iren

Green Bond Project (pre issue) ISSUED 2020-MATURITY 2031 (ISIN XS2275029085)

December 2020

I.Blu: Selection plant in San Giorgio di Nogaro (UD)

1 WASTE MANAGEMENT BU



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Eligible Category

Waste management efficiency and recycling (Waste collection and sorting upgrades)

Full amount project	Finance	ed amount	KPIs
	2011-2019: 2020-2021 :	- mln 7.8 mln	 Plastic sent for material recovery [t] Avoided CO₂ emissions [t]
7.8 mln	Total	7.8 mln	

Project description

The plant, owned by IBLU, a company controlled by Iren Ambiente, carries out the treatment and selection of plastic packaging waste on behalf of the COREPLA Consortium on the basis of a multi-year contract.

The process consists of the following steps:

- acceptance, verification and start-up of selection, by loading the bag opener-doser machine;
- highly automated primary selections (dimensional and ballistic separations)
- selection of flexible packaging (mainly polyethylene film), through an aeraulic separation;
- separation of the steel and aluminum through a series of magnets and eddy current devices;
- subdivision of the hollow objects (flacons, bottles, etc) by polymer and color through a series of optical detection devices (infrared) and compressed air nozzles;
- manual quality control for the various fractions (including flexible ones);
- the various products are then sent to temporary storage bunker, pending the subsequent volumetric reduction.

The plant's current production capacity is approximately 110,000 tons / year.



I.Blu: Selection plant in Cadelbosco (RE)

2 WASTE MANAGEMENT BU



Eligible Category

Waste management efficiency and recycling (Waste collection and sorting upgrades)

Full amount project	Finance	ed amount	KPIs
	2011-2019: 2020-2021 :	- mln 8.7 mln	 Plastic sent for material recovery [t] Avoided CO₂ emissions [t]
8.7 mln	Total	8.7 mln	

Project description

The plant, owned by IBLU, a company controlled by Iren Ambiente, carries out the treatment and selection of plastic packaging waste on behalf of the COREPLA Consortium on the basis of a multi-year contract.

- The process consists of the following steps:
- acceptance, verification and start-up of selection, by loading the bag opener-doser machine;
- highly automated primary selections (dimensional and ballistic separations)
- selection of flexible packaging (mainly polyethylene film), through an aeraulic separation;
- subdivision of the hollow objects (flacons, bottles, etc) by polymer and color through a series of optical detection devices (infrared) and compressed air nozzles;
- manual quality control for the various fractions (including flexible ones);
- the various products are then sent to temporary storage bunker, pending the subsequent volumetric reduction.

The plant's current production capacity is approximately 100,000 tons / year.



I.Blu: Recycling plant in Costa di Rovigo (RO)

3 WASTE MANAGEMENT BU



Eligible Category

Waste management efficiency and recycling (Waste collection and sorting upgrades)

Full amount project	Finance	ed amount	KPIs
	2011-2019: 2020-2021 :	- mln 10.3 mln	 Blupolymer produced [t] Bluair produced [t] Avoided CO₂ emissions [t]
10.3 mln	Total	10.3 mln	

Project description

- The plant, owned by IBLU, operates on behalf of the Corepla Consortium and consists of two distinct production lines.
- a) Washing and granulation line (Line 1): this line deals with a previously selected waste consisting of mixed polyolefins.
- After a first primary trituration step, the polyolefin component is separated from the other fractions. The polyolefin fraction is then centrifuged and "squeezed" by mechanical presses that reduce its humidity and densified using twin-screw extruders at high temperatures. After the cooling and grinding phases, the densified product is finally sent to single-screw extruders which transform it into granules (Blupolymer) used for:
- create products for the construction of low energy impact buildings and outdoor spaces that respect the environment;
- increase the strength and durability of the asphalt over time, ensuring intact flooring for longer, reduced maintenance and greater safety, less waste of resources and circularity of materials.
- b) Production line of Bluair reducing agent (Line 2): the incoming waste, consisting of more heterogeneous and less refined plastic, is subjected to primary shredding, then densified, shredded with a blade mill and separated into different sizes with the aid of a rotating screen. In the process, the heavy fraction of Line 1 processing is also reused, reducing the amount of waste produced by the plant. At the end of the process the product is stored in heaps and shipped mainly in bulk. The output product is Bluair reducing agent (secondary reducing agent, S.R.A.) intended for the steel industry. The plant's current production capacity is approximately 45,000 tons / year.



