

PAST & FUTURE PRACTICE CHANGES

Lucy Pedler, *The Green Register*
7th June 2019

Building Solutions to the Climate Crisis:
AECB 30th Anniversary conference, Oxford

Our key partners: **eco**logical
BUILDING SYSTEMS



A REALLY
SHORT
HISTORY
OF NEARLY
EVERYTHING





...to do with changes in practices relating to sustainable construction in the last 19 years

- **Revisions to the Building Regulations: Part L, Part F, Part G**
- **CfSH**
- **EPBD & EPC's**
- **The Green Guide**
- **WELL & Fitwel standard**
- **Zero Carbon Homes**
- **Ecohomes, BREEAM**
- **Robust Details**
- **Airtightness standards**
- **More stringent U values**
- **The Stern Report**
- **The Green Deal & ECO**
- **FIT's**
- **RHI**
- **And so on....**



MY BRAIN HURTS

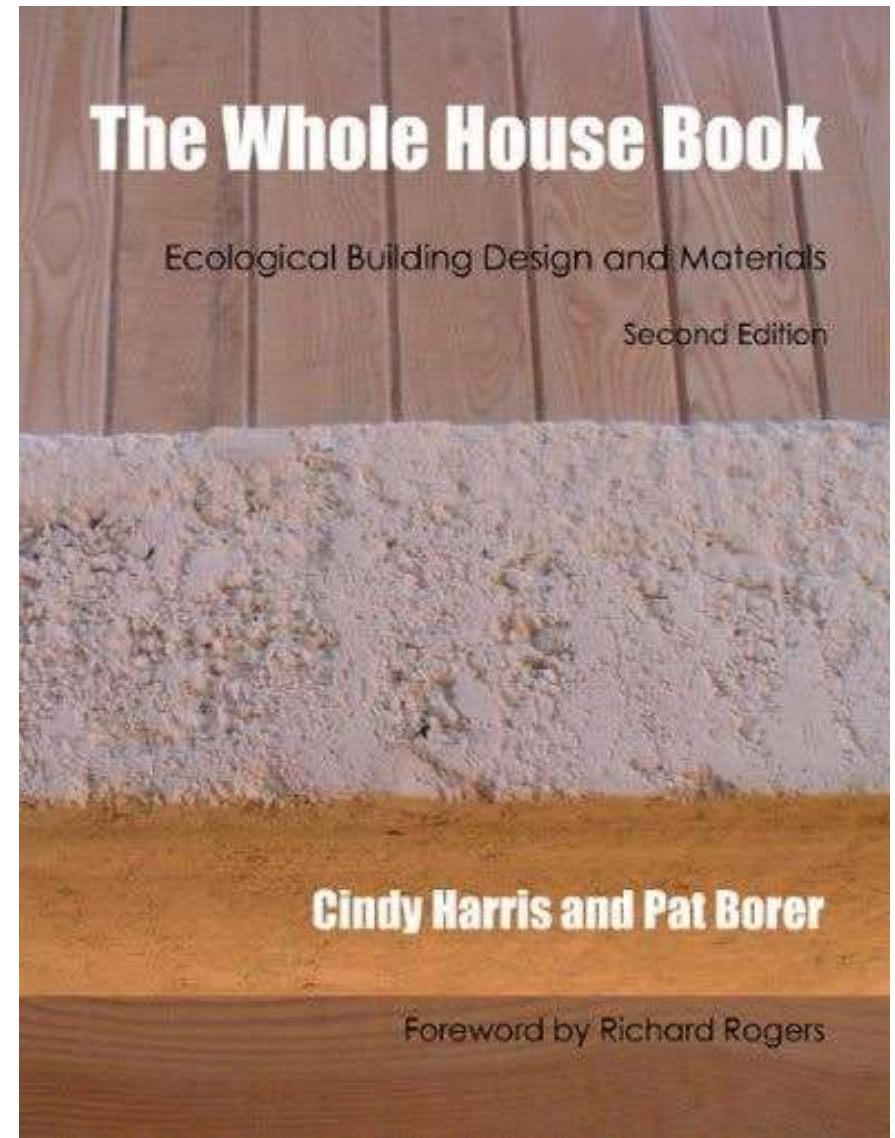




Materials Energy



‘...Embodied Energy accounts for 8% of the national energy bill...could constitute up to 50% of the total energy use of on energy efficient building.’”

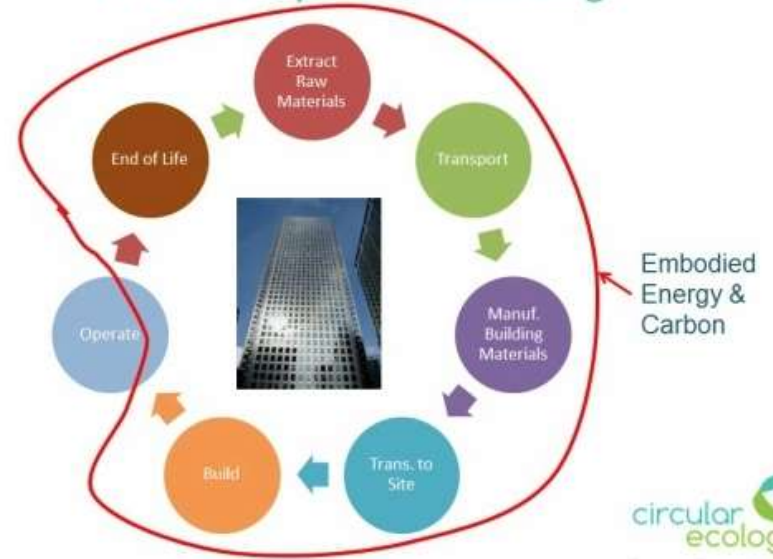


BREEAM[®]

