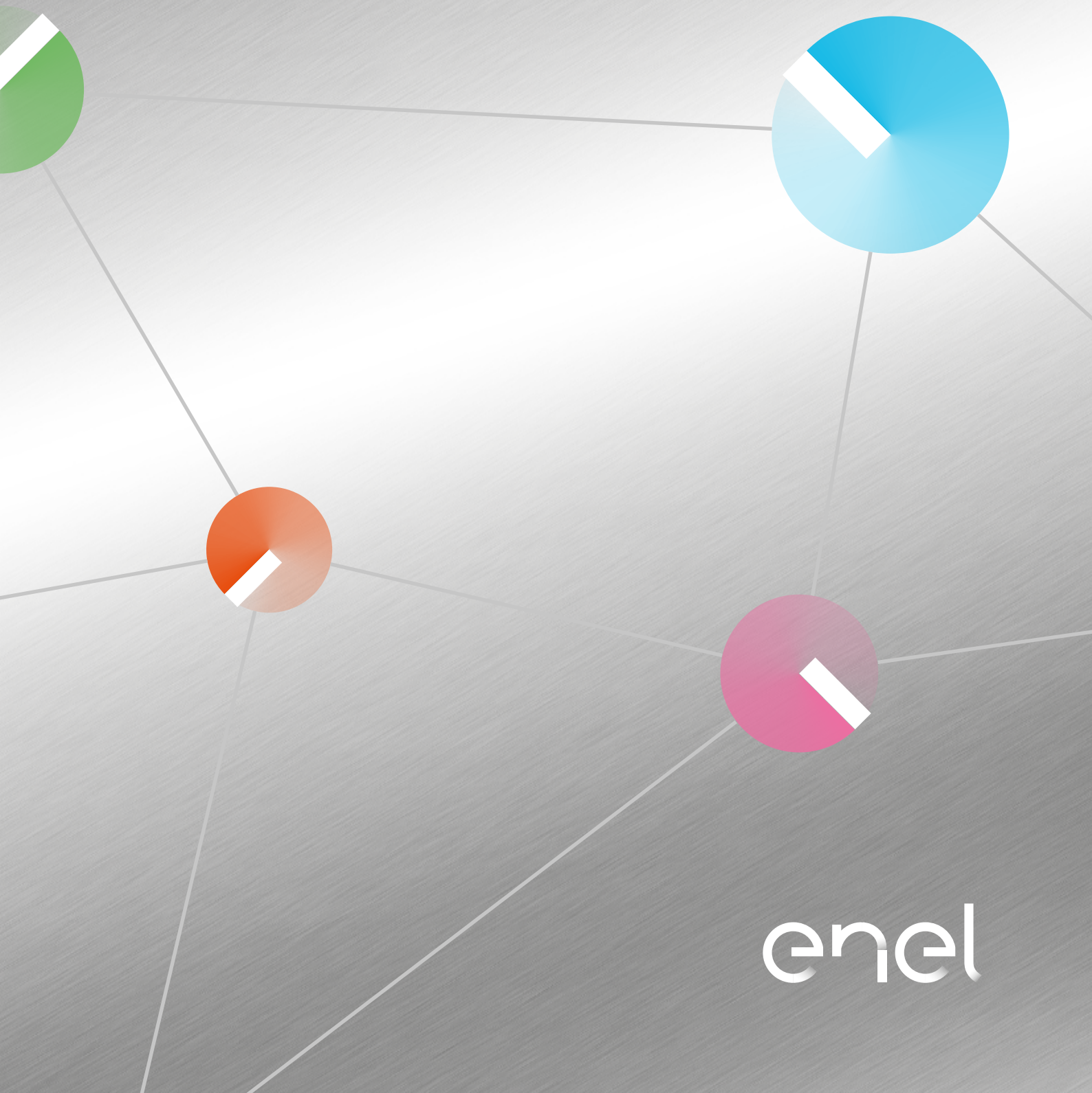
Seeding Energies

Sustainability Country Overview 2016



EUROPE

CENTRAL - SOUTH AMERICA

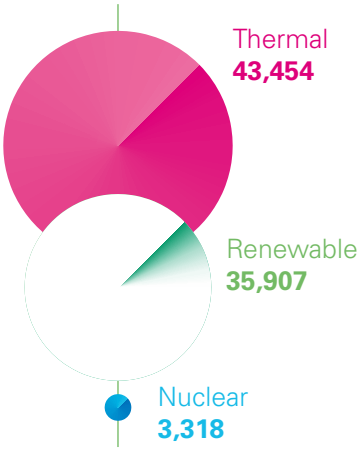
NORTH AMERICA

INDIA AND SOUTH AFRICA

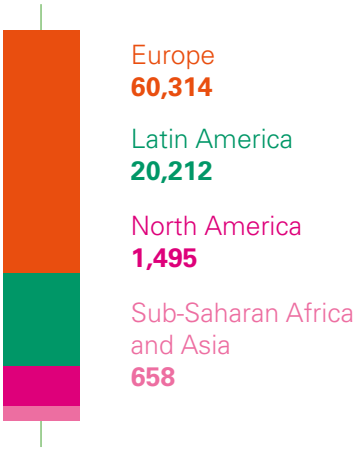
Environmental sustainability

Net installed capacity 2016 (MW)

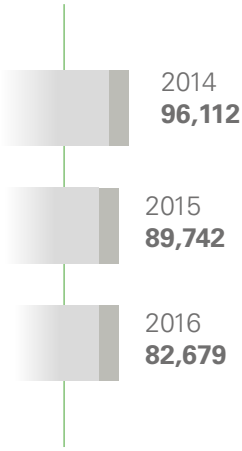
By source



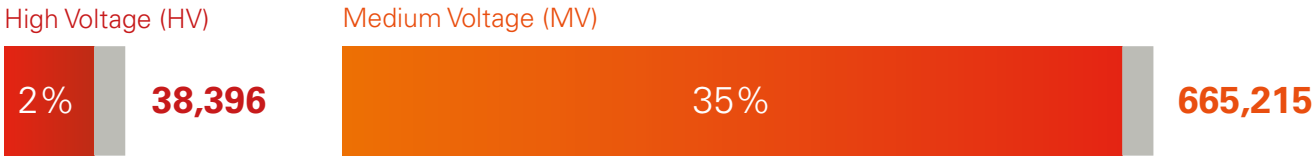
By geographical area



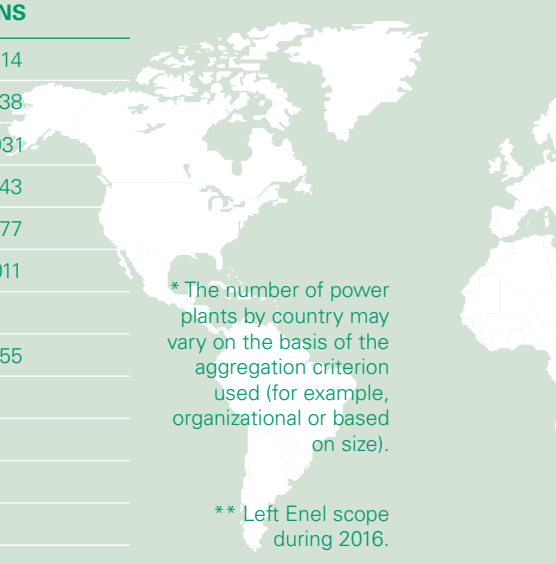
By year



Length of grid (km)



COUNTRY	THERMO*	NUCLEAR	RENEWABLES*	CABINS
Argentina	3		2	19,814
Brazil	1		42	256,838
Chile	8		33	21,931
Colombia	2		11	70,443
Peru	3		7	9,977
Spain	33	3	225	134,011
Portugal	1			
Romania			12	22,855
Mexico			11	
Guatemala			5	
Slovakia**	2	2	35	
Greece			50	



* The number of power plants by country may vary on the basis of the aggregation criterion used (for example, organizational or based on size).

** Left Enel scope during 2016.

Sources

Thermal

Renewable

Nuclear

Geographical area

Europe

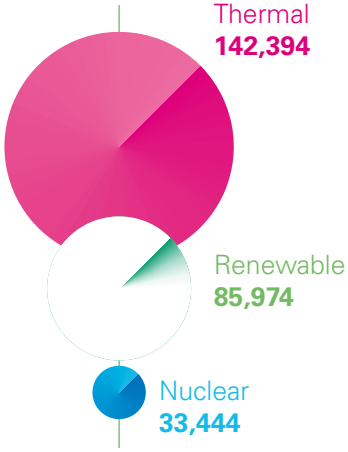
Latin America

North America

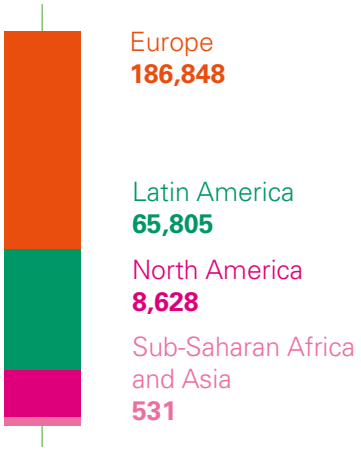
Sub-Saharan Africa and Asia

Energy production 2016 (GWh)

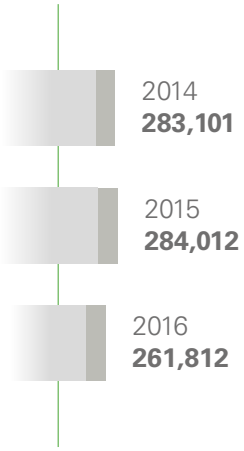
By source



By geographical area



By year



Low Voltage (LV)

1,171,496

COUNTRY	THERMO*	NUCLEAR	RENEWABLES*	CABINS
Russia	4			
Belgium**	1			
Canada			1	
Bulgaria			2	
Costa Rica			3	
Italy	32		566	580,377
India			3	
Uruguay			1	
South Africa			7	
Panama			4	
United States			47	

Europe

Belgium

Thermoelectric production

Marcinelle Energie SA

Belgium

Thermoelectric production

The power plants

Marcinelle Energie SA

Combined production power plant

The numbers

Plants
1

Net maximum capacity (MW)
406

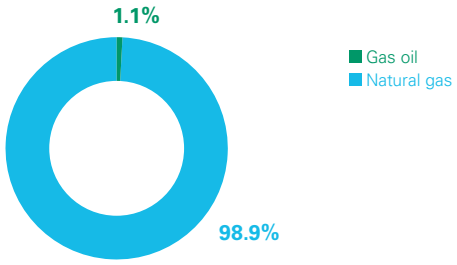
Production (GWh)
977

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
With gas turbines in combined cycle	1	1	406
Total	**1**	**1**	**406**

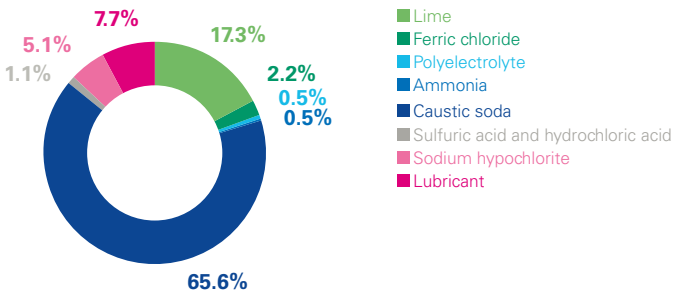
Fuel consumption

Total: **150,892** (t of oil equivalent)



Consumables

Total: **158** (t)



Belgium

Thermoelectric production

Atmospheric emissions

CO_2 (t)	331,839
NO_x (t)	166

Waste water

Discharged:
464,620 (m^3)

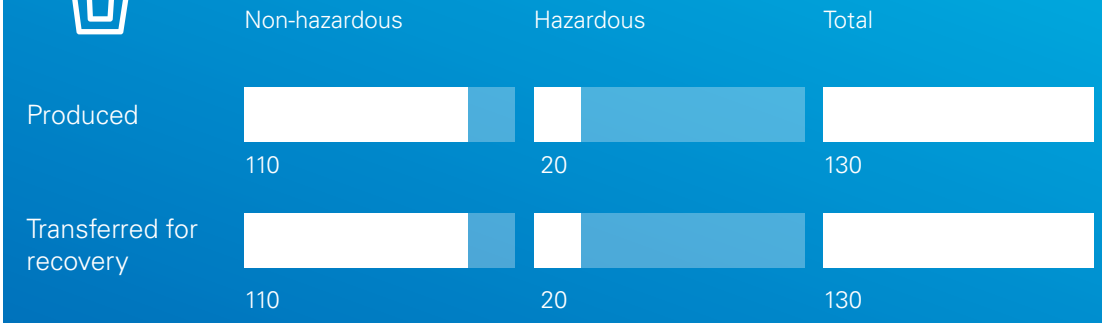
Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Water for industrial use (100% from river)

Total consumption:
1,089,670 (m^3)

Total fresh water drawn off:
1,089,670 (m^3)

Special waste (t)



In 2016 production fell by 15% compared to the previous year.

G4-EN21 Specific emissions of NO_x rose by 13%.

G4-EN23 Special waste fell by 18% compared to 2015. The total delivered for recovery corresponds to 100%.

On December 30, 2016 Enel completed the sale of Marcinelle Energie, a company which is wholly controlled by Enel Investment Holding BV, a holding owned by Enel, to the French energy supplier, Direct Energie SA.

With the sale, which confirms the agreement signed on September 28, Enel has left the Belgian market.

The operation is part of the program to sell non-strategic assets for 8 billion euro, as envisaged by the plan for active management of Enel's portfolio. This strategy will enable the Group to reallocate resources to promote growth in key sectors, such as networks and renewables.

Bulgaria

Production from renewable sources

> Wind production

Enel Green Power SpA

Bulgaria

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	96	42

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
6	2	4	6	-

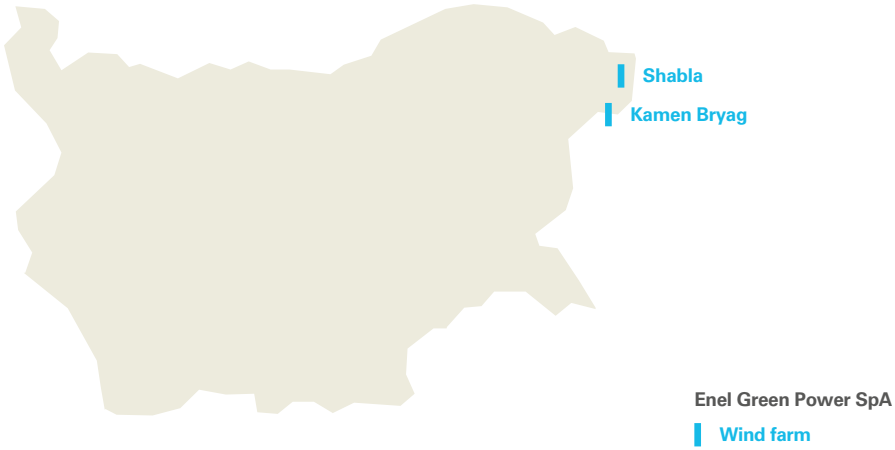
Health and Safety*

*Social information detected only in the main countries of Enel presence.

Bulgaria

Production from renewable sources

The power plants



The numbers

Plants
2

Net maximum capacity (MW)
42

Production (GWh)
96

Number of plants

	No. power plants	Net maximum capacity (MW)
Wind	2	42
Total	**2**	**42**

Equivalent annual hours of use* 2016

Wind
2,076

* Annual production/power ratio.

Emissions of CO_2 avoided*(t)

For production from wind
119,232

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

* The emissions avoided are calculated as the sum of emissions avoided in the various local environments taking as a reference the specific emission of CO_2 from the average thermoelectric production of the individual country, taken from the database Enerdata (http://services.enerdata.eu). The figure is the product of the electricity production from renewable or nuclear sources and the specific emission of CO_2 of thermoelectric production in the country where Enel is present.

Special waste (t)

Total produced: **1.6**

Non-hazardous: **0.4**

Hazardous: **1.2**

Total transferred for recovery: **1.6**

Non-hazardous: **0.4**

Hazardous: **1.2**

Bulgaria

Enel operates in Bulgaria with Enel Green Power in producing wind energy. Enel Green Power owns wind farms with net maximum capacity of 42 MW.

Annual production from renewables rose by 7% compared to 2015.

G4-EN19 Wind production enabled the avoidance of the atmospheric emission of almost 119 thousand tons of CO_2.

G4-EN23 During 2016 there was a fall in special waste which went from 2 tons in 2015 to 1.6 tons in 2016. All waste was transferred for recovery.

Greece

Production from renewable sources

> Hydroelectric, wind and photovoltaic production

Enel Green Power SpA

Greece

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	559	290

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
92	69	23	92	-

Greece

Production from renewable sources

The power plants

The numbers

Plants
50

Net maximum capacity (MW)
290

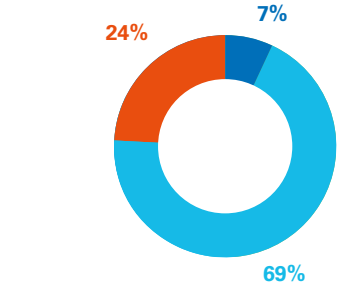
Production (GWh)
559

Number of plants

		No. power plants	No. derivations	Net maximum capacity (MW)
Hydro	Run-of-the-river	5		19
Wind		17		200
Photovoltaic		28		71
Total		**50**		**290**

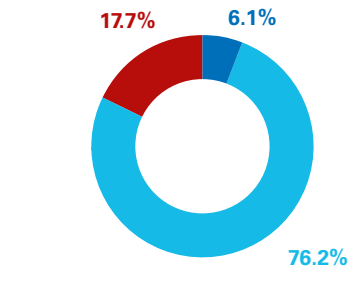
Net maximum capacity

Total: **290** (MW)



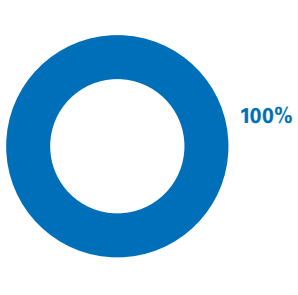
Net electricity production

Total: **559** (GWh)



Consumables

Total: **0.16** (t)



Greece

Production from renewable sources

Equivalent annual hours of use* 2016

Wind
1,789

Photovoltaic
2,130

Hydro
1,394

* Annual production/power ratio.

Emissions of CO_2 avoided (t)

Total: **500,305**

Hydro
30,430

Wind
381,270

Photovoltaic
88,605

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Special waste (t)

Total produced: **76**

Non-hazardous: **74**

Hazardous: **2**

Total transferred for recovery: **35**

Non-hazardous: **34**

Hazardous: **1**

Wind plant

Surface area occupied by lay-bys, roads, buildings:
116.65 (ha)

Photovoltaic plant

Surface area occupied by modules:
80.42 (ha)

Total surface area concerned:
246.89 (ha)

Support to local communities

Kastanologgos forest

15 LIFE ON LAND

Greece

Location: Cape Kafireas
Category: Support to local communities
2016 Beneficiaries: 1,400 (just for the Kafireas villages)

BD E&C O&M

Sub Category: Protecting the environment and biodiversity
2017 Beneficiaries: 1,400
Planning: Planned

Business issue

To construct a vast renewable power plant in an area with unique biodiversity and distinctive ecosystems. Verify opportunity to connect this project with the new "Life on Land" strategy.

Project

EGP is committed to preserving the local environment and biodiversity and to carrying out sustainable projects involving local stakeholders for research, education, eco-tourism and recreation.
For this reason the new strategy that EGP is pursuing is the creation of a "Life on Land" trust.
A) Protect the Kastanologgos forest, a forest of chestnut trees (*Castanea Sativa*) which are 200 to 300 years old and constitute a natural habitat for 60 species of mountain birds and a siginficant number of reptiles that live on Mount Ochi. Is in line with the "Life on Land" group strategy.
B) Conserve the forest and its ecosystems, through the promotion of its sustainable management that could also link to the a potential development of eco tourism in the area.

Value for Enel

Mitigate environmental risks and create a general acceptance among environmental organizations, activists, local communities.

Value for stakeholders

Raise environmental awareness and responsibility through workshops, ecological tours and voluntary activities with local stakeholders. Protect the local flora and fauna, identifying vulnerable species as well as ones that are in the process of extinction and work on preserving them.

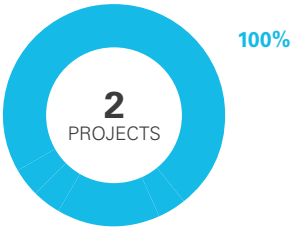
13 CLIMATE ACTION

Related project by assets
KAFIREAS
Sustainable Construction Site

Biodiversity

For further details on biodiversity projects, see the following link:
https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf

Projects by technology



Wind

Most important projects (map)

Most important projects

Project	Description	Enel infrastructure
Birds Monitoring Programs	The goal of the project is to estimate the impact of the operation of the wind farms on the birdlife. The Bird Monitoring Programs include: • Detailed recording and monitoring of the bird population in the area; • Continuous monitoring of the bird habits in the area of the Wind Farm; • Mapping of the nests and other important areas for the birds (i.e. migration routes, critical habitats etc.) in the region of the Wind Farm.	Wind Farms of Panagia Soumela, Zoodochos Pigi and Kouloukonas - Enel Green Power

Total net production rose by 2% compared to 2015.

In particular, hydroelectric production increased (+34% compared to 2015, a year in which there was a fall in production), even if this value does not have an impact owing to the low contribution to overall production (6.1%). On the other hand, there was a slight reduction in photovoltaic production (-2%).

G4-EN19 Renewable production (wind, hydroelectric, and photovoltaic) enabled the avoidance of the atmospheric emission of around 500 thousand tons of CO_2.

G4-EN23 In 2016 there was a reduction in special waste from 82 tons in 2015 to 76 tons in 2016.

Italy

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric, wind, photovoltaic, geothermal and biomass production	
Enel Produzione SpA	Enel Green Power SpA Enel Produzione SpA	E-Distribuzione SpA

Italy

Average number of customers

26,776,635

Length of power lines (km)

1,144,987

Total net production (GWh)

60,912

Installed capacity (MW)

27,760

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
31,956	**26,252**	**5,704**	**31,065**	**891**

Health and Safety

Staff of contractors*

19,425

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.26**

Contractors **0.29**

LDR
Lost Day Rate

Enel **10.52**

Contractors **14.82**

Seriousness index**

-0.35

Frequency index**

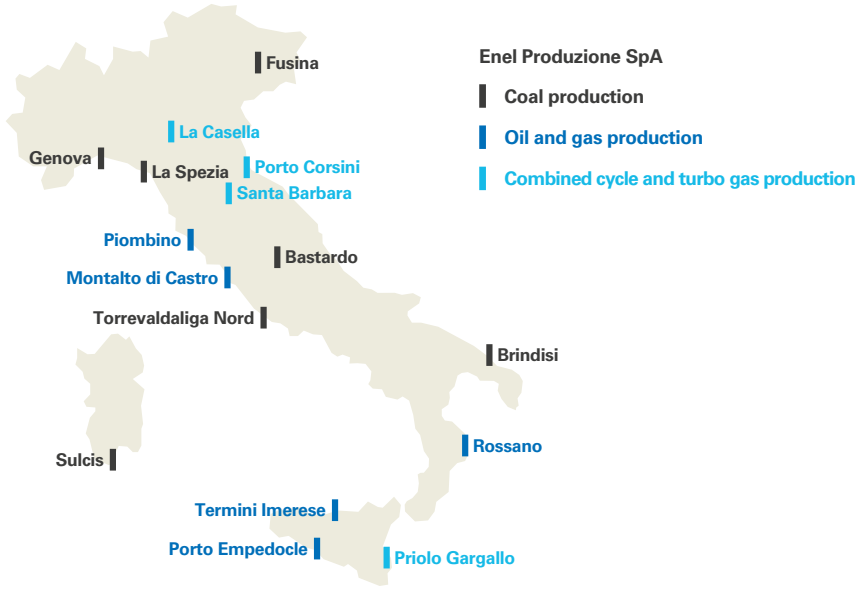
-0.32

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Italy

Thermoelectric production

The power plants



* This number does not include the thermoelectric power plant of Mercure which has been converted to biomass.

The numbers

Plants
31*

Net maximum capacity (MW)
13,752

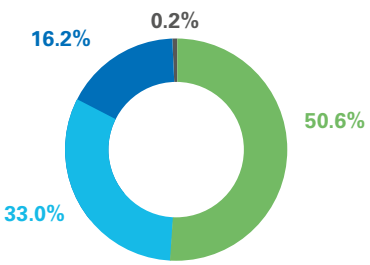
Production (GWh)
43,495

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensing)	9	22	6,961
Idem with back-up gas turbines	0	0	
With gas turbines in combined cycle	6	11	4,535
With gas turbines in simple cycle	7	19	2,224
With alternative engines	9	40	32
Total	**31**	**92**	**13,752**

Net maximum capacity

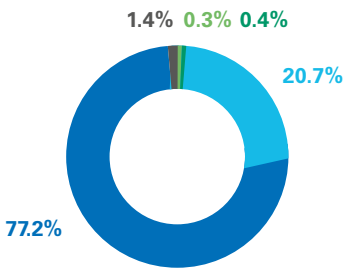
Total: **13,752** (MW)



- Steam (condensing)
- With gas turbines in combined cycle
- With gas turbines in simple cycle
- With alternative engines

Fuel consumption

Total: **8,653,751** (t of oil equivalent)



- Oil
- Gas oil
- Natural gas
- Coal
- Biomass and waste

Waste water

Discharged:
4,869,000 (m^3)

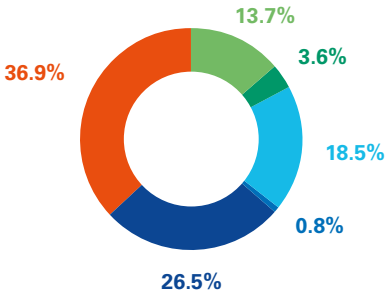
Used inside plant:
5,949,000 (m^3)

Atmospheric emissions

NO_x (t)	13,700
SO_2 (t)	8,973
Particulate matter (t)	361
CO_2 (t)	30,786,475
Thermoelectric production from fossil fuels (from combustion) (t)	30,708,755
Thermoelectric production from fossil fuels (from desulfurization) (t)	77,720
SF_6 (kg)	520
(t equiv. of CO_2)	11,549
Total (t equiv. of CO_2)	30,798,024

Water for industrial use

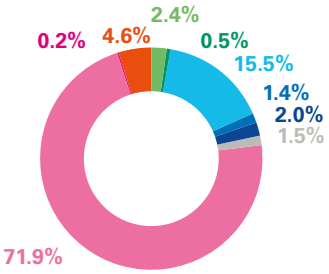
Total requirement: **16,109,838** (m^3)
Total fresh water drawn off:
5,763,446 (m^3)



- From river
- From wells
- From aqueducts
- From the sea (amount used as such)
- From the sea (desalinated amount)
- From waste water (amount used inside plants)

Consumables

Total: **248,584** (t)



- Lime
- Ferrous chloride
- Ammonia
- Caustic soda
- Sulfuric acid and hydrochloric acid
- Sodium hypochlorite
- Limestone to desulfurize fumes
- Lubricant
- Other

Special waste

Total produced:
1,714,899 (t)

Total transferred for recovery:
1,535,627 (t)

Special waste non-hazardous (t)

	Coal ash	Gypsum from desulfurization	Other
Total produced	1,270,042.4	277,554.5	167,302.5
Total transferred for recovery	1,215,061.3	266,358.1	54,208.1

Special waste hazardous (t)

	Oil fly ash	Other
Total produced	130.2	8,725.8
Total transferred for recovery	0	1,058.5

Italy

Production from renewable sources

The power plants

Enel Green Power SpA

- O&M hydroelectric, solar and wind
- O&M Italy geothermal

Enel Produzione SpA: Business units

- Hydroelectric production

The numbers

Plants
601

Net maximum capacity (MW)
14,009

Production (GWh)
23,304

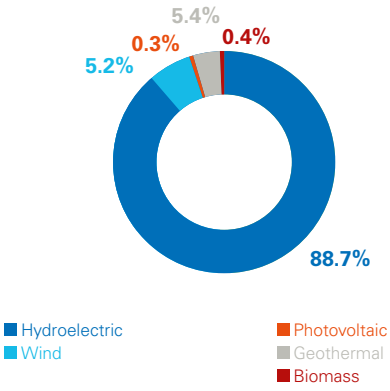
Number of plants

		No. power plants	No. derivations	Net maximum capacity (MW)
Hydro	Run-of-the-river	309	326	1,734
	Basin/reservoir	150	159	3,714
	Pure or mixed pumping	16	17	6,975
Total Hydro		**475**	**502**	**12,423**

	No. power plants	No. groups	Net maximum capacity (MW)
Geo (condensation)	34	36	761
Wind	33		728
Photovoltaic	56		41
Biomass	3		56
Total	**601**		**14,009**

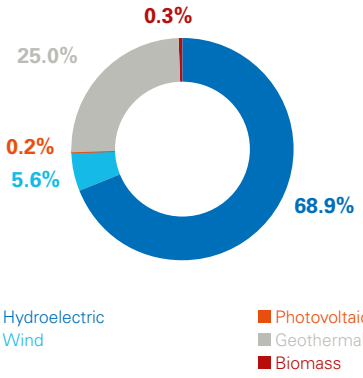
Net maximum capacity

Total: **14,009** (MW)



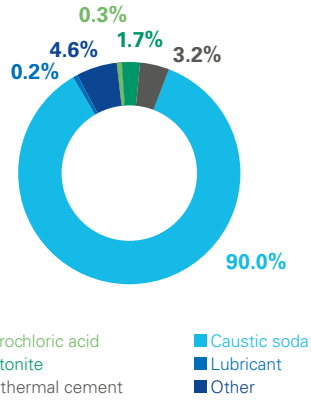
Net electricity production

Total: **23,304** (GWh)



Consumables

Total: **83,751** (t)



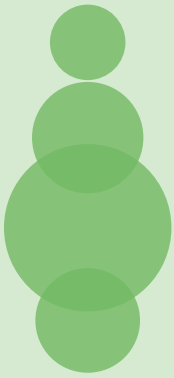
Equivalent annual hours of use* 2016

Wind
1,000

Photovoltaic
1,783

Geo
7,664

Hydro
1,292



The equivalent annual hours of use represent the number of annual hours during which a plant has generated electricity, and are equal to the ratio between the production generated in one year and the installed power. If all plant operated continuously, they would produce energy for all the 8,760 hours in a year. The hours of use in reality vary due to numerous factors, including the technology of the plant, the different primary energy source used and the external conditions (climate, availability of bioenergy, the market, etc.) which may influence production. The most productive renewable source is geothermal. In 2016 the thermoelectric plants produced for 7,664 hours of the 8,760, in other words a use coefficient of 87%.

