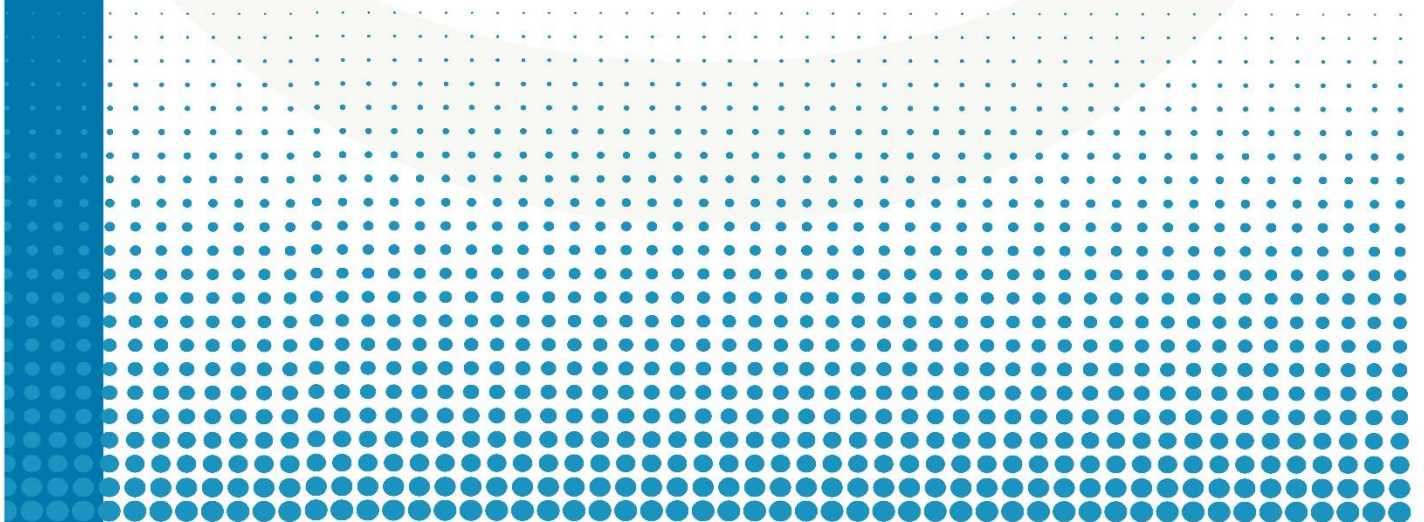


Renewable Energy Policy Brief

URUGUAY

JUNE 2015



Copyright © IRENA 2015

Unless otherwise stated, this publication and material featured herein are the property of the International Renewable Energy Agency (IRENA) and are subject to copyright by IRENA.

Material in this publication may be freely used, shared, copied, reproduced, printed and/or stored, provided that all such material is clearly attributed to IRENA and bears a notation that it is subject to copyright (© IRENA), with the year of the copyright.

Material contained in this publication attributed to third parties may be subject to third party copyright and separate terms of use and restrictions, including restrictions in relation to any commercial use.

This publication should be cited as: 'IRENA (2015), *Renewable Energy Policy Brief: Uruguay*; IRENA, Abu Dhabi'.

About IRENA

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation that supports countries in their transition to a sustainable energy future, and serves as the principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy, in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity. www.irena.org

Acknowledgement

This brief benefited from valuable comments by the following reviewers: Wilson Sierra and Stephanie Grunvald, National Energy Directorate, Ministry of Industry, Energy and Mining, Uruguay.

Authors: Miquel Muñoz Cabré (IRENA consultant); Alvaro Lopez-Peña, Ghislaine Kieffer, Arslan Khalid and Rabia Ferroukhi (IRENA)

For further information or to provide feedback, please contact IRENA's Policy Unit, P.O. Box 236, Abu Dhabi, United Arab Emirates; Email: info@irena.org This brief is available for download from www.irena.org/Publications.

Disclaimer

This publication and the material featured herein are provided "as is", for informational purposes.

All reasonable precautions have been taken by IRENA to verify the reliability of the material featured in this publication. Neither IRENA nor any of its officials, agents, data or other, third-party content providers or licensors provides any warranty, including as to the accuracy, completeness, or fitness for a particular purpose or use of such material, or regarding the non-infringement of third-party rights, and they accept no responsibility or liability with regard to the use of this publication and the material featured therein.