I.Blu: Recycling plant in San Giorgio di Nogaro (UD)

4 WASTE MANAGEMENT BU



Eligible Category Waste management efficiency and recycling (Waste collection and sorting upgrades) Full amount project **Financed** amount **KPIs** 2011-2019: - mln • Bluair produced [t] Avoided CO₂ emissions [t] **2020-2021**: 9.8 mln 9.8 mln Total 9.8 mln **Project description** The planned plant, owned by IBLU, will come into operation in the first guarter of 2021 and will also operate on behalf of the Corepla Consortium. The incoming waste, consisting of more heterogeneous and less refined plastic, is subjected to primary shredding, then densified, shredded with a blade mill and separated into different sizes with the aid of a rotating screen. At the end of the process the product is stored in heaps and shipped mainly in bulk. The output product is Bluair reducing agent (secondary reducing agent, S.R.A.) intended for the steel industry. The authorized production capacity will be approximately 80,000 tons / year, divided into four distinct lines that can be achieved with partial testing and deferred timing.



Development of separate waste collection services

5 WASTE MANAGEMENT BU Rif.: Project 3-ISIN XS1704789590 Rif.: Project 3-ISIN XS2065601937



Eligible Category Waste management efficiency and recycling (Waste collection and sorting upgrades) Full amount project **Financed** amount **KPIs** Total sorted waste collection [t] 2011-2019: - mln Total of non sorted waste disposed [t] 2020-2021: 6.3 mln • Number of bins for sorted waste [N] · Volumes of bins for sorted waste [mc] 6.3 mln Door to door collection system [N] Total 6.3 mln • Sorted waste collection hubs [N] · Volumes of waste collected in the collection hubs [t]

Project description

The project concerns the development of separate waste collection through:

1) TRANSFORMATION OF THE SORTED WASTE COLLECTION SYSTEM

- TORINO: transformation of the separate collection system in Torino with the extension of home collection. IREN has implemented a progressive transformation of waste collection services to the door-to-door model, with prodromal methods for the application of punctual pricing.
- EMILIA: Anticipating the regional planning, in the territories of the Emilian municipalities served by Iren, the Group has implemented a progressive transformation of waste collection services from the road model to the door-to-door model, with prodromal methods for the application of punctual pricing. The situation of the interventions is diversified in the 3 provinces

2) COLLECTION HUBS IN THE EMILIA AREA

It is a capillary computerized system used for the registration of incoming users and for the control of volumes in order to set mass balances. With a special badge, registration is carried out, then through a guided path on the touch-screen monitor, all the information relating to the transfer operation is entered. This allows you to activate prize competitions for citizens.



Biowaste recovery to produce compost and biomethane - Ferrania (SV)

6 WASTE MANAGEMENT BU Rif.: Project 3-ISIN XS2065601937



Full amount project	Financed amount		KPIs	
7.1 mln	2011-2019: 2020-2021: Total	- mln 7.1 mln 7.1 mln	 Production of compost (% on organic fraction in input) [t] Production of biomethane [Sm3] Avoided CO₂ emissions from fossil sources per operating year [t] Primary energy saving per operating year [Tep] 	
		Project description		
second of July 2019, Iren Ambient	e acquired the whole proper		OGIA, owner of an existing plant. The total cost of the acquisition	

The aim of the project is the construction of a bio-waste treatment plant exploiting the organic and green waste collected in the Liguria region, in particular in the provinces of Savona and Genoa, and for remaining part the bio-waste available on the market. The proposed plant falls into the category of projects identified in Annex IV, Part Two of Legislative Decree 152/2006.

The Biomethane is produced in accord to the incentivisation law of the biofuel and biomethane, D.M. 2.3.2018.