* Annual production/power ratio (excluding hydro production from pumping sources).

Emissions of CO_2 avoided 2016 (t)

Total: **12,714,707.8**

Hydro
8,764,299

Wind
708,707

Geo
3,175,090

Photovoltaic
22,386

Biomass*
44,226

* The CO_2 avoided by biomass also includes the share from thermoelectric power plants with sections dedicated to burning biomass.

Atmospheric emissions

SF_6 (all segments) **342** (kg)
(t equiv. of CO_2) **7,587**

CO_2 (from combustion of gas oil in generators) **9,276** (t)

H_2S (from geothermal fluid) **5,227** (t)

CO_2 (from geothermal fluid) **1,825,940** (t)

Geothermal fluid (t)

Total fluid extracted: **56,103,180**

net of reinjected liquids: **36,962,180**

Steam used for production of electricity: **47,667,820**

Fluid used to transfer heat directly: **657,360**

Special waste (t)

Total produced: **34,191**

Non-hazardous: **32,724.9**

Hazardous: **1,466.1**

Transferred for recovery: **21,275**

Non-hazardous: **20,487.3**

Hazardous: **787.4**

Hydroelectric production

Reservoirs emptied

- Quantity: **4**
- Flood sediment removed mechanically: **0**
- Of which reused locally: **0**
- Fish ladders: **50**

Sowing of fish seeds

- Quantity: **50**
- Over **108,158** (kg)
- **1,518,890** exemplars

Geothermal activity

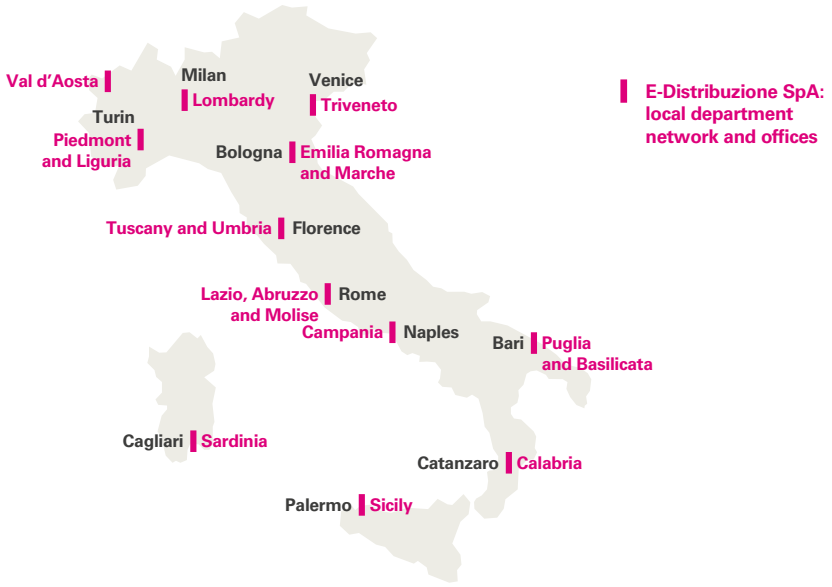
Wells drilled

- New: **7**
- Recovered wells: **3**
- Extent of drilling: **15,691** (m)

Existing wells

- Quantity: **501**
- For production: **296**
- For reinjection: **66**
- For other uses: **139**

E-Distribuzione SpA



The numbers

Cabins
580,377

Capacity (MVA)
201,120

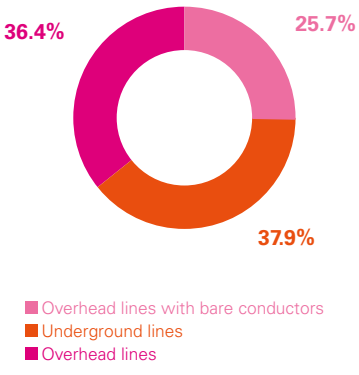
Total lines (km)
1,144,987

E-Distribuzione has ISO 14001 certification for its own Environmental Management System extended to the whole organization.

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Other secondary cabins	135,224	12,457
Satellite centers and MV units	541	
Primary cabins	2,195	106,784
MV/LV secondary cabins	4,412,417	81,879
Total	**580,377**	**201,120**

Power lines (length in kilometers)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total lines
HV	13	0	0	13
MV	190,284	16,443	145,880	352,607
LV	104,623	417,066	270,678	792,367
	294,920	433,509	416,558	1,144,987



General data

Municipalities served: **7,547**

Service area served: **277,690** (km^2)

Customers connected to company network: **31,556,692**

Electricity (million kWh)

Distributed in total: **223,468**

Own consumption for operation of the network: **396**

Atmospheric emissions (t)

SF_6: 4,176 (kg)
The variability of the figure also depends on any plant breakdowns or top-ups needed
92,707 (t equivalent of CO_2)

CO_2: **49**

Total greenhouse gas **92,756** (t equivalent of CO_2)

Consumption of resources

Consumables: **69** (t)

Gas oil: **16** (tep)

The consumables include gas oil for generators, insulating oil for plant parts and absorbent material for containment work following spills of oil or electrolyte. These supplies may rise or fall over the years depending on local needs.

Special waste (t)

	Non-hazardous	Hazardous	Total
Produced	28,726	13,895	42,621
Transferred for recovery	17,419	10,481	27,900

The quantity of waste produced can rise or fall from year to year. This index is affected above all by land contaminated by oil and water which is in primary cabin pools (large quantities).

Access to electricity

7 AFFORDABLE AND CLEAN ENERGY

Anse – Upcoming meetings

Italy

Location: Lazio, Italy
Business line: Global Thermal Generation
Asset: Torrevaldaliga Nord
Installed Capacity: 3 MW

BD E&C O&M

Sub Category: Promoting Energy Awareness
2016 Beneficiaries: 120
Planning: 01/06/2016 - 25/05/2017
Partner: ANSE

Business issue

As part of a complex CSV plan for the Civitavecchia asset, contribute to energy awareness.

Project

Events organized in cooperation with Enel seniors to inform communities, in particular disadvantaged people, about the "social bonus", energy efficiency and prepare them for the complete retail market liberalization which is awaited in Italy.

Value for Enel

Spread the culture of sustainability, improve brand reputation, manage the move to the complete liberalization of the retail market.

Value for stakeholders

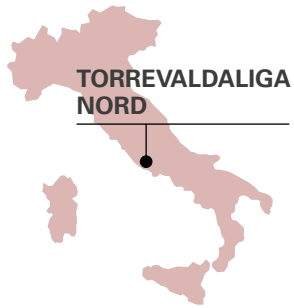
Access to social bonus, active involvement of retired people in social community involvement, dissemination of energy awareness.

Related project by assets
TORREVALDALIGA NORD
Greenhouse
5 Urban Park

Social economic development

Greenhouses

8 DECENT WORK AND ECONOMIC GROWTH



Italy

Location: Lazio, Italy
Business line: Thermal Generation
Asset: Torrevaldaliga Nord
Installed Capacity: 3 MW

BD E&C O&M

Sub Category: Employment development
2016 Beneficiaries: 100
Planning: 01/01/2016 - 31/01/2050

Business issue

Residual unused heat from production activity.

Project

The residual thermal energy produced by the power plant is sold for heating greenhouses, sustaining local entrepreneurship and community involvement.

Value for Enel

Testing new business model, industrial symbiosis initiatives and circular economy activities.

Value for stakeholders

Development of economic activities with cost saving, support to circular economy.

Related project by assets
TORREVALDALIGA NORD
Anse – Upcoming meetings
5 Urban Parks

2 ZERO HUNGER

Social economic development

FUTUR-E

13 CLIMATE ACTION

Italy

Location: Italy
Business line: Thermal Generation

BD E&C O&M

Sub Category: Community Network
2016 Beneficiaries: 36,000
Planning: 2015 - 2017

Business issue

Thermal power plants that rely on non-renewable sources and are considered marginal because they are old and not efficient. These plants are no longer competitive in the energy market or are no longer operating and thus will be decommissioned.

Project

Enel has already decommissioned many outdated power stations the world no longer needs. Committed to sustainability in all its forms, Enel is working in partnership with local communities to make sure these assets find new use.
Enel's Futur-E program is giving new life to power plants that up to just a few years ago fed the country's national grid. Partnering with local communities, organizations and governments, the Group is engaged in repurposing no longer productive industrial sites.
Based on a detailed analysis of the local territory, Futur-E will turn 23 decommissioned power plants into places and spaces capable of responding to the needs of the public, by for example turning them into shopping malls or cultural centers.
Collaborating with Italian citizens online and on the ground, Enel is working hard to make sure that the actual benefits deriving from the transition to local clean energy are immediately felt.

Value for Enel

Obtain community awareness and perception regarding decommissioning; reduce demolition costs through customized re-use; guarantee environmental standards and apply the circular economy model through material re-use.

Value for stakeholders

Environmental protection; new job opportunities; promotion of the local natural, cultural and artistic heritage and excellence based on local needs; supporting the development of local entrepreneurial activities.

Related project by assets
https://www.enel.it/it/futur-e.html

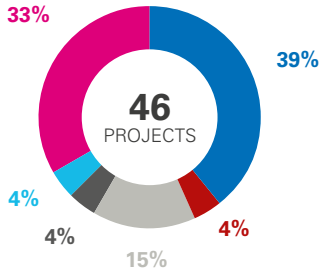
8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Hydro
Biomass
Geothermal
Coal
Gas
Grid

Most important projects (map)

Most important projects

Project	Description	Region	Enel infrastructure
AquaLife	Collaboration with the Gran Sasso – Monti della Laga national park as part of the LIFE AquaLife Project: "Development of an innovation and user-friendly indicator system for biodiversity in ground water dependent ecosystem" http://www.aqualifeproject.eu/index.php/it/	Abruzzo	Hydroelectric plants at asta del Vomano – Montorio, San Giacomo – Provvidenza – Piaganini
Con.Flu.Po	LIFE Project "Restoring connectivity in Po River basin opening migratory route for Acipenser naccarii and 10 fish species in Annex II" http://www.life-conflupo.eu/prj2013/index.php?lang=it	Lombardy	Isola Serafini power plant

IdroLIFE	IdroLIFE offers to improve the conservation status of fish and crayfish of community interest (Annex II Habitat Directive) through concrete conservation initiatives for the species at the Natura 2000 sites of Verbano-Cusio-Ossola and restoration of the use of the Toce river and the San Bernardino stream https://idrolife.eu/	Piedmont	Hydroelectric plant at Dronero
Sardinia for birds	Laying of insulating sheaths and pipettes on cables (PTP – transformation applied to poles), IMST on pole, MV derivations in around 50 sites spread around the Region	Sardinia	MV power grid
Collaboration with the Parco del Gargano and the natural studies center "Onlus per il lago Salso"	Environmental improvements (removal of bare power lines) and the realization of nests to repopulate storks at the oasis of Lake Salso	Puglia	MV/LV power grid
Bat box	Installation of artificial nests for bats on some Enel cabins	Various	Cabins
Protection of stork nests	Making safe of power lines to protect stork nests on medium voltage lines	Various	MV power grid
Laying of dissuaders for birds	Making safe of the migration corridor between Brebbia marsh and Comabbio lake. Laying of spiral dissuaders for a total length of around 8 km of MV grid and insulating protection corresponding to the supports in order to avoid electrocution. The project also envisages the involvement of Terna for 2 HV lines	Lombardy	MV power grid
Monitoring of fields of *Poseidonia oceanica*	Long-term monitoring of the conservation status of the transferred field of *Poseidonia oceanica*	Lazio	Torrevaldaliga power plant North
Biomonitoring of the air quality/monitoring of the flora and fauna	Biomonitoring of the air quality through plants which are sensitive to atmospheric pollutants/monitoring of the presence and abundance of wild flora and fauna	Calabria	Mercure power plant
Incubators for repopulation/ fish repopulation/fish repopulation with native species to combat non-native species	Initiatives to maintain and restore river life along the courses alongside hydroelectric plants (agreement with the province of Macerata and Ascoli Piceno for the rivers Chienti, Tronto-Castellano and Aso, agreement with fishing associations in the province for the Maira river, agreement with the Province of Belluno, incubator of Pedesalto for the Cismon river)	Marche, Piedmont, Veneto	Hydroelectric plants Valcimarra – Belforte 1 and 2 – Scandarella – Venamartello – Capodiponte – Ascoli PR – Gerosa – Comunanza – Pontemaglio; Dronero; Quero, Calalzo; Castelviero; Castelletto

D.AN.T.E. Project "Distribution of Eels in the area of South Etruria"	Project in collaboration with the Unione Provinciale Confcooperative of Viterbo and the Province of Viterbo financed by the Lazio Region PSR - Measure 3.2 "Measures aimed at preserving and developing aquatic fauna and flora"	Lazio	San Savino power plant
Collaboration with the Italian Forest Guard for the biogenetic reserve of Tocchi	Collaboration to realize an official publication on the biogenetic natural reserve of Tocchi which is next to the geothermal power plant of Radicondoli	Tuscany	Radicondoli power plant
Monitoring of water and soil in the areas around the power plants of the Tuscan geothermal group		Tuscany	Power plants of Bagnore, Travale, Sasso, Chiusdino, Piancastagnaio, Monterotondo

Enel operates in Italy with Enel Produzione in thermoelectric and renewable production, with Enel Green Power, SEH and San Floriano Energy in production from renewables, with E-Distribuzione in electricity distribution and with the Market Division in the sale of electricity and gas.

In 2016 total production fell by 11%, with a drop in thermoelectric production of 14% compared to 2015 and a drop in production from renewables of 7%.

G4-EN1 There was a net fall in consumables (-30% compared to 2015) owing to the lower production in 2016, in particular for thermoelectric.

G4-EN1 G4-EN3 The total use of fossil fuels fell by around 14% owing to lower thermoelectric production. As part of this change coal consumption fell by 21%, while gas consumption rose by 24%.

G4-EN6 G4-EN7 In Italy, Enel Green Power supported the **Cornia 2** geothermal plant with a small power plant fueled by local biomass produced within 70 kilometers of the plant. It is the first example in the world of a hybrid plant using geothermal and biomass and represents an important technological innovation because the environmental impact is close to zero: by supplementing a pre-existing industrial plant, it maintains the total renewability of the resource and cycle and combines two renewable sources. Overall the operation enables a further saving in CO_2 of over 13 thousand tons per year. The plant came into operation in May 2016.

G4-EN6 G4-EN7 G4-EN19 In 2016 the Market Division enhanced its commitment to the dissemination of products and services aimed at sustainable development, energy efficiency and raising awareness on the issue of energy saving. New activities were aimed at both residential customers and companies, in order to direct their consumption towards overall efficiency, reducing their waste and reducing the negative impacts on the environment.

G4-EN8 G4-EN10 Compared to 2015 there was a fall in the water requirement of 3% due to lower thermoelectric production. The percentage of recycled and reused water rose from 31% in 2015 to 37% in 2016.

G4-EN15 G4-EN16 Total net specific emissions of CO_2, in other words for all electricity production, fell, going from 549 g/kWh to 508 g/kWh owing to lower thermoelectric production from coal.

G4-EN19 In 2016 the emissions of CO_2 avoided owing to production from carbon free sources totaled around 13 million tons.

G4-EN21 The use of plant equipped with more efficient systems to reduce pollutants led to a fall in net specific emissions in reference only to thermoelectric production of SO_2, NO_x and particulate matter.

Specific emissions of H_2S from geo-thermoelectric production continued to fall thanks to the effect of the "AMIS" abatement systems, falling by 7% compared to 2015.

G4-EN24 Total and volume of significant spills

E-Distribuzione

Description of spill	Impacts and their mitigation
Italy – various locations Spills that occurred mainly from PTP, following tampering/theft. Such accidental spills, which concern in most cases small areas, fall within the scope of application of the simplified restoration procedure, in accordance with article 249 of Legislative Decree 152/06. Number of spills: 884 Quantity: 80 (m^3)	Following the spill a notice of potential pollution is sent to the competent authorities and emergency repair work takes place, with at the same time sampling of the earth in the area concerned. On the basis of the results obtained from the laboratory tests the area is cleaned up or, in the case of exceeding set limits, repair work is undertaken. In order to limit this type of environmental accident consideration is being given to installing dry resin-insulated transformers with a winding in aluminum.

G4-EN27 Initiatives to reduce environmental impacts of products and services and the extent of mitigation of these impacts

Emissions: work undertaken in order to enhance the electrostatic precipitators to contain the emissions of particulate matter. Interventions to reduce emissions from the unloading, storage and transport of coal, ash and gypsum.

Water: optimization of the control of water consumption through the installation of meters on the nebulizers installed on the stacker and reclaimer machines, fog cannons and systems to dampen the coal bunkers.

Waste: work continued to remove the material containing asbestos where it has been found. Start of the work to cover the basins of ash and mud.
For all the activities undertaken the policy continued of continuous looking for new possibilities to recover waste and packaging.
Group initiative "Think differentiated", to enhance differentiated waste collection in plant offices. Ecoboxes installed for differentiated collection and dedicated to recycling paper, plastic, and the collection of undifferentiated and wet waste.

Soil: modernization at some plants of the containment pools for dangerous substances, elimination and clean-up of gas oil tanks.

Clean-up of dense fuel oil and gas oil tanks.

Materials: giving up use of dense fuel oil both in the start-up stage and in the replacement of coal in normal operations.
Gradual replacement of polluting and toxic products with other biodegradable and atoxic alternatives (biodegradable oil in place of mineral oil).

Noise: execution of noise measurement campaigns and initiatives to mitigate acoustic emissions in different plants.

Countryside: environmental redevelopment of areas around the plants.

Thermoelectric production

Division	Section	Description of intervention
THERMAL GENERATION Thermoelectric production	Emissions	Brindisi Sud power plant Work completed to realize the project to cover the coal deposit using domes. Work completed to install the Switched Integrated Rectifiers on the electrostatic precipitators of the BS1 and BS2 groups. Work completed to install online instrumentation to measure the efficiency of the DeNOx and DeSOx plants.
	Waste	Start of the preliminary operations for work to cover the basins of ash and mud.
THERMAL GENERATION Thermoelectric production	Substances/ Waste	Fusina power plant Continuation of the use of secondary solid fuel from urban waste.
THERMAL GENERATION Thermoelectric production	Noise	Sulcis power plant Work completed to soundproof the service silo called FAB1.
	Emissions	Minimization of particulate matter from the coal deposit: • raising of windbreak barrier around the plant up to 8 m above sea level; • two fog cannons installed to increase the humidity in percentage terms of coal through an aerosol water dispersion system and film.
THERMAL GENERATION Thermoelectric production	Renewables	Mercure power plant Use of renewable energy sources: reactivation of generator 2 (around 35 MW) of the Mercure thermoelectric plant fueled by biomass.
	Noise	Undertaking of the campaign to monitor acoustic emissions. Installation of anti-splash mats to reduce acoustic emissions in the evaporation towers.

THERMAL GENERATION Thermoelectric production	Waste	Rossano power plant Removal of the insulation from the group 4 boiler (including the clean-up of asbestos).
	Soil	Restart of work to clean up the tanks containing dense fuel oil.
THERMAL GENERATION Thermoelectric production	Soil	Giugliano turbogas power plant Clean-up of gas oil tanks in order to definitively end the deposit of mineral oils at Giugliano.
THERMAL GENERATION Thermoelectric production	Noise	Larino turbogas power plant Undertaking of campaign to monitor acoustic emissions.
THERMAL GENERATION Thermoelectric production	Waste	Bari power plant Removal of the insulation from the group 4 boiler (including the clean-up of asbestos).
THERMAL GENERATION Thermoelectric production	Waste	La Casella power plant Launch of the Group initiative "Think differentiated", to enhance differentiated waste collection in plant offices. Ecoboxes installed for differentiated waste collection and dedicated to the recycling of paper, plastic, and collection for undifferentiated and wet waste.
THERMAL GENERATION Thermoelectric production	Emissions	La Spezia power plant Reduction in emissions from the unloading, storage and transport of coal, ash and gypsum: work to improve the unloading points in the towers, application of panels on the coal transfer towers, installation of a fogging system with a cable winder on the stacker and reclaimer machines, work on the ash silos (enhancement of sleeve filters and review of the blowing system), realization of wind break barriers and damping systems on coal deposit no. 2, work to improve the system for unloading coal from ships, cover of the dock belt.
	Materials	Giving up use of dense fuel oil both during the start-up stage and in place of coal during normal operations. The end of the use of such oil has also led to the cancellation of supplies of dense fuel oil which used to arrive by sea on tankers.
	Water	Optimization of the control of water consumption by installing meters on the nebulizers installed on the stacker and reclaimer machines, fog cannons and systems for damping coal deposit no. 2.
	Noise	Maintenance undertaken and various interventions on the plant which helped reduce noise emissions as verified through a noise measurement campaign.
	Soil	Clean-up of the dense fuel oil tank which will no longer be used for the storage of such oil.
THERMAL GENERATION Thermoelectric production	Improvement in efficiency	Torrevaldaliga Nord power plant Installation of a continuous washing system on the condenser of all the generators (TAPROGGE).

Hydroelectric production

Division	Section	Description of intervention
LARGE HYDRO Hydroelectric production	Renewables	LOMBARDY HYDRO BU During 2016 the authorization procedures continued for new units for energy recovery. In particular on: • minimum flow rate of Ponte Cola; • derivations of Lago Idro, east and west canals of Sardegnana, Bordogna; • transfers between Benedetto-Avio and Fregabolgia. In addition, the Valnegra power plant minimum flow rate came into operation. Change to the point of release of the minimum flow rate on Presa Vedretta dei Frati (the Edolo plant) following the shrinking of the glacier.
	Waste	Implemented release of additional minimum flow rate at the Dossi plant in Valmorta. When possible dispatch of waste for recovery rather than disposal.
Hydroelectric production	Waste	EMILIA-TUSCANY HYDRO BU In 2016 the program continued to remove the asbestos covers.
	Soil	Gradual replacement of the single-chamber underground tanks used to contain gas oil to fuel thermal power plants or generators with new double-walled tanks and the automatic recording of losses.
Hydroelectric production	Renewables	CENTRAL HYDRO BU Objective of the Central Hydro BU is to increase production of electricity from renewables through: • design and realization of new units for energy recovery on releases for the minimum water flow; • design and realization of the modernization of the plants at Ceprano and Pontefiume to obtain the incentives pursuant to Ministerial Decree of July 6, 2012 as updated.
	Soil	10 underground single-chamber tanks removed – 10 water-tight tests undertaken on the remaining 10 tanks.
	Waste	In 2016, 8 new environmental noise tests carried out under Law 447/95.
Hydroelectric production	Substances	VENETO HYDRO BU Replacement of polluting and toxic products with alternative biodegradable and atoxic products, where possible.
	Waste	Preference for sending waste materials to recovery.
	Renewables	Project for new units for energy recovery on releases for the minimum flow rate on larger projects. Implementation of release devices dedicated to the minimum flow rate from smaller projects.

Hydroelectric production	Waste	SICILY HYDRO BU During 2016 3,410 kg of asbestos were disposed of: • Contrasto power plant: MV switches containing asbestos (2,060 kg); • Guadalami power plant: awning in cement asbestos and seal (370 kg); • Anapo power plant: brake linings of pulley system of overhead crane (120 kg); • Petino power plant: cable trays, slabs of fiber cement (820 kg); • San Carlo power plant: warehouse seal (40 kg).
	Renewables	In 2016 the authorization procedure was started to build a Hydro unit for energy recovery (Window 1).

Portugal

Thermoelectric production

Endesa SA

Portugal

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	1,141	842

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
9	2	7	9	-

Portugal

Thermoelectric production

The power plants

Endesa SA

Thermoelectric power plant

The numbers

Plants
1

Net maximum capacity (MW)
842

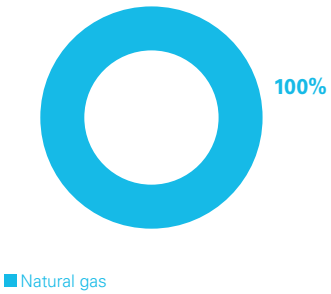
Production (GWh)
1,141

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
With gas turbines in combined cycle	1	2	842
Total	**1**	**2**	**842**

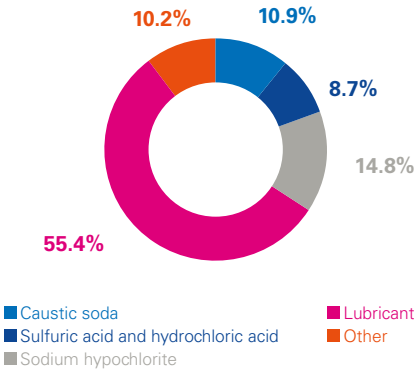
Fuel consumption

Total: **178,300** (t equiv. oil)



Consumables

Total: **22.9** (t)



Water for industrial use

Total requirement:
1,475,704 (m^3)

Total fresh water drawn off:
(100% from surface water)
1,475,704 (m^3)

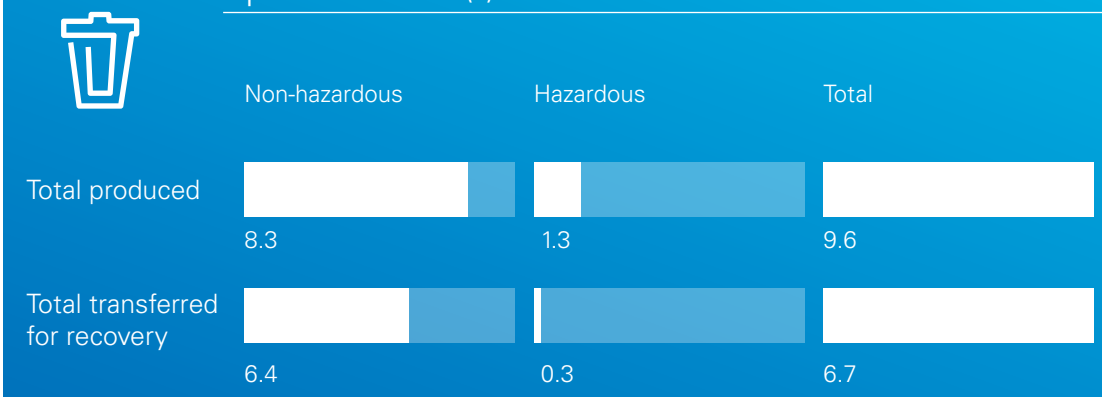
Portugal

Thermoelectric production

Atmospheric emissions

CO_2 (t)	417,623
NO_x (t)	91.62

Special waste (t)



Enel operates in Portugal with Endesa in thermoelectric production.

In 2016 the only thermoelectric plant in the scope of consolidation of the Group was the combined cycle plant (CCGT) of Pego owned by Endesa. The only fuel used is natural gas.

Enel Green Power finalized the sale of all the renewable energy assets in Portugal at the end of November 2015, as part of the internal strategy aimed at optimizing its portfolio and taking up the opportunities in countries with greater growth potential.

Compared to 2015 overall production remained stable (+3%) since the absence of renewables was offset by greater thermoelectric production (+86%).

G4-EN19 The specific emission of CO_2 was stable compared to 2015, at 366 g/kWh.

G4-EN23 Special waste compared to 2015 rose by around 23%, with an increase in the percentage of the waste transferred for recovery of around 24%.