delivered by bre



Embodied Energy and Carbon The Life Cycle of a Building



ASBP The Alliance for Sustainable Building Products

ecological
BUILDING SYSTEMS

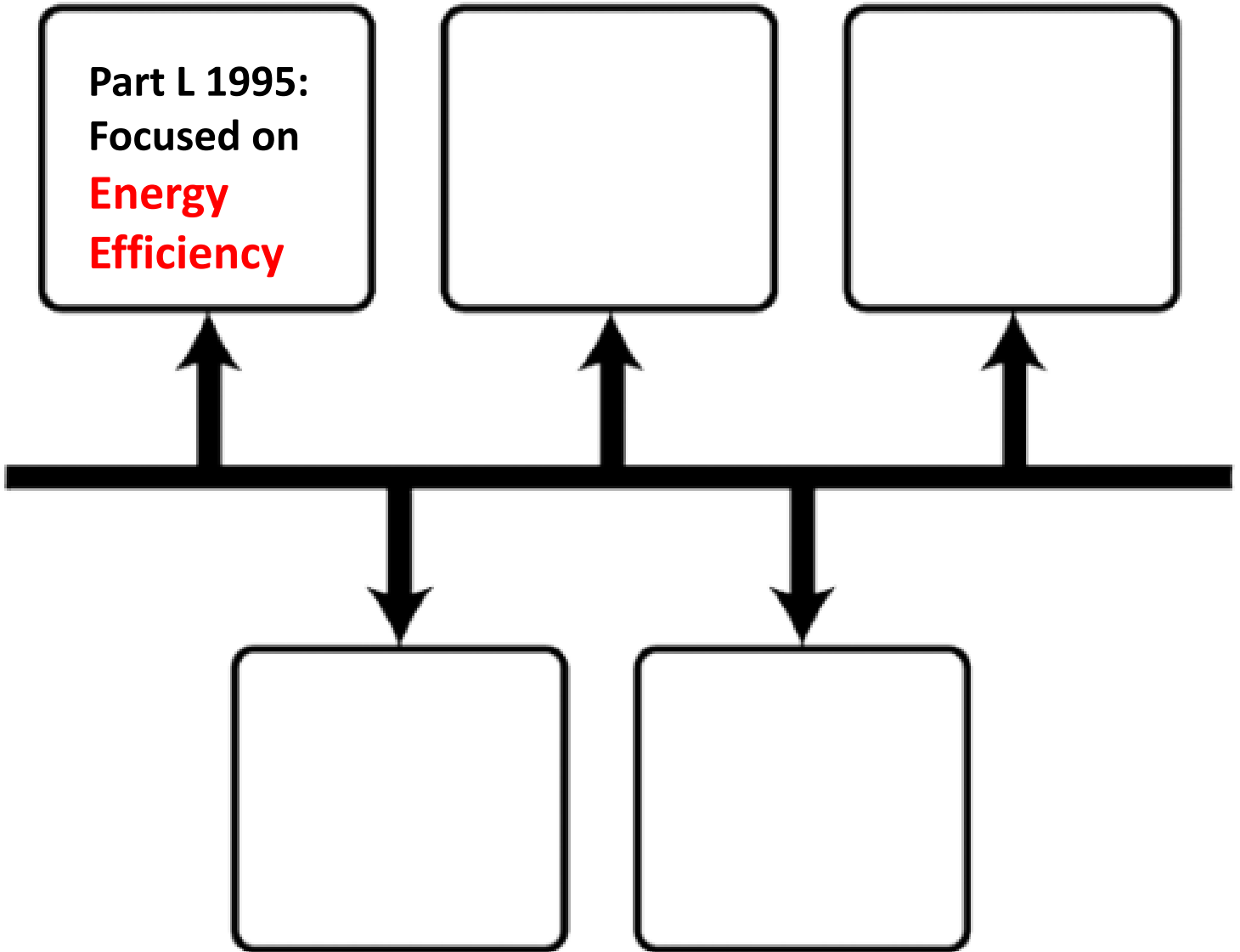


Natural Building Technologies

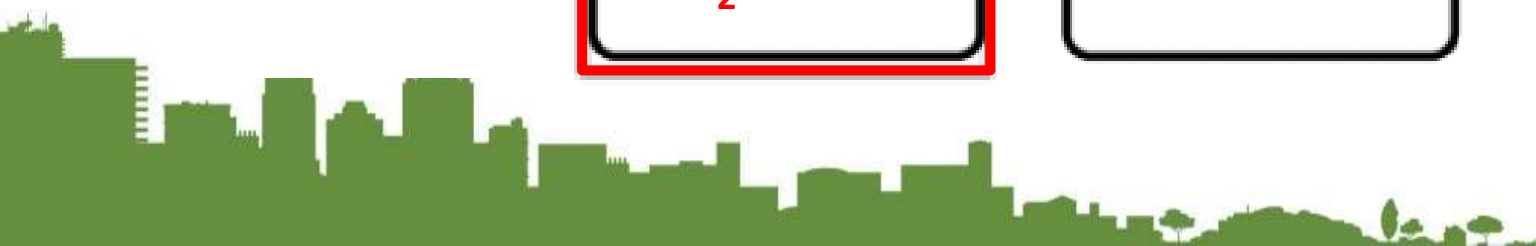
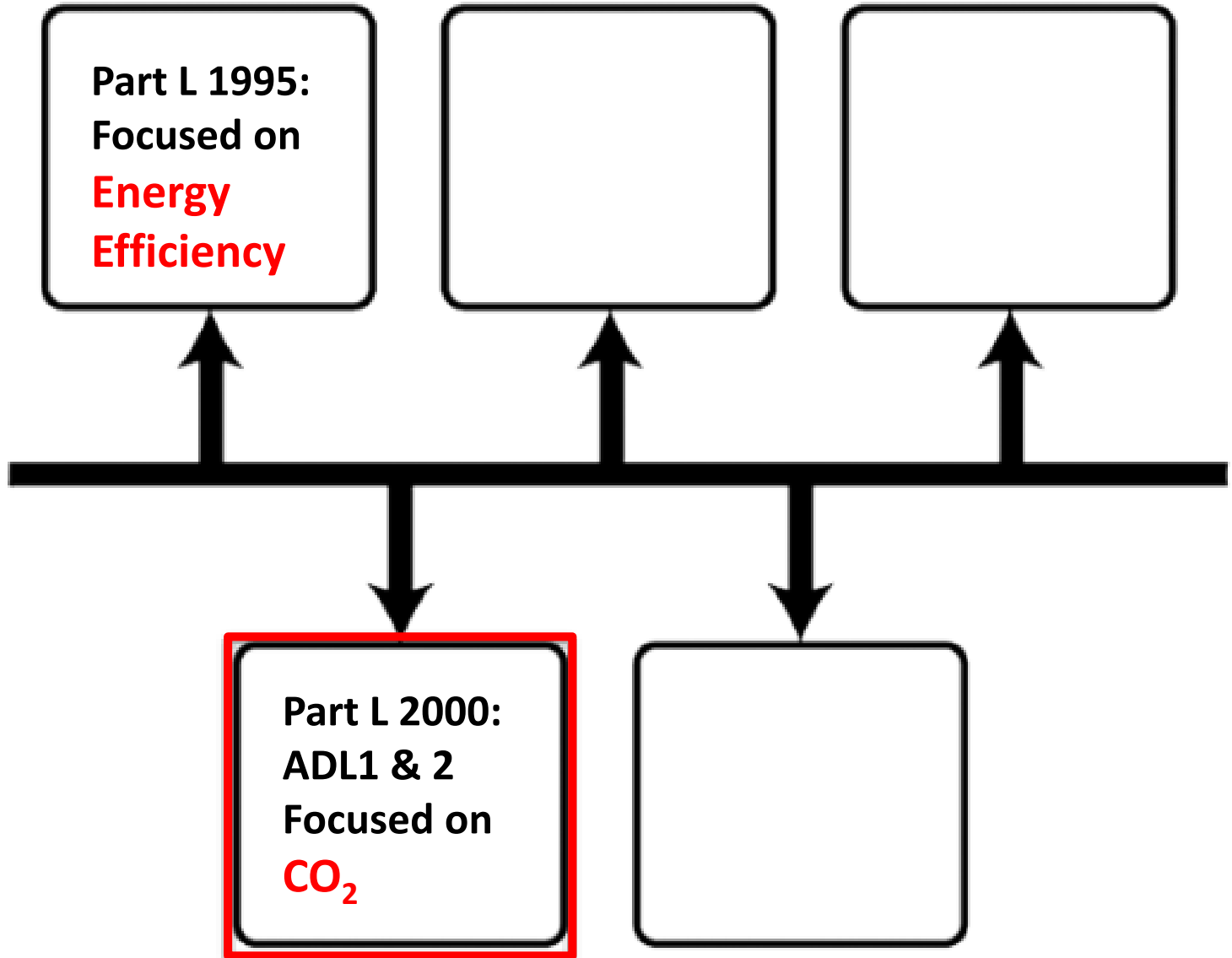
STBA
SUSTAINABLE TRADITIONAL BUILDINGS ALLIANCE



