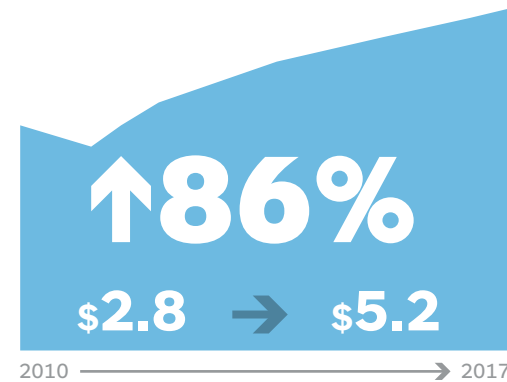


# Where is the car heading?

The auto industry's three big challenges: CO<sub>2</sub> emissions standards, integrating new technology, and meeting evolving market demand globally.

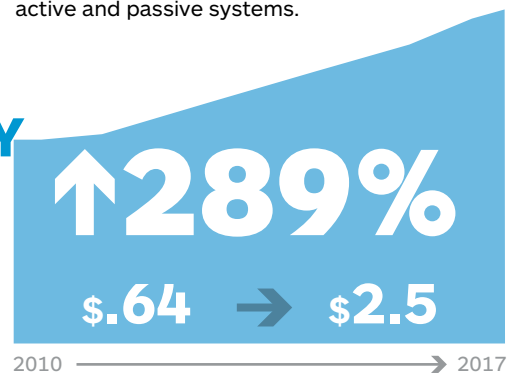
## 1 RISING DEMAND FOR HIGHER TECH INFOTAINMENT SYSTEMS

Global infotainment semiconductor revenue (OEM market only) in billions of US dollars.



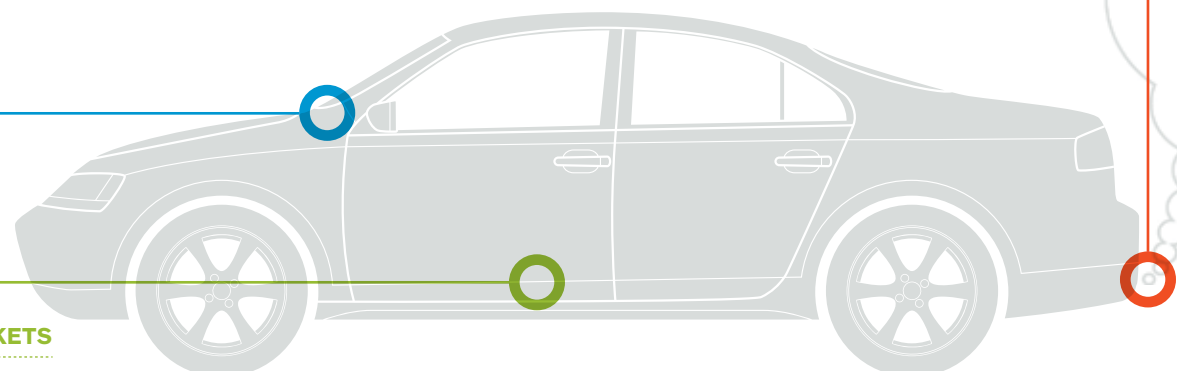
## 2 ADVANCED DRIVER ASSIST SYSTEMS (ADAS) TAKING OFF

Global ADAS semiconductor revenue in billions of US dollars. Includes both active and passive systems.



## TECHNOLOGY

## CO<sub>2</sub> EMISSIONS



## SUPPLY & DEMAND

### 3 BIG GROWTH AHEAD FOR AUTO MAKERS IN EMERGING MARKETS

Percentage change in annual production volume and sales of light vehicles by region, 2014 to 2025.

