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TRACTEBEL INVESTOR DAY 2015

PROSPECTS, EXPANSION AND NEW WAYS AHEAD FOR ELECTRICITY

São Paulo (SP), May 20, 2015

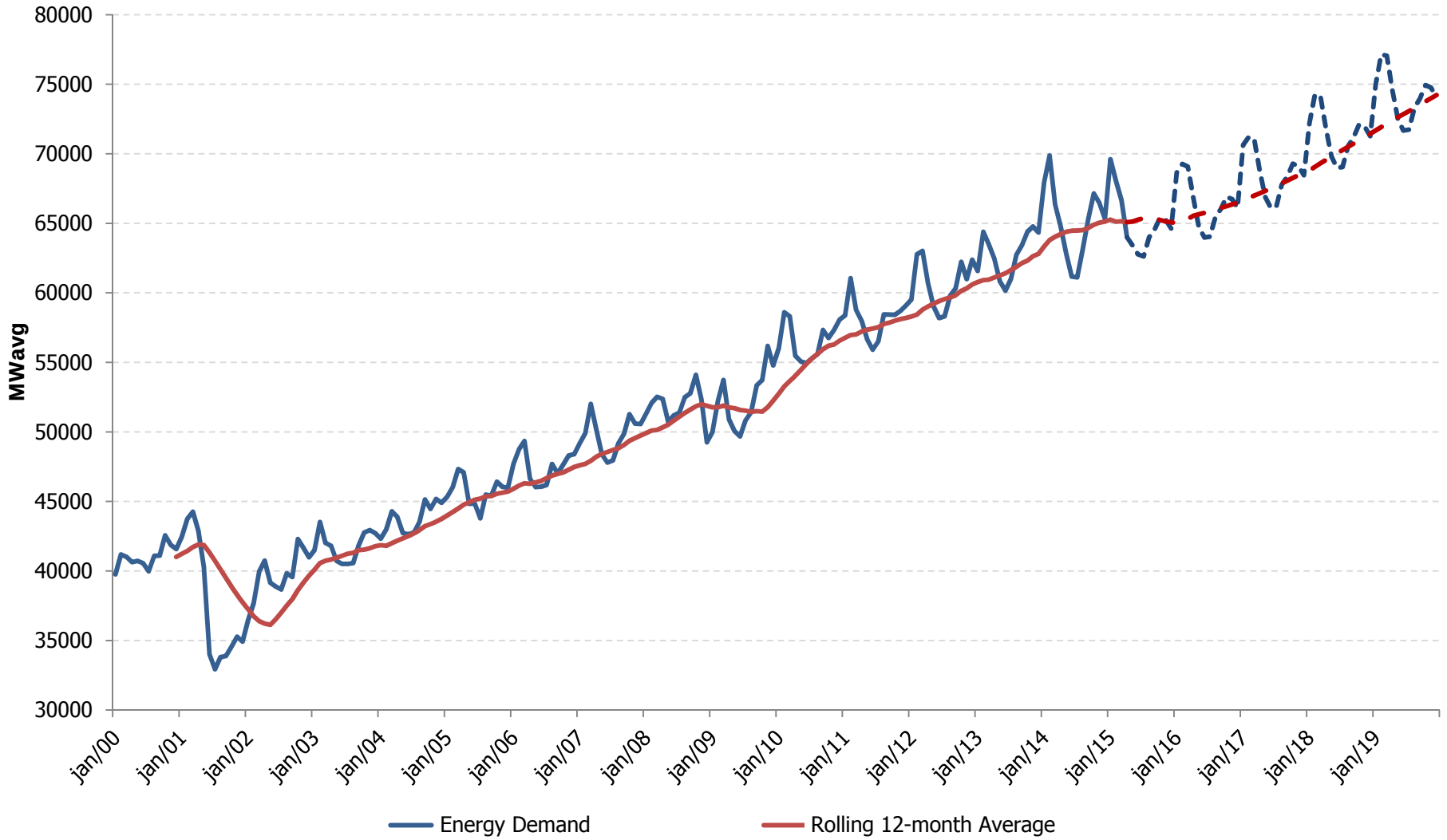
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PART 1:
PROSPECTS FOR THE ELECTRIC ENERGY MARKET

Marcos Keller Amboni
Manager – Regulatory and Market Matters

Growth in demand

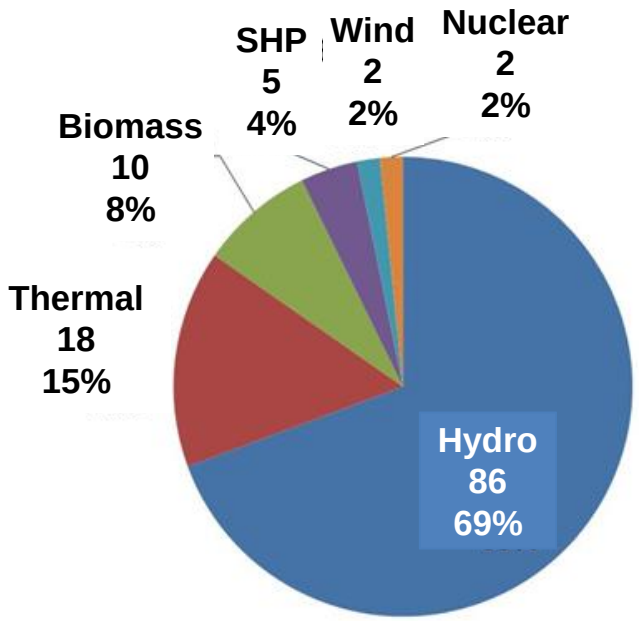


Source: ONS

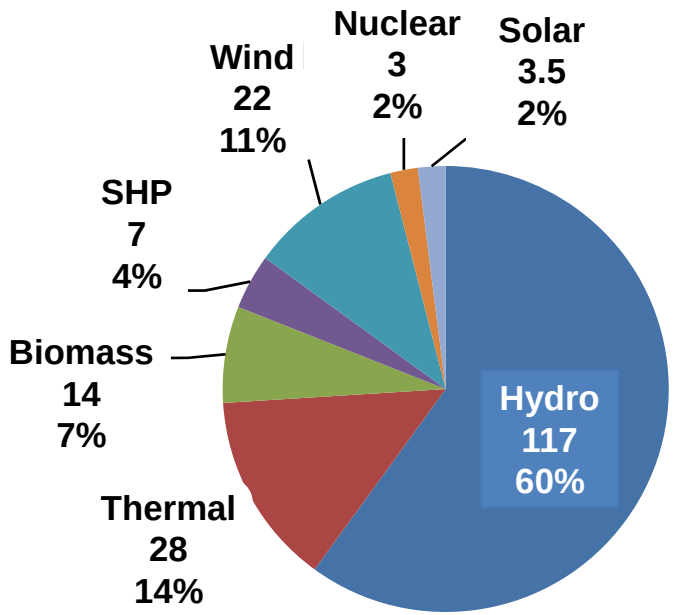
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Government view on expansion of supply

