

Climate Change - Coal Overview

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Resources: 31,7 billion ton (90% RS)

Production - ROM ⁽²⁰⁰⁷⁾ 12,1 million ton; 60 % SC

Saleable Coal – 6,0 million ton - 51 % RS

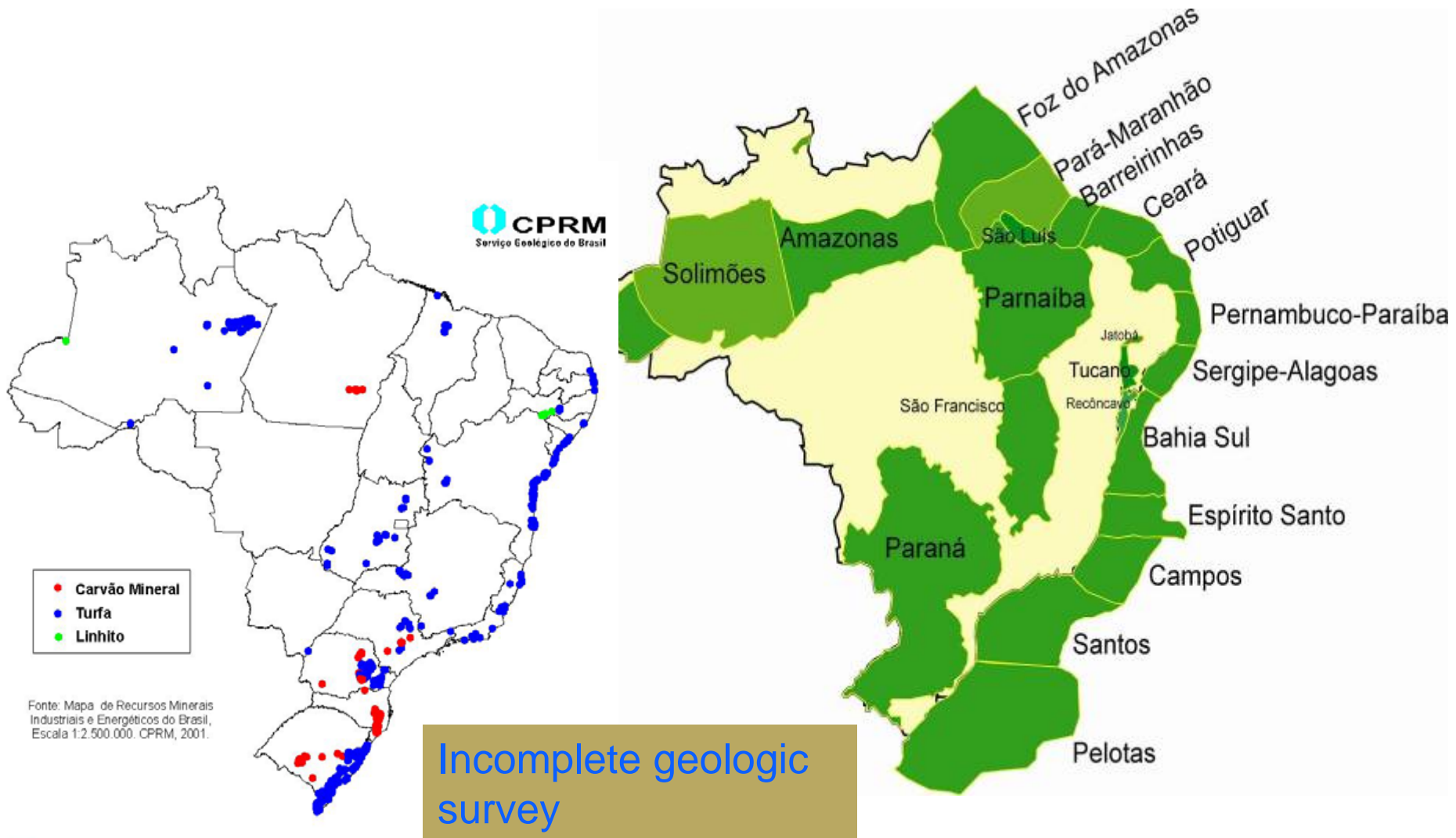
Companies: 15 - PR (1) – SC (11) – RS (3)

