



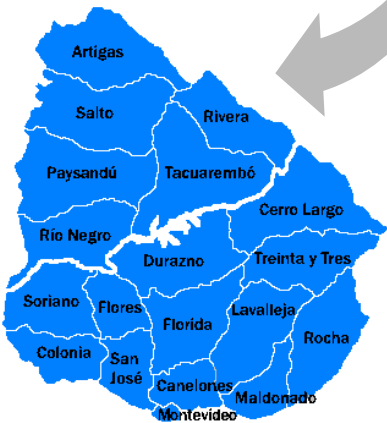
ENERGY POLICY 2030: INVESTMENT OPPORTUNITIES IN URUGUAY

Ramón Méndez
Director Nacional de Energía
Uruguay



OVERVIEW OF URUGUAY



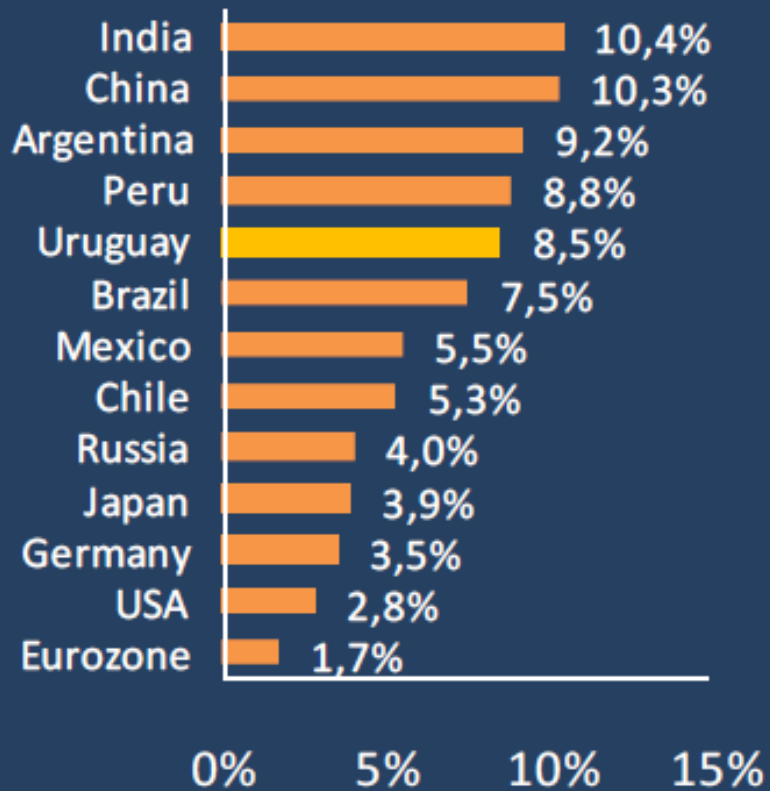


| | |
|-------------------------------|----------------------------------|
| Country name: | República Oriental del Uruguay |
| Land area: | 176,215 km ² |
| Population: | 3.3 million inhabitants |
| Annual growth rate: | 0.3 % |
| Density: | 18.8 inhabitants/km ² |
| Life expectancy: | 76 years |
| Infant mortality rate: | 7.7/1000 (22.8 in Latin Am) |

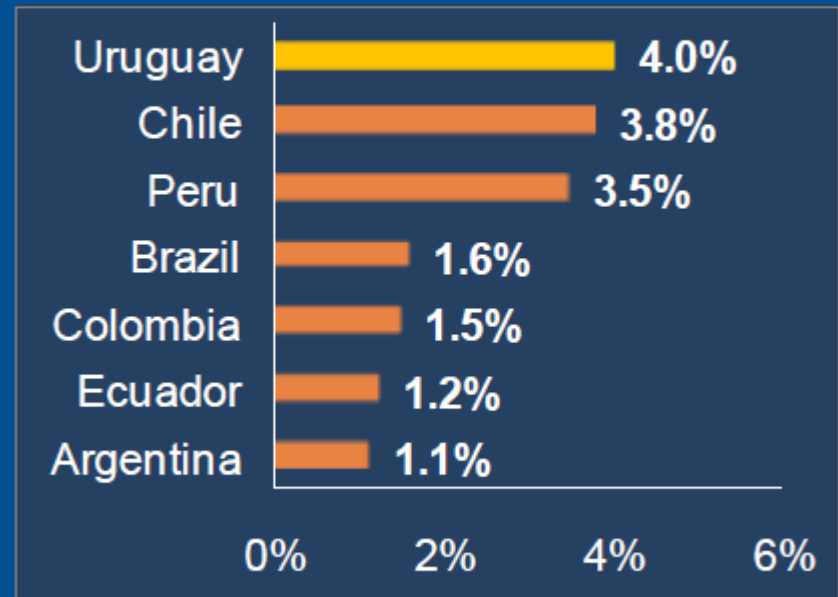


ECONOMICALLY SUSTAINABLE

Real GDP growth in 2010



FDI in South America (2009, % of GDP)



Source: ECLAC

Source: FMI, World Economic Outlook, April 2011



SOCIALLY SUSTAINABLE

| Low Corruption (Transparency International 2010) | |
|---|-----------|
| New Zealand | 1 |
| Norway | 10 |
| Ireland | 14 |
| Chile | 21 |
| US | 22 |
| Uruguay | 24 |
| France | 25 |
| Spain | 30 |
| Portugal | 32 |
| South Korea | 39 |
| Costa Rica | 41 |
| South Africa | 54 |
| Italy | 67 |
| Brazil | 69 |
| Colombia | 78 |
| Argentina | 105 |

| Democracy Index (Economist Intelligence Unit 2010) | |
|---|-----------|
| Norway | 1 |
| New Zealand | 5 |
| Ireland | 12 |
| US | 17 |
| Spain | 18 |
| South Korea | 20 |
| Uruguay | 21 |
| Costa Rica | 24 |
| Portugal | 26 |
| Italy | 29 |
| South Africa | 30 |
| France | 31 |
| Chile | 34 |
| Brazil | 47 |
| Argentina | 51 |
| Colombia | 57 |

| Global Peace Index (ranking) | |
|---------------------------------|-----------|
| New Zealand | 1 |
| Ireland | 6 |
| Uruguay | 24 |
| Spain | 25 |
| Chile | 28 |
| Italy | 40 |
| Argentina | 71 |
| Brazil | 83 |
| US | 85 |

