The future of the EEG – small reform or revolution?*

Enerday conference 2013

** The simulation results presented in this paper have been part of a joint project with EnBW. We kindly thank EnBW for their input and support.*

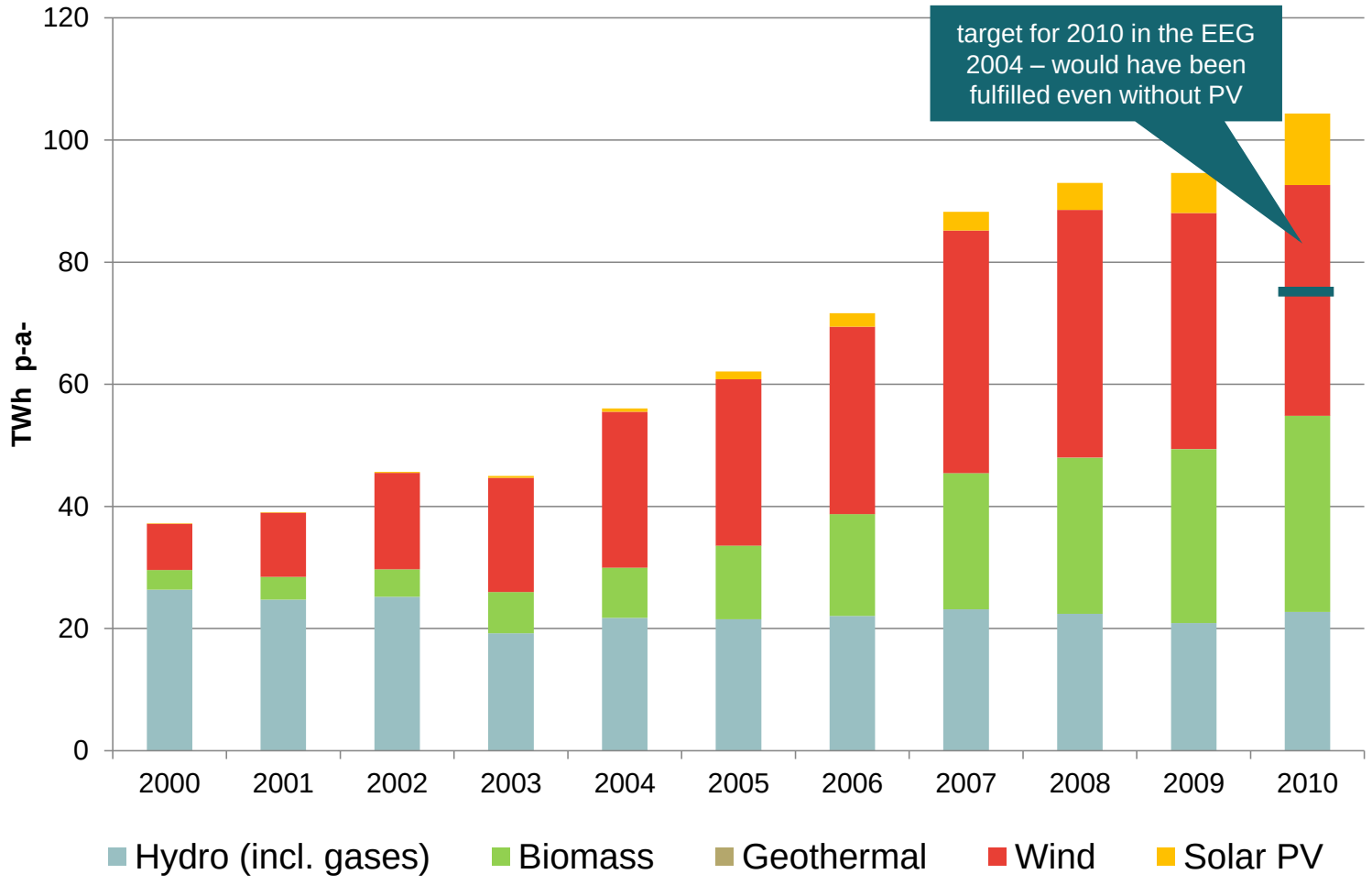
Main hypotheses

1. The German Renewable Energy Act (EEG) was very effective but also expensive
2. EEG support costs and final customer prices will continue to rise
3. Reforms of the EEG would limit the increase of the EEG levy ('EEG-Umlage') – 40% of long term increase could be avoided by smarter design
   - 3a Significant savings could be achieved within the current EEG framework by moving to technologically neutral feed-in tariffs (FiT)
   - 3b Further savings achievable if RES-E generators are obliged to market their output directly

