

20<sup>th</sup> Annual  
Cemig-APIMEC  
Meeting



A new generation in generation

The Company's history

Corporate profile

Growth strategy



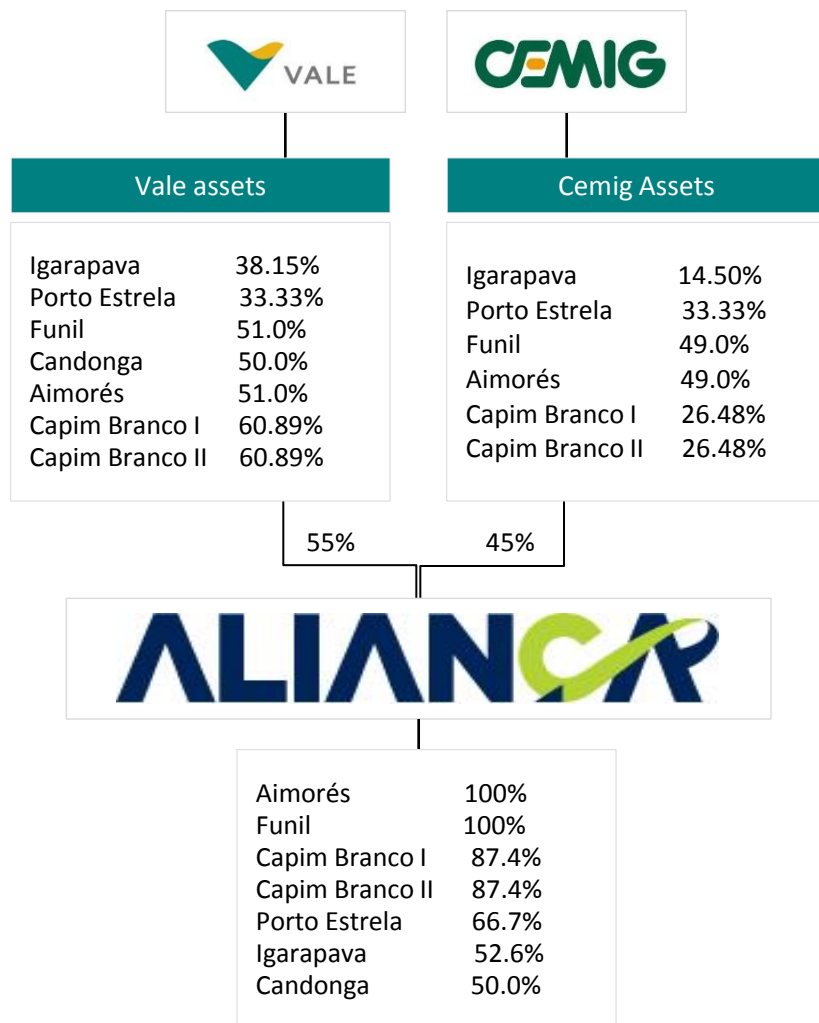
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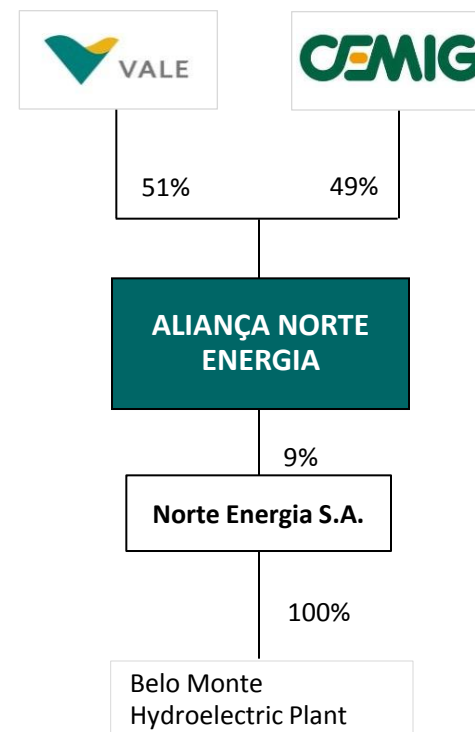
Growth strategy



## Aliança Energia S.A.



## Aliança Norte Energia S.A.



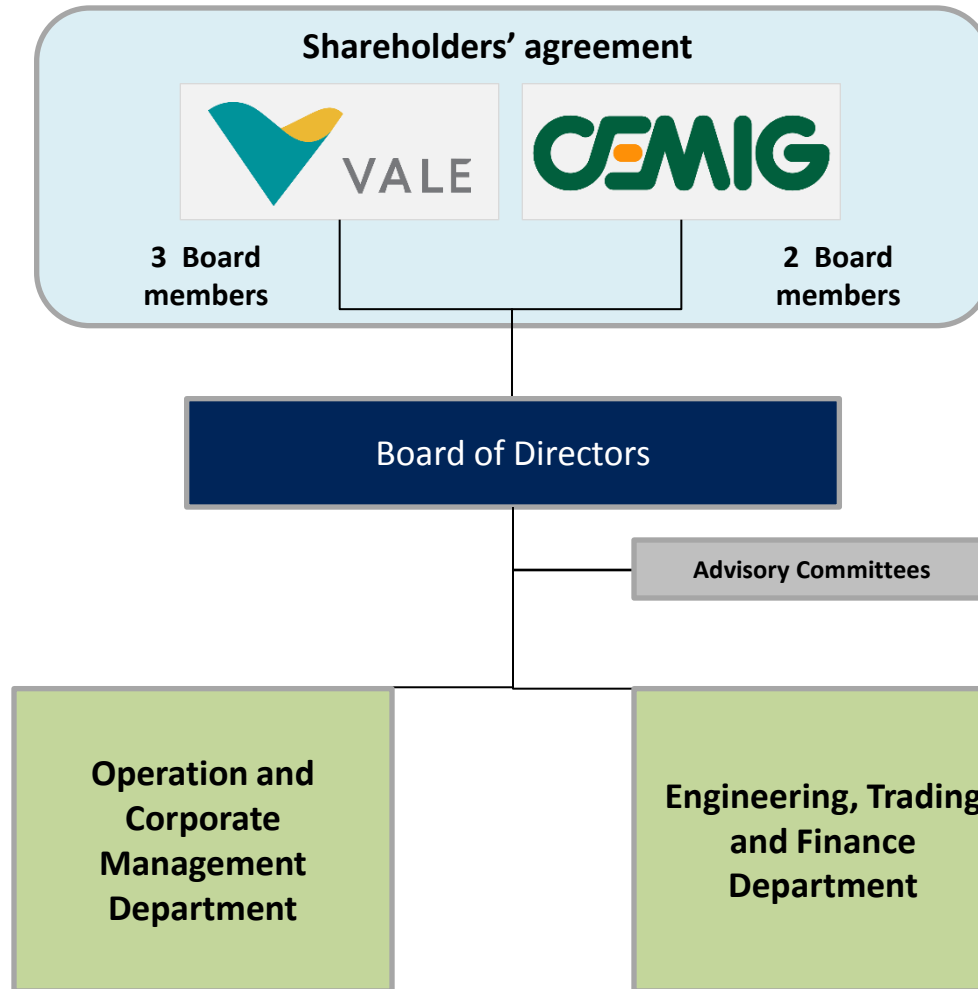
## Creation of Aliança Energia S.A.

