Energy Technology Perspectives 2012

Pathways to a Clean Energy System

Tracking Clean Energy Progress

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International Energy Agency

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ETP 2012

- The IEA's most ambitious project on technology

- Pathways to 2050
  - Which technologies?
  - What is the progress to date?
  - Necessary milestones?
  - Policies needed?

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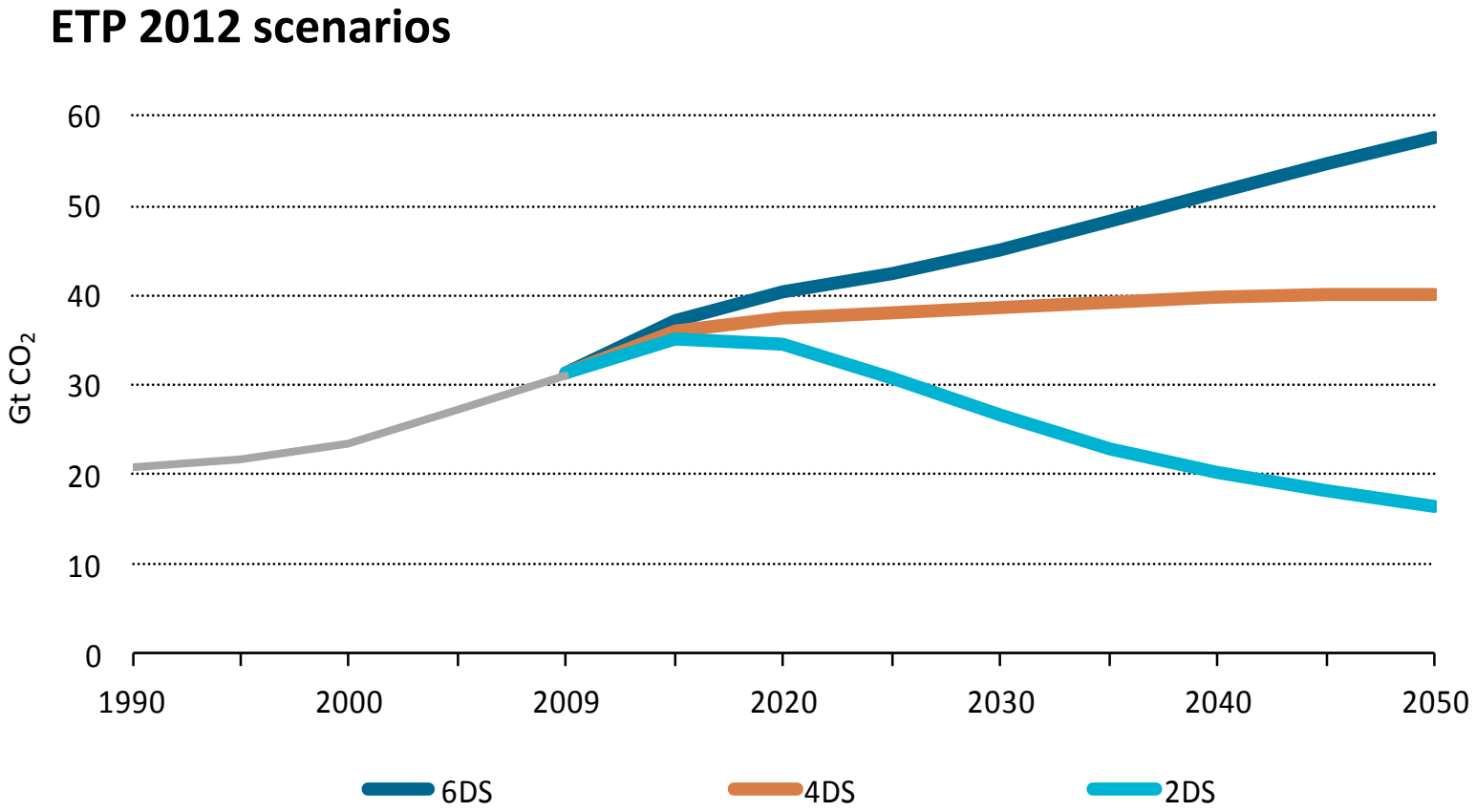
CO_2 emissions must cut in half by 2050

