

ELECTRIC VEHICLE PARKING ELECTRIC VEHICLE PARKING

OPPORTUNITIES UNDER THE PHILIPPINES

CREVI

Comprehensive Roadmap for the Electric Vehicle Industry

Dir. Patrick T. Aquino, CESO III
Energy Utilization Management Bureau
Department of Energy

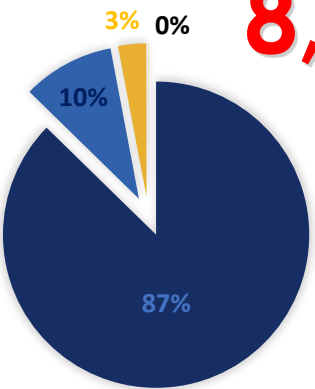


EV Industry Situationer

EVs and EVCS Demand

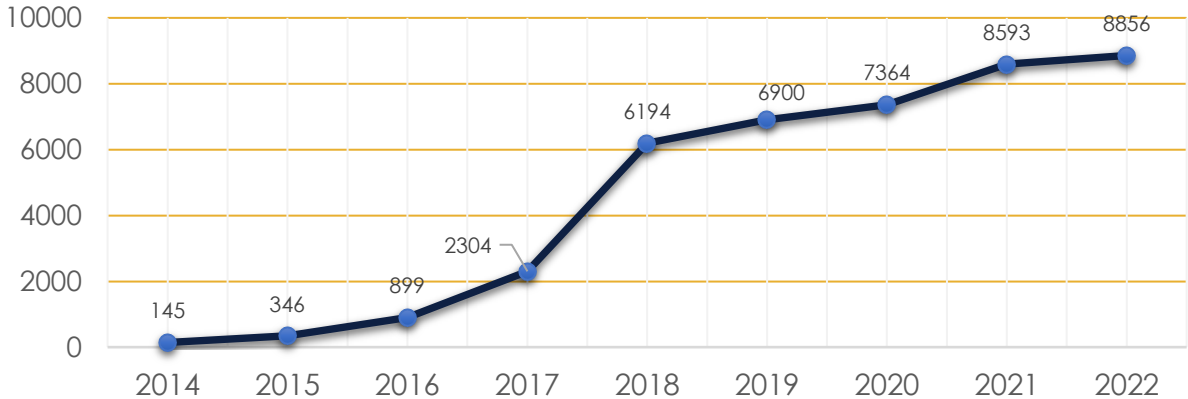
13,022,483 CONVENTIONAL VEHICLES

