Tractebel Energia



Inside ENGIE Tractebel Energia

June 2, 2016

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Tractebel Energia



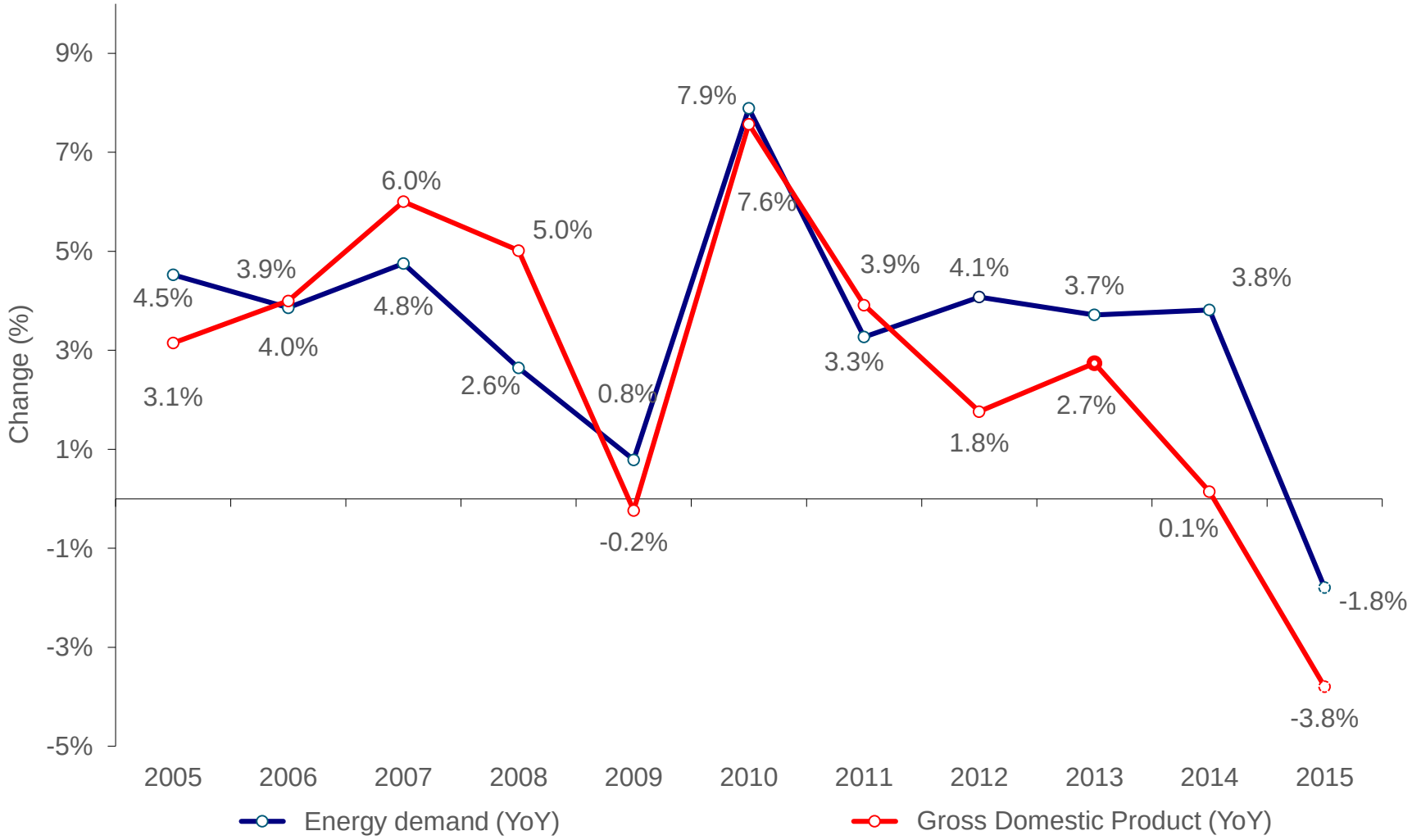
Inside ENGIE Tractebel Energia

Part 1: Prospects for the Energy Market

June 2, 2016

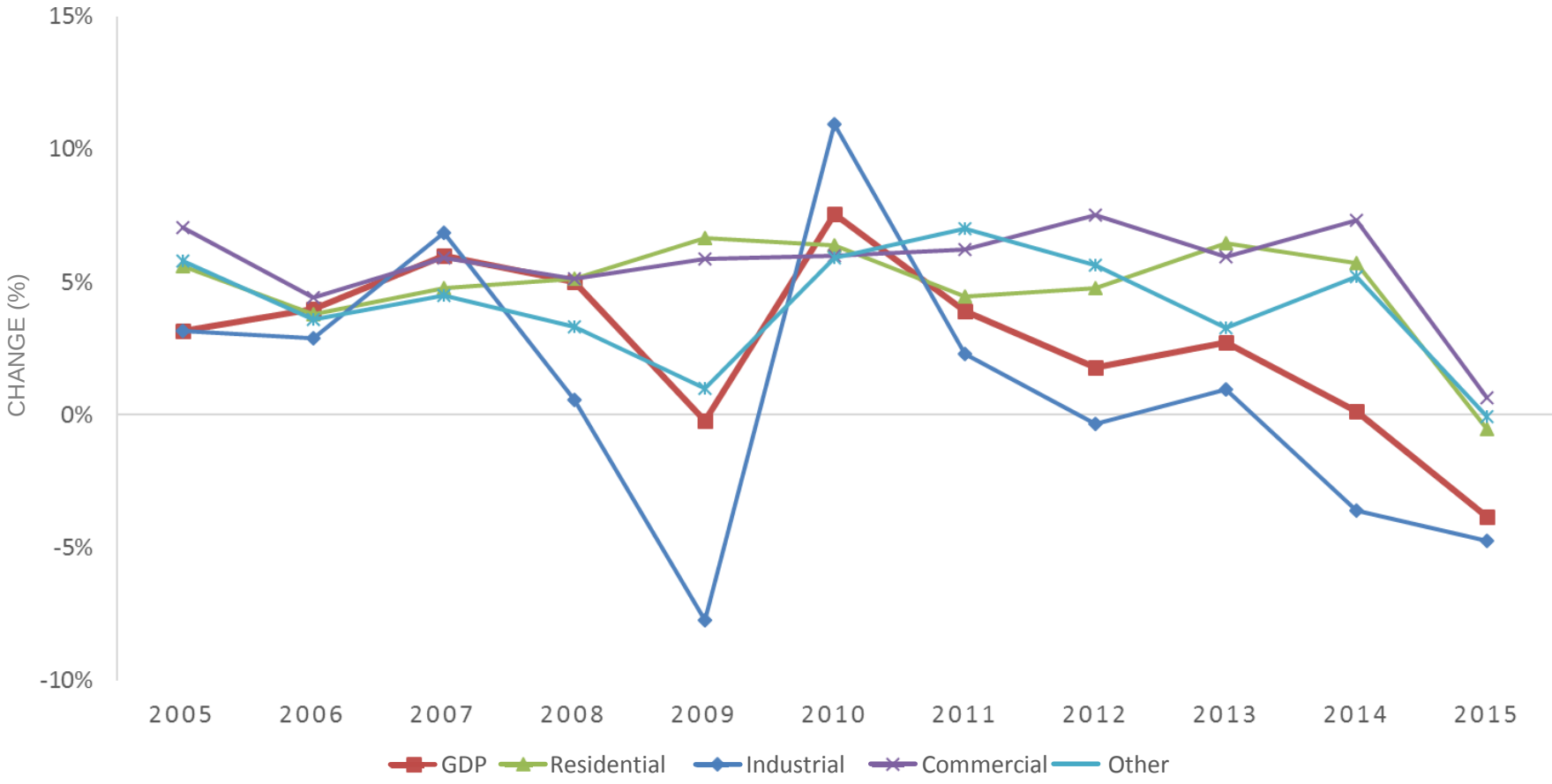
Marcos Keller Amboni

GDP and electricity correlation (1)



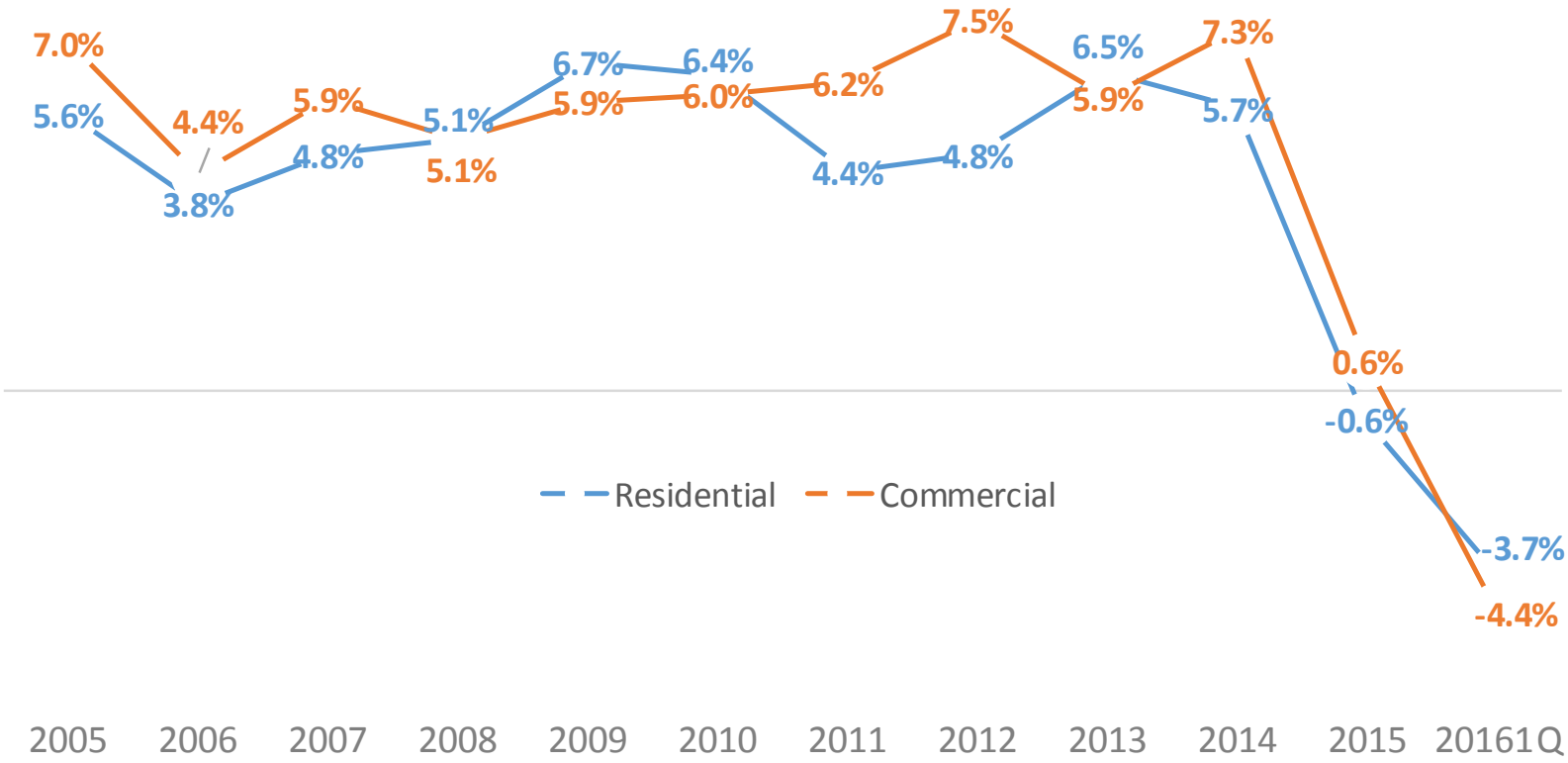
Source: Banco Central do Brasil/ONS

GDP and electricity correlation (2)