Main hypotheses

1. The German Renewable Energy Act (EEG) was very effective but also expensive
2. EEG support costs and final customer prices will continue to rise
3. Reforms of the EGG would limit the increase of the EEG levy (‘EEG Umlage) – 40% of increase could be avoided

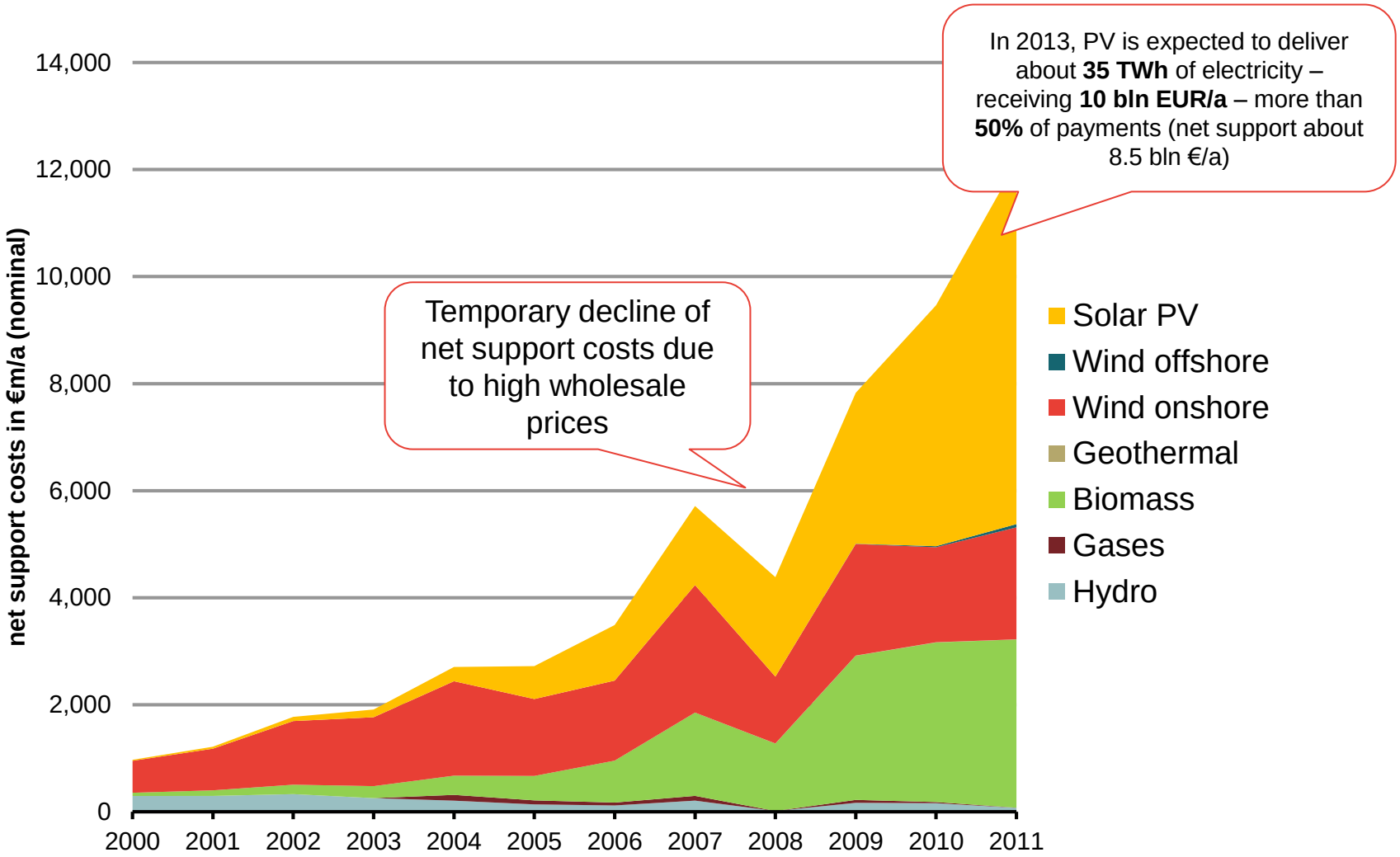
The EEG was effective in achieving RES-E targets