Source: Economist Intelligence Unit 2010



EDUCATIONALLY SUSTAINABLE

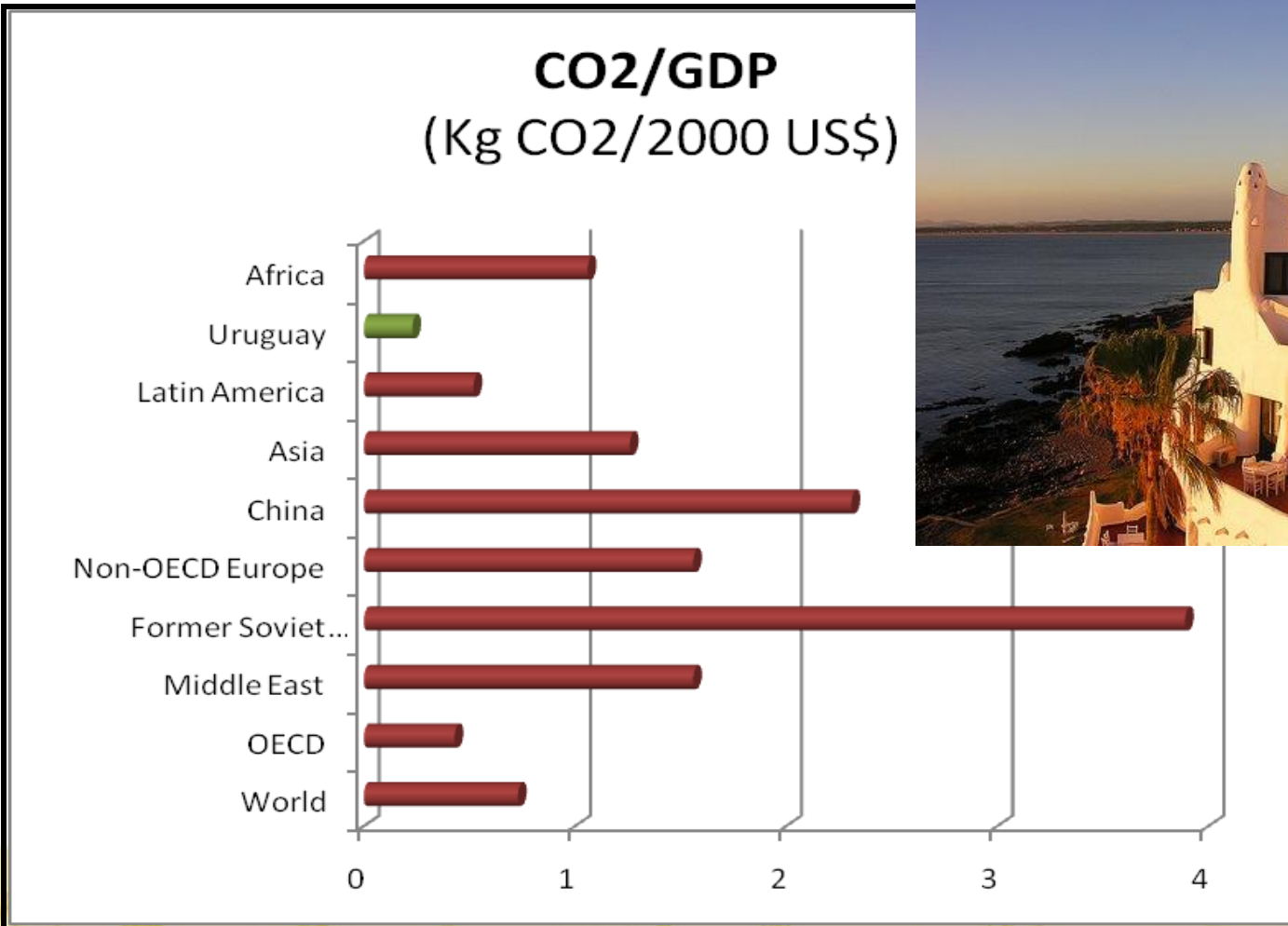
**“One laptop
per child”
program**



Only country in world to meet goal of **full countrywide coverage of school-age children and teachers**



ENVIRONMENTALLY SUSTAINABLE



Source: IEA



THE ENERGY SECTOR IN A STRONGLY GROWING COUNTRY



FRAMEWORK AND HISTORICAL BACKGROUND

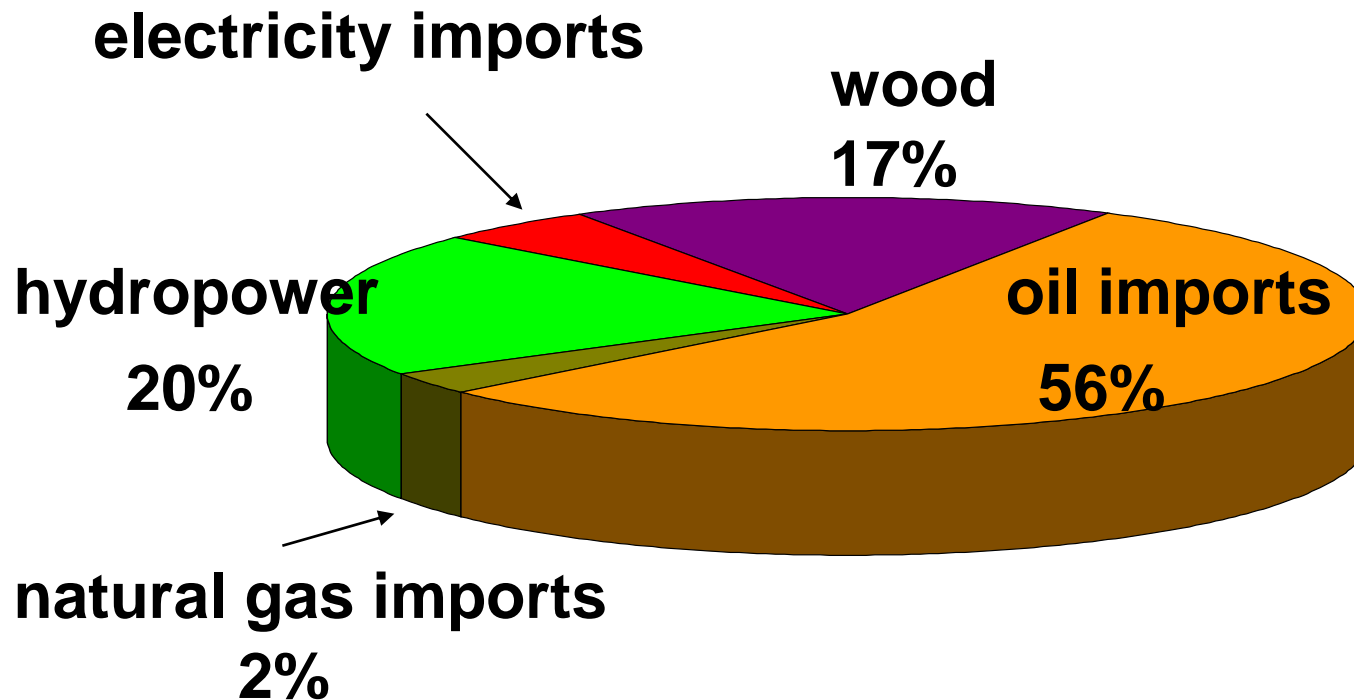
- Uruguay has:
 - no oil
 - no natural gas
 - no coal



- Almost no space for new large hydropower plants (75% of present electric mix)
- High dependency on imported oil, representing up to **27% of total imports** and **40% of total exports** of Uruguay



PRIMARY GLOBAL ENERGY MIX (2001-2006)



ENERGY POLICY URUGUAY 2030



ENERGY POLICY URUGUAY 2030



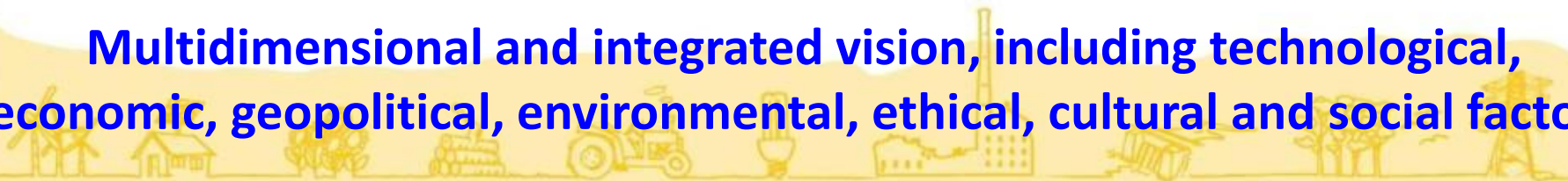
2008: Council of Ministers

2010: Special Committee

including all Political Parties

- Four strategic guidelines
- Short, medium and long term goals
- More than 40 working areas