The information contained herein does not necessarily represent the views of the Members of IRENA, nor is it an endorsement of any project, product or service provider. The designations employed and the presentation of material herein do not imply the expression of any opinion on the part of IRENA concerning the legal status of any region, country, territory, city or area or of its authorities, or concerning the delimitation of frontiers or boundaries.

1. Policy

Uruguay has a comprehensive, long-term energy plan - the [National Energy Policy 2005-2030](#) - with the overall objective to diversify the energy mix, reduce dependency from fossil fuels, improve energy efficiency, and increase the use of endogenous resources, mostly renewables. The plan sets a target of 50% primary energy from renewable energy sources by 2015. This includes renewable energy for electricity generation, industrial and domestic heat, and transport. The plan began its inception in 2005, following years of underinvestment¹ and a change of government. The overall energy strategy was discussed during the years 2005-2007 (the preliminary [Energy Guidelines](#) were approved in 2006), the [National Energy Policy 2005-2030](#) was approved in 2008, and in 2010 it was endorsed by all political parties represented in Congress. Given the multi-party endorsement it can be expected that the plan will be maintained even under a change of government.

Electricity

Renewable electricity deployment in Uruguay has achieved higher capacity and lower costs than originally anticipated. The 2008 [National Energy Policy](#) set a **target** 15% electricity from wind power, biomass residues and minihydro, which has been amply surpassed. As of the end of 2013, 83% of generated electricity came from renewables, including large hydro.² While the [National Energy Policy](#) targets have not been formally updated, the government has a working target of 1200MW of wind power by 2015. Deployment seems on track to reach close to 1300MW by then.

Auctions have been the main instrument for the promotion of renewable electricity in Uruguay, whereby the government-owned national electric company (UTE) awards power purchase agreements (PPAs) to successful bidders. All auctions are subject to a bidding guarantee of 1% of the expected 10 year income. In 2006, [Decree 77/006](#) auctioned 20MW for wind power, 20MW for biomass and 20MW for mini-hydro, with plants of up to

10MW. There were no minihydro bids and an amendment by [Decree 397/007](#) of 2007 allowed to redistribute the remaining capacity across technologies for plants up to 20MW, of which the PPA would be for maximum of 10MW and the rest was to be sold in the spot market. In 2009, [Decree 403/009](#) auctioned 150MW for wind power, providing that a further 150MW would be auctioned in a future phase. The call was open to wind farms between 30-50MW, with a required local content of at least 20%. Requirements included that maintenance after the first year should be done 80% by local employees and that the control center must be based in Uruguay. Only one project could be awarded per bidder and PPAs could last for up to 20 years. In 2011, [Decree 159/011](#) auctioned the second phase of [Decree 403/009](#) for another 150MW of wind power under the same technical and local content conditions, but allowing more than one project to be awarded per bidder (up to 100MW per bidder). The decree established that carbon credits from the Clean Development Mechanism (CDM) or any future carbon mechanism would accrue to the project owner, and established incentives for early operation.

Given the below-expectations prices obtained in the 2011 auction, averaging USD63.5/MWh, the government decided to ramp-up wind power development. Later in 2011 wind power developers who had unsuccessfully bid under [Decree 159/011](#), were allowed under a new [Decree 424/011](#) to be awarded PPAs at USD 63.5/MWh³ for projects of up to 50MW.

Wind power for **self-consumption** for industrial consumers was regulated in 2012 through decrees [158/012](#) and [433/012](#). The legislation provided 20-year PPAs for excess power at USD 63.5/MWh.⁴ Wind farms must be between 150kW and 60MW, connected to the mid- or high-voltage grid and with self-consumption accounting for at least 50% of the power generated. The legislation allows for generation in-site, off-site, and for several industries to group together in one project.

¹ 0 MW of new capacity installed between 1992 and 2005

² Source: *National Energy Balance 2013*

³ The average price resulting from the auction under [Decree 159/011](#)

⁴ Decree 158/012 set the PPA price as that of the last wind power auction immediately preceding the contract. In this case, this meant USD63.5/MWh, the resulting average price of Decree 159/011, since there were no more auctions until the application period for Decree 158/012 was closed.

The legislation was valid for two years or until 200MW of capacity were achieved.