Source: Frontier

… but not precise: overshooting of minimum targets

…EEG support costs* have risen dramatically



…mainly driven by the expansion of solar PV and biomass

Source: Frontier based on EEG Mifri-Prognose Mai 2009 (für Werte bis 2008), EEG Jahresabrechnungen 2009, 2010, 2011

** Feed-in tariff plus balancing costs minus the market value of wind and avoided grid charges*

Main hypotheses

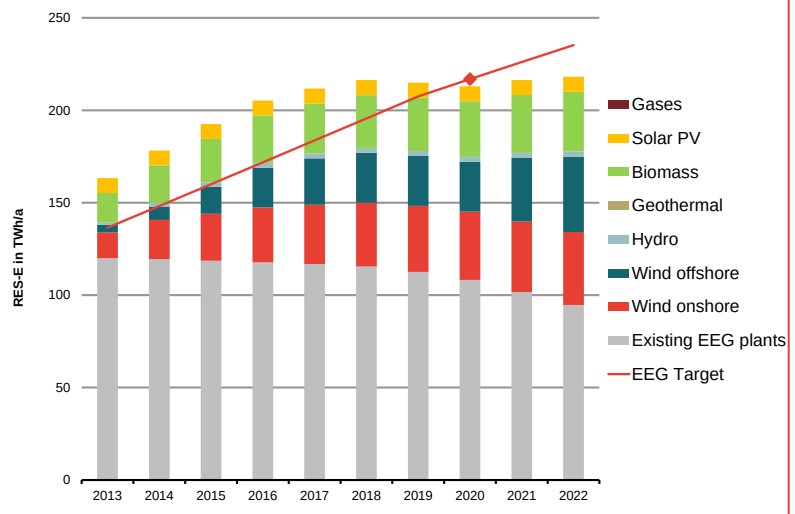
1. The German Renewable Energy Act (EEG) was very effective but also expensive
2. EEG support costs and final customer prices will continue to rise
3. Reforms of the EEG would limit the increase of the EEG levy (‘EEG Umlage) – 40% of long term increase could be avoided

Future developments given the current EEG regime...

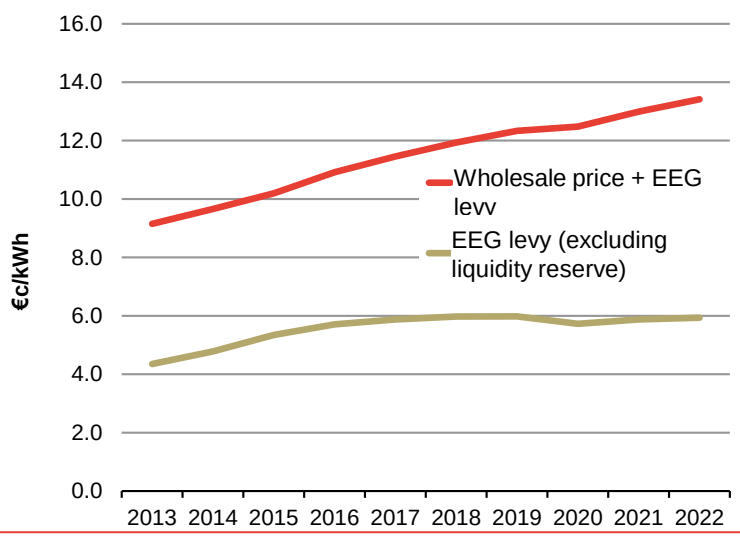
Wholesale price forecast
(Frontier European power market model)

Feed-in tariffs from EEG 2012

Expansion of RES-E
(Frontier RES-E model)



Wholesale price + EEG levy



… will put pressure on wholesale prices and EEG levy

Main hypotheses

1. The German Renewable Energy Act (EEG) was very effective but also expensive
2. EEG support costs and final customer prices will continue to rise
3. Reforms of the EEG would limit the increase of the EEG levy ('EEG-Umlage') – 40% of longer term increase could be avoided
   - 3a Significant savings could be achieved within the current EEG framework by moving to technologically neutral feed-in tariffs (FiT)
   - 3b Further savings achievable if RES-E generators are obliged to market their output directly

We have analysed different reform steps

3a Significant savings from tech-neutral FiT within EEG

- **Technologically neutral** FiT would decrease EEG levy by 0.6 €c/kWh while achieving the targets in the EEG
- **Further reforms** (e.g. elimination of privilege for self-consumption) would then only lead to small additional savings*
- This would lead to a **less diversified renewable portfolio**
  - less solar PV and less offshore wind;
  - more onshore wind

