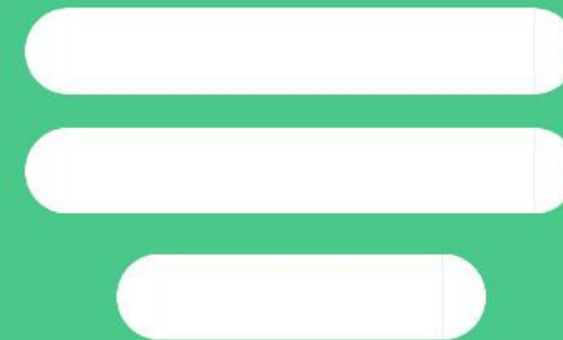




SCENARIOS PROSPECTION: STUDY CASE LATIN AMERICAN ENERGY MATRIX 2030-2050



03 NOVEMBER 2017 | 09H- 12H30 | INTEGRIERTE
GESAMTSCHULE BONN-BEUEL- GERMANY

JOYCE MENDES - ENERLAM





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ENERLAM

ENERGÍA LATINOAMERICANA Y EL CARIBE





MISSION

Incentivate the integration and cooperation between Latin American and Caribbean countries, by the interchange of information, knowledge and experiences, encouraging the development and the innovation towards a regional sustainable energy transition.

We want to contribute to “ensure access to affordable, reliable, sustainable and modern energy for all” which is the SDG 7.

VISION

To establish a Latin-American and the Caribbean network of leaders for a sustainable energy transition, achieving representation in the various fields (economic, scientific, technological, social and business) at a regional level and strengthening the participation in the international energy panorama.

MISIÓN

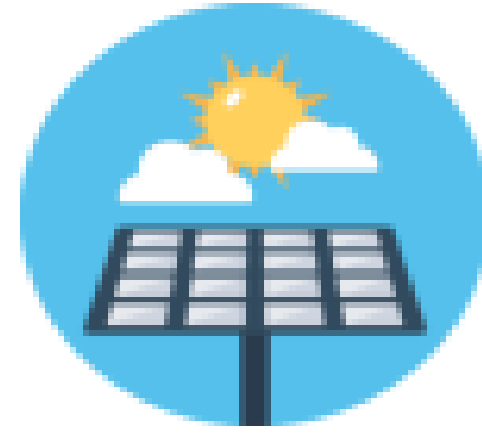
Incentivar la **integración y cooperación** entre los países de **América Latina y el Caribe**, por medio del intercambio de informaciones, conocimientos y experiencias, impulsando el desarrollo y la innovación hacia una **transición energética sustentable regional**.

Queremos contribuir a que el objetivo número siete de las Naciones Unidas *“garantizar el acceso a una energía asequible, segura, sostenible y moderna para todos”* pueda cumplirse

7 ENERGÍA ASEQUIBLE
Y NO CONTAMINANTE



ÁREAS DE ESPECIALIDAD



ENERGÍA SOLAR



ENERGÍA EÓLICA



HIDROCARBUROS



ENERGÍA GEOTÉRMICA



TECNOLOGÍA DE
HIDRÓGENO



ENERGÍA NUCLEAR



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ÚNETE A ENERLAM

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Observatórios da Int... 2

Coletivo Jovem da ... 12

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Photo/Video Poll Feeling/Activ...

PINNED POST

Natalia Pulido shared a link. Admin - July 20

¡Hola! Este es el link para la encuesta que nos permitirá conocernos un poco mejor, esto facilitará una red de apoyo para futuros proyectos y la creación de una base de datos sobre los integrantes de ENERLAM.

Olá! Este é o link para o questionário que permitirá que nos conheçamos um pouco melhor. Isso irá facilitar uma rede de apoio para projetos futuros e também a criação de uma base de dados sobre os integrantes de ENERLAM

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DESCRIPTION

ENERLAM: Energia Latinoamericana, un grupo para compartir inform... See More

GROUP TYPE

Project

TAGS

América Latina · Energia limpia · Transición energética

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Emprendimiento emprendimiento@enerlam.org

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¿DÓNDE ESTAMOS?



<http://enerlam.org/>



KAS Seguridad Energética y
Cambio Climático en América
Latina



SES2017

INTERNATIONAL STUDENT
ENERGY SUMMIT

Mérida, México

SCENARIOS PROSPECTING: LATIN AMERICAN ENERGY MATRIX 2030-2050

Joyce Mendes

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 2. Scenarios
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 4. Overview Latin American Energy Matrix, Energy sector trends LAC 2050
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 6. Latin-America 2030
 7. Energy profiles
 8. Global Scenario
 9. Regional Scenario
 10. Acting locally 2018
 11. Final conclusions
 12. Tools: databases
 13. References



1. KEY CONCEPTS

ENERGY?????

Types of Energy

Fossil
Renewable
Non-conventional
Sustainable

Energy Requirements

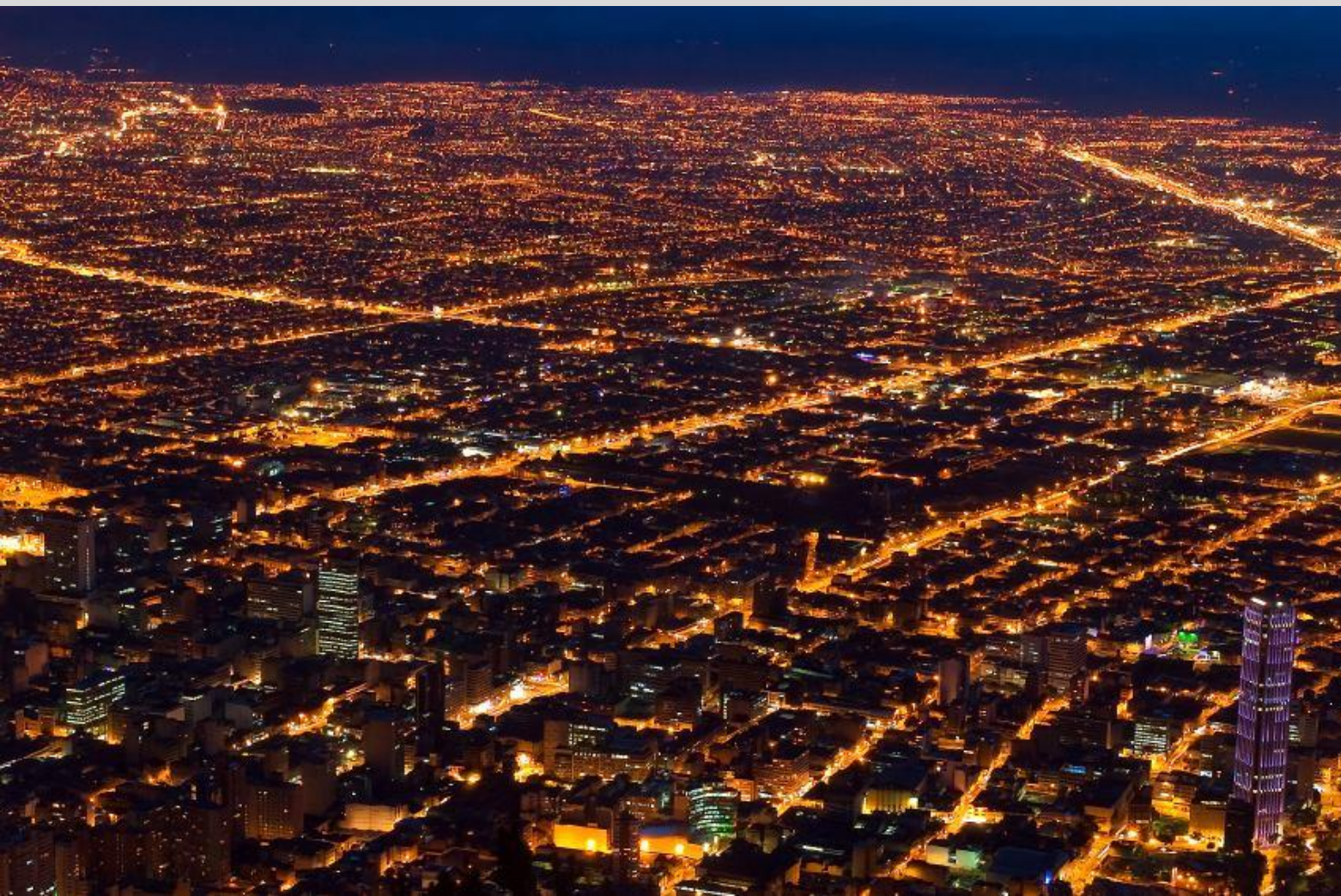
Scalability
Deliverability -
Constancy
Competitive price

Energy transition

Energy efficiency

ENERGY REQUIREMENTS

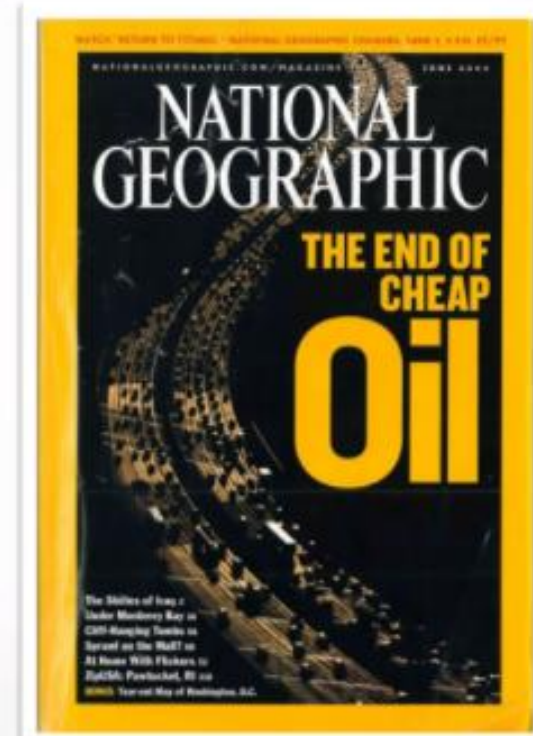
1. Versability
2. Scalability
3. Availability
4. Delivery
5. Energy density
7. Frequency
8. Environmental Sensitivity
9. Energy Security



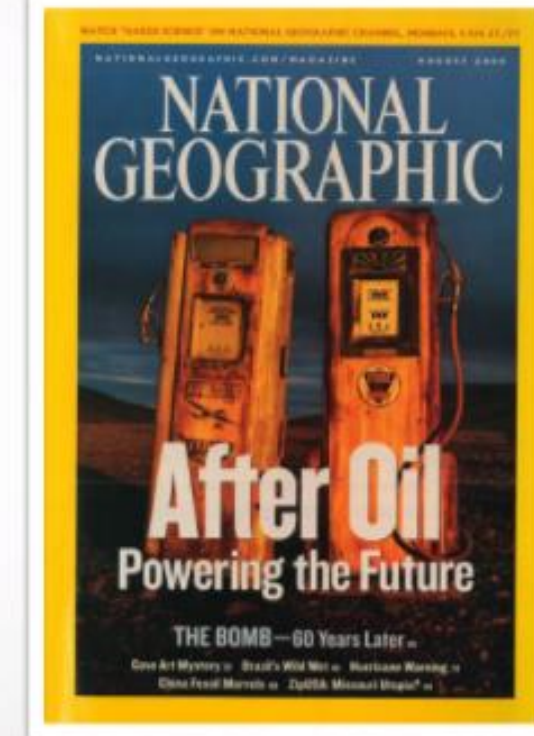
ENERGY TRANSITION



October 2003



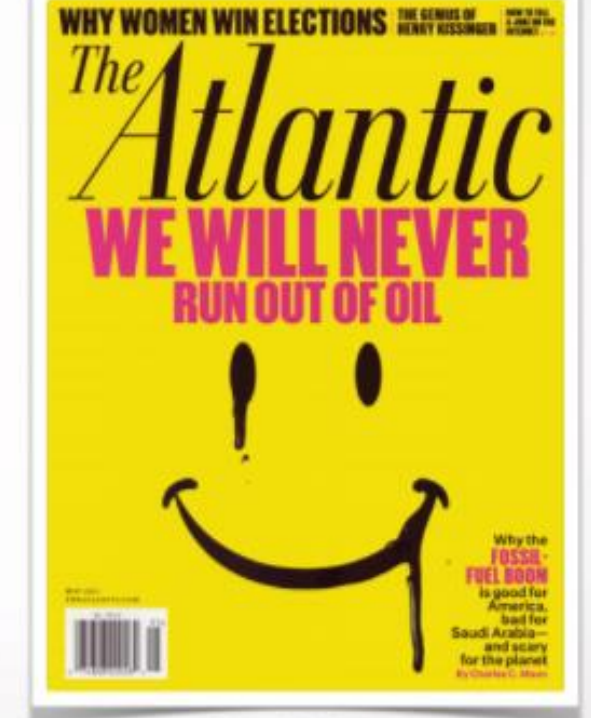
June 2004



August 2005



March 2013



May 2013

- They are more typical than we might expect
- They take a long time
- They tend to follow a path towards higher-performing fuels
- They solve one problem while introducing another
- They tend to follow a path towards decarbonization

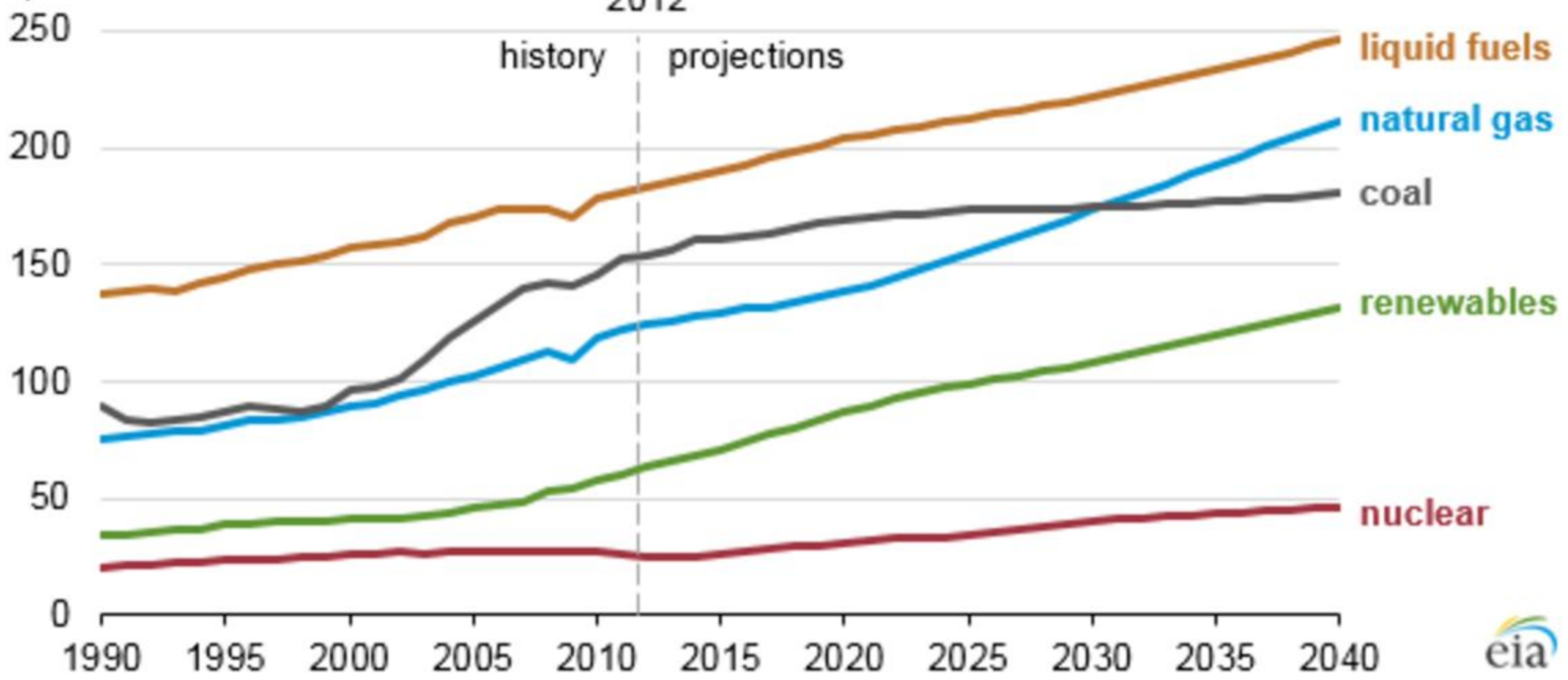
ENERGY TRANSITION

———— Several Global Trends are Driving the Energy System

- **Population growth**
- **Economic growth**
 - **Urbanization**
- **Industrialization**
- **Electrification**
- **Motorization**