- Better realization of potential assets held in consortia by the shareholders
- Private vehicle focus on energy generation sector growth
- Combining operational, financial and project management experience of shareholders
- Focus on adding value to shareholders

## Creation of Aliança Norte Energia S.A.

- Specific and private vehicle designed solely for investments in the Belo Monte Hydroelectric Plant

(1) Technical Note by Norte Energia of April 2015. All asset subscriptions will be completed in 2015.



✓ All decisions made by consensus

The Company's history

**Corporate profile**

Growth strategy

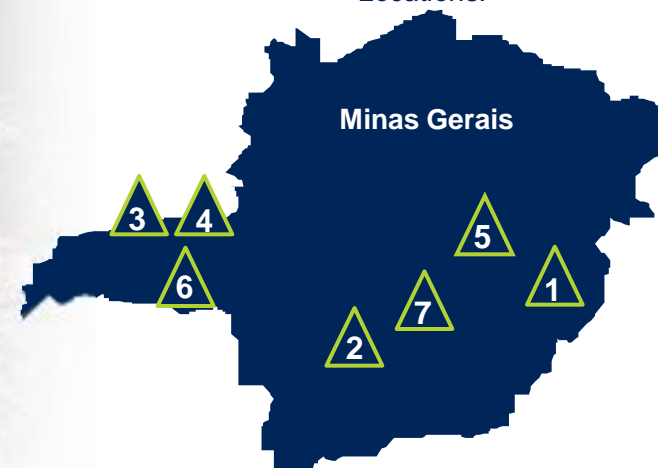




Seven hydroelectric plants fully operational in portfolio

Hydro plants	Installed capacity (MW)	Assured energy (MW average)	ALIANÇA				
			Interest %	Installed capacity MW	Assured energy (MW average)	Concession expiration	Location
1) Aimorés	330	172	100.0%	330	172	Dec. 2035	Aimorés, MG (River Doce)
2) Funil	180	89	100.0%	180	89	Dec. 2035	Perdões, MG (Rio Grande)
3) Capim Branco I	240	155	87.4%	210	135	Aug. 2036	Araguari, MG (Araguari River)
4) Capim Branco II	210	131	87.4%	184	114	Aug. 2036	Araguari, MG (Araguari River)
5) Porto Estrela	112	56	66.7%	75	37	Jul. 2032	Joanésia, MG (St. Antônio River)
6) Igarapava	210	136	52.6%	110	72	May 2025	Conquista, MG (Rio Grande)
7) Candonga	140	65	50.0%	70	32	May 2035	Rio Doce, MG (River Doce)
<b>TOTAL</b>	<b>1,422</b>	<b>803</b>	-	<b>13158</b>	<b>652</b>	-	-

Locations:





Annual revenue\*

**R\$ 1 billion**

Operational cash flow – Ebitda\*

**R\$ 600 million**

Hydro plants in full operation

**#7**

Installed capacity

**1,158 MW**

Assured energy

**652 MW average**

% of output sold long-term

**100%**

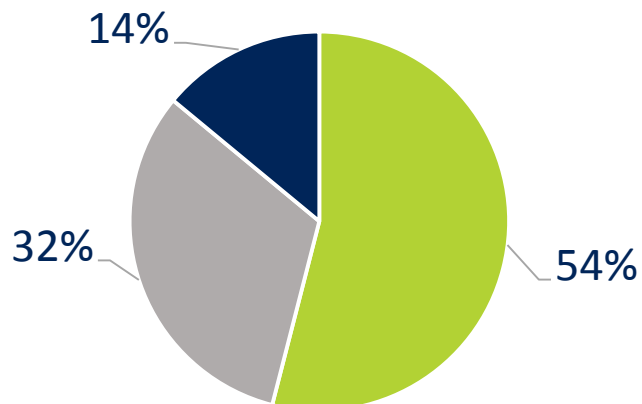
\* Projected amounts.

## Financial position supports growth strategy

- Solid and stable annual revenue: R\$ 1 billion
- No financial leverage
- Management results
- Growth focused on value generation