Multidimensional and integrated vision, including technological, economic, geopolitical, environmental, ethical, cultural and social factors



STRATEGIC GUIDELINES

Institutional

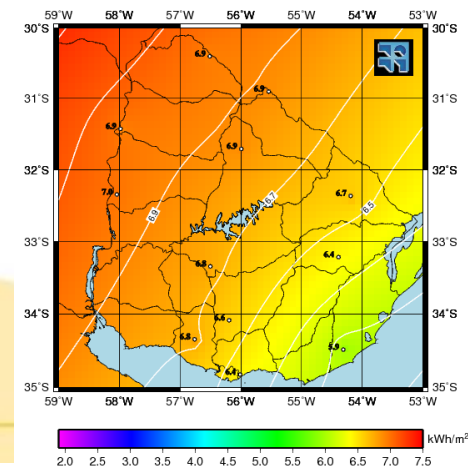
- Government defines and coordinates energy policy
- Public utility (UTE) and NOC (ANCAP) as the main tools
- Enhanced participation of private companies
- Transparent and stable regulatory framework

Supply

- Energy mix diversification (sources and suppliers)
- Reduce share of imported oil
- Increase share of domestic sources
- Strong support to renewables, with no subsidies
- Building local capacities (technology transfer)
- Keeping low carbon footprint



Enero



STRATEGIC GUIDELINES (continue)



| | |
|--|--|
| Energía Fabricante Marca Modelo Capacidad nominal (litros) Presión nominal (MPa) | CALENTADOR ELÉCTRICO DE ACUMULACIÓN |
| Más eficiente  Menos eficiente | A |
| CONSUMO DE ENERGÍA MENSUAL (kWh) Corresponde a un vaciado y a un llenado diarios | |
| POTENCIA NOMINAL (kW) | |
| TIEMPO DE CALENTAMIENTO (h) | |
| Norma UNIT 1157 | |
| IMPORTANTE EL CONSUMO REAL VARIA DEPENDIENDO DE LAS CONDICIONES DE USO DEL APARATO Y SU LOCALIZACIÓN. LA ETIQUETA SÓLO PUEDE SER RETIRADA POR EL USUARIO. | CERTIFICADO    |

Demand

- Strong support to energy efficiency in all energy sectors and all activities (transport, building, industry)
- The State as a paradigmatic example
- Promoting a cultural change



Social

- Adequate energy access to all citizens as a human right
- Energy policy embedded in national social policies to face vulnerability



**WHAT HAVE WE DONE?
WHAT ARE WE DOING?**

INVESTMENT OPORTUNITIES

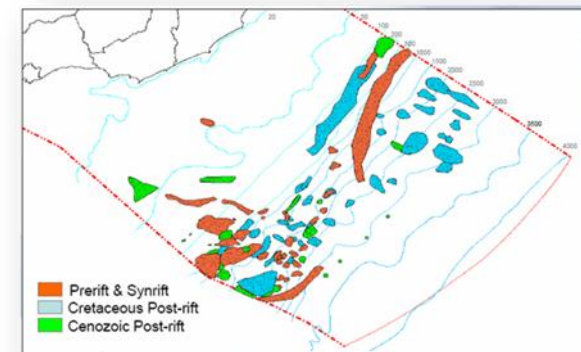
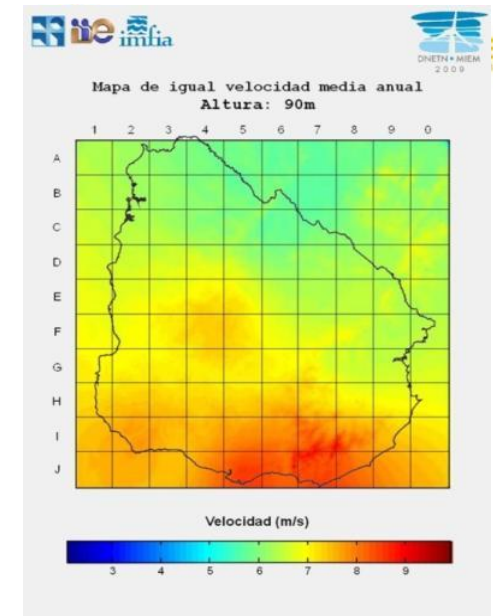


BUILDING THE APPROPRIATE FRAMEWORK



BUILDING CAPACITIES

- Strengthening energy planning capacities
- End-use energy survey:
108 homogeneous groups
- Measurements and potential maps
(wind, solar, biomass, cogeneration, saving)
- Hydrocarbons exploration
- New Graduate Courses in Energy
- R&D Energy Fund
- Package of Laws and Decrees
- Investment Promotion Law



EXPECTED INVESTMENTS (2011-2015)

7.1 billion dollars (17% of GDP)

- 2.4 billion public sector
- 4.7 billion private sector or public-private partnership



RENEWABLE ENERGIES

Choosing the appropriate sources and technologies



Why renewables?

- To keep low carbon emissions
- To avoid fossil fuel imports
- To drop and stabilize energy prices (no subsidies)
- To build local capacities

To improve energy sovereignty



WIND ENERGY

- 0 MW in 2007
- First wind farms installed today
(4% of average power demand)
- 40% capacity factor
- Expected installed power 2015: 1000 MW
(90% average power demand)



- Tender processes / 20 years contracts
- More than 20 offers in each tender processes
- **Price: 62 - 64 US\$/MWh (no subsidies!)**
- Up to 44% domestic participation



BIOMASS HEAT AND POWER

- First 8 power plants already installed (7 cogenerating)
(16% of average power demand)
- Fuel: forestry, rice, bagasse, black liquor
- 50% - 60% domestic participation



- Feed in Tariff Decree **(no subsidies!)**



WASTE TO ENERGY PROGRAM

- Input: agriculture, industries, cities (Uruguayan agroindustry produces large amounts of organic waste)
- Output: biogas, heat, electricity



Ambitious program 2012-2015 (GEF financed Project)

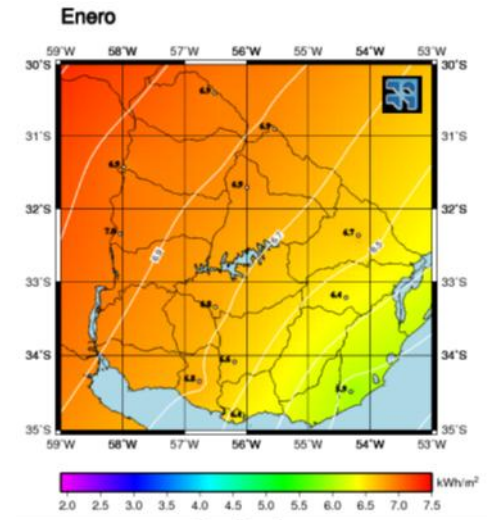
2015 goal:

