

PT ISUZU ASTRA MOTOR INDONESIA (IAMI)

Wheels to Move Toward Advance Technology Commercial Vehicle

November 16th. 2021



CONTENTS

- Isuzu Astra Motor Indonesia Journey

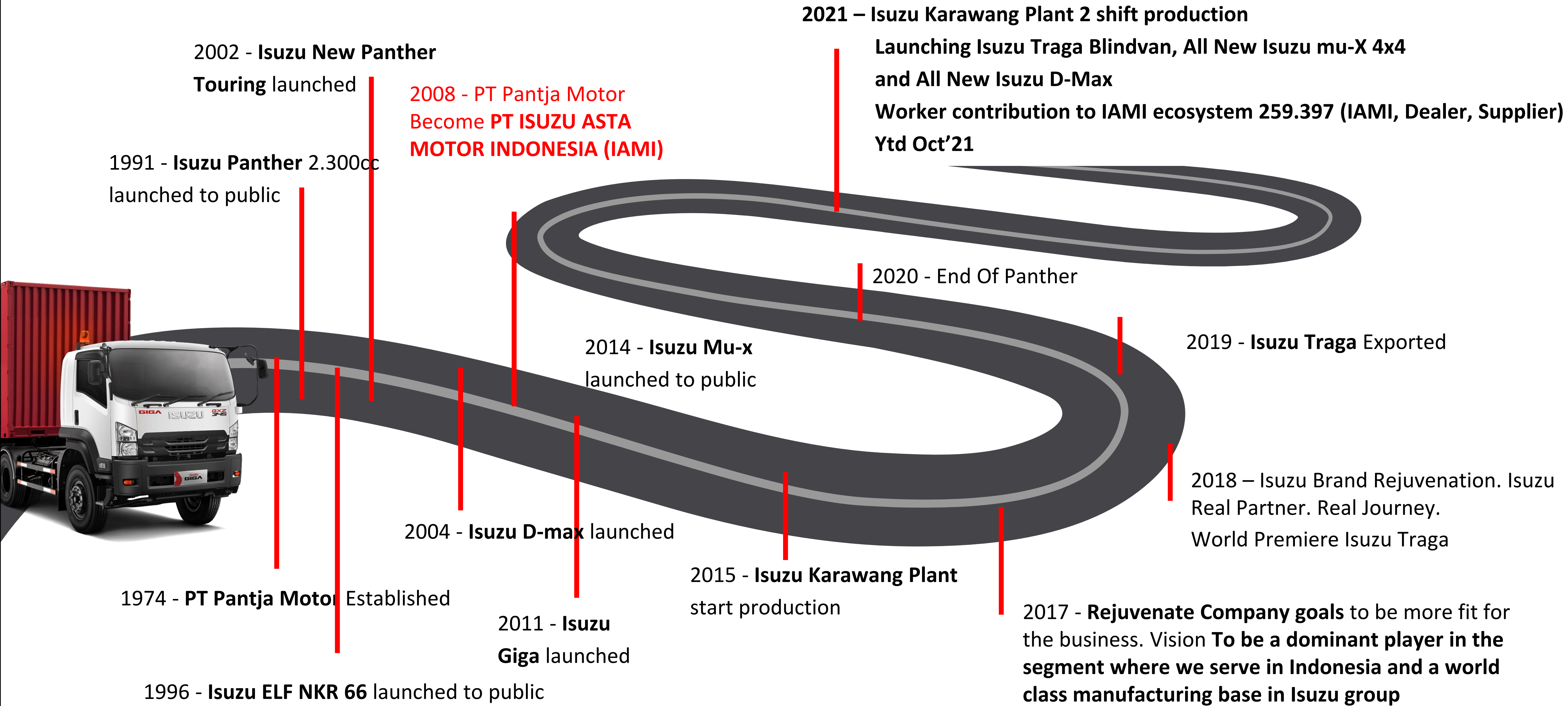
- Isuzu Astra Motor Indonesia Export

- Isuzu Astra Motor Indonesia Sustainability

- How we do: Future Concept of Commercial Vehicle Technology

- Conclusion

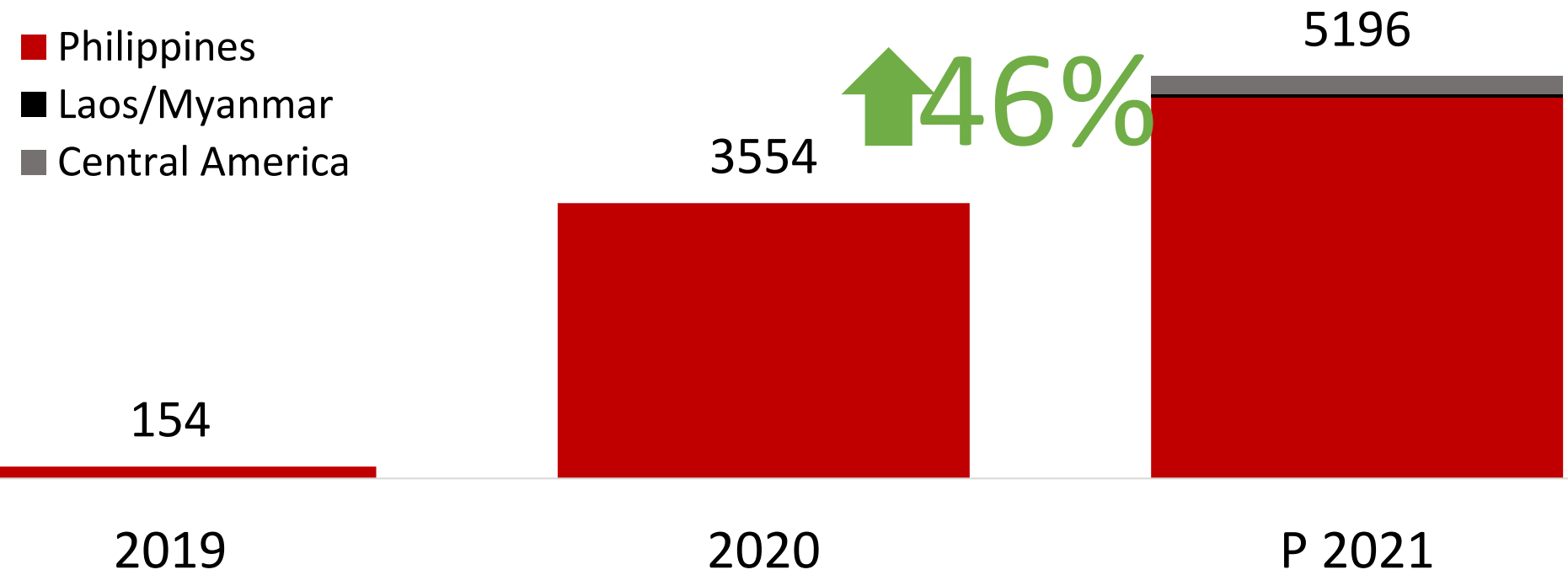
ASTRA MOTOR INDONESIA JOURNEY IN INDONESIA



