



CIRCULAR ECONOMY REPORT

DOpla
2020



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INTRODUCTION

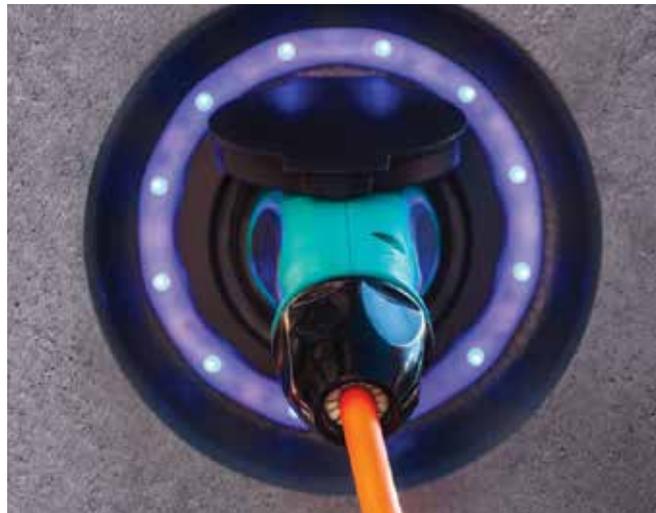
WHAT IS ENEL X'S CE CLIENT REPORT?

The CE Client Report is an assessment model developed by Enel X with the aim to measure clients' circularity from 2 points of view:

- > a high level, corporate point view, and
- > a site-specific, energy point of view

The high level, Corporate CE Assessment is a qualitative evaluation of the level of maturity and diffusion of Circular Economy principles along business value chain, from design and procurement to sales and post-consumption.

The Corporate CE assessment areas for Manufacturing companies are listed below:



AREA	DESCRIPTION
Design	Maturity and diffusion of circular design principles (e.g., design for modularity and/or disassembly) enabling/facilitating repair & maintenance or recovery & recycling
Procurement	Maturity and diffusion of circular criteria in suppliers procedures as well as of circular business models to purchase materials, equipment, office supplies, etc.
Production inputs	Consumption of renewable, recycled or biodegradable materials and of second hand or regenerated components out of all production material inputs
Production energy consumption	Consumption and self-generation of renewable energy as well as recovery and reuse of waste energy out of overall energy consumed in the production site(s)
Production waste	Diffusion and maturity of reuse or recycling practices to recover own production waste as secondary raw material or alternative fuel, either internally or in other loops
Logistics & Distribution	Diffusion of electric mobility solutions both in the production and distribution processes, diffusion of EVs and shared vehicles within the corporate fleet
Sales	Diffusion and maturity of circular principles and business models in sales (e.g., possibility to buy product in sharing or as a service, life extension services, etc.)
Post-consumption	Diffusion and maturity of repair & maintenance services for life extension as well as collection for end of life management (e.g., recovery, reuse, recycling, etc.)
Non-production energy consumption	Consumption and self-generation of renewable energy out of overall energy consumed in the offices, POS, warehouse, etc.
CE corporate approach	Corporate CE maturity in terms of alignment with the business strategy and planning as well as level of engagement of employees, suppliers and consumers on CE topics

A set of sub-questions has been defined for each area and, also based on the specific applicability for the Client, a maximum weight and scoring has been associated. The weighted average of the single areas score will define the consolidated Corporate CE score.

Based on the nature of the business, the client will be assigned either with the Manufacturing or

Services version of the Corporate CE Questionnaire, enabling Enel X to take into consideration the specificities of the business and better evaluate the company’s CE performance.

On the other hand, the site-specific, Energy CE Assessment is a quantitative evaluation of the level of implementation and diffusion of Circular Economy principles applied

to the energy sources and energy-consuming systems of one site or building specifically selected by the client. The Energy CE Assessment Model mostly evaluates how much of the site or building’s energy consumption comes from renewable sources and how energy efficient its systems and devices currently are.

The Energy CE assessment areas are listed below:

AREA	COMPONENTS
RENEWABLE ENERGY	Total renewable energy consumption
	Renewable electricity - total self generation
	Renewable electricity - total self consumption
	Renewable electricity - self consumption from storage
	Renewable thermal energy - total self generation
	Thermal energy from CHP and process heat waste recovery systems
	Thermal energy recovery rate from CHP and process heat waste recovery systems
ENERGY EFFICIENCY	Lighting
	Space heating
	Cooling
	Air treatment
	Data centers
	Water heating
	Office equipment (e.g., computers, displays, imaging equipment)
	Windows - insulation
ENERGY MANAGEMENT	Maintenance
	Monitoring & verification
	Electrical system efficiency
	Sensors/dimming for lighting
	Space heating temperature management
ENABLERS	EV charging infrastructure
	Grid services

A set of sub-questions has been defined for each area and components and, also based on the

specific applicability for the client, a maximum weight and scoring has been associated. The weighted

average of the single areas score will define the consolidated Energy CE score.

WHY THIS REPORT?

To begin with, this assessment will provide the Client with structured insights on how the company is doing today, highlighting the company's key strengths and criticalities related to Circular Economy.

Furthermore, this assessment will help the Client identify, select and prioritize areas of intervention that will boost the company's as-is level of circularity. More specifically, Enel X will help identify Energy Circularity improvement opportunities and solutions.

WHAT'S IN THIS REPORT?

Sections **A.1** to **A.3** of this document include the outputs of the CE Client Assessment Corporate and Energy.

Sections **B** and **C** of this document include the Energy CE Roadmap and the Energy CE Assessment Sensitivity defined to guide the client's path towards Circular Economy.

SECTION 1

A. CE CLIENT ASSESSMENT

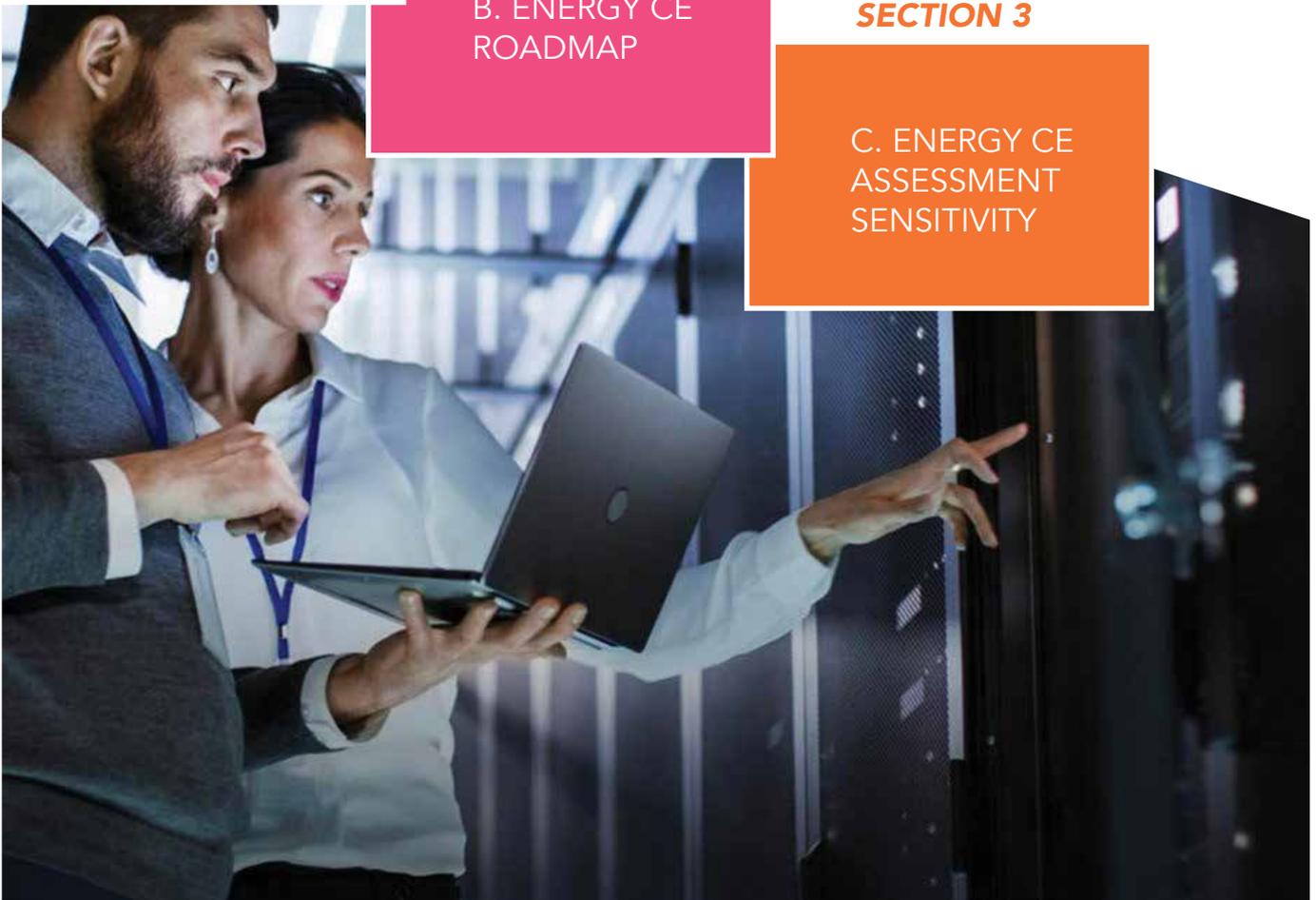
CORPORATE ENERGY

SECTION 2

B. ENERGY CE ROADMAP

SECTION 3

C. ENERGY CE ASSESSMENT SENSITIVITY



A.1. CE COMPANY ASSESSMENT

A.1.1. Overall Corporate CE



> DOpla Group, alongside its subsidiaries, is Europe's leading industrial operator in tableware and food service, having generated a turnover of over 200 million euros in 2018 with a staff of over 650 people. The company strengthens its leadership in Consumer, Vending, HoReCa and Dairy markets, also in terms of environmental sustainability, leading the change in the transformation of its sectors, towards the offering of useful and eco-friendly products and solutions suited to the needs of our Consumers and Professionals in packaging for the consumption of food and drinks.

