

INSIDE ENGIE BRASIL ENERGIA 2017

May 31, 2017

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AGENDA

1st Panel	**Changes at ENGIE and in the Energy Industry**
2nd Panel	**Portfolio Management**
3rd Panel	**Jirau HPP**
4th Panel	**Assets Transfer Model**



01

Changes at ENGIE and in the Energy Industry

ENGIE IN THE WORLD
Energy Revolution Drivers – The 3 Ds

DECARBONIZATION

Growth in additional renewable worldwide energy capacity forecasted at 70% by 2030 compared with 2015

DECENTRALIZATION

Decentralized solutions will have more than doubled by 2030

DIGITALIZATION

Digitalization has changed energy systems and improved supply of services to clients

ENGIE IN THE WORLD
Strategy and transformation plan aligned with the Energy Revolution

1 ambition

3 objectives

4 pillars for the 2016-2018 transformational plan

TO BE THE WORLD LEADER OF THE ENERGY TRANSITION

TO REDUCE EXPOSURE TO COMMODITY PRICES

Contracted / Regulated Businesses
* EBITDA > 85%

HORIZONTE 2018

EBITDA > 90%

FOCUS ON ACTIVITIES WITH LOW CO_2 EMISSIONS **

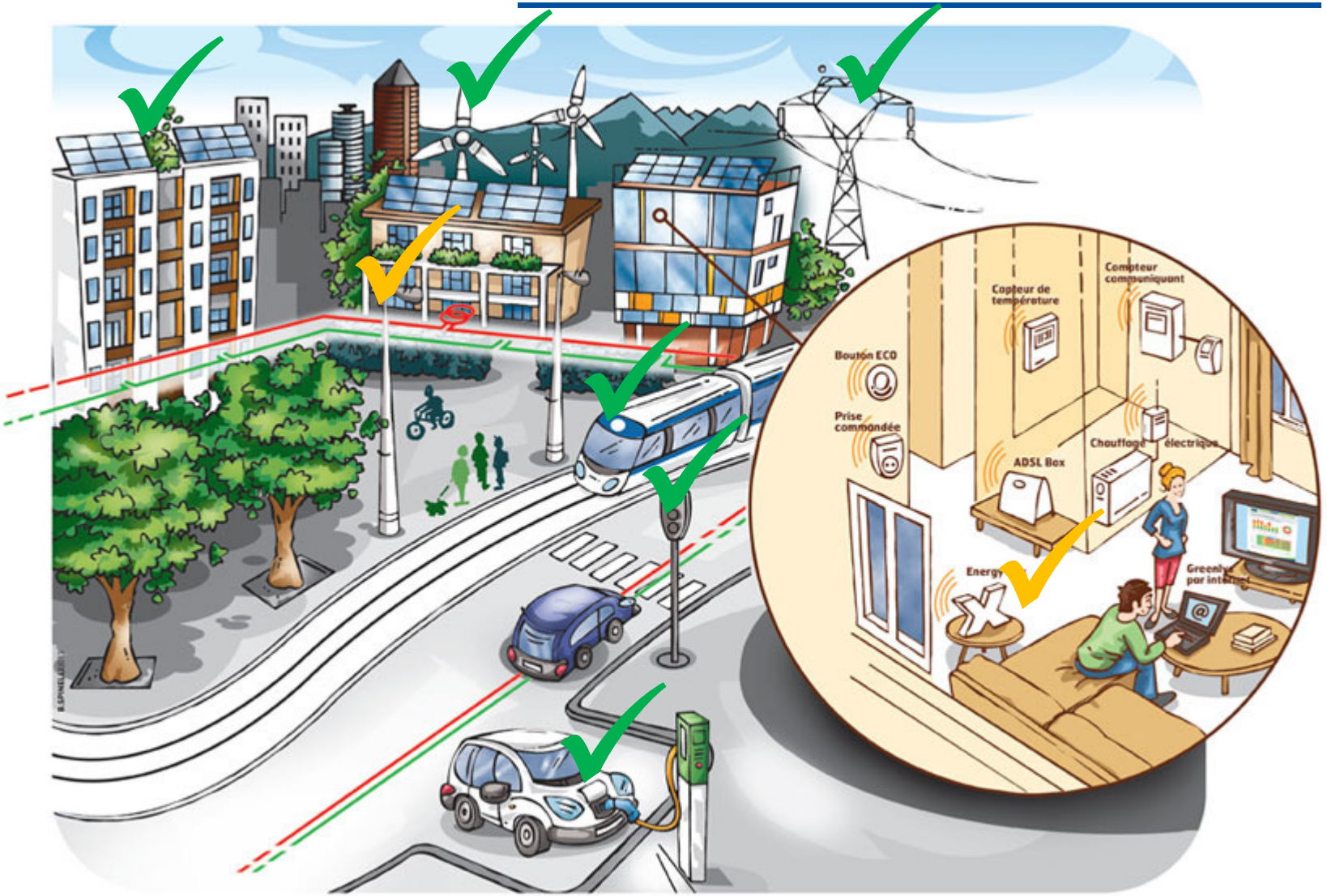
DEVELOP SOLUTIONS FOR CLIENTS

EBITDA growth > 50%

- **REDESIGN AND SIMPLIFY THE PORTFOLIO**
- **CONSTRUCT THE PATH TO THE FUTURE**
- **INCREASE EFFICIENCY**
- **ADAPT THE GROUP**

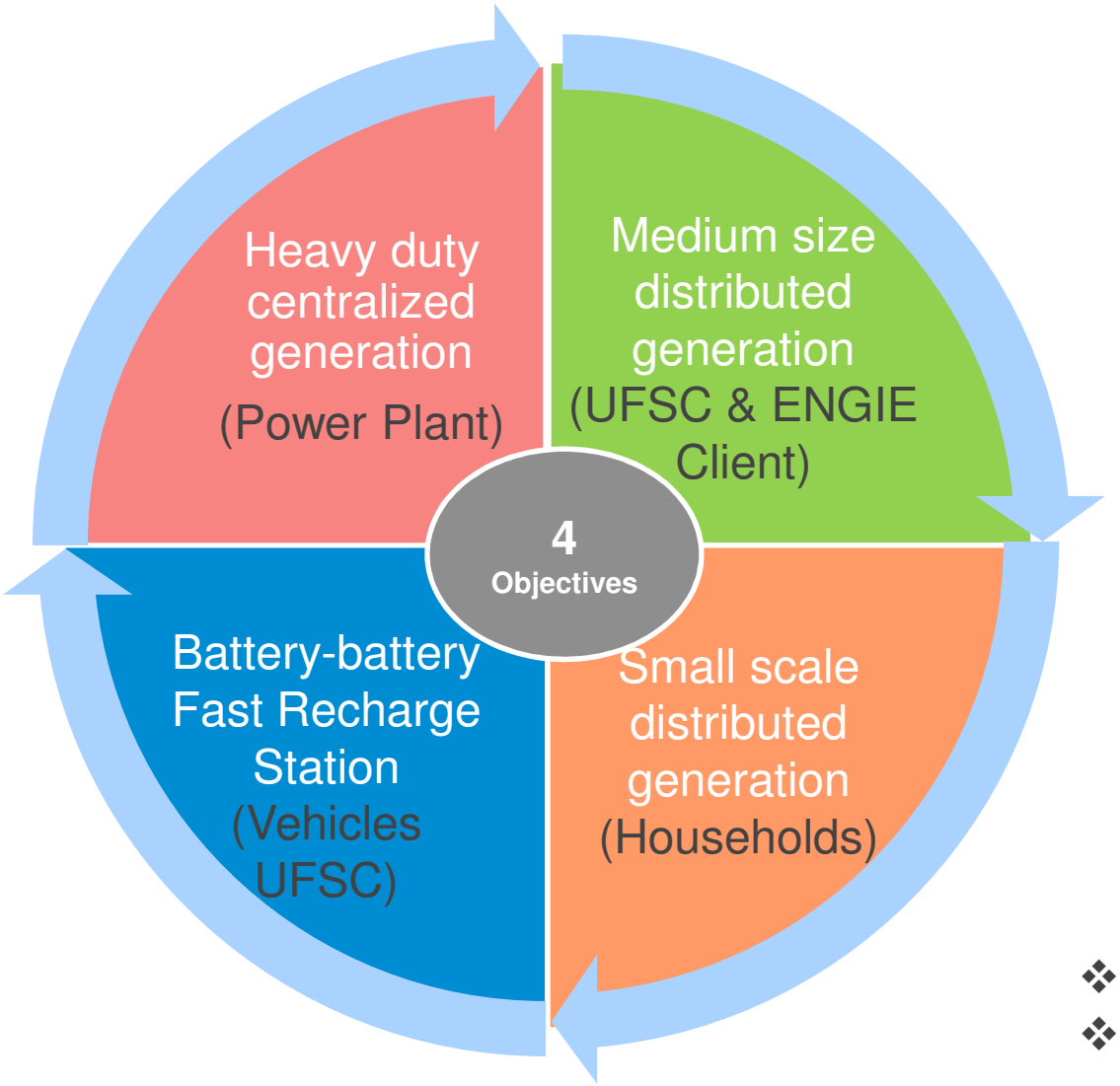
** Excludes energy generation in the spot market, E&P and supply and sale of LNG / ** Generation of energy with low CO_2 emissions, gas and LNG infrastructure, downstream*

Are you ready?



Tractebel Energia
GDF SUEZ

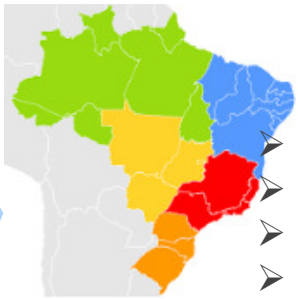
SOME INITIATIVES IN THE PAST 2 YEARS
Storage R&D



- R$ 25 million
- 36 months

SOME INITIATIVES IN THE PAST 2 YEARS
Hydrogen R&D

Natural Hydrogen



- Goiás
- Ceará
- Roraima
- São Francisco River Basin

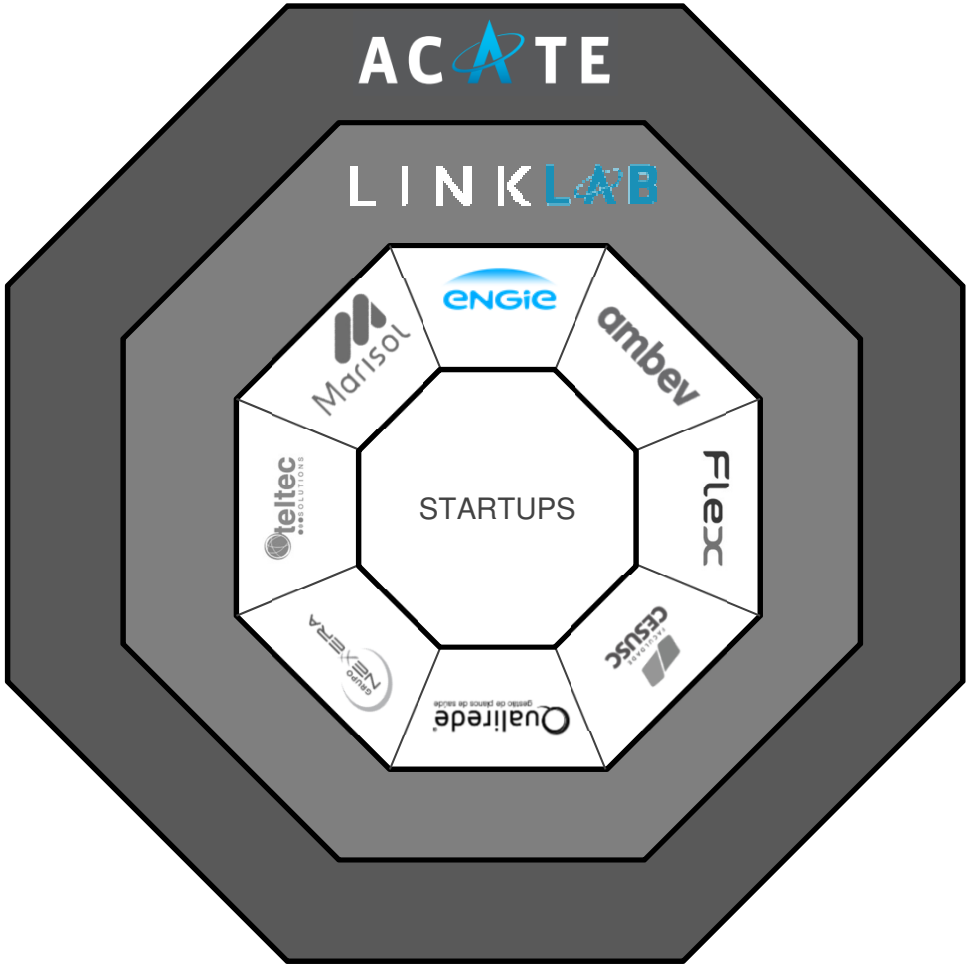
- Selection of areas richest in H_2;
- Installation of nanodetectors
- Recovery of data via satellite
- Quantification of the potential

Methodology for characterizing the performance of H_2

Potential for generating energy?

