2017 SCF Forum:
Mobilizing Finance for Climate-Resilient Infrastructure

Special segment on infrastructure investment in the context of Article 2 of the Paris Agreement

THE **NEW** CLIMATE **ECONOMY**

The Global Commission on the Economy and Climate

Overview

- What does the Paris Agreement say about infrastructure?
- What is the pathway for delivering this infrastructure in a new climate economy?
- Who is the NCE and what are the implications for systems – cities land use and energy – and drivers – infrastructure, resource efficiency and innovation
- Assessing the financing challenge – How are we going to unlock capital at scale?

Article 2 of the Paris Agreement

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

SECTION 1

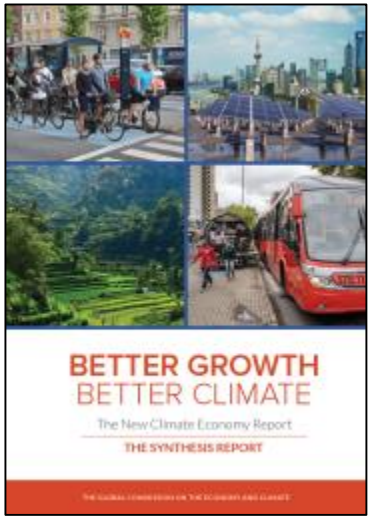
About the Global Commission and the New Climate Economy Project

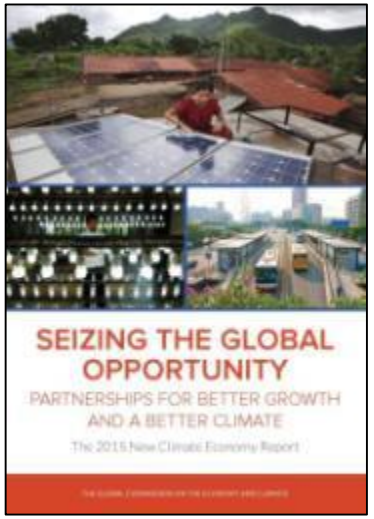
The New Climate Economy project

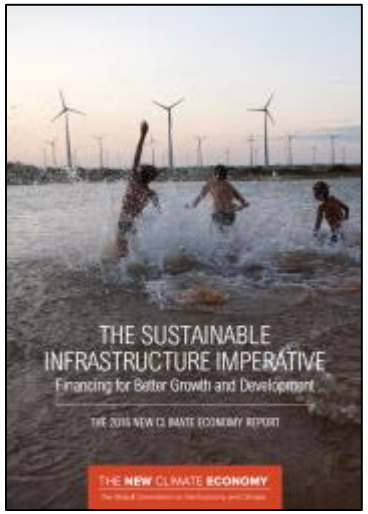
Led by a Global Commission
Made up of former heads of government, finance ministers, CEOs of major companies, Mayors, heads of international economic institutions, etc.

Commissioned in 2013 by 7 countries
Colombia, Ethiopia, Indonesia, Norway, Sweden, South Korea, United Kingdom

Building the evidence base
3 major annual reports and over 50 working papers and country case studies so far.







How the Global Commission Works

Objective: The climate-smart transformation of the global economy, with countries across the world achieving high-quality, resilient and inclusive economic growth while reducing the risks of climate change.

Shaping the Global Debate

Catalysing Action on the Ground in Key Countries

Driving the Transformation in Key Economic Systems

SECTION 2

Key Findings and Recommendations of the Global Commission's Reports

The false dilemma

Promoting economic growth

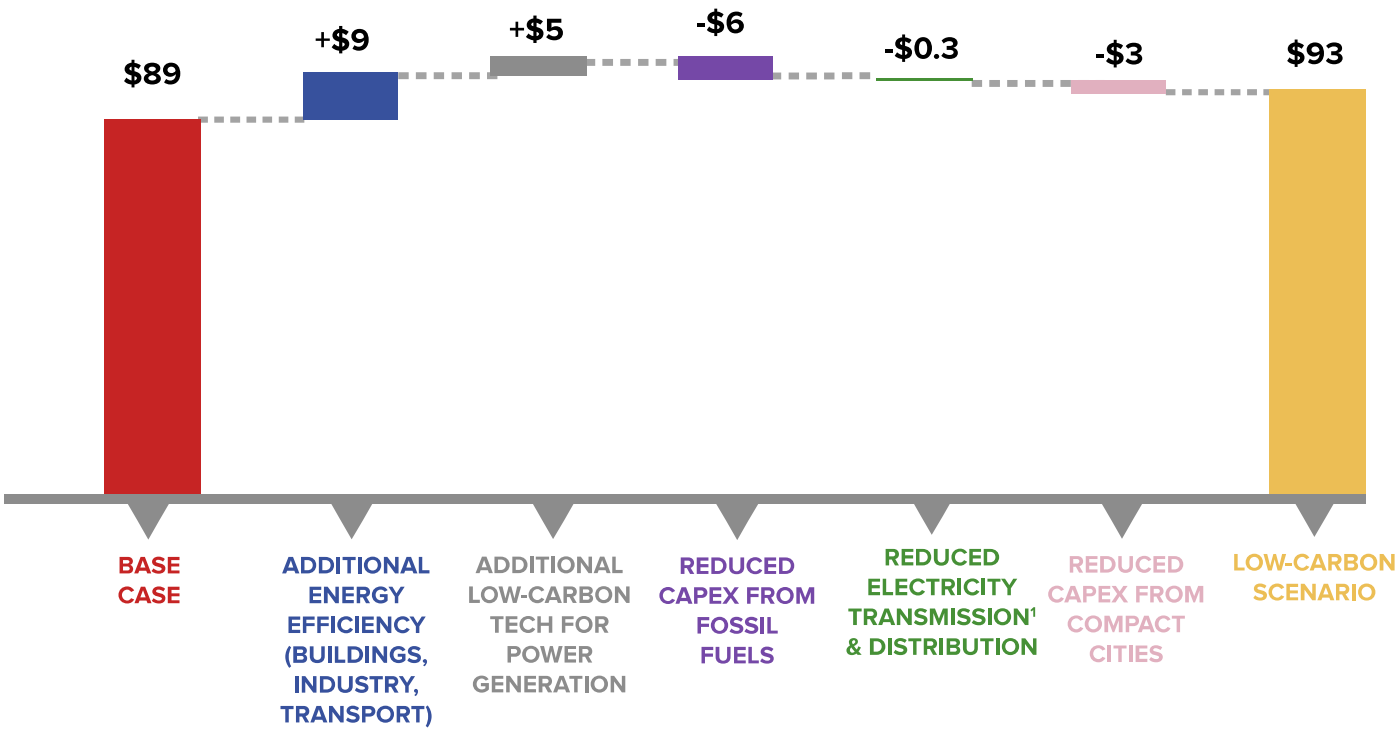
vs

Fighting climate change

Investment needs in a low-carbon scenario are comparable to under business-as-usual

GLOBAL INVESTMENT REQUIREMENTS; 2015 TO 2030, US$ TRILLION, CONSTANT 2010 DOLLARS

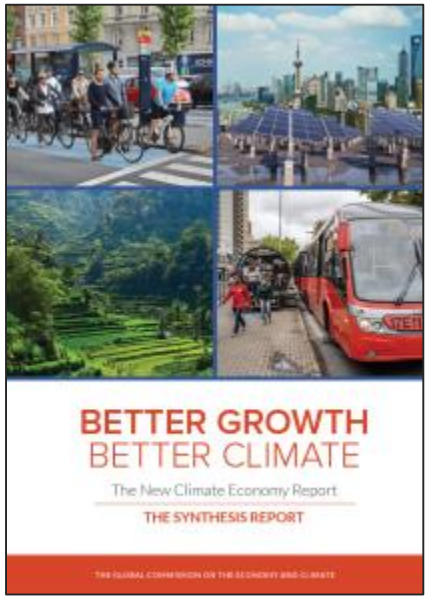
Indicative figures only
High rates of uncertainty



INCLUDING OPERATING EXPENDITURES WOULD LEAD TO A FURTHER REDUCTION OF US$5 TRILLION, FOR A POTENTIAL SAVING OF US$1 TRILLION.

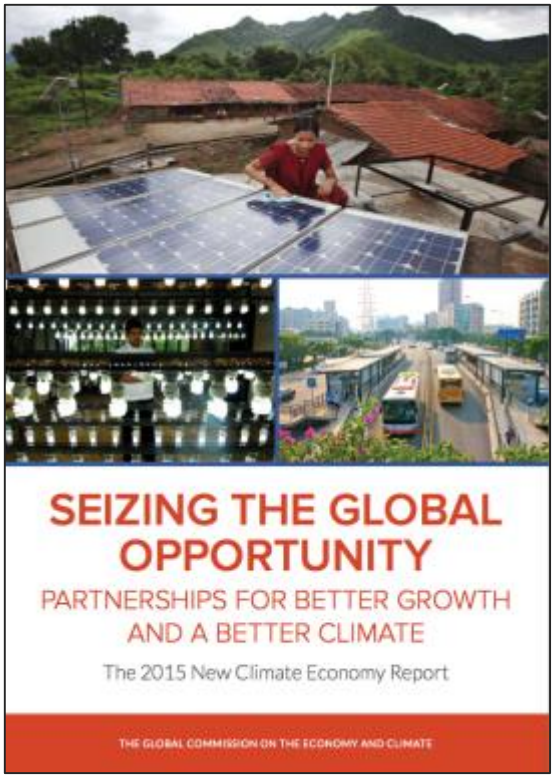
Source: OECD (2006, 2012), IEA ETP (2012), modelling by Climate Policy Initiative (CPI) for New Climate Economy, and New Climate Economy analysis (2014).

Main findings of 2014 Report



- **Economic growth and climate action can be achieved together**. We do not need to choose.
- A growing number of businesses, cities and countries are demonstrating this. Recent technological and policy developments mean that even **more opportunities are available today**.
- About **US$90 trillion will be invested in infrastructure to 2030**: need to choose if it is low-carbon and climate resilient. Low-carbon would not cost much more than BAU, and fuel savings could offset additional investment costs.
- If we lock-in the wrong path, we risk significant economic and social impacts of climate change. **We need to act urgently**.
- There are **multiple economic benefits of action**, e.g. reduced health costs from air pollution, less congestion and road deaths, enhanced energy, water and food security. In many cases these will outweigh the costs of action.