ETP 2012



Source: preliminary results from *ETP 2012*

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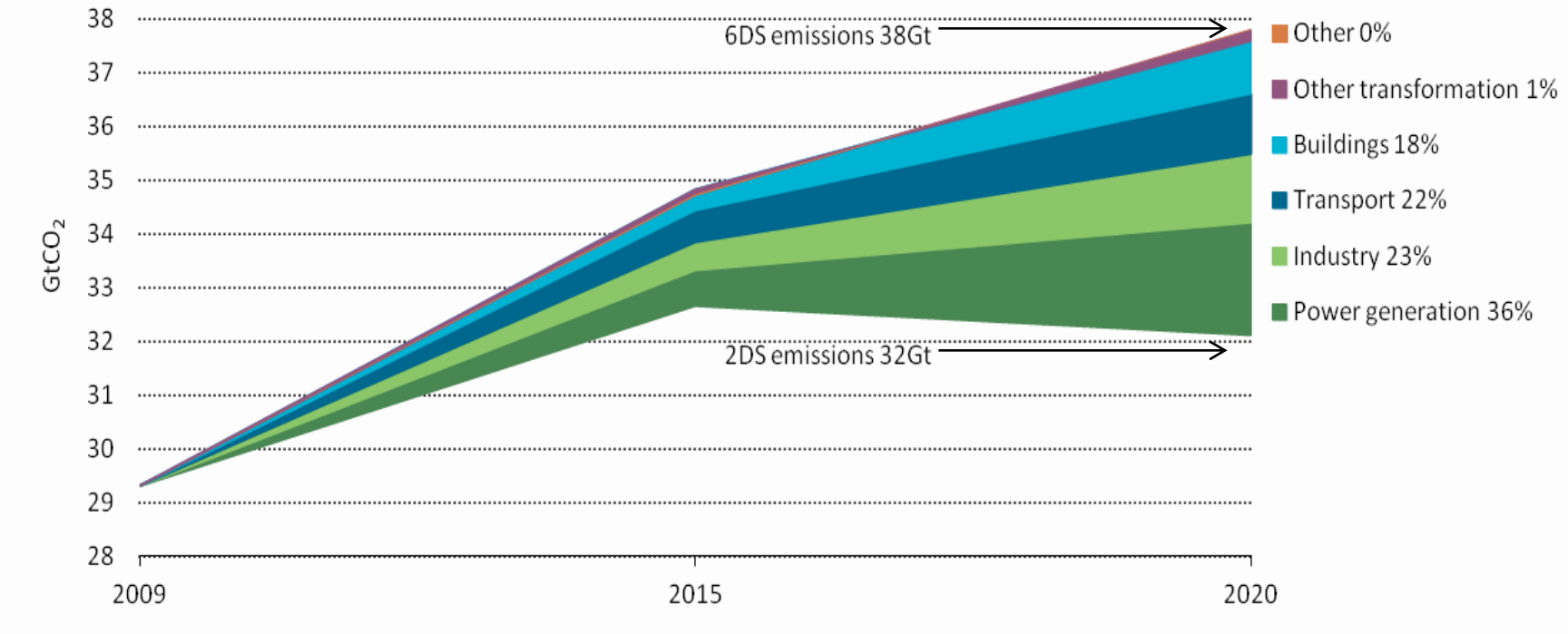
Action in all sectors is necessary…

ETP 2012

Global CO_2 emissions under ETP 2012 scenarios



Source: preliminary results from *ETP 2012*

Progress is falling short

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Sector	On track?	Technology
		Cleaner coal power
		Nuclear power
		Renewable power
		CCS in power
		CCS in industry
		Industry
		Buildings
		Fuel economy
		Electric vehicles
		Biofuels for transport

- *Progress in almost all technologies areas is not where it needs to be*
- *Significant action is required to get back on track*
- *Energy security, economic and environmental benefits will be far reaching…*

On track

Improvement, but more effort needed

Not on track

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Fossil fuels continue to dominate