Number of Employees ⁽²⁰⁰⁷⁾: 5.010

Market Share ⁽²⁰⁰⁷⁾ 81,67 % Power Generation

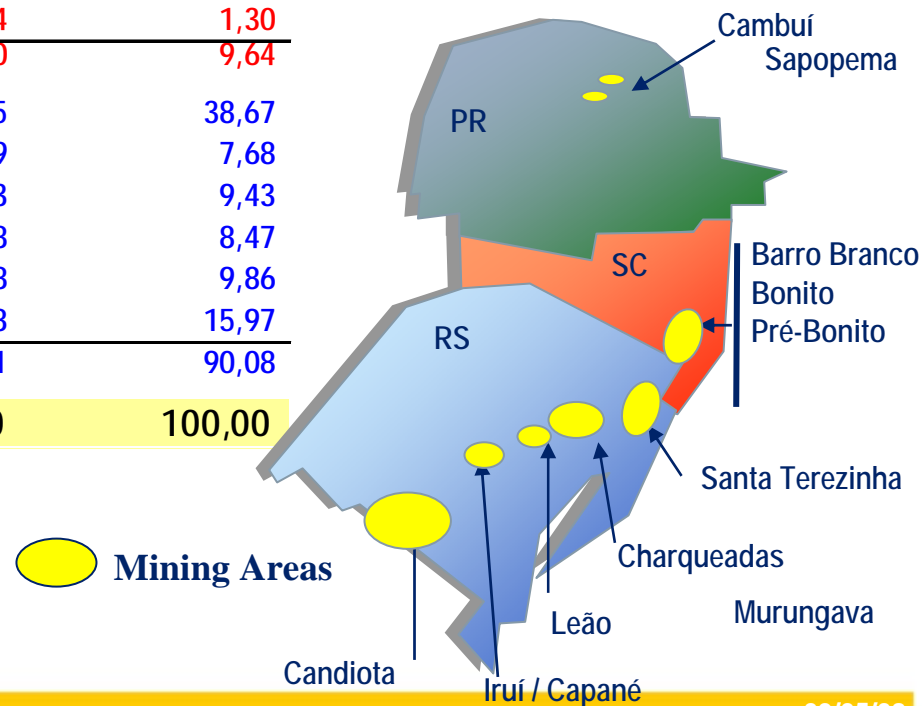
Revenues ⁽²⁰⁰⁷⁾: R\$ 617 million

Sedimentary Basins in Brazil



BRAZILIAN COAL RESOURCES

UF	Jazida	Recursos (10 ⁶ t)	%
Paraná	Cambuí	44	0,14
	Sapopema	45	0,14
		89	0,28
Santa Catarina	Barro Branco	1.045	3,29
	Bonito	1.601	5,04
	Pré-Bonito	414	1,30
		3.060	9,64
Rio Grande do Sul	Candiota	12.275	38,67
	Leão	2.439	7,68
	Charqueadas	2.993	9,43
	Iruí/Capané	2.688	8,47
	Murungava	3.128	9,86
	Santa Terezinha/Torres	5.068	15,97
		28.591	90,08
Total (PR, SC e RS)		31.740	100,00

