

# Climate and Environmentally Harmful Subsidies

A presentation to the  
G7 Environment Meeting of Environmentally Harmful Subsidies  
and Ecological Fiscal Reform

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# What is an environmentally harmful subsidy (EHS)?

- Subsidy: ‘A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs’ (OECD, 2005) [from the efficient outcome]
- Subsidy may be financial or non-financial, direct or indirect, explicit or implicit
- Subsidy may be on consumption or production
- EHS: The subsidy damages the environment
- On this definition an uninternalised environmental cost due to government inaction may be considered an EHS (non-financial, indirect, implicit)

# Internalising environmental costs

- The efficient level of environmental pollution is where the marginal damage of an extra unit of pollution is equal to the marginal benefit of the activity causing it
- ‘Internalising environmental costs’ means levying a charge on the polluter equal to the marginal environmental damage at the efficient level of pollution [it does not mean charging for all environmental damage]
- Achieving this in respect of climate change requires knowledge of the ‘social cost of carbon’, concerning which there is a very great deal of uncertainty

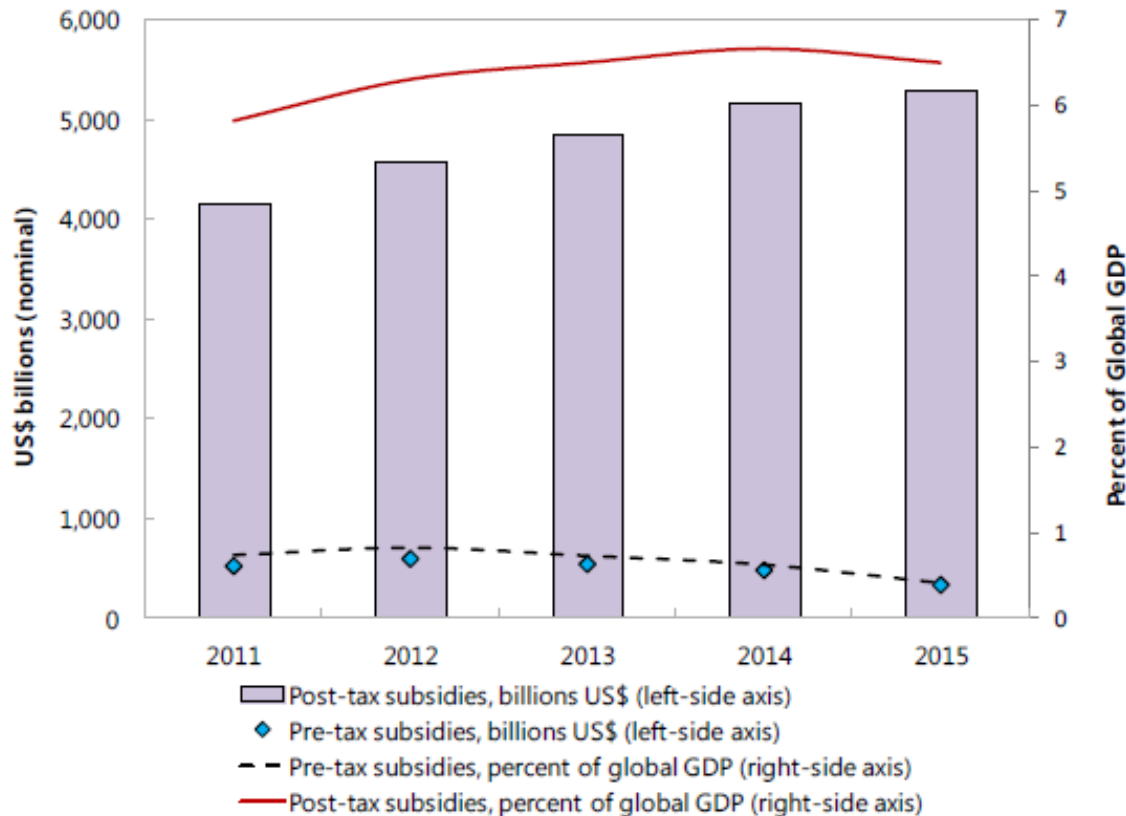
# How large are subsidies for fossil fuels?