World energy consumption by source, 1990-2040

quadrillion Btu



Source: U.S. Energy Information Administration, *International Energy Outlook 2016*



ENERGY TRANSITION

Energy Transition is composed by:

1. A change in total demand for energy

- ☐ Population growth pushes total demand up
- ☐ Economic growth pushes per capita demand up

2. A change in our end uses of energy

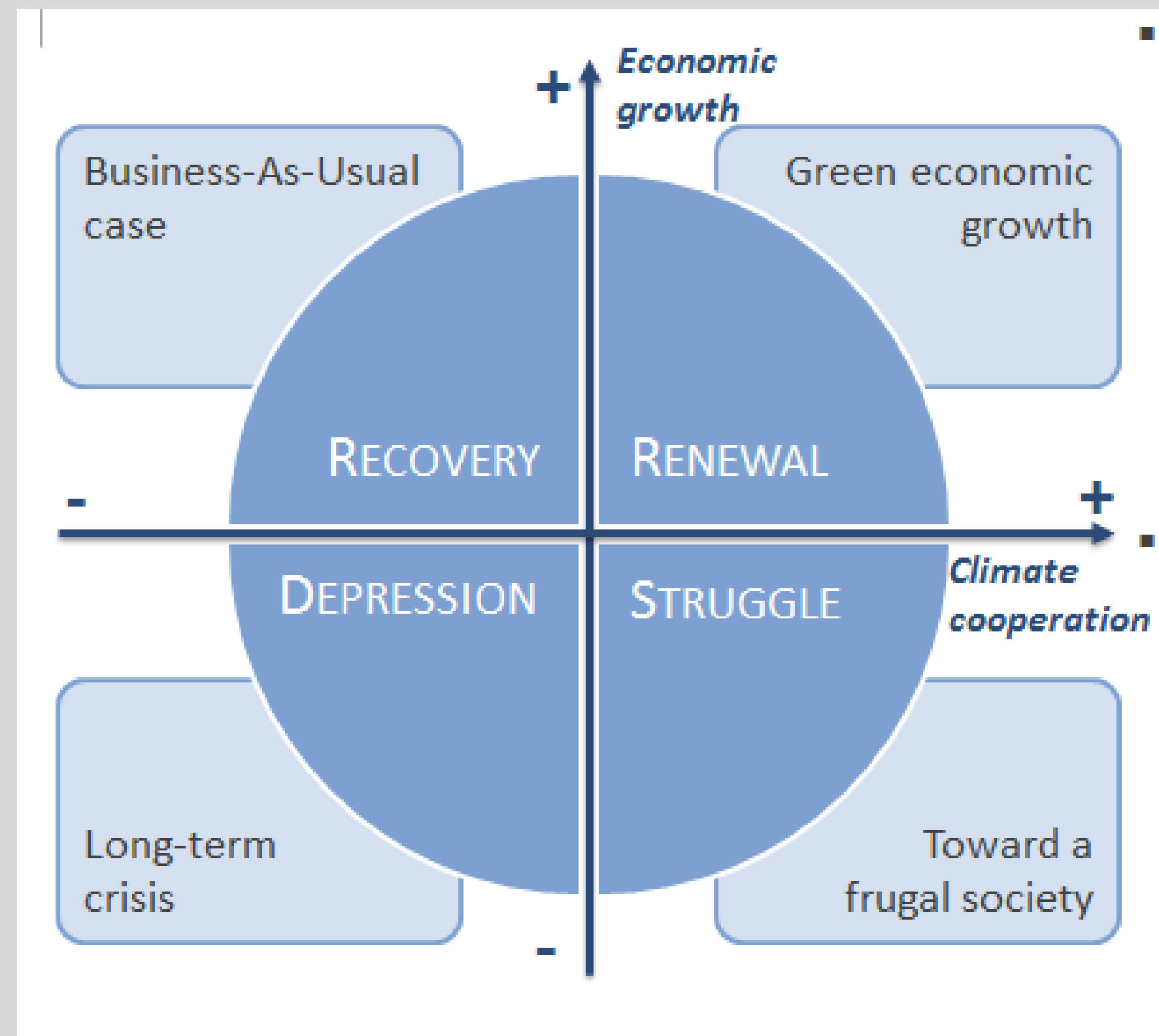
- ☐ All societies electrify over time
- ☐ All societies motorize over time

3. A change in our sources of energy

- ☐ Domestic sources
- ☐ Low-carbon sources
- ☐ Sustainable sources

2. WHY SCENARIOS?

Scenarios prospection is a tool to analyze future possibilities (in this case) or past, understanding the current situation by means of a conjuncture analysis, establishing the structural variables, related driving forces, as well as the impacts and consequences to have a consistent and coherent future perspective of the probabilities, possibilities and uncertainties associated with a process.



<https://www.enerdata.net/>

Futurism

GLOBAL WARMING SCENARIOS

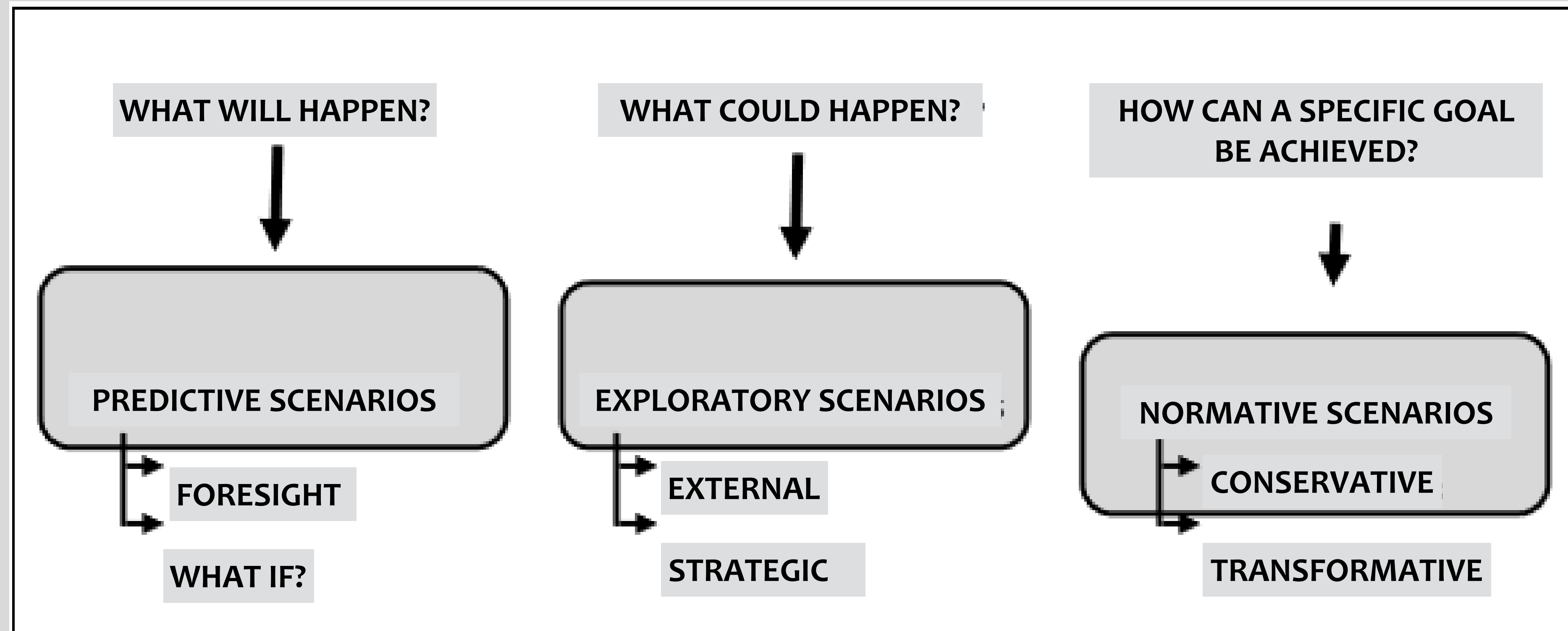
When Temperatures Rise Between 1° - 6°

Dire consequences await our home planet when global warming raises temperatures between one to six degrees Celsius. These are the projections and possible scenarios.

SCENARIOS



TYOLOGY OF SCENARIOS BASED ON THEIR USE



SILVA SOUZA, I. D. S.; PASSARINI TAKAHASHI, V. P. (2012).

DIFFERENCES BETWEEN FORECASTING AND FORESIGHT

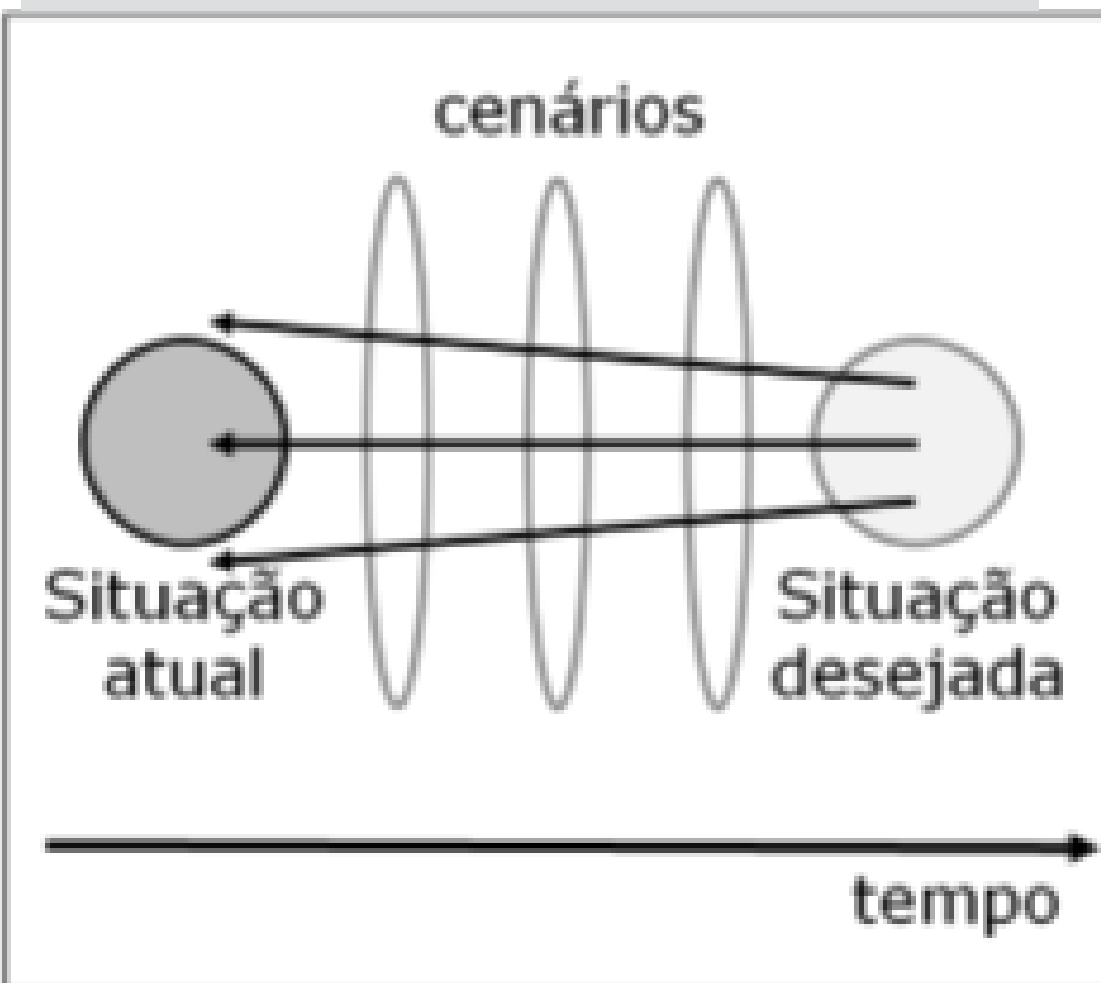
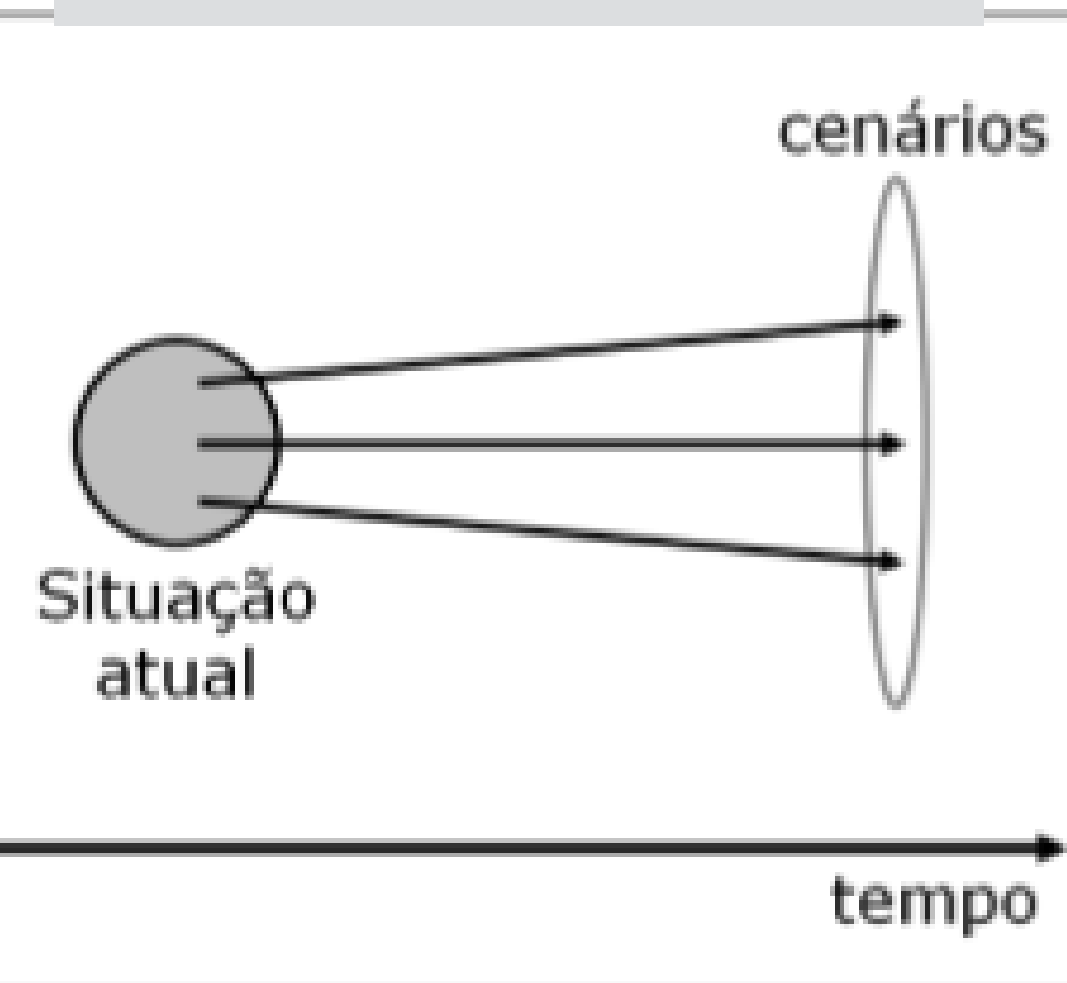
SCENARIOS