33.5%

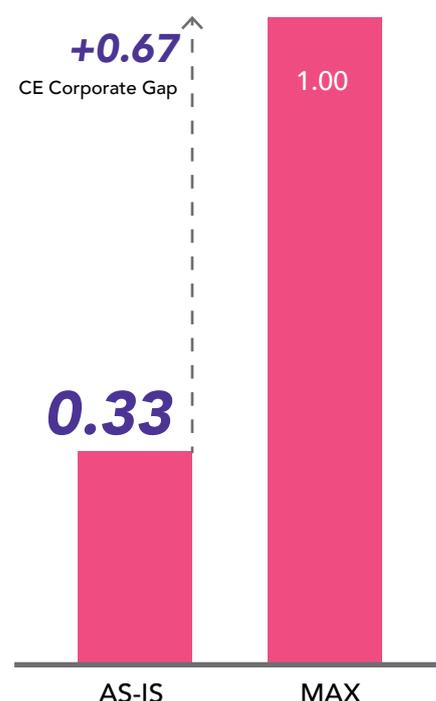
> DOpla Spa has already started a plan to push the Circular Economy into the core of its business leading the transformation of the tableware and food service sector. The starting level is quite good and it is equal to 33.5%.

INDUSTRY	Manufacture of plastic products
SEGMENT	B2B
REVENUES	200 M€
MARKET PRESENCE	Europe
HEADQUARTERS	via Nuova Trevigiana, 126 Lughignano 31032 Casale sul Sile (TV)
EMPLOYEES	174

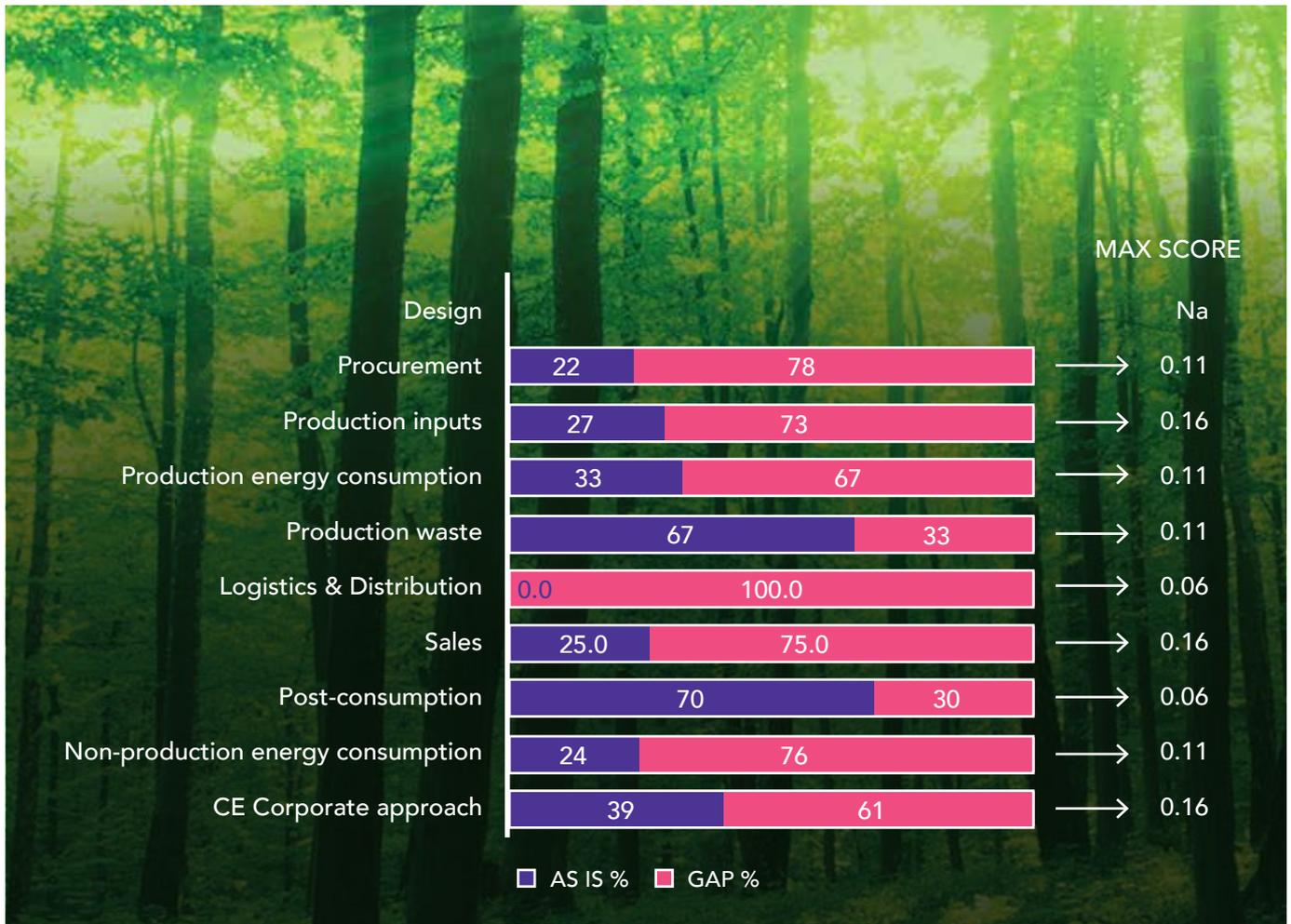
A.2. CORPORATE CE

A.2.1. Corporate CE Overview

In the following chapter we evaluate in detail, for each element of the Value chain, how DOpla applies the principles of the Circular Economy, and which are the main gaps identified.



AREA	AS IS SCORE	MAX SCORE	DELTA
Design	Na	Na	Na
Procurement	0.024	0.110	0.086
Production inputs	0.039	0.160	0.121
Production energy consumption	0.030	0.110	0.080
Production waste	0.074	0.110	0.036
Logistics & Distribution	0.000	0.060	0.060
Sales	0.039	0.160	0.121
Post-consumption	0.042	0.060	0.018
Non-production energy consumption	0.026	0.110	0.084
CE Corporate approach	0.062	0.160	0.098



KEY STRENGTHS

- > One of the main strengths of DOpla in terms of Circular Economy is related to Production waste area. The company has generated 165 tons of production waste in the last fiscal year out of which the 65% is reused or recycled (10% internally that becomes 50% if we consider also waste water reused as process input and 55% externally).
- > From the graph, we can see that "Post-Consumption" area shows the highest level given by the end of life/ take back initiatives carried out by consortia for the recovery of materials (PET, bio-plastics, paper, etc.).
- > From a sustainable development and circular economy point of view, DOpla already shows good handling of these issues. Corporate strategies are already in place, with targets to reduce the CO₂ emissions thanks to the reduction of 8.33% of the stretch film thickness.

KEY AREAS OF IMPROVEMENT

- > The largest gap identified by the circularity analysis relates to the logistics and distribution area. Currently DOpla does not have electric or hybrid vehicles in its corporate fleet, also due to the type of use. Furthermore, the fleet is not made up of shared vehicles.
- > Another area lacking in terms of circular economy principles integration is "Production Input". Currently there are no recycled material inputs for production purpose, despite this is important to highlight that 20% of inputs is internally covered by reused material.

A.2.2. Corporate CE Value Chain Analysis



DESIGN

- > Not applicable for the DOpla product portfolio.

PROCUREMENT

- > DOpla s.p.a. does not have a specific focus about purchasing phase in terms of circular economy. There is not a structured policy to set thresholds as purchasing criteria and their definition is established case by case.
- > Nevertheless, a very significant aspect through the lenses of circularity is that the 90% of suppliers have at least one CE-related/sustainability certification and, in some cases, their products have to stay above a minimum threshold of reused, recycled, renewable or bio-based content to be eligible, both for production and non-production items.

PRODUCTION INPUT

- > Out of the total material input used for production purposes, 14k tons, up to 20% is regenerated from internal process's raw material and 1,2% is composed by biodegradable material.

PRODUCTION ENERGY CONSUMPTION

- > In the last fiscal year, the amount of energy consumption for production purposes is equal to 16,651,361 kWh. For a small part, the energy consumption is covered by self-produced energy. The company has the intention of extending the current photovoltaic park in order to increase self-consumption. Moreover, in a perspective of circularity, 40% of waste heat from the process has been recovered.

PRODUCTION WASTE

- > The production waste generated by DOpla in the last fiscal year is equal to 165 tons, of which 65% is recycled (10% internally and 55% externally), without taking into account the amount of waste water recovered in production process.