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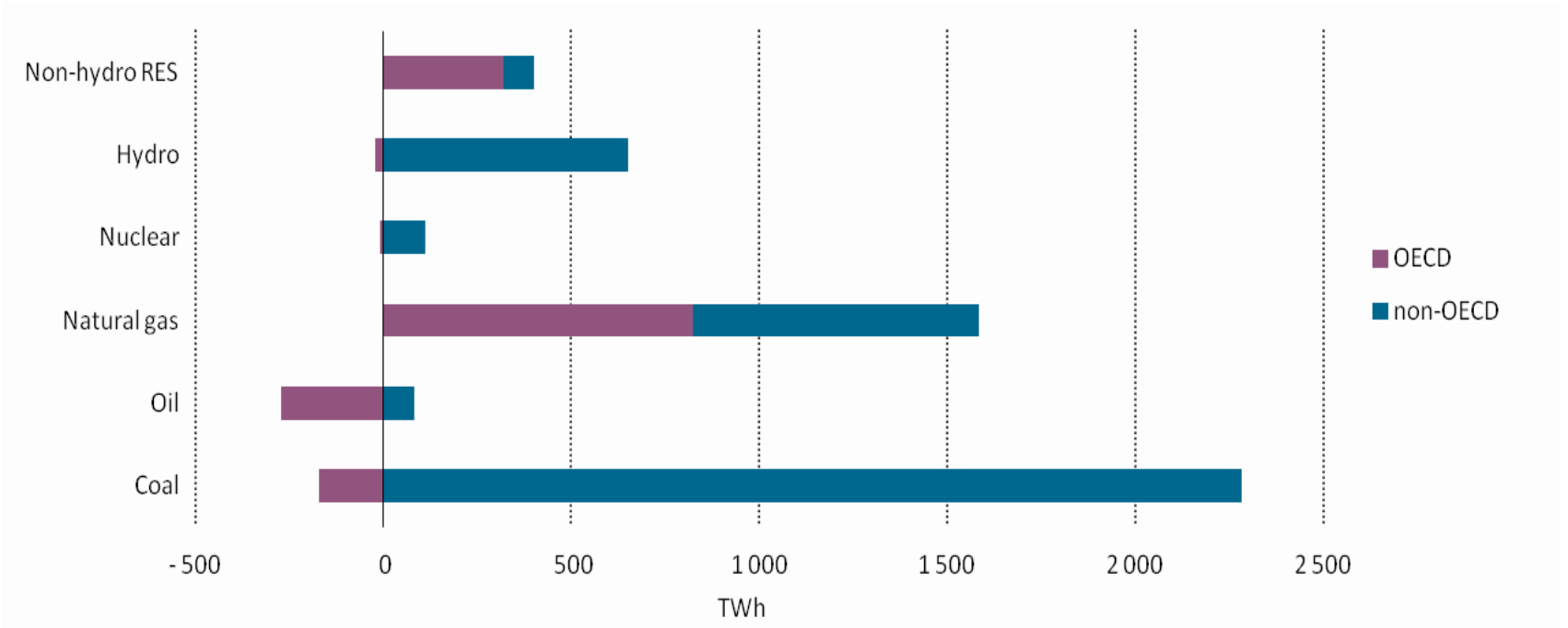
Changes in sources of electricity supply, 2000-09



Coal remains the largest source of electricity supply, and met about half of additional electricity demand over the last decade.

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Renewables have seen notable success