FORECASTING	FORECSIGHT
FOCUS ON CERTAINTIES	FOCUS ON UNCERTAINTIES
LINEAR PROYECTIONS	NON-LINEAR PROYECTIONS
CONTINUITIES	DISCONTINUTIES
QUANTITATIVE	QUALITATIVE
OBSERVER	PLAYER
SIMPLE TO COMPLEX	COMPLEX TO SIMPLE
SECTORIAL-REGIONAL	GLOBAL

THE DIRECTION OF THE PROJECTION OF RETROSPECTIVE AND PROSPECTIVE SCENARIOS

PROSPECTIVE SCENARIOS

RETROSPECTIVE SCENARIOS



Departamento de Prospecção e Planeamento de Portugal
(1997, apud Marlon; HULSE Wanderley)

SCENARIOS

SCENARIOS CHARACTERISTICS

Porter	GBN
1. Propósito do estudo	1. Identificação da questão principal
2. Identificação das incertezas críticas	2. Identificação dos fatores chaves
Incluído na etapa anterior	3. Identificação das forças motrizes
Incluído na etapa anterior	4. Ranking das incertezas críticas
3. Comportamento futuro das variáveis	5. Definição da lógica dos cenários Definição dos cenários
4. Análise dos cenários e consistência 5. Concorrência 6. Elaboração das histórias de cenários	<i>Etapa não descrita</i>
7. Elaboração das estratégias competitivas	6. Análise das implicações e opções

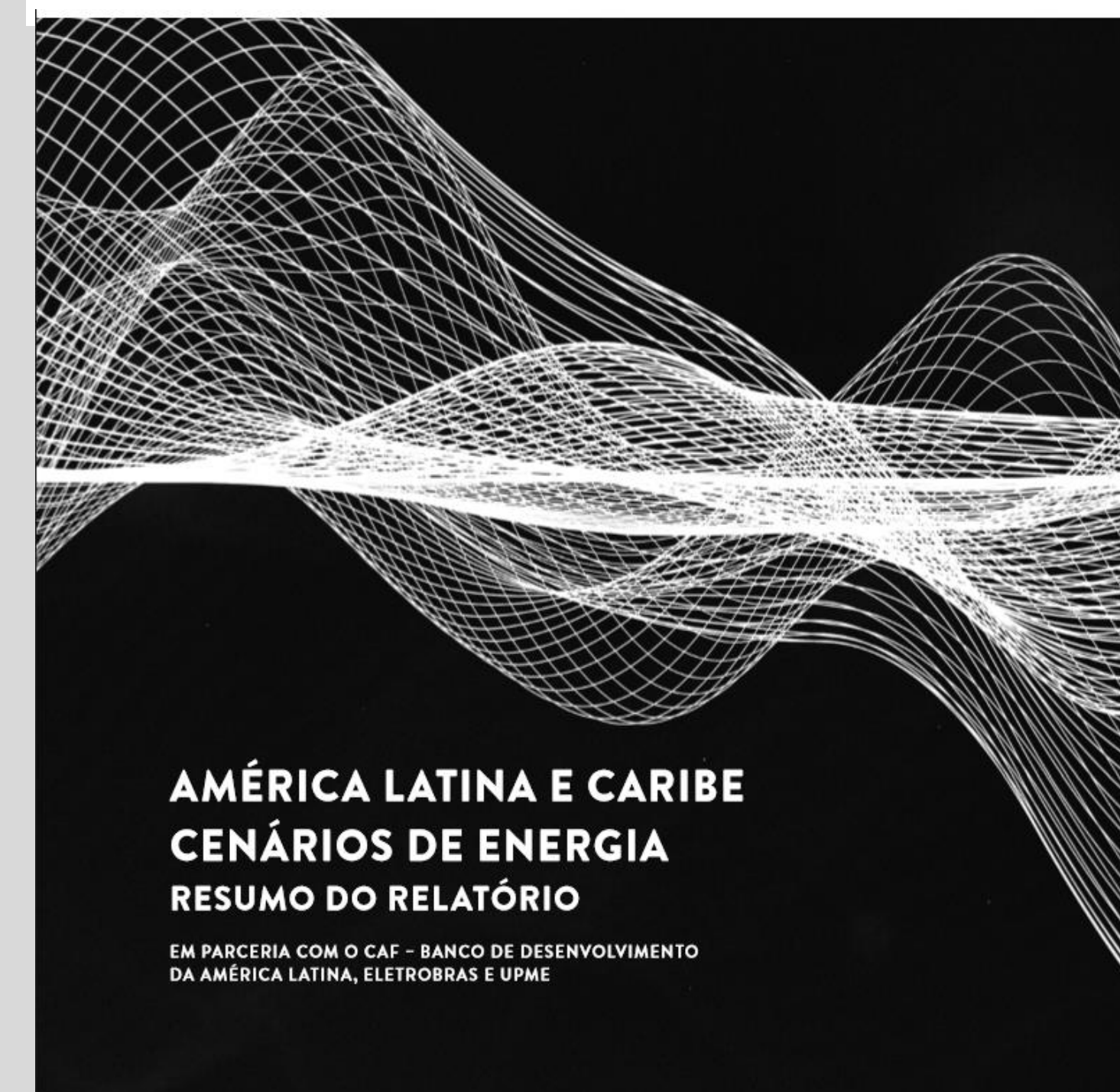
REFERENCES

- SILVA SOUZA, I. D. S.; PASSARINI TAKAHASHI, V. P. (2012). **A visão de futuro por meio de cenários prospectivos: uma ferramenta para a antecipação da inovação disruptiva.** Future Studies Research Journal: Trends and Strategies , v. 4, n. 2, p. 102-132. <http://www.spell.org.br/documentos/download/9222>
- GALLOPIN , Gilberto (1997). **Branch Points: Global Scenarios and Human Choice.** Stockholm Environment Institute.
<<http://www.greattransition.org/archives/other/Branch%20Points.pdf>> .
- MARCIAL, Elaine C. (2012). **Construção de Cenários Prospectivo: Qual o melhor método?** Revista do Centro de Estudos Estratégicos do Exército. Editorial 2012. p. 1-7.
<www.eme.eb.mil.br/ceeex/public/arquivos/nep2012/ConstrucaodeCenariosProspectivo_Artigo_EXERCITO_v3-1.pdf>
- NEGRI, Marlon; HULSE Wanderley. **A Ferramenta de Prospecção de Cenários no Processo de Tomada de Decisão.** Coleção Gestão Organizacional e Tecnologia em Recursos . <<http://www.funjab.cursoscad.ufsc.br/cejur/wp-content/uploads/2012/07/Livro-RH-TJ-Volume-3-Artigo-6.pdf>>

World Energy Scenarios

Composing energy futures to 2050

Project Partner
Paul Scherrer Institute (PSI), Switzerland



3. CONJUNCTURAL ANALYSIS

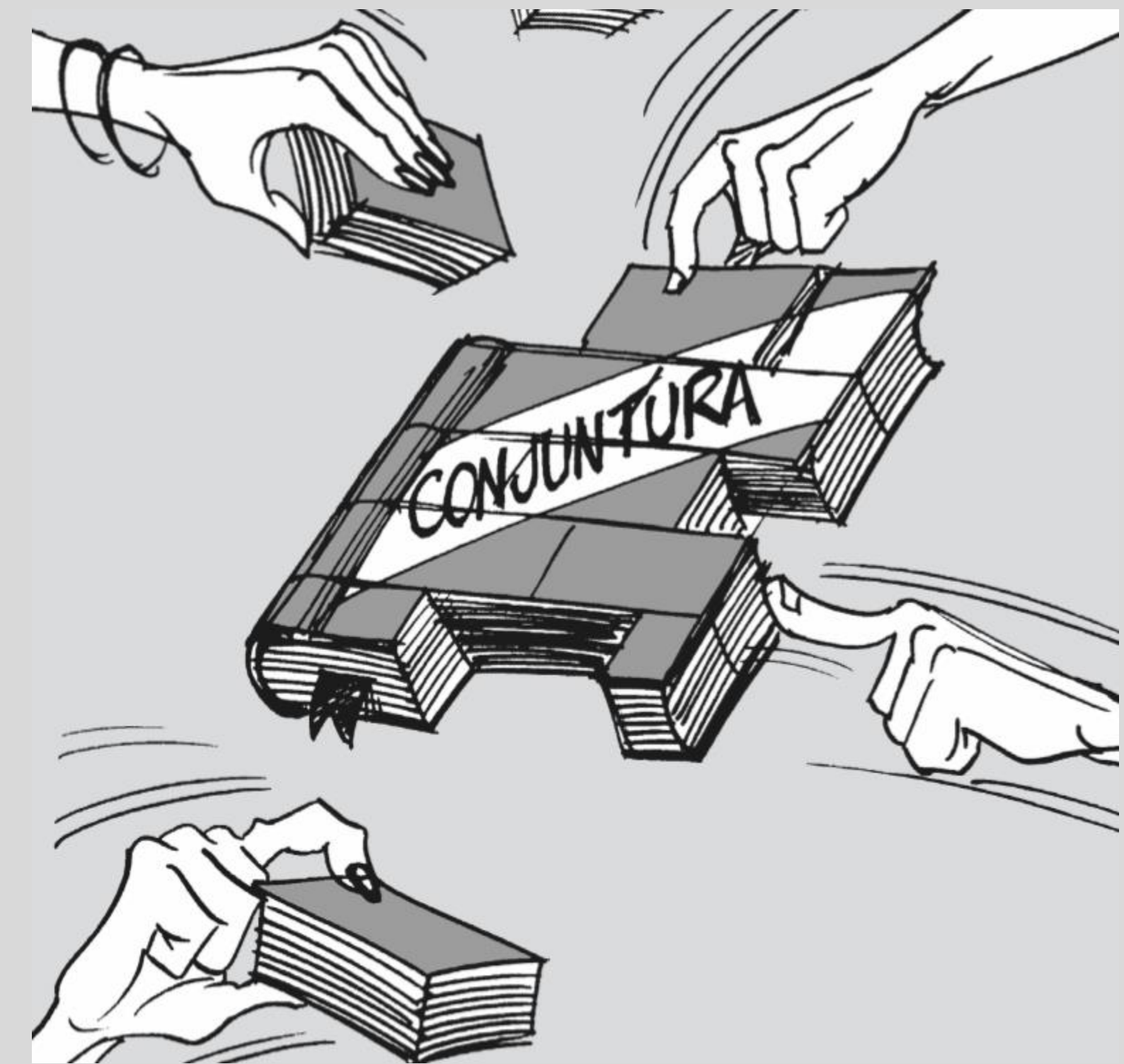
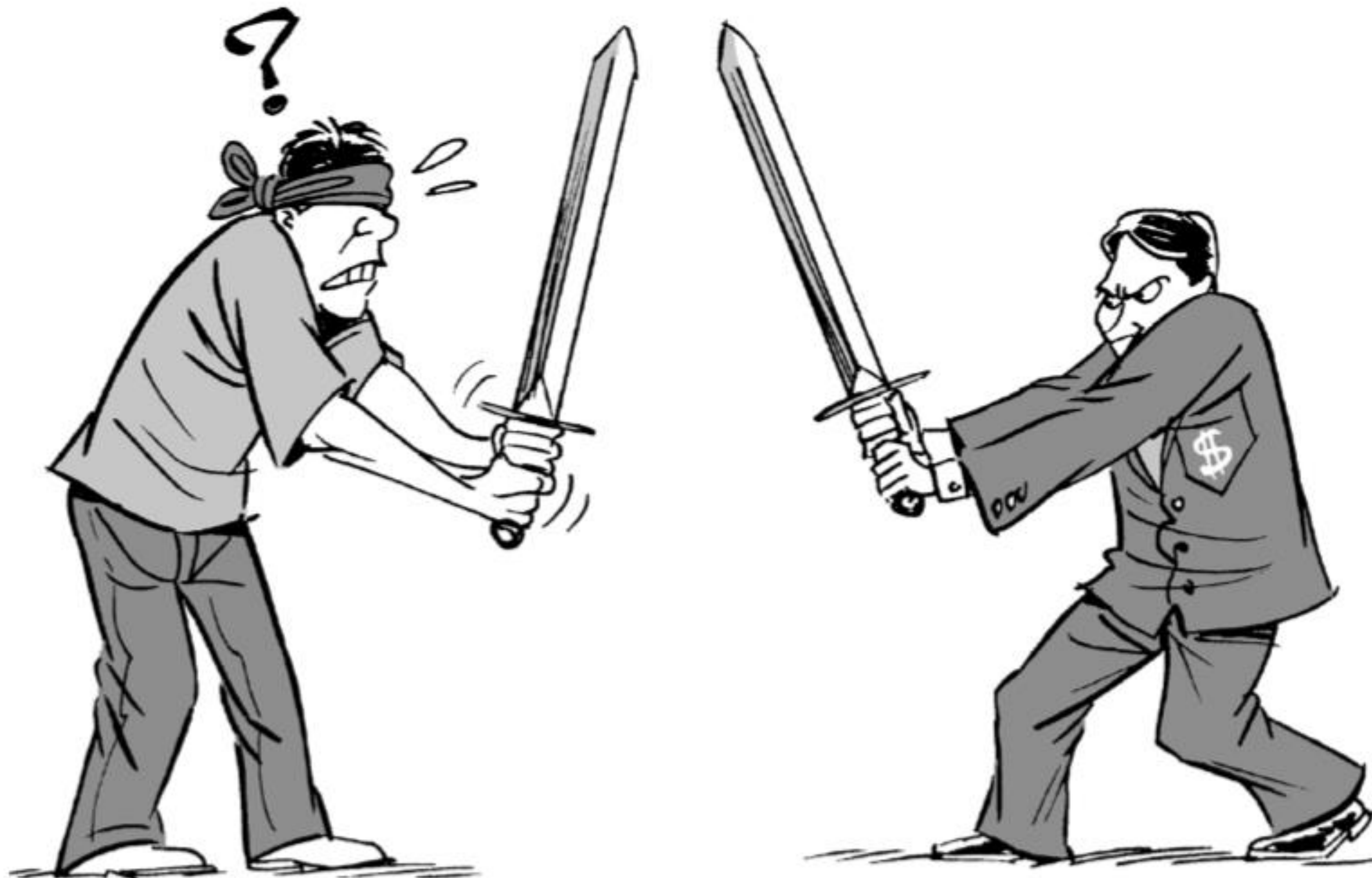
The word conjuncture indicates the relation that each force, each component of the overall picture maintains between itself and with the framework where it acts. The conjuncture is closely linked to the historical environment, always in motion, in which a certain action.