LOGISTICS & DISTRIBUTION

- > Currently there are no electric or hybrid vehicles in the corporate fleet, while the whole logistic is outsourced, without choosing a "green" provider.
- > From the point of view of the Circular Economy is relevant the fact that there are no vehicles in sharing.

SALES

- > Even though circular business models as sharing and product-as-service are not applicable, the company has launched a parallel product line with products from regenerated materials

POST-CONSUMPTION

- > The company does not provide a direct after-use waste collecting service, but most of the after-sales product waste (PP, PET, PLA, paper) has been collected by national collecting consortia.

CE CORPORATE APPROACH

- > The company already has a good level of maturity on circularity issues. It is in place the implementation of targeted policies to reduce consumption and the related carbon footprint, in terms of stretch film's thickness reduction (-8,33%; -2459 kgCO₂eq) and use of new biodegradable materials for film production.
- > The engagement is also demonstrated by many initiatives and communications published on the website.



A.2.3. Corporate CE Business Models Analysis

Below is an analysis that describes how DOpla Spa, operating the manufacturing sector, crosses the five business models of the Circular Economy.

SUSTAINABLE INPUTS

- > The "Sustainable Inputs" business model involves the use of renewable energy and material inputs that are renewable, recyclable or biodegradable in consecutive lifecycles.
- > The 90% of selected suppliers have CE-related/sustainable certified products, with a minimum threshold of reused/recycled/renewable/bio-based content for some.
- > Moreover, DOpla uses 20% of regenerated and 1,2% of bio-based materials.

PRODUCT AS A SERVICE

- > The "Product as a Service" business model provides that the company, instead of selling the product, retains ownership of the asset, selling the service associated with it along with other related benefits (e.g. customer support).
- > This business model is not applicable to DOpla product portfolio.

SHARING

- > The "Sharing Platforms" business model provides for the promotion of collaboration platforms that bring owners and users of assets together, allowing consumers to obtain savings and profit from shared and optimized use of the same.
- > This business model is not applicable to DOpla product portfolio.

LIFE EXTENSION

- > The business model "Life Extension" provides that the company's design and production processes aim to extend the useful life of the product, through the possibility of maintenance, repair, upgrade or regeneration of the same.
- > DOpla product portfolio is not suitable with life extension activities. Nevertheless, internally they can regenerate up to 20% material input from process's raw material.

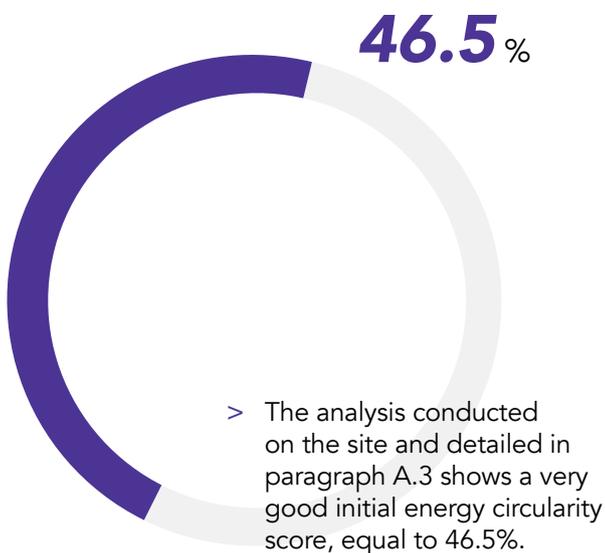
END OF LIFE

- > The "Reuse & Recycle" business model provides the set-up of production and consumption systems where what was previously considered as waste is instead recovered, recycled or regenerated to be reused as inputs for new processes.
- > From an overall point of view, is relevant that 65% of production waste is recycled or reused and up to 40% process's heat is recovered.

A.2.4. Single Unit Energy CE



- > The site in scope, built in 1964 and refurbished for the last time in 2008, is the Headquarter of DOpla SpA located in Casale sul Sile (TV).
- > The building hosts the production activities (e.g. single-use plastic/bio-plastic crockery and containers, plastic injection machine, plastic extrusion molding machine), logistics, warehouse, employee services and administrative offices.



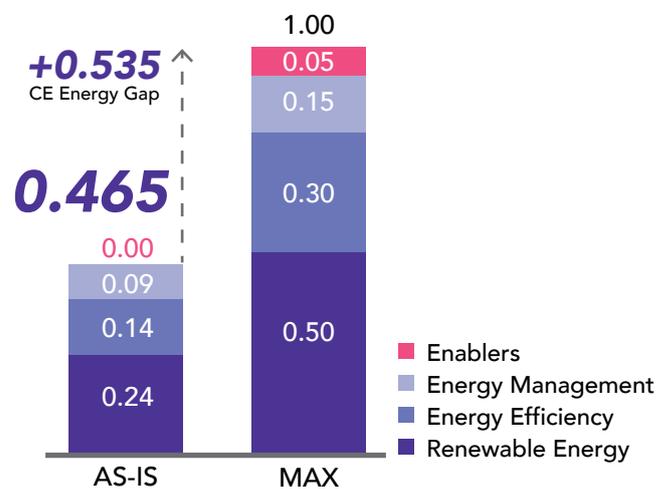
TYPE OF BUILDING	Headquarter
DIMENSION (M ²)	19.350
OCCUPANTS	174
CONSTRUCTION YEAR	1964
LAST REFURBISHMENT	2008
LOCATION	Via Nuova Trevigiana, 126, Casale sul Sile (TV), 31032

A.3. ENERGY CE

A.3.1. Energy CE Overview

Although the DOpla Headquarter has a high starting point in terms of energy circularity (46.5%), the achieved score presents some margins of increase, suitably working on energy efficiency, energy management and renewable energy generation, as will be detailed in the next paragraphs.

 **DISCLAIMER** - to achieve a full Energy CE score, the client must focus on investment in 1. renewable sources for its energy consumption, 2. energy efficient equipment and energy consuming systems in the building, 3. energy management tools and procedures that minimize energy waste and 4. Energy CE enablers such as EV charging infrastructure and hardware and software for grid services



KEY STRENGTHS

- > From an overall point of view, the main energy consumption is related to electrical sources, that permits large margins of improvement in terms of circularity, adopting solutions that enhance an advantageous management of energy systems and the use of renewables.
- > The building under analysis already has energy consumption from renewable sources. There are a photovoltaic system for the self-production of electricity and a heat recovery system.
- > From the point of view of energy efficiency, the building shows a good energy class of the assets as well as by the presence of double-glazing windows on the entire perimeter of the building and most of the office equipment equipped with energy efficiency labels.

