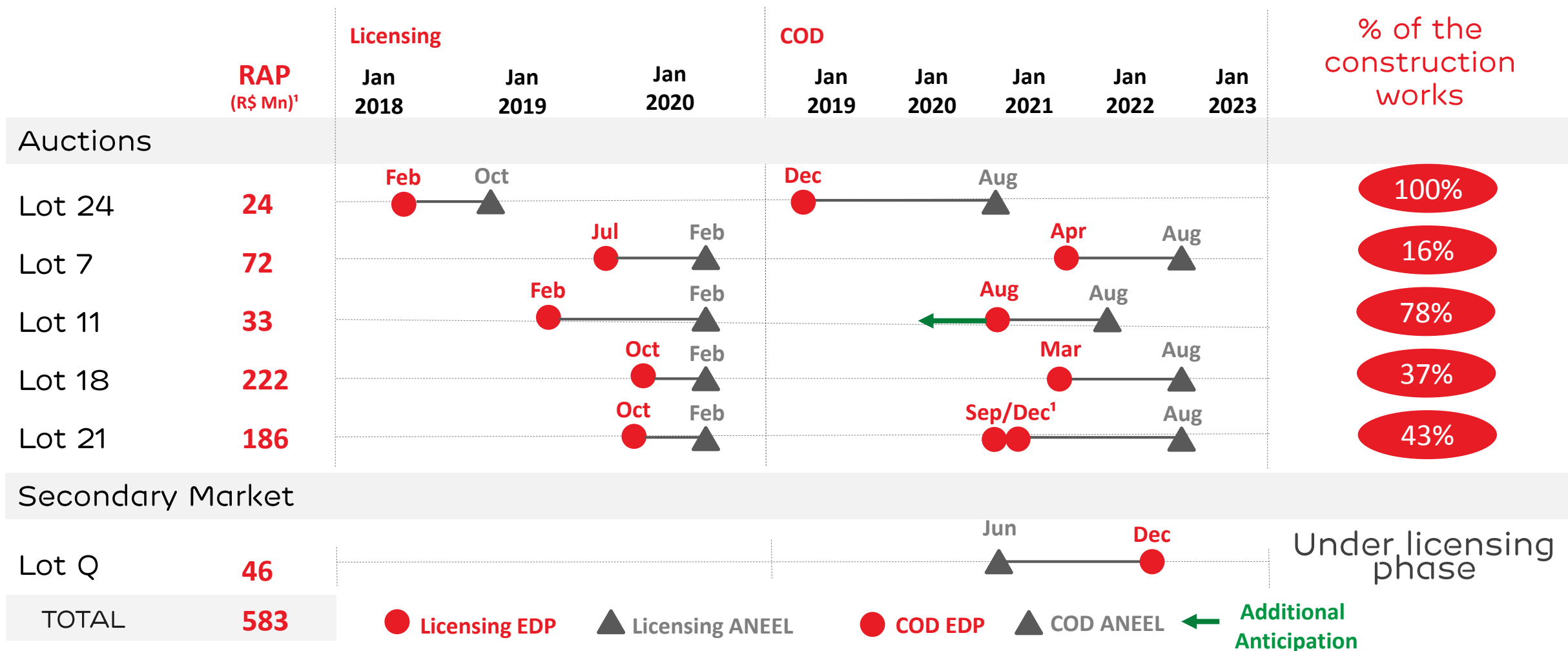


Anticipation of expected CODs¹



¹ Aneel Transmission Projects Monitoring Report

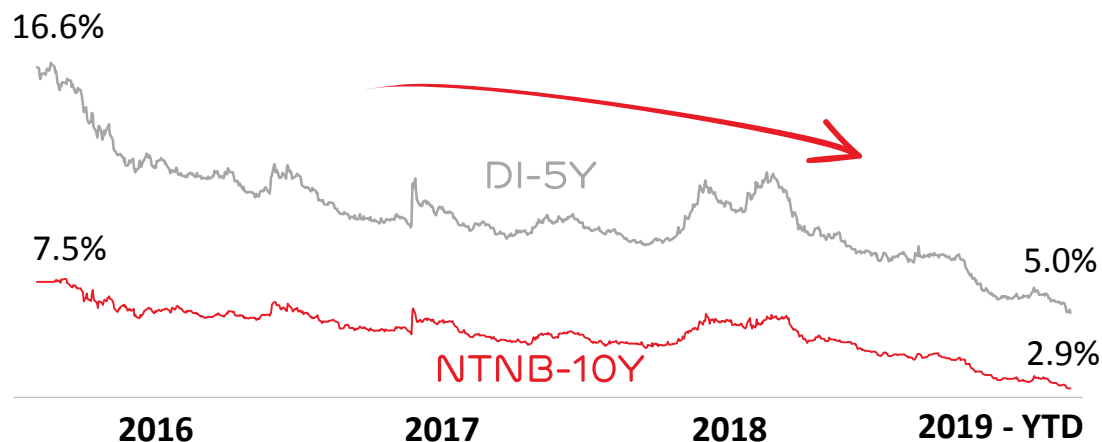
Execution benchmark: construction work anticipation



Low interest rate environment as a positive driver of investments in transmission...