Romania

Production from renewable sources	Electricity distribution
> Photovoltaic and wind production	
Enel Green Power SpA	E-Distribuţie Banat SA E-Distribuţie Dobrogea SA E-Distribuţie Muntenia SA

Romania

Average number of customers

2,736,908

Length of power lines (km)

91,412

Total net production (GWh)

1,235

Installed capacity (MW)

534

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
3,113	**2,237**	**876**	**3,109**	**4**

Health and Safety

Staff of contractors*

3,667

LTIFR
Lost Time Injuries Frequency Rate

Enel -

Contractors -

LDR
Lost Day Rate

Enel -

Contractors -

Seriousness index**

-1.00

Frequency index**

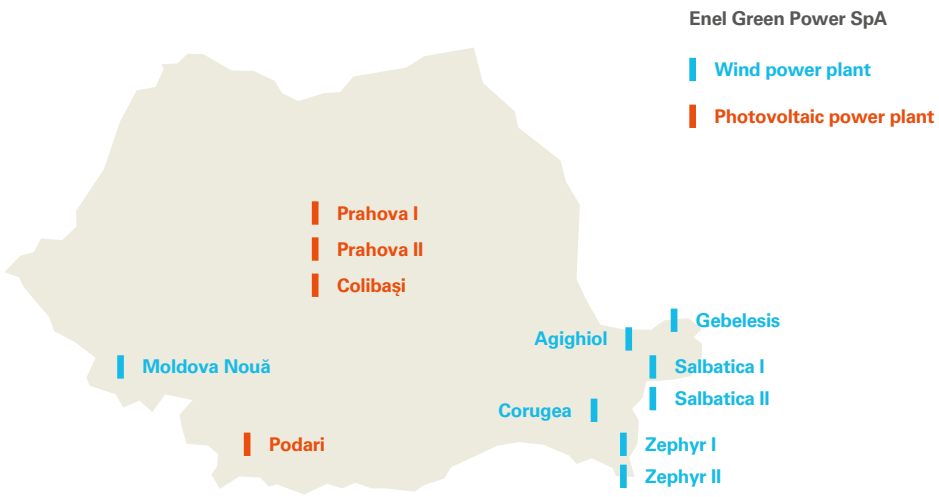
-1.00

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Romania

Production from renewable sources

The power plants



The numbers

Plants
12

Net maximum capacity (MW)
534

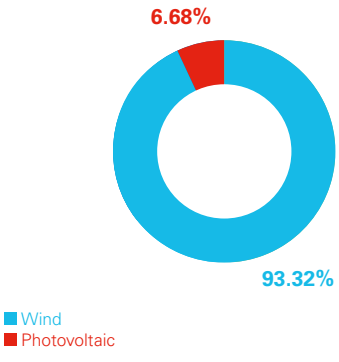
Production (GWh)
1,235

Number of plants

	No. power plants	Net maximum capacity (MW)
Wind	8	498
Photovoltaic	4	36
Total	**12**	**534**

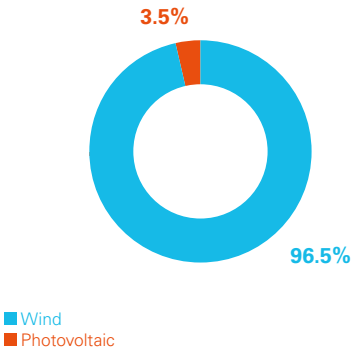
Net maximum capacity

Total: **534** (MW)



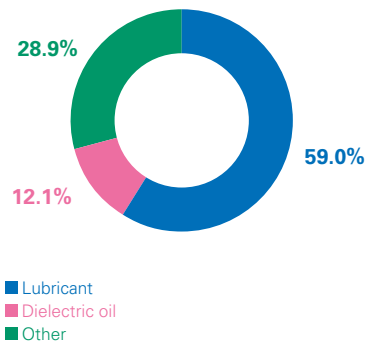
Net electricity production

Total: **1,235** (GWh)



Consumables

Total: **4.15** (t)



Romania

Production from renewable sources

Equivalent hours of use* 2016

Wind
2,393

Photovoltaic
1,208

* Annual production/power ratio.

Emissions of CO_2 avoided (t)

Total: **1,299,213**

Wind
1,253,977

Photovoltaic
45,236

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Special waste (t)

Total produced: **44.7**

Non-hazardous: **35.8**

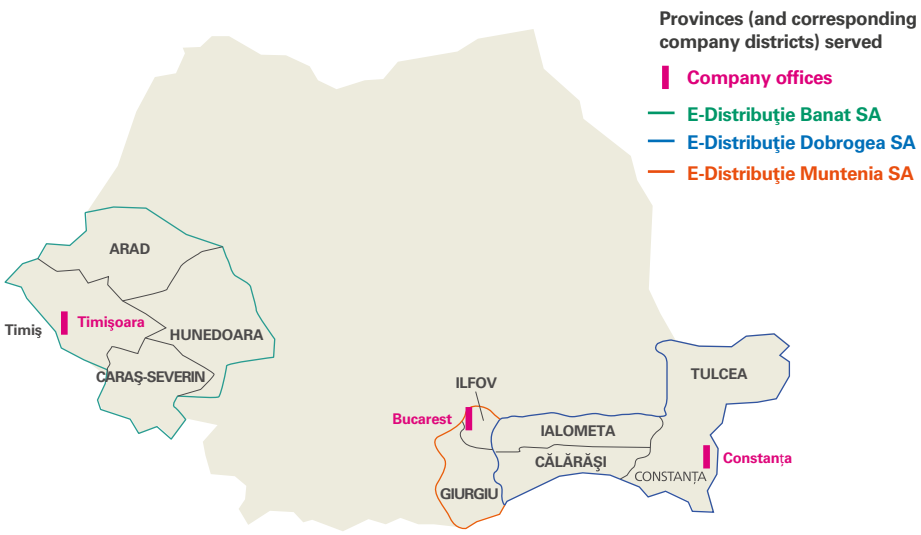
Hazardous: **8.9**

Total transferred for recovery:
31.2

Non-hazardous: **22.3**

Hazardous: **8.9**

E-Distribuţie Banat SA, E-Distribuţie Dobrogea SA, E-Distribuţie Muntenia SA



The numbers

Cabins
22,855

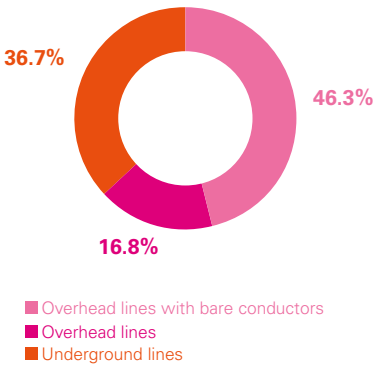
Capacity (MVA)
21,132

Total lines (km)
91,412

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary cabins	283	12,696
Satellite centers and MV sections	189	137
MV/LV secondary cabins	21,261	7,632
Other secondary cabins	122	667
Total	**22,855**	**21,132**

Power lines (length in kilometers)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total lines
HV	6,217	0	288	6,505
MV	21,943	188	12,884	35,015
LV	14,401	15,138	20,353	49,892
	42,561	15,326	33,525	91,412



Romania

General data

Municipalities served: **2,854**

Service area served: **62,501** (km^2)

Customers connected to company network: **2,765,896**

Electricity

Distributed in total: **14.58** (GWh)

Own consumption for operation of the network: **40** (MWh)*

Atmospheric emissions

SF_6: 8.5 (kg)
189 (t equiv. of CO_2)

CO_2: **110.3** (t)

Total greenhouse gas: **299** (t equiv. of CO_2)

Consumption of resources

Consumables: **53** (t)

Lubricant: **0.9** (t)
Dielectric oil: **52.3** (t)

Gas oil: **35.5** (tep)

* As from February 2016, at the request of ANRE (National Agency for Energy Regulation), energy used for own consumption by a distribution company is no longer considered as distributed energy and is accounted for separately. So here only the quantity of electricity for January 2016 is given.

Special waste (t)

	Non-hazardous	Hazardous	Total
Produced	5,246.6	6,979.4	12,226
Transferred for recovery	1,297.1	907.1	2,204.2

Access to electricity

Ferentari Project

7 AFFORDABLE AND CLEAN ENERGY

Romania

Location: Ferentari neighbourhood
Business line: I&N
Asset: Muntenia concession
Network Lines: 35,045 km

BD E&C O&M

Sub Category: Abating economic barriers to access electricity
2016 Beneficiaries: 713
Planning: 14/12/2015 - 30/12/2017
Partners: Policy Center for Roma and Minorities and Carusel NGOs

Business

Commercial network losses.

Project

Learning from the experience of our colleagues working in disadvantaged neighborhoods in Brazil, Enel teamed up with the Policy Center for Roma and Minorities (PCRM) and Carusel and designed a community intervention based on three pillars:

- area research aiming at identifying the barriers in using electricity safely in the neighborhood;
- consultations - engaging with the community and understanding their problems;
- development initiatives - contributing to solving some of the problems of common concern for the community and Enel, such as energy efficiency, education, health, sanitation and others.

With the help of the civic group (Mothers Club) and the newly appointed "energy mediator" from the community, dozens of consumer have voluntarily approached Enel asking to become legitimate customers.

Value for Enel

Reduce network losses, engage with the community and improve business processes based on their feedback.

Value for stakeholders

Community development in education, health and social services, energy efficiency and awareness.

Related project by assets
MUNTENIA CONCESSION:
Swimathon with Civic Innovation Fund
Energy Centers for the homeless
Photovoltaic tree in EFdeN Campus HUB

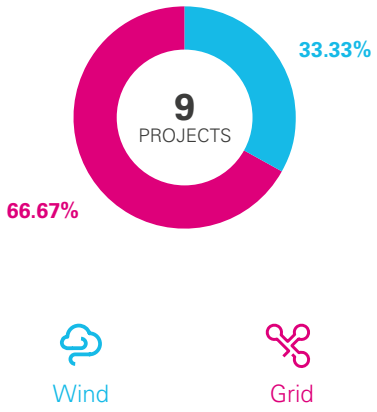
1 NO POVERTY

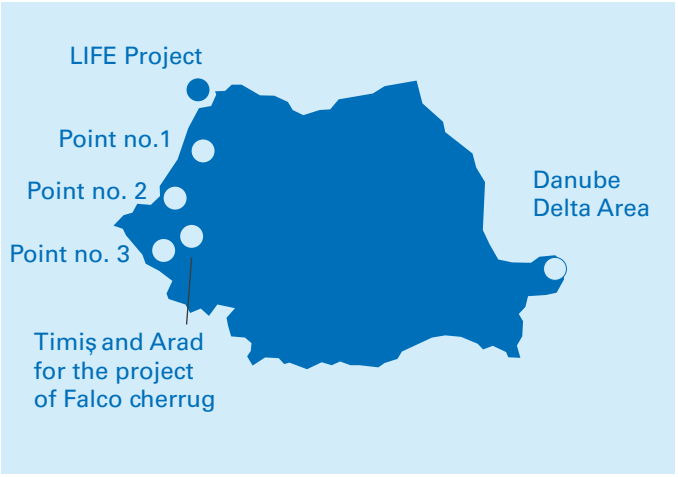
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology





Most important projects

Project	Description	Enel infrastructure
Conservation of European roller (*Coracias garrulus*) in the Carpathian basin	LIFE 13 NAT/HU/000081 Project http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5099	Grid
DANUBEparksCONNECTE Bridging the Danube Protected Areas towards a Danube Habitat Corridor	The DANUBEparksCONNECTED project consists in inventoring of overhead lines of E-Distribuţie Dobrogea, that are in Danube Delta Biosphere Reserve, pre-monitoring actions, pilot activities to mark major electric lines crossing the Danube, against collision and electroconvulsive concepts, post-monitoring activities http://www.interreg-danube.eu/approved-projects/danubeparksconnected.	Grid - E-Distribuţie Dobrogea
Protecting the white stork	The project aims to install supports for stork nest on the LV network to protect the birds from electrocution and, at the same time, to protect installations from damaging.	E-Distribuţie Banat and E-Distribuţie Dobrogea
Conservation of *Falco cherrug*	The purpose of the project is to monitor the routes used for migration, feeding and resting places of young *Falco cherrug*. The falcons were ringed and some artificial nests installed on LEA 110 kV poles, in Timis and Arad counties. This was a project of E-Distribuţie Banat in cooperation with the NGO Milvus.	E-Distribuţie Banat - Grid

Enel operates in Romania in wind and solar photovoltaic production with Enel Green Power, in electricity distribution (with E-Distribuţie Banat, E-Distribuţie Dobrogea and E-Distribuţie Muntenia) and in electricity sales with Enel Energia and Enel Energia Muntenia.

Compared to 2015 electricity production from renewables fell by 7%.

G4-EN6 Energy saved thanks to the reduction of consumption and the improvement in efficiency. Work continued to modernize the grid and to modernize and replace low and medium voltage lines, with better insulation from atmospheric events as part of a broader project of optimizing the network. The main differences between 2016 and 2015 come from the implementation of measurement systems which in 2016 had a great impact.

G4-EN7 Initiatives to supply products and services which are efficient from the energy viewpoint or based on renewables, and to reduce the energy requirement. Thanks to these initiatives Enel Romania offered the beneficiaries of the Ferentari area of Bucharest (November-December 2016), as part of a broader initiative which aims to improve access to energy in the area, 400 energy saving lightbulbs (7.5 W) and 250 extension leads, which enable more efficient consumption of electricity.

G4-EN19 Emissions of CO_2 avoided owing to wind production and production from solar photovoltaic plants totaled around 1.3 million tons.

G4-EN23 Special waste transferred for recovery totaled 2,204 tons, down slightly compared to 2015.

G4-EN24 Total and volume of significant spills

During 2016 there were 3 accidents in secondary sub-stations and 2 accidents in HV/MV substations with a total spill of oil of 0.208 m^3. The soil was treated and cleaned up with biodegradable and absorbent material.

G4-EN27 Initiatives to reduce environmental impacts of products and services and the extent of the mitigation of these impacts

Noise: in order to identify and prevent the exposure of workers and the local population to the risk of noise and electromagnetic fields, Enel worksites are constantly monitored. In 2016, 79 acoustic monitoring tests were carried out focused mainly on sensitive areas, such as stations close to residential areas, and on private notifications received by E-Distribuţie Muntenia and E-Distribuţie Banat. After taking some counter-measures, all the values are under the limits allowed by the law for both day and night. The measurements of electromagnetic fields (91 in 2016) were always under the legal limits.

Waste: the partnership continued between E-Distribuţie Banat, E-Distribuţie Dobrogea and E-Distribuţie Muntenia with Recolamp Association for the recovery of non-functioning lighting. In addition, again in partnership with Recolamp, it was possible to extend the collection of batteries. In 2016, the collection totaled 386 kg of lights and fluorescent tubes, 22 kg of small batteries and 533 kg of electric material.

Russia

Thermoelectric production

> Combined production of thermoelectric energy and heat

Enel Russia PJSC

Russia

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	41,062	8,944

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
2,639	1,924	715	2,632	7

Health and Safety

Staff of contractors*

2,677

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.13**

Contractors **0.08**

LDR
Lost Day Rate

Enel **11.73**

Contractors **7.47**

Seriousness index**

-0.16

Frequency index**

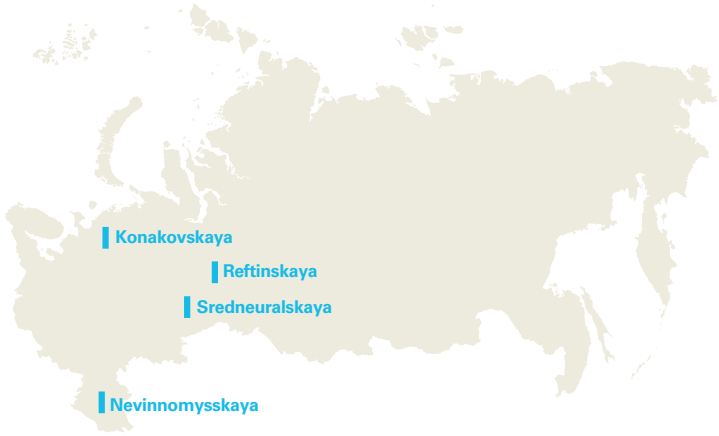
-0.60

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Russia

Combined production of thermoelectric energy and heat

The power plants



The numbers

Plants
4

Net maximum capacity (MW)
8,944

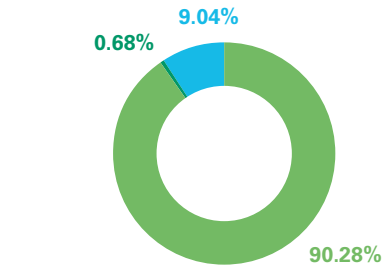
Production (GWh)
41,062

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensing) with intermediate fluid draw-offs for cogeneration	4	35	8,074
Back-pressure steam for cogeneration	0	3	61
With gas turbines in combined cycle for cogeneration	0	2	809
Total	**4**	**40**	**8,944**

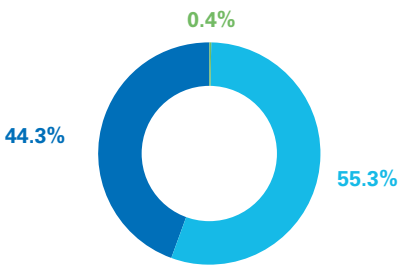
Net maximum capacity

Total: **8,944** (MW)



Fuel consumption

Total: **10,320,800** (t of oil equivalent)



Waste water

Discharged:
23,169,672 (m^3)

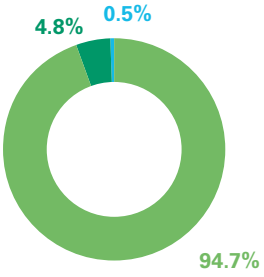
Used inside the plants:
157,870 (m^3)

Atmospheric emissions

NO_x (t)	81,905
SO_2 (t)	134,093
Particulate matter (t)	55,927
CO_2 from combustion (t)	30,814,548

Water for industrial use

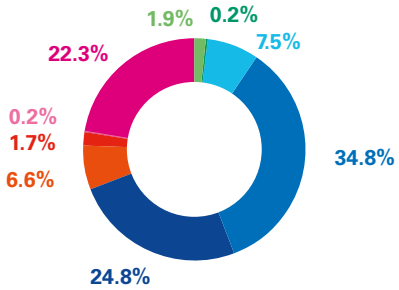
Total requirement: **28,950,765** (m^3)
Total fresh water drawn off: **28,792,895** (m^3)



- From river
- From wells
- From waste water (amount used inside the plants)

Consumables

Total: **8,338** (t)



- Resins, hydrazine, carbohydrazide and oxygenated water
- Ammonia
- Sodium hypochlorite, chlorine dioxide, ferrous sulfate, ferrous chloride and trisodium phosphate
- Sulfuric acid and hydrochloric acid
- Caustic soda
- Lime, ferrous chloride and polyelectrolyte
- Lubricant
- Dielectric oil
- Other

Special waste

Total produced: **4,464,570** (t)

Total transferred for recovery: **227,902** (t)

Special waste non-hazardous (t)

	Coal ash	Gypsum from desulfurization	Total
Produced	4,438,132	21,631	4,459,763
Transferred for recovery	218,165	9,729	227,894

Special waste hazardous (t)

	Light oil ash	Other
Produced	0	4,807
Transferred for recovery	0	8

Heat production (combined with electricity production)

Total: **5,582,547** (million kcal) (equal to 6,493 GWh)

Support to local communities

Karacharovo natural park and eco-zones in Konakovo

Russia

Location: Konakovo
Business line: Thermal Generation
Asset: KGRES
Installed Capacity: 2,520 MW

BD E&C O&M

Sub Category:
Protecting the environment and biodiversity
2016 Beneficiaries: 14,800
Planning: 01/04/2016-30/12/2016
Partners:
Local youth center, Ministry of Natural Resources and Environment, Karacharovo recreation center, local community volunteers

Business issue

To open new opportunities through a positive relationship with the community.

Project

Environmental activities in the Karacharovo natural park supported by local community, youth centers, regional Ministry of Natural Resources and Environment, information boards on the protective area, benches for public and children, possible monitoring of biodiversity in the area.
The project was based on the CSV analysis and direct engagement with local communities.

Value for Enel

Additional actions in the implementation of environmental policy of the company.

Value for stakeholders

Mitigation of environmental impact on the local community, development of a responsible attitude to nature by the local citizens.

Related project by assets
KGRES:
Cleaning activities at the power plant (incl. other power plants)
Tree planting campaign
Green office activities

Support to local communities

Fish stocking

14 LIFE BELOW WATER

Russia

Location: Sverdlovsk Region
Business line: Thermal Generation
Asset: Konakovskaya
Installed Capacity: 2,520 MW

BD E&C O&M

Sub Category: Protecting the environment and biodiversity
2016 Beneficiaries: 26,197
Planning: 01/09/2015 - 31/10/2016
Partners: Fish production farm

Business issue

Compensatory measures, mitigation of environmental impact.

Project

At the Konakovskaya power plant a special fish protection system has been installed that is truly unique for the Volga river area. At Sredneuralskaya power plant the fish protection system was installed much earlier, and in 2015 the power plant received a positive opinion about the efficiency of its implementation. Another fish protection system is being installed at Reftinskaya power plant now. One more important activity to protect biodiversity is fish stocking. About 8,000 young sturgeon were stocked in the Ivanokovo reservoir, part of the Volga river, near the Konakovskaya power plant. In October 2013 the Sredneuralskaya power plant started the implementation of a 5 year plan (up to 2017) for fish stocking of the Iset reservoir with several thousand young grass carp and white carp. Enel Russia is doing its best to be in line with international environmental standards and focuses special attention by company employees on waste management and its rational use. As part of the volunteering campaigns colleagues take part in the cleaning of power plant areas, as well as the banks of the reservoirs. Employees together with local administrations and with the active participation of school children, the elderly, and citizens plant trees and bushes striving to make their towns more environmentally friendly and comfortable for living.

Value for Enel

Implementation of environmental policy of the company.

Value for stakeholders

The improvement of the ecological situation, increase in biodiversity. Opportunities for local fishermen.

Related project by assets
KONAKOVSKAYA

15 LIFE ON LAND

Enel operates in Russia in thermoelectric production with Enel Russia.

G4-EN1 G4-EN3 The fuel mix is characterized by a slight increase in the share of natural gas (+1%) which offset the proportional fall in the share of coal (-3%) compared to 2015.
The total production level remained almost unchanged on the values for 2015 (-2%).

G4-EN6
R-GRES: saving of 6,594.2 GJ from unit no. 1 (3 initiatives planned for 2016 were rescheduled for 2017, including the retrofitting of unit no. 1 with heating surfaces and a change in aspirators).
The retrofitting of the heating surfaces of unit no. 8 was completed in the final quarter of 2016: the result in terms of efficiency will be measured in 2017.
N-GRES: saving of 13,398.7 GJ from organizational actions dedicated to energy efficiency and energy saving.
K-GRES: saving of 36,624.8 GJ from the retrofitting of two power units, unit no. 1 and unit no. 2, carried out in 2016.

G4-EN16 Total net specific emissions of CO_2 (referring to the entire production of electricity and heat) recorded in 2016 a slight increase, going from 645 to 648 g/kWh.

G4-EN20 The specific emissions of NO_x and SO_2, referring to the total production of electricity and heat, saw a slight fall (-3% for both values). There was again a marked fall in the specific emission of particulate matter (-19%) due to the optimization of the operation of the three sleeve filters installed at the Reftinskaya power plant in 2015.

G4-EN22 In 2016 there was a slight fall in the production of special waste (-2%) compared to 2015.

G4-EN24 Spills
There were no significant spills during the year.

G4-EN27 Initiatives to reduce the environmental impacts of products and services and the extent of the mitigation of these impacts

Emissions: Reftinskaya (R-GRES): optimization of the sleeve filters installed in the previous year, with further reductions in emissions of particulate matter.

Waste water: Sredneuralskaya (S-GRES): development of a project for a plant to treat waste water.

Reftinskaya (R-GRES): construction of pumping stations to filter and treat water.

Noise: Nevinnomysskaya (N-GRES): construction continued of a device to reduce noise.

Sredneuralskaya (S-GRES): reconstruction of the gas supply system in order to reduce acoustic emissions.

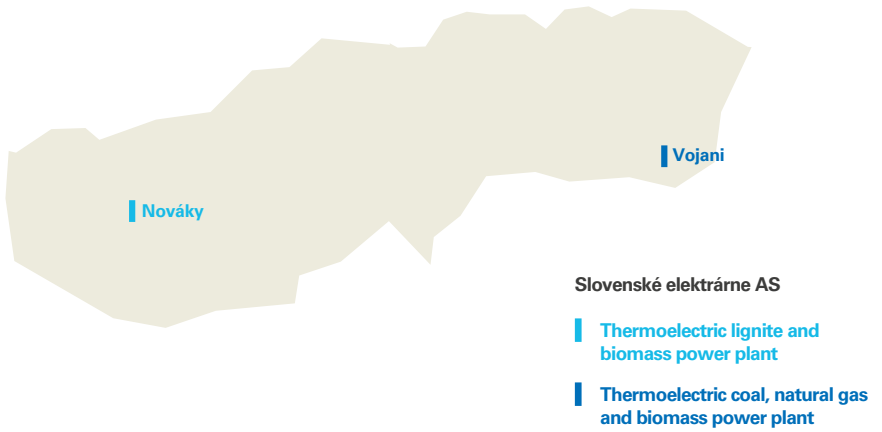
Slovakia

Thermoelectric production	Production from renewable sources	Nuclear production
> Combined production of thermoelectric energy and heat	> Hydroelectric and photovoltaic production	> Combined production of nucleo-thermoelectric energy and heat
Slovenské elektrárne AS	Slovenské elektrárne AS	Slovenské elektrárne AS

Slovakia

Combined production of thermoelectric energy and heat

The power plants



The numbers

Plants
2

Net maximum capacity (MW)
606

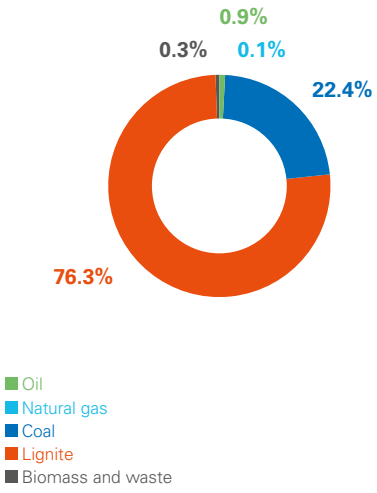
Production (GWh)
954 (up to July 28, 2016)

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)	Thermal power 10 kcal/h
Steam (condensing) with intermediate fluid draw-offs for cogeneration	2	5	606	25
Total	**2**	**5**	**606**	**25**

Fuel consumption

Total: **310,935** (t of oil equivalent)



Waste water

Discharged:
2,535,491 (m^3)

Used inside the plants:
10,800 (m^3)

Water for industrial use

Total requirement:
5,214,128 (m^3)

Total fresh water drawn off:
(100% from surface water)
5,203,334 (m^3)

Slovakia

Combined production of thermoelectric energy and heat

Atmospheric emissions

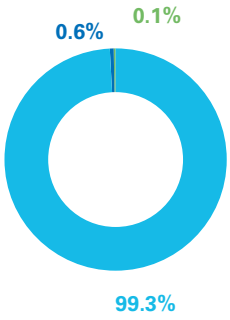
NO_x (t)	809.48
SO_2 (t)	1,081.27
Particulate matter (t)	70
CO_2 (t)	1,262,294
from combustion (t)	1,231,621
from desulfurization (t)	30,673

Emissions of CO_2 avoided

For electricity production from biomass: **3,609** (t)

Consumables

Total: **81,015.8** (t)



- Limestone for desulfurization of fumes
- Sulfuric acid and hydrochloric acid
- Lime, ferrous chloride and polyelectrolyte

Electricity

Net production: **957** (GWh)
(includes production from biomass – 3 GWh – at the Nováky plant)

Heat production
(combined with the production of electricity):
168,976 (million kcal)
equivalent to **197** (GWh)

Special waste

Total produced:
396,198 (t)

Total transferred for recovery:
201 (t)

Special waste non-hazardous (t)

	Coal ash	Gypsum from desulfurization	Other	Total
Produced	126,754	235,493	33,929	396,176
Transferred for recovery	0	0	187	187

Special waste hazardous (t)

Total produced
22

Total transferred for recovery
14

Slovakia

Production from renewable sources

The power plants

The numbers

Plants
37

Net maximum capacity (MW)
1,592

Production (GWh)
1,202 (up to July 28, 2016)

Number of plants

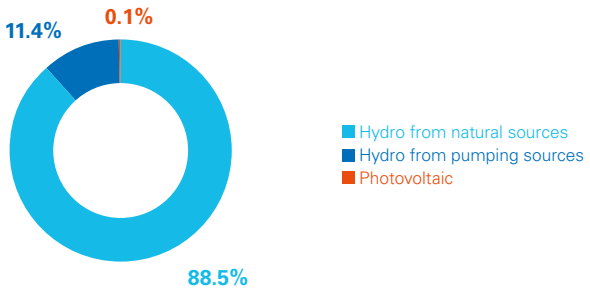
		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	17	44	747
	Basin/reservoir	14	31	132
	Pure/mixed pumping	4	15	711
Total Hydro		35	90	1,590

	No. power plants	No. units	Net maximum capacity (MW)
Photovoltaic	2		2
Total	37	90	1,592

Slovakia

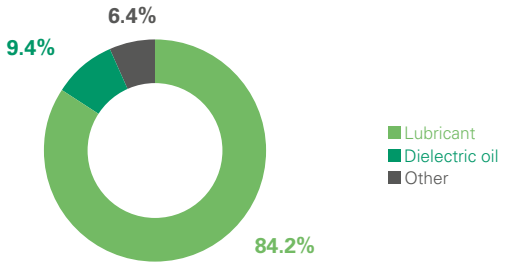
Net electricity production

Total: **1,202** (GWh)



Consumables

Total: **9** (t)



Emissions of CO_2 avoided (t)

Total: **1,446,002**

Hydro from natural sources
1,444,799

Photovoltaic
1,203

Atmospheric emissions

SF_6 (all the segment) **5.12** (kg)
114 (t equiv. of CO_2)

CO_2 (produced from combustion of gas oil) **4** (t)

Total: **118** (t)

Special waste (t)

Produced: **580**

Non-hazardous: **561**

Hazardous: **19**

Transferred for recovery: **525**

Non-hazardous: **521**

Hazardous: **4**

Slovakia

Nuclear production

The power plants

The numbers

Plants
2

Net maximum capacity (MW)
1,814

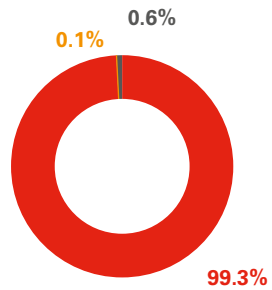
Production (GWh)
14,081 (up to July 28, 2016)

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)	Thermal power 10^6 kcal/h
Steam (condensing)	2	4	1,814	464
Total	**2**	**4**	**1,814**	**464**

Water for industrial use

Total requirement: **21,006** (m^3)
Total fresh water drawn off:
20,867 (m^3)



- From river
- From aqueducts
- From waste waters (amount used inside plants)

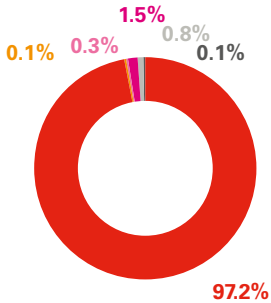
Waste water

Discharged:
4,994,356 (m^3)

Used inside the plants:
118,434 (m^3)

Consumables

Total: **6,371** (t)



- Lime
- Hydrazine
- Caustic soda
- Sulfuric acid and hydrochloric acid
- Lubricant
- Other

Slovakia

Radioactive atmospheric emissions

Noble gases (kBq)	3.851
Iodium 131 (MBq)	30.603
Aerosol α (kBq)	1.52
Aerosol ß and γ (MBq)	11.447
Strontium 89 and 90 (kBq)	35.706

Emissions of CO_2 avoided

Nucleo-thermoelectric production: **9,048,773** (t)

Electricity

Heat production (combined with electricity production): **262,688** (million kcal) (equivalent to **306** GWh)

Radionuclides in the discharged waste water

Tritium: **11,589** (GBq)

Radioactive waste (t)

Liquids: **42.7**

low and medium level: **42.7**

high level: **0**

Solids: **32**

low and medium level: **30.8**

high level: **1.2**

Total: **74.7**

low and medium level: **73.5**

high level: **1.2**

Slovakia

Enel operates in Slovakia with Slovenské elektrárne in thermoelectric and nuclear production (both cogeneration) and renewable production (hydroelectric and photovoltaic).