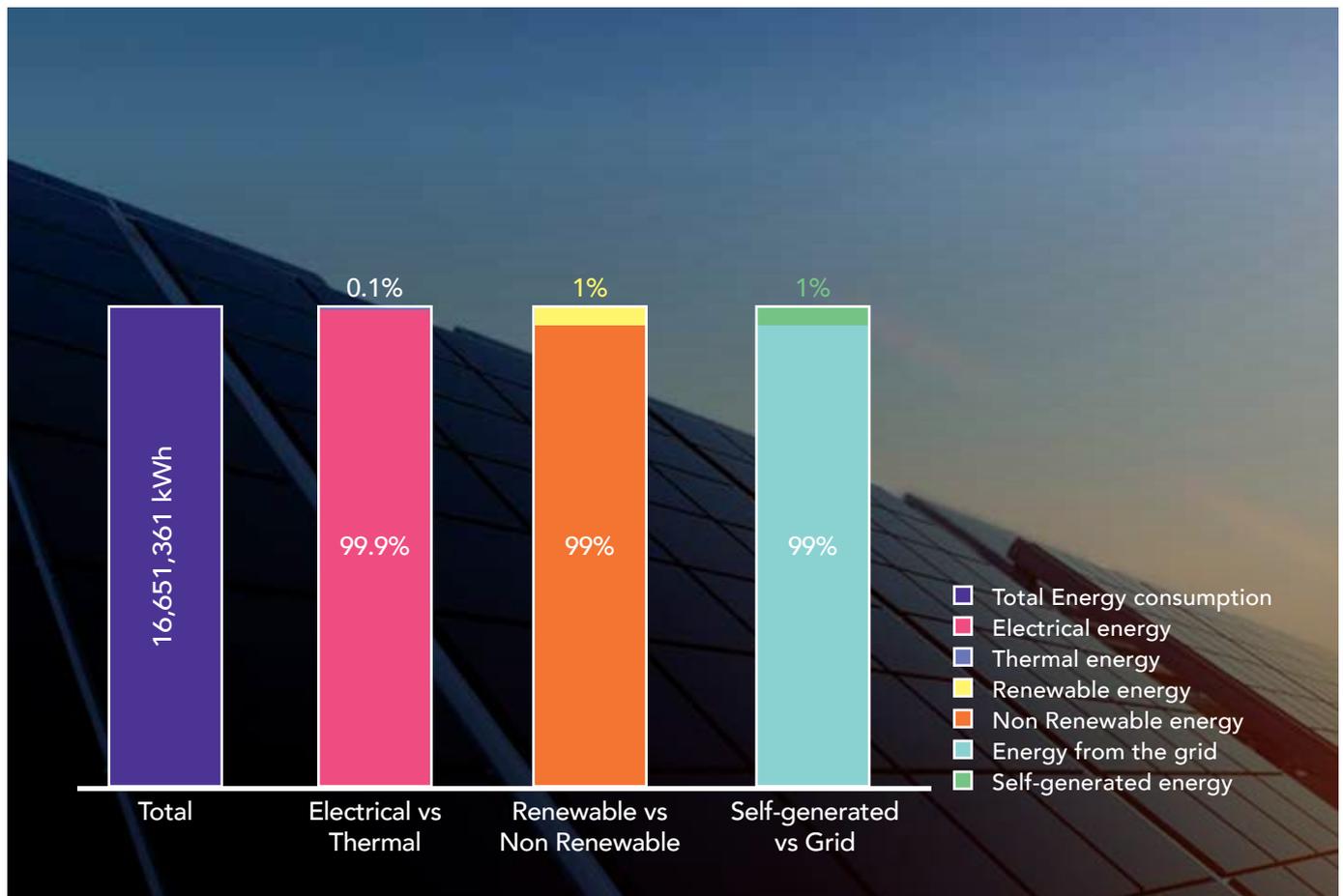
KEY AREAS OF IMPROVEMENT

- > DOpla should consider the installation of a specific monitoring system, in order to optimize energy consumption and identify cost saving opportunities.
- > From a lighting point of view, although the building has a part of LED lights, 83% of the system is made up of incandescent lamps. Relatively to energy management, the company should evaluate the extension of its sensors and dimming systems for lighting in order to optimize system consumption.
- > Furthermore, there are no Enablers of circularity (e.g. EV charging, Grid services) in the site in scope.
- > To date, it is relevant to highlight that not all assets are subject to periodic routine maintenance.

A.3.2. Renewable Energy

 **DISCLAIMER** - to achieve a full Energy CE score in this section, the client must focus on investment in renewable sources for its energy consumption

> DOpla site has a total energy consumption of 16,651,361 kWh per year, of which 99,9% electrical, very partially self-produced, and 0,01% thermal.



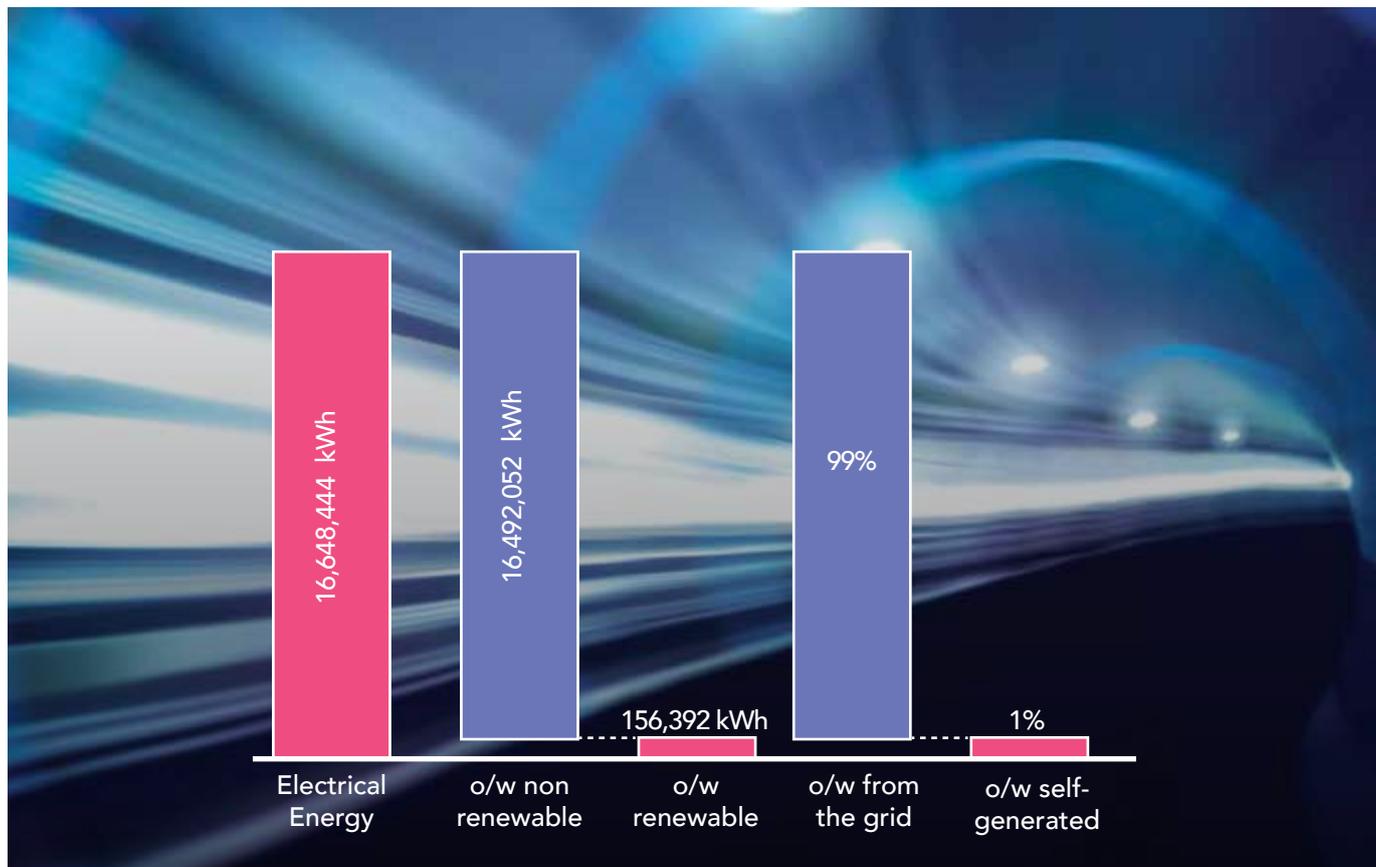
KEY STRENGTHS

> The site in scope has already photovoltaic system for energy self-generation and heat recovery system.

KEY AREAS OF IMPROVEMENT

> The consumption covered by renewable source represent at the moment only 1% of the total. DOpla should also evaluate the extension of its photovoltaic park in order to increase the percentage of self-produced renewable energy. In this way, it would pursue an even more focused step towards energy circularity, since photovoltaic systems (compared to the Guarantees of Origin) not only allow self-production of zero-emission energy but also eliminate grid losses and inefficiencies thanks to on-site generation.

A.3.2.1. Renewable Energy – Electrical Energy



ELECTRICAL ENERGY FROM RENEWABLE SOURCES

- > The DOpla plant in Casale sul Sile has annual electricity consumption of 16,648,444 kWh. 1% of this consumption, corresponding to 156,392 kWh, come from renewable sources and is related to the self-production of energy on site.

RENEWABLE ELECTRICAL ENERGY FROM SELF-GENERATION

- > The self-generation, from PV System, produces 156.392 kWh and covers the 100% of the total renewable electricity consumption.

A.3.2.2. Renewable Energy – Thermal Energy

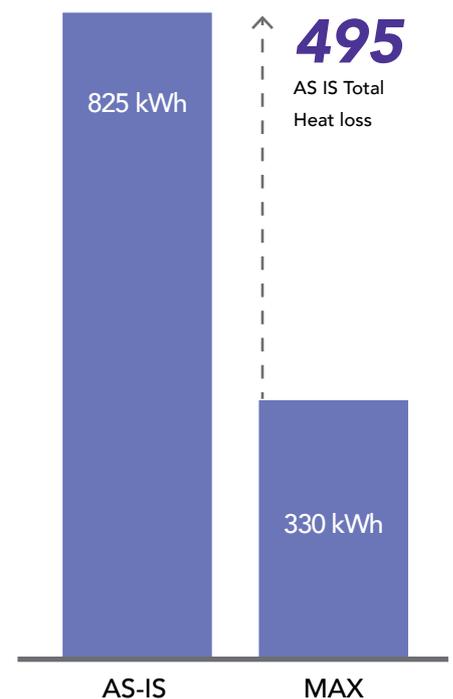
THERMAL ENERGY FROM RENEWABLE SOURCES

- > Thermal Energy consumed in the site under analysis, equal to 2,917 kWh per year, does come totally from renewable sources.

RENEWABLE THERMAL ENERGY FROM SELF-GENERATION

- > In the site in scope there is a heat recovery system integrated with the air treatment system, which permits to save 330 kWh.

