

Summary

Renewable energy remains a largely unexploited market in Peru, currently only providing about 0.6% of the national energy supply. While hydroelectric power has traditionally provided the vast majority of Peruvian electricity, other forms of clean energy are largely absent in the Peruvian market. However, the passage of Legislative Decree 1002 in 2008 promotes the inclusion of renewable energy in the nation's energy matrix and fixed goals for its development, providing the grounds for greater investment in the industry. As defined by the Ministry of Energy and Mines, renewable energy includes that generated by solar and wind systems as well as biogas, geothermal, biofuels, and small-scale hydroelectric under 20 M.W. While not currently in production, geothermal exploration is underway and may soon contribute to the national energy grid. Between the government's update of the national renewable energy targets, the third renewable energy concession auction, and the rapidly rising demand for energy, Peru offers a growing market for U.S. renewable energy exports.

Market Landscape

Electricity Demand in Peru has grown rapidly over the last decade as more isolated regions have begun receiving electrical services, greater industrial growth has spurred new demand, and a steadily growing population has increased demand both in Lima and the provinces. As noted below, energy production has more than doubled since 2001, and continues to grow at a steady pace. Despite this regular growth, Peru's energy infrastructure is regularly strained to meet demand, with excess capacity only amounting to about 5% above peak demand. Demand is expected to grow at an average rate of 9% per year, increasing total demand from 14.3 million tons of oil equivalent (mtoe) to 30.6 mtoe by 2035.

Peru Energy Production History												
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Energy Produced (GW.h)	18,457	19,656	20,689	21,903	23,002	24,760	27,255	29,559	29,807	32,426	35,217	37,313

Source: Osinergmin

Energy development in recent years has been primarily driven by a greater exploitation of Peru's natural gas reserves. While hydroelectric power has traditionally served as the nation's primary source of energy, this role has quickly been diminished as natural gas exploration, particularly in the Amazon basin, has resulted in dramatically rising thermal energy production. Government subsidies for the natural gas extracted from Block 88 has kept energy prices artificially low, although there is some doubt as to how long such prices will be able to withstand rising demand and depleted gas reserves.

Renewable energy has been a very recent development in Peru. Osinergmin (National Energy, Oil, and Mining regulator) has only reported grid-scale operations since late 2009. Since then, renewable energy production has grown exponentially, and the number of businesses involved in the industry at a significant scale has followed suit. The data below reflects renewable energy production by company each year until 2012, and subsequent reported growth in 2013.

Renewable Energy Timeline				
Year	Energy source	Company	Production by company (GW.h)	Total Renewable Production (GW.h)
2009	Biomass	AIPSA	1.8	1.8
2010	Biomass	AIPSA	78.2	78.2
2011	Biomass	AIPSA	84.3	87.3
	Biogas	Petramas	3.0	
2012	Biomass	AIPSA	92.8	215.5
	Biomass	Maple Ethanol	37.8	
	Biogas	Petramas	29.4	
	Solar	GTS Majes	21.3	
	Solar	GTS Repartición	20.6	
	Solar	GTS Tacna	12.4	
	Solar	Panamericana Solar	1.3	
Jan-Feb 2013	Biomass	AIPSA	16.0	65.1 (227.1% growth over Jan-Feb 2012)
	Biomass	Maple Ethanol	12.5	
	Biogas	Petramas	12.5	
	Solar	GTS Majes	8.0	
	Solar	GTS Repartición	7.9	
	Solar	GTS Tacna	8.8	
	Solar	Panamericana Solar	7.2	

Source: Osinergmin

Currently, renewable energy as a group (including biogas, biofuels, small-hydro and solar energy: the only sources currently in substantial operation in Peru) composes only 0.6% of the nation's energy matrix, as seen below. Recent optimism and the completion of the second round of renewable energy concessions later in 2013, however, may push Peru towards a greater reliance on wind, solar, and bioenergy. At the present moment, the following renewable energy production centers are in operation:

Renewable Energy Facilities Currently in Operation			
Production Center	Concession Owner	Installed Power (MW)	Location
CH LA JOYA	GENERADORA DE ENERGÍA DEL PERÚ S.A.	9.6	AREQUIPA
CH SANTA CRUZ I	HIDROELÉCTRICA SANTA CRUZ S.A.C.	5.9	ANCASH
CH SANTA CRUZ II	HIDROELÉCTRICA SANTA CRUZ S.A.C.	6.0	ANCASH
CH QUANDA	ADINELSA	2.8	CAJAMARCA
CH CAÑA BRAVA	DUKE ENERGY EGENOR S. EN C. POR A.	5.7	CAJAMARCA
CH HUANCHOR	AHORA HIDROELÉCTRICA HUANCHOR S.A.C.	16.2	LIMA
CH PIÁS 1	AGUAS Y ENERGÍA PERÚ S.A.	12.6	LA LIBERTAD
CH POECHOS I	SINDICATO ENERGÉTICO S.A. - SINERSA	15.4	PIURA
CH POECHOS II	SINDICATO ENERGÉTICO S.A. - SINERSA	10.0	PIURA
CT PARAMONGA 1	AGRO INDUSTRIAL PARAMONGA S.A.A.	23.0	LIMA
CT CAÑA BRAVA	BIOENERGÍA DEL CHIRA S.A.	12.0	PIURA
CT MAPLE ETANOL	MAPLE ETANOL S.R.L.	37.5	PIURA
CS MAJES SOLAR 20T	GTS MAJES S.A.C.	20.0	AREQUIPA
CS TACNA SOLAR 20TS	TACNA SOLAR S.A.C.	20.0	TACNA
CS PANAMERICANA SOLAR 20 TS	PANAMERICANA SOLAR S.A.C.	20.0	MOQUEGUA
CS REPARTICIÓN SOLAR 20T	GTS REPARTICIÓN S.A.C.	20.0	AREQUIPA

While renewable energy production has grown exponentially over the last 5 years, its total contribution to the nation's energy matrix remains very minor at 0.6% in 2012. Hydroelectric and natural gas powered generation remain the top two energy sources for the country, and the primary interest of most public officials. Below is the breakdown of total energy production in Peru according to its source. As can be seen, the energy matrix has shifted significantly towards reliance upon natural gas. Current 2013 estimates show this trend to have continued into this year.

