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**Trade in Energy Services in Paraguay and
Objective for Sustainable Development 7**

by

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The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.

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Jajapo ñande raperã ko'ãga guive
Construyendo el futuro hoy



TETĀMBĀE'ĀPOPY
HĀ NĒMU
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MINISTERIO DE
INDUSTRIA
Y COMERCIO

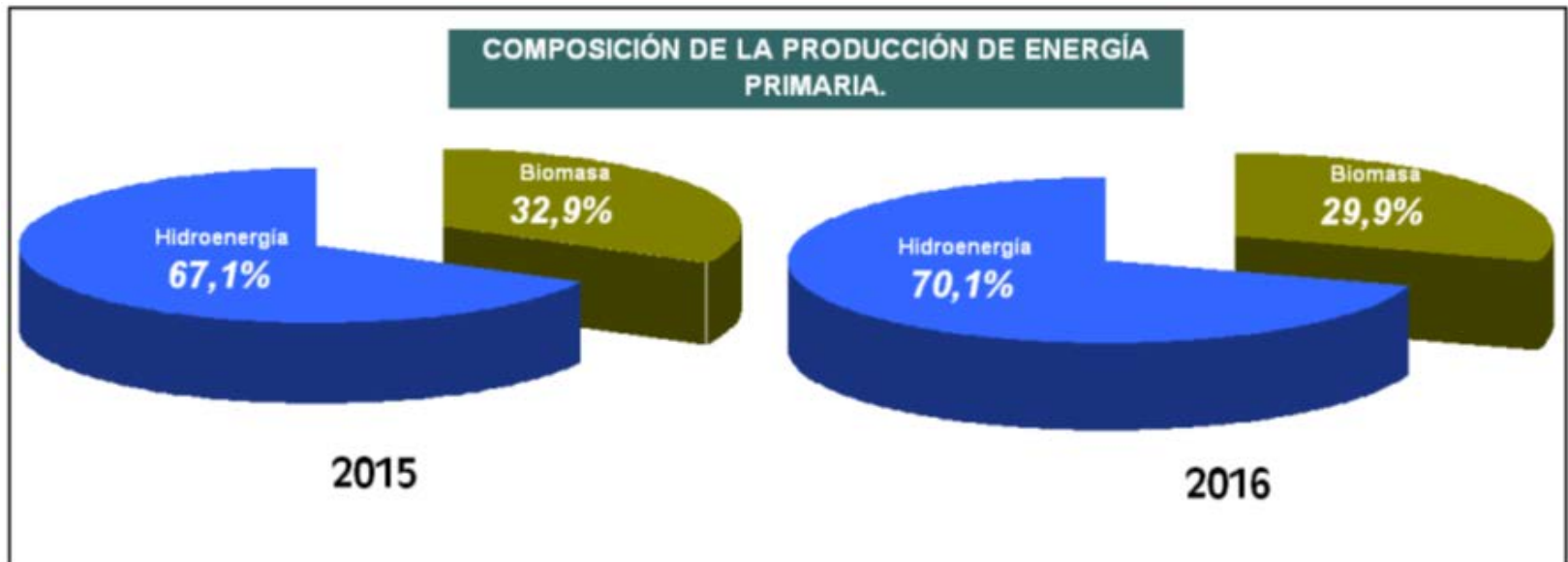


TRADE IN ENERGY SERVICES IN PARAGUAY AND OBJECTIVE FOR SUSTAINABLE DEVELOPMENT 7



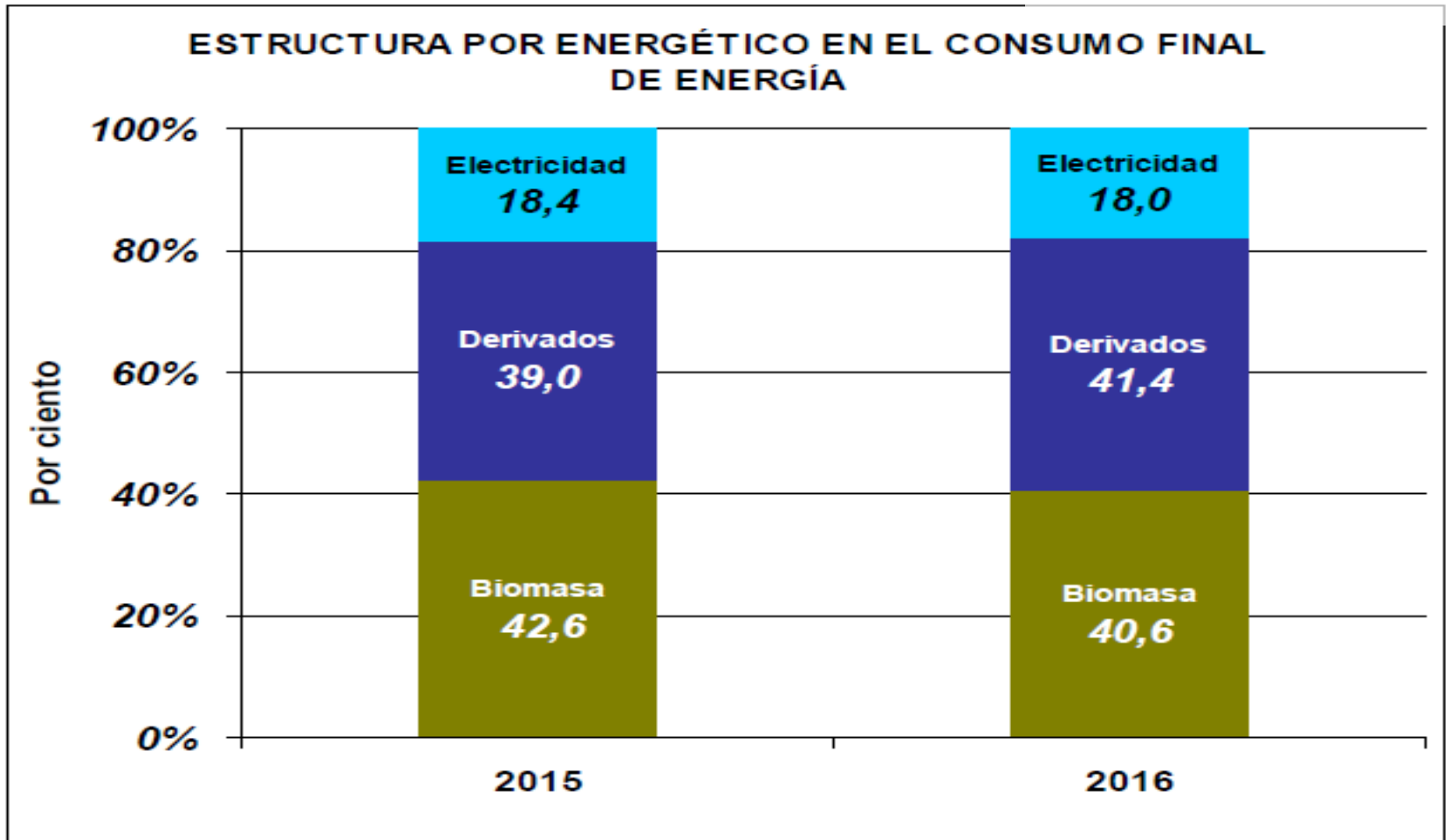
PRIMARY PRODUCTION ON ENERGY

The 100% of the primary energy produced in Paraguay corresponds to renewable energy. It is also remarkable that 100% of the energy exports in Paraguay originate from renewable sources of energy: electricity generated in hydroelectric plants and charcoal produced in coal bunkers. This means that around 70% of the energy supply nationwide constituted by renewable energy sources.



