

Pre-salt oil and its contribution to sustainable development in Brazil: a preliminary assessment

Cristiano Vilardo (IBAMA)

Alexandre Campos (LIMA/COPPE/UFRJ)



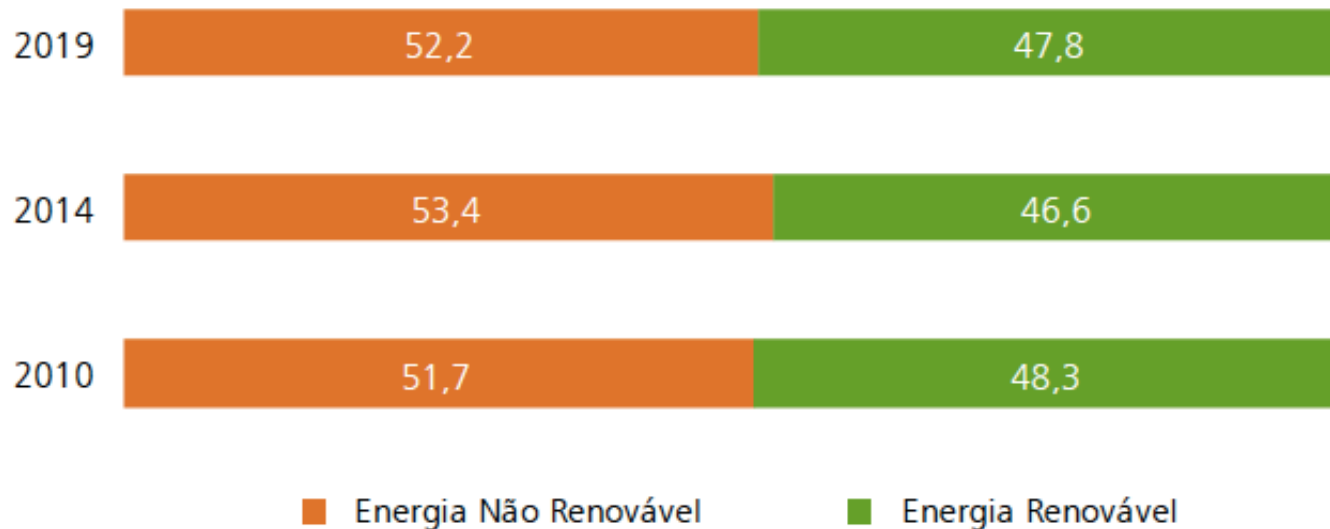
Introduction



Brazil and SD: Timeline

- 💧 1981 - National Environmental Policy (PNMA 6,938/81);
- 💧 1986 - EIA at project level as requirement (CONAMA 001/86);
- 💧 1992 – Commitment for Sustainable Development (Rio 92);
- 💧 1997 – MDL Brazilian Proposal (Kyoto Protocol);
- 💧 2009 – Climate Change National Policy: set targets to GHG reduction: 36,1% - 38,9% by 2020, (base year 1990);
- 💧 2012 – Rio+20 - Green Economy contribution to SD.

