



MINISTRY OF MINES AND ENERGY - BRAZIL

# Good Practices in Energy Sector Consumption Statistics

*G20 Workshop on Energy End Use Data and Metrics*

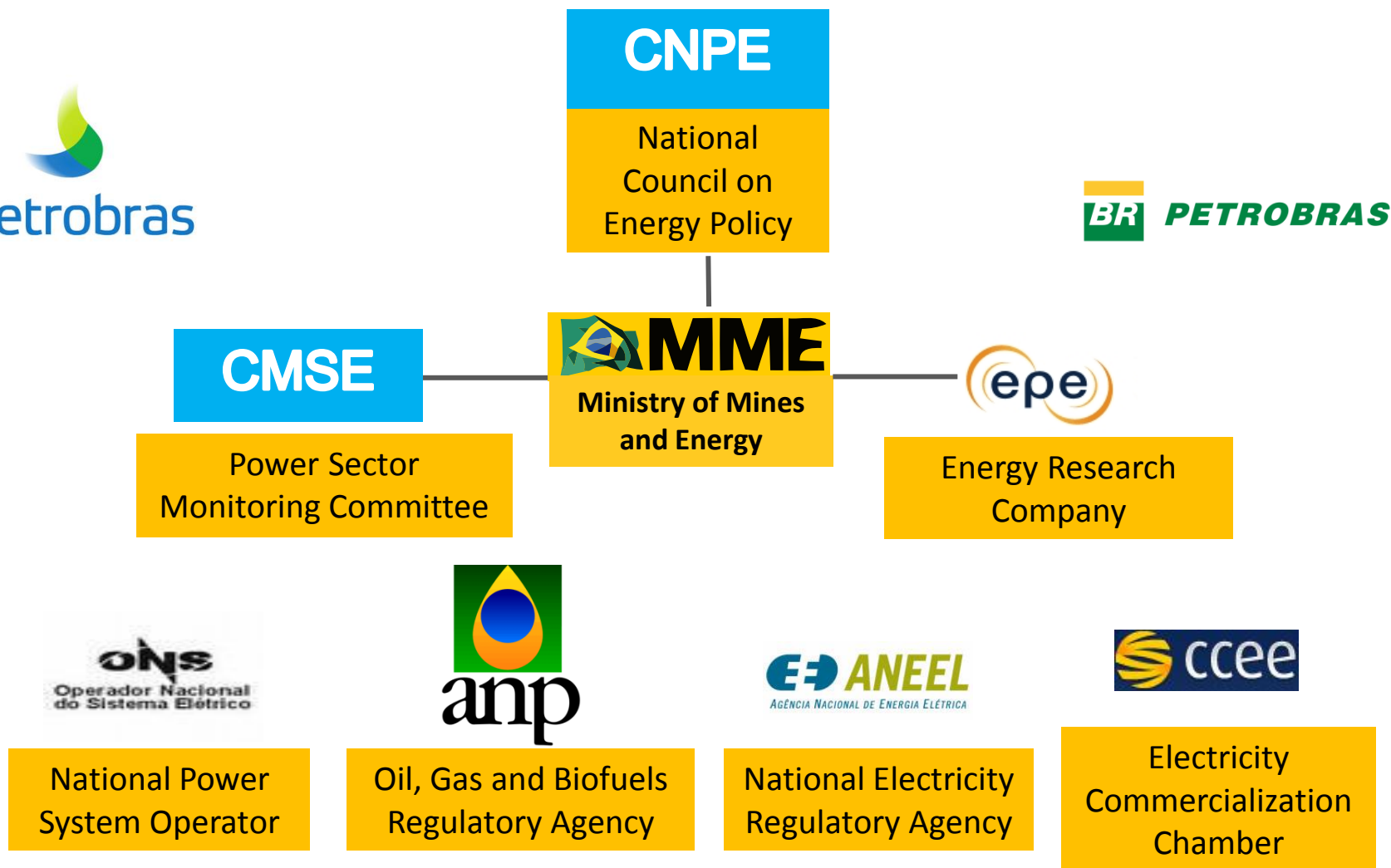
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Ministry of Mines and Energy