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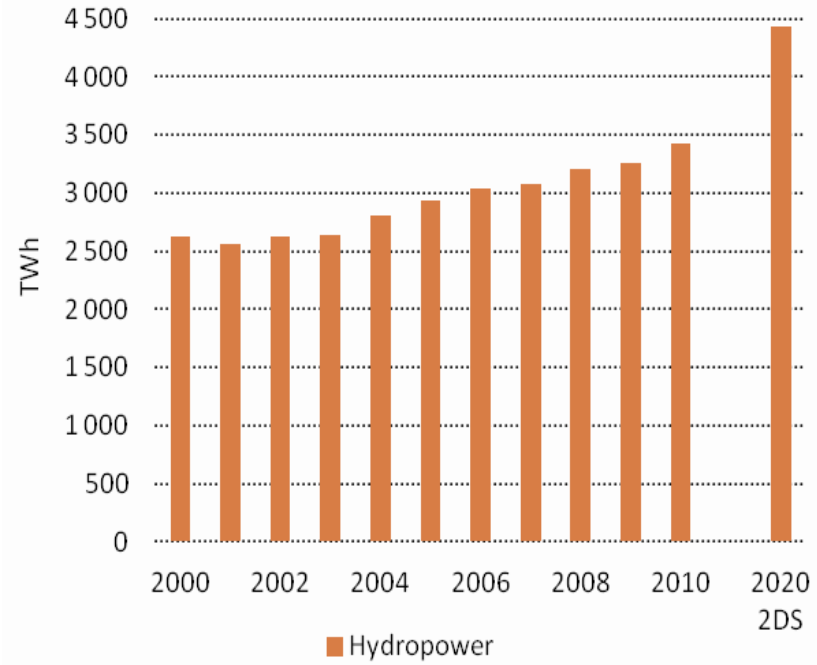
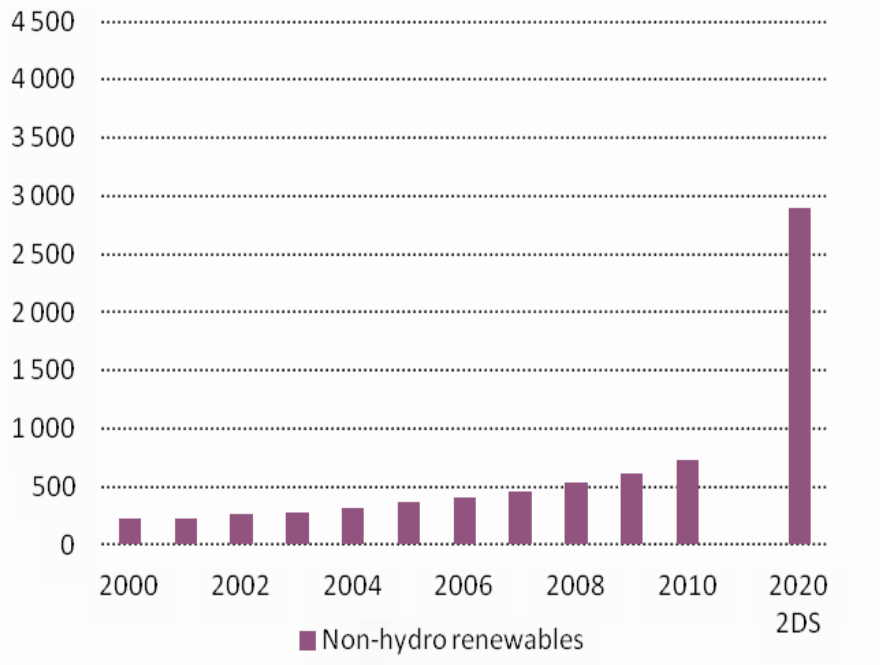
Renewable power generation





42%

Average annual growth in Solar PV

75%

Cost reductions in Solar PV in just three years in some countries

27%

Average annual growth in wind

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Fuel economy has improved

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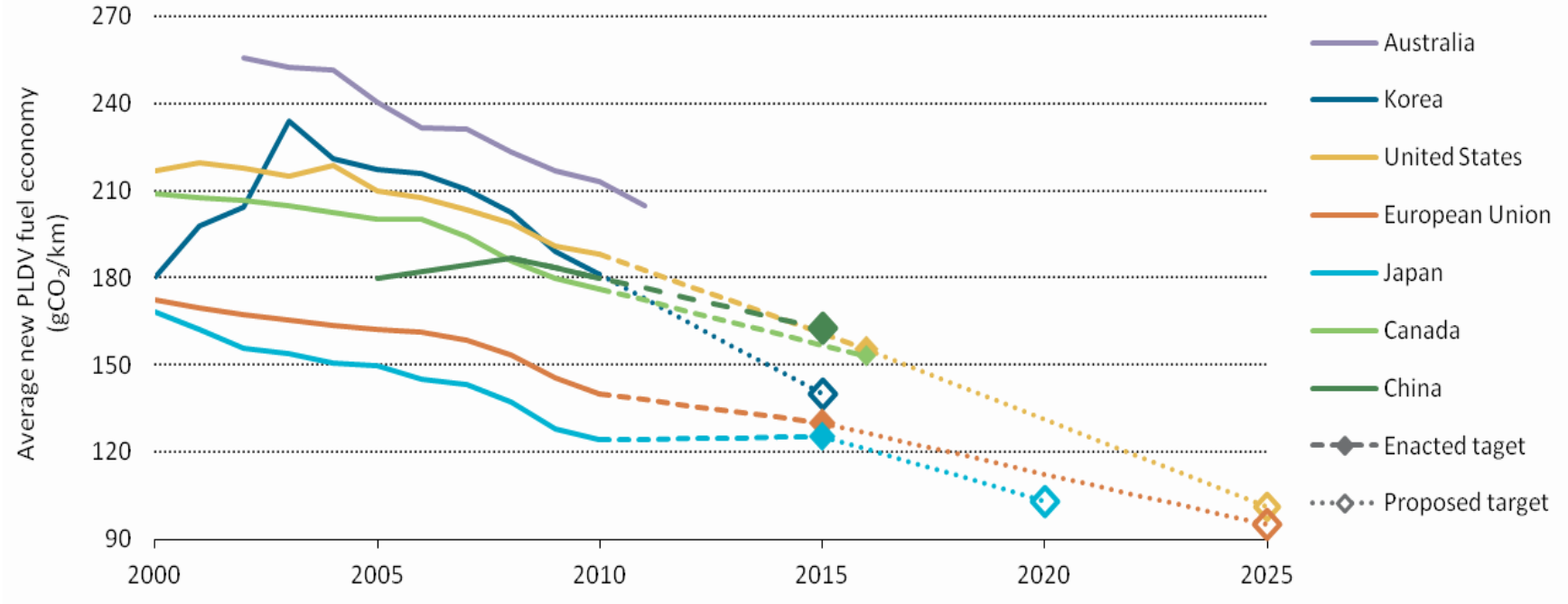
Vehicle fuel economy, enacted and proposed standards