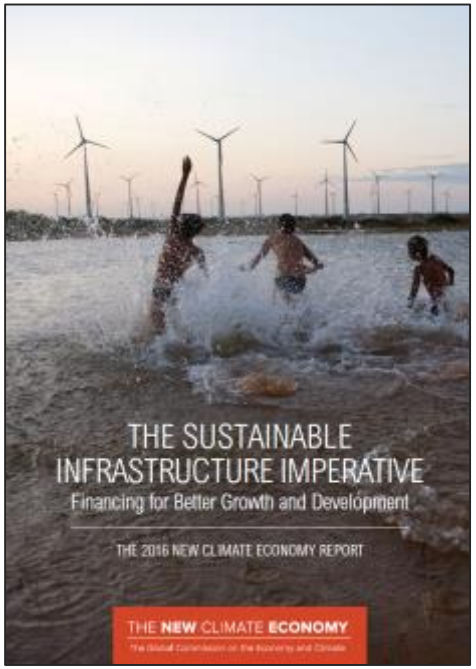
Main findings of 2015 Report



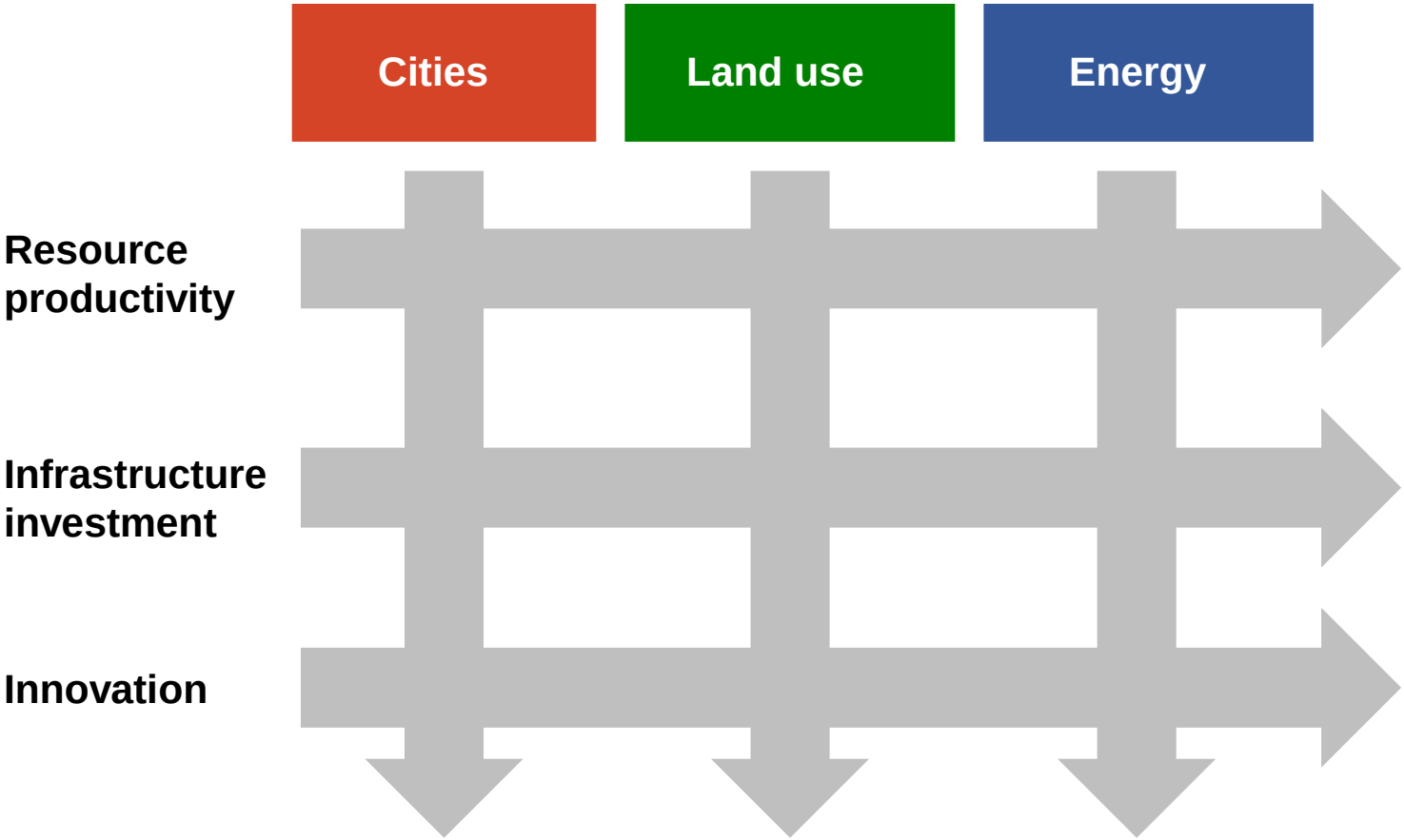
- Global **momentum is building** towards a low-carbon economy.
- **Cooperative, multi-stakeholder partnerships can catalyze further ambition** and action and generate economic benefits.
- **Better growth can almost close the emissions gap**. The 10 proposed actions can achieve up to 96% of the greenhouse gas emissions reductions needed by 2030.
- The **global level of ambition on climate change can be raised** in economically beneficial ways.
- National climate pledges should therefore be “floors to ambition, not ceilings”.

Main findings of 2016 Report

- **Investing in sustainable infrastructure** is key to tackling three global challenges: reigniting growth, delivering on the Sustainable Development Goals, and implementing the Paris Agreement.
- The infrastructure investment needed over the next 15 years – about US$90 trillion - is **more than the entire current stock**.
- The **global South will account for roughly 2/3** of global infrastructure investment, and have an opportunity to "leapfrog" polluting and inefficient models.
- **Next 2-3 years are critical**: because of lock-in of capital and technology and a shrinking carbon budget.
- We have an historic opportunity to deliver **inclusive economic growth, eliminate poverty and reduce climate risk**.
- **More money alone won't do the job.** A range of barriers must be tackled to raise the quantity and the quality of infrastructure investment.

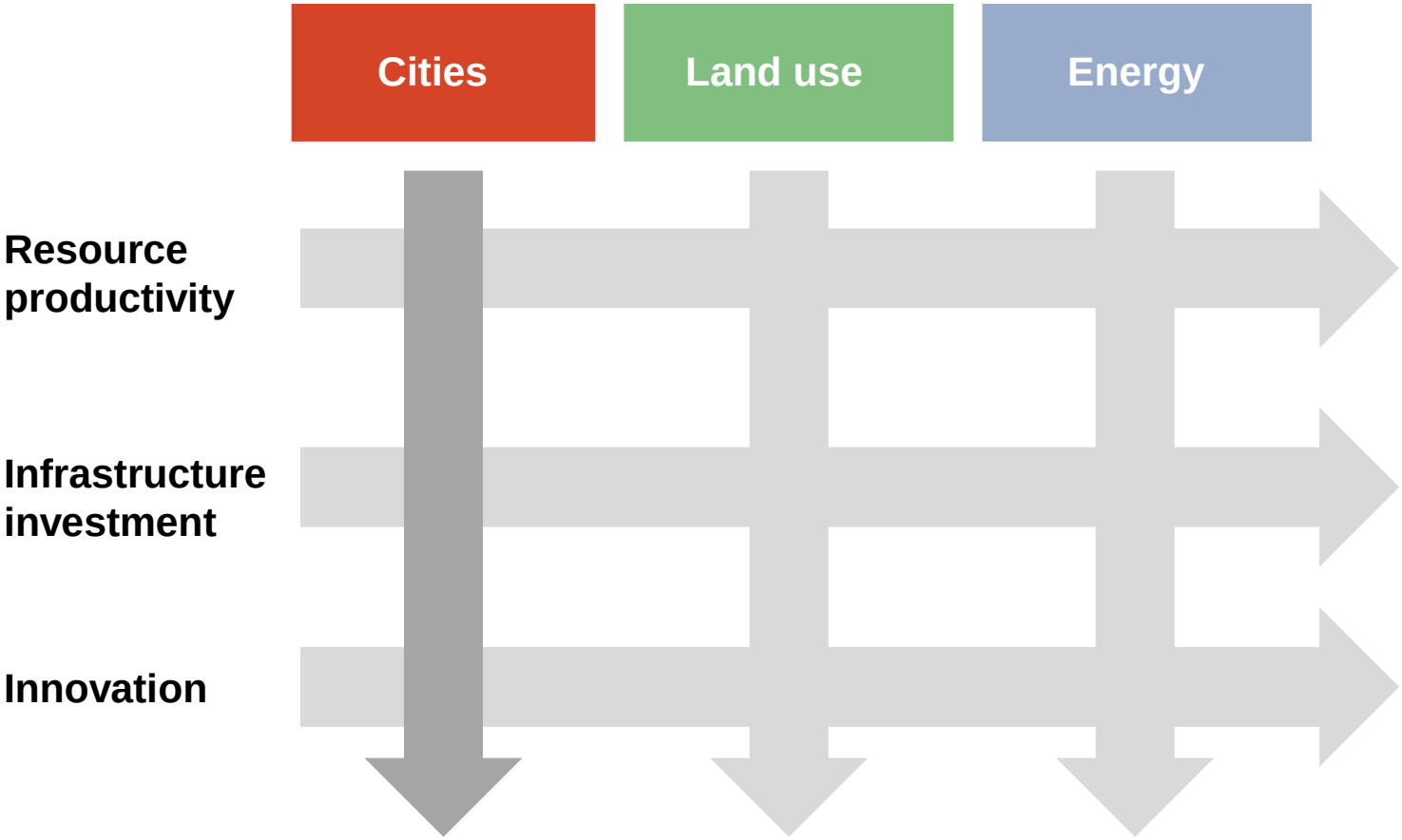


3 key systems and 3 key drivers



Higher quality, more resilient, inclusive growth

3 key systems and 3 key drivers

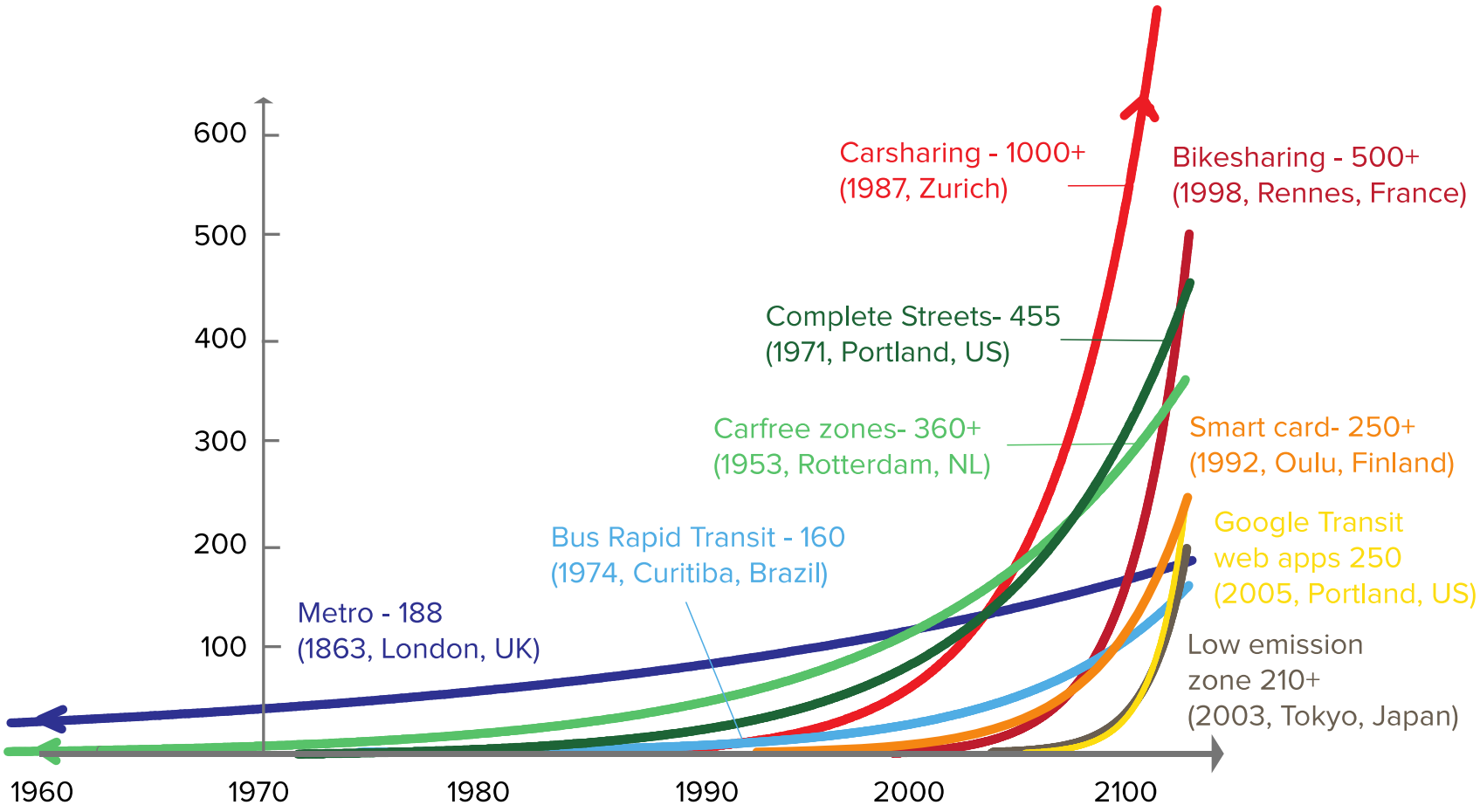


CITIES: Global Commission Recommendations

- Make connected and compact cities the preferred form of urban development. (NCE, 2014)
  - Finance and urban planning ministries, national development banks, and city mayors should **commit to a connected, compact and coordinated urban development model**, centred on mass transport and resource-efficient service delivery.
  - City authorities, working with national and sub- national governments, should identify ways to **increase locally generated revenues to finance and incentivise smarter, more compact and resilient urban development**.
  - Governments, multilateral and national development banks should **work with major cities and private banks** to strengthen the creditworthiness of cities.