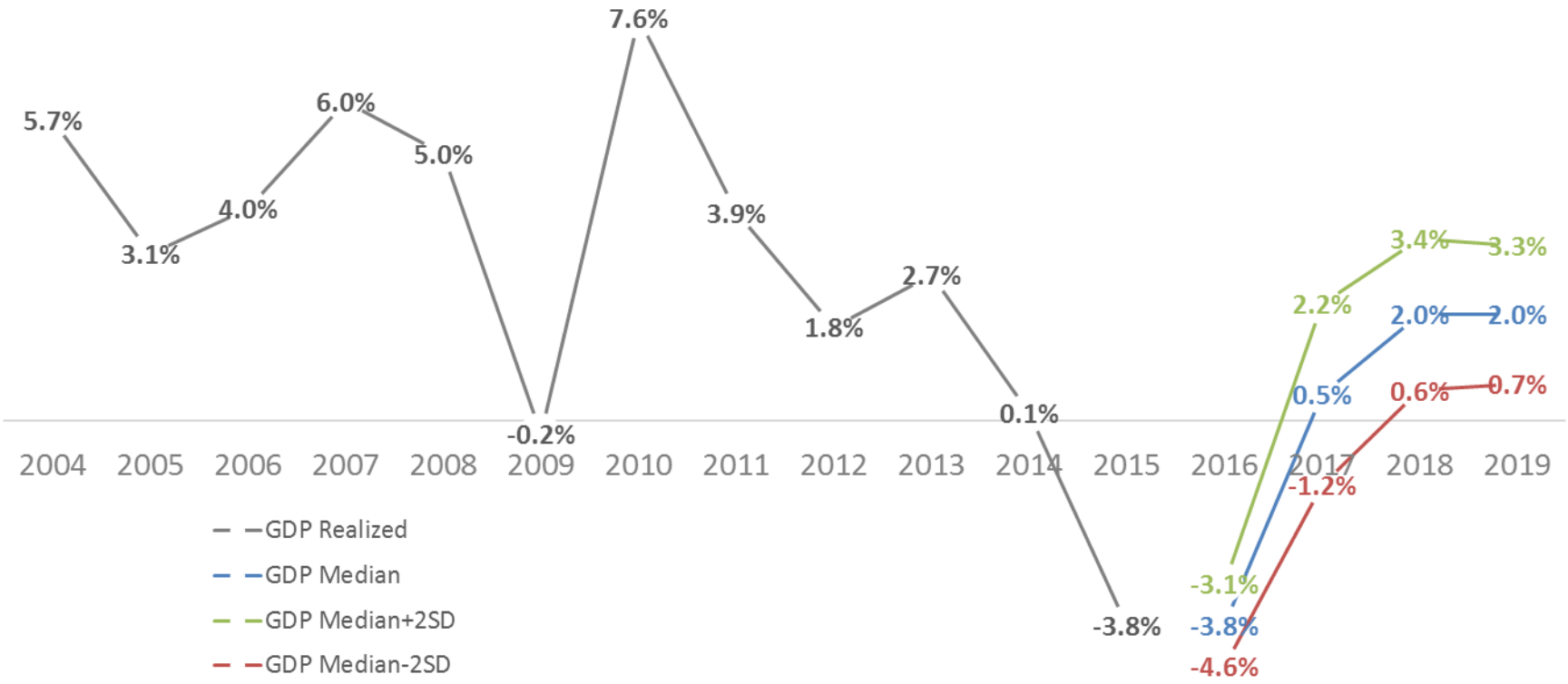
Source: Banco Central do Brasil/EPE

Low residential and commercial growth in 2015 and 2016



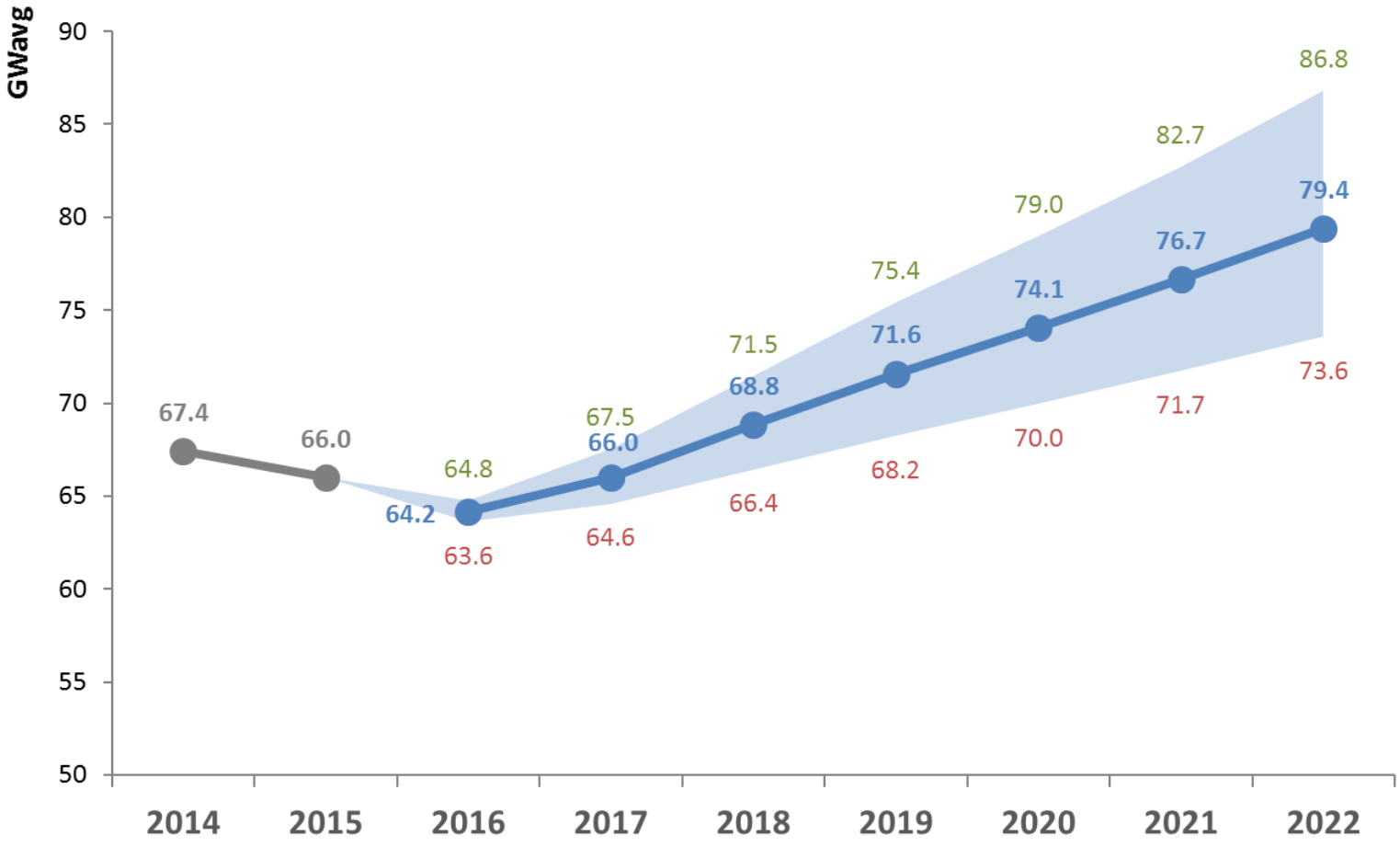
Source: EPE
2016 is referred to the 1st quarter

GDP: historical x projection



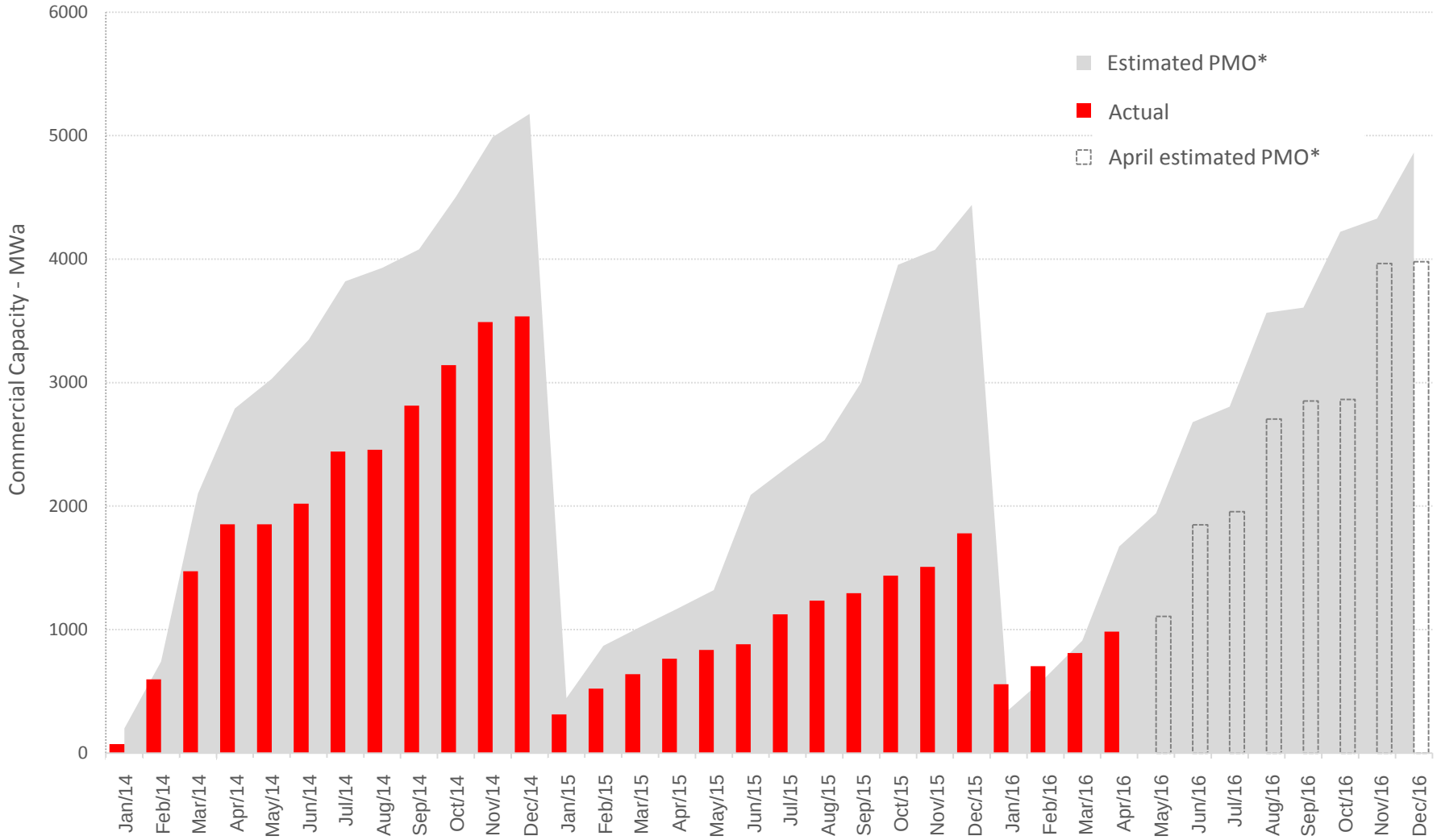
Source: Banco Central do Brasil

Projection: demand



Source: ONS/ENGIE Tractebel Energia
* ONS revised the calculation methodology of the actual demand from 2014 and 2015