30% of agroindustrial waste used to produce energy



SOLAR ENERGY

- Solar thermal promotion Law
- Heat water capacities replacement (Public Utility funding)
- 2 small Photovoltaic pilot plant (1MW)
- Photovoltaic plants bidding process (by the end of this year)



GRID-CONNECTED MICROGENERATION

- Uruguay: first country in Latin America to enable grid-connected renewable microgeneration
- Net metering contract



BIOFUELS



Biofuels

+

Electricity

+

Human Food

+

Animal Food

+

Social

Sustainability

2013 Goals: E10 / B5

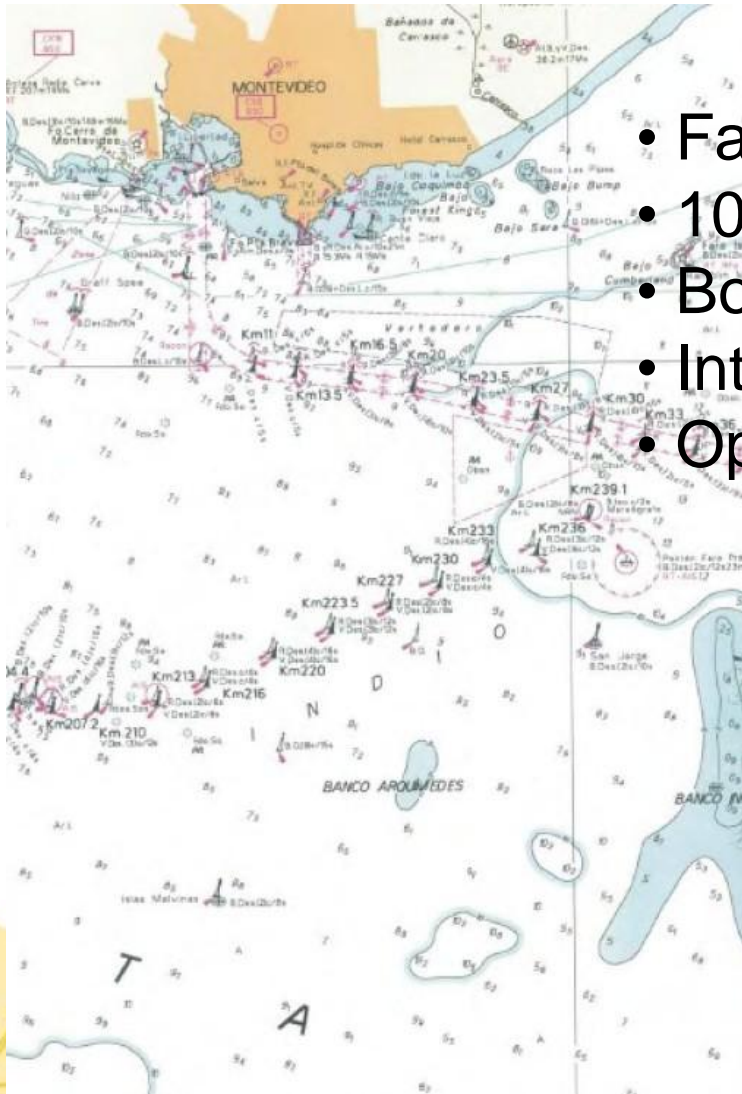


COMPLEMENTING RENEWABLES



LNG FLOATING REGASIFICATION CAPACITY

- Fast-track near Montevideo
- 10 Mcm/d
- Both Uruguay and Argentina's demands
- International bidding in process
- Operation beginning: 2014



HYDROCARBONS EXPLORATION



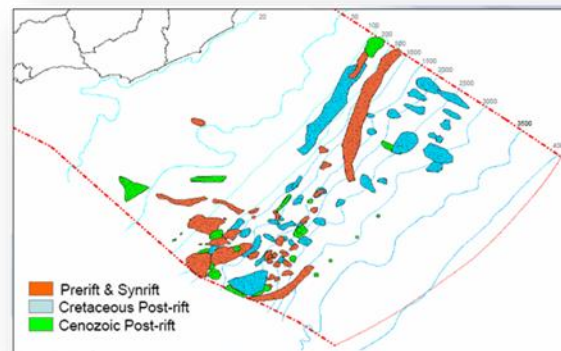
GENERAL CONDITIONS

- Fields and extracted substances are State property
- The Executive sets the policies and rules related to exploration and exploitation of hydrocarbons
- ANCAP, the National Oil Company, signs with the IOC the Exploration-Exploitation Contract
- The IOC will access through competitive biddings or direct contracting, depending on the areas of interest:
 - OFFSHORE: Bidding rounds (Production Sharing Agreement contracts)
 - ONSHORE: Direct Negotiation – Open door system