ISUZU ASTRA MOTOR INDONESIA EXPORT

- We serve not only to domestic market, but also export.
- Export expansion from Philippines, to Laos-Myanmar and Central America until 2021
- Continue growing each year

Export Volume (unit)



	2019	2020	P 2021
Plant Utilization Contribution	2.3%	17.4%	15.5%



ISUZU ASTRA MOTOR INDONESIA SUSTAINABILITY



RECYCLING



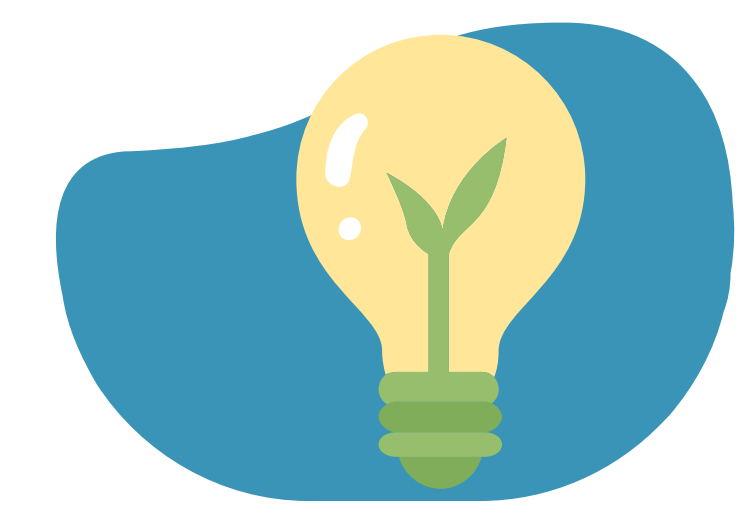
Using Green Energy to Reduce Carbon Emission [Up to 1,000 Ton CO2 in 2030]