FUENTE: Elaboración DPE-DRE en base al Balance Energético Nacional 2015 y 2016

Hydro energy is the main national energy resource. The power generation capacity from hydropower surpasses 45,000 GWh / year, and is one of the largest in the world, in terms of electricity generation per inhabitant (9,000 kWh per inhabitant).



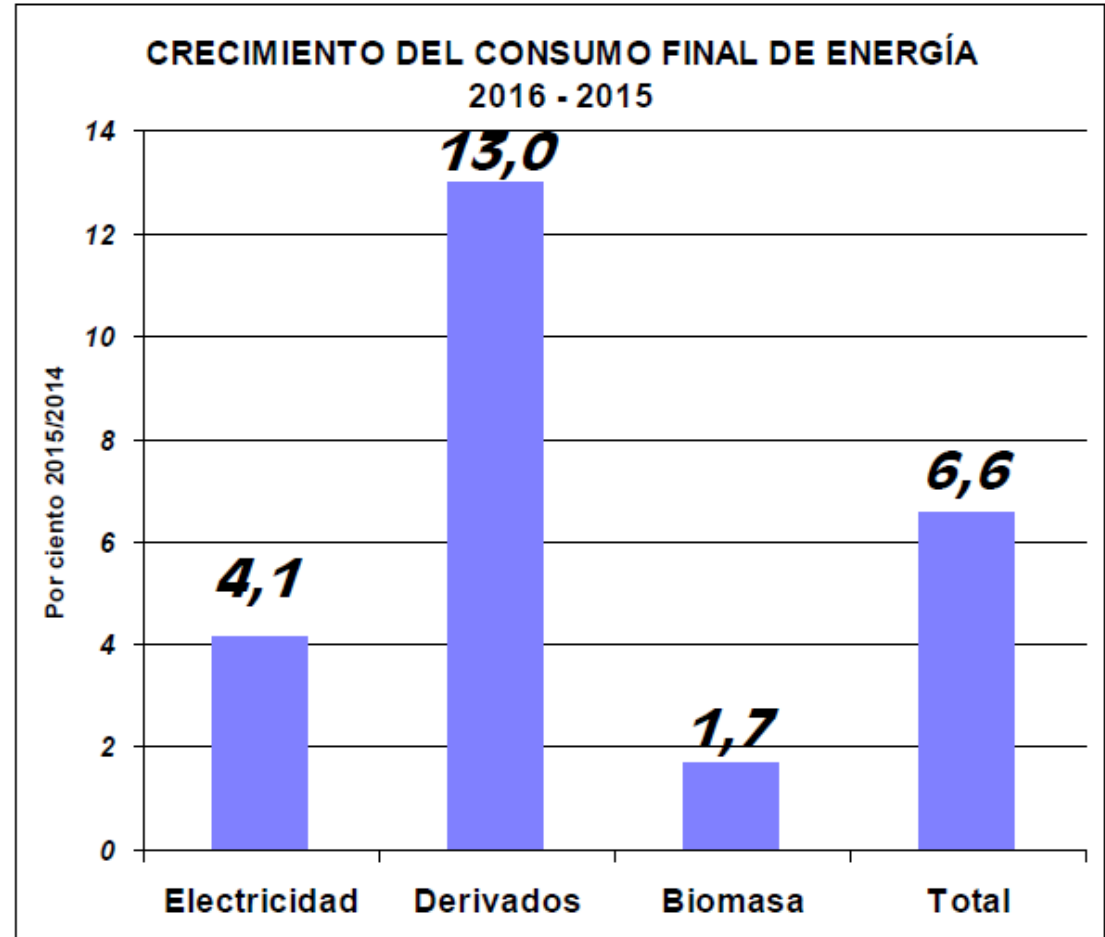
FUENTE: Elaboración DPE - DRE en base al Balance Energético Nacional 2015 y 2016.

On the side of final consumption, renewable energy represents a share of almost 59% of total final consumption. However, since Paraguay is a producer of renewable energy, there is a high dependence on oil derivatives, including LPG (Petroleum liquid gas) and liquid fuels.

FINAL COMSUMPTION ON ENERGY

By energy, the growth recorded in the consumption of petroleum products (13.0%) and in electricity consumption (4.1%) stands out.

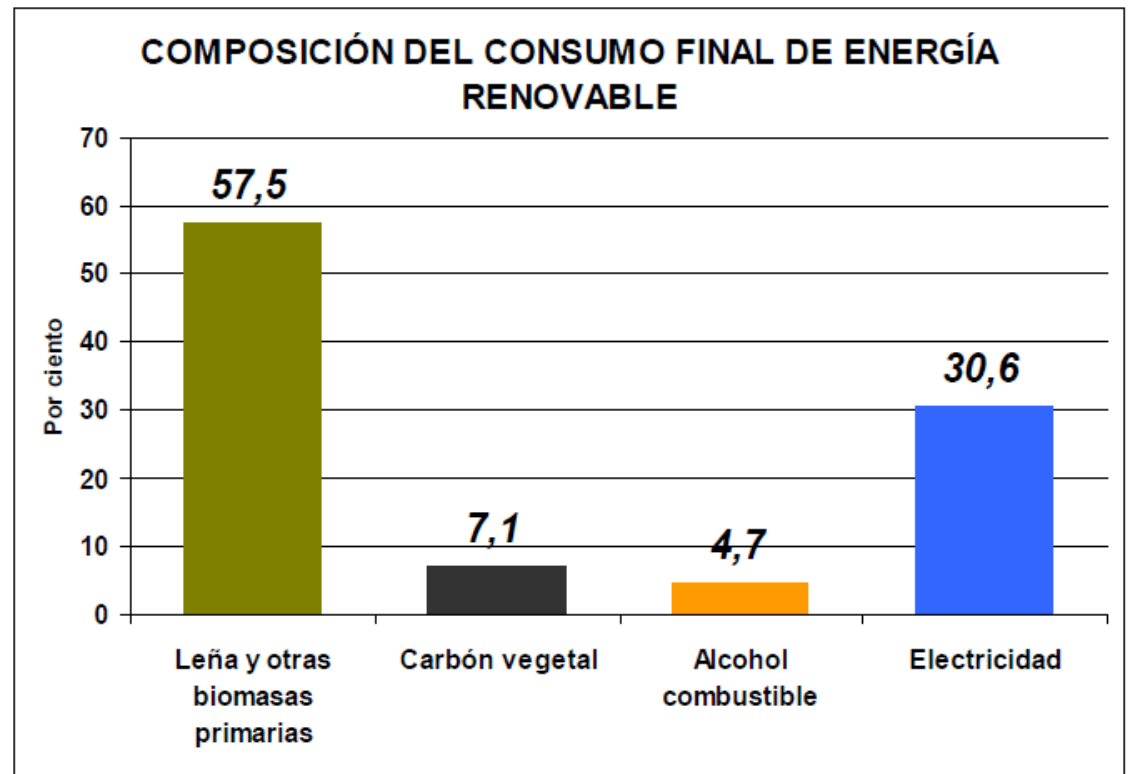
The consumption registered in the various products of biomass in the year 2016 grows by 1.7%.



