



Project Implementation Report

(1 July 2022 – 30 June 2023)

Project Title:	<i>Integrated Adoption of New Energy Vehicles</i>
GEF ID:	9226
UNIDO ID:	150157
GEF Replenishment Cycle:	GEF-6
Country(ies):	CHINA
Region:	EAP - East Asia and Pacific
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs¹:	n/a
Stand-alone / Child Project:	Stand-alone
Implementing Department/Division:	ENE / ESI
Co-Implementing Agency:	n/a
Executing Agency(ies):	Ministry of Industries and Information Technology (MIIT)
Project Type:	Full-Sized Project (FSP)
Project Duration:	36
Extension(s):	2
GEF Project Financing:	8,930,000
Agency Fee:	848,350
Co-financing Amount:	117,000,000
Date of CEO Endorsement/Approval:	5/1/2017
UNIDO Approval Date:	5/15/2017
Actual Implementation Start:	7/11/2017
Cumulative disbursement as of 30 June 2023:	8,671,405.93
Mid-term Review (MTR) Date:	6/1/2021

¹ Only for **GEF-6 projects**, if applicable

Original Project Completion Date:	7/11/2020
Project Completion Date as reported in FY22:	12/31/2022
Current SAP Completion Date:	12/31/2022
Expected Project Completion Date:	12/31/2022
Expected Terminal Evaluation (TE) Date:	9/30/2022
Expected Financial Closure Date:	9/30/2023
UNIDO Project Manager²:	<i>Katarina Barunica</i>

I. Brief description of project and status overview

Project Objective					
Facilitation and scale-up of the integrated development of electric vehicles (EVs) with renewable energy (RE) in China					
<table border="1"> <thead> <tr> <th><i>Project Core Indicators</i></th> <th><i>Expected at Endorsement/Approval stage</i></th> </tr> </thead> <tbody> <tr> <td>4 Support to transformational shifts towards a low-emission and resilient development path</td> <td>1,343,116 metric tons (for indirect part, used result from “bottom up” approach)</td> </tr> </tbody> </table>		<i>Project Core Indicators</i>	<i>Expected at Endorsement/Approval stage</i>	4 Support to transformational shifts towards a low-emission and resilient development path	1,343,116 metric tons (for indirect part, used result from “bottom up” approach)
<i>Project Core Indicators</i>	<i>Expected at Endorsement/Approval stage</i>				
4 Support to transformational shifts towards a low-emission and resilient development path	1,343,116 metric tons (for indirect part, used result from “bottom up” approach)				
Setting up low-carbon urban transportation demonstration zones in Shanghai and Yancheng cities, by integrating electric vehicles (EV) and renewably sourced electricity (RE), by analyzing policy measures, developing technical regulations, piloting charging infrastructure and grid response, and raising awareness of technology integration.					

Baseline
In 2015, China surpassed the US as the largest EV market in the world with sales of 247,482 pure electric vehicles and sales of 83,610 plug-in hybrid electric vehicles (PHEVs). The bulk of China’s NEVs purchased between 2011 and 2015 have been featured as part of a demonstration program established at the national level and carried out in various pilot cities, the group of which over time has increased to include 39 designated pilot cities or regions and 88 cities in all.
China has made substantial technical progress in EV products and technologies, with some new items headed for globally competitive commercialization.
Current situation of EV policies and programs in China: China’s rapidly expanding EV market has largely been driven by China’s NEV promotional policies at the national and local levels. Overall, the Government

² Person responsible for report content

of China's strong emphasis on NEVs is clear from both the breadth and depth of NEV policies that have been issued. Further, local level NEV policies are common and in some cases have achieved strong stimulation of the market. Policymakers at both levels thus show their recognition of the importance of NEV promotion. In addition to subsidies and targets, preferential tax policies for NEVs in China are now substantial and have been shown to have played an important role in stimulating the market. There has also been significant support for scientific and technological innovation in the NEV field. As for charging infrastructure, a number of promotional policies and regulations have been issued.

Current RE power market in China: China has achieved remarkable growth in its RE power sector over the past decade or so. Annual installations continue to propel the nation to new highs of installed RE power capacity, surpassing other nations in many areas. Based on 2015 data, China ranks first in the world in total installed RE power capacity, whether including or excluding hydropower.

Current RE power policy in China: The remarkable growth of wind power and PV power in China's renewable energy power sector has largely been driven by policies.

The power grid and smart grid in China: Among nations, China is the largest consumer of electricity in the world.

Current situation of China's national carbon trading framework: China has been developing an ambitious carbon trading framework. Yet, EV-RE integration is not currently a part of the carbon trading framework's system of rules. Instead, the current focus on the newly designed system is on industrial energy users.

International and Chinese experience with EV-RE integration and foundational aspects to date: Despite the perception held by many that EVs are associated with clean energy, international progress and experience in integrating EVs with RE and in key related foundational technologies, such as smart charging and V2G, is quite limited and just getting started.

Please refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY23. Please also provide a short justification for the selected ratings for FY23.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management³, Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY22, in the last column.

Overall Ratings ⁴	FY23	FY22
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	<i>Satisfactory (S)</i>	<i>Satisfactory (S)</i>
<p>The demonstration activities have been implemented in Qingdao and the project was able to deliver the GEO's. The terminal evaluation has provided further insight in the overall efficacy of the project in delivering GEOs / Dos (TE is added as an annex below)</p>		

³ Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

⁴ Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

Implementation Progress (IP) Rating	<i>Satisfactory (S)</i>	<i>Satisfactory (S)</i>
The project activities have been satisfactorily completed in the project cities.		
Overall Risk Rating	<i>Moderate Risk (M)</i>	<i>Moderate Risk (M)</i>
The terminal evaluation has been completed, however, it was delayed due to COVID-19 travel restrictions. Although there were moderate risks that challenges related to site visits for the evaluators will persist, the evaluation was still completed in line with UNIDO values.		

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Please fill in the below table or make a reference to any supporting documents that may be submitted as annexes to this report.

Project Strategy	KPIs/Indicators	Baseline	Target level	Progress in FY23
Component 1 – Policies and Programs				
Outcome 1: Drafted and recommended policies, technical standards, and guidelines that provide regulatory and planning elements, leading to the higher adoption of EV-RE integration schemes by city governments, vehicle manufacturers, and consumers, thus resulting in GHG emission reductions				
Output 1.1: Output 1.1 Recommended national level-policy instruments, (a) roadmap for effective EV-RE integration, (b) regulation and incentive for EV-RE micro grids, (c) regulation and incentivize use of retired batteries.	Policy package formulated Recommended policy package on RE/EV integration, regulations and incentives for charging and battery retirement and balancing of grid developed and discussed relevant authorities	0	12	<p>National roadmap completed, agreed upon and published</p> <p>Suggested polices and frameworks that promote balancing of grid load with power generated via utilization of EVs, thus providing a foundation for scale-up of EV-RE integration:</p> <ul style="list-style-type: none"> • Load balancing and Smart charging guidelines • Policy suggestions developed on RE micro-grids • Technical Roadmap 2.0 for Energy Saving and New Energy Vehicles and Roadmap for the Integration of NEVs and Renewable Energy • Technical Guidelines for Orderly Charging and Demand Side Mechanism Strategy • Shanghai Development and Reform Commission on Revising the Interim Measure for the Orderly Development of Charging (replacement) interconnection of electric vehicles <p>Proposed national-level polices to regulate and incentive systems for the charging of EVs with RE, including those integrating either RE micro-grid or grid-based large-scale RE installations:</p> <ul style="list-style-type: none"> • New Energy Vehicle Industry Development Plan (2021-2035)