The number one opportunity over the next decade in the transport sector, but few countries have standards in place.

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Translating ambitions into reality

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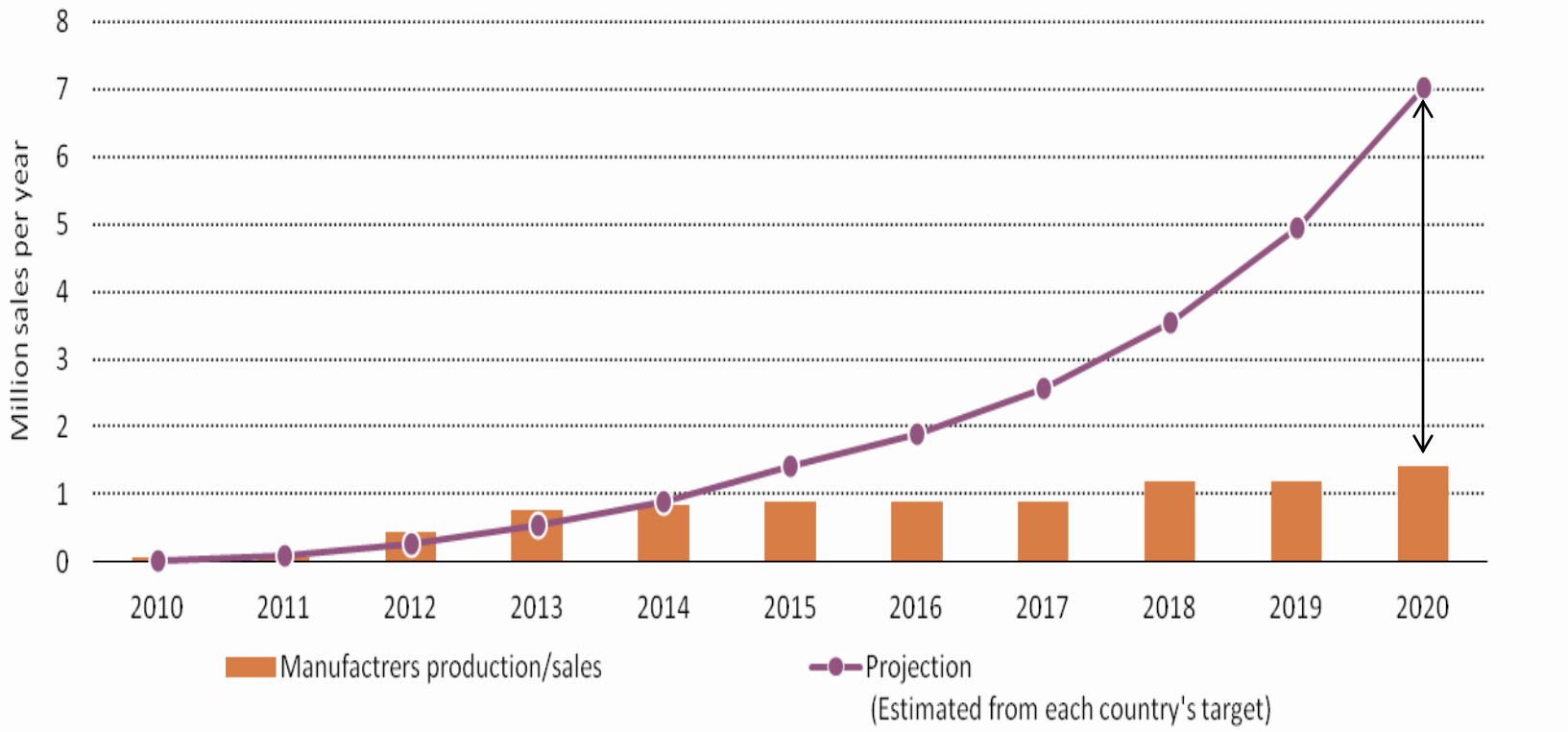
Government and manufacturer Electric Vehicle targets