**Ye Olde Part
L of the
Building
Regulations
for England
& Wales**









The Building Regulations 2000

Conservation of fuel and power

L1

APPROVED DOCUMENT

L1 Conservation of fuel and power in dwellings

Coming into effect 1 April 2002

The Stationery Office

2002 EDITION



The Building Regulations 2000

Conservation of fuel and power

L2

APPROVED DOCUMENT

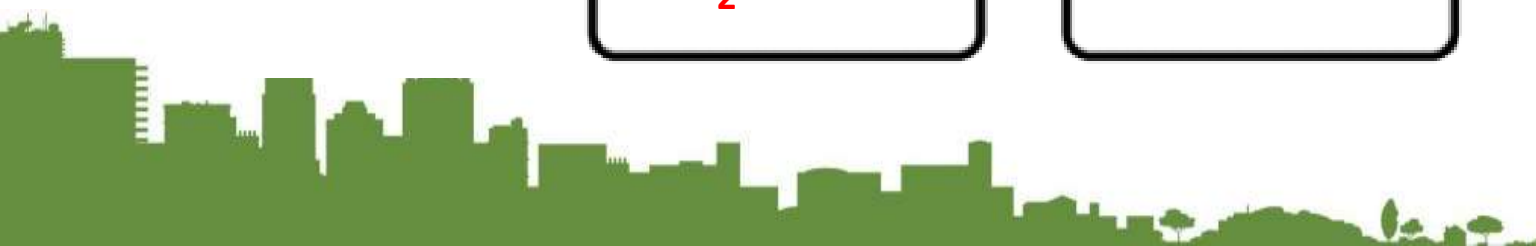
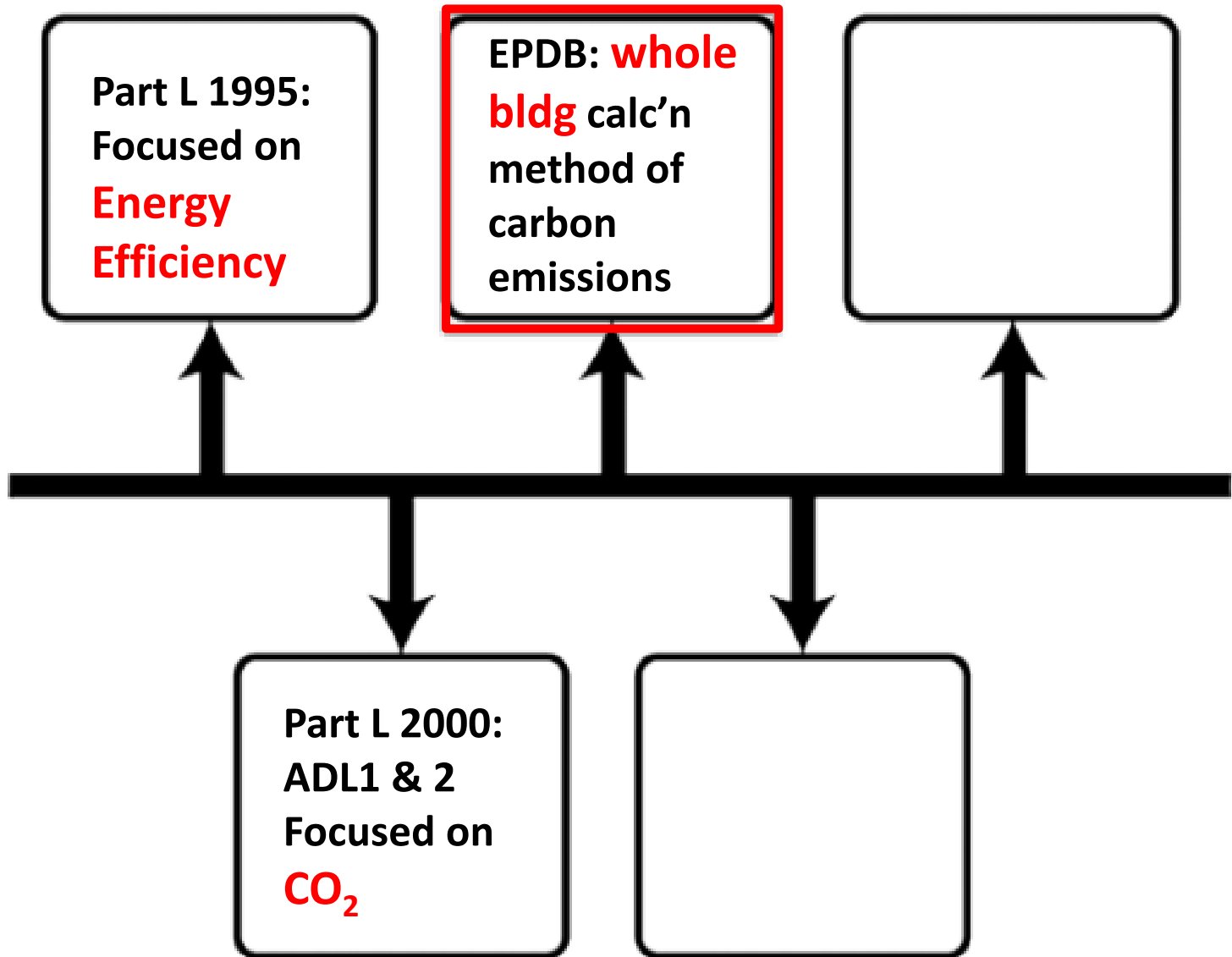
L2 Conservation of fuel and power in buildings other than dwellings

Coming into effect 1 April 2002

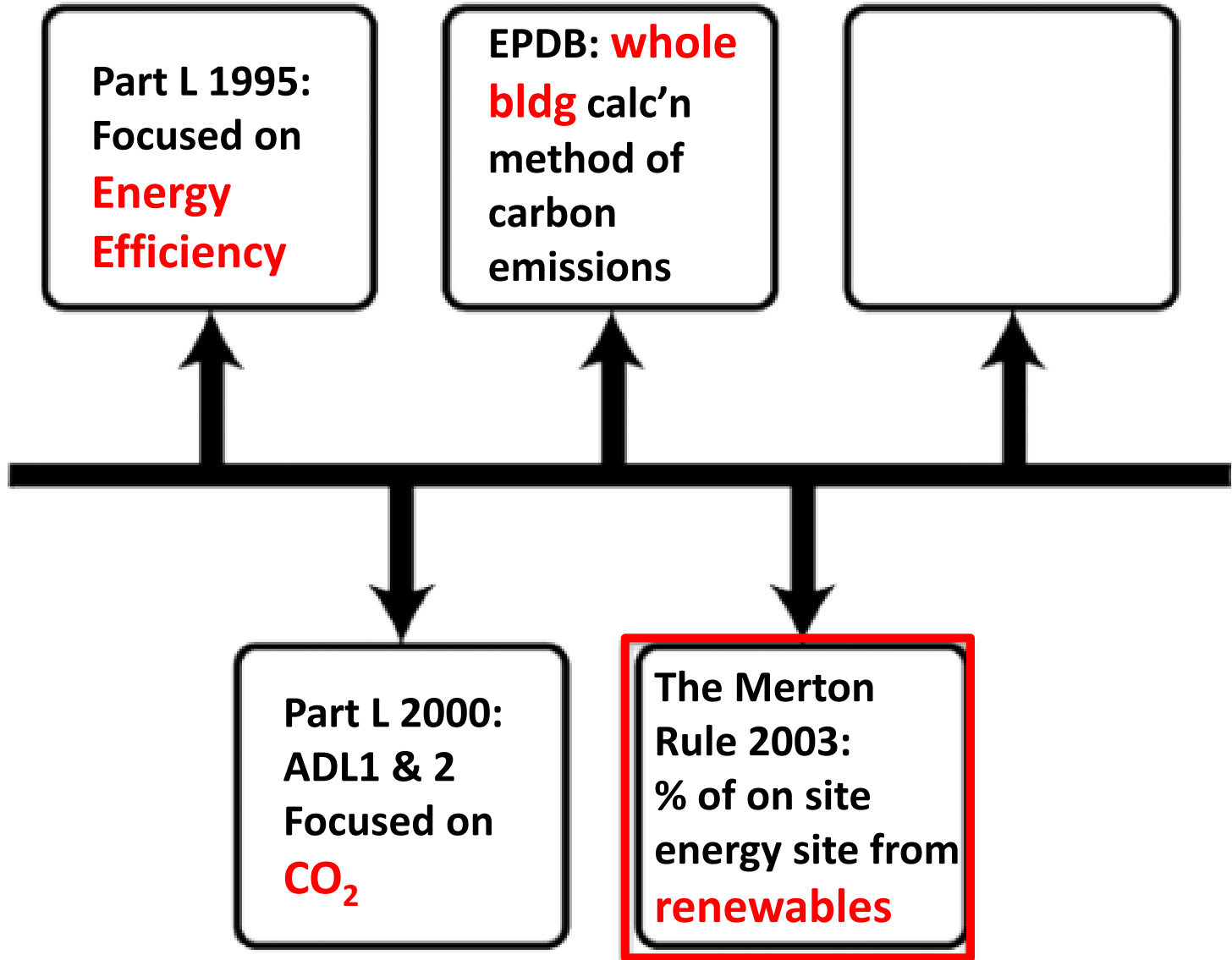
2002 EDITION

ADL1 & ADL2













Renewable Energy in the UK...its all good

- 1st quarter of 2016, UK renewables' share of electricity generation (hydro, wind and other renewables) was **25.1%**
- 2018, it was **33%** www.smarterbusiness.co.uk/uk-renewable-energy-percentage-2018
- Cost of PV panels in the UK reduced by **70%** over the past five years
- www.telegraph.co.uk/news/2017/04/21/britain-set-historic-first-coal-free-day-since-industrial-revolution/
- 23/4/18 – 3 days in a row without coal – www.theguardian.com/business/2018/apr/24/uk-power-generation-coal-free-gas-renewables-nuclear
- World's largest off shore wind farm planned at Dogger Bank, N. Sea (www.nbcnews.com/mach/science/world-s-biggest-wind-farm-would-have-its-own-artificial-ncna83910)
- tndocumentaryfilms.com/breakthrough-renewable-energy