A.3.2.2.1. Thermal Energy – Heat Recovery



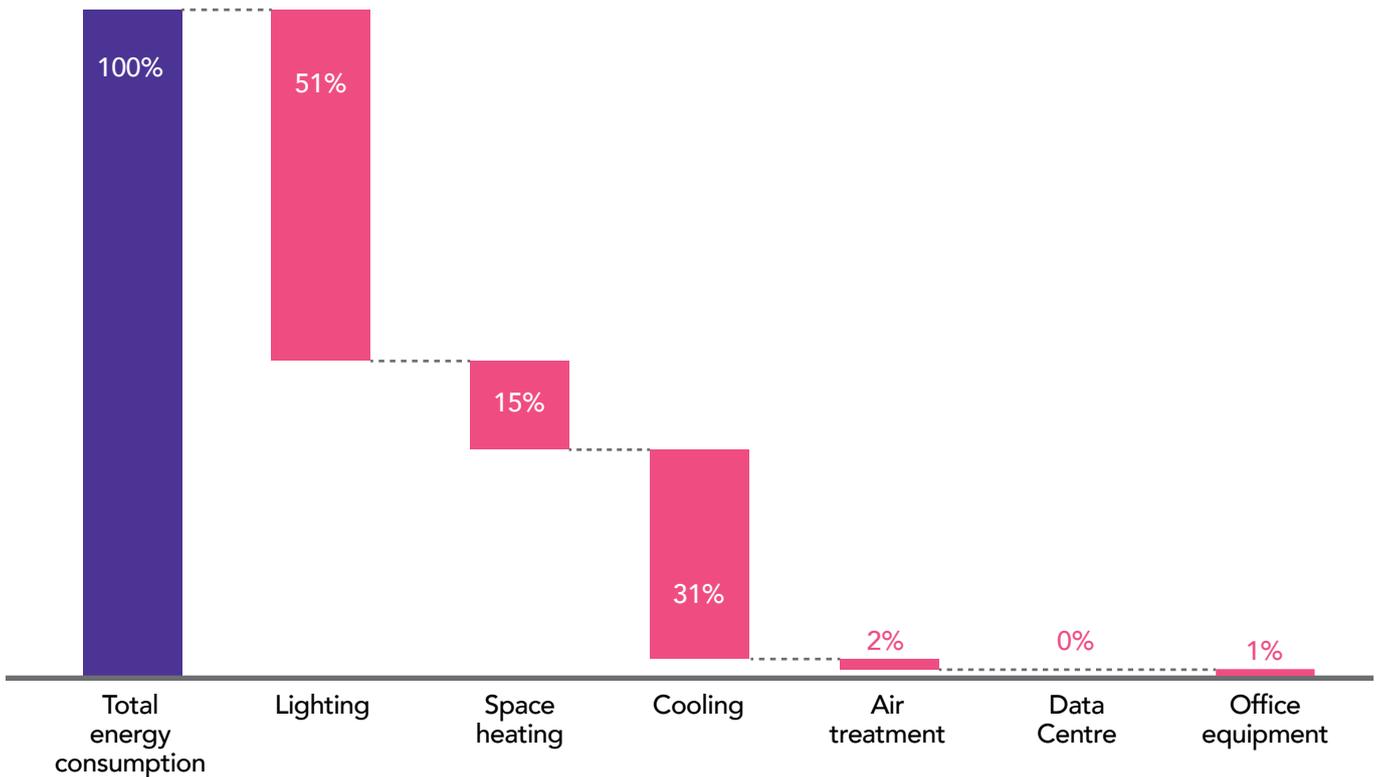
PROCESS WASTE HEAT/ STEAM RECOVERY

- > One of the main strength point in terms of circularity for DOpla, is the recovering of up to 40% of heat from internal productive process, avoiding the loss of 330 kWh per year by taking back hot air from compressors' cooling system, through air/air heat exchangers.

A.3.3. Energy Efficiency

Excluding the consumption related to the production processes, which make up more than 86% of the total, the graph shows how most of the consumption is related to lighting followed by cooling system.

DISCLAIMER - to achieve a full Energy CE score in this section, the client must focus on energy efficiency for all equipment and energy consuming systems in the building



KEY STRENGTHS

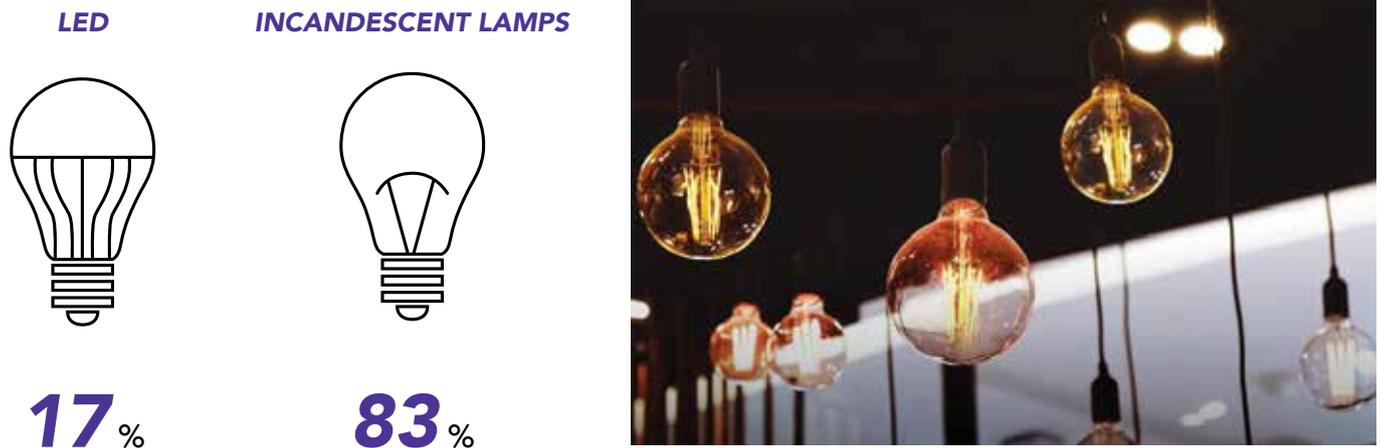
- > In terms of circular efficiency, the air treatment system is integrated with the heat recovery plant, avoiding an energy extra-consumption.
- > 100% of office equipment has an energy efficiency label.
- > The presence of double-glazing windows on the entire perimeter of the building guarantees to the building high level of insulation.

KEY AREAS OF IMPROVEMENT

- > From the point of view of energy efficiency, although the level is already quite good, it is possible to work on the efficiency of the lighting system by replacing the bulbs not yet LED.
- > Opportunity to substitute a standard space heating system with a low-temperature heat pump, if combined with installation of PV panels.

A.3.3.1. Energy Efficiency - Lighting

The site in scope has a total illuminated area of 36,000 m². The related energy consumption is 1,181,061 kWh and represent the 51% of the total energy consumption*. Out of the 830 bulbs installed, 139 are LED technology, 631 incandescent lamps.



KEY STRENGTHS

- > 17% of the lighting points are already LED lamps.
- > Twilight sensors for outdoor lighting system cover 42% of external surface.

KEY AREAS OF IMPROVEMENT

- > Despite 17% of lighting points is already LED it is possible to reduce the lighting energy consumption by replacing the remaining less efficient technology bulbs.
- > Even though almost the half of outdoor lighting system is subject to twilight sensor, it could be possible to cover a major percentage of external surface.

A.3.3.2. Energy Efficiency – Space Heating, Cooling, Air Treatment, Water Heating and Data Centre

 **DISCLAIMER** - all energy efficiency indicators below (i.e. energy efficiency class, EER, heat recovery efficiency and PUE) are those stated by the manufacturers in technical data sheets

Analysing the other energy consuming assets present in the building under analysis, the first data to highlight is their aggregate consumption, equal to 1,130,678 kWh. Out of this consumption, 94% (1,064,690 kWh) relates to the heating (30%) and cooling (64%) systems.

SPACE/WATER HEATING

**Consumption in
339,277 kWh**

**Standard
Heat System**

**Energy Efficiency Class
A+**

- > The space/water heating system is a standard plant, powered by two natural gas thermal power stations.
- > From a circular point of view, it is important that the water heating system, although it does not have a high consumption, would be completely powered by self-produced thermal energy. Alternatively, it could be possible to substitute a standard space heating system with a low-temperature heat pump, if combined with installation of PV panels.

COOLING

Consumption in 725,413 kWh

EER 3,5

- > Cooling of the production departments through the adiabatic system consisting of 20 evaporative units, with high efficiency.