The question "what is conjuncture?", We can answer, briefly, that it is the actuation of all the distinct forces, at a certain moment, about a certain reality.

Finalmente, precisamos entender quais as influências históricas, políticas, ideológicas determinantes e como elas se relacionam e atuam em um dado quadro político e social.

CONJUNCTURAL ANALYSIS

Entender para onde sopram os ventos políticos, econômicos e sociais ou comportamentais de um determinado momento é essencial para saber como navegar e, sobretudo, como mudar os ventos a seu favor.



CONJUNCTURAL ANALYSIS

1 - What to know: necessary information

Economic framework data

b) Data on the political framework

c) Ideological and cultural factors

d) Historical background

e) The international framework and its local

f) Synthesize information

g) National framework: economic-political-social

h) Specific information on the subject in focus

i) A comprehensive, vital and permanent research

2 - Interpretation and quality of information

3 - Strategic action planning

a) Social actors and actresses

b) The forces that interact on the conjuncture

1 -Economic transformations

2-Who controls the land

3-Who controls the markets

How to control financial flows

2 - Political Transformations

Role of the State

Weight of Powers and Institutions

Functioning of corporate structures

3 - Cultural transformations

Who controls the flow of information

Who guides the perceptions and decisions of individuals.

REFERENCES

- DINIZ ALVES, J. E. (2008). **Análise de conjuntura: teoria e método** . APARTE - Inclusão Social em Debate , Nota Técnica. UFRJ.
www.ie.ufrj.br/aparte/pdfs/analiseconjuntura_teoriametodo_01jul08.pdf
- VELASCO E CRUZ, S. C. (2000). **Teoria e método na análise de conjuntura**. Educação & Sociedade, ano XXI, no72. p. 145-152.
< www.scielo.br/pdf/es/v21n72/4197.pdf >
- SANTIAGO, C. & CARMELLO MORAES, R. (2013). **Como Fazer Análise de Conjuntura**. CNTE/ESFORCE: Brasília, DF.
<www.cnte.org.br/images/stories/esforce/pdf/programaformacao_eixoo2_fasciculo03_analiseconjuntura.pdf>

Como fazer Análise de Conjuntura

Claudia Santiago

Reginaldo Carmello de Moraes

3ª Edição, 1ª Reimpressão

Brasília, DF
CNTE/ESFORCE
2014

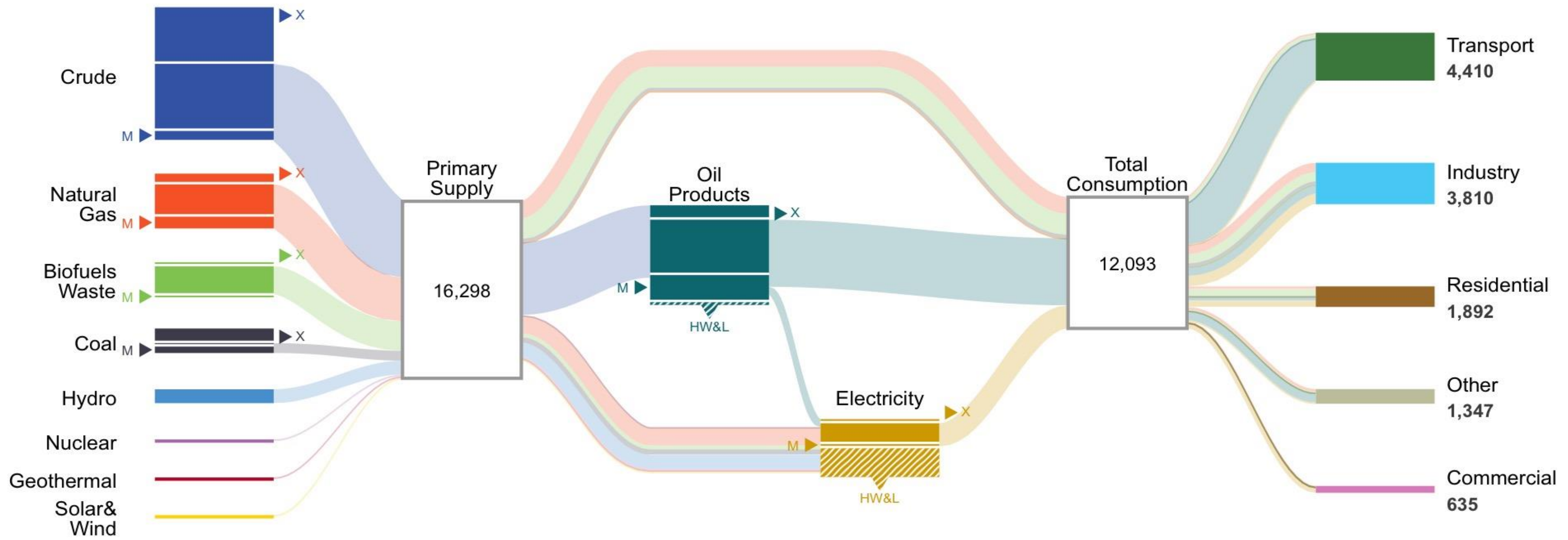
4. OVERVIEW LATIN AMERICAN ENERGY MATRIX

Latin America and the Caribbean (LAC) represent 4% of primary energy production worldwide; The internal matrix is mainly characterized by the primary oil supply 44.3%, natural gas 22%, biofuels 18% and 9.9% hydropower (OLADE, 2015), with the participation of other renewables and nuclear energy. A glance at its general energy matrix (Figure 1) may reveal the majority share by fossil fuels in different sectors



The percentage of fossil fuels (oil, natural gas and coal) is due to the characteristic level of these reserves in the region, accounting for approximately 20% of world production, with 329.6 mmbbl (million barrels) of proven reserves; of which Venezuela has more than 90%, which gives a margin of reserves for over a hundred years compared to reserves worldwide. (OLADE, 2015)

All figures in kBOE/day



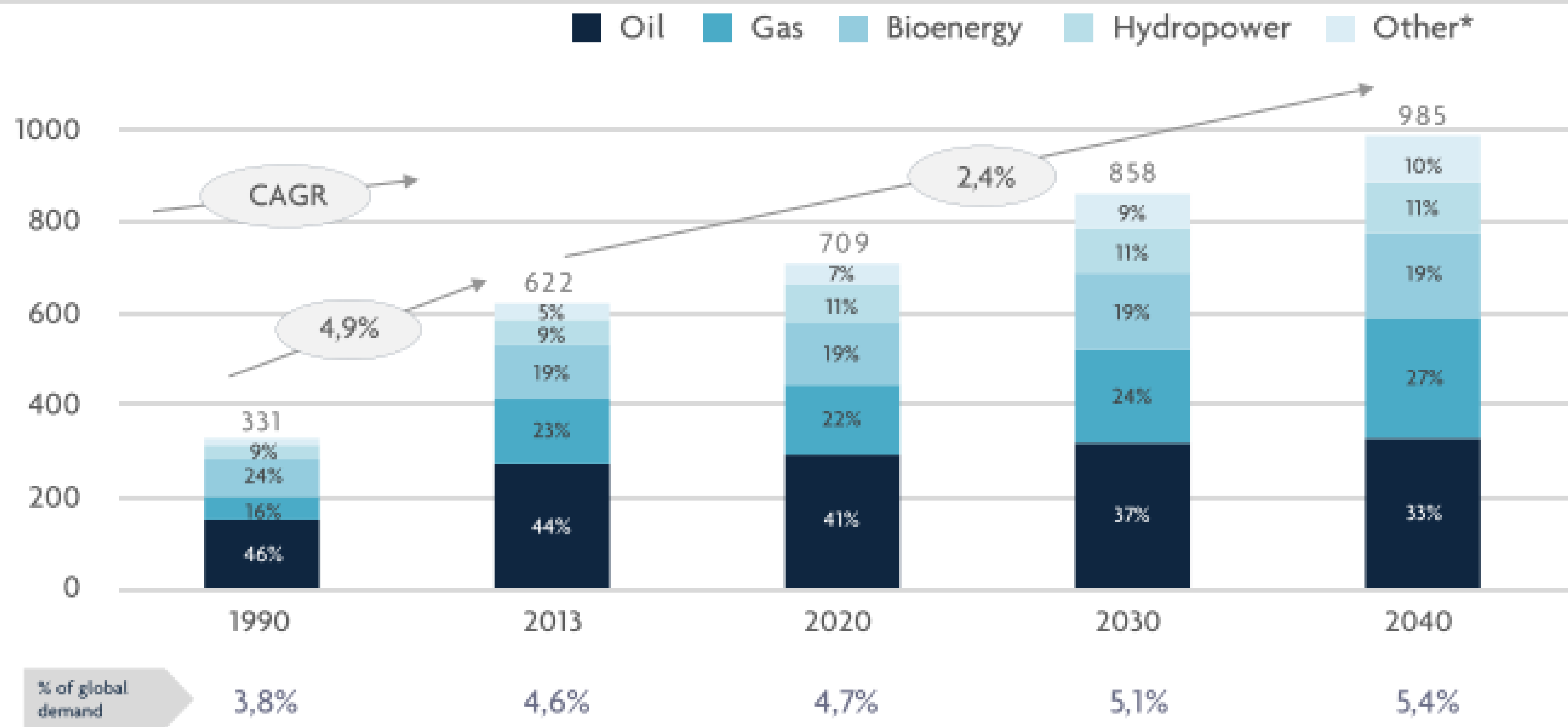
Energy Matrix > LAC > 2014 > All Sources

Source: IDB calculations based on IEA data and * based on other sources
Population and GDP data from the World Bank
<http://www.iadb.org/en/topics/energy/energy-database>

LATIN AMERICAN ENERGY MATRIX

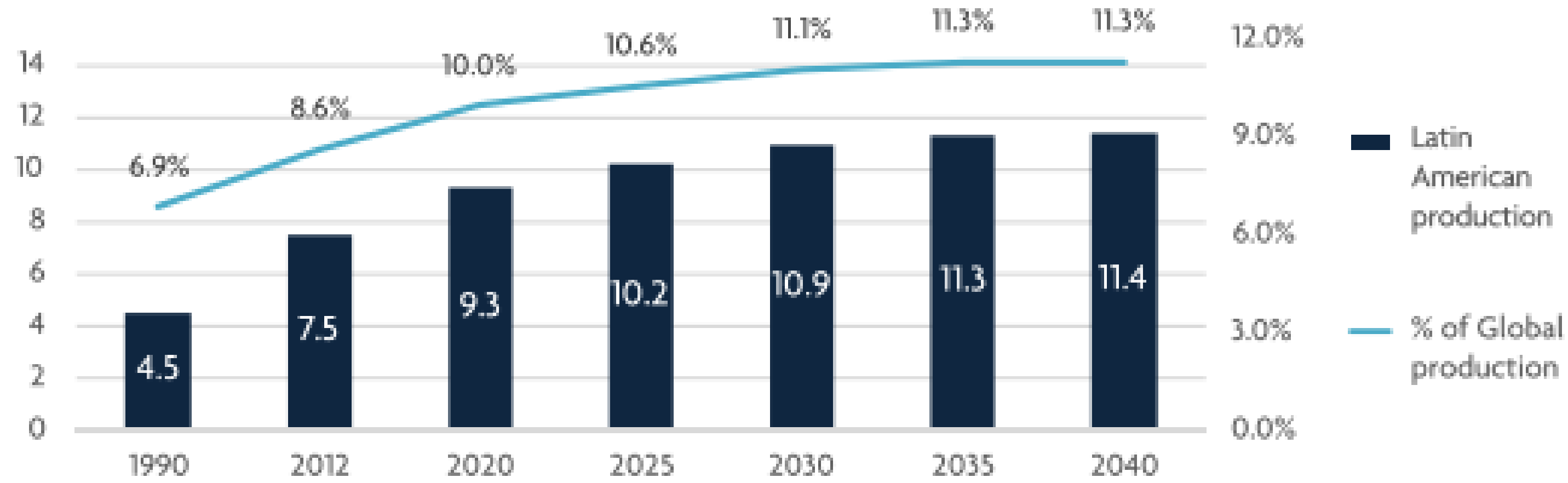
ENERGY DEMAND

(MTOE)% of Total



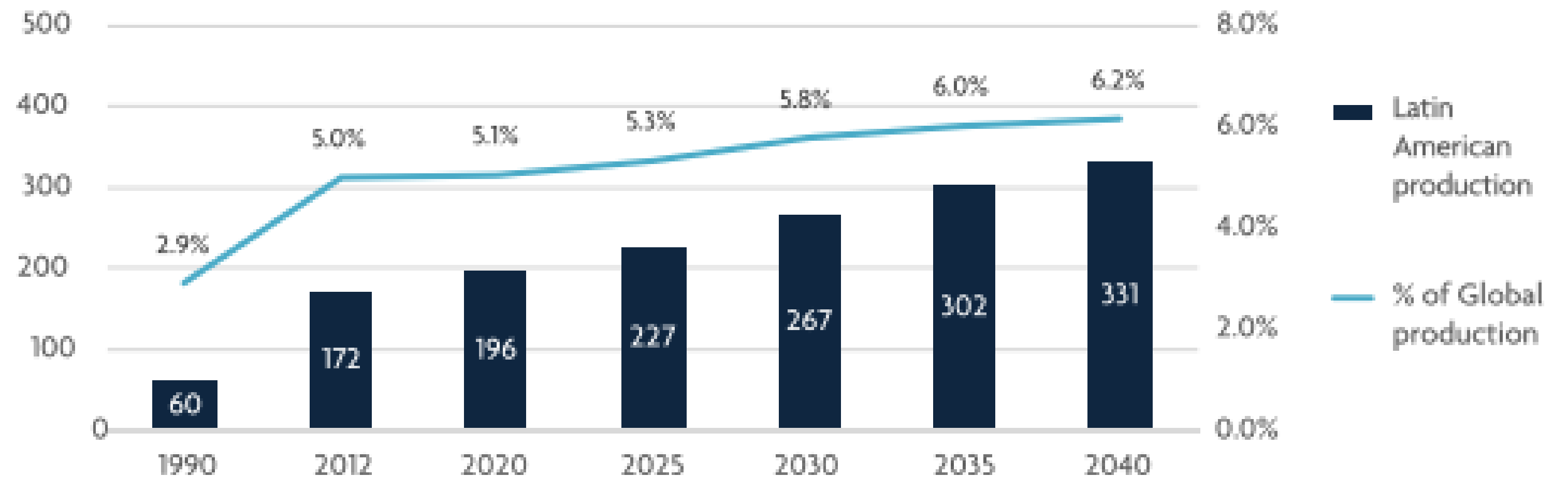
IEA, WEO 2014 – New Policies Scenario; WEO Special Report 2015. / * – "others" include coal, nuclear and renewable, except hydropower and bioenergy