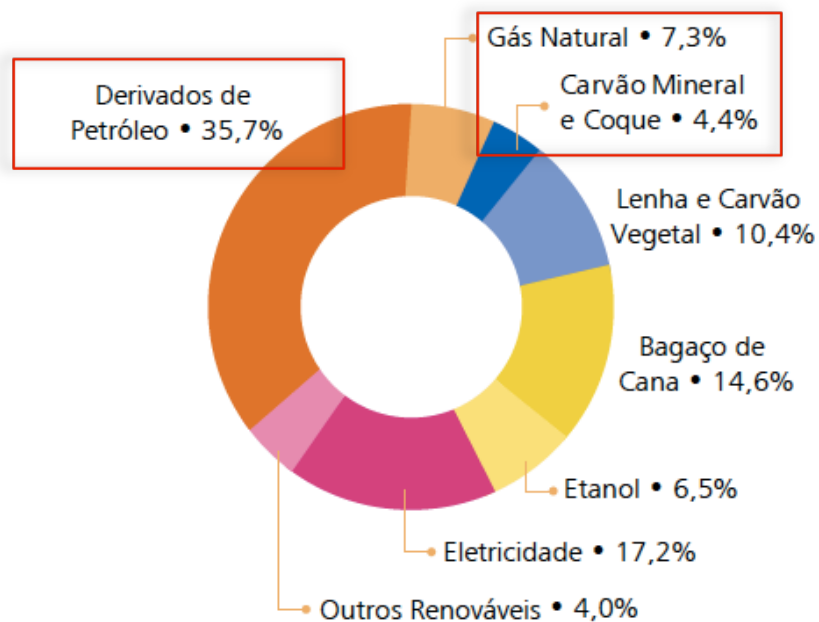
Brazil and SD: Clean Energy Matrix



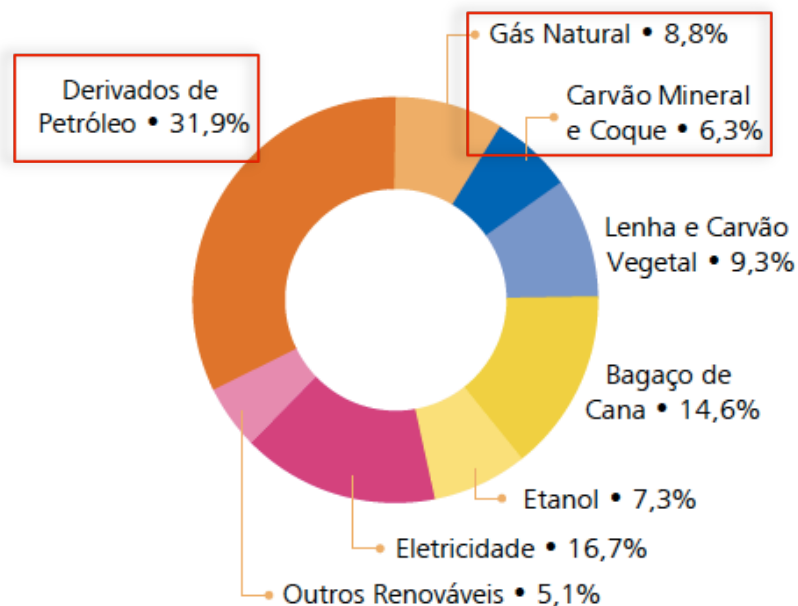
Source: Empresa de Pesquisa Energética (EPE) - PDE 2011

