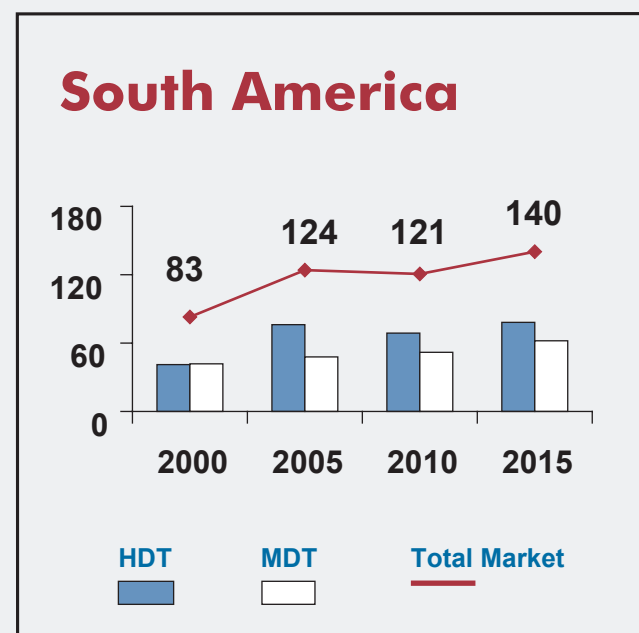
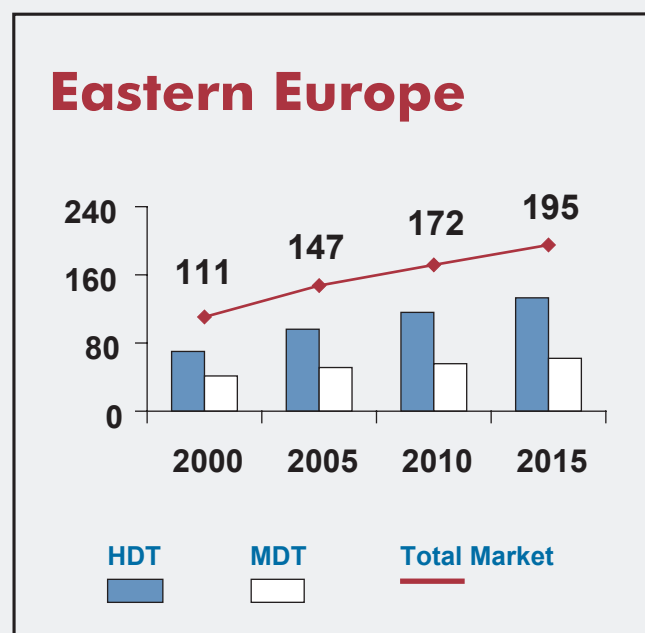
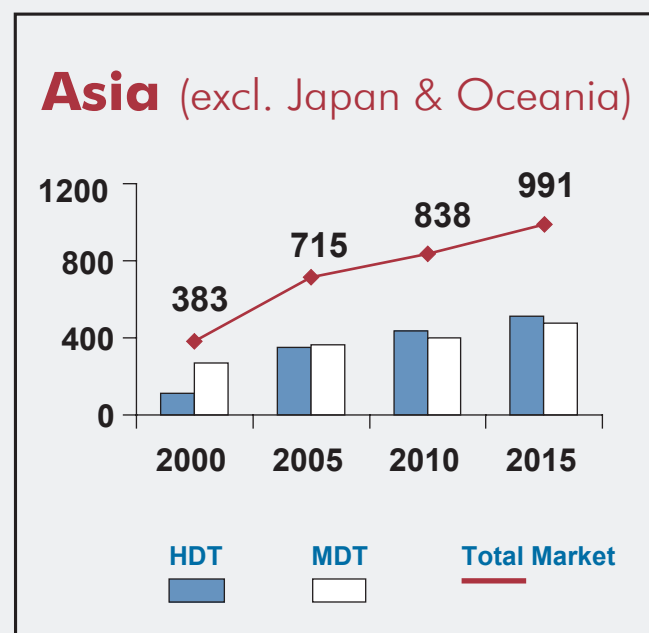