December 2013: 124 GW



December 2023: 194 GW

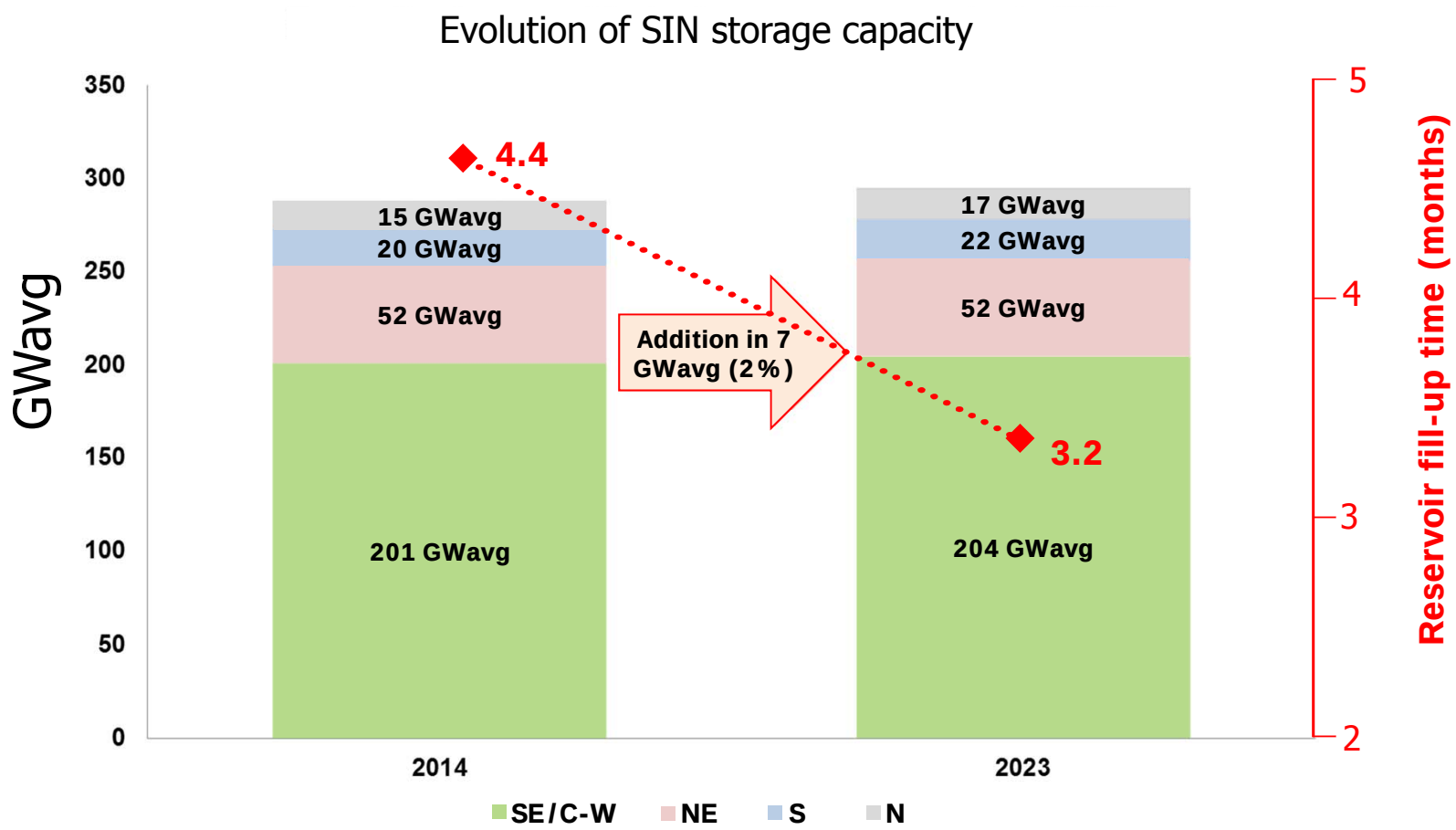


- ✓ Hydroelectric power will continue with a dominant role in the matrix, although its share will decline in relative terms (from 73% to 64%) while renewable sources will increase (from 10% to 19%).
- ✓ The share of electricity from thermal sources will remain virtually unchanged.
- ✓ PDE forecasts growth of 7,500 MW by 2023 in thermoelectrics with a VUC below R$ 250/MWh.
- ✓ Investments of about R$ 143 bi in new generation plants.

Source: EPE

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Rum of the river power plants

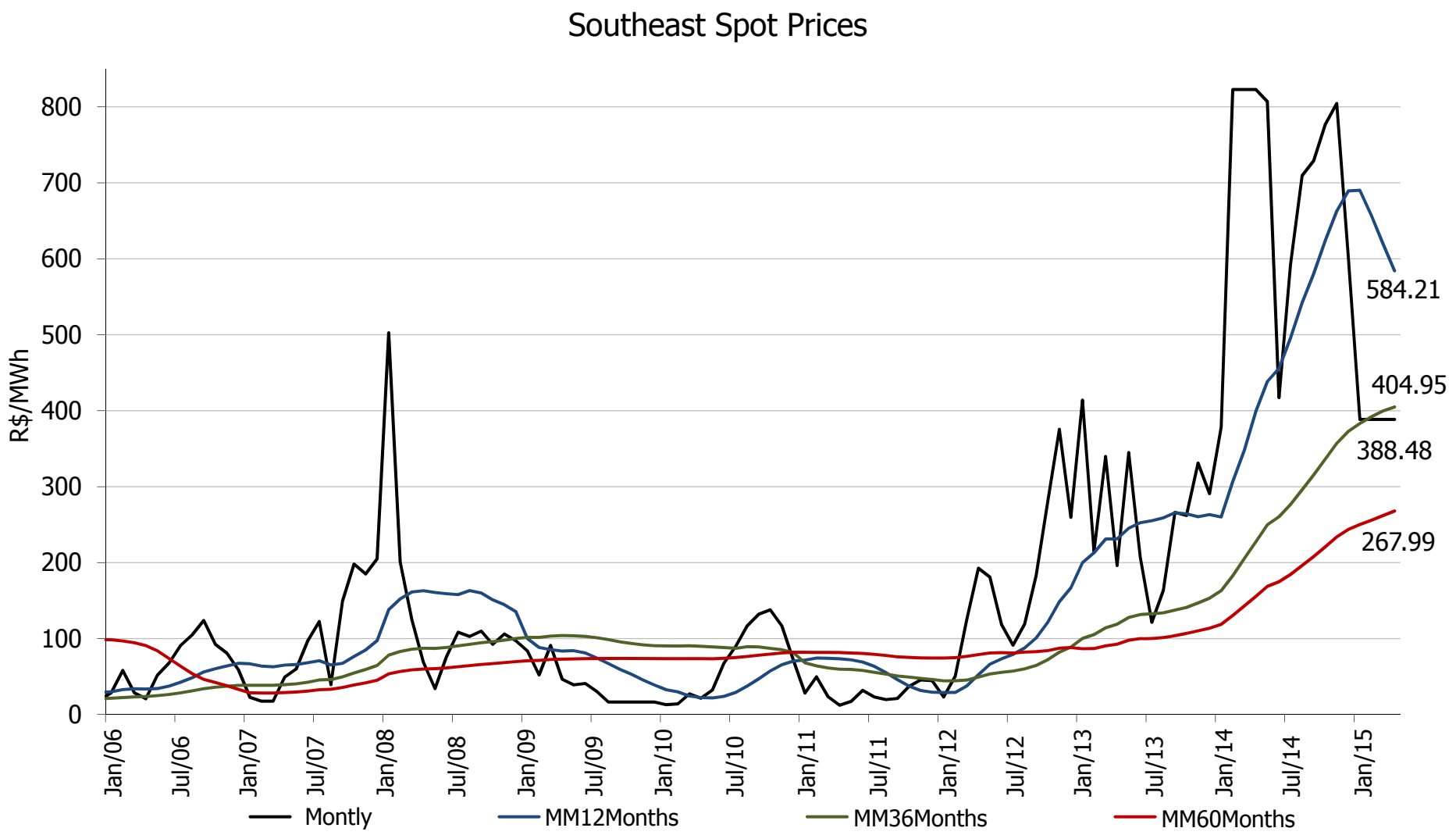


By 2023: an increase of 2% in the reservoirs against an increase of 40% in consumption.

Source: EPE

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Consequence: PLD will remain volatile and at high levels



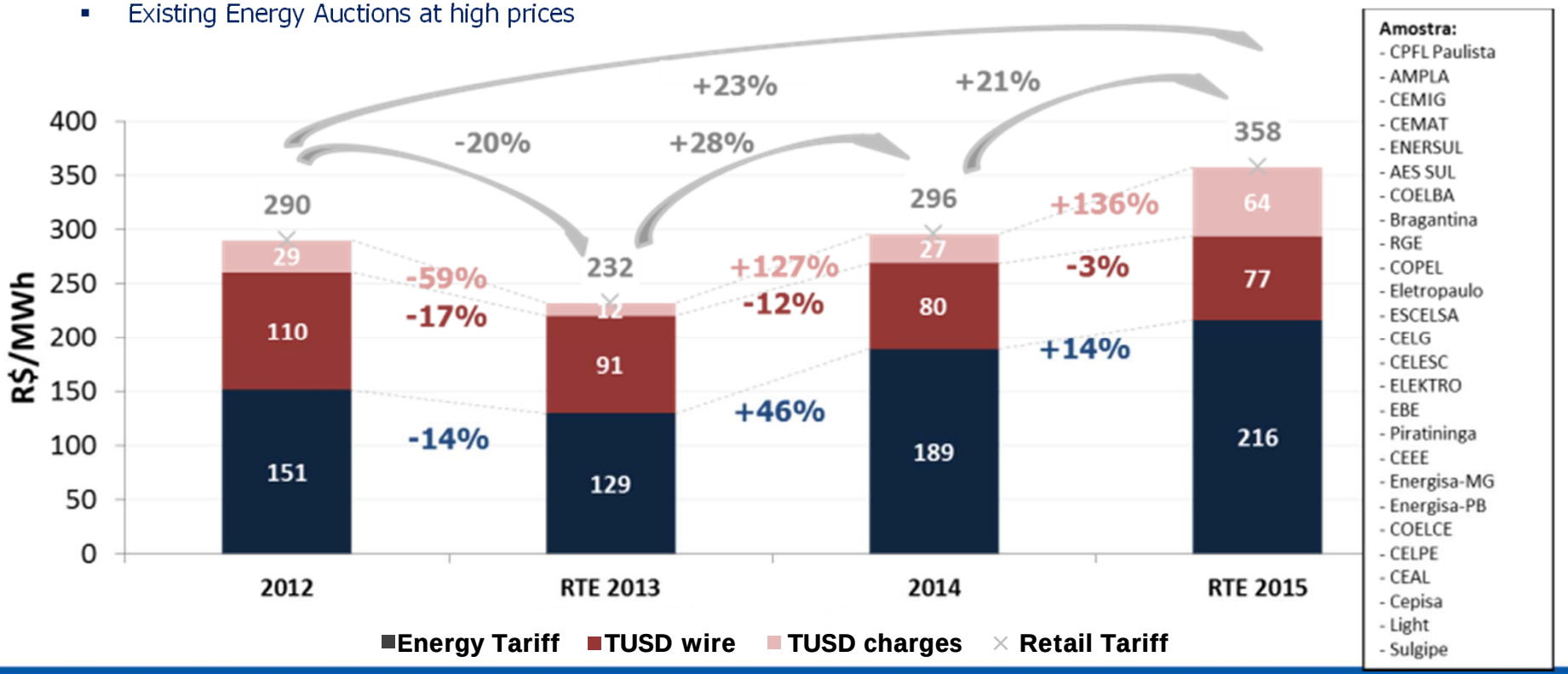
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Regulated tariffs