				<ul style="list-style-type: none"> Implementation Opinions on Further Improving the Service Guarantee Capacity of Charging and Battery Swapping Infrastructure. Guidance on Accelerating the Development of New Energy Storage Action Plan for Carbon Peak before 2030 <p>Proposed national-level policy instruments to regulate and incentivize use of retired EV batteries:</p> <ul style="list-style-type: none"> Report on China's New Energy Vehicle Power Battery Recycling Industry Interim Provisions on the management of secondary-hand utilization of power storage tanks
Output 1.2: Issuance of technical standards and specifications facilitating EV-RE integration and scale up, including standards and specifications for:(a)energy management centers (b) smart charging systems;(c)V2G systems;(d) retired EV batteries; (e) battery safety of mobile charging systems; (f) fire protection system; (g) workshop on standard frame work	Technical standards formulated and handed to authorities Recommended technical standards and specifications on RE/EV integration for energy management centers, smart charging stations, V2G systems, retired EV batteries, battery safety for mobile charging systems, fire protection systems	0	6	<p>Research on standards related to Vehicle Power Battery Recycling for new energy vehicles contributing to published standards</p> <ul style="list-style-type: none"> Standard on Vehicle Power Battery Recycling-Secondary-hand utilization-part 2 – Disassembly requirements Vehicle Power Battery Recycling Management Part 1 Specification for Packaging and Transportation <p>Research on key technologies of fire safety of power battery secondary-hand utilization</p> <ul style="list-style-type: none"> Report completed that analyzes scenarios and current status of fire safety of secondary utilities of EV batteries Four group standards related to fire safety of power battery second-hand utilization were completed <p>Research on two-way interactive practice and standard system of electric vehicle charging and discharging (V2G)</p> <ul style="list-style-type: none"> Published Electric Vehicle Charging and Battery Swapping Service Information Exchange – Part 6: Technical Specification for Charging and Battery Swapping Equipment Access to Charging Service Platform Group Standard on Electric Vehicle Charging and Battery Swapping Service Information Exchange – Part 9: Functional Specification of Management Information Platform Applied to China Electric Power Enterprise Federation for group standard “Management Center for Integration of Electric Vehicles and Power Grid” and completed first draft of the standard Draft Chinese industry standard, “Electric vehicle charging and discharging – two way interaction Part 1: General Principles” Draft standard “Communication protocol between electric vehicle

				non-vehicle conductive charger and battery management system"
Output 1.3: Recommendations presented to transport sector authorities for incorporation of incentives for EV charging with RE in transport sector national carbon trading policies, including carbon trading rules for EVs powered by RE, to promote greater adoption of RE in the grids supplying electricity to EVs	Status of proposal to incorporate charging of EVs with RE into national carbon trading systems (1= submitted to government, 0=not yet submitted to government)	0	1	<ul style="list-style-type: none"> • Research on carbon trading rules completed. • Research on carbon neutralization roadmap completed.
Output 1.4: City-level RE-EV integration and scale up plans, including replication plans for the adoption of best models demonstrated in Shanghai and Yancheng	Number of cities with draft local EV-RE integration and scale up plans	0	6	<ul style="list-style-type: none"> • Shanghai demonstration projects: <ul style="list-style-type: none"> ○ Shanghai Donghaolansheng Guozhan Real Estate Co., Ltd. - "bus smart charging project of parking lot 5 complex supporting the National Convention and Exhibition Center" ○ Shanghai Electric Distributed Energy Technology Co., Ltd - "PV storage microgrid power generation project of Shanghai Yangpu machine tool plant" ○ Shanghai Nio Automobile Co., Ltd. - "charge change PV storage integration project of electric vehicle charge change combination" ○ Shanghai Electric Power University - "technology demonstration project of electric vehicle inheriting renewable energy microgrid" ○ Shanghai Space Power Supply Institute - "integrated application demonstration project of PV storage and charging in composite application scenario" • Qingdao demonstration projects <ul style="list-style-type: none"> ○ 72 charging stations and 1071 charging piles built ○ Stations include public transport, logistics, public enterprises, and institutions residential areas and other application scenarios
Output 1.5: Proposed institutional plan to establish responsibilities of and coordination among various government organizations for EV-RE integration	Number of different ministries reviewing institutional plan	0	3	The project concluded with suggestions on the system and plans to promote EV-RE integration to the decision-makers of relevant government departments. In August 2018, the team undertook the interim measures on the management of funds for the commercialization and promotion project of comprehensive application of new energy vehicles and renewable energy in China. In August 2018, the management measure on the project of "commercialization and promotion of comprehensive application of new energy vehicles and renewable energy in China" was issued.

Component 2 – Government Institutional Capacity Building

Outcome 2: Outcome 2: Increased institutional capabilities and awareness of policymakers at national and local levels on the use of integrated EV - SG (Smart Grid) - RE systems

<p>Output 2.1: Training program for 100 city-level policy makers on EV-RE integration policies and demonstration experience</p>	<p>Number of government officials attending EV-RE integration training program that pass test on mastery of materials given at end of program</p> <p>Proportion of women among training program attendees</p>	<p>N/A</p>	<p>80</p> <p>35%</p>	<p>Rugao demonstration project focused on the aspects of promotion and demonstration of new energy vehicles, incentive policies, dissemination and trainings. Three policies: Local policies to regulate and incentivize systems for renewable energy micro-grids, Local incentive policies for car sharing based on new energy vehicles, and Local incentive and implementation policy on smart charging piles will be conducted. During the reporting period, Rugao New Energy Automobile Industry Association investigated on related policies, technologies and development trends of electric vehicles and charging facilities, micro-grid technology demonstration cases, and the commercialization and infrastructure of electric vehicles in Rugao.</p> <p>Rugao demonstration project focused on the aspects of promotion and demonstration of new energy vehicles, incentive policies, dissemination and trainings. Three policies: Local policies to regulate and incentivize systems for renewable energy micro-grids, Local incentive policies for car sharing based on new energy vehicles, and Local incentive and implementation policy on smart charging piles will be conducted. During the reporting period, Rugao New Energy Automobile Industry Association investigated on related policies, technologies and development trends of electric vehicles and charging facilities, micro-grid technology demonstration cases, and the commercialization and infrastructure of electric vehicles in Rugao.</p> <ul style="list-style-type: none"> ● Conducted survey of policy on new energy vehicles development at home and abroad, such as the United States, Japan, Germany, China, classified from development planning, technology and energy restrictions, infrastructure support and subsidies, investigated the technology and development trends of domestic new energy vehicles. See APP 5 for more details. ● Conducted survey on micro-grids development at home and abroad, such as the United States, Japan, Germany, China. Especially focused on the case study of smart integrated microgrid service project in Lingang New Campus of Shanghai University of Electric Power. Concluded the reason for the success of the project, which provide a fundamental research for the Rugao demonstration project. See APP 6 for more details. ● Conducted research on the promotion of new energy vehicles in small and medium-sized cities such as Shenzhen and Liuzhou, based on the basic situation of the new energy vehicle industry in Rugao. See APP 7 for more details. ● Online training on research on NEV and renewable energy integrated development
<p>Output 2.2: Four workshops conducted to validate the EV-RE integration policy and planning framework</p>	<p>Number of workshops at which strong consensus is achieved for proposed policy, standards, trading system, or roadmap</p>	<p>0</p>	<p>4</p>	<ul style="list-style-type: none"> ● 10 workshops of EV-RE policymaking or planning framework ● Five workshops of Carbon Neutralization Roadmap Project ● Four workshops of policy making <p>Three workshops on proposed regulations for carbon emissions trading framework</p>

	Proportion of women among attendees of all four policy and planning workshops		35%	
Output 2.3: International forums with participants from central government agencies and EV demonstration cities that disseminate international developments in and plans for EV-RE integration	<p>Number of country case studies included in report on international developments in EV-RE integration</p> <p>Number of distinct Chinese government officials attending one or both of the two forums on international developments in EV-RE integration</p> <p>Proportion of women among all attendees of the international forums</p>	N/A	5 30 35%	<p>In 2020, the project team held the International Forum on the Integrated Development Of New Energy Vehicles and Renewable Energy in Shanghai. The representatives of task leader reported the results, and the leaders of the United Nations Industrial Development Organization and local leaders in Shanghai attended and delivered speeches.</p> <p>In 2021, the project team held another international forum about the China New Energy and Renewable Energy Integration Development on the FCVC2021 in Shanghai, and the representatives of task leaders reported the results and progress before the conclusion of project.</p>
Output 2.4: Written materials on EV-RE integration strategically disseminated to policy makers	<p>Number of government officials that are confirmed to have reviewed briefing materials</p> <p>Number of categories of items included in online information base (possible categories include: policy briefings, international study, demo reports, roadmaps, policies/regulations, standards)</p>	0 0	30 6	<p>PMO and all subcontractors prepared brief documents on key EV-RE integration topics for high-level and mid-level government officials during the research on policies and regulations. This includes:</p> <ol style="list-style-type: none"> 1. The Research Report on the management measures for the secondary-hand use of power batteries of new energy vehicles and the management measures for the secondary-hand use of retired batteries of new energy vehicles have been completed to support MIIT who issued a draft for comments. 2. Automotive Data of China Co., Ltd completed and submitted Management Specifications for Recycling of Vehicle Power Batteries, Part 1 Packaging and Transportation Specifications, Part 2 Disassembly Requirements for Recycling of Vehicle Power Batteries. 3. In March 2020, the project research results "Technical Guidelines for Orderly Charging of Electric Vehicles and Participation in Demand Management" and "Research on Orderly Charging and Demand Side Mechanism Strategy" were quoted and released by Shanghai municipal government. <p>The project management office prepared the introduction of the EV-RE integration project and reported it to the China Association for Science and Technology. The brief file was sent to the associations for science and technology in all provinces, cities around China. In other words, the brief file could be read by over 100 policymakers in the government.</p>

