

Paris Session 2022



Distributed Energy Resource Management System – Challenges and Opportunities

C6 – PS2 – Question 2.1
Leonardo Leite - Brazil



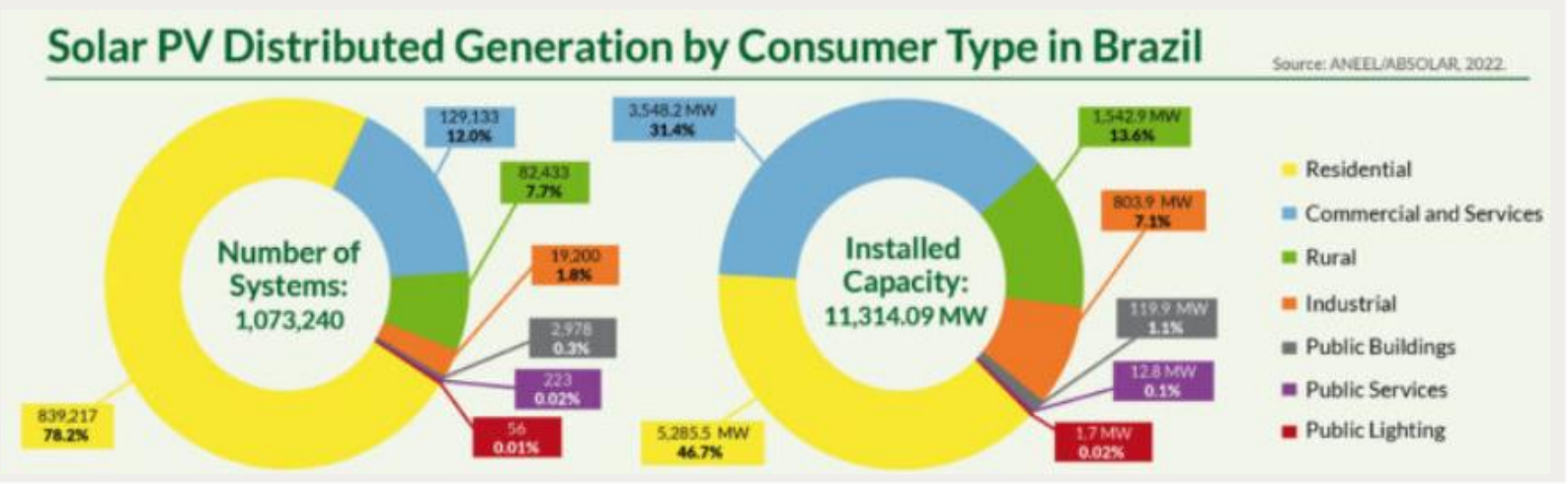
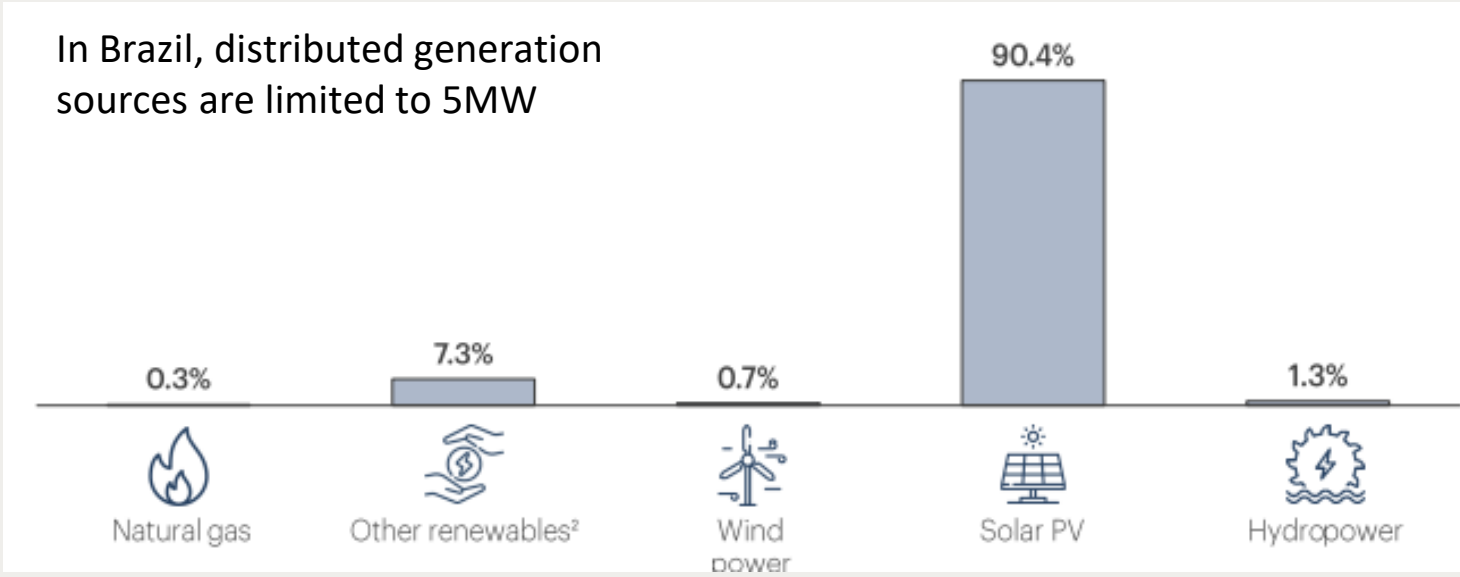
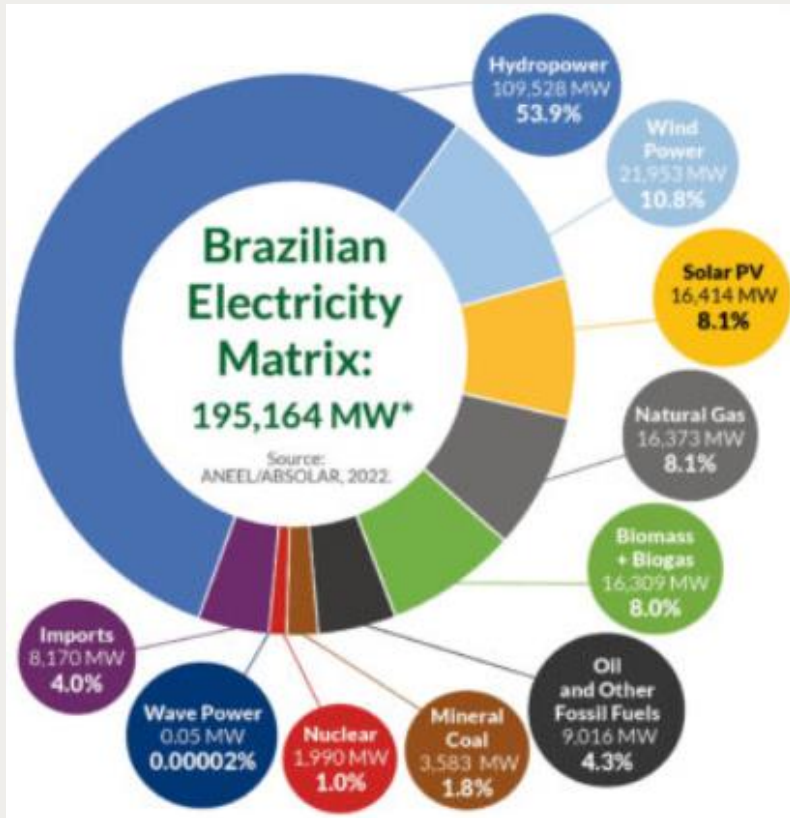
Group Discussion Meeting