SOME INITIATIVES IN THE PAST 2 YEARS
LinkLab

- **Connection between large companies, startups, funds and partners for promoting open innovation**
- **640 m², located in the ACATE innovation center in Florianópolis – SC**
- **Thematics:**
  - Customer Journey
  - Distributed Energy Resources
  - Cybernetic Security
  - IIoT (Industrial Internet of Things)
  - Energy Efficiency
  - Sustainable Urban Mobility
  - Public Lighting

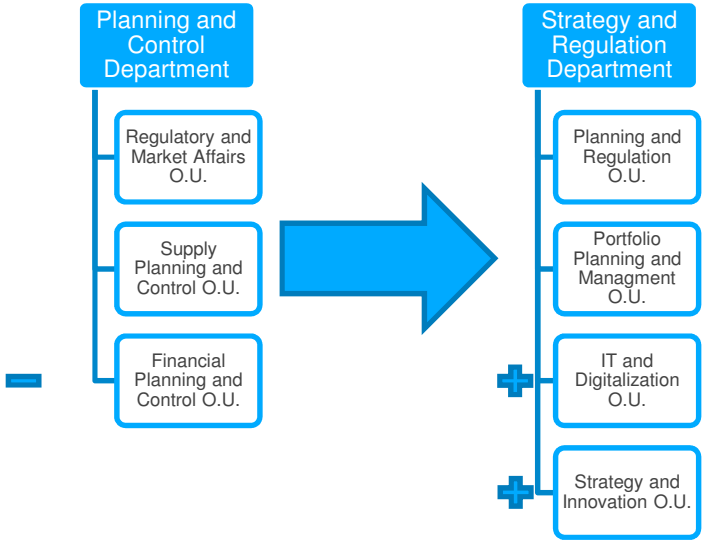


SOME INITIATIVES IN THE PAST 2 YEARS
Transmission Line Auction

- With the aim of making its debut in the transmission line segment, ENGIE participated in the ANEEL auction on April 24, 2017.
- Projects with investments worth R$ 2.5 bi
- Open-outcry in 3 lots
- Next auction - September/2017



SOME INITIATIVES IN THE PAST 2 YEARS
Management and Digitalization

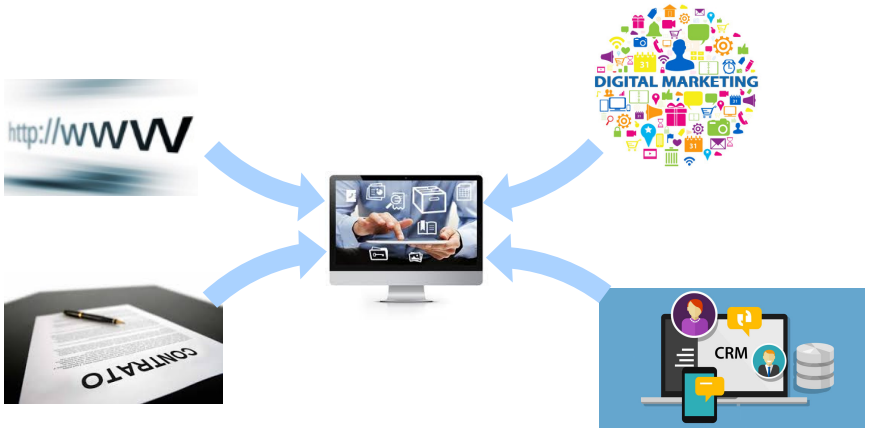


→ **Restructuring of Planning and Control Department**

Incorporation of the technology unit
Creation of the strategy and innovation unit

→ **Management with focus on Digitalization**

Environment of virtual collaboration
Digitalization energy commercialization processes
Historian
Remote operations of plants

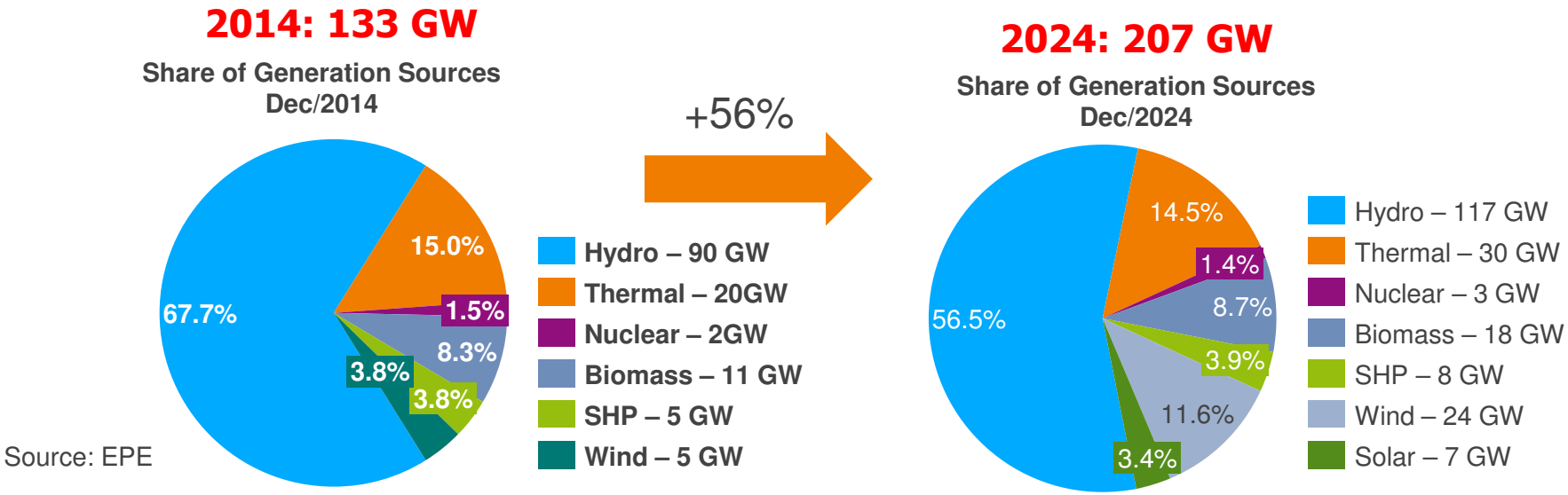




02

Portfolio Management

SUPPLY CHARACTERISTICS

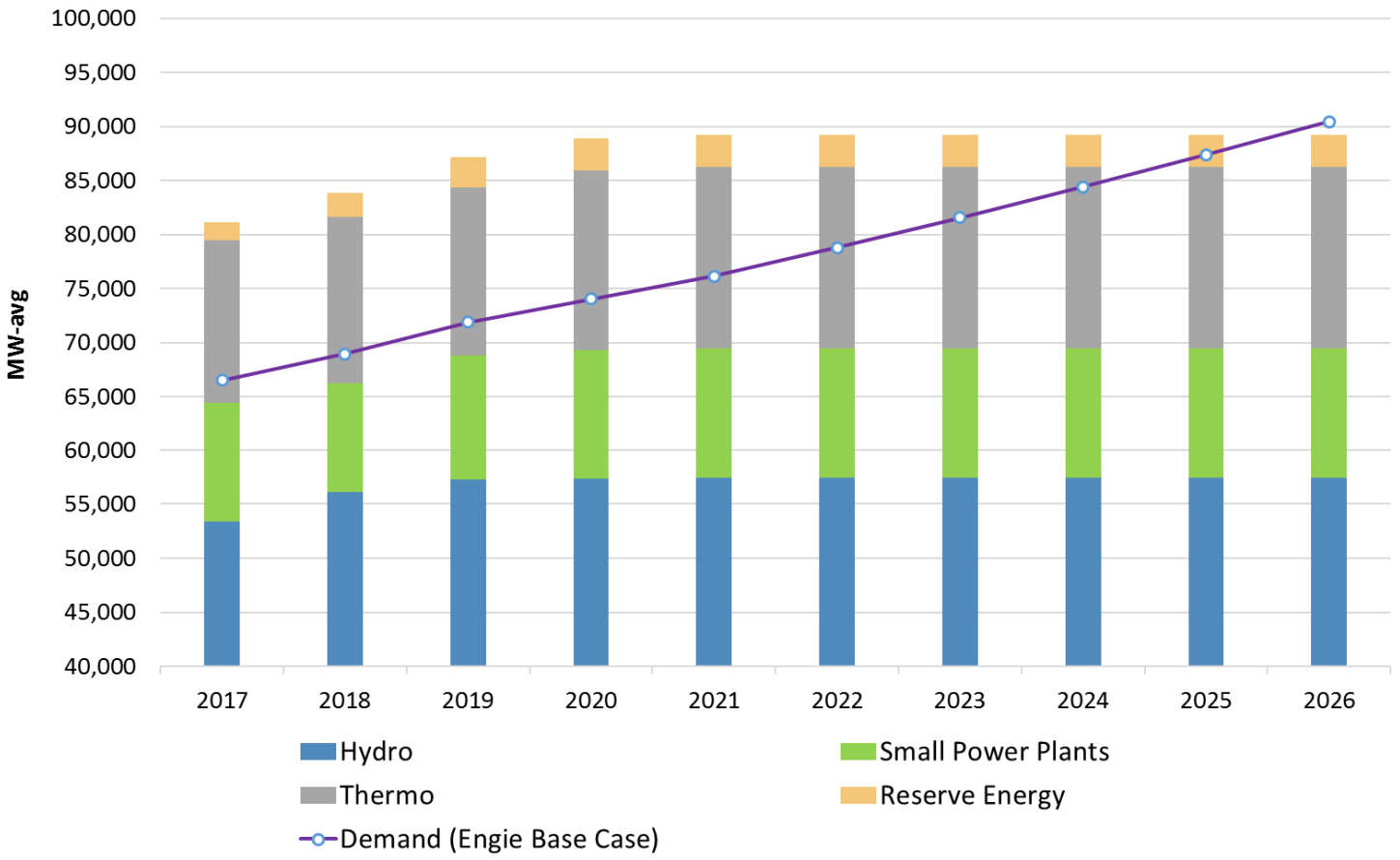


Source: EPE

- Total renewable sources will continue at 83%
  - Priority for alternative sources: SHP, wind, biomass and solar: from 21 GW (16%) to 57 GW (27%)
  - Share of major hydros will decline from 68% to 57%, despite 27 GW in absolute growth
- Expansion in natural gas-fired thermal expansion is envisaged while no coal-fired TPPs are forecast
- Investments (plants already contracted + planned) of approximately R$ 268 bi (baseline date: May/15)