- ✓ Sep/12: MP 579 promised a 20% tariff reduction
- ✓ During 2013 and 2014: circumstantial pressures resulted in emergency measures for reducing the distributors' financial exposure and containing tariffs (tariff control)
  - ➢ 2013: R$ 9.9 bi provided by the Treasury, to be repaid in 5 years
  - ➢ 2013 and 2014: R$ 4.5 bi provided by the Treasury as a non-repayable cash grant
  - ➢ 2014: CCEE loan of R$ 11.2 bi, to be repaid in 2 years
  - ➢ 2014: 2nd CCEE loan of R$ 6.6 bi , to be repaid in 2 years
  - ➢ 2015: 3rd CCEE loan of R$ 3.1 bi , to be repaid in 2 years
- ✓ Recent energy auctions:
  - ➢ A-0 (6 years): 2,046 avMW @ R$ 268.3/MWh
  - ➢ Reserve 2014 (20 years): 535.7 avMW @ R$ 169.82/MWh
  - ➢ A-5 2014 (20-25-30 years): 2,742.5 avMW @ R$ 196.11/MWh
  - ➢ A-1 2014 (3 years): 622 avMW @ R$ 197.09/MWh
  - ➢ LFA 2015 (20 years): 97 avMW @ R$ 199.99/MWh
  - ➢ A-5 2015 (25-30 years): 1,146 avMW @ R$ 259.19/MWh

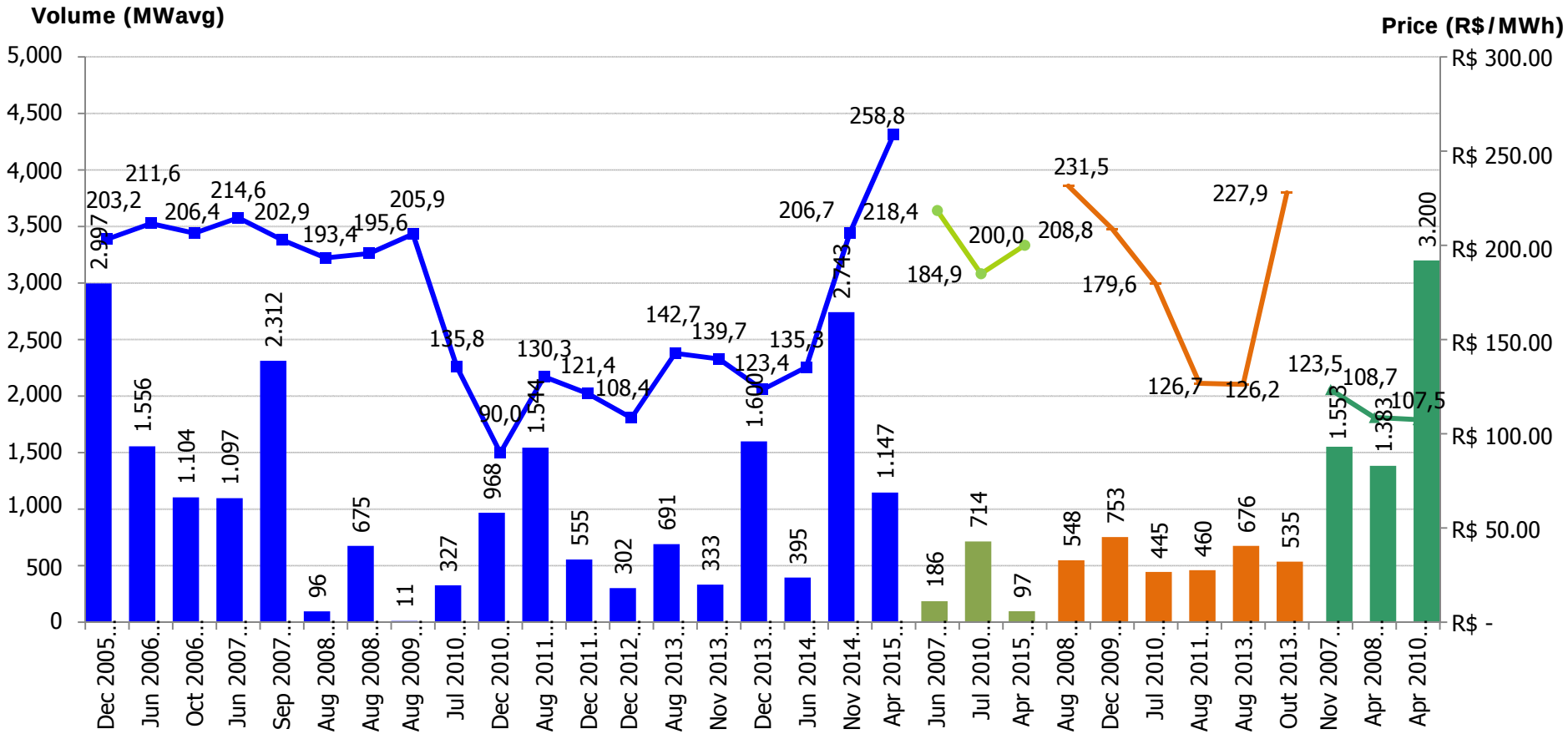
Tariff evolution

- ✓ Effects on tariffs are expected to persist for some years
- ✓ Costs have begun to be incorporated into tariffs
  - ➢ Since 2014: Costs per Availability Modality Contracts and exposure to the short term market
  - ➢ Feb/15: Distributors' tariffs suffer extraordinary readjustment (generalized tariff increase) to incorporate:
    - Increased costs with Itaipu
    - Increase in CDE (ending of treasury subsidies)
    - Introduction and subsequent increase of Tariff Flags
    - Existing Energy Auctions at high prices



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Increase in prices for the latest new energy auctions



Key:

New Energy Auction

Complementary Source Auction

Reserve Auction

Large Dam Auction

Base data: Apr/15

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Next scheduled auctions for 2015

Auction	Date	Beginning of supply	Source / regulated market contract type *	Requirements	Cap price
A-3 New Energy	Jul/24	Jan/01/18	Q 30: SHP e HPP A 25: gas-fired TPP and biomass-fired (any VUC) A 20: wind	TPP: VUC < R$ 250/MWh and inflexibility < 50%	
Reserve 1	Aug/14	Aug/01/17	Q 20: solar	VUC = zero and Capacity > 5 MW	
Reserve 2	Nov/13	Nov/01/18	Q 20: solar and wind	VUC = zero and Capacity > 5 MW	
Reserve 3	May/29	Jan/01/16	A 20: gas-fired TPP		R$ 581/MWh

* Q = Quantity-type auction; A = Availability-type auction

Prospects

- ✓ Load growth has been resilient: uncertainty surrounds the impact of rationalization measures and short-term outlook for tariffs

- ✓ Scenario strongly influenced by current circumstances
  - ➢ Hydroelectric generators much affected
  - ➢ Higher market price
  - ➢ Stimulus for contracting thermoelectric power plants, principally those with a low VUC

- ✓ Consolidation as a hydrothermal system
  - ➢ Growing participation of complementary sources
  - ➢ Important increase in the participation of thermoelectric generation, now with efficient thermal power plants
  - ➢ Hydroelectric power plants without reservoirs

- ✓ Distributors' tariffs will remain high for a long period

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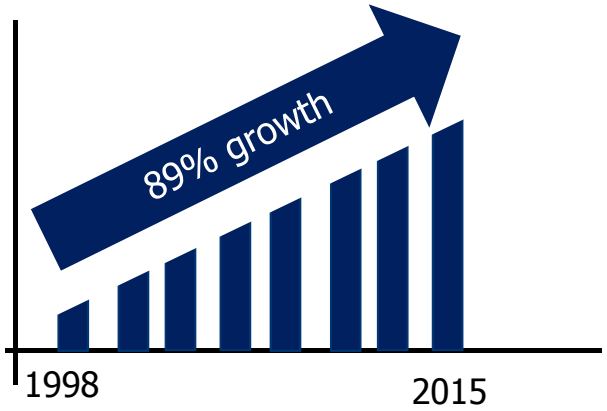


PART 2:
OPPORTUNITIES IN EXPANSION

Guilherme Slovinski Ferrari
Manager – Business Development

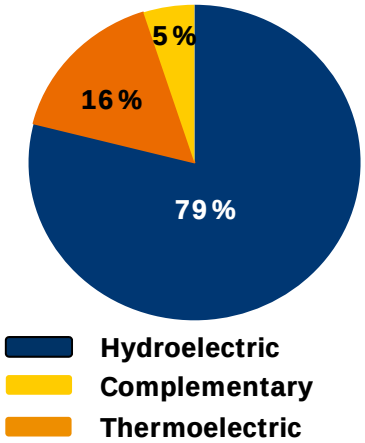
Our asset base

Increase in installed capacity

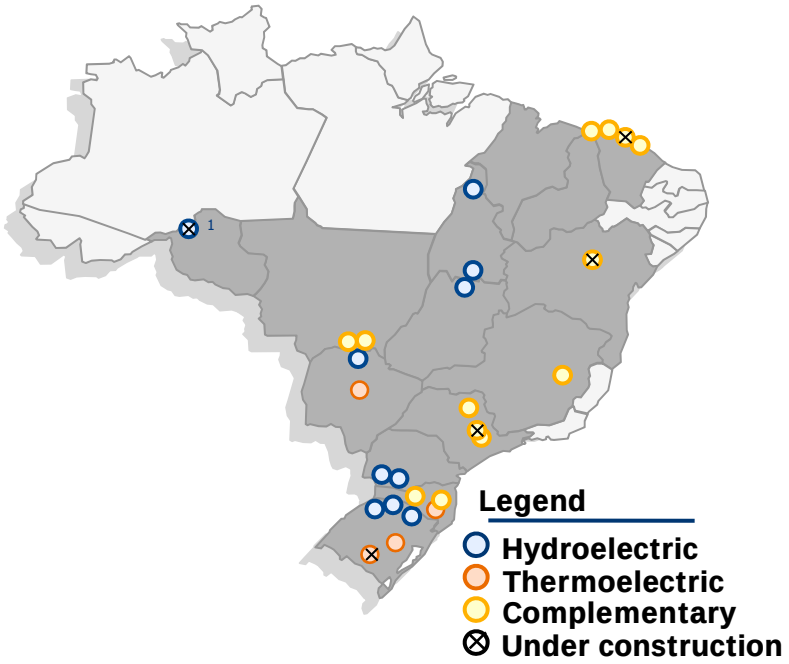




Generator sources (7 GW)



Location of the plants



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What is our growth strategy



To maintain a portfolio of projects in different phases of development and using various power sources.