- “The IEA’s latest estimates indicate that fossil-fuel **consumption subsidies** worldwide amounted to \$493 billion in 2014, \$39 billion down on the previous year, in part due to the drop in international energy prices, with subsidies to oil products representing over half of the total. Those subsidies were over four-times the value of subsidies to renewable energy.”  
(Source: <http://www.worldenergyoutlook.org/resources/energysubsidies/>)
- “**Producer subsidies**, as estimated by the OECD, are relatively small, at \$16.8 billion in 2011 and \$17.9 billion in 2015.”  
(Source: IMF 2015 ‘How Large Are Global Energy Subsidies?’ Prepared by David Coady, Ian Parry, Louis Sears, and Baoping Shang), IMF Working Paper WP/15/105)
- “Globally, subsidies to fossil fuels may be on the order of US\$ 600 billion per year, of which the GSI estimates about US\$100 billion is provided to producers.”  
(Source: <http://www.iisd.org/gsi/fossil-fuel-subsidies/fossil-fuels-what-cost>)
- “US\$ 20 billion in subsidies for biofuel production and consumption” [not fossil fuel but potential EHS]  
(Source: <http://www.iisd.org/gsi/biofuel-subsidies/biofuels-state-play-2012>)

# How large are subsidies for fossil fuels?

**Figure 4. Global Energy Subsidies, 2011–15**

(US\$ billions on left axis; percent of global GDP on right axis)



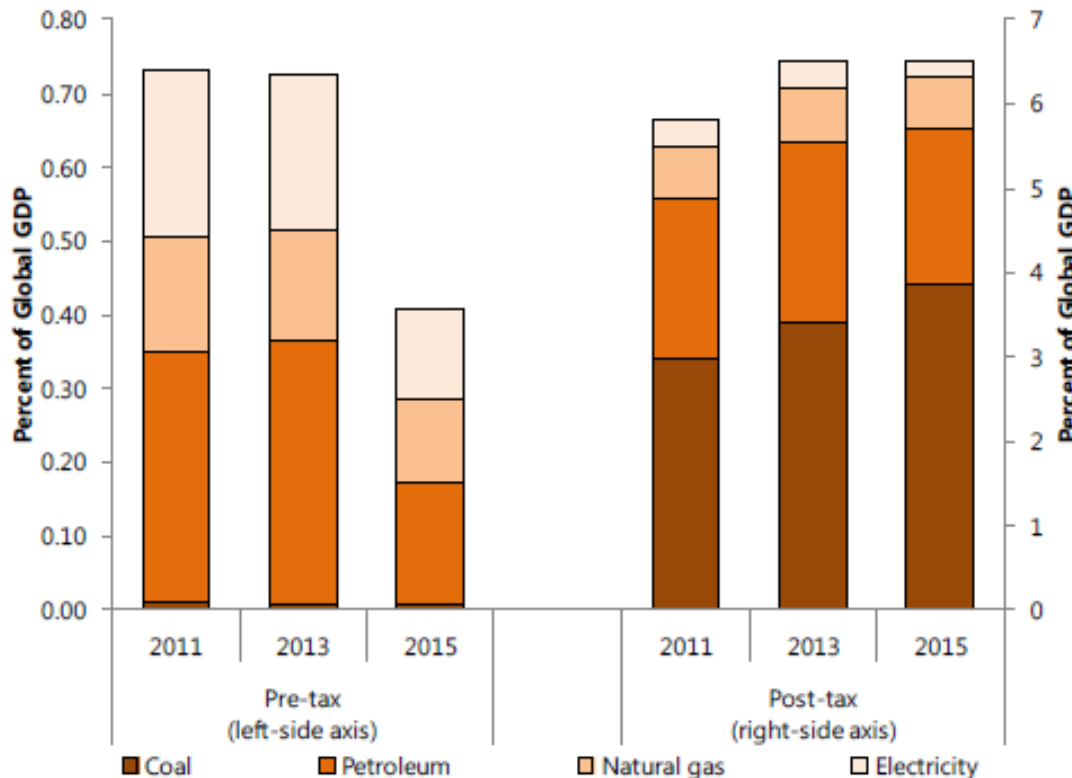
(Source: IMF 2015  
 ‘How Large Are Global  
 Energy Subsidies?’  
 Prepared by David  
 Coady, Ian Parry, Louis  
 Sears, and Baoping  
 Shang), IMF Working  
 Paper WP/15/105)

Source: Authors’ calculations, based on sources in Appendix Table 2.