Energy Production in Peru								
Source of production		Year	Q1 (GW.h)	Q2 (GW.h)	Q3 (GW.h)	Q4 (GW.h)	Total (GW.h)	Percentage Annual Total
Hydroelectric	Hydroelectric	2011	5,619.50	5,216.70	4,455.00	5,112.80	20,404.10	57.9%
		2012	5,714.50	5,448.90	4,348.00	5,336.10	20,847.50	55.9%
Thermal	Natural Gas	2011	2,620.30	3,113.70	3,990.90	3,734.90	13,459.90	38.2%
		2012	3,242.40	3,538.60	4,573.00	3,952.70	15,306.90	41.0%
	Coal	2011	200.6	199.4	177.3	155.1	732.4	2.1%
		2012	48.3	139.4	179	188.8	555.5	1.5%
	Residuals	2011	95.7	99.9	87.8	8.8	292.2	0.8%
		2012	74.2	18.7	24.7	7.3	124.9	0.3%
	Diesel	2011	47.3	64.2	79	51.1	241.6	0.7%
		2012	55.9	24.7	153.6	28.6	262.7	0.7%
Renewable	Biogas, Biofuels & Solar	2011	20.1	24.2	20.4	22.6	87.3	0.2%
		2012	30.4	26.6	57.9	100.5	215.5	0.6%
Total 2011			8,603.50	8,718.20	8,810.40	9,085.40	35,217.40	100%
Total 2012			9,165.70	9,196.90	9,336.20	9,614.10	37,313.00	100%
Variation 2012/2011			6.50%	5.50%	6.00%	5.82%	6.00%	-

Source: Osinergmin

The above chart give indication of grid-scale technologies employed as a part of Peru's universal energy grid "National Interconnected Electric System" (SEIN by its Spanish acronym). While much of the population is concentrated in Lima and other cities, many rural areas, particularly in the Andes and Amazon basin remain isolated from SEIN. As of the end of 2012, approximately 87.2% of the Peruvian population had access to electricity, but as little as 63% in rural areas. The use of individual solar panels and community-based energy solutions therefore offer a substantial opportunity for small and medium-sized exporters of renewable energy technology.

Furthermore, despite its currently small employment in Peru's energy matrix, conservative estimates from the private energy consultancy CINYDE, forecast extensive development potential in the renewable energy sector. Unlike the mining and large-scale hydroelectric industries, renewable energy is still a relatively new industry in Peru, providing both foreign and domestic firms the opportunity to capitalize upon as-of-yet un-captured market shares. As indicated below, CINYDE estimates a total of between 10.8 and 13.3 million US\$ of potential investments in the renewable energy sector by 2020, not including those projects currently under development and study.

Renewable Energy Generation Potential Projection from 2012 to 2020			
Renewable Energy Source	Potential Cumulative Demand (MW)	Installed Investment Costs (Million US\$/MW)	Total Investment Potential (Million US\$)
Photovoltaic	540	2.5 – 3.0	1.350 – 1.620
Wind	1,800	1.8 – 2.0	3.240 – 3.600
Hydropower	2,000	1.5 - 1.8	3.000 – 3.600
Biomass	1,800	1.8 – 2.5	3.240 – 4.500
Total	6,140	7.6 – 9.3	10.830 – 13.320

Source: CINYDE analysis

Recent estimates released to the Peruvian media by Osinermin and COES, the state organization in charge of the national power grid, project the substantial energy developments in the next five years. By the end of 2017, the government of Peru projects that renewable energy will provide 7% of the national energy supply following the installation of 300 new MW of power over the next five years. Below are the proposed additions to the energy grid by sector.

Projects	% Energy Supply	2013 (MW)	2014 (MW)	2015 (MW)	2016 (MW)	2017 (MW)	Total (MW)
Bioenergy, Solar, Wind	7%	110	34	106	50	0	300
Mini-hydro	12%	18	72	152	239	40	521
Medium and large hydro	37%	91	0	478	406	675	1650
Gas	16%	732	0	0	0	0	732
Diesel	29%	643	219	58	400	0	1320
Total (MW added per year)	100%	1593	325	794	1095	715	4522

Source: Osinermin, COES

Latest events in Peru's renewable energy sector include the beginning of construction on the first ever industrial-scale wind farms in the northern provinces of the country. ContourGlobal Latam, a Latin-American subsidiary of the New York-based power company, is investing upwards of US\$ 250 million in constructing two wind farms on the Cupisnique and Talara sites of the Pacasmayo and Talara provinces. The wind farms will provide a combined capacity of 114 MW to the grid. Also, in March of 2013, Peruvian President Ollanta Humala inaugurated the nation's first grid-connected photovoltaic power plant in the Tacna region. This plant alongside the Panamericana Solar 20 plant makes Peru the top solar-producing country in South America.