GREEN PRODUCT



Develop and Produce Product with Economical Fuel Consumption & Ecological Friendly [Ready Euro 4]

GREEN PROCESS



Applied Emission Free Equipment for Main Facilities [100% GHG Free in 2032]

WE'RE COMMITTED TO

Contribute and Comply Regulation with Sustainability Company

OUR GOAL FOR SUSTAINABILITY

Isuzu Astra Motor Indonesia Indonesia Journey to be Net Zero Carbon in 2060

- 1** Pursue a circular economy
- 2** Pursue decarbonization
- 3** Minimize environmental risk
- 4** Harmonize with nature

FUTURE CONCEPT OF COMMERCIAL VEHICLE TECHNOLOGY

CONFIDENTIAL |

Advanced Safety

Autonomous

Electrified Vehicles

DEFINITION

We talk about **human and business**.

It is critical for everyone to place safety first. These safety features may be able to prevent serious injuries, fatalities, and countless dollars in property damage. Advanced tech not only for passenger car but also in commercial vehicle.

A **self-driving truck** is a commercial vehicle that uses a combination of sensors, cameras, radar and artificial intelligence (AI) to travel between destinations without a human operator.

Electric commercial vehicles are **powered by electricity instead of diesel or gasoline**. They can be buses, vans, trucks, etc.

INITIATIVE

Advanced Safety Technology (Domestic HD ISUZU "GIGA") with AEBS(Advanced Emergency Brake System), LKA(Lane Keep Assist), FACC(Full speed Range Adaptive Cruise Control), Adaptive Driving Beam LED head lamp

Contribution to logistic evolution as a CV OEM. Accelerate autonomous driving initiative through co-development with alliance partners.

- Establish a full product line up by 2040 that is able to deal with carbon neutrality.
- Expand sales (*1) model of our major product in the 2030s

REQUIREMENT

- Required infrastructure to support new advance technology for commercial vehicle (IoT, Autonomous Vehicle, Advance Safety Device, etc.)
- Requirement for Indonesia to be global production base for automotive advance technology
- Isuzu is currently trying to establish what will be best proposal to our customer as well as community, it is our honor to extend these activities including experiment test, once we come up some proposal to various market and countries.

*1 EV Electrified Vehicles, including battery, EV (BEV), fuel cell vehicle (FCV) and hybrid EV (HEV), etc

Advanced Safety Technology (Domestic HD ISUZU "GIGA")



AEBS(Advanced Emergency Brake System)

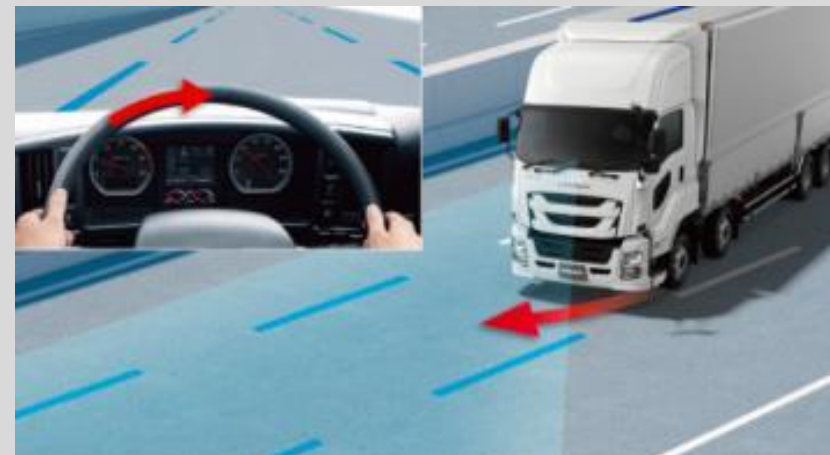
Detect preceding vehicle and pedestrian by millimeter-wave radar and camera

Supports avoidance with full braking when the risk of collision increases



FACC (Full speed Range Adaptive Cruise Control)

Keep distance from other vehicles as set and control all vehicle speed not only acceleration/deceleration but also start/stop



LKA(Lane Keep Assist)

Detect lane and assist steering electrically to prevent from deviation



Adaptive Driving Beam LED head lamp

Automatically shields the preceding / oncoming vehicle during high beam



Automatically controls the irradiation direction according to the steering operation

Contribution to Logistics Evolution as a CV OEM 2) Autonomous Driving

Isuzu will accelerate autonomous driving initiatives through co-development with alliance partners.