SUSTAINABILITY IN EMERGING MARKETS

GLOBAL INSIGHT AUTOMOTIVE



TRUCK DEMAND IN EMERGING MARKETS RAISES SUSTAINABILITY CONCERNS

- ▶ Asia accounts for the largest chunk of volume growth potential
- ▶ South America and Eastern Europe have less absolute volume potential, but growth rates are attractive
- ▶ More professional freight haulage results in a segment shift, away from medium-duty trucks (MDT, 6–15t) towards heavy-duty trucks (HDT, >15t)
- ▶ Substantial growth potential exists for heavy-duty trucks in the future in all emerging markets

ROAD INFRASTRUCTURE IMPROVEMENTS ARE CRITICAL COMPONENT TO SUSTAINABILITY

CHANGES IN ROAD INFRASTRUCTURE

- ▶ Road infrastructure standards improved substantially over recent years in emerging markets, but there are still diverse road infrastructure levels
- ▶ Many road improvement projects still ongoing
- ▶ Necessity for advanced road network with sufficient capacity is high, and is vital for economic growth
- ▶ Competition between road and rail transportation of goods is limited due to lower costs and higher flexibility of road haulage; future changes possible

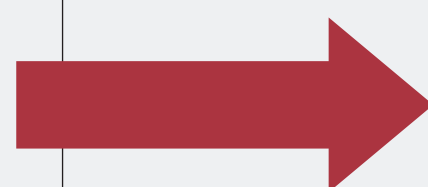
CHANGES IN TRUCK STANDARDS AND ROAD TRANSPORTATION

- ▶ Road transportation is traditionally carried out by owner-operators with medium-duty trucks
- ▶ Economic growth called for more efficient transportation modes, gradually replacing the traditional system
- ▶ Freight haulage fleets currently forming and growing in importance; preferred model is a heavy-duty truck
- ▶ Truck standards are rising as a result of higher client expectations and larger financial resources of haulers
- ▶ Bad fuel quality and harsh operating conditions limit potential usage of high-tech components
- ▶ Shift in truck standards and customer demands opens new possibilities for OEMs and suppliers in these markets



Past Models

- ▶ Technically and economically outdated
- ▶ "Crude" trucks, operated by owner-drivers
- ▶ Focus on medium trucks



New Models

- ▶ New generation, technically and commercially upgraded
- ▶ Professional fleet usage
- ▶ Focus on heavy trucks

