GLASGOW COP26

Energy Efficiency in Brazil

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MINISTÉRIO DE MINAS E ENERGIA

PÁTRIA AMADA BRASIL GOVERNO FEDERAL

Energy Efficiency Policy

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PATRIA AMADA BRASIL GOVERNO FEDERAL

Energy Efficiency – Main Initiatives in Brazil

1984 — Brazilian Labeling Program PBE

PROGRAMA BRASILEIRO DE ETIQUETAGEM

1985 — National Program of Electricity Conservation - PROCEL

- Buildings
- Industry
- Public / Street Lighting
- Sanitation
- Education
- Structuring Studies
- Information
- PROCEL Seal
- Municipal Energy Management
- Marketing

1991 — National Program for Conservation of Oil and Derivatives - CONPET

2000 — Law 9,991

ANEEL

PROGRAMA DE EFICIÊNCIA ENERGÉTICA

Energy Efficiency Program of Electricity Distribution Companies

Regulated by Electricity National Regulatory Agency – defines that 0.5% of the net operating revenue of the companies must be invested in energy efficiency measures

2001 — Law 10,295

Energy Efficiency Law

National Policy for Conservation and Rational Use of Energy – defines the establishment of minimum energy performance standards for machinery and equipment manufactured and/or sold in the country, and buildings constructed or retrofitted in Brazil

2011 — National Plan for Energy Efficiency

Guidelines for an Energy Efficiency Action Plan

PNEF

2016 — Law 13,280

Setting new source of funding and new governance for Procel

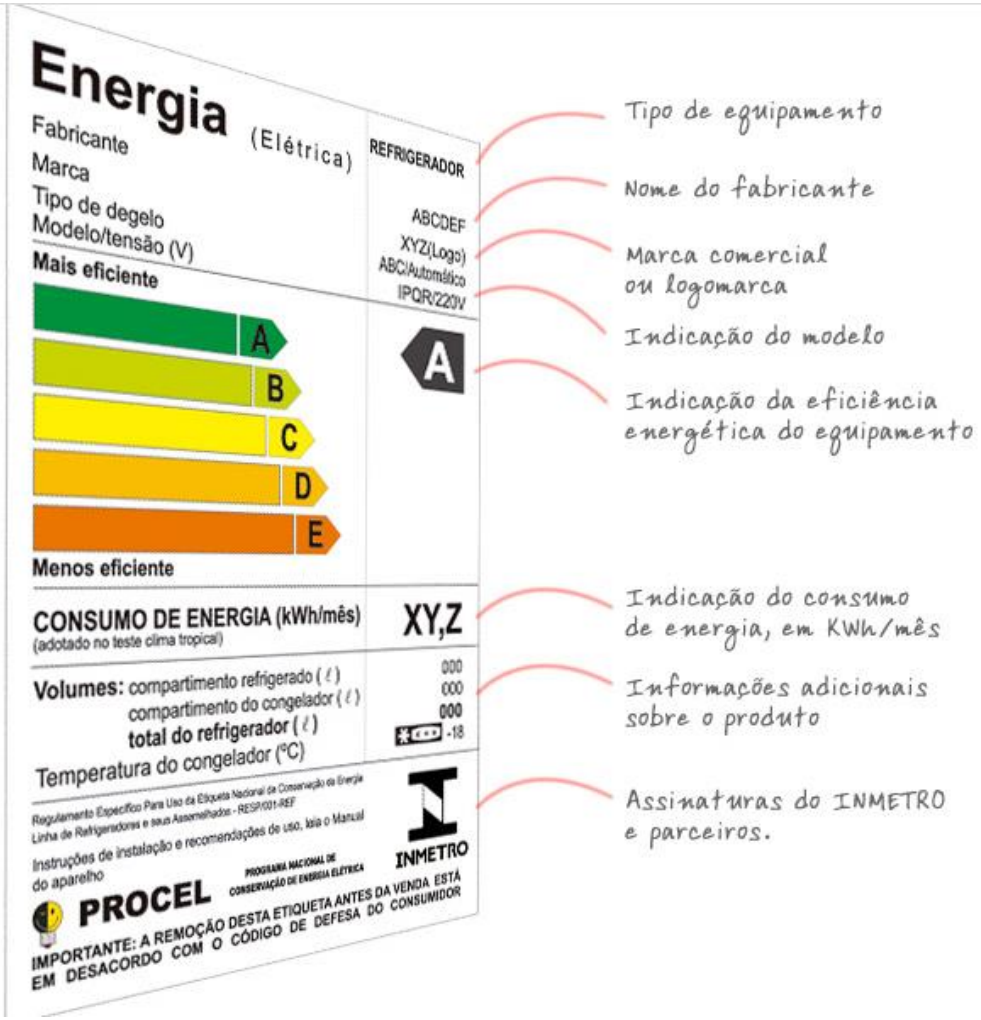
Definition of elaboration of a PROCEL´s Annual Resource Application Plan (PAR)