A **hybrid instrument** with elements of auctions and feed-in tariffs was used in 2013 for solar PV. Solar PV had not been included in the initial auction as it was considered too costly. Following the steep price declines of PV panels, however, the government decided in 2013 to initiate a “price discovery” and “learning period” for solar PV. Decree 133/013 established a 206MW auction for solar PV plants between 500kW and 50MW each. The decree sets three tranches according to plant size: (1): 500kW-1MW; (2) 1-5MW; and (3) 5-50MW, with a maximum total capacity to be installed per tranche of 1MW, 5MW and 200MW respectively. For tranches 1 and 2, the decree sets a competitive auction to award 25-year PPAs. Tranche 2 PPAs will be awarded only if the price is at least 20% lower than tranche 1. For tranche 3, 20-30 year PPAs are awarded in USD with a linearly decreasing tariff from USD⁵ 91.5/MWh if operative by December 2014, to USD 86.6/MWh if operative by December 2015⁶. All projects require at least 20% local content and carbon credits from the CDM or any future carbon mechanism will accrue to the project owner. Learning from the experience of the biomass feed-in-tariff (discussed below) where projects were not developed, a strong bid guarantee system was imposed. In addition to the 1% bidding guarantee, there was a contract guarantee of 5% of expected revenue over ten years at the time of signing the PPA. Guarantees are mostly recovered upon entry into service of the plant. In late 2014 there were 194MW of signed PPAs, and it is expected that by 2015 there will be 230MW of PV operational.⁷

Net metering for small wind power, solar, biomass and minihydro systems is allowed since 2010 by Decree 173/010 on microgeneration. UTE is mandated to buy at retail price⁸ all the excess electricity produced by consumers for a period of ten years. Generated electricity must be low-voltage and

the maximum power of installations is the lower of either 6kW⁹ or the power contracted by consumer, although higher power is possible with previous authorization¹⁰.

A **feed-in tariff** to promote electricity generation from biomass was established in 2010 through Decree 367/010. The feed-in tariff, for plants up to 20MW, for up to 20 years and set in USD, depends on the dispatch regime. Reserve capacity receives a capacity payment of USD 48/MW per hour available, plus 59 USD/MWh for electricity actually produced. Electricity generated under self-dispatch regime receives USD 92/MWh. Plants are required to have a 30% local content. The first three projects to accredit over 50% local content will receive the equivalent to an additional 3 USD/kWh in their tariff. While the initial proposals received under the feed-in-tariff totaled 354MW of capacity, as of late 2014 there were only 0.6MW installed with 43 MW in the pipeline. Given the below-expectations results of the biomass feed-in-tariff, new legislation for biomass electricity generation is being prepared. The revised legislation is benefitting from consultations with the industry and compilation of lessons learned under the auspices of PROBIO, a project aimed at promoting the integration of large-scale sustainable biomass electricity generation into the grid that was launched in 2011 with funding from GEF and UNDP.

The National Energy Policy set a target of turning 30% of Uruguay’s urban waste and agro-industrial residues into useful energy by 2015. The plan to achieve his target was based on the deployment of biomass electricity generation as well as the development of a thermal energy valorization plant to process around 2000 tons/day of urban waste mostly from the capital, Montevideo. A final decision on whether to proceed with the development of the plant, which is at an advanced stage of planning, is expected in late 2015. If built, the higher cost of the plant means that for the plant to be viable an **environmental subsidy**¹¹

⁵ Tariff originally set in USD

⁶ The dates were originally June 2014 and June 2015, but were subsequently modified by Decree 420/013.

⁷ Including PV developed under net metering and directly by UTE.

⁸ As determined by the contracted tariff. Customers with *Simple Residential Tariff* receive price for tranche immediately above 0-100kWh.

⁹ 16 Amps three-phase or 25 Amps mono-phase.

¹⁰ Up to a maximum of 150kW and not exceeding contracted power capacity.

¹¹ The subsidy accounts for the environmental benefits of waste disposal, and is normally funded from either a fee on waste, the general budget or through a cross-subsidy, e.g. a water or electricity fee.

would be needed. It seems unlikely that the 30% target will be met on schedule.