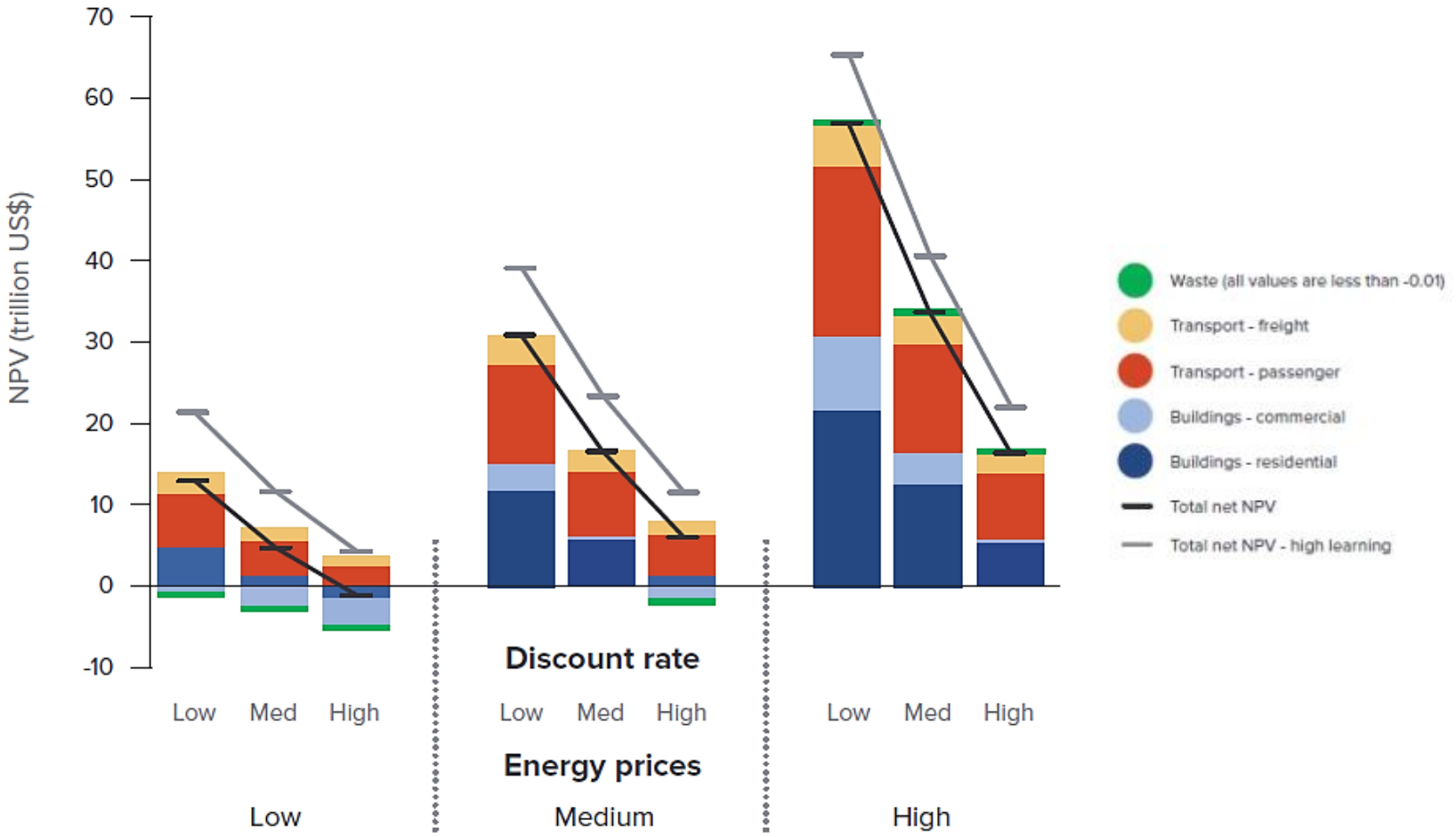
- Accelerate low-carbon development in the world's cities. (NCE, 2015)
  - All cities should commit to **developing and implementing low-carbon development strategies by 2020**, using where possible the framework of the Compact of Mayors, prioritising policies and investments in public, non-motorised and low-emissions transport, building efficiency, renewable energy and efficient waste management.

CITIES: Smart transport systems have taken off worldwide



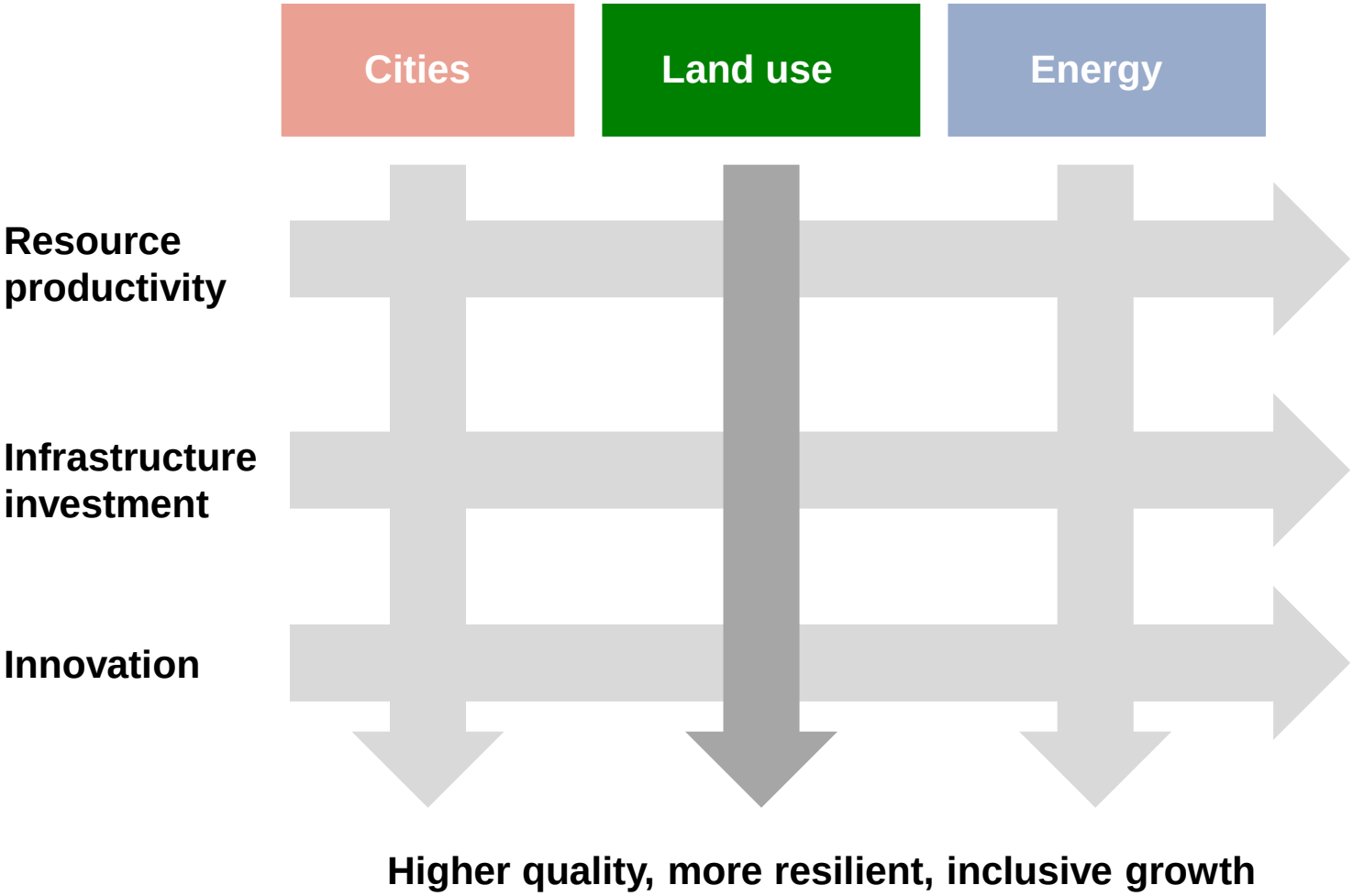
Source: Sustainable Transport Adoption Curves, World Resources Institute, Embarq 2013

CITIES: Low-carbon transport, buildings, and waste sectors are a US$17 trillion opportunity to 2050



Source: Gouldson, A., Colenbrander, S., Sudmant, A., Godfrey, N., Millward-Hopkins, J., Fang, W. and Zhao, X., 2015. *Accelerating Low-Carbon Development in the World's Cities.* NCE, 2015.