2022 — Ten-Year Energy Efficiency Plan

Planning Tool / Support to PDE

PDEF

Brazilian Labeling Program



1-GAS WATER HEATERS
2-CENTRIFUGAL PUMPS AND MOTOR PUMPS
3-AIR CONDITIONERS
4-VERTICAL FREEZERS, FROST-FREE VERTICAL FREEZERS AND HOR FREEZERS.
5-BUILDINGS
6-HOME GAS STOVES AND OVENS
7-COMMERCIAL ELECTRIC OVENS
8-MICROWAVE OVENS
9-DECORATIVE LAMPS - INCANDESCENT LINE - 127V AND 220V
10-LAMPS FOR HOUSEHOLD USE - INCANDESCENT LINE - 127V AND 220V
11-COMPACT FLUORESCENT LAMPS 12Vdc
12-COMPACT FLUORESCENT LAMPS WITH INTEGRATED BALLAST (127V)
13-COMPACT FLUORESCENT LAMPS WITH INTEGRATED BALLAST (220V)
14-HIGH PRESSURE SODIUM STEAM LAMP
15-SEMI-AUTOMATIC CLOTHING WASHERS
16-AUTOMATIC CLOTHING WASHERS TOP OPENING (TOP LOAD)
17-AUTOMATIC CLOTHING WASHERS FRONT LOAD
18-AUTOMATIC CLOTHING WASHERS AND DRYER WITH UPPER OPENING (WASH AND DRY)
19-AUTOMATIC CLOTHING WASHERS AND DRYER WITH FRONT OPENING (WASH AND DRY)
20-THREE-PHASE ELECTRIC MOTORS
21-PBE VEHICLE
22-REFRIGERATORS, REFRIGERATORS, COMBINED, COMBINED FROST-FREE
23- PHOTOVOLTAIC ENERGY SYSTEM
24-Systems and equipment for solar water heating (PBE Solar - collectors and reservoirs)
25-TELEVISORS - STANDY-BY
26-INSULATING LIQUID DISTRIBUTION TRANSFORMERS
27-TABLE, WALL, PEDESTAL AND CIRCULATOR FANS.
28-CEILING FANS 127 V
29-CEILING FANS 220 V

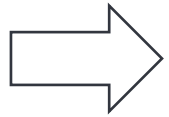
Energy Efficiency – Law 10,295/2001

CGIEE

- Steering Committee on Energy Efficiency Indicators and Levels
  - Minimum energy efficiency levels should be set according to specific regulations

Buildings Working Group

- Discuss procedures for the assessment of the energy efficiency of buildings constructed or retrofitted in Brazil



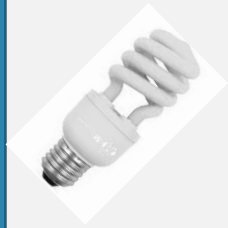
Members:

- Ministry of Science, Technology and Innovation
- Ministry of Economy
- National Electricity Regulatory Agency (ANEEL)
- National Regulatory Agency for Oil, Natural Gas and Biofuels (ANP)
- Representative of Brazilian Academy
- Representative of Brazilian Society (energy expert)

Technical support from: Inmetro; EPE; Research Center of Electricity (CEPEL); Procel; CONPET;

Energy Efficiency – CGIEE Regulated Equipment

Three Phase Induction Electric Motors
Decree nº 4,508/2002 (Specific Regulation)
PI nº 553/2005
PI nº 01/2017



