ANEEL

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA

Essential for electricity.
Essential to Brazil.

ENERGIA EM FOCO

Energy Regulation

Energy Regulation: Reflection on the experiences of Brazil

FGV ENERGIA

ENERGIA EM FOCO

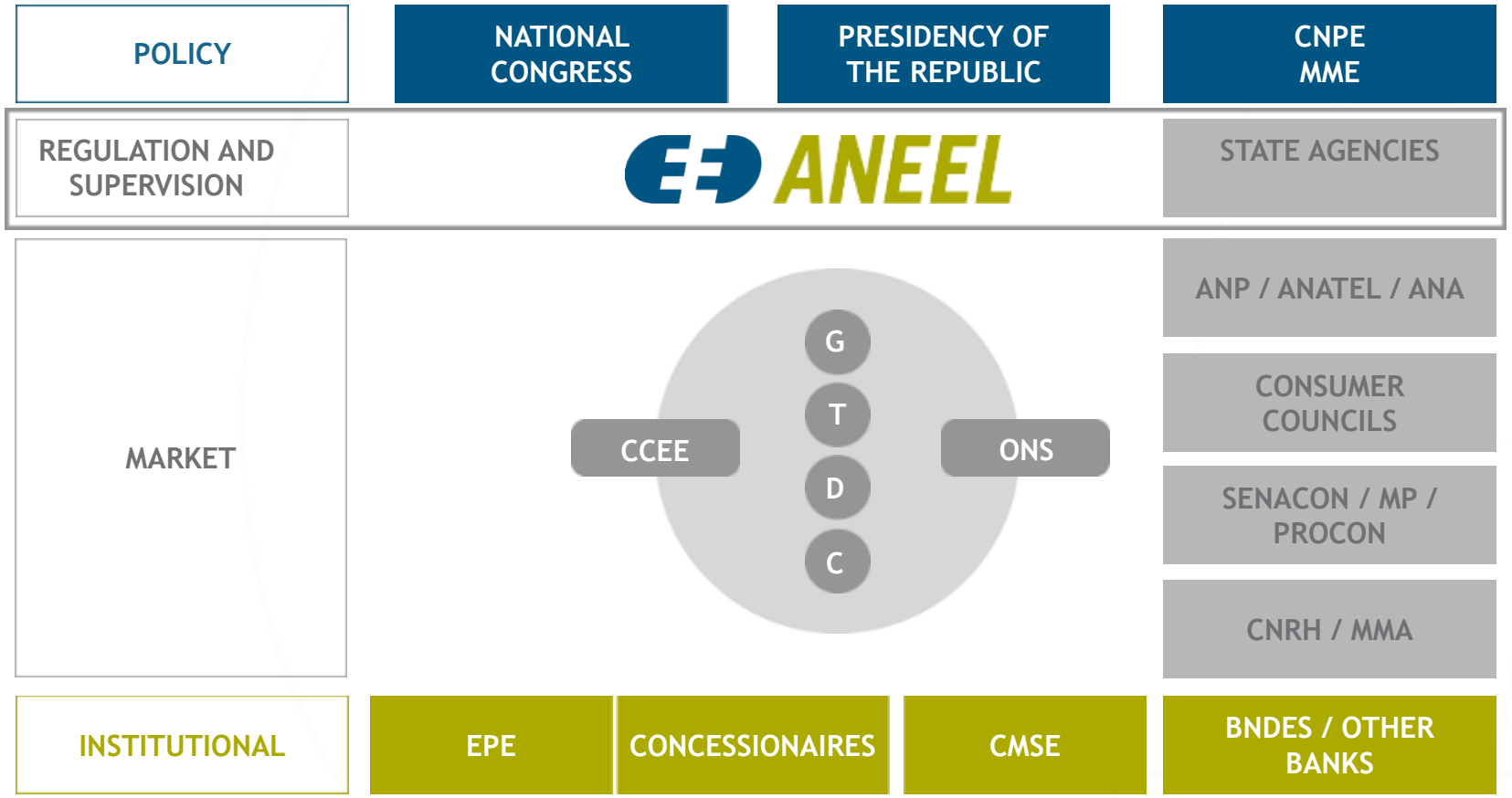
Rio de Janeiro – RJ
December 7, 2016

ANEEL
Agência Nacional de Energia Elétrica

Essencial para a energia.
Essencial para o Brasil.

Tiago de Barros Correia
Director

INSTITUTIONAL STRUCTURE OF THE BRAZILIAN ELECTRICAL SECTOR



MAIN COMPETENCES

- REGULATION
- INSPECTION
- MEDIATION
- AUTHORIZATION / CONCESSIONS

AND HOW DO WE DO IT?