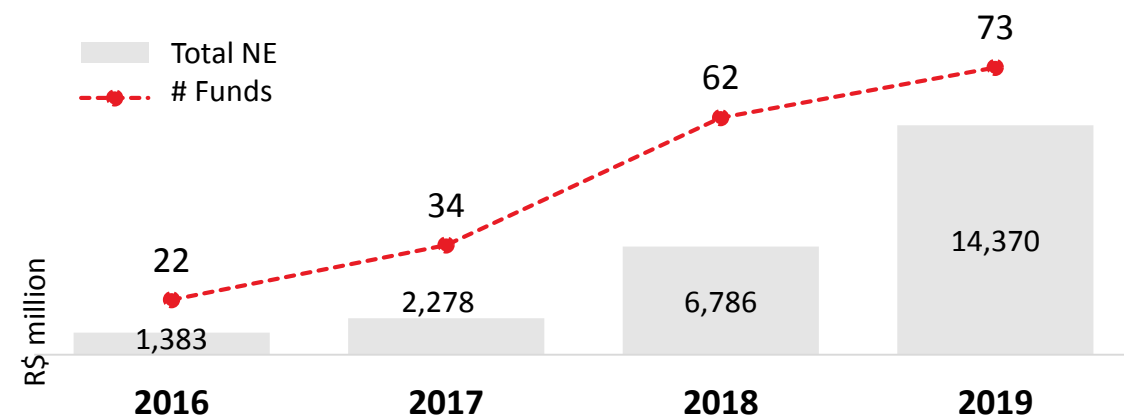


Decline of 10 p.p. in interest rates

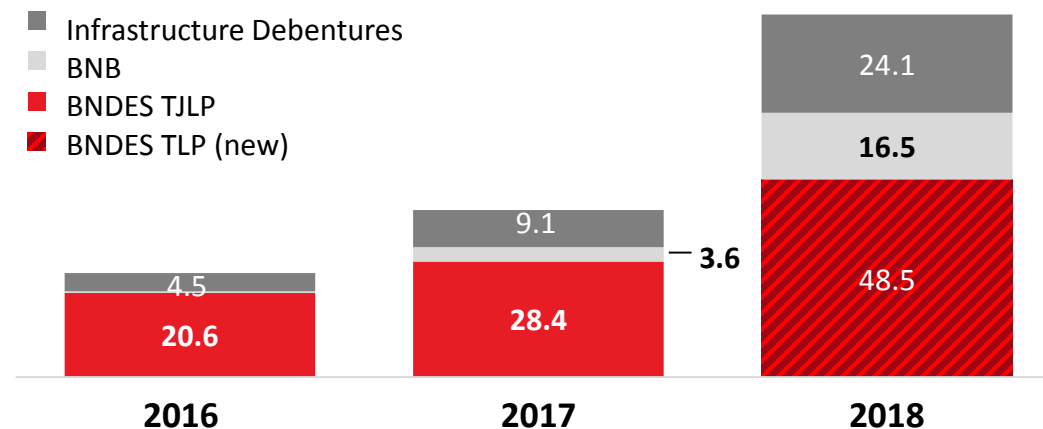


- In 2017, BNB and the capital markets became attractive sources for infrastructure funding
- Post-2017, there was major growth in the infra debentures market (+ 6x Net Equity of the Funds)

