Deployment of an integrated charging solution for electric vehicles powered by renewable energy

Starting date of the project	January 2021
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	The facility is located in Boulogne sur mer, in the Pas de Calais department. There are no restrictions on the geographical area of reproducibility.
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	**Climate** Reducing greenhouse gas (GHG) emissions linked to the building's energy consumption, thanks to the self-consumption of the energy produced via the photovoltaic roof panels. This energy loop, combined with a second-life battery storage system, makes it possible to supply most of the charging stations for the company's fleet of electric vehicles. Intelligent control of the redirection of the energy (produced/stored) also makes it possible to supply the building's other consumption points (electric heating, sockets, lighting, etc.). **Circular economy** Reusing second-hand electric vehicle batteries to store solar energy is one of the keys to the REVE principle.
Detailed project description	REVE is a 100% renewable energy (RE) self-consumption recharging offer for companies wishing to quickly switch their vehicle fleet to electric power without changing their type of energy contract: - A la carte" sizing of the photovoltaic panel installation - Energy storage using second-hand batteries from electric vehicles - Supervision system ("WAVE Plateform" application) developed by VINCI Energies, guaranteeing optimal control of energy distribution between the building and the charging stations.

Main project's drivers for reducing the greenhouse gas emissions

Enter the information in the appropriate boxes

Reduction levers	Details on the aspects of the project
☒ Energy and resource efficiency (including behaviour)	deletion of the EDF network
☒ Energy Decarbonisation	Production of electricity from photovoltaic panels on the roof
☒ Energy efficiency improvements	Intelligent management of locally produced energy and 70% reduction in bills
☐ Improving efficiency in non-energy resources	
☐ Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)	
☐ Financing low-carbon producers or disinvestment from carbon assets	
☐ Reduction of other greenhouse gases emission	

Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope

Indicate the aspects of the project that contribute to the reduction of emissions per category of emissions considered (left-hand column) and the quantification of associated emissions.

	Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category Please follow the quantification methodology used in the Afep guidelines.
Reduction of the company's carbon dependency		
Scope 1 *Direct emissions generated by the company's activity.*	Conversion of thermal vehicle fleet to electric: reduction of fossil fuels	**Pre-project situation :** Diesel: 71,701 L/year * 2.6 kgeq CO2 = 186 tCO2eq

Indicate the main hypotheses and calculation steps in the intended section (below the table)

For further details, please refer to the methodology guidelines.

		Post-project situation in the event of a 100% switch from a thermal to an electric fleet: Diesel: 0 L/year * 2.6 kgeq CO2 = 0 tCO2eq **Balance:** 186 t CO2eq avoided
Scope 2 *Indirect emissions associated with the company's electricity and heat consumption.*	Direct self-consumption of the energy produced on the roof	**Pre-project situation :** 130 tCO2eq related to the building **Post-project situation :** 37 tCO2 eq linked to the residual electricity consumption from the network (72% saving on the bill)
Scope 3 *Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.*	Home to work journey	20% of employees use the charging stations free of charge today Elimination of 52,800 km per year driven with fossil fuels, at 190 gCO2eq per km, which represents 10.5 tCO2eq avoided. (The KM are not avoided but the energy concerned no longer emits CO2)
	Battery recycling	**Difference in GHG emissions between purchasing new and second-hand batteries** The carbon weight of a new 30 kWh battery is 5 t CO2eq. According to the proposed methodological note, using a recycled battery is equivalent to 50% less GHG emissions than a new battery, i.e. 2.5 tCO2eq avoided.
Increase of carbon sinks		
Emissions Absorption *Carbon sinks creation, (BECCS, CCU/S, …)*		
GHG emissions avoided by the company at third parties		
Avoided Emissions *Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.*	Demouselle's scope 1 & 2 GHG emissions become the scope 3 emissions of its customers once the REVE principle is installed.	GHG emissions avoided: 192 t CO2eq / year