ENERGY PRODUCTION



IEA, WEO 2014 - New Policies Scenario / * - * Considers "crude" oil, liquids of natural gas and non-conventional oil

LAC- Petroleum production (MB/day)



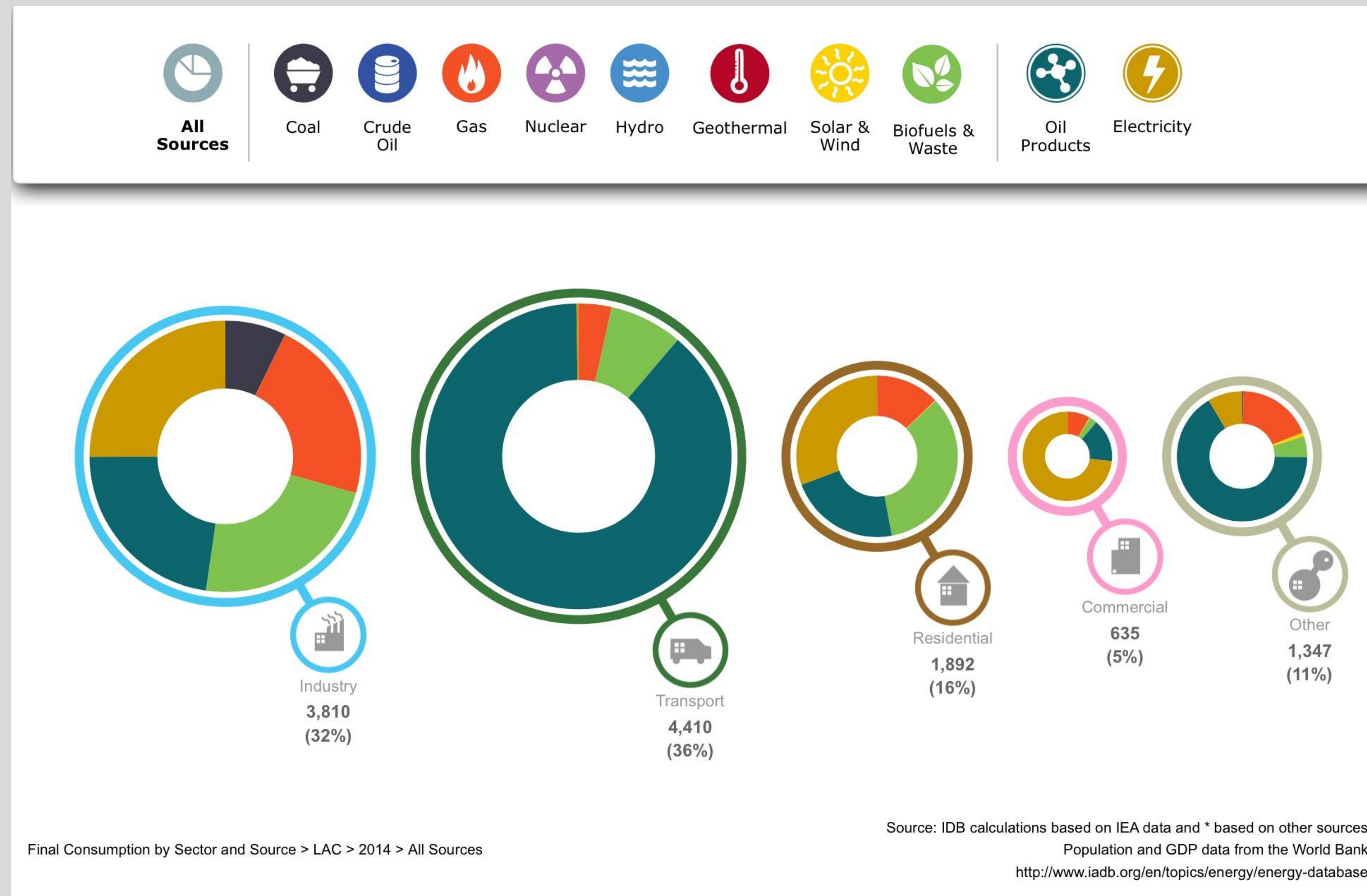
IEA, WEO 2014 - New Policies Scenario

LAC- gas production (MB/day)

FINAL CONSUMPTION BY SECTOR AND SOURCE

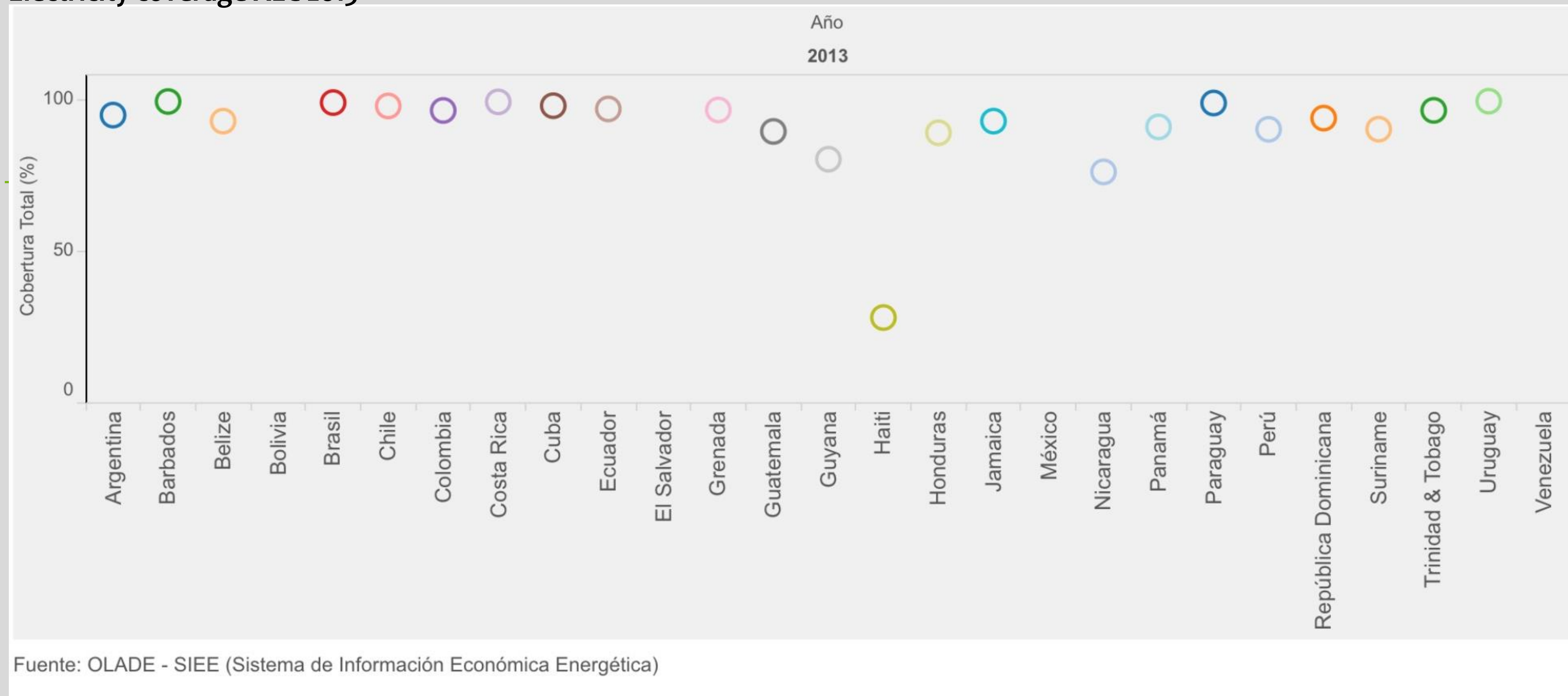
Energy demand is closely linked to the regional growth and thus with increasing living standards of citizens as a manifestation of development (PENAGOS, MOLINA 2015).

Analyzing the final regional consumption by sector, it is interesting to relate the effect of urbanization with motorization and industrialization, which correspond to more than 68% of energy demand (Figure 2). The transportation sector stands out due to its importance. Its contribution of 35% of emissions linked to the use of fuel is the highest compared to other regions of the world.



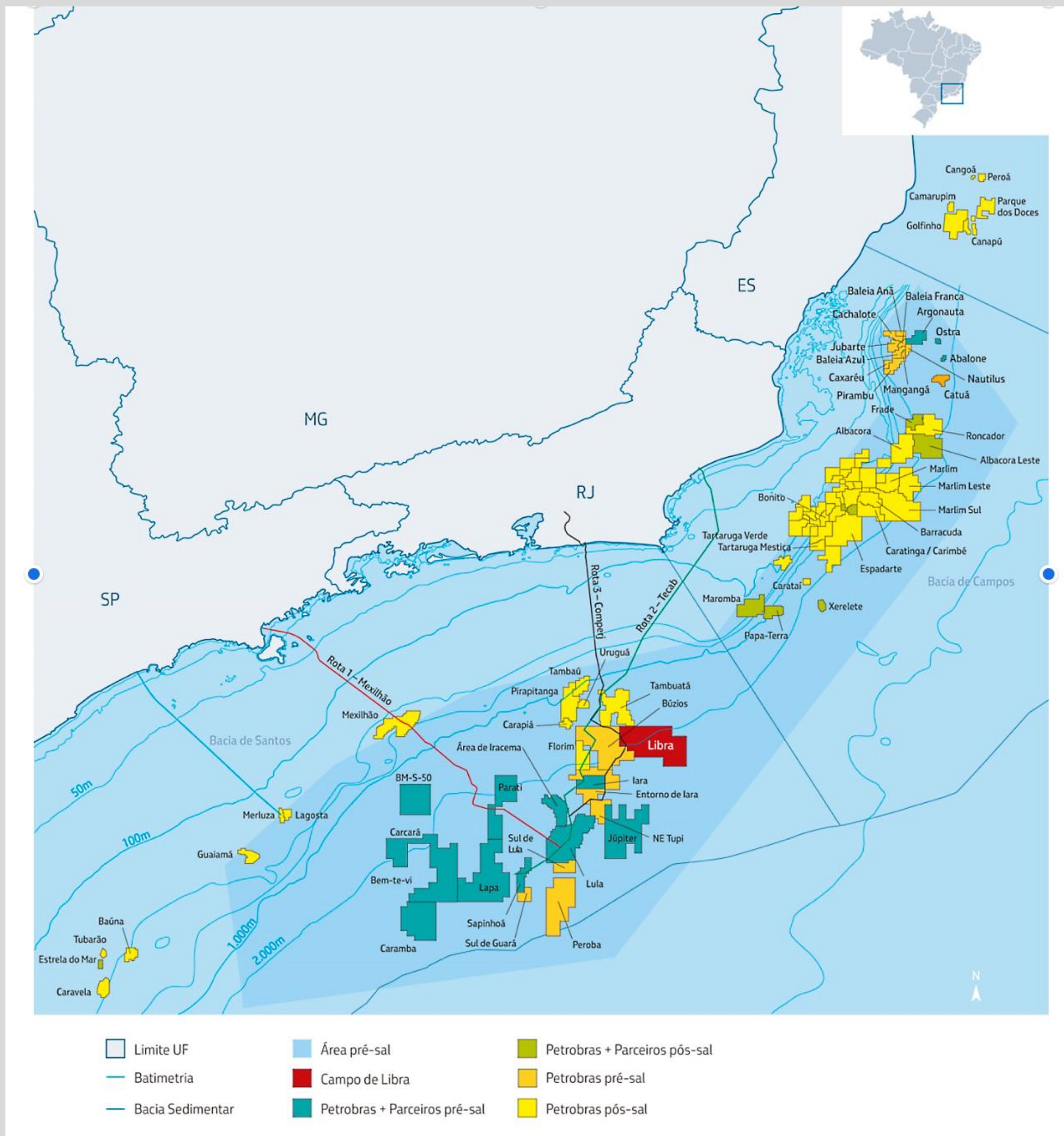
Final consumption, ALC 2014

Electricity coverage ALC 2013



Energy is not only necessary to ensure the quality of life of the population in cities, it is also a factor of production of the economy (IDB 2011). The current average coverage, according to BID studies, is that there is 95% of access to electricity. The second point is to address the challenge of mobilizing material, financial and human resources to create an infrastructure that will be needed to meet the growing demand for universal access to electricity (which is expected to double in the next 20 years), and replace obsolete infrastructure.

ENERGY GEOPOLITICS



- The discovery of Pre-salt, a province composed of large accumulations of light crude, of excellent quality, with high commercial value (Petrobras, 2015); with approximately 800 km of extension and 200 km of width, between the coast of Santa Catarina and Espírito Santo states, corresponding to almost three and a half times the state of Rio de Janeiro. The reserves of this province are 300 km of the Southeast region, which concentrates 55% of the country GDP.
- it is necessary to apply the concept of geopolitics of energy, can be understood as the analysis of a set of strategic geopolitical elements that influence exploration, structure, transportation and end use of energy resources.