Focus on sites with major potential in installed capacity and with a high performance factor, allowing for the possibility of gains in synergy.



Acquisition of the best projects and assets in the market.



To pursue growth in renewable sources in the regulated and free markets.

Basic development structure

Principal themes	Challenges	Action plan
1 Land ownership issues:	Negotiation with several owners, regularization of documentation, property registration with public departments and issue of DUP (Public Utility Declaration).	✓ Prior negotiation with owners ✓ Monitoring registration in real estate registry offices ✓ Clear and objective rules for negotiation
2 Evaluation of the necessary resources:	Measurement and evaluation of the necessary resources: wind, water, coal, gas, biomass, access, existing infrastructure and works logistics.	✓ In loco measurement of resources ✓ Study of existing and necessary infrastructure ✓ Long term fuel supply agreements

Basic development structure (cont...)

Principal themes	Challenges	Action plan
3 Analysis of energy production:	Technical and economic engineering of the projects: evaluation of proposals, work schedule, costs, equipment options and performance of the Technologies for each site.	✓ Certification of energy production by specialized companies ✓ Various quotes from suppliers using different technologies ✓ Evaluation of performance/cost
4 Environmental licensing:	Impacts on the local communities, issue of authorization grants and sócio-environmental programs.	✓ Supervision and monitoring of contracted companies ✓ Effective participation at public hearings ✓ Close relationship with the affected communities

Governance

	Process	Challenges	Approval
1	Opportunity survey	✓ Internal authority to begin prospecting ✓ Identification of opportunities	Tractebel Energia GDF SUEZ
2	Advanced notice	✓ Presentation of the principal characteristics of the project and request for authorization to proceed with the project ✓ Development decision	ENGIE
3	Book of assumptions & investment note	✓ Detailed presentation of the Project assumptions including: investment, expected return, commercialization strategies, risks and opportunities ✓ Authorization for investments conditional on approval of Tractebel Energia's Board of Directors	ENGIE
4	Tractebel's Board of Directors	✓ Detailed presentation of the Project assumptions including: investment, expected return, commercialization strategies, risks and opportunities ✓ Final authority for investment	Tractebel Energia GDF SUEZ

OK

Energy commercialization mix

Incentivized energy < 30 MW

What it is: It is energy generated from solar; wind, biomass and cogeneration sources, the maximum capacity from which delivered to the grid (SIN) is less or equal to 30MW or generated from SHPs

Benefits:

(i) Discounts from Tariffs for Use of the Distribution System (TUSD) at the two ends of the supply chain (generator and consumer) of at least 50%;

(ii) Market reserve for special consumers.

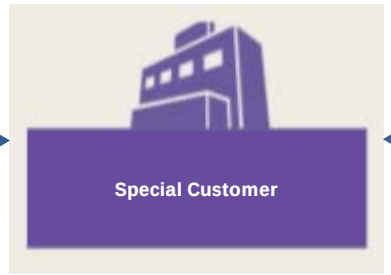
What does this represent for Tractebel in practice?

(i) Development of optimized projects with up to 30 MW each;

(ii) Supply the market for Special Consumers (guarantee market share).



Capacity ≥ 3.0 MW
Connection ≥ 69 kV*



Capacity ≥ 0.5 MW



*Contingent upon the date of grid connection

Santa Mônica

Campo Largo Phase I

Ferrari

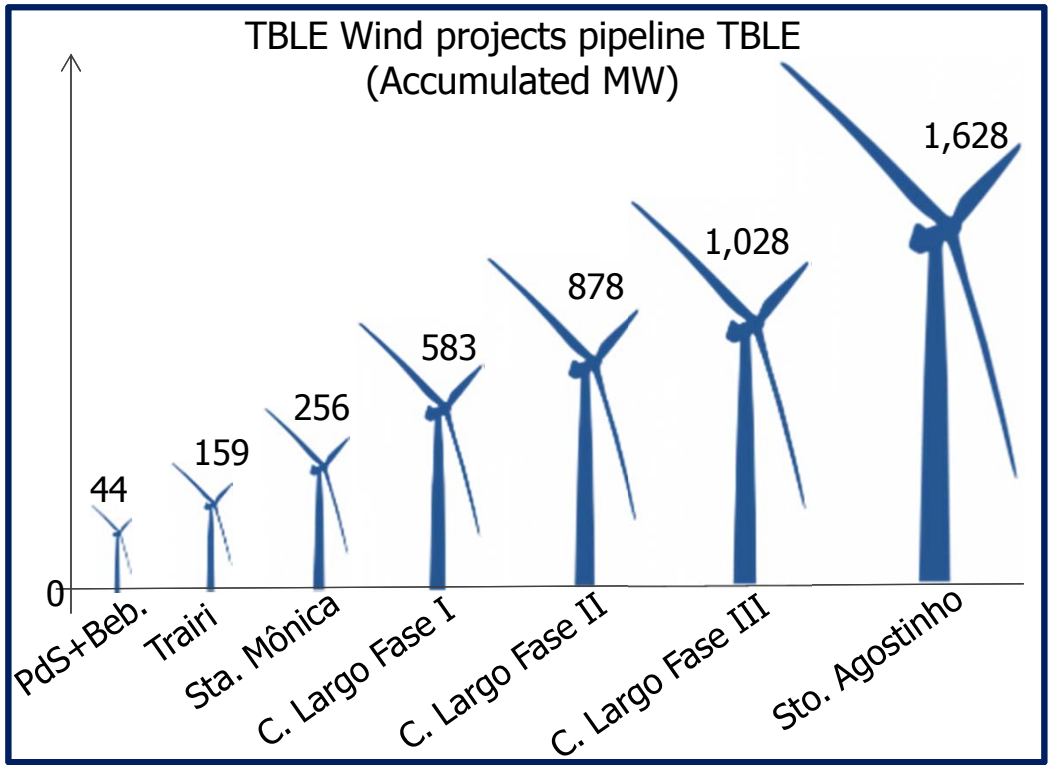
Conventional Energy

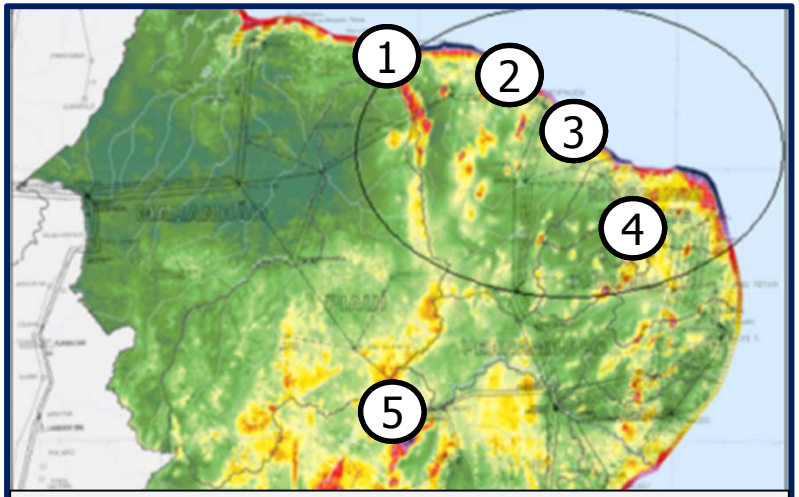
Pampa / Miroel Wolowski

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Wind projects pipeline

- ✓ Growing expansion in the wind projects pipeline;
- ✓ Currently with about 1.5 GW of wind projects under development;
- ✓ Projects concentrated in the Northeast, major wind potential;
- ✓ Commercialization strategy involves a mix of regulated and free markets;
- ✓ Cluster of projects with a large installed capacity.