Energy Matrix

2010



2019

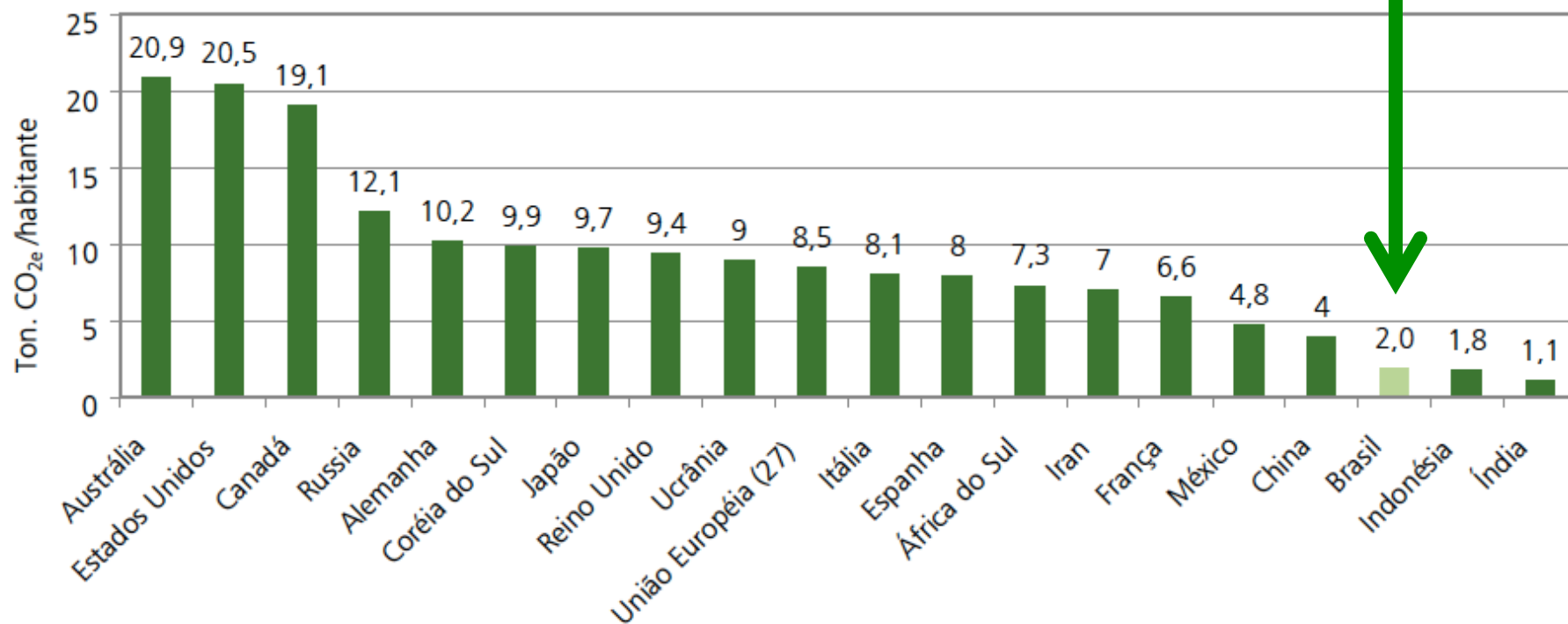


Fonte: EPE

Source: Empresa de Pesquisa Energética (EPE) - PDE 2011

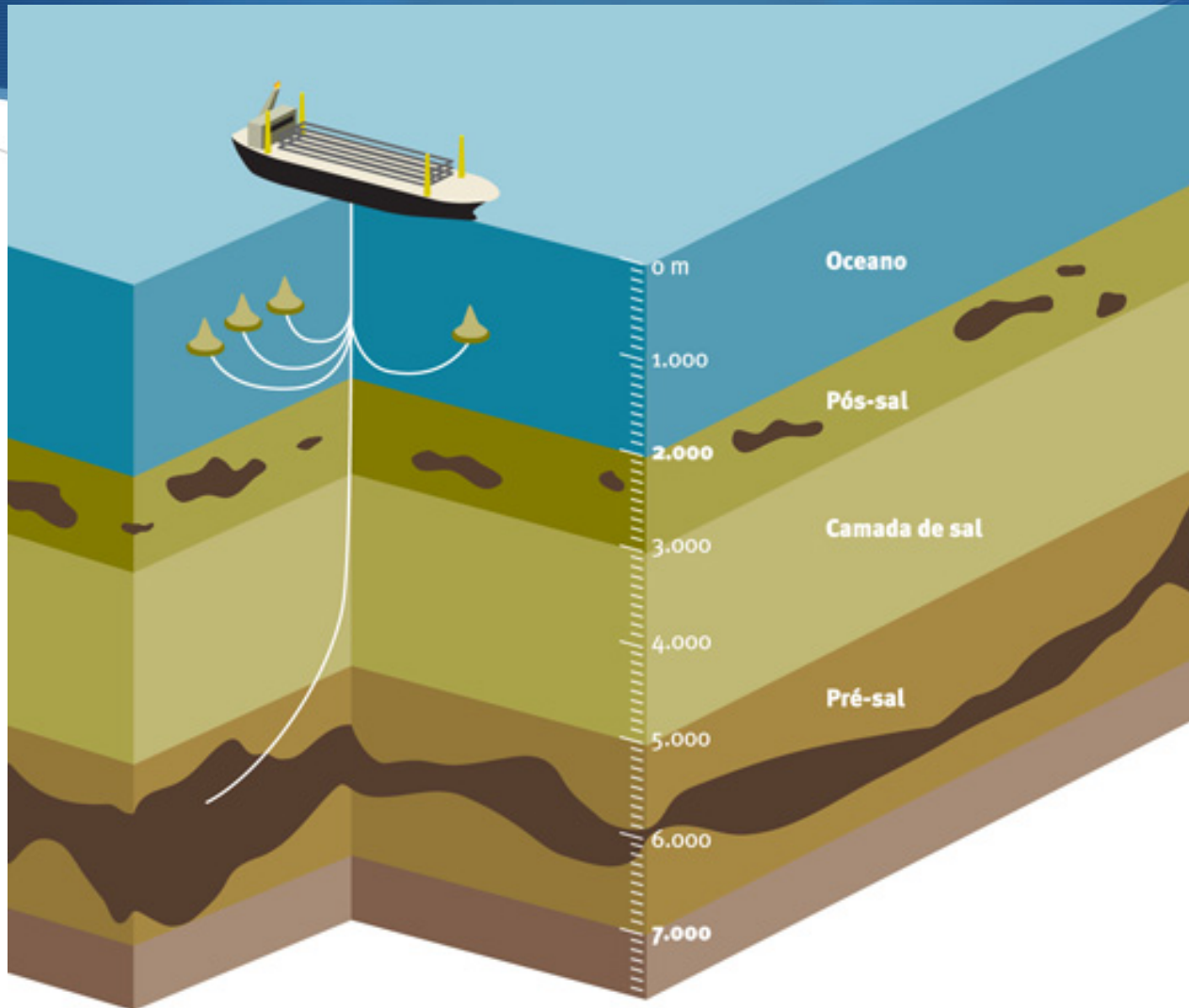
Brazil and SD: Clean Energy Matrix

Emissões per capita dos 20 maiores emissores - FINS ENERGÉTICOS - 2005

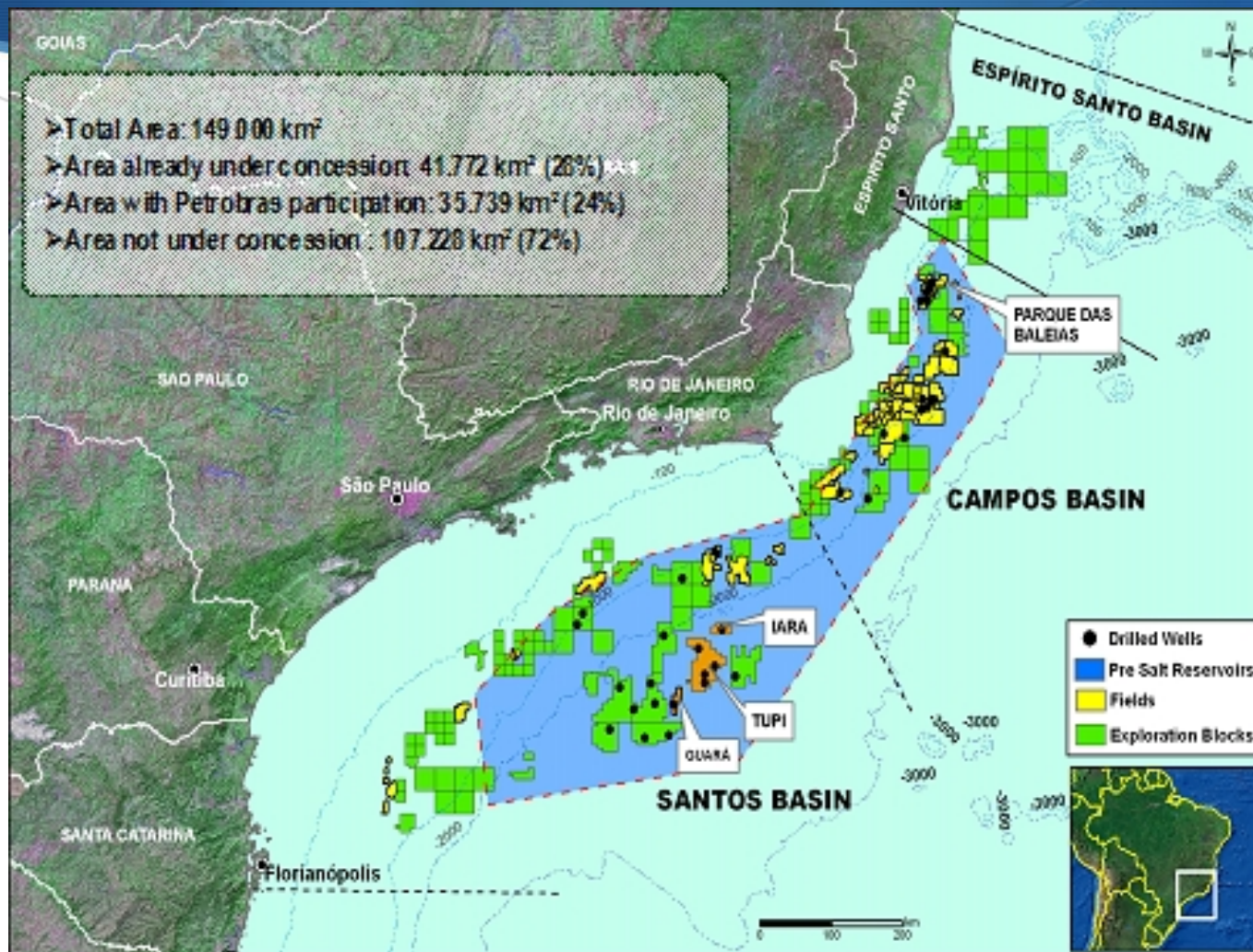


Source: Empresa de Pesquisa Energética (EPE) - PDE 2011

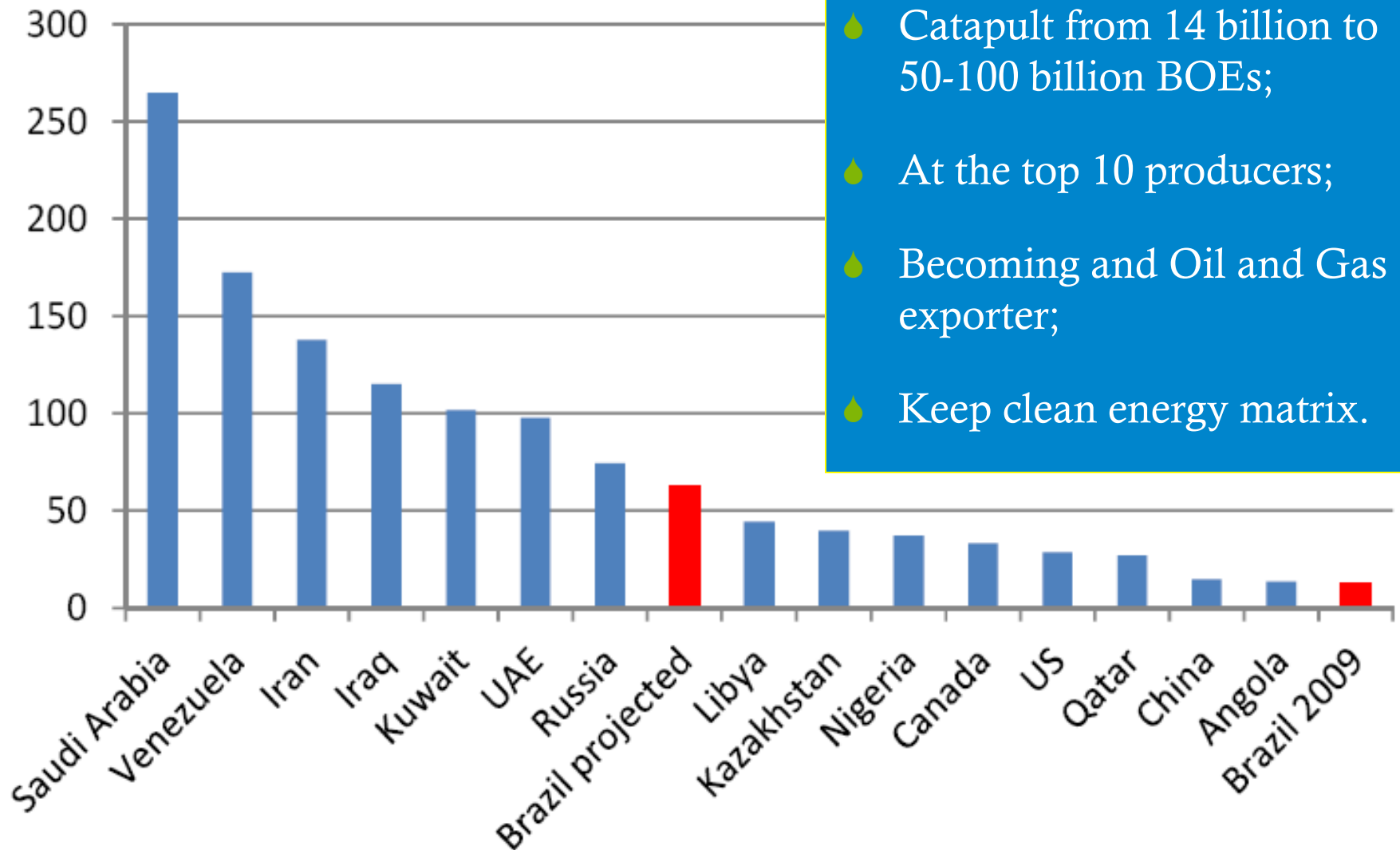
Pre-Salt Hidrocarbons



Pre-Salt Hydrocarbons



Pre-Salt



Pre-Salt: New Regulatory Framework

- ◆ Law # 12,304/10 - Incorporation of Empresa Brasileira de Administração de Petróleo e Gás Natural S.A. – **Pré Sal Petróleo S.A. (PPSA)**, a state owned oil company charged with managing Brazilian government's interests in PSAs;
- ◆ Law # 12,276/10 - Assignment by Brazilian Government to Petrobras of certain **pre-salt acreage**;
- ◆ Law # 12,351/10 - **Production sharing agreements (PSAs)** for the pre-salt area and other strategic areas replace the existing concession regime.
 - ◆ Also amends the Petroleum Law and **establishes social fund to manage Federal Government revenues** derived from PSAs.

