

Sustainable Housing policy in the UK: Achieving Zero Carbon



Leeds Sustainability
Institute

FUTUREBUILD


**5-6 November 2014,
Sheffield**

Day 2 – Low Carbon Construction

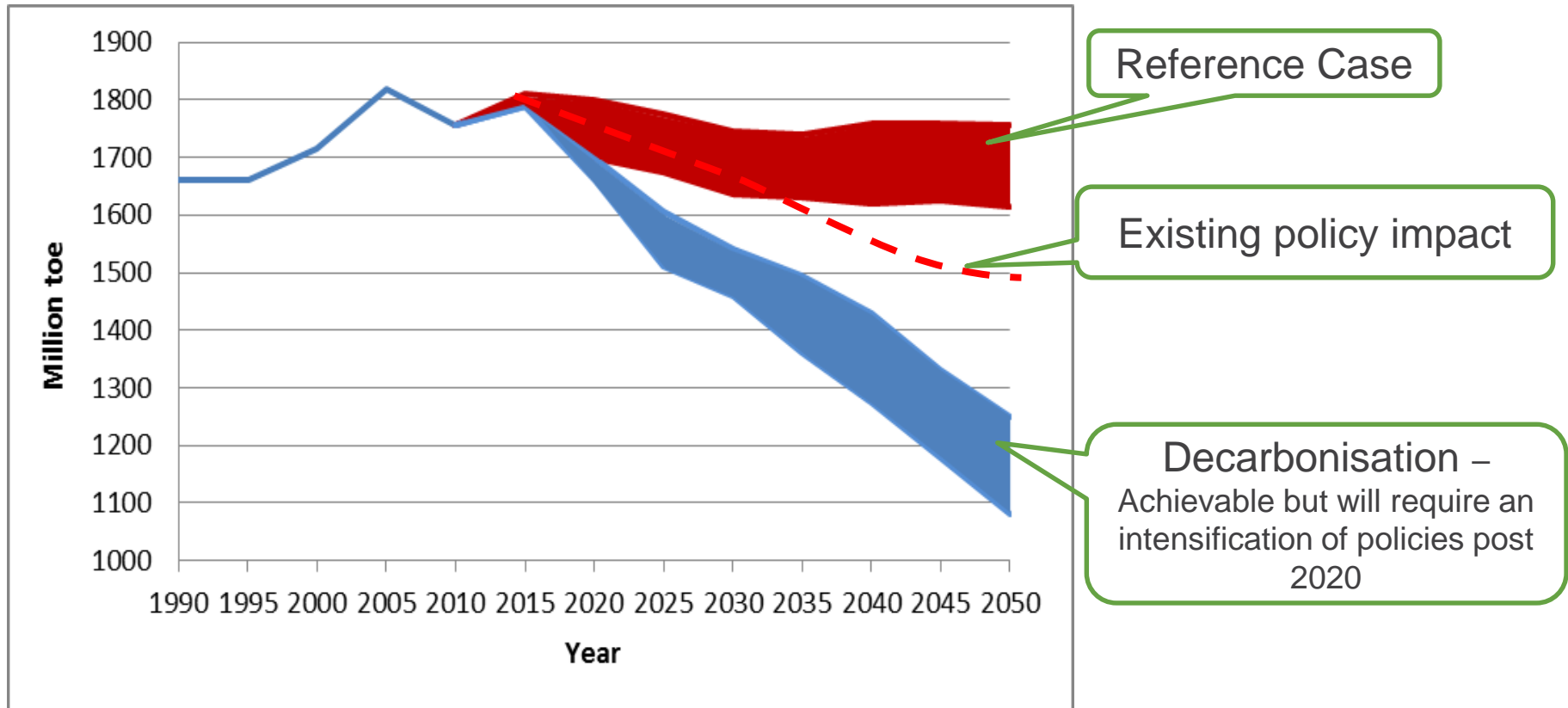
Session – Sustainability Policy in the UK

Malcolm Bell

Leeds Sustainability Institute, Leeds Beckett University

EU Targets

EU Energy Roadmap 2050



EU Legislation and Policy - EPBD_(Recast) & EED



- Near-to-zero energy standards for new building by 2020
- Increased rate and depth of existing stock renovation – near-to-zero energy.
- Mandatory Energy Obligation schemes.
- Investment financing – use of energy savings to pay for improvements (ESCOs, performance contracting etc.).
- Improved quality control of energy