In addition to the power procurement from private developers established by the policies above, UTE is developing its own wind power and solar PV generation capabilities as part of the targets set in the National Energy Policy. UTE procurement for wind generation capacity is done through three mechanisms: (1) auctioning for turnkey contracts, (2) operative leasing, and (3) a 2012 bilateral agreement with Eletrobras to jointly develop wind power in Uruguay. Pilot plants for PV are funded through international cooperation.

Access to the grid in Uruguay is provided by UTE, the same entity that issues the contracts supported through the auctions, net-metering and feed-in schemes, and regulated by the regulatory agency URSEA. Renewable electricity is exempt from grid charges for the duration of the PPAs. All renewable energy generators must pay connection costs and, when needed, grid upgrading costs. Wind, solar PV and microgeneration can dispatch when available¹². **Dispatch** for biomass is different. Under the biomass feed-in tariff (Decree 367/010) dispatch is an integral part of the tariff design, with higher tariffs for centrally dispatched electricity and lower tariffs for self-dispatched electricity. Despite the lower tariff, all existing plants chose the self-dispatch regime. Given that Uruguay has high penetration of seasonally and yearly variable large hydropower, as well as non-dispatchable PV and Solar, the dispatchability of biomass is seen as a feature to be promoted. Promoting reserve capacity with biomass is an important goal of new biomass legislation under consideration.

The framework for **fiscal incentives** in Uruguay is provided by Law 16906 of 1998 on the promotion of investments. Income tax reductions for renewable electricity generation, renewable energy service providers and manufacturing of renewable energy equipment are provided by Decree 354/009. The exemption starts at 90% of the tax and decreases gradually over ten years. In addition wind power equipment is exempted from VAT by Resolution 67/002 of 2002.

To minimize **environmental impact**, all power plants over 10MW require a prior environmental authorization and an environmental operation permit (Decree 349/005). All biomass power plants using residues require environmental permits regardless of size. The environmental authorization includes a decommissioning plan and a decommissioning guarantee determined on a case-by-case basis. The decommissioning guarantee is deposited with the Ministry of Environment.

Heating

Renewable energy heating legislation in Uruguay includes mandates for solar hot water, a financing and subsidy program for domestic solar water heaters, and fiscal incentives.

A **solar thermal mandate** was established in 2009 by the Solar Thermal Law (Law 18585) with additional provisions in 2011 (Decree 451/011). The law states that after 2014 all new construction and refurbishments of public buildings, hotels, health and sports facilities where hot water is expected to account for over 20% of the building's energy consumption, must obtain at least 50% of water heating energy from solar thermal energy. After 2012 heated pools must use solar heating unless they use a different kind of renewable energy source. The law also allows the government to request that new industrial and agroindustry facilities conduct a technical feasibility study on the use of solar collectors for pre-heating of industrial hot water.

Most domestic water heating in Uruguay is done by electric boilers. It is estimated that water heating accounts for over one third of household energy consumption. In 2012, Uruguay established the Solar Plan (Decree 50/012) with the objective of increasing solar water heating in households. The plan provides optional five-year financing on a non-for-profit basis from the public mortgage bank (BHU), with payments included in the electricity bill. Systems are installed by accredited companies and include a 5 year warranty and full insurance (including theft, weather, vandalism, etc.) from the public insurance bank (BSE). Electricity savings per household are estimated at 15-20%. As an incentive the UTE offers the

¹² For wind, this was explicitly specified in the first two auctions (Decree 77 and Decree 403) and successively through a specific decree on wind dispatch (Decree 567/009). Decree 113/013 on solar PV dispatch was approved in 2013. Dispatch for microgeneration is contemplated in Decree 173/010

first 2000 users an electricity bill discount of 700 UYU /month (30 USD¹³/month) for 24 months. This is equivalent to a subsidy of 50% installation costs. UTE justified its subsidy as a commercial decision based on avoided investment costs. The deployment of solar water heaters, while steady, has been slower than anticipated and the government is considering additional measures to speed it up, such as an awareness campaign and bringing the subsidy upfront so users can finance collectors as if they were a large appliance rather than having to apply for credit. Solar water pre-installation has been defined for some public housing and there are ongoing consultations with the Public Housing Authority to include it in new social housing.

Fiscal incentives for solar water heating equipment are provided by [Decree 451/011](#). Equipment for manufacturing solar collectors is exempt from VAT. Locally manufactured solar collectors are exempt from VAT from 2011 to 2016, and from 2016 onwards partially exempt from VAT, depending on their energy efficiency. Imported collectors have partial VAT exemption after 2016, also dependent on their level of energy efficiency but lower than for domestic collectors. After 2021, VAT exemptions for local and imported collectors will be the same.