22nd February 2018

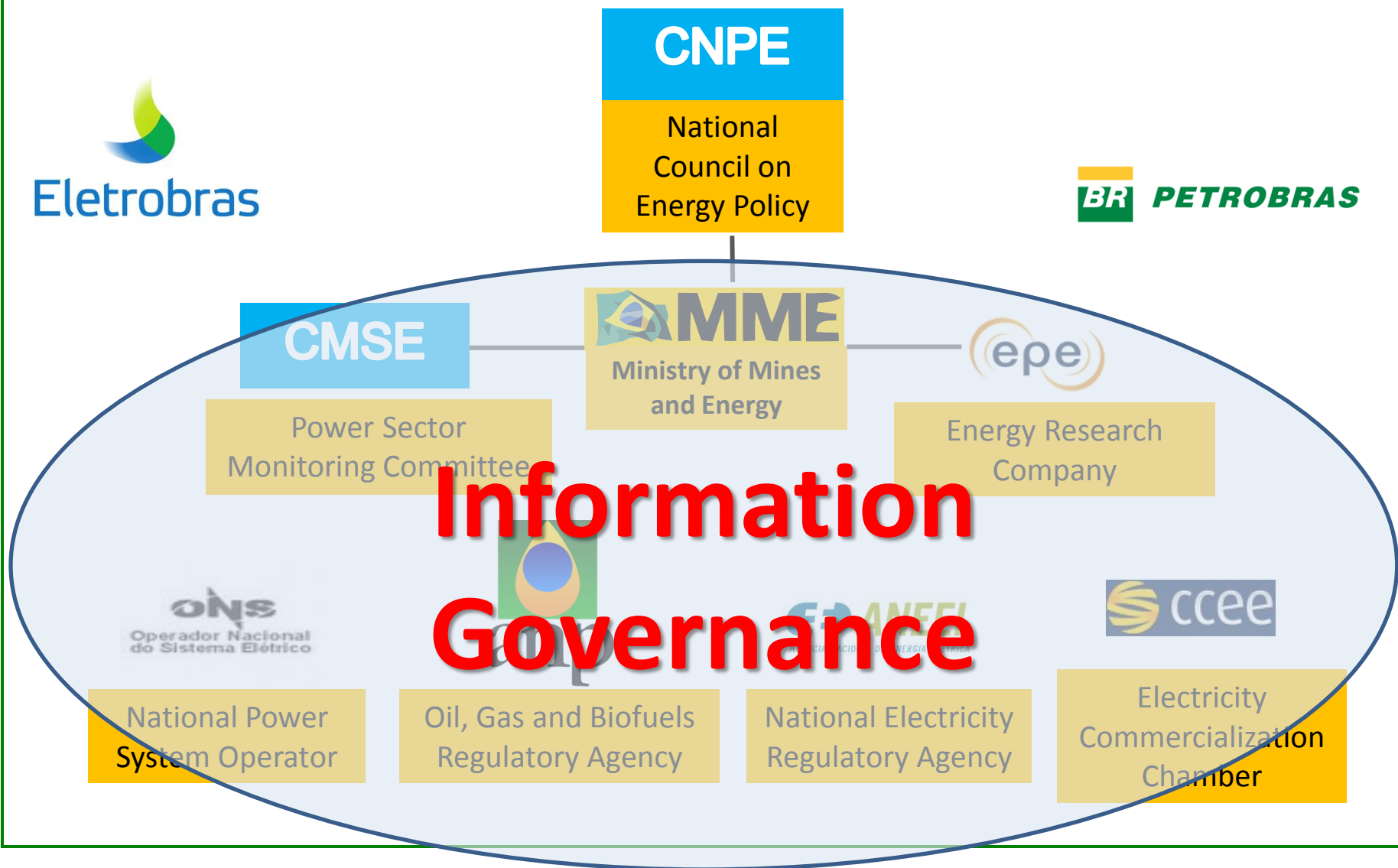


# Institutional Framework in Brazil



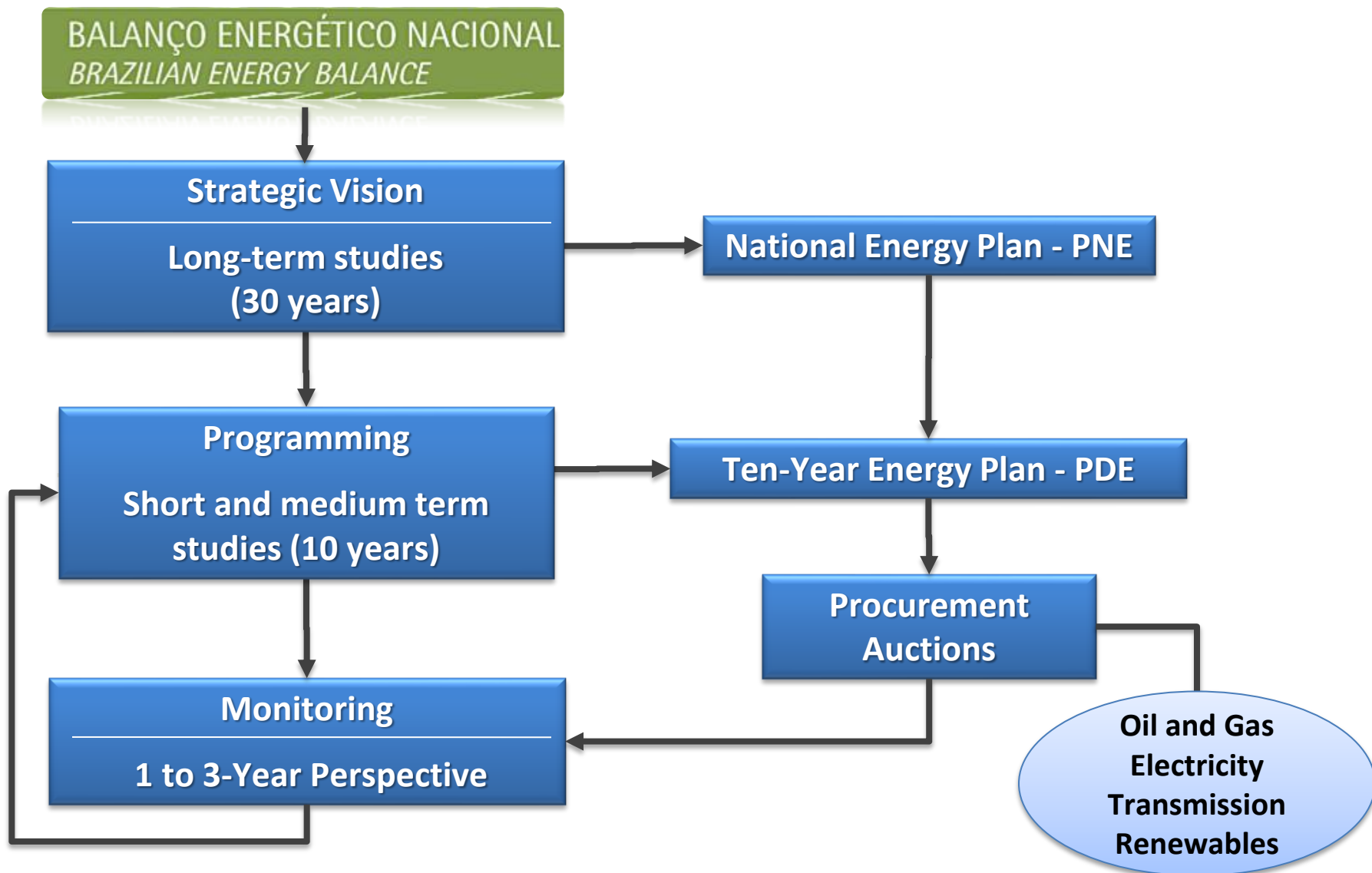


# Institutional Framework in Brazil





# Energy Planning in Brazil





# Brazilian Energy Balance (BEN) 2017

**Base Year 2016  
ktoe**

	OIL	NATURAL GAS	STEAM COAL	METALLURGICAL COAL	URANIUM U <sub>3</sub> O <sub>8</sub>	HYDRAULIC ENERGY	FIREWOOD	SUGAR-CANE PRODUCTS	OTHER PRIMARY SOURCES	TOTAL PRIMARY ENERGY
PRODUCTION	130.373	37.610	2.636	0	0	32.758	23.095	50.658	17.589	294.720
IMPORTS	8.009	10.320	4.992	7.917	4.173	0	0	0	0	35.411
STOCK VARIATIONS	-501	0	-150	-222	648	0	0	0	-2	-227
TOTAL SUPPLY	137.881	47.931	7.478	7.695	4.821	32.758	23.095	50.658	17.587	329.903
EXPORTS	-43.812	0	0	0	0	0	0	0	0	-43.812
NON-UTILIZED	0	-1.459	0	0	0	0	0	0	0	-1.459
REINJECTION	0	-10.903	0	0	0	0	0	0	0	-10.903
GROSS DOMESTIC SUPPLY	94.069	35.569	7.478	7.695	4.821	32.758	23.095	50.658	17.587	273.729
TOTAL TRANSFORMATION	-93.971	-16.463	-4.212	-7.691	-4.821	-32.758	-7.098	-20.868	-10.169	-198.050
OIL REFINERIES	-92.112	0	0	0	0	0	0	0	-4.437	-96.548