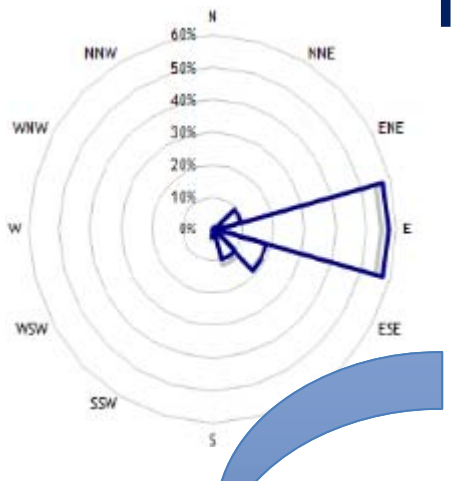




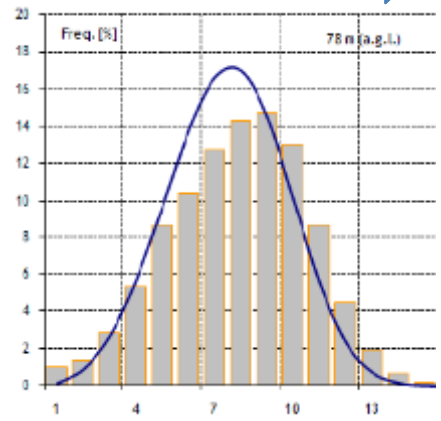
① Pedra do Sal (18.0 MW)
② Trairi Wind Farm Complex (115.4 MW)
② Santa Mônica Wind Farm Complex (97.2 MW)
③ Beberibe (25.6 MW)
④ Santo Agostinho (600 MW)
⑤ Campo Largo Wind Farm Complex (~770 MW)

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The uncertainties of the wind farm projects



Reduction of forecasted generation due to the impact of the Project's uncertainty



Uncertainties	
P50 Generation	✓ Electric energy generation indicator in MWh/year, issued by a third party certifying agent ✓ 50% probability of occurrence ✓ Old parameter used by Aneel for issuing the wind farm physical guarantee
P90 Generation	✓ Similar indicator to P50, also in MWh/year ✓ 90% probability of occurrence ✓ Current parameter for issue of wind farm physical guarantee ✓ Greater reliability and security for the system ✓ Impacted by the "uncertainties" of the electric energy generation study
Associated Uncertainties	✓ Indicator in % calculated by the certifying agent ✓ Is associated to: the duration and quality of the wind measuring data, the type of land, to correlation with other wind measuring structures and long term adjustments, to topographic data, to the experience of the certifying company

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Wind farm projects under construction

Campo Largo Phase I (BA)

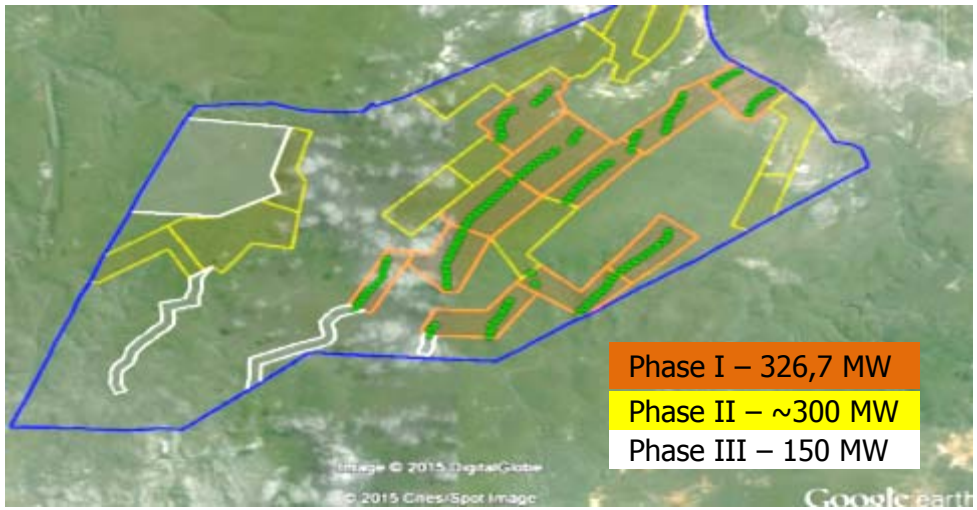
Regulated Market: 6 WPP
Cap.: 178.2 MW

+

Free Market: 5 WPP
Cap.: 148.5 MW

Installed capacity: 326.7 MW
Location: Umburanas and Sento-Sé (BA)
WTG: 121 / Alstom ECO 122 of 2.7 MW and 89m
Full COD: January/2019

Layout

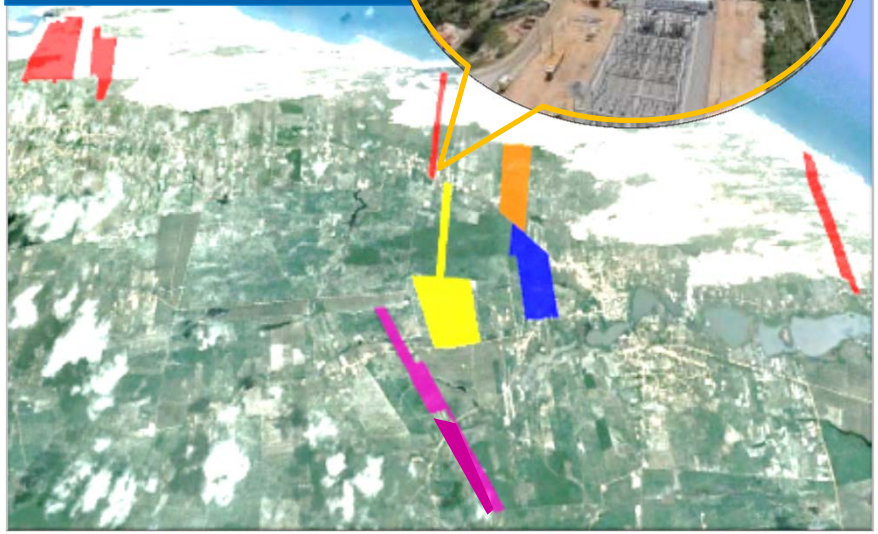


Santa Mônica (CE)

Installed Capacity: 97 MW
Location: Trairi (CE)
WTG: 36 / Alstom ECO 122 of 2.7 MW and 119m
Synergies with Trairi Complex
Full COD: June/2016



Layout



* Areas in red: Trairi Complex

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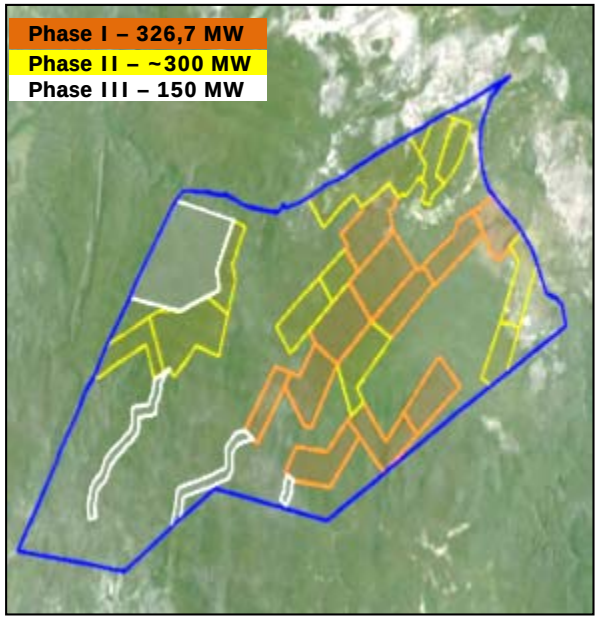
Wind farm projects under development

Campo Largo Phase II (BA)

- ✓ Installed capacity: ~300 MW;
- ✓ Location: Umburanas and Sento-Sé (BA)
- ✓ Advanced phase of development
- ✓ Licensing: preliminary license issued (valid until 2019)
- ✓ Will use synergies existing with Phase I (transmission line, substations, access, environmental and social programs, work structure)

Campo Largo Phase III (BA)

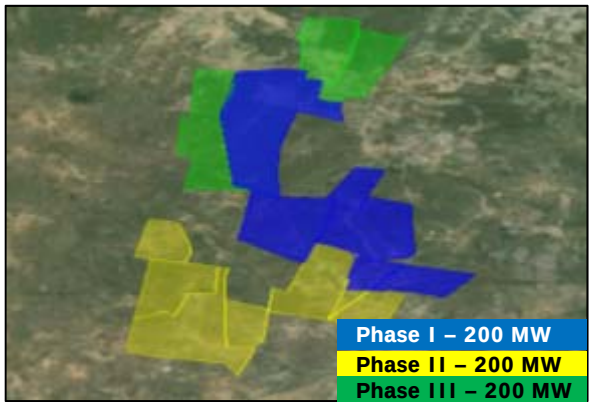
- ✓ Installed capacity: 150 MW
- ✓ Location: Umburanas and Sento-Sé (BA)
- ✓ Initial phase of development
- ✓ Environmental licensing will be undertaken by Tractebel
- ✓ Will use the synergies existing with Phase I and II



Santo Agostinho (RN)

- ✓ Installed capacity: 600 MW
- ✓ Location: Lajes and Pedro Avelino (RN)
- ✓ Initial phase of development
- ✓ Environmental licensing undertaken by Tractebel





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Solar energy market in Brazil and Tractebel Energia

Themes	Challenges
Solar energy market in Brazil:	✓ The Brazilian solar market has been consolidating in the last auctions ✓ Reserve Energy Auction/2014 was responsible for contracting more than 880 MW of solar energy involving 31 projects ✓ The solar energy market is at a similar stage to that of wind energy in 2008 and 2009
Strategy for market insertion:	✓ Acquisition of solar projects at an advanced stage of development and qualifying to participate in energy auctions ✓ Internal development of solar projects with longer period for maturation
Evaluation criteria:	✓ Solar radiation at the site (above 6 kWh/m²/day) ✓ Regularization of land ownership issues (contracts, real estate registry offices, georeferencing) ✓ Proximity of the site to grid (SIN) connection point (less than 30km) ✓ Conditions of access to the site and local infrastructure ✓ Capacity factor higher than 20% ✓ Environmental licensing (Previous License)
Current scenario:	✓ Focus on projects in the Northeast, particularly in the interior of Bahia ✓ Projects which have synergies with other Tractebel Energia plants/projects ✓ Sites with large installed capacity potential and cost dilution ✓ Portfolio with two projects in the prospection phase