FUENTE: Elaboración DPE - DRE en base al Balance Energético Nacional 2015 y 2016.

FINAL COMSUMPTION ON RENEWAL ENERGY

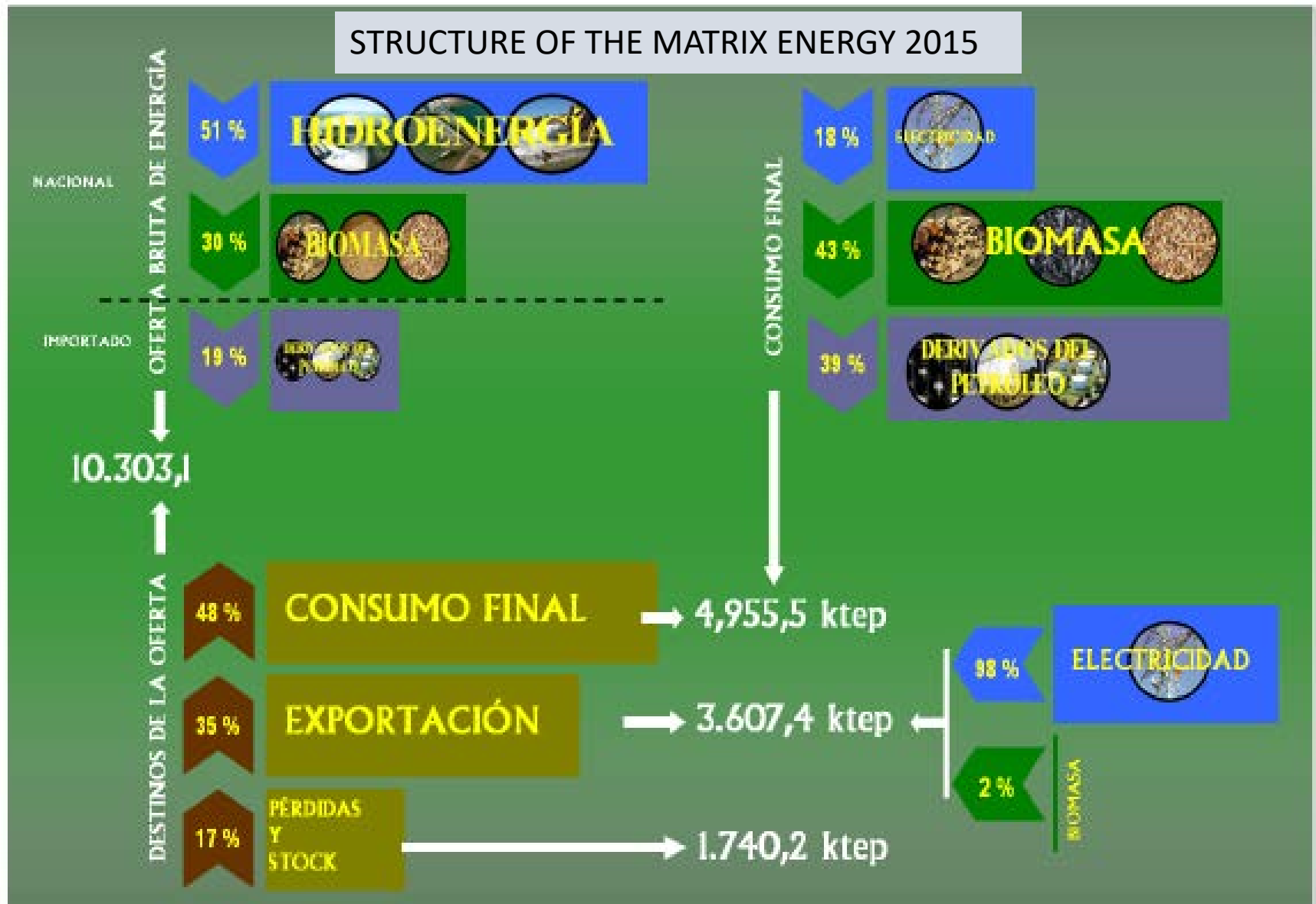
Of the total final consumption of renewable energy, 30.6% corresponds to electricity and the rest to primary biomass and products derived from biomass such as charcoal and fuel alcohol, mixed either with motor gasoline or in direct use. The production and consumption of biodiesel is incipient, but with great perspectives.



FUENTE: Balance Energético 2016.