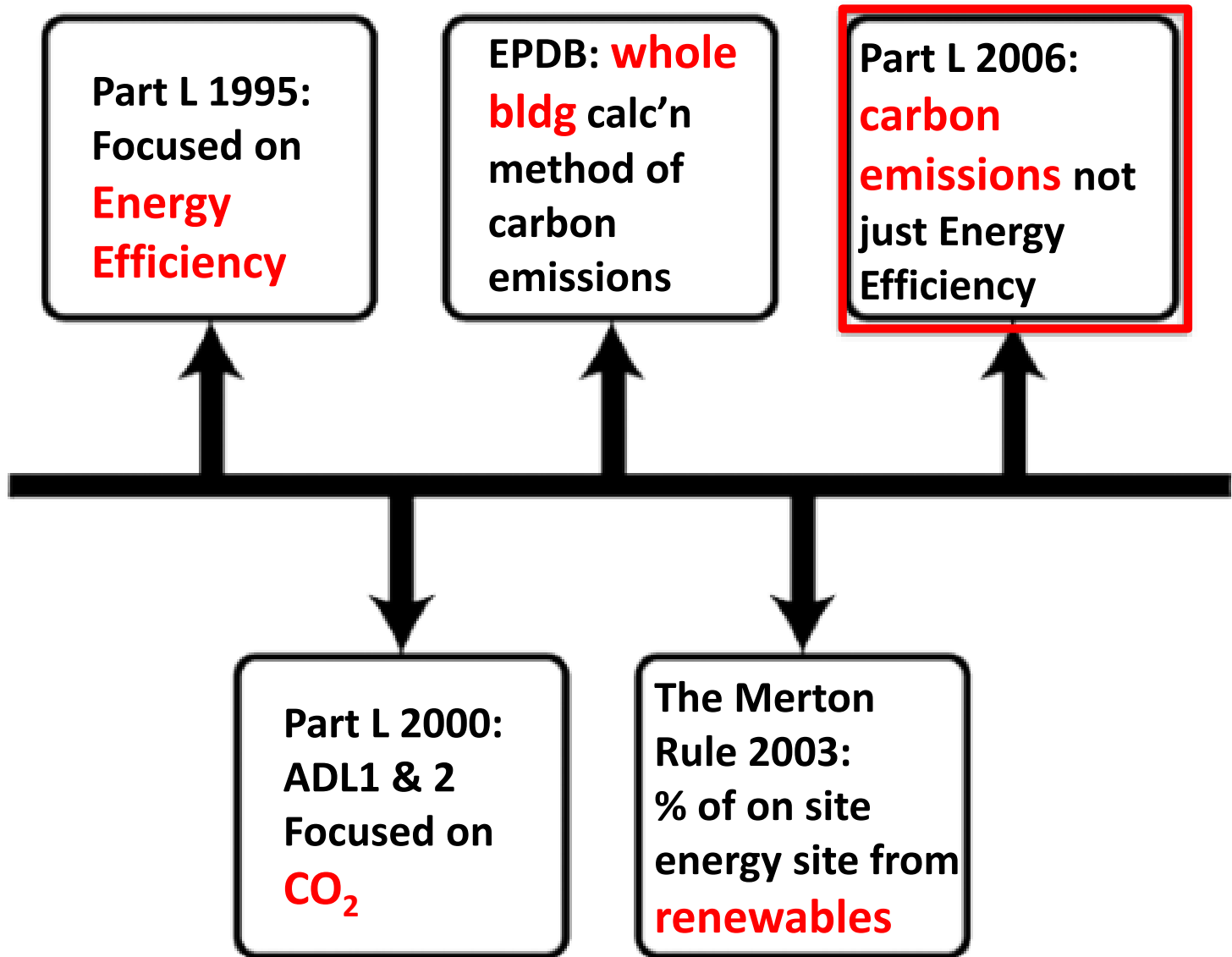


I doubt anybody gets taken seriously for very long. I'll be on some reality show in about six years going, Hey, I had a great year in 2006.