NATURAL GAS PLANTS	0	-3.992	0	0	0	0	0	0	640	-3.352
GASIFICATION PLANTS	0	0	0	0	0	0	0	0	0	0
COKE PLANTS	0	0	0	-7.691	0	0	0	0	0	-7.691
NUCLEAR CYCLE	0	0	0	0	-4.821	0	0	0	0	-4.821
PUBLIC SERVICE POWER PLANTS	0	-8.740	-3.937	0	0	-30.917	-43	0	-3.026	-46.663
SELF-PRODUCERS POWER PLANTS	0	-2.663	-275	0	0	-1.841	-334	-6.109	-4.134	-15.356
CHARCOAL POWER PLANTS	0	0	0	0	0	0	-6.721	0	0	-6.721
DISTILLERIES	0	0	0	0	0	0	0	-14.758	0	-14.758
OTHER TRANSFORMATIONS	-1.859	-1.068	0	0	0	0	0	0	788	-2.139
LOSSES IN DISTRIBUTION AND STORAGE	0	-387	-7	-4	0	0	0	0	0	-397
FINAL CONSUMPTION	0	18.868	3.258	0	0	0	15.997	29.791	7.418	75.331





# BEN – Final Consumption Sectors

PRODUCTION
IMPORTS
STOCK VARIATIONS
TOTAL SUPPLY
EXPORTS
NON-UTILIZED
REINJECTION
GROSS DOMESTIC SUPPLY
TOTAL TRANSFORMATION
OIL REFINERIES
NATURAL GAS PLANTS
GASIFICATION PLANTS
COKE PLANTS
NUCLEAR CYCLE
PUBLIC SERVICE POWER PLANTS
SELF-PRODUCERS POWER PLANTS
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DISTILLERIES
OTHER TRANSFORMATIONS
LOSSES IN DISTRIBUTION AND STORAGE
FINAL CONSUMPTION