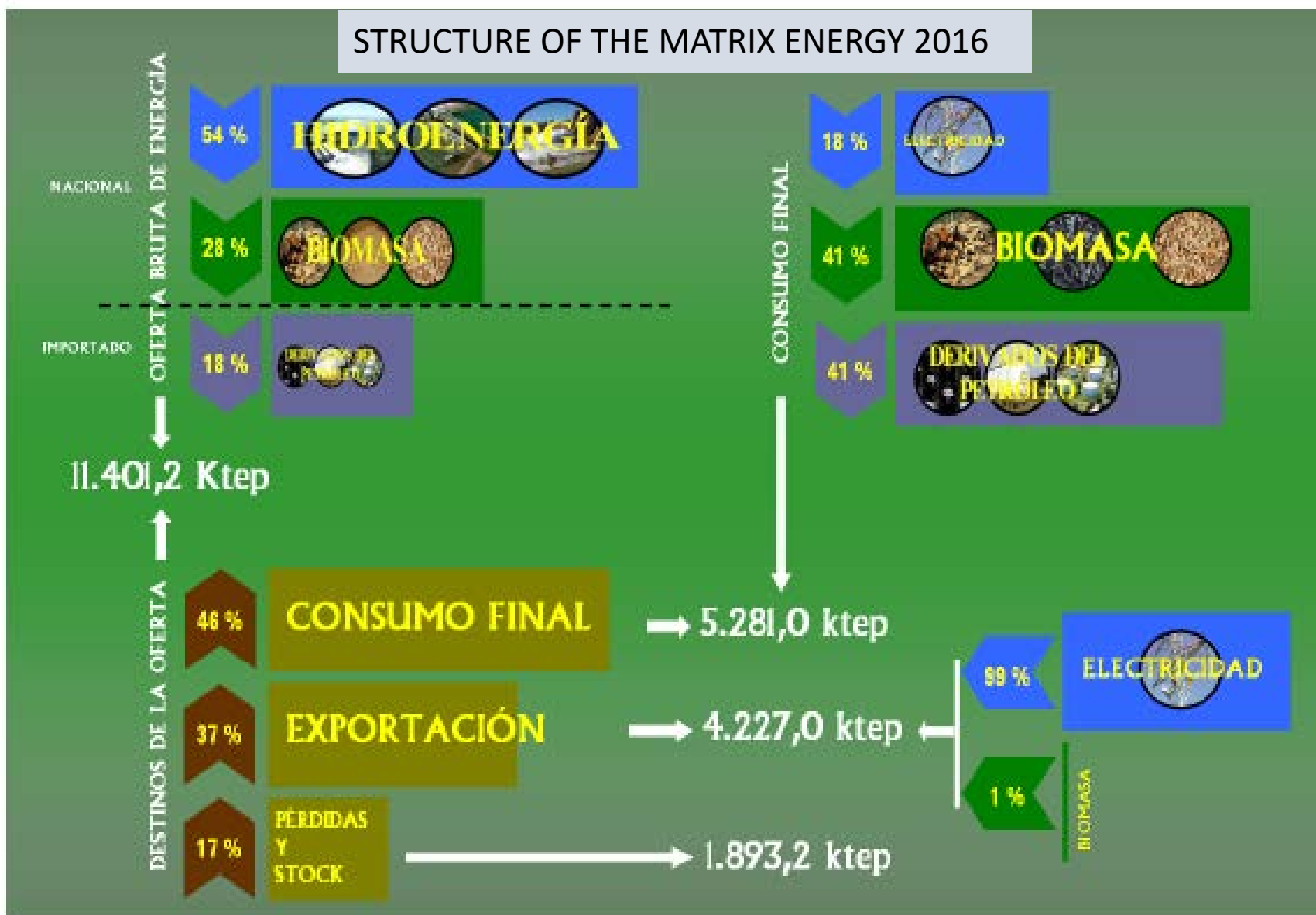
ENERGY MATRIX 2015

STRUCTURE OF THE MATRIX ENERGY 2015



ENERGY MATRIX 2016

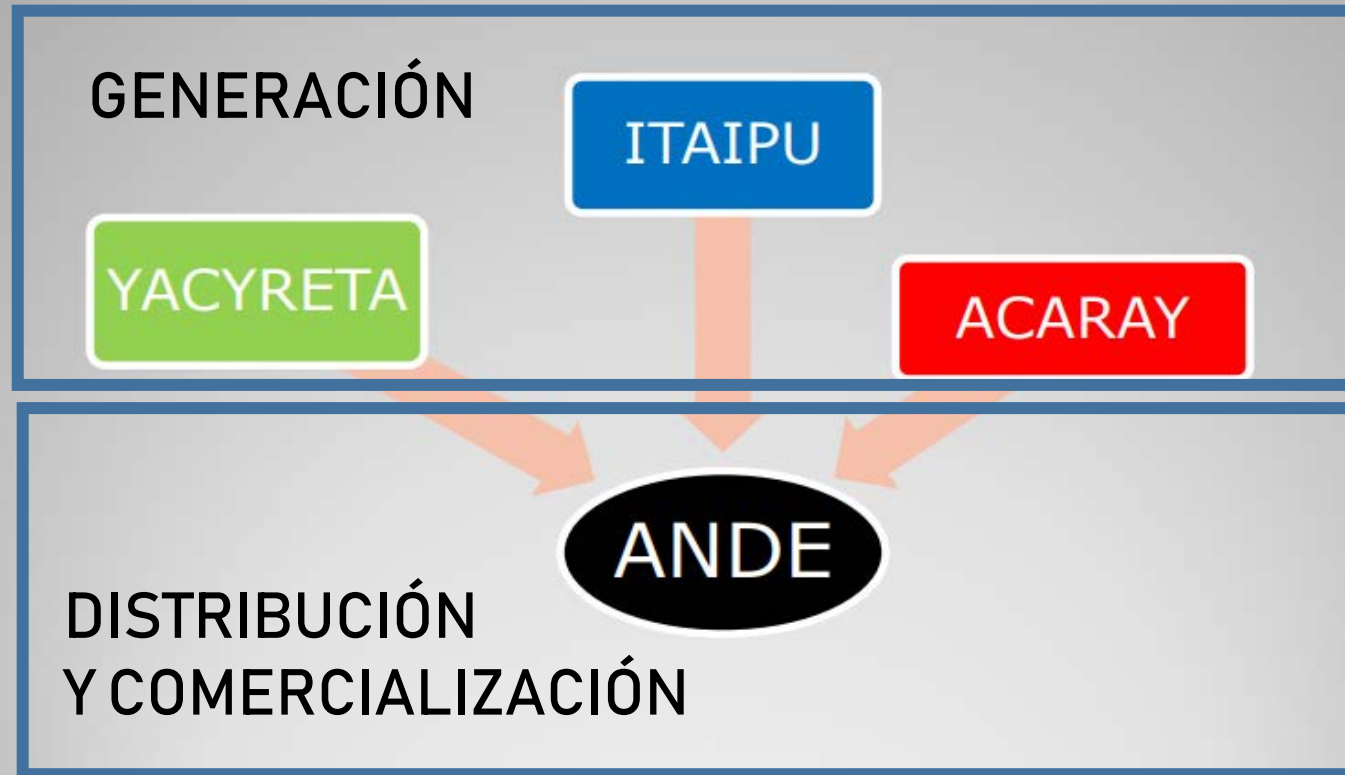
STRUCTURE OF THE MATRIX ENERGY 2016



ENERGY SYSTEM IN PARAGUAY

Electrical System in Paraguay - The National Electricity Administration (ANDE) is in charge of Law 966/64 of the SERVICE of the distribution of electric power in the whole country; it is vertically integrated: generation, transmission, distribution and commercialization. - The current electricity coverage (population served) at the national level exceeds 98.5%.