Compact Fluorescent Lamps
PI n° 132/2006 (Reg. Específica)
PI nº 1008/2010 (Programa de Metas)

Refrigerators and Freezers
PI n° 362/2007
PI nº 326/2011
PI nº 01/2018

Gas Stoves and Ovens
PI n° 363/2007
PI nº 325/2011

Air Conditioners
PI n° 364/2007
PI nº 323/2011
PI nº 02/2018

Gas Water Heaters
PI n° 298/2008
PI nº 324/2011

Electromagnetic Reactors for Sodium and Metal Steam Lamps
PI nº 959/2010

Incandescent Light Bulbs
PI nº 1007/2010

Distribution Transformers
PI nº 104/2013
PI nº 03/2018

Ceiling Fans
PI nº 02/2017

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Mandatory Investments of Power Utilities
Law 9,991/2000

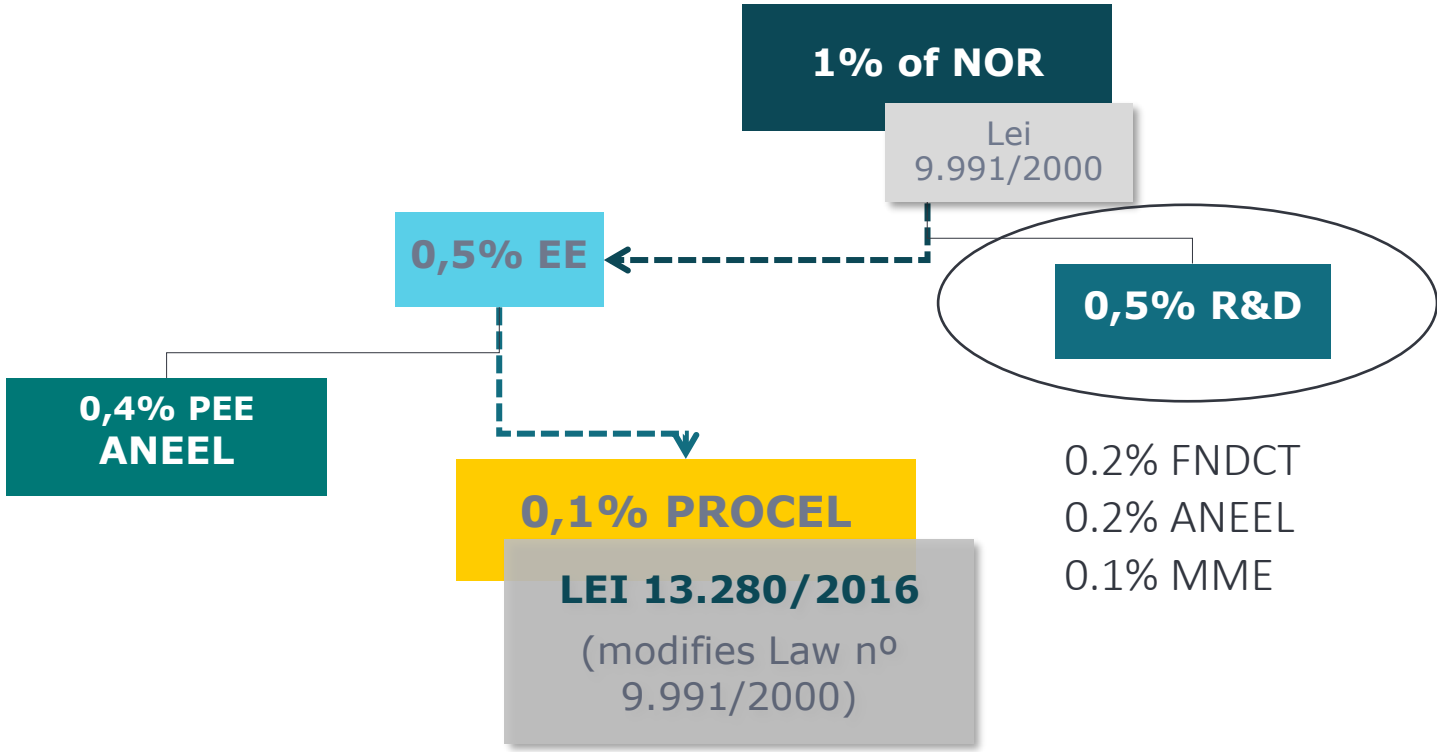
Supports programs and projects in the area of energy, especially in the area of end-use energy efficiency