### Electricity sales:



■ VALE   ■ ACR   ■ CEMIG

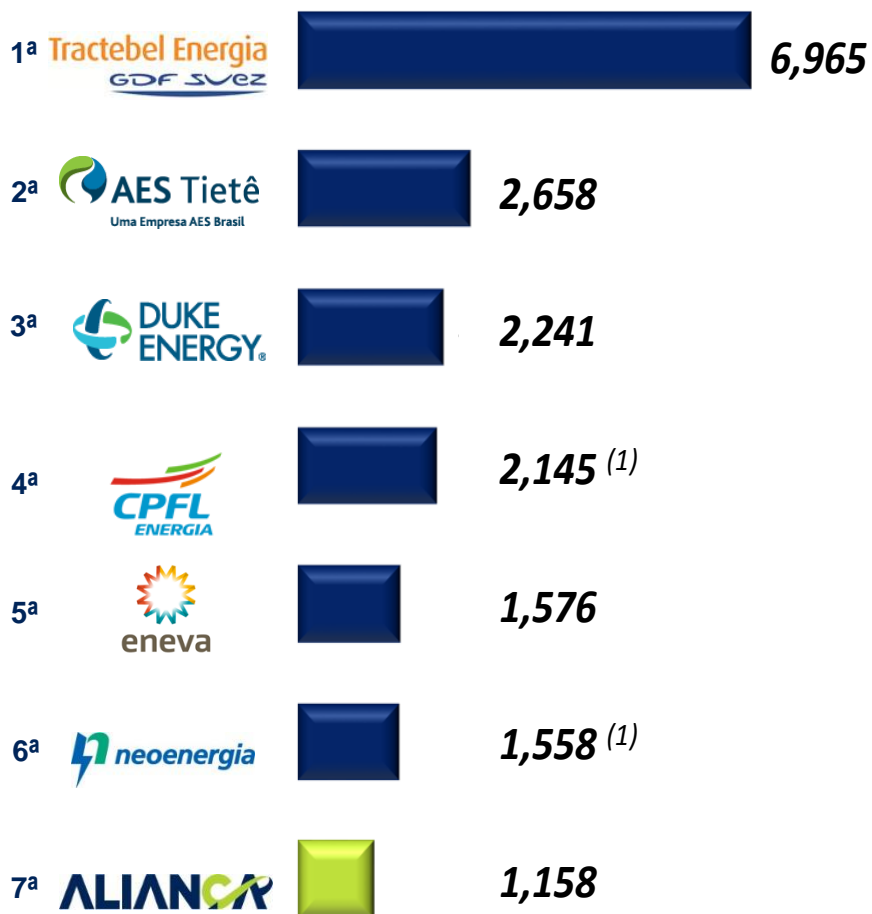
### ➤ Long term electricity contracts

- Free Market → Vale and Cemig
- Regulated Market → Distributors

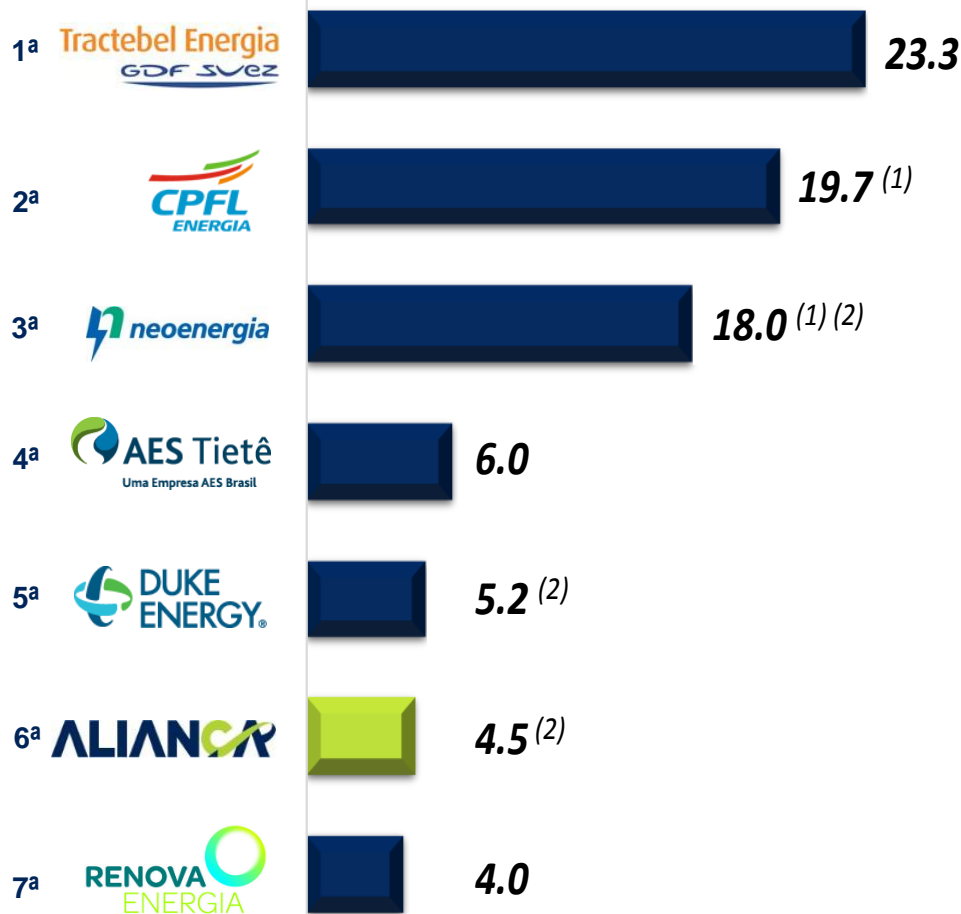
# Market positioning

Aliança is currently Brazil's 7<sup>th</sup> largest private-sector generator by installed capacity, and the 6<sup>th</sup> largest by market value, a prominent position in the country's electricity sector.

*Installed capacity 2014 – MW*



*Market value – R\$ billion*



(1) Integrated companies.  
(2) Estimated market value.

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## Acquisitions

- Adding Value through acquisitions
- Opportunities to invest in various segments

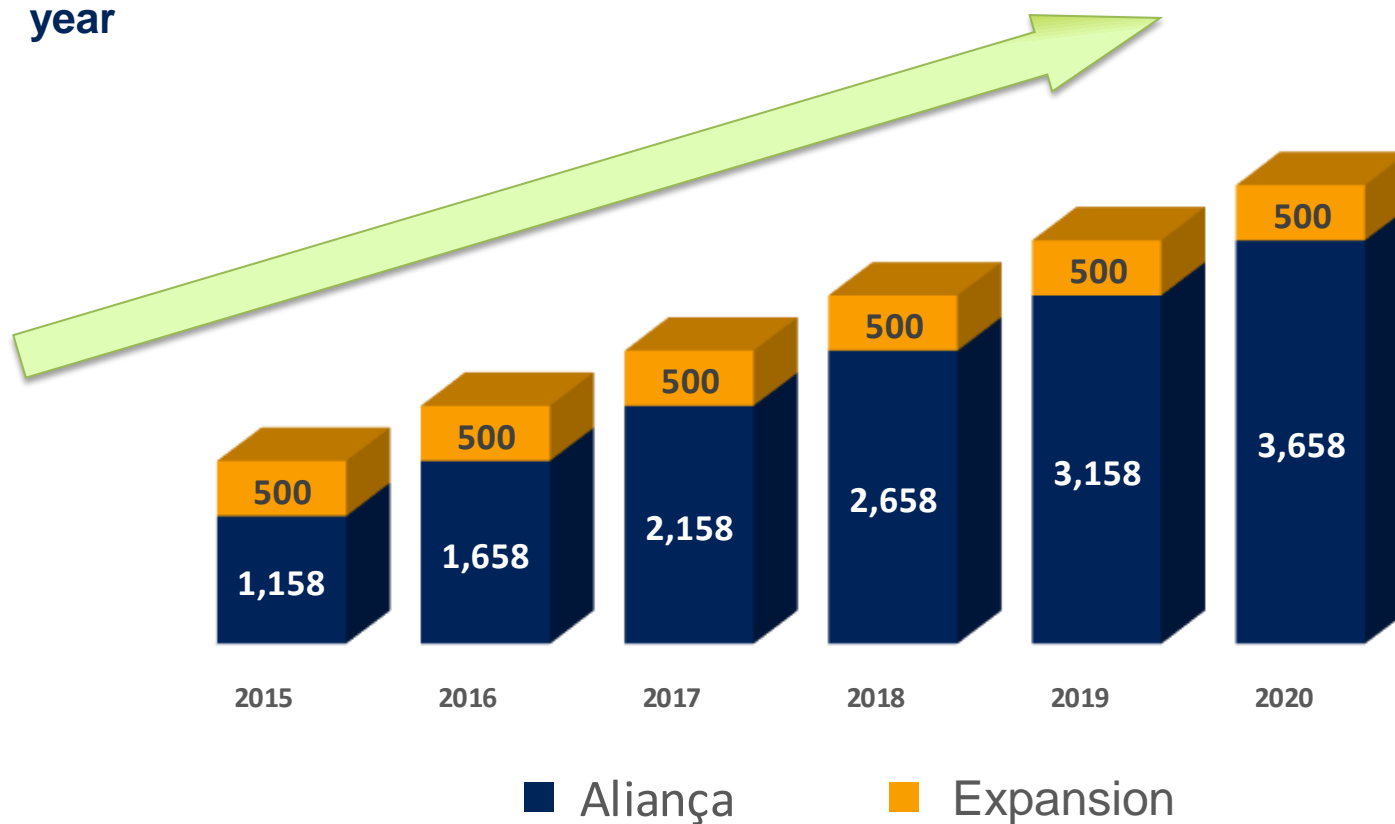
- Hydroelectric
- Thermoelectric
- Wind power