				<p>The Technical Guidelines is successfully published on the UNIDO website.</p> <ul style="list-style-type: none"> China-SAE and UNIDO jointly compiled the "Technical Guidelines for Integrated Application of Electric Vehicles and Renewable Energy". The guidelines systematically explain the application of various fusion technologies in different scenarios from ten typical demonstration projects and condense the relevant technical requirements and guidelines from the perspectives of technical solutions, construction requirements, business models, and operational effects. The guideline was launched at the World New Energy Vehicles Congress on 25 August 2022. It was a great opportunity to publicize the Guidelines and achievement of the EV-RE integration project.
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Component 3 – Piloting of Technical Measures and Commercialization Approaches (Project Demos)

Outcome 3: Two city-scale projects piloted, demonstrating the integration of EVs and RE, as well as other foundational work needed to achieve large-scale EV-RE integration

Output 3.1: Demonstration of integration of EVs with the micro grid in Shanghai and Yancheng	Demonstration on integration of EVs with micro-grid	0	Smart charging systems build	<ul style="list-style-type: none"> By October 2021, the smart charging system of Shanghai demonstration project has applied new technologies such as orderly charging and V2G, and the commercialization of smart charging system in business parks, buildings, etc. They also built 75 smart charging system demonstration sites and 876 smart charging piles. The Qingdao project built 1071 charging piles serving more than 700 electric vehicles (Specific number: 50 taxis, 50 official vehicles and 600 private or rental vehicles).
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Output 3.2: Demonstration of technologies in Shanghai, Rugao and Yancheng	Number of demonstration projects of technologies	0	4 demonstration in selected cities	<ul style="list-style-type: none"> Shanghai: The project has completed a technical and economic feasibility demonstration of electric vehicle microgrid, which was a key contribution to EV-RE integration. For micro-grid PV storage-charging demonstration, they constructed 11 sites, covering scenarios including big factory, office building, business parks, university, villages, and industrial zones. For V2G technology display and commercial system demonstration, time-of-use (TOU) charging and V2G demonstration was carried out with SGCC Electric Vehicle Service Co., Ltd. and Mitsubishi Electric, and 20 V2G charging piles and 31 V2G vehicles were deployed in the Project. Qingdao: Qingdao has built 300 smart charging piles with V2G function, serving at least 300 electric vehicles to promote the business model.
Output 3.3: Demonstrations of business models to scale-up the number of Evs in Shanghai	Number of demonstration projects of business plans	0	3 demonstrations in selected cities	<ul style="list-style-type: none"> EV time-sharing renting services in Shanghai: By the end of November 2021, a total of 8,000 vehicles were put into operation, 250 time-sharing renting sites and 1,000 charging piles had been built, benefiting over 2.6 million registered members. Electric bus rental fleets in Shanghai (Shanghai E-drive Company): This project explored the business models of custom new-energy e-buses and ways of commercialization of new-energy e-buses through the customization of company shuttle buses and special lines for its members. By the end of October 2021, the rental e-bus fleet (E-drive) in Shanghai had 1,084 buses (including 250 e-buses for custom bus business), 64 charging stations, more than 170,000 mobile APP users, 35 special lines opened and in operation, and more than 23 partner zones.
Output 3.4: Demonstration of energy management centers that collect and manage data on dispersed EVs and retired EV battery packs used as storage for the grid, so that the charge and discharge of these devices can be managed	ICT management center operational	0	Establishment of energy management center to collect data	<ul style="list-style-type: none"> Shanghai's energy management center was built. By October 2021, a total of 16 demonstration sites in Shanghai had been connected to this platform, including 11 PV storage-charging projects and 716 charging piles. The project has developed and established an energy management system in Qingdao. By the end of 2021, a total of 70 charging stations and 1049 charging piles had been connected, including 10 V2G charging piles, with energy storage capacity of 981KW and photovoltaic capacity of 12.1MW.
Output 3.5: Detailed monitoring and evaluation of all project demo performance, providing insights to city planners for	Reports on project demos of power grids, micro-grids, retired batteries and scale up of EV fleet	0	Monitoring and assessment of project demos available	<ul style="list-style-type: none"> Completed and attached below

developing EV-RE demonstration plans for their cities	and charging infrastructure			
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Component 4: Awareness Raising and Dissemination amongst Manufacturers, Suppliers, and ConsumersSS

Outcome 4: Increased knowledge and capacity of business and consumer stakeholders, facilitating awareness, research and development, manufacture, operation, and maintenance with regard to EV-RE integration

Output 4.1: Dissemination of knowledge amongst industry players (vehicle manufacturers, charging equipment providers, power industry, and other relevant sectors) regarding EV-RE integration	Number of distinct industrial companies related to EVs, power, or RE attending at least one of project's forums	0	30	SAE China conducts many workshops on topics related to RE_EV integration, business models and technical standards. The meetings serve both for awareness raising and also bring inputs into the outputs under Outcome 1
Forums for industry, including both domestic and international players active in the China market in the vehicle, power, and other related sectors, on EV-RE business models, technology, and demonstration results	Proportion of attendees at forums for industry that are women	Not applicable	35%	
	Number of industrial organizations that receive project's EV-RE information base materials and find them useful in their business plans	0	10	
Dissemination to industry of project's EV-RE information base Meetings publicizing EV-RE related technical standards, held for vehicle OEMs, charging equipment suppliers, and other related industrial companies	Number of persons attending meetings that do well enough on end of meeting test to confirm acceptable grasp of materials presented	0	60	
	Proportion of attendees at standards meetings that are women	Not applicable	35%	
Technical operation and maintenance workshops related to EV-RE integration aspects held for relevant industrial organizations	Number of persons attending meetings that do well enough on end of meeting test to confirm acceptable grasp of materials presented.	0	50	
	Proportion of attendees at standards meetings that are women	Not applicable	35%	
Establishment of industry alliance or association subcommittee for promoting and advancing EV-RE integration and liaising with government on EV-RE integration policy	Number of persons attending meetings that do well enough on end of meeting test to confirm acceptable grasp of materials presented.	0	12	
	Proportion of attendees at standards meetings that are women	Not applicable	35%	
Establishment of industry alliance or association subcommittee for promoting and advancing EV-RE integration and liaising with government on EV-RE integration policy	Number of persons attending meetings that do well enough on end of meeting test to confirm acceptable grasp of materials presented.	0	12	Other activities include the following: On 15 September 2020, the "NEV and Renewable Energy Integrated Development Forum" was held in Shanghai Auto Exhibition Center and was viewed online by 3,800+ people, which shows that the project has a certain influence. China SAE has set up Chinese website (http://gef.sae-china.org/), which is updated periodically on basic information, news, and latest research. The website has successfully promoted EV-RE integration of the products and service to auto industries, charging station industries and auto organizations. China SAE has completed the design and distribution of project brochures, and is now entering to the promotion stage by printing out paperwork of many international conferences, including WNEVC2021. On November 4-5 in 2020, the group standard meeting of "Fire Safety for Secondary Utilization of Power Batteries" and "Power Battery Gas Safety Device" has been held in Hangzhou Province. The standards were made by China SAE and China Fire Safety
	Proportion of attendees at standards meetings that are women	Not applicable	35%	