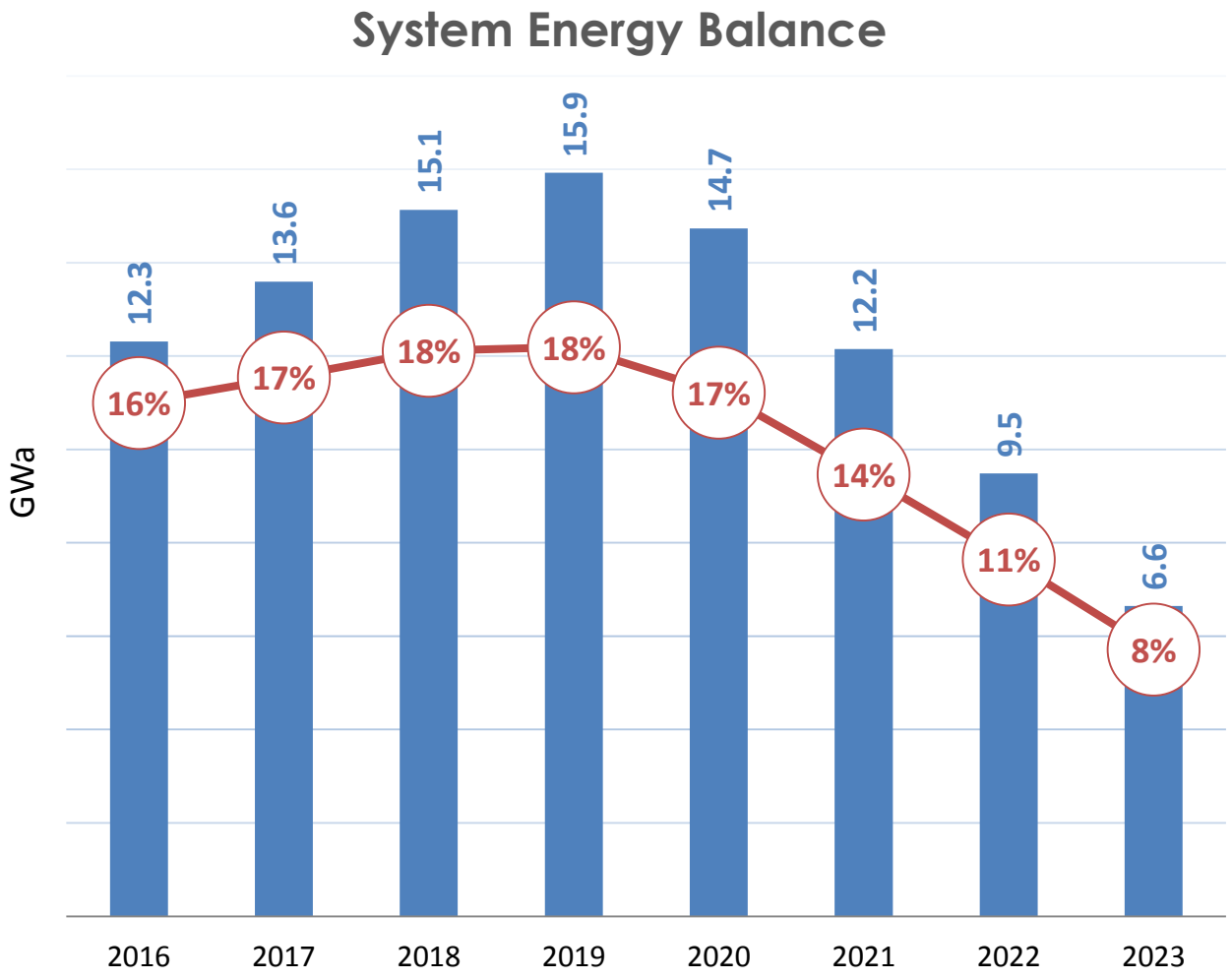
Generation and transmission recurring delays



* PMO of January from de current year

Source: PSR - Energy Report

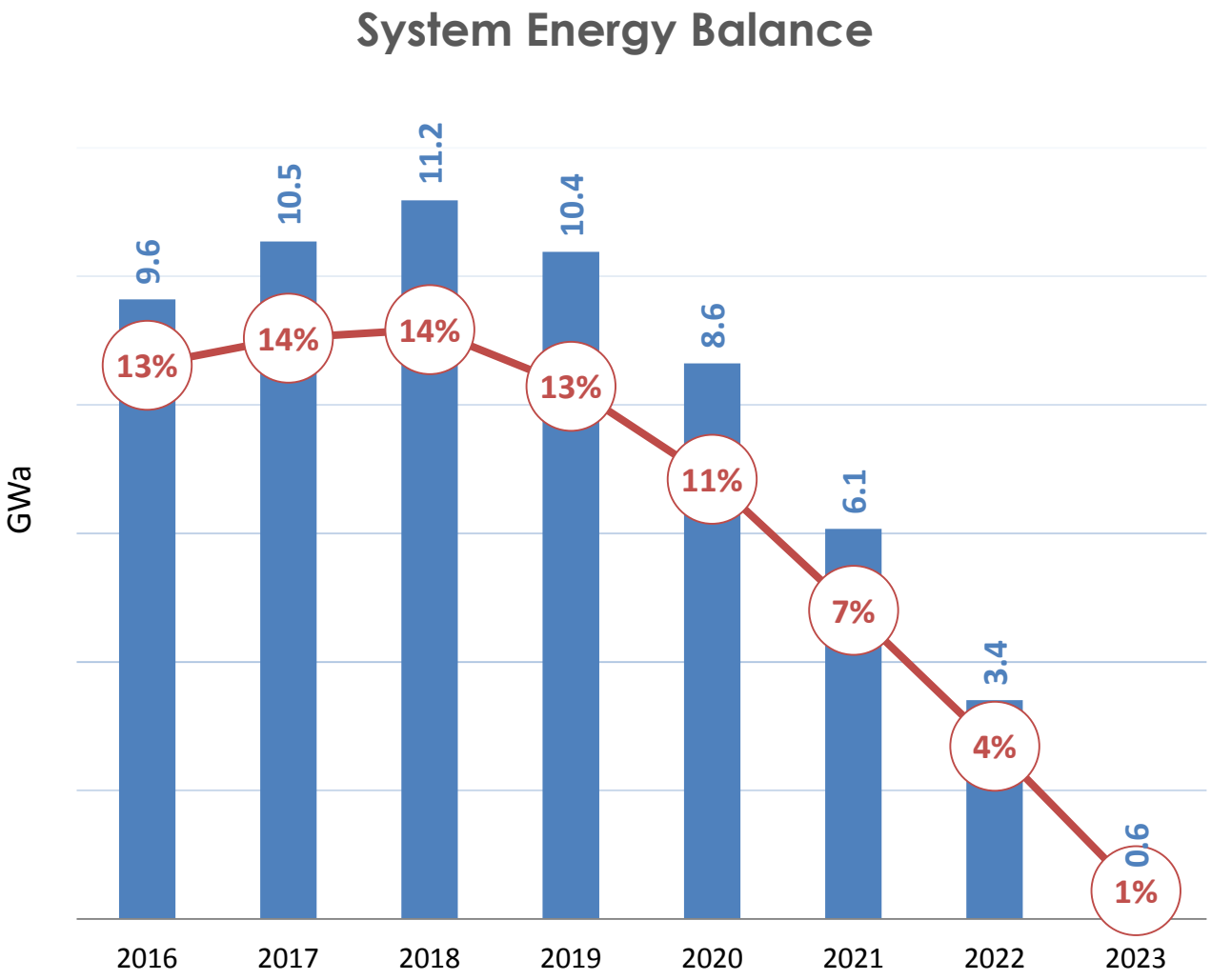
Current situation (1)



- Does not consider future auctions
- Considers work delays (TBLE propositions)
- **Considers Reserve Energy**

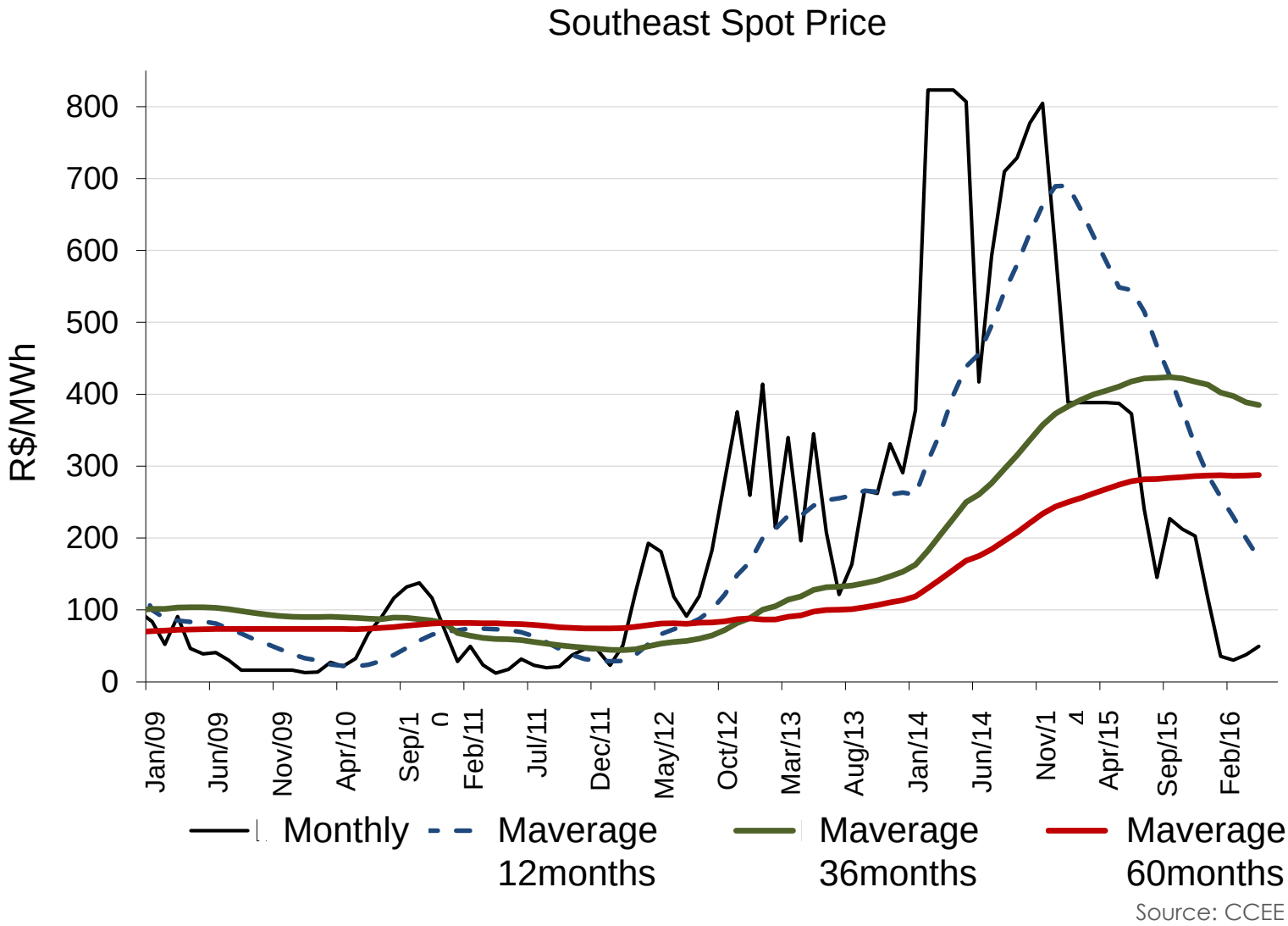
Source: PSR - Energy Report

Current situation (2)