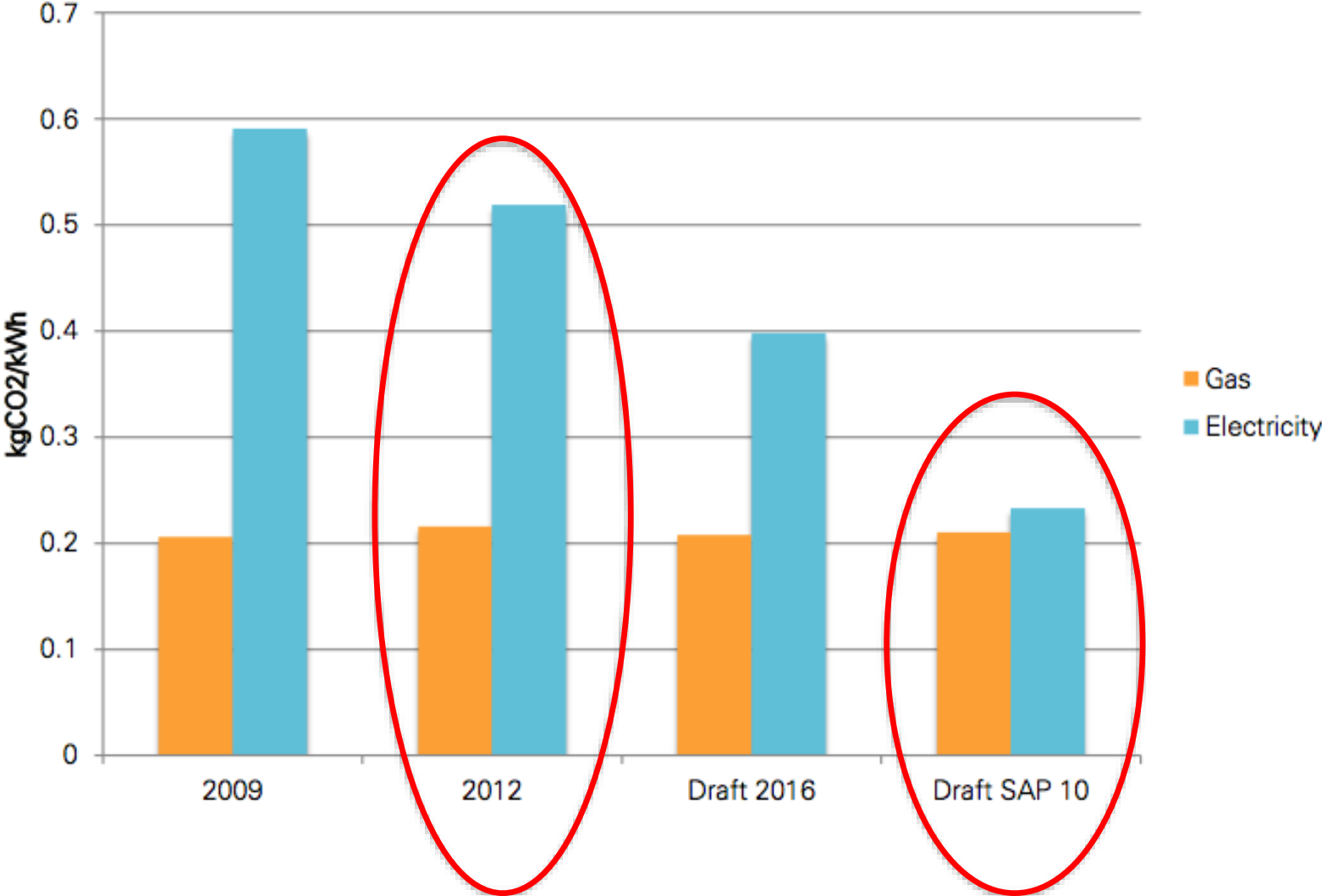
— George Clooney —

AZ QUOTES

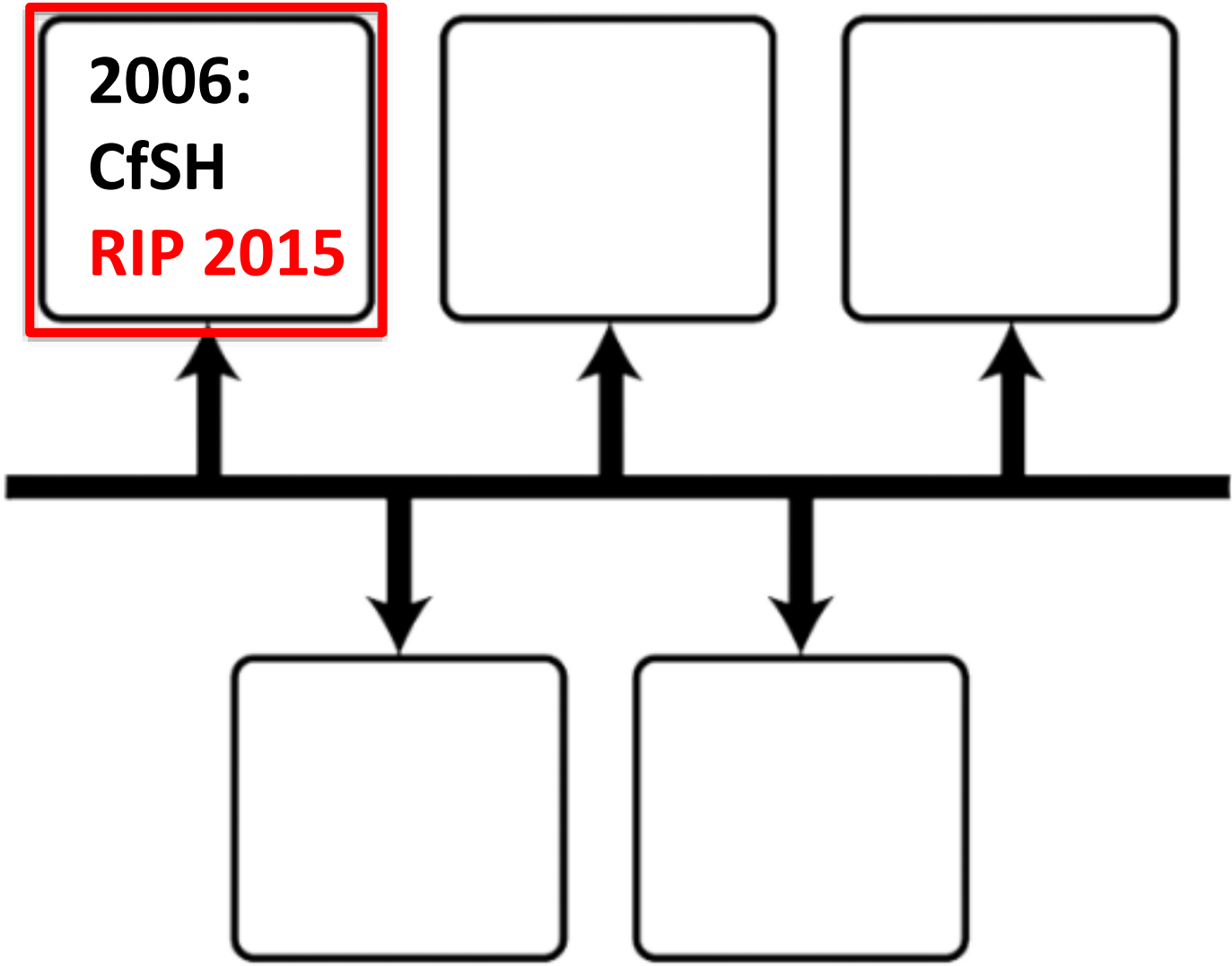




Carbon Intensity of Fuels



With thanks to eight associates



2006:
CfSH
RIP 2015

WHOLE HOUSE APPROACH

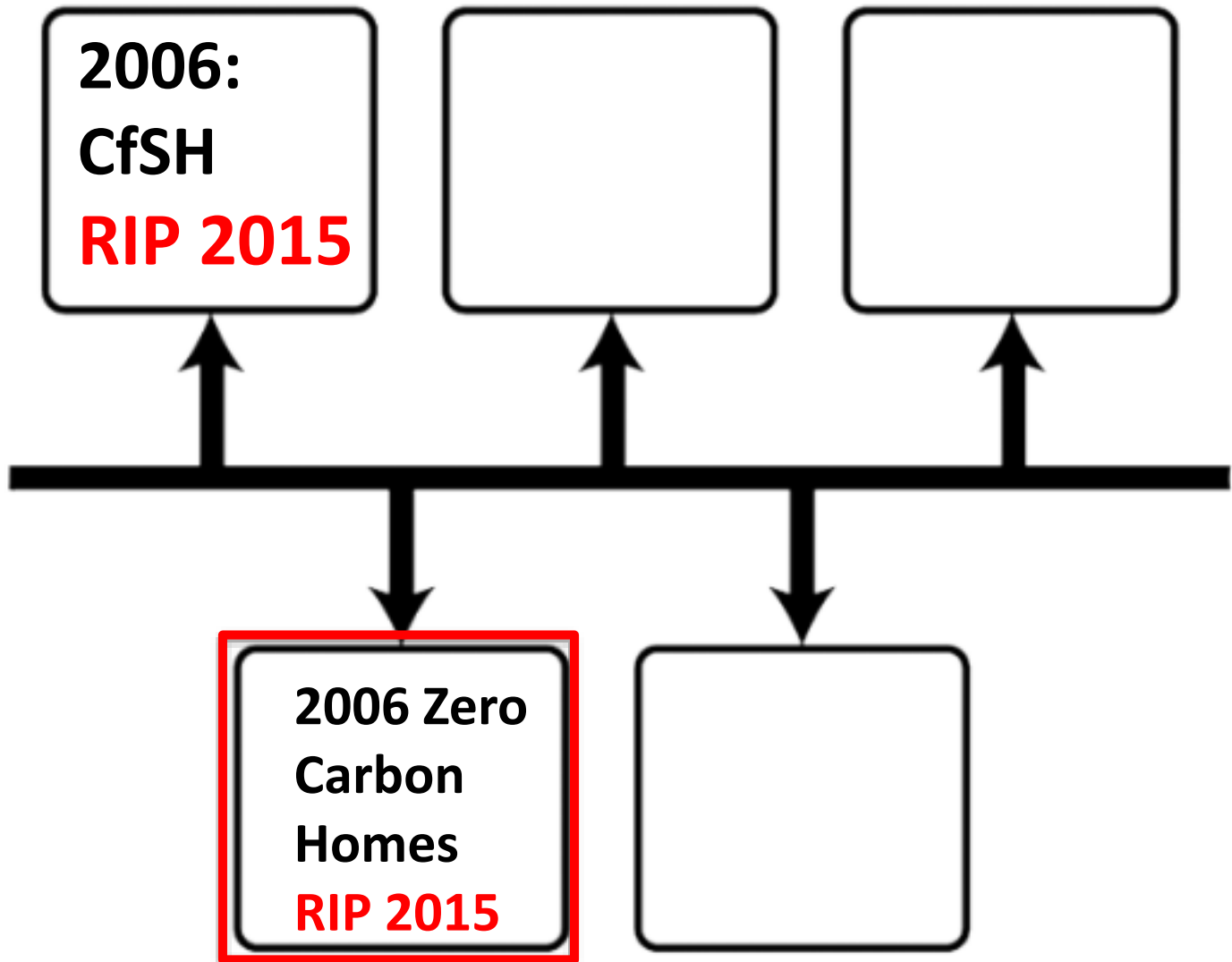


**Energy and CO₂ Emissions; Water; Materials;
Surface Water Run-Off; Waste; Pollution;
Health and Well-Being; Management; Ecology**