BR solar map





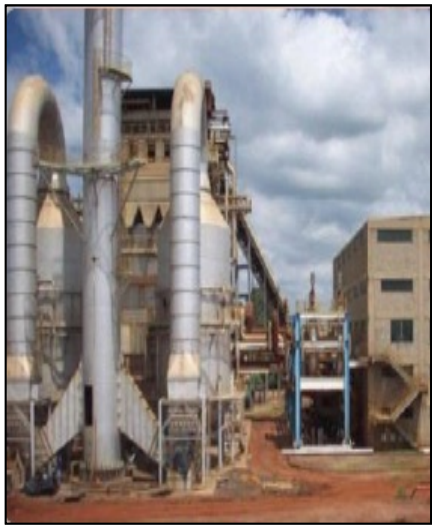
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Biomass projects under development

Themes	Challenges
Brazilian biomass market:	✓ Market for biomass-fired generation is well entrenched in Brazil ✓ Captive source in the energy auctions organized by Aneel ✓ Use made of the major sugarcane output in Brazil ✓ Several companies in the sugar and alcohol business show possibilities and interest in implementing co-generation projects (sugarcane bagasse)
Consolidated strategy at Tractebel:	✓ Identification and selection of potential partners in the market, considering long term production capacity, financial capacity and experience in the cultivation and generation areas ✓ Acquisition of co-generation plants linked to the supply of fuel
Evaluation criteria:	✓ Possibility of increasing installed plant capacity ✓ Procedures for plant operation and safety ✓ State of conservation of the equipment ✓ Complete Due Diligence
Current scenario:	✓ Focus on projects in São Paulo, a major sugarcane producers ✓ Projects which have synergies with other Tractebel Energia plants/projects ✓ Portfolio with projects in the prospection and construction phase

Ferrari





Thermoelectric projects under construction / development

Pampa / Miroel Wolowski (RS)

Installed Capacity: 340 MW
Location: Candiota (RS)
Fuel: domestic coal
EPC: SDEPCI (Chinese)
Energy sold at the A-5/2014 Auction
Expected COD: January/2019





Norte Catarinense (SC) Project

Installed capacity: 600 MW
Location: Garuva (SC)
Fuel: gas
Stage of development: final stage of environmental licensing



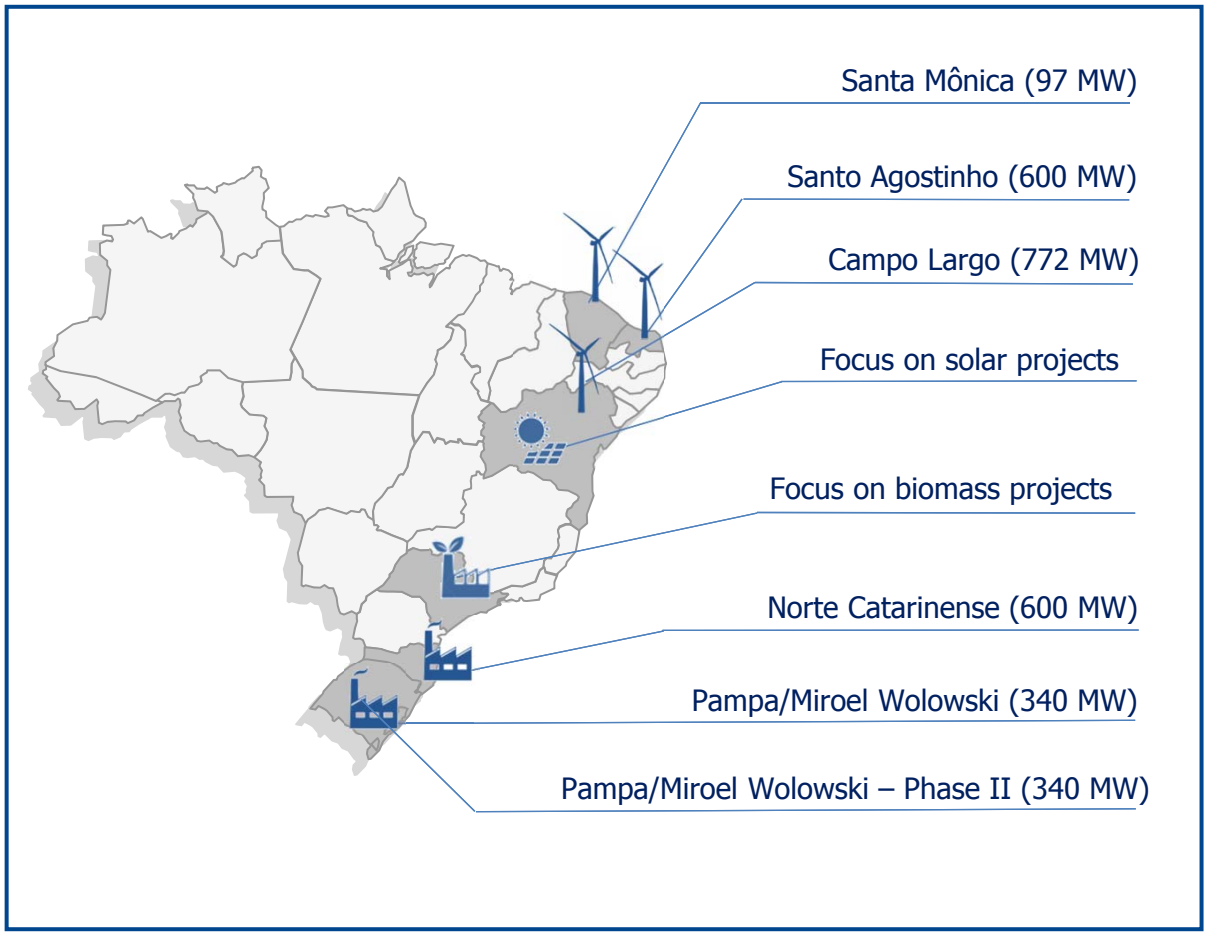
Pampa / Miroel Wolowski Phase II (RS)

Installed capacity: 340 MW
Expansion of Pampa/Miroel Wolowski
Location: Candiota (RS)
Fuel: domestic coal
Stage of development: initial stage
Preliminary License: issued

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Tractebel Energia today

- ✓ Approximately 840 MW being implemented
- ✓ A projects pipeline with more than 2,000 MW under development
- ✓ Diversified sources (wind, thermal, biomass, solar)
- ✓ Projects under development in several states in Brazil



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PART 3:
TENDENCIES – ENERGY TRANSITION

Alexandre Nunes Zucarato
Consultant – New Projects Development

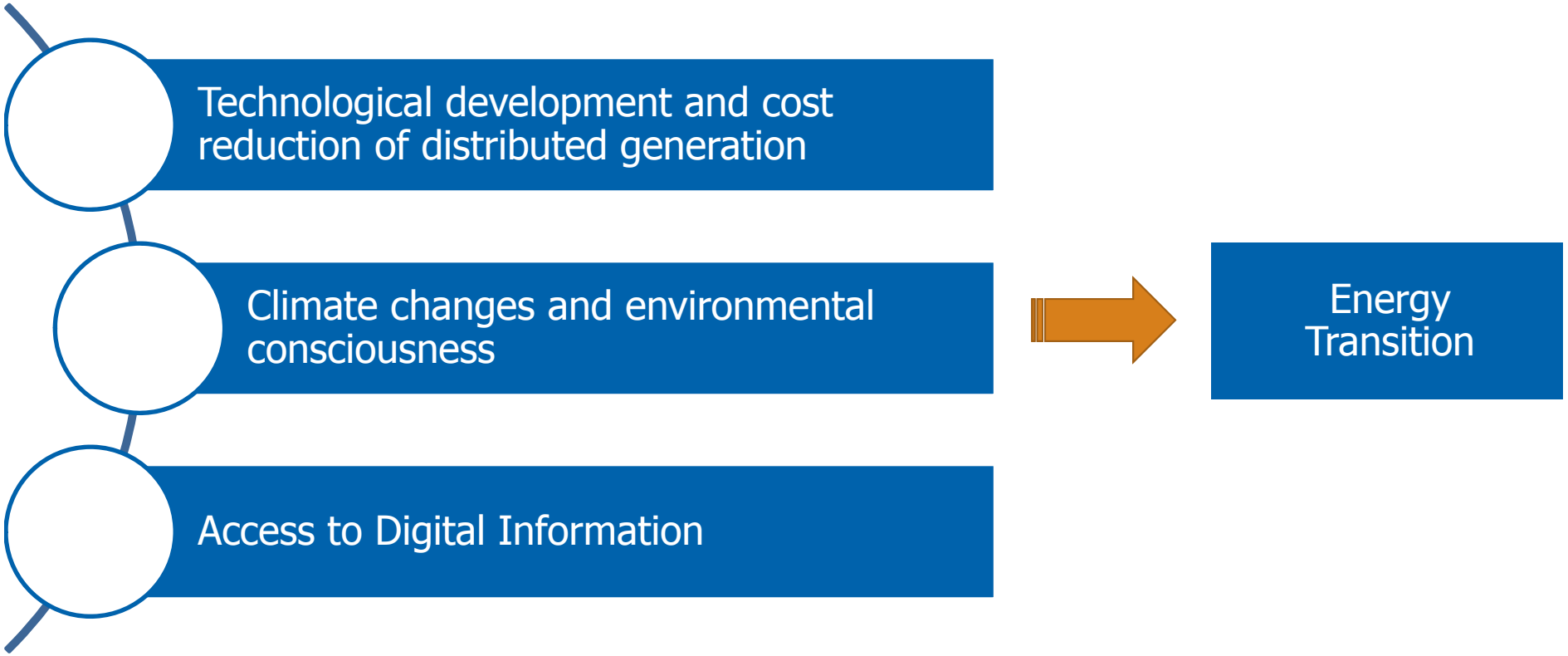
To think about...