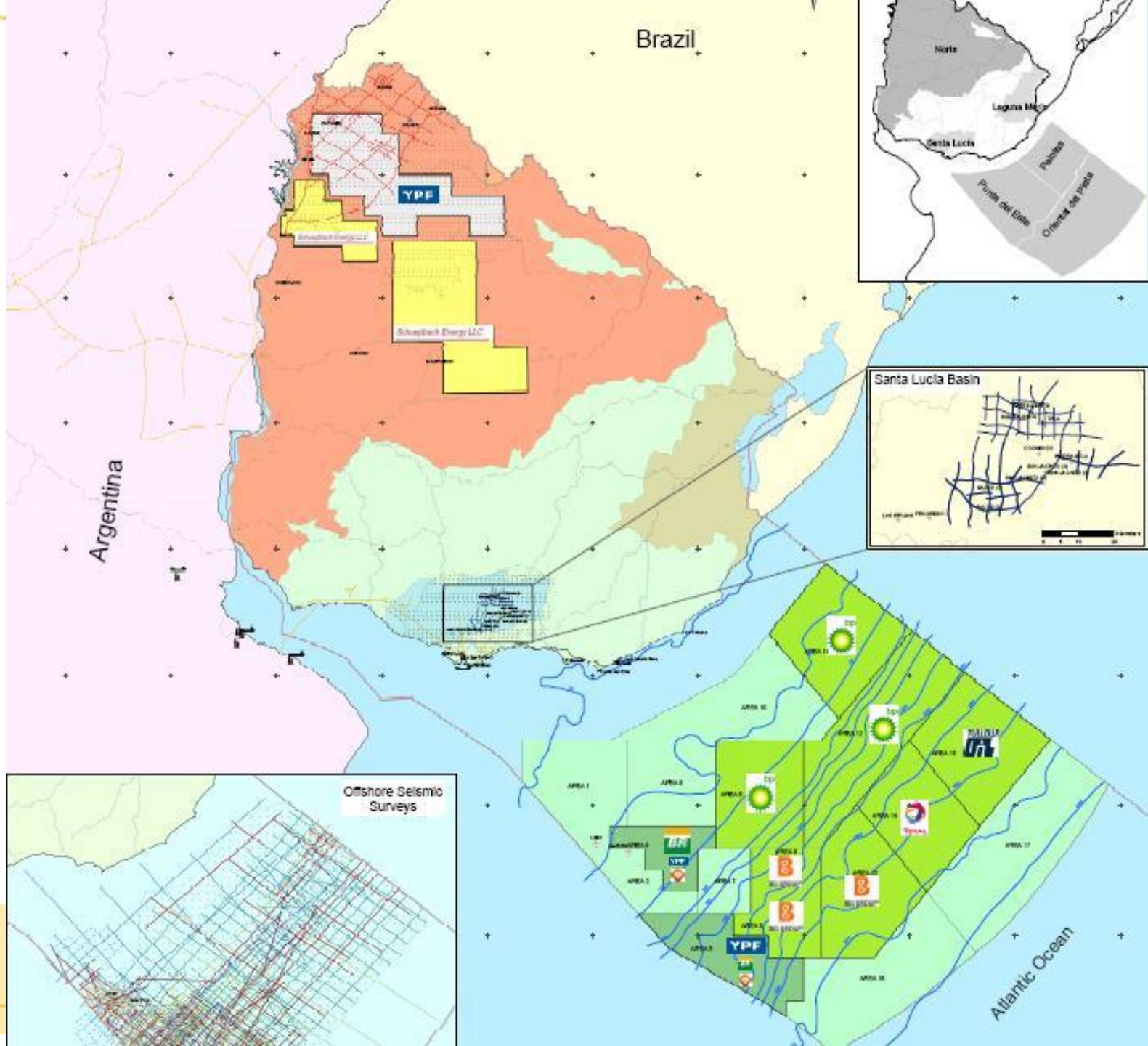
OFF-SHORE EXPLORATION

- ANCAP made 10000 km seismic surveys (2006-2011)
- Uruguay Round I (2008): 2 blocks awarded
- Uruguay Round II (2012):
 - 12 “top 100” companies bought information (40 MUS\$)
 - 19 offers presented
 - 8 blocks awarded: BG, BP, Total and Tullow Oil



- Investment: 1550 M US\$ (2013-2015)



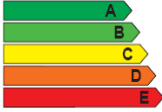






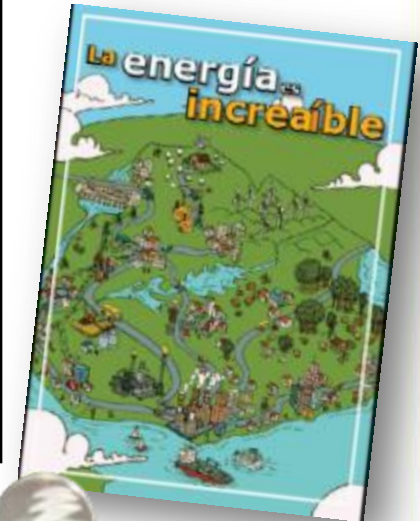
ENERGY EFFICIENCY POLICIES (HIGHLIGHTS)



ENERGY EFFICIENCY

- EE promotion law
- National EE Master Plan
- Labels
- Audits
- EE Guarantee Fund
- Energy saving credits
(boosting EE investments)
- Tax redefinition
- Public sector (audits, managers, plans, lamps, labels, transportation)
- Global plan for the transport sector
- Wide educational and cultural program

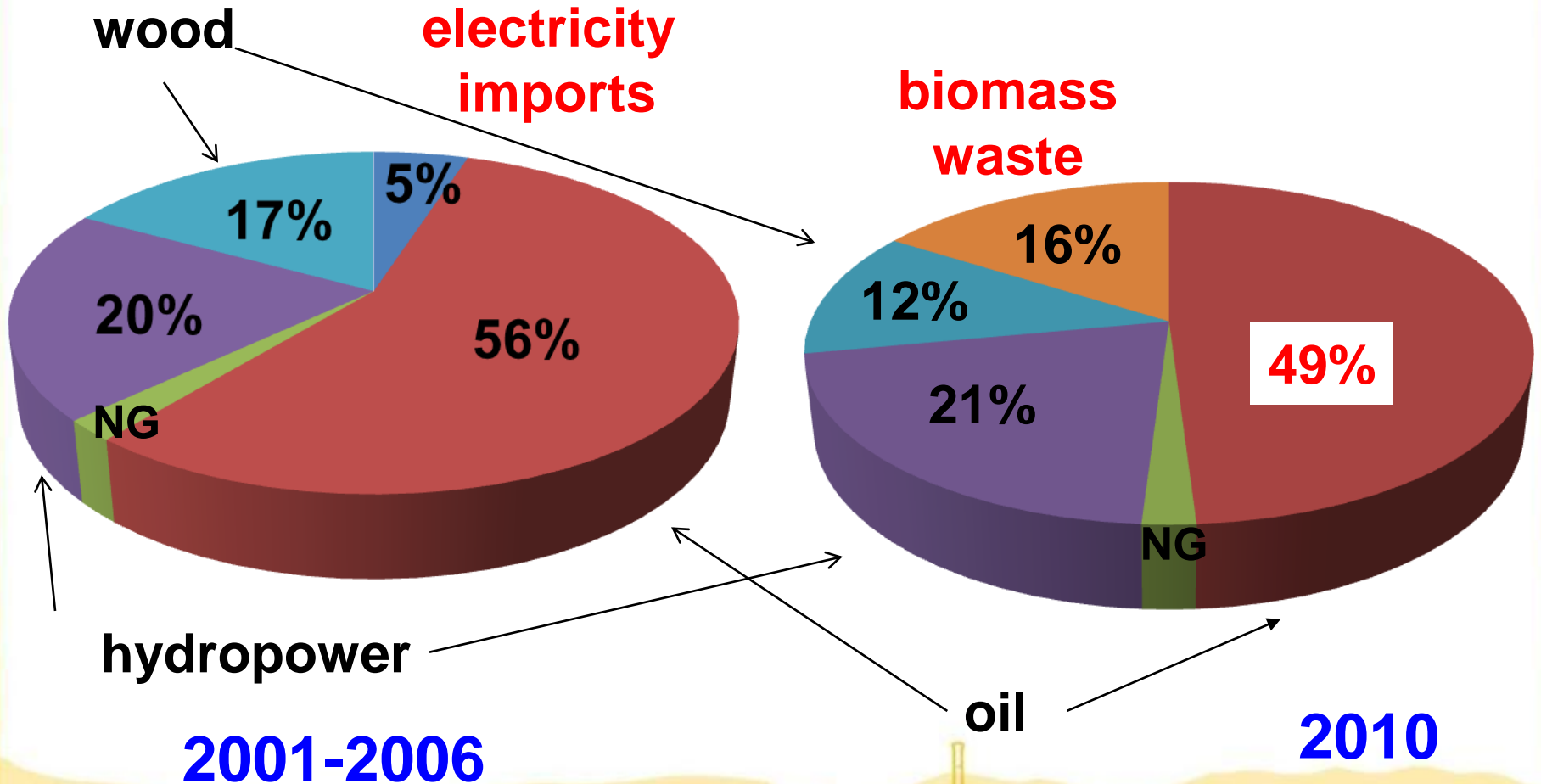
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OVERALL IMPACT