- We provide guidance
- We apply penalties (when necessary)
- We resolve conflicts

BRAZILIAN ELECTRIC SECTOR - INSTITUTIONAL MODEL

HOW WE GOT HERE

- **First Reform – The electrical power market**
  - Laws No. 9,074 of 1995, No. 9,427 of 1996 and No. 9,648 of 1998
  - Creation of ANEEL, MAE, ONS and Free Consumers
  - Segregation of G, T, D and C activities
  - Expansion of supply based on the scarcity price signal (marginal cost)
- **The New Model - Response to the 2001 rationing**
  - Laws No. 10,847 and No. 10,848, both of 2004
  - Replacement of MAE by CCEE
  - Creation of EPE - return of planning
  - Regulated auctions - expansion based on average cost

BRAZILIAN ELECTRIC SECTOR - INSTITUTIONAL MODEL

THE PARADIGM OF TIME

- **Reduction of inefficiencies and appropriation of monopoly rents**
  - Generation and Marketing - Competition in the market
  - Transmission - Market competition
  - Distribution - Monopoly regulated by price cap
- **Technological innovation - Natural Gas with combined cycle**
- **Long Term Financing - Project Finance**
  - Developments with long periods of construction
  - BNDES
  - Distributors Receivables

BRAZILIAN ELECTRIC SECTOR - INSTITUTIONAL MODEL

POINTS OF SATURATION

- **Reducing Distributors' capacity to support the expansion of generation**
  - Obesity of Portion A
  - Emergence of Default in Short Term Market
  - Over-contracting
- **Increased in complexity and construction deadlines in hydro / thermal plants and in Transmission**
- **Decrease in credit availability**

ENERGY TRANSITION

ADMIRABLE NEW WORLD

DISTRIBUTED GENERATION

SMART GRID

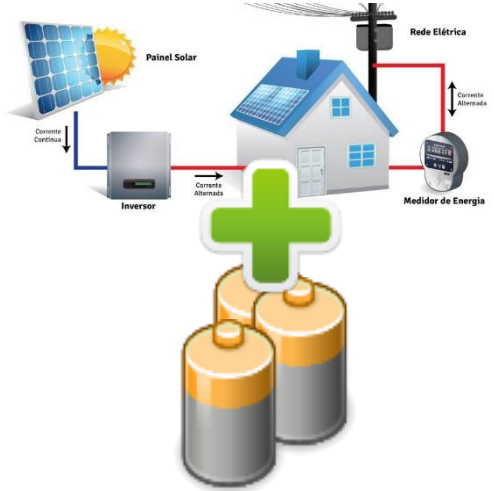
ELECTRICAL MOBILITY

ENERGY STORAGE

ENERGY TRANSITION

ADMIRABLE NEW WORLD

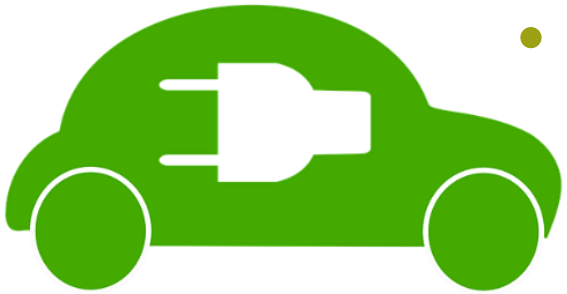
DISTRIBUTED GENERATION AND BATTERIES



- Highly declining investment costs
- ZERO Marginal Cost!
- Modularity
- Low locational constraint - Well-distributed energy potential in the country (generation) and transportable modules (batteries)
- Positive externalities
- Short term of construction

ENERGY TRANSITION

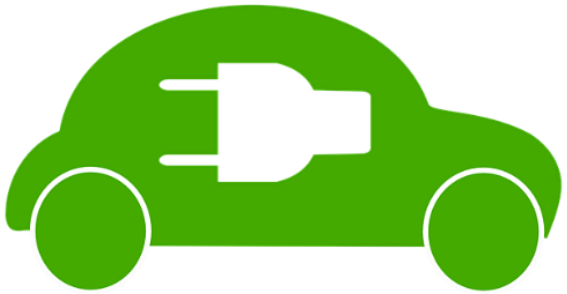
ADMIRABLE NEW WORLD



- Electric mobility
  - Will be a short-term reality
  - Increased demand for electricity
  - New business models

ENERGY TRANSITION

ADMIRABLE NEW WORLD



- Foxconn $15.000 ???
- Nissan Leaf $29.000 135km
- Ford Focus $30.000 122km
- Fiat 500e $31.800 135km
- VW e-Golf $33.500 135km
- Renault Zoe $19.000* 210km
- Tesla S $53.000 350km
- Tesla 3 $35.000 345km

REASON FOR BEING

ANEEL'S MISSION

To provide favorable conditions for the electricity market to develop with balance among agents and for the benefit of society

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