## New projects

- Sale of energy supply in the Free Market
- Participation in new energy supply auctions

Aliança's installed capacity will reach 4,158 MW in 2020, considering increases of 500 MW in installed capacity per year





A new generation in generation

**Gilberto José Cardoso**

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# Distribution: Periodic Tariff Review Methodology

Maura Galuppo Botelho Martins



# WACC

PARAMETERS	Third Periodic Tariff Review (2011 to 2014)	2015 to 2017
Capital structure: (Debt / Debt+Equity)	55%	48.76%
Risk free rate ( $r_f$ )	4.87%	5.64%
Expected market return ( $r_m$ )	10.96%	13.20%
Average levered beta ( $\beta$ )	0,74	0,70
Country risk premium ( $r_B$ )	4.25%	2.62%
Credit risk premium ( $r_c$ )	2.14%	3.37%
Nominal cost of own capital ( $K_e$ )	13.43%	13.57%
Nominal cost of third party capital ( $K_d$ )	11.26%	11.62%
Real cost of own capital after taxes (34%)	10.72%	10.90%
Real cost of third party capital after taxes (34%)	4.86%	5.14%
Real WACC after taxes	7.50% p.a.	8.09% p.a.

# WACC required to offset NPV negative effect of Cemig D investments

	<b>Exclusion:</b>	<b>WACC:</b>
<b>Investments made during 3rd Tariff Review Cycle</b>	8%	10%
<b>Valuation using Current Investments Rule made during 4th Tariff Review Cycle (Nov. 2012 – Apr. 2015)</b>	(20)	12%
<b>Valuation using ‘Price Bank’ Aneel Proposal for 3rd Phase Public Hearing 23/2014 Investments made during 4th Tariff Review Cycle (Nov. 2012 – Apr. 2015)</b>	4%	9%

# ASSET BASE REMUNERATION (BRR)

3rd Public Hearing Phase 23/2014

Aneel Proposal:

- Adoption of the regulatory values for items like COM (Minor Components) and CA (Additional Costs) that comprise investments.



Adoption of  
Price Bank

# ASSET BASE REMUNERATION (BRR)

3rd Public Hearing Phase 23/2014

**Non-  
standardization  
of inspection**

**Unpredictability  
of results**

**Need for more  
transparency in  
process**

**ANEEL's reasons**

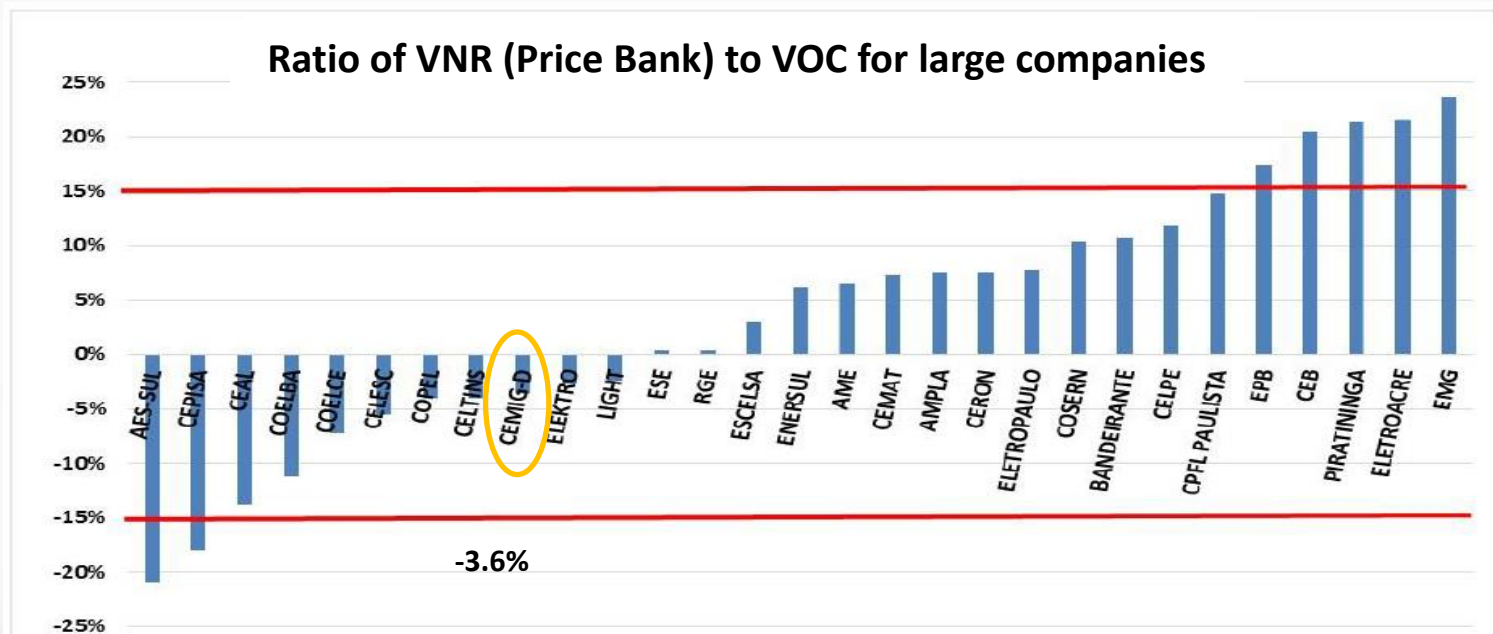
**There are no  
comparative analysis  
between companies**

