

BRAZIL'S NON-DOMESTIC ENERGY AND BUILDINGS STANDARDS

ROBERTO LAMBERTS LABEEE-UFSC

September, 2019

ELECTRIC ENERGY CONSUMPTION BY SETOR - BRAZIL

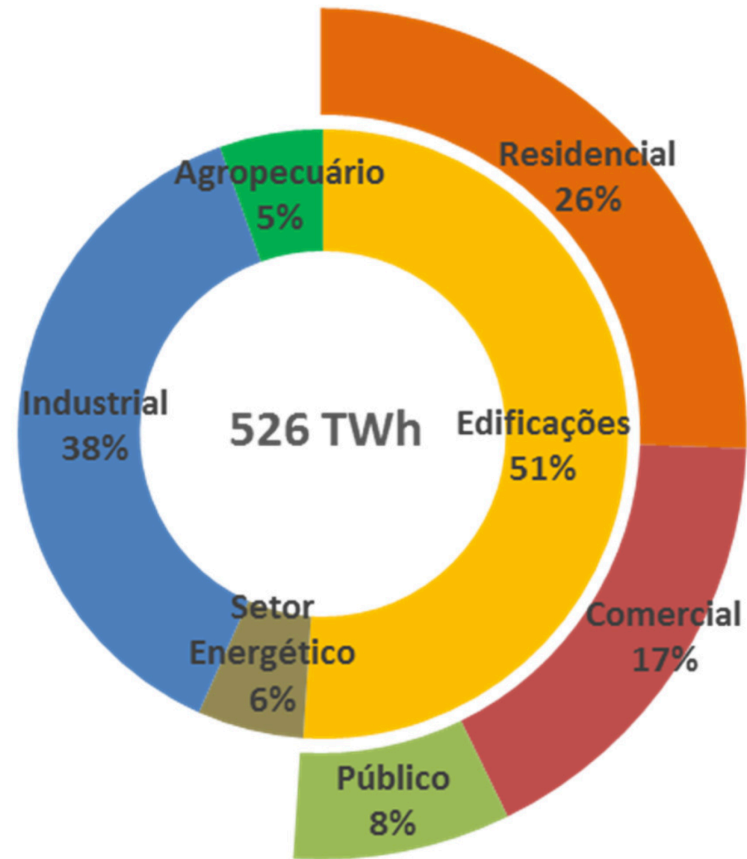


Figura 1: Decomposição do consumo final de eletricidade em 2017 – Fonte: EPE (2018a)

ENERGY PERFORMANCE CERTIFICATES- EPC

Non-domestic

Residential

VOLUNTARY...



2009



2010

IN02 2014 MPOG – SLTI- Compulsory for Federal Public Buildings

BUILDING STANDARDS, LABELS AND CERTIFICATIONS

- Construction industry is 10% of GDP – 50% formal
- No minimum thermal performance standard for envelope of non-domestic buildings
- Building codes – municipalities do not control
- High level of informality in the building industry
- EPC is voluntary – only compulsory for Federal Public buildings
- Some green buildings – 152 NC LEED
- Some EPCs (124 design and 90 built)