				<p>Association, and was led by Shanghai Fire Safety Research Institute.</p> <p>The total number of participants involved in Shanghai Demonstration Project is 43, among which 22 are females (51.2%). The proportion of females in the team is quite high and these females were quite active in the whole project implementation process. The need to tap into the role of those women who work on the land of green and intelligent energy development and explore the value and power of women in the field of NEVs and renewable energy are also important inspirations for the project.</p> <p>A forum was held during the 6th International Hydrogen Fuel Cell Vehicle Congress on the strategies of energy technology and transportation industry under the "2060 goal" of national carbon peak, carbon neutralization. People paid attention to the development direction of new energy vehicles and smart energy in China and abroad, explores the development mode of green transportation, new energy vehicles, smart energy and V2G integration, and focused on the development trend, technical route and Demonstration application, etc. The on-site delegates included more than 80 from over 50 companies.</p> <p>In September 2021, PMO cooperated with the Secretariat of the World New Energy Vehicle Conference to hold a forum on the application practice of the integration of new energy vehicles and renewable energy in China, with more than 250 on-site delegates. Several subcontractors</p>
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				involved in the EV-RE project participated in the event and delivered speeches. The forum focused on the typical demonstration cases of VGI (vehicle grid integration) in China, the United States and Japan, summarized and analyzed the key technologies, standard system, supporting foundation of industrial chain, market mechanism and policy coordination strategy required for the large-scale application of VGI, and discussed the development mode and technical route of VGI commercialization.
Output 4.2: Awareness raised among current and future potential car sharing companies of various car sharing business models and integration of EVs with RE in car sharing businesses	Number of existing car sharing business entities participating in project exchange workshop Number of entities interested in newly entering the car sharing business participating in project exchange workshop	0 0	15 15	<p>In order to promote the knowledge on EV-RE integration among car sharing industry, the international forum for electric vehicle demonstration cities of the International Smart Shared Mobility Congress was held annually in Huadu, Guangzhou, with international seminars on the promotion of the world electric vehicle demonstration city project, sharing travel, automatic driving, and other technological and business model innovation. The forum gathered representatives from more than 20 enterprises and international organizations. Because of COVID-19 restriction in 2021, SMC was put off many times and the conference had been to change offline conference to online, which attached more than 2,000 consumers online and offline.</p> <ul style="list-style-type: none"> UNIDO reached out to the GEF-7 global e-mobility partnership programme and explored the options to organize a webinar and disseminate lessons learned from this project with a wider range of stakeholders. A webinar on “Success Story and Lessons Learned: Integrated Adoption of New Energy Vehicles in China” was organized on 14 December 2022 in partnership with UNEP-GEF-7 Electric Mobility Programme which has established the Africa Support and Investment Platform to help countries promote and accelerate the adoption of electric vehicles. We had 90+ participants who joined us through the webinar platform.
Output 4.3: Promotion of EV-RE integration to the general public by various methods to raise awareness of and interest in EV-RE integration as a means	Number of viewers of documentary film on EV-RE integration	0	50,000	<ul style="list-style-type: none"> China SAE has completed the promotional video of GEF6, which is available online. The video introduces the contents of GEF6 from different aspects and shows audience the activities and

<p>of realizing the true environmental potential of EVs</p> <p>Media promotion of EV-RE integration, raising awareness of the public regarding the need to incorporate RE into EV development to realize the environmental potential of EVs and educating the public on various aspects of EV-RE integration</p> <p>Promotion of EV-RE integration to consumers via social organizations, increasing consumers' understanding of and attraction to the concept and related opportunities</p> <p>Outreach on social media platforms and cooperation with social media companies to carry out promotion of EV-RE integration</p>	<p>Number of news articles (print media or online news) in Chinese press on EV-RE integration</p> <p>Number of radio listeners exposed to EV-RE integration via project's radio campaign</p> <p>Number of special strategies or measures adopted in media EV-RE integration outreach that specifically target the interests and concerns of women</p> <p>Increase in membership of EV clubs targeted by project (number of new members)</p> <p>Number of persons exposed to EV-RE integration concepts via EV social clubs</p> <p>Number of women's organizations and number of women reached by project's special outreach to women's organizations to promote EV-RE to them</p> <p>Number of social media platforms on which the project's social media outreach campaign generates ongoing discussion regarding EV-RE integration</p> <p>Number of special strategies or measures adopted in social media EV-RE integration outreach that specifically target the interests and concerns of women</p>	<p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0 organizations 0 women 0</p> <p>0</p> <p>0</p>	<p>30</p> <p>1 million</p> <p>3 200 (=100 in Yancheng and 100 in Shanghai)</p> <p>500</p> <p>8 organizations 400 women</p> <p>3</p> <p>2</p>	<p>demonstration in this project since 2018.</p> <ul style="list-style-type: none"> The project management office has set up its Chinese official website and official account in Wechat to update and disseminate the latest progress. By the end of September in 2020, with the help of the project management office, more than a hundred media have made report on the achievements of the project within 3 years During this reporting period, in addition to relevant pushed articles of WeChat official account of Shanghai International Automobile City related to NEVs and renewable energy, relevant units and media also publicized the projects from time to time.
<p>Output 4.4: An EV-RE integration demonstration center in Yancheng, created to raise awareness on the topic of EV-RE integration amongst consumers, companies using EVs, and industries related to RE or EV</p>	<p>Number of Chinese government officials that have visited EV-RE integration demonstration center in Yancheng</p> <p>Total number of persons that have visited EV-RE integration</p>	<p>0</p> <p>0</p>	<p>200</p> <p>2,000</p>	<p>PMO negotiated with China New Energy Ecological Science and Technology Museum which is located in Qingdao, to help to disseminated the EV-RE project as an exhibition center. By using the onsite rollup banner, customers, policymakers and students could have a chance to know about the NEV and RE. Meanwhile, the development progress of charging and discharging of new energy vehicles and the operation of V2G and Microgrid could be</p>

	demonstration center in Yancheng			explored in the museum as well. In May 2021, during the first China Charging Facility Technology Innovation Conference, more than 300 delegates including policymakers, engineers, experts gathered in Qingdao and had a chance to take visit in the exhibition center.
Component 5: Monitoring and Evaluation (M&E)				
Output 5.1: Project monitoring plan refined and executed Output 5.2: Data and information collected to measure certain of the project's outcome and output level indicators, as well as indicators for project's Environmental and Social Management Plan (ESMP) Output 5.3: Project mid-term review and terminal evaluation conducted Output 5.4: Recommendations and agreed upon action plan for long term project sustainability as part of follow-up to terminal evaluation		Adequate monitoring and evaluation mechanisms are in place, facilitating smooth and successful project implementation and sound impact	Regular monitoring exercises conducted, PIRs prepared, tracking tools according to the GEF requirements prepared. Final project evaluation conducted	<ul style="list-style-type: none"> ● Project Implementation Reports (PIRs) submitted ● Mid-Term review was completed ● Project steering committee meetings conducted and documented ● Progress monitoring reports prepared ● Terminal evaluation completed and the reports were disseminated to the relevant project stakeholders for feedback and comments. UNIDO organized an evaluation debriefing session inviting UNIDO staffs from Technical Cooperation Services, the GEF coordination unit, the independent evaluation division, the GEF climate change specialist, and other relevant stakeholders from the national counterparts. The independent evaluators presented the evaluation findings and recommendations including the methodology, alignment with UNIDO's Integrated Results Performance Framework, project performance, and results, co-financing leveraged, and future project recommendations and further improvement.

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress to-date. Please expand the table as needed.

Describe in tabular form the risks observed and priority mitigation activities undertaken during the reporting period in line with the project document. Note that risks, risk level and mitigations measures should be consistent with the ones identified in the CEO Endorsement/Approval document. Please also consider the project's ability to adopt the adaptive management approach in remediating any of the risks that had been sub-optimally rated (H, S) in the previous reporting cycle.

	(i) Risks at CEO stage	(i) Risk level FY 22	(i) Risk level FY 23	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
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⁵ New risk added in reporting period. Check only if applicable.