Thanks to STBA

The Green Register - an holistic approach









LOCALLY



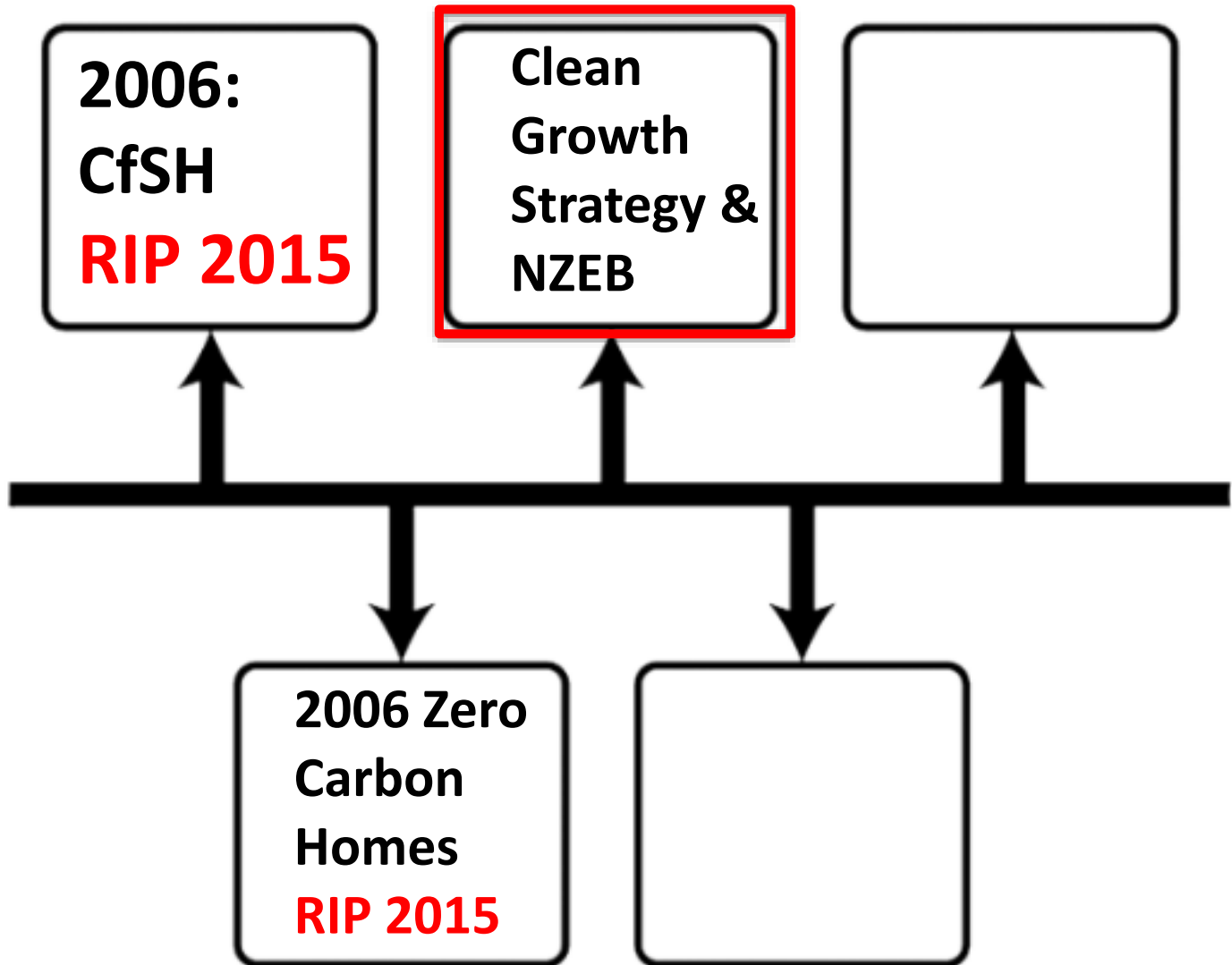
Futureproof launched

... with Bristol Green Doors open homes weekend

[Find out more ...](#)



NATIONALLY



EPDB & Nearly Zero Energy Buildings

Figure 2:
Timeline of NZEB-
related actions
according to the
EPBD.



Moving *towards* low carbon homes

ec.europa.eu/energy/en/topics/energy-efficiency/buildings/nearly-zero-energy-buildings



Low Carbon Homes

Improving Energy Efficiency

www.lowcarbonhomes.uk



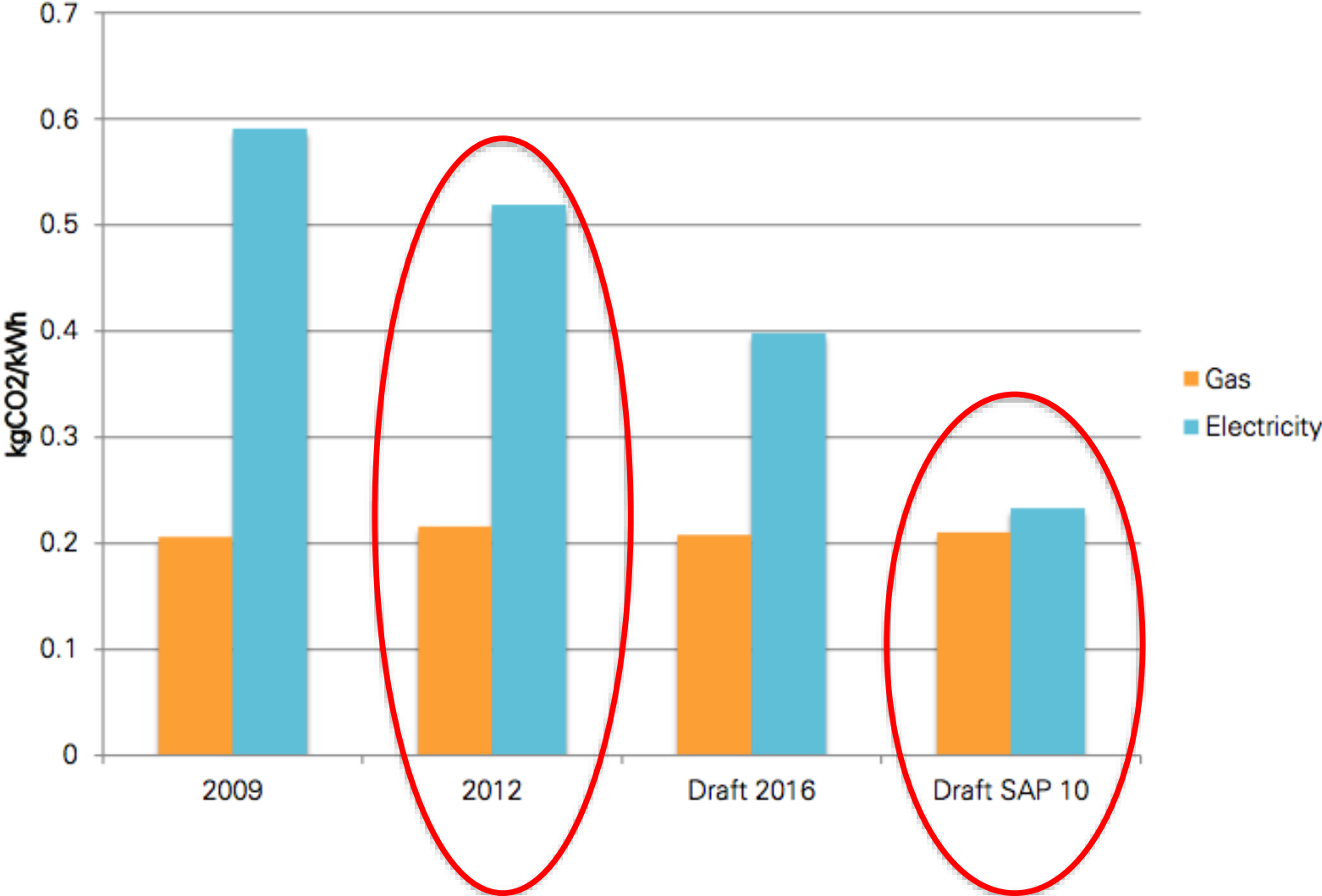
'Ban gas boilers in new homes by 2025'
Committee on Climate Change (February 2019)



www.theguardian.com/environment/2019/feb/21/ban-new-gas-boilers-by-2025-says-committee-on-climate-change