- Universities
- Research Institutes

Supports EE projects focused on equipments, processes and energy end-uses (inovation, new Technologies, new habits and best practices)

- Eletric Sector (Power utilities)

Supports the Research Center of Eletric Energy- CEPEL and the studies to the expansion planning of the energy system, as well as the inventory and feasibility necessary to harness the hydroelectric potentials



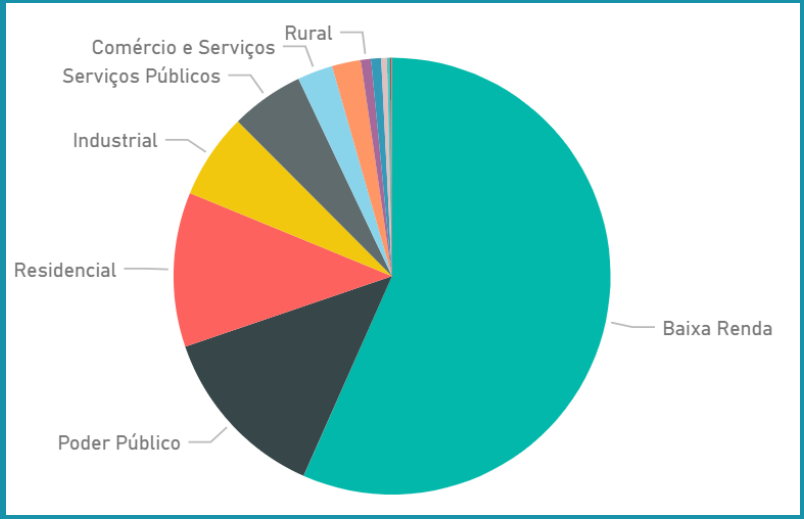
PEE ANEEL – Law 9,991/2000

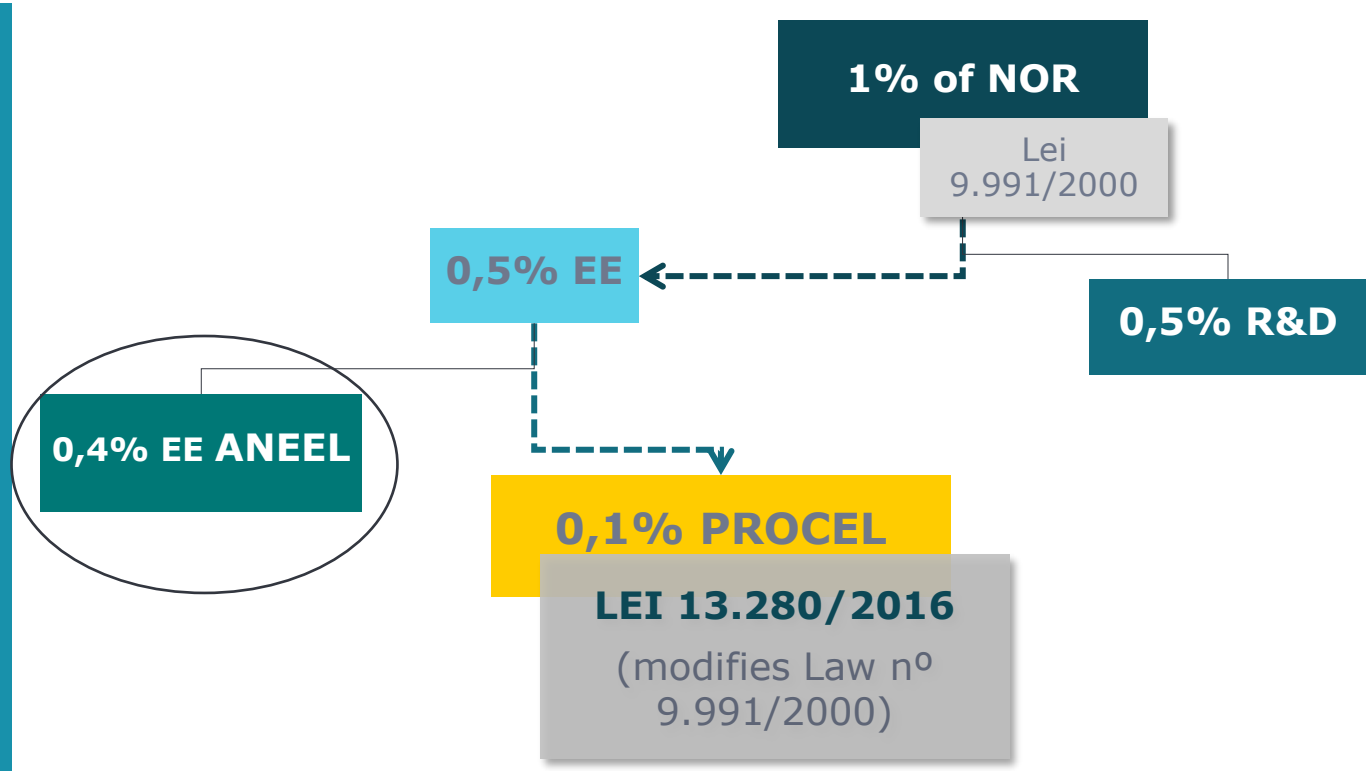
ANEEL – Agência Nacional de Energia Elétrica