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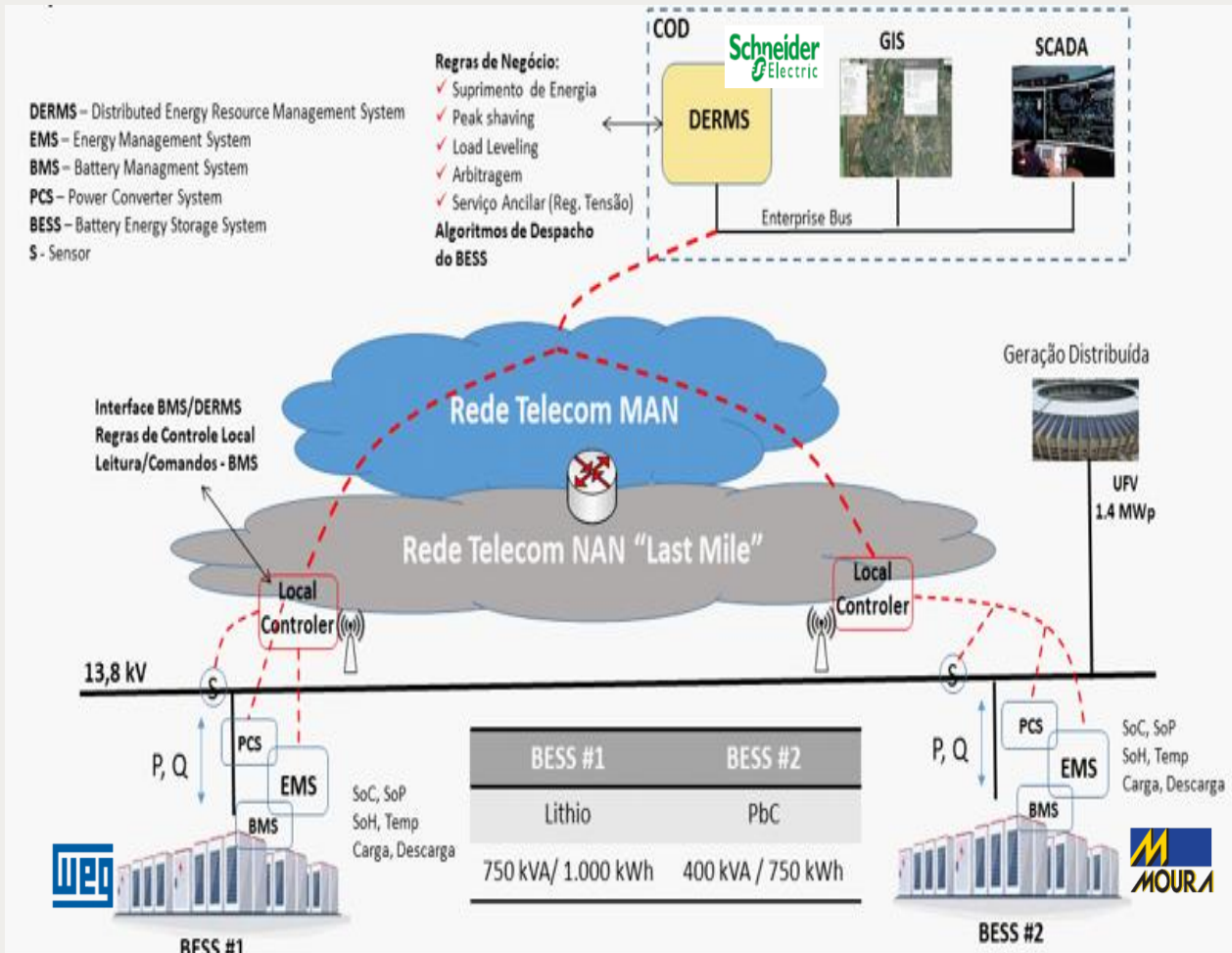
Distributed Energy Resource in Brazil