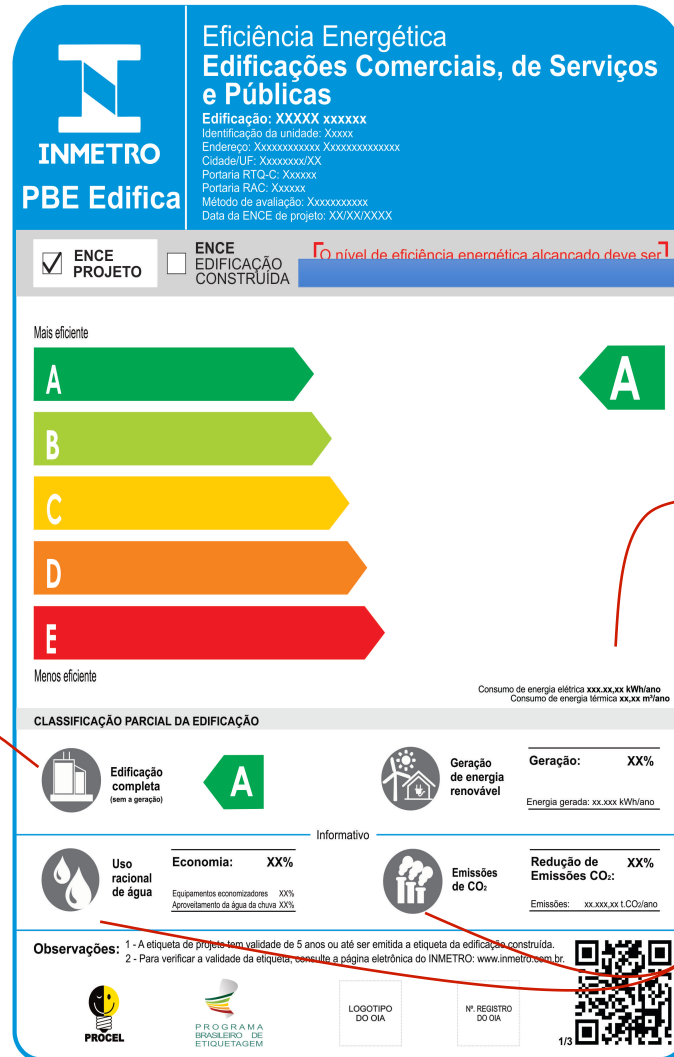
NEW EPC ASSET RATING LABEL

Non-domestic Buildings

Level of efficiency based on primary energy (kWh/year)

Efficiency gain based on D that is the reference for each typology. D will stay constant