PRODUCTION SALES

**↑28.6%** WORLD TOTAL  
**↑29.2%**

**↑11.3%** NORTH AMERICA  
**↑3.9%**

**↑49.4%** SOUTH AMERICA  
**↑40.8%**

**↑35.0%** MIDDLE EAST/AFRICA  
**↑28.9%**



**↑16.1%** EUROPE  
**↑22.6%**

**↓-12.0%** JAPAN/KOREA  
**↓-17.6%**

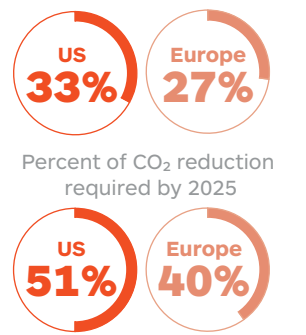
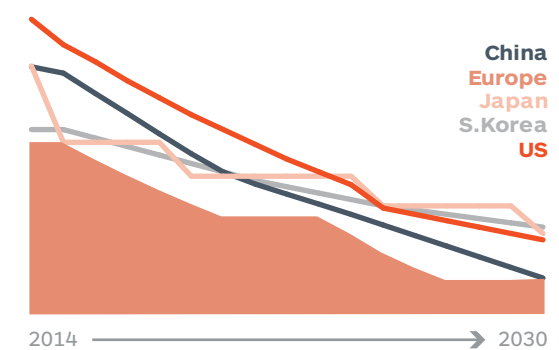
**↑50.8%** GREATER CHINA  
**↑47.9%**

**↑92.7%** SOUTH ASIA  
**↑88.5%**

## 4 THE BIG CHALLENGE AHEAD FOR AUTO MAKERS

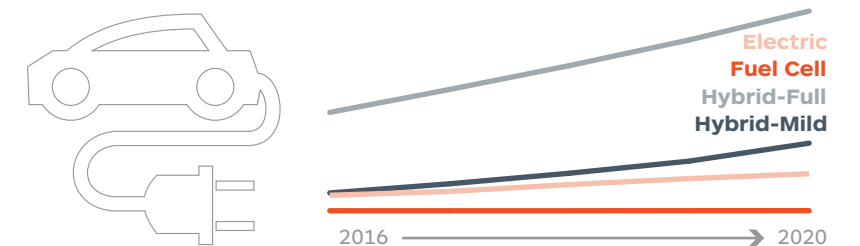
CO<sub>2</sub> reduction targets measured in grams per kilometer, normalized to Europe's NEDC Test Cycle.

Percent of CO<sub>2</sub> reduction required by 2020



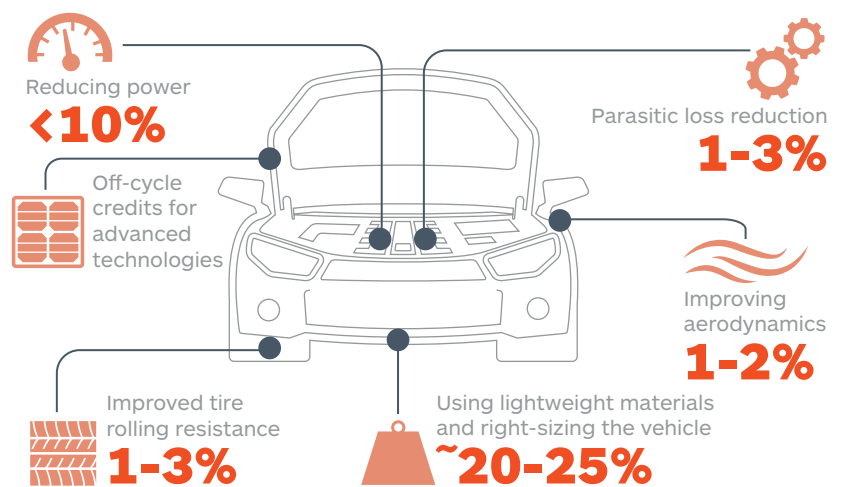
## 5 FOUR POWERTRAIN OPTIONS TO REDUCE CO<sub>2</sub> EMISSION

Improving the efficiency of internal combustion engines, increasing ratio range and control of transmissions, and advanced powertrain management systems remain top priorities but electric vehicles and hybrids are gaining ground. Millions of vehicles produced worldwide.



## 6 SIX WAYS TO IMPROVE FUEL CONSUMPTION

Estimates of potential gains in fuel efficiency from new technologies in addition to powertrain technologies.



Sources: IHS, International Council on Clean Transportation (CO<sub>2</sub> reduction targets)