< Previous mid-term BP period >

Autonomous driving expertise accumulated

Tests under various use scenarios

To promote spread of autonomous driving use in actual life scenes

2030s

On-highway transportation



Demonstration test for truck platooning

Verify effects and safety of unmanned truck operations and promote them in logistics and other use scenarios

Expressways
x
HD trucks



Port
x
low-speed drive
& parking



Level 4 Demonstration test by UD Trucks

Buses operated
in limited areas



Road sweepers
in urban areas



Urban transportation



Demonstration test for autonomous urban delivery trucks using NVIDIA technology

Prototype running in the experiment inside Fujisawa Plant

Urban delivery trucks



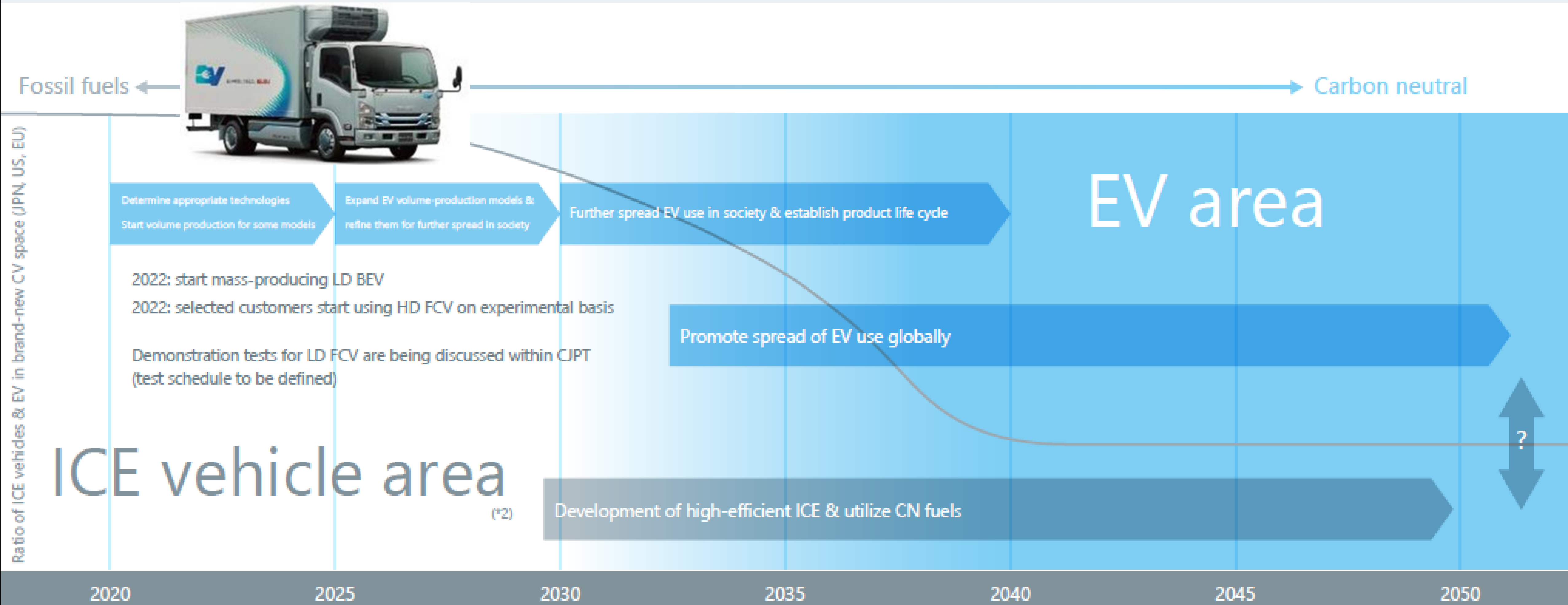
Advanced-level demonstration test inside Fujisawa Plant by end of 2021

