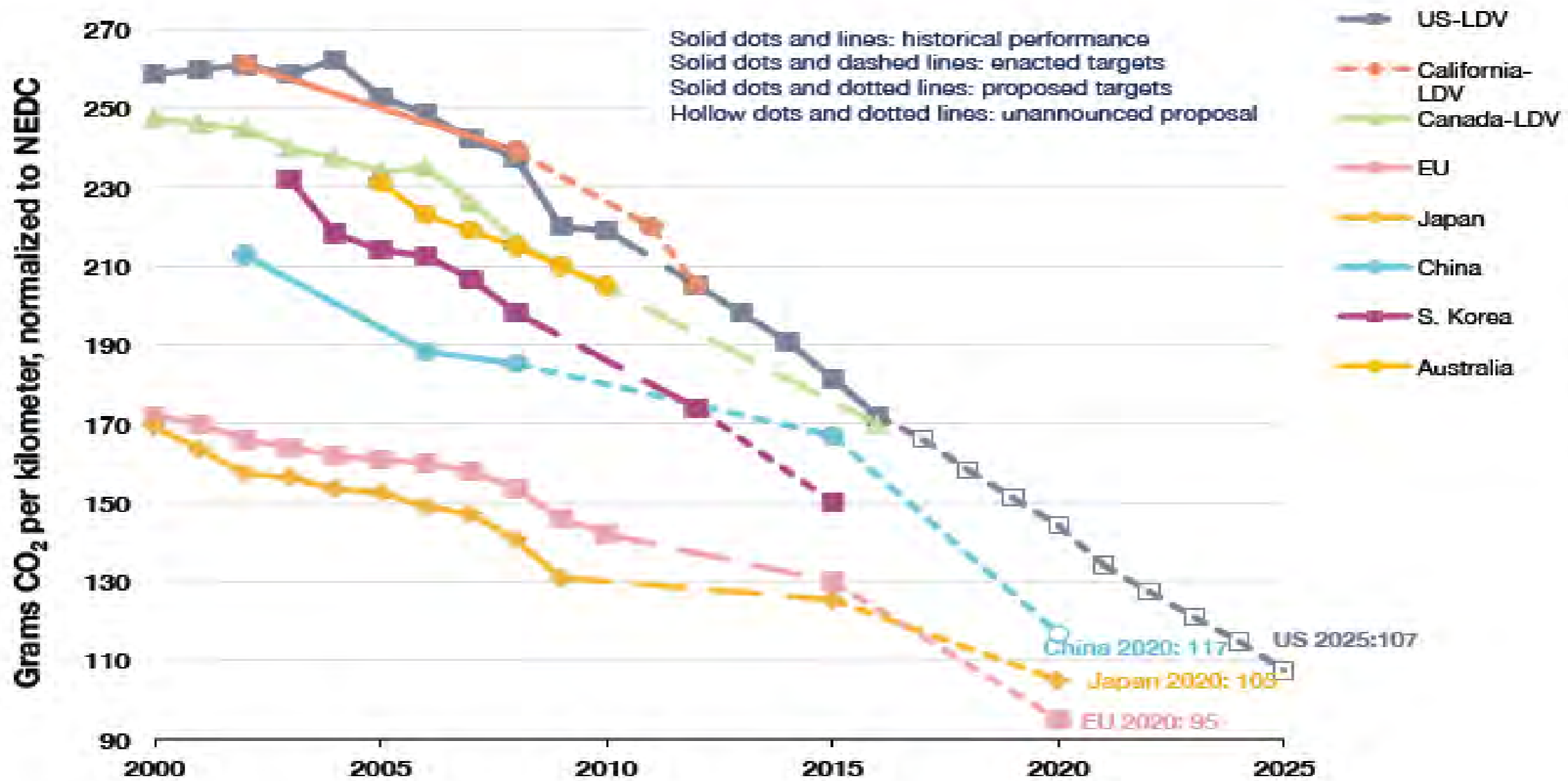


CO₂ Target

Historical fleet CO₂ emissions performance and current or proposed standards



[1] China's target reflects gasoline fleet scenario. If including other fuel types, the target will be lower.
 [2] US and Canada light-duty vehicles include light-commercial vehicles.

EU's New Car Safety Package Regulations

The European Commission has put forward proposals for a new car safety package which will simplify EU regulations in this area and greatly enhance road safety through the introduction of a number of mandatory new safety requirements. It will also help improve environmental protection through reduced CO2 emissions and lower levels of noise pollution.