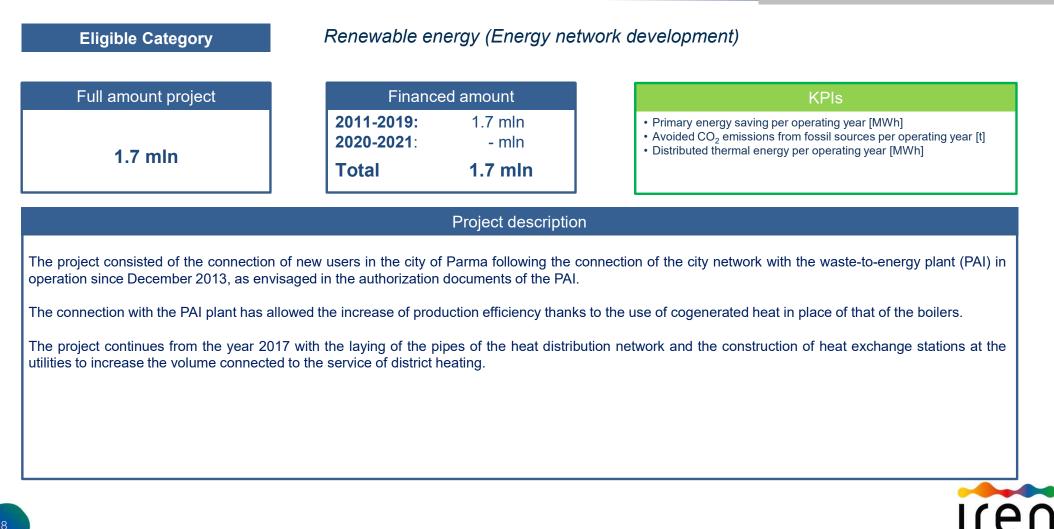


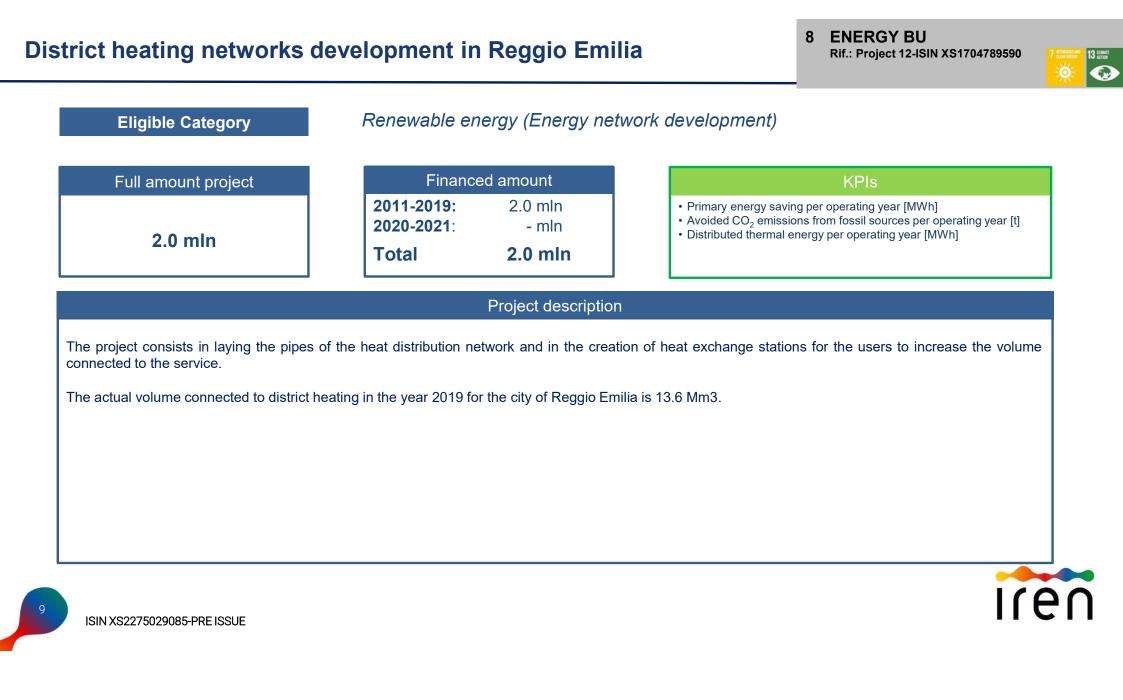
Parma district heating network

7 ENERGY BU

Rif.: Project 10-ISIN XS1704789590







Cogeneration plant Torino Nord

9 ENERGY BU

Rif.: Project 7-ISIN XS1881533563 Rif.: Project 6-ISIN XS2065601937



Energy efficiency (Cogeneration facilities) **Eligible Category** Full amount project **Financed** amount **KPIs** 2011-2019: 98.2 mln Electrical energy produced per operating year [MWhe] • Thermal energy produced per operating year [MWht] **2020-2021**: 0.1 mln Primary energy saving per operating year [MWh] 120.6 mln • Avoided CO₂ emissions from fossil sources per operating year [t] Total 98.3 mln **Project description** The Turin North Plant is an important electrical energy and heat production plant within the Turin metropolitan area and, together with the Moncalieri Plant, it forms the basis of the city of Turin's district heating system. The start dates for the Plant's construction and operation are provided below. - 2010: start of construction of the Turin North Plant: - 30 April 2012: start of commercial operation. The Plant is made up of the following production groups, functioning on natural gas only: - 1 Combined-cycle cogeneration thermoelectric group (CCTG); - 3 Supplementary and reserve boilers; - 1 Auxiliary boiler for starting the combined cycle; - 6 Heat accumulators.





Torino LED (I and II phases)

ENERGY BU 10 Rif.: Project 9-ISIN XS2065601937



Iren

Eligible Category Full amount project 2.6 mln

Finance	ed amount
2011-2019: 2020-2021:	- mln 2.6 mln
Total	2.6 mln

KPIs

Primary energy saving per operating year [MWh]

Avoided CO₂ emissions from fossil sources per operating year [t]

Project description

Energy efficiency (Energy distribution and management)

Since 1986. the public lighting service in Turin has been managed by the Iren Group: the plant consists of around 98,000 lighting points, the total luminous flux is 1,530 million lumens. The electricity network that powers the light centers extends for 2,800 km, the total electrical power is 18,900 kW. The project was divided into two phases. The first phase, started in 2015 and concluded in 2017, led to the replacement of approximately 53,000 public lighting points, equal to 53% of the lighting fixtures in the city, with LED lights, with important benefits on the economic and environmental front. The territory of Turin was divided into five lots, about 11,000 appliances for each lot.