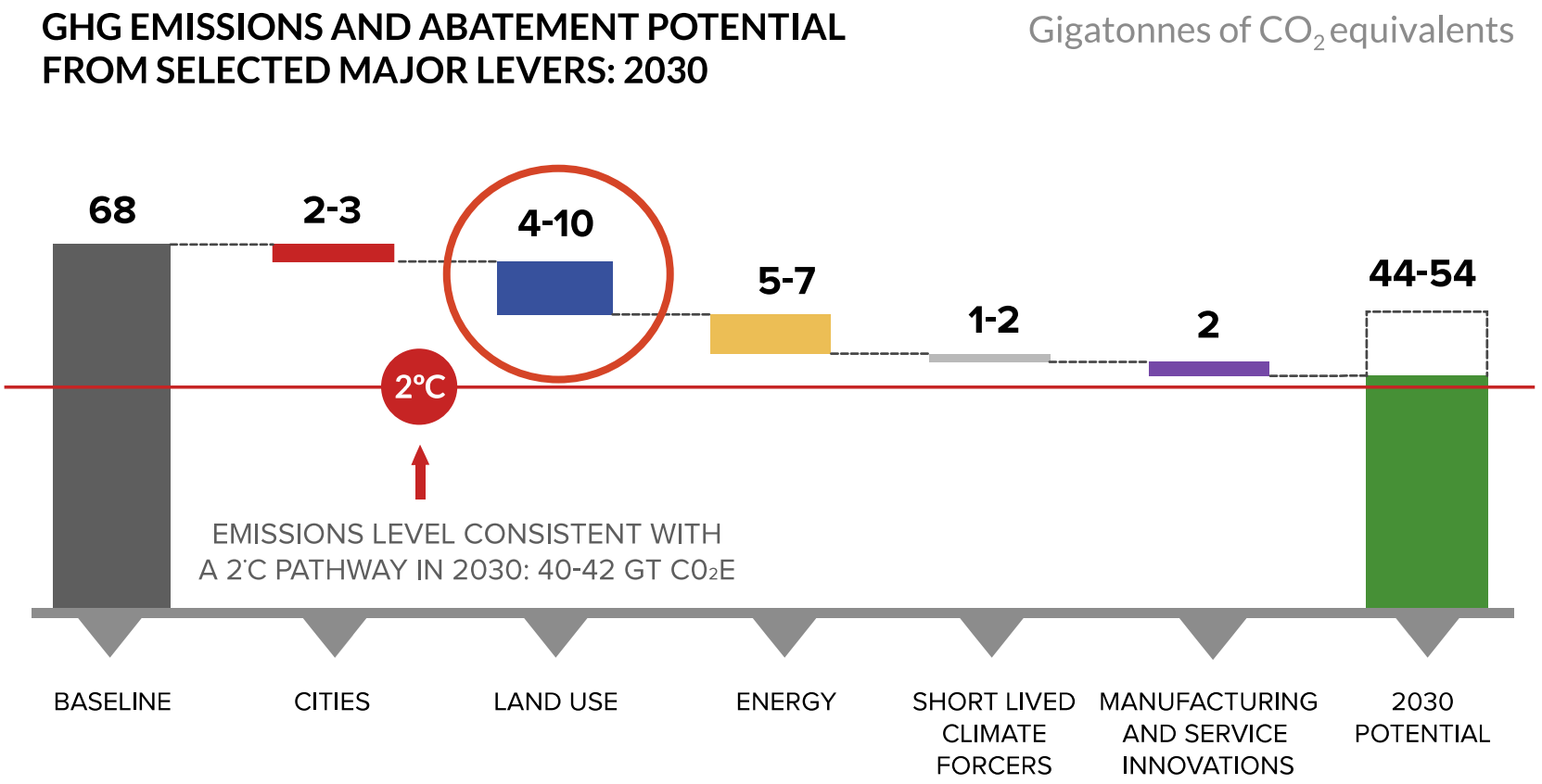
3 key systems and 3 key drivers



LAND USE: Global Commission Recommendations

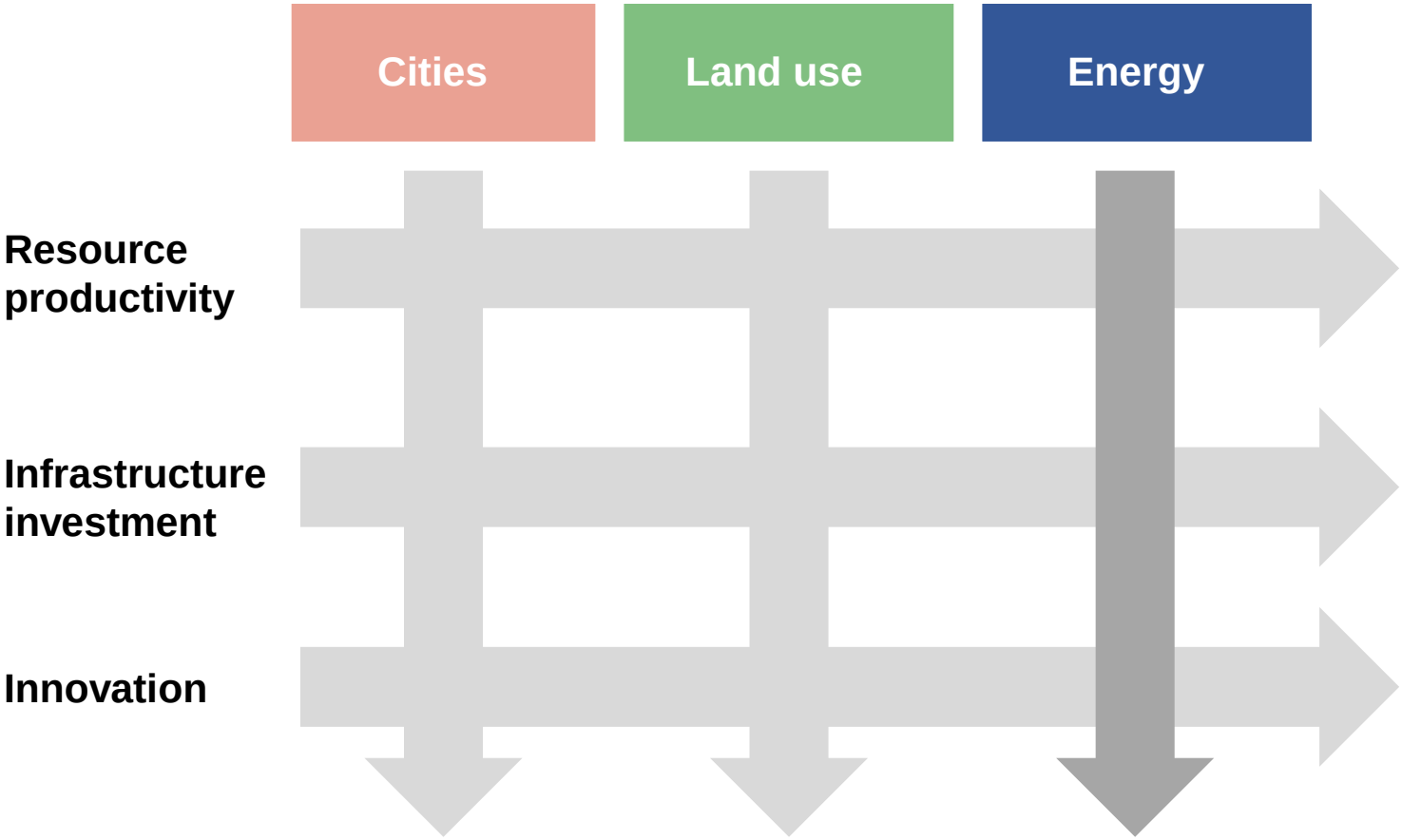
- Halt the deforestation of natural forests by 2030. (NCE, 2014)
- Restore at least 500 million hectares of lost or degraded forests and agricultural land by 2030. (NCE, 2014)
- Restore and protect agricultural and forest landscapes, and increase agricultural productivity. (NCE, 2015)
  - Governments, multilateral and bilateral finance institutions, the private sector and willing investors should work together to **scale up sustainable land use financing**, towards a global target of halting deforestation and putting into restoration at least 500 million ha of degraded farmlands and forests by 2030.
  - Developed economies and forested developing countries should **enter into partnerships that scale up international flows for REDD+**, focused increasingly on mechanisms that generate verified emission reductions, with the aim of financing a further 1 Gt CO2e per year from 2020 and beyond.
  - The **private sector should commit to extending deforestation-free supply chain commitments** for key commodities and enhanced financing to support this.

LAND USE interventions comprise 15-35% of the mitigation potential to get on a 2°C pathway by 2030



Source: Emissions estimates: IPCC AR5; New Climate Economy analysis based on expert input and multiple data sources

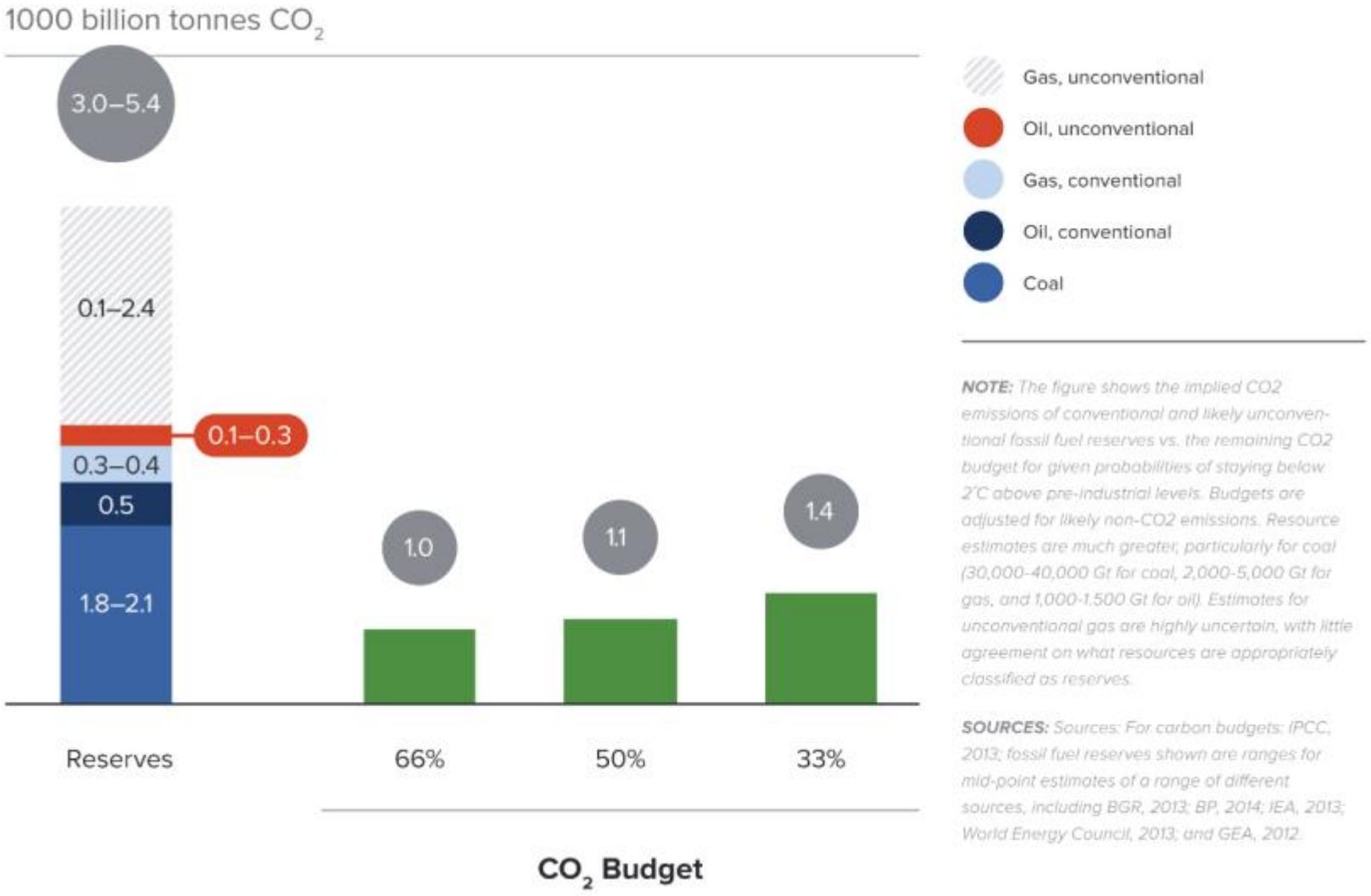
3 key systems and 3 key drivers



ENERGY: Global Commission Recommendations

- Accelerate the shift away from polluting coal-fired power generation. (NCE, 2014)
  - Governments should **reverse the "burden of proof"** for building new coal-fired power plants, building them only if alternatives are not economically feasible.
  - All countries should aim for a **global phase-out of unabated fossil fuel power generation** by 2050.
- Invest at least US$1 trillion a year in clean energy. (NCE, 2015)
  - To bring down the costs of financing clean energy and catalyse private investment, multilateral and national development banks should **scale up their collaboration with governments and the private sector, and their own capital commitments**, with the aim of reaching a global total of at least US$1 trillion of investment per year in low-carbon power supply and (non-transport) energy efficiency by 2030.
- Raise energy efficiency standards to the global best. (NCE, 2015)
  - **G20 and other countries should converge their energy efficiency standards** in key sectors and product fields to the global best by 2025, and the G20 should establish a global platform for greater alignment and continuous improvement of standards.