Source: EPE (Ten Year Plan)

ENERGY BALANCE

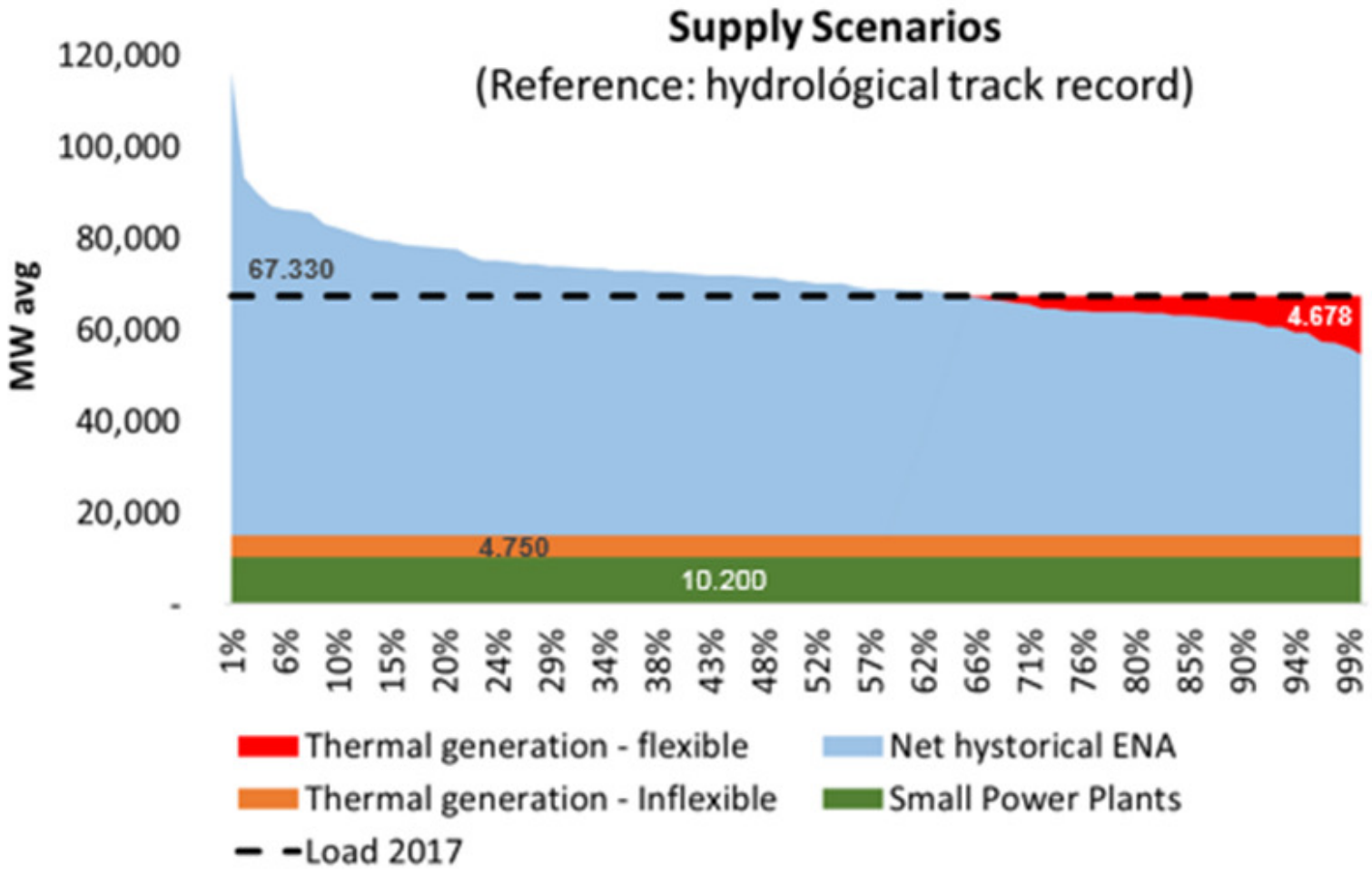


Sources: ONS/ ENGIE's in-house studies

Rate of Growth

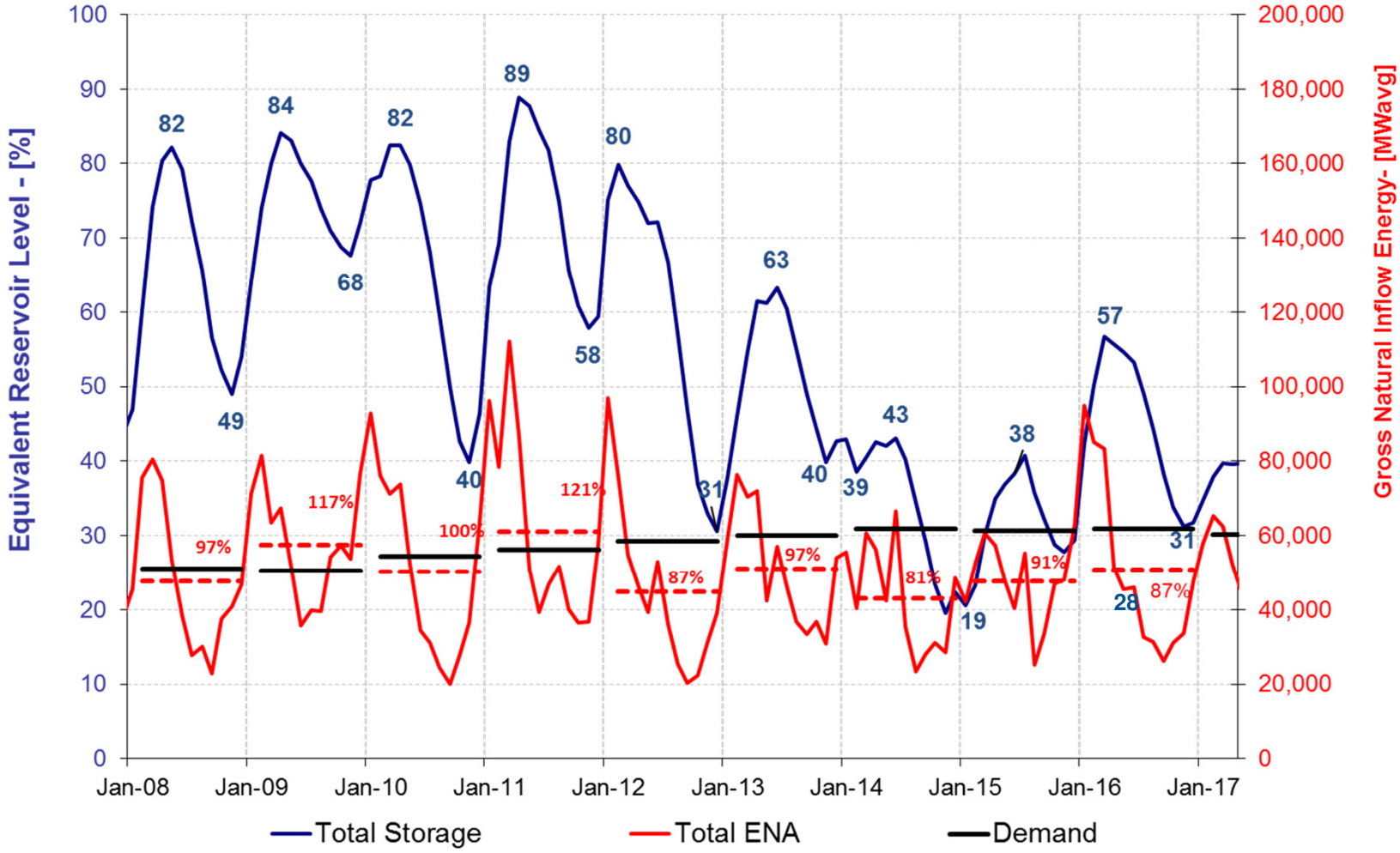
	2017	2018	2019	2020	2021	2022 on
Demand (Engie Base Case)	3.2%	3.7%	4.2%	3.0%	2.8%	3.5%

SYSTEM'S WHOLESALE SUPPLY
by source



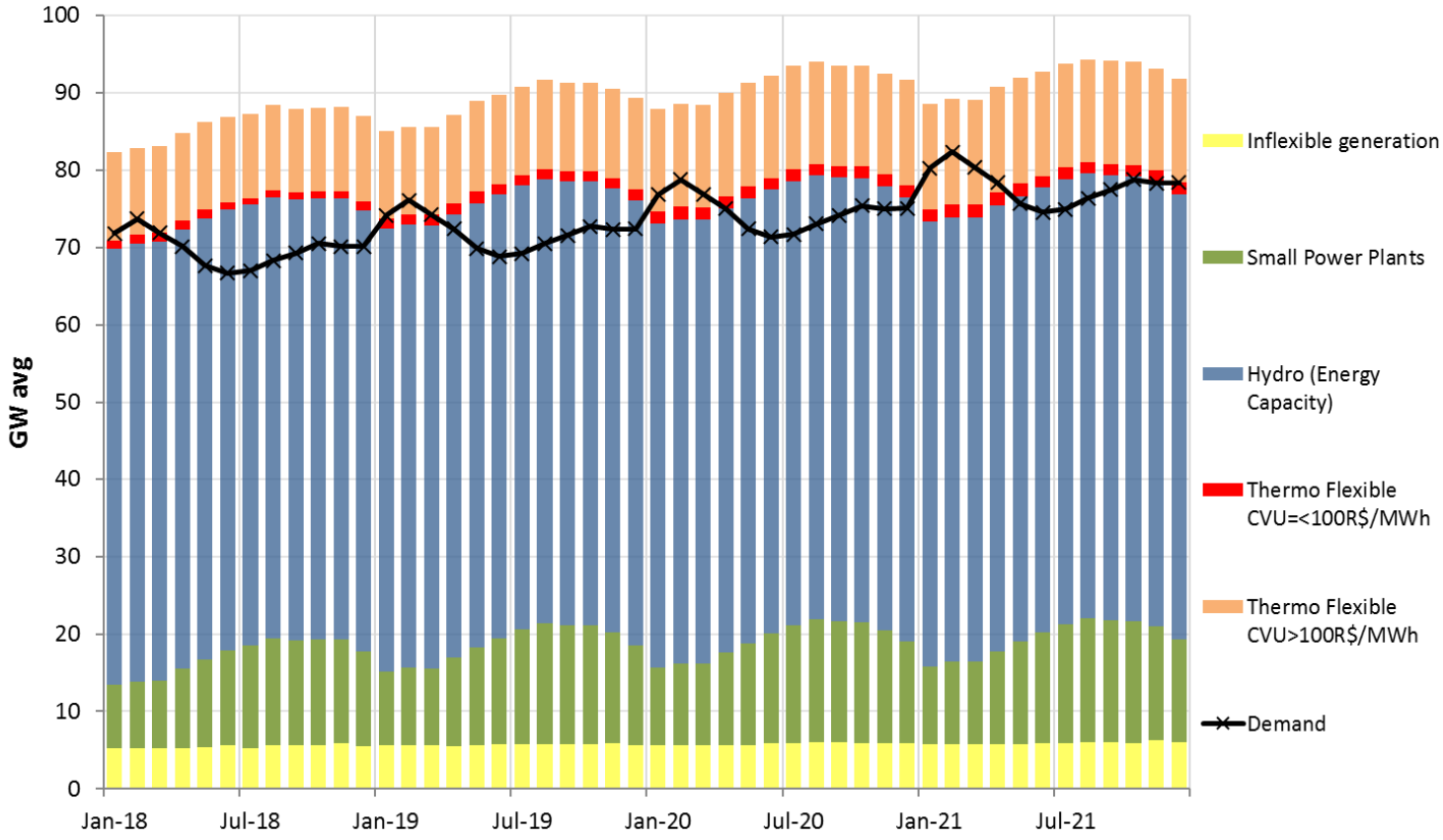
Note: Information on an annual basis.
Does not consider power and interchange restrictions. (Sources: ONS/ EBE in-house studies)