Objective

- ◆ Evaluate how much the new regulatory framework for pre-salt exploration and also the current Impact Assessment framework are able to contribute to SD in Brazil.
- ◆ Could the current IA and Pre-Salt Brazilian Regulatory Framework boost sustainable development ?

Approach

- ◆ IA and New Pre-Salt regulatory frameworks were evaluated against five SD criteria, separated in two categories.
- ◆ New pre-salt regulatory framework:
 - ◆ 1) contribution to a decarbonized economy;
 - ◆ 2) mechanisms to avoid the Dutch disease.
- ◆ Current Impact Assessment Practice in Brazil:
 - ◆ 3) proper use of the IA tools;
 - ◆ 4) preparedness for potential oil spills;
 - ◆ 5) GHG emissions and their impact on Brazilian Climate Change targets.



*Sustainable
Development*

Results and Discussion



New pre-salt regulatory framework

- ◆ Social Fund Objectives (Art 47º): investment in education, culture, sports, public health, science & technology, environment and mitigation and adaptation to Climate Change;
- ◆ Long term public fund;
- ◆ Investment source for social and regional development (Art 47º)
- ◆ In line with short term government programs: PPA, LDO and LOA
- ◆ Investments priority will be defined by the Social Fund Council (Conselho Deliberativo do Fundo Social – CDFS).

New pre-salt regulatory framework

◆ General Aspects:

- ◆ SD is not cleared addressed by the Pre-salt Law;
- ◆ However, SD can be addressed by social, environmental and economic objectives of the Law if properly embodied in the long term planning;
- ◆ As CDFS members will be nominated by the government (short term view) they will probably only follow short term (4 years) planning;
- ◆ Medium/Long Term Development Plan does not exist in Brazil.

New pre-salt regulatory framework

- ◆ **Criteria 1:** contribution to a decarbonized economy
 - ◆ There is no mention about a potential future decarbonized economy in Brazil in Social Fund' objectives;
 - ◆ To build a decarbonized economy demands a long term policy which is not addressed in the law;
 - ◆ Energy 10 years Plan (PDE) also does not foresees growth on renewables in the energy matrix: 48% (2010) to 48% (2019).
 - ◆ However, CDFS can contribute to that sporadically or in short term depending on the government nominations profile.

Not Aligned

New pre-salt regulatory framework

- ◆ **Criteria 2:** mechanisms to avoid the Dutch disease.
 - ◆ There is no mention about use Social Fund to contribution to this topic;
 - ◆ However, there are explicit objectives regarding long term maintenance for the Fund which could be applied to respond to potential Dutch Disease;
 - ◆ In addition, CDFS can respond to potential Dutch Disease sporadically or in short term.

**Partially
Aligned**

Current Impact Assessment Practice in Brazil

- ◆ **Criteria 3:** the proper use of the IA tools,
 - ◆ EIA in Brazil is required only under the project level;
 - ◆ The majority of the IAs are not in line with best practice and are not effective (Bursztyn, 1997; MMA, 1997; Egler, 1998; Agra Filho, 2002; ESMPU, 2004), despite some recent innovative practice in oil and gas licensing;
 - ◆ SEA is not required by any law and this is barely used.
 - ◆ Other IA tools are rarely used, specially those related to Regional Impact Assessments and PPPs.