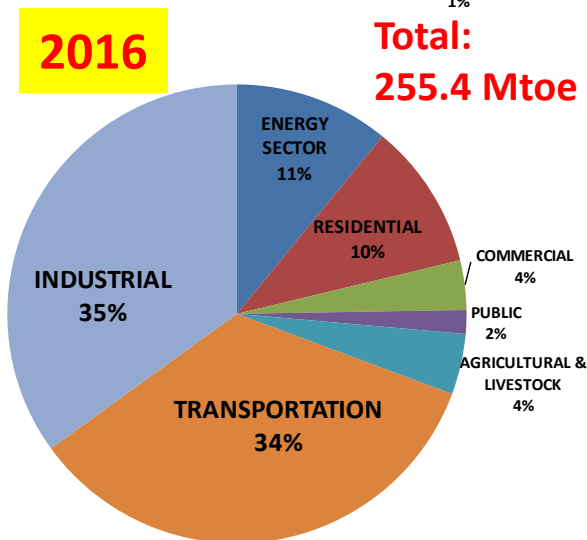
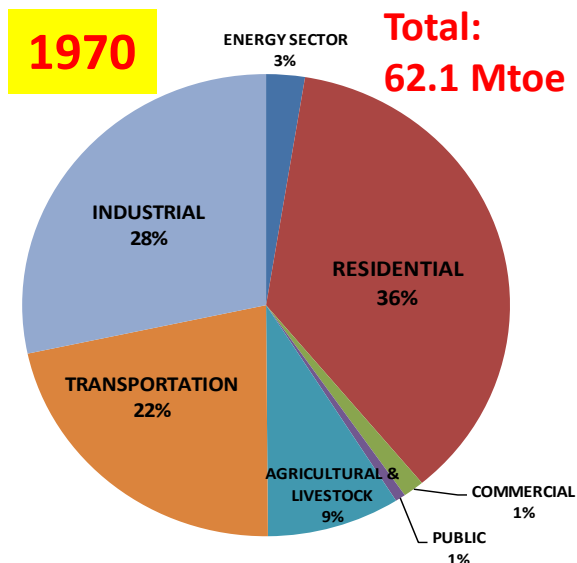
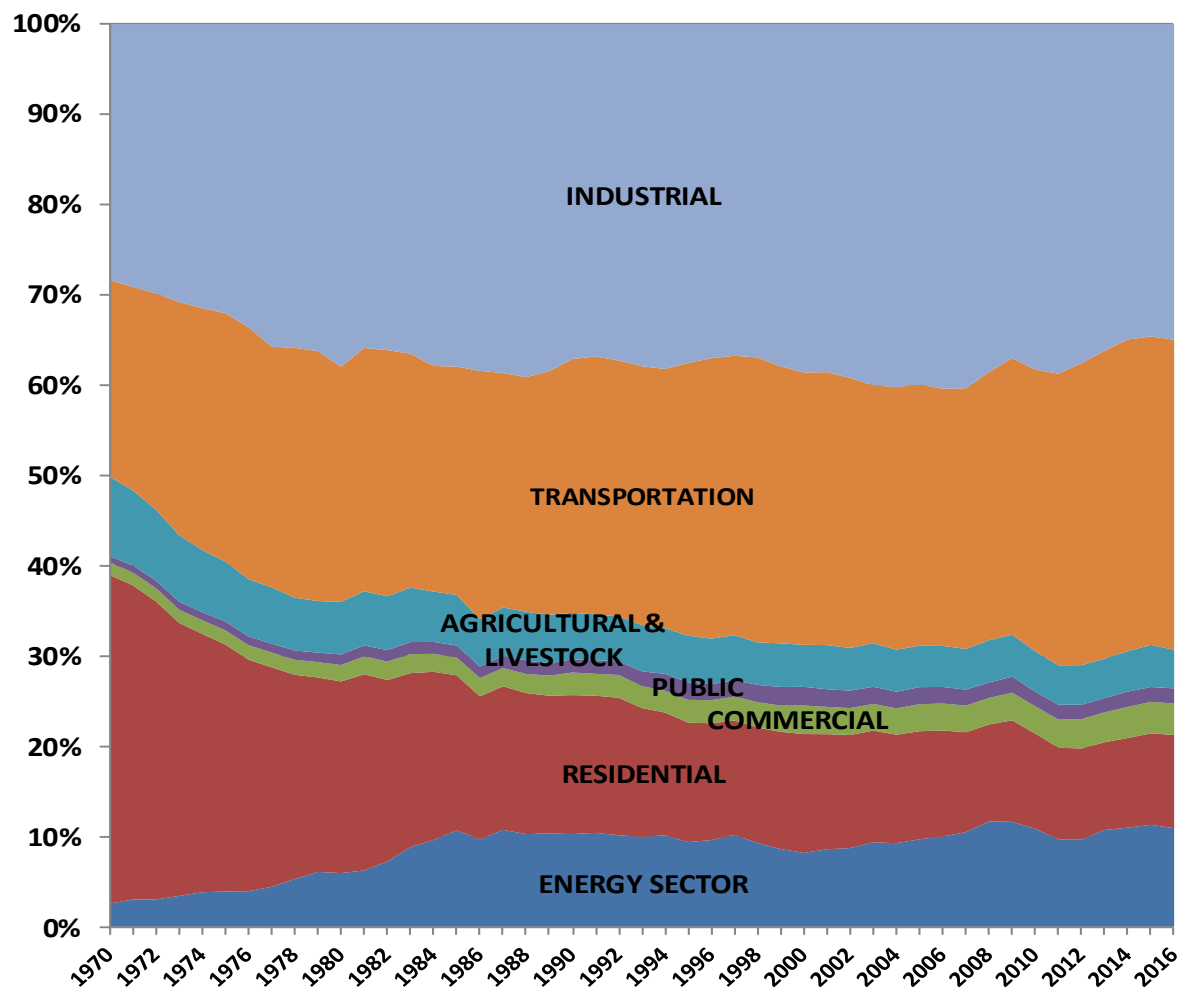
**Non-Energy Final Consumption**