On July 28, 2016, the company was removed from the scope of Enel.

All the values set out in the tables refer to the period: January 1, 2016-July 28, 2016.

Spain

Thermoelectric production	Production from renewable sources	Nuclear production	Electricity distribution
	> Hydroelectric, photovoltaic and wind production		
Endesa SA Enel Green Power SpA	Endesa SA Enel Green Power SpA	Endesa SA	Endesa Distribución SL

Spain

Average number of customers

11,047,937

Length of power lines (km)

316,562

Total net production (GWh)

71,182

Installed capacity (MW)

21,902

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
10,184	**7,869**	**2,316**	**10,178**	**6**

Health and Safety

Staff of contractors*

19,627

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.06**

Contractors **0.29**

LDR
Lost Day Rate

Enel **4.62**

Contractors **20.21**

Seriousness index**

-0.05

Frequency index**

-0.35

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Spain

Thermoelectric production

The power plants

The numbers

Plants
30

Net maximum capacity (MW)
12,188

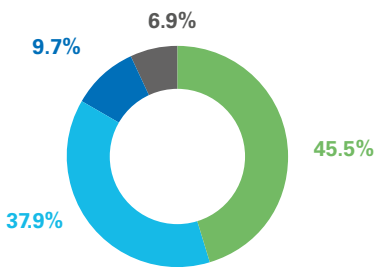
Production (GWh)
34,384

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensing)	7	29	5,548
With gas turbines in combined cycle	9	14	4,623
With gas turbines in simple cycle	5	41	1,182
With reciprocating engines	9	99	835
Total	**30**	**183**	**12,188**

Net maximum capacity

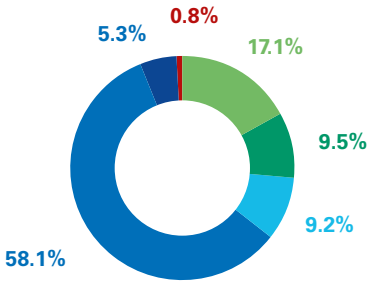
Total: **12,188** (MW)



- Steam (condensing)
- With gas turbines in combined cycle
- With gas turbines in simple cycle
- With reciprocating engines

Fuel consumption

Total: **8,021,042** (t of oil equivalent)



- Oil
- Gas oil
- Natural gas
- Coal
- Lignite
- Biomass and waste

Waste water

Discharged:
68,692,928 (m^3)

Reused within the plants:
9,700 (m^3)

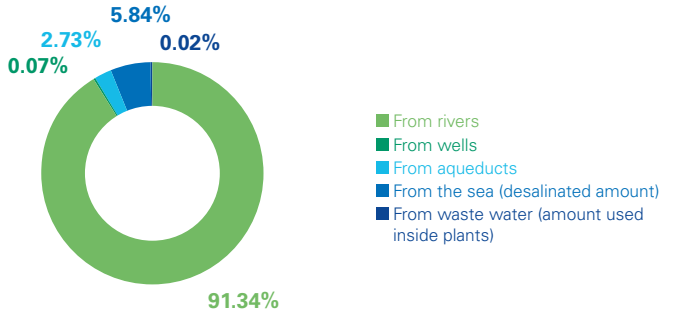
Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Atmospheric emissions

NO_x (t)	83,609
SO_2 (t)	61,390
Particulate matter (t)	1,557
CO_2 (t)	28,672,514
(from combustion) (t)	28,522,389
(from desulfurization) (t)	150,125
SF_6 (kg)	239
(t equiv. of CO_2)	5,297
Total (t equiv. of CO_2)	28,677,811

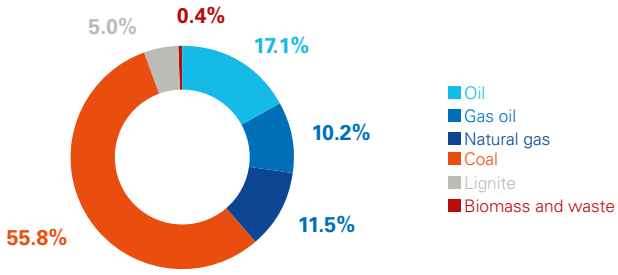
Water for industrial use

Total requirement: **43,015,880** (m^3)
Total fresh water drawn off: **40,493,778** (m^3)



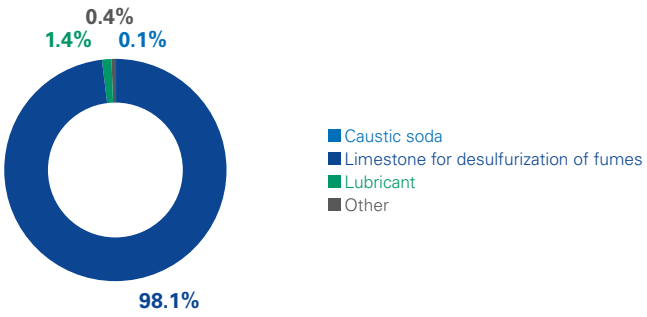
Net electricity production

Total: **34,384** (GWh)



Consumables

Total: **416,554** (t)



Special waste

Total produced:
1,922,542 (t)

Total transferred for recovery:
110,634 (t)

Special waste non-hazardous (t)

	Coal ash	Gypsum from desulfurization	Other	Total
Produced	1,097,584	791,359	22,834	1,911,778
Transferred for recovery	92,573	0	12,822	105,395

Special waste hazardous (t)

	Light fuel oil ash	Other	Total
Produced	1,175	9,588	10,764
Transferred for recovery	2	5,237	5,239

Storage and movement of coal

Endesa manages three port terminals at Ferrol, Carboneras and Los Barrios for the storage and movement of coal destined for the power plants of Puentes (Ferrol), Almería (Carboneras) and the thermoelectric power plant of Los Barrios owned by E.ON.

Other data (consumption of natural gas and gas oil, consumables, water for industrial use, waste water, atmospheric and water emissions, waste) are included later in those for thermoelectric production.

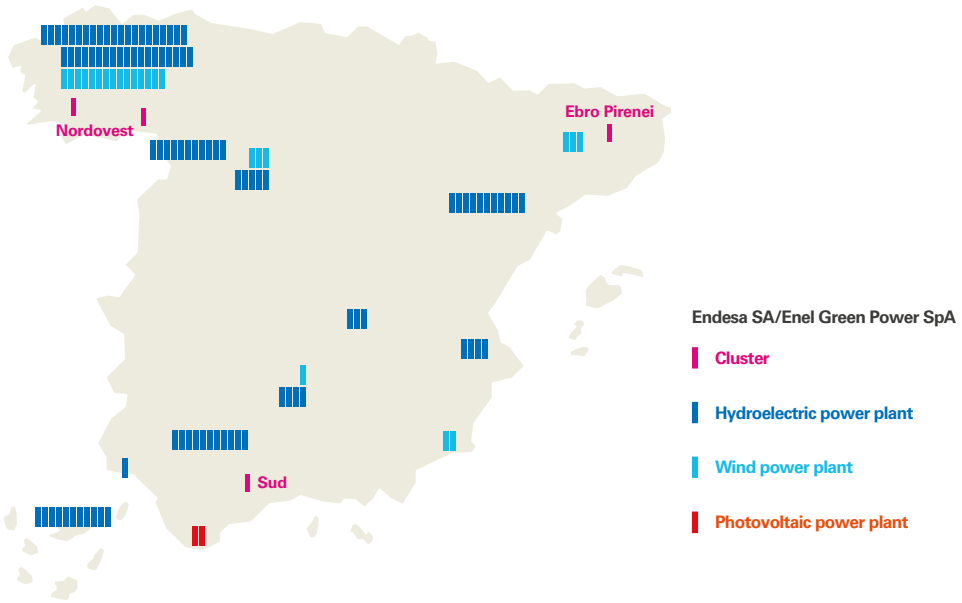
Total coal transferred to power plants:
7,073,182 (t)

Total electricity consumption:
7.25 (million kWh)

Spain

Production from renewable sources

The power plants



The numbers

Plants
216

Net maximum capacity (MW)
6,395

Production (GWh)
10,877

Number of plants

		No. power plants	No. derivations	Net maximum capacity (MW)
Hydro	Run-of-the-river	59	93	430
	Basin/reservoir	76	147	3,004
	Pure/mixed pumping	6	17	1,330
Total Hydro		**141**	**257**	**4,764**

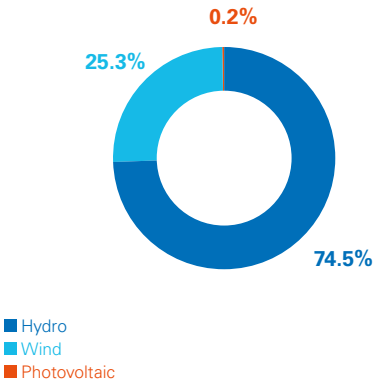
	No. power plants	No. groups	Net maximum capacity (MW)
Wind	71		1,618
Photovoltaic	4		13
Total	**216**	**257**	**6,395**

Spain

Production from renewable sources

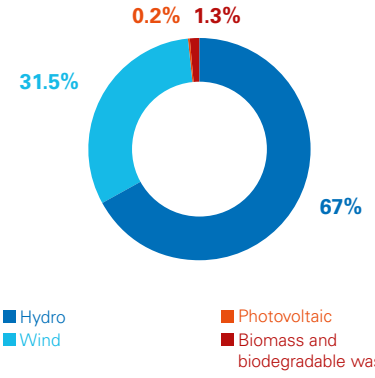
Net maximum capacity

Total: **6,395** (MW)



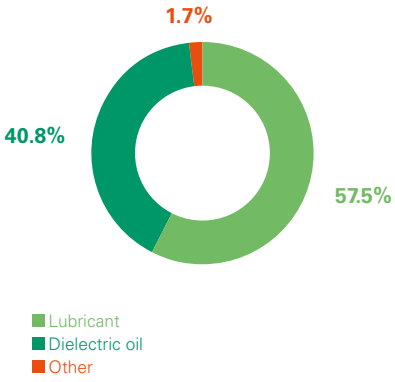
Net electricity production

Total: **10,877** (GWh)



Consumables

Total: **77** (t)



Equivalent annual hours of use 2016*

Wind
2,115

Photovoltaic
1,923

Hydro
1,530

* Annual production/power ratio.

Emissions of CO_2 avoided (t)

Total: **7,875,496**

Hydro from natural sources
5,254,643

Wind
2,467,262

Photovoltaic
18,025

Biomass*
102,382

* The CO_2 emissions avoided from biomass come from thermoelectric plants with units dedicated to the combustion of biomass.

Special waste (t)

Total produced: **1,608**

Non-hazardous: **1,201**

Hazardous: **407**

Total transferred for recovery: **1,387**

Non-hazardous: **1,061**

Hazardous: **326**

Atmospheric emissions

SF_6 (all the segments) **2.23** (kg)
(**49.5** t equiv. of CO_2)

CO_2 (combustion of gas oil in standby generators) **5** (t)

Total: **54.5** (t equiv. of CO_2)

Spain

Nuclear production

The power plants

* The values given do not include the power plant in Trillo.

The numbers

Plants
3*

Net maximum capacity (MW)
3,318

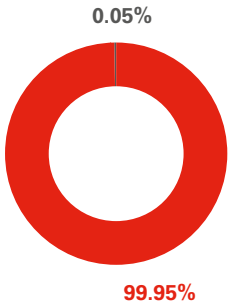
Production (GWh)
25,921

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensing)	3	5	3,318
Total	**3**	**5**	**3,318**

Water for industrial use

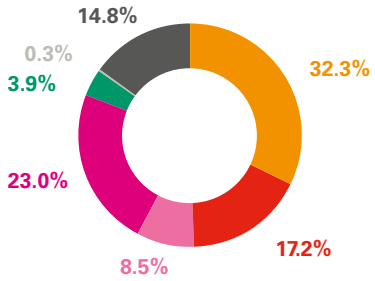
Total requirement: **16,686,670** (m³)
Total fresh water drawn off: **16,680,400** (m³)



- From rivers
- From waste water (amount used inside plants)

Consumables

Total: **1,201** (t)



- Sodium hypochlorite, chlorine dioxide, ferrous sulfate, ferrous chloride and trisodium phosphate
- Sulfuric acid and hydrochloric acid
- Caustic soda
- Lime, ferrous chloride and polyelectrolyte
- Lubricant
- Dielectric oil
- Other

Waste water

Discharged:
1,643,434 (m³)

Used inside the plants:
6,224 (m³)

Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Radioactive atmospheric emissions

Noble gases (TBq)	0.86
Iodium 131 (MBq)	1.68
Aerosol α (kBq)	13.34
Aerosol ß and γ (MBq)	36.19
Strontium 89 and 90 (kBq)	104.43

Emissions of CO_2 avoided

For nuclear production: **18,689,038** (t)

Radionuclides in the waste water discharged

Produced by fission and corrosion: **12.33** (GBq)

Tritium: **73,946** (GBq)

Radioactive waste

High level
Solids: **63.6** (t)

Low and medium level
Liquids: **0.56** (m^3)
Solids: **222** (t)

Special waste (t)

Total produced: **2,476**

Non-hazardous: **2,149**

Hazardous: **326**

Total transferred for recovery: **1,565**

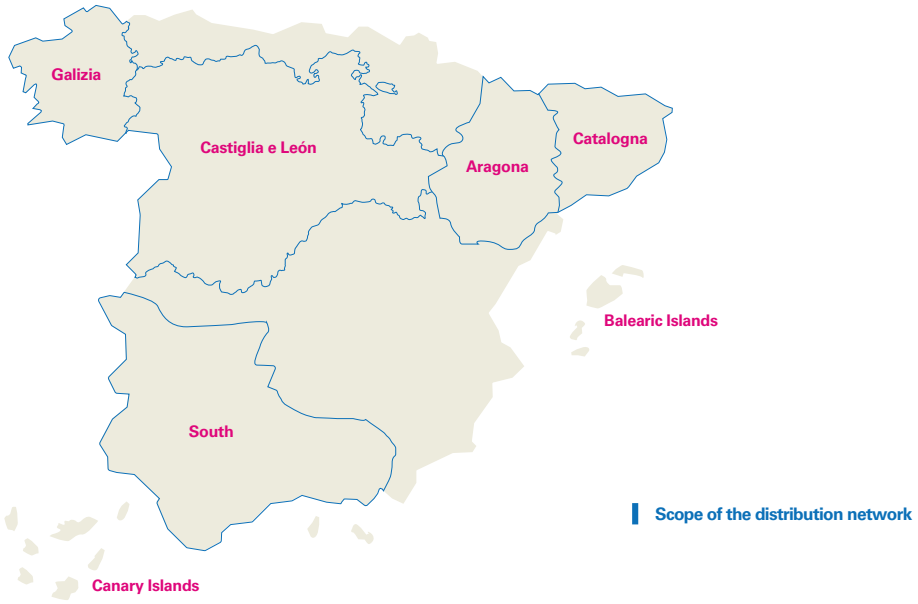
Non-hazardous: **1,495**

Hazardous: **70**

Spain

Electricity distribution

Endesa Distribución SL



The numbers

Cabins
134,011

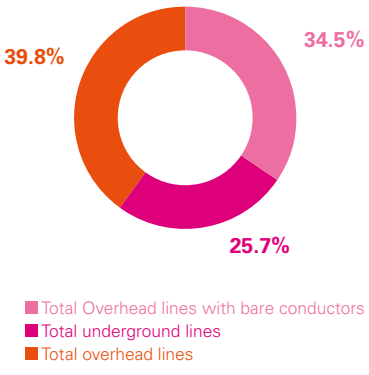
Capacity (MVA)
146,322

Total lines (km)
316,562

Number of plants

Cabins	no.	Installed transformation capacity (MVA)
Other secondary cabins	233	2,311
Satellite centers and MV units	0	0
Primary cabins	1,007	84,014
MV/LV secondary cabins	132,771	59,997
Total	**134,011**	**146,322**

Power lines (length in km)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total lines
HV	18,760	0	779	19,539
MV	76,653	0	40,979	117,632
LV	13,766	81,497	84,128	179,391
	109,179	81,497	125,886	316,562



Spain

Electricity distribution

General data

Municipalities served: **2,709**

Surface area served: **194,687** (km²)

Customers connected to company network: **12,314,392**
(of whom supplied:12,314,392)

Electricity

Distributed in total: **102,901** (GWh)

Atmospheric emissions

SF_6: 229 (kg)
5,091 (t equiv. of CO_2)

CO_2: **2,732** (t)

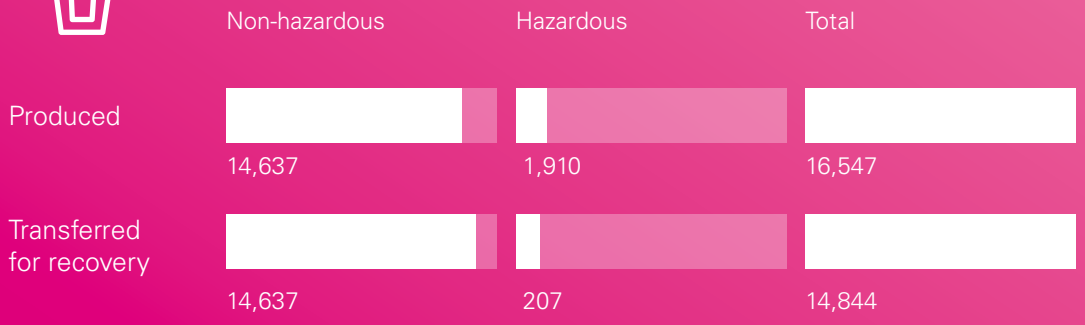
Total greenhouse gas **7,823** (t equiv. of CO_2)

Consumption of resources

Consumables: **172** (t)

Gas oil: **896** (tep)

Special waste (t)



Operational efficiency by sustainability

Sustainable and safe mobility plan

11 SUSTAINABLE CITIES AND COMMUNITIES

Spain

Location: Spain
Business line: Holding & Sub-holding

BD E&C O&M

Sub Category: Efficient use of energy
2016 Beneficiaries: 332
Planning: 01/10/2015 - 31/12/2016

Business issue

Contribution to reduce CO_2 emissions and saving in operational costs.

Project

With the aim of reducing its CO_2 emissions and the fuel consumption of its short-range vehicles, Endesa is planning to replace 30% of its short-range fleet with electric vehicles. Endesa currently has around 20 fully electric vehicles, which have been used to assess how this technology can be adapted to the needs of the company's fleet. The electric vehicles that already form part of the Endesa fleet are used to transport people and tools to carry out small repairs. Nevertheless, and given the constantly changing nature of this technology, Endesa is studying the advances being made and the market, so that it may soon replace its entire fleet with electric vehicles.
It is worth highlighting the fact that Endesa's interest in sustainable mobility has in fact been one of its focal points for the last few years, and the company has been a pioneer and leading player in terms of incorporating hybrid vehicles across the whole of its sales fleet (at one stage it had the biggest fleet of hybrid vehicles in Europe, with more than 300 in 2010, and it is still one of the biggest hybrid fleets today).

Value for Enel

Integrate into the strategy all sustainable growth opportunities in the market of electric transport in the short-medium term. Build new value propositions as a product or service to other businesses, corporate headquarters, public institutions, or society.

Value for stakeholders

Encourage a behavior change for a more sustainable energy culture. Promotion of electric mobility as a driver of change to a new zero emissions energy model.

Related project by assets
https://www.endesa.com/en/projects.html

13 CLIMATE ACTION

Access to electricity

Energy volunteering

7 AFFORDABLE AND CLEAN ENERGY

Spain

Location: Zaragoza, Barcelona, Sevilla, Candelaria and Puerto del Rosario
Business line: Holding & Sub-Holding / Endesa FoundationEndesa

BD E&C O&M

Sub Category: Abating economic barriers to access electricity
2016 Beneficiaries: 1,200
Planning: 01/09/2015 - 31/12/2016
Partners: NGOs, installation companies, other companies

Business issue

Integrate social demands (access to electricity) into the Group's Sustainability Action Plan, developing solutions to minimize economic barriers faced by vulnerable groups.

Project

Project aimed to help vulnerable households affected by fuel poverty.
The program has two types of action:

- Optimization of energy bills through energy efficiency recommendations and implementation of corrective measures.
- Improvement of electrical installations to prevent risk of fire for security reasons.

The program was implemented in 2016 in Zaragoza and Barcelona. In 2017 it will be extended to 3 new territories (Fuerteventura, Tenerife, Sevilla, as well as Zaragoza and Barcelona again).

Value for Enel

Avoided losses from low income customers; reduction in employee perks (electricity); absenteeism cost reduction; reduction in risk of illegal electric hookups.

Value for stakeholders

Energy cost savings and fire risk minimization for vulnerable families. Improvement in health conditions due to repairs.

Related info on the project
https://www.endesa.com/en/projects.html
https://www.endesa.com/en/projects/a201611-energy-volunteering.html
http://www.elblogdeendesa.com/servicios-valor-anadido/voluntarios-energia/

4 QUALITY EDUCATION

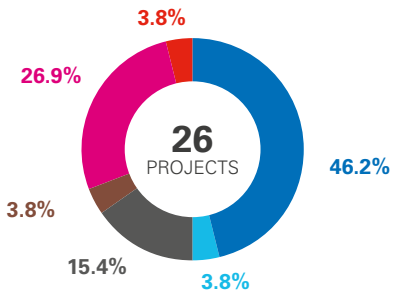
8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

Biodiversity

For further details on biodiversity projects, see the following link:
https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf

Projects by technology



Hydro
Wind
Coal
Mining activities
Grid
Other

Most important projects (map)

Most important projects

Project	Description	Enel infrastructure
Comparative study of the biodiversity of entomostracan crustaceans in the palearctic zone (Steppe Lakes in Spain and Mongolia)	Providing reference values of good ecological status for the assessment of iberic wetlands. Discovery of new species to science.	
Tests for the control and eradication of the Zebra Mussel (*Dreissena polymorpha*)	Analysis of relations between population dynamics of Zebra Mussel (larval stage) with its habitat. Continuous monitoring of affected water reservoirs (Mequinenza, Ribarroja, Calanda and Teruel Power Plant refrigeration system).	Ribarroja power plant – Endesa
Conservation of endangered species of bats at Endesa hydroelectric power stations (Endesa bats)	Scientific research about populations of chiroptera species at hydro power plants in the Noguera Pallaresa river basin (NE Spain). Monitoring groups of bats throughout the year in some locations of interest.	Several hydro power plants and reservoirs – Endesa

Study about the influence of genetic and metabolic factors on the upstream mobility of the native Mediterranean trout in Pyrenean rivers	Analysis of genetic, metabolic and environmental factors affecting the upstream mobility behaviour in trout populations.	Talarn power plant – Endesa
The sustainability of water resources under global change circumstances	Modelization of the hydrological and sediment dynamics of the Noguera Pallaresa river basin and determination of its responses to global change (climate change and changes in land use).	Rialb power plant – Endesa
Study on the biodiversity at As Pontes lake and its surroundings	Updating of data regarding presence of species and habitats at the lake and the restored heap.	As Pontes plant – Endesa
Corrective measures on the black vulture (*Aegypius monachus*) population and other scavenger species in areas affected by Endesa's distribution networks	Overcome the shortage of food for scavanger birds, especially for the black vulture, thereby supporting their reintroduction project.	Grid – Endesa
Development of new anti-collision technology for transmission and distribution grids	Development of a new prototype with a better performance (regarding effectiveness, costs and useful life) than currently available solutions.	Grid – Endesa
Conservation and protection measures for the Montagu's harrier (*Circus pygargus*) in the surrounding Endesa's medium- and low-voltage power lines	Protection of Montagu's harrier nests with anti-predation measures. Introduction and monitoring of young individuals using hacking techniques.	Grid – Endesa

In Spain Enel operates with Endesa in thermoelectric, nuclear and renewables production and in electricity distribution and sales and with Enel Green Power in production from renewables and thermoelectric combined with small systems.

Total production fell by around 7% compared to the previous year. The main factor was the lower production using coal (-18%) only partly offset by the higher production from oil and gas thermoelectric power plants (+4%).

G4-EN1 G4-EN3 The consumption of fossil fuels in thermoelectric production fell overall by 12% compared to 2015.

G4-EN15 G4-EN16 G4-EN21 Specific atmospheric emissions, referring to thermoelectric production, of SO_2, NO_x and particulate matter, all fell compared to 2015.

G4-EN19 In 2016 emissions of CO_2 avoided due to carbon free production totaled around 26.5 million tons, of which 19 million tons from nuclear production and around 7.8 million tons from renewables.

G4-EN23 In 2016 there was a significant fall in the production of special waste (-30%) owing to lower thermoelectric production using coal.

G4-EN24 Spills
There were 9 significant spills for a total of 10 m^3 of oil (2 spills), fuel (3 spills), waste (1 spill), chemical products (2 spills) and other (1 spill).

G4-EN27 Initiatives to reduce the environmental impacts of products and services and the extent of mitigation of these impacts

Water: Las Salinas plant: reduction in consumption of additional water.

Emissions: Litoral de Almería plant: revamping of the desulfurizer in group no. 2 and installation of SCR; installation of SCR in group no. 1.

As Pontes plant: implementation of primary interventions on combustion to achieve a reduction in emissions of NO_x in group no. 2 of 47% compared to the values achieved in 2015.

Waste water: Compostilla plant: reuse of residual liquid from gypsum, in the absorption units of the desulfurization plants in groups no. 4 and no. 5; optimization of management of the leachate from the storage areas for waste.

Noise: Punta Grande plant: measures to mitigate the noise from the power plant through the realization of works such as: perimeter wall, doors, new locks, improvement in existing locks, soundproofing.

Waste: As Pontes plant: plan to reduce waste: reuse of dry fraction of mud; reuse of ash as "stabilizer" for waste.

Renewables: revamping of the Cueva Blanca y Barranco de Tirajana wind farm by the total replacement of 11 turbines. Some parts of the old turbines were reused for spare parts in other wind farms.