AIR TREATMENT

**Consumption in
42,408 kWh**

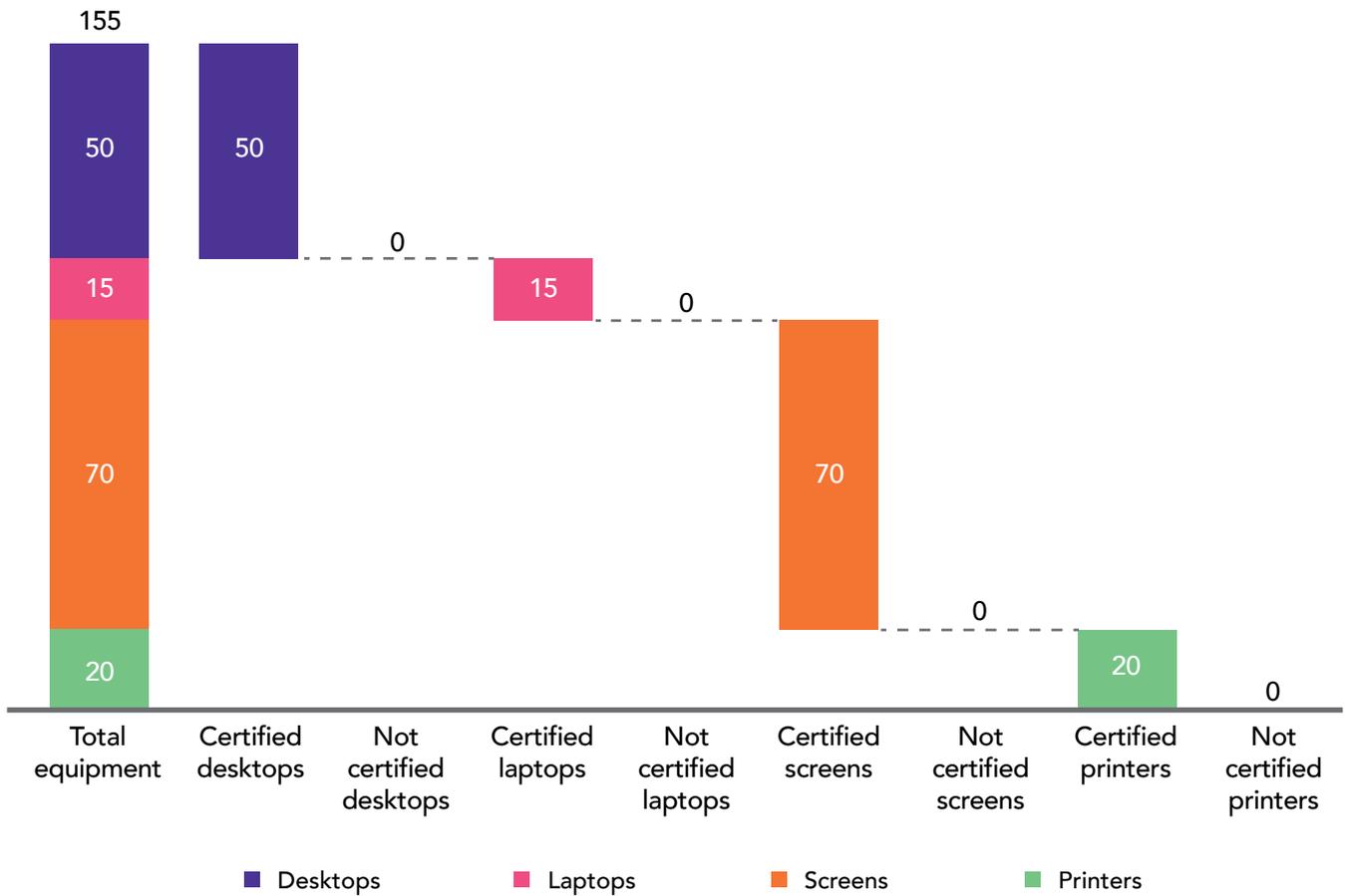
Integrated System

**Heat Recovery Efficiency
330 kWh**

- > From a circularity point of view, the DOpla's air treatment system is a strength point, recovering hot air from the cooling systems of the air-air exchangers of the 110 KW compressors.

A.3.3.3. Energy Efficiency – Office Equipment

The DOpla Headquarter hosts a total of 155 office equipment, which are all equipped with an energy efficiency label.



KEY STRENGTHS

> 100% of office equipment is certified Energy Star or EU Ecolabel.

KEY AREAS OF IMPROVEMENT

> As the best score has been achieved, it is not needed any other improvement.

A.3.4. Energy Management

 **DISCLAIMER** - to achieve a full Energy CE score in this section, the client must focus on energy management tools and procedures that minimize energy waste in the building

From an energy management point of view, there are a few specific meters in place, able to partially monitor the single each energy-consuming system. The ordinary maintenance activities are carried out periodically on lighting, heating and cooling systems only (100% of system maintained).

	LIGHTING	SPACE HEATING	COOLING	AIR TREATMENT	WATER HEATING	DATA CENTRE	OFFICE EQUIPMENT
MAINTENANCE IN THE LAST 6 MONTHS							
yes or no	yes	yes	yes	no	no	no	no
% maintained	100	100	100	0	0	0	0
MONITORING							
yes or no	yes	no	yes	yes	no	no	no
% monitored	7	-	4,5	0,2	-	-	-

LIGHTING

- > Only 7% of the lighting consumption is specifically monitored.
- > 100% of the lighting system has been subjected to maintenance in the last 6 months.

SPACE HEATING

- > There is not in place energy monitoring system specifically dedicated to the space heating system.
- > 100% of space heating system has been subjected to maintenance in the last 6 months.

COOLING

- > Only 4.5% of the cooling system consumption is specifically monitored.
- > 100% of cooling system has been subjected to maintenance in the last 6 months.

AIR TREATMENT

- > Only 0.2% of the air treatment system consumption is specifically monitored.
- > There is not in place any maintenance activity specifically dedicated to the air treatment system.

WATER HEATING

- > There is not in place any energy monitoring system nor maintenance activities specifically dedicated to the water heating system.

DATA CENTRE

- > There is not in place any energy monitoring system nor maintenance activities specifically dedicated to the data centre.

OFFICE EQUIPMENT

- > There is not in place any energy monitoring system nor maintenance activities specifically dedicated to the office equipment



A.3.5. Enablers

At the moment DOpla does not have solutions that can be considered circularity enablers. Among the others, Electric mobility could be for the company an effective enabler of the circular economy since it guarantees enormous benefits in terms of increasing energy circularity as well as reducing emissions in the atmosphere and pollutants harmful to human health.

DISCLAIMER - to achieve a full Energy CE score in this section, the client must focus on investment in Energy CE enablers such as EV charging infrastructure and hardware and software for grid services connected to the building in scope



EV CHARGING INFRASTRUCTURE

> There are no EV charging infrastructure in the site in scope.

HARDWARE & SaaS FOR GRID SERVICES

> DOpla has not in place any network flexibility system.

B. ENERGY CE ROADMAP

Enel X's solution portfolio widely address most of the energy circularity evaluation areas.

B.1. ENEL X SOLUTIONS FOR THE IDENTIFIED AREAS OF IMPROVEMENT

ENEL X SOLUTION		ENERGY CE KEY AREAS			
		RENEWABLE ENERGY	ENERGY EFFICIENCY	ENERGY MANAGEMENT	ENABLERS
ADVICE	Consulting/Auditing service	X	X	X	X
	Energy related certificates	X			
	Premium customer service		X	X	
	Procurement		X	X	
	Utility bill management		X	X	
SUPPLY	CHP	X	X		
	Energy infrastructure			X	X
	PV + storage	X			
OPTIMIZE	Industrial equipment (UPS, PFC, IHW, etc.)		X	X	
	Monitoring and verification		X	X	
	Private Lighting		X	X	
	Product and system optimization (HVAC, IHW)		X	X	
FLEXIBILITY	Demand Response				X
	Storage Solutions	X			X
	Direct marketing		X		X
	Mini-grid solutions	X			
	Operations & Maintenance			X	
MOBILITY	Private Charging Station				X
	B2B Fleets				X

Three are the main areas of intervention identified: lighting energy efficiency; energy management; introduction of electric mobility solutions.

B.2. RENEWABLE ENERGY

SOLUTION PROPOSED – LED LIGHTING SYSTEM

- > Out of the total lighting points installed in Dopla factory, 57% are Compact Fluorescent lamps, 43% are LED lamps.
- > Enel X proposes the renewal of the lighting system, with the replacement of traditional bulbs with LED lamps. Here are some products from the PHILIPS industrial lighting range as an example.

TECHNOLOGY
LED



50%
AVERAGE POWER SAVING COMPARED TO TRADITIONAL BULBS

SOME TECHNICAL SPECIFICITIES

- > UV stabilized paint, anti-yellowing
- > Devices manufactured with stabilizing materials

GENTLESPACE GEN 2.1



Size (mm)		
L 600	W 450	H 150
L 450	W 350	H 130
Ceiling height		
7-12		12+

PACIFIC LED



Size (mm)		
L 1.600	W 109	H 118
Ceiling height		
<7		7-12

MAXOS LED INDUSTRY



Size (mm)		
L 1,528	W 63	H 50

GENTLESPACE GREENWAREHOUSE



Size (mm)		
L 650	W 450	H 210
L 500	W 350	H 210
Ceiling height		
7-12		12+

B.3. ENERGY MANAGEMENT

KEY AREA OF INTERVENTION	PROPOSED SOLUTION	ENEL X SOLUTION
Efficient Energy Management	Installation of an Energy Monitoring System for the management of energy consumption	Energy Monitoring System (EMS)



SOLUTION PROPOSED – ENERGY MONITORING SYSTEM (EMS)

- > Casale sul Sile plant of Dopl Group does not currently have any solution for monitoring and managing energy consumption. Enel X proposes the installation of an Energy Monitoring System: a complete, interoperable and scalable system, specially designed for energy management which will allow Simer to improve operational efficiency, reduce energy costs, guarantee the reliability of the electricity grid and optimize the use of equipment, all through real-time data collection algorithms.

TECHNOLOGY ENERGY MONITORING SYSTEM

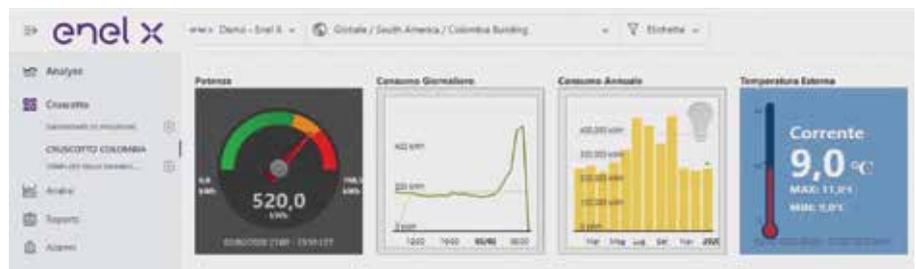
FUNCTIONALITIES
EMS allows the monitoring of production lines and electrical heating and cooling systems, as well as active energy management and proactive maintenance



10% AVERAGE REDUCTION
IN ENERGY COSTS



15% AVERAGE REDUCTION
IN MAINTENANCE WORK



SOME TECHNICAL SPECIFICITIES

- > Dashboard functionality to quickly view what is happening on the sites being monitored
- > Ability to select the level of data display: Global, Zone, Site, Building, Sub-location
- > Measurement & Verification report creation in line with IPMVP protocols to keep track of specific energy efficiency projects
- > Creation of customized reports based on sustainability and energy efficiency targets
- > Email notification in case of anomalies with respect to set parameters (e.g. in case of exceeding consumption data thresholds)

B.4. ENABLERS

KEY AREA OF INTERVENTION	PROPOSED SOLUTION	ENEL X SOLUTION
Electric Mobility	Installation of charging infrastructure for electric cars	<ul style="list-style-type: none"> > JuicePole > JuiceBox C

SOLUTION PROPOSED – JUICEPOLE OR JUICEBOX

Electric mobility is the most effective solution towards sustainable mobility, as well as a direct enabler of the Circular Economy. Doplá currently does not have charging infrastructure for electric vehicles near or inside the car parks of its buildings.