Regarding biogas and biofuels, one of the country's major producers of ethanol, Maple Ethanol, is now beginning development of sugarcane biofuel, promising substantial growth in this field. The sector can also look forward to renewed energy targets in the latter half of 2013, and, as forecasted by the International Finance Corporation (IFC), Peruvian energy prices are set to rise substantially, motivating greater investment in alternative sources.

The third auction by the Ministry of Energy and Mines to include renewable energy development concessions began in mid-August of 2013, and offered 320 GW.h in new biomass development contracts alongside 1,300 GW.h of new hydroelectric contracts. The government's recently updated rural electrification plan also calls for the installation of thousands of solar panels to power 500,000 rural or hard-to-reach households in the Andes and Amazon regions.

According to the Ministry of Energy and Mines, in 2012 there were 70 large companies officially operating in the energy sector including 31 generation companies, 14 transmission companies, 22 distribution companies, and 3 public institutions. Many of these firms, such as EDEGEL (Electric Generation Company of Lima) and EGEMSA (Machu Picchu Electric Generation

Company) operate large and small scale (under 20 MW) hydroelectric generation plants, which some may be included in the renewable energy field. The majority of these large-scale firms, however service the mining and oil sectors, such as Xstrata Tintaya and Termoselva.

The chart below lists the primary energy producers in Peru with their contributions to the national energy grid, according to the mode of production. This data comes from the 2012 report. A number of changes occurred in the later months of 2012, early 2013. Most notably, while only six companies are listed as operating grid-scale renewable energy facilities in 2012, as of February 2013, Osinergmin, the energy and mining regulator, reported seven companies operating at scale with the addition of Panamericana S.A. Furthermore, wind energy is not listed as a source of production on the chart below. However, current projections forecast the Cupisnique and Talara wind farms coming online by the end of 2013, adding a substantial quantity of renewable energy to the grid.

2012 Energy Production by Company**												
Generation Company	Hydroelectric Production		Thermal Production				Renewable Production					
			Natural Gas		Diesel		Biofuel		Biogas		Solar	
	GW.h	%	GW.h	%	GW.h	%	GW.h	%	GW.h	%	GW.h	%
Aguas y Energía Perú	80.8	0.4	-	-	-	-	-	-	-	-	-	-
AIPSA	-	-	-	-	-	-	89.8	82.5	-	-	-	-
CELEPSA	1,212.0	5.9	-	-	-	-	-	-	-	-	-	-
Chinango	1,131.6	5.5	-	-	-	-	-	-	-	-	-	-
E. Santa Cruz	82.6	0.4	-	-	-	-	-	-	-	-	-	-
E. Santa Rosa	4.8	0.0	-	-	-	-	-	-	-	-	-	-
Edegel	3,472.1	16.8	4,350.5	28.6	33.8	12.0	-	-	-	-	-	-
Eepsa	-	-	571.5	3.8	-	-	-	-	-	-	-	-
Egasa*	968.1	4.7	299.5	2.0	4.7	1.7	-	-	-	-	-	-
Egamsa	737.4	3.6	-	-	0.2	0.1	-	-	-	-	-	-
Egenor	2,007.0	9.7	591.4	3.9	76.9	27.3	-	-	-	-	-	-
Egesur*	103.4	0.5	149.4	1.0	-	-	-	-	-	-	-	-
Electroperú*	7,215.3	34.9	-	-	137.1	48.7	-	-	-	-	-	-
Enersur	868.9	4.2	3,832.2	25.2	26.6	9.5	-	-	-	-	-	-
GEPSA	65.2	0.3	-	-	-	-	-	-	-	-	-	-
GTS Majes	-	-	-	-	-	-	-	-	-	-	12.9	45.1
GTS Repartición	-	-	-	-	-	-	-	-	-	-	12.3	43.0
GTS Tacna	-	-	-	-	-	-	-	-	-	-	3.4	11.9
Hidrocañete	7.5	0.0	-	-	-	-	-	-	-	-	-	-
Kallpa	-	-	4,221.3	27.8	-	-	-	-	-	-	-	-
MAJA Energía	16.5	0.1	-	-	-	-	-	-	-	-	-	-
Maple Etanol	-	-	-	-	-	-	19.1	17.5	-	-	-	-
Petramas	-	-	-	-	-	-	-	-	27.4	100.0	-	-
S. M. Corona	152.9	0.7	-	-	-	-	-	-	-	-	-	-
San Gabán	732.4	3.5	-	-	1.5	0.5	-	-	-	-	-	-
SDE Piura	-	-	54.1	0.4	-	-	-	-	-	-	-	-
SDF Energía	-	-	229.2	1.5	-	-	-	-	-	-	-	-
Shougesa*	-	-	-	-	0.5	0.2	-	-	-	-	-	-
SINERSA	60.5	0.3	-	-	-	-	-	-	-	-	-	-
SN Power Perú	1,725.7	8.4	-	-	-	-	-	-	-	-	-	-
Termoselva	-	-	890.1	5.9	-	-	-	-	-	-	-	-
Total	20,644.7	100.0	15,189.2	100.0	281.3	100.0	108.9	100.0	27.4	100.0	28.6	100.0
Percent of Total	55.9		41.1		0.8		0.3		0.1		0.1	

*Coal and Residual Thermal Energy also provide 1.4% and 0.3% of Peru's energy respectively. Enersur is the sole provider of coal energy, producing 522.7GW.h in 2012. Egesur, Shougesa, Electroperú, and Egasa all provide Residual Thermal power, producing 81.5, 18.6, 10.1, and 15.1 GW.h respectively.