Central - South America

Argentina

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric production	
Enel Generación Costanera SA	Enel Green Power SpA	Edesur SA

Argentina

Average number of customers

2,490,810

Length of power lines (km)

26,277

Total net production (GWh)

13,124

Installed capacity (MW)

4,419

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
4,951	**4,327**	**624**	**4,951**	**-**

Health and Safety

Staff of contractors*

6,014

LTIFR
Lost Time Injuries Frequency Rate

Enel **1.21**

Contractors **0.19**

LDR
Lost Day Rate

Enel **45.3**

Contractors **6.69**

Seriousness index**

-0.30

Frequency index**

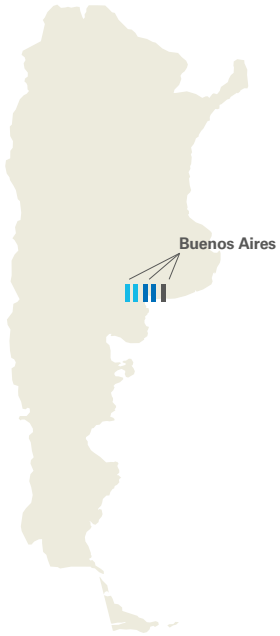
-0.22

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Argentina

Thermoelectric production

Power plants



Thermoelectric power plant

- **Oil and gas plant**
- **Combined cycle and turbogas plant**

The numbers

Plants
5

Net maximum capacity (MW)
3,091

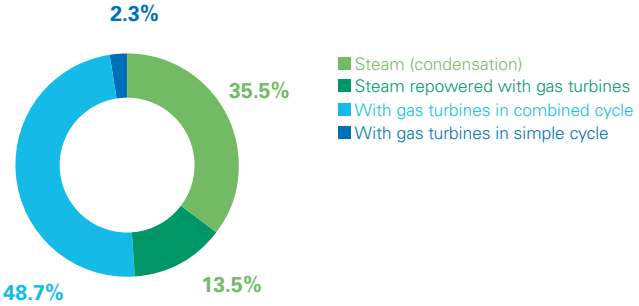
Production (GWh)
10,868

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensation)	1	11	1,096
Steam repowered with gas turbines	0	1	416
With gas turbines in combined cycle	3	5	1,507
With gas turbines in simple cycle	1	2	72
Total	**5**	**19**	**3,091**

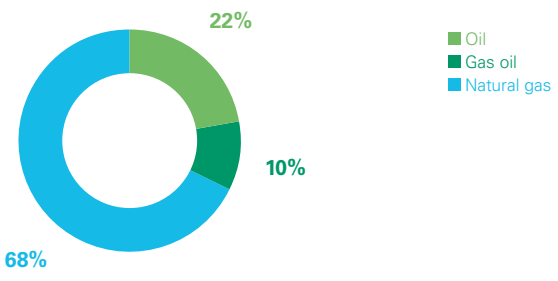
Net maximum capacity

Total: **3,091** (MW)



Fuel consumption

Total: **2,146** (t of oil equivalent)



Argentina

Thermoelectric production

Atmospheric emissions

NO_x (t)	6,068
SO_2 (t)	3,424
Particulate matter (t)	692
CO_2 from combustion (t)	5,452,919.81

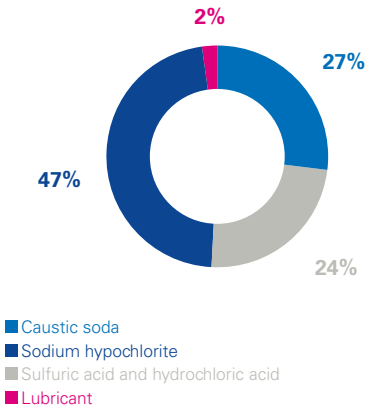
Water for industrial use

Total consumption:
2,623,269 (m^3)

Total fresh water drawn off:
2,623,269 (m^3)

Consumables

Total: **7,534** (t)



Waste waters

Discharged:
1,332,500 (m^3)

Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Special waste (t)

	Non-hazardous	Hazardous	Total
Total produced	2,139	3,064	5,203
Total transferred for recovery	1,687	752	2,439

Argentina

Production from renewable sources

Power plants

Enel Green Power SpA

Hydroelectric power plant

The numbers

Plants
2

Net maximum capacity (MW)
1,328

Production (GWh)
2,256

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Basin/reservoir	2	2	1,328
Total		**2**	**2**	**1,328**

Equivalent annual hours of use* 2016

Hydro
1,699

* Annual production/power ratio (excluding hydro production from pumping).

CO_2 emissions avoided (t)

For hydroelectric production from natural sources
1,398,720

Special waste (t)

Total produced: **7.389**

Non-hazardous: **2.280**

Hazardous: **5.109**

Total transferred for recovery: **0**

Non-hazardous: **0**

Hazardous: **0**

Argentina

Electricity distribution

Edesur SA

Offices of the Group company which runs the business (Edesur)

The numbers

Cabins
19,888

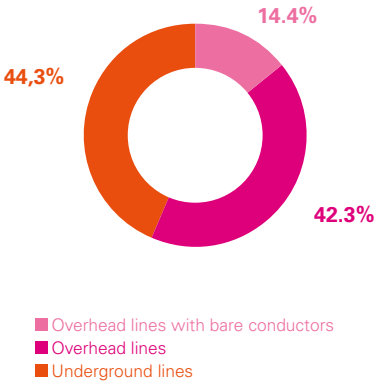
Capacity (MVA)
18,828

Total lines (km)
26,277

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary	71	12,504
MV/LV secondary	19,814	6,280
Other secondary	3	44
Total	**19,888**	**18,828**

Power lines (length in km)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total lines
HV	550	0	573	1,123
MV	3,201	192	4,609	8,002
LV	0	10,806	6,346	17,152
	3,751	10,998	11,528	26,277



Argentina

Electricity distribution

General data

Municipalities served: **33**

Surface area served: **3,304** (km^2)

Customers connected to company network: **2,504,558** (of whom supplied: 2,503,876)

Electricity (million kWh)

Distributed in total: **21,079**

Own consumption to operate network: **26**

Atmospheric emissions (t)

SF_6: 421.6 (kg)
(t equiv. of CO_2) **9,359.5**

CO_2: **1,801.5**

Total greenhouse gas (t equiv. of CO_2) **11,161**

Consumption of resources

Consumables: **5,200** (t)

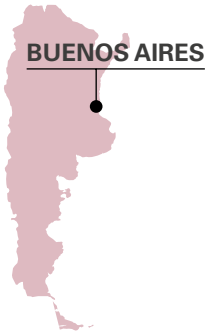
Special waste (t)

	Non-hazardous	Hazardous	Total
Produced	370.4	116.3	486.7
Transferred for recovery	0	0	0

Social and Economic Development

Social recycling

8 DECENT WORK AND ECONOMIC GROWTH



Argentina

Location: Buenos Aires
Business line: I&N
Asset: Edesur
Users Connected: 2.5 m
Lines: 26,010 km

BD E&C O&M

Sub Category: Protecting the environment and biodiversity
2016 Beneficiaries: 5,000
Pianificazione: reale
Partners: Fondazione Dignified Housing "Vivienda Digna"

Business issue

Add value to the existing business, collaborating through the arrangement to recycle disused material.

Project

Under the commitment with the community, the agreement between Edesur and the Dignified Housing Foundation was signed to establish the donation of disused material that the NGO will recycle in the form of inexpensive furniture to provide to low-income families.

Ushering in the program, the first removal of materials in the form of coils and pallets was undertaken through cooperation and working together. Some of the material will be used for the construction of furniture to be delivered to a low-income school located in the concession area.

Value for Enel

Social recognition and branding. Closer and more responsible relations with the community.

Value for stakeholders

Create new opportunities of employment to promote the social and economic development of the community. Access to decent infrastructure.

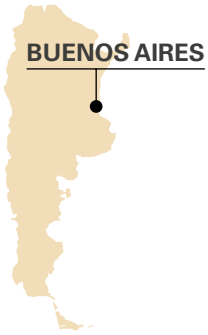
10 REDUCED INEQUALITIES

Related project by assets
EDESUR
Visit to institutions

Social and Economic Development

Ecoladrillos

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Argentina

Location: Buenos Aires
Asset: Edesur
Users Connecter: 2.5 m
Lines: 26,010 km

BD E&C O&M

Sub Category: Infrastructural Development
2016 Beneficiaries: 35
Planning: Completed

Business issue

Defend existing business and open new opportunities through a positive relationship with the community for social development.

Project

The "eco brick" is a plastic bottle filled with clean and dry non-recyclable and non-hazardous by applying pressure, and it is used for construction. In the rural area of Guernica, south of Buenos Aires, a group of volunteers from Edesur (an Enel Group subsidiary in Argentina) and the Chacras Foundation have launched a workshop, which employs people with social and mental disabilities, to produce *ecoladrillos* (eco-bricks). The multi-purpose building, to be built in Guernica using eco-bricks, will be used for holding courses on sustainable construction, separate collection of waste, recycling and composting. The educational part of the project will involve 500 children and their families.

Value for Enel

Image improvement; action motivator; link with the community; corporate climate and sense of belonging; commitment with solidarity actions; implementation and completion of a challenge.

Value for stakeholders

Sustainable infrastructure; cultural change; encouraging community to change habits; action motivator; environmental care; polymer waste reduction; re-use of waste (e.g. bottles).

Related project by assets
https://www.enel.it/it/futur-e.html

4 QUALITY EDUCATION

8 DECENT WORK AND ECONOMIC GROWTH

Overall electricity production from thermoelectric and renewable sources in the country fell by 14% owing to lower hydroelectric production (-30%).
Thermoelectric production was stable compared to the previous year, with a smaller contribution from CCGT plants (-13%) offset by higher production from oil and gas (+11%).

G4-EN1 G4-EN3 The fuel mix compared to 2015 changed slightly with lower consumption of gas oil and gas, and an increase in fuel oil. Overall consumption fell compared to 2015 (-6%).

G4-EN8 There was a rise of around 4% in the net specific water requirement for industrial use in thermoelectric production.

G4-EN15 The country's net specific CO_2 emissions rose by around 6%. The increase was linked to lower hydroelectric production compared to the previous year.

G4-EN19 CO_2 emissions avoided owing to hydroelectric production totaled 1,398,720 tons.

G4-EN21 Specific NO_x emissions fell further during 2016 (over 30%), confirming the downward trend of 2015, also due to the works carried out in the Costanera power plant. The values for SO_2 and particulate matter instead rose compared to the previous year.

G4-EN24 There were no significant spills.

Brazil

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric, wind and photovoltaic production	
Enel Geração Fortaleza SA	Enel Green Power SpA	Enel Distribuição Rio SA Enel Distribuição Ceará SA

Average number of customers

6,843,988

Length of power lines (km)

200,552

Total net production (GWh)

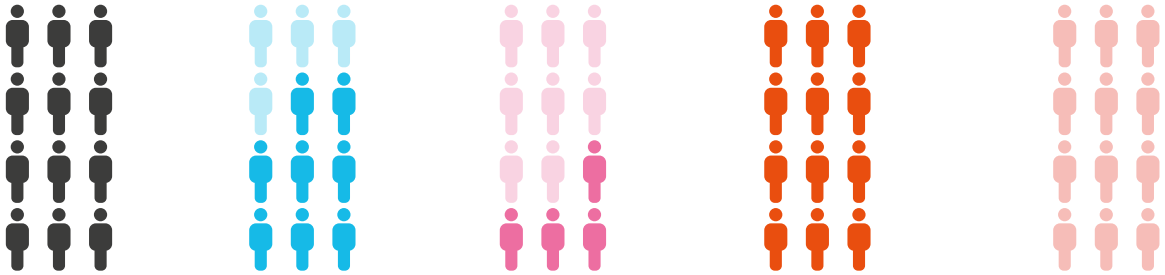
5,474

Installed capacity (MW)

1,621

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
2,880	**2,183**	**697**	**2,880**	**-**



Health and Safety

Staff of contractors*

23,809

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.07**

Contractors **0.13**

LDR
Lost Day Rate

Enel **0.51**

Contractors **1.86**

Seriousness index**

-0.89

Frequency index**

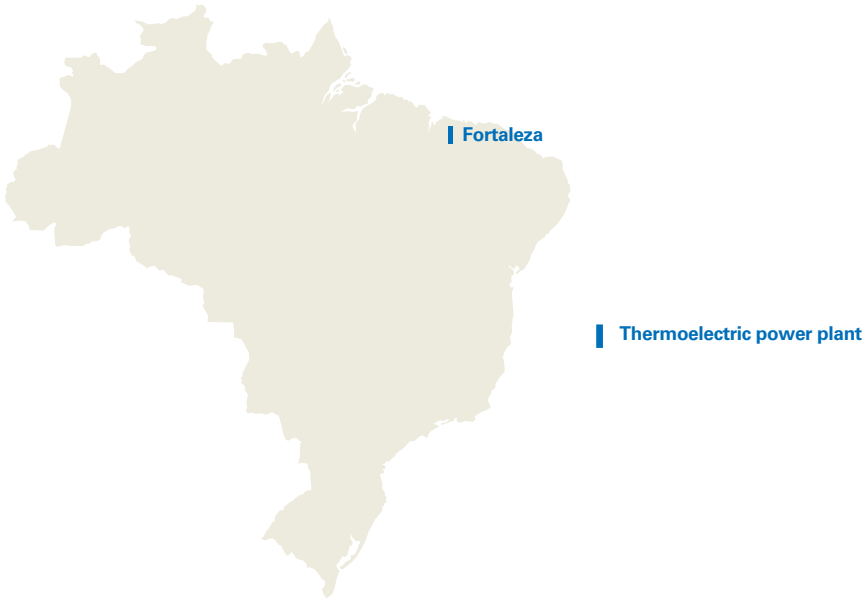
-0.44

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Brazil

Thermoelectric production

Power plants



The numbers

Plants
1

Net maximum capacity (MW)
319

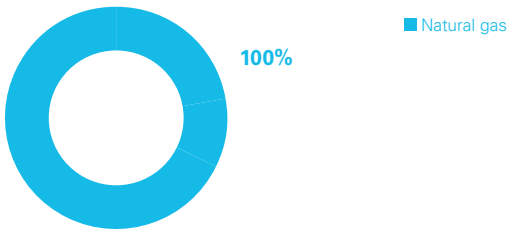
Production (GWh)
1,572

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
With back-up gas turbines	0	1	109
With gas turbines in combined cycle	1	2	210
Total	**1**	**3**	**319**

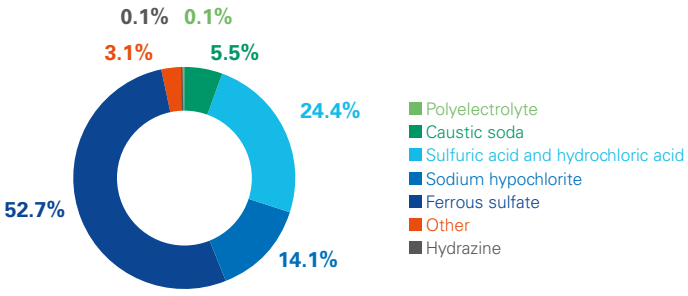
Fuel consumption

Total: **272,000** (t of oil equivalent)



Consumables

Total: **815** (t)



Atmospheric emissions

NO_x (t)	352
CO_2 from combustion (t)	513,000

Water for industrial use

Total consumption:
1,944.94 (m^3)

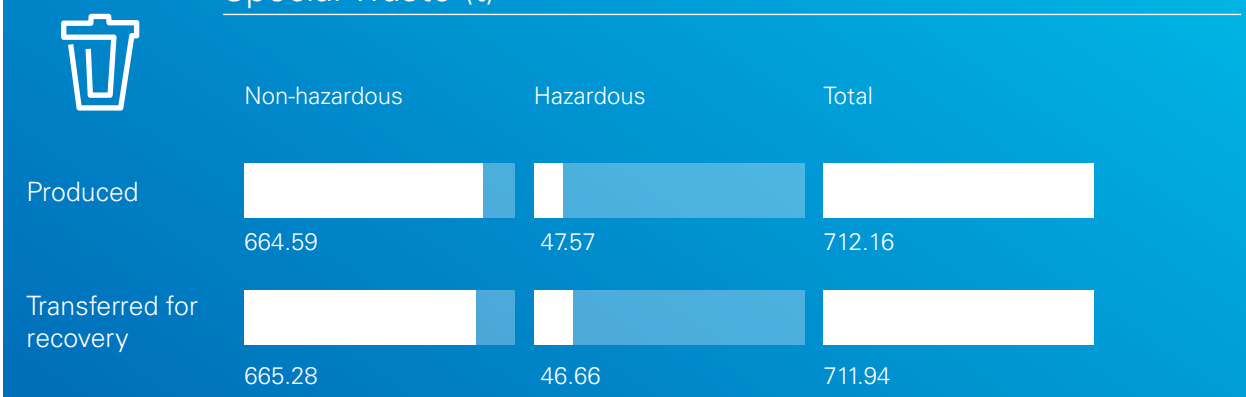
Total fresh water drawn off:
1,944.94 (m^3)

Waste waters

Discharged:
255,000 (m^3)

Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Special waste (t)



Brazil

Production from renewable sources

Power plants

Enel Green Power SpA

- Hydroelectric power plant
- Wind power plant
- Solar power plant

The numbers

Plants
42

Net maximum capacity (MW)
1,301

Production (GWh)
3,903

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	16	10	889
	Basin/reservoir	10	11	
Total Hydro		**26**	**21**	**889**

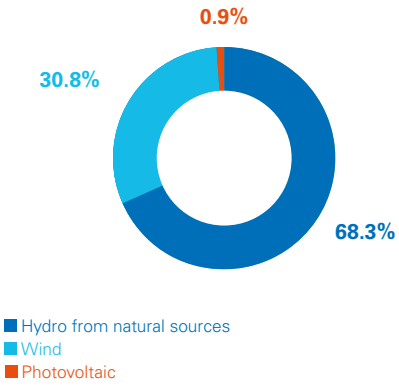
	No. power plants	No. units	Net maximum capacity (MW)
Wind	14		400
Photovoltaic	2		12
Total	**42**	**21**	**1,301**

Brazil

Production from renewable sources

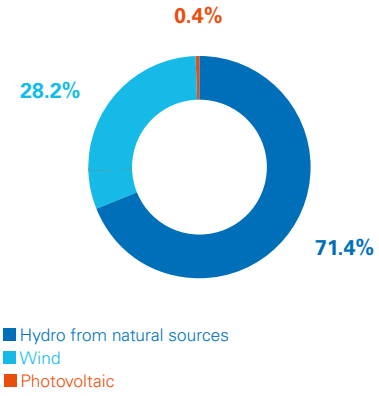
Net maximum capacity

Total: **1,301** (MW)



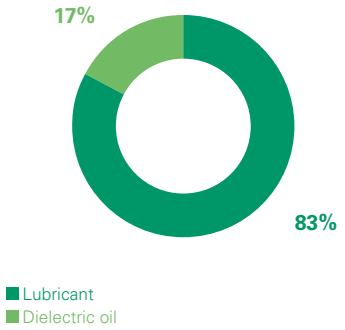
Net electricity production

Total: **3,903** (GWh)



Consumables

Total: **26** (t)

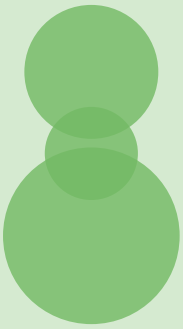


Equivalent annual hours of use* 2016

Hydro
3,133

Wind
2,745

Photovoltaic
1,522



* Annual production/power ratio.

CO_2 emissions avoided (t)

Total: **2,204,624**

Hydro from natural sources
1,574,651

Wind
620,934

Photovoltaic
9,040

Special waste (t)

Total produced: **228.57**

Non-hazardous: **185.17**

Hazardous: **43.4**

Total transferred for recovery: **0.5**

Non-hazardous: **0**

Hazardous: **0.5**

Brazil

Electricity distribution

Enel Distribuição Rio SA, Enel Distribuição Ceará SA

Offices of the Group companies which carry out the business

The numbers

Cabins
256,957

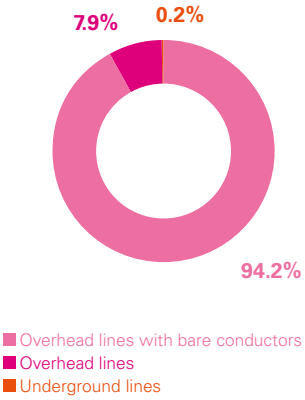
Capacity (MVA)
15,818

Total lines (km)
200,552

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary	226	7,559
MV/LV secondary	256,731	8,259
Other secondary	0	
Total	**256,838**	**15,818**

Power lines (length in km)	**Overhead lines with bare conductors**	**Overhead lines**	**Underground lines**	**Total**
HV	8,959	0	0	8,959
MV	117,388	3,887	243	121,518
LV	58,244	11,656	175	70,075
	184,591	15,543	418	200,552



General data

Municipalities served: **66**

Surface area served: **32,615** (km²)

Customers connected to company network: **6,811,275** (of whom supplied: 6,811,202)

Electricity (million kWh)

Distributed in total: **1,280**

Own consumption to operate network: **36**

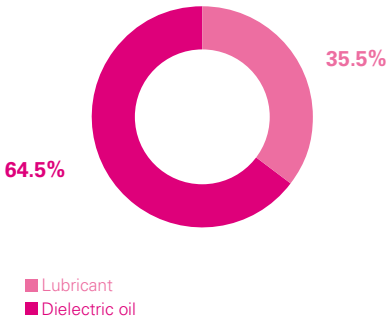
Atmospheric emissions

SF_6: **42** (kg)

Total greenhouse gas (t equiv. of CO_2) **1,774**

Consumption of resources

Total: **1,275** (t)



Special waste (t)

	Non-hazardous	Hazardous	Total
Produced	11,067	2,546	13,614
Transferred for recovery	3,795	2,531	6,326

Access to electricity

ECOENEL

7 AFFORDABLE AND CLEAN ENERGY

Brazil

Location: Concession areas Rio de Janeiro/Ceará
Business line: I&N
Asset: Enel Distribuição Rio/ Enel Distribuição Ceará
Installed Capacity: 196,866 km (of which 57,037 km Enel DR and 139,829 kW Enel DC)

BD | E&C | O&M

Sub Category: Abating economic barriers to access electricity
2016 Beneficiaries: 26,796
Planning: 01/01/2016 - 31/12/2016
Partners: Municipalities / Recyclers

Business issue

Improving the ability to pay electricity bills for project participant clients, through the bonuses they receive in exchange for waste.

Project

Recognized nationally and internationally, Ecoenel has become a reference point in sustainability initiatives. By forming a partnership network involving customers, companies and recyclers, the promotion of sustainability and the economy, it also precisely represents the Open Power strategy.
To take part, customers must take the recyclable materials collected in their homes (paper, glass, metal, plastic, etc.) to the program's collection points. In exchange they receive a discount on their own energy bills or those of another consumer, which means the customer can donate their bonus to a charitable institution for example. All the rubbish collected from customers is passed on to recyclers, who ensure the correct disposal of the materials.
Ecoenel combines environmental management, social actions and technology.
Since its implementation in 2007, the program has benefitted over 600,000 customers, collected 32,000 tons of rubbish and offered more than R$5 million in energy bill discounts. Grupo Enel's distributors currently have 201 eco-points across 42 cities.

Value for Enel

Promotion of environmental preservation of culture, with campaigns for the correct disposal of waste and support for selective collection and also promoting sustainability.

Value for stakeholders

Partnerships with recyclers stimulate the generation of income in the recycling chain, and enable the involvement of condominiums, neighborhood associations and other community organizations in the program.

Related project by assets
ENEL DISTRIBUIÇÃO RIO: 35 projects
ENEL DISTRIBUIÇÃO CEARÁ: 50 projects
https://www.enel.com.br/en.html

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Social and Economic Development

New technologies of irrigation

8 DECENT WORK AND ECONOMIC GROWTH

Brazil

Location: Campo Formoso (Bahia State)
Business line: Renewables
Asset: Delfina
Installed Capacity: 190 MW

BD | E&C | O&M

Sub Category: : Skills transfer and capacity building of local people
2016 Beneficiaries: 200
Planning: 26/08/2016 - 28/08/2017
Partners: ARCADIS Consulting

Business issue

Promote income generation from the traditional communities through access to the Delfina Complex and mitigate the impact of water use during the construction phase.

Project

The Delfina Wind Complex is located in a semi-arid region of Brazil, where there are water shortages. Above all there is a lack of knowledge of techniques that optimize the use of available water.
In order to mitigate the impact of the use of water during the construction phase and to leave a legacy of knowledge in the use of the resource, EGP will promote the technical training of local producers through continued technical assistance to improve the use of and access to new technologies of irrigation and water use. An analysis should be made of the possibility of integration with new planting processes and modernization of production at the same time as conducting studies on water availability in the region, in order to implement photovoltaic systems for pumping water.

Value for Enel

Mitigation of impact (use of water), support of food security, employment and economic growth.

Value for stakeholders

Access to modern techniques of sustainable coexistence with semi-arid areas, thus improving the quality of life.

Related project by assets
DELFINA:
Bonecuas production at Quilombo
Pasture funding

6 CLEAN WATER AND SANITATION

Social and Economic Development

Sustainable Reforestation

8 DECENT WORK AND ECONOMIC GROWTH

Brazil

Location: Mato Grosso State – Alta Floresta City

BD | E&C | O&M

Category: Social and economic development of communities
2016 Beneficiaries: 305
Status: on-going
Partners: EGP, FGV Getulio Vargas Foundation, Local Communities, Local Municipality

Current Status: waiting for the Municipality's Authorization to buy the equipment.

Business issue

Reforestation of the Apiacás Hydro Complex with seedlings from the municipality nursery, strengthening a long-term relationship.

Project

As part of the CSV Pilot Apiacás Hydro Complex Fast-track Project, this activity foresees the implementation of sustainable reforestation by improving the existing municipality greenhouse. The goal is to produce by seeding autochthonous plant seeds for reforestation.
Alta Floresta has an important program of reforestation called Olhos d'Água, which distributes seeds and plants for small farmers in order to proceed with the reforestation of the riverbank forest of the Apiacás river.
By upgrading the equipment of the municipal greenhouse, EGP will raise the capacity to produce seeds and plants for reforestation (for its own use and to produce seeds and plants for local programs).

Value for Enel

Acquisition of seedlings and seeds adapted to the conditions found at the Apiacás site, reduction in the cost of reforestation.
Development and economic growth of the territory contributing to a solid relationship and creating shared value opportunity in the E&C phase.

Value for stakeholders

Increase in production capacity for local reforestation programs. The improvement of the seedling nursery will encourage local producers and will help in the conservation of forest ecosystems.

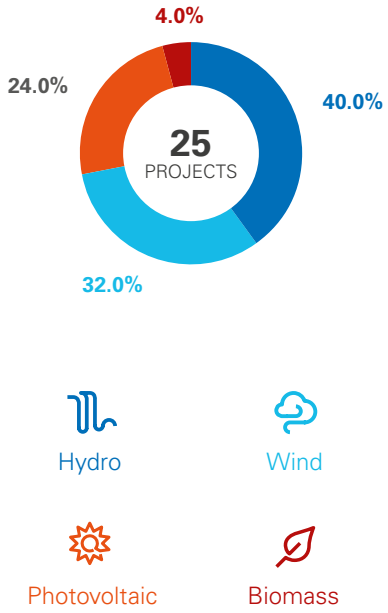
13 CLIMATE ACTION

17 PARTNERSHIPS FOR THE GOALS

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)

Most important projects

Project	Description	Enel infrastructure
Bat monitoring at Cristal, Fontes dos Ventos, Serra Azul, Curva dos Ventos, and Modelo wind power plants	Monitoring of bat species found near plants and performed under the supervision of biologists. The monitoring is repeated in rainy and dry seasons in order to study the richness and diversity of the species.	Enel Green Power - Wind
Long-term forestation and environmental monitoring project at the Cachoeira Dourada hydroelectric power plant	The program envisages the monitoring of the fluvial eco-system against certain parameters: quality of the water, species and abundance of the communities of fish, mollusks and aquatic macrophytes, terrestrial fauna and birds near the plant.	Enel Green Power - Hydro
Fauna and flora monitoring and rescue program at Horizonte MP and Ituverava solar power plants	The program aims to evaluate the impact of the plants on wildlife (birds, bats, mammals, ants and butterflies). In addition, a program has been adopted to relocate local wild fauna from the areas of vegetation suppressed during the construction of the plants.	

Fauna monitoring program at the Cluster Lapa solar power plants	The program aims to study the direct and indirect effects of the construction of the plants on mammals, snakes, birds and bats.	
Fauna and flora monitoring and rescue program at the Nova Olinda solar power plants		
Extensive flora and fauna monitoring programs (Puma concolor, Panthera onca, Anodorhynchus leari) at the Delfina wind power plant		
Extensive flora and fauna monitoring programs at the Apiacás hydroelectric power plant		
Fauna and flora monitoring and rescue program at the Cristalândia wind power plant		
Fish and terrestrial fauna monitoring at Casca III and Torixoréu hydroelectric power plants		
Cara-Suja Parakeet Project	Protection of the species on the "Red List" of the International Union for Conservation of Nature and Natural Resources (IUCN) in protected areas near the power plant.	Grid
Project to protect the grey-breasted parakeet	Project to protect the parrot species known as the "grey-breasted parakeet" (Pyrrhura griseipectus) classified as a severely threatened species in the "Red List" of the International Union for Conservation of Nature and Natural Resources (IUCN).	

Overall electricity production from thermoelectric and renewable sources in the country fell slightly by 4% compared to 2015 owing to lower production from thermoelectric sources (-33%) offset by greater production from renewable sources.

G4-EN1 G4-EN3 Gas consumption compared to 2015 fell by 35% as a consequence of lower thermoelectric production.

G4-EN16 The country's net specific emissions of CO_2 fell by over 30% owing to the lower hydroelectric production.

G4-EN19 CO_2 emissions avoided owing to production from renewables (hydroelectric, wind and solar) totaled 2,204,624 tons.

G4-EN21 Specific net thermoelectric emissions of NO_x remained stable compared to 2015.

G4-EN24 There were no significant spills.

New plants

November 2016: Enel inaugurated the **Apiacás** hydropower complex, in the State of Mato Grosso, in the central-western region of Brazil, 150 km from Alta Floresta.
The complex has total installed capacity of 102 MW and consists of three power plants: Salto Apiacás (45 MW), Cabeça de Boi (30 MW) and Fazenda (27 MW).
The complex is the first energy facility in Brazil built on a site powered by a specifically installed photovoltaic system, which enabled a reduction in the emissions produced by the building works. The 1.2 MW complex is stand-alone and so disconnected from the grid. The system continues to be operational and contributes with its renewable energy to that produced by the hydroelectric power plants.

Apiacás is also an example of sustainable investment made in line with the Group's Creating Shared Value (CSV) model, which aims to combine the development of business with the needs of local communities, taking decisions, which create value for both parties. The construction was characterized by the use of measures and technologies which reduced the environmental impact of the building work and by initiatives to develop the local community, such as for example projects to safeguard biodiversity (reforestation programs), as well as infrastructure and local initiatives (training courses on operations and sustainability for local authorities, in favor of the development of local infrastructure).
Apiacás can generate over 490 GWh per annum, sufficient to satisfy the annual energy consumption of over 200,000 Brazilian families and to avoid the atmospheric emission of around 280,000 tons of CO_2.