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Energy intensity must decline further

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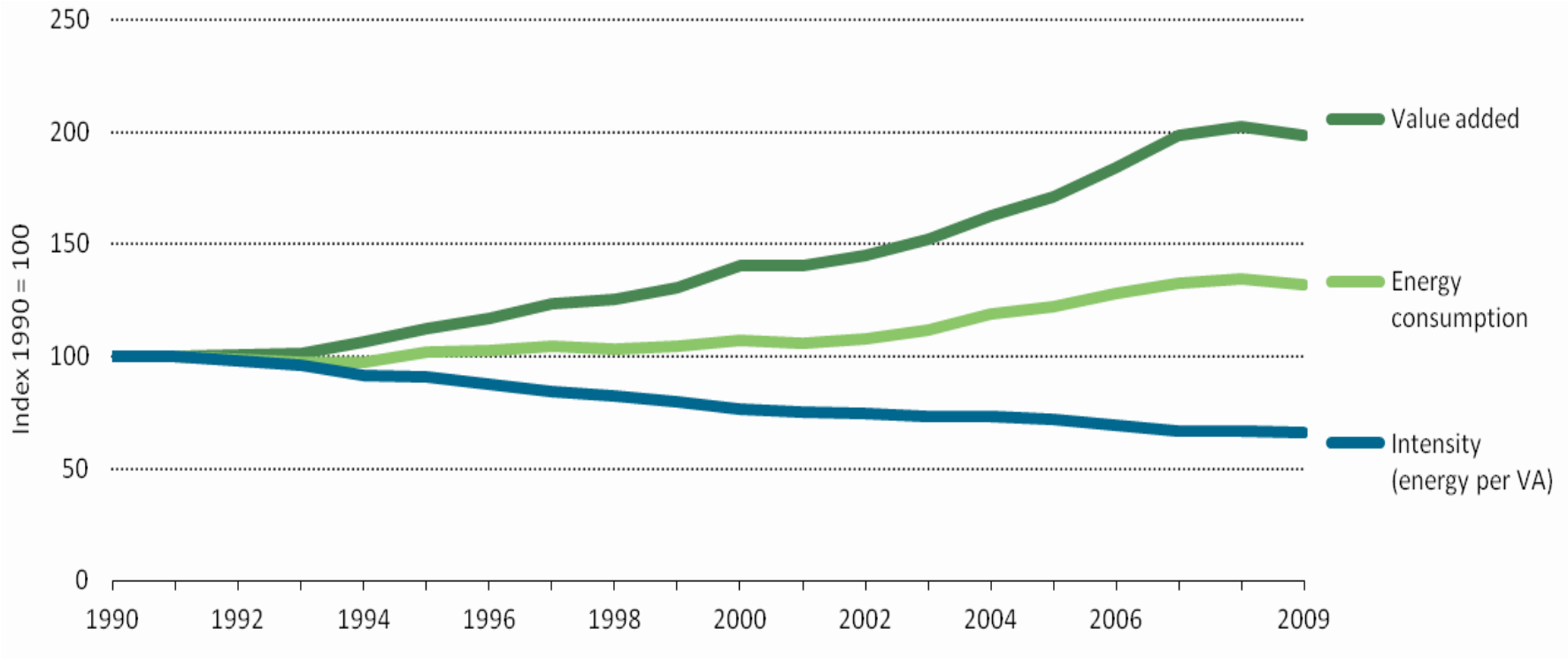
Progress in energy intensity



Significant potential for enhanced energy efficiency can be achieved through best available technologies.