+ 6x Net Equity for the Infra Funds




+ 6x of Infrastructure Debentures Volume



... While maximizing value through diversification of financing sources



Performed operations

Lot 11 005/2016	Lot 24 013/2015	Lot 18 005/2016	+ R\$ 525 Mn Long term Additional Lot 18
BNB R\$ 124.5 Mn IPCA + 2.18% ¹ 20 years	Infra Deb. R\$ 115 Mn NTNB + 1.70% 15 years	Infra Deb. R\$ 800 Mn NTNB + 0.85% 20 years	
Lot 07 005/2016	Lot 21 005/2016 	Lot Q 013/2015	R\$ 405 Mn CAPEX in Lot Q Structure Long Term Debt
BNB R\$ 252 Mn IPCA + 2.16% ¹ 24 years	Infra Deb. R\$ 1.2 Bn NTNB + 0.85% 15 years	Bridge R\$ 250 Mn CDI + 0.44% 12 months	

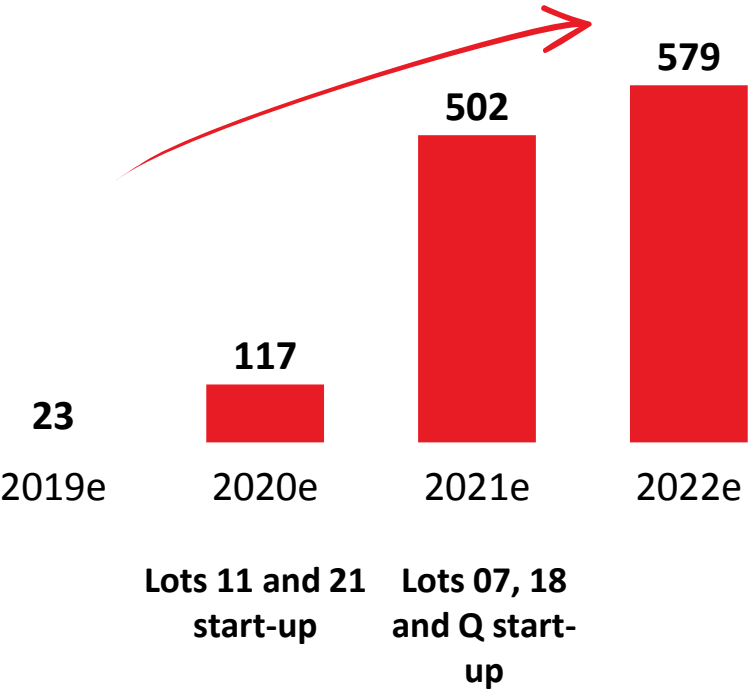
Additional R\$ 500 million in NPV

¹ Considering default bônus.