Chile

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric, wind and photovoltaic production	
Enel Generación Chile SA	Enel Green Power SpA	Enel Distribución Chile SA

Average number of customers

1,803,598

Length of power lines (km)

17,045

Total net production (GWh)

19,727

Installed capacity (MW)

7,434

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
2,287	**1,811**	**476**	**2,287**	**-**

Health and Safety

Staff of contractors*

14,576

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.04**

Contractors **0.32**

LDR
Lost Day Rate

Enel **0.11**

Contractors **11.21**

Seriousness index**

-0.25

Frequency index**

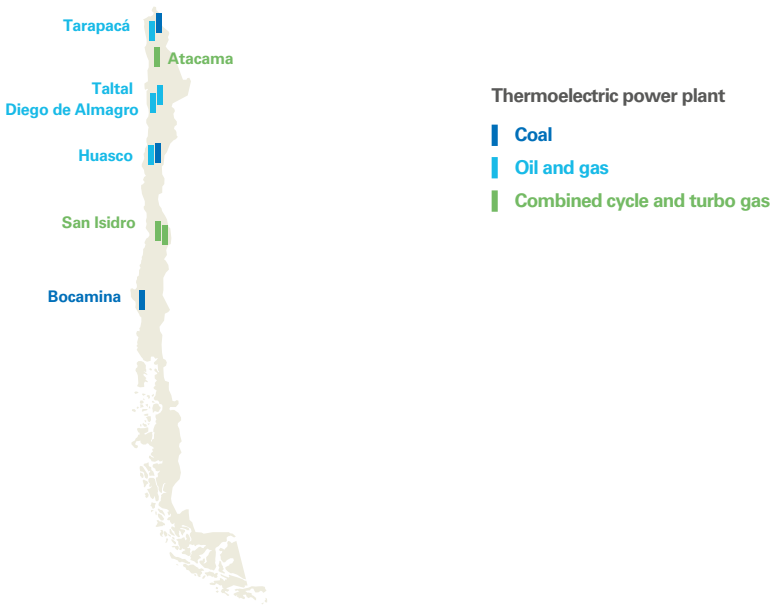
-0.46

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Chile

Thermoelectric production

Power plants



The numbers

Plants
10

Net maximum capacity (MW)
2,752

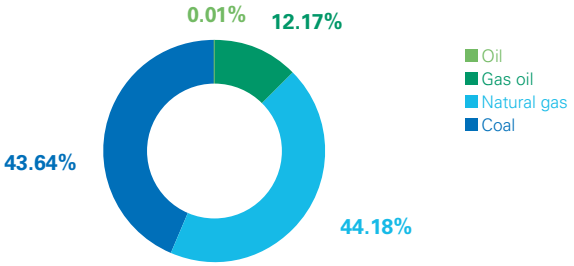
Production (GWh)
8,379

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensation)	3	3	459
Steam repowered with gas turbines	0	2	276
With gas turbines in combined cycle	2	6	1,532
With gas turbines in simple cycle	5	9	484
Total	**10**	**20**	**2,752**

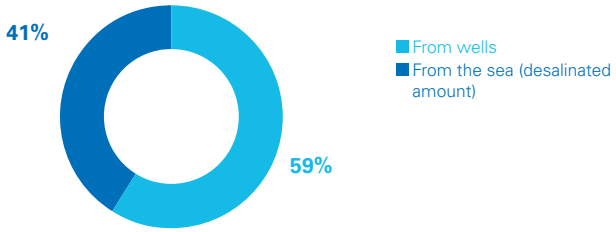
Total fuel consumption

Total: **1,732,119** (t of oil equivalent)



Waste waters

Total: **1,494,623** (m^3)



Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Atmospheric emissions

NO_x (t)	7,823
SO_2 (t)	4,156
Particulate matter (t)	180
CO_2 (t)	5,243,298
(from combustion)	5,240,016
(from desulfurization)	3,282

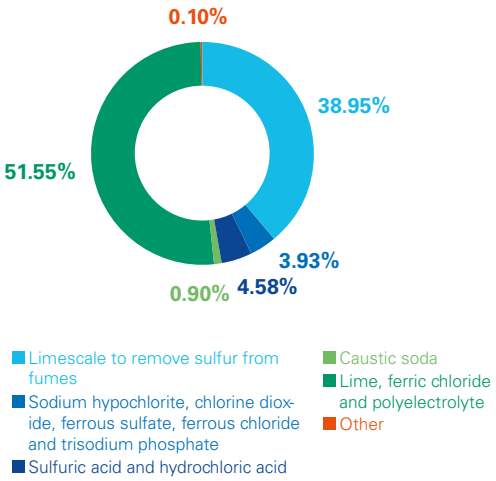
Water for industrial use

Total requirement:
1,978,941 (m^3)

Total fresh water drawn off:
1,159,749 (m^3)

Consumables

Total: **19,151.25** (t)



Special waste

Total produced:
113,654 (t)

Total transferred for recovery:
0 (t)

Non-hazardous (t)

Total: **112,593**

	Coal ash	Gypsum from desulfurization	Other
Produced	105,270	6,885	438
Transferred for recovery	0	0	0

Hazardous (t)

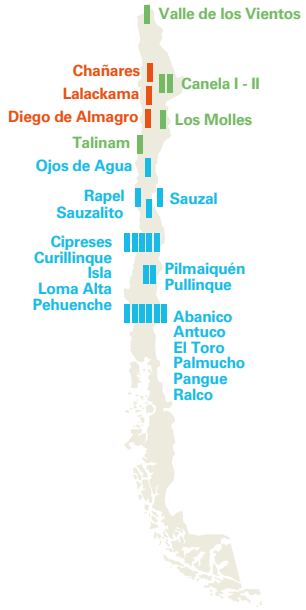
Total: **1,060**

	Light ash from fuel oil	Other
Produced	0	1,060
Transferred for recovery	0	0

Chile

Production from renewable sources

Power plants



Enel Green Power SpA

- Hydroelectric power plant
- Wind power plant
- Solar power plant

The numbers

Plants
31

Net maximum capacity (MW)
4,682

Production (GWh)
11,348

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	13	26	887
	Basin/reservoir	6	14	2,661
Total Hydro		**19**	**40**	**3,548**

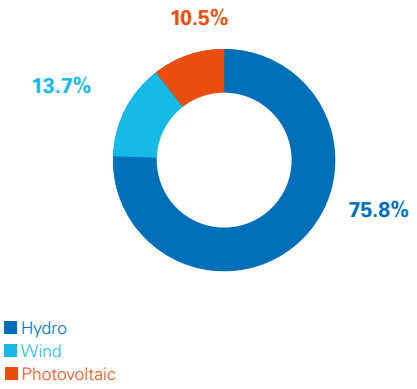
	No. power plants	No. units	Net maximum capacity (MW)
Wind	9		642
Photovoltaic	3		492
Total	**31**	**40**	**4,682**

Chile

Production from renewable sources

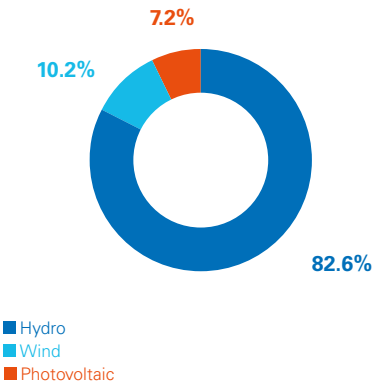
Net maximum capacity

Total: **4,682** (MW)



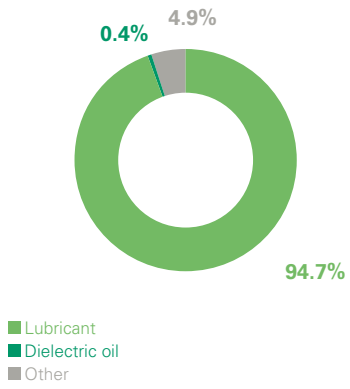
Net electricity production

Total: **11,348** (GWh)



Consumables

Total: **14.3** (t)

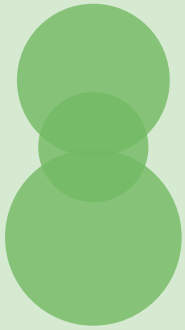


Equivalent annual hours of use* 2016

Wind
1,819

Photovoltaic
1,648

Hydro
2,642



* Annual production/power ratio.

CO_2 emissions avoided (t)

Total: **7,659,842.6**

Hydro
6,328,075

Wind and Photovoltaic
1,331,767

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Other data

Wind and photovoltaic power plants
Surface area occupied by lay-bys, roads, buildings: **3,483.62** (ha).

Special waste (t)

Total produced: **541.1**

Non-hazardous: **469**

Hazardous: **72.0**

Total transferred for recovery: **4.34**

Non-hazardous: **0.04**

Hazardous: **4.3**

Enel Distribución Chile SA

The numbers

Cabins
21,931

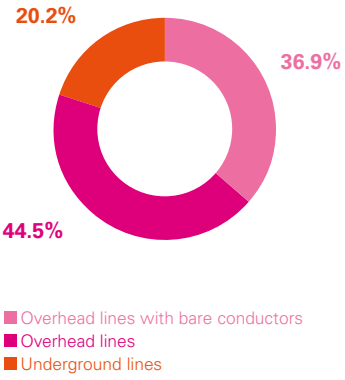
Capacity (MVA)
12,786

Total lines (km)
17,045

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary	52	8,251
MV/LV secondary	21,876	4,505
Other secondary	3	30
Total	**21,931**	**12,786**

Power lines (length in km)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total
HV	352	0	11	363
MV	2,566	1,577	1,108	5,251
LV	3,278	5,890	2,263	11,431
	6,196	7,467	3,382	17,045



Chile

Electricity distribution

General data

Municipalities served: **33**

Surface area served: **2,105** (km^2)

Customers connected to company network: **1,825,519** (of whom supplied: 1,825,513)

Electricity (million kWh)

Distributed in total: **13,736**

Own consumption to operate network: **6.7**

Atmospheric emissions (t)

SF_6: 8.4 (kg)
(t equiv. of CO_2) **186**

Total greenhouse gas:
(t equiv. of CO_2) **186**

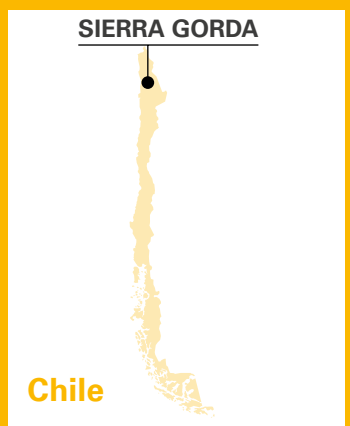
Special waste (t)

	Non-hazardous	Hazardous	Total
Produced	41,065	72	41,137
Transferred for recovery	30,336	62	30,398

Access to electricity

Eco-technology school

7 AFFORDABLE AND CLEAN ENERGY



Location: Sierra Gorda - Antofagasta
Business line: Renewables
Asset: Sierra Gorda
Installed Capacity: 112 MW

BD E&C O&M

Sub Category: Promoting Energy Awareness
2016 Beneficiaries: 30
Planning: 01/01/2015 - 17/10/2016
Partners: Local NGO, Local Municipality

Business issue

Reduce the environmental footprint by reusing and creating value from the disposal of material from the Sierra Gorda Este wind power plant.

Project

Sierra Gorda is a Chilean municipality of Antofagasta. In this small town with a high proportion of miners, the demographics show a higher than average percentage of women who are heads of households and support the family.
The project involves constructing a training center and involving SMEs made up of 30 women who are trained in bio-construction and furniture-making techniques, allowing them to create the first school of eco-technologies in Chile. This building will function as a training center for household photovoltaic systems, ecological furniture and green building and will be built using only waste material from the wind farm: 1,200 pallets, 300 plastic items. These were used to build the complete structure of the school and the wood was also used to build the furniture for the plant's O&M office. The center is powered through bicycles and solar panels and this energy will be used in a movie theater, a building for community use.

https://www.enelgreenpower.com/en/people-and-innovation/a201701-the-cinema-with-pedals-and-eco-technology.html

Value for Enel

Reducing the industrial costs of the waste management of the plant such as: storage, removal of containers, transport of material to authorized landfill.

Value for stakeholders

Development of local entrepreneurship and promotion of female empowerment; creation of new job opportunities.

Related project by assets
SIERRA GORDA:
Ecoparque Sierra Gorda

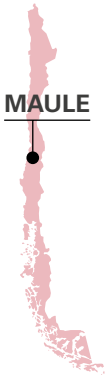
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

Education

Growing green



Chile

Location: Maule
Business line: Renewables
Asset: CCHH del Maule
Installed Capacity: 884 MW

BD | E&C | O&M

Sub Category: Education
2016 Beneficiaries: 210
Planning: 01/03/2016 - 27/05/2016
Partners: Escuela Diferencial de San Clemente

Business issue

Ensure the successful operation of the plant in the territory; accompany the construction of the Los Cóndores project; maintain favorable conditions for the development of new projects in the territory.

Project

- Greenhouse Construction: built a greenhouse with a galvanized self- supporting steel structure. This entailed finding all the material for a self-supporting structure and the necessary equipment for the implementation of irrigation with pumps, sprinklers, etc. In addition there is also everything that is needed for students to start cultivating their plants.
- Construction of Noria or Water Wheel: This element is of vital importance for the functioning of the greenhouse. It is considered necessary to supply water for the irrigation and proper maintenance of the structure.

The goal is to provide infrastructure for students to be able to sow and care for their plants; achieve a suitable cropping process; develop the capabilities for selling these products in order to promote a self-sustainable project.

Value for Enel

Adequate generation of electricity referring to the hydroelectric plants of the Maule region and the construction of Los Cóndores Project.

Value for stakeholders

Greater opportunities for the development of the territory through programs of shared value and social development driven by the company.

Related project by assets
CCHH DEL MAULE:
24 Projects
https://www.enelchile.cl/en.html

Support to local communities

Huinay Foundation

14 LIFE BELOW WATER

Chile

Location: Los Lagos
Business line: Renewables, Others

BD E&C O&M

Sub Category: Protecting the environment and biodiversity
2016 Beneficiaries: 25,406
Planning: 01/12/2001 - 31/12/2020
Partners: Catholic University of Valparaíso

Business issue

Environmental aspects.

Project

As of 1998, the Huinay San Ignacio Foundation, a private non-profit organization founded by the Catholic University of Valparaíso and Endesa, has worked to promote the value of the natural heritage of Huinay. The Foundation's objective for the future is to achieve a more consistent sharing of its results with the rest of the scientific community and society at large, as well as to implement new projects that create shared value. The opportunity is to have Huinay become a model of sustainability for the Enel Group. Today, the Huinay marine park hosts flamingos, chinchillas, nutrias, guanacos, anemones and corals. To protect some of these endemic species, such as Cupressaceace, a special nursery has been built. Until a few years ago, these species were practically ignored by researchers, because it was too hard to access. In fact, the park can only be reached by first traveling by plane, then via a three-hour car ride and lastly via another three-hour motorboat ride.
Today, thanks to exploratory expeditions and research projects funded by the Foundation, 74 new plant and animal species have been discovered, including some coldwater corals that have been given the scientific names of *Tethocyathus Endesa* and *Caryophylia Huinayensis*.

Value for Enel

Contribute with scientific knowledge to compliance with biodiversity plans.

Value for stakeholders

Environmental protection and therefore a better quality of life.

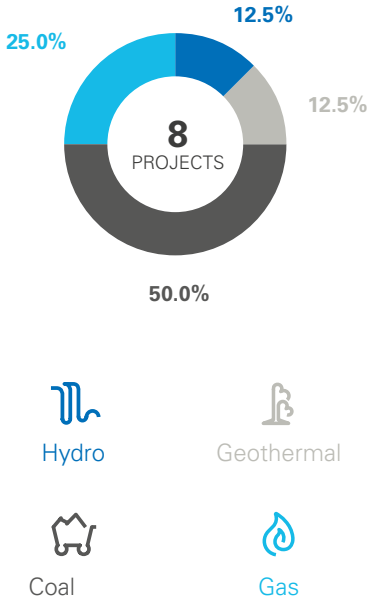
Related info of project
http://www.huinay.cl/site/sp/index.html

15 LIFE ON LAND

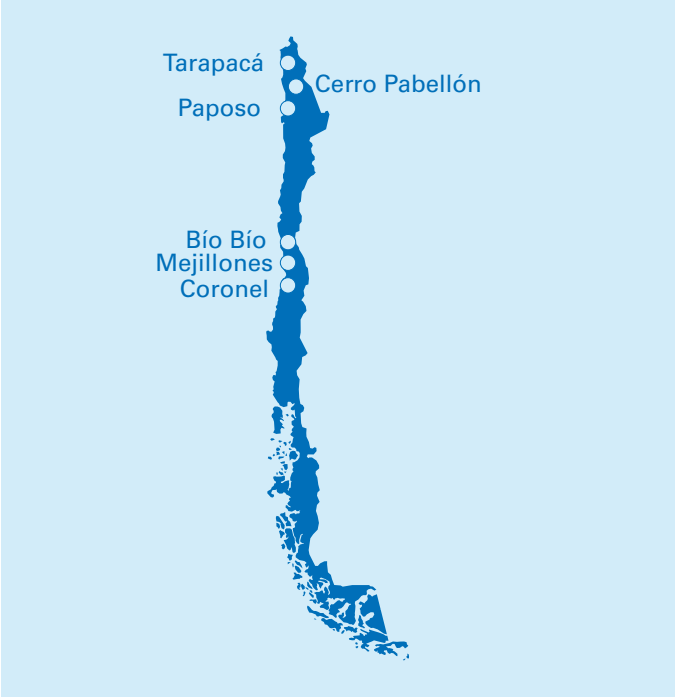
Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)



Most important projects

Project	Description
Monitoring program for biota and water quality in the Bío Bío river watershed	The study of biota and water quality in the site of the Ralco hydroelectric plant aims to assess the environmental status of the section of the Bío Bío river affected by the plant. The current state of the section is compared to the initial state before filling the reservoir (the baseline period). This makes it possible to detect any changes in water quality and biota.
Fauna and flora rescue and monitoring programs at the Cerro Pabellón geothermal plant	The program aims to mitigate the impact on fauna (birds, bats, mammals, ants and butterflies) and flora by rescuing and freeing wildlife during suppression activities. Flora was transplanted before the vegetal suppression.

Monitoring of marine mammals and birds in the Punta Patache coastal zone around the Tarapacá power plant	The program aims to assess the presence of birdlife and mammals in the marine environment of Punta Patache, classifying the richness of species, the size and distribution of birdlife and mammals. The program will also analyze the degree of conservation of the species recorded and the potential risks due to the presence of the plant.
Monitoring of vegetation plots in the Paposo desert coastal zone, near the Taltal electric power plant	Program to analyze parameters of biodiversity, abundance and distribution of fauna on the seabed in areas close to the plant's discharge areas.
Environmental monitoring plan on the marine environment in Mejillones bay, near the Atacama combined cycle power plant	Program to analyze parameters of biodiversity, abundance and distribution of fauna on the seabed in areas close to Atacama thermoelectric power plant's discharge and remote control areas.
Environmental monitoring plan on the marine environment in Coronel bay, near the Bocamina power plant	Spatio-temporal analysis of the composition and ecological characterization of the fauna and of the coastal macrobenthic community in the bay near the waste discharge area of the plant.
Marine biomass quantification in relation to water consumption at Bocamina power plant (Units I and II)	Project to quantify the biomass in the water intake of the plant, with daily and monthly reporting. The following are assessed: the type, size and abundance of the species captured by the filters in the reservoirs in relation to tidal cycles.

Compared to 2015 total production was stable. The fall in production from hydroelectric (-26%) was offset by higher thermoelectric production from coal (+74%) and gas (+32%) and from the coming into full operation of new renewable power plants during the year.

G4-EN1 G4-EN3 The fuel mix compared to 2015 changed both in terms of the total (+24%) and the individual components, with an increase in the use of coal (+75%) and gas (+6%) and a fall in the consumption of gas oil (-11%).

G4-EN15 G4-EN16 Specific thermoelectric emissions of CO_2 (in other words only those referring to thermoelectric production) fell by 3% compared to the previous year in relation to the different thermoelectric production mix. The country's specific emissions increased in relation to the higher thermoelectric production and the lower production from renewable sources compared to the previous year.

G4-EN19 Renewable production (wind, hydroelectric and photovoltaic) avoided the atmospheric emission of around 7,659,843 tons of CO_2.

G4-EN21 The emissions of SO_2 and NO_x fell respectively by 12% and 13% compared to the previous year. Emissions of particulate matter rose slightly (+6%).

G4-EN24 Total and volume of significant spills
During 2016 there were 20 spills of oil for a total volume of 9.489 m^3.

G4-EN27 Initiatives to reduce the environmental impacts of products and services and the extent of the mitigation of such impacts

Emissions: Tarapacá Plant: in December 2016, the DeSOx project came into operation to reduce emissions of SO_2 and NO_x. The results will be measured during 2017.

Noise: Bocamina Plant: in November 2016 noise-dampening work was carried out in order to reduce the nighttime noise of the unloading of coal from the south pier.

Waste: Tarapacá Plant: during the maintenance work in April and May 2016 a program for the correct management of waste generated by maintenance was developed in order to train staff, establishing an area for the temporary storage of non-hazardous industrial waste with sanitary authorization.

New plants:
April 2016: Enel completed and connected to the grid **Los Buenos Aires** wind farm, the Group's first wind farm in the region of Bío Bío. The wind farm is around 500 kilometers south of Santiago and has an installed capacity of 24 MW and can generate more than 86 GWh yearly, equivalent to the annual consumption needs of around 40,000 Chilean households, while avoiding the emission of around more than 41,000 tons of CO_2 per year into the atmosphere. The power generated by Los Buenos Aires will be delivered to Chile's central region transmission network SIC (*Sistema Interconectado Central*).
May 2016: **Finis Terrae**, the Group's largest solar plant in Chile was completed and connected to the grid. The facility is located in the municipality of María Elena in the Antofagasta Region,

around 1,300 kilometers north of the capital Santiago, has an installed capacity of 160 MW and can generate more than 400 GWh yearly, equivalent to the annual consumption needs of around 198,000 Chilean households, while avoiding the emission of more than 198,000 tons of CO_2 per year into the atmosphere. The power generated is delivered to Chile's Northern Region Transmission Network, SING (*Sistema Interconectado del Norte Grande*).

September 2016: Enel completed and connected to the grid **La Silla** plant, a utility-scale PV plant that combines the use of innovative bifacial and smart modules with conventional modules for side-by-side testing. The plant was named after the neighboring astronomical observatory it will supply with clean energy. The PV plant and the observatory are located on a hill near the commune of La Higuera in the Coquimbo Region, on the outskirts of the Atacama Desert, 600 kilometers north of Chilean capital Santiago. The innovative smart PV modules boast a microchip that optimizes production from each panel by allowing it to deliver electricity to the grid regardless of any eventual malfunctions affecting other panels; the bifacial modules capture solar energy from both sides of the PV panel as opposed to traditional modules, which capture energy from just one side of the panel.

The facility is capable of generating approximately 4.75 GWh each year, equivalent to the electricity needs of approximately 2,000 Chilean households and more than 50% of the observatory's annual power consumption. The energy generated by La Silla will avoid the emission of over 2,000 tons of CO_2.

December 2016: Enel completed and connected to the grid the **Sierra Gorda** wind farm, which is located in the municipality of the same name which is around 60 kilometers from Calama, in Chile's Antofagasta Region. The plant, with installed capacity of 112 MW, will be capable of generating more than 295 GWh each year once fully operational, equivalent to the annual power consumption needs of around 130 thousand Chilean families, thus avoiding the emission of over 140 thousand tons of CO_2. The energy generated by Sierra Gorda will be delivered to the transmission network of Chile's northern region, SING (*Sistema Interconectado del Norte Grande*).

Colombia

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric production	
Emgesa SA ESP	Enel Green Power SpA Emgesa SA ESP	Codensa SA ESP

Colombia

Average number of customers

2,986,719

Length of power lines (km)

50,202

Total net production (GWh)

14,952

Installed capacity (MW)

3,457

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
1,895	**1,327**	**568**	**1,895**	**-**

Health and Safety

Staff of contractors*

15,635

LTIFR
Lost Time Injuries Frequency Rate

Enel **-**

Contractors
0.17

LDR
Lost Day Rate

Enel **-**

Contractors
4.35

Seriousness index**

-0.12

Frequency index**

-0.69

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Colombia

Thermoelectric production

Power plants

Thermoelectric power plant

- Coal
- Oil and gas

The numbers

Plants
2

Net maximum capacity (MW)
411

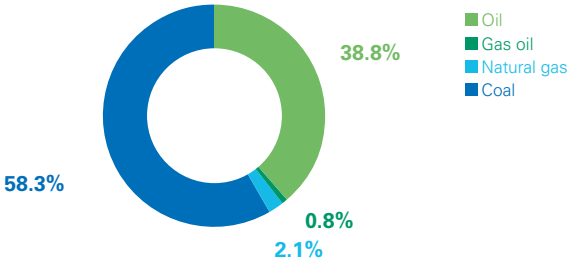
Production (GWh)
920

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Steam (condensation)	2	7	411
Total	**2**	**7**	**411**

Fuel consumption

Total: **283,923** (t of oil equivalent)



Waste waters

Discharged:
52,033.6 (m^3)

Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Colombia

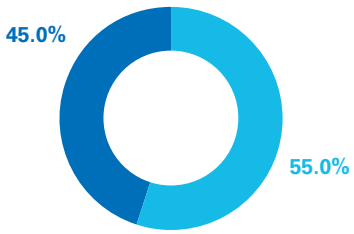
Thermoelectric production

Atmospheric emissions

NO_x (t)	2,300
SO_2 (t)	7,367
Particulate matter (t)	337
CO_2 from combustion (t)	929,132

Water for industrial use

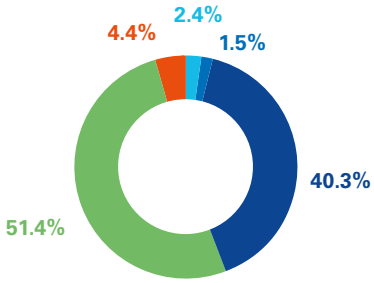
Total requirement: **189,035** (m^3)
Total fresh water drawn off: **189,035** (m^3)



- From river
- From aqueducts

Consumables

Total: **358.5** (t)



- Resins, hydrazine, carbohydrazide and oxygenated water
- Sodium hypochlorite, chlorine dioxide, ferrous sulfate, ferrous chloride and trisodium phosphate
- Sulfuric acid and hydrochloric acid
- Caustic soda
- Other

Special waste

Total produced: **35,979** (t)

Total transferred for recovery: **525** (t)

Non-hazardous waste (t)

Total produced: **73,651**
Total transferred for recovery: **327**

	Coal ash	Oil bottom ash	Other
Produced	34,968	0	901
Transferred for recovery	0	0	523

Hazardous waste (t)

Total produced: **110**
Total transferred for recovery: **2**

	Light ash	Other
Produced	14	96
Transferred for recovery	0	2

Colombia

Production from renewable sources

Power plants

The numbers

Plants
11

Net maximum capacity (MW)
3,046

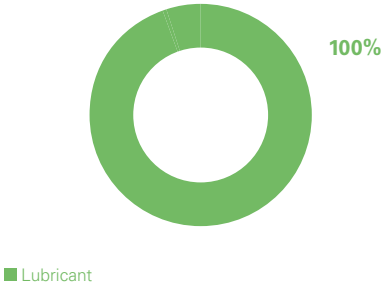
Production (GWh)
14,031

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	7	26	920
	Basin/reservoir	3	14	2,126
	Pure/mixed pumping	1	0	0
Total		**11**	**40**	**3,046**

Consumables

Total: **14.9** (t)



CO_2 emissions avoided (t)

Hydro
9,569,142

Equivalent annual hours of use* 2016

Hydro
4,606

* Annual production/power ratio.

Special waste (t)

Total produced:
3,045.8

Non-hazardous: **2,937.4**

Hazardous: **10.4**

Total transferred for recovery:
80.5

Non-hazardous: **80.3**

Hazardous: **0.2**

Colombia

Electricity distribution

Codensa SA ESP

Office of the Group company which undertakes the business (Codensa)

The numbers

Cabins
70,443

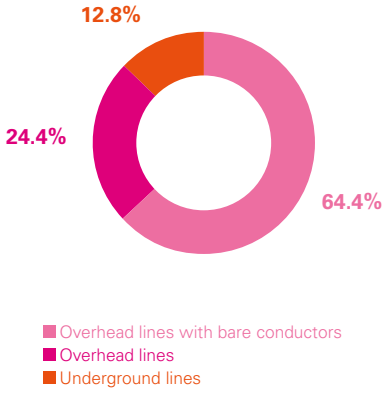
Capacity (MVA)
17,865

Total lines (km)
50,202

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary	55	7,989
MV/LV secondary	70,327	9,492
Other secondary	61	384
Total	**70,443**	**17,865**

Power lines (length in km)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total
HV	1,247	0	0	1.247
MV	16,553	622	3,418	20,593
LV	14,000	11,440	2,921	28,361
	31,800	12,062	6,340	50,202



Colombia

Electricity distribution

General data

Municipalities served: **102**

Surface area served: **14,456** (km^2)

Customers connected to company network: **2,957,692** (of whom supplied: 2,950,841)

Electricity (million kWh)

Distributed in total: **13,736**

Own consumption to operate network: **6.7**

Atmospheric emissions (t)

SF_6: 171 (kg)
(t equiv. of CO_2) **3,805**

Total greenhouse gas:
(t equiv. of CO_2) **3,805**

Special waste (t)

Total produced: **46,222**

Non-hazardous: **46,041**

Hazardous: **181**

Total transferred for recovery: **4,756**

Non-hazardous: **4,642**

Hazardous: **114**

Support to local communities

Bosque Renace

15 LIFE ON LAND

Colombia

Location: Soacha/ Cundinamarca
Business line: Market and Thermal Generation
Asset: Codensa Cundinamarca - Cadenas Pagua and Salaco
Installed Capacity: N/A

BD E&C O&M

Sub Category: Protecting the environment and biodiversity
2016 Beneficiaries: 1,462
Planning: 21/11/2012 - 31/12/2017

Business issue

Contribute to the sustainability of water resources and species of fauna and flora of the region where we operate.