8,593 ELECTRIC VEHICLES



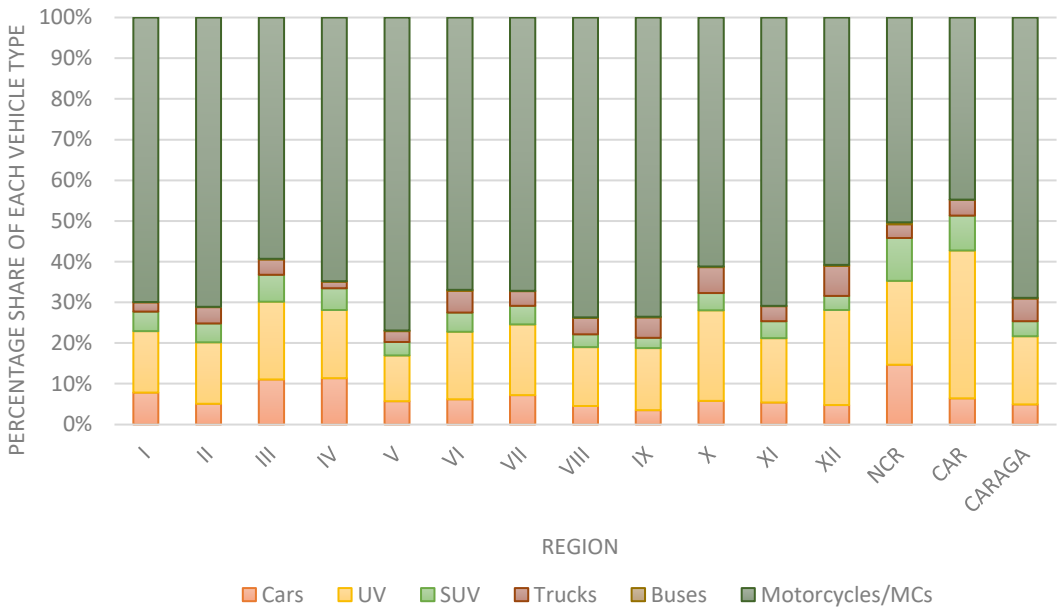
Based on the LTO data FY 2021

Cumulative Numbers of Electric Vehicle Registration from 2014-2022:



Source: DOTr-LTO, Data as of October 2022

Vehicle Type Breakdown by Region, 2021



Source: DOTr-LTO 2021 Motor Vehicle Registration

Majority Vehicle Registration:

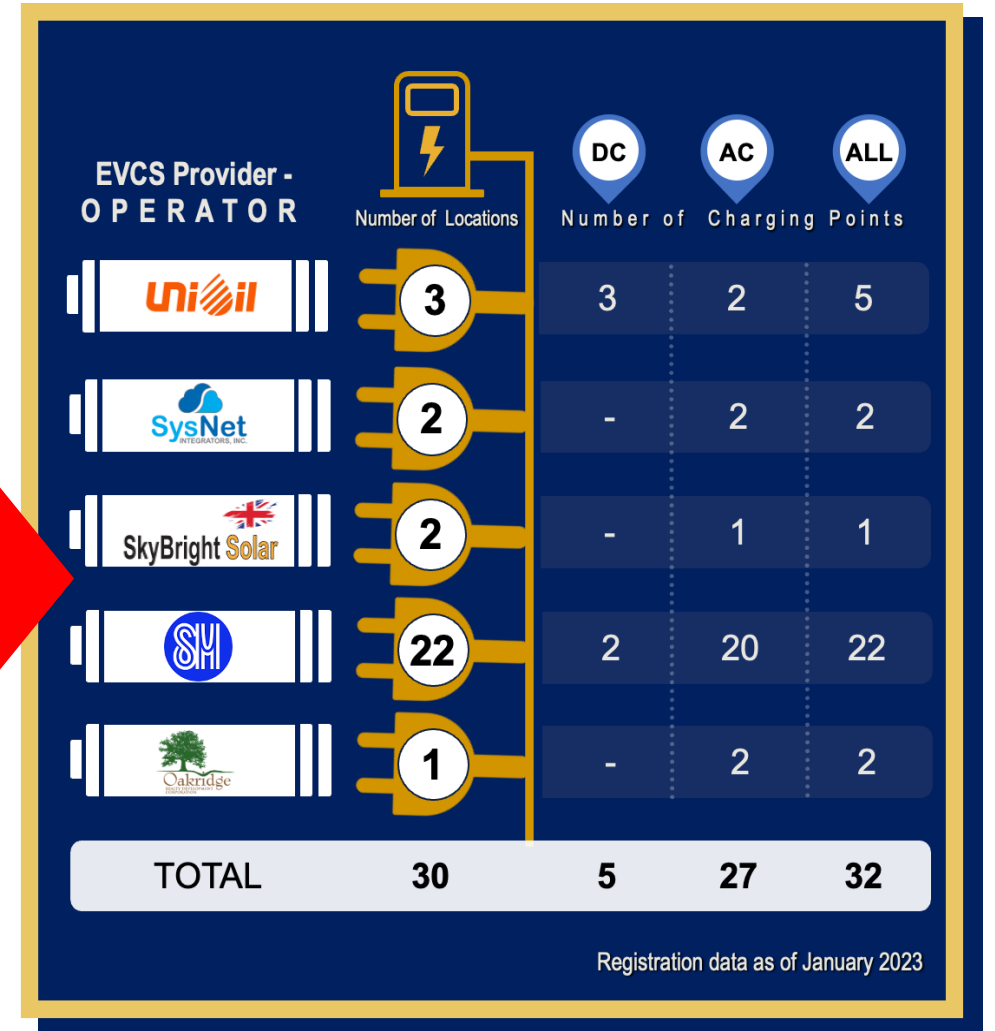
motorcycles & tricycles **cars/sedan** **SUVs**