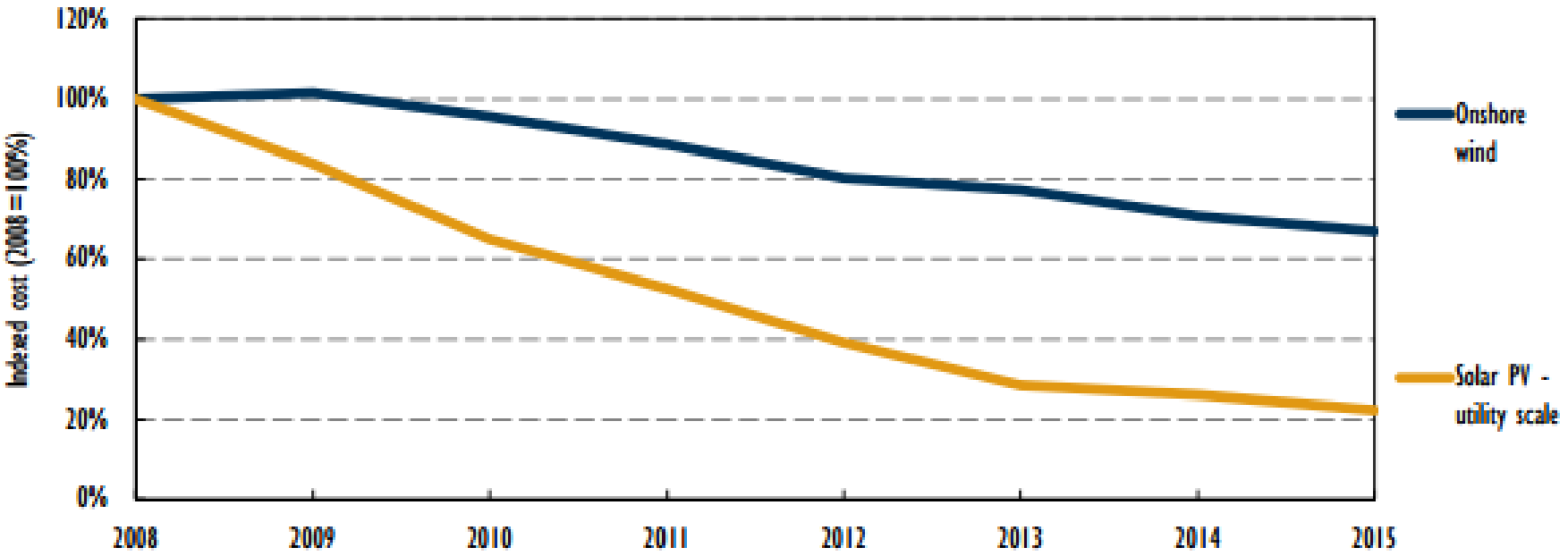
ENERGY: Coal and unconventional fossil fuel reserves far exceed the carbon budget



Source: IPCC Working Group I; IIASA Global Energy Assessment 2012, BGR, 2013; BP Statistical Review of World Energy, 2014; IEA, 2013; World Energy Council, 2013

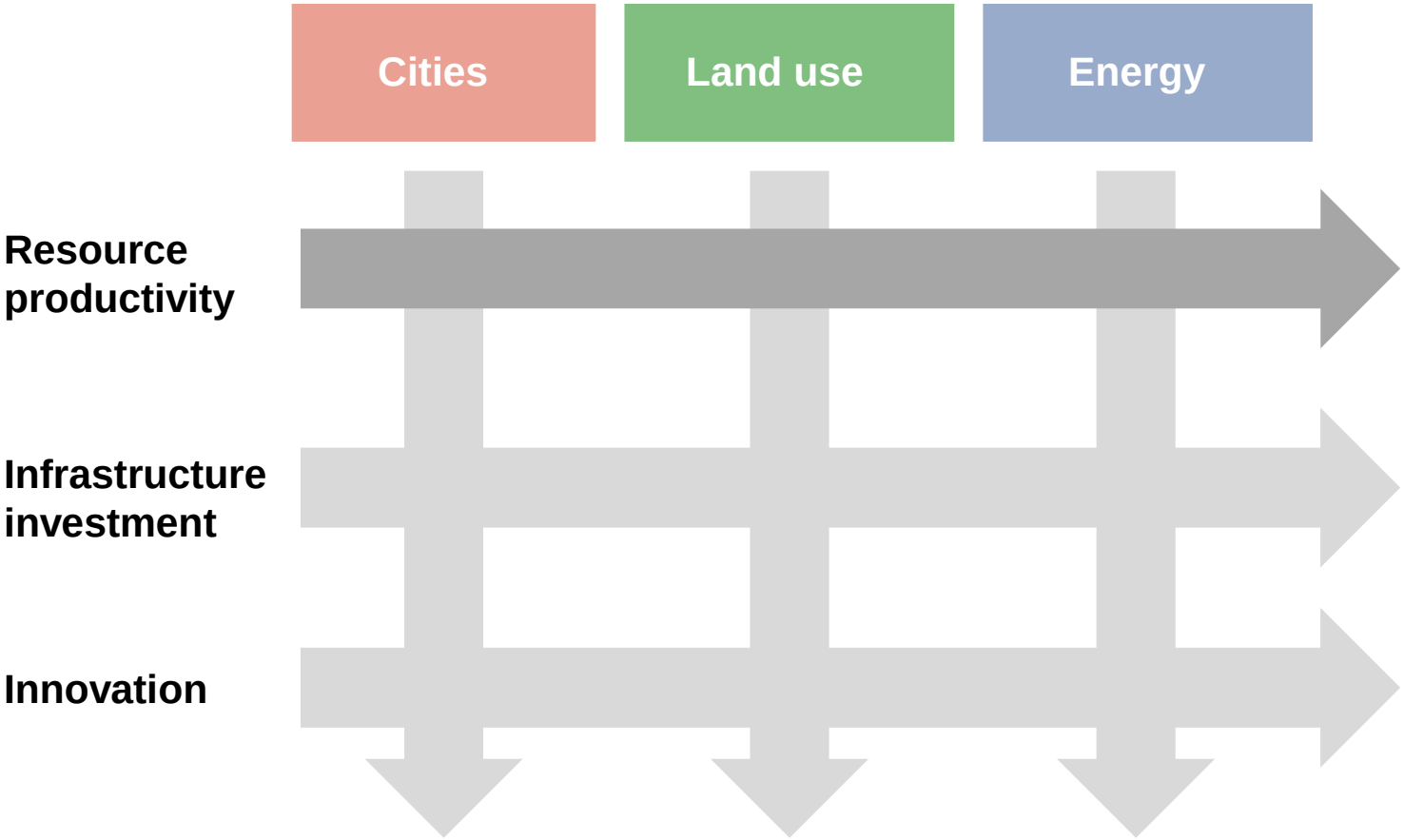
ENERGY: The cost of wind and solar continues to fall

Indexed cost of onshore wind and utility-scale solar PV



Note: Costs refer to global average of levelised cost of electricity (LCOE) with country specific assumptions on investment costs (declining over time) and cost of financing (fixed over time). Different costs per country are averaged weighted by annual capacity additions.

3 key systems and 3 key drivers

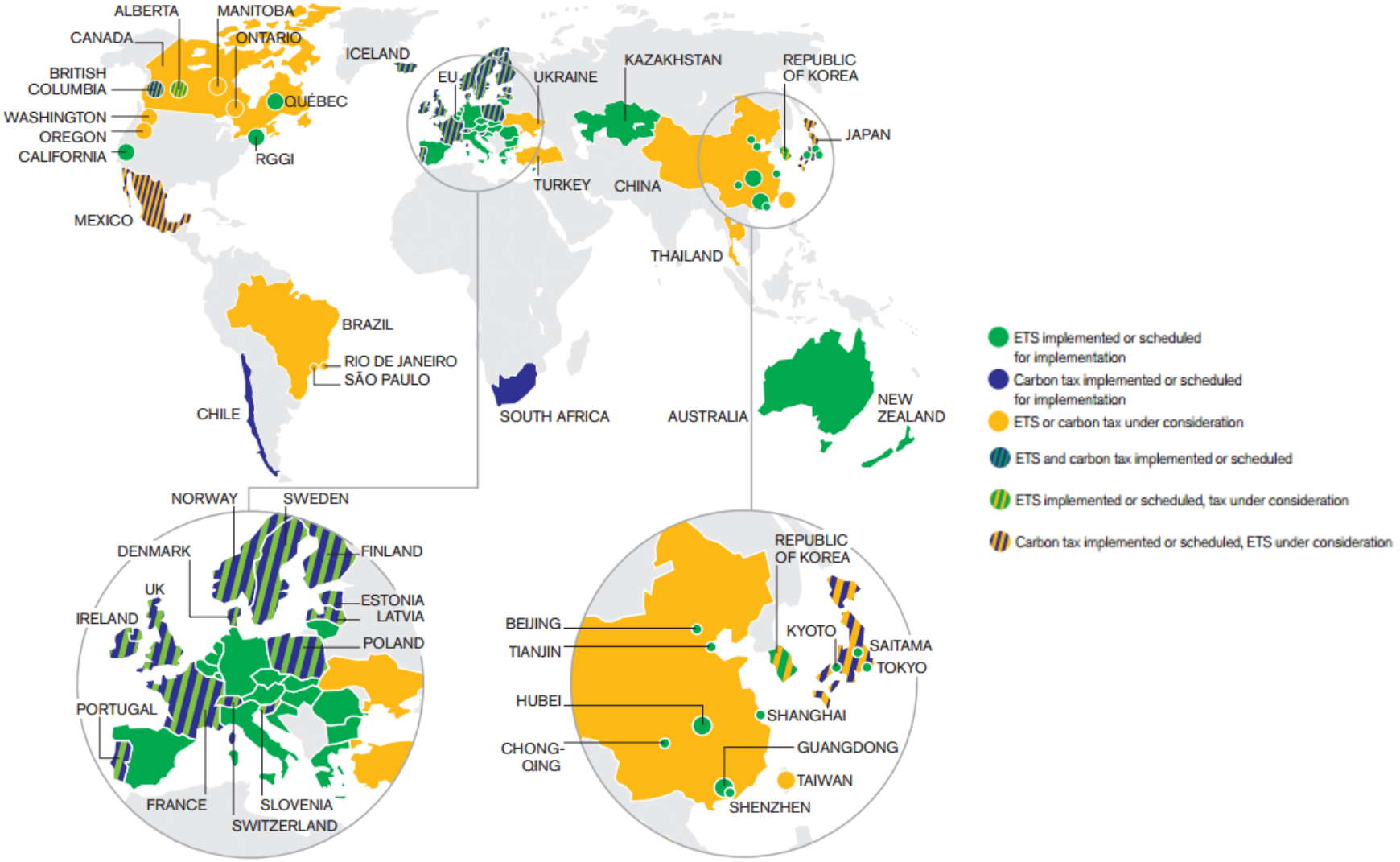


Higher quality, more resilient, inclusive growth

RESOURCE EFFICIENCY: Global Commission Recommendations

- Phase out subsidies for fossil fuels and agricultural inputs and incentives for urban sprawl. (NCE, 2014)
  - [Plans for phasing out fossil fuel and agricultural input subsidies] should include **enhanced transparency and communication,** and targeted **support to poor households and affected workers.**
- Introduce strong, predictable carbon prices as part of good fiscal reform. (NCE, 2014)
  - **Major companies worldwide should apply a "shadow" carbon price** to their investment decisions and support governments in putting in place well- designed, stable regimes for carbon pricing.
  - **Efficient regulations, standards and other approaches should be used to complement pricing**; these can also help to put an "implicit" price on carbon for countries where a low level of carbon pricing is politically difficult...
- Implement effective carbon pricing. (NCE, 2015)
  - All developed and emerging economies, and others where possible, **should commit to introducing or strengthening carbon pricing by 2020**, and should **phase out fossil fuel subsidies.**