The efficiency and reliability of the new LED lamps guarantee a reduction of over 50% in the electricity consumption of the plants affected by the intervention. The new LED lamps installed with a color temperature of 3,000 and 4,000 kelvin emit a pleasant white light and moreover the luminaires have a greater control in the emission of the luminous flux, offering a greater luminous coverage of the streets and increasing the perception of safety for the citizens who travel through them. Furthermore, the new lighting fixtures with LED technology do not contain polluting substances and, by not producing light scattered upwards, they also reduce light pollution. The second phase of the project, during the start-up phase, involves intervention in the following areas:

• lighting systems for the main city underpasses and high-power lighting devices

· traffic light systems.

The replacement of approximately 900 high-power lighting fixtures and 6,000 fixtures in the city underpasses (Bramante, Lingotto, Mortara, Oddone, Repubblica, Rivoli, Spezia) is expected, as well as 13,000 traffic lights and 414 traffic light regulators. The efficiency and reliability of the new LED lamps guarantee a reduction of approximately 50% in the electricity consumption of the public lighting systems affected by the intervention and of about 85% of the consumption of the traffic light systems. The replacement plan, which will involve all the city districts at the same time, started in 2019 and will last one year for public and three-year lighting systems for traffic light systems.

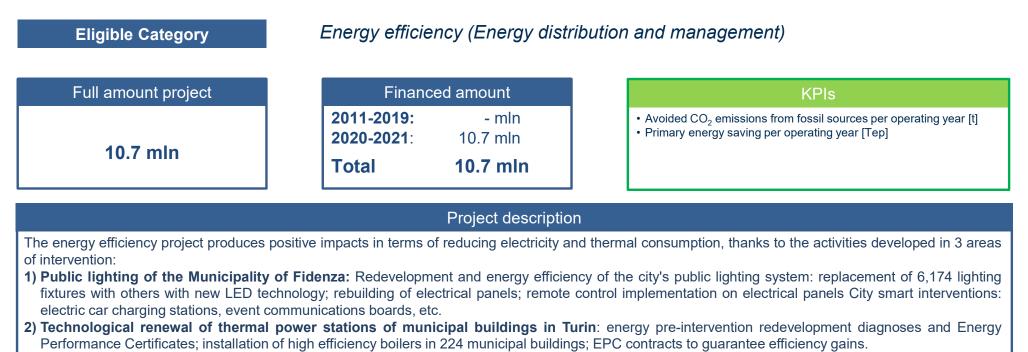


Smart solutions

11 ENERGY BU

Rif.: Project 10-ISIN XS2065601937





3) Interventions to improve the energy efficiency of technological systems

<u>Teatro Regio</u>: replacement of 11 AHU fan motors; centralized cooling and heat recovery with the installation of 4 latest-generation refrigeration units and replacement of the cooling towers. thermal power plant requalification: installation of 6 condensing thermal groups of 840 kW; building management system with the implementation of a new automation system of the BACS type.