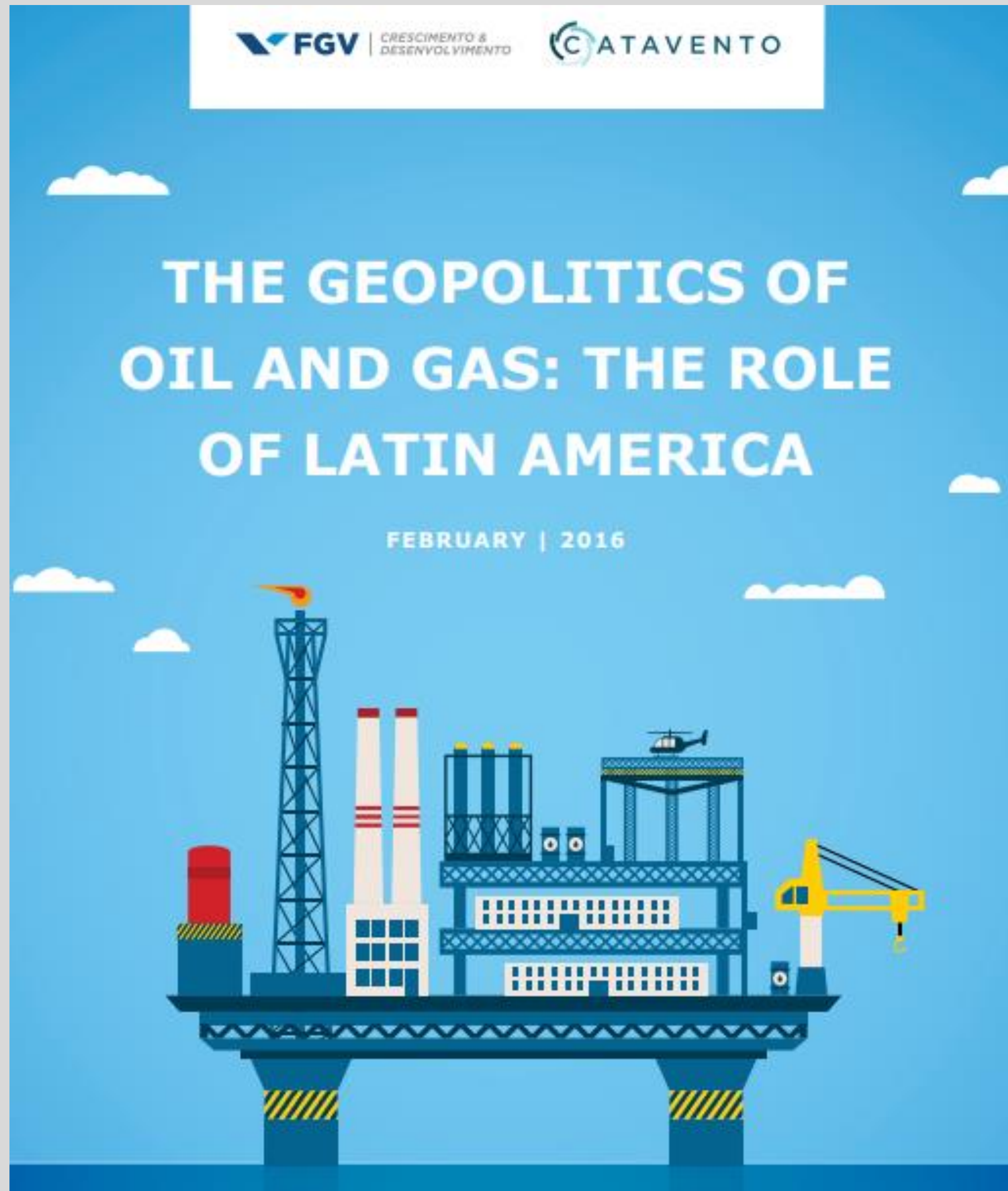
COMPETITIVENESS

THEMES	BRAZIL	ARGENTINA	VENEZUELA	MEXICO	COLOMBIA
Institutions					
Infrastructure					
Macroeconomic environment					
Health and basic education					
Higher education					
Market for goods					
Jobs					
Financial market					
Technological preparedness					
Market size					
Business sophistication					
Innovation					

World Economic Forum, Global Competitiveness Index 2015-2016.

0-2,5
 2,6-3,5
 3,6-4,5
 4,6-5,5
 5,6-7,0

ENERGY GEOPOLITICS



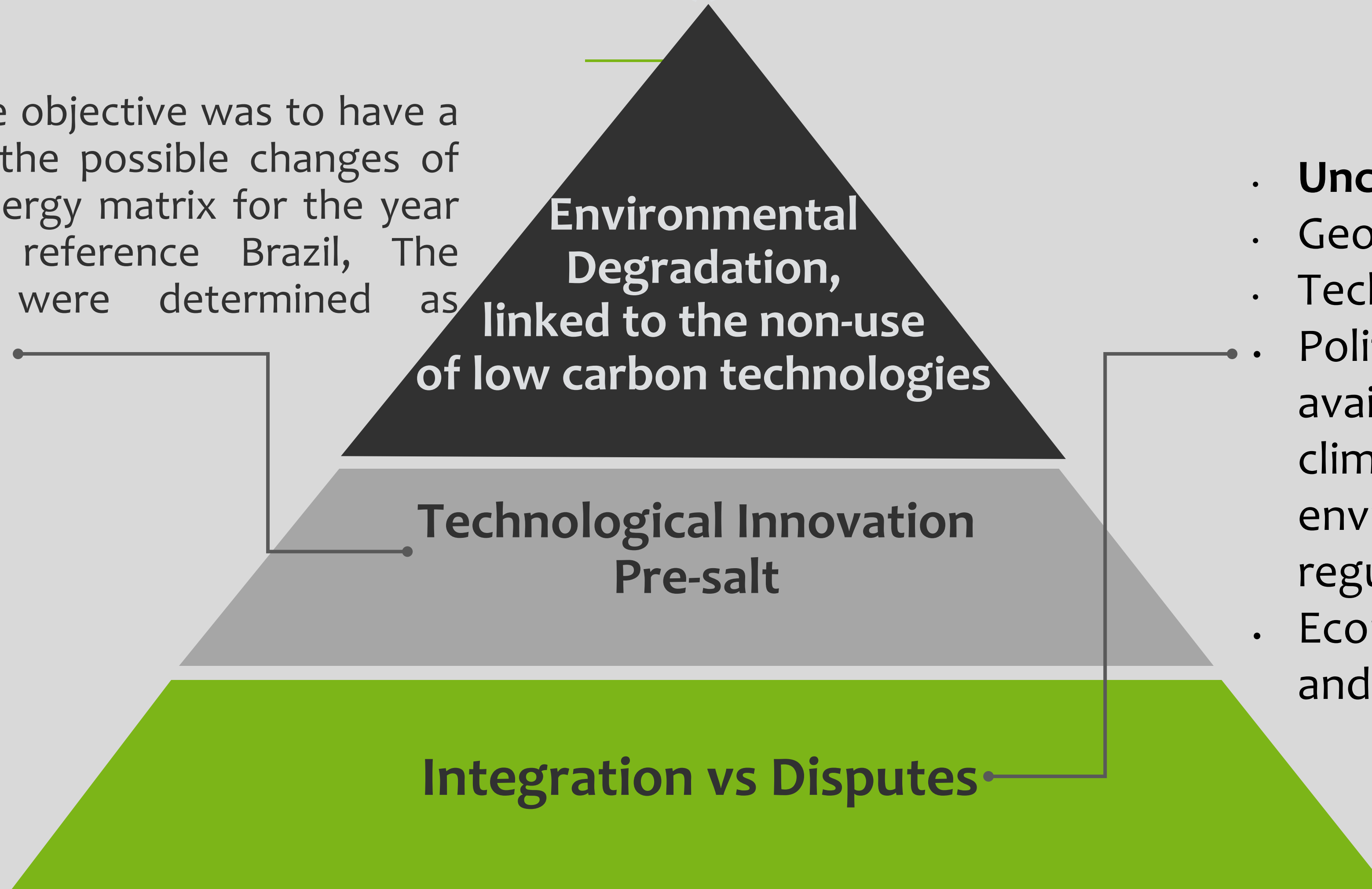
- LINS, Clarissa (2016) . **ENERGY GEOPOLITICS THE ROLE OF LATIN AMERICA**. Konrad Adenauer Foundation , FGV Growth & Development and Catavento Consulting. Brazil < http://www.kas.de/wf/doc/kas_43642-1522-1-30.pdf?160301175502>
- OLADE - Organización Latinoamericana de Energía, CANADA PROJECT (2015). **Access to Sustainable Energy for Latin America and the Caribbean**. <<http://www.olade.org/sites/default/files/CIDA/OLADE-CANADA%20Report%202014.pdf> >

ENERGY SECTOR TRENDS LATIN AMERICA 2050

- At the global level, governments play a crucial role, as they provide frameworks for the design and operation of energy markets (WEC, PSI, 2013). Also as seen in the COP21 (United Nations Climate Change Conference) the participation of countries in global agreements is increasing and accelerating the implementation of previous agreements (UNFCCC, 2015).
- Increase in the urbanization process with a current 79% of urbanization (WEC, PSI, 2013); Implies the need for investments in the areas of transportation and electrification, for equitable and controlled growth.
- Regarding carbon mitigation, an energy transition from carbon to natural gas is projected in the electricity generation sector. Nevertheless, fossil fuels continue to represent a significant share in the regional energy matrix.
- Access to energy resources may be more available due to technological innovations in the energy sector.

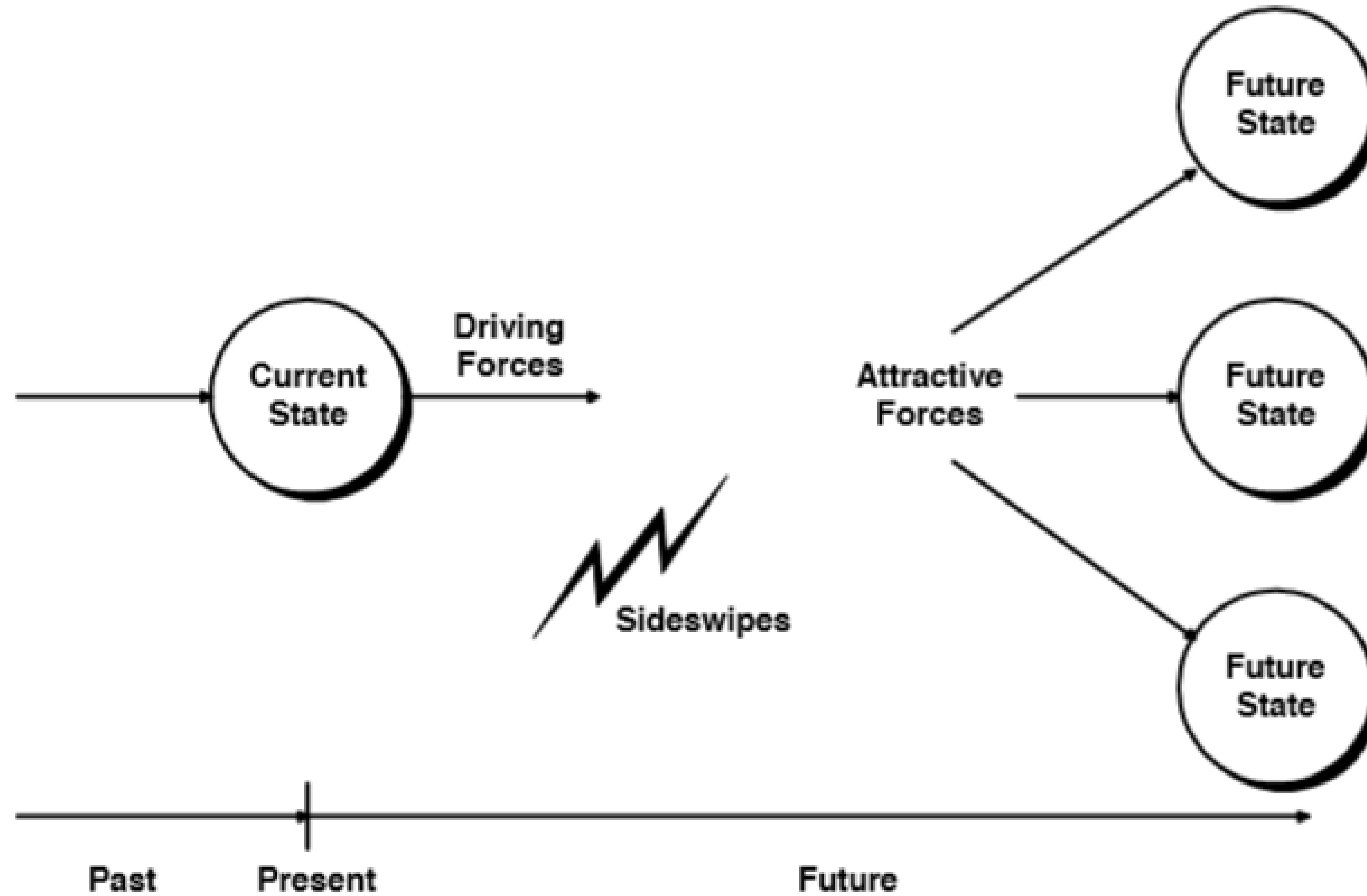
STRUCTURAL VARIABLES

In this perspective, the objective was to have a generalized vision of the possible changes of the Latin American energy matrix for the year 2030, having as a reference Brazil. The structural variables were determined as following:



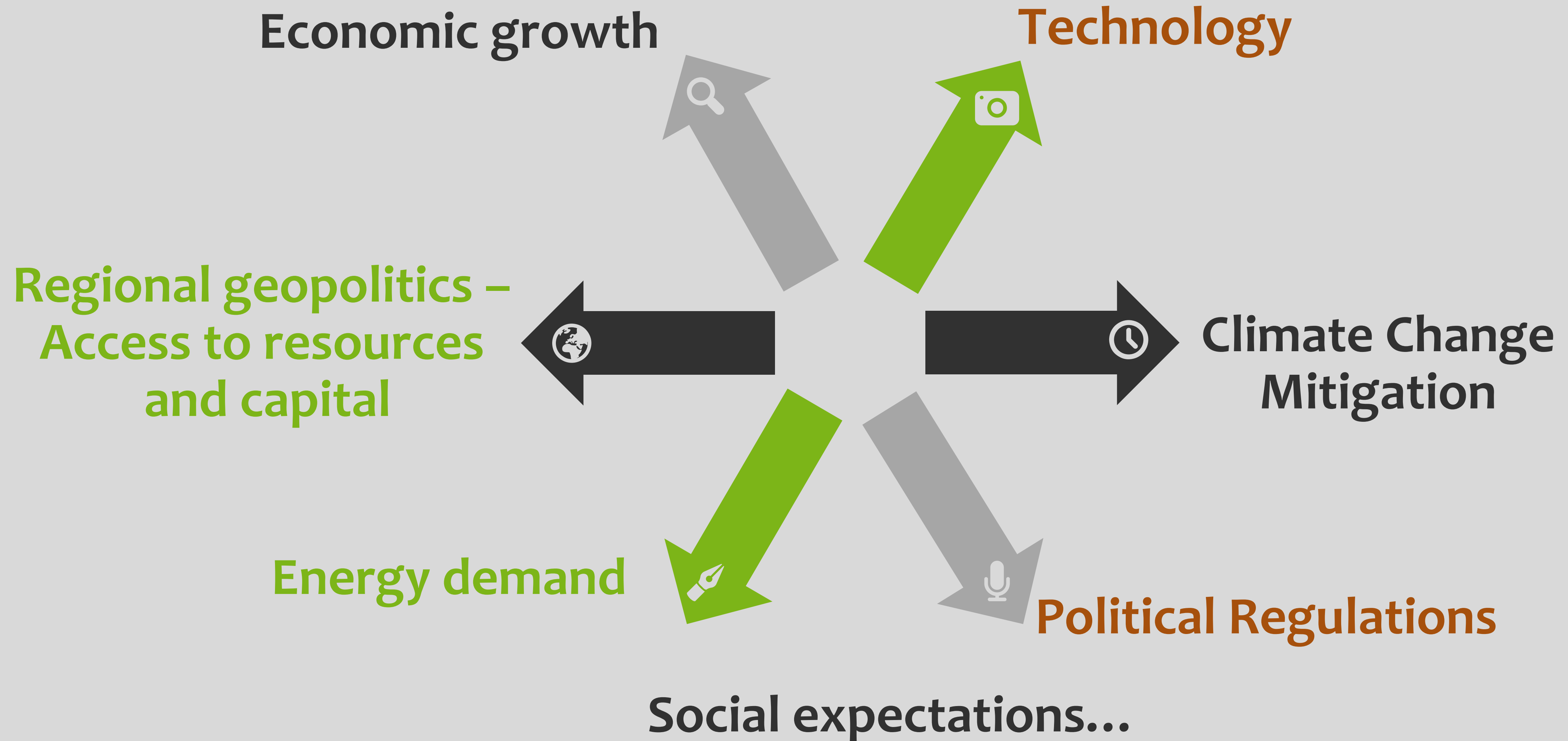
- **Uncertainties:**
- Geopolitical,
- Technological,
- Political (current availability for new climate and environmental regulations)
- Economical (investment and access to capital).