Transport

Biofuels were declared of national interest in 2002¹⁴. The [National Energy Policy](#) seeks the

development of biofuels in a manner that it encourages byproducts such as electricity, animal feed, fertilizer and sugar and reduces competition with food production for land and water.

Mandates for biofuels blending were established in 2007 by the Biofuels Law ([Law 18195](#)). A 5% bioethanol blend is mandated after 2015 and 5% biodiesel blend starting in 2012. The mandates must be fulfilled with locally produced biofuels (although the executive can allow exceptions for national interest). Quality standards and regulation of biofuels production were developed in 2008 by [Decree 523/008](#).

Under the [Biofuels Law](#), production and export of biofuels is exempted from state monopoly rules. Biofuel producers can choose to supply the public national fuel company (ANCAP) or to export to the international markets, though the government can limit export of biofuels to ensure national supply. Biodiesel producers are also allowed to use up to 4000 liters per day for self-consumption by captive fleets.

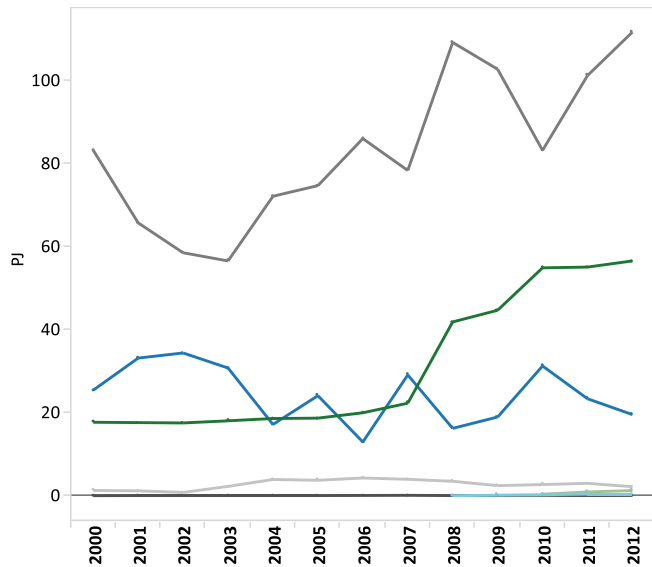
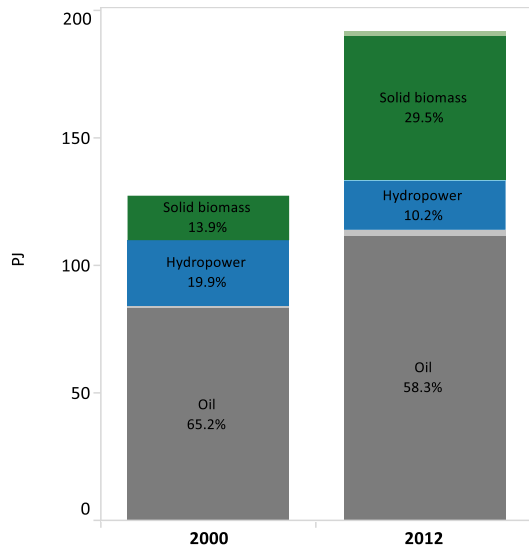
The 2007 [Biofuels Law](#) ([Law 18195](#)) provides biofuel producers with **fiscal incentives**, including from property and income tax exemption for ten years. National biodiesel is exempted from a fuel specific tax (IMESI) for ten years. Previously, [Law 17567](#) of 2002 not currently applied also provided fiscal incentives.