EV Industry Situationer

Numbers of EVs and EVCS

Number of EVCS per Region:

Region	AC chargers	DC chargers	Battery Swapping Stations	TOTAL
NCR	141	38	2	181
I	1	-	-	1
II	6	2	-	8
III	12	1	-	13
IV	92	17	1	110
VI	4	-	14	18
VII	1	1	3	5
XI	1	-	-	1
XIII	-	-	1	1
TOTAL	258	59	21	338



EV Industry Situationer

Manufacturing

7

Local electric tricycle
producer and assembler

256

Local companies that cater
to the domestic automotive
market

330

Vehicle parts and
components production

8

Local battery manufacturers

Share of Vehicle Imports

Country of Origin



Indonesia



Thailand



China



Japan



South Korea

0% 10% 20% 30% 40% 50% 60% 70%

Share of source countries

Comprehensive Roadmap for the EV Industry

VISION & INDUSTRY GOALS

VISION

To electrify a diverse range of vehicles and establish a domestic EV industry with strong export potential, with the aim of building a sustainable future, where new electric vehicles and the required infrastructure, are locally robust with reduced environmental impact.

INDUSTRY GOALS

- Increase the utilization of EVs in the domestic market
- Deploy a sufficient number of EV charging points across the country between 2023 and 2040
- Position the Philippine EV industry to become a producer and exporter of EVs by 2040.
- Promote sustainable economic growth and just e-mobility transition by protecting employment in the automotive industry and providing capacity-building activities and EV-specific transition programs
- Support research and development in battery research, and EVCS technology, and digitalization to spur technological innovations and strengthen the competitiveness of the local EV industry

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
Phased Approach to Improve EV utilization		Adopt a phased approach to develop its EV industry to balance industry growth and efforts to grow the market.		
		Ensure demand, provide innovative incentives, introduce required technical regulations and standards, and ensure technology competitiveness of the local industry.		
Demonstration and deployment of EVs	DOTr, DPWH LGUs, Corporate/Private Sector, DOE, DILG	Rollout pilot programs for government or private sector led on EV and EVCS use		
	All government agencies and Corporate/Private Sector	Deploy EVs and EVCS		
Refleeting of vehicles for government and the private sector	All government agencies and Corporate/Private Sector	Implement EV refleeting and EVCS programs as mandated by CREVI for the public and private sector		
Monitoring of EV refleeting mandates	All government agencies, Corporate/Private Sector	Continue monitoring and enforcing refleeting mandates through existing mechanisms under RA 11285 and RA 11697		
Promote the use of EV and EVCS	DOE, DTI, DOTr	Support EV rental/leasing or sharing programs for affordability of e-mobility		
	DOE, DTI, DOTr	Develop and disseminate IEC Campaign materials to highlight benefits and performance of Evs		
	DOTr, DTI, DOE	Revitalized implementation of the PUVMP to generate reliable and sufficient demand for EV manufacturing, consistent with the EVIS		