1						<input type="checkbox"/>
2						<input type="checkbox"/>
3						<input type="checkbox"/>
4						<input type="checkbox"/>
5						<input type="checkbox"/>

2. If the project received a **sub-optimal risk rating (H, S)** in the previous reporting period, please state the **actions taken** since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

Not applicable

3. Please indicate any implication of the **COVID-19** pandemic on the progress of the project.

Project implementation at the sub-project level experienced delays due to COVID-19 pandemic situation. This has included project contract companies working from home, postponement of planned meetings and events, and delays in the delivery and installation of equipment for demonstration projects. Restrictions on air-travel also had placed limitations on physical visits to pilot cities for data collection and meetings with key stakeholders.

Despite these challenges, the project has been able to complete activities as well as the completion of the Terminal Evaluation.
Project was declared operationally complete in March 2023.

4. Please clarify if the project is facing delays and is expected to request an **extension**.

Project is complete.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

Summary of findings by evaluation criteria for MTR.			
Criterion	Summarized finding	Section	Rating⁶

⁶ Identified using this categorisation:

Rating scale for project performance:

Highly Satisfactory (HS): Level of achievement clearly exceeds targets and expectations; there are no shortcomings

Satisfactory (S): Level of achievement meets expectations (i.e. 80-95%); there are no or only minor shortcomings

Moderately Satisfactory (MS): Level of achievement more or less meets expectations (i.e. 60-80%); there are some shortcomings

Moderately Unsatisfactory (MU): Level of achievement is somewhat lower than expected (i.e. 60%) and there are significant shortcomings

Unsatisfactory (U): Level of achievement is substantially lower than expected and there are major shortcomings

Highly Unsatisfactory (HU): Level of achievement is negligible and there are severe shortcomings

A. Project Design Assessment		3.1	
Project Design	The project design is seen as sound and appropriate, technically feasible and able to address the problems at hand. The project's financial, institutional and implementation arrangements are reasonable and make the best use of limited resources. The M&E plan has been established. However, the failure to adequately assess the risks during the project design phase led to a delay in the implementation of the Yancheng demo.	3.1.1	S
Project Results Framework / Logframe	The project's result-chain is clear and logical. It provides good support for activities development, sub-contracting and M&E.	3.1.2	HS
B. Project Performance and Progress Towards Results		3.2	
Relevance	The project is highly relevant for national development priorities, the intended beneficiaries, and implementing partners. It is fully pertinent to UNIDO's mandate and domains of comparative advantage and fully aligned with the donor's focal area priorities with respect to climate change mitigation.	3.2.1	HS
Effectiveness and Progress Towards Expected Results	Most of the activities went smoothly as planned, and achieved the expected results, especially Shanghai demo. However, the activities of Yancheng demo are stagnant. The project implementation should be speeded up in the future, especially the Qingdao demo, so as to ensure that the subsequent activities related to the dissemination of the pilot experience can be carried out on schedule.	3.2.2	S
Efficiency	The project has gained efficiencies in good project management, strategic use of funds and co-financing. Regarding the funding: the GEF fund was generally used as planned, and has achieved a good leveraging effect. Regarding the timing: the project deadline is expected to be extended to March 2022. The stagnation of Yancheng demo led to time inefficiency. In addition, some meetings and trainings were re-organized in implementation, which effectively improved the efficiency of the project.	3.2.3	S
Gender Mainstreaming	There were many gender-related indicators in the results framework. Women played a key role in the project. Some of the activities were carried out with active participation of women such as electric bus rental demo. Although a large number of gender-related indicators were designed in the results framework, the details of them were not described in the PIRs.	3.2.4	S
Sustainability	The project's objective of reducing carbon emissions and addressing climate change is highly consistent with national and global development strategies. During the project implementation, some policy documents related to EV-RE integration have been formed and released, which will also play a positive role in the further promotion of the project results. The strengthening of national policy generally means an increase in government funding support. The subsidy policies for EV and RE will continue. In addition, pilot studies have also been conducted for the business model of EV-RE integration. Some of the demonstrations have already or are expected to achieve good economic benefits to support the further sustainability of the project outputs.	3.2.5	HL

Rating scale used to assess sustainability:

HL: Highly Likely L: Likely ML: Moderately Likely MU: Moderately Unlikely U: Unlikely HU: Highly Unlikely

	<p>After the project, activities related to EV-RE integration will mainly rely on governments and market players. The project has got a good effect on the cultivation of the market. The technical and policy elements required to support the continuation and replication of the project have been basically formed, and some of the relevant training and promotion activities have been carried out.</p> <p>The project is conducive to reducing carbon emissions, which has a positive impact on the ecological environment in China and the world, with no adverse environmental impacts likely to affect the sustainability of benefits.</p>			
C. Project Implementation Management		3.3		
Project Management	National PSC and PMO have been established. In demo cities, local PSC, PMO and expert committee have also been set up. Communication between the stakeholders is smooth and transparent, and most of partners can complete the assigned tasks in a timely and effective manner. The PSC meetings are held regularly. There have been personnel changes in some agencies. Most of the changes have not affected project implementation, except for the Yancheng demo. SAE-China communicated with UNIDO and GEF in time and solved the problem, significantly reducing the negative impact.	3.3.1	S	
Results-Based Work Planning, M & E, Reporting	The project's results framework was used as a management tool to guide development of work plans and to regularly monitor and report on results. There are project plans in the contract and PIRs. The project consumed more time at start-up, and the activities can be carried out as planned. An effective M&E plan is in place and appropriate funding is allocated to it. The project execution agency submitted biannual and annual PIRs on time, but the reports do not provide sufficient information on some of the KPI indicators.	3.3.2	S	
Financial Management and Co-Financing	GEF allocated project funds timely as planned, and the funds were used in accordance with the terms and conditions of UNIDO, MOF, and the project management approach. Co-financing provided has reached 82% (see Annex 4) and were used as planned. The projects in Shanghai were subsidized after implementation, which guaranteed the projects quality, but also resulted in a lower funding utilization rate (The sub-contractors can only get about 30% of the expected funding support after the project is recruited and reviewed from SIAC).	3.3.3	S	
Stakeholder Engagement and Communication	Government stakeholders support project objectives and have an active role in decision-making through their engagement as implementing partners. The external communication mechanism of this project is well established, with an adequate budget, and has effectively promoted public awareness through holding large-scale meetings, establishing a publicity website, etc. The internal communication mechanism is smooth, and when problems arose, the project activities can be adjusted in time.	3.3.4	HS	
D. Performance of Partners		3.4		
UNIDO	UNIDO's involvement is highly valued for its contribution of technical expertise, networks, thought leadership, and ultimate responsibility for the project, as GEF's implementing agency. The project manager of UNIDO has strong organization and coordination skills.	3.4.1	HS	
National Counterparts	Relevant national ministries such as MIIT and MOF have been engaged as PSC members, fostering national ownership, assuring their influence on the project's efficient and effective implementation, and facilitating inter-departmental	3.4.2	S	

	coordination. However, the main departments related to climate change in China such as MEE and NDRC were not involved in the project. SAE-China organized the activities and communicated with stakeholders in a timely manner.		
Donor	As a donor organization, GEF readily approved the project design upon its initial submission, disbursed project funds in a timely manner.	3.4.3	HS

Summary of recommendations and actions taken

Recommendations	Action Taken
1. It is suggested that MEE and NDRC are included into the PSC. The benefits of the project in the field of energy and environment should be summarized. Besides, the projects can try to attract more people from relevant fields like energy and environment to participate in.	<ul style="list-style-type: none"> A PSC meeting has not been held since the results of the MTR were presented at the last PSC meeting. The inclusion of MEE and NDRC for the PMC and this project and including them in future projects that are similar in nature has been noted.
2. The demonstration scale is limited, and should be strengthened. The PMO should have full-time staff concentrating on this project, and strengthen the tracking of KPI indicators, such as carbon emission reduction and women's participation. These indicators should also be described in detail in the PIRs according to the results framework.	<ul style="list-style-type: none"> Effort has been directed to strengthening the demonstrations in line with completing the project in time. Challenges related to collecting KPIs have been noted and UNIDO has taken steps to improving this in the design and development of new electric mobility projects as part of GEF-7.
3. The evaluator believes that the project can be completed within the deadline. However, further risk assessments need to be conducted, and the project plan should be appropriately adjusted based on the assessment results, so as to ensure the successful completion of the project objectives.	<ul style="list-style-type: none"> The project plan was adjusted with consideration for risks and managed to complete activities, with the exception of the terminal evaluation requiring an extension due to COVID-19 restrictions.
4. Speed up the process of demonstration work, especially accelerate the implementation of Qingdao demo. SAE-China and UNIDO should supervise the project implementation in a timely manner. Shanghai demo should promote the data	<ul style="list-style-type: none"> The project was able to successfully accelerate implementation and complete the demonstration in Qingdao per the original timeline.