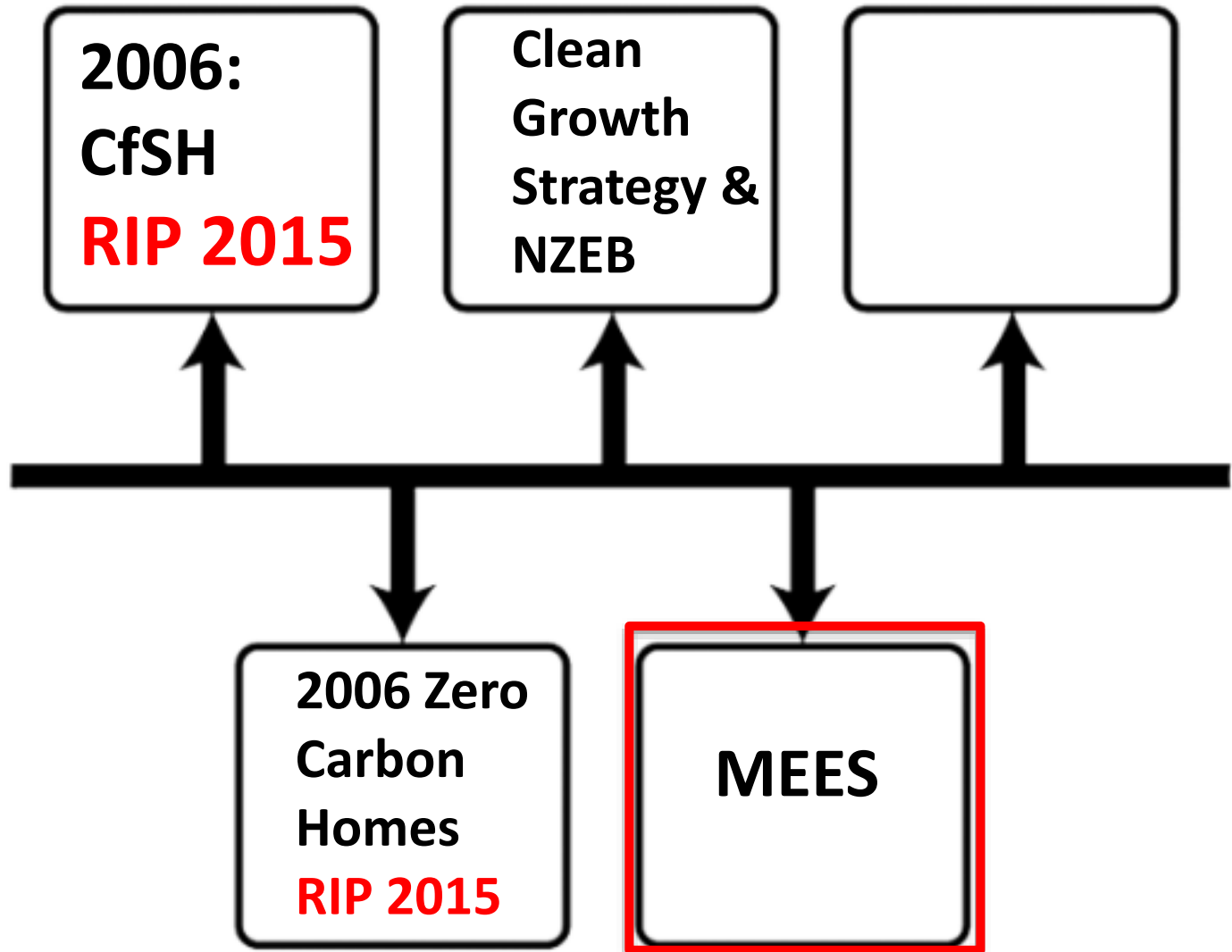


Carbon Intensity of Fuels



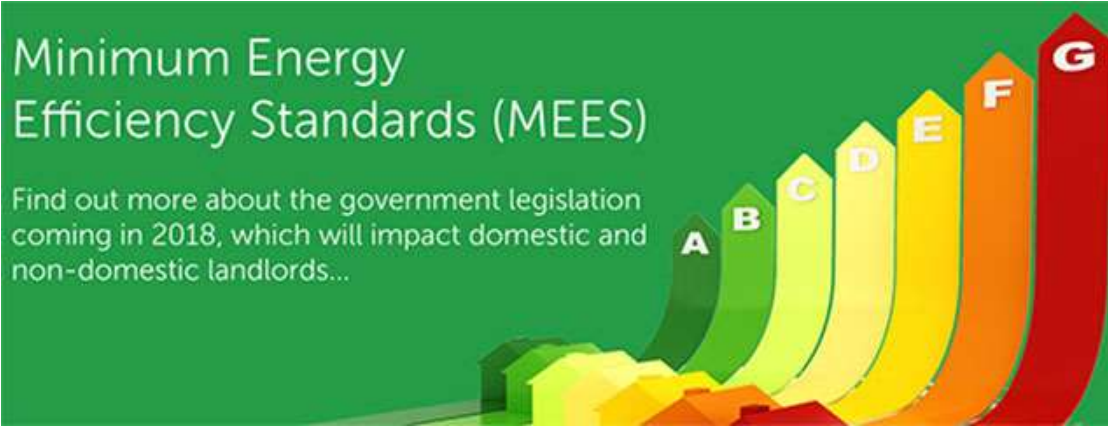
With thanks to eight associates

NATIONALLY



Minimum Energy Efficiency Standards (MEES)