# How large are subsidies for fossil fuels?

**Figure 5. Global Energy Subsidies by Energy Product, 2011–15**

(Pre-tax in percent global GDP left axis; post-tax in percent global GDP right axis)

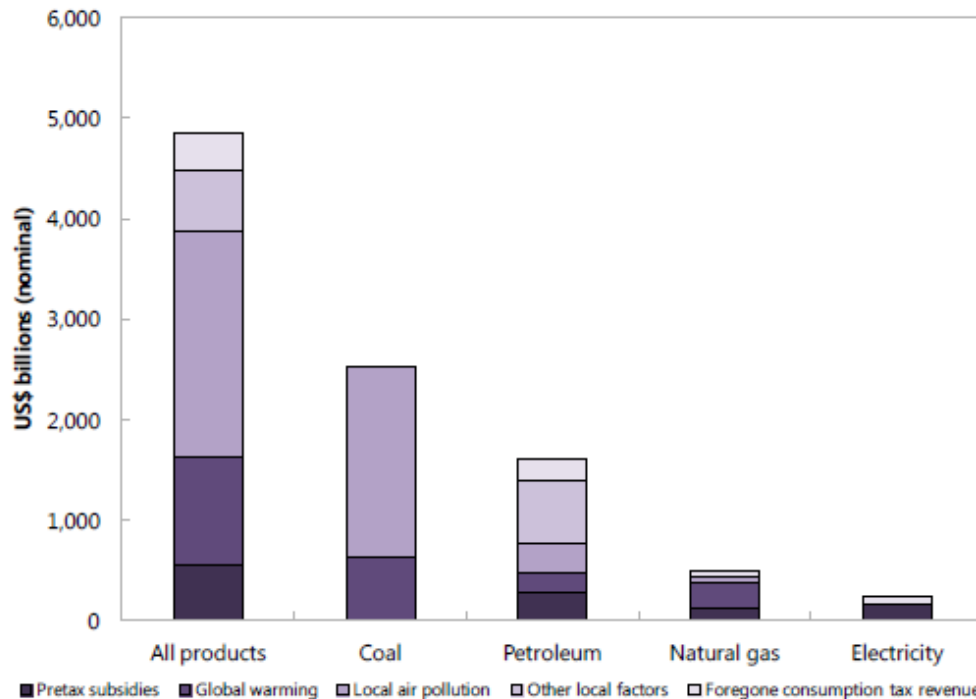


(Source: IMF 2015 ‘How Large Are Global Energy Subsidies?’ Prepared by David Coady, Ian Parry, Louis Sears, and Baoping Shang), IMF Working Paper WP/15/105)

Source: Authors’ calculations, based on sources in Appendix Table 2.