¹³ Conversion rate October 2014

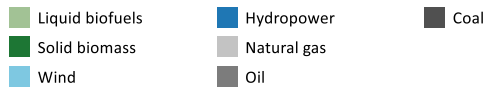
¹⁴ [Law 17567](#)

2. Statistics

Total Primary Energy Supply



Excludes electricity trade

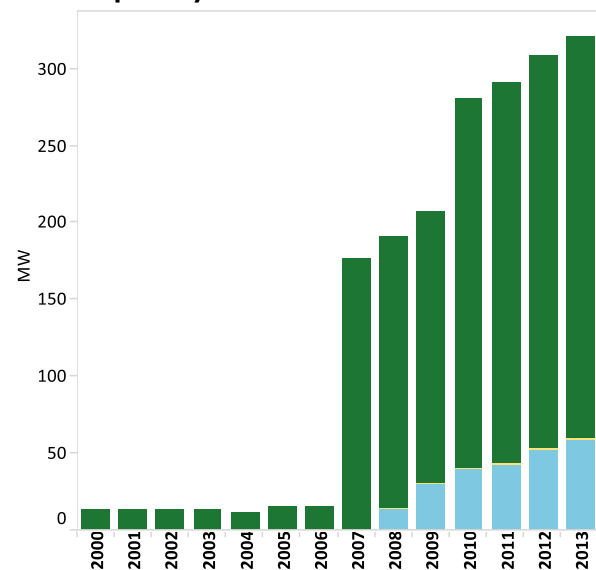
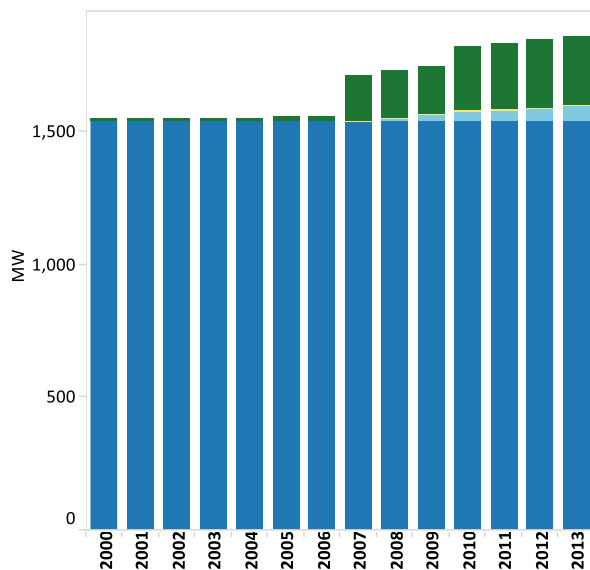


		Total Primary Energy Supply	Share of renewables
2000	Total	129.5 PJ	
	Of which renewables	43.1 PJ	33.3%
2012	Total	193.7 PJ	
	Of which renewables	77.6 PJ	40.1%

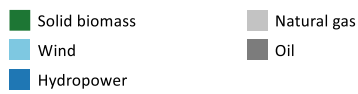
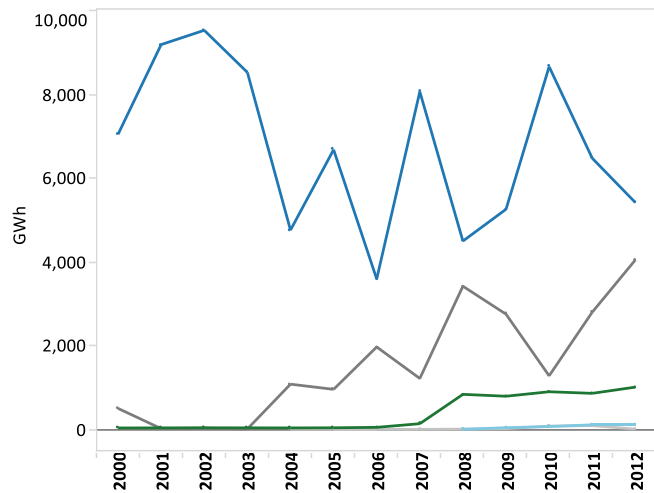
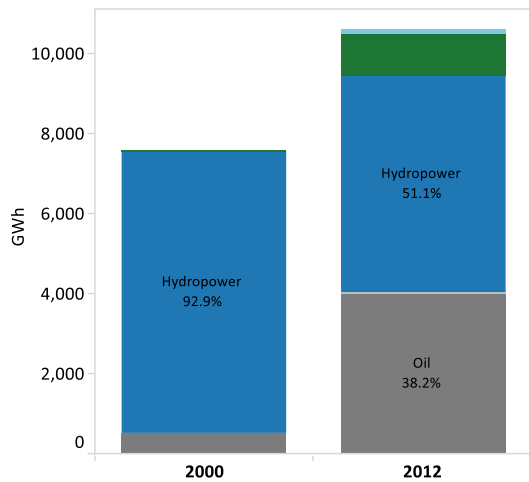
		Total Primary Energy Supply	Share in total renewables
2012	Wind	0.4 PJ	0.5%
	Liquid biofuels	1.3 PJ	1.6%
	Solid biomass	56.5 PJ	72.7%
	Hydropower	19.5 PJ	25.1%