INTERRELATED DRIVING FORCES



Source: Raskin et al. (1996a)




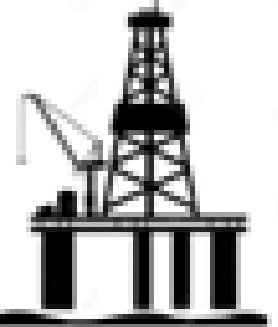
INTERRELATED DRIVING FORCES



6. STUDY CASE: LAC 2030

- The creation of the following three scenarios was carried out using the **GBN** (Global Business Network) method.
- They were used three models of reference scenarios, due to the structural complexity of the subject; among them, the one proposed by the **World Energy Council**, which establishes two world scenarios (Jazz and Symphony), not antagonistic in objectives, however its approach diverges in the sustainability and the acquisition of the resources, as well as the economic strategies (neo-liberal or nationalist). Another model adopted is the one proposed by the **Stockholm Environment Institute**, exemplified by GALLOPIN (1997), where there are three scenarios (Conventional Worlds, Barbarization, Great Transitions) each with two slopes according to the proposed variables: population, economy, environment, equity, technology and conflict). In parallel, for a more regional approach, the model presented in the **National Energy Plan 2030: Global Macroeconomic Scenarios**, has three basic elements of uncertainty: the pattern of globalization, the structure of economic political power, and the solution of conflicts (MME, EPE 2007).

STRUCTURAL VARIABLES

	CONFLITO 	INNOVAÇÃO 	MEIO AMBIENTE 	PRE-SAL 
LATINOAMÉRICA KO'ĀGAGUA JEHECHA				
WAKLLIKUNA				
YAPAJÍAMU				

WHERE ARE WE GOING?



**FIM DA ERA DO PETRÓLEO
É MELHOR LEILOAR TUDO O QUE FOR
POSSÍVEL, O MAIS RÁPIDO POSSÍVEL**



Climainfo

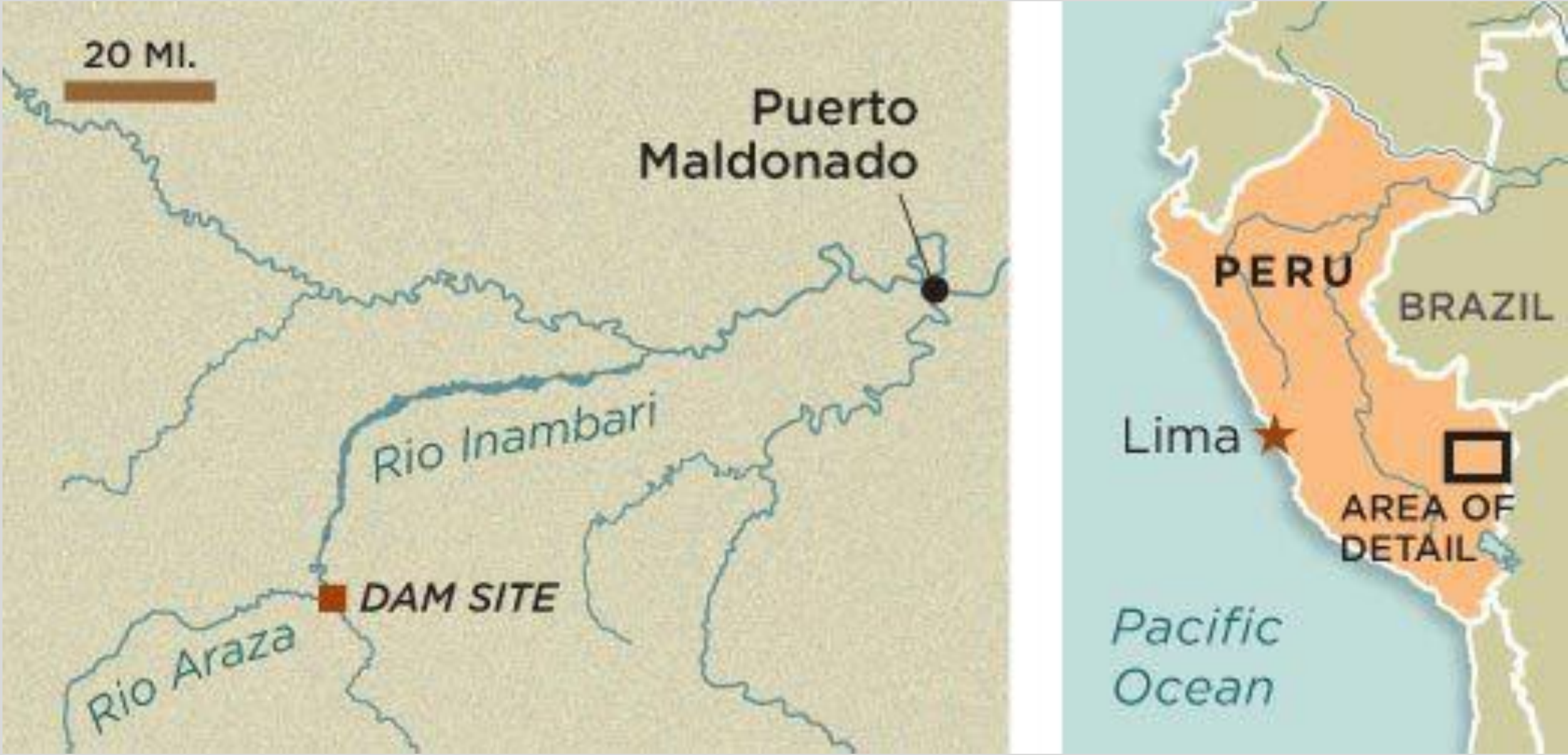


ENERGIA NÃO É MERCADORIA

CNE
COLETIVO NACIONAL DOS ENERGÉTICOS

FNU5
FEDERAÇÃO NACIONAL DOS URBANITÁRIOS
TRABALHANDO PELO BRASIL E LUTANDO POR VOZ

Pre-Salt exploitation and militarization by consortia with foreign private companies



INAMBARI HYDROELECTRICITY

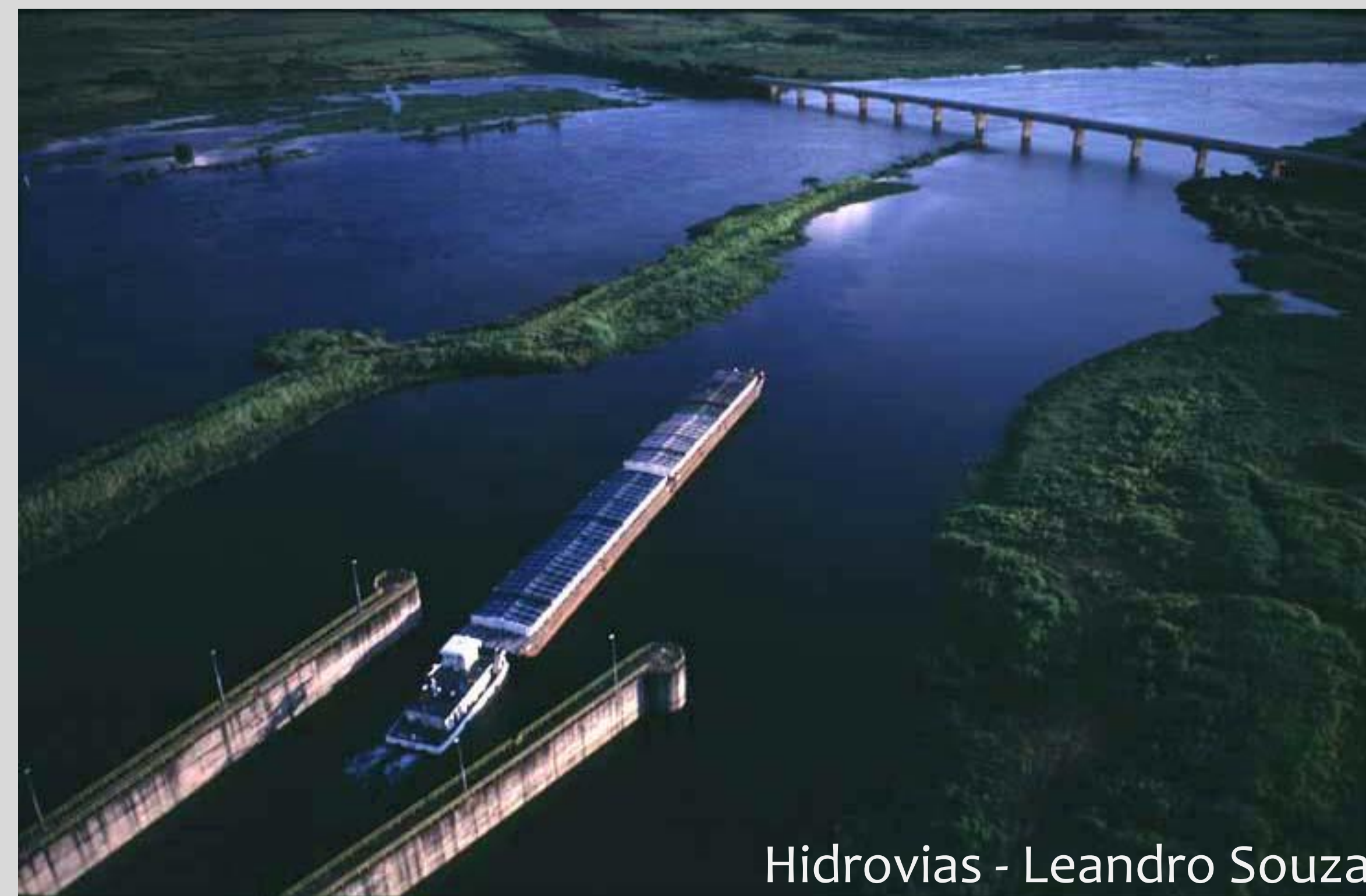


Edi- SHUTTERSTOCK; ROBERTO CASTRO / AG. ISTOÉ



At the same time, UNASUR, as a promoter of regional **energy integration**, is being strengthened through the consolidation of previously abandoned energy integration projects.

Other interesting proposals are being carried out as well as the replacement of road transport by **waterways**, which emit less pollutants, lower risk of accidents and lower cost per kilometer (CNT, 2013).



Hidroviás - Leandro Souza

8. GLOBAL SCENARIO 2050

- How will be the future of energy by 2050?
- Can you define it in one word?
- Let's prospect!

9. REGIONAL SCENARIO

- Who will perform the actions towards the global scenario?
- Who will be a key player?
- Don't forget about the variables, uncertainties and driving forces!!

10. ACTING LOCALLY 2018

- How will you take these branch points as key strategy for your local actions?
- What actions will you perform?

11. CONSIDERAÇÕES FINAIS

- To witness the birth of an international project as desired as the Energy Integration in Latin America, it is imperative to create awareness focused on the need for a strong assessment of the current situation; having a high potential for clean energy production, the potential to lead the global energy market, and thus, strongly contributing to the growth of sustainable development of the planet (PENAGOS et al. 2014).
- According to the WORLD NUCLEAR ASSOCIATION (2015), the human influence on climate change leading to global warming is evident; political responses have been directed by international negotiation, but have been characterized as indecisive at the national level, and to date largely ineffective. Nuclear power is rarely recognized as one of the most significant means to limit the rise in concentrations of greenhouse gases while allowing access to abundant electricity.
- There is no single comprehensive solution to the problem of energy supply. On the contrary, each of the individual parts of this challenge must work to achieve the global goal of sustainability, affordable and safe energy for all (World Energy Council, PSI, 2013).

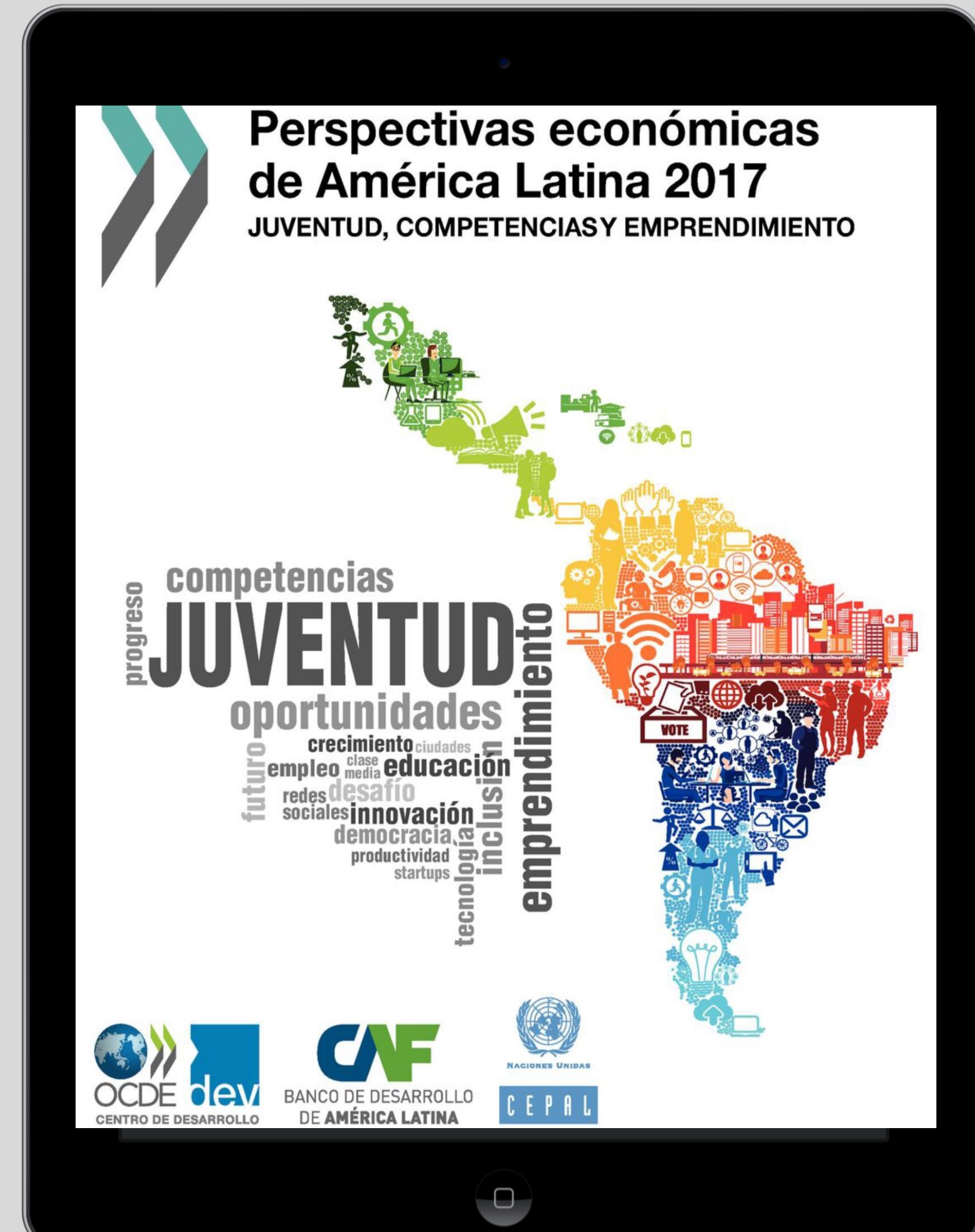
12. TOOLS AND DATABASES

- **ELECTRICITY MAP:** <https://www.electricitymap.org/?wind=false&solar=false&page=map>
- **Millennium Project -Annotated Scenarios Bibliography:** <http://107.22.164.43/millennium/annotated-scen.html#whole>
- **ENERGY DATABASE:** <http://www.iadb.org/en/topics/energy/energy-database/energy-database,19144.html>
- **NEX Global Daily Downscaled Climate Projections:** <https://nex.nasa.gov/nex/projects/1356/>
- **GLOBAL CARBON ATLAS:** <http://www.globalcarbonatlas.org/en/CO2-emissions>
- **STRATEGIC FORESIGHT SOFTWARES:** <http://en.lapropective.fr/methods-of-prospective.html>

WHY WE (YOUNG PEOPLE) SHOULD CARE ABOUT THIS?