Not Aligned

Current Impact Assessment Practice in Brazil

- ◆ **Criteria 4:** preparedness for potential oil spills
 - ◆ The National and Regional Plan (Oil Law - CONAMA Resolution 398/2008) does not exist;
 - ◆ As IA is implemented only at project level the OSRP are also required at project level in Oil and Gas licensing process;
 - ◆ In case of a major incident ($>200\text{m}^3/\text{d}$ discharge) only Petrobras would be able to properly respond because of its scale.

**Partially
Aligned**

Current Impact Assessment Practice in Brazil

- ◆ **Criteria 5:** GHG emissions and their impact on Brazilian Climate Change targets
 - ◆ Pre-salt reservoirs contains unusual large amounts of CO₂: from 0% to 15% (Petrobras 2009);
 - ◆ Pre-salt CO₂ forecast is already included on Climate Change National Plan's targets;
 - ◆ Government has set that CO₂ from pre-salt must be reinjected or stored (*e.g.* CCS);
 - ◆ GHG offsets are already established in the licensing process for Lula field.

Aligned

Preliminary conclusions

- ◆ New pre-salt regulatory framework:
 - ◆ 1) contribution to a decarbonized economy and
 - ◆ 2) mechanisms to avoid the Dutch disease.
- ◆ Current Impact Assessment Practice in Brazil:
 - ◆ 3) proper use of the IA tools,
 - ◆ 4) preparedness for potential oil spills and
 - ◆ 5) GHG emissions and their impact on Brazilian Climate Change targets.

Not
Aligned

Partially
Aligned

Not
Aligned

Partially
Aligned

Fully
Aligned

Final Remarks

- ◆ **SD commitment:** SD is not cleared addressed on new regulatory framework for pre salt development;
- ◆ **Long Term Planning:** there is no long term planning for Social Fund which impact SD effectiveness
- ◆ **Short Term:** is not a proper scale for SD, however through CDFS some SD aspects, like environmental, social etc. can be addressed;
- ◆ **Decarbonized Economy** – is not addressed in the Law and does not seems to be a Government Policy so far in spite of the great potential in Brazil regarding renewables;
- ◆ **Impact Assessment Tools and Oil Spill Preparedness:** is spite of current regulatory framework, best practices can be adopted by government and companies to enhance IA and OSP. However, awareness on this topic is just beginning to build up.

References

- ◆ **HAYNES and BOONE, LLP (2011).** *Veirano Advogados; Tudor, Pickering, Holt & Co.*
- ◆ **AGRA FILHO, Severino Soares (2001)** *Avaliação Ambiental Estratégica: uma alternativa de incorporação da questão ambiental no processo de desenvolvimento. Tese de Doutorado. Instituto de Economia / UNICAMP, 2001.*
- ◆ **BURSZTYN (1994), Maria Augusta Almeida.** *Gestão Ambiental: instrumentos e práticas. Brasília: IBAMA, 1994.*
- ◆ **EGLER (2001), Paulo César Gonçalves.** *Improving the environmental impact assessment process in Brazil. Tese de Doutorado. Inglaterra: School of Environmental Sciences. University of East Anglia, 1998. European Union Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment. Luxembourg: 27.06.2001.*
- ◆ **ESMPU (2004)** (Escola Superior do Ministério Público Federal) *Deficiências em estudos de impacto ambiental: síntese de uma experiência. Brasília: Ministério Público Federal, 4ª Câmara de Coordenação e revisão: Escola Superior do Ministério Público da União, 2004. 48p.*
- ◆ **MMA (2002)** (MINISTÉRIO DO MEIO AMBIENTE) *Avaliação ambiental estratégica. Brasília: Consórcio MMA/PRIME/TERRAPLAN, janeiro/2002.*
- ◆ **EPE (2011)** *Plano Decenal de Energia 2010-2019 (PDE).*
- ◆ **PETROBRAS (2009)** *Relatório de Sustentabilidade 2009: <http://www.petrobras.com.br/rs2009/pt/relatorio-de-sustentabilidade/meio-ambiente/mudanca-do-clima/mitigacoes-das-emissoes-do-pre-sal/default.aspx>.*

Obrigado!

cristianovilardo@gmail.com

alexcampos1804@hotmail.com