**Energy Final Consumption**

- ✓ Energy Sector
- ✓ Residential
- ✓ Commercial
- ✓ Public
- ✓ Agricultural and Livestock
- ✓ Transportation (4 subsectors)
- ✓ Industrial (11 subsectors)
- ✓ Unidentified Consumption
- ✓ Statistical Adjustments



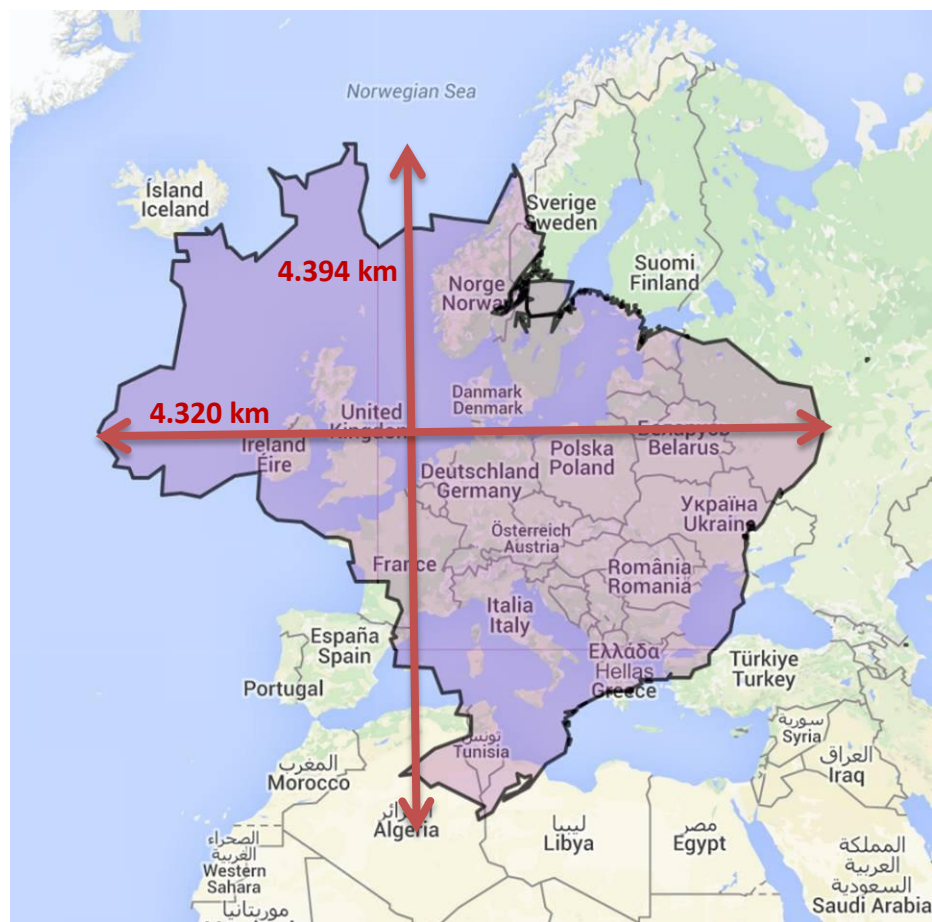
# Final Consumption by Sector – 1970-2016