ENERGY SYSTEM IN PARAGUAY



ELECTRICAL ENERGY CONSUMPTION

COMMERCIALIZATION

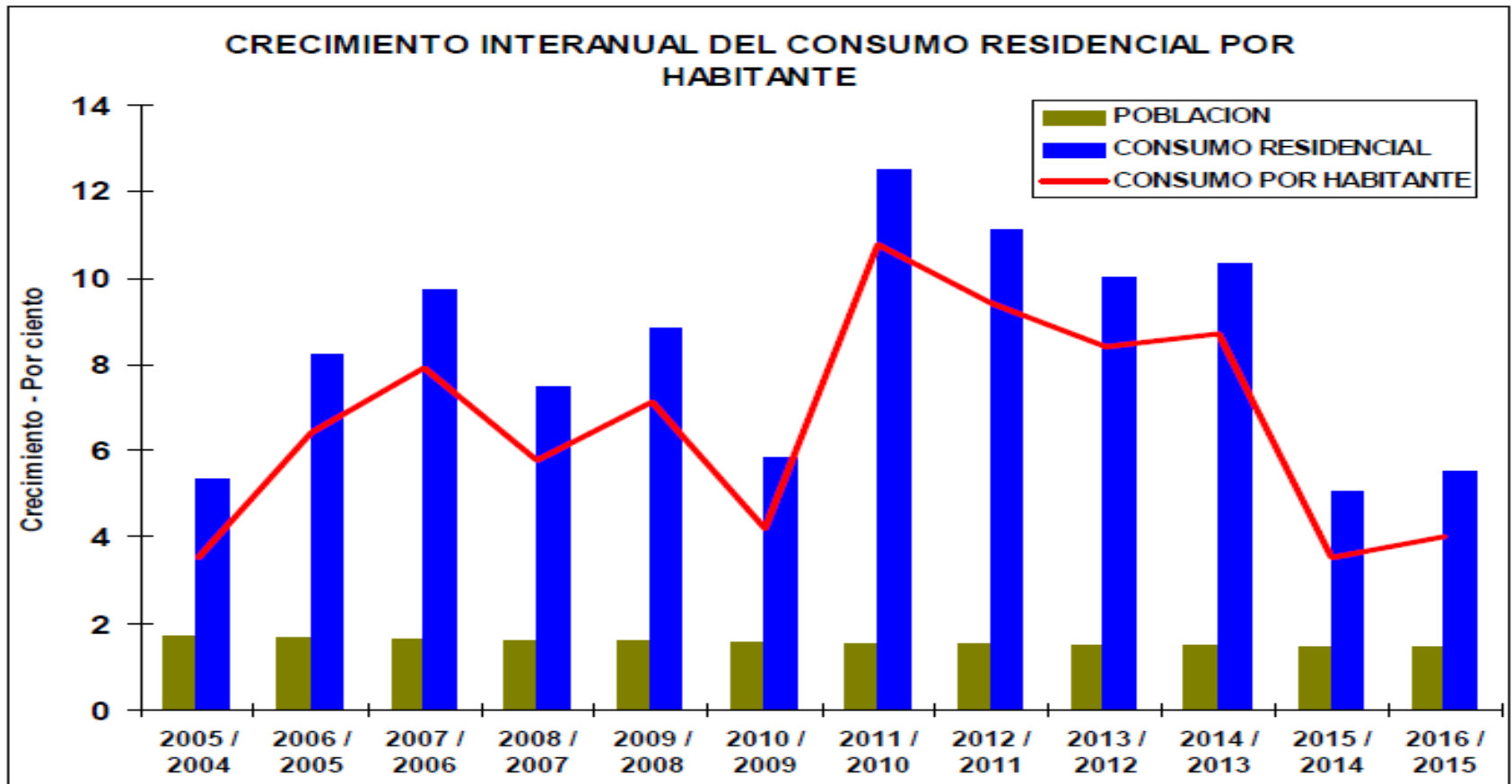
COMPOSITION OF THE CLIENTS OF LA ANDE

The residential sector with 45% participation in the structure of total electricity consumption and therefore, which determines the pattern in the behavior of the same.

Consumer Group	Quantity %	Consumption %	Amount %
Residencial	86,4	45	51
Comercial	9,3	18	20
Industrial	1,6	20	18
General	1,7	9	7
Gubernamental	1,0	8	4

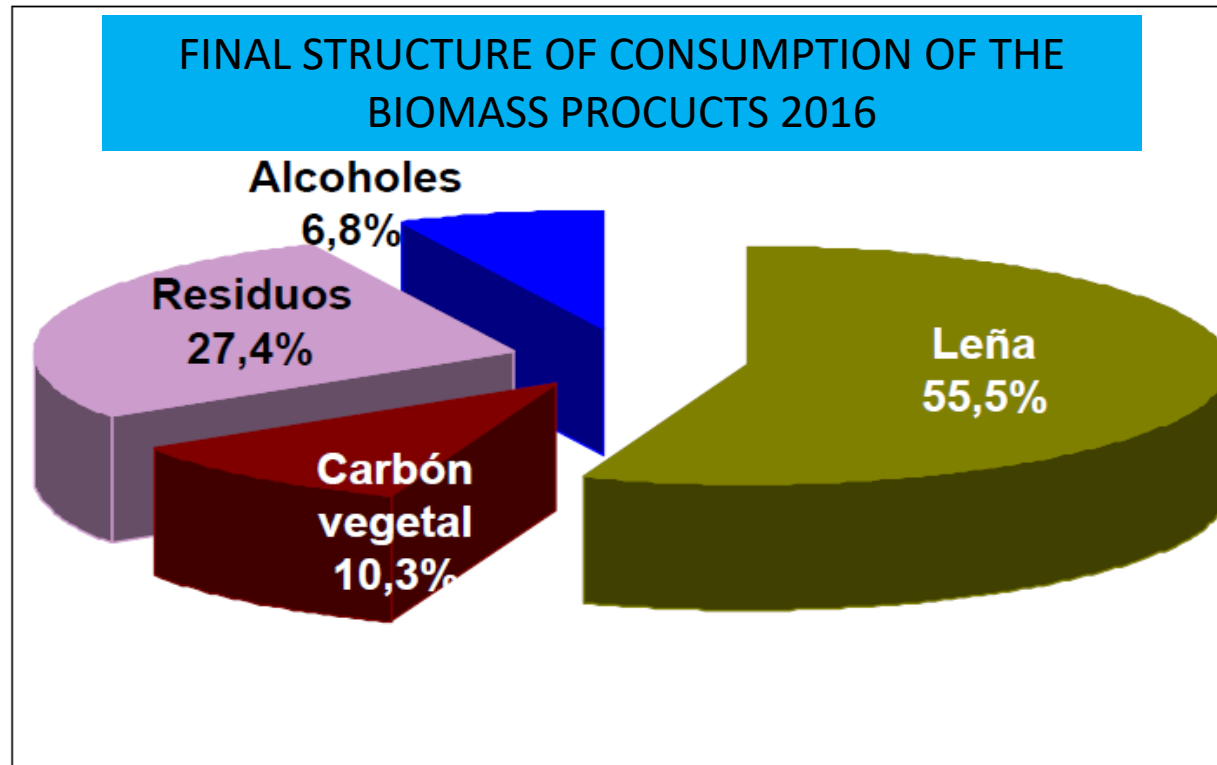
ELECTRICITY CONSUMPTION OF THE RESIDENTIAL SECTOR

The residential sector registered a growth of 4.0% in the residential electric power consumption index per inhabitant, slightly higher than that observed in the previous year (3.5%).



FUENTE: Elaboración DPE-DRE en base al Balance Energético Nacional serie 2004 - 2016. Datos de población: Paraguay Proyección de la Población Nacional, Áreas Urbana y Rural por Sexo y Edad, 2000-2025. Revisión 2015. DGEEC.

The estimates of the consumption of biomass products (firewood, charcoal, agro-forestry residues and alcohols including that destined for mixtures with gasolines) grew by 1.7%, a behavior slightly higher than that recorded in the previous year.



FUENTE: Elaboración DPE - DRE en base al Balance Energético Nacional 2016.

The consumption of 6.8% of Alcohol that is observed in the graph, corresponds to what is used for the automotive sector, which includes the quantities destined to the mixtures with motor gasolines

DECREE No. 2794/2014

"By which approves the NATIONAL DEVELOPMENT PLAN PARAGUAY 2030"

Within Strategy 24, VALUATION OF ENVIRONMENTAL CAPITAL

Promotion of the environment as economic value and cultural heritage within the framework of a sustainable economy.