connection of the Energy Management Center.	
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IV. Environmental and Social Safeguards (ESS)

1. As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

Category A project

~~Category B project~~

Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

Notes on new risks:

- *If new risks have been identified during implementation due to changes in, i.e. project design or context, these should also be listed in (ii) below.*
- *If these new/additional risks are related to Operational Safeguards # 2, 3, 5, 6, or 8, please consult with UNIDO GEF Coordination to discuss next steps.*
- *Please refer to the [UNIDO Environmental and Social Safeguards Policies and Procedures \(ESSPP\)](#) on how to report on E&S issues.*

Please expand the table as needed.

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	<p>The ESMP outlines 42 individual environmental / social risks. Broadly, the risks can be grouped into the following:</p> <ul style="list-style-type: none"> • Policy not being adopted by counterparts; • Policy and regulatory measures are not effective; • Risk of capacity building being conducted ineffectively; • Risk of incentives being poorly designed; • Risk of new standards being coherent with existing standards; • Risk of pilot demonstrations 	<p>Mitigation measures during the reporting period include the following:</p> <ul style="list-style-type: none"> • Engagement of key stakeholders in policy development to encourage policy coherence and policy adoption; • Demonstration sites in Yancheng being changed to Qingdao to address challenges in stakeholder ownerships that were a potential risk to effective implementation of demonstration; and <p>Capacity building targeting key constituents necessary for project's success; and</p>	<p>Complete monitoring methods and procedures established and were expanded.</p> <p>The measures were considered and the environmental and social safeguards have been implemented in the demonstration sites.</p> <p>The relevant stakeholders were engaged during implementation progress activities. Demonstration activities were successfully completed in Qingdao and obtained the buy-in from the relevant stakeholders to ensure continuity of project operations.</p>

	not being completed efficiently or effectively; and Lack of local expertise to completed demonstrations.		
(ii) New risks identified during project implementation (if not applicable, please insert 'NA' in each box)	n/a	n/a	n/a

V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes** regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

The project is being nationally executed by SAE China. For the purpose of mainstreaming the project execution and implementation and to comply with the requirements of the Government of China, UNIDO signed three level of agreements, an implementation agreement with the Ministry of Finance as the GEF focal point, an execution agreement with the Ministry of Industry and Trade as the national agency responsible for the oversight of the national execution and a project level agreement with SAE China.

A project management unit was set up at the SAE China and a project steering committee with representation from all national stakeholders is established.

The coordination between the stakeholders has continued to prove effective. This has been demonstrated by the speed at which the project has been able to implement final activities in the previous year, in spite of some challenges in the previous reporting period related to COVID-19. Developments in 2022 related to COVID-19 pandemic have unfortunately prevented the project from having closing events to highlight the achievements and outcomes of the projects with stakeholders. A final milestone was the presentation of the terminal evaluation to stakeholders once the project was completed.

2. Please provide any feedback submitted by national counterparts, GEF OFP, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

Through the established mechanism of the project steering committee, the national stakeholders provide feedback to the project executing partner. Furthermore, the national events planned under the communication and awareness raising are always well attended by the national and international partners.

Feedback from stakeholders of the project has also been incorporated into the project's Final Report, submitted by the Society of Automotive Engineers in China as the execution agency and included as an attachment. Additional stakeholder engagement and feedback collected during this period will be included in the terminal evaluation and provided once completed.

No further separate feedback was received.

3. Please provide any **relevant stakeholder consultation** documents.

- *Project Final Report.*

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the **progress achieved on implementing gender-responsive measures and using gender-sensitive indicators**, as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent),.

Efforts are made to continuously mainstream gender in the project activities. The project commits to gender sensitive policies as well as active engagement of women and sex disaggregated targets. The PMU at SAE China is led by women. Furthermore, in the carrying out of events, UNIDO advocates to the extent possible on the equal representation in panels and training workshops.

The total number of participants involved in Shanghai Demonstration Project is 43, among which 22 are females (51.2%). The proportion of females in the team is quite high and these females were quite active in the whole project implementation process.

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any **knowledge management activities / products**, as documented at CEO Endorsement / Approval.

World New Energy Vehicle (WNEV 2022) and Technical Guidelines:

- China-SAE and UNIDO jointly compiled the "Technical Guidelines for Integrated Application of Electric Vehicles and Renewable Energy". The guidelines systematically explain the application of various fusion technologies in different scenarios from ten typical demonstration projects and condense the relevant technical requirements and guidelines from the perspectives of technical solutions, construction requirements, business models, and operational effects. The guideline was launched at the World New Energy Vehicles Congress on 25 August 2022. It was a great opportunity to publicize the Guidelines and achievement of the EV-RE integration project.

Final Evaluation:

- Terminal evaluations were completed and the reports were disseminated to the relevant project stakeholders for feedback and comments. UNIDO organized an evaluation debriefing session inviting UNIDO staffs from Technical Cooperation Services, the GEF coordination unit, the independent evaluation division, the GEF climate change specialist, and other relevant stakeholders from the national counterparts. The independent evaluators presented the evaluation findings and recommendations including the methodology, alignment with UNIDO's Integrated Results Performance Framework, project performance, and results, co-financing leveraged, and future project recommendations and further improvement. This was then also presented as a debriefing presentation to the entire department and GEF coordination in December 2022.

UNEP GEF 7 Electric Mobility global platform :

- UNIDO reached out to the GEF-7 global e-mobility partnership programme and explored the options to organize a webinar and disseminate lessons learned from this project with a wider range of stakeholders. A webinar on “**Success Story and Lessons Learned: Integrated Adoption of New Energy Vehicles in China**” was organized on 14 December 2022 in partnership with UNEP-GEF-7 Electric Mobility Programme which has established the Africa Support and Investment Platform to help countries promote and accelerate the adoption of electric vehicles. We had 90+ participants who joined us through the webinar platform. We presented the lessons learnt/successful stories as part of the UNEP platform.

2. Please list any **relevant knowledge management mechanisms / tools** that the project has generated.

China SAE has set up Chinese website (<http://gef.sae-china.org/>), which is updated periodically on basic information, news, and latest research. The website has successfully promoted EV-RE integration of the products and service to auto industries, charging station industries and auto organizations.

The project management office has also set up its Chinese official website and official account in Wechat to update and disseminate the latest progress.

In order to capture and document the best practices from the demonstration projects, AUTOFAN, a communication and marketing firm was contracted under UNIDO to provide services and activities related to the development, production, and dissemination of video and promotional materials of best practices and lessons learned. Four short videos (each 30 seconds) covering initiatives of technical guidelines launch, Chonming village with the integration of solar PV panels, EV-AI smart port in Jiading district, Green Sichuan Tibet journey - completing zero-emission mobility. One IANEV project video and a Shanghai demonstration video in English and Chinese languages have been developed and produced.

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes achieved/observed** with regards to project implementation.

PROGRESS AND OUTCOMES ACHIEVED:

Output 1.1

In November 2021, the Energy Research Institute of the National Development and Reform Commission invited representatives from the national energy administration, China Electric Power Enterprise Federation, the State Grid Corporation of China and some domestic electric vehicle enterprises to discuss the participation of electric vehicles in the operation of power system, improving the role of flexible charging resources of electric vehicles and consuming renewable energy.