<u>Municipality of Grugliasco</u>: insulation of the opaque building envelope; replacement of windows and doors; installation of a new heat recovery building air conditioning system; installation of an energy supervision system; local re-lamping (replacement of existing lamps with LED technology elements); installation of a new photovoltaic system.

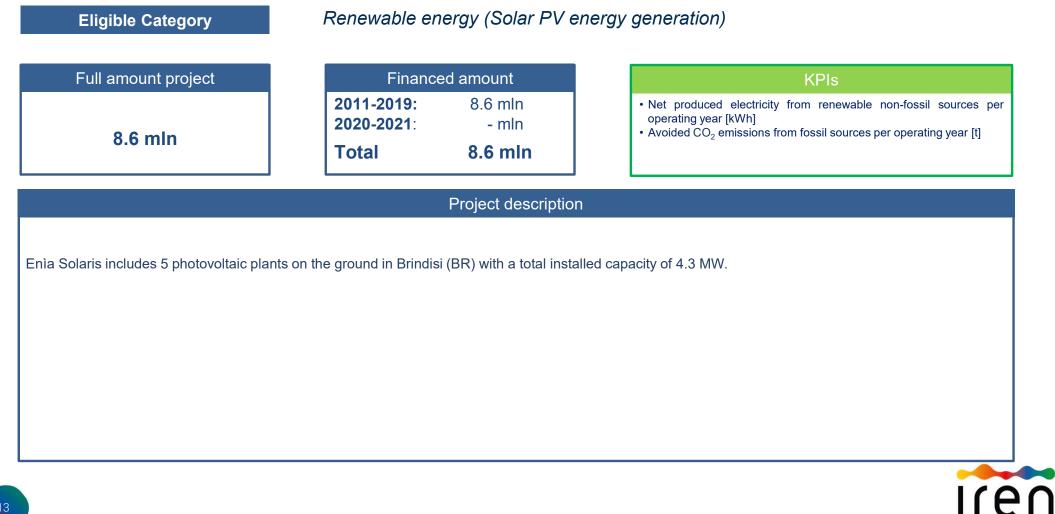


Enìa Solaris photovoltaic plants near Brindisi

12 ENERGY BU

Rif.: Project 16-ISIN XS1704789590





Photovoltaic plants owned by "Varsi" company

13 ENERGY BU

Rif.: Project 12-ISIN XS1881533563



Full amount project	Finance	ed amount			KPIs		
10.7 mln	2011-2019: 2020-2021: Total	2020-2021 : - mln		 Net produced electricity from renewable non-fossil sources operating year [kWh] Avoided CO₂ emissions from fossil sources per operating year [t] 			
		Project description					
	stavaltais planta. O an tha	Plant		Municipality	Province	Power (KWP)	Туре
		Gonzaga Fiera		Gonzaga	Mantua	741	Roof
		Gonzaga Fiera Gonzaga Bocciodromo (Bo	cce hall)	Gonzaga Gonzaga	Mantua Mantua	741 43	Roof Roof
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school		Gonzaga Gonzaga Gonzaga	Mantua Mantua Mantua	741 43 64	Roof Roof Roof
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p		Gonzaga Gonzaga Gonzaga Roccabianca	Mantua Mantua Mantua Parma	741 43 64 890	Roof Roof Roof Ground
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV	lant]	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se	Mantua Mantua Mantua Parma Parma	741 43 64 890 551	Roof Roof Ground Ground
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p	lant]	Gonzaga Gonzaga Gonzaga Roccabianca	Mantua Mantua Mantua Parma	741 43 64 890 551 998	Roof Roof Roof Ground Ground Ground
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV Bellario, road to Soragna P	lant]	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se San Secondo P.se	Mantua Mantua Mantua Parma Parma Parma	741 43 64 890 551	Roof Roof Ground Ground
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV Bellario, road to Soragna P Rimale PTV	lant]	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se San Secondo P.se Fidenza	Mantua Mantua Mantua Parma Parma Parma Parma	741 43 64 890 551 998 998	Roof Roof Ground Ground Ground Ground
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV Bellario, road to Soragna P Rimale PTV Italian Isolating Plants	lant]	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se San Secondo P.se Fidenza Porto Torres	Mantua Mantua Mantua Parma Parma Parma Parma Sassari	741 43 64 890 551 998 998 998 972	Roof Roof Ground Ground Ground Ground Roof
		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV Bellario, road to Soragna P Rimale PTV Italian Isolating Plants Priorato PTV	lant] TV	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se San Secondo P.se Fidenza Porto Torres Fontanellato	Mantua Mantua Mantua Parma Parma Parma Parma Sassari Parma	741 43 64 890 551 998 998 972 995	Roof Roof Ground Ground Ground Ground Roof Ground
Varsi Fotovoltaico encompasses 12 ph ground and 4 on roofs, with an overall		Gonzaga Fiera Gonzaga Bocciodromo (Bo Gonzaga middle school Rigosa PTV [photovoltaic p Canesio PTV Bellario, road to Soragna P Rimale PTV Italian Isolating Plants Priorato PTV Busseto Fotovoltaico SRL	lant] TV	Gonzaga Gonzaga Gonzaga Roccabianca Pellegrino P.se San Secondo P.se Fidenza Porto Torres Fontanellato Busseto	Mantua Mantua Mantua Parma Parma Parma Parma Sassari Parma Parma	741 43 64 890 551 998 998 998 972 995 432	Roof Roof Ground Ground Ground Ground Roof Ground Ground Ground