- ✓ If Alexander Graham Bell were somehow transported to the 21st century, he would not recognize the components of modern telephony – cell phones, texting, cell towers, PDAs etc.

- ✓ While Thomas Edison, one of the grid's key early architects, would be totally familiar with today's systems.

From the Smart Grid: An Introduction, U.S. Department of Energy

Disruptive forces



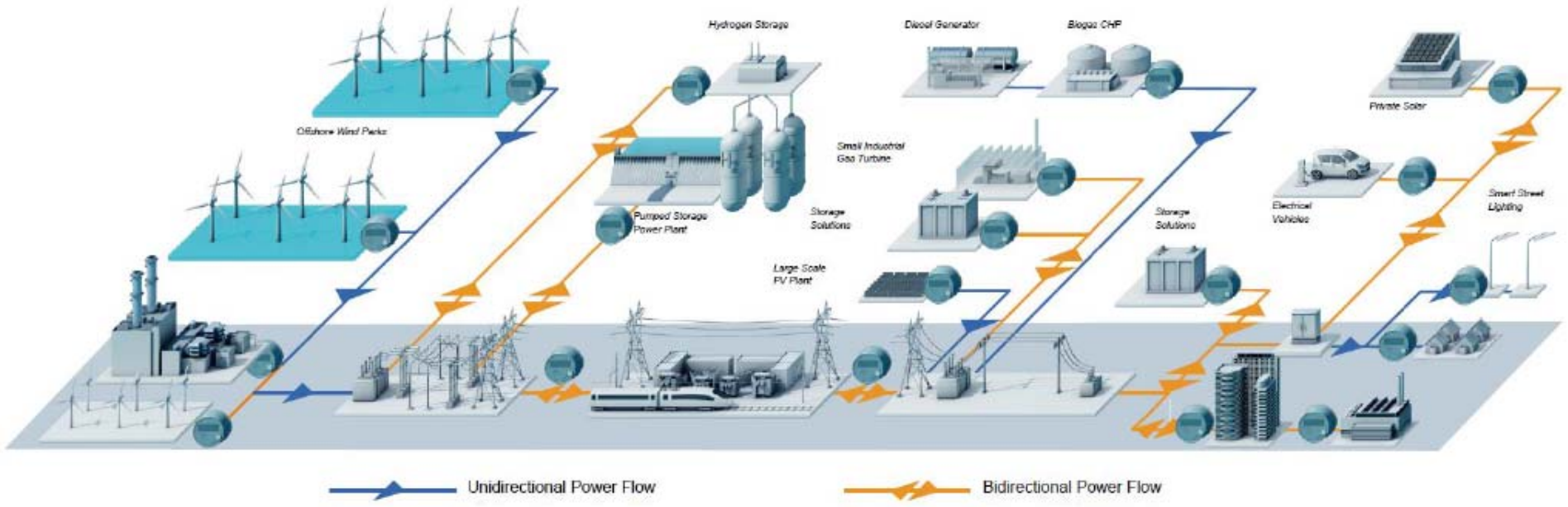
Breaking a paradigm

From a centralized and unidirectional grid...