By the end of 2022, the research output had contributed to 4 national policies, including as follows:

1. New Energy Vehicle Industry Development Plan (2021-2035) released by State Council in November

2020

2. Implementation Opinions on Further Improving the Service Guarantee Capacity of Charging And Battery Swapping Infrastructure (Draft for comments) issued by National Development and Reform Commission and National Energy Administration (power department)
3. Guidance on Accelerating the Development of New Energy Storage issued by National Development and Reform Commission, national development and Reform Commission and energy administration in July 2021
4. Action Plan for Carbon Peak before 2030 by State Council in October 2021

Output 1.2

By end of 2022 four group standards related to fire safety of power battery secondary-hand utilization were completed. The official standards file number includes T/CSAE 214-2021, T/CSAE 215-2021, T/CSAE 216-2021, T/CSAE 217-2021.

State Grid has completed all research by the end of 2022. So far, group standard of Electric Vehicle Charging and Battery Swapping Service Information Exchange-Part 6: Technical Specification for Charging and Battery Swapping Equipment Access To Charging Service Platform, and group standard Electric Vehicle Charging and Battery Swapping Service Information Exchange-Part 9: Functional Specification of Management Information Platform have been officially published. An industry standard "Electric Vehicle Charging and Discharging Two-way Interaction-Part 1: General Principles" was developed and submitted to China Electricity Council. By taking suggestions from more than 20 experts from electric power companies, charging operators, automobile enterprises, the standard is predicted to public. Besides, the national standard of information communication protocols between off-board conductive charger and battery management system of electric vehicle has completed public solicitation, which has been released in 2022 as planned.

Output 1.3

From November 2020 to December 2022, the carbon neutralization roadmap project involved a series of in-depth discussion with MIIT, Ministry of Ecology and Environment, Ministry of Science and Technology, Ministry of Transport, China National Institute of Standardization, based on the preliminary research results and the core framework of the project scheme. Through analyzing the technical development path of passenger vehicle, commercial vehicle, and manufacturer, the research project proposed: "the carbon peak will be achieved in 2028, the carbon emission will decrease by nearly 85% compared with the peak in 2050, and carbon neutralization will be achieved in 2060".

Output 2.2

On July 28, 2021, the first work meeting of the Action Plan for Low Carbon Travel of New Energy Vehicles was successfully held in Beijing. Hou Fushen, Deputy Secretary General of China SAE and executive president of SAIC Strategy Institute, Wei Zhihong, Professor of Tsinghua University, Wu Bin, director of marketing department of State Grid Co., Ltd., Gong Junsong, deputy general manager of Beijing Green Exchange Co., Ltd., Huang Xueliang, deputy general manager of China Classification Society Quality Certification Co., Ltd., and other leaders attended the working meeting. More than 60 enterprise representatives including travel platform companies, battery and charging enterprises, automobile supporting enterprises and logistics companies attended the meeting.

In November, 2021, the Energy Research Institute of the National Development and Reform Commission invited representatives of the National Energy Administration, China Electric Power Enterprise Federation, the State Grid Corporation of China and domestic electric vehicle enterprises to discuss the role of electric vehicles in the operation of power system in order to improve the flexible charging resources of electric vehicles and consuming renewable energy.

Output 3.1

By end of 2022, the smart charging system of Shanghai demonstration project has applied new technologies such as orderly charging and V2G, and the commercialization of smart charging system in business parks,

buildings, etc. They also built 75 smart charging system demonstration sites and 876 smart charging piles.

The Qingdao project built 1071 charging piles serving more than 700 electric vehicles (Specific number: 50 taxis, 50 official vehicles and 600 private or rental vehicles). The smart charging piles coordinated with the power grid dispatching to realize smart charging and maximize the vehicle charging demand without impacting the power grid.

Output 3.2

Qingdao has built 300 smart charging piles with V2G function, serving at least 300 electric vehicles to promote the business model. The project undertaking unit collected and analyzed the dynamic data between vehicles and power grid generated in Qingdao smart charging network, and collected smart charging demonstration data of more than 200 hours on average for each charging pile. They also did out cost-benefit analysis on these data with conclusions of 3-5 other types of charging systems built in other cities in order to find out the advantages and disadvantages of each model, and to provide references for policymakers. After the exploration and analysis of various models, the business model of sustainable development was more clarified and an executable business model report was issued.

Output 3.3

By the end of 2022, a total of 124,134 public and exclusive charging facilities in Shanghai had been connected to the Project, including 74,839 public charging piles and 49,325 exclusive charging piles.

With respect to the EV time-sharing renting services in Shanghai (EVCARD), by the end of 2022, a total of 8,000 vehicles were put into operation, 250 time-sharing renting sites and 1,000 charging piles had been built, benefiting over 2.6 million registered members.

Output 3.4

Shanghai

The project is committed to creating an energy management platform that can receive, store, monitor, and display data. These functions are capable of gathering real-time data from smart charging piles, energy storage stations – micro-grids, V2G and other energy systems. By end of 2022, a total of 16 demonstration sites in Shanghai had been connected to this platform, including 11 PV storage-charging projects and 716 charging piles.

Qingdao

The project has developed and established an energy management system in Qingdao. The smart charging piles and microgrid systems built in this project are all connected to this energy management system to collect data and send control information for electric vehicles participating in smart charging demonstrations and microgrid V2G demonstrations. The collected data includes charge and discharge time, power, current and voltage, order number, operating status, real-time power, SOC value, etc. Although this system is not connected to all the charging infrastructure in Qingdao, it proves that such system is technically feasible for building a municipal energy management system

By the end of 2022, a total of 70 charging stations and 1049 charging piles had been connected, including 10 V2G charging piles, with energy storage capacity of 981KW and photovoltaic capacity of 12.1MW. Total revenue is 105,6812.9 RMB. It indicates the use of city-level platforms to manage urban charging facilities will become an effective means of managing the charging pile industry.

Output 4.1

In September 2021, PMO cooperated with the Secretariat of the World New Energy Vehicle Conference to

hold a forum on the application practice of the integration of new energy vehicles and renewable energy in China, with more than 250 on-site delegates. Several subcontractors involved in the EV-RE project participated in the event and delivered speeches. The forum focused on the typical demonstration cases of VGI (vehicle grid integration) in China, the United States and Japan, summarized and analyzed the key technologies, standard system, supporting foundation of industrial chain, market mechanism and policy coordination strategy required for the large-scale application of VGI, and discussed the development mode and technical route of VGI commercialization. Jiangkou Qingzheng, director and general manager of Mitsubishi Electric Power electromechanical equipment (Beijing) Co., Ltd., shared the situation of Mitsubishi Electric Group V2X in Japan.

CHALLENGES:

2. Please briefly elaborate on any **minor amendments**⁷ to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.

<input type="checkbox"/>	Results Framework	
<input type="checkbox"/>	Components and Cost	
<input type="checkbox"/>	Institutional and Implementation Arrangements	
<input type="checkbox"/>	Financial Management	
<input type="checkbox"/>	Implementation Schedule	Project is concluded
<input type="checkbox"/>	Executing Entity	
<input type="checkbox"/>	Executing Entity Category	
<input type="checkbox"/>	Minor Project Objective Change	
<input type="checkbox"/>	Safeguards	
<input type="checkbox"/>	Risk Analysis	
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	
<input type="checkbox"/>	Co-Financing	
<input type="checkbox"/>	Location of Project Activities	
<input type="checkbox"/>	Others	


3. Please provide progress related to the **financial implementation** of the project.

The project's national co-financing is a combination of government and private sector funding (cash and in kind). National co-financing allows for country ownership and gains the government's interest in project outputs and outcomes for which their funds are spent.

⁷ As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

The co-financing has been mobilized mostly for the investment and technology demonstration of integration of electric vehicle and renewable energy technology under Component 3.

The GEF grant makes a catalytic effect, unlocking investment in EV-RE infrastructure, with consideration for policy development and financial investment that reflects an integrated approach.