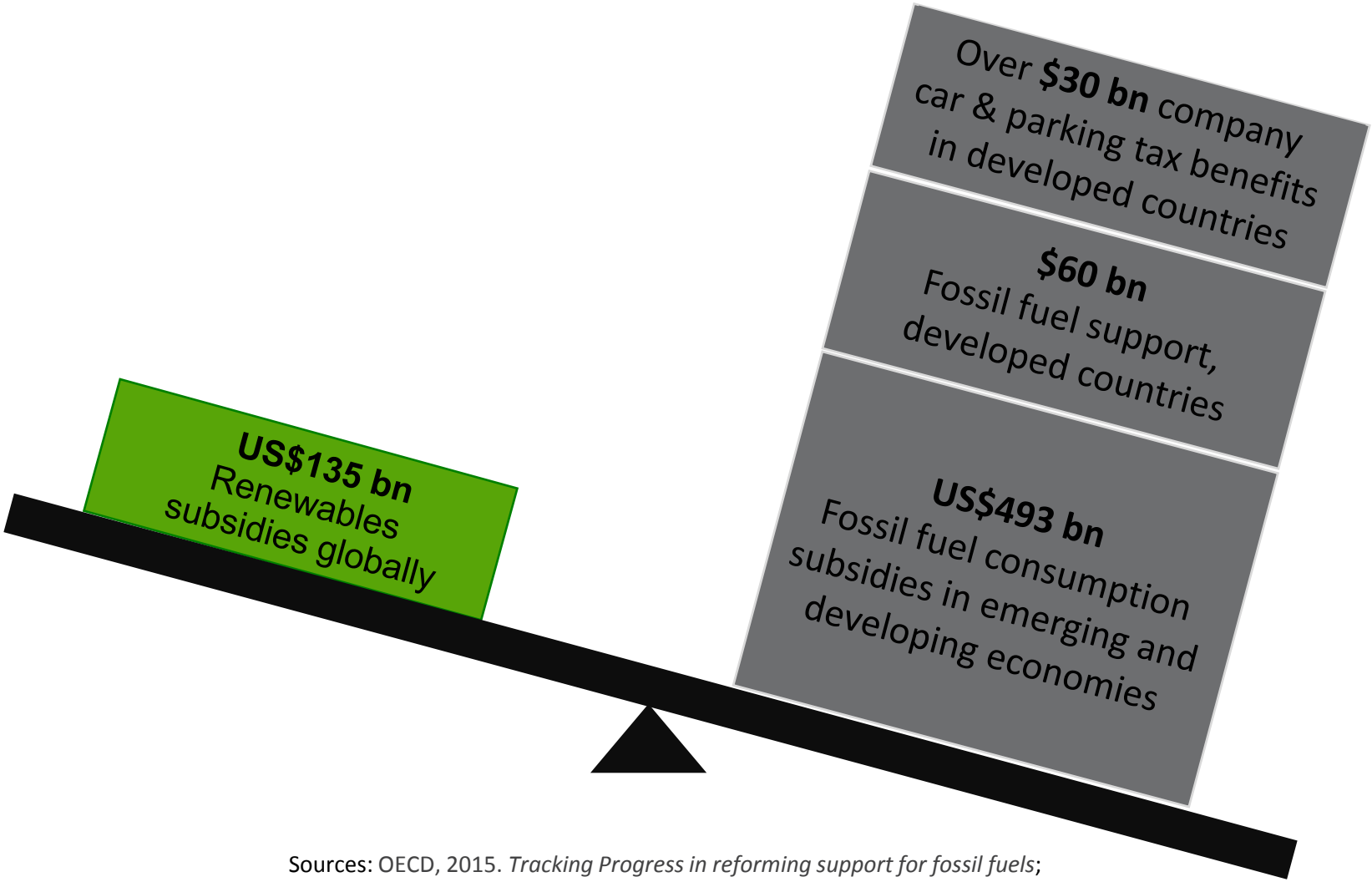
Opportunities to Price Carbon are Spreading: From 13% of GHGs to over 22% in 2018



THE NEW CLIMATE ECONOMY
The Global Commission on the Economy and Climate

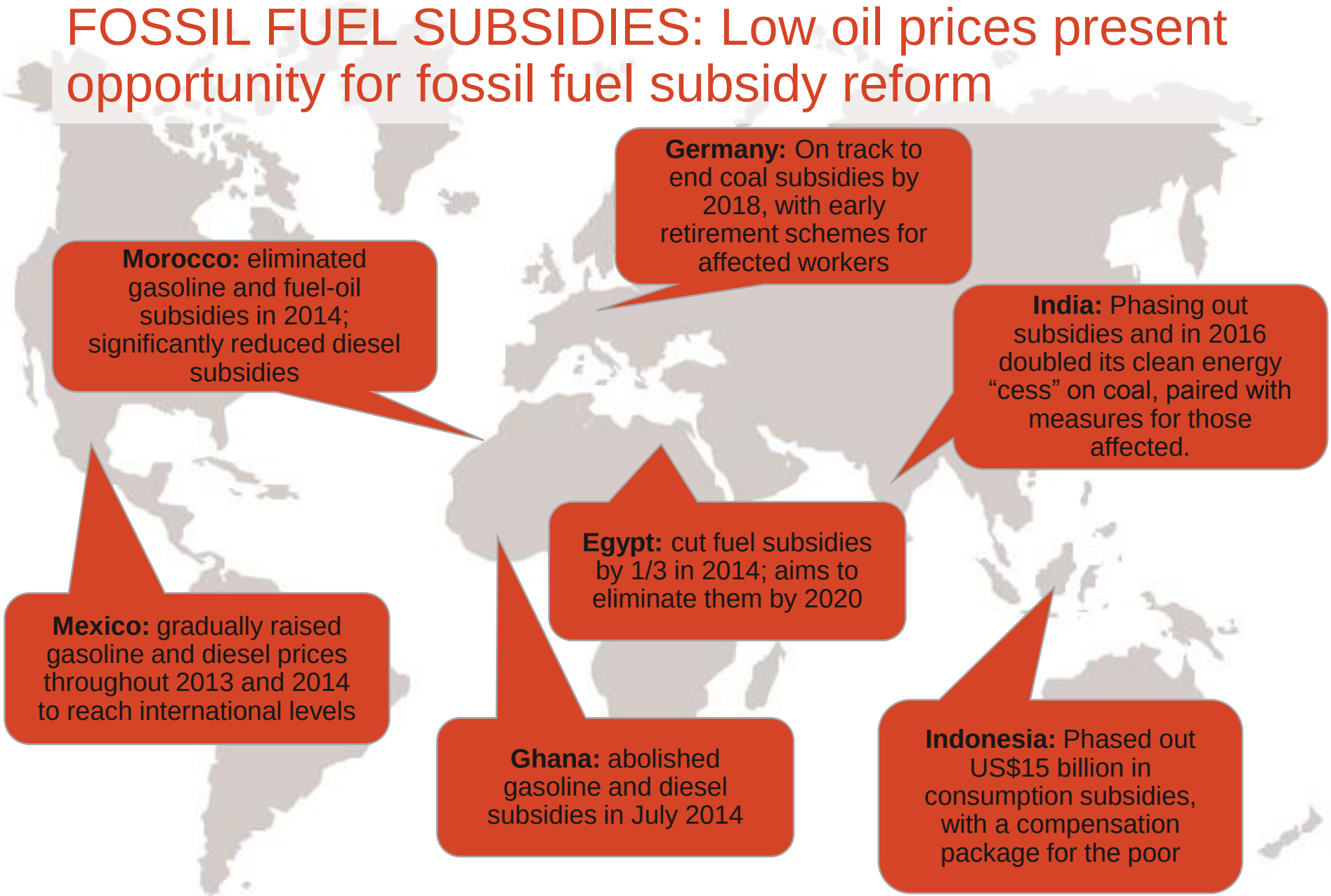
Source: The World Bank, Carbon Pricing Watch 2016

FOSSIL FUEL SUBSIDIES: Subsidies to fossil fuels far outweigh support to renewables

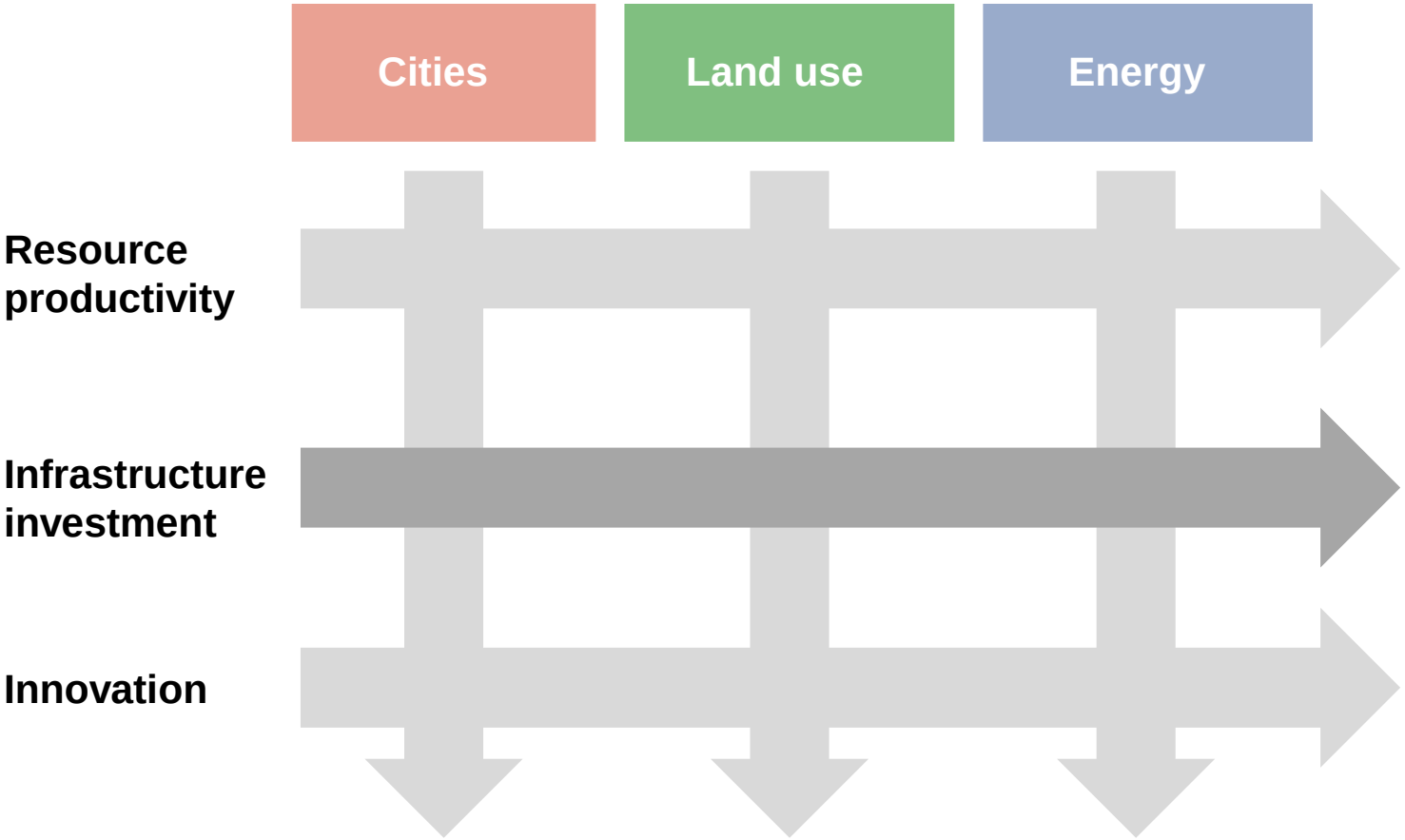


Sources: OECD, 2015. *Tracking Progress in reforming support for fossil fuels*; IEA, 2015, *World Energy Outlook 2015*; OECD (2014) "Personal Tax Treatment of Company Cars and Commuting Expenses: Estimating the Fiscal and Environmental Costs".