AFFLUENT NATURAL ENERGY
and storage



Source: ONS

OPERATING BALANCE

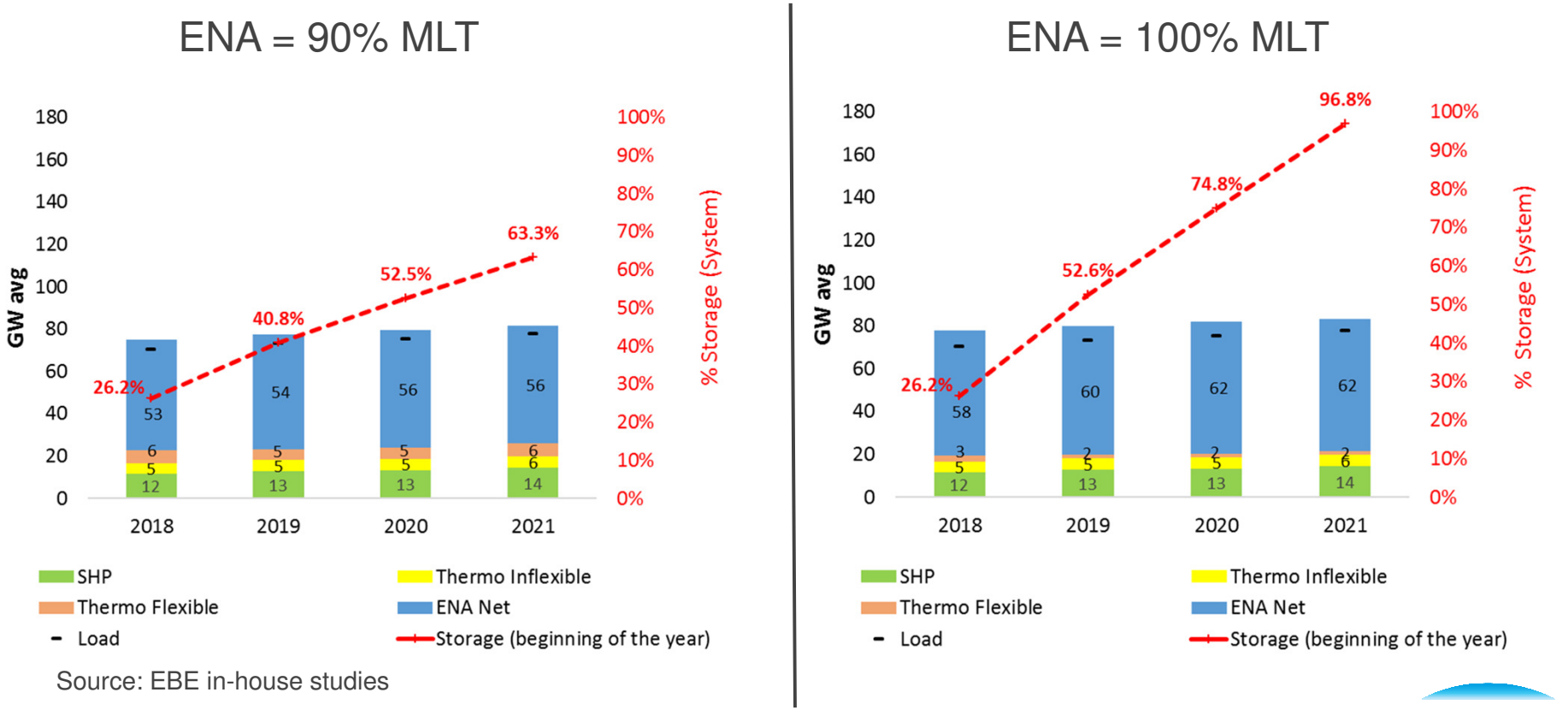


- Increase in renewable sources (wind, biomass, solar, SHP) combined with reduced consumption displace hydroelectric generation (GSF < 1).

Source: EBE in-house studies (not considering unbid plants)

SIN OPERATING BALANCE
x storage

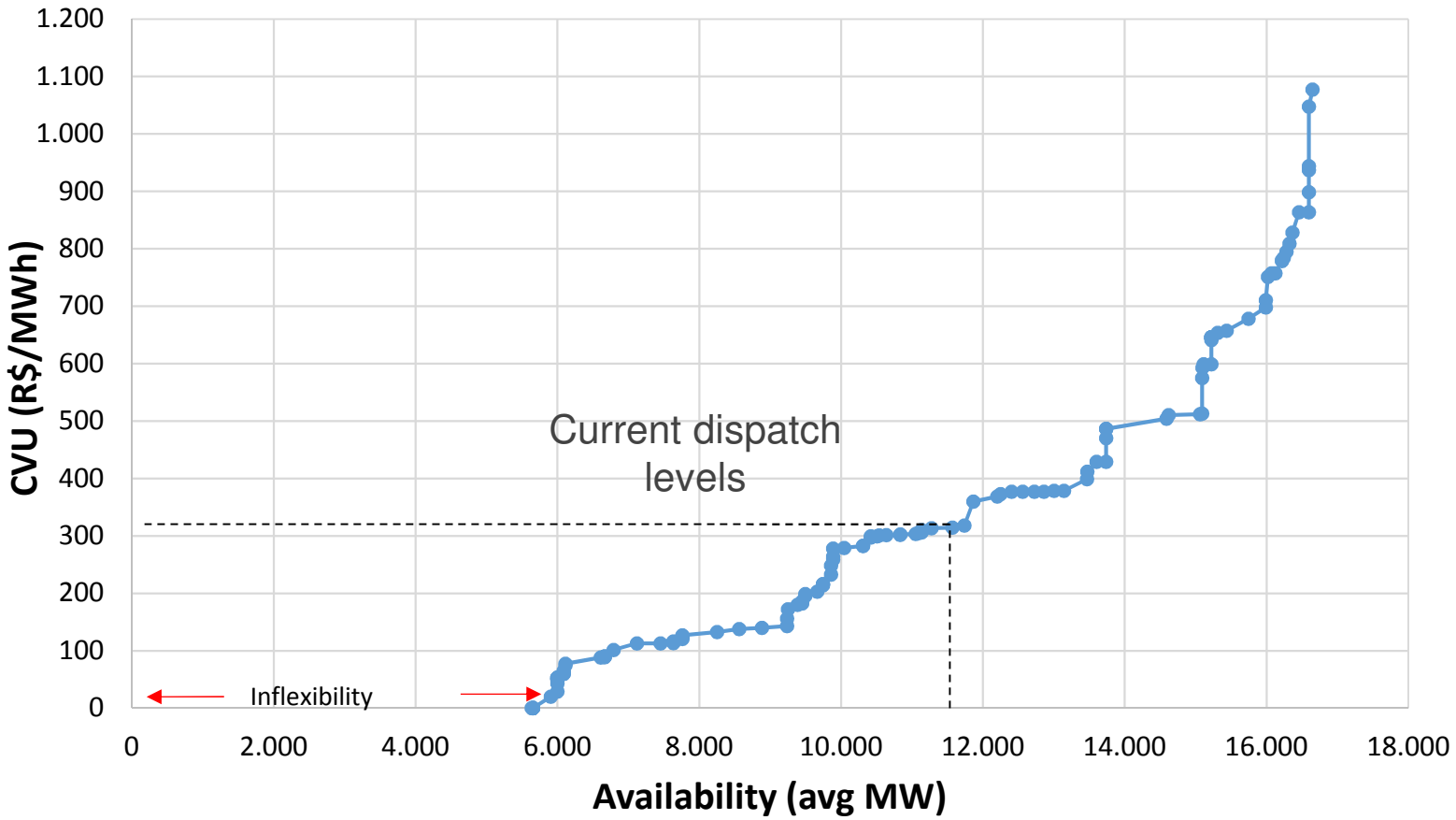
In the case of an ENA scenario equal to 90% MLT, the system will only reach a comfortable storage level in 2020. In the event of an ENA equal to 100% MLT during the course of 2018, the system would achieve secure levels in January 2019.



Source: EBE in-house studies

THERMAL SUPPLY
curve

Significant volume of thermoelectric plants at high CVU increases volatility.



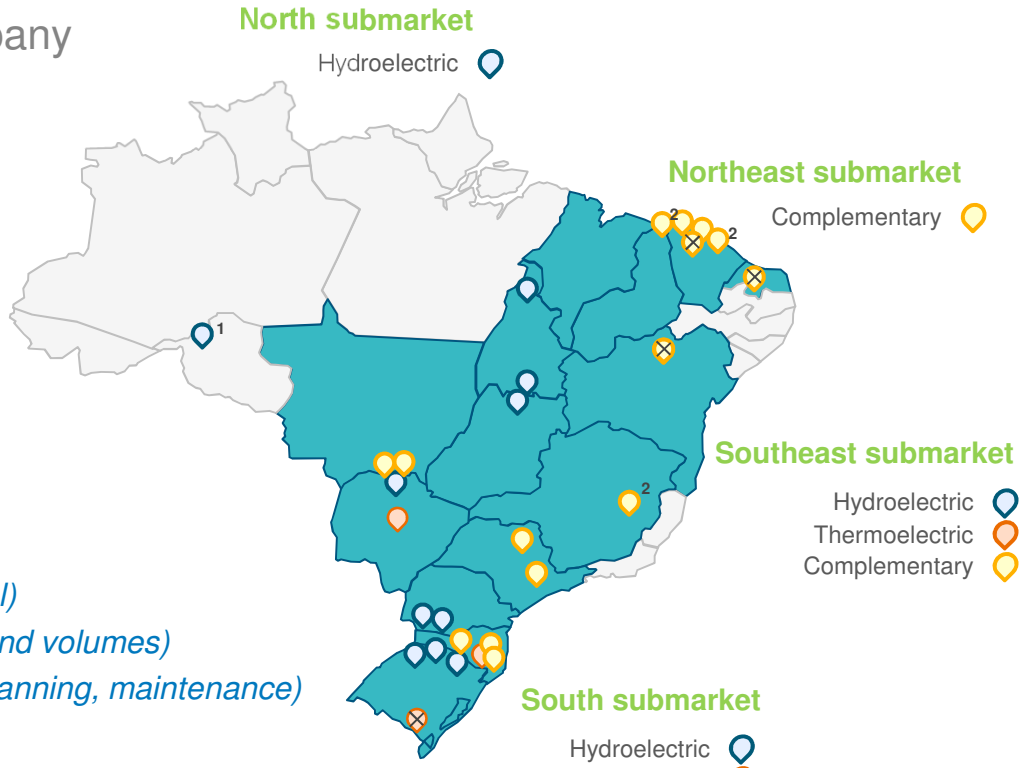
Source: ONS (MOP for May 2017)

PORTFOLIO

Installed capacity of
8,790.2 MW in 31 plants
operated by the Company

Risks

1. *Price Risk (spot, submarket, forward curve)*
2. *Volume Risk (generation, fuel)*
3. *Regulatory Risk (change in rules, GF revision)*
4. *Operating Risk (bankruptcy, socio-environmental)*
5. *Construction Risk (licenses, delays, cancellation)*
6. *Contractual Risk (flexibilities, default, consumption)*