Total includes electricity trade

Renewable Power Capacity



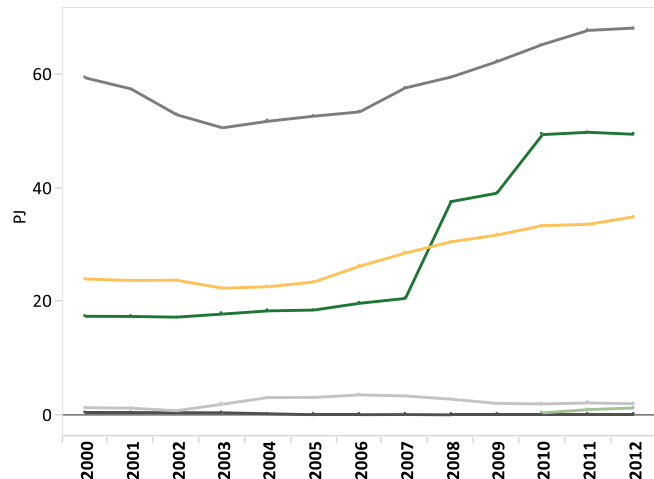
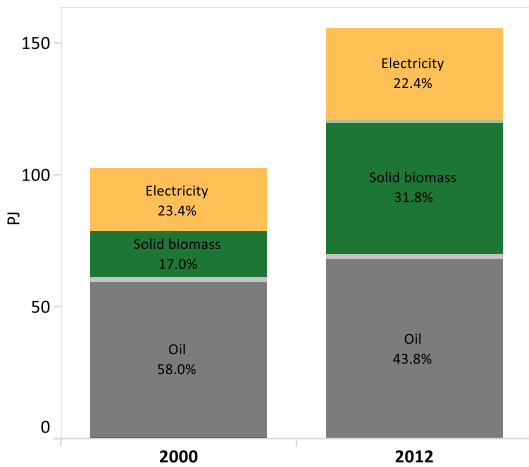
Electricity Generation



	Electricity generation	Share of renewables
2000	Total	7,588.0 GWh
	Of which renewables	7,086.0 GWh 93.4%
2012	Total	10,600.0 GWh
	Of which renewables	6,543.0 GWh 61.7%

	Electricity generation	Share in total renewables
2012	Wind	111.0 GWh 1.7%
	Solid biomass	1,011.0 GWh 15.5%
	Hydropower	5,421.0 GWh 82.9%

Total Final Energy Consumption



	Total Final Energy Consumption	Share of renewables
2000	Total	102.2 PJ
	Of which renewables	17.3 PJ 17.0%
2012	Total	155.4 PJ
	Of which renewables	50.6 PJ 32.5%

	Total Final Energy Consumption	Share in total renewables
2012	Liquid biofuels	1.2 PJ 2.4%
	Solid biomass	49.4 PJ 97.6%

Sources for these statistics: IRENA, IEA, UN

Renewable Energy Policy Briefs

This brief is part of an IRENA series providing a comprehensive and timely summary of renewable energy policies in Latin America (including Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela).

The brief brings together the most up-to-date information on renewable energy public policies for the power, heating and transport sectors, and also includes a section on energy access policies. The objective of this brief is not to provide an assessment of the reported policies. The brief is primarily based on the information contained in the [IEA/IRENA Joint Policies and Measures Database](#), complemented with information drawn from: (i) additional existing legislation, (ii) official government sources such as plans, reports and press releases, and (iii) input from country policymakers and experts. While the brief focuses on policies at the national level, sub-national policies are also included where relevant. Specific projects or programmes implemented by actors such as international organisations, development partners and the private sector are beyond the scope of this brief.

The information contained in this document is posted on IRENA's [REsource](#) web portal, will be used to update the [IEA/IRENA Joint Policies and Measures Database](#), and will form the basis of IRENA's future policy work in Latin America.



www.irena.org

Copyright © IRENA 2015