 GRANT DELIVERY REPORT	Grant:	2000003630	Grant Status:	Authority to implement	Grant Validity:	11.04.2017 - 10.04.2024
	Sponsor:	400150 - GEF - Global Environment Facility	Currency:	USD	Reporting Period:	11.01.2017 - 30.06.2023
	Other Reference:	9323-U3-PJ-FS-GR-01	Fund:	GF	Prepared on:	14.07.2023
Project	Project Description	Country	Region	Project Manager	Project Validity	
150312	SUSTAINABLE CITIES, INTEGRATED APPROACH PILOT IN INDIA	India	Asia and Pacific	Katarina Barunica	09.12.2015 - 10.04.2024	

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditure Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
		USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
2000003630											
1100	Staff & Intern Consultants	(42,983.34)	13,051.40	43,032.53	56,083.93	(82,917.80)	(82,917.80)	54,874.97	(137,792.77)	0.00	54,874.97
1500	Local Travel	10,273.41	(2,255.46)	15,123.34	12,867.88	(3,038.38)	(3,038.38)	34,897.93	(37,936.31)	0.00	34,897.93
1700	Nat.Consult./Staff	89,231.52	75,039.93	84,535.39	159,575.32	131,586.96	131,586.96	187,898.86	(56,311.90)	0.00	187,898.86
2100	Contractual Services	(246,778.67)	(1,142,396.15)	1,032,107.90	(110,268.25)	2,078,528.15	2,078,528.15	67,183.69	2,011,344.46	0.00	67,183.69
3500	International Meetings	(2,111.65)	0.00	0.00	0.00	(2,111.65)	(2,111.65)	0.00	(2,111.65)	0.00	0.00
4300	Premises	4.70	48.44	13,331.92	13,380.36	(2,132,138.70)	(2,132,138.70)	23,363.39	(2,155,502.09)	0.00	23,363.39
4500	Equipment	5,000.00	0.00	77.28	77.28	5,178.63	5,178.63	186.58	4,992.05	0.00	186.58
5100	Other Direct Costs	(1,942.83)	(806.29)	2,879.72	2,273.43	4,912.79	4,912.79	5,350.63	(437.84)	0.00	5,350.63
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,638.41	33,638.41
2000003630	USD Total	(189,306.86)	(1,057,118.13)	1,191,088.08	133,969.55	(0.00)	(0.00)	373,756.05	(373,756.05)	33,638.41	407,394.46

* Does not include Unapproved Obligations
The above statement has been certified electronically by the designated officials in UNIDO's Financial Services.

IX. Work Plan and Budget

1. Please provide an updated project work plan and budget for the remaining duration of the project, as per last approved project extension. Please expand/modify the table as needed.

Please fill in the below table or make a reference to a file, in case it is submitted as an annex to the report.

Outputs by Project Component	Year 1				Year 2				Year 3				GEF Grant Budget Available (US\$)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Component 1 –													
Outcome 1:													
Output 1.1:													
Output 1.2:													
Component 2 –													
Outcome 2:													
Output 2.1:													
Output 2.2:													

X. Synergies

1. **Synergies** achieved:

Lessons learned from this project continue to be shared through UNIDO’s electric mobility programme and will be presented and distributed through the GEF-7 Global Programme to support countries with the shift to Electric Mobility.

Considering the mobile distributed energy storage feature of EV, this project built an integrated demonstration system with solar storage, charging and discharging in TELD’s industrial park. With the support of big data technologies and the Internet, this project coordinated the distribution grid with the charging and discharging features of EVs, distributed energy resources and energy storage systems, developing a data platform for energy management with Qingdao intelligent charging network at its core.

3. **Stories to be shared** (Optional)

Liu, Huiping, Director of Green Transportation Special Commitment of Shanghai Institute of Traffic Engineering, Vice President of Shanghai Energy Saving Engineering and Technology Association, and Director of Expert Committee of Shanghai Distributed Energy Industry Technology & Innovation Strategic Alliance.

“This project promotes the integrated development of NEVs and renewable energy industry, and improves the efficiency of energy conservation and emission reduction throughout the life cycle of NEVs. It carries out exploration for the integrated development mode of NEVs, renewable energy and smart grid in Yangtze River Delta and accelerates the coordinated development of NEVs and renewables in Shanghai.”

XI. GEO LOCATION INFORMATION

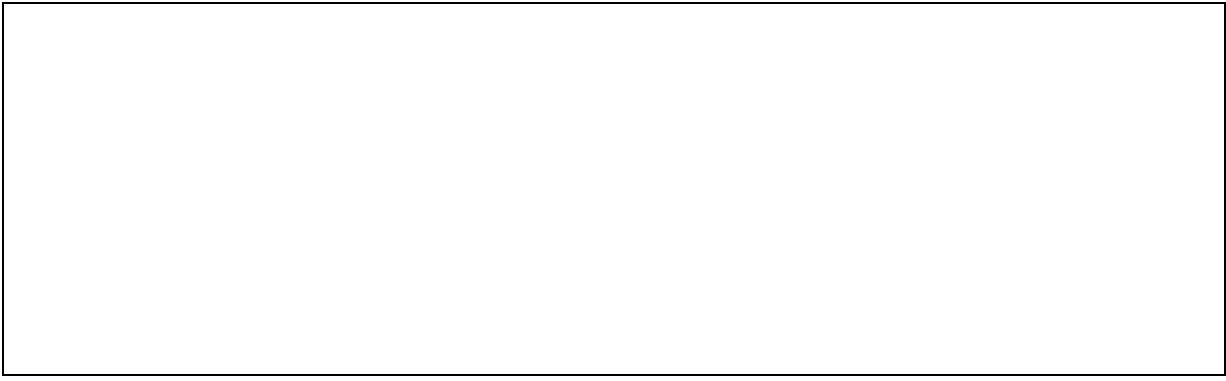
The Location Name, Latitude and Longitude are required fields insofar as an Agency chooses to enter a project location under the set format. The Geo Name ID is required in instances where the location is not exact, such as in the case of a city, as opposed to the exact site of a physical infrastructure. The Location & Activity Description fields are optional. Project longitude and latitude must follow the Decimal Degrees WGS84 format and Agencies are encouraged to use at least four decimal points for greater accuracy. Users may add as many locations as appropriate.

Web mapping applications such as [OpenStreetMap](#) or [GeoNames](#) use this format. Consider using a conversion tool as needed, such as: <https://coordinates-converter.com>

Please see the Geocoding User Guide by clicking [here](#)

Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
Shanghai	N 31° 13' 20"	E 121° 27' 29"		
Qingdao	N 36° 3' 53"	E 120° 22' 49"		

Please provide any further geo-referenced information and map where the project interventions is taking place as appropriate.



EXPLANATORY NOTE

1. **Timing & duration:** Each report covers a twelve-month period, i.e. 1 July 2022 – 30 June 2023.
2. **Responsibility:** The responsibility for preparing the report lies with the project manager in consultation with the Division Chief and Director.
3. **Evaluation:** For the report to be used effectively as a tool for annual self-evaluation, project counterparts need to be fully involved. The (main) counterpart can provide any additional information considered essential, including a simple rating of project progress.
4. **Results-based management:** The annual project/programme progress reports are required by the RBM programme component focal points to obtain information on outcomes observed.

Global Environmental Objectives (GEOs) / Development Objectives (DOs) ratings	
Highly Satisfactory (HS)	Project is expected to achieve or exceed <u>all</u> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project is expected to <u>achieve most</u> of its <u>major</u> global environmental objectives, and yields satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to <u>achieve most</u> of its major <u>relevant</u> objectives but with either significant shortcomings or modes overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environmental benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve <u>some</u> of its major global environmental objectives with major shortcomings or is expected to <u>achieve only some</u> of its major global environmental objectives.
Unsatisfactory (U)	Project is expected <u>not</u> to achieve <u>most</u> of its major global environmental objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, <u>any</u> of its major global environmental objectives with no worthwhile benefits.

Implementation Progress (IP)	
Highly Satisfactory (HS)	Implementation of <u>all</u> components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.
Satisfactory (S)	Implementation of <u>most</u> components is in substantial compliance with the original/formally revised plan except for only few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of <u>some</u> components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Moderately Unsatisfactory (MU)	Implementation of <u>some</u> components is <u>not</u> in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of <u>most</u> components in <u>not</u> in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of <u>none</u> of the components is in substantial compliance with the original/formally revised plan.

Risk ratings	
Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risk of projects should be rated on the following scale:	
High Risk (H)	There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between 51% and 75% that assumptions may fail to hold or materialize, and/or the project may face substantial risks.
Moderate Risk (M)	There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/or the project may face only moderate risk.
Low Risk (L)	There is a probability of up to 25% that assumptions may fail to hold or materialize, and/or the project may face only low risks.