# How large are subsidies for fossil fuels?

**Figure 6. Global Post-Tax Subsidies by Product and Subsidy Component, 2013**



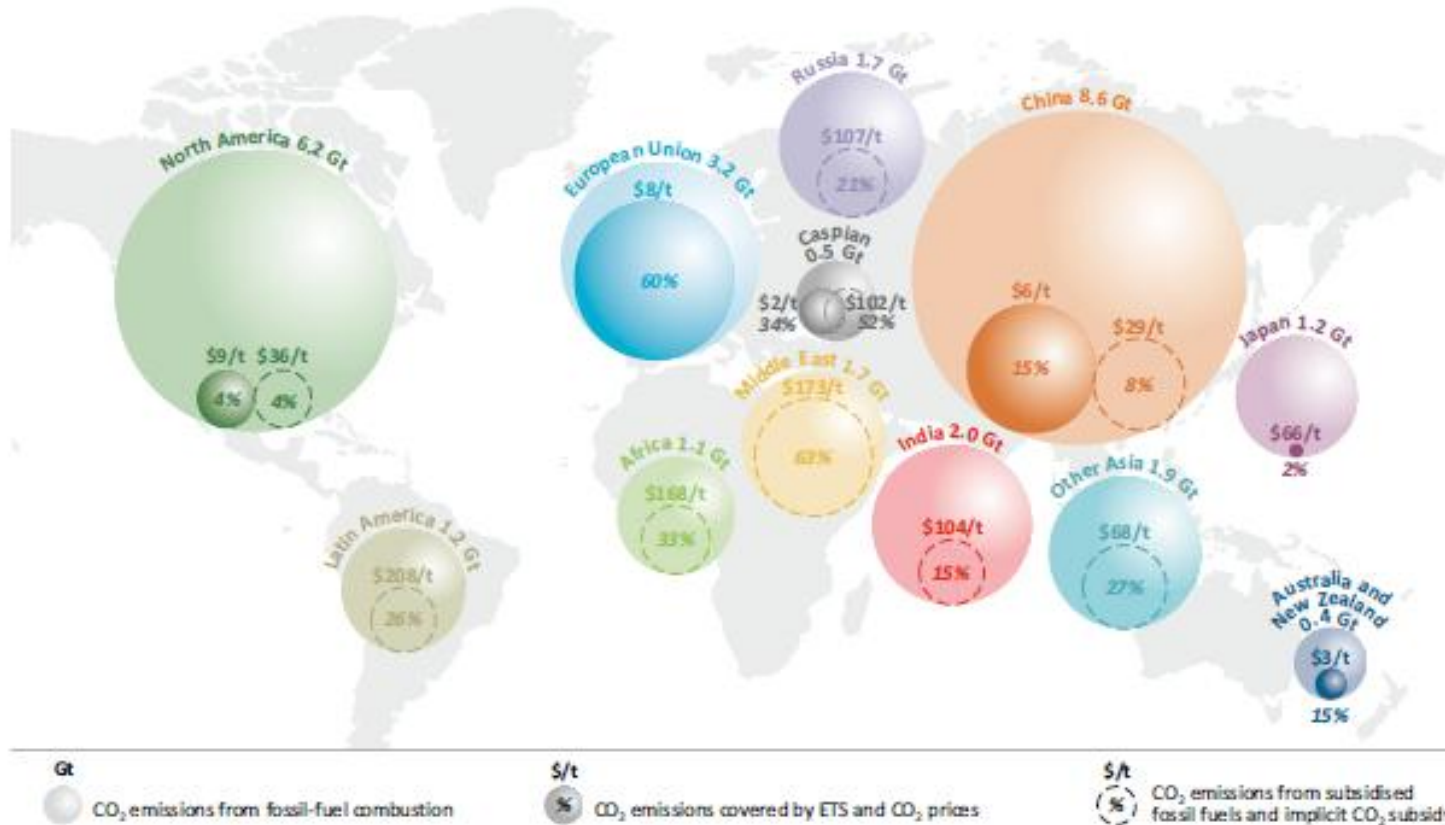
(Source: IMF 2015 ‘How Large Are Global Energy Subsidies?’ Prepared by David Coady, Ian Parry, Louis Sears, and Baoping Shang), IMF Working Paper WP/15/105)

Source: Authors’ calculations, based on sources in Appendix Table 2.  
 Note: Other local factors apply only to petroleum products and refer to non-internalized externalities from congestion, accidents, and road fuels.

# Carbon subsidies and carbon pricing

["The average price was around \$7 per tonne of CO<sub>2</sub> (Figure 1.2). In contrast, 4.2 Gt (13%) of global energy-related CO<sub>2</sub> emissions from the use of fossil fuels receive consumption subsidies, with the implicit subsidy amounting to \$115 per tonne of CO<sub>2</sub>, on average." p.23]

**Figure 1.2** Energy-related CO<sub>2</sub> emissions in selected regions, 2014



(Source: WEO Special Report on Energy and Climate Change, IEA, 2015)

Notes: The implicit CO<sub>2</sub> subsidy is calculated as the ratio of the economic value of those subsidies to the CO<sub>2</sub> emissions released from subsidised energy consumption. ETS = emissions trading scheme.