**Information  
uncertainty**

# ASSET BASE REMUNERATION (BRR)

3rd Public Hearing Phase 23/2014

## Aneel Price Bank vs. Initial Book Value [VOC]



# TECHNICAL LOSSES

Public Hearing 26/2014

## 3rd Tariff Review Cycle Method

Regulatory Technical Losses



**Single statistical model**

**Energy Balance**

**General data table**



**Does not reflect the real technical losses of the distributors' electricity system**

## 4th Tariff Review Cycle Method

Regulatory Technical Losses



**Network Simulation**

**Metering campaign**

**Geographical database**



**Tends to approximate the technical losses to the distributors' electricity system**



# NON-TECHNICAL LOSSES

## 3rd Tariff Review Cycle Method

12 econometric models to calculate the complexity index

Two complexity groups

Defining the loss of speed reduction per cluster for each complexity group

## New methodology

3 econometric models to calculate complexity index

Single complexity group

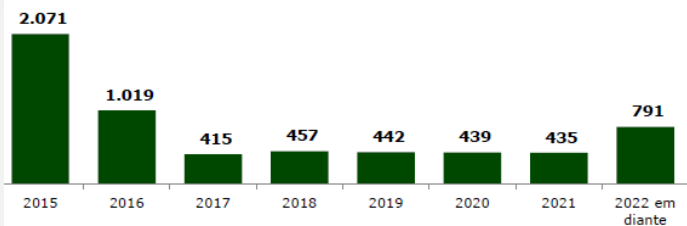
Defining the loss of speed reduction per new clusters using a single complexity group

Starting point for Cemig D: maximum value of 7.50% and lower value between regulatory target set by the 3rd Tariff Review Cycle (7.63%) and the average of non-technical losses in past 4 years.

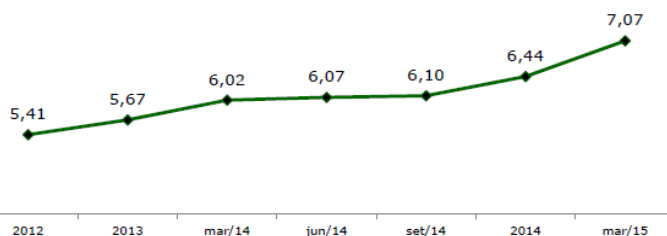
# CEMIG D: DEBT PROFILE

Maturities timetable – Average tenor: 3.4 years

Total net debt: R\$ 5.8 billion

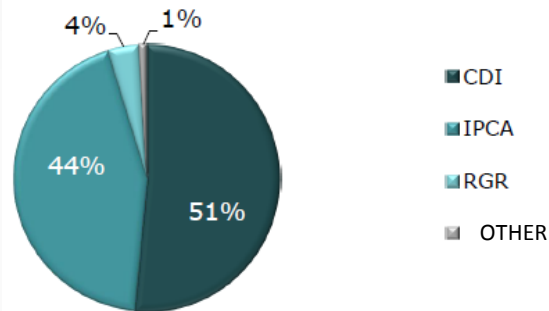


Average real cost of debt – %

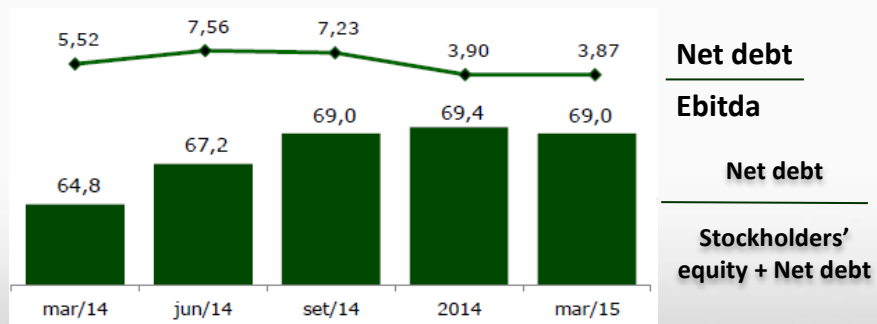


Source: www.cemig.com.br

Main indices



Leverage – %



Net debt

Ebitda

Net debt

Stockholders' equity + Net debt

# OPERATIONAL COSTS

<u>CYCLE</u>		Lower limit	Middle band	Upper limit
<b>3rd Tariff Review Cycle</b>	Efficiency	48%	58%	68%
<b>4th Tariff Review Cycle</b>	Efficiency	65%	69%	73%
	Normalized Efficiency	85%	91%	96%

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# CEMIG D

## Danilo Gusmão Araújo

**CEMIG**  
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Empresarial **ISE**  
2014

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**CMIG3**  
NÍVEL 1  
BOVESPA BRASIL