Enel X proposes two alternative charging solutions:

- > **JuicePole:** JuicePole: corporate electric charging solution, in direct or alternating current. The infrastructures are connected to the centralized platform Electric Mobility Management System, which also manages the public balusters: customers can access both the infrastructure networks, diversifying the recharge opportunities.
- > **JuiceBox C:** corporate electric charging solution, suitable for indoor and outdoor installation. The infrastructures are manageable through multi profiles mobile App tailored on business needs, allowing to: charge on company stations, reserve a charging point, monitor energy consumption and receive notifications about charging sessions.

TECHNOLOGY **JUICEPOLE**

OUTPUT POWER
2x22 kWh

FUNCTIONALITIES

Outdoor charging solution, designed to be located in company car parks. It enables two electric vehicles to be charged at the same time and allows the access to charging procedure via mobile APP and RFID card



SOME TECHNICAL SPECIFICITIES:

- > Type 2 22kW + Type 2 22kW (44kW 64A @400V)
- > Possibility to customise the JuicePole with company logos
- > Compatible with all EVs available in Europe: Type 2/ Type 3a socket
- > Electrical protection Single-phase/Three-phase: MCB (curve D) e RCD type B (30 mA)

TECHNOLOGY **JUICEBOX C**

OUTPUT POWER

JUICEBOXC 07: up to **7,4 kW, 32 A, 1 phase**
JUICEBOXC 22: up to **22 kW, 32 A, 3 phase**

FUNCTIONALITIES

Outdoor and indoor charging solution, designed for electric cars recharge in workplace. It enables the possibility to be upgraded to Enel X JuiceStation and allows the access to charging procedure via mobile APP and RFID card

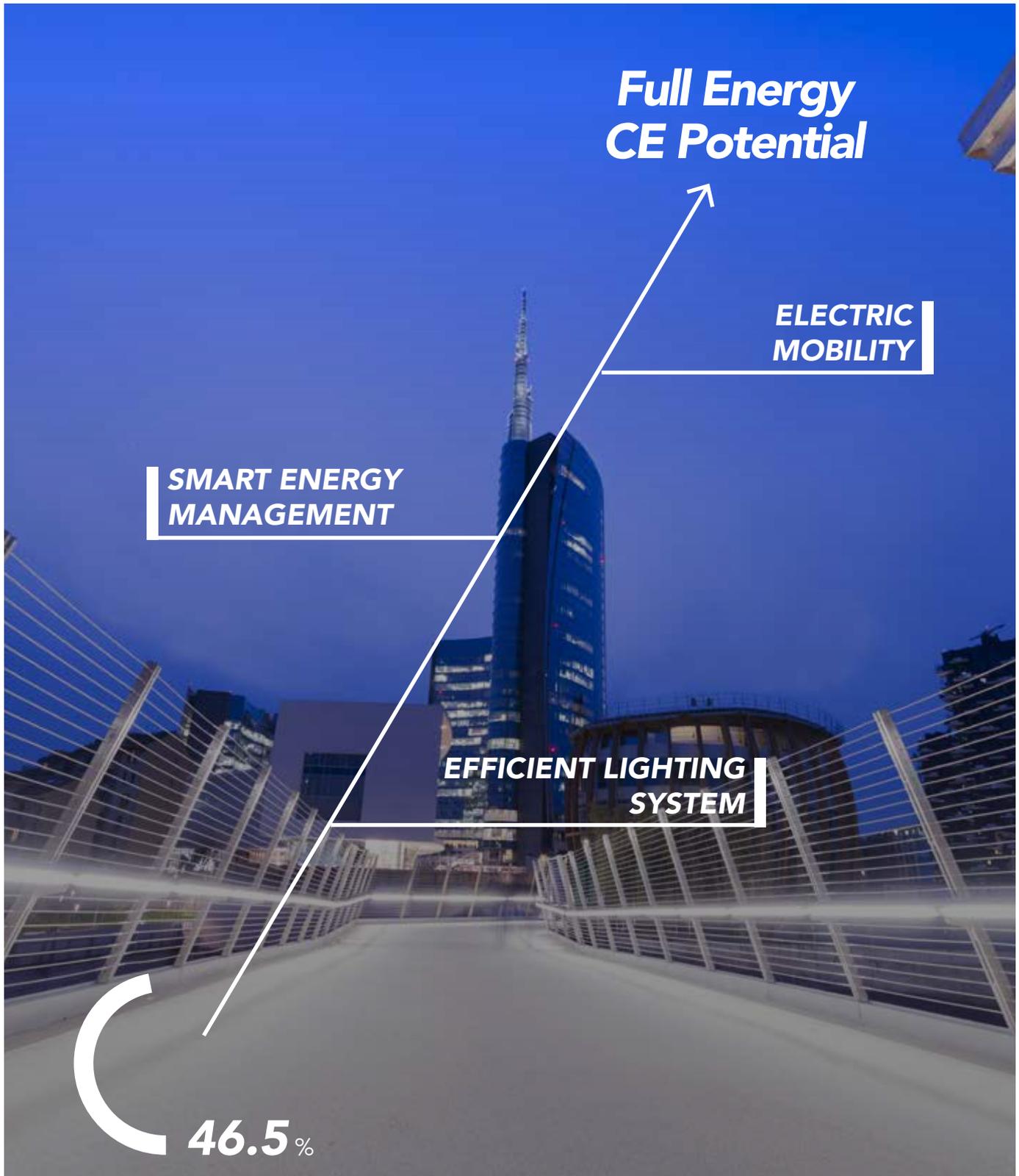


SOME TECHNICAL SPECIFICITIES:

- > Possibility to reserve charging sessions via Business mobile App
- > Input voltage: 230 VAC (1-phase / IT); 400 VAC (3-phase / TN)
- > Protection: IP55, IK10; Internal DC fault current detector (above 6 mA)
- > Standard & Certifications: IEC 61851-1, CE certified
- > Dynamic LEDs indicate charging status

B.5. ROADMAP

To achieve the maximum potential for Energy Circularity, Doplá should invest above all in interventions that enable efficient, smart and flexible management of energy consumption.



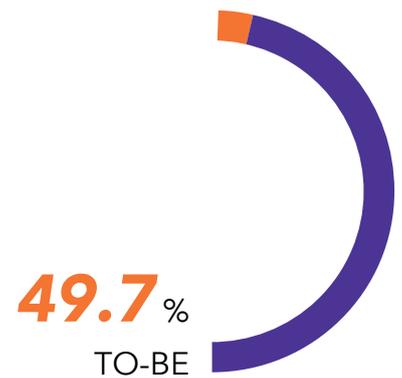
C. ENERGY CE ASSESSMENT SENSITIVITY

In the best of the four scenarios, the Energy Circularity level of Dopla's site will increase from 46.5% to 56.1%, thanks to the integration of the Enel X solutions identified and detailed in chapter B.

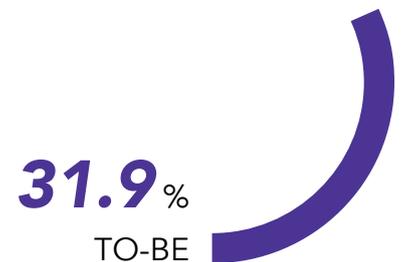
C.1. SCENARIO 1 – LED LIGHTING

The scenario includes the following interventions for Dopla's site:
> Renovation of the lighting system with LED bulbs.

ENERGY CE



LED



CORPORATE CE

IMPACT ON ENERGY CE & CORPORATE CE

> The proposed interventions allow an increase in the Energy Circularity of the analysed site equal to 3.2% compared to the starting level. No impact on the Corporate Circularity.

C.2. SCENARIO 2 – LED LIGHTING, EMS

The scenario includes the following interventions for Doplá's site:

- > Renovation of the lighting system with LED bulbs;
- > Energy Monitoring System.