3b Further savings from mandatory direct marketing

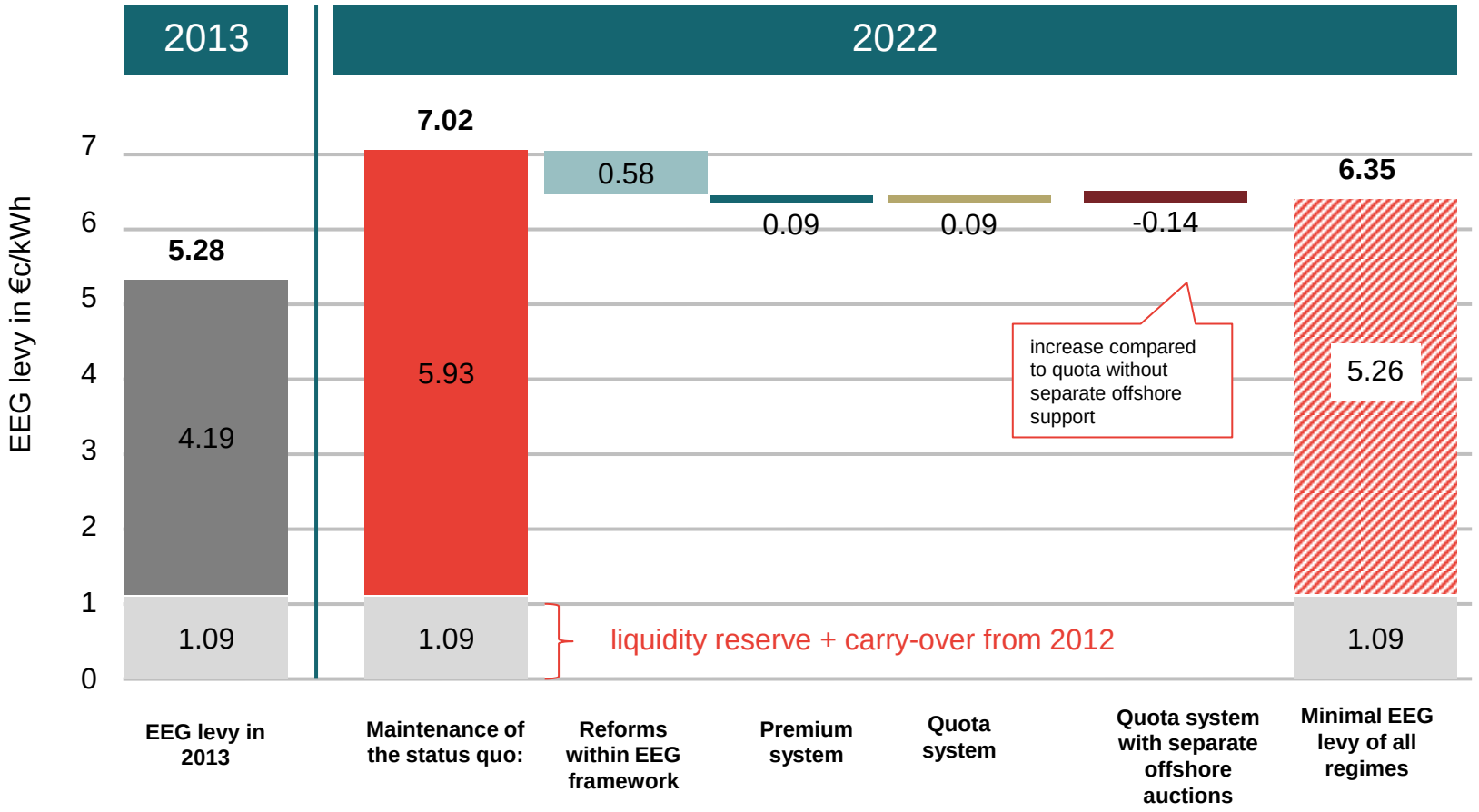
- **Advantages**
  - Improved investment incentives (technology choice, location, timing);
  - Improved dispatch of RES-E and conventional power plants
- **Quota system**
  - optimal analytically; but
  - strict requirements on consistency of the framework over time (20+ years)
- **Premium model** (obligatory, fixed and technology-neutral)
  - more practicable; but
  - requires more bureaucratic regulations (compared to quota system)

* The effect of this depends on whether the technology neutral FIT is established or not – large additional PV instead of onshore wind other lower cost RES-E makes it more expensive.