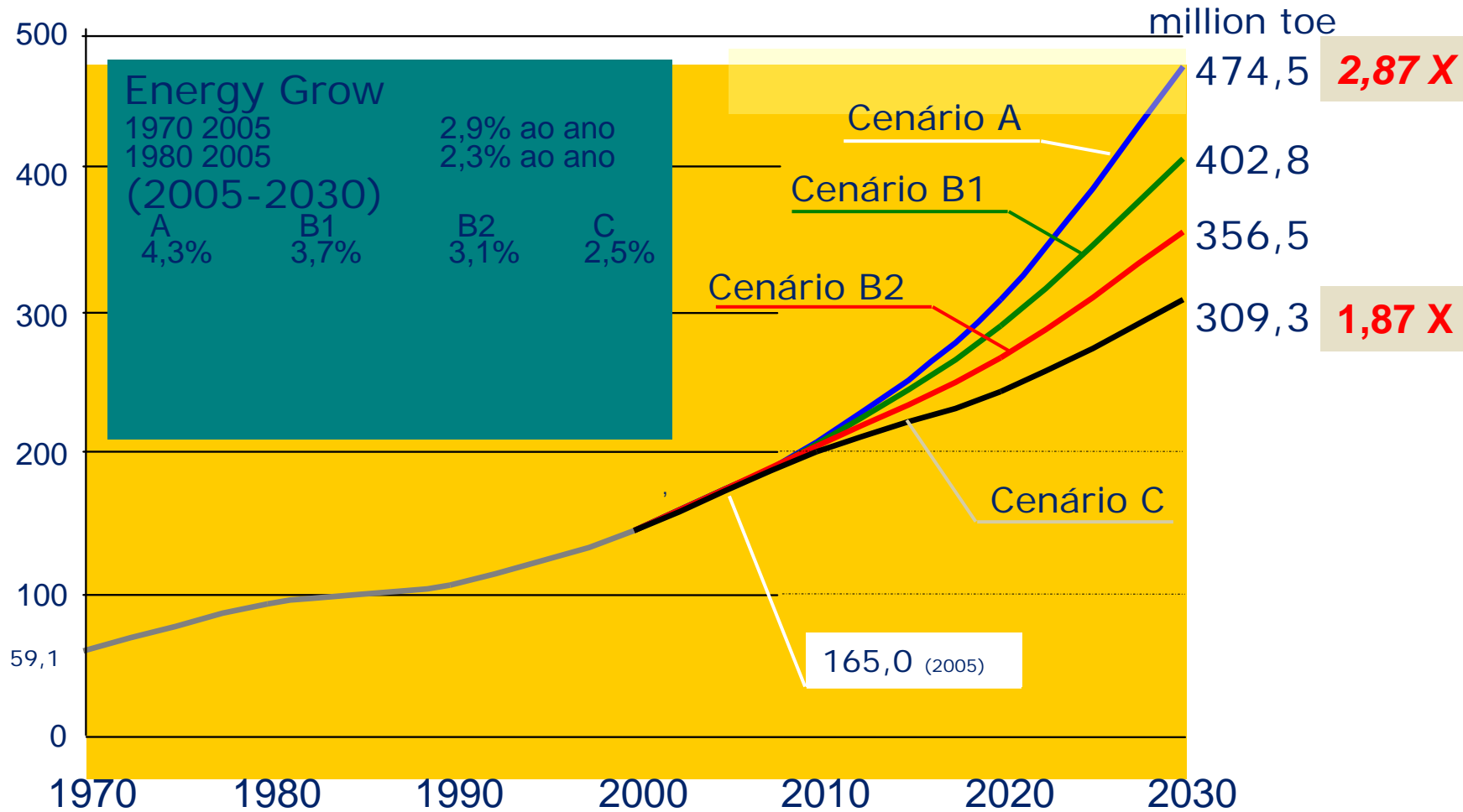


Coal Mining GHG Mitigation & CH₄



Copelmi Mineração/RS

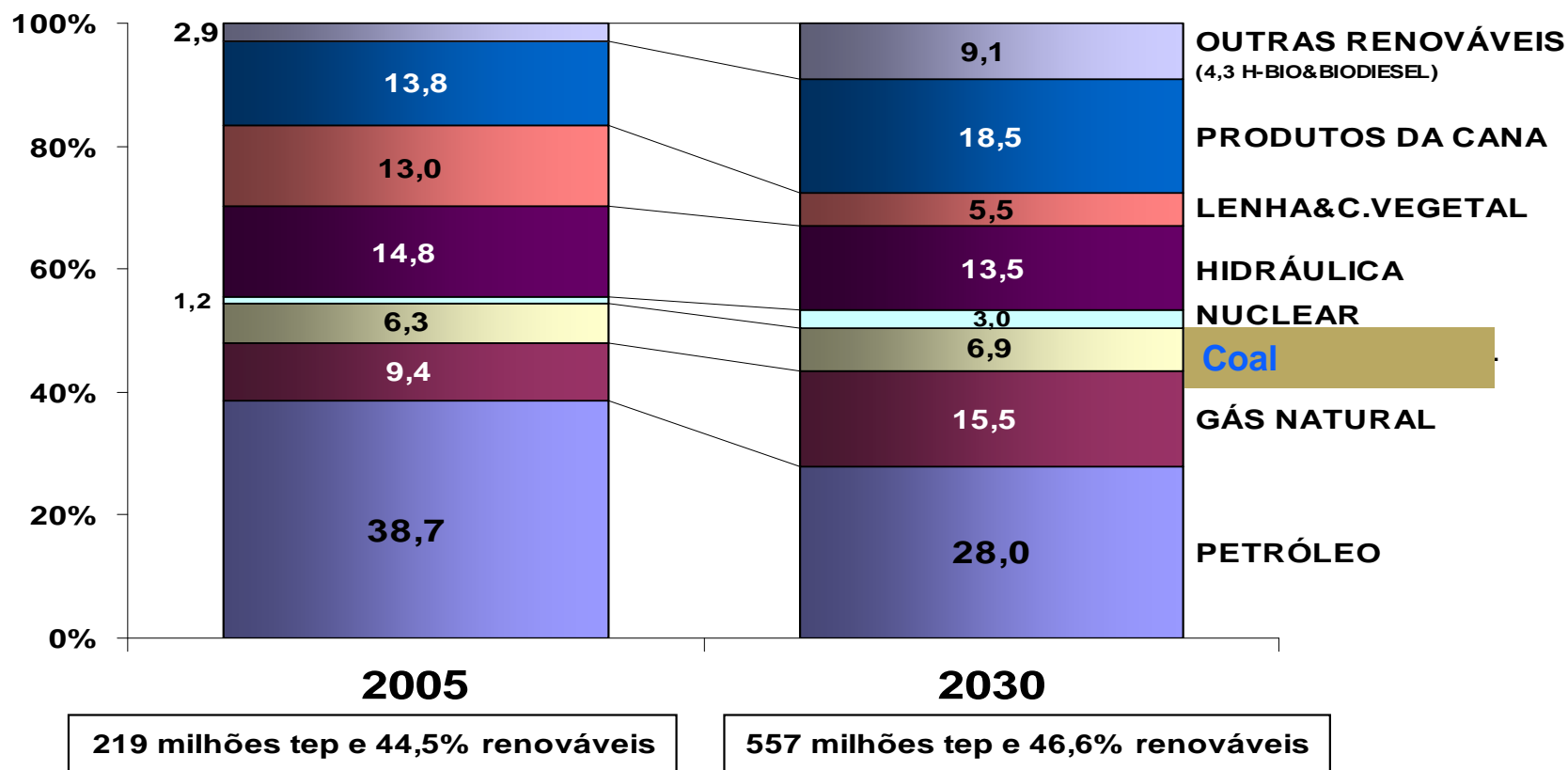