ENERGY CE



LED



EMS



CORPORATE CE

IMPACT ON ENERGY CE & CORPORATE CE

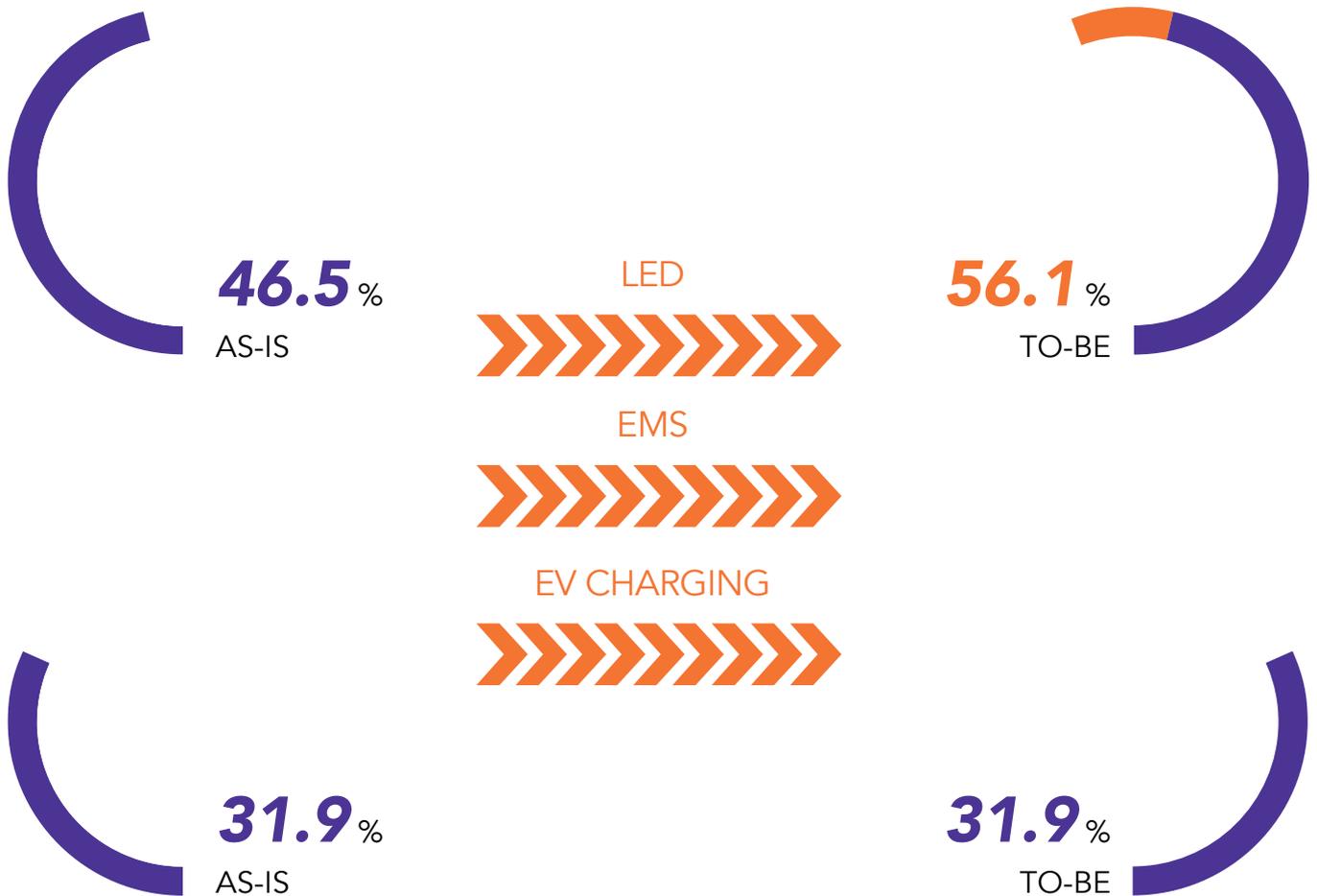
- > The proposed interventions allow an increase in the Energy Circularity of the analysed site equal to 7.1% compared to the starting level. No impact on the Corporate Circularity.

C.3. SCENARIO 3 – LED LIGHTING, EMS, EV CHARGING

The scenario includes the following interventions for Dopla’s site:

- > Renovation of the lighting system with LED bulbs;
- > Energy Monitoring System;
- > Electric Vehicle charging solutions.

ENERGY CE



CORPORATE CE

IMPACT ON ENERGY CE & CORPORATE CE

- > The proposed interventions allow an increase in the Energy Circularity of the analysed site equal to 11.1% compared to the starting level. No impact on the Corporate Circularity level.

X. ANNEX

X.1. ENEL X'S SOLUTION PORTFOLIO

CATEGORY	CLUSTER	DESCRIPTION
ADVICE	Consulting/Auditing service	Services aimed at identifying solutions to achieve realistic savings in energy consumption through improvement of offices, buildings and production plants efficiency.
	Energy related certificates	Optimization of the portfolio of energy related efficiency certificates (e.g. TEE, RECs, VER), also by maximizing the value generation through trading opportunities.
	Premium customer service	Unique multisite/multipoint bill, benchmarking analysis, dedicated contact point.
	Procurement	Offering energy cost optimization through the assessment of the most suitable energy provider based on the customer energy behaviour understanding. Service also performed through reverse auction with proprietary SW.
	Utility bill management	Premium Service designed for multi-point Business Clients with many different PODs and, more generally, branches/offices in the national territory and/or abroad. Using a digital platform, UBM enables the analysis and comparison of energy, gas, water and sanitation consumption and invoices. The service also calculates the impact of energy consumption in terms of CO ₂ emissions.
SUPPLY	CHP	Cogeneration systems sold to enterprises.
	Energy infrastructure	Projects implementation mainly related to electrical infrastructure of new buildings (commercial/industrial) Development and construction of gas distribution networks or gas/CNG/LNG facilities for commercial/industrial users.
	PV + storage	Photovoltaic solution sold to enterprises (including storage when applicable).
OPTIMIZE	Industrial equipment (UPS, PFC, IHW, etc.)	Provisioning and installation of industrial equipment related to uninterruptible power supply (UPS), power factor correction of electric loads (PFC), industrial hot water (IHW), etc.
	Monitoring and verification	Installation of metering infrastructure and customization of relevant software layer enabling a real-time control of energy disaggregated energy performances and influencing B2B customers energy behaviour.
	Private Lighting	Projects related to LED lighting services in offices, retail shops, malls and others.
	Product and system optimization (HVAC, IHW)	Building/Offices energy efficiency projects implementation (Heath Ventilation and Air Conditioning, Industrial Hot Water).

CATEGORY	CLUSTER	DESCRIPTION
FLEXIBILITY	Demand Response	Hardware and SaaS for aggregating and managing for enabling grid services (EnerNOC).
	Storage Solutions	Hardware and SaaS for managing demand for the purpose of reshaping load profile or enabling peak shaving (DEN).
	Direct marketing	Fleet optimization and market access for distributed generation assets.
	Mini-grid solutions	Off-grid battery storage applications such as remote location, residential area located away from the city, telecommunication towers. It includes also mini-grids.
	Operations & Maintenance	Provision of O&M services to B2B clients, including operation and maintenance of distributed generation assets or facility management services.
MOBILITY	Private Charging Station	Provisioning and maintenance of wall-box for electric vehicles to private EV owners.
	B2B Fleets	Provisioning and maintenance of wall-box and quick charging stations for B2B fleets.

X.2. DEFINITIONS & ACRONYMS

DEFINITIONS

Biomass: Liquid and solid biomass for thermal self-generation are only to be intended as “sustainable biomass”. For example, biofuels and bioliquids consumed in the EU shall comply with the sustainability criteria set out in the Renewable Energy Directive 2009/28/EC, while all biomass from forests should comply with the principles of Sustainable Forest Management (SFM).

Declared load profile: To define the energy efficiency of water heating systems, the EU regulation uses the concept of load profile, i.e. a given sequence of water draw-offs at given temperatures and flow rates on a 24-hours cycle, that the appliance is able to provide. The load profiles to be declared by the manufacturer ranges from 3XS to 4XL.

ACRONYMS

CE: Circular Economy

CHP: Combined heat and power (CHP) systems, also known as cogeneration, generate electricity and useful thermal energy in a single, integrated system. Heat that is normally wasted in conventional power generation is

recovered as useful energy, which avoids the losses that would otherwise be incurred from separate generation of heat and power.

PFC: Power factor correction (PFC) is a feature included in electronic power supplies and energy management systems that increases the power factor, which is the ratio between the actual load power (KW) and the apparent load power (KVA) drawn by an electrical load. It is a measure of how effectively the current is being converted into useful work output and more particularly is a good indicator of the effect of the load current on the efficiency of the supply system. The power factor value is between 0 and 1.

PUE: Power usage effectiveness (PUE) is a metric used to determine the energy efficiency of a data center and is determined by dividing the amount of power entering a data center by the power used to run the computer infrastructure within it. PUE is therefore expressed as a ratio, with overall efficiency improving as the quotient decreases toward 1.

PV: A photovoltaic system, also known as solar PV system, is an energy system that is designed to transform the energy from the sun into electricity by means of photovoltaics, also known as solar panels.

The *Circular Economy Client Report* to assess clients' energy and corporate circularity is a methodology validated by *RINA*.

The validation was carried out through the following 3 phases:

- > A documental review of the documentation prepared by Enel X and cross-checks between the information contained in the different documents;
- > Interviews of the Enel X representatives;
- > Evaluation that the findings which emerged as a result of the documental analysis and interviews have been satisfactorily resolved.

RINA is a leading global company in the field of conformity assessment and has developed consolidated competency as regards sustainability services.

RINA can act as valid certification partner in the regulatory field and in the voluntary sector and it is accredited by the main accreditation bodies.

In its capacity as independent third party body, RINA carries out its activities according to the principles of impartiality, ethics, professionalism and transparency.

Genova, 3th October 2018
RINA Services S.p.A. (RINA)

Laura Severino
(Authorised representative of Validator)