Envelope efficiency



- Design phase
- Building delivery phase

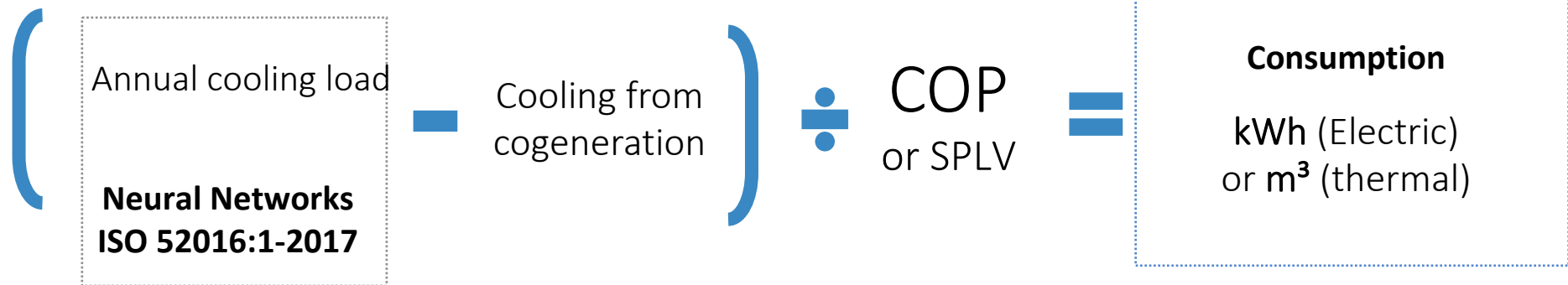
Energy generation on site

Rational use of water and CO2 emissions are informed

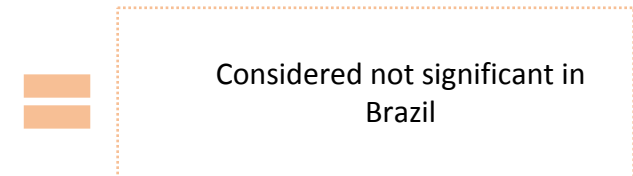
ENERGY CONSUMPTION BY SOURCE

Non-domestic buildings

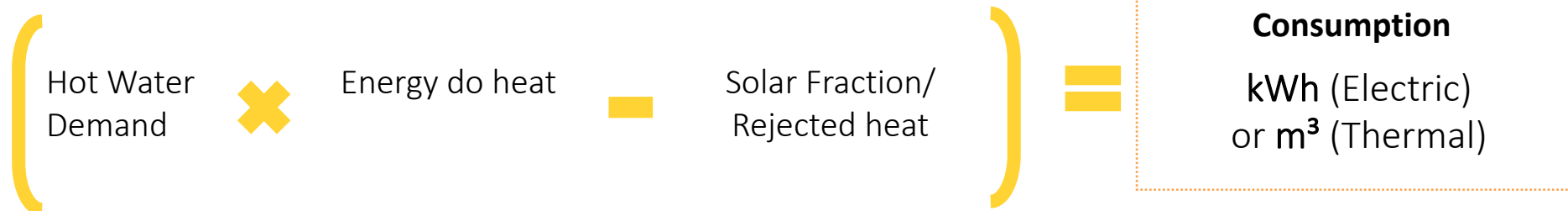
HVAC - Cooling



HVAC- Heating

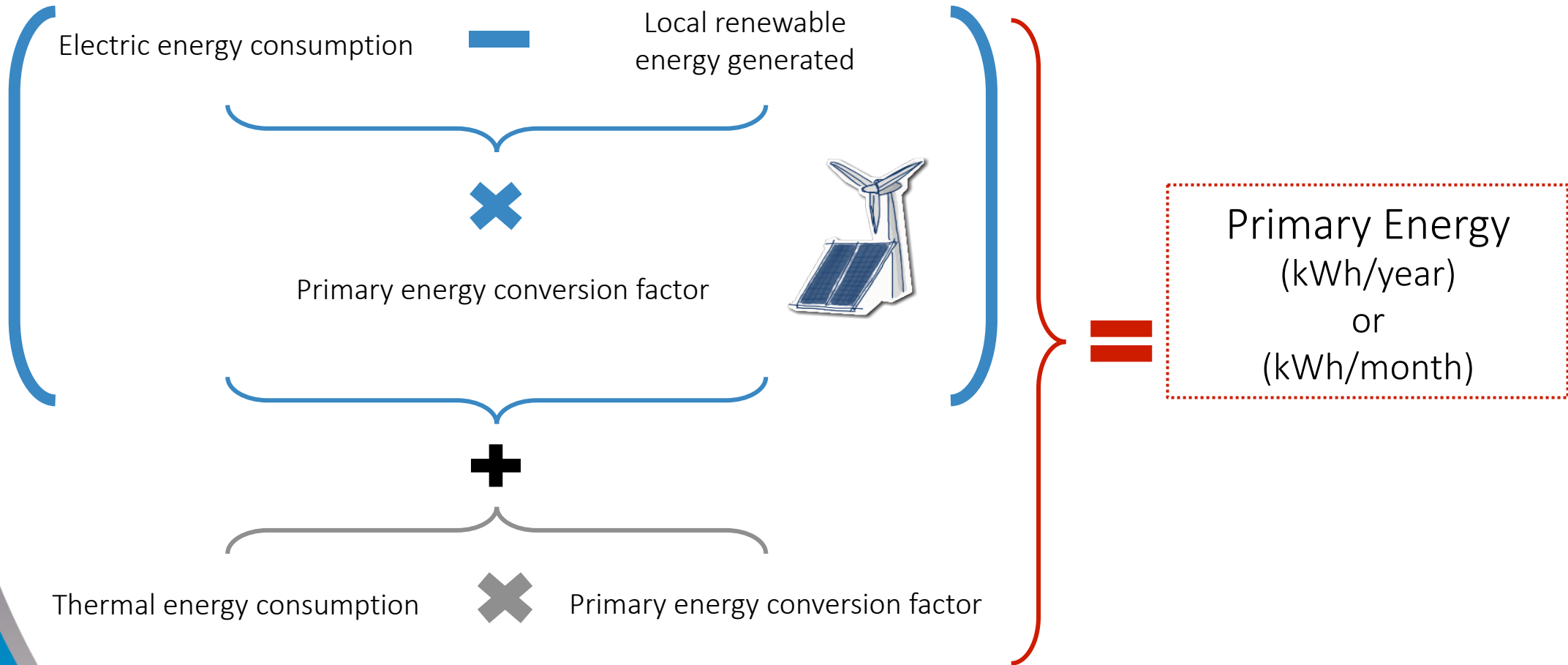


Hot water heating

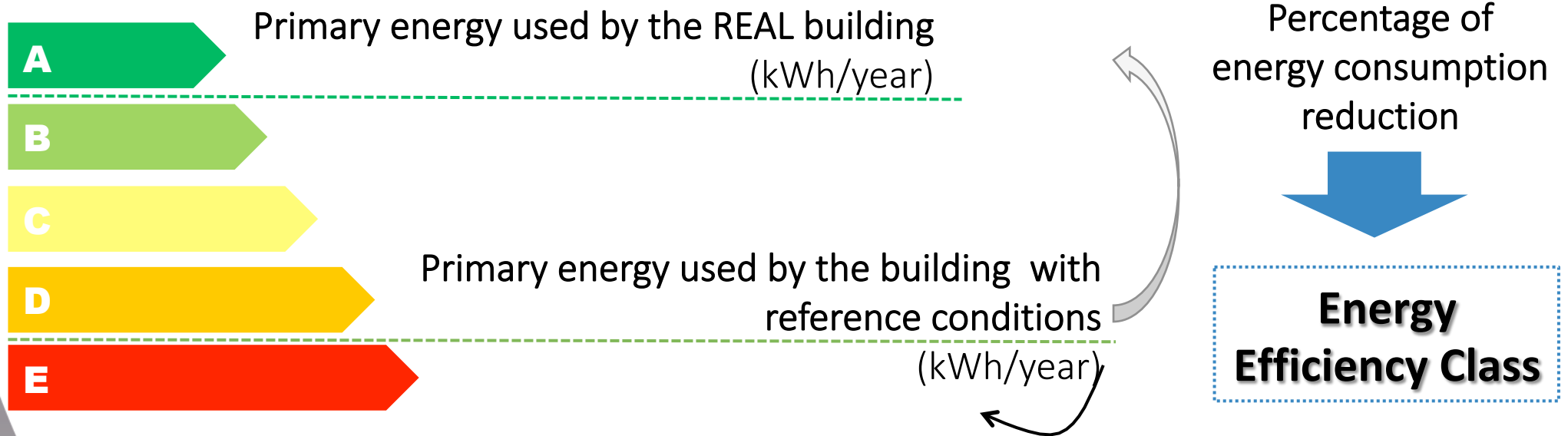


HOW TO EVALUATE THE TOTAL PRIMARY ENERGY CONSUMPTION?

Non-domestic Buildings



ENERGY EFFICIENCY CLASS



THE NEW EPC:

- Public consultation finished
- INMETRO should evaluate the contributions received
- The new method will be consolidated and published
- INMETRO is defining the new operation mode

Ministry of Mines and Energy working group on buildings is discussing the strategy to transform the building labelling compulsory (asset rating)

COP SPLV CSPF:

- Transition from COP to CSPF (ISO 16358 - Cooling seasonal performance factor)
- IPLV (Integrated part load value) – no laboratory in Brazil to test and no MEPS
- SPLV (System part load value) – to be used in building energy labeling
- ASHRAE 205P Standard Representation of Performance Simulation Data for HVAC&R and Other Facility Equipment

CONCLUDING

- Building codes are basic and not really followed
- We have voluntary EPC
- We need building standards for energy efficiency (ISO 52016)
- We need MEPS for non Split/WAC systems
- We need compulsory EPC
- We need operational labelling

THANK YOU

Roberto Lamberts

Roberto.lamberts@ufsc.br

www.labeee.ufsc.br