Overview of new requirements

- Mandatory electronic stability control (ESC) systems on new models and commercial vehicles by 2012 and on all new cars by 2014.
- Advanced emergency braking (AEBS) on large vehicles from 2013
- Lane departure warning (LDW) systems on large vehicles from 2013
- Low rolling resistance tyres (LRRT) on new models by 2012 and all new cars by 2014
- Tyre-pressure monitoring systems (TPMS) on all new models by 2012 and all new cars by 2014
- Wet grip safety requirements

Modern Automobile Technology



Smaller, cleaner emission, and less fuel consumption



Safety Technology

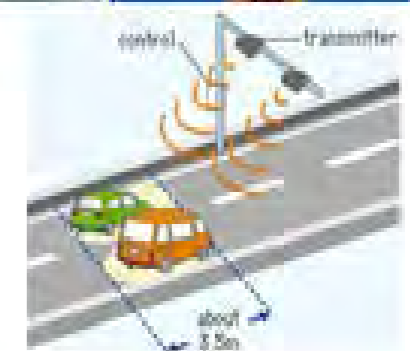
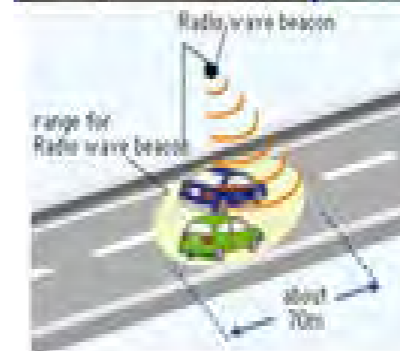
Passive Safety Systems

Benefit: Protection for passenger in case of accident



Active Safety Systems

Benefit: Prevention of accidents



ITS

Challenges for Thailand Automotive Industry

- **Environmental friendly vehicles**

- Less Petroleum Dependent (Ethanol, Bio-diesel, CNG, HEV)
- CO2 Reduction
- Green manufacturing practices
- Waste management

- **Improved safety**

- Road Safety
- Auto-Electronic parts

- **Asean Economics Community**

- ASEAN Mutual Recognition Arrangement



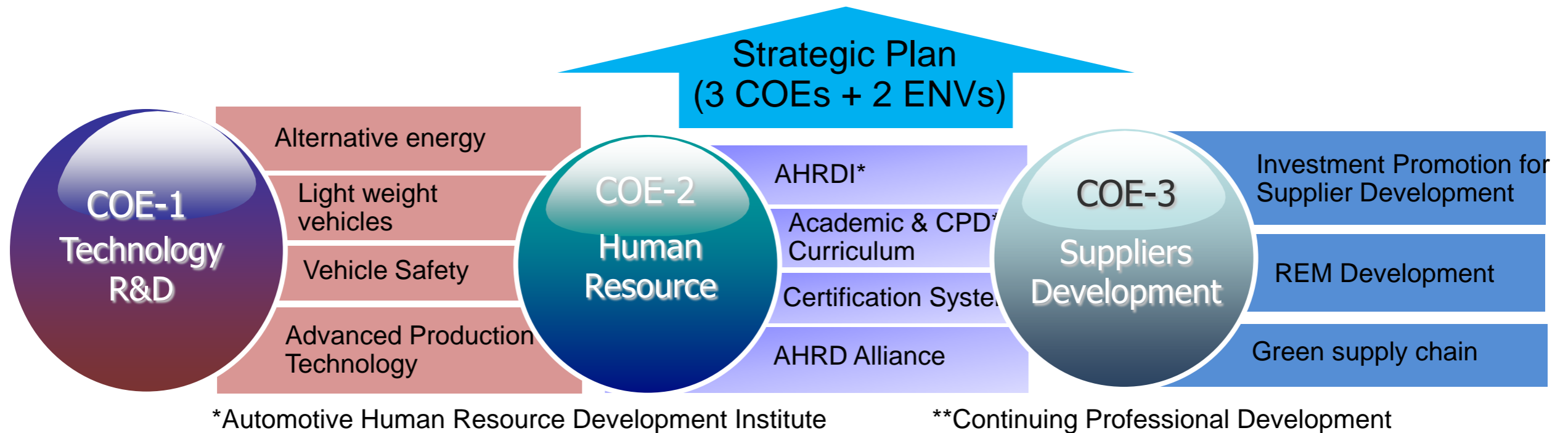
Automotive Technology Roadmap for Thailand



		ระยะสั้น 55-57	ระยะกลาง 58-61	ระยะยาว 62-64	
Targets	Industry Structure	Strengthen & Maintain as ASEAN production leader and localized R&D	Expand to be R&D hub in Asia	Actively participate in world D&D	
	Automotive/Engine System	ICE			
		Hybrid & Plug-in hybrid			
		Fuel cell			
	Components	Exterior	Light weight	Auto electronics	Modified Personalized atmosphere
		Interior			
Brake&Suspension					
Electronic		Integrated software			
Production	QCDEE	Part design	System design		
Actions	R&D	Focus (Safety, energy, environment) /Localize	User comfort Reverse engineering Battery, Motor	Bio material	
	Knowledge/Infra/Interconnection	R&D Centers	Centers of Excellence	Knowledge/info sharing center	
	Policy & Standard	HRD-Infrastructure-Incentive			

Thailand Automotive Industry – Vision

“Thailand is a global green automotive production base with strong domestic supply chains which create high value added for the country”



**ENV-1
Infrastructure**

- Testing, R&D
- Logistics
- Information technology

**ENV-2
Government Policy**

- Policy Integration
- TAX Restructuring Support Green Products
- Promote Investment Promotion for Green Products and Suppliers
- Encourage Market Expansion for REM



COUP-E BATTERY



Battery Pack Details	
nominal cell voltage	3.75 V
cell capacity	41 Ah
configuration	180s1p
number of cells	180
nominal pack voltage	675 V
installed pack energy	27.6 kWh
pack weight	255 kg
gravimetric pack energy density	108 Wh/kg
cooling method	liquid