Project

Preserving biodiversity is one of the strategic objectives of Enel's environmental policy. The Group in fact promotes and has developed a sustainability initiative for the restoration and protection of 690 hectares of High Andean forest: CODENSA - EMGESA RENACE FOREST - NATURAL RESERVE. This space contributes to the conservation of flora and fauna species native to the Tequendama area, and to the connectivity of the ecosystems located in the middle and lower basin of the Bogotá River, which include the parks of Chicaque and La Poma. We have planted various native species, including Alders, Myrtles, Citharexylum, Viburnums and *Morella pubescens*. These trees have been planted by our workers and their families, our customers, student groups and social foundations, among others.

Value for Enel

Maintain the company's commitment towards climate action by mitigating the impacts of climate change. Follow the Group's biodiversity policy by nourishing community relations through active stakeholder engagement.

Value for stakeholders

Raise environmental awareness and responsibility through workshops, ecological tours and voluntary activities with local stakeholders. Protect the local flora and fauna, identifying vulnerable species as well as ones that are in the process of extinction and working on preserving them.

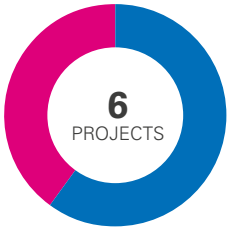
Related project by assets
CUNDINAMARCA
Flight days
The world of energy
Seed Plan
Educating with energy
Connect with energy

13 CLIMATE ACTION

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Hydro

Grid

Most important projects (map)

Most important projects

Project	Description	
Environmental restoration plan at El Quimbo power plant	Rehabilitation of ecosystems and habitats in the areas affected by the El Quimbo power plant.	
Characterization of flora and fauna in the reservoirs of the Dario Valencia, Central Paraíso and Casalaco hydroelectric power plants	Characterization, assessment and restoration of ecosystems and the dissemination of environmental culture in the area directly affected by the three hydroelectric power plants.	
Study of fauna and flora around the Mambita community (El Guavio hydroelectric power plant)		

Renace forest	The Renace forest is a restoration and protection initiative for 690 hectares of High Andean forest. This land contributes to the conservation of flora and fauna species native to the Tequendama area, and to the connectivity of the ecosystems located in the middle and lower basin of the Bogotá River, which includes the parks of Chicaque and La Poma.	Charquito micro-hydroelectric power plant
Rescue, transfer, relocation and maintenance of threatened species (vascular epiphytes – surface plants) at Nueva Esperanza	As part of the project to build and connect to the grid the Nueva Esperanza sub-station (115 kV), it is planned to undertake a program of recovery and replanting of 27 species of vascular epiphytes of significant naturalistic value.	Grid - Nueva Esperanza sub-station

Compared to 2015 total production rose by around 6%. The contribution from thermoelectric was below that of the previous year (production from coal fell by 48% compared to the previous year) but was offset by production from renewable sources.
Hydroelectric production rose by almost 15% thanks to the contribution of the hydroelectric plant of El Quimbo, which came into operation in October 2015.
The power plant, which has installed power of 400 MW, is located in the Huila Region, around 350 kilometers south-west of Bogotá and is powered by the Magdalena, the country's biggest river.

G4-EN1 G4-EN3 The fuel mix compared to 2015 changed in terms of fossil fuels, with an increase in the consumption of fuel oil, which went from 26% in 2015 to 39% in 2016 in relation to the lower consumption of coal.

G4-EN8 There was a fall of around 33% in the net specific requirement of water for industrial use in thermoelectric production due to the lower production with coal.

G4-EN21 Compared to 2015 there was a fall in emissions of SO_2 and NO_x of 41% and of particulate matter of 46% owing to the lower thermoelectric production.

G4-EN19 CO_2 emissions avoided owing to hydroelectric production totaled around 9.5 million tons.

G4-EN15 G4-EN16 Net specific emissions of CO_2 fell by almost 40% in relation to the change in energy production mix.

G4-EN24 Total and volume of significant spills
Codensa: there was a spill from a transformer for a total of 0.23 m^3 of oil.
Enel Green Power: there was a spill of oil in a hydroelectric power plant of 1.86 m^3.

G4-EN27 Initiatives to reduce the environmental impacts of products and services and the extent of the mitigation of these impacts

Materials: Codensa: it is required and checked that the supply sources for resources and materials are from sites authorized by the Environmental Authority.

Waters: Codensa has underway an efficient use program in administrative offices through initiatives to promote reduced consumption.

Emissions: Codensa undertakes a program to monitor emissions of SF_6 and to control emissions from vehicles.

Noise: Codensa responds opportunely to customers' requests regarding the noise generated by installations by applying specific corrective methods depending on the situation.

Costa Rica

Production from renewable sources

> Hydroelectric production

Enel Green Power SpA

Costa Rica

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	122	81

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
61	46	15	61	-

Health and Safety

Staff of contractors*

901

LTIFR
Lost Time Injuries Frequency Rate

Enel **1.18**

Contractors **0.25**

LDR
Lost Day Rate

Enel **11.80**

Contractors **2.77**

Seriousness index

-

Frequency index

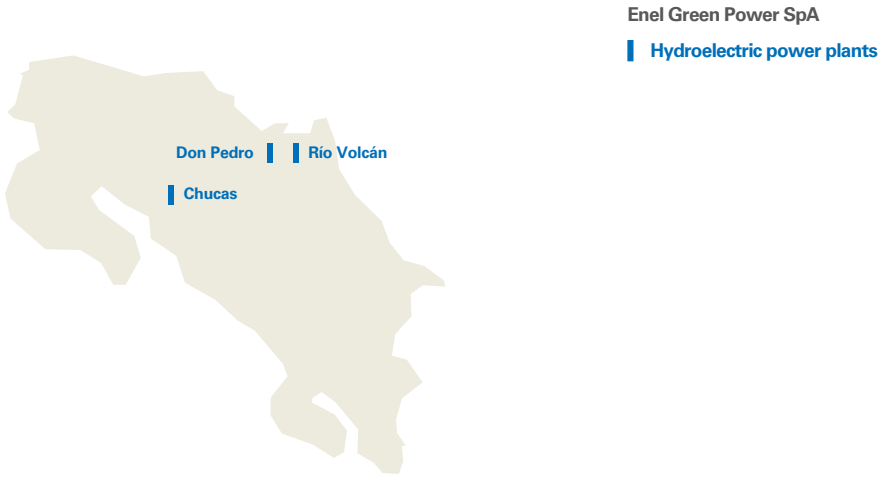
-

* Calculated in FTE (Full Time Equivalent).

Costa Rica

Production from renewable sources

Power plants



The numbers

Plants
3

Net maximum capacity (MW)
81

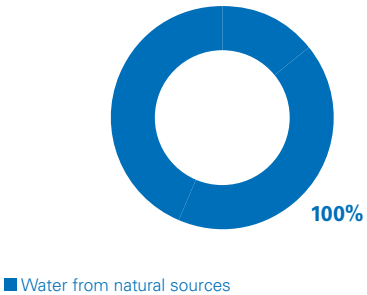
Production (GWh)
122

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Basin/reservoir	3	2	81
Total		**3**	**2**	**81**

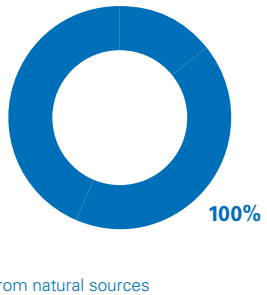
Net maximum capacity

Total: **81** (MW)



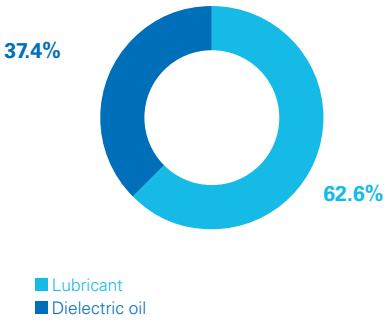
Net electricity production

Total: **122** (GWh)



Consumables

Total: **0.2** (t)



Costa Rica

Equivalent annual hours of use* 2016

Hydro
1,511

Emissions of CO_2 avoided (t)

Hydro from natural sources
86,010

Special waste (t)

Total produced: **0.55**

Non-hazardous: **0.35**

Hazardous: **0.20**

Total transferred for recovery: **0**

Non-hazardous: **0**

Hazardous: **0**

* Annual production/power ratio.

Enel operates in Costa Rica with Enel Green Power in energy production from hydroelectric. Electricity production fell compared to 2015 by 47% owing to the absence, compared to the previous year, of wind production,and secondly due to the reduced operation of the hydroelectric power plants,the total production from which fell by 19%.

G4-EN19 CO_2 emissions avoided due to hydroelectric production totaled around 86 thousand tons.

Guatemala

Production from renewable sources

> Hydroelectric production

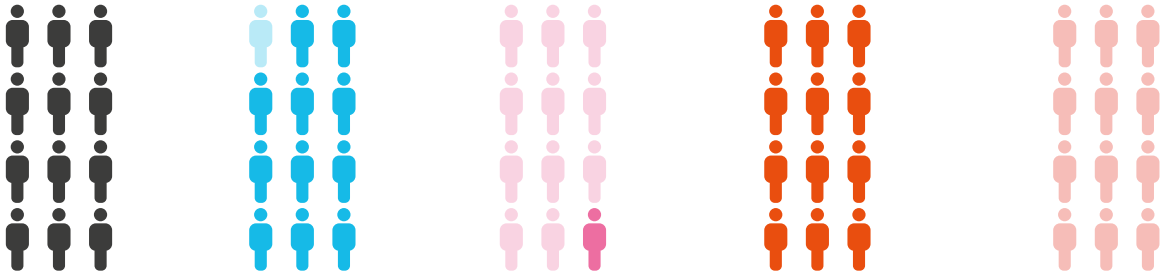
Enel Green Power SpA

Guatemala

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	369	164

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
117	104	13	117	-



Guatemala

Production from renewable sources

Power plants

Enel Green Power SpA

Hydroelectric power plant

The numbers

Plants
5

Net maximum capacity (MW)
164

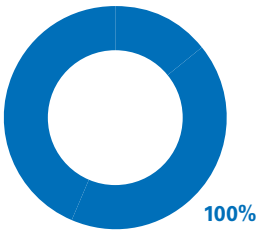
Production (GWh)
369

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Basin/reservoir	5	5	164
Total		**5**	**5**	**164**

Net maximum capacity

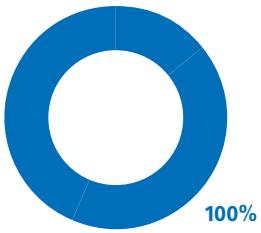
Total: **164** (MW)



Water from natural sources

Net electricity production

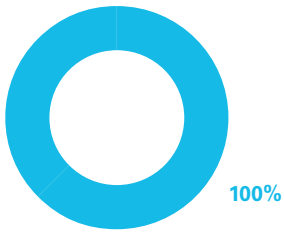
Total: **369** (GWh)



Water from natural sources

Consumables

Total: **1.4** (t)



Lubricant

Guatemala

Production from renewable sources

Equivalent annual hours of use* 2016

Hydro
2,120

Emissions of CO_2 avoided (t)

Hydro from natural sources
292,908

Special waste (t)

Total produced: **63**

Non-hazardous: **50**

Hazardous: **13**

Total transferred for recovery: **0**

Non-hazardous: **0**

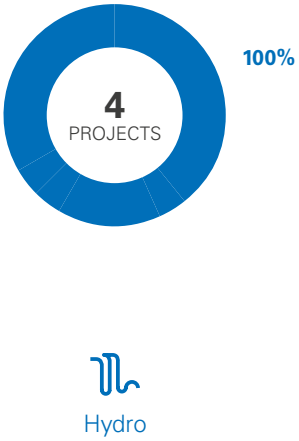
Hazardous: **0**

* Annual production/power ratio.

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)

Most important projects

Project	Description
Establish the wildlife's baseline in winter (various taxonomies such as mammals, birds, amphibians, fish, macroinvertebrates, reptiles, and others) at the El Canadá and Montecristo, Matanzas and San Isidro, and Palo Viejo hydroelectric power plants	These studies are intended to assess the impact of the plant in the local environment and to demonstrate to the community that the company and its projects can be developed without affecting the local flora and fauna.

Enel operates in Guatemala with Enel Green Power in hydroelectric production.
Electricity production from hydroelectric fell compared to 2015 by 36%.

G4-EN19 CO_2 emissions avoided due to hydroelectric production totaled around 293 thousand tons.

México

Production from renewable sources

> Hydroelectric, wind and photovoltaic production

Enel Green Power SpA

México

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	1,781	728

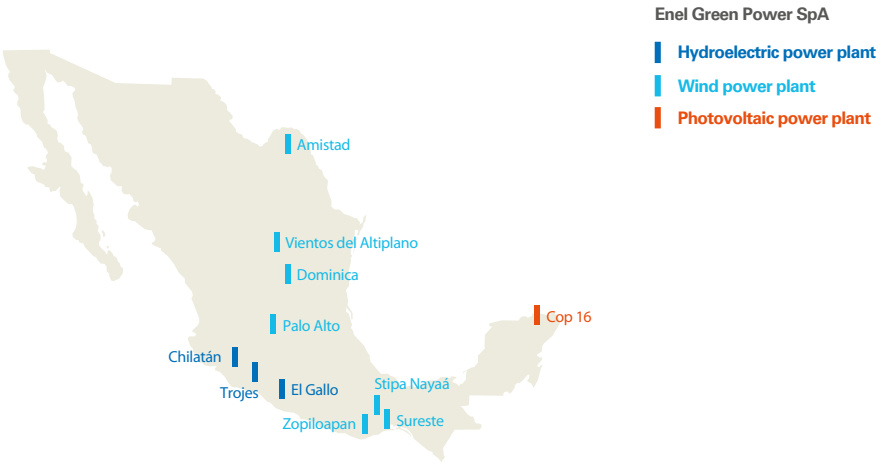
Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
187	141	46	187	-

México

Production from renewable sources

Power plants



The numbers

Plants
11

Net maximum capacity (MW)
727.63

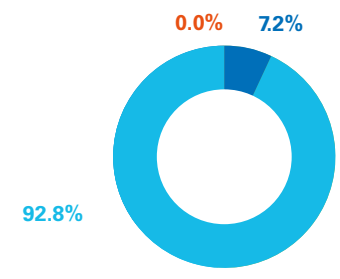
Production (GWh)
1,781

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Basin/reservoir	3	3	52.5
Wind		7		675
Photovoltaic		1		0.13
Total		**11**	**3**	**727.63**

Net maximum capacity

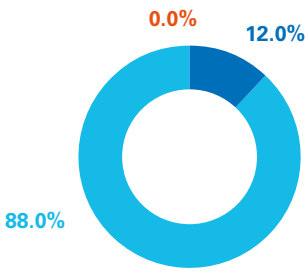
Total: **727.63** (MW)



Water from natural sources
Wind
Photovoltaic

Net electricity production

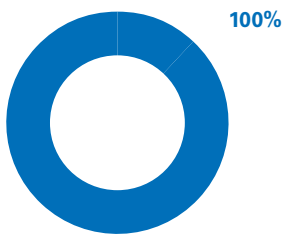
Total: **1,781** (GWh)



Water from natural sources
Wind
Photovoltaic

Consumables

Total: **3.6** (t)



Lubricant

México

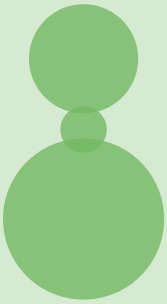
Equivalent annual hours of use* 2016

Total: **6,606**

Wind
2,322

Photovoltaic
212

Hydro
4,072



Special waste (t)

Total produced: **17.8**

Non-hazardous: **2.8**

Hazardous: **15.0**

Total transferred for recovery: **0**

Non-hazardous: **0**

Hazardous: **0**

* Annual production/power ratio.

Emissions of CO_2 avoided (t)

Total: **984,942**

Hydro from natural sources
118,338

Wind
866,549

Photovoltaic
55

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Social and Economic Development

Homegardens

8 DECENT WORK AND ECONOMIC GROWTH

México

Location: Mazapil, Zacatecas
Business line: Renewables
Asset: Vientos del Altiplano
Installed Capacity: 100 MW

BD E&C O&M

Sub Category: Supporting entrepreneurial activities in the community
2016 Beneficiaries: 40
Planning: 01/07/2016 - 28/04/2017
Partners: Universidad Autonoma de Chapingo

Business issue

Due to the lack of productive options and agricultural alternatives, the population migrates in search of sources of employment.
It is hoped to provide alternatives for young people to develop orchards, vegetables, fruit trees and poultry production to support food supply and generate income.

Project

Installation and workshops for Kitchen gardens will be developed in schools in the towns of Majoma and Primero de Mayo and aim to provide practical training and experience to producers, students and residents (housewives) in those locations. They seek participants in order to generate up to 6 (six) Kitchen gardens. The crops must have the following characteristics: nutritional supplement and benefits for family income and/or act as natural pharmacy products.

Value for Enel

Strengthen relationship with stakeholders.

Value for stakeholders

Strengthen skills, improve access to sustainable and healthy food. Use eco-technologies. Mainstreaming sustainability for production of vegetables, medicinal plants, fruit for the reinstatement of backyard gardening activities.

Related project by assets
VIENTOS DEL ALTIPLANO
Forestry Nursery
Connecting Majoma
Machinery for rehabilitation
Rangeland management

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

Social and Economic Development

Una mano para la vida

8 DECENT WORK AND ECONOMIC GROWTH

México

Location: Charcas, San Luis Potosí

BD E&C O&M

Sub Category: Skills transfer and capacity building of local people
2015 Beneficiaries: 900
Partners: Fundacion Produce San Luis and Presidecia Municipal de Charcas

Value for the stakeholders

Reforest impacted areas, new job opportunities, favour entry into the working world and technical training for populations residing in the areas.

Business issue

Deforestation impacts due to construction phase of the wind farm and low income community living on agriculture. Respond to the requirements of National Forestry taking into account the community's needs and peculiarities.

Project

Enel Green Power began with a reforestation project of more than 180,000 specimens to compensate for areas that were deforested due to the construction of the wind farm as required by the National Forestry Plan. EGP performs this activity through a plan of "temporary employment" for people of the same community and supports local agribusiness development.
This is one of the first sustainable construction sites in Mexico.

Main activities:

- Production of ornamental cacti: through the construction of a greenhouse and through training, residents learn to produce cacti and then sell them at a local level.
- Escamoles Project – Maguey: sustainable use of Escamoles nests (eggs of *Liometopum apiculatum*). Decrease the ecological impact of harvesting Escamoles by local communities.The goal is to replicate this program in surrounding communities.
- Maguey Mills Project for food in drought: use of cactus and maguey as a food supplement for livestock in times of drought. In addition to providing training to improve and/or refine the food in combination with other plants and seeds instead.

Value for Enel

Cost saving thanks to the 3-year training and technical assistance provided by the National Forestry reforestation program, improving relations with the region, promoting skilled labor in order to attract new clients. Awareness of wind technology.

Related project by assets
Achieve gender equality and empower all women and girls
End hunger, achieve food security and improved nutrition and promote sustainable agriculture

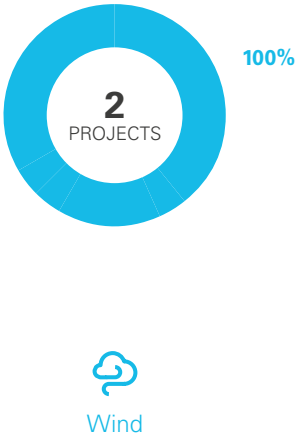
5 GENDER EQUALITY

2 ZERO HUNGER

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)

Most important projects

Project	Description
Program to safeguard fauna and flora and monitor birds at the Vientos del Altiplano wind power plant	
Programs to monitor birds and bats at the Stipa Nayaá power plant	The movements of birds and bats were identified by direct observation in the research area involved, while the mortality rate was calculated by searching for victims around each turbine. The sampling and identification of accidental deaths were carried out by scientists.

México

Enel operates in Mexico with Enel Green Power, producing hydroelectric, wind and photovoltaic energy in central and south Mexico.

In 2016 the second phase was opened of Enel Green Power's Sureste I wind farm. The plant, which is located in the region of the Isthmus of Tehuantepec, in the State of Oaxaca,consists of 34 turbines for installed power of 102 MW.

Enel, through its renewables subsidiary in Mexico Enel Green Power México (EGPM), also completed and linked to the national grid two new wind farms: Palo Alto, of 129 MW, in the State of Jalisco, and Vientos del Altiplano, of 100 MW, in the State of Zacatecas.

Therefore, installed net power in the country reached 728 MW (+46% compared to 2015) with annual electricity production growing by 30% (with wind growing by 36%, whereas hydroelectric and photovoltaic production were practically unchanged).

Consumables rose from 0.8 tons in 2015 to 3.6 tons in 2016 and special waste stood at 17.8 tons.

G4-EN19 CO_2 emissions avoided due to carbon free production totaled almost 1 million tons.

Panama

Production from renewable sources

> Hydroelectric and photovoltaic production

Enel Green Power SpA

Panama

Average number of customers

-

Length of power lines (km)

-

Total net production (GWh)

1,367

Installed capacity (MW)

325

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
106	77	29	106	-

Health and Safety

Staff of contractors*

606

LTIFR
Lost Time Injuries Frequency Rate

Enel -

Contractors
0.19

LDR
Lost Day Rate

Enel -

Contractors
5.62

Seriousness index

-

Frequency index

-

* Calculated in FTE (Full Time Equivalent).

Panama

Production from renewable sources

Power plants

The numbers

Plants
4

Net maximum capacity (MW)
325

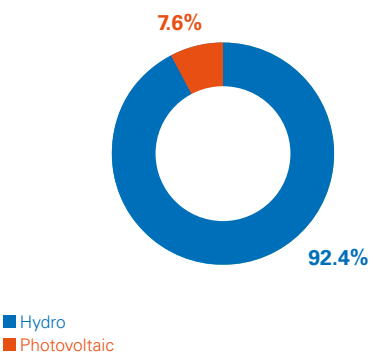
Production (GWh)
1,367

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Basin/reservoir	1	1	300
Photovoltaic		3		25
Total		**4**	**1**	**325**

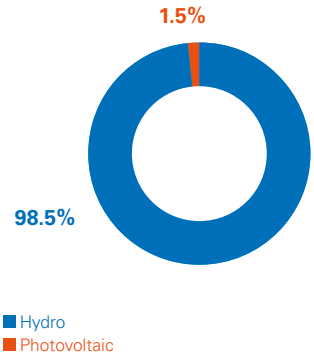
Net maximum capacity

Total: **325** (MW)



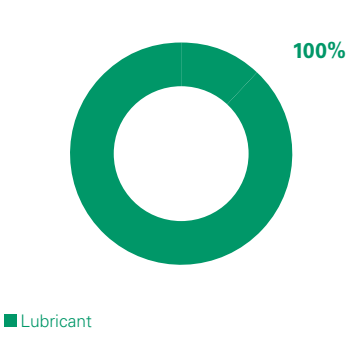
Net electricity production

Total: **1,367** (GWh)



Consumables

Total: **1.3** (t)



Panama

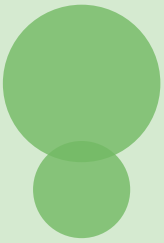
Production from renewable sources

Equivalent annual hours of use* 2016

Total: **5,293**

Hydro
4,491

Photovoltaic
802



Special waste (t)

Total: **849.5**

Non-hazardous: **14.7**

Hazardous: **834.8**

Total transferred for recovery: **0**

Non-hazardous: **0**

Hazardous: **0**

* Annual production/power ratio.

Emissions of CO_2 avoided (t)

Total: **1,112,738**

Hydro
1,096,458

Photovoltaic
16,280

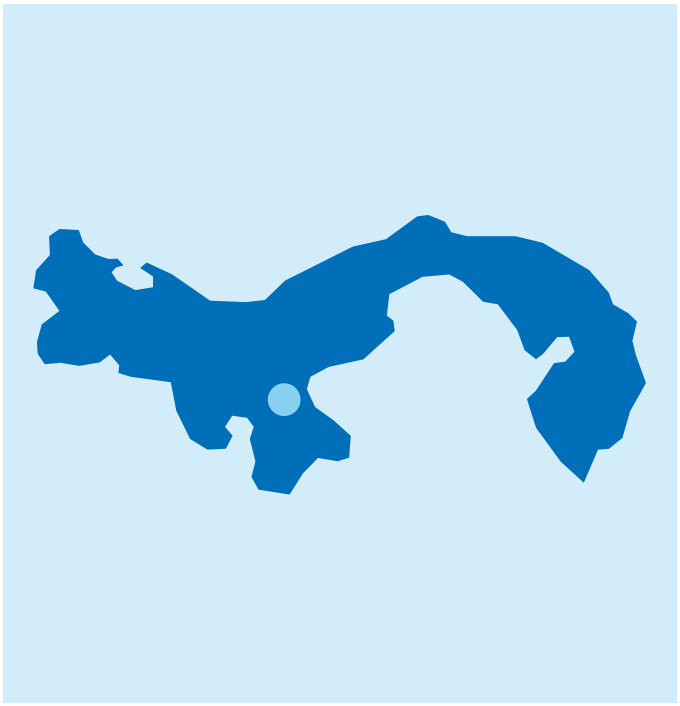
Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology

Most important projects (map)



Most important projects

Project
Program to safeguard fauna and flora at the Sol Real David-Caldera, Milton and Vista Alegre solar power plants

Panama

Enel operates in Panama with Enel Green Power Panama (EGPPA) with four plants: the Fortuna hydroelectric plant with installed capacityof 300 MW and the photovoltaic plants of Chiriquí, with installed capacity of 12 MW, and the Sol Real Cluster.

Enel has invested around US$ 55 million in the construction of Sol Real, which consists of five photovoltaic plants: Caldera Solar (5 MW) and Sol de David (8 MW), which are in the province of Chiriquí, on Panama's west coast and which came into operation in 2016, and Sol Real (11 MW), Milton Solar (10 MW) and Vista Alegre (8 MW),which will come into operation in 2017, and which are in the province of Coclé in the central part of the country.

The energy generated by the 310,860 photovoltaic modules of Sol Real will be purchased by EGPPA's Fortuna hydroelectric plant.

Production from renewables fell compared to 2015 (-18%), mainly due to the lower production at the Fortuna hydroelectric plant (-18.4%), while the photovoltaic segment, with the start-up of the first two plants at Sol Real, saw an increase in solar energy production of 12%.

G4-EN19 The CO_2 emissions avoided owing to hydroelectric and solar production totaled over 1 million tons.

Peru

Thermoelectric production	Production from renewable sources	Electricity distribution
	> Hydroelectric production	
Enel Generación Perú SAA	Enel Green Power SpA	Enel Distribución Perú SAA

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
1,353,130	**28,070**	**8,698**	**1,934**

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
957	**704**	**253**	**957**	**-**

Health and Safety

Staff of contractors*

7,944

LTIFR
Lost Time Injuries Frequency Rate

Enel **0.32**

Contractors **0.21**

LDR
Lost Day Rate

Enel **3.39**

Contractors **2.79**

Seriousness index**

-0.01

Frequency index**

-0.12

* Calculated in FTE (Full Time Equivalent).
** % change 2014-2016.

Peru

Thermoelectric production

Power plants

The numbers

Plants
3

Net maximum capacity (MW)
1,156

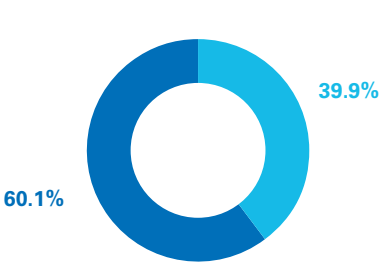
Production (GWh)
4,529

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
With gas turbines in combined cycle	1	2	450
With gas turbines in simple cycle	2	8	706
Total	**3**	**10**	**1,156**

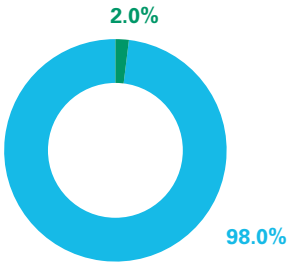
Net maximum capacity

Total: **1,156** (MW)



Fuel consumption

Total: **935,523** (t of oil equivalent)



Waste waters

Discharged:
727,791 (m^3)

Waste waters include rain water which flows into treatment plants if it comes from areas where it might have been polluted.