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Fuel savings and additional investments

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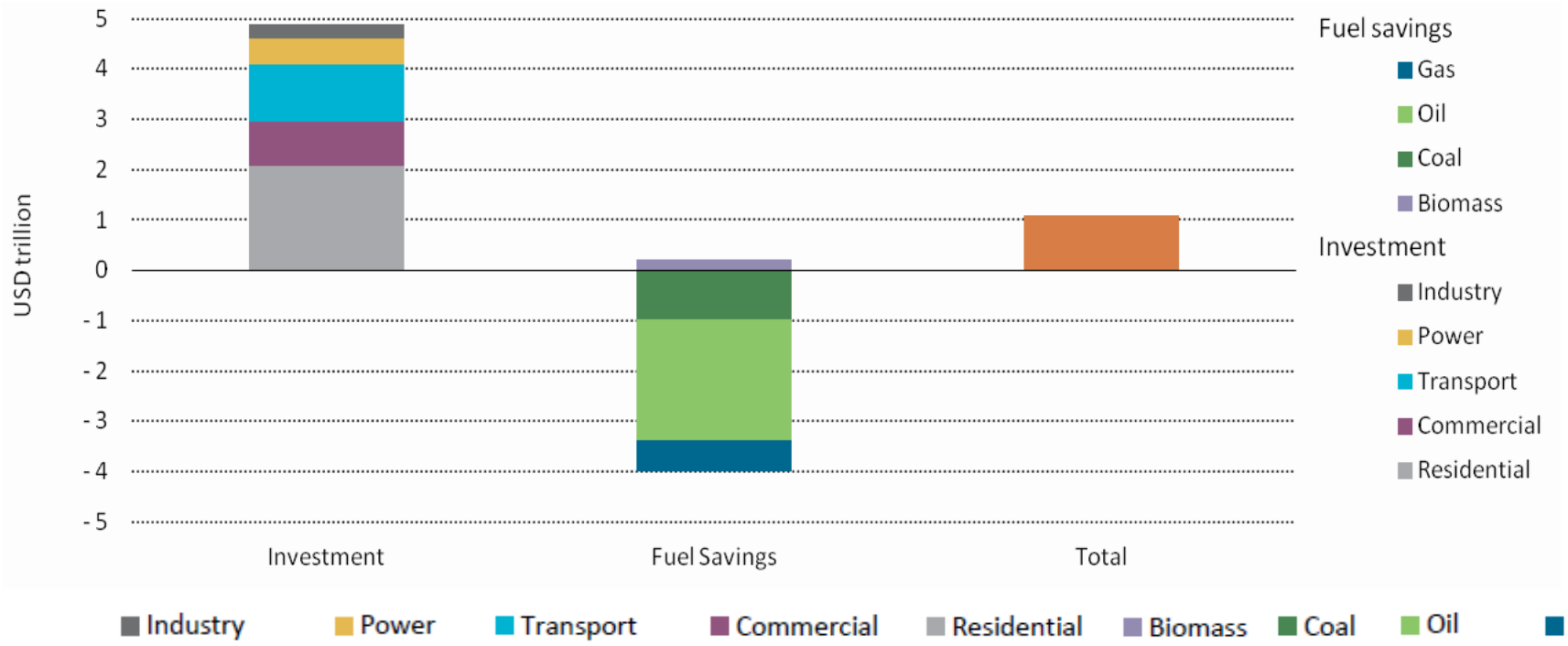
Additional investments and fuel savings in the 2DS



In the near-term, USD 5 trillion of additional investment is required, but USD 4 trillion in fuel savings is achieved.

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Key recommendations

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1) Level the playing field for clean energy technologies

2) Unlock the potential of energy efficiency

3) Accelerate energy innovation and public research, development & demonstration

Help move clean energy from fringe, to main stream markets…

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