FOSSIL FUEL SUBSIDIES: Low oil prices present opportunity for fossil fuel subsidy reform



3 key systems and 3 key drivers



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INFRASTRUCTURE: Global Commission Recommendations (2014 and 2015)

- Substantially reduce the capital cost of low-carbon infrastructure investment. (NCE, 2014)
  - Donors, multilateral and national development banks should review all lending and investment policies and practices, and **phase out financing of high-carbon projects** and strategies in urban, land use and energy systems.
  - Governments and multilateral and national development banks should help provide new and existing financing institutions with the right **skills and capacity to provide finance for low-carbon and climate-resilient infrastructure**, and to **leverage private finance towards this goal**.
  - Accelerate a low-carbon transformation by **integrating climate action and risk** into strategic economic decision-making.
- Ensure new infrastructure is climate-smart. (NCE, 2015)
  - G20 and other countries should adopt key principles ensuring **the integration of climate risk and climate objectives in national infrastructure policies and plans**. These principles should be included in the G20 Global Infrastructure Initiative, and used to guide the investment strategies of public and private finance institutions, particularly development banks.

The 2016 Global Commission Action Agenda

Action areas to scale up and shift public and private investments to sustainable infrastructure

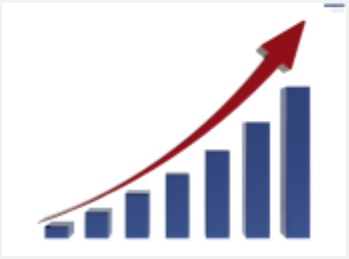
Tackle fundamental price distortions

Strengthen investment policy frameworks and capacity

Transform the financial system to deliver the scale and quality of investment needed

Boost investments in clean technology R&D and deployment

INFRASTRUCTURE:
Milestone agreements in 2015 = a new global agenda.
Three key challenges now:



Boost global demand and activity in the short-term and lay foundations for sustained long-term **growth**.

Implement the **Sustainable Development Goals** through inclusive growth and access to basic services.

Cut **emissions** to achieve net zero by 2050, and increase **resilience & adaptation**.

Sustainable infrastructure is at the heart of solutions to all three.

2016 Global Commission Report: Sustainable infrastructure at the heart of action to deliver a new climate economy

- In next 15 years we will **develop more infrastructure than entire current stock** – we need to ensure it is sustainable.
- Sustainable infrastructure includes:
  - Clean and efficient energy systems, public transport, efficient buildings, water supply and sanitation
  - And also natural infrastructure (such as forest landscapes, wetlands and watershed protection)

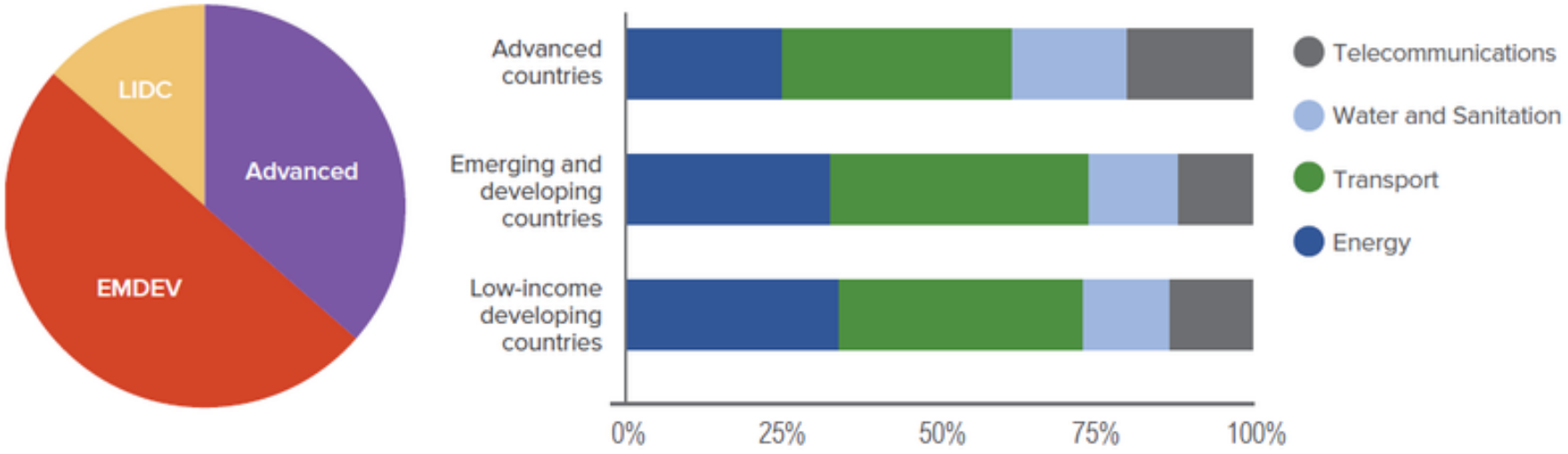


Sustainable infrastructure is at the heart of many SDGs

Source: Global Commission on the Economy and Climate, 2016, based on Bhattacharya, Chattopadhyay and Nagrah (2016)

INFRASTRUCTURE: 70% of infrastructure investments will be made in developing and emerging economies to 2030

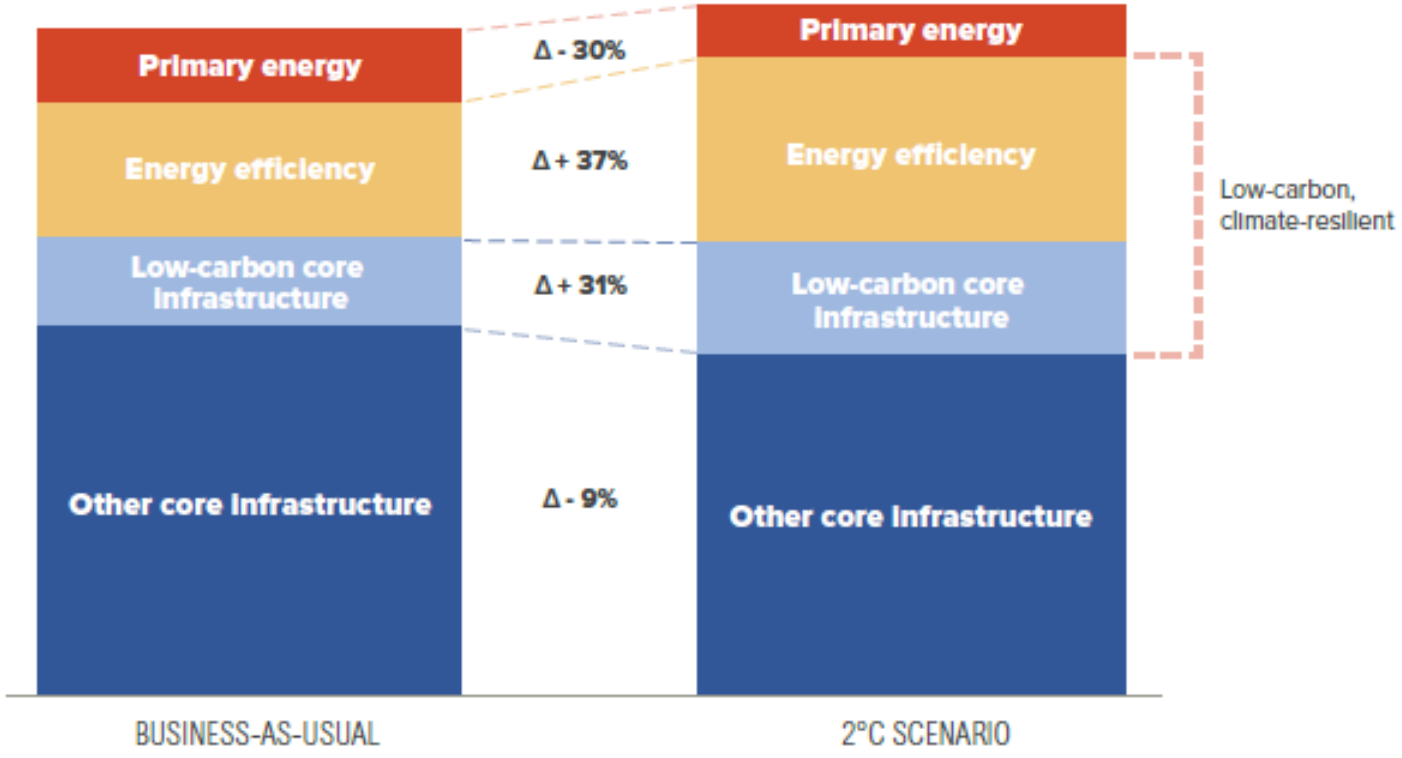
Percentage of projected infrastructure demand by sector and income group (2015-2030)



Source: Global Commission on the Economy and Climate, 2016, based on Bielenberg et al. (2016) and Bhattacharya et al. (2016)

INFRASTRUCTURE: Investing in sustainable infrastructure requires a shift in investment but does not need to cost much more

Infrastructure spending needed for a 2°C scenario (2015-2030, percentage change)