PROGRAMA DE EFICIÊNCIA ENERGÉTICA

Supports EE projects focused on equipment, processes and energy end-uses

- innovation,
- new technologies
- new habits and best practices





P&D +PEE- 8,600 projects, investments around **U$ 2,18 billion**. **Savings of** approximately **9,000 GWh/year** and a demand withdrawal at the peak of 2.8 MW, where **for every U$14 invested** in energy efficiency, **1MWh is saved**.

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PROCEL
PROGRAMA NACIONAL DE CONSERVAÇÃO DE ENERGIA ELÉTRICA

Law 9,991/2000

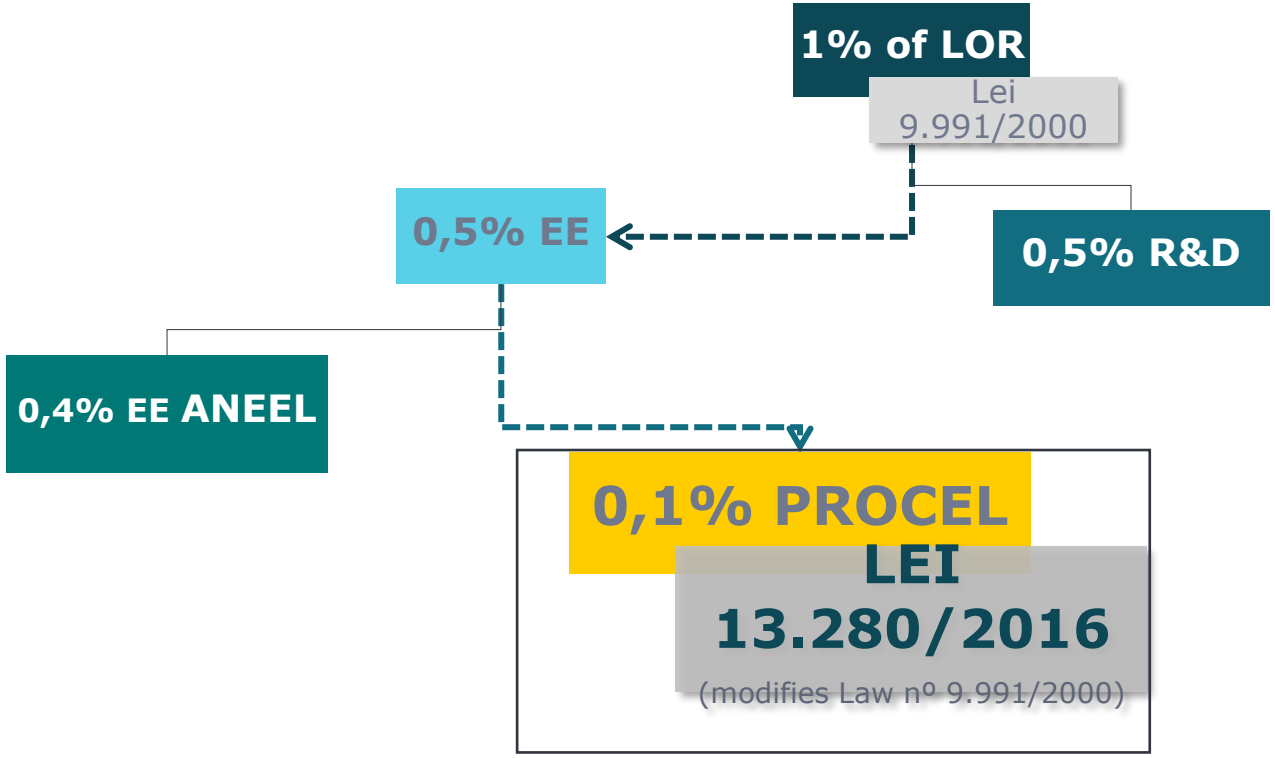
AREAS OF EXPERTISE

- Buildings
- Municipal Energy Management
- Public Lighting
- Sanitation
- Education
- Industries
- Structuring Studies