Clarification on the calculation or other remarks:
Details of the calculation or other remarks: According to the proposed methodological note
Transformation of thermal vehicle fleet to electric: reduction of fossil fuels:

MOBILITY
Pre-project situation :

Diesel: 71,701 L/year * 2.6 kgeq CO2/l = 186 tCO2eq

Post-project situation (in the event of a 100% switch from a thermal to an electric fleet) :

Diesel: 0 L/year * 2.6 kgeq CO2/l = 0 tCO2eq
Theoretical electricity consumption at charging stations for a 100% electric fleet of 30 vehicles
30 LCVs X 1 charge X 40 kWh = 1,200 kWh / day, i.e. for 1 year at 220 working days = 240,000 kwh.

Electricity (60% self-consumption): 144 000 kWh/year * 0gCO2/kWh = 0 kgCO2
Electricity (40% grid): 96,000 kWh/year * 50 gCO2/kWh = 4.8 tCO2

Balance: reduction of 181 tCO2eq

	BUILDING **Pre-project situation:** Grid electricity: 28,000 kWh/year * 60gCO2/kWh = 16.8 tCO2 **Post-project situation:** Electricity (60% self-consumption): 16 800 kWh/year * 0gCO2/kWh = 0 kgCO2 Electricity (40% grid): 11,200 kWh/year * 50gCO2/kWh = 5.6 tCO2 Balance: annual reduction of 11t CO2eq **Use of recycled batteries** The carbon footprint of a new 30 kWh battery is 5 t CO2eq. According to the proposed methodological note, using a recycled battery is equivalent to 50% less GHGs than a new battery, thus a reduction of 2.5 tCO2eq
Modality of verification of the quantification.	**Calculation standard used (ADEME base, GHG protocol, etc.):** ADEME **Verification of the calculation (internal or external):** Internal
Other environmental and social benefits of the project If possible, list the impacts and Sustainable Development Objectives concerned	SDG 7: AFFORDABLE AND CLEAN ENERGY SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE SDG 11: SUSTAINABLE CITIES AND COMMUNITIES SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION SDG 13: CLIMATE CHANGE MEASURES
Project maturity level Tick the corresponding current maturity level	☐ Prototype laboratory test (TRL 7) ☐ Real life testing (TRL 7-8) ☐ Pre-commercial prototype (TRL 9) ☐ Small-scale implementation ☒ Medium to large scale implementation **Remarks**: Initiative deployed in 6 internal VINCI buildings and 15 external sites in progress.
Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	**Scope of deployment** REVE is aimed at all companies that have the necessary space to install photovoltaic panels, or at any building project (new or existing) that intends to install 1 to 6 double 22 kW terminals. **Deployment capacity** On average, the sales process to a new customer takes 3 months. Implementation takes 6 months, including a declaration of works and a delay before obtaining the batteries. Very few studies are required, it is an almost industrial process.
Amount of investment made (in €)	40 k€ (100 m² of PV, 30 kW of storage and 2 charging stations, a Building Management System: WAVE Platform)
Economic profitability of the project (ROI)	☐ ST (0-3 years) ☒ MT (4-10 years) ☐ LT (> 10 years) **Remarks:** Highly fluctuating ROI depending on the electricity market.
Engaged partnerships	**Companies :** Demouselle Pas de Calais LESOT Smart Building Energies
Open comments from the project owner	This initiative won one of the 10 VINCI Global Environment Awards (category: Climate - Evolution of practices award)
More about the project	
Contact the company carrying the project Please specify an ad hoc e-mail address that will allow the reader to contact the project company directly	david.desablence@vinci-energies.com eugenie.guilpain@vinci-energies.com
Project URL links	www.exegy-solutions.com
Titre SEO	Electric vehicle charging stations powered by renewable energy

Méta Description	Vinci has set up a facility to recharge electric vehicles using electricity generated by solar panels, which is stored in second-life batteries.
Illustrations of the project 3 photos/videos minimum (in HD format to be attached)	Lien de téléchargement du film général : https://we.tl/t-TVrohGEx7i