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
EV Manufacturing to Improve Competitiveness		Improve access to the needed processes, parts and components, expertise and technology, and adopt shared platforms and partnerships.		
Improved Manufacturing capability of the Philippines	DTI, DOST, DOTr	Strengthen and expand manufacturing hubs for 2-wheel EVs		
	DTI, DOST, DOTr, NEDA	Support Manufacturing for 2-wheel vehicles for international markets		
	DTI, DOST, DOTr, NEDA	Strengthen and expand manufacturing hubs for 4-wheeled EVs for domestic and markets through EVIS		
	DTI, DOST, DOTr, NEDA	Support Manufacturing for 4-wheel EV for the domestic market		
	DTI, DOST, DOTr, DOLE	Support Manufacturing for EVCS and its components for domestic markets		
	DTI, DOST, DOTr, DOLE, NEDA	Support Manufacturing for EVCS and its components for international markets		
	DTI, DOST, NEDA	Attract foreign investments for export-oriented activities in EV parts and components		
Pilot programs for local manufacturing of EV and EVCS parts and components	DTI, DOST, DOTr, DOLE, NEDA	Support manufacturing and production of batteries for EVs leveraging locally available green metals		
	DTI, DOST	Support and commercialize technologies on EV electronics		
	DTI, DOST, DOTr, DOLE, DOE, DENR	Support and commercialize technologies for mineral refining to purify nickel reserves and other minerals for battery production		
	DTI, DOST, DOTr, NEDA	Conduct pilot programs for EV battery manufacturing		

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
Research and Development		Prepare the readiness of an electrified and cleaner transport system through research and development of EV and EVCS critical parts and components and the utilization of clean energy sources in the operation of EV ecosystem		
Battery Storage	DOST, DOE, EV stakeholders	Conduct research and viable studies on battery storage to ensure efficiency and cost effectiveness		
	DOST, DOE, EV stakeholders		Commercialize battery storage	
Battery Manufacturing	DOST, DOE, DENR, EV stakeholders	Conduct researches on alternative battery components		
	DOST, DOE, DENR, EV stakeholders		Commercialize the utilization of indigenous minerals for alternative battery component production	
EV Manufacturing	DOST, DOE, DOTr, EV stakeholders	Conduct researches and viable studies for technologies for manufacturing rail, air, sea transport vehicles		
	DOST, DOE, DOTr, EV stakeholders		Commercialize the adoption of electrified transport system in rail, air, and sea transport	
	DOST, DOE, EV stakeholders	Conduct researches to develop locally available lightweight and high strength materials for EV frames, components and parts		
	DOST, DOE, DOTr, EV stakeholders		Commercialize the utilization of locally available lightweight and high strength materials for EV	

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
Human Resource Development		Prepare and capacitate the EV Industry through support technical programs and trainings to ensure ready support services for EV and EVCS operation, maintenance, repair, emergency response and among others.		
Capacity Building for EV and EVCs manufacturing and maintenance Promote entrepreneurial models for the local businesses in the local EV supply chain	TESDA, DOST, DTI, NEDA	Strengthen/Expand and implement training and educational standards for EV Maintenance and Manufacturing		
	DTI, LGUs, DOST, DENR, DOLE, NEDA	Conduct training and shared services facilities for business owners, cooperative or groups with collective action and professionals with successful models of enterprises in the EV supply chain (from supply to after sales service)		
	DOLE, TESDA, DTI	Conduct training for vehicle rental/sharing business models		
	DOLE, TESDA, DOST, DTI, DOTr, DOE	Develop standards and safety practices for EV conversion		
	DOLE, TESDA, DOE, DOTr	Train workers for EVCS operation, maintenance and installation		
	DOLE, TESDA, DTI, DOE, DENR	Develop standards and safety practices/application for EV battery recycling		
	DOLE, TESDA, DTI, DOE, DENR	Train workers for EV waste management (eg. battery recycling)		
	DOLE, TESDA, DOE, DPWH, DTI	Develop guidelines to perform EV and EVCS inspections based on mandated quality and safety standards		

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
Capacity Building of the deployment of EVs and EVCs at the local level	All government agencies including LGUs, NGOs, CDA	Conduct training programs for the private and public sectors, NGO and cooperatives for EV and EVCS deployment		
Delivery of efficient and safe technical support services	DOLE, TESDA, DTI, DOE, DOTr	Train and certify personnel for safety servicing of EV and EVCS		
	DOLE, TESDA, DTI, DOE, DOTr		Strengthen/Expand services shops to cater EV maintenance and repair	
International Partnerships	DOE, DOST, DTI, DOTr, NEDA	Conduct knowledge exchange programs and from countries that have EV deployment and develop partnerships for technical capacity building		