- Does not consider future auctions
- Considers work delays (TBLE propositions)
- **Does not consider Reserve Energy**

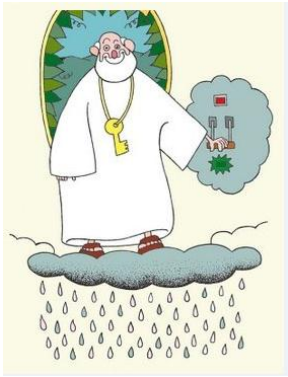
PLD



Source: CCEE

Relevant factors that influence energy pricing

- Hydrology (wet or dry year)



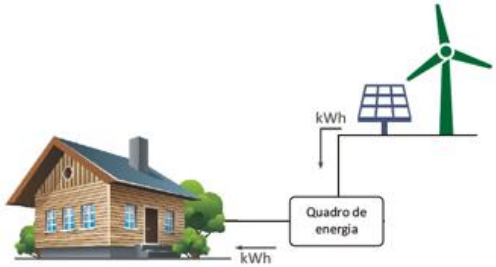
- Delays in the schedules of generation and transmission projects



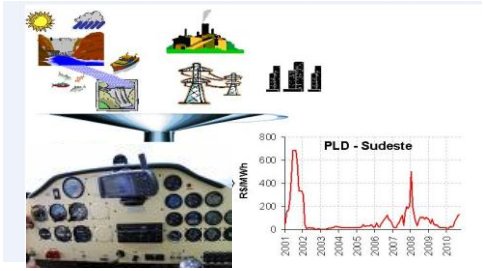
- Economy recovery



- Distributed energy growth

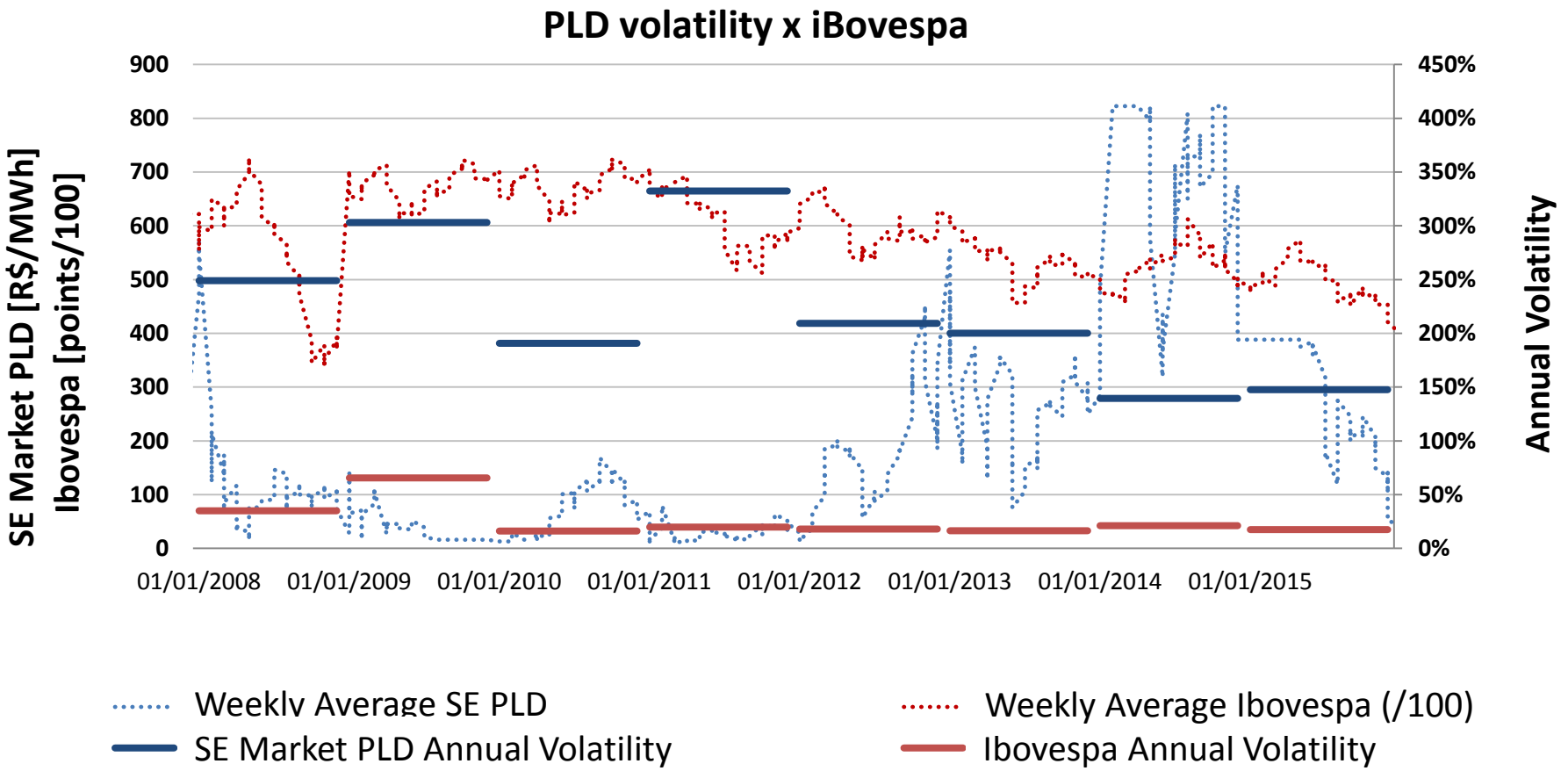


- Energy pricing models calibration composition (for example: risk level)



PLD and volatility

PLD is intrinsically a business of very high volatility.