Energy Consumption



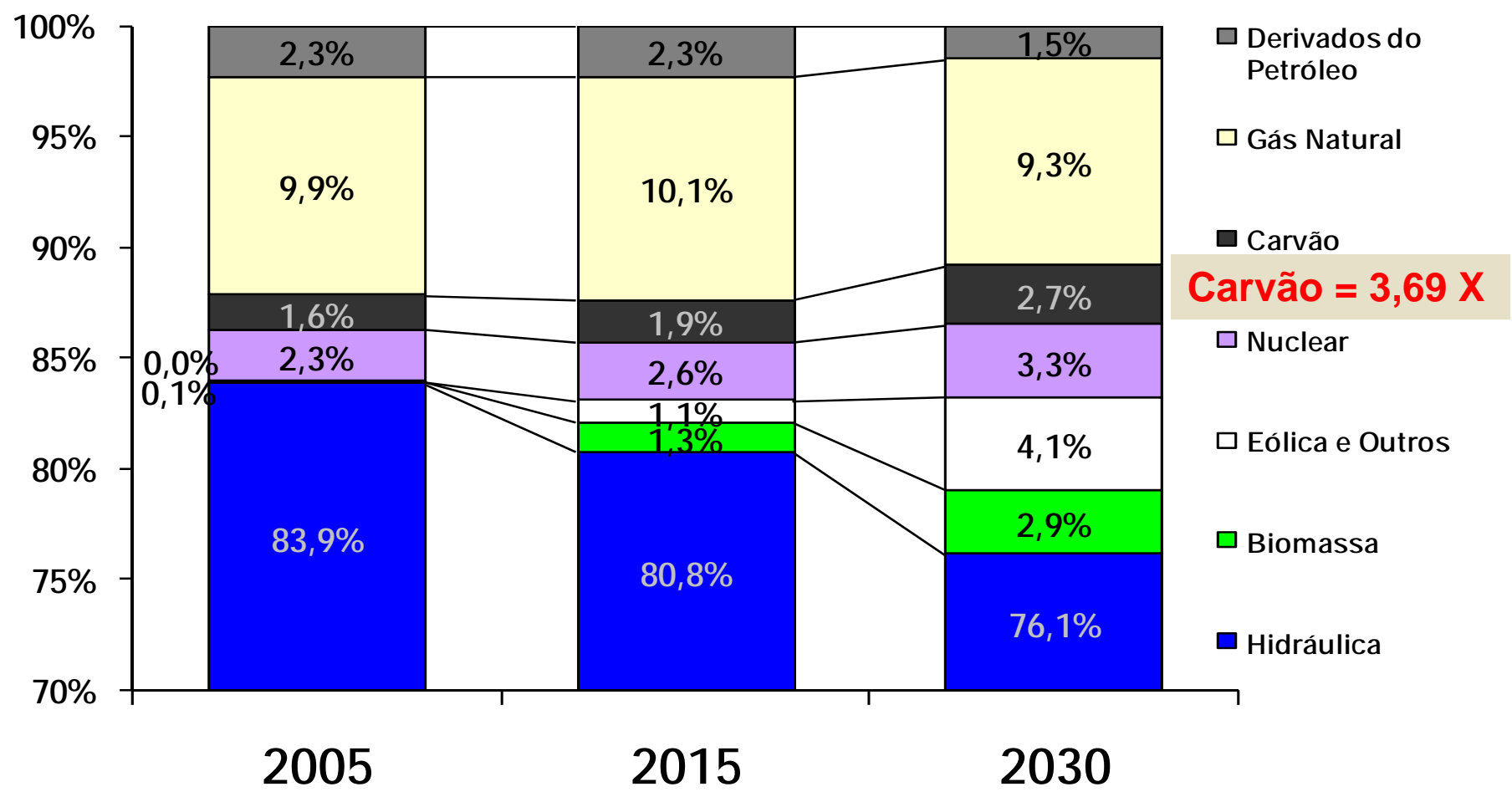
Source : MME

Energy Offer (%)

MATRIZ DE OFERTA DE ENERGIA (%)