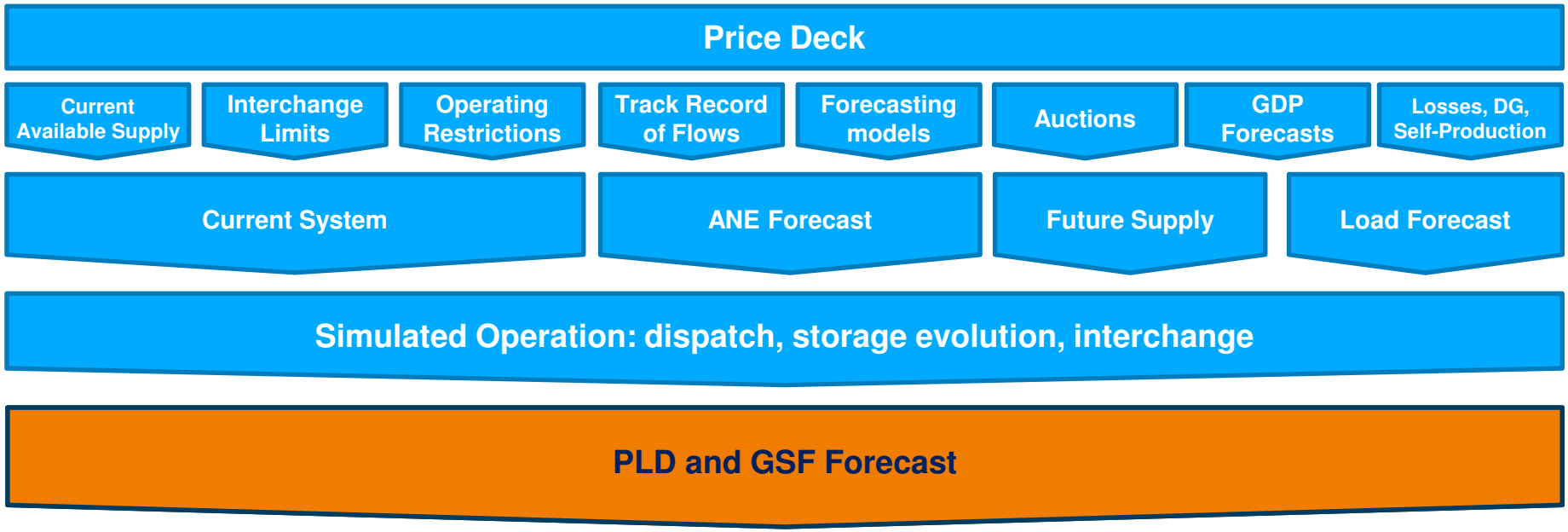
Management of Risks

1. *Governance (risk mandates, control)*
2. *Commercial Management (prices and volumes)*
3. *Assets Management (generation planning, maintenance)*
4. *Regulatory*

Notes:
[1] The transfer of the 40.0% stake of ENGIE Brasil Part. in Jirau HPP to the Company is expected to be evaluated shortly.
[2] Plants pending completion of sale.

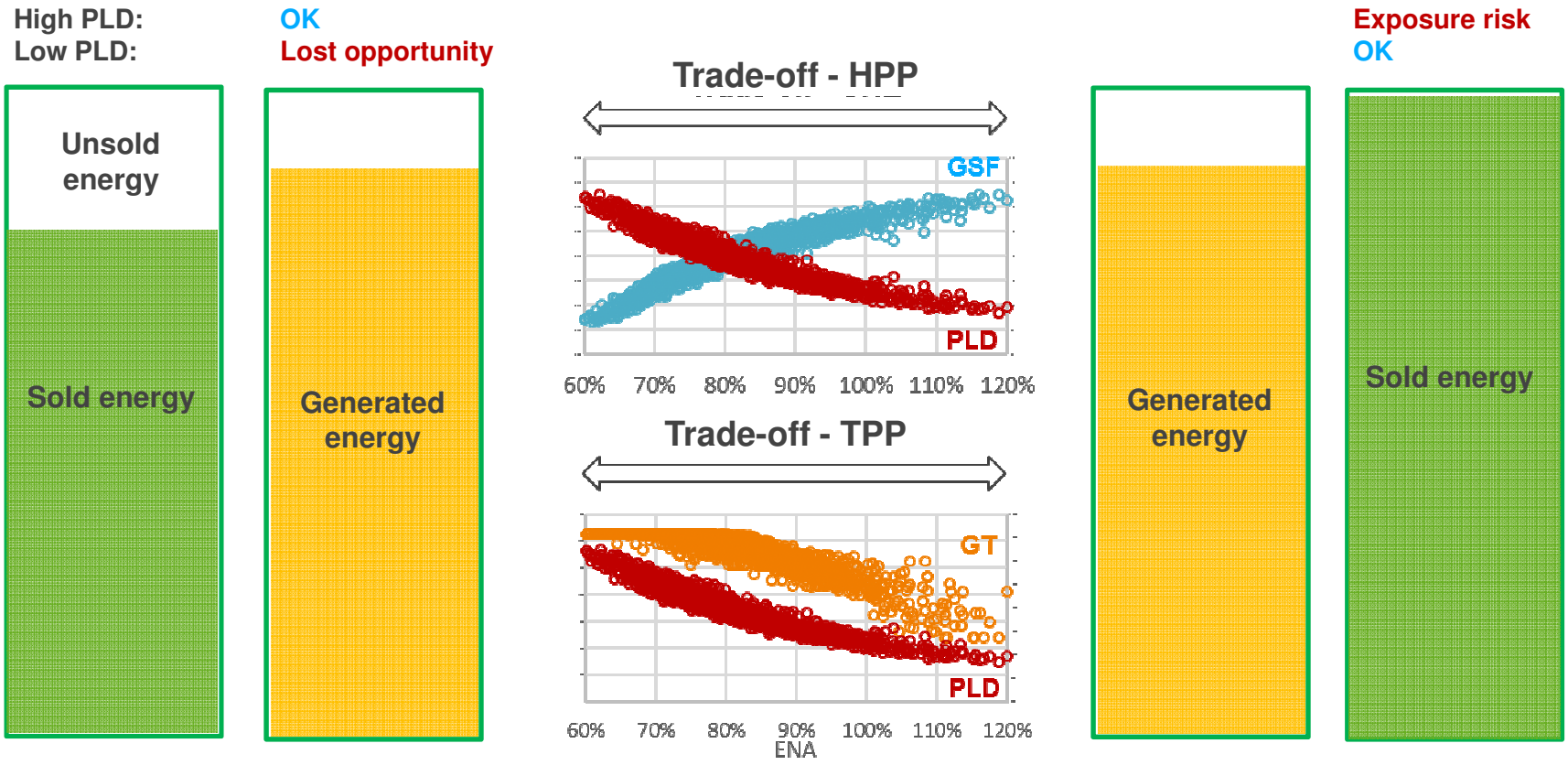
PORTFOLIO RISKS
price risk

Price Risk: corresponds to the trade-off between PLD and Price



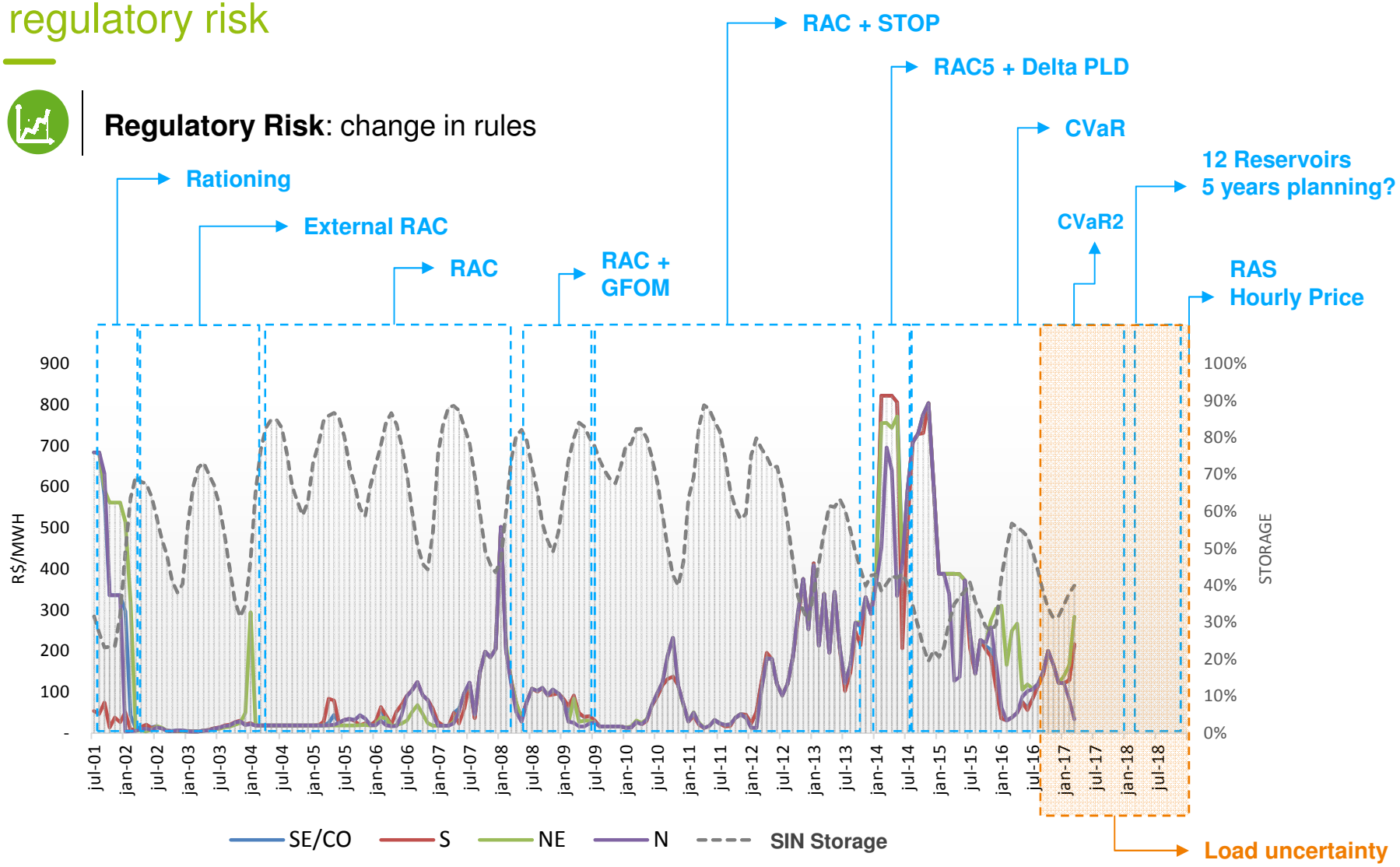
PORTFOLIO RISKS
volume risk

Volume Risk: corresponds to the trade-off between energy sold and energy generated