14 **ENERGY BU** Photovoltaic plants owned by "Greensource" company Rif.: Project 13-ISIN XS1881533563 Renewable energy (Solar PV energy generation) **Eligible Category** Full amount project Financed amount **KPIs** 2011-2019: 9.2 mln • Net produced electricity from renewable non-fossil sources per operating year [kWh] 2020-2021: - mln • Avoided CO₂ emissions from fossil sources per operating year [t] 9.2 mln Total 9.2 mln **Project description** Green Source PTV encompasses various photovoltaic plants, with an overall power of 3.9 MW Power (KWP) Plant Municipality Province Туре C8 Reggio Emilia Reggio Emilia 1.212 Roof Tennis Club Reggio Emilia Reggio Emilia 200 Roof **Pluris Energy** Castellarano Reggio Emilia 710 Ground **ITIS** Parma Parma Reggio Emilia 170 Ground Reggio Emilia Mancasale Reggio Emilia 993 Roof Scandiano indoor sports arena Reggio Emilia 95 Roof Scandiano Reggio Emilia Tressano Castellarano 122 School Facilities Reggio Emilia-Parma-Piacenza Reggio Emilia-Parma-Piacenza 357 Roof Total 3.859 iren ISIN XS2275029085-PRE ISSUE

13 centre

Improvement of Reggio Emilia plants

15 NETWORS BU

Rif.: Project 18-ISIN XS1704789590



Waste water treatment (Wastewater treatment plant upgrades) **Eligible Category** Full amount project **Financed** amount Kéls 2011-2019: 1.0 mln · Volumes of water destined to irrigation re-usage / Volumes of total treated water [%] 0.1 mln 2020-2021: • Treated population equivalent (potential) [N] 1.1 mln • Analytic parameters (Abb % BOD, Abb % COD, Abb % SST, Abb % Total 1.1 mln Ntot, Abb % Ptot) [%] **Project description** The planned interventions are part of a project that concerns various activities, such as: 1. construction of the advanced tertiary treatment of wastewater leaving the Mancasale treatment plant to obtain an effluent with qualitative requisites to allow its irrigation reuse; 2. upgrading of the Meletole plant; 3. construction of a new purification plant for the municipality of Cadelbosco di Sopra in an area adjacent to the existing plant whose biological sector may in the future be restructured and converted into a rainwater treatment plant;

- 4. expansion of the Boretto plant;
- 5. construction of a new water treatment line in addition to the existing line to increase its purification capacity;
- 6. adjustment of the treatment for the San Bernardino agglomeration through the construction of a purification plant with biological treatment with biodisk.