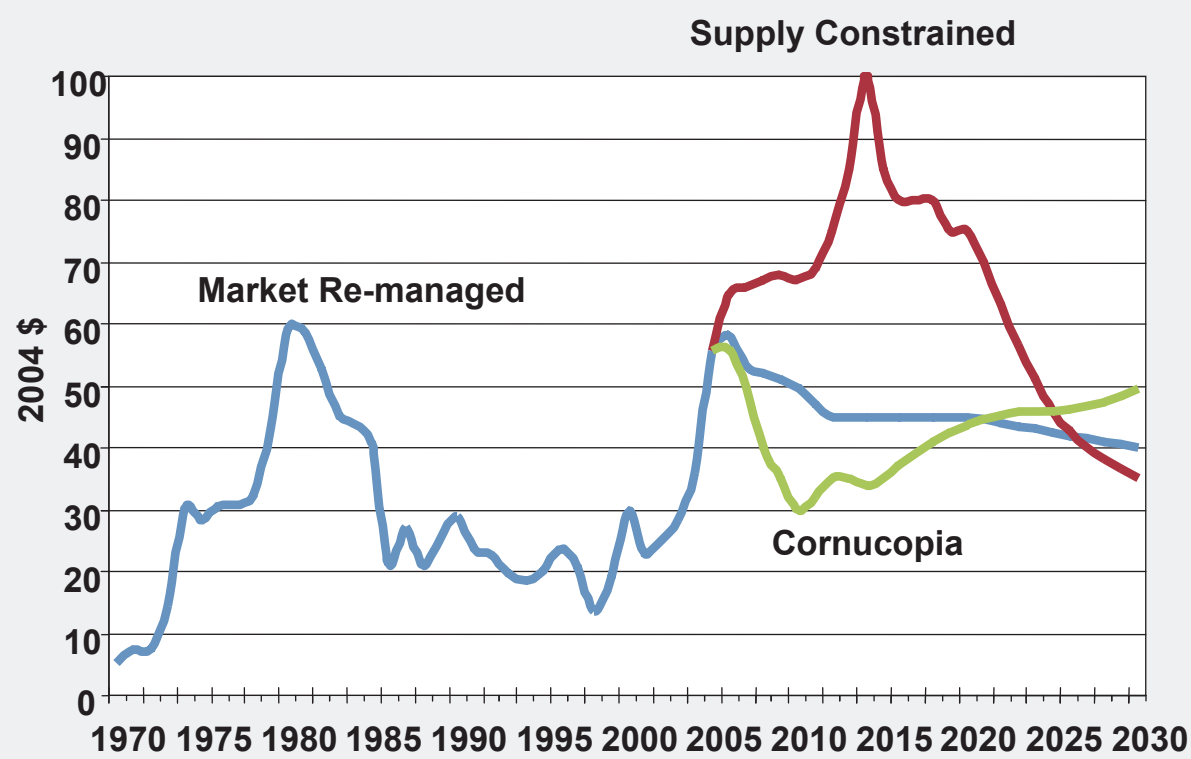
PRODUCTS ARE ADAPTING TO NEW DEMANDS

- ▶ Truck standards are rising in terms of operational efficiency; the most progress is made on this front
- ▶ Emission control regulations are active in most emerging markets by now
- ▶ Euro emission norms generally adopted by lawmakers in emerging markets; there are different levels in different countries
- ▶ Safety still given low importance; inherently, Western European trucks are on a higher standard than the trucks from emerging market manufacturers, but they are catching up fast
- ▶ From the legislative side, it is not compulsory to equip trucks with safety features that are necessary to make road transportation safer in emerging markets on a large scale



BIOFUELS—A VIABLE ALTERNATIVE?

GLOBAL INSIGHT ENERGY



OIL PRICES WILL STAY HIGH IN THE NEAR TERM DUE TO:

- ▶ Robust energy demand growth
- ▶ Relatively modest investment in exploration and drilling
- ▶ High vulnerability to (and fears of) supply disruptions
- ▶ No shortage of potential risks
 - Rebel activity in Nigeria
 - Sabotage in Iraq and elsewhere
 - Nuclear standoff with Iran

GLOBAL INSIGHT OIL PRICE SCENARIOS PREDICT WIDELY DIVERGENT FUTURES

Will Biofuels Become A Viable Alternative?

THE FUTURE OF ETHANOL AS AN ALTERNATE FUEL IS RELIANT ON THE STABILITY OF THREE POLICIES



Three Major Policy Drivers: Are They Compatible?

ENERGY POLICIES

- ▶ Energy security
- ▶ Reduce dependency on petroleum-based energy sources
- ▶ Diversify energy sources