ELETRIC MATRIX

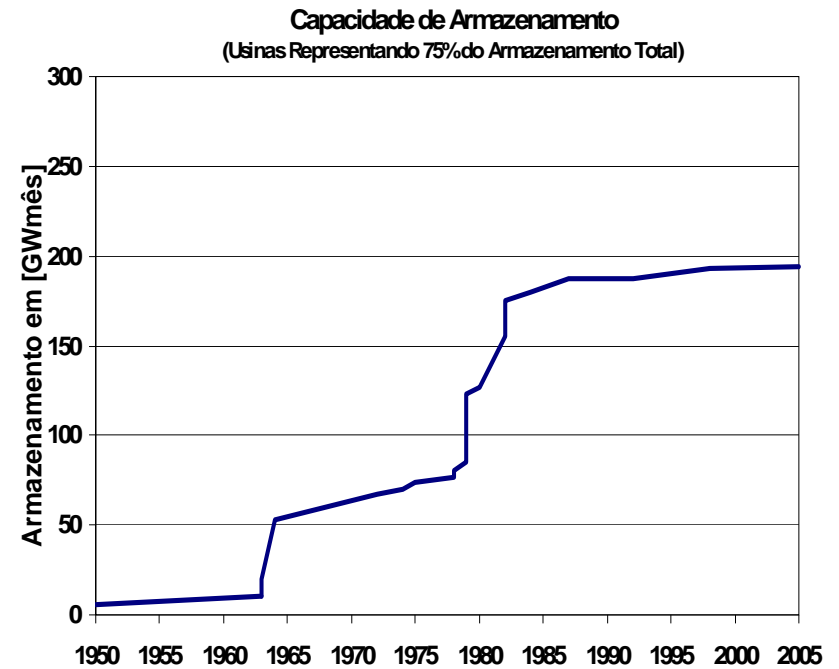
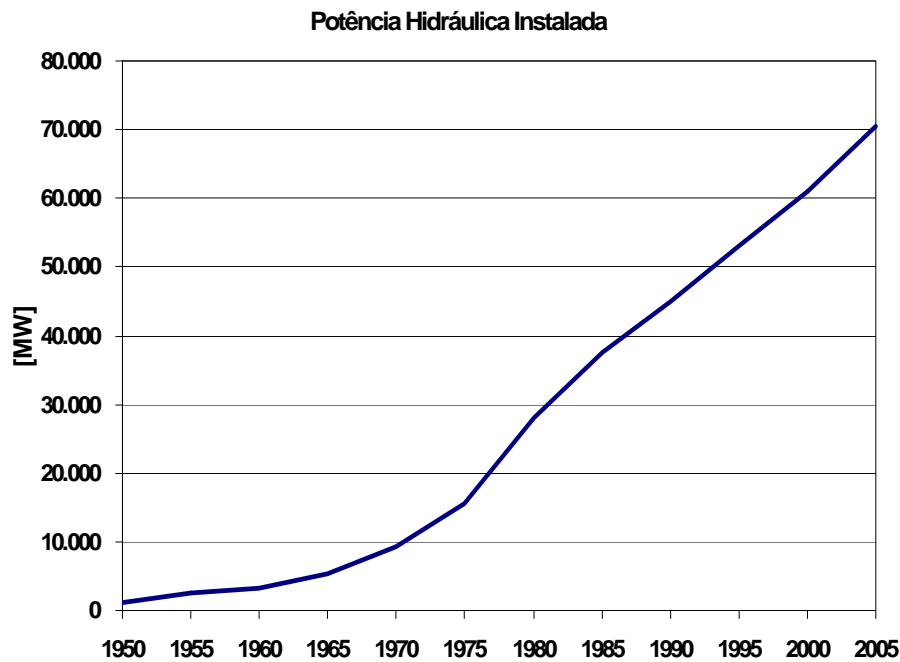


Carvão = 3,69 X

Source: MME

101 mil	143 mil	221 mil	Total (MW):
84,0 %	83,2 %	83,1 %	Renewable energy:

Growth of Capacity HydroPower X Water Storage (reservoir)



Shows more thermal power generation operating in base load

➤ PARANÁ

➤ Figueira (repotenciação) 127 MW (CFBC)

➤ SANTA CATARINA

➤ USITESC 440 MW (CFBC)

➤ RIO GRANDE DO SUL

➤ Candiota III (CGTEE) 350 MW (PC)

➤ Jacuí 357 MW (PC)

➤ Seival 500 MW (PC)

➤ CTSUL 650 MW (PC)

➤ Seival I (Uruguai) (Tractebel) 340 MW (PC)

➤ Seival II (MPX) 600 MW (PC)

➤ Imported Coal : 1.080 MW (PC)

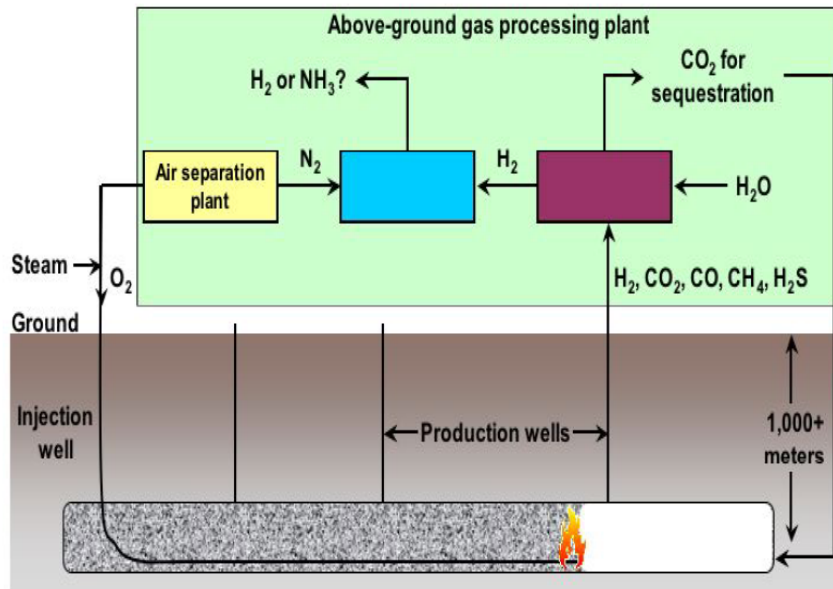


3.364 MW

Coal to liquids (CTL) and fertilisers + CCS

CBM – methane and ECBM

UCG- In Situ Gasification + CCS



Source: LLNL/USA



CONSOL/Pensilvania/US

Clean Coal = manage R&D and capacity building programs– support from MCT and Industry.