**Note data represents figures from 2012: production matrix is subject to substantial change.

Source: Osinergmin

Market Data

While scaled production of renewable energy is only just beginning to be developed in Peru, a clear trend in renewable energy related imports gives a clear indication of future growth in the sector. As seen on the following page, between 2007 and 2012, Peru more than tripled its imports of renewable energy related products. Despite economic turbulence in 2009, solid import and export growth has continued.

Trade Growth For Renewable Energy Technology (millions of US\$)							
	Year	2007	2008	2009	2010	2011	2012
All Renewables Products	Imports	625.4	1,096.4	1,064.1	1,093.2	2,002.5	1,954.4
	Exports	41.9	63.6	77.1	85.2	85.9	106.7
All Renewables less those usable for mining ¹	Imports	554.3	871.5	933.9	966.0	1,797.5	1,771.2
	Exports	38.9	55.8	62.9	60.9	68.2	85.9

Source: World Trade Atlas, product listing defined by World Customs Organization.

1. Renewables less those usable for mining removes products used primarily for Geothermal (currently only under investigation in Peru)

The renewable energy equipment industry in Peru dramatically increased its imports in 2011, nearly doubling the total imports due to the completion of the Tacna solar field, and following the announcement of new renewable energy concessions. Peru imports 21.7% of its renewable energy technology and equipment from the United States, second to China at 22.9%. Chinese exports of renewable energy equipment to Peru have undergone a dramatic increase in the last three years, rising from 7.63% of Peruvian renewables imports in 2011 to 22.9% in 2012. Other major providers of renewable energy equipment include Spain at 9.6% of imports, Germany at 6.7%, and Italy at 3.9%.

The leading products sold to the Peruvian Renewable Energy Industry in 2012 from the global market include the following:

Rank	HTC	Description	2012 Exports from US (US \$)
1	730890	Structures And Parts of Iron or Steel	193,599,543
2	854140	Photosensitive Semiconductor Device Including Photovoltaic Cells	147,658,430
3	843041	Boring Or Sinking Machinery, Self-Propelled	114,935,958
4	841182	Gas Turbines of Exceeding 5,000 Kw	103,939,688
5	850440	Static Converters; Adapters and Power Supplies	101,891,101
6	382490	Products And Residuals Of Chemical Industry	99,113,079
7	392690	Articles Of Plastics	90,182,947
8	853710	Controls with electrical Apparatus F Electrical Control Nov 1000 V	84,887,199
9	848340	Gears; Ball Or Roller Screws; Gear Boxes	76,416,514
10	854449	Insulated Electric Conductors =< 80	76,268,159
Total		Renewable Energy Technology	1,954,449,959

Source: World Trade Atlas

Best Prospects

In this fledgling industry, there are still many opportunities for significant investment that remain unexploited by foreign investors. The Peruvian Ministry of Energy and Mines reports a number of up-and-coming projects in the solar, wind, and biofuel industry, all of which have significant potential in the region. In its first few years of operation, the performance of the Tacna solar facility will play an important role in determining government support for future solar energy development at grid-scale. However, with the current concessions under construction, there is sizeable demand for photovoltaic cells, steel and iron structures for support, sun-tracking equipment and energy storage devices for solar energy production.

With only an estimated 1% of total solar energy potential currently exploited in Peru, and some governmental support for its development, the solar industry is likely to provide the greatest opportunity for export growth in the near future. Solar also provides a substantial opportunity for rural-electrification, which is a major objective of the Ministry of Energy and Mines. Solar energy development, particularly for communities in the Amazon region, is a significant part of the electrification plan, and may soon create greater demand for household and small-scale solar installations and parts.

In the wind energy industry, the development of the Talara and Cupisnique sites will be a focus of the industry for the next year, and their performance will, again, play a large role in determining future support for such projects. Local experts emphasize that Peru has a number of ideal sites for wind energy development, with mid-range, constant winds, particularly in the coastal regions. Current exploration in this region and others, could lead to substantial developments in the near future. A study put out by the Ministry of Energy and Mines (MINEM) indicate that only 0.65% of the wind energy potential is currently used in Peru, suggesting that there will continue to be significant demand for generation sets, and fabrication materials for wind turbines.

In the biofuels and biogas industry, Maple Ethanol, which has historically performed very well with its corn ethanol production in the region, is beginning the transition to sugarcane based biofuel production, and a number of other firms are potentially following suit. The markets for products related to sugarcane digestion and processing, and biogas-fueled generation sets will likely offer significant opportunity in the next 1-3 year.

Key Suppliers

The Peruvian renewables market is a mix of large, generally multinational, firms supplying grid-scale technologies, and a number of small to medium firms providing home or business installations and products. Many of the major global players in the solar industry have a presence in Peru, although most have only representative presence, or are currently establishing offices in Lima.

Of the large suppliers for the solar industry, the most prominent include: T-Solar from Spain, the supplier of the technology used at the new Tacna site; SHARP Solar from Japan; Suntech from the U.S.; and Yingli Green Energy from Japan. In the wind industry, Vestas dominates the market, owning the contract to the Talara and Cupisnique plants, and Goldwind of Germany also has an established presence in the country. The biofuels market sources much of its equipment from firms similar to those relied upon by the oil and gas industry. Specific to the industry, however, both Solazyme and Novozymes have established a presence in Peru.