**CMIG4**  
NÍVEL 1  
BOVESPA BRASIL

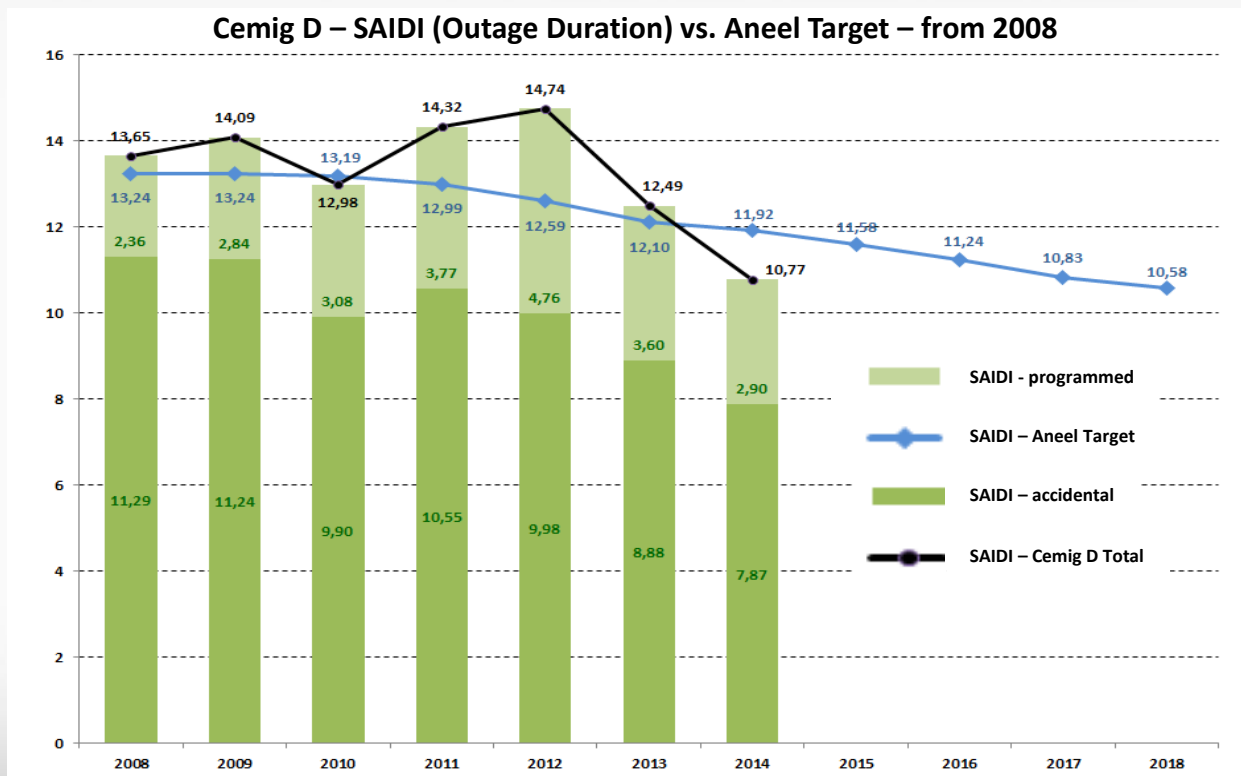
**LATIBEX**  
XCMIG

**CIG**  
LISTED  
NYSE

**CIG.C**  
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NYSE

# Electricity system performance

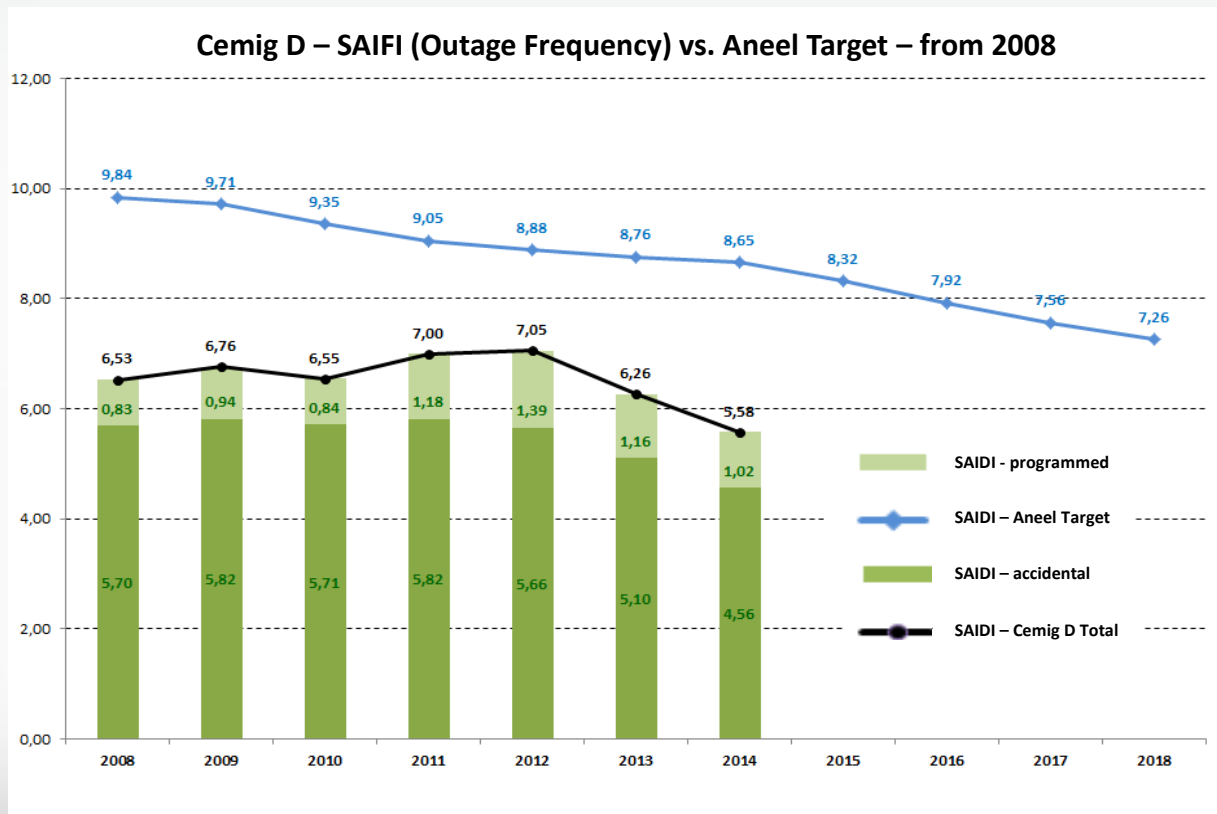
Outage duration indicator (SAIFI) is best in past few years, with strong reduction in accidental outages





# Electricity system performance

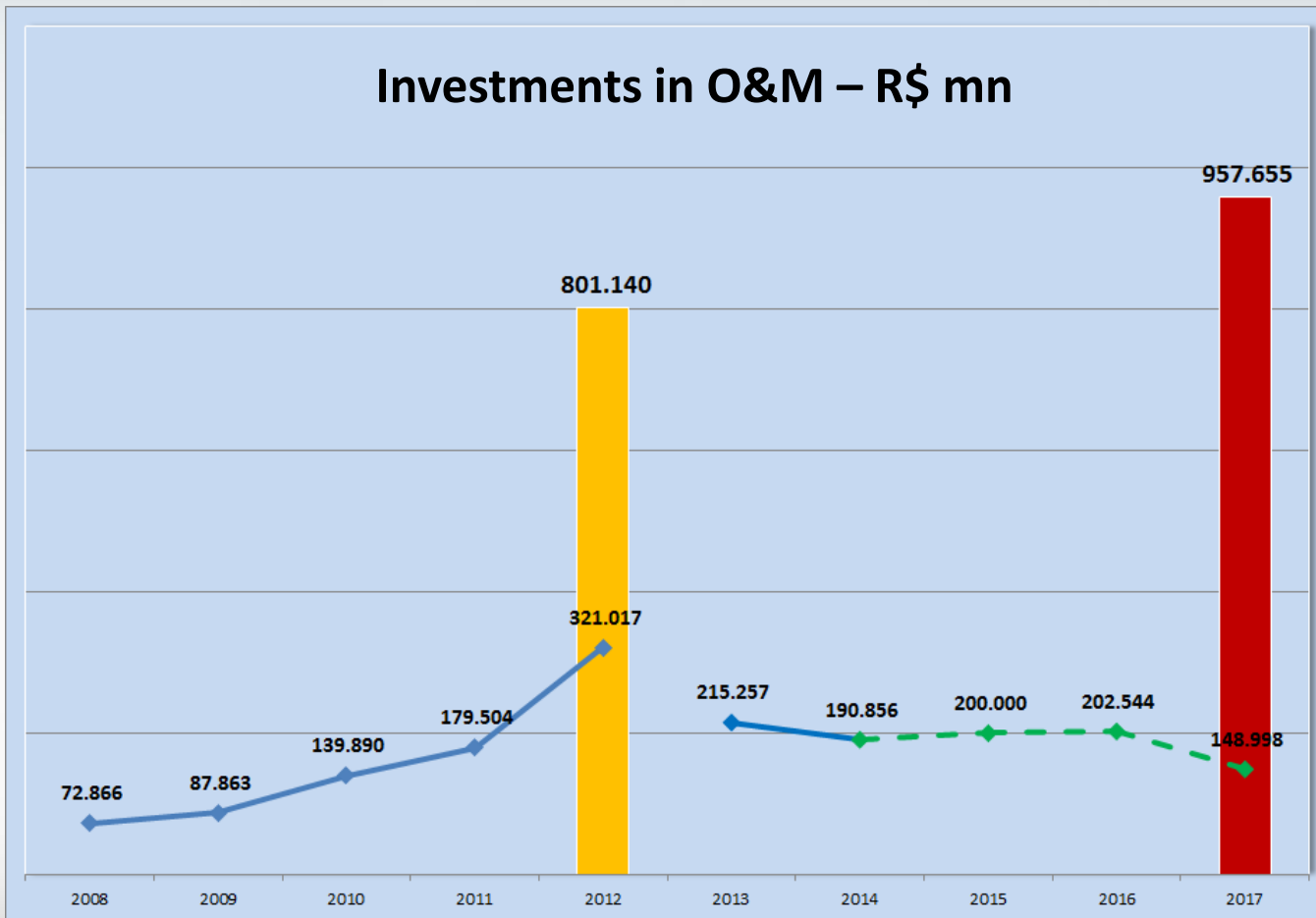
Outage Frequency (SAIFI) is also best in past few years