Peru

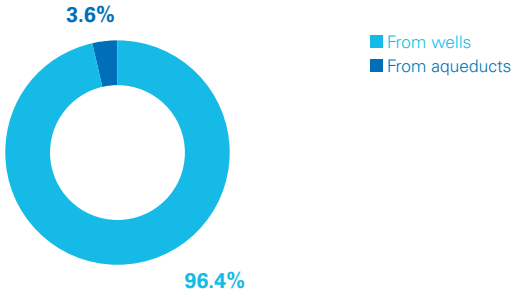
Thermoelectric production

Atmospheric emissions

NO_x (t)	3,835
SO_2 (t)	261
Particulate matter (t)	506
CO_2 from combustion (t)	1,864,317

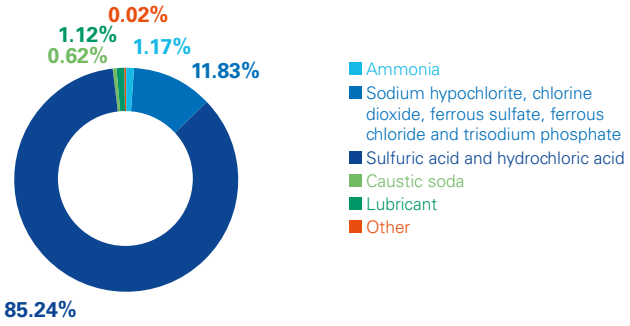
Water for industrial use

Total requirement: **3,215,341** (m³)
Total fresh water drawn off: **3,215,341** (m³)

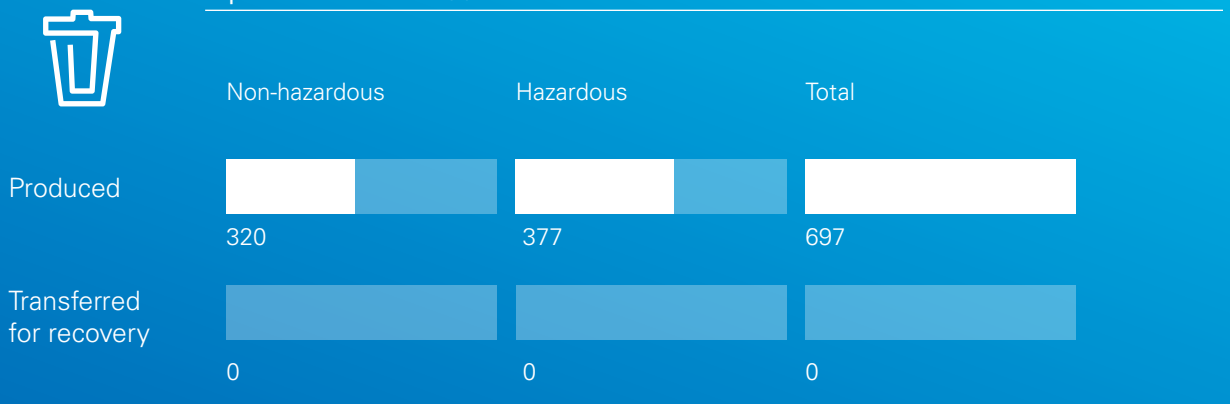


Consumables

Total: **714** (t)



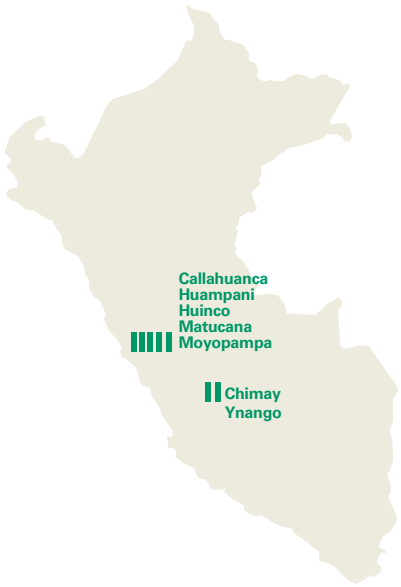
Special waste (t)



Peru

Production from renewable sources

Power plants



Enel Green Power SpA

Hydroelectric power plant

The numbers

Plants
7

Net maximum capacity (MW)
778

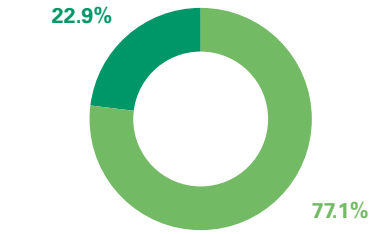
Production (GWh)
4,170

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	5	5	920
	Basin/reservoir	2	2	2,126
Total		**7**	**7**	**778**

Consumables

Total: **1.25** (t)



Lubricant
Other

CO_2 emissions avoided (t)

Hydro
1,948,920

Equivalent annual hours of use* 2016

Hydro
5,356

* Annual production/power ratio.

Special waste (t)

Total produced:
491

Non-hazardous: **476**

Hazardous: **15**

Total transferred for recovery:
0

Non-hazardous: **0**

Hazardous: **0**

Peru

Enel Distribución Perú SAA

Offices of the Group company which carries out the business (Codensa)

The numbers

Cabins
9,977

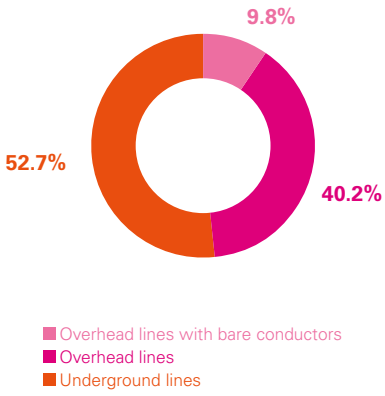
Capacity (MVA)
3,989

Total lines (km)
28,070

Number of plants

Cabins	No.	Installed transformation capacity (MVA)
Primary	32	2,106
MV/LV secondary	9,942	1,865
Other secondary	3	18
Total	**9,977**	**3,989**

Power lines (length in km)	Overhead lines with bare conductors	Overhead lines	Underground lines	Total
HV	525	18	104	647
MV	2,166	0	2,432	4,598
LV	0	10,956	11,870	22,826
	2,691	10,975	14,405	28,070



General data

Municipalities served:
57

Surface area served:
1,517 (km^2)

Customers connected to company network:
1,367,144 (of whom supplied: 1,367,044)

Electricity (million kWh)

Distributed in total:
7,747

Own consumption to operate network: **6.7**

Atmospheric emissions (t)

SF_6: 0.05 (kg)
(t equiv. of CO_2) **1.11**

CO_2: **4.4**

Total greenhouse gas:
(t equiv. of CO_2) **5.5**

Special waste (t)

Total produced: **85,671**

Non-hazardous: **85,545**

Hazardous: **126**

Total transferred for recovery:
734

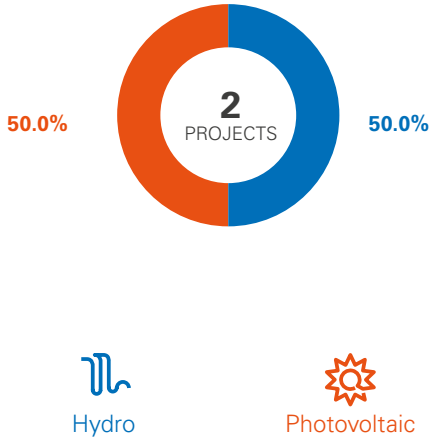
Non-hazardous: **620**

Hazardous: **113**

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)

Most important projects

Project	Description
Monitoring of the ecological flow and related habitats at the Chimay Centrale hydroelectric power plant	
Fauna monitoring at the Rubí photovoltaic power plant	The program aims to evaluate the impact and effectiveness of management decisions on wildlife (birds, reptiles). Also, monitoring defined as data collection for the timely detection of trends in an ecosystem.

Compared to 2015 total production fell by 14%, owing to lower production from both thermoelectric (-9%) and hydroelectric (-10%).

G4-EN1 G4-EN3 The fuel mix compared to 2015 remained unchanged since it consisted solely of natural gas and gas oil used only in the stages of powering up the plant.

G4-EN8 Specific net consumption of water for industrial use in thermoelectric production fell from 0.82 to 0.71 l/kWh.

G4-EN15 G4-EN16 Net specific emissions of CO_2 rose by 15% in relation to the change in the energy production mix (more thermoelectric production than the previous year).

G4-EN19 CO_2 emissions avoided due to hydroelectric production totaled around 1.9 million tons.

G4-EN24 Total and volume of significant spills
There were no significant spills.

G4-EN27 Initiatives to reduce the environmental impacts of products and services and the extent of the mitigation of these impacts

Materials: A program for the reuse in the production chain of materials for distribution was launched, including also the regeneration of dielectric oil.

Emissions: Edelnor has 3 electric vehicles as a stimulus and example of an alternative form of transport that is non-polluting, innovative and value for money.

Uruguay

Production from renewable sources

> Wind production

Enel Green Power SpA

Uruguay

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	189	50

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
9	5	4	9	-

Uruguay

Production from renewable sources

Power plants

Enel Green Power SpA

Wind power plant

The numbers

Plants
1

Net maximum capacity (MW)
50

Production (GWh)
189

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Wind	1		50
Total	**1**		**50**

Equivalent annual hours of use* 2016

Wind
3,800

Special waste (t)

Total produced: **24**

Non-hazardous: **13**

Hazardous: **11**

Total transferred for recovery: **24**

Non-hazardous: **13**

Hazardous: **11**

CO_2 emissions avoided (t)

Wind
77,300

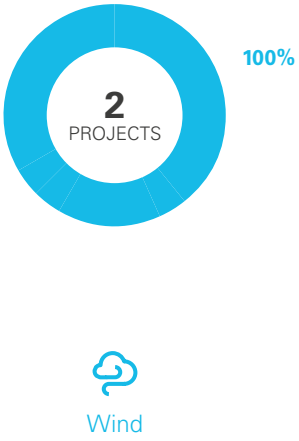
Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

* Annual production/power ratio.

Biodiversity

For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Most important projects (map)

Most important projects

Project	Description
Programs to monitor birds and bats at the Melowind power plants	Monitoring of the fauna which has developed over a year in various seasons. Biologists visited the area of the plant 3 times to monitor populations and communities of bats and birds, together with other environmental phenomena.

In Uruguay, Enel Green Power has been present since 2015 with the Melowind farm situated in the area of Cerro Largo, around 320 kilometers from the capital Montevideo.

The plant has a load factor of 47% and around 4,100 production hours per annum; in 2016 the plant guaranteed 3,800 hours of overall use.

G4-EN19 The CO_2 emissions avoided owing to production from wind totaled around 78 thousand tons.

North America

North America

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	8,628	1,495

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
420	332	88	406	14

Health and Safety

Staff of contractors*

1,407

LTIFR
Lost Time Injuries Frequency Rate

Enel -

Contractors
0.081

LDR
Lost Day Rate

Enel -

Contractors
0.24

Seriousness index

-

Frequency index

-

* Calculated in FTE (Full Time Equivalent).

Canada

Production from renewable sources

> Wind production

Enel Green Power SpA

Canada

Production from renewable sources

Power plants

The numbers

Plants
1

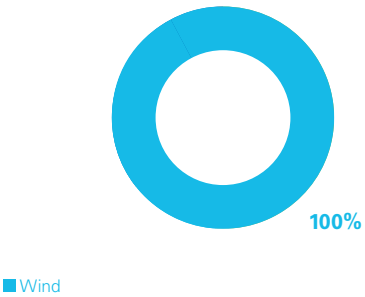
Net maximum capacity (MW)
76.2

Production (GWh)
319.5

Number of plants	No. power plants	No. units	Net maximum capacity (MW)
Wind	1		76.2
Total	**1**		**76.2**

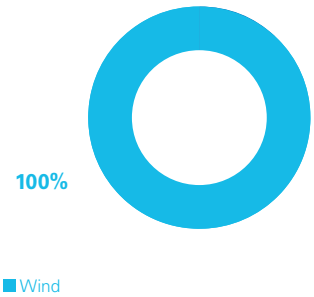
Net maximum capacity

Total: **76.2** (MW)



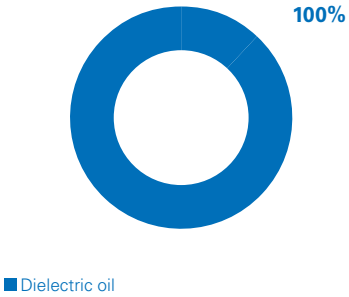
Net electricity production

Total: **319.5** (milioni di kWh)



Consumables

Total: **0.1** (t)



Canada

Equivalent annual hours of use* 2016

Wind
3,096

Emissions of CO_2 avoided (t)

Wind
240,960

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Special waste (t)

Total produced: **0.98**

Non-hazardous: **0.98**

Hazardous: **0**

Total transferred for recovery: **0.98**

Non-hazardous: **0.98**

Hazardous: **0**

* Annual production/power ratio.

Enel operates in Canada with Enel Green Power North America in wind production,with capacity of 76.2 MW.

Electricity production rose compared to 2015 by 5%,while the production of special waste fell by 44%. The waste was all transferred for recovery.

G4-EN19 In 2016 CO_2 emissions avoided due to wind production totaled around 250 thousand tons.

United States

Production from renewable sources

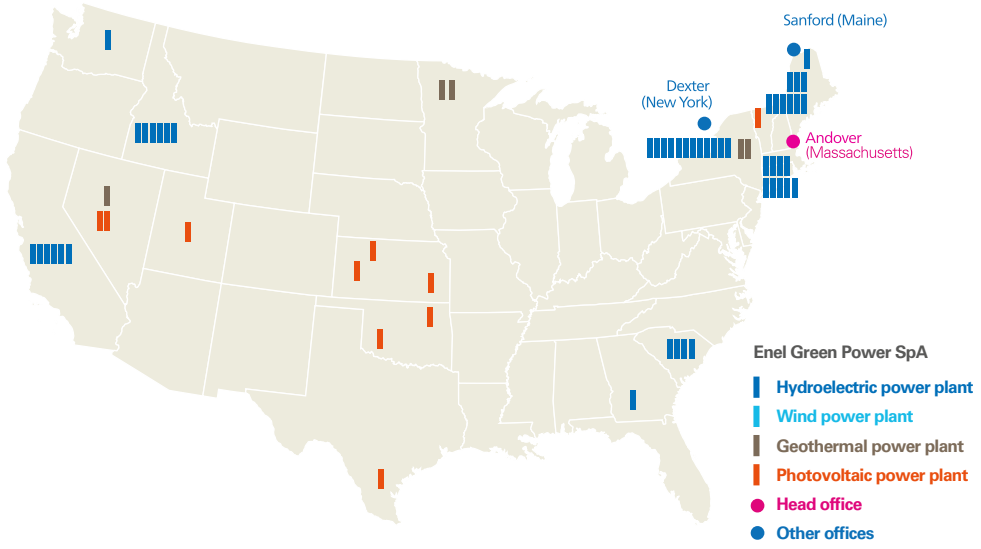
> Hydroelectric, wind, geothermic and photovoltaic production

Enel Green Power SpA

United States

Production from renewable sources

Power plants



The numbers

Plants
101

Net maximum capacity (MW)
1,418

Production (GWh)
8,308

Number of plants

		No. power plants	No. units	Net maximum capacity (MW)
Hydro	Run-of-the-river	58	58	9
	Basin/reservoir	2	2	23
Total Hydro		**60**	**60**	**31**

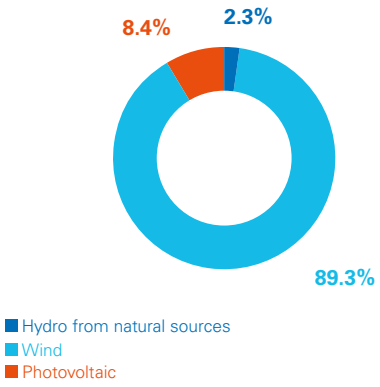
	No. power plants	No. units	Net maximum capacity (MW)
Geothermal	3		
Wind	21		1,267
Photovoltaic	4		119
Total	**88**	**60**	**1,418**

United States

Production from renewable sources

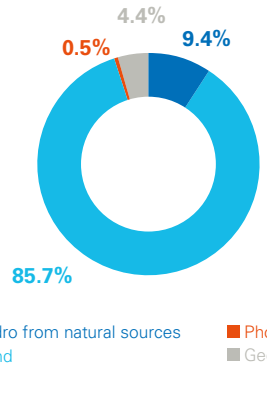
Net maximum capacity

Total: **1,418** (MW)



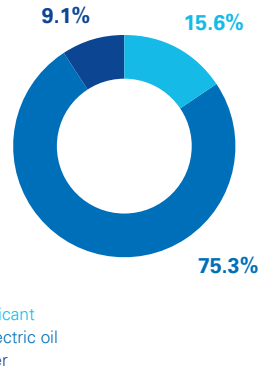
Net electricity production

Total: **8,308** (milioni di kWh)



Consumables

Total: **286** (t)



Equivalent annual hours of use* 2016

Wind
3,677

Photovoltaic
-

Geothermal
6,182

Hydro
2,502

* Annual production/power ratio.

Special waste (t)

Total produced: **19,065**

Non-hazardous: **10,686**

Hazardous: **8,379**

Total transferred for recovery: **19,008**

Non-hazardous: **10,627**

Hazardous: **8,382**

Emissions of CO_2 avoided (t)

Total: **5,997,445**

Hydro from natural sources
566,038

Wind
5,139,719

Geothermal
261,364

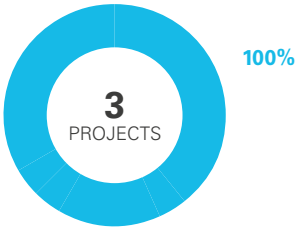
Photovoltaic
30,324

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.
The contribution of the geo-thermoelectric production is calculated on the basis of the natural origin of the related CO_2 emissions.

Biodiversity

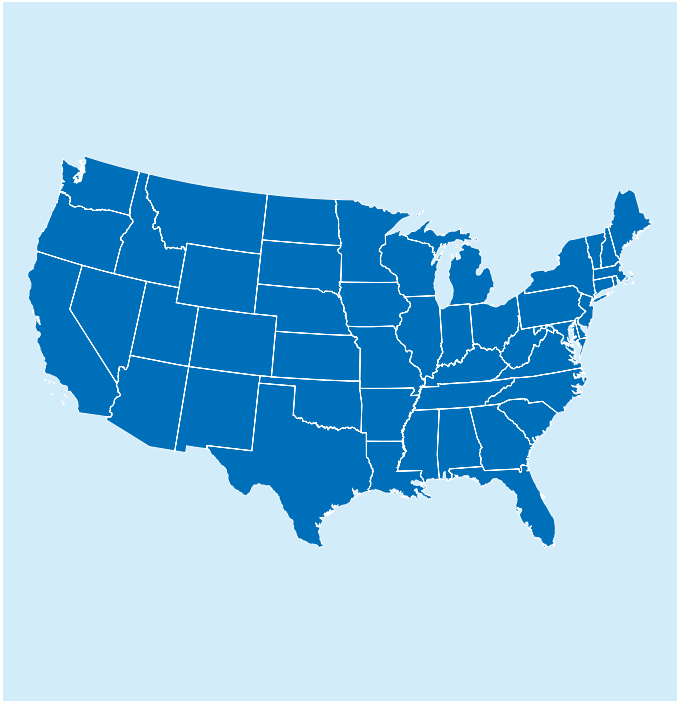
For further details on biodiversity projects, see the following link: **https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf**

Projects by technology



Wind

Most important projects (map)



United States

Enel Green Power North America (EGP-NA) is a leading operator of renewable energy plants with ongoing and projects in development in 23 states of the United States and 2 Canadian provinces. EGP-NA manages over 100 power plants, with total operating capacity of over 3,200 MW produced from hydroelectric, wind, geothermal and photovoltaic.
In November 2016, EGP-NA and GE Energy Financial Services completed an agreement under which EGP-NA transferred to GE Energy Financial Services a 1% stake in EGP-NA REP, for a fee of around US$ 10 million.
The two companies created a 50-50 joint venture in which Enel will continue to manage the assets of EGP-NA REP, give the removal from the consolidation of the related payable (around US$ 500 million) and installed capacity.
The decrease in capacity from renewables, associated with the removal from the consolidation of mainly wind power plants, is part of the new Enel growth model "Build, Sell and Operate", which is less capital intensive.
The value of carbon free production for 2016 grew by 17% mainly thanks to the contribution from wind which guarantees growth of 23%, on the other hand hydroelectric production fell slightly, while geothermal and solar production was unchanged.

G4-EN19 In 2016 CO_2 emissions avoided due to carbon free production totaled around 6 million tons.

India and South Africa

India

Production from renewable sources

> Wind production

Enel Green Power SpA

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	328	172

Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
50	43	7	50	-

India

Production from renewable sources

Power plants

The numbers

Plants
3

Net maximum capacity (MW)
172

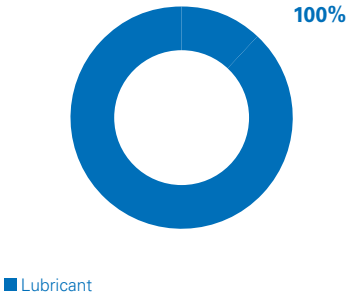
Production (GWh)
328

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Wind	3		172
Total	**3**		**172**

Consumables

Total: **70** (t)



India

Equivalent annual hours of use* 2016

Wind
1,907

Emissions of CO_2 avoided (t)

Wind
326,360

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

Special waste (t)

Total produced: **8,728**

Non-hazardous: **0**

Hazardous: **8,728**

Total transferred for recovery: **0**

Non-hazardous: **0**

Hazardous: **0**

* Annual production/power ratio.

India

Enel operates in India with Enel Green Power in wind production with capacity of 172 MW. The Group entered the country in September 2015 through the purchase of BLP.

G4-EN19 In 2016 CO_2 emissions avoided due to wind production totaled around 326 thousand tons.

South Africa

Production from renewable sources

> Wind and photovoltaic production

Enel Green Power SpA

South Africa

Average number of customers	Length of power lines (km)	Total net production (GWh)	Installed capacity (MW)
-	-	203	486

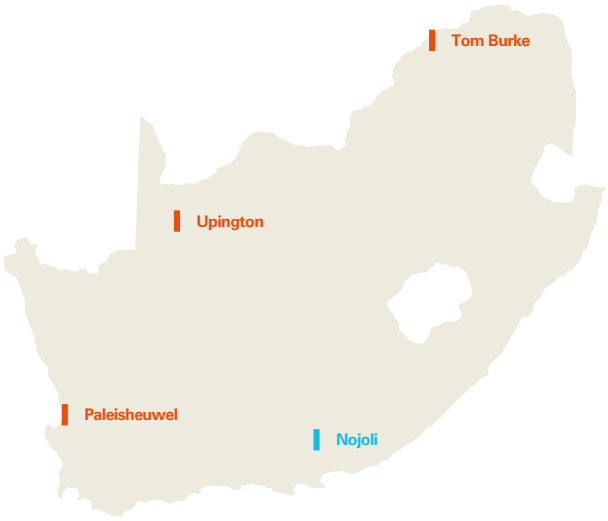
Employees (Final Headcount)

Total	Men	Women	Full-time	Part-time
133	74	59	133	-

South Africa

Production from renewable sources

Power plants



The numbers

Plants
4

Net maximum capacity (MW)
486

Production (GWh)
203

Number of plants

	No. power plants	No. units	Net maximum capacity (MW)
Wind	1		163
Photovoltaic	3		323
Total	**5**		**486**

Emissions of CO_2 avoided (t)

Total: **218,362**

Wind
78,913

Photovoltaic
139,449

Emissions from thermoelectric production using fossil fuels which would otherwise have been necessary.

The contribution of the geo-thermoelectric production is calculated on the basis of the natural origin of the related CO_2 emissions.

Access to electricity

Rural electrification with Liter of Light

7 AFFORDABLE AND CLEAN ENERGY

South Africa

Location: Eastern Cape
Business line: Renewables
Asset: Nojoli Wind Farm
Installed Capacity: 88 MWAC

BD E&C O&M

Sub Category: Promoting technical training and capacity building on energy
2016 Beneficiaries: 1,000
Planning: 11/10/2016 - 28/12/2018
Partners: Women in Oil & Energy South Africa (WOESA)

Business issue

Diffusion of clean energy and sustainable and innovative technologies as key enablers for skills development.

Project

The project was launched in collaboration with the international NGO Liter of Light, affecting local communities within a radius of 50 km from the Nojoli facility. The initiative took off with a training workshop of 60 young people from Somerset East, Cookhouse, Adelaide and Bedford villages in the area. The Liter of Light volunteers also taught the group of young learners how to build innovative "solar lanterns", an evolution of solar bottles.
Once the course was completed, the 60 young people built 18 solar bottles and 25 lanterns and have begun to install lamps in the villages with the support of our technicians. The streets of Nojoli also saw the installation of some of the lamps made in the 2015 We are Energy campus.

Value for Enel

Spread knowledge of energy sources and their responsible use. Good relations with the local communities and institutions.

Value for stakeholders

- The benefit to the local community above all is access to light.
- Livelihood creation/set up a designated unemployed youth or woman as a local entrepreneur.
- Safer communities.

Related project by assets
NOJOLI
Community IT HUB
Project Steering Committee - Leadership training

4 QUALITY EDUCATION

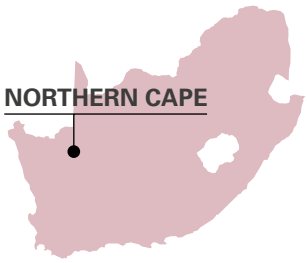
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

Social and Economic Development

Wooden pallets

8 DECENT WORK AND ECONOMIC GROWTH



South Africa

Location: Northern Cape
Business line: Social and Economic Development of Community
Asset: Adams Solar Park
Installed Capacity: 75 MWAC / 82.5 MWDC

BD E&C O&M

Sub Category: Supporting entrepreneurial activities in the community
2016 Beneficiaries: 800
Planning: 12/05/2016 - 30/12/2016
Partners: Enetronica South Africa; Ga-Segonyana

Business issue

The wooden pallets on each of EGP's sites are collected and disposed off by the waste management service provider. There is a recycling component to the pallets, in that they can be distributed to our host communities, local carpenters, and schools. This will aid in skills development for making furniture, assisting school children with subjects like woodwork and aiding in the waste management on site.

Project

The Adams Solar host communities will be able to use the pallets for improving their livelihoods through furniture making, education and skills development. Adams Solar site will also be free from the bulk of wooden pallets. As Adams Solar has an agreement with the Municipality, the latter will distribute the pallets to various schools, SMEs and organizations focused on skills development.

Value for Enel

Pallets that would have been disposed of are donated to the community and thus contribute to saving disposal costs for Enel. Contributes to environment by minimizing landfill waste and reduction of CO_2.

Value for stakeholders

Local community gains skills and businesses profit from making furniture and selling it.

Related project by assets
ADAMS SOLAR PARK
Solar powered boreholes

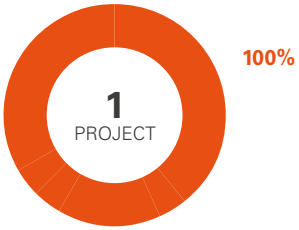
13 CLIMATE ACTION

South Africa

Biodiversity

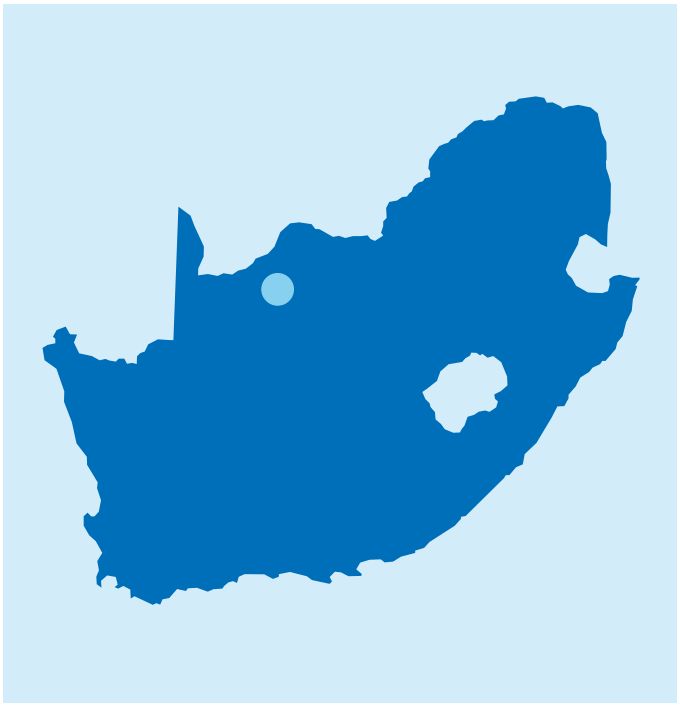
For further details on biodiversity projects, see the following link:
https://www.enel.com/content/dam/enel-com/sustainability/siti_e_aree_protette_Enel.pdf

Projects by technology



Photovoltaic

Most important projects (map)



Most important projects

Project	Description
Biodiversity offset at the Adams 2 photovoltaic plant	A study on biodiversity offset to safeguard protected trees – *Acacia haematoxylon* and *Boscia albitrunca* – which would be impacted by the construction of the plant. The compensatory measures will take the form of research to be conducted on this type of vegetation.

South Africa

In May 2016 Enel, through the subsidiary Enel Green Power RSA (EGP RSA), completed and linked to the grid the photovoltaic plant at Paleisheuwel, in the province of Western Cape. It is Enel's largest plant operating in the country.
Paleisheuwel has installed capacity of 82.5 MW and can generate more than 153 GWh per annum, equivalent to the annual energy consumption of around 48 thousand South African households, thus avoiding the atmospheric emission of over 140 thousand t of CO_2.

In June the photovoltaic plant of Tom Burke, in the province of Limpopo, was connected to the grid. Tom Burke has installed capacity of 66 MW and can generate up to 122 GWh per annum, equal to the annual energy consumption of around 38 thousand South African households, thus avoiding the atmospheric emission of over 111 thousand t of CO_2.

In October the wind farm of Nojoli, in the province of Eastern Cape, was linked to the grid. Nojoli is the Enel Group's first wind farm to enter into production in South Africa. With total installed capacityof 88 MW, the new windfarm can generate over 275 GWh per annum, equivalent to the annual consumption needs of almost 86 thousand South African households, thus avoiding the atmospheric emission of over 251 thousand t of CO_2 each year.

G4-EN19 In 2016 CO_2 emissions avoided due to wind and solar production totaled around 218 thousand tons.

Concept design and realization
You&Web - Gruppo HDRÀ

Copy editing
postScriptum

By
Communication Italy

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Registered office 00198 Rome - Italy
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Stock Capital
Euro 10,166,679,946
(at April 1st 2016) fully paid in
Companies Register of Rome,
and tax I.D. 00811720580
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