Objective: Increase the consumption of renewable energy by 60%. (Annual% of total national energy consumption) and Reduce fossil fuel consumption by 20% (annual% of total national energy consumption)

DECREE Nº 6092/2016 "By which the Energy Policy of the Republic of Paraguay is approved."

It includes a "STRATEGIC VISION" with "Superior Objectives" and "Specific Objectives" by Sector: 1. ELECTRICAL with the Subsector "Bi-national Hydroelectric Entities and Electric Integration"; 2. BIOENERGY AND OTHER ALTERNATIVE SOURCES (a) Contribute to energy security, development and diversification of national sources, b) Promote the use of bioenergy and other alternative sources in a sustainable manner and with criteria of efficiency, competitiveness and quality, and c) Promote the generation of jobs and economic value linked to the subsector. "); and 3. HYDROCARBONS reduce dependency and consumption of fossil fuels.

Five are the Superior Objectives contained in the Energy Policy of the Republic of Paraguay:

1. Guarantee energy security with criteria of self-supply, efficiency, minimum cost, with socio-environmental responsibility, which accompanies the productive development of the country.
2. Ensure access to quality energy for the entire population with attention to consumer rights.
3. Use national energy sources - hydroelectricity, bioenergy and other alternative sources, as strategic resources to reduce external dependence and increase the generation of greater national benefit.
4. Consolidate the position of Paraguay as the axis of regional energy integration based on the sustainable use of its natural resources and its strategic geographic location.
5. Promote, in the population, the understanding of the importance of energy and its sustainable use as a factor of integral development.

- LAW N° 4601 of April 30, 2012 **"OF INCENTIVES TO THE IMPORTATION OF ELECTRIC AND HYBRID VEHICLES"**.
- The first electric vehicle manufactured 100% in Paraguay and by Paraguayan professionals. Although it is a prototype, Aguará is a bet on vehicles that are friendly to the environment.



The same Law grants benefits to Service Stations that are interested in installing posts for the fast charging of electric vehicles..

PARAGUAYAN RULE, for installation of recharging service stations for electric vehicles

- **"Promotion of the Production and Utilization of Electric Stoves and Ovens"**. That seeks to reduce the consumption of LPG polluting and imported product, as well as the reduction in the use of firewoods that contribute to deforestation.

PROJECT OF BIDDING OF THE CLOSEST TRAIN SERVICE

The transport service through the commuter train is a project of Ferrocarriles del Paraguay SA (FEPASA), which was approved by the Senate last November. Later he passed for his study in the Chamber of Deputies WITH FAVORABLE OPINION

Tren de Cercanía Asunción - Ypacaraí



Primer tramo: 15 km	Segundo tramo: 44 km
<ul style="list-style-type: none">Estación Central de AsunciónEstación Parque CeballeroEstación General SantosEstación BrasíliaEstación VenezuelaEstación SacramentoEstación BotánicoEstación Madame LynchEstación ConmebolEstación Luque	<ul style="list-style-type: none">Estación JukyryEstación AreguáEstación PatiñoEstación Ypacaraí <p>Estimación: \$0.000 pasajeros diarios.</p> <p>Empresas precalificadas</p> <ul style="list-style-type: none">Consortio Roggio - Tren de Cercanías de AsunciónConsortio Corsan - AlstomSacyr Concesiones SLConsortio Tram Asunción



The Commuter Train project proposes the SERVICE of 12 trains simultaneously, which would have a frequency of 5 minutes in peak hour, with the possibility of carrying about 300 passengers.

They also mention that the train will travel through an exclusive route with a traffic light preference, it will not stop at car crossings, with air conditioning, wifi, economic and **MOVED WITH ELECTRICAL CURRENT.**

SAN FRANCISCO MODEL DISTRICT

Social development program destined for the relocation of the families that reside in 5 flood areas of the Bañado Norte de Asunción, in addition to areas surrounding the project in Zeballos Cué, financed by the ITAIPU, it has the electric power service with LED technology, with social rate.



LEGAL FRAMEWORK FOR BIOFUELS (BIOETHANOL AND BIODIESEL)

-**Law No. 253/1993** "APPROVES THE CONVENTION ON CLIMATE CHANGE ADOPTED DURING THE UNITED NATIONS CONFERENCE ON THE ENVIRONMENT AND DEVELOPMENT THE SUMMIT OF THE EARTH CELEBRATED IN THE CITY OF RIO DE JANEIRO, BRAZIL.

-The execution of projects under the Clean Development Mechanism (CDM) provided for in Article 12 of the Kyoto Protocol, Law No. 1447/1999 "APPROVING THE KYOTO PROTOCOL OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE"

-**LAW N °. 2748/2005**, "TO PROMOTE BIOFUELS"

-**Law No. 5444/2015** "On the Promotion of Fuel Alcohol and Absolute Alcohol", which allows Alcohol Producers that are not Sugar Mills to market their products.

-**PRESIDENTIAL DECREE N ° 3667/2009** "By which regulates the" Plan of incentives to promote the development of biofuels in the country "

-**PRESIDENTIAL DECREE N ° 10703/2013** "BY WHICH LAW N ° 2748/05 IS REGULATED"

-**DECREE N° 4562/2015** "By which the maximum percentage of absolute ethanol is established 25% in volume with gasoline of 85 and 95 octane"

-

DECREE N° 3668/2013 - TAX INCENTIVES



- 0% ISC (Selective Consumption Tax)
- 2% VAT (Value Added Tax)
- Investment Incentives Law No. 60/90