Businesses in Peru tend to compete very heavily on price, leading many Asian products to dominate the market. However, recent trends indicate a growing preference for product quality and after-sale services, which may give an edge to U.S. exporters.

Prospective Buyers

From the perspective of U.S. exporters, the Peruvian Renewables market can be divided into two major parts: those firms operating at the concessions level (grid scale) and those working with individual homes and businesses to provide renewable energy solutions. Large renewable firms include those previously mentioned: In biofuels, AIPSA (Peruvian Agricultural Industries S.A.), Petramas, and Maple Ethanol all have established operations, and provide the majority of the biofuel-produced energy. In solar, GTS Majes, GTS Repartición, GTS Tacna, and Panamericana Solar are the dominant players. Finally, in the fledgling wind industry, ContourGlobal Latam, following their acquisition of Energía Eólica S.A. will soon be the first grid-scale company operating a wind farm in Peru. Following is a chart of the top four renewable energy-importing firms in Peru in order of the value of their imports.

Top Renewable Energy Product Importing Companies							
Rank among top Peruvian importers	Company	FOB Value (US\$ mil.)		CIF Value (US\$ mil.)		Percent Change	Percent total Imports
		2011	2012	2011	2012		
84	ABB S.A.	72.12	69.65	75.8	73.16	-3.48	0.17
88	TACNA Solar S.A.C.	0.00	67.22	0.00	69.17	n/a	0.16
91	Panamericana Solar S.A.C.	0.00	63.38	0.00	65.03	n/a	0.15
138	GTS Majes S.A.C.	0.00	42.59	0.00	44.64	n/a	0.11

Source: SUNAT

On the individual and business level, a number of smaller firms provide several products and services to Peruvian customers. These firms are primarily focused on solar manufacturing and installation (Andina Energías Renovables and Proenergy Amazon S.A.C.), and many are small branch subsidiaries of much larger, international firms (Liders S.A.C. and Barlovento Renovables Latinoamerica). The growing number of small and medium renewable energy firms in Peru is an indication of the industry's optimism and relative confidence that future development will occur. Those firms able to secure concessions for exploration and development through the government's auctions have the opportunity to quickly develop into significant importers of US products.

Contracts awarded during the first renewable energy concession auction in 2010 are coming online mid-2013. Their success will determine the availability of future concessions and opportunities for development, and many local firms appear optimistic. Two subsequent rounds of energy auctions have occurred since 2010, the most recent beginning in August of 2013. These auctions have provided many firms with exploratory and developmental concessions, and will therefore soon produce the demand for specialized products related to renewable energy.

Approved Renewable Energy Production Projects/Under Development						
Production Center	Project Operator	Installed Power (MW)	Location	Investment (US\$ mill.)	Beginning of Construction	Generation to Begin
CH CARPAPATA III	UNIÓN ANDINA DE CEMENTOS S.A.A	12.8	JUNÍN	18.2	2013.10.09	2016.10.31
CH LAS PIZARRAS	EMPRESA eléctrica RÍO DOBLE S.A.	18.8	CAJAMARCA	21.0	2010.10.01	2012.12.31
CH MANTA	PERUANA DE INVERSIONES EN ENERGÍAS RENOVABLES S.A.C.	18.4	ANCASH	18.4	2010.12.01	2013.05.31
CE TALARA	ENERGÍA EÓLICA S.A.	30.0	PIURA	99.7	2011.10.24	2013.06.20
CE CUPISNIQUE	ENERGÍA EÓLICA S.A.	80.0	LA LIBERTAD	228.0	2010.01.12	2013.06.20
CH VIROC (ex CH Raura II)	AMAZONAS GENERACIÓN S.A.	12.2	LIMA	21.1	2011.03.01	2013.12.23
CE PARQUE EÓLICO MARCONA	PARQUE EÓLICO MARCONA S.R.L.	32.0	ICA	63.5	2011.12.01	2013.12.24
CH COLA I	HIDROELÉCTRICA COLA S.A.	10.4	LA LIBERTAD Y ANCASH	9.8	2012.07.02	2014.06.30
CH 8 DE AGOSTO	ANDES GENERATING CORPORATION S.A.C.	19.0	HUÁNUCO	39.3	2013.02.28	2014.12.30
CH RENOVANDES H1	EGENERACIÓLÉCTRICA SANTA ANA S.R.L.	19.99	JUNÍN	20.0	2013.01.01	2014.12.31
CH RUNATULLO III	EMPRESA DE GENERACIÓN ELÉCTRICA DE JUNÍN S.A.C.	20.0	JUNÍN	40.4	2012.08.01	2014.12.31
CH RUNATULLO II	EMPRESA DE GENERACIÓN ELÉCTRICA DE JUNÍN S.A.C.	19.1	JUNÍN	19.1	2012.07.15	2014.12.31
CS MOQUEGUA FV	MOQUEGUA FV S.A.C.	16.0	MOQUEGUA	42.8	2014.07.31	2014.12.31
CH CHANCAY	SINDICATO ENERGÉTICO S.A. - SINERSA	19.2	LIMA	30.9	2013.07.01	2015.07.01
CH ZAÑA	ELECTRO ZAÑA S.A.C.	13.2	CAJAMARCA	22.6	2012.09.01	2015.09.30
CH ANGEL I	GENERADORA DE ENERGÍA DEL PERÚ S.A.	19.95	PUNO	25.6	2013.07.01	2016.12.31
CH ANGEL II	GENERADORA DE ENERGÍA DEL PERÚ S.A.	19.95	PUNO	24.2	2013.07.01	2016.12.31
CH ANGEL III	GENERADORA DE ENERGÍA DEL PERÚ S.A.	19.95	PUNO	27.2	2013.07.01	2016.12.31

Source: Ministry of Energy and Mines

The Peruvian government provides 20 and 30-year concessions for the exploration and exploitation of all energy sources including above-ground and geothermal sources. The exploratory concessions below have the potential to provide a significant source of import demand, or investment opportunity in the near future.