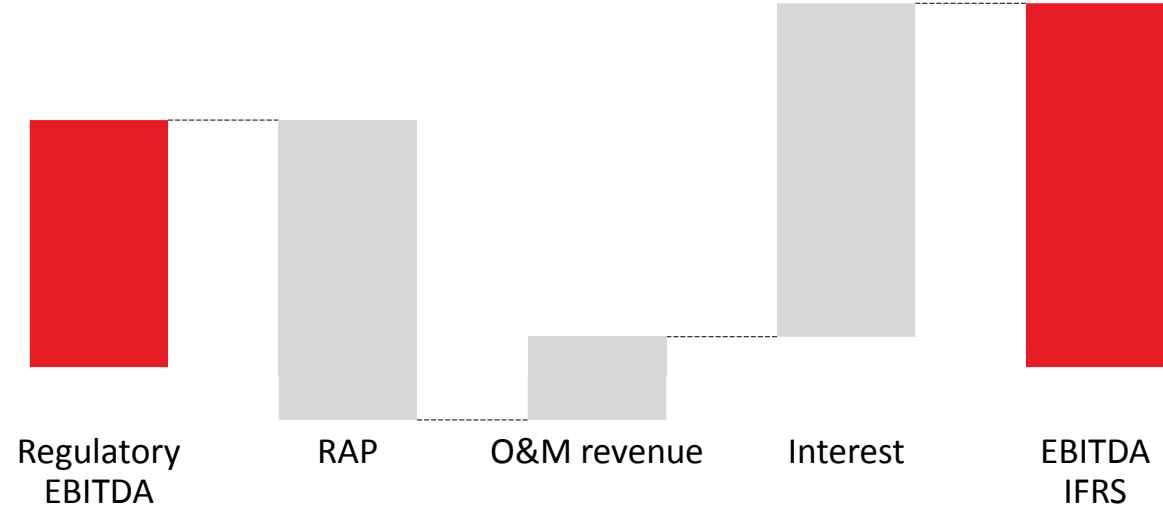
Transmission EBITDA accounting methodology



Annual Allowed Revenues (RAP)¹
R\$ M



Transmission EBITDA
Conceptual – Operational lots²



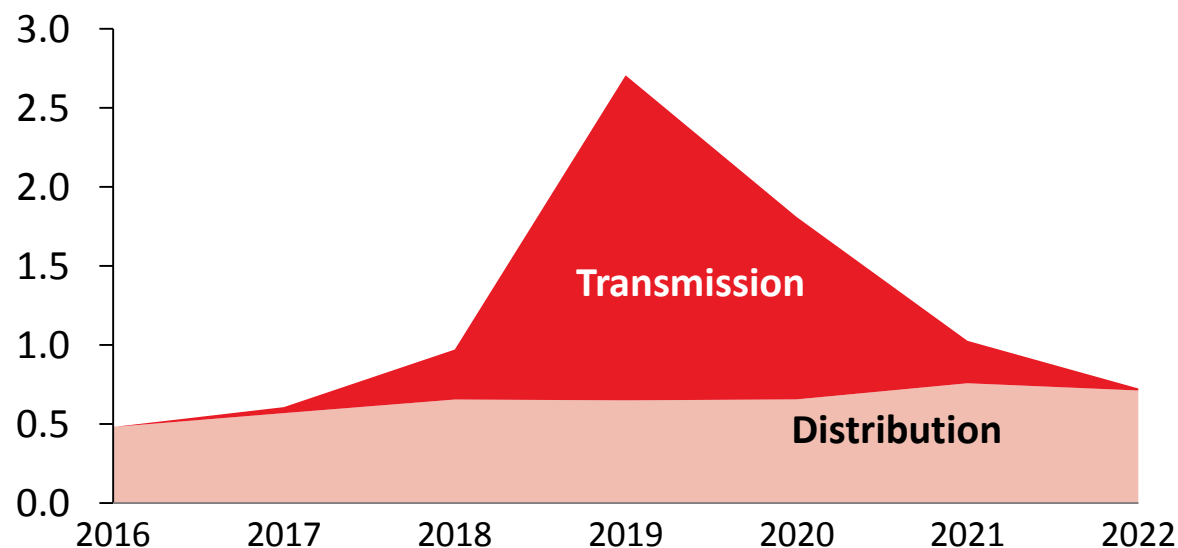
1 Real RAP | 2 Example using lot 24 (Espírito Santo) as reference

Capital allocation in Networks with distinctive returns



CapEx Evolution

(R\$ Mn)



Transmission:

NPV > R\$ 1 billion



Construction ahead of schedule



Funding optimization



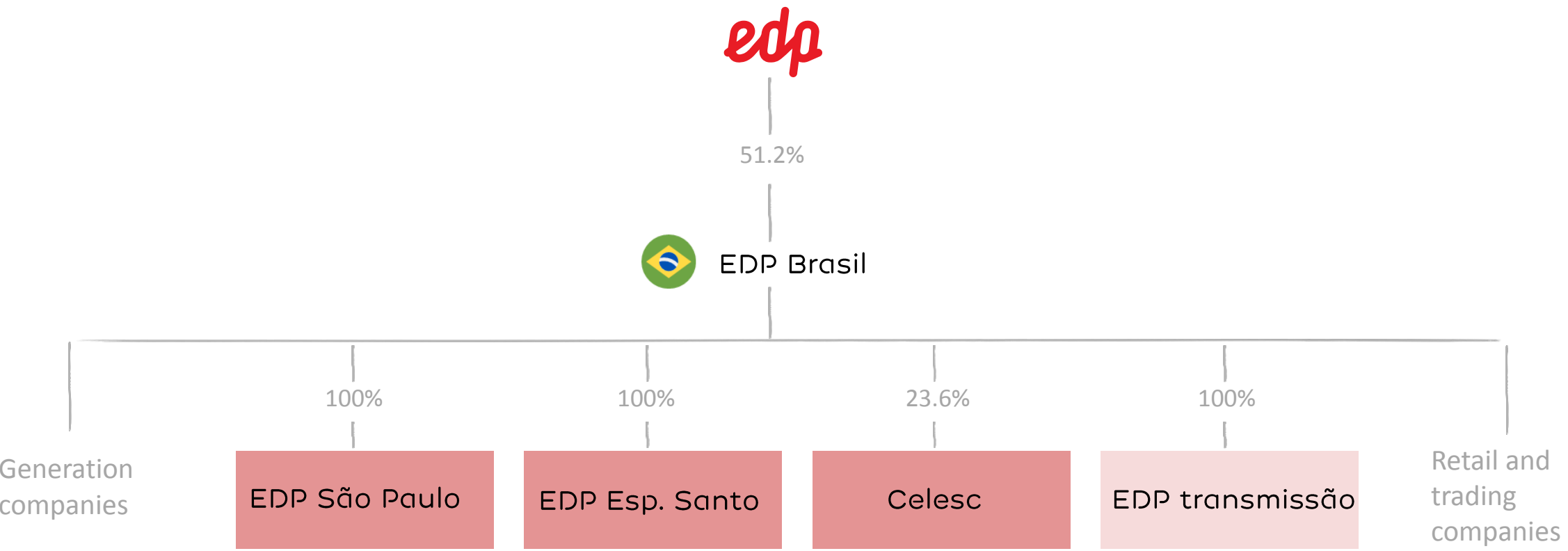
Distribution:

Investment ~2x
Regulatory depreciation

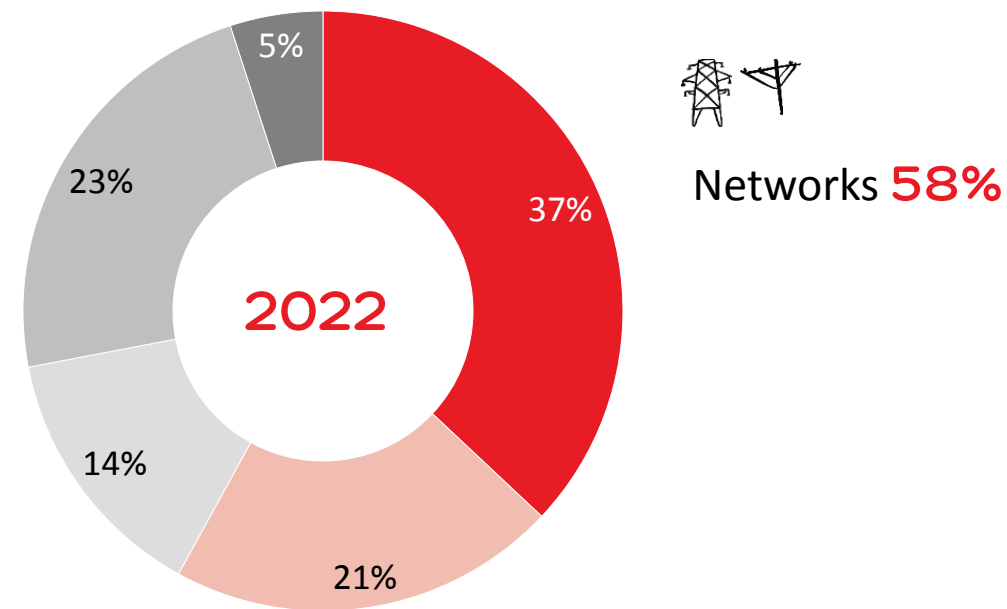
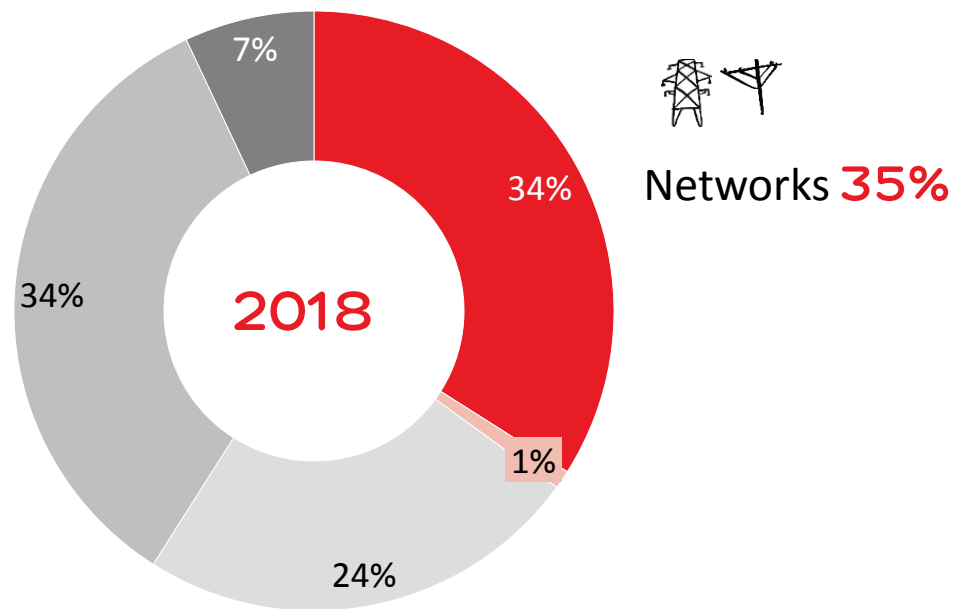
Growth strategy with value creation