Research Centers working in network with international support – SATC/SC e PUC/RS

Agreements: Central Mining Institute/PO (VAM/ECBM/UCG); Ecole de Mines de Saint Etienne/FR (Mineração/ECBM); NETL/USA (CCS and gasification);

MCT : U\$ 26 million 2008/2010

SC : Law 14.127/07 – 2008..... => U\$ 0,8 million/year

CLEAN COAL CENTER - CTCL

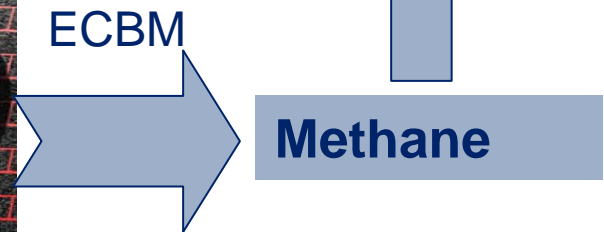
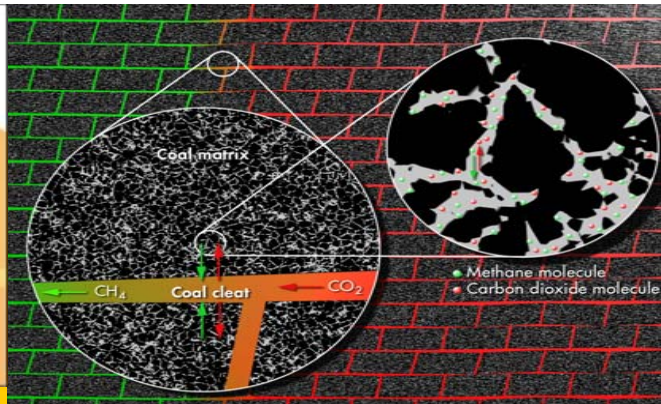
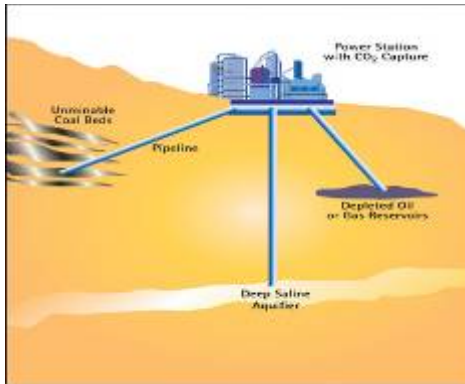
SATC