GLOBAL ENERGY MIX

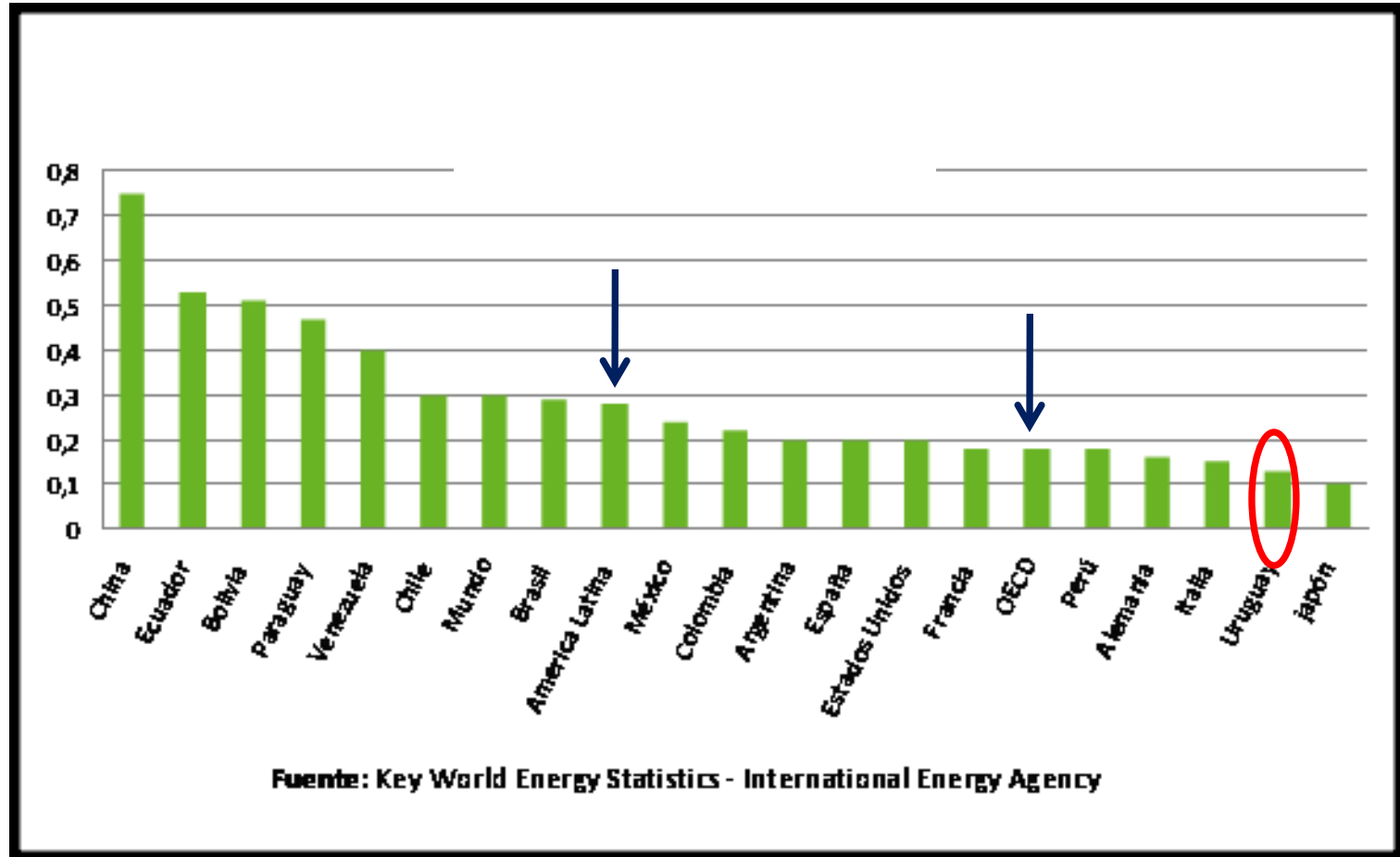


49% RENEWABLE



ENERGY INTENSITY

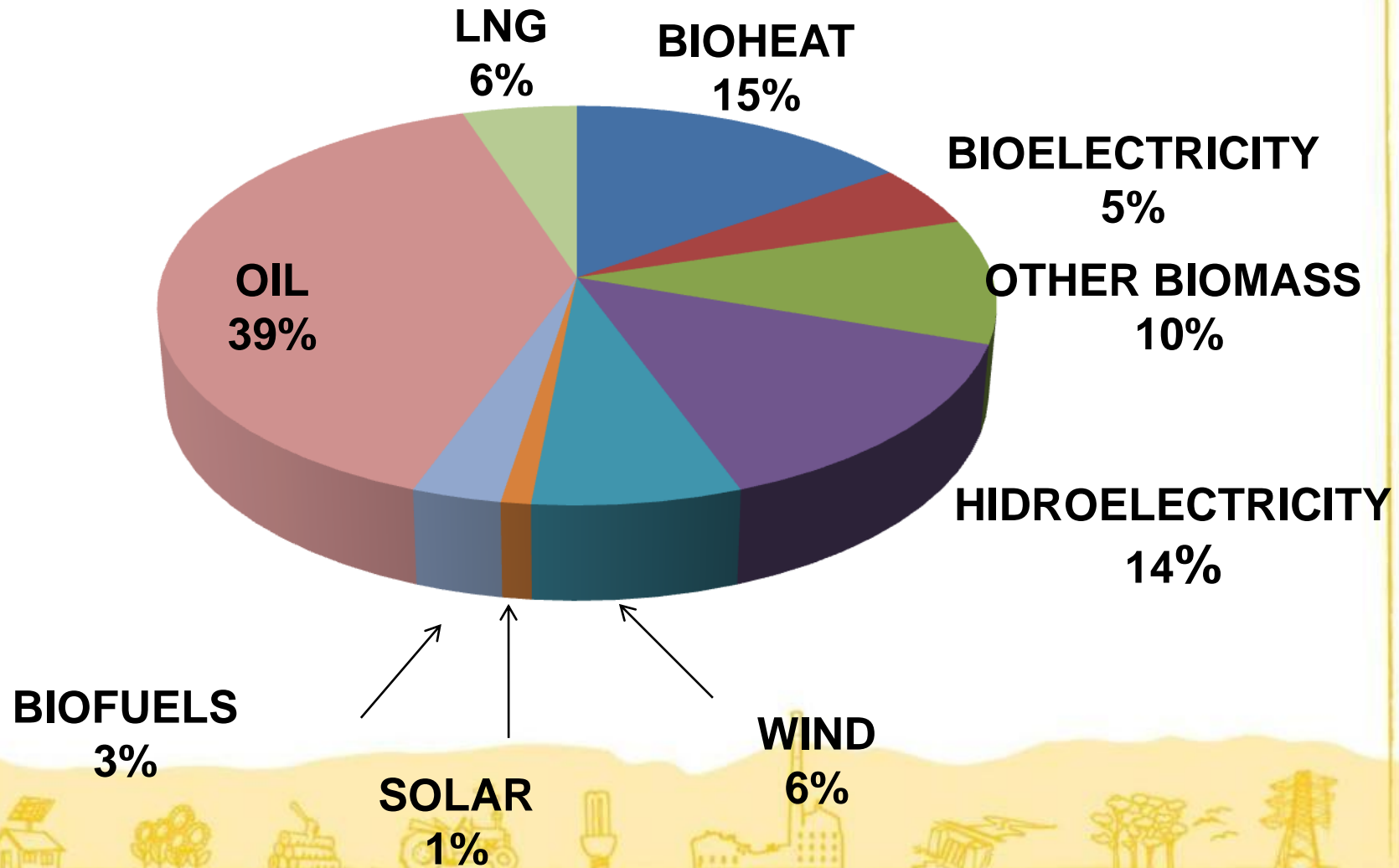
ENERGY/GDP (koe/US\$)