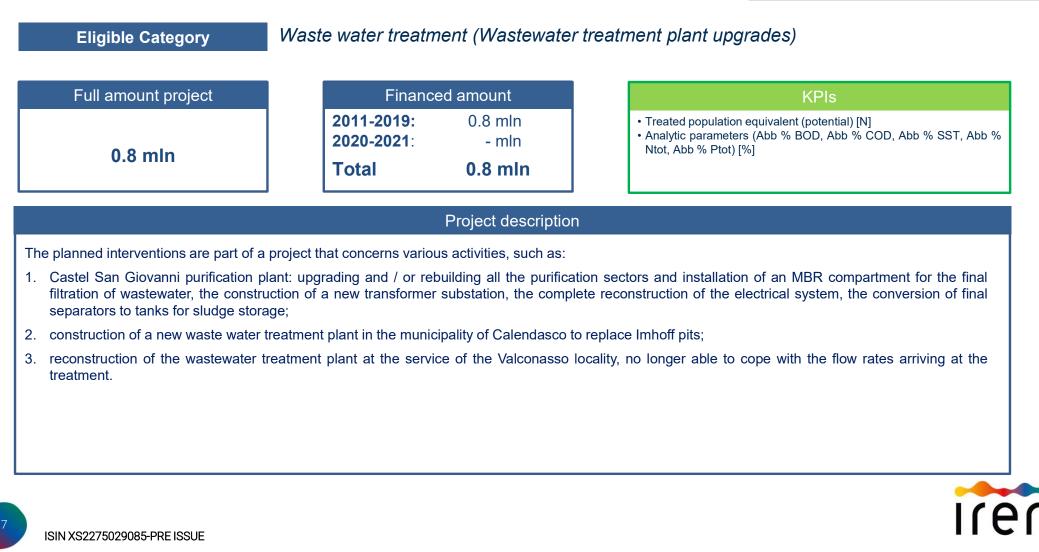


Improvement of Piacenza plants

16 NETWORKS BU

Rif.: Project 19-ISIN XS1704789590



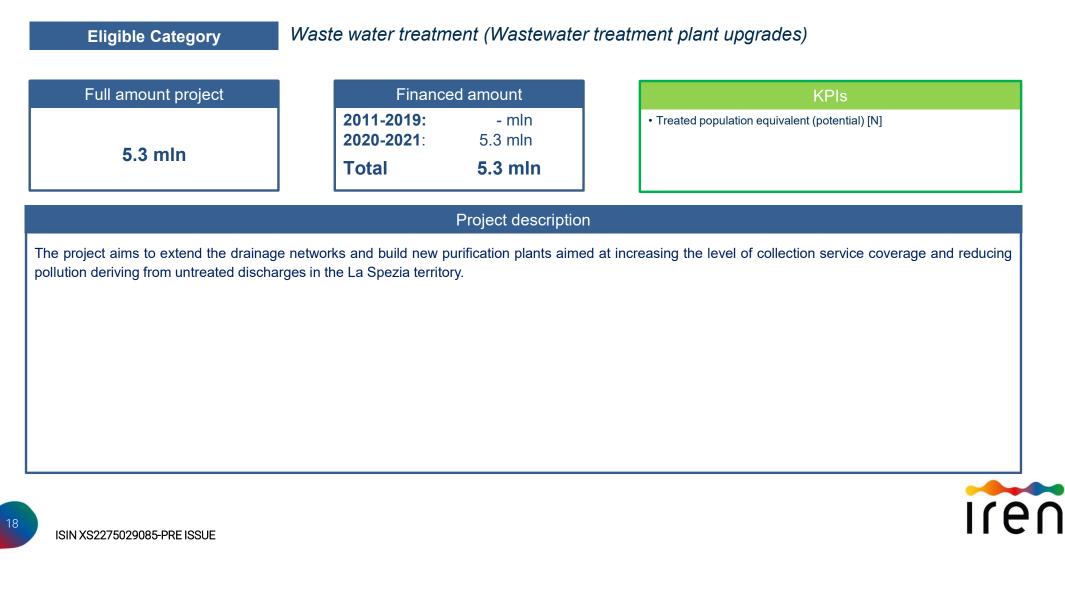


Investments in drainage and purification (La Spezia - Liguria)

17 NETWORKS BU

Rif.: Project 15-ISIN XS2065601937





Electricity distribution Smart Metering 1G (Torino and Parma)

18 NETWORKS BU

Rif.: Project 19-ISIN XS2065601937



Eligible Category

Energy efficiency (Energy distribution and management)

Full amount project
1.1 mln

Finance	ed amount
2011-2019: 2020-2021:	1.1 mln
2020-2021:	- mln
Total	1.1 mln

KPIs

- Smart meters installed [n]
- Percentuage of smart meters on the total [%]

Project description

IRETI is the company of the Iren Group that manages the electrical energy distribution and metering services in the cities of Turin and Parma, providing electricity to more than 700.000 supply points (PODs - Points of Delivery), approx. 560.000 of which located in Turin and approx. 140.000 in Parma.