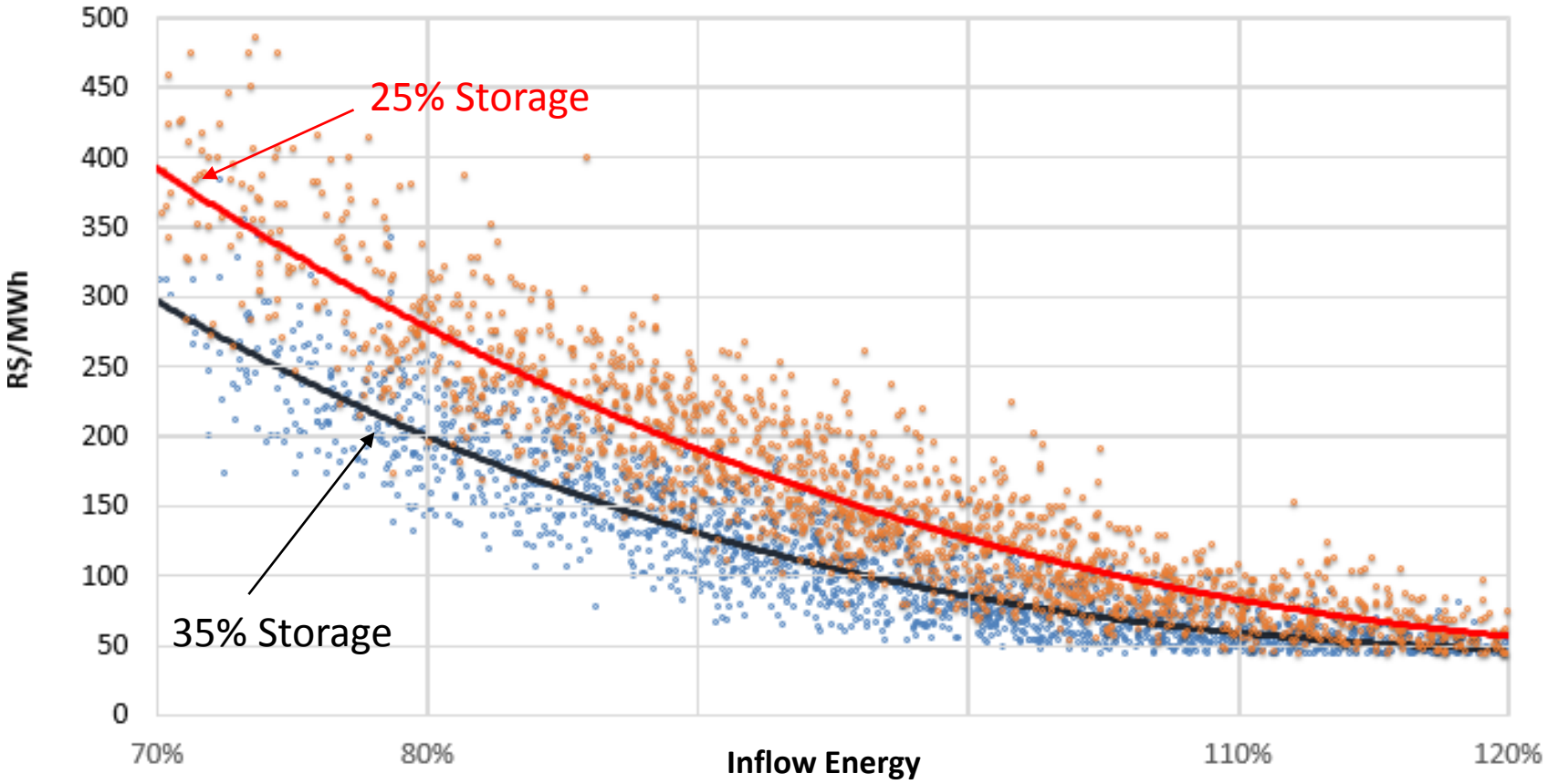


Volatility: $x_i = \ln (P_{i+1} / P_i)$

Source: Bovespa/CCEE

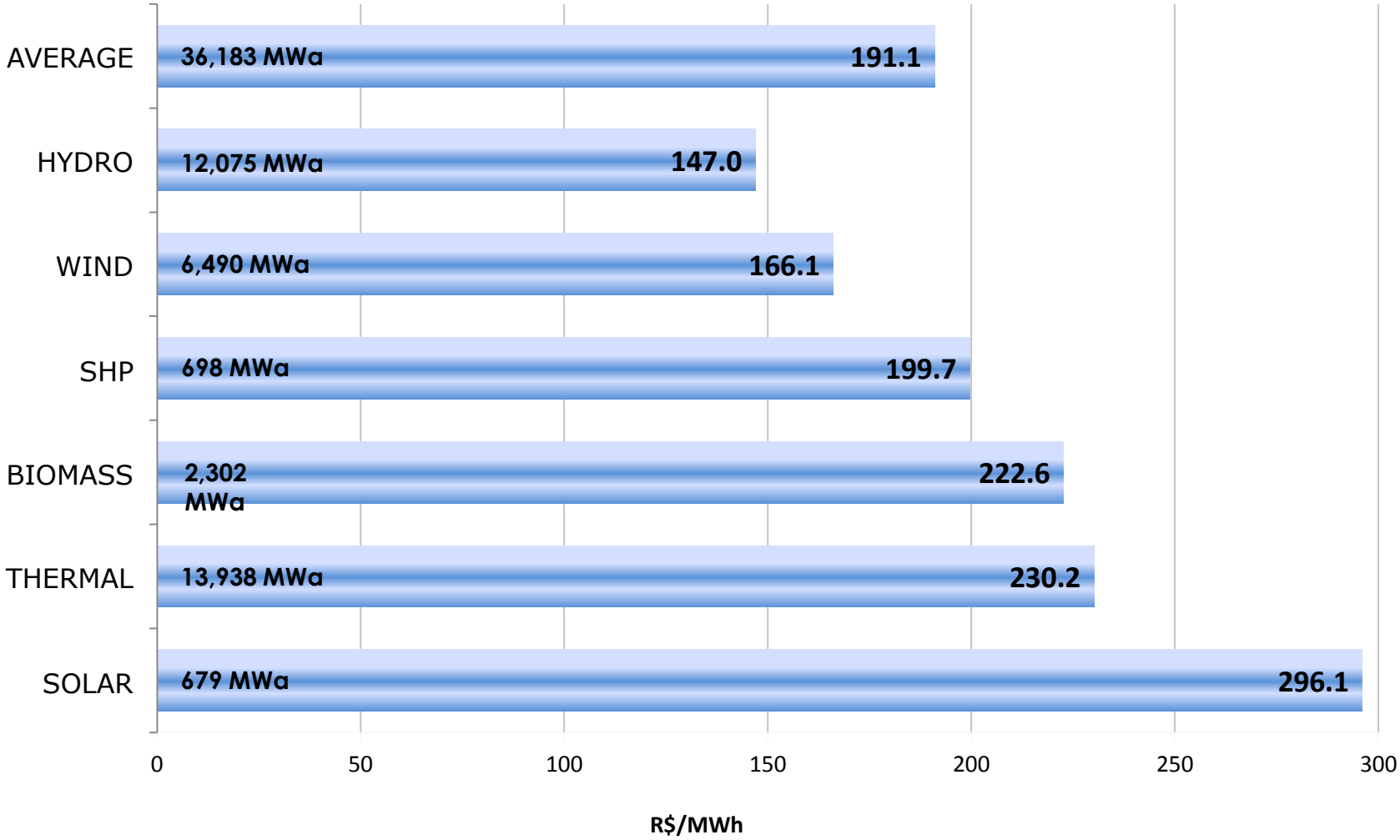
Hydrological uncertainty in the energy pricing

- Supply 2020 (storage sensibility 25% and 35% in the SE)



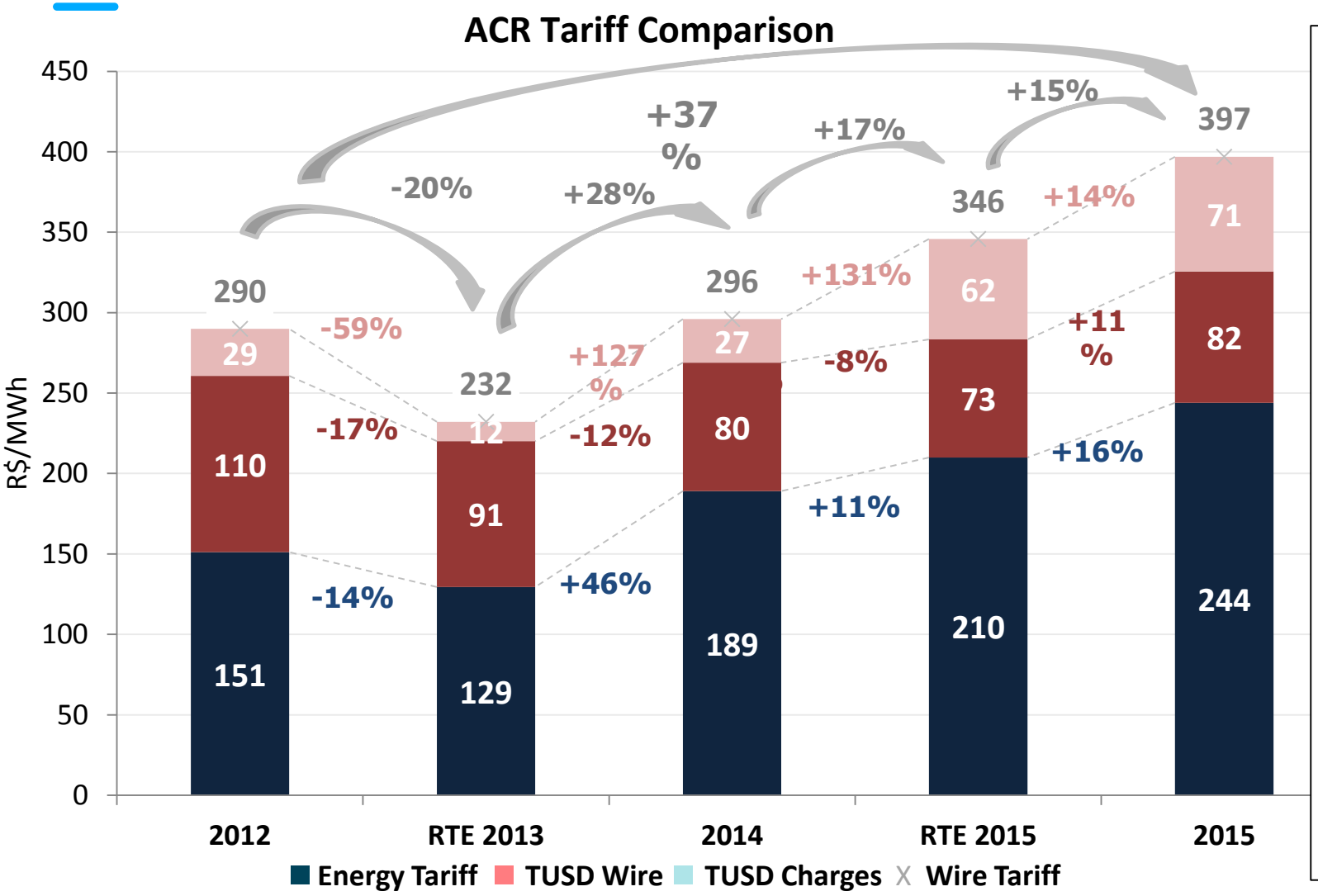
Internal Studies

CCEAR new energy: auction results



Does not include Botox plants *Reference: Apr/16*

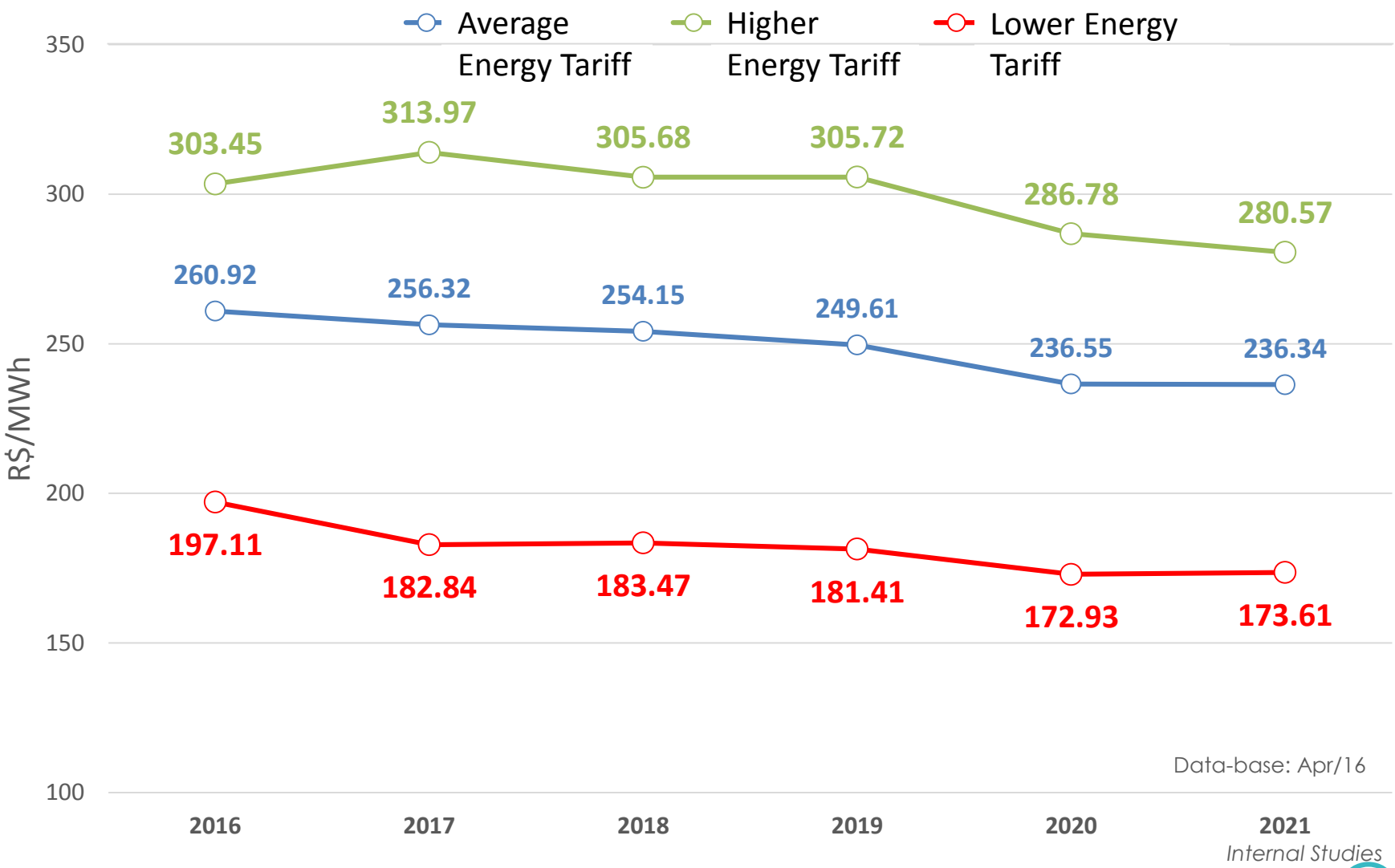
Average tariff of DISCOs



Sample:
- CPFL Paulista
- AMPLA
- CEMIG
- CEMAT
- ENERSUL
- AES SUL
- COELBA
- Bragantina
- RGE
- COPEL
- Eletropaulo
- ESCELSA
- CELG
- CELESC
- ELEKTRO
- EBE
- Piratininga
- CEEE
- Energisa-MG
- Energisa-PB
- COELCE
- CELPE
- CEAL
- Cepisa
- Light