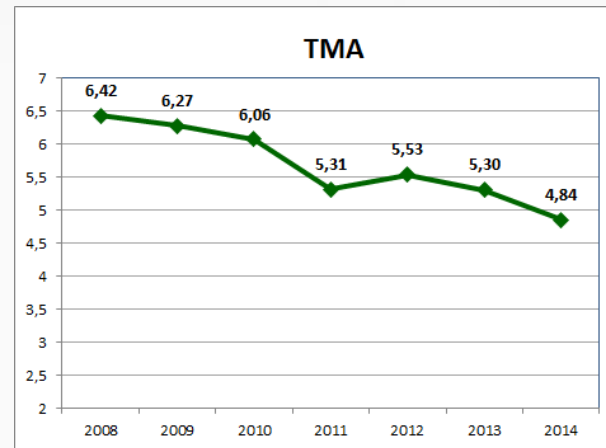
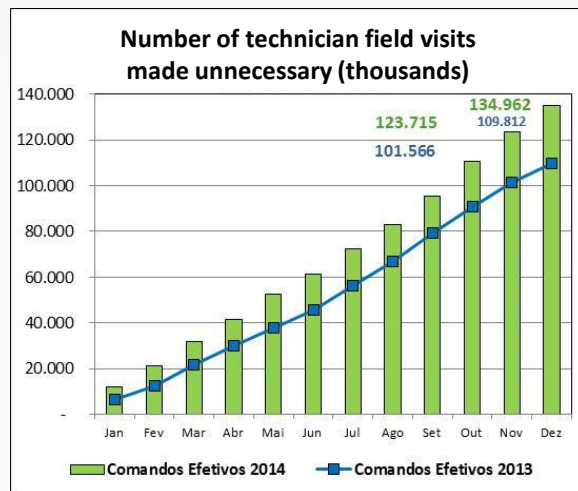
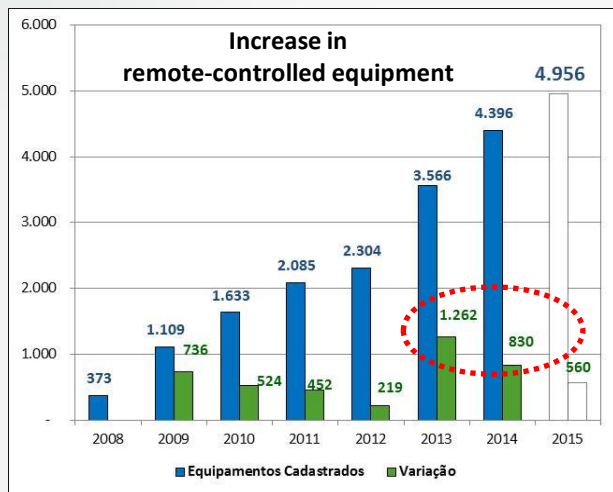
# Actions taken to improve performance

## Investments in O&M – R\$ mn



# Actions taken to improve performance

- More automated equipment means fewer field visits:
  - lower Average Attendance Time (TMA) for adverse events



- In 2012, there were 2,304 remote controlled equipment. Between 2013 and 2014 this number had almost doubled, adding 2092 units. Projected target for end-2015 are 5,000 remote controlled units.
- 90.8% commands active reduced 134,962 field visits by Cemig personnel.
- Estimate for total travel costs savings for 2014 were R\$ 16.7mn, while in 2013 it was R\$ 13.6mn.
- Average time to handle network problems was reduced by 25% since 2008.

# Action taken to improve performance

- Dual path supply to municipal centers with automated transfer

## Substation 1



**R** City A

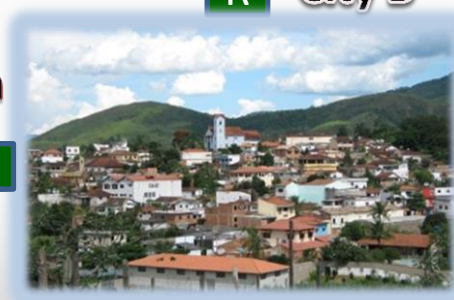
## Substation 2



**R** City B



**Dual Supply Path  
established**



# Actions taken to improve performance

- R\$ 60mn were invested to acquire 15 mobile substations



- Quick service in the event of failures
- Increase in preventive maintenance to increase reliability
- Additional availability to transform

## Actions taken to improve performance

- R\$ 77.5mn invested to modernize underground distribution network in Belo Horizonte, and in rest of Minas Gerais

- 237 kms of cable replaced
- 177 switches replaced and automated
- 8 transformers replaced