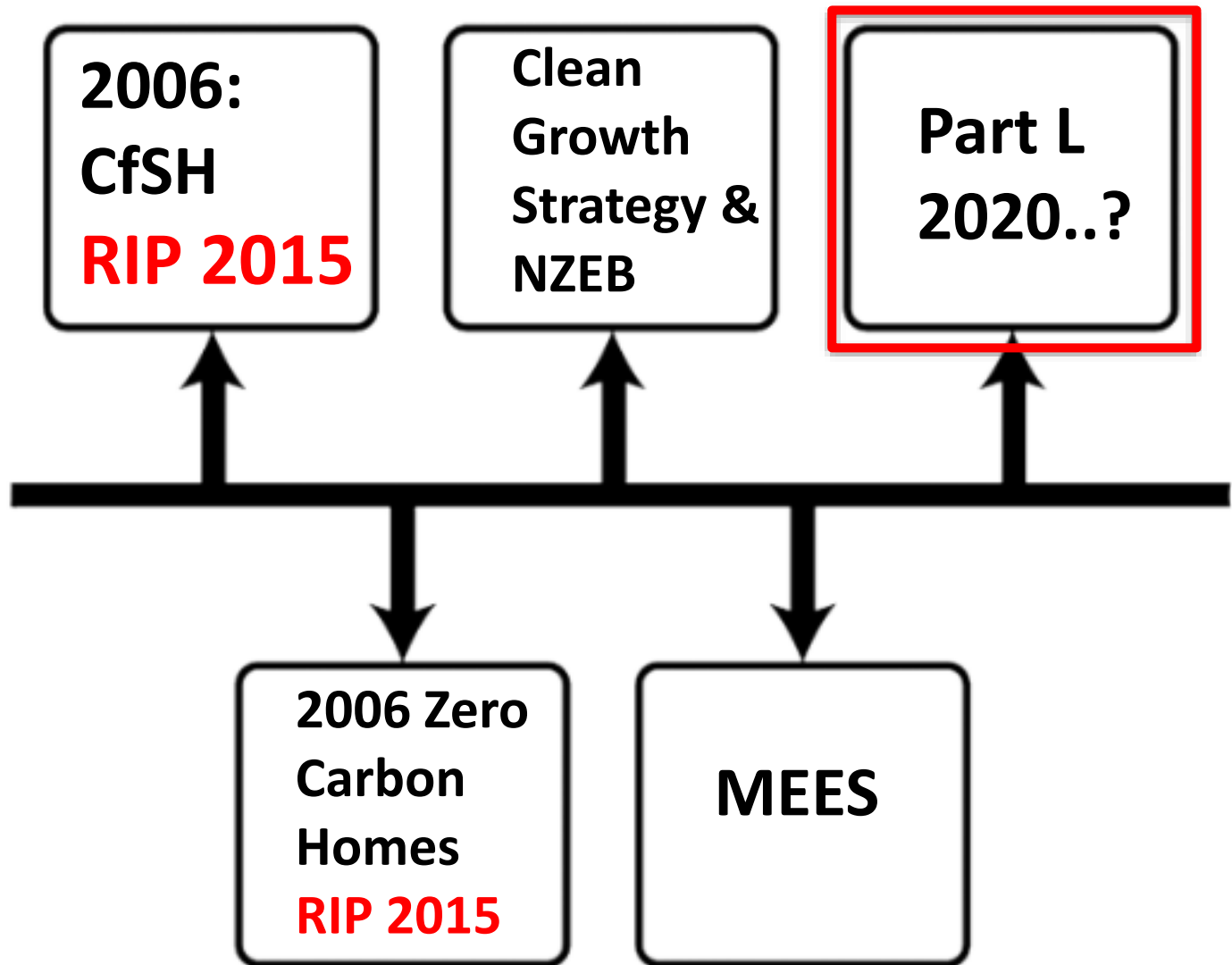
Find out more about the government legislation coming in 2018, which will impact domestic and non-domestic landlords...



From April 2018, landlords of privately rented domestic and non-domestic property in England or Wales must ensure that their properties reach at least **EPC rating of E** before granting a new tenancy to new or existing tenants



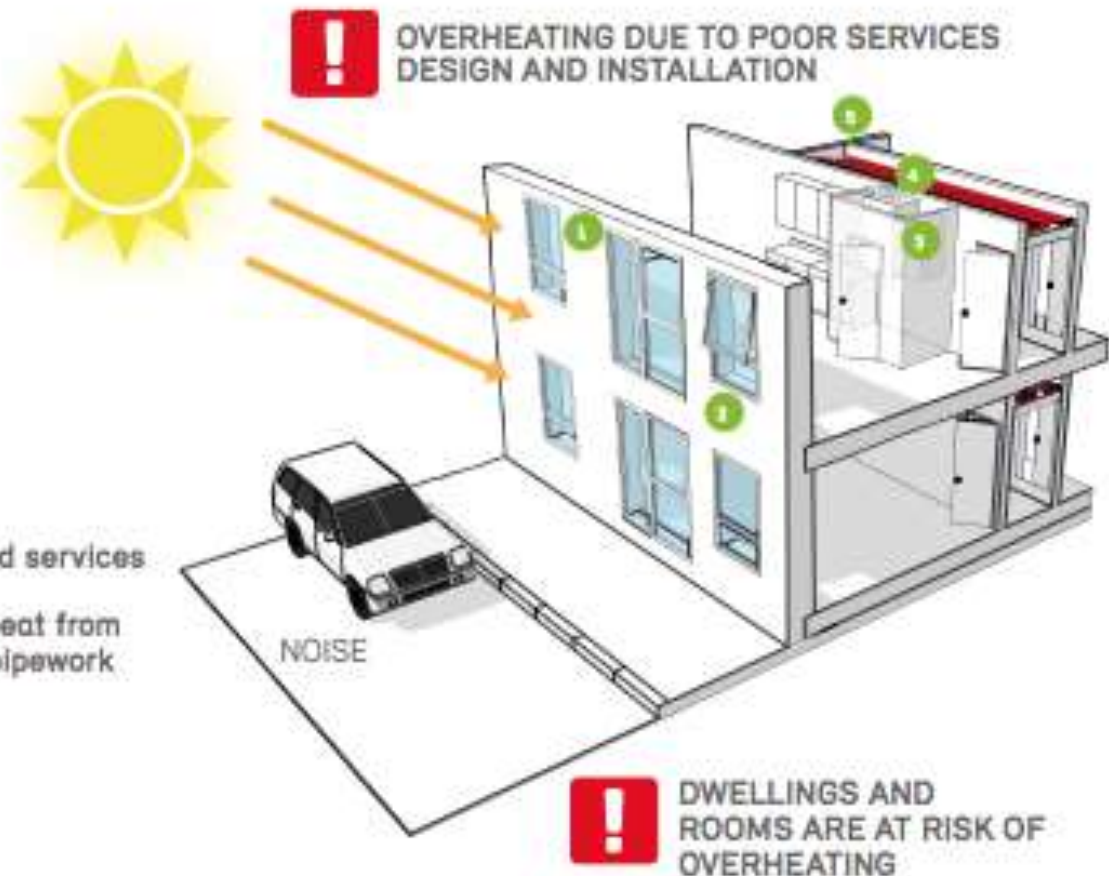
NATIONALLY



PROBLEMS TO AVOID

- Excess heat in homes resulting in high internal temperatures
- Bedrooms reaching temperatures above 26°C at night (CIBSE TM52)
- Living rooms with temperatures above CIBSE TM52 standards

- 1 No shading or High G value window
- 2 Restricted windows single aspect
- 3 Ventilation unit not sufficient for purge ventilation
- 4 Un-insulated services
- 5 Unwanted heat from communal pipework





WHAT TO DO?

1 Reduce solar gain by:

- External blinds, louvres or shutters
- Overhanging eaves, balconies and window reveals
- Low G value of glazing $G < 0.4$
- Internal blinds within double glazed unit

2 Windows should be fully openable, and allow safe, secure purge ventilation in all cases

3 Internally exposed thermal mass such as concrete, plaster, tiles or brick can help regulate temperatures when combined with secure night time ventilation

4 Planting should be well irrigated and positioned in order to shade windows from summer sun





Materials

Energy



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THE
WELL
BUILDING STANDARD®
v1 with Q2 2017 addenda

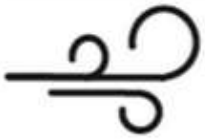
Performance-based
assessment methodology
to measure the impact of
the built environment on
human health

Based on 7 years of
research



With many thanks to eight associates
and Max Fordham engineers

WELL v.2



Air



Water



Nourishment



Light



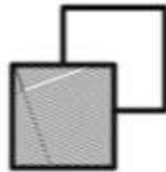
Movement



Thermal
comfort



Sound



Materials



Mind



Community



Innovation

Pre-conditions

Silver

Gold

Platinum

50 points

60 points

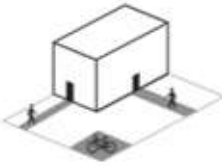
80 points



FITWEL



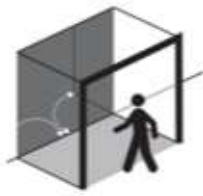
Location



Building access



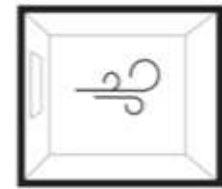
Outdoor Space



Entrance and Ground floor



Stairwells



Indoor Environment:



Workplaces



Shared Spaces



Water supply



Food services



Vending machines and snack bars



Emergency Procedures



90 Points (out of 144)



105 Points (out of 144)



125 Points (out of 144)



CLIMATE EMERGENCY

In UK +/-50 per cent of the population lives in areas that have declared a climate emergency

598 jurisdictions in 13 countries have declared a climate emergency



INTERNATIONAL