Criciúma/SC

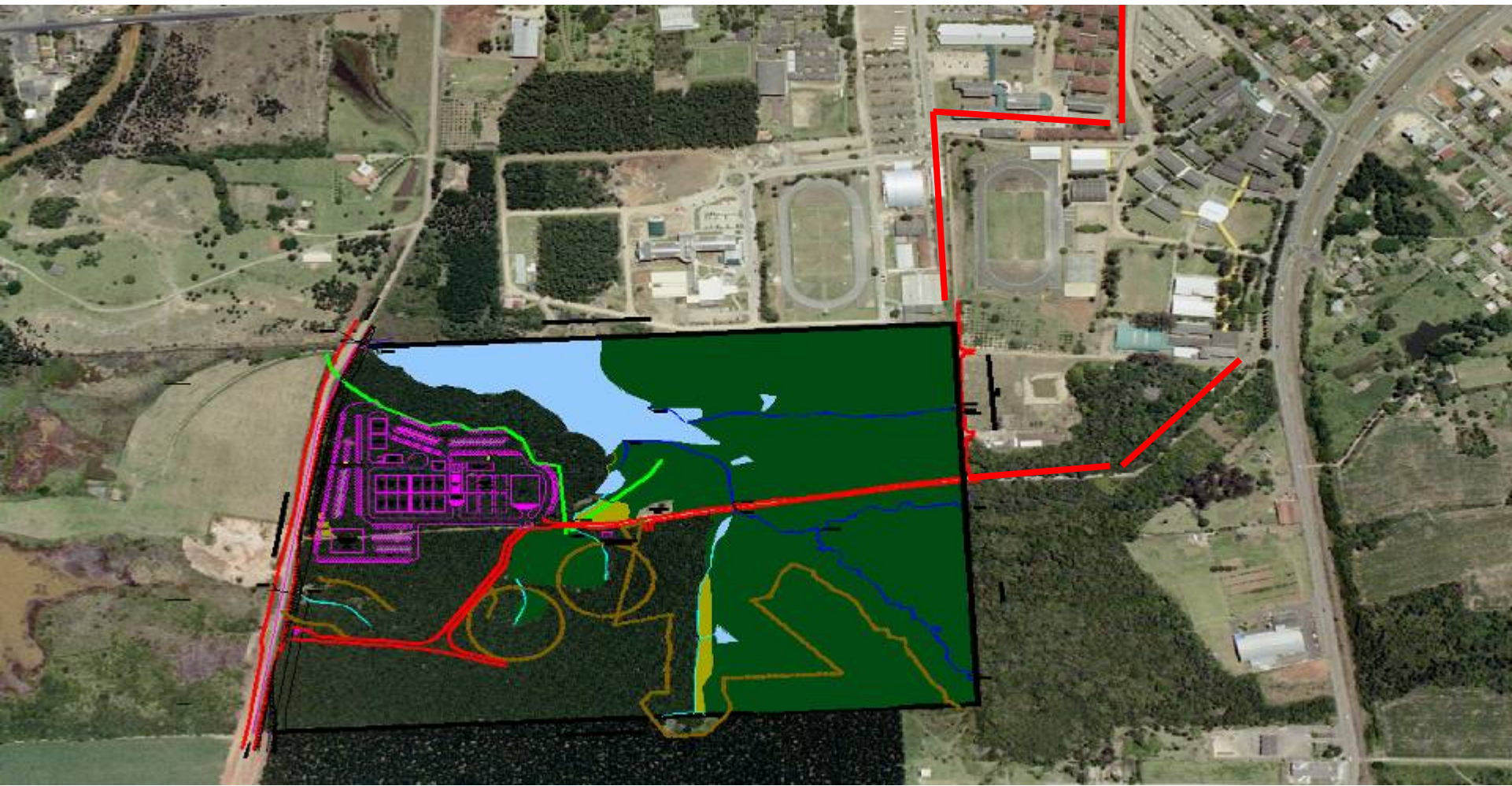
Key Goals

- Develop technologies for coal mining and utilization in a sustainable way → **CCS**
- Add value to coal → R&D for high value products including CTL to hydrogen
- Optimized all process related to the coal economic chain
- Capacity Building for all the technologies
- Manage the R&D + I resources → Central Knowledge Management
- Increase partnership: CPRM, CETEM, Petrobras, Eletrobras, private companies, universities network