Renewable Energy Centers under Exploration				
Title of Concession	Power (MW)	Location	Beginning of Investigation	End of Investigation
Hydroelectric Centers				
CENTRAL HIDROELÉCTRICA DEL NORTE S.A.	600	Cajamarca	2010.05.31	2013.05.03
C.H. SANTA MARÍA ENERGY S.A.	97	Ancash	2010.05.30	2013.05.30
HIDROCAÑETE S.A.	10.6	Lima	2012.06.23	2014.06.23
ORTIZ CONSTRUCCIONES Y PROYECTOS S.A. SUC.DEL PERÚ	101.7	Ayacucho.	2013.01.26	2015.01.26
CENTRAL HIDROELÉCTRICA HUALLAGA HYDRO S.A.	180	Huánuco	2012.06.30	2014.06.30
HMV INGENIEROS DEL PERÚ S.R.L.	215	Amazonas	2013.03.30	2014.11.30
EMPRESA DE GENERACIÓN ELÉCTRICA APURÍMAC S.A.	150	Cusco	2013.01.07.	2015.01.07

Wind-Power Centers				
GENERALIMA S.A.C.	100	Ica	2012.03.29	2014.03.29
GENERALIMA S.A.C.	50	Piura	2012.03.29	2014.03.29
PERÚ ENERGÍA RENOVABLE S.A.	200	Ancash	2012.06.15	2014.06.15
EMPRESA DE GENERACIÓN ELÉCTRICA MARCONA S.A.	240	Ica	2012.06.06	2014.06.15
ENERGÍA RENOVABLE DEL SUR S.A.	200	Ica, Arequipa	2012.07.20	2014.07.20
ENERGÍA RENOVABLE PERUANA S.A.	200	Piura	2012.10.28	2014.10.28
ENEL GREEN POWER PERÚ S.A.	100	Ica	2012.11.10	2014.11.10
VIENTOS DE CHEPÉN S.A.	120	La Libertad	2012.11.13	2014.11.13
SECHÍN EMPRESA DE GENERACIÓN ELÉCTRICA S.A.	120	Ancash	2012.11.13	2014.11.13
ELECNOR PERÚ S.A.C.	100	Ica	2012.11.12	2014.11.12
ENEL GREEN POWER PERÚ S.A.	40	Lima	2012.12.22	2014.12.22
ENEL GREEN POWER PERÚ S.A.	100	La Libertad, Lambayeque	2013.01.05	2015.01.06
TBD	200	Piura	2013.01.07	2015.01.07
ENEL GREEN POWER PERÚ S.A.	100	Lima	2013.03.11	2015.03.11
ENEL GREEN POWER PERÚ S.A.	100	Piura	2013.03.11	2015.03.11
GENERALIMA S.A.C.	100	Lambayeque	2013.03.03	2015.03.03
GENERALIMA S.A.C.	40	Lima	2013.03.15	2015.03.15
GENERADORA EÓLICA INKA I S.A.	60	Piura	2013.04.18	2015.04.18
GENERALIMA S.A.C.	100	Arequipa	2013.05.12	2015.05.12
Solar Centers				
PERÚ ENERGÍA RENOVABLE	100	Arequipa	2012.06.30	2014.06.30
ENEL GREEN POWER PERÚ S.A.	100	Arequipa	2013.01.06	2015.01.06
ENEL GREEN POWER PERÚ S.A.	100	Arequipa	2013.01.06	2015.01.06
ANDINA ENERGÍA RENOVABLE S.A.C.	50	Moquegua	2013.03.17	2015.03.17
ENEL GREEN POWER PERÚ S.A.	40	Arequipa	2013.05.10	2015.05.10
ENEL GREEN POWER PERÚ S.A.	40	Moquegua	2013.05.10	2015.05.10
Geothermal Centers				
ANDES POWER PERÚ S.A.C.	TBD	Tacna	2011.03.18	2014.03.19
ECO ENERGY S.A.C.	TBD	Ayacucho	2011.05.19	2014.05.20
ECO ENERGY S.A.C.	TBD	Ayacucho	2011.05.19	2014.05.20
ECO ENERGY S.A.C.	TBD	Ayacucho	2011.05.19	2014.05.20
ECO ENERGY S.A.C.	TBD	Ayacucho	2011.05.19	2014.05.20
ECO ENERGY S.A.C.	TBD	Puno	2011.02.14	2014.02.05
ECO ENERGY S.A.C.	TBD	Puno	2011.02.04	2014.02.05
ECO ENERGY S.A.C.	TBD	Puno	2011.05.19	2014.05.20
HOT ROCK PERÚ S.A.	TBD	Ancash	2011.02.12	2014.02.13
GEOTÉRMICA QUELLAAPACHETA PERÚ S.A. 1	TBD	Moquegua	2011.04.06	2014.04.07
HOT ROCK PERÚ S.A.	TBD	Puno	2011.03.18	2014.03.19
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Moquegua, Puno	2011.04.13	2014.04.14
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Moquegua, Puno	2011.04.13	2014.04.14
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Tacna, Moquegua	2011.07.15	2014.07.16
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Ayacucho, Arequipa	2011.09.14	2014.09.15
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Moquegua	2011.09.14	2014.09.15
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Tacna, Moquegua	2011.09.22	2014.09.23
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Tacna	2011.11.30	2014.12.01
MAGMA ENERGÍA GEOTÉRMICA PERÚ S.A.	TBD	Moquegua	2011.11.30	2014.12.01
HOT ROCK PERÚ S.A.	TBD	Arequipa, Cusco	2011.12.05	2014.12.06
HOT ROCK PERÚ S.A.	TBD	Arequipa	2012.10.17	2015.12.18
ECO ENERGY S.A.C.	TBD	Puno	2012.12.12	2015.12.13
ECO ENERGY S.A.C.	TBD	Puno	2012.12.12	2015.12.13
ECO ENERGY S.A.C.	TBD	Puno	2012.12.18	2015.12.19