- *"Empowering the 40% of young Latin Americans not in formal jobs, education or training could spark new growth engines"*

Latin American Economic Outlook 2017



Perspectivas económicas de América Latina 2017

JUVENTUD, COMPETENCIAS Y EMPRENDIMIENTO

Competencias



2/3 de los jóvenes latinoamericanos no están dotados de **competencias avanzadas** en áreas técnicas, profesionales y de gestión.

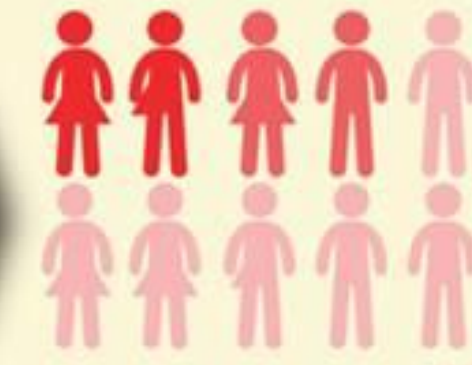
#LE02017

Encuentra más información en LatamEconomy.org

Perspectivas económicas de América Latina 2017

JUVENTUD, COMPETENCIAS Y EMPRENDIMIENTO

No tienen empleo, no estudian, ni reciben capacitación



● No tienen empleo (...) ● Empleos informales ● Otros

21% de los jóvenes no tienen empleo, no estudian, ni reciben capacitación. 76% de ellos son **mujeres**, en parte porque se dedican a tareas en el hogar. Además **19%** de los jóvenes trabajan en empleos informales.

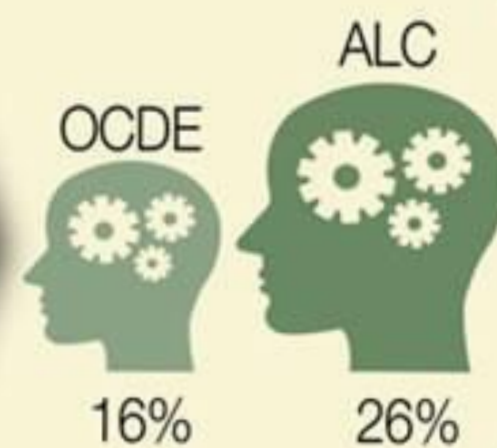
#LE02017

Encuentra más información en LatamEconomy.org

Perspectivas económicas de América Latina 2017

JUVENTUD, COMPETENCIAS Y EMPRENDIMIENTO

Emprendimiento



26% de los jóvenes emprendedores en ALC afirman iniciar su empresa por falta de **otras oportunidades de empleo**.

#LE02017

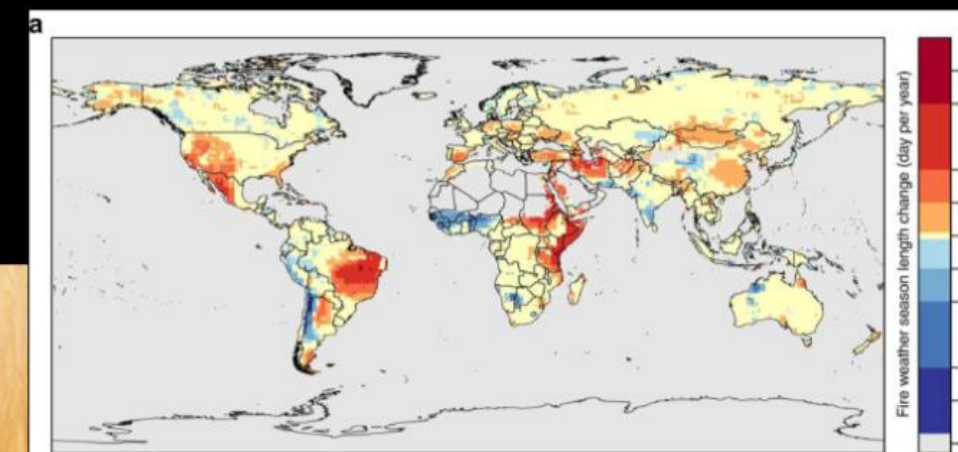
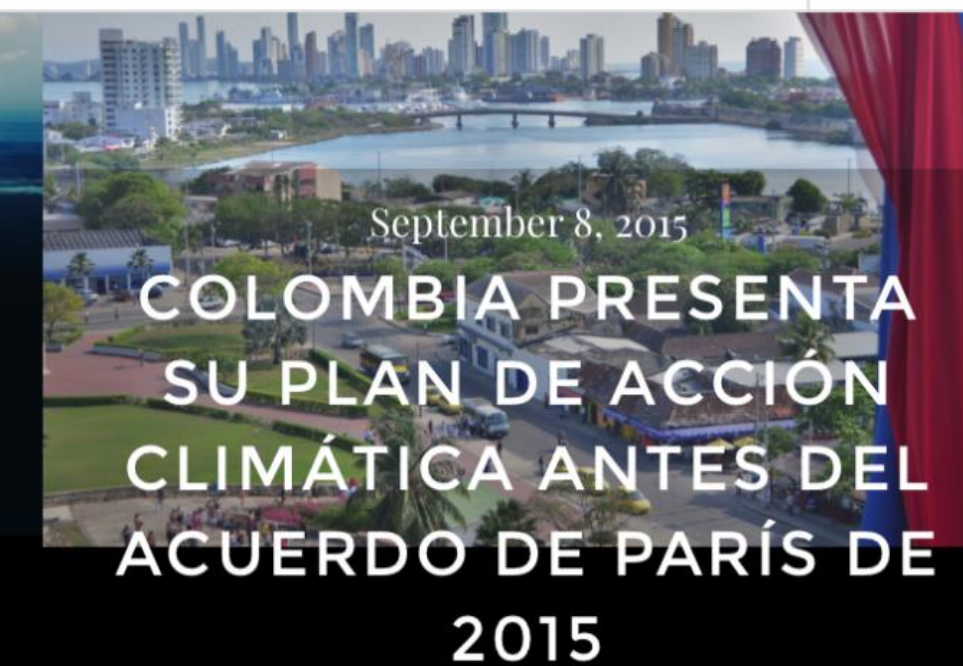
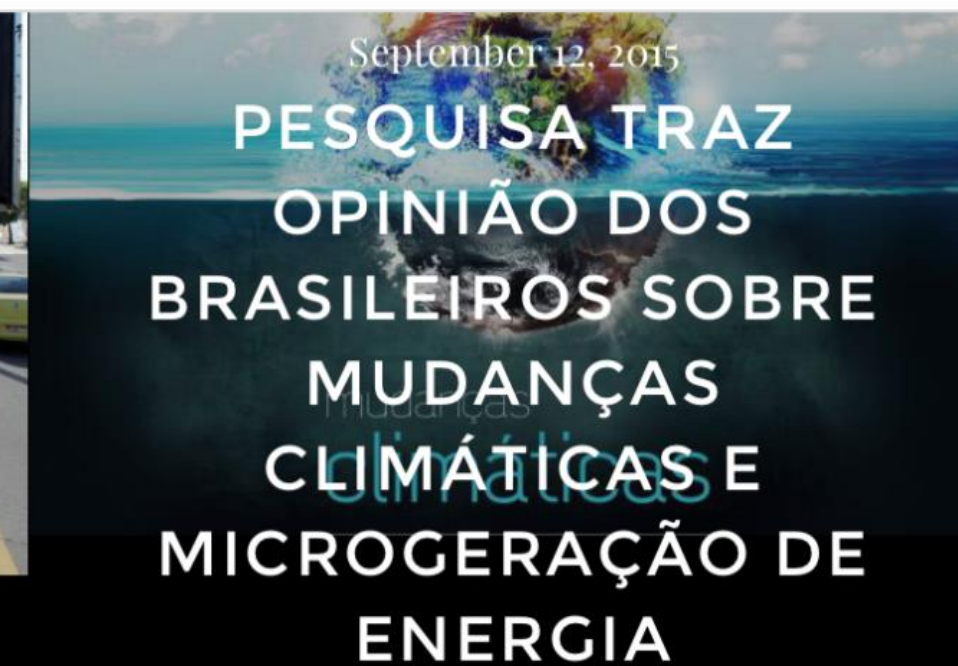
Encuentra más información en LatamEconomy.org

"Policymakers should gather information and evaluate youth programs to design public policies that take into account the current technological, political and social transformation that is changing the world of work and the cities in which young people will live. 9 out of 10 young people in LAC will live in cities in 2050 "

CONTACT

 <https://climateactuality.wordpress.com>

CLIMATE ACTUALITY by Joyce Penagos



@JoyceNajm – joycenajmaldin@icloud.com

*Let's talk about energy!! Comments and suggestions?
What's your perspective?*

*Document with complete analysis:
<https://climateactuality.wordpress.com/energy>*

AGUYJE! GRACIAS! OBRIGADA! DANKE! THANKS! شُكْرًا!



REFERENCES

ARAMBURU, Luis B., (2015). **Less Hype, More Reality**. Days. <<http://daysgt.blogspot.mx/2015/05/less-hype-more-reality.html>>.

BID - BANCO INTERAMERICANO DE DESARROLLO (2011). **SOSTENIBILIDAD URBANA en América Latina y el Caribe**.

<https://publications.iadb.org/bitstream/handle/11319/2784/Sostenibilidad%20Urbana%20.pdf?sequence=1>.

BRUNI, Sandro (2014). **La Energía Geotérmica: Una Fuente Sostenible de Energía**. Publicaciones Banco Interamericano de Desarrollo.

<<https://publications.iadb.org/bitstream/handle/11319/6601/El%20calor%20de%20la%20Tierra%3a%20fuente%20ina%20gotable%20de%20energ%C3%ADa%20sostenible.pdf?sequence=4>>.

CNT - Confederação Nacional de Transportes (2013). **Pesquisa CNT do Transporte Aquaviário, Cabotagem 2013**. <<http://cms.cnt.org.br/Imagens%20CNT/PDFs%20CNT/Pesquisa%20Cabotagem%202013/Pesquisa%20CNT%20do%20Transporte%20Aquaviário%20-%20Cabotagem%202013.pdf>>.

GALLOPIN, Gilberto et al. (1997). **Branch Points: Global Scenarios and Human Choice**. Stockholm Environment Institute. Global Scenario Group. Estocolmo, Suiza

IEA - INTERNATIONAL ENERGY AGENCY (2015). **World Energy Outlook Special Report 2015 the Energy-Climate Map**. IEA, Paris.

<<https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf>>.

REFERENCES

IDB7x - Curso Desarrollo Urbano y Vivienda (2015). **Proceso de Urbanización: ¿Cómo Crecieron las Ciudades en los Últimos 70 años?** Banco Interamericano de Desarrollo. <<http://youtu.be/h8tYoCfQr9g>>

MME - Ministerio de Minas y Energía, República Federativa do Brasil; EPE - Empresa de Pesquisa Energética (2013). **Plano Decenal de Expansão de Energia 2022.** Brasília. <http://www.epe.gov.br/Estudos/Documents/PDE2022.pdf>

OLADE - Organización Latinoamericana de Energía, CANADA PROJECT (2015). **Access to Sustainable Energy for Latin America and the Caribbean.** <<http://www.olade.org/sites/default/files/CIDA/OLADE-CANADA%20Report%202014.pdf>>.

OLADE - Organización Latinoamericana de Energía (2015). **Evolución de la Integración Energética en América Latina y el Caribe.** Revista FIER: Una década promoviendo la integración. p. 14- 23. <http://issuu.com/oladeorg/docs/fier_espan_ol>.

PENAGOS, J., & MOLINA, J. (2015). **Integración Nuclear basada en la Tecnología del Torio entre Brasil y Argentina.** Artículo de Geopolítica, UNIVERSIDADE FEDERAL DA INTEGRAÇÃO LATINO-AMERICANA. Foz do Iguaçu. <<https://climateactuality.files.wordpress.com/2017/03/art-thoriumint-b-a.pdf>>.

PETROBRAS - Petróleo Brasileiro S.A. (2015). **Pré-Sal** <<http://www.petrobras.com.br/pt/nossas-atividades/areas-de-atuacao/exploracao-e-producao-de-petroleo-e-gas/pre-sal/>>.

REFERENCES

UNFCCC - United Nations Framework Convention on Climate Change (2015). **Adoption of the Paris Agreement.** Conference of the Parties, Twenty-first session. Paris, 30 November to 11 December 2015. <<http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>>.

VIEIRA, Arnaldo de Carvalho. (2015). **3 maneras de apoyar al desarrollo sostenible de energía en América Latina y el Caribe.** Banco Interamericano de Desarrollo. - Blogs de El Economista. <http://blogs.iadb.org/energia_es/2015/11/12/3-maneras-de-apoyar-al-desarrollo-sostenible-de-energia-en-america-latina-y-el-caribe/>.

WEC- WORLD ENERGY COUNCIL, PSI - Paul Scherrer Institute (2013). **World Energy Scenarios: Composing energy futures to 2050** <https://www.worldenergy.org/wp-content/uploads/2013/09/World-Energy-Scenarios_Composing-energy-futures-to-2050_Full-report.pdf>.

WEC- WORLD ENERGY COUNCIL (2017). **Cenários Mundiais de Energia: América Latina e Caribe Cenários de Energia. Resumo do Relatório.** < http://scioteca.caf.com/bitstream/handle/123456789/1056/LAC-Scenarios_summary-report_Portuguese.pdf?sequence=3&isAllowed=y>

WORLD NUCLEAR ASSOCIATION (2015). **Policy Responses to Climate Change.** < <http://www.world-nuclear.org/info/Energy-and-Environment/Policy-Responses-to-Climate-Change/>>.