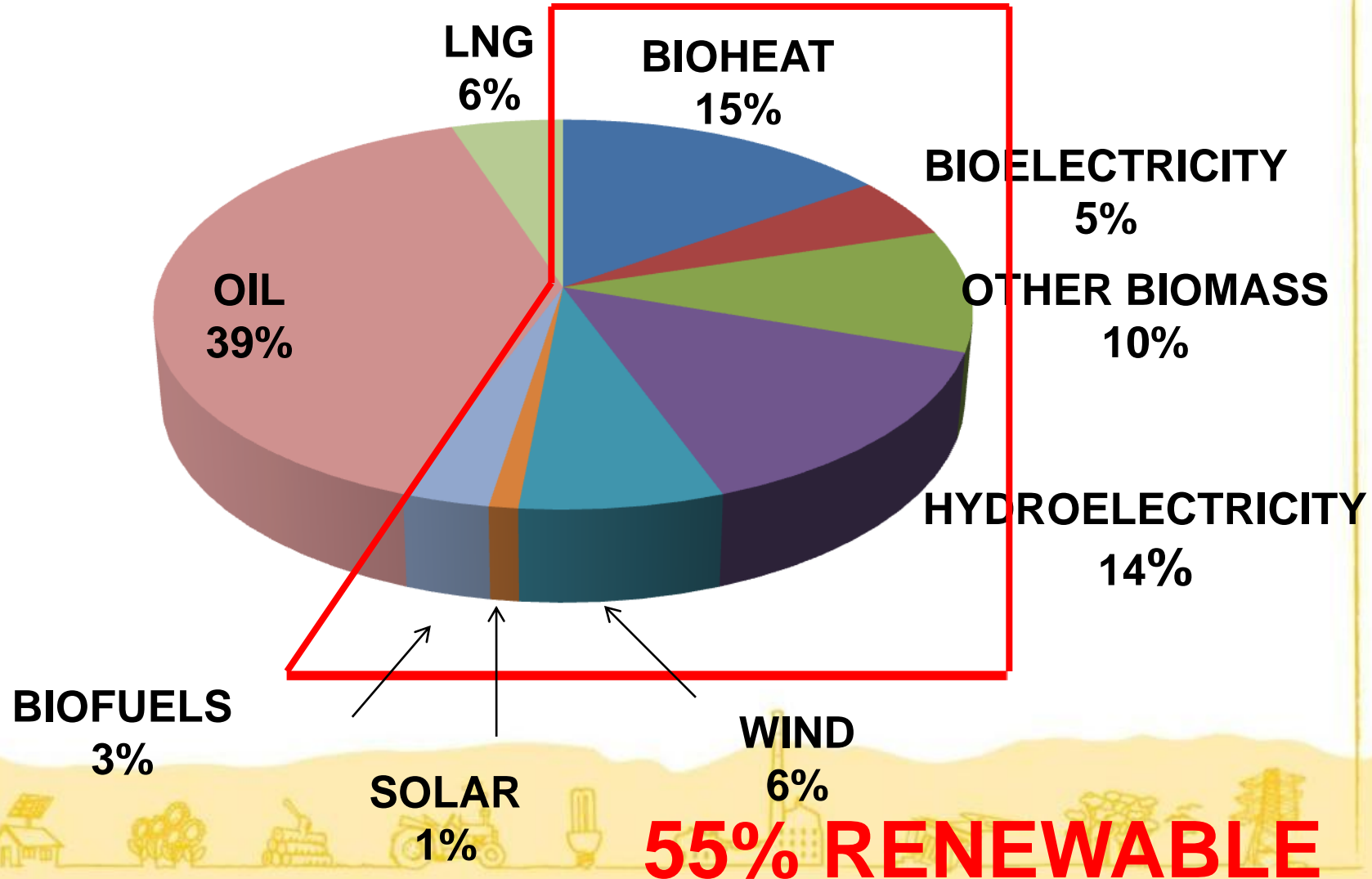
SHORT TERM IMPACT (2015)