ENEL GREEN POWER PERÚ S.A.	TBD	Ayacucho	2013.02.07	2016,02,08
HOT ROCK PERÚ S.A.	TBD	Ayacucho	2013.02.15	2016,02,16
ENEL GREEN POWER PERÚ S.A.	TBD	Moquegua	2013.04.19	2016,04,20
EMX GEOTHERMAL PERÚ S.A.C.	TBD	Pasco	2013.04.26	2016,04,27
EMX GEOTHERMAL PERÚ S.A.C.	TBD	Ayacucho	2013.04.26	2016,04,27
EMX GEOTHERMAL PERÚ S.A.C.	TBD	Ayacucho	2013.04.26	2016,04,27

Source: Ministry of Energy and Mines

Market Entry

For U.S. exporters of capital goods, the common approach to the Peruvian market is to establish a local branch office with representatives who know the market and are fluent in Spanish. A well-researched partnership with a local legal counsellor is also advisable (not all legal firms have experts in the energy industry, let alone renewable energy). U.S. exporters of smaller goods may prefer to work with local distributors, but should also pay diligent attention to the expertise and track records of those companies with whom they choose to work.

Exporters must gain credibility in the Peruvian market by demonstrating that their products can work efficiently in Peru's rugged environment and terrain, and can produce substantial returns on investment. Business in Peru depends highly on personal affinity and empathy. Many deals are closed at social or industry-related events where executives with good networking skills thrive. While Asian products on the market are generally seen as highly price-competitive, there is growing recognition that such products are generally of inferior quality, and commonly lack the on-the-ground servicing or other customer care that accompanies U.S. products. U.S. companies are therefore encouraged to capitalize on the quality of their product and service, and have a significant presence at local trade events in the region. Furthermore, the demand for rapid returns on investment mean that companies that can demonstrate clear, immediate benefits will be more successful.

Market Issues & Obstacles

Peru as a country fosters private investment and is very open to foreign capital. There is no discriminatory treatment toward non-nationals and the nation's legal system guarantees private property, free competition and free repatriation of profits. Peru has adhered to the OECD Declaration on International Investment and Multinational Enterprise and also has a close bilateral relationship with the U.S., having adopted a Trade Promotion Agreement in 2006.

Renewable energy is explicitly supported by the Peruvian government under DL 1002. At its signing, the national renewables target was to have 5% of Peruvian energy provided by unconventional renewable sources. Furthermore, tax stability agreements are available for companies that invest at least US\$ 5 million in two years, except in mining and hydrocarbons, where the required amount is of at least US\$ 10 million. Specific to renewable energy, all electrical generation through hydro, wind, solar, geothermal, biomass, wave or tidal powers or other renewable sources are subject to a maximum 20% accelerated depreciation regime for income taxes. This accelerated regime has applied to all new generation plants opened after mid-2008, and to all machinery, equipment, and building infrastructure required for installing and operating renewable energy generation plants. Renewable energy firms are also able to apply for early refunds on the national value-added tax, although convoluted procedures often complicate and delay the process.

The current Peruvian administration has expressed support for the development of renewable energy, though little decisive action has been taken. After opening the Tacna solar farm in late 2012, president Ollanta Humala presented a goal of having solar energy be Peru's primary energy source by 2050, although few consider this a feasible goal. Energy, and specifically renewable energy, is also seen as a vital aspect of the administration's social inclusion agenda, particularly when applied in rural or underserved regions. However, given the large profits available through government tenders, the process can be heavily influenced by corruption. It can therefore sometimes be difficult for U.S. companies without engrained connections to gain traction in the Peruvian tender market.

While having supported renewable energy in the past, the current president of Peru has not made substantial efforts to implement DL 1002. The Minister of Energy and Mines, Mr. Jorge Merino, has expressed little interest in advancing grid-scale renewable energies, choosing instead to focus on the currently abundant natural gas and oil reserves. Therefore, while renewable energy targets are made as a part of the rural electrification plan and regular reviews of the Peruvian energy matrix, little tangible support is regularly realized from the Peruvian government. Opportunities for development are widely available, but businesses must be both patient and persistent in attempting to develop renewable energy technology in the country. Local firms indicate that the success of the new wind farms, and continued success of major renewables projects in the future will slowly push the government to a more supportive position. Until then, small-scale projects such as rural solar electrification may offer the best intermediary for establishing a presence in-country.