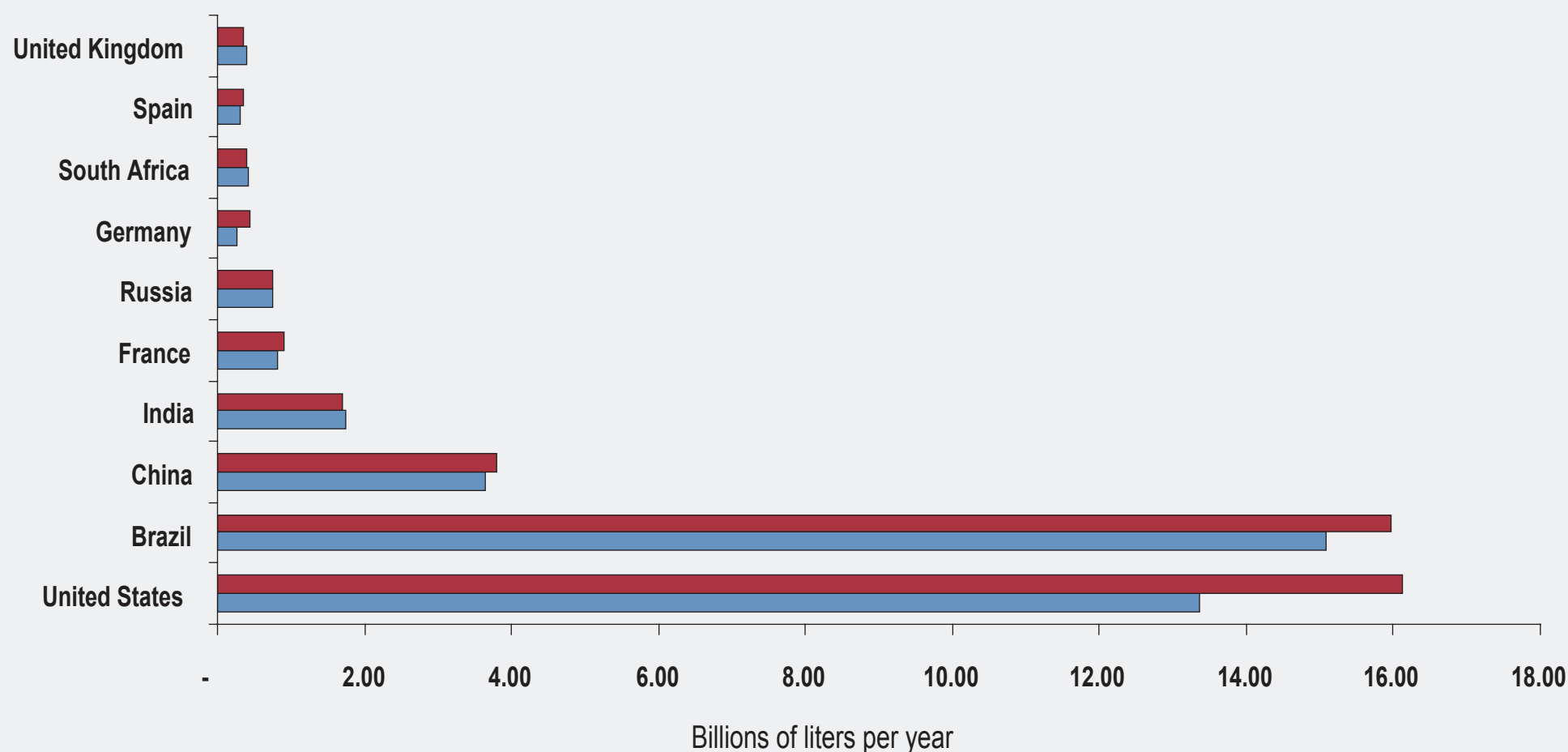
ENVIRONMENTAL POLICIES

- ▶ Reduce criteria emissions at local, urban, metropolitan, and national levels
- ▶ Reduce greenhouse gas emissions