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
Policy and Credit		Implement technical regulations geared towards ensuring the harmonized adoption, sustainable operation, energy efficiency, quality and safety, accessible investments of EVs and EVCS supplied and manufactured to the public.		
	Integrate EVCS with clean energy sources	DOE, DTI, DILG, DPWH, LGUs, NEDA Encourage the utilization of renewable energy sources to power EVCS	Mandate 50% utilization of renewable energy sources to power EVCS	Mandate 100% utilization of renewable energy sources to power EVCS
	Align the EVIS with the priority targets of the CREVI Standardization of EVCS and EV	DTI, NEDA, DOF Issue EVIS and supporting policies to provide incentives for EVs and EVCS	Implement and enforce issuances	
		DOE, DOTr, DTI, ERC Issue relevant policies for EVCS and EV classification including but not limited to minimum energy performance, labeling, safety, and quality		
		DOE, EV stakeholders Standardization and harmonization of charging protocol of EVCS		

Comprehensive Roadmap for the EV Industry

ACTION PLANS

Key result area	Responsible Stakeholders and Agencies	Short term (2023-2028)	Medium Term (2029-2034)	Long Term (2035-2040)
	DOE, EV stakeholders	Standardization and harmonization of charging protocol of EVCS	Implement and enforce issuances	
Standardization EVCS	DPWH, DOE, DILG, LGUs	Issue uniform policies on issuance of permits and construction and installation for EVCS		
Installation/Construction				
Open and Public Data for EVCs and EV	DOE, DOTr, DICT, DTI	Develop a uniform database for EVCS and EV data that is accessible to the public observing common APIs to integrate the internet of things for the EV industry		
Implement Fiscal and Non-Fiscal Incentives	BOI, DTI, DOTr, DILG, LGUs, DOF, BIR, BOC, NEDA	Continue implementation/ imposition of additional incentives for EVCS and EV manufacturing		
Strengthening of Government Agencies Concerned	DOE, DOTr, LGUs, DBM	Support strengthening and capacity building for government agencies		
Promote utilization of EVs in the locality and tourism sector	DOE, DOTr, LGUs, DILG, DOT, DPWH, MMDA, NEDA	Issue relevant policies for the adoption of EVs including but not limited to dedicated parking slots, loading and unloading stations for EVs, segregated lanes for LEVs and green routes, fast charge networks for major thoroughfares/highways.		
Research Agenda	DOST, DOE, DOTr, DTI, DENR, DILG, DPWH, NEDA	Development of research agenda for the development of EV and EVCS critical parts and components.		
Financing Support	LGUs, GFIs, BSP, NEDA	Continue and formulate financing models to support EV and EVCS stakeholders		
Waste Management, Recycling, and Reuse of ICE vehicles and EVs	DOST, DENR, DTI, LTO	Issue policies on recycling/reusing ICE vehicles and EVs and their components through EV conversion kits, retrofitting, and other initiatives to promote a circular economy		
Transport policy	DOTr, DTI, DOE, DILG, LGUs	Integrate transport policy with industrial policy to ensure a concerted and coordinated effort in generating demand that can be leveraged by manufacturers to boost domestic production and export EVs		



EV Targets
311,700 EVs



7,400 EVCS

Cars:	81,500 HEV
	13,600 PHEV
	13,600 BEV
Tricycle:	37,500 BEV
Motorcycle:	164,900 BEV
Bus:	600 BEV

Business-as-Usual

SHORT - TERM

Clean Energy Scenario



EV Targets
2,454,200 EVs



65,000 EVCS

Cars:	415,000 HEV
	69,000 PHEV
	69,000 BEV
Tricycle:	419,000 BEV
Motorcycle:	1,480,000 BEV
Bus:	2,200 BEV