3a

3b

Impact of reforms on the EEG levy…



Quelle: Frontier

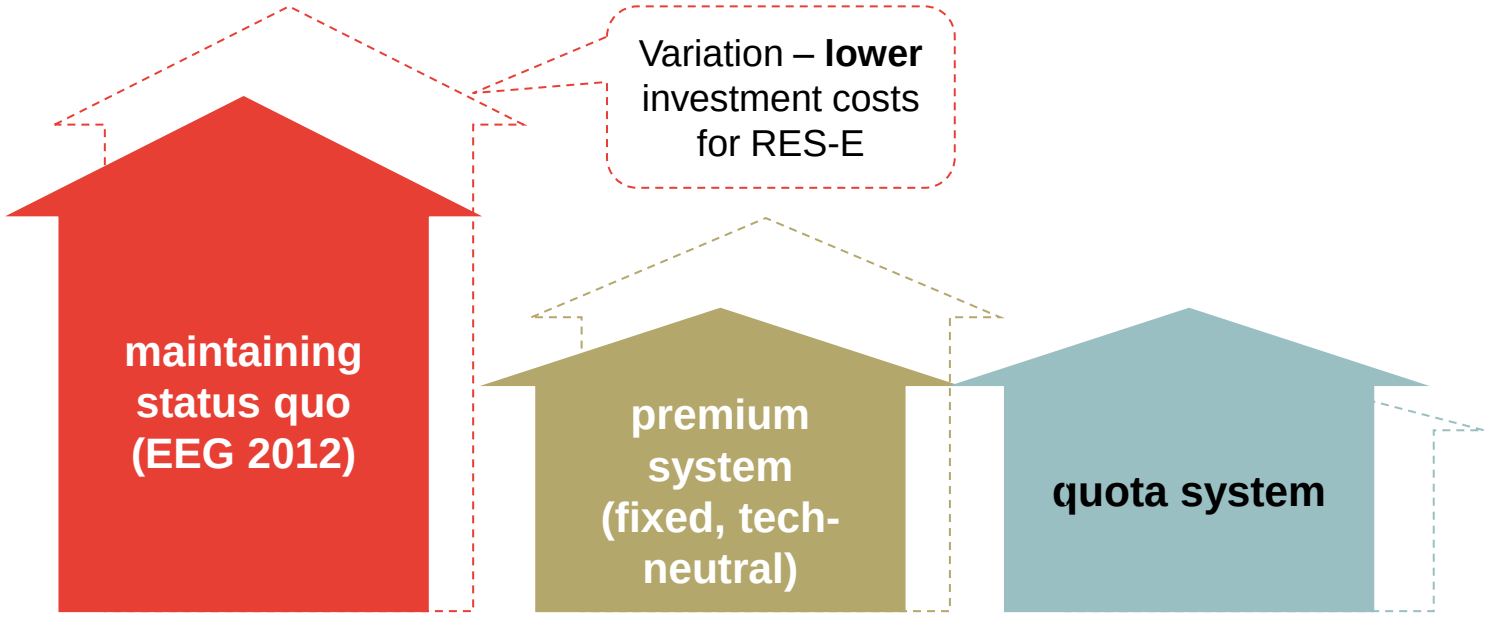
… reveals highest saving potential from technological neutrality

e.g. building onshore wind@ 90 EUR/MWh instead of PV@ 180 EUR/MWh saves about 90 EUR/MWh of RES-E generated

Conclusion

Reforms of renewable promotion would limit the increase of the levy on final customers – 40% of increase by 2022 could be avoided

Change of EEG levy in next decade (w/o liquidity reserve)



Uncertainty about future RES-E costs is a big issue – e.g. if specific RES-E costs were over-estimated

- Price controlled support (FiT or premium) – risk that national RES-E targets will be overshot if RES–E costs were over-estimated (and FiT/premium will not be adapted at all or very late) – then higher volumes occur (and higher promotion costs for consumers)
- Volume controlled support (Quota) – RES-E volumes will still be reached – costs for consumers lower as anticipated

FRONTIER ECONOMICS EUROPE LTD.
BRUSSELS | COLOGNE | LONDON | MADRID

Frontier Economics Ltd, 71 High Holborn, London, WC1V 6DA
Tel. +44 (0)20 7031 7000 Fax. +44 (0)20 7031 7001 www.frontier-economics.com