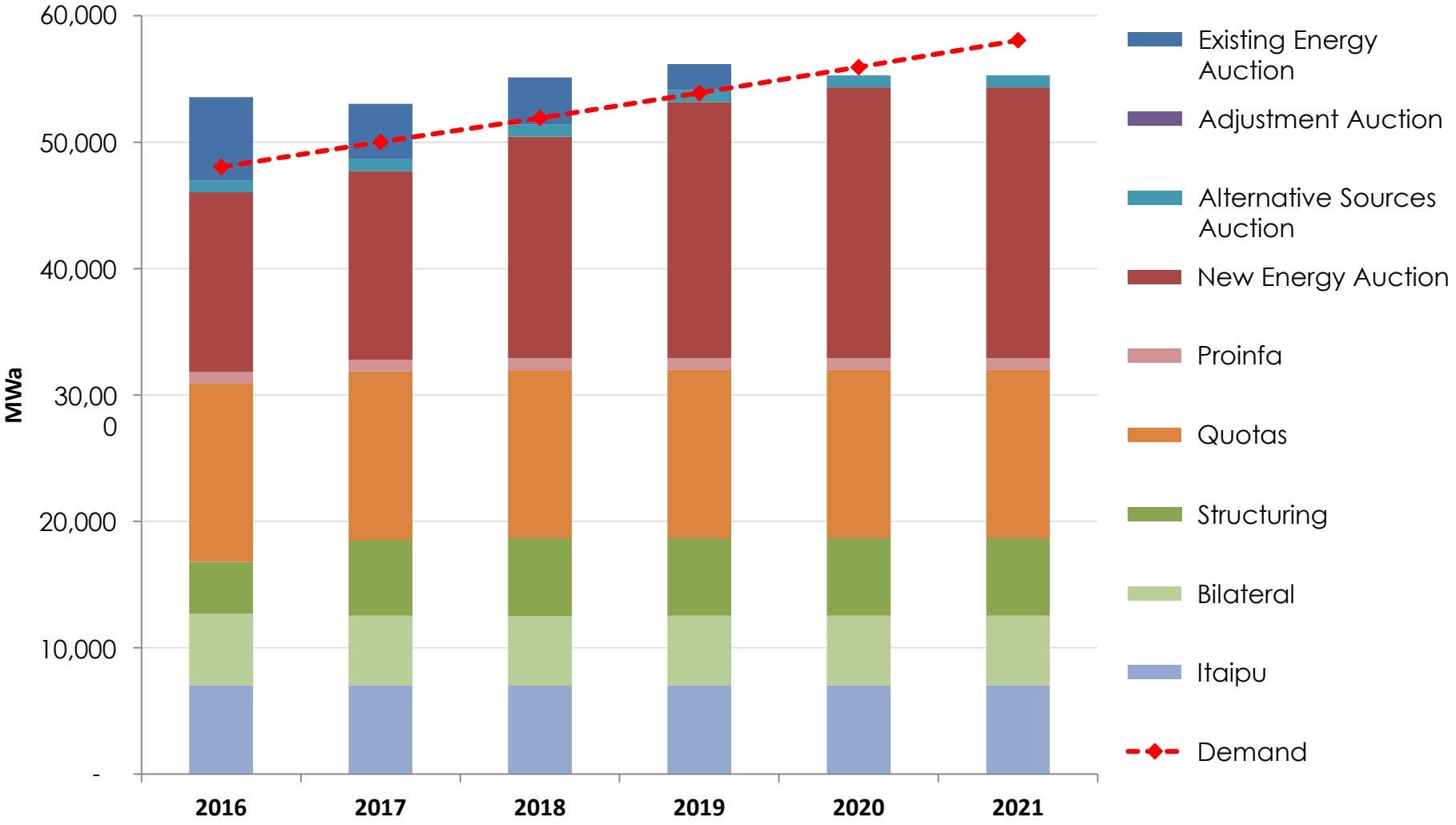
Source: Aneel

DISCOs tariff will remain high



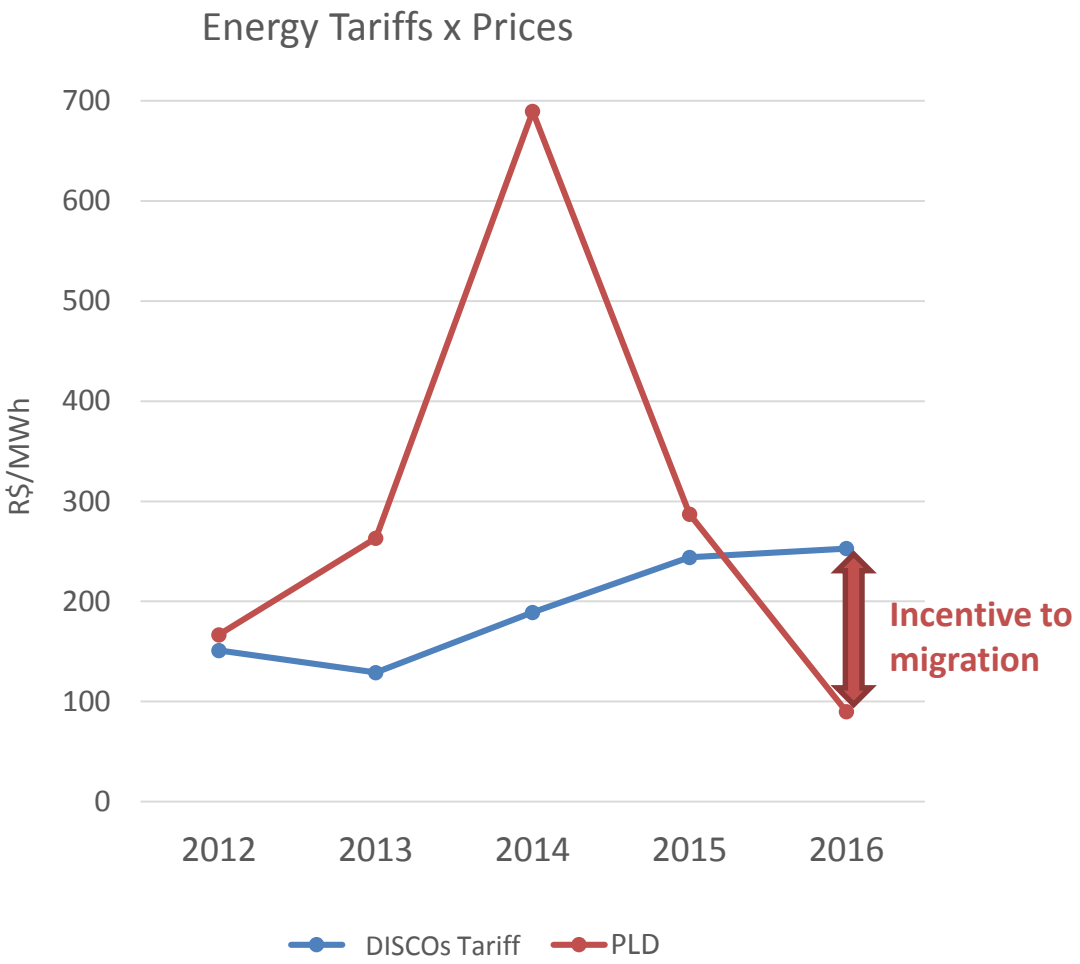
Internal Studies

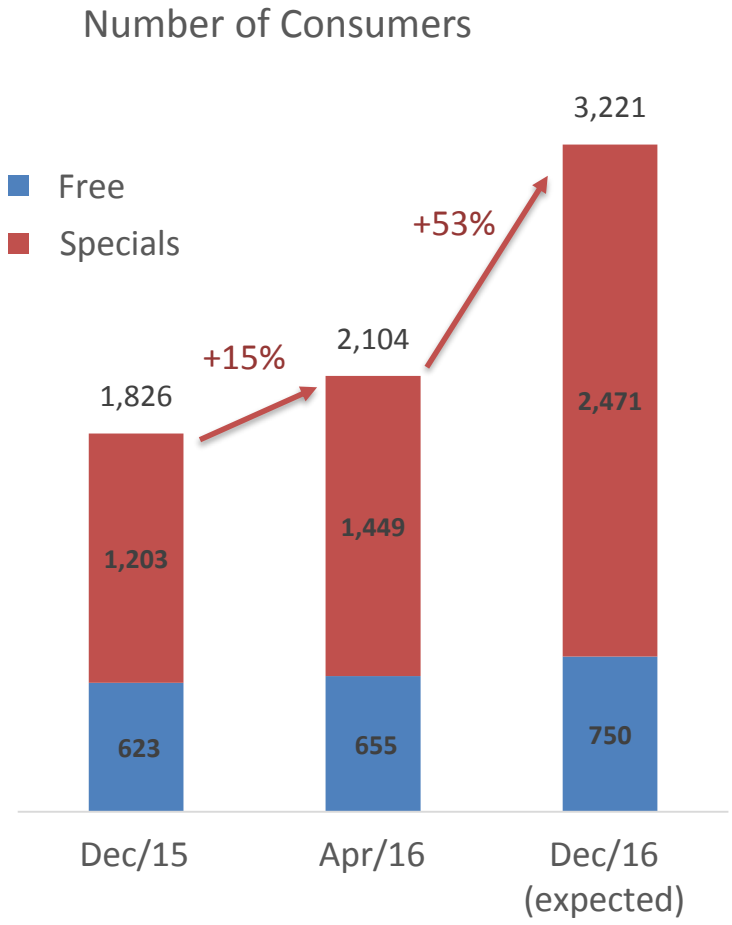
Regulated market (ACR) balance



Source: CCEE/Aneel

Strong incentive to migration





Source: Internal Studies/CCEE

Conclusions

- The economic crisis was much more serious and long-lasting than expected and affected load growth (3 years of decline)
- Uncertainty surrounding the timing of resumption in demand: recovery could be rapid
- Low per capita consumption (North/Northeast, class B and C): indications for resumption in residential growth
- ENA continues to be the principal variable of influence on PLD and consequently on market prices, mostly with reservoir still needing to recover
- ENGIE Tractebel Energia
  - Generating complex made up of energy sources of a complementary nature
  - Policy of anticipated contracting
  - Diversified client portfolio