EV Targets
580,500 EVs



14,000 EVCS

Cars:	49,000 HEV
	24,600 PHEV
	123,000 BEV
Tricycle:	71,000 BEV
Motorcycle:	311,800 BEV
Bus:	1,200 BEV

Business-as-Usual

MEDIUM - TERM

Clean Energy Scenario

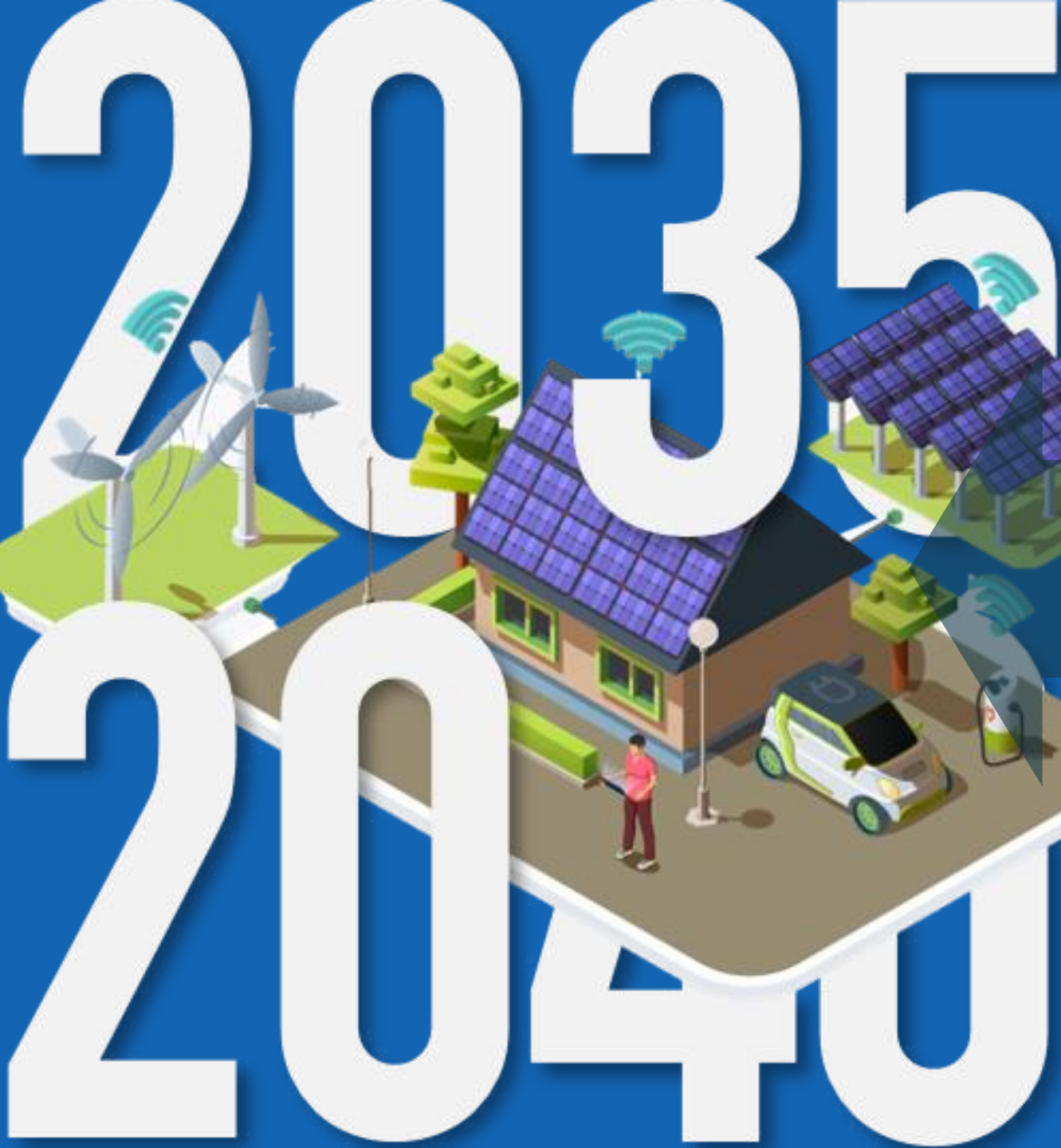


EV Targets
1,851,500 EVs



42,000 EVCS

Cars:	234,000 HEV
	80,000 PHEV
	327,000 BEV
Tricycle:	262,000 BEV
Motorcycle:	947,000 BEV
Bus:	1,500 BEV