# What are the benefits from removing subsidies for fossil fuels?

(Source: IMF 2015)

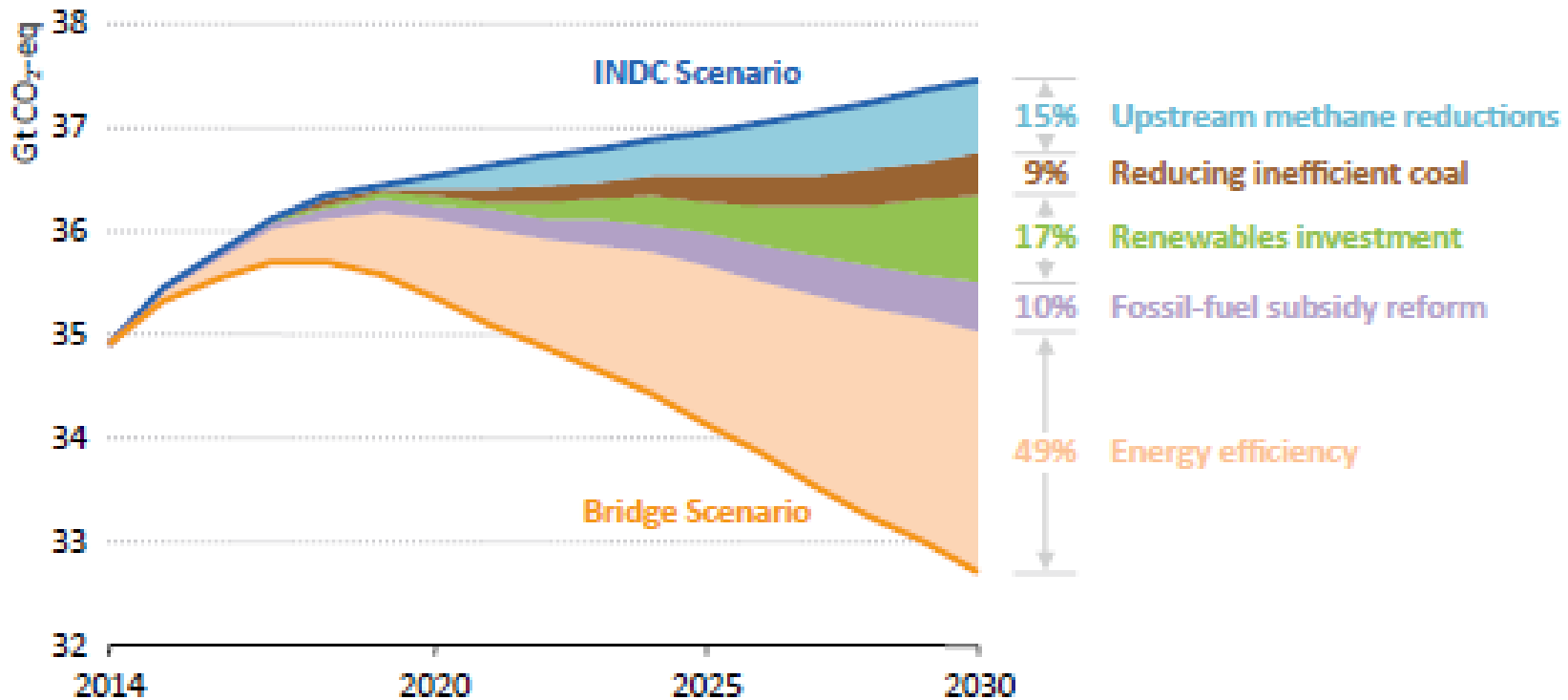
- Fiscal/revenue gain: \$3.0 trillion (nominal) in 2013 (4 percent of global GDP), more than 10 percent of government revenue [accounts for the price-induced reduction in energy use and implicitly assumes tax rebates are used to promote adoption of emission control technologies for coal]
- Welfare gain [from eliminating post-tax subsidies - the benefits from reduced environmental damage and higher revenue minus the losses from consumers facing higher energy prices]: globally more than \$1.4 trillion, or 2.0 percent of global GDP, in 2013; greatest in Emerging Europe (4.4 percent of regional GDP), Emerging and Developing Asia (6.9 percent), CIS (5.0 percent), and MENAP (4.7 percent).