High degree of resilience in the face of unfavorable market scenarios

Tractebel Energia



Inside ENGIE Tractebel Energia

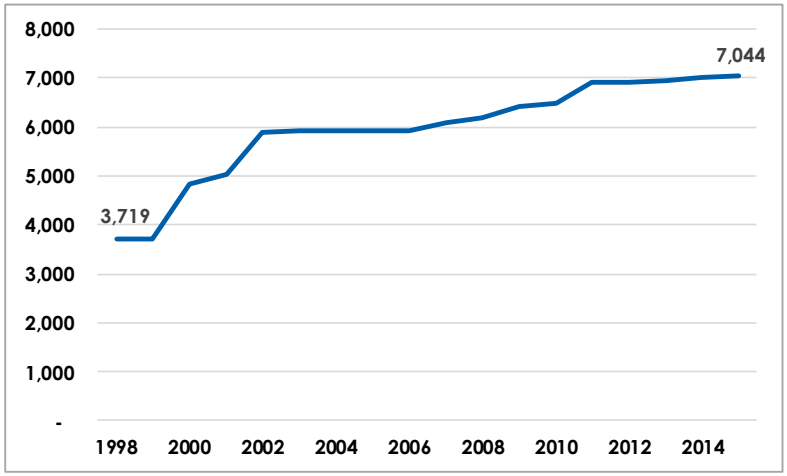
Part 2: Retrospective
1998 - 2016

June 2, 2016

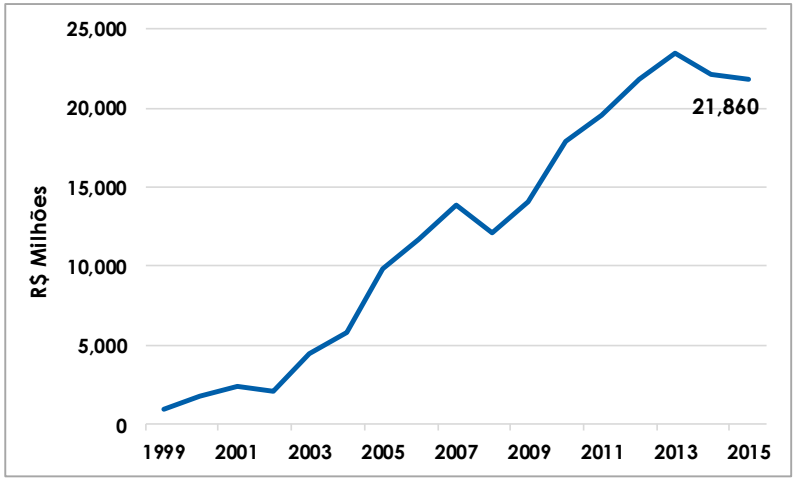
Manoel Zaroni Torres

Trends of ENGIE Tractebel Energia in numbers

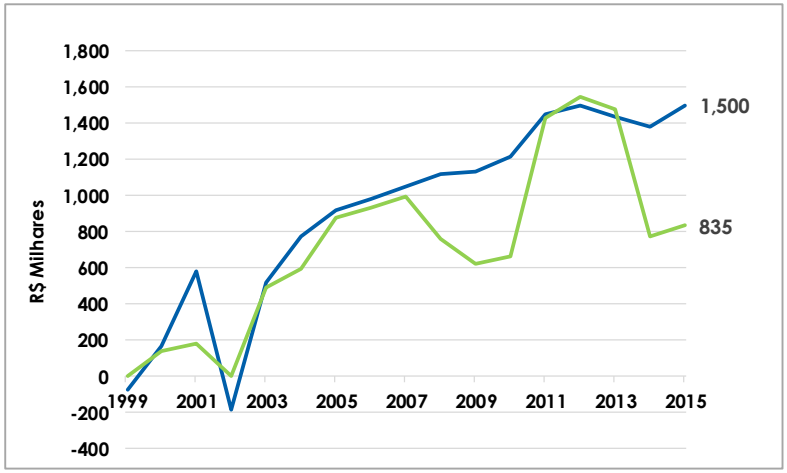
Proprietary Capacity (MW)



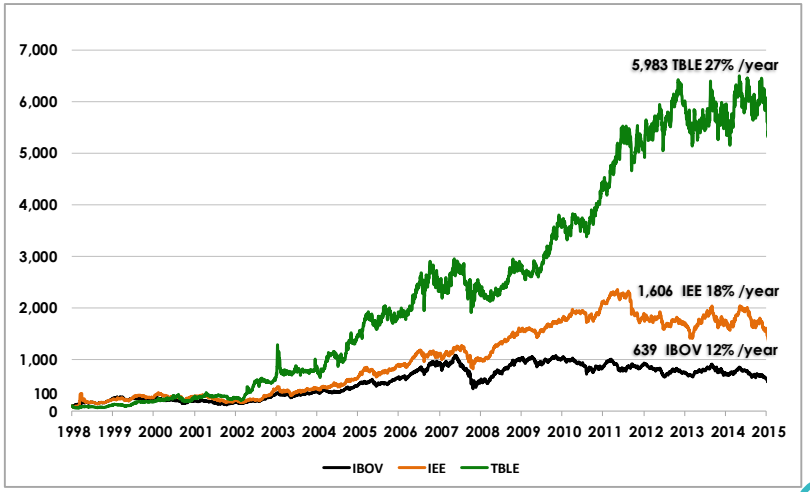
Market Capitalization



Net Income and Distributed Earnings



Total Shareholder Return – TBLE3 x Ibov x IEE



Where it all began – Privatization of the Electricity Sector

GERASUL
CENTRAIS GERADORAS DO SUL DO BRASIL S.A.

1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016

- Acquisition of 51% of the voting capital of the state-owned Gerasul
  - Installed capacity of 3,719 MW.
  - Value of the acquisition: R$ 946 million (US$ 801 million).
  - Debt: R$ 1,153 million (US$ 977 million).
  - Labor contingencies amounted to R$ 54 million (US$ 46 million) from 935 lawsuits.
  - Commitment to conclude the building of Itá Hydroelectric Power Plant (1,450 MW) and the William Arjona Thermoelectric Power Plant.

Taking the final decision



Press Conference



Some necessary house-keeping

1998 **1999** 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- New corporate structure: fewer hierarchical levels.
- Optimization of human resources: reduction from 1,275 to 828 employees, through an incentivized severance package program
- Adoption of bonus scheme based on meritocracy.
- Creation of an energy marketing and sales department.

First anniversary celebrations



First achievements

1998 199 **2000** 001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

Keep this brand name in mind



- With the startup in operations at the Itá Hydroelectric Power Plant, the Company´s proprietary installed capacity reaches 4,846 MW ➔ 30% growth.
- Signature of the first agreement with a free consumer.
- The Company's Code of Ethics is approved.

A year in the dark

1998 1999 200 **2001** 002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- Energy rationing.
- Sales office set up in São Paulo, the state with the greatest concentration of free consumers in the Federation.
- Startup of operations at the William Arjona Thermoelectric Power Plant: first plant to use natural gas from the Bolivia-Brazil pipeline.
- Installed capacity of 5,036 MW ➔ growth of 35%.

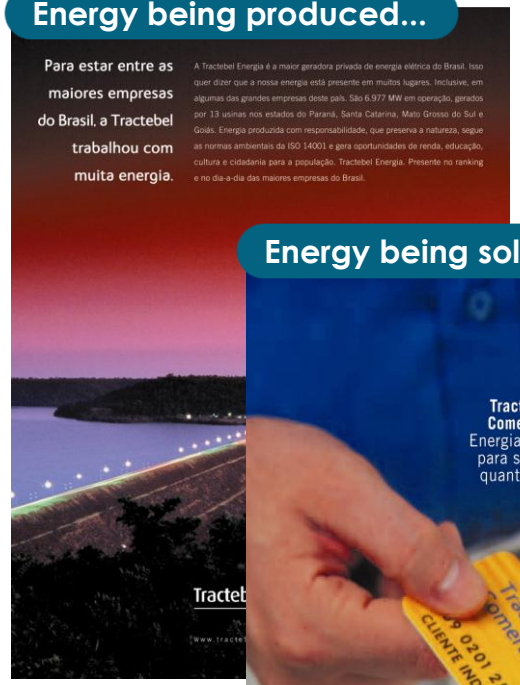


Heading north – but with consolidation in the South

1998 1999 2000 200 **2002** 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- The Company concludes its first energy sale via public auction in Brazil.
- Law 10.438 establishes the Energy Development Account (CDE).
- Expansion into the Brazilian Center - West: startup of operations at the Cana Brava Hydroelectric Power Plant on the Tocantins River with an installed capacity of 450 MW.
- Start of operations at the Machadinho Hydroelectric Power Plant on the Uruguai River with an installed capacity of 1,140 MW.
- Installed capacity amounts to 5,890 MW ➔ 58% growth since 1998.
- The Company adopts the brand name of its controlling company: Tractebel Energia.

Energy being produced...



Energy being sold...



Debut in the alternative sources segment

1998 1999 2000 2001 200 **2003** 004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

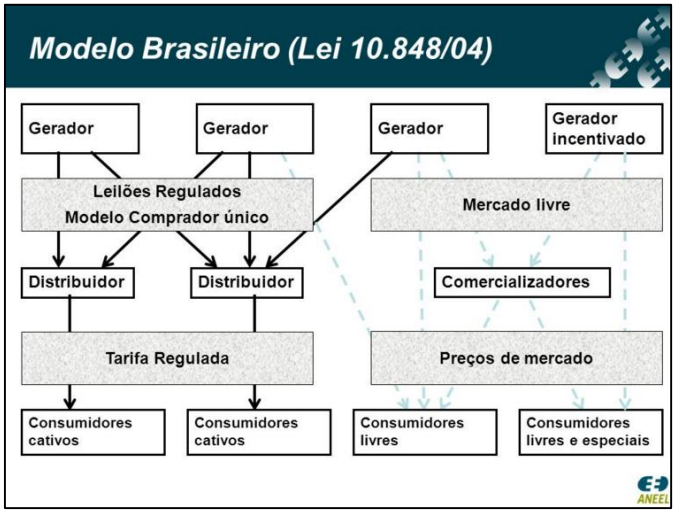
- Taking the first steps for obtaining ISO 9001 and ISO 14001 certification.
- The Company surpasses the 500a MW mark in sales to free consumers.
- Startup of operations at the Lages Cogeneration plant with a capacity of 28 MW. First plant to use wood waste as an energy source in the GDF SUEZ Group.
- Installed capacity reaches 5,918 MW ➔ growth of 59%.



Regulatory framework for the electric energy sector approved

1998 1999 2000 2001 2002 200 **2004** 005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- Approval of the new regulatory framework (Law 10.848) – Establishment of the Electric Energy Trade Board (CCEE) in succession to the Electric Energy Wholesale Market(MAE).
- Seven of the Company's 13 plants receive ISO 9001 (procedures) and ISO 14001 (environment) standard certification.



- Tractebel Energia exports energy to Argentina for the first time.
- Tractebel Energia consolidates its participation in the free market. Agreements exceed 700a MW.
- Installed capacity ➔ 5,918 MW.