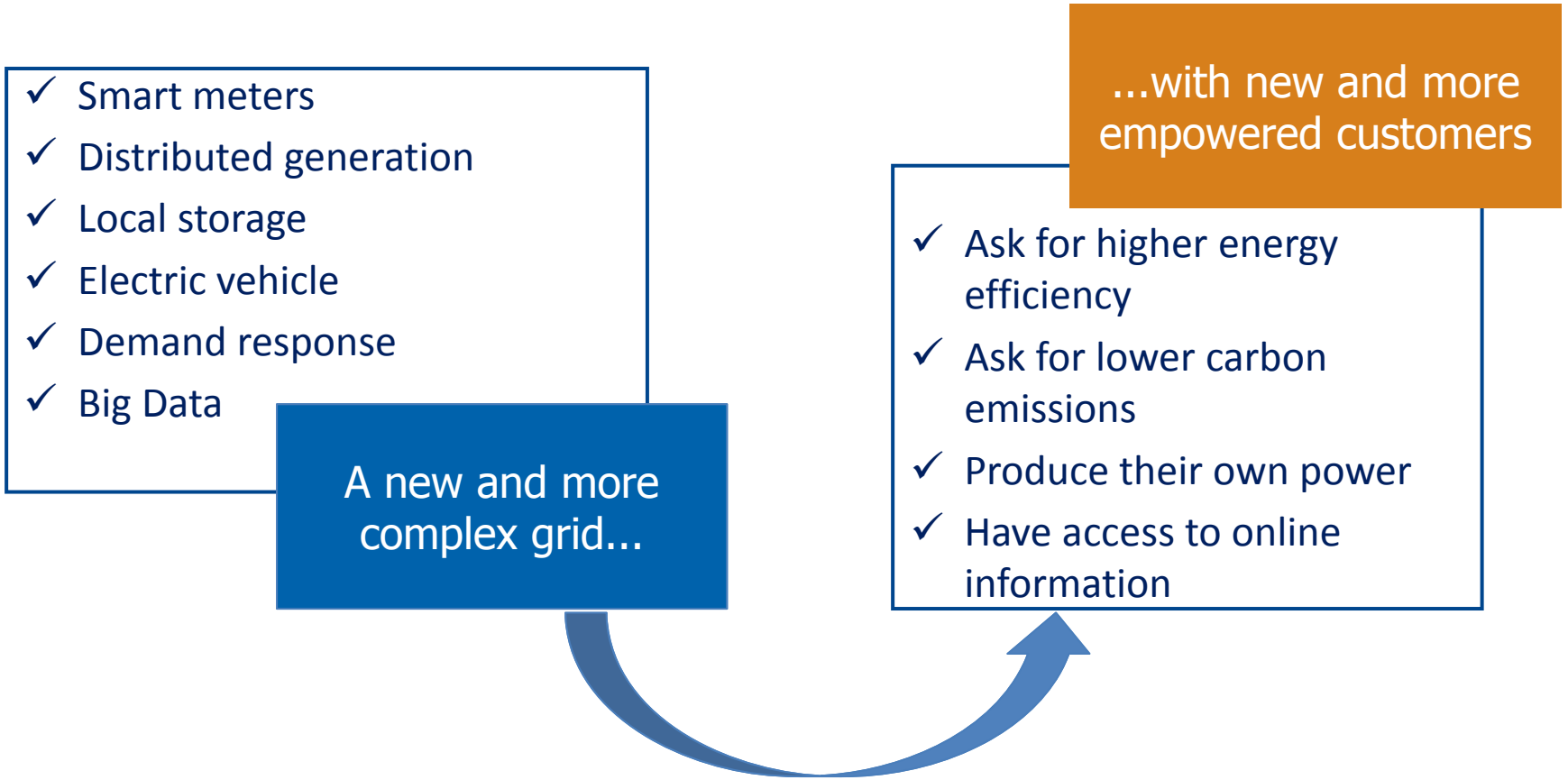
Breaking a paradigm

… to a distributed and bidirectional grid



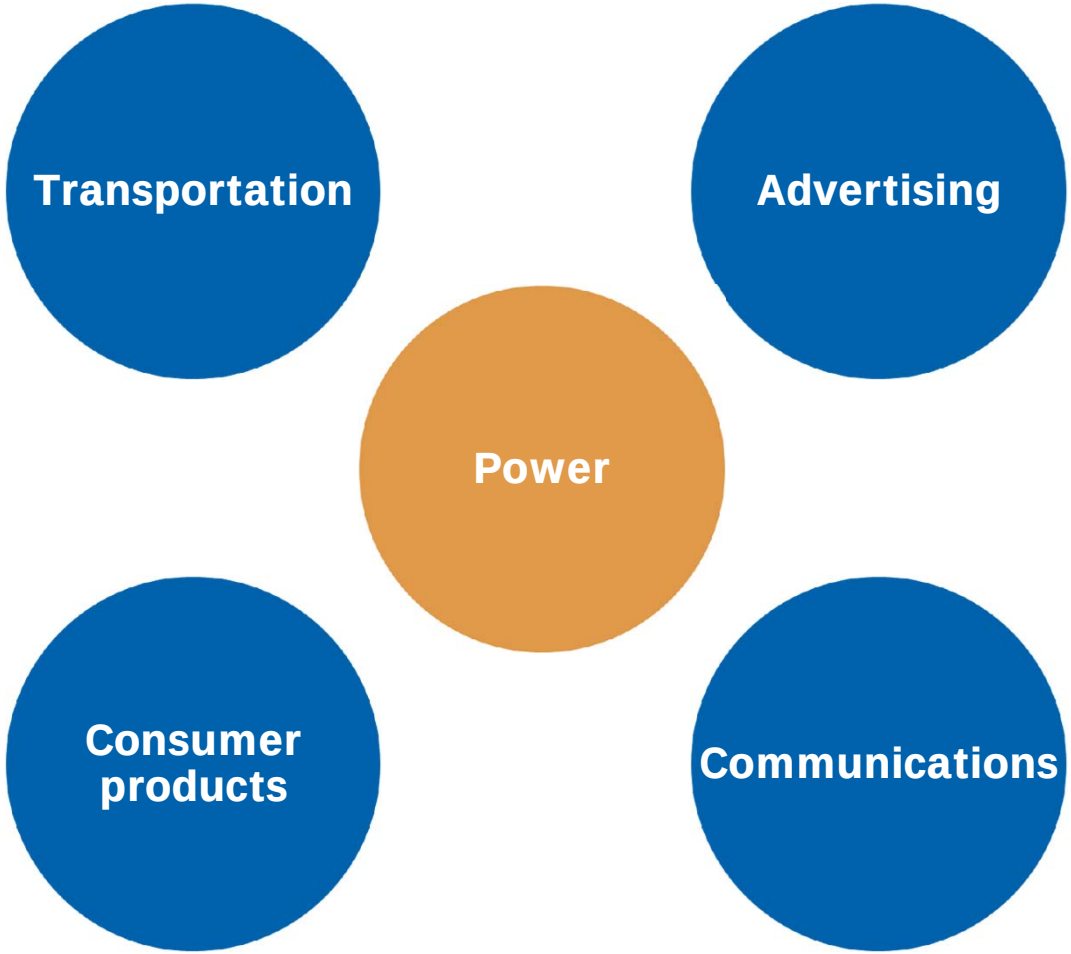
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New needs will emerge



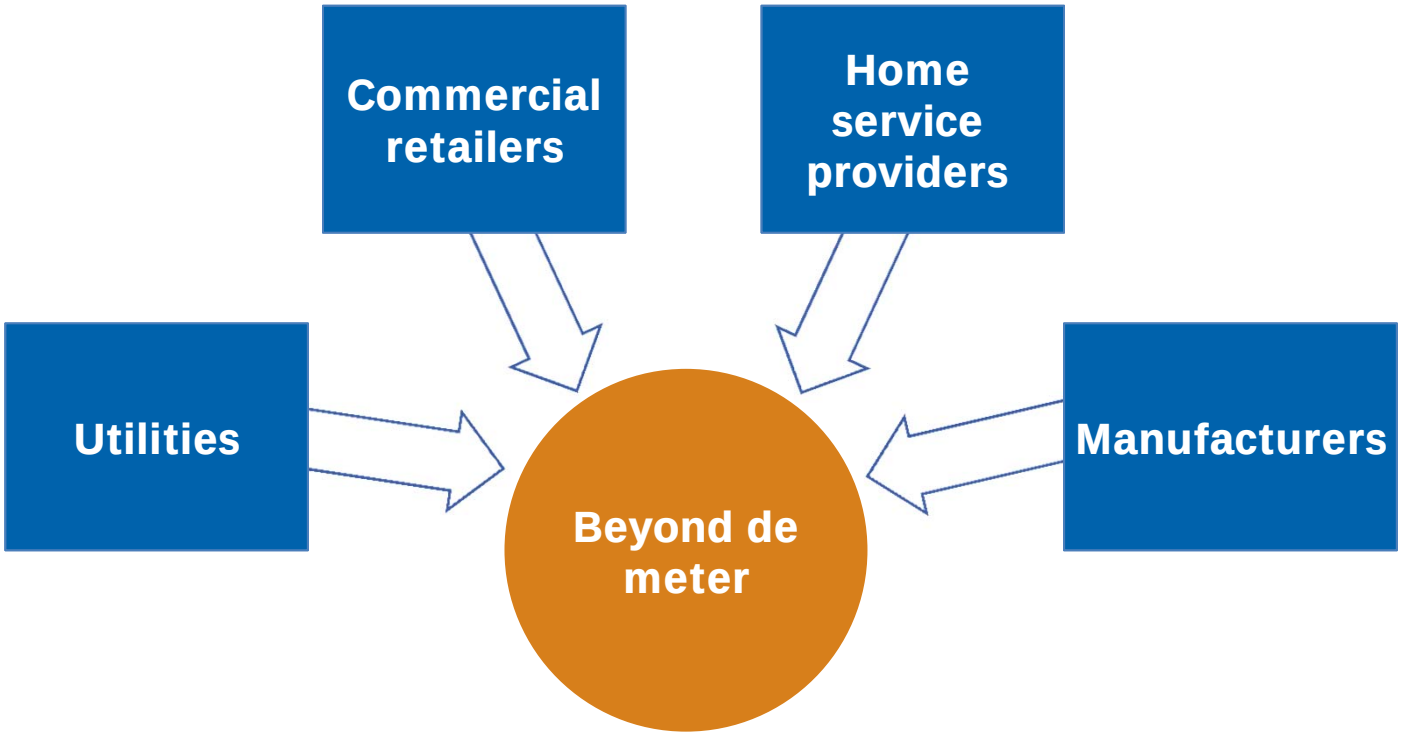
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Overlapping value pools



How to meet costumers' needs?

Who will consumers trust to support them in this energy transition?



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The path to follow

More distributed and small scale based

- ✓ Opportunities for new products and services

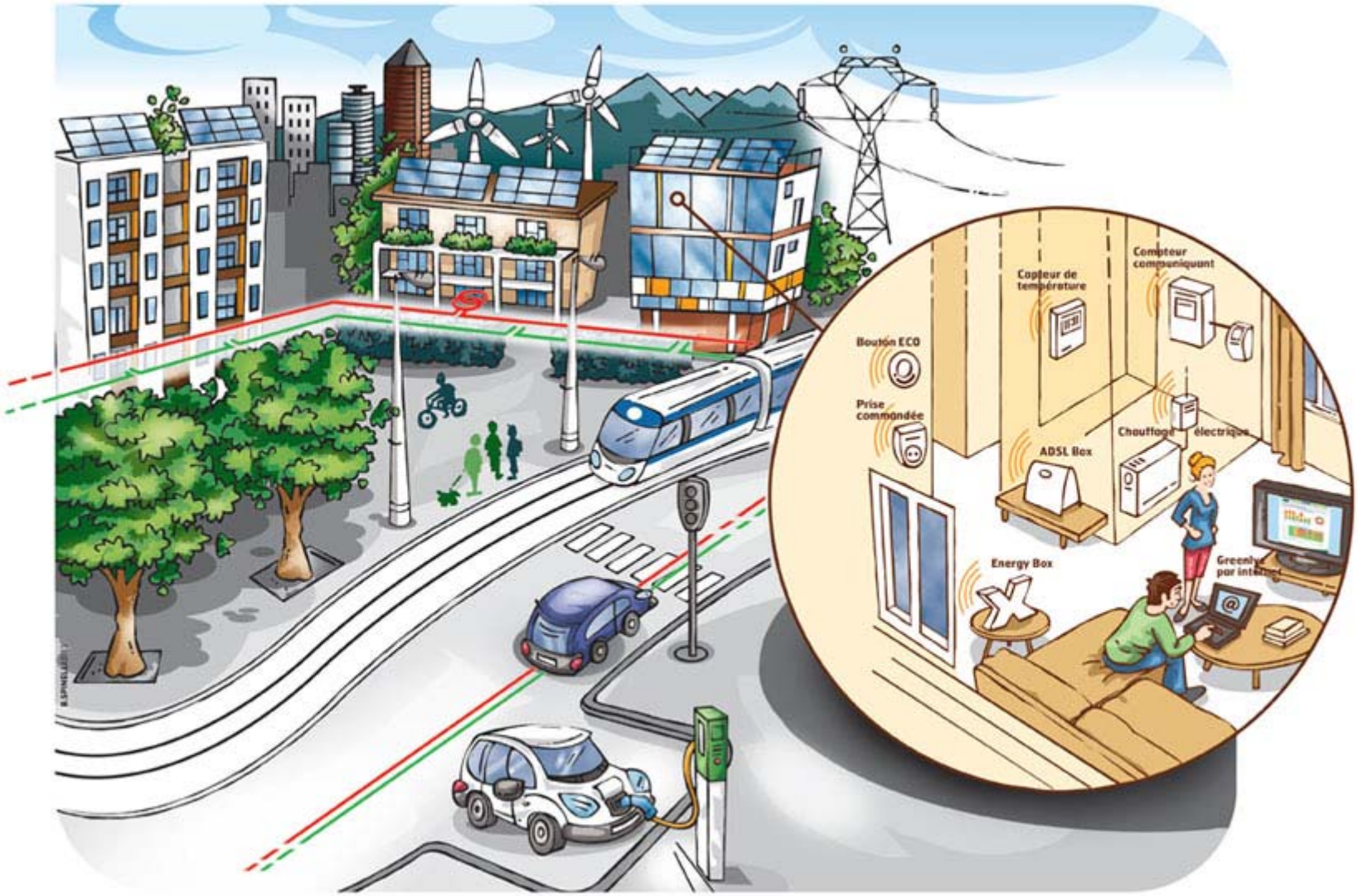
More capital intensive

- ✓ Needs for financing solutions to remove the upfront cost barrier

More complex

- ✓ Increase needs for energy management and optimization

Are you ready?



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