Demonstration test in closed space by end of 2022

Contribute to creating optimized social infrastructure

Carbon Neutral Strategy

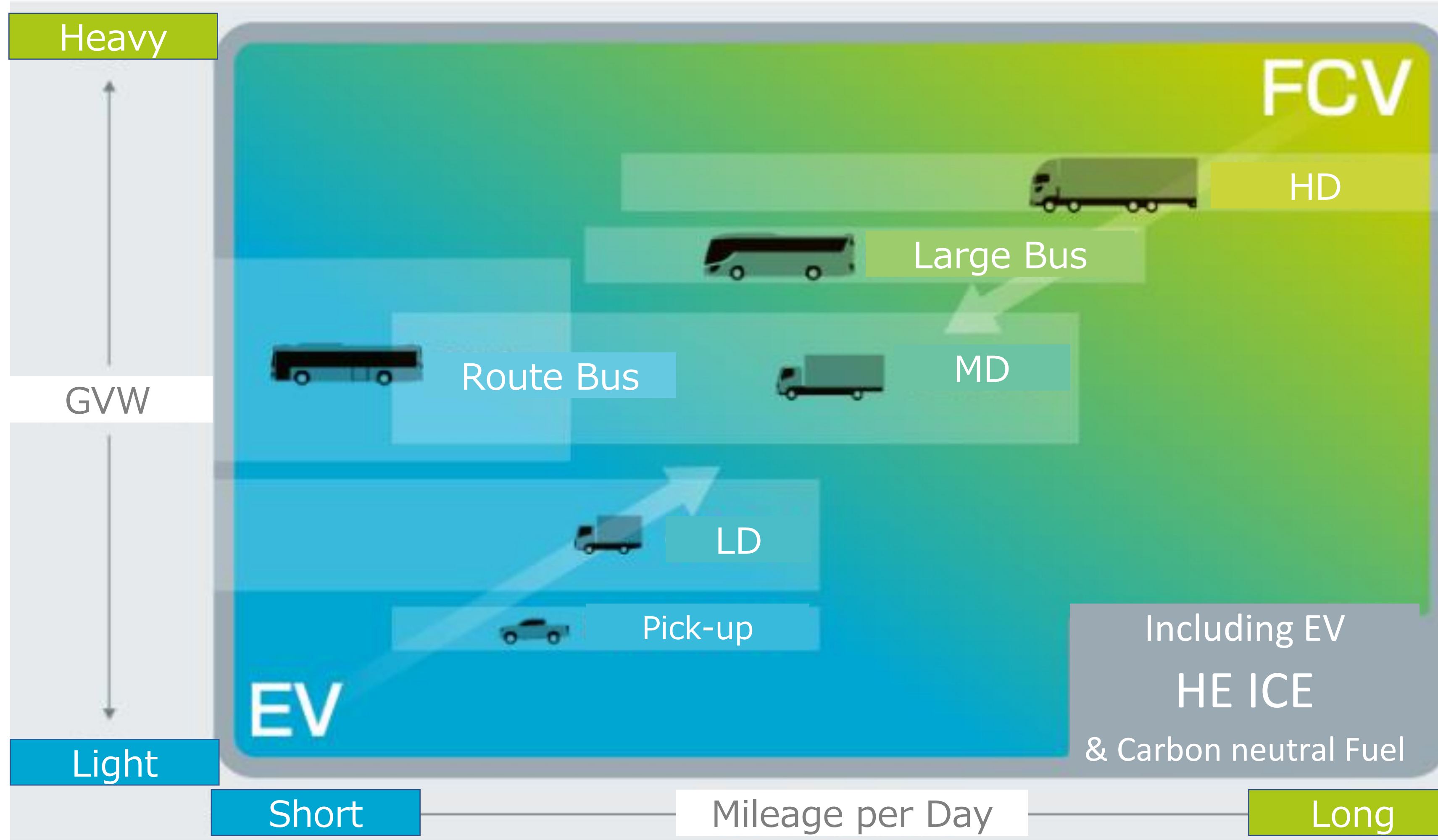
Establish a full product lineup by 2040 that is able to deal with carbon neutrality.
Expand sales of EV (*1) models of our major products in the 2030s.



*1 EV: electrified vehicles, including battery EV (BEV), fuel cell vehicle (FCV) and hybrid EV (HEV), etc.

*2 ICE vehicles: vehicles powered by fuels such as diesel, gas and CN fuels.

Future Line up Image



All Rights Reserved. Copyright© 2021, Isuzu Motors Ltd.

Conclusion

In over all, Isuzu strategy align and support for Indonesia Government target regarding Zero Net Carbon Emission in 2060.

Isuzu product (EV, High Efficient ICE and CN Fuel) will prepare with using advance/future technologies together with necessary infrastructure preparations.


In order to maximize usage of Isuzu Advance Product, our main concern will be how to balance between our customers usage and its convenience.

It is very important that, industry needs to provide various clean power train selection (such as; EV, FCV and ICE etc.)

THANK YOU.

Agan Pemegang Merek & Distributor :

PT ISUZU ASTRA MOTOR INDONESIA

   @IsuzuID  IsuzuID

www.isuzu-astra.com