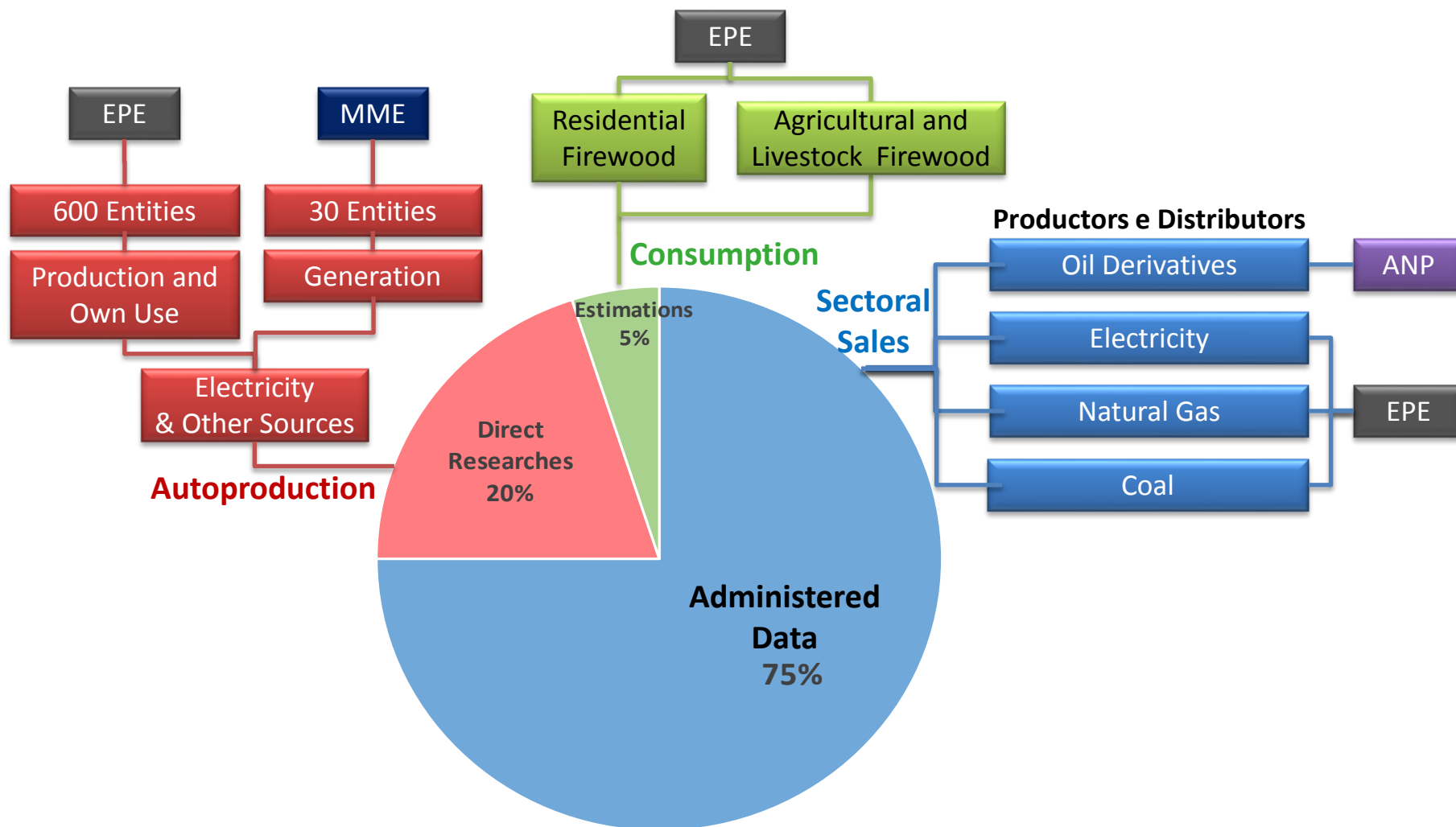
# Continental Scale of Brazil







# Data Sources for Energy Sector Consumption Statistics





## Administered Data – Oil Derivative Sectoral Sales (by ANP)

Non-Metallic Producers  
Industry

(4 subsectors)

Industry

(8 subsectors)

Transportation

(5 subsectors)

Resale Stations

Agriculture (for Livestock)

Domestic

Commercial

Public and Private Entities

Electric Power

Armed Forces

Carrier, Reseller & Retailer

Other Consumptions

Own Use

(4 subsectors)