Getting closer to the market again

1998 1999 2000 2001 2002 2003 200 **2005** 006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- The Controlling Company launches a public offering to increase share liquidity:
  - Six times over subscribed.
  - Shareholder base doubles. Allocation is equally distributed – Brazilian and overseas investors.
  - Transaction surpasses R$ 1 billion. Controlling Company's stake falls from ~78% to ~69%.
- Adherence to the Novo Mercado's Corporate Sustainability Stock Index (ISE).
- Extinguishment of the Company's Initial Power Purchase Agreements.
- Sale of 200a MW at the first new energy auction.
- Free consumer agreements exceed 1,000a MW.
- Installed capacity ➔ 5,918 MW.

TBLE3 NOVO MERCADO BOVESPA BRASIL

ISE Índice de Sustentabilidade Empresarial

One more rewarding year

1998 1999 2000 2001 2002 2003 2004 200 **2006** 007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- Tractebel Energia is recognized with Investor Relations Magazine's 2006 award for the Best Progress in Investor Relations.
- Sale of 148a MW from the São Salvador Hydroelectric Plant.
- All 13 of Tractebel Energia's plants have obtained ISO 9001 and ISO 14001 standard certification.
- Installed capacity ➔ 5,918 MW.



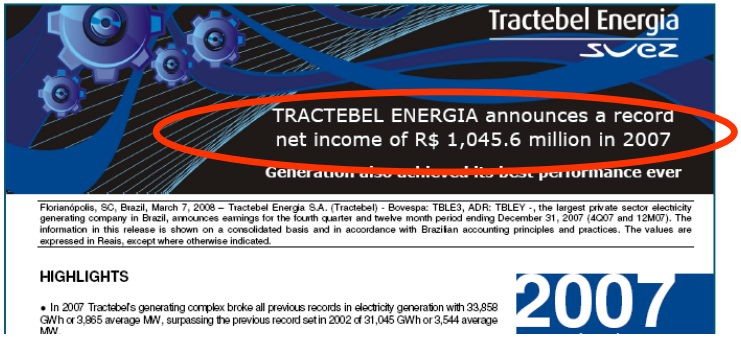
The First Inside Tractebel



Record profits with a sustainable vision

1998 1999 2000 2001 2002 2003 2004 2005 200 **2007** 008 2009 2010 2011 2012 2013 2014 2015 2016

- ★ Creation of the Sustainability Committee.
- ★ Sale of 220 thousand carbon credits annually through to 2016.
- ★ Launch of the Company's first Annual Sustainability Report.
- ★ Net income surpasses the R$ 1 billion mark for the first time.
- ★ GDF SUEZ sales 256a MW from Estreito HPP.
- ★ Acquisition of the already built Ponte de Pedra HPP.
- ★ 1st "Alternative Sources" Auction (SHPs and Biomass).
- ★ Installed capacity grows to 6,094 MW, an increase of 64%.



Ponte de Pedra Hydro Power Plant



A new growth cycle begins

1998 1999 2000 2001 2002 2003 2004 2005 2006 200 **2008** 009 2010 2011 2012 2013 2014 2015 2016

- ★ Merger between SUEZ and Gaz de France, resulting in GDF SUEZ.
- ★ Acquisition of the first SHPs totaling 50 MW of installed capacity.
- ★ Sale of 33 MW from Ibitiúva Thermoelectric Power Plant fired from sugarcane bagasse.
- ★ São Salvador Hydroelectric Power Plant begins commercial operations.
- ★ Installed capacity reaches 6,387 MW, growth of 72%.

Unveiling of São Salvador HPP

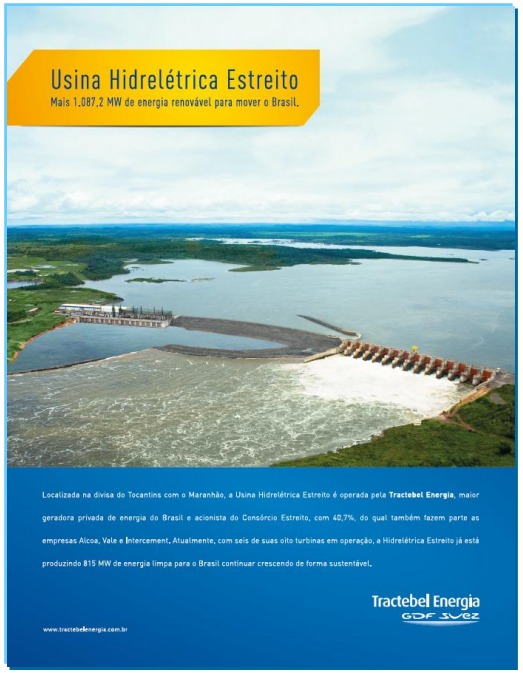


- ★ GDF SUEZ acquires Econergy, obtaining the Jirau HPP concession.
- ★ Installed capacity ➔ 6,188 MW.

Growth and record breaking in times of crisis

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 200 **2009** 010 2011 2012 2013 2014 2015 2016

- World financial meltdown.
- Acquisition of a 40.07% stake in the Estreito Hydroelectric Power Plant, adding a further 436 MW of installed capacity to total 6,580 MW, a growth of almost 77%.
- Conclusion of construction work on the São Salvador Hydroelectric Power Plant.
- Operational records:
  - Monthly generation - 5.414aMW.
  - Instantaneous generation – 6,807 MW.
  - Uptime – 98.9%.
- Installed capacity ➔ 6,431 MW.



Ongoing development

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 200 **2010** 011 2012 2013 2014 2015 2016

- New model for transfer of assets.
- Tractebel Energia's shares were one of the highlights of the electricity sector, reporting an appreciation of 27.5% in 2010.
- The Company assigned an increase in its corporate ratings.
- New record in instantaneous generation – 7,074 MW.
- Production begins at Areia Branca SHP and at Ibitiúva Bioenergética, increasing installed capacity to 6,472 MW.

Areia Branca SHP



Ibitiúva Thermal Plant

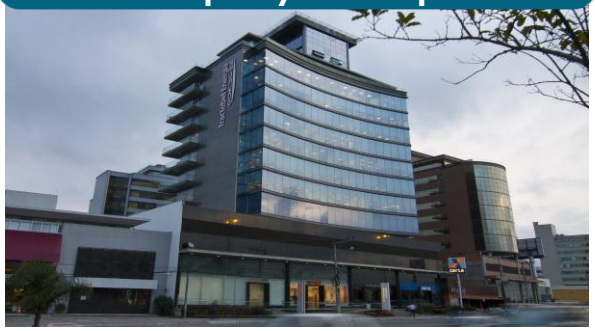


Resilience in the face of adversity

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 201 **2011** 012 2013 2014 2015 2016

- With some of heaviest rainfall ever recorded in Brazil, the Company successfully protects its revenue maintaining high contraction volume, net income growing 19.5%.
- First investment grade rating in the history of the Company.
- Combination of assets of International Power and GDF SUEZ.
- Estreito Hydroelectric Power Plant begins operations, increasing installed capacity to 6,908 MW.
- For the first time, the Company is elected one of the best companies to work for in Brazil.
- Unveiling of the Entre Rios do Sul Cultural Center (RS).

New Company headquarters



Cultural Center



Year of change in the regulatory sphere

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 201 **2012** 013 2014 2015 2016

★ Publication of MP 579, subsequently transformed into Law 12.783/13, establishing rules for renewal of energy generation and transmission concessions resulting in major changes in the sector.



★ Authorization of BNDES financing for the first wind plants supplying energy to the free market - the Trairi Wind Complex.

★ Modernization work begins on the Salto Santiago, Passo Fundo and Ponte de Pedra hydroelectric power plants.

★ Opening of Estreito Hydroelectric Power Plant.

★ Inclusion of the Trairi Wind Complex in the United Nations Clean Development Mechanism.

Sustainable management and awards

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 201 **2013** 014 2015 2016

- ★ Unveiling of the Alto Bela Vista Cultural Center in the region of ITHPP and the Tractebel Environmental Park in the JLTPP, both in the state of Santa Catarina.
- ★ Capture of 40 new free clients, 24 of which being special consumers.
- ★ Hydroelectric generation begins to feel the effects of the hydrological deficit crisis (GSF).
- ★ Acquisition of the Campo Largo Wind Complex in Bahia – with more than 600 MW of installed capacity.
- ★ Two of the four wind farms in the Trairi Wind Complex in operations.
- ★ Acquisition of 100% of Ferrari Termoelétrica's capital stock.
- ★ Installed capacity ➔ 6,965 MW.

Fleixeiras I Wind Farm



Mundaú Wind Farm



Assured growth in the midst of crisis.

Tractebel Energia
GDF SUEZ

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 201 **2014** 015 2016

★ Tractebel Energia shares rejoin Ibovespa.

★ Inauguration of the fourth Cultural Center in Quedas do Iguaçu (PR).

★ Severe drought sees the hydroelectric generation deficit reaching 9.4%.

★ Reduction in payout to 55% for supporting investments and as protection against the hydrological crisis.


FOLHA DE S.PAULO

UM JORNAL A SERVIÇO DO BRASIL

QUARTA-FEIRA, 5 DE NOVEMBRO

Se não chover, país terá cortes de energia no verão

ONS prevê apagões 'seletivos', de madrugada, caso nível dos reservatórios não suba

O Operador Nacional do Sistema (ONS) avisou a geradores e distribuidores que

A medida será necessária se as chuvas não forem suficientes para recompor os reservatórios das hidrelétricas

O plano prevê suspensão do fornecimento de energia, durante a madrugada, para

Institutos contratados pelo ONS indicam um período úmido com volume normal

Cidade Azul Photovoltaic Solar Plant



★ Sale of 386.9a MW in the A-5 auction.

★ Entry into operation of the largest photovoltaic plant in Brazil and of two wind farms.

★ Work begins on expansion of Ferrari TPP and the installation of the Santa Mônica Wind Farm.

★ Proprietary installed capacity of 7,027 MW.

Projects under development materialize and agreement reached on renegotiation of hydrological risk

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 201 **2015** 016

- ★ GDF SUEZ becomes ENGIE and Tractebel Energia adopts new logo.
- ★ Deficit in hydraulic generation reaches 15.4%.
- ★ Publication of Law 13.203 – renegotiation of hydrological risk.
- ★ First sale of solar energy in the Regulated Contracting Environment (Assú V Photovoltaic Plant).
- ★ Sale of 46a MW from the Santa Mônica Wind Complex in the A-3 Auction.
- ★ Start on the implementation of the first phase of the Campo Largo Wind Complex.
- ★ Licensing and initial work on Pampa Sul TPP, state of Rio Grande do Sul.
- ★ Expansion work on Ferrari TPP concluded.
- ★ Proprietary installed capacity of 7,044 MW.



Decarbonization, decentralization, digitization

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 201 **2016**

★ Company expands its operations to the distributed energy market where there is major growth potential.



Descarbonização,

CONTINUIDADE DA REVOLUÇÃO TECNOLÓGICA DE RENOVÁVEIS

Descentralização, digitalização

COEXISTENCIA DE SISTEMAS CENTRALIZADOS E DESCENTRALIZADOS

ESTRATEGIA DE ENERGIA SOB MEDIDA EM ESCALA LOCAL

ENGIE: ser a arquiteta e implantadora da Transição Energética