Solar PV represented 90,4% of Distributed Generation (GD) in 2021



Group Discussion Meeting

DERMS Integration (PV + 2 BESS connected to 13,8kV)

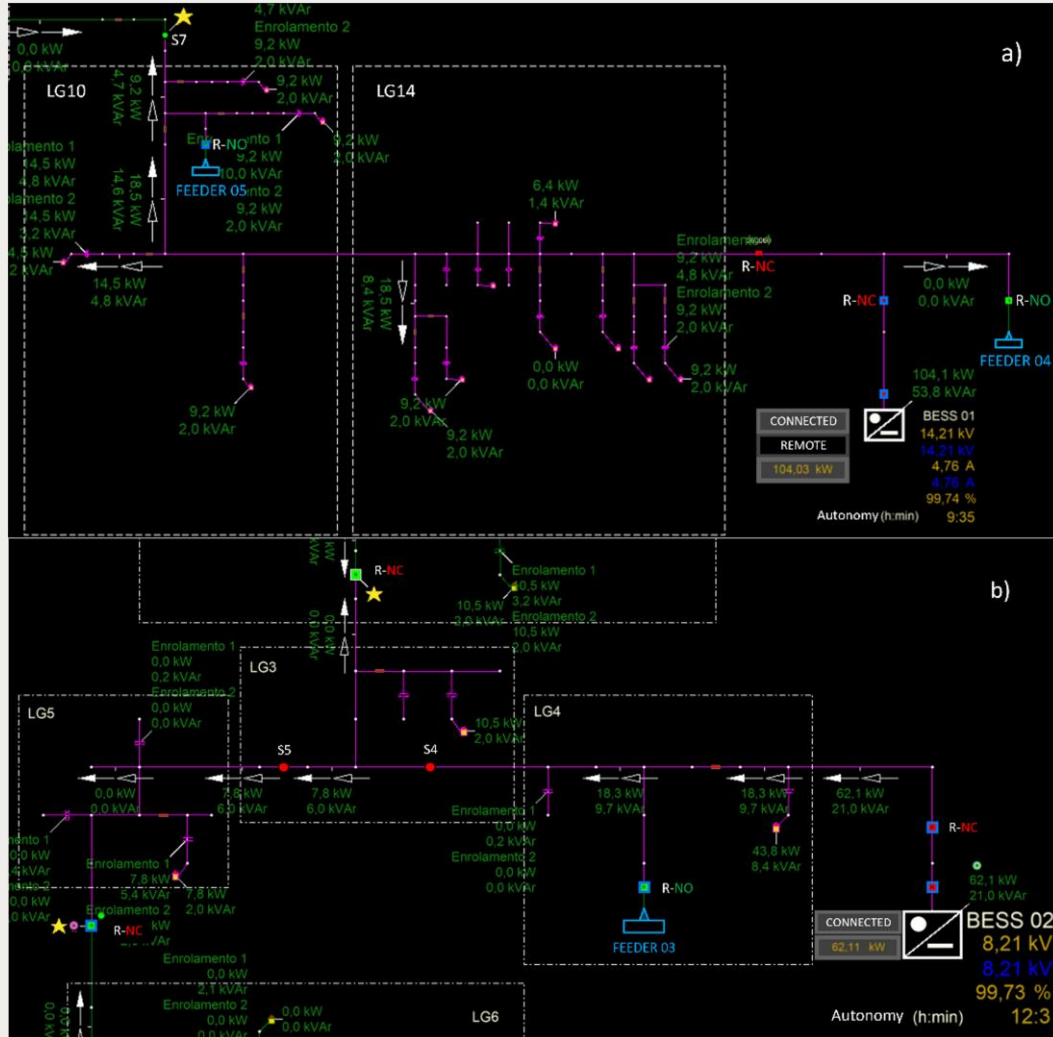


Characteristics	Mineirão PPP	BESS 01 - Li	BESS 02 - PbC
Power	1.400 kVA	750 kVA	400 kVA
Energy	-	1.000 kWh	750 kWh
Technology	Crystalline Silicon Photovoltaic Panel	Lithium (NMC or LFP)	Lead-Carbon (PbC)
Voltage Connection	276 V, 13,8 kV	13,8 kV	13,8 kV
Nominal frequency	60 Hz	60 Hz	60 Hz
Communication Protocol	DNP3	DNP3	DNP3

DERMS – Use Cases

USE CASE 1- MONITORING AND CONTROL	USE CASE 2- OPERATIONAL OPTIMIZATION	USE CASE 3- CONSTRAINT MANAGEMENT	USE CASE 4- OUTAGE MITIGATION	USE CASE 5- LOAD MASKING	USE CASE 6- VOLTAGE ISSUE MITIGATION
MC-1 Model DER Devices	OO-1 Reactive Power Support	CM-1 Change in load	OM-1 Feeder Section Outage	LM-1 Feeder Level Load Masking Visualization	VIM-1 Real Power Control
MC-2 Normal Operation	OO-2 Peak Load Management	CM-2 Change in generation	OM-2 Feeder Outage	LM-2 Circuit Segment Level Load Masking Visualization	VIM-2 Reactive Power Control
MC-3 Events Management					

DER integration poses several non-technical challenges...



Regulatory challenges

- ✓ unclear interconnection procedures and processes
- ✓ compensation to the utilities for interconnecting DERs
- ✓ In many places interconnection costs are not clearly defined and also it is not clear who will pay for interconnection.

Business Model

- ✓ Compensating right value of DERs is a key issue in the DER integration.
- ✓ Net metering which provides full value compensation often viewed as overcompensation for intermittent sources
- ✓ Value of ancillary services to integrate and operate with DERs.
- ✓ Proper compensation for different DERs do not provide market signal for the adoption of DERs.