EV Targets
850,100 EVs



20,300 EVCS

Cars:	36,600 HEV
	36,600 PHEV
	219,400 BEV
Tricycle:	103,400 BEV
Motorcycle:	454,400 BEV
Bus:	1,800 BEV

Business-as-Usual

LONG - TERM

Clean Energy Scenario



EV Targets
2,001,600 EVs



40,000 EVCS

Cars:	107,000 HEV
	107,000 PHEV
	641,000 BEV
Tricycle:	223,000 BEV
Motorcycle:	922,000 BEV
Bus:	1,600 BEV

Opportunities

Manufacturing

EVIS

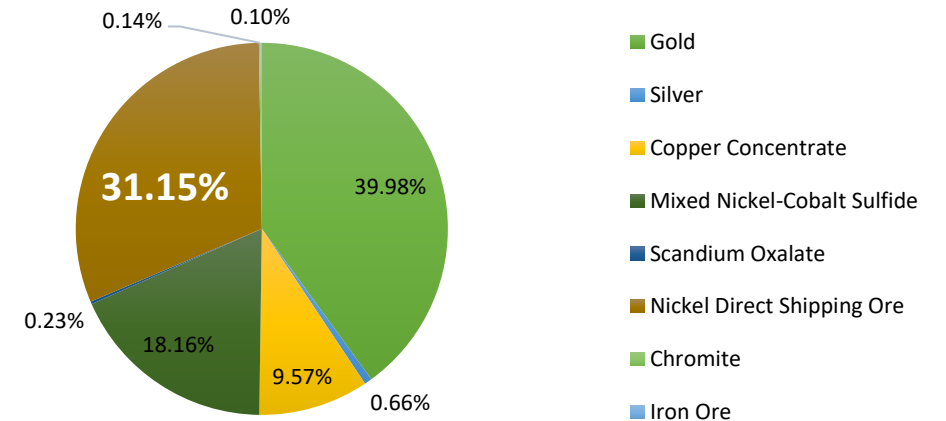
EV Incentive Strategy

Fiscal Incentives for Manufacturing included in Strategic Investment Priority Plan (SIPP)

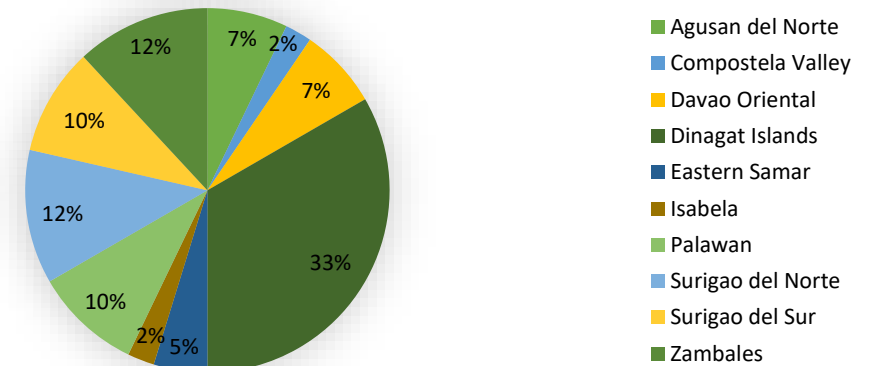
Development of a Comprehensive Automotive Resurgence Strategy (CARS) for EV

Potentials for EV battery production

Annual Value of Production of the Philippine Metallic Minerals



Percentage of Total Operating Nickel Mines by Province





THANK YOU



EVIDA



EVIDA IRR



CREVI