AGRICULTURAL POLICIES

- ▶ Create new markets for agricultural crops
- ▶ Reduce subsidies

Ethanol Production Capacity: Growing Rapidly



Source: F.O. Licht

■ 2004 ■ 2005

ETHANOL PRODUCTION CAPACITY IS GROWING RAPIDLY

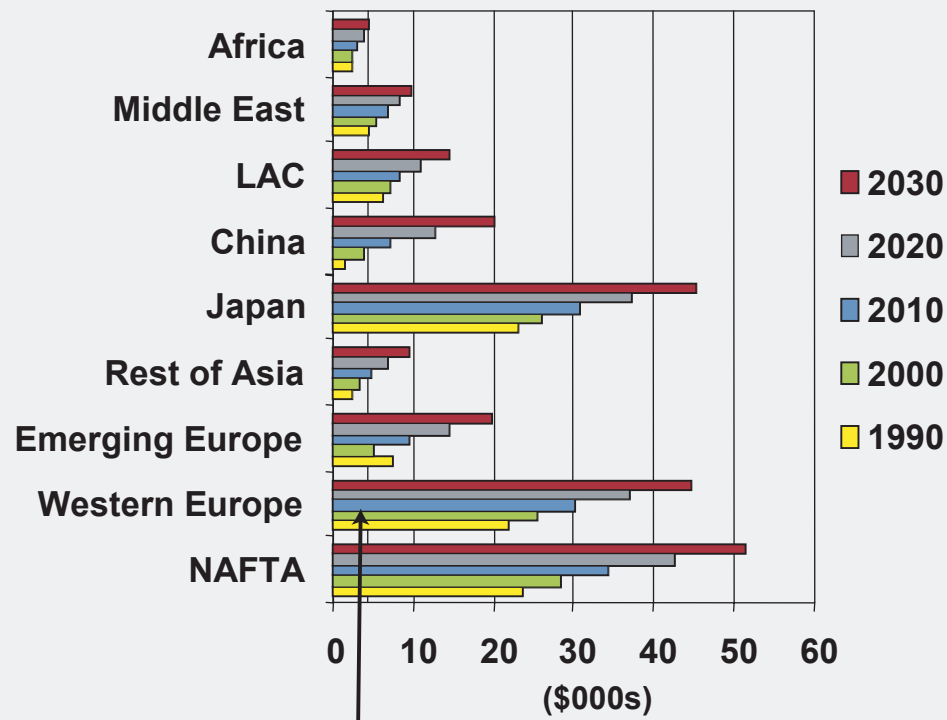


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FUTURE AUTOMOTIVE TECHNOLOGY

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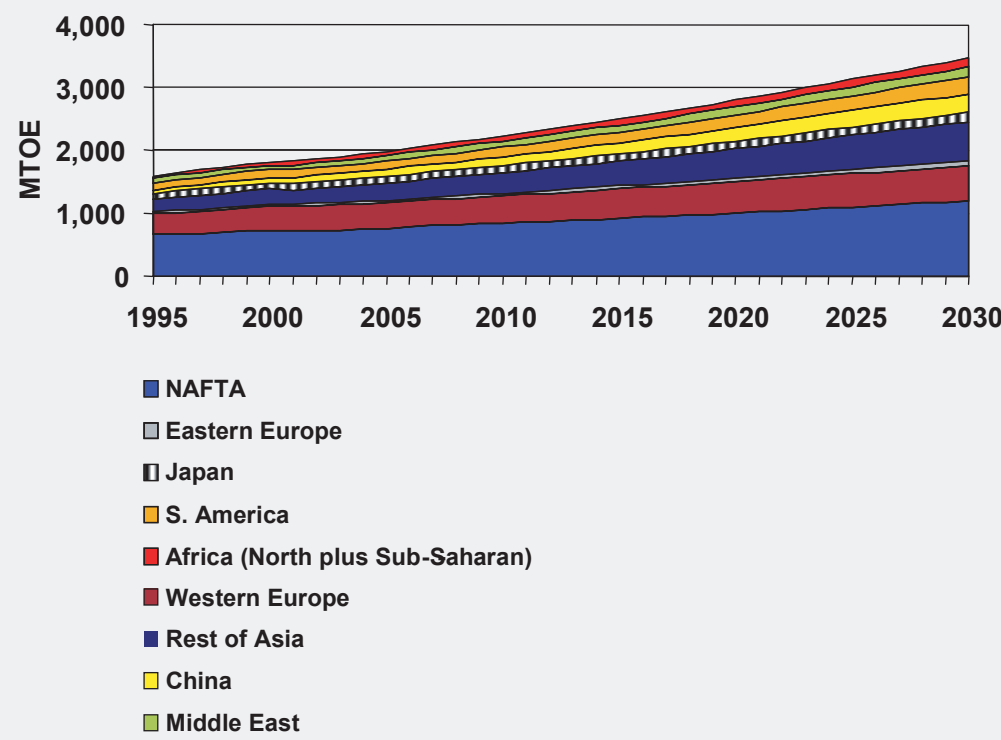
Nominal Per Capita GDP At PPP