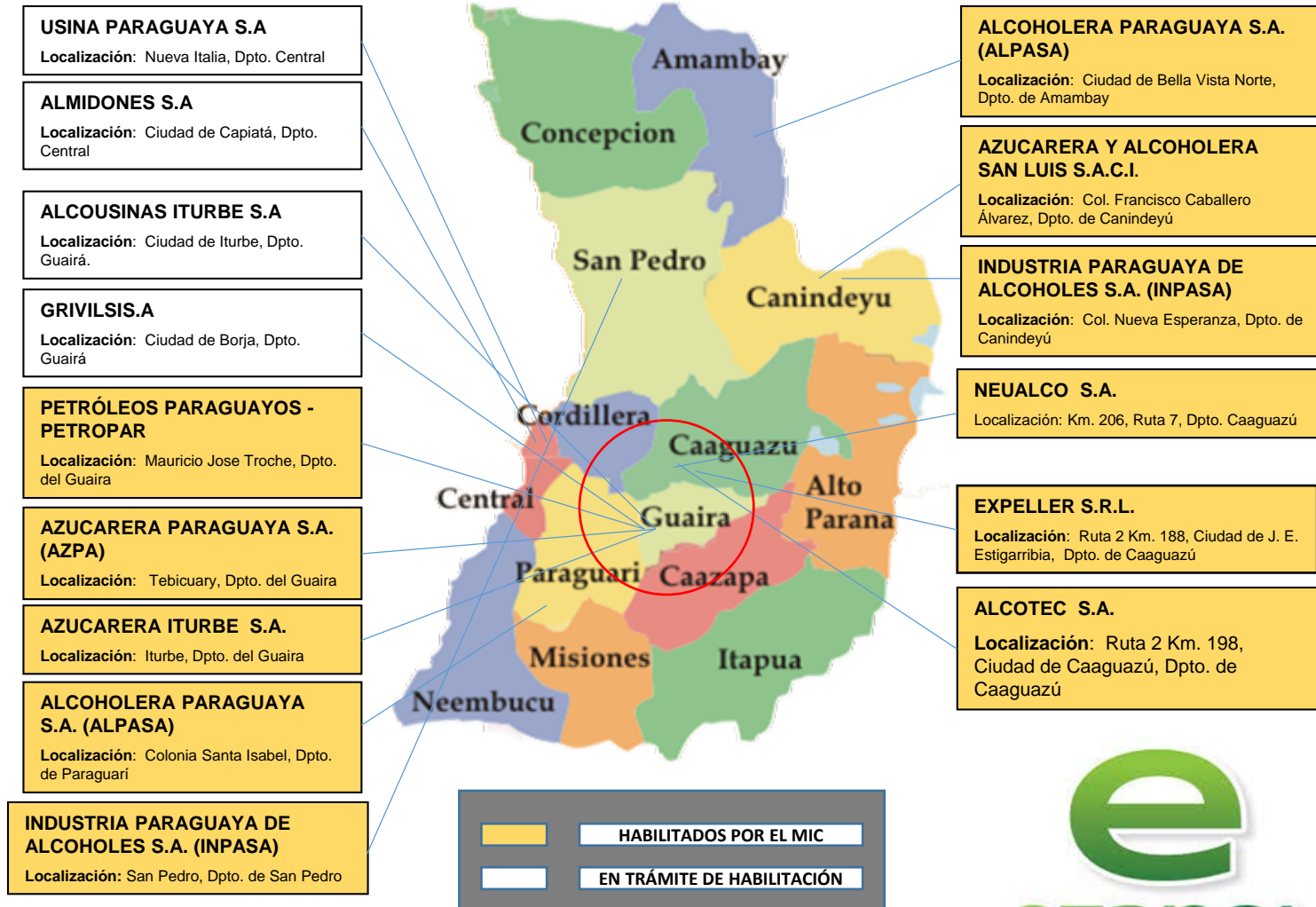
Ethanol

- 0% ISC (Selective Consumption Tax)
- 2% VAT (Value Added Tax)
- Investment Incentives Law No. 60/90

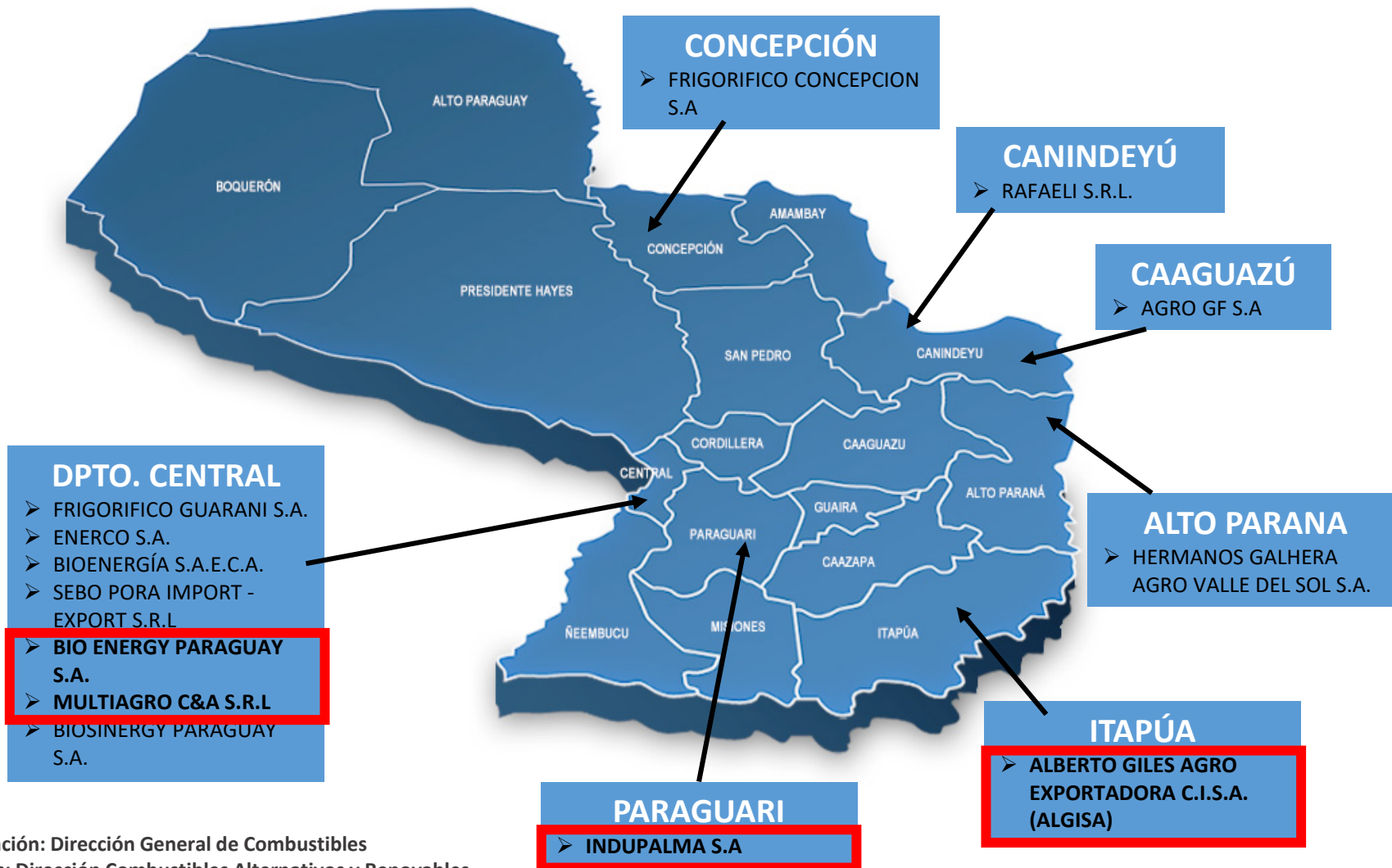
Vehicles Flex Fuel

- 0% Import Tariff
- All government vehicles must be flex fuel, having to start transforming the Automotive Park with at least 30%.