edp

Structure of networks activities in EDP Brazil

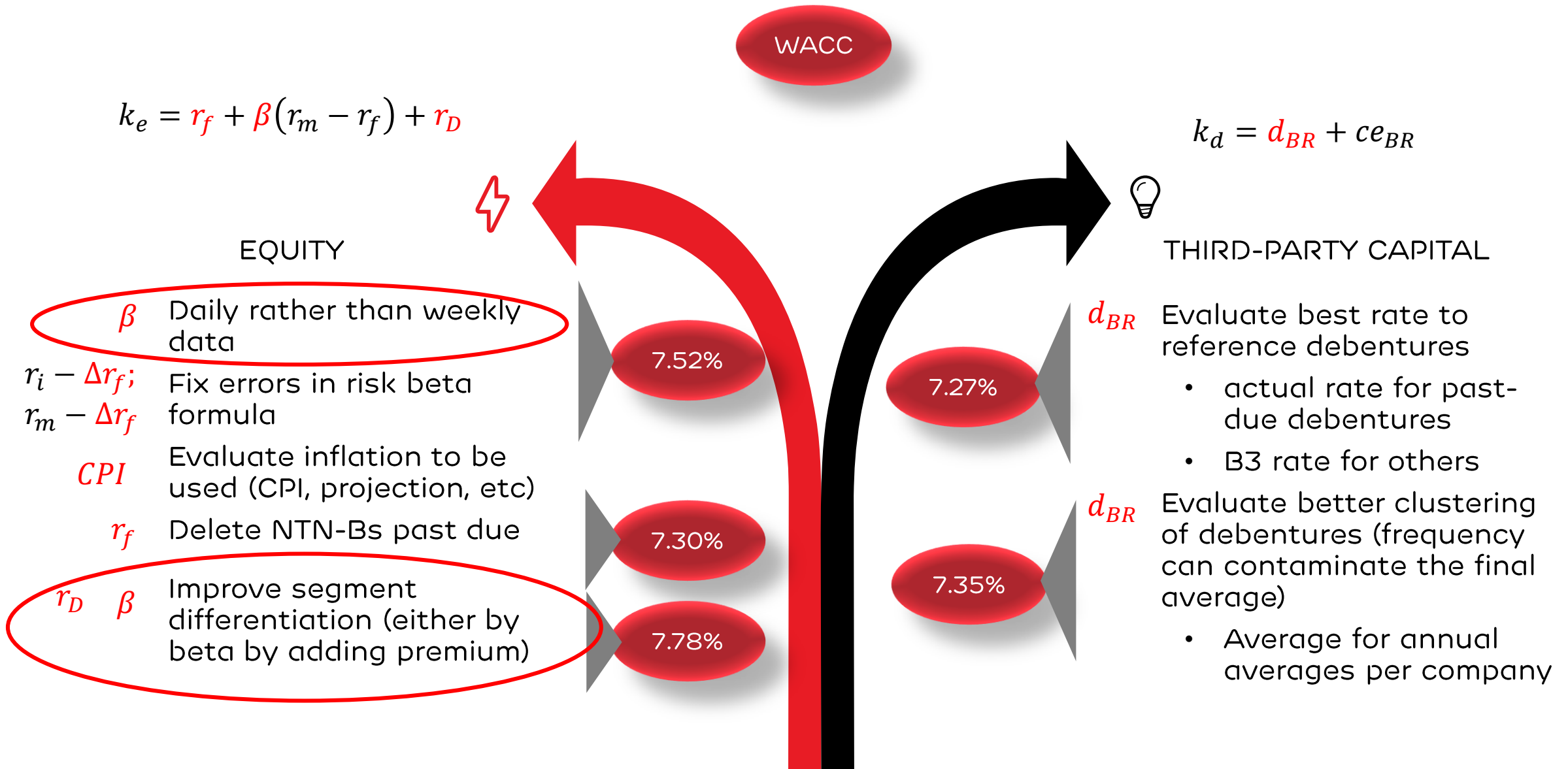


EDP Brasil EBITDA breakdown



■ Distribution ■ Transmission ■ Thermal ■ Hydro ■ Retail

There are several possibilities of a revision in the distribution WACC based on the methodology used by ANEEL



Tariff reset: For the tariff reset we have 2 components: **Component A and Component B.**

$$RR = VPA + VPB$$

RR = Requested Revenue

VPA = total amount of the component A

VPB = total amount of the component B

Component A: The component A is a “pass through”. It includes the expenses with energy purchase (energy supply), transportation and charges.

Component B: The Component B is readjusted based on the inflation variation in the period (IGP-M index) deducted from the X factor.