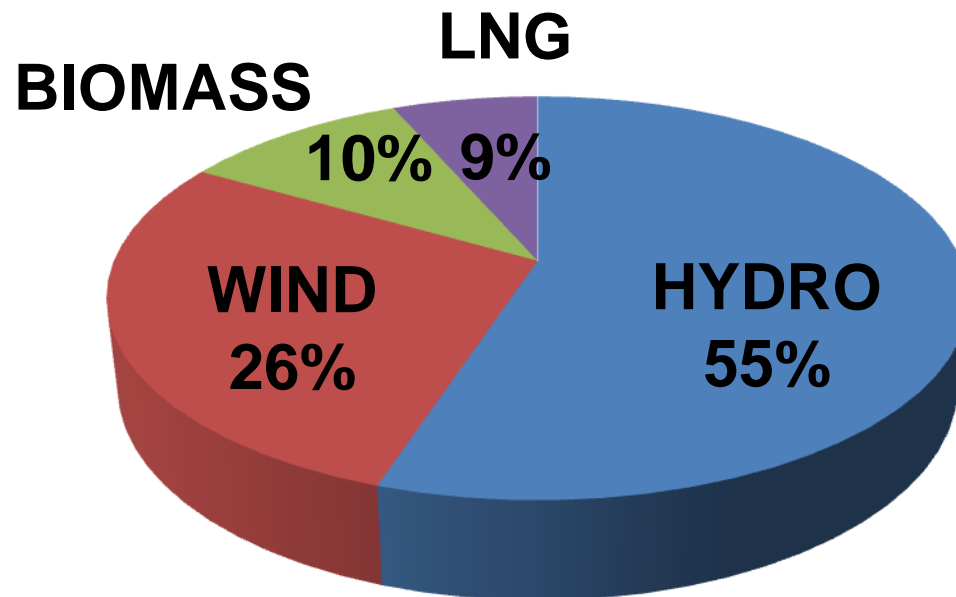
GLOBAL PRIMARY MIX 2015



GLOBAL PRIMARY MIX 2015



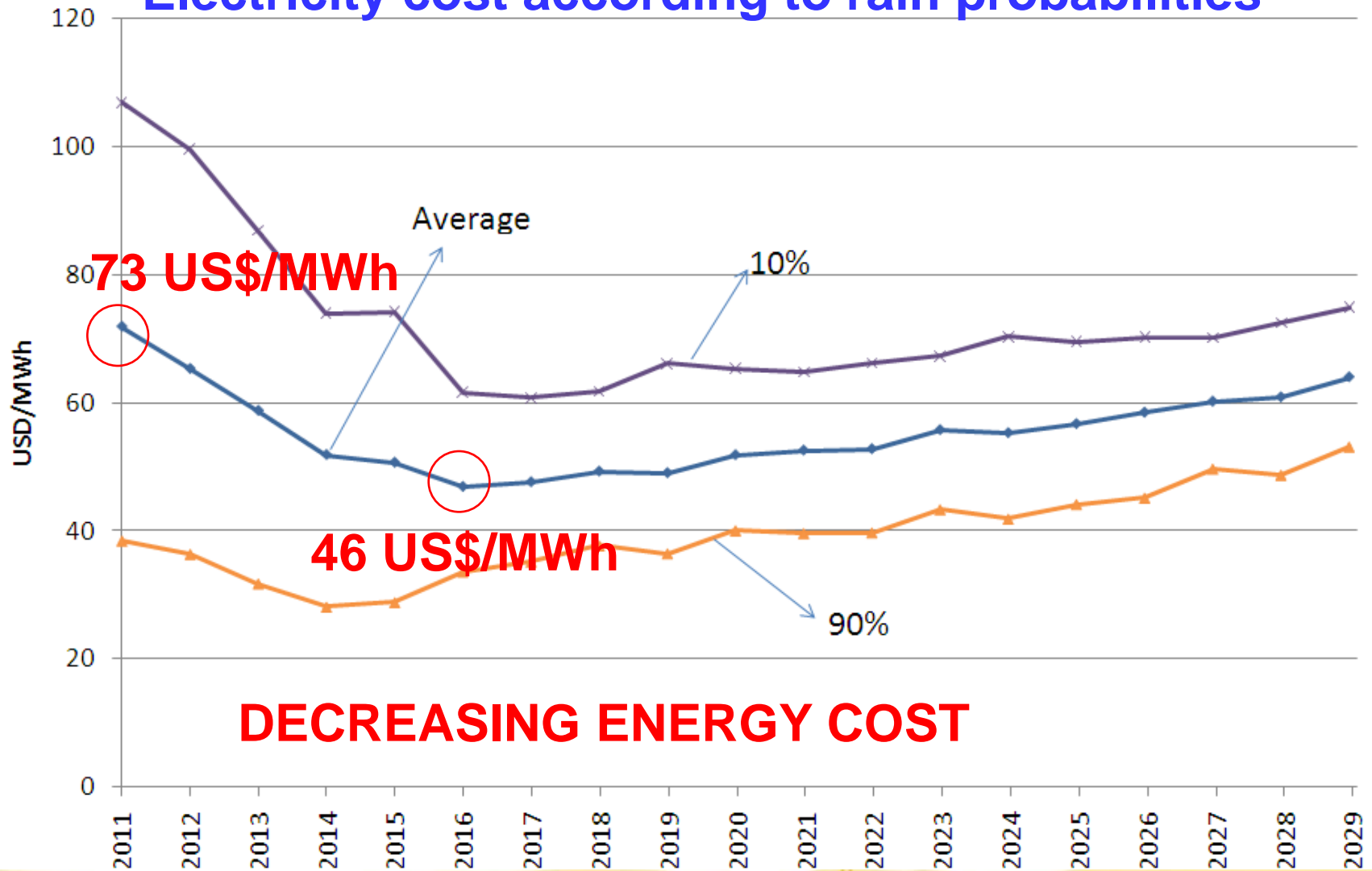
ELECTRIC MIX IN 2015



91% RENEWABLE



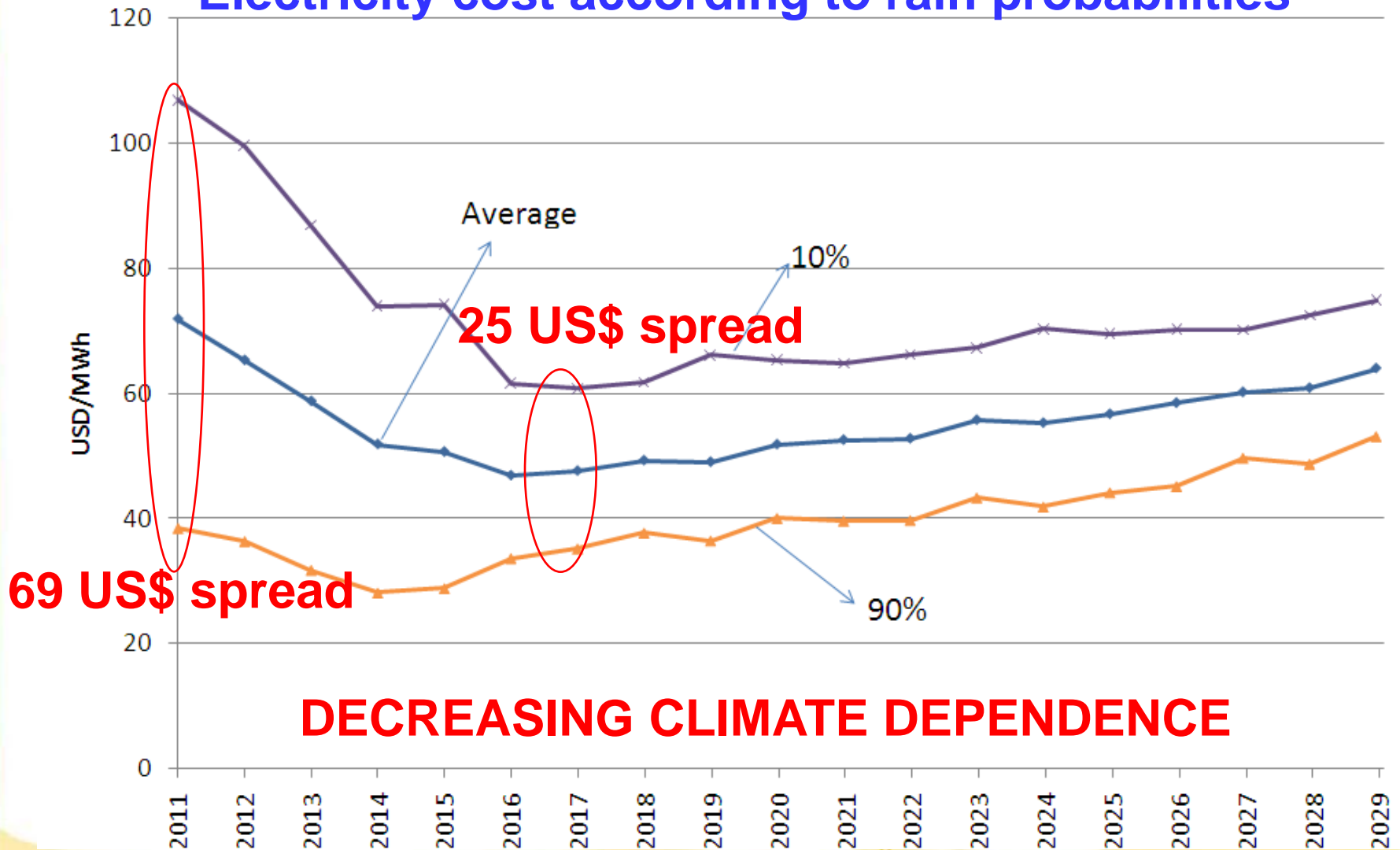
Electricity cost according to rain probabilities



DECREASING ENERGY COST



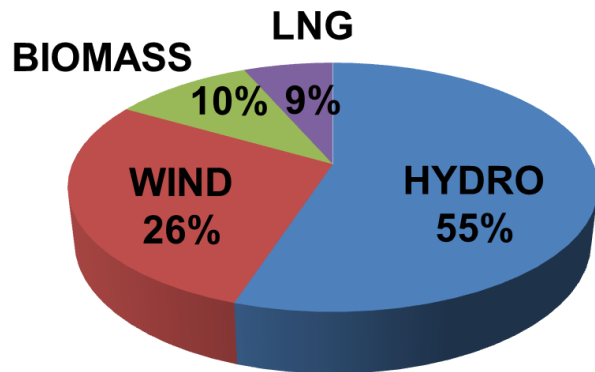
Electricity cost according to rain probabilities



DECREASING CLIMATE DEPENDENCE



See you in Uruguay!



91% RENEWABLE

director@dne.miem.gub.uy