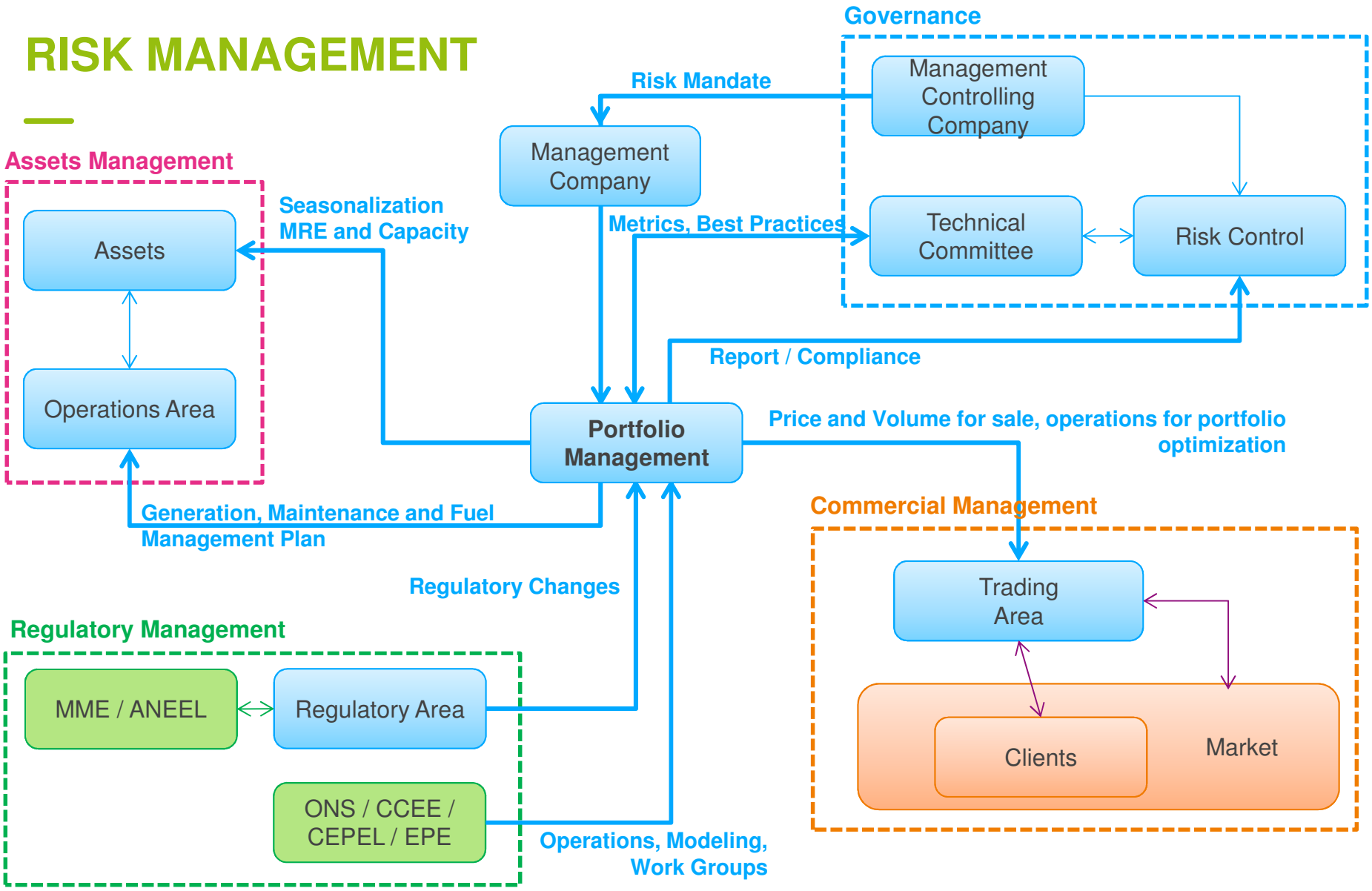
PORTFOLIO RISKS
regulatory risk

Regulatory Risk: change in rules



Sources: CCEE/Aneel/EPE/ONS

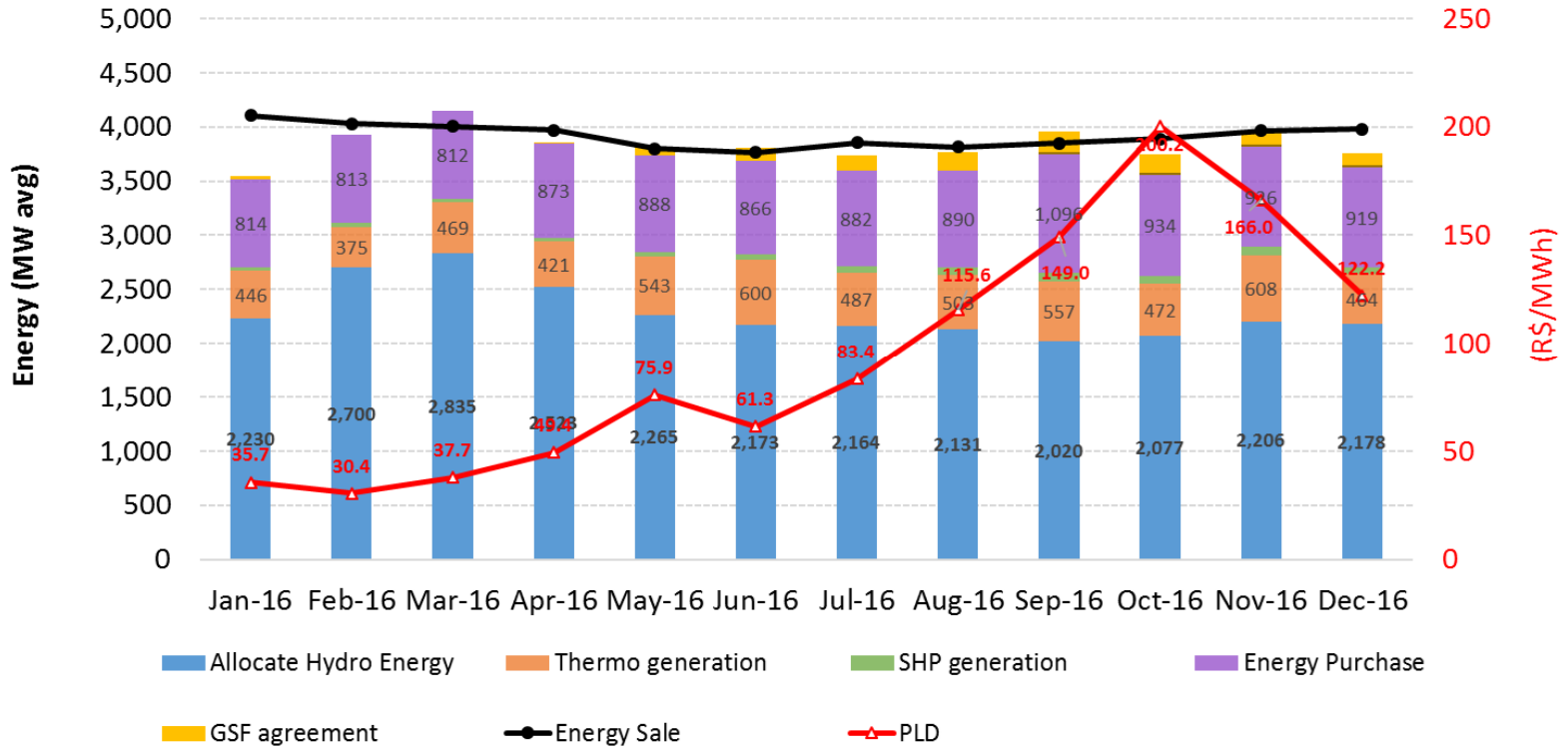
RISK MANAGEMENT



OPERATING BALANCE
ENGIE (2015)

Portfolio management: renegotiation, seasonalization, maintenance allocation, purchases.

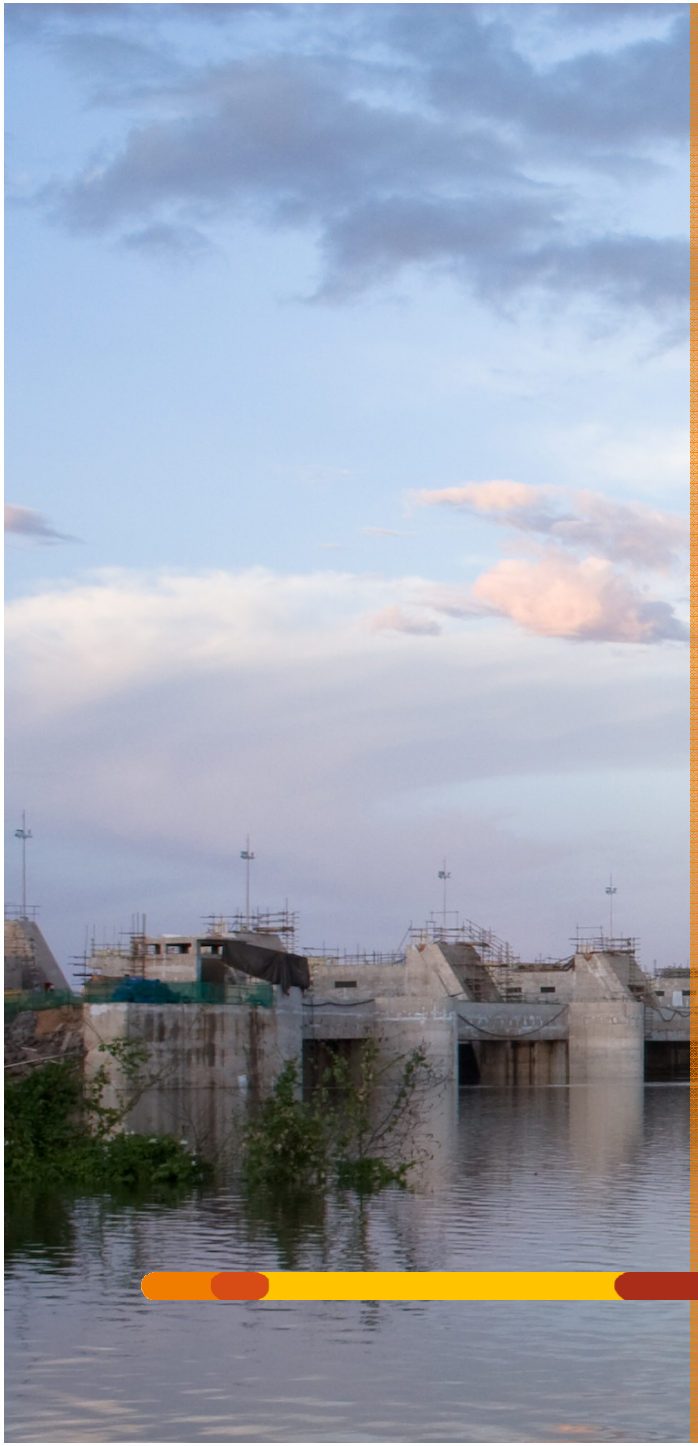
Risks: PLD, GSF, unscheduled shutdowns, contractual flexibility.



Source: ENGIE in-house studies

EXAMPLES OF STRATEGIC MANAGEMENT
of the portfolio

- **Renegotiation of Hydrological Risk**
  - Risk premium = R$ 23.7 million (2016)
  - Avoided cost = R$ 92.5 million (2016)
- **Seasonalization of Physical Guarantee (MRE)**
  - Maximize advantages of spatial and temporal diversity. Gain: R$ 20 million (2016)
- **Manage thermoelectric maintenance**
  - Challenge: To arrange maintenance stoppages in periods when PLD is low
- **Purchase and sale for hedge management**
  - Purchase in 2015 for supply in 2016: 179 avg MW
  - Purchase in 2016 for supply in 2016: 53 avg MW
- **Swap between submarkets and intra-year**
- To mitigate price differences between submarkets and exploit PLD seasonality



03

Jirau HPP

THE IMPORTANCE OF JIRAU
to the electrical system

Biggest Bulb Turbine of the world

3rd bigger Hydroelectric of Brazil

14th bigger Hydroelectric of the world

Best performance of Brazil according to ONS

Connected to SE region, largest consumption center in Brazil



THE IMPORTANCE OF JIRAU
to the electrical system

In March 30th, Jirau generation achieved **3,274 avg MW**, which represented:



8.7% of the energy supply for SE/CW of Brazil



12.8% of the total hydro generation of the SE/CW of Brazil



6.7% of the total hydro generation of National Interconnected System (SIN)

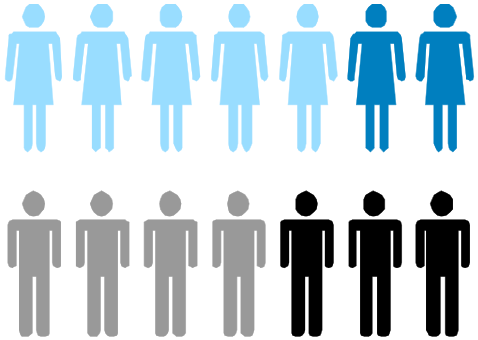
Jirau HPP has only got behind the Itaipu and Tucuruí HPPs, who have much higher installed capacity.