Nominal PPP Per Capita GDP
Level at which Motorization
Begins in Earnest

Global Energy Demand

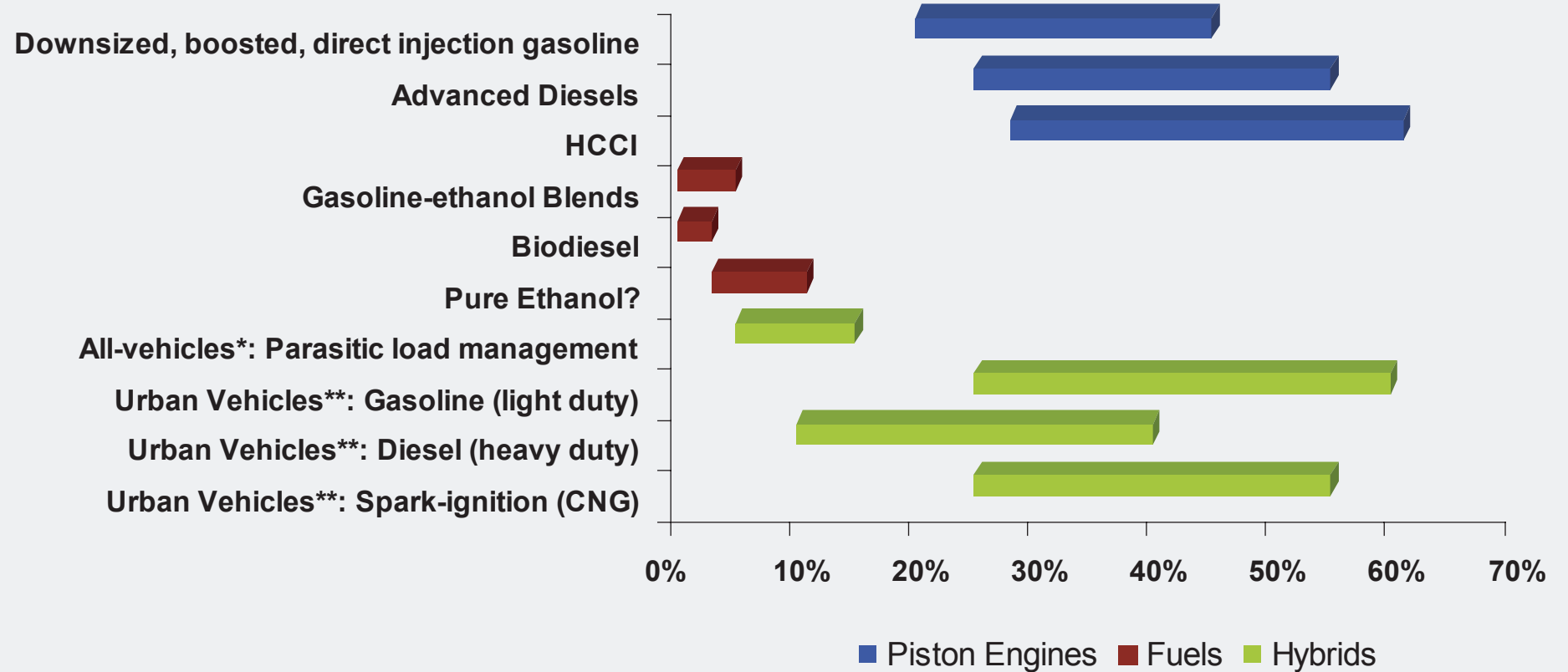
Transportation Energy Demand



THE SUSTAINABILITY CHALLENGE: ECONOMIC AND POPULATION GROWTH WILL INCREASE TRANSPORTATION ENERGY DEMAND BY MORE THAN 80% BY 2030

FORTUNATELY, SIGNIFICANT GAINS IN CONVENTIONAL TECHNOLOGIES ARE STILL POSSIBLE WITH FURTHER INVESTMENT

Possible Gains in Conventional Technologies



CONSERVATION EFFORTS WILL REQUIRE REGULATORY ENCOURAGEMENT FOR BOTH OEMS AND CONSUMERS

- ▶ Responsible for up to 30% reduction in global demand
- ▶ Fuel economy/consumption requirements
- ▶ CO₂ performance limitations
- ▶ Carbon-based taxation
- ▶ Other regulatory and policy incentives

ALTERNATIVE FUELS WILL PLAY AN IMPORTANT BUT MINOR ROLE

- ▶ CNG in specialized urban fleet applications (~10%)
- ▶ Biofuels meeting from 5 to ~15% of demand
 - ▶ Biodiesel
 - ▶ Ethanol

MAJOR CHANGES IN LIFESTYLE AND PURCHASE BEHAVIOR

IMPROVEMENTS BEYOND 40% WILL REQUIRE SIGNIFICANT CHANGES BY ALL STAKEHOLDERS