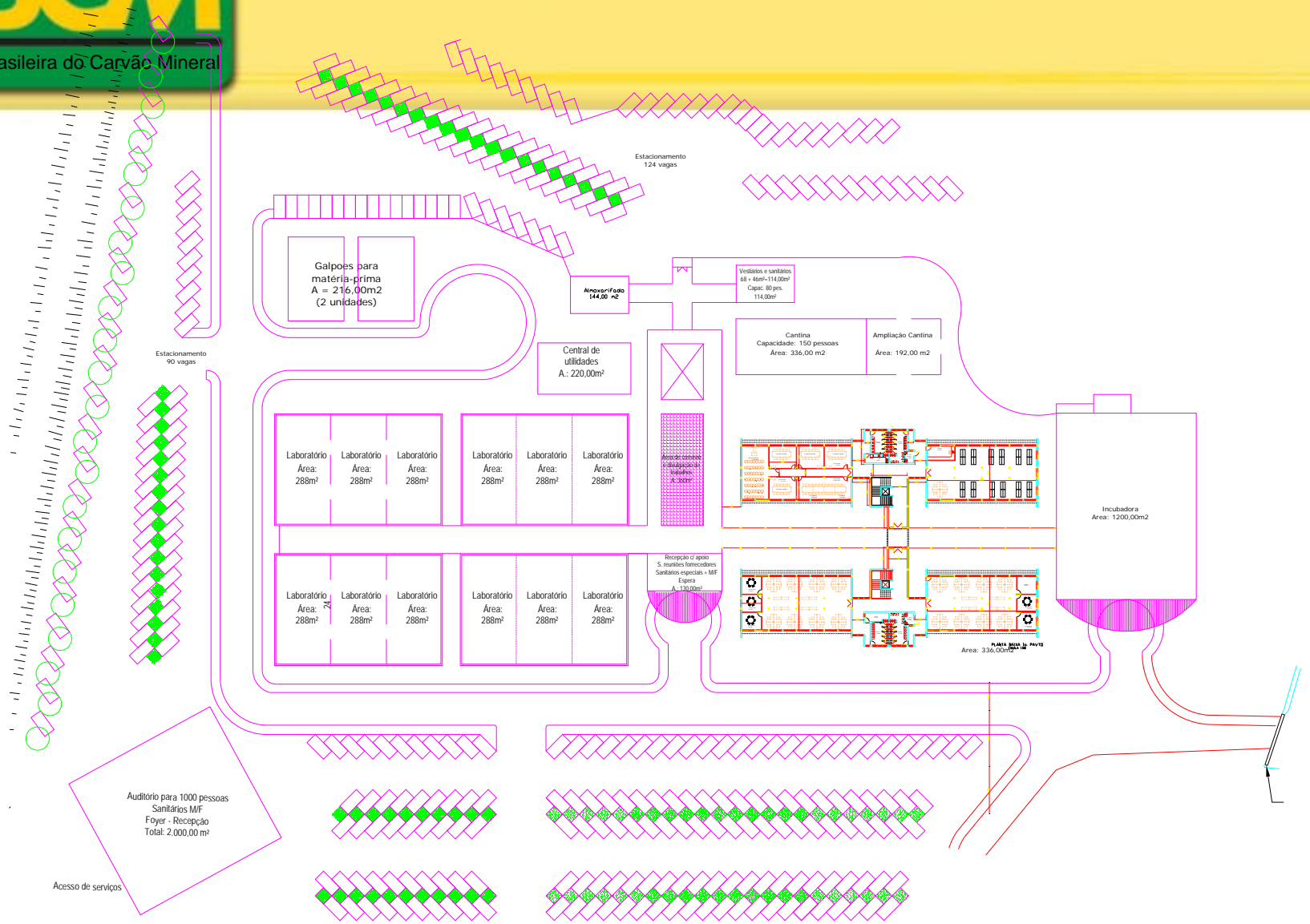
Tecnologic Plataform



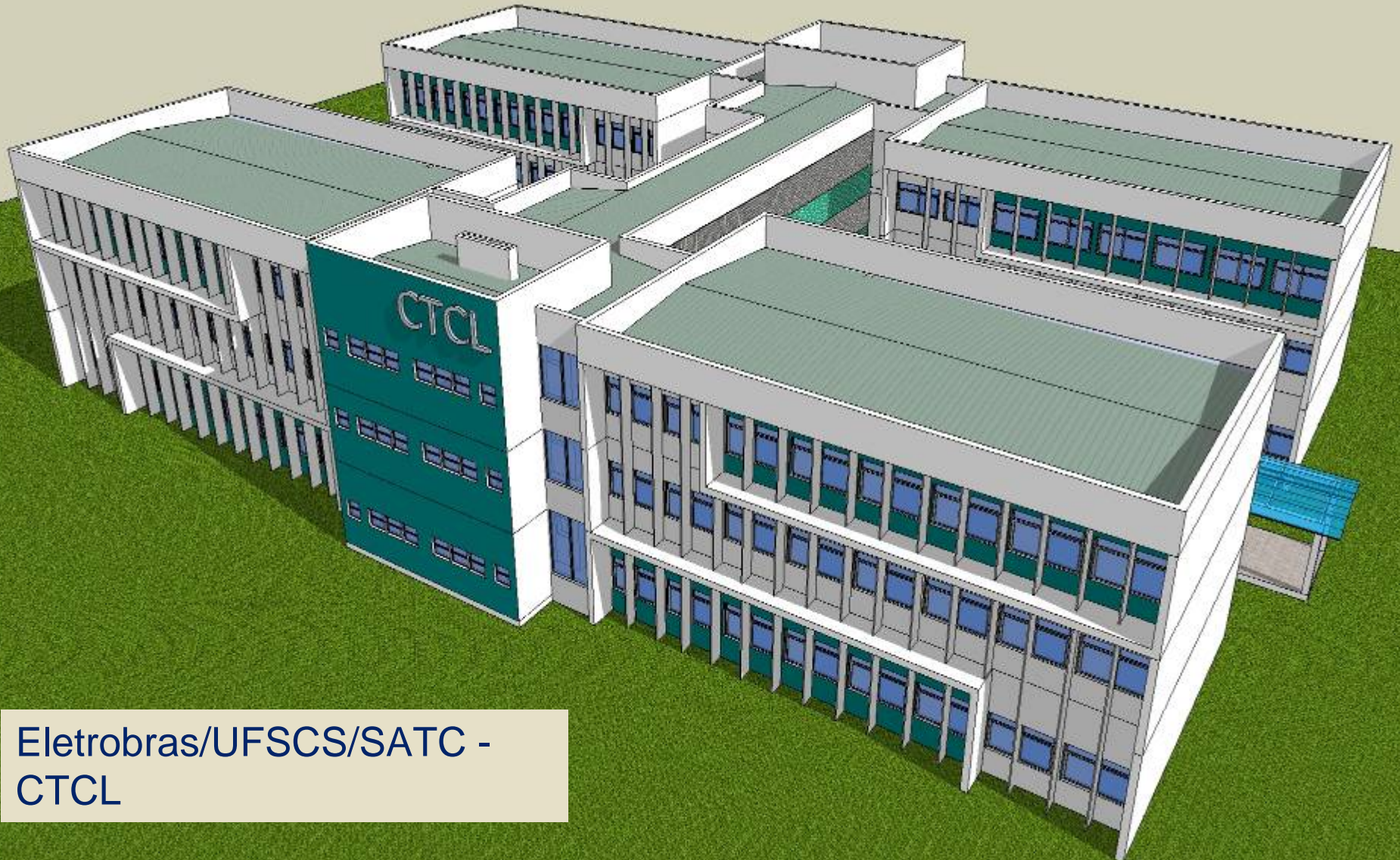
CTCL







NEW DESIGN – GREEN BUILDING



Eletrobras/UFSCS/SATC -
CTCL

CCS in Brazil



CO₂ Storage Research
Center -
Petrobrás/PUC/RS

Conclusion

High energy demand in the world – low offer = high prices => look for domestic energy sources

Brazil will need all sources of energy and coal is important.

ABCM is compromised to contribute to an sustainable energy security future to Brazil and CCS is the bridge for this the future.

**THANK YOU FOR
THE ATTENTION**

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