- Information Dissemination
- Procel Seal
- Marketing

Resources Allocation Plan

Directs the use of the financial resources to be destined to energy efficiency projects, under Procel's administration.

- The Plan is valid for 12 months, in consonance with the commitment of resources;
- Actions can be multiannual and are annually evaluated;
- For each project, performance indicators and targets are established.



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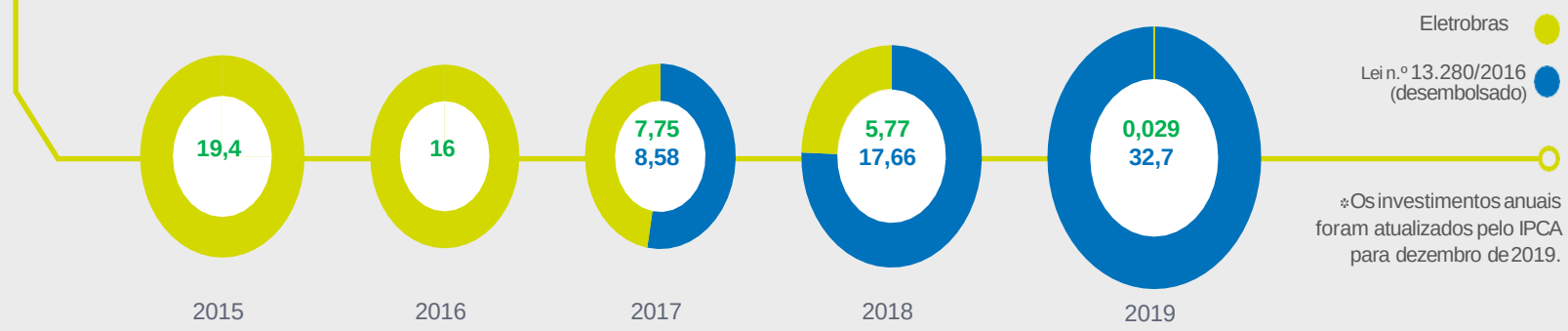
RESULTADOS PROCEL 2020
ANO BASE 2019

*Since 1985 Procel has invested **US$ 652 million**, what has resulted in cost reduction on electric system of about **170 billion kWh**. To each invested Real, society had 14 as a benefit!*