RANKING OF THE POWER PLANTS

Place	Type	Power Plant	Availability
1	Hydroelectric	UHE JIRAU	99.15%
2	Hydroelectric	JURUMIRIM	98.89%
3	Hydroelectric	PORTO ESTRELA	98.57%
4	Thermal	UTE P.FERRO 1	98.46%
5	Thermal	TERMOMANAUS	98.06%
6	Hydroelectric	CASTRO ALVES	97.87%
7	Hydroelectric	PEREIRA PASSO	97.72%
8	Hydroelectric	JAGUARI	97.69%
9	Hydroelectric	UHE SAMUEL	97.55%
10	Hydroelectric	CHAVANTES	97.53%
40	Hydroelectric	SANTO ANTONIO	95.93%

- Source: ONS (http://www.ons.org.br/resultados_operacao/sintese_gerencial/taxas_equivalentes.aspx)
- Data of April, 2017.
- Among the Hydropower Plants, Jirau has taken the first place in availability ranking since the start of the Ranking (Oct/2014).

LOCATION AND GENERAL INFO

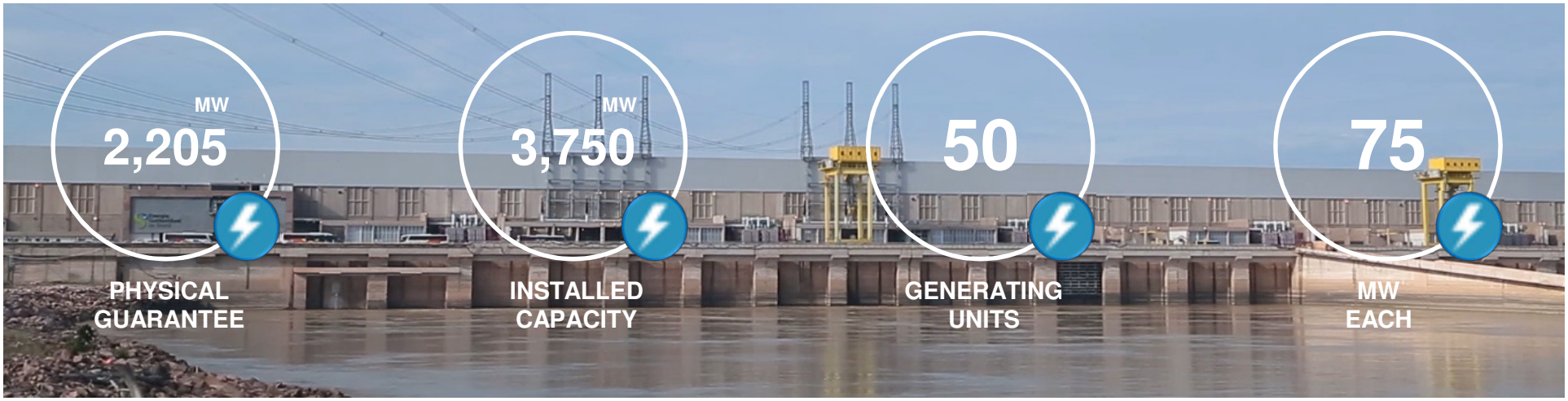


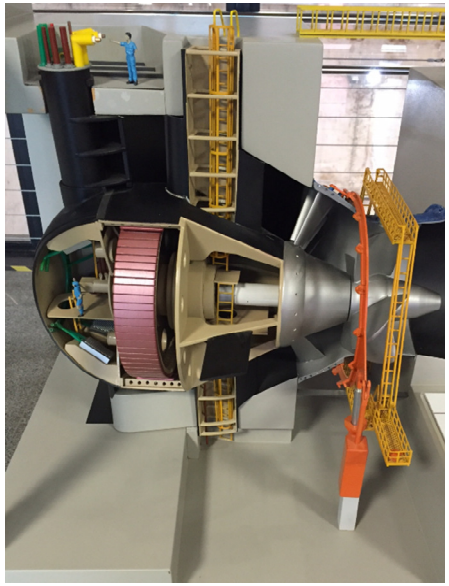




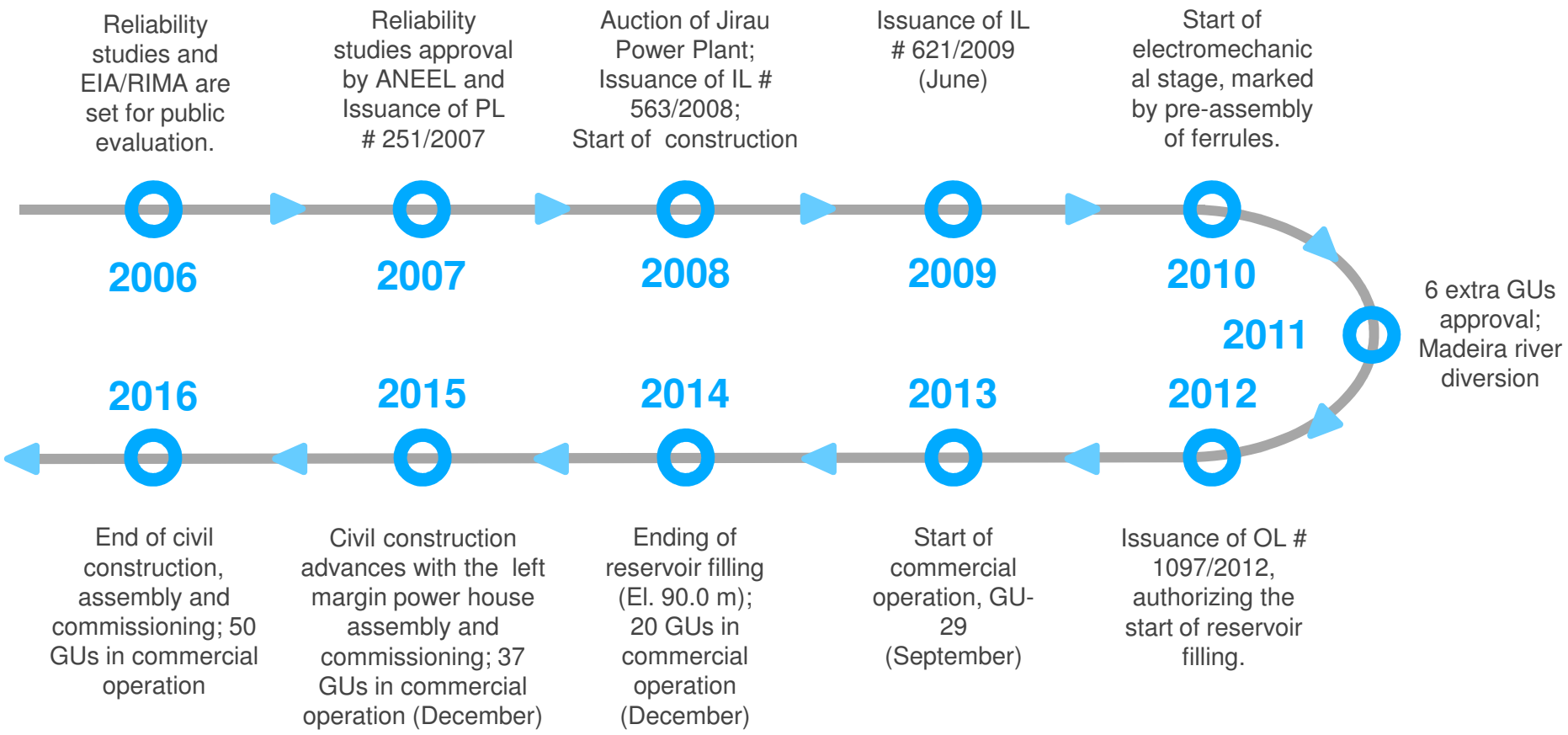
3,750 MW of installed capacity, enough to supply energy to more than 10.5 million people	Located at Ilha do Padre, 120Km away from Porto Velho - RO	Jobs during construction: 23k direct 40k indirect

JIRAU HPP
main characteristics





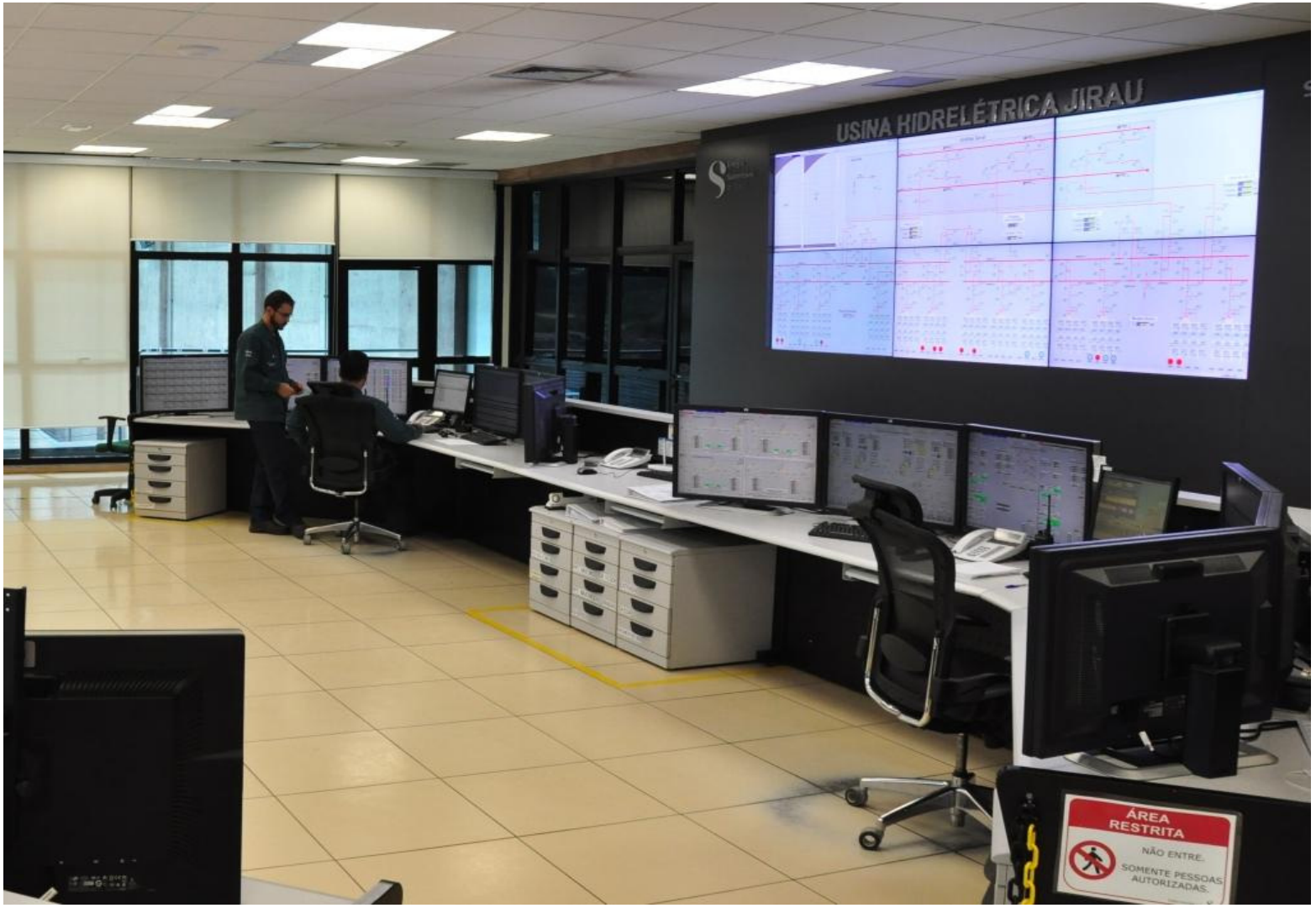
JIRAU HISTORICAL FACTS



AERIAL VIEW
after construction



CONTROL ROOM



GENERATING UNIT



CELEBRATION OF 50 GENERATING UNITS
simultaneous operation



INVESTMENT IN SUSTAINABILITY

34
Socio-environmental Programs

R$1.2 billion
of investments in sustainability

R$176 million
in social offsets



Public Health

Malaria: high risk in 2007 → medium risk in 2012 → **low risk from 2015**



Public Education

Construction/modernization/expansion **14 schools**, sports facilities and other actions



Environment

- **Mercury**: values correlate with results shown in the scientific literature for the Amazon region
- **Reduction** of 6 million tons of **CO_2e** per annum
- **Donation of 70,000 RCEs** to the GHG Emissions Compensation Project of the Olympic and Para-Olympic Games – Rio 2016

NOVA MUTUM PARANÁ

1,600 residences with complete infrastructure;

Projects for **creation of long-term income**;

Increase and **development of the local economy**.