# CO2 benefits from removing fossil fuel consumption subsidies

Source: WEO Special Report on Energy and Climate Change, IEA, 2015

[‘fossil fuel subsidy reform’ refers to the removal of fossil fuel consumption subsidies]

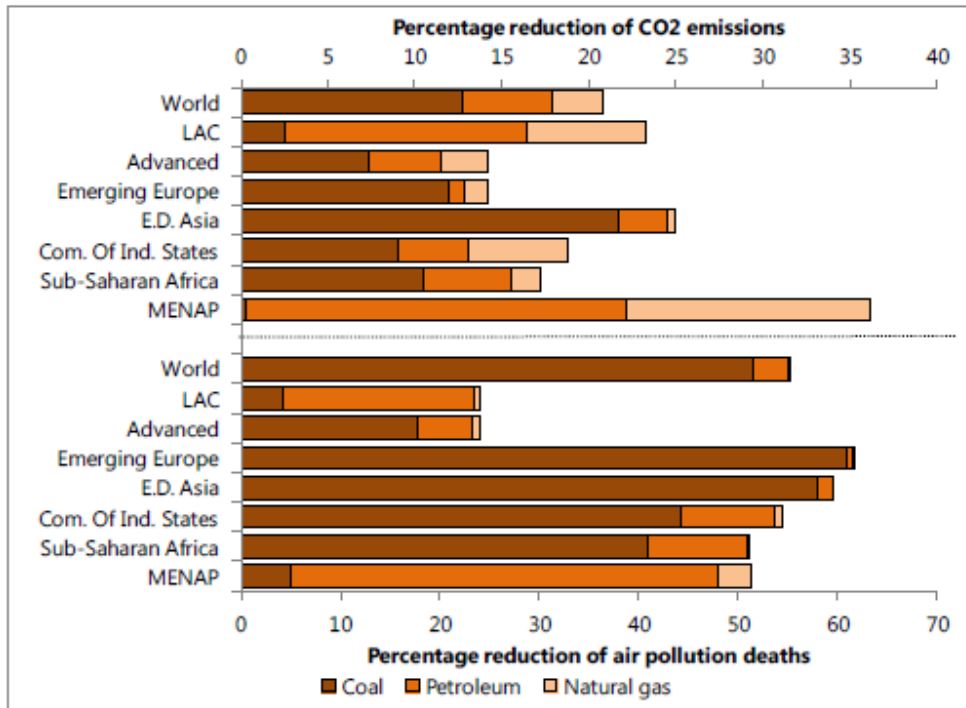
**Figure 3.2** ▶ Global energy-related GHG emissions reduction by policy measure in the Bridge Scenario relative to the INDC Scenario



# What are the environmental benefits from removing subsidies for fossil fuels?

**Figure 11. Environment Gain from Removing Energy Subsidies, 2013**

(Percent reductions in CO<sub>2</sub> emissions on top axis; percent reductions in air pollution deaths on bottom axis)



Source: IMF, 2015

Source: Authors' calculations, based on sources in Appendix Table 2.

Note: CIS = Commonwealth of Independent States; ED Asia = Emerging and Developing Asia, LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan.

# In conclusion ...

Source: adapted from IMF, 2015

- Energy subsidies damage the environment.
- Energy subsidies impose large fiscal costs, which can be a drag on economic growth.
- Energy subsidies discourage needed investments in energy efficiency, renewables, and energy infrastructure,
- Energy subsidies increase the vulnerability of countries to volatile international energy prices.
- Energy subsidies are a highly inefficient way to provide support to low-income households since most of the benefits from energy subsidies are typically captured by rich households.

# So why is it taking so long to remove subsidies for fossil fuels?

- Regressive effects, but “The IEA estimates that only 8% of the money spent on fossil-fuel consumption subsidies reaches the poorest 20% of the population” (Source: IEA WEO 2011, cited in WEO2015 Special Report, 2015).
- Reduced international competitiveness of exposed sectors, but most subsidies are consumption subsidies
- Political opposition from the middle classes
- See Panel session following



Thank you

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[www.bartlett.ucl.ac.uk/sustainable](http://www.bartlett.ucl.ac.uk/sustainable)