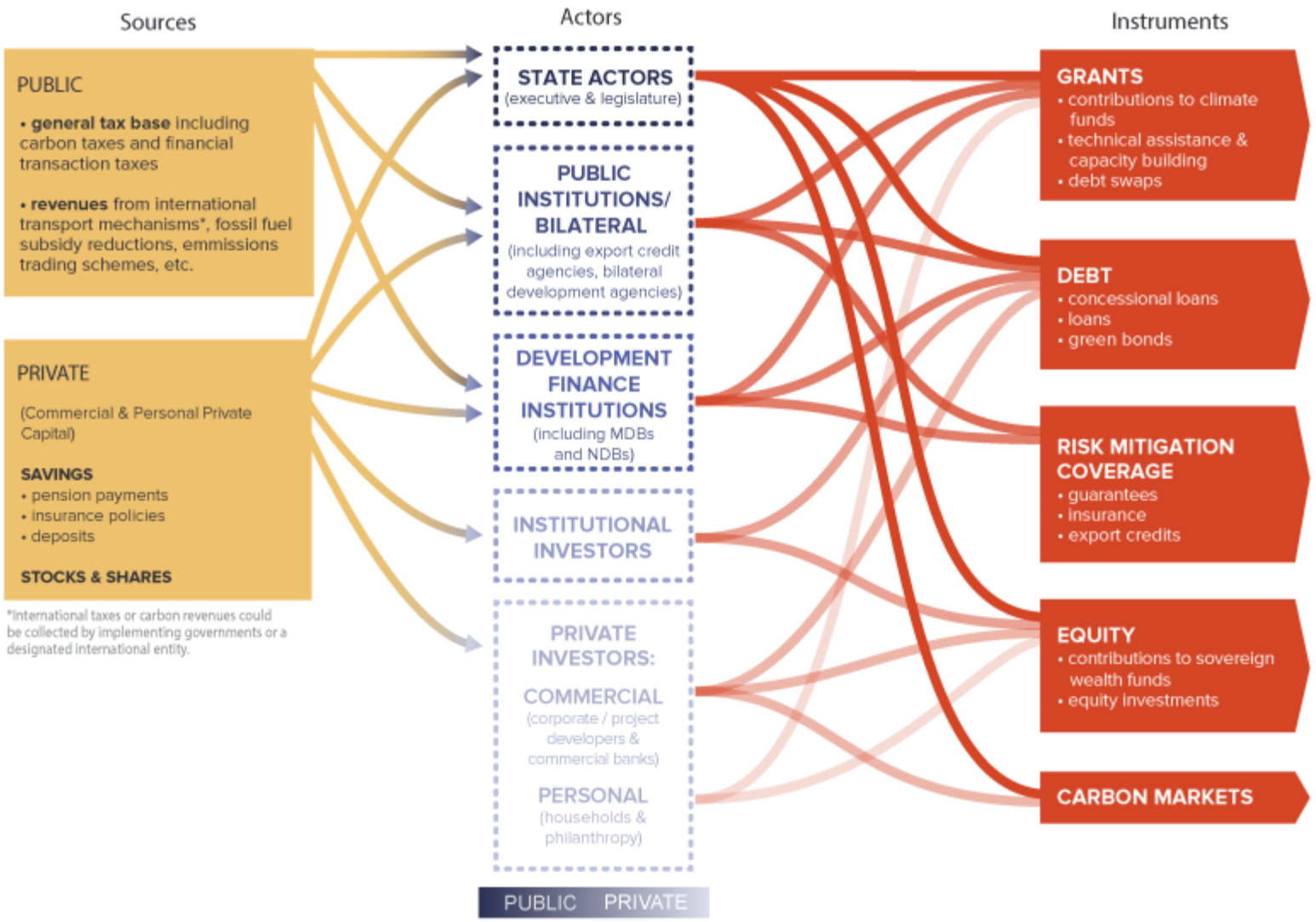


Note: Δ is the mathematical symbol for change.

Source: Global Commission on the Economy and Climate, 2016 and 2014, and Bhattacharya et al., 2016

- Primary energy: extraction of oil, gas and coal
- Energy efficiency: buildings, energy and transportation
- Low-carbon core infrastructure: renewable energy, nuclear, CCS, low-carbon transport (e.g. light rail and Bus Rapid Transit systems), climate-proofed water and sanitation including some adaptation infrastructure (e.g. sea walls and flood protection)
- Other core infrastructure: standard water/sanitation, high-carbon transport (e.g. roads), energy production, and telecommunications

INFRASTRUCTURE: Both public and private finance will be critical



Source: Global Commission on the Economy and Climate, 2016, based on CPI and CICERO, 2015.

INFRASTRUCTURE: Tackle fundamental price distortions

Fossil fuels have significant costs

- Almost 4 million premature deaths each year due to fossil fuel-related air pollution.

Reform fossil fuel subsidies

- Globally, fossil fuel subsidies and tax breaks were about US$550 billion in 2014.
- In the last three years, almost 30 countries have initiated or accelerated reforms of their fossil fuel subsidies.
- G7 Leaders committed in May 2016 to eliminate inefficient fossil fuel subsidies by no later than 2025. G20 countries and others should follow.

Set a price on carbon

- 40 countries and 20+ cities have implemented or scheduled carbon pricing.
- All developed and emerging economies, and others where possible, should commit to introducing or strengthening carbon pricing by 2020.

Price infrastructure services appropriately (for both traditional and ecosystem-based infrastructure)

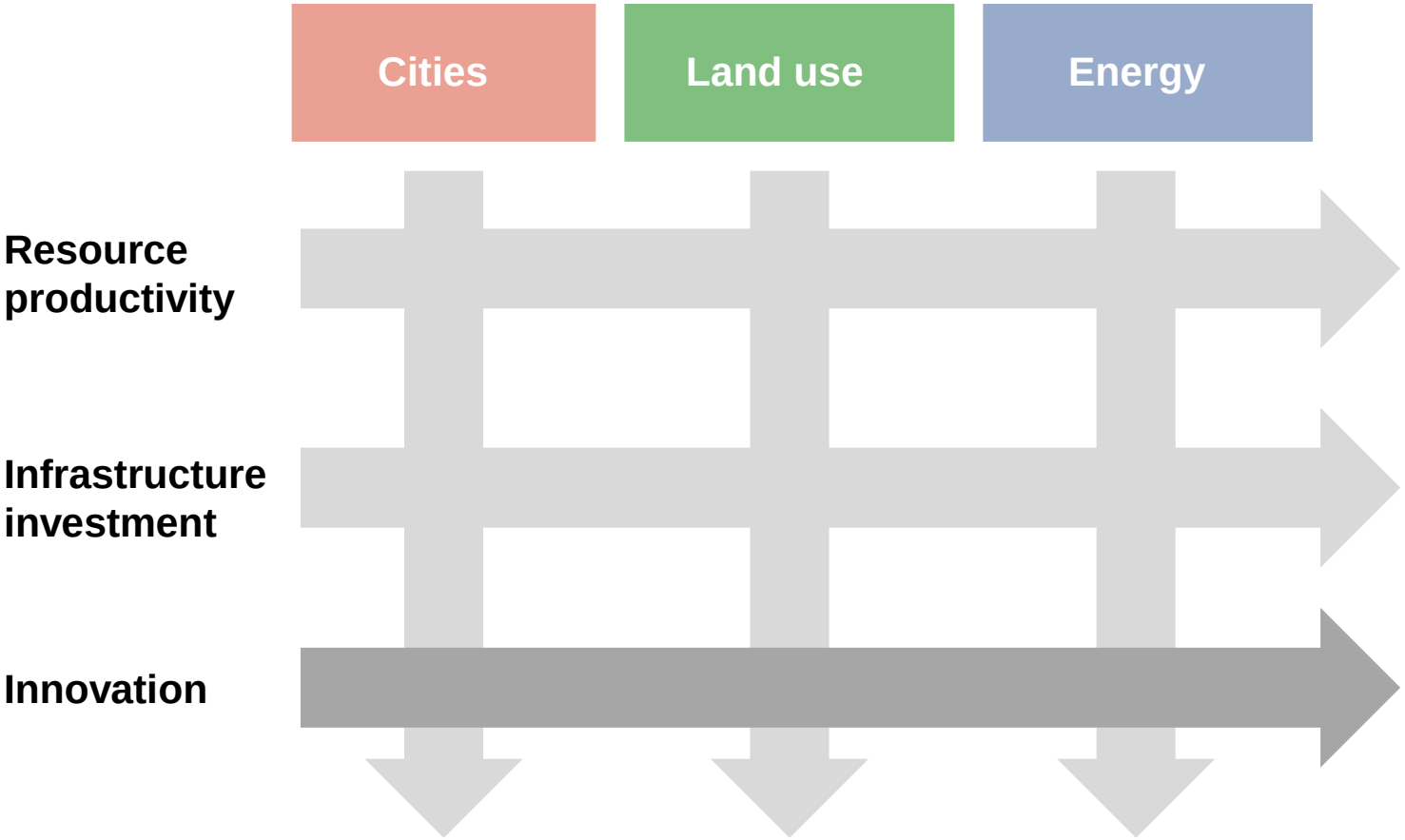
INFRASTRUCTURE: Strengthen investment policy frameworks and capacities

- **Critical role of public finance**: In developing countries, **60-65%** of infrastructure projects are financed by public resources; in advanced economies it is 40%.
- **Development Finance Institutions act to catalyse private finance**: They play a pivotal role, generating financing models for sustainable infrastructure that crowd in private finance, and building capacities to develop pipelines of bankable projects.
- The **New Development Bank (BRICS)** launched its first 4 investments in April 2016, worth US$811 million, all for clean energy projects.
- **National infrastructure plans and strategies**: Countries should develop clear national, subnational and sectoral development strategies and infrastructure plans, that are aligned with long-term climate goals.
- All countries should develop **transition plans to accelerate scale-up of clean and resilient energy solutions and a phase-out of coal**, in a way that ensures a just transition.

INFRASTRUCTURE: Transform the financial system to deliver the scale and quality of investment needed

- **New financial tools** can incentivise private investment. The green bond market reached $42 billion in 2015, $81 billion in 2016 and could nearly double in 2017.
- Governments and investors should **agree on common standards for, and scale up, green bonds**.
- **Climate-related financial risk disclosure schemes** are developing and some countries now have mandatory disclosure.
- Countries, especially those in the G20, should build on the work of the FSB Task Force on Climate-related Financial Disclosure to **move toward appropriate mandatory disclosure standards**.
- Attracting **institutional investors** to finance sustainable infrastructure would be a big prize: they have an estimated US$100 trillion in assets under management.
- **Development Finance Institutions** – via their shareholders – should double their investments in financing sustainable infrastructure as quickly as possible, and scale up further as warranted.

3 key systems and 3 key drivers



Higher quality, more resilient, inclusive growth

INNOVATION: Boost investment in clean technology R&D and deployment

- **Faster deployment of existing technologies** is critical to meeting global goals.
- **New technologies and practices** can significantly reduce upfront costs of sustainable infrastructure over the long-term.
- **Energy-sector public RD&D should be scaled-up:** it is less than half what it was in the late 1980s in real terms, and some still supports fossil fuel production.
- **Multi-partner global co-operation is essential**: several promising initiatives are aiming to boost investment in innovation with climate change as a central theme, including: Mission Innovation, the Breakthrough Energy Coalition, CGIAR, Low-Carbon Technology Partnerships initiative.
- **Governments and businesses** should substantially increase investments in R&D and deployment, and develop genuine research partnerships together and across countries.

INNOVATION: Global Commission Recommendations

- Scale up innovation in key low-carbon and climate-resilient technologies and remove barriers to entrepreneurship and creativity. (NCE, 2014)
  - **Governments** of the major economies should **at least triple their energy-related R&D expenditure** by the mid-2020s, with the aim of exceeding 0.1% of GDP.
  - Governments should work individually and together to **reduce barriers to the entry and scaling of new business models**, particularly around “circular economy” and asset-sharing mechanisms.
  - **Donors**, working with international agencies such as CGIAR, the UN FAO and national research institutes in emerging and developing countries, should **double investment in agriculture and agroforestry R&D**.
- Galvanise low-carbon innovation. (NCE, 2015)
  - Emerging and developed country governments should work together, and with the private sector and developing countries, in strategic partnerships to **accelerate RD&D in low-carbon technology** areas critical to post-2030 growth and emissions reduction.

For more information on the New Climate Economy

- Download reports, country case studies, and working papers: www.newclimateeconomy.report
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  - Find us on Facebook: search New Climate Economy