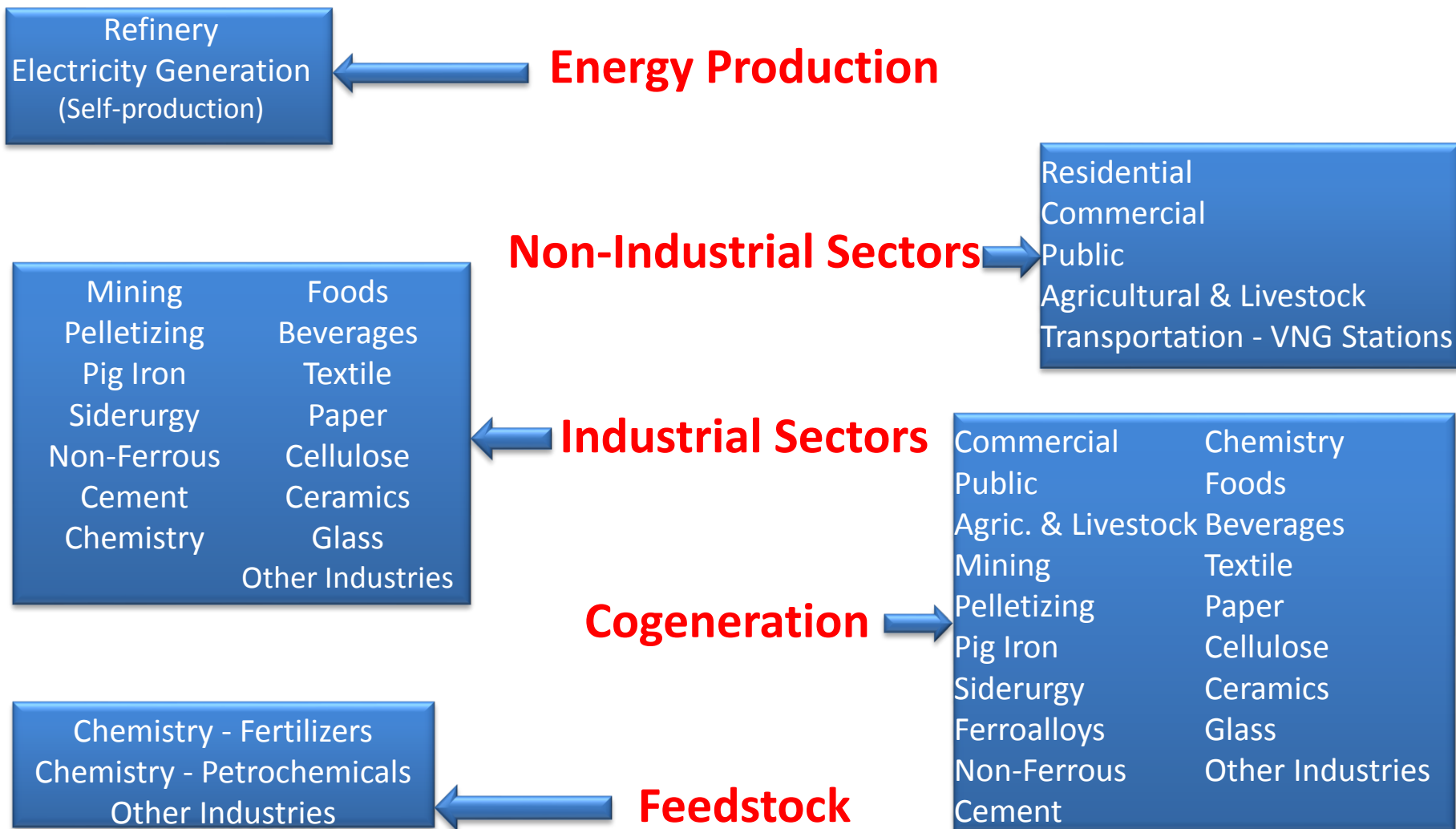


# Administered Data – **Electricity** Sectoral Sales (by EPE)

- ✓ **Residential**
  - ✓ **Industrial (37 Activities)**
    - ✓ **Comercial (47 Activities and Services)**
      - ✓ **Rural**
        - ✓ **Public Power**
          - ✓ **Public Illumination**
            - ✓ **Public Service**
              - ✓ **Other Consumptions**
              - ✓ **Permissionaires Supply**



# Administered Data – Gas Sectoral Sales (EPE)





# **Administered Data – Coal**

## **Sectoral Sales by Producers (EPE)**

Coking Plant

Thermoelectric

Agricultural and Livestock

Transportation

Cement

Pig Iron & Steel

Ferroalloys

Mining and Pelletizing

Non-Ferrous

Chemistry

Food & Beverages

Textile

Paper & Cellulose

Ceramics

Other Industries



# Creating a Support Tool – the **CADE**

CADE allows reaching the yearly National Energy Balance matrix from the administrative records of regulators, producers, consumers, among others entities.

=>> records data obtained from **direct surveys** conducted by the EPE and the MME;

=>> in addition, **firewood estimates** in sectors with high consumer spraying.





# Creating a Support Tool – the CADE

The established process with **CADE**:

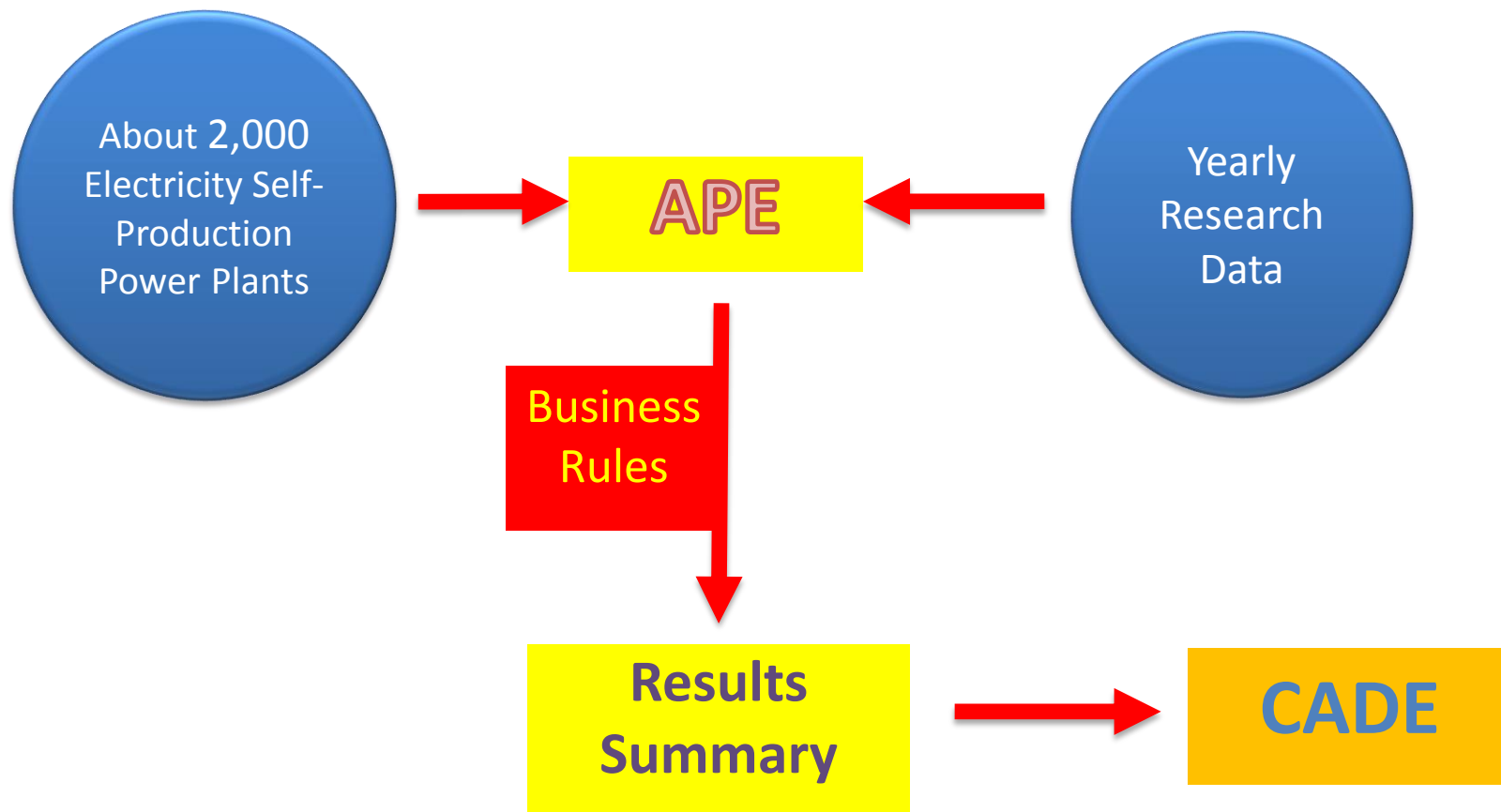
=>> **Each agent inserts the respective data**, which are countersigned in joint meetings;