Promoted by Del. n. 292/06 of ARERA (Authority for Regulation of Energy, Networks and Environment), the present project consisted in the replacement of the traditional electromechanical meters with a new generation of meters (smart meters), enabled for both the functions of remote reading and remote management. Such metering system allows collecting a much higher amount of measurement data, guaranteeing the billing of due payments based on the actual values of their electricity consumption, and simplifying several activities such as the activation/deactivation of a supply contract, the increase/decrease of the committed power capacity, as well as the service transfer or switching procedures, based on the actual measurement data.

A greater availability of real measures (the smart meters allows their collection with a 15 minutes resolution) provides to the end users a higher awareness of their own electricity consumptions (see Directive 2012/27/EU), supporting virtuous behaviours which lead to an energy consumption reduction and to a better employment of the energy commodity, with consequent environmental benefits.

For instance, a pilot project promoted by ARERA (Del. ARG/elt n. 39/10) showed that the availability of a larger amount of actual measures, achieved through the installation of the smart meters, contributed to increase the end users awareness of their consumptions, resulting in an average energy saving of approx. 7%



Gas distribution Smart Metering (Emilia and Liguria)

NETWORKS BU 19

Rif.: Project 18-ISIN XS2065601937



Eligible Category

Energy efficiency (Energy distribution and management)

Full amount project	Finance	ed amount	KPIs
5.0 mln	2011-2019: 2020-2021 :	- mln 5.3 mln	 Smart meters installed [n] Percentage of smart meters on the tota
5.3 mln	Total	5.3 mln	

Project description

IRETI is the company of Iren Group that manages the gas distribution and metering services in several north western cities of Italy (for example Genoa, Reggio Emilia, Parma), providing gas to about 750.000 supply points (PDRs or Points of Delivery).

Promoted by Del. n. 575/2012 of ARERA (Authority for Regulation of Energy, Networks and Environment), the present project consists in the replacement of the traditional mechanical meters with a new generation of meters (smart meters), enabled for both the functions of remote reading and remote management. Such metering system allows collecting a much higher amount of measurement data, guaranteeing the billing of due payments based on the actual values of their gas consumption, and improving the management of payment delay, as well as the service transfer or switching procedures, based on the actual measurement data.

A greater availability of real measures provides to the end users a higher awareness of their own gas consumptions (see Directive 2012/27/EU), supporting virtuous behaviours which lead to an energy consumption reduction, with consequent environmental benefits.

Another related environmental effect is the reduction of measurement data collected "in the field" by operators, with a reduction in consumption of fossil fuels and related CO₂ and other harmful emissions



Replacement of gas distribution networks

20 NETWORKS BU

Rif.: Project 20-ISIN XS2065601937



ICAC

Eligible Category

Energy efficiency (Energy distribution and management)

F	-ull amount project	
	114.8 mln	

Finance	ed amount
2011-2019:	81.3 mln
2020-2021 :	11.2 mln
Total	92.5 mln

KPIs

• Average network leaks (underground network measured with planned inspection) [n]

Project description

Network maintenance and replacement: it is a continuous project developed by IRETI that consists in replacing and doing systematic maintenance of the gas distribution network's lines in order to improve the qualitative and technical levels of the network structure. Through the project it will be possible to:

- Renew network assets that finish their useful operating life or are inadequate compared with the required level of operation;
- · Rationalise the layout and structure of existing networks;
- Resolve the critical issues present in the gas distribution network;
- Reduce the gas losses in the network and by consequence:
 - o Avoid CO₂ emissions;
 - o Diminish the number of vehicles used for operative activities (such as P.I.);
 - o Mitigate the excavations made in order to repair the distribution pipeline.
- Improve the quality and continuity of the service, as required by ARERA [the Italian Regulatory Authority for Electricity Gas and Water];
- · Improve the safety of the grid.



ISIN XS2275029085-PRE ISSUE

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