In the calculation of the X factor, three components are considered: productivity (Pd), trajectory (T) and quality (Q). The Pd and T components are defined in the tariff revision process and remain the same until the next revision cycle. The Q component is updated in every tariff adjustment process.

$$\text{X Factor} = Pd + Q + T$$

where:

Pd : productivity gain;

Q: technical and commercial quality of the services provided; and

T: operational costs trajectory

The market usually does not model the Component A, as it should be net = zero. It commonly models the component B considering:

CAOM: Administration, Operation and Maintenance Costs

= Operational costs adjusted by inflation+

Non-recoverable expenses: historical % for projected losses x Estimated revenue

+

CAA: Annual cost of Assets

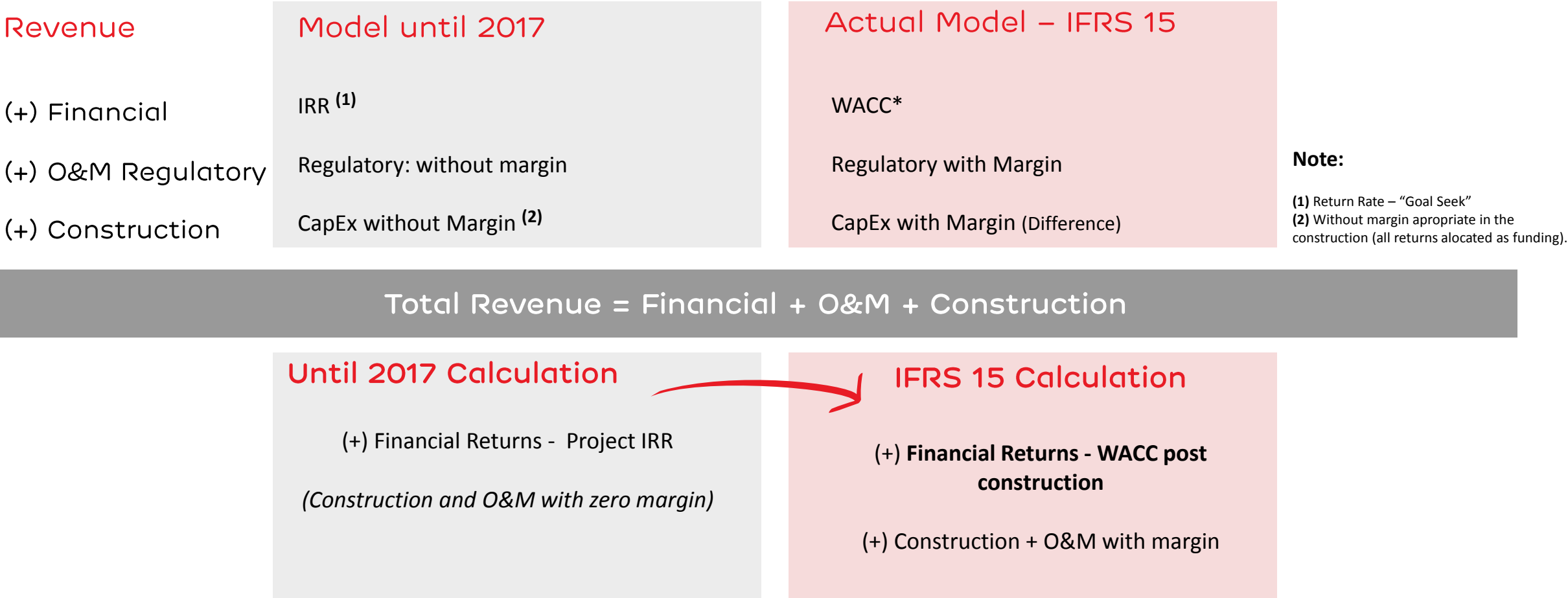
Capital remuneration: Regulatory WACC x RAB (Regulatory asset base - which can be taken from Sparta file from last revision cycle)

+

CAIMI: Annual Cost of the Real Estate Facilities

= Annual depreciation rate x RAB (each distribution company has to invest at least 1x regulatory depreciation – QRR - but some companies invest more than that. EDP for instance, has invested around 1.9 x QRR).

Change in accounting measurement IFRS 15 – IFRS9



Contractual Asset: The financing rate occurs in the beginning of the contract, with no update afterwards