=>> MME do provide complimentary and fine tuning actions, including **direct survey** data;

=>> **Business rules** allow convergence and provide quality and reliability to the final results.

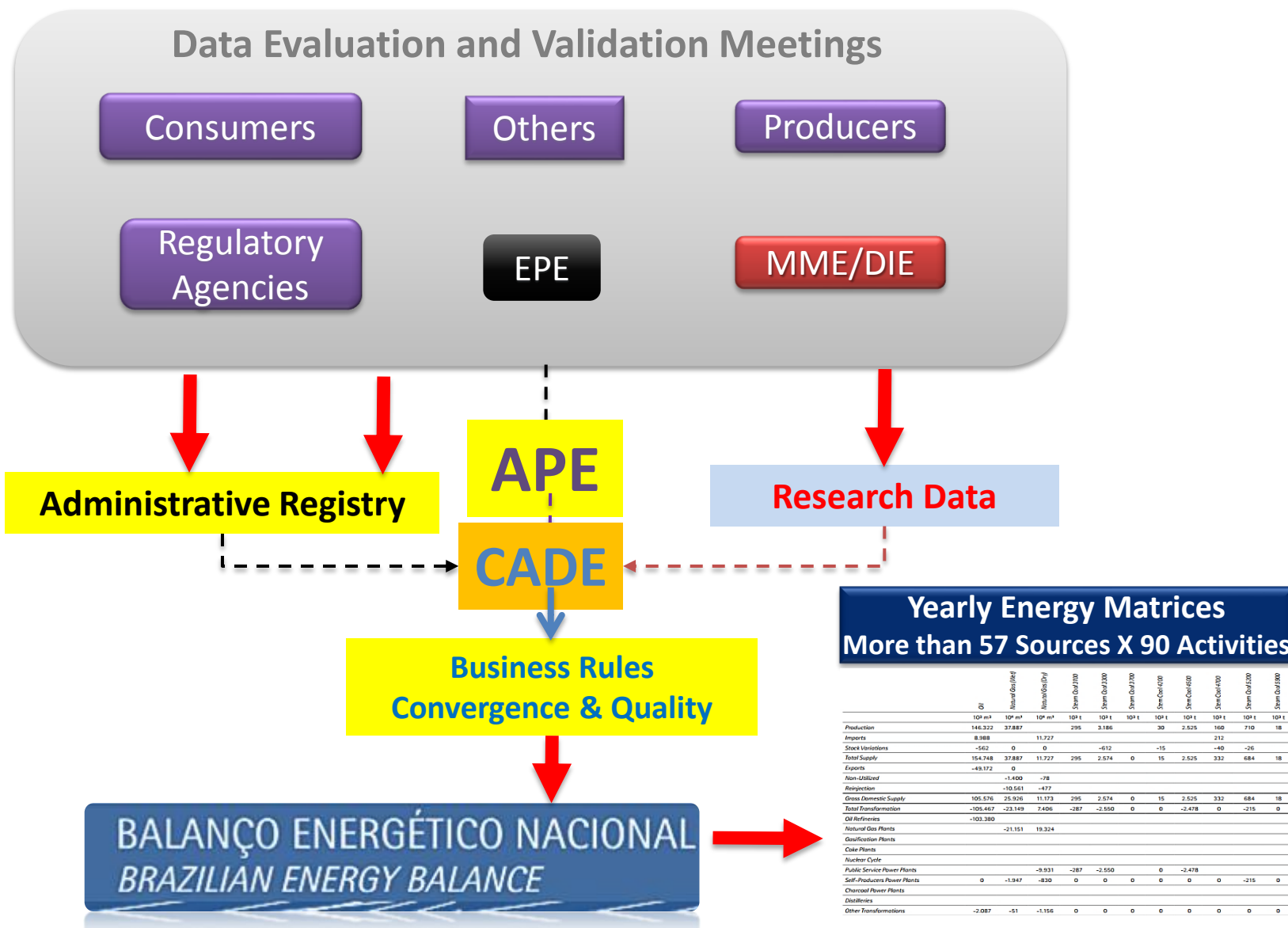


# The support tool to Electricity Self-Production (APE Tool)





# Integrated Support Tools – APE and CADE





## MINISTRY OF MINES AND ENERGY

# THANK YOU!

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