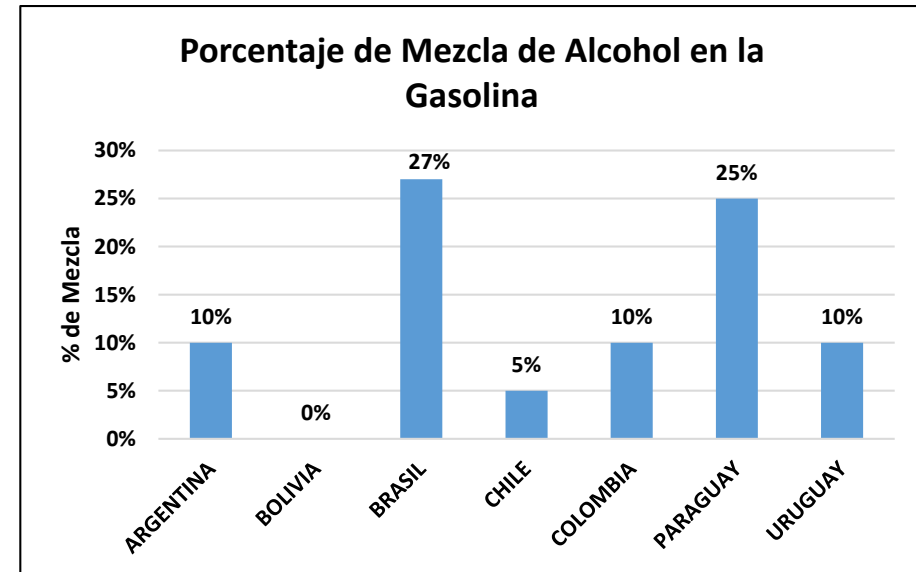
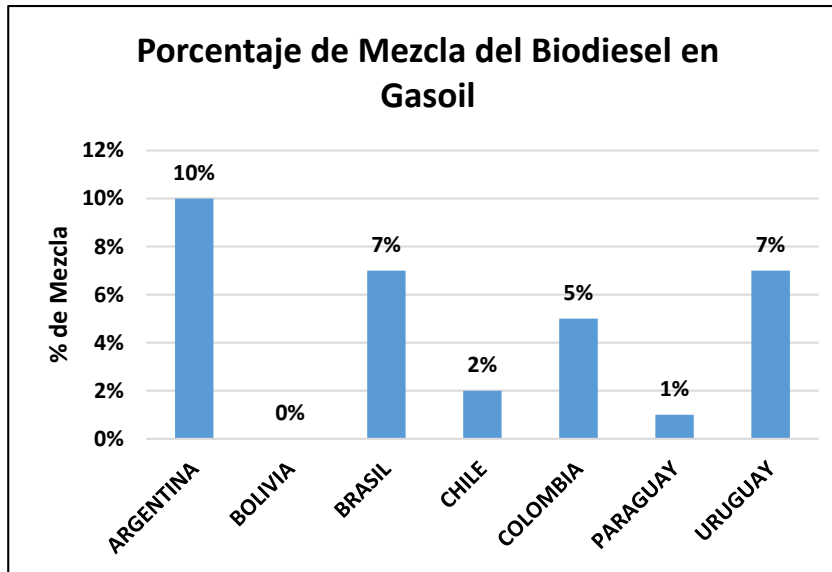
LOCATION OF ETHANOL PRODUCING INDUSTRIES



LOCATION OF BIODIESEL PRODUCING



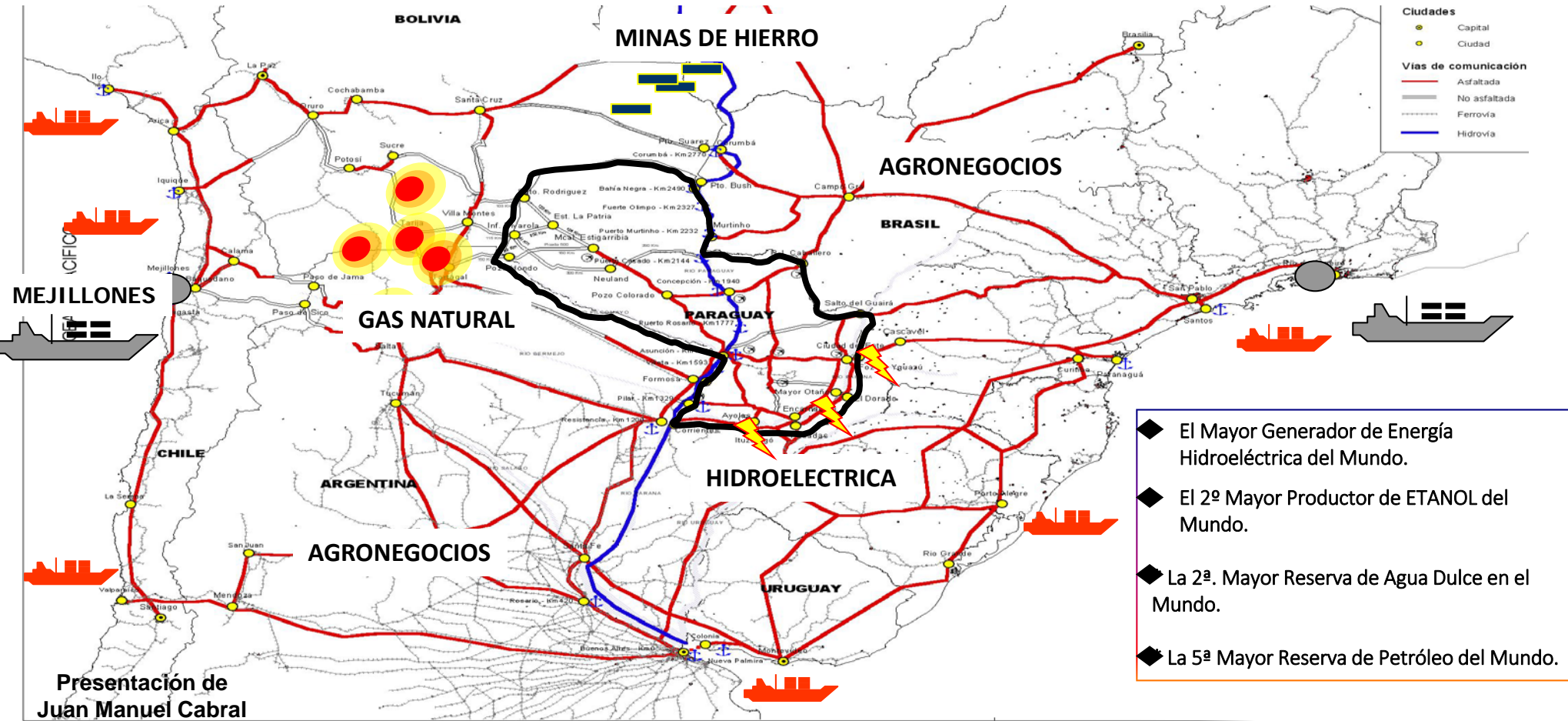
PERCENTAGE OF BIOFUELS MIX IN SOUTH AMERICA



Fuente:

- XII Reunión del Grupo AD HOC sobre Biocombustibles. MERCOSUL/GAHB/ATA N° 01/2015.
- Administración Nacional de Combustibles Alcohol y Portland.
- Agencia Nacional de Hidrocarburos – Bolivia.
- Sistema de Información Minero Energético Colombiano.
- Ministerio de Economía Chile, Decreto N° 11/2008.

POTENTIAL FOR REGIONAL ENERGY INTEGRATION



- ◆ El Mayor Generador de Energía Hidroeléctrica del Mundo.
- ◆ El 2º Mayor Productor de ETANOL del Mundo.
- ◆ La 2ª. Mayor Reserva de Agua Dulce en el Mundo.
- ◆ La 5ª Mayor Reserva de Petróleo del Mundo.

Presentación de
Juan Manuel Cabral
Monzón

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THANKS YOU