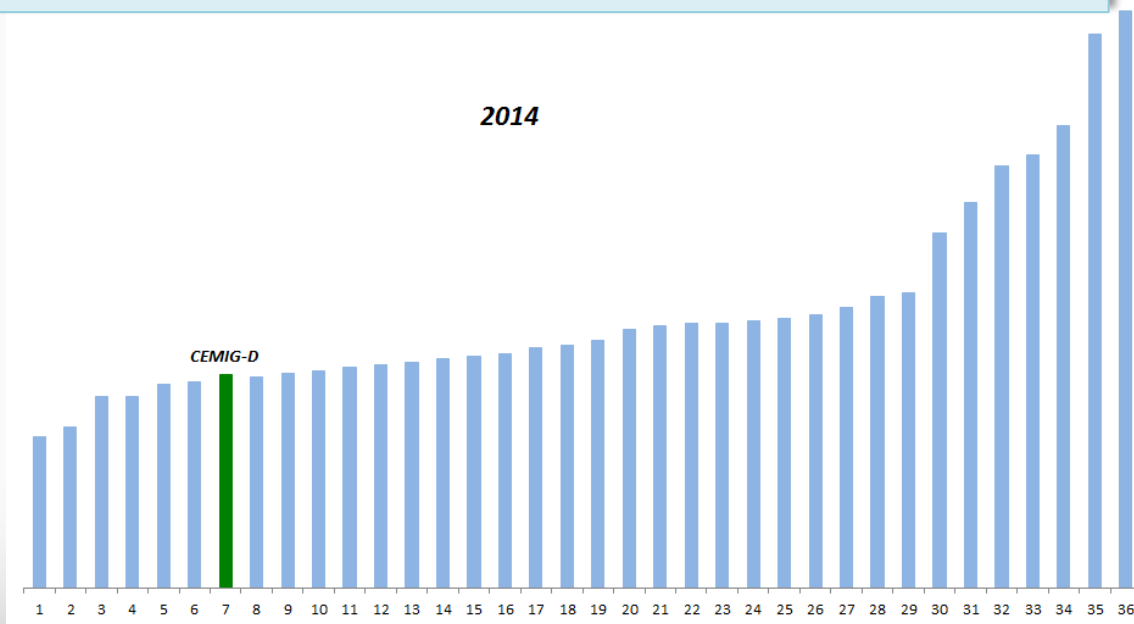
By 2017, additional completed:

117 km of cable  
83 transformers  
152 switches

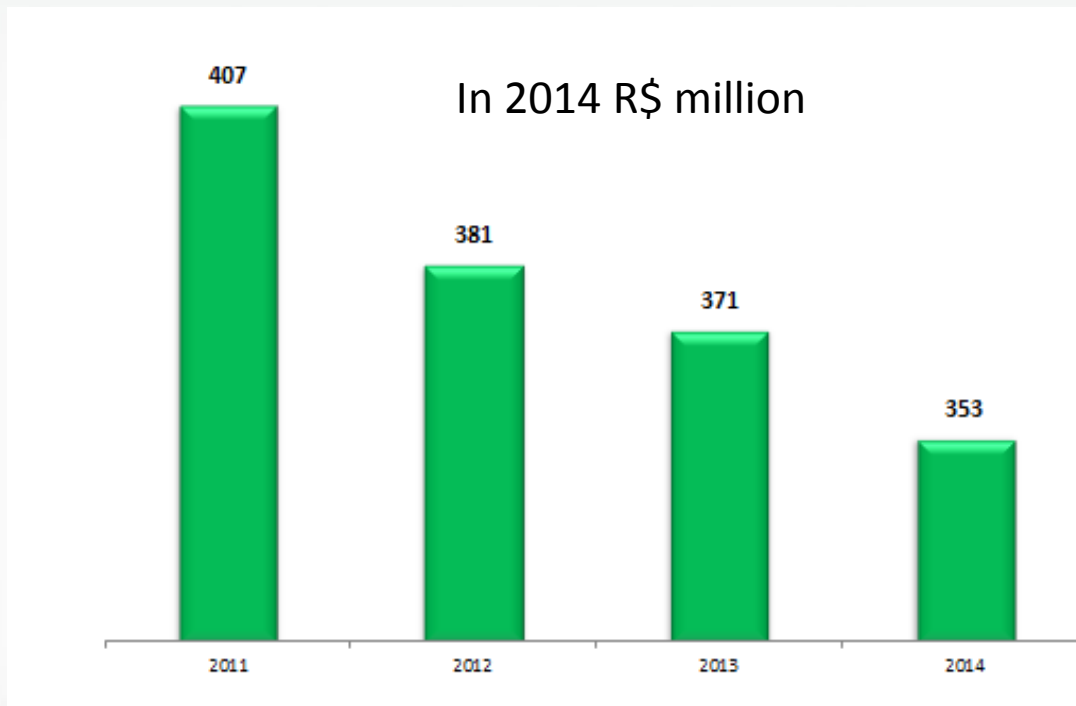


# Global Continuity Performance (DGC) Aneel ranking

- Cemig D ranked 7<sup>th</sup> in 2014 Aneel ranking
- Moved up 10 positions from the previous year
- Ranked in First Quartile – Best Performance



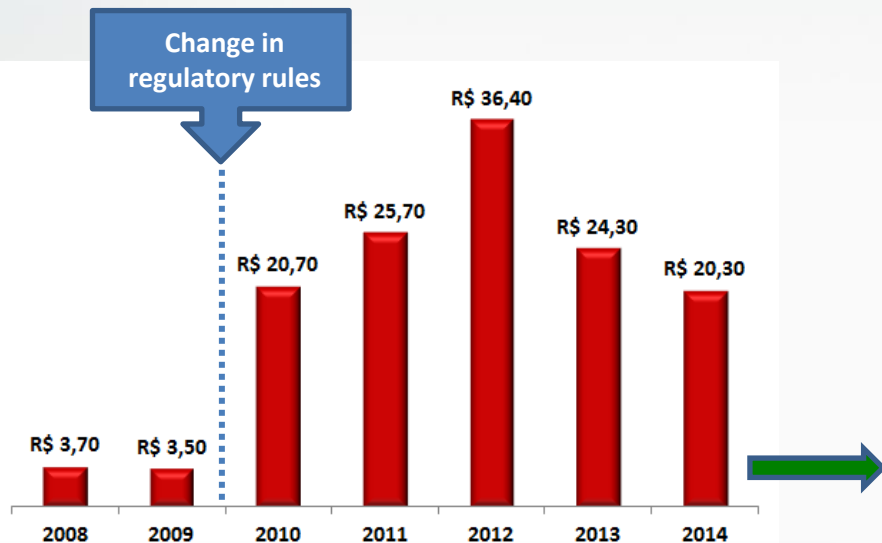
## Opex in O&M





# Impact on revenue

Improvement in electricity system contributed to significant revenue gains



Significant reduction in compensation fee due to non-compliance with continuity indicators

Table 1 – Component Q of X Factor

DEC <sub>i</sub> /FEC <sub>i</sub>	General rule	Best performances	Worst performances
Over 20%	1.00%	0.50%	1.00%
17% to 20%	0.95%	0.47%	0.95%
14% to 17%	0.79%	0.40%	0.79%
11% to 14%	0.64%	0.32%	0.64%
8% to 11%	0.49%	0.24%	0.49%
5% to 8%	0.33%	0.17%	0.33%
-5% to +5%	0.00%	0.00%	0.00%
-8% to -5%	-0.33%	-0.33%	-0.17%
-11% to -8%	-0.49%	-0.49%	-0.24%
-14% to -11%	-0.64%	-0.64%	-0.32%
-17% to -14%	-0.79%	-0.79%	-0.40%
-20% to -17%	-0.95%	-0.95%	-0.47%
Below -20%	-1.00%	-1.00%	-0.50%

Positive effect on X Factor, representing increase of R\$ 40mn in the Portion B during last 2 tariff adjustments

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