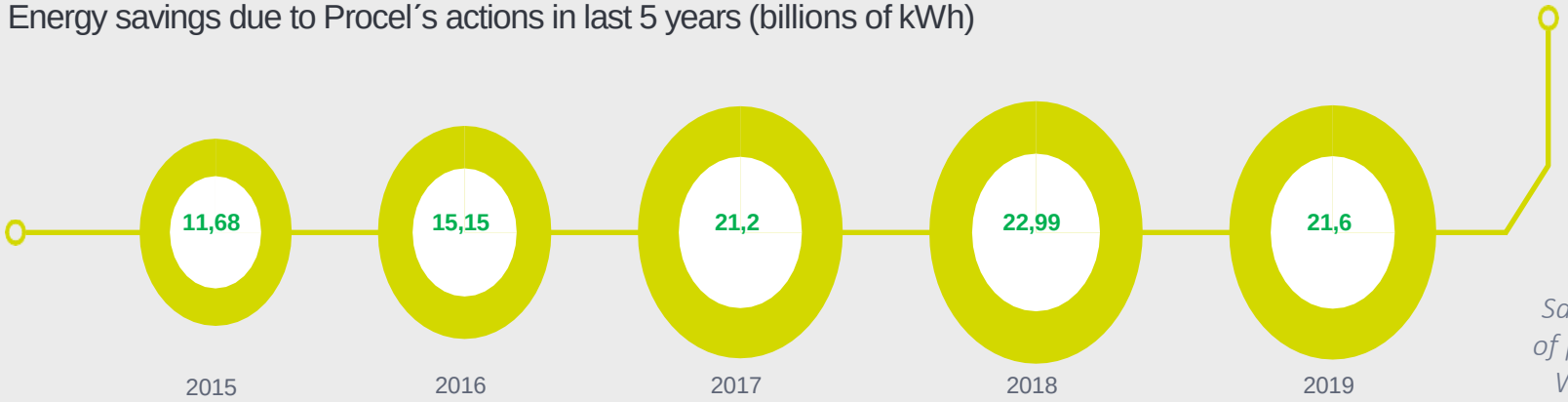
Annual investment on Procel in last 5 years (millions of dollars)*



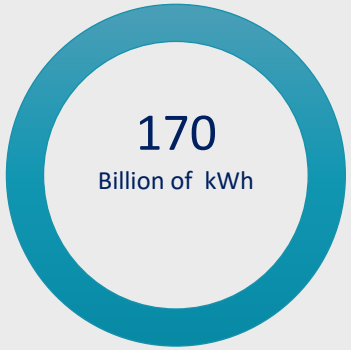
*Os investimentos anuais foram atualizados pelo IPCA para dezembro de 2019.

Investments in EE actions from 1986 a 2019

Energy savings due to Procel´s actions in last 5 years (billions of kWh)



Energy savings from 1986 to 2019



*Savings in 2019 was 6,0% lower than in 2018, due to the update of possession of light lamps in the country, according to **PPH 2019**. Without the update, the savings would have being 3,9% higher than in 2018.*

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Structuring

- EE Decennial Plan-PDEf
- Indicators and Regulatory Impact Analysis
- “Energia que Transforma”
- Portal PPH Web
- Laboratories
- Excellence Centers
- Standards
- Financial sector

Impact

- Alliance Program
- More productive Brazil
- Public call Reluz
- **Efficient Esplanade- public call and PV plants- U$ 12 million**
- Termosolar use in industry
- Compressed air systems

Inovation

- LAB Procel
- NZEB
- Demand management

Transversal

- Selo Procel Seal
- Adversiment campaigns
- Procel Award
- ISO 50.001
- Portal Procel Info

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Procel Seal

- *Continuous work to monitor production through testing of equipment collected on the market, to assess the conformity of products with the Procel Seal;*

- *Review of the methodology for the Procel Air Conditioner Seal in 2020, with the creation of the "Gold" Seal category and a project to review the general regulation in 2021;*

- *Processes also in the building sector, started in 2014 with commercial buildings and in 2020 the Procel Seal for residential buildings was launched*

New Procel Gold Seal

Review of Procel Seal index for air conditioner
Aligned with Top Runner Program
Digital Seal
Will assist in granting the Procel Award

Energy Efficiency – Present priorities and activities in progress

- Speed up revisions to minimum energy efficiency ratios of already regulated products
  - Example: Air Conditioners and Refrigerators
    - Review of testing methods
    - Regulatory impact analysis
    - AC - New indices for label launched in 2020
    - AC- New MEPS- public consultancy in 2021
    - RF- New indices for label in 2021
    - RF- Regulatory impact analysis for MEPS in 2021

- Studies to make some of the voluntary energy efficiency labeling programs compulsory
  - Example: buildings (ongoing) and vehicles (expectation)
- Ten-year Plan of Energy Efficiency (PDEf)
  - Provide energy efficiency potentials in several different economy sectors
  - Define the main actions to be conducted in each sector to enable the potential energy savings
  - Studies for the first version of PDEf already being concluded









Thank you!

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