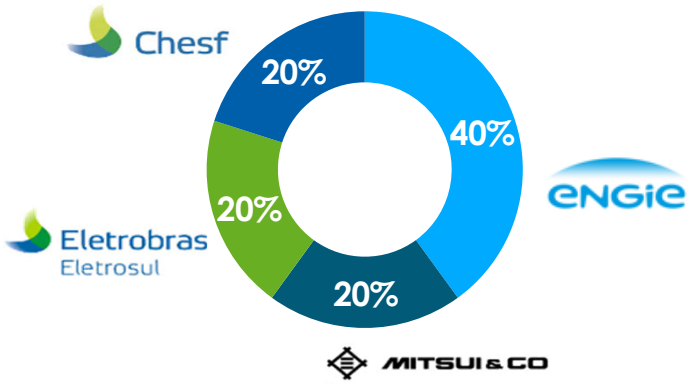


Construction of 2 agro industries, one açai fruit processing and the other, flour milling

INVESTMENT, FUNDING AND STRUCTURE

- **Investment:** Approximately R$ 20 billion (December/2016)
- **BNDES financing:** Amount: R$ 7.2 billion + R$ 2.3 billion
  - Term: 25 years (payment over 20 years)
  - Rate: TJLP + spread between 2.25% + 2.65%

ESBR – shareholder structure



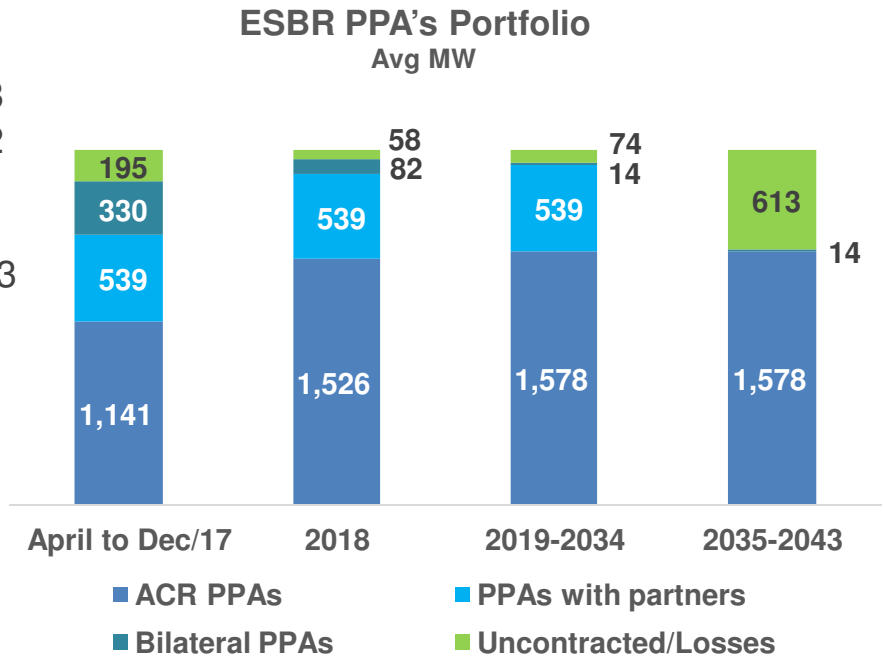
ENERGY COMMERCIALIZATION

1. Power purchase agreements at ACR as of April 2017

- Price: R$ 122.62/MWh
  Volumes: 916 aMW from April to Dec/2017
  1,301 aMW from Jan/2018 to Dec/2018
  1,369 aMW from Jan/2019 to Dec/2042
  (SP92 – no right to secondary energy)
- Price: R$ 145.97/MWh
  Volume: 209 aMW from 03/01/2014 to 12/31/2043
  (SP90 - no right to secondary energy)
- Price: R$ 157.31/MWh
  Volume: 16 aMW from 01/01/2016 to 12/31/2018

2. Power purchase agreements at ACL as of April 2017

- Price: R$ 270.70/MWh
  Volume: 248 aMW from Apr/2017 to Dec/2017
- Price: R$ 143.60/MWh
  Volume: 68 aMW from Jan/2017 to Dec/2018
- Price: R$ 137.20/MWh
  Volume: 14 aMW from Jan/2017 to Dec/2042



OTHER KEY INFORMATION

- **Options for creating additional value:** constant reservoir level, recalculation of transmission tariff in June 2022, sale of carbon credits, additional long-term tax breaks, recalculation of Generation ex-Order of Merit (GFOM), renegotiation of the GSF and rebalancing of the agreement

- **Exclusion from liability**: 535 days recognized by the 1st instance court. Decision is pending with respect to an appeal to the 2nd instance court

- **Financial advisory services:** ENGIE Brasil Participações S.A., the controlling company of EBE, has engaged Banco Itaú BBA S.A. for rendering financial advisory services in the preparation of a economic-financial study preliminary to the preparation of the transfer proposal

PURPOSE OF THE TRANSFER STUDY




04
Asset Transfer
Model
ENGIE

EBP AND EBE COMMITTED
to the highest standards of corporate governance

EBE listed on the Novo Mercado since 2005, adhering to all this segment's requisites of governance

- Free-float in excess of 25%
- Common shares only
- The Board of Directors includes three independent members out of a total of 9, including the employees' representative (required minimum - 20%)
  - With individual terms of office with mandates to run for no more than two years
- Rigorous standards of financial and non-financial disclosure
- Company has been a component of the Corporate Sustainability Index (ISE) since 2005
- Company has received awards for each of the past six editions of the Transparency Trophy sponsored by Anefac – Fipecafi – Serasa Experian, for the quality and level of information in its financial statements as well as for its data transparency
- Institutional Investor's best Investor Relations program in the past six years

GOVERNANCE PRINCIPLES
of the Independent Committee

Aligned to the best governance standards in transactions with related parties as per case studies of several governance forums.

***Ad hoc* for each transaction**

Independent Committee made up of 3 or 5 members, chosen from among the independent members of EBE's Board of Directors and executives, the majority of which being independent members of the Board

- Definition of members' independence as per that enshrined in the Novo Mercado's listing regulations
- To be appointed by EBE's Board of Directors

Authorized to engage attorneys, financial advisers, technical consultants and other advisers to support it in the negotiations

PROFILE OF THE INDEPENDENT MEMBERS
of the Board

Antonio Alberto Gouvêa Vieira

Alternate – Minority shareholder representative

- Attorney, Partner in the Offices of Gouvêa Vieira Advocacia, holding seats on the boards of directors and advisory boards of several companies.

José Pais Rangel

Minority shareholder representative
(Banco Clássico S.A.)

- Attorney and Vice President of Banco Clássico S.A.

José João Abdalla Filho

Alternate – Minority shareholder representative
(Banco Clássico S.A.)

- Economist, Chairman and controlling shareholder of Banco Clássico S.A.

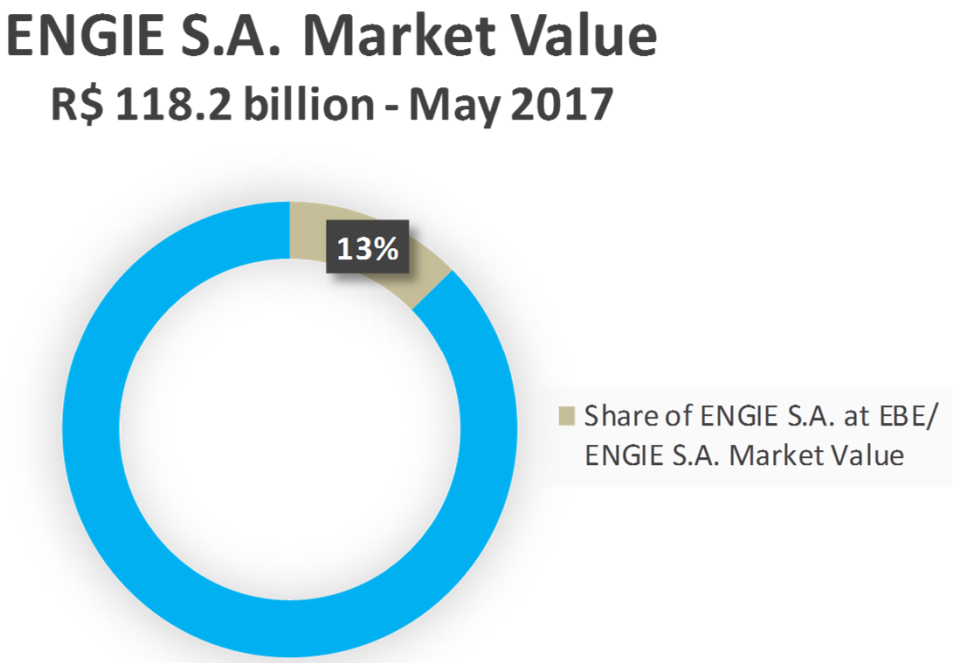
Luiz Leonardo Cantidiano Varnieri Ribeiro

Minority shareholder representative

- President of the CVM from Jul/2002 to May/2004. Member of the body of arbitrators of the Arbitration Chamber of the New Market; member of the Board of Directors (Abrasca); Chairman of the Board Advisory Committee on listing of the BM&FBOVESPA, among other positions in the capital market

ENGIE BRASIL ENERGIA
a significant investment for ENGIE S.A.

- Stake of 68.7% equivalent to US$ 5.0 billion at market prices as of May 2017
- EBE's market value represented 18% of ENGIE's total market cap in May 2017







05

Attachments

JIRAU HPP
investments in health

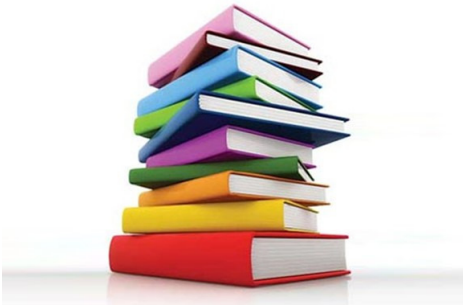


Investments in Public Health along

481 km

- Investments in basic (**7 basic health units**), medium (**2 first aid units-UPAs** and complementary support for the Jaci-Paraná UPA) and advanced (construction of Policlínica Oswaldo Cruz and the Hospital de Base's Medical Imaging Center) infrastructure;
- **Construction of a Health River unit** for serving the riverine populations of 6 municipalities in the region;
- Implementation of structures for detecting and control of vector-borne and zoonotic disease;
- Actions for controlling malaria

JIRAU HPP
investments in education



Construction/modernization/expansion of **14 schools**; construction of **5 sports courts**; teachers' accommodation, among others.

Particular mention should be made of the Colégio Militar Tiradentes – CTPM II:

Students received nationally recognized awards





JIRAU HPP
investments in public safety



Construction/modernization of prisons, police posts, training centers, para-military police environmental group, environmental/ patrol police unit, etc.;

Donation of materials, equipment, vehicles, among others.





Environmental Group



Nova Mutum Integrated Security Unit