The Peruvian government and its vetting and assessment process are also often a source of delay and frustration, particularly for firms lacking experience navigating the assessment and approval processes. Advanced environmental protection laws require that firms, particularly those in the energy generation business, complete a full environmental impact assessment with both the Ministry of Environment (MINAM) and the Ministry of Energy and Mines (MINEM). Further approval is also required from the National Water Authority and the General Directorate of Environmental Health. Given the infancy of the industry, much of this process is not yet tailored to the renewable energy industry, and thus the requirements are very similar to those for oil and natural gas companies. For those firms exporting renewable energy related equipment to Peru, standard import appraisals include a thorough environmental assessment through these same ministries.

While the national energy infrastructure has developed substantially over the last 10 years, access to distribution and transmission lines can be a difficulty, particularly in under-developed regions. Regions in the Amazon and Andes may have substantial potential for renewable energy development on a large scale. However, these areas still lack sufficient infrastructure and connectivity for transmitting energy from generation centers to the population centers of the country. Investment in large-scale renewable energy projects may therefore involve significant investment in transmission infrastructure on the part of the government and any companies involved.

Furthermore, because renewable energy is still a relatively new industry in Peru, many local financial institutions are resistant to assessing and backing investment in the sector. The performance of the Tacna, Talara, and Cupisnique plants will, again, play a large role in encouraging investment. Currently, most financial services for the renewable energy industry come from international investors and banks located in Europe or the United States.

Finally, as a result of subsidized production in Block 88, natural gas based energy has become extremely inexpensive in Peru. Artificially low energy prices pose a substantial challenge to renewable energy technology, and, should government support in Peru wane, potentially diminish demand for renewable energy in the future. However, the resources available in block 88 are limited, and the energy-production situation in that area is a unique exception. As demand for energy increases, the price of extractive-fuel based energy is expected to increase substantially, offering new opportunities for renewable energy. However, large companies such as EDEGEL remain substantially influential on a national level.

Trade Events

Peruvian Solar Energy Symposium

Tacna, Peru November, 2013

<http://www.perusolar.org/>

This is the twentieth meeting of the “Simposio Peruano de Energía Solar” put on by the Peruvian Solar Energy Association (APES). With the recent opening of the Tacna Solar facility, the conference will focus primarily around the future of the solar industry in Peru and its potential applications in rural development. The symposium will also offer representatives the opportunity to discuss wind, hydro, geothermal, and other renewables in addition to solar.

Expo R.S.E.

Lima, Peru May, 2014

<http://www.peru2021.org/principal/categoria/lima-2013/502/c-502>

Expoferia de Proyectos de Responsabilidad Sociable de Empresas is the largest public expo on social responsibility projects in Peru, hosted by the CSR organization Peru 2021. Among the exhibitors are organizations involved in renewable energy, human rights, and education. While the event features projects ranging from responsible fishing to recycling, renewable energy is regularly a highlight as it relates to rural development and individual use. The fair, hosted on the campus of Universidad Católica includes workshops, presentations, and a show-room open to the public.

Simposio Internacional Empresas Modernas y Responsable Social

Lima, Peru October 23-25, 2013

<http://www.peru2021.org>

The International Modern Business and Social Responsibility Symposium brings together Peruvian and international experts and specialists on modern business practices and social responsibility. In its 18th year, the symposium will focus on sustainable development, including the expanded use of renewable energy as a part of the country’s new rural electrification plan. Hosted by Peru 2021, the event is open to business representatives from around the world interested in socially responsible and conscientious business in Peru.

Latam Power-hydro & Renewables Summit

Santiago, Chile August, 2014

<http://www.latampowersummit.com>

For many years, Latin American countries have relied upon hydroelectric generation for much of their energy supply. This summit focuses on the potential for future development of hydroelectric power and the infrastructure necessary to support its success. With the continued development of renewable energy, however, greater emphasis is being placed on unconventional renewable energy. This summit will therefore also discuss how to navigate the legal structure related to renewables and the challenges and opportunities the industry offers.

FIMA Peru

Lima, Peru November, 2013

<http://www.feriamedioambienteperu.com/>

FIMA Peru is an exposition of equipment, technology, and services designed to protect the environment and biodiversity. Businesses operating in pollution control, waste management, energy and water conservation, bio-diversity, natural resources, and sustainable development will be in attendance, as well as government agencies and NGOs related to environmental practices. Central to sustainable development, renewable energy is a hot topic at the fair.

Power-Gen International

Florida, USA November, 2013

<http://www.power-gen.com/index.html>

While not specifically geared towards Latin American business, Power-Gen International is the premier global conference on energy production. Companies from all around the world, representing an exhaustive range of generation technologies are present, and renewable energy is among the conference highlights.

Resources & Contacts

Asociación Peruana de Energías Renovables (APEGER) – juan.coronado@latampower.com

Asociación Peruana de Energía Solar (APES) – <http://www.perusolar.org/>

Asociación Empresarial Eólica (AEE) - <http://www.aeeolica.org/>

National Mining, Petroleum and Energy Society (SNMPE) – <http://www.snmpe.org.pe>

Supervising Agency for Investment in Energy and Mining (Osinergmin), <http://www.osinerg.gob.pe>

Private Investment Promotion Agency (ProInversion) – <http://www.proinversion.gob.pe>

Ministry of Energy and Mines (MINEM) – <http://www.minem.gob.pe>

For More Information

The U.S. Commercial Service in **Lima, Peru** can be contacted via e-mail at: office.lima@trade.gov;

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<http://www.buyusa.gov/peru/en>.

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Comments and Suggestions: We welcome your comments and suggestions regarding this market research. You can e-mail us your comments/suggestions to: Customer.Care@mail.doc.gov. Please include the name of the applicable market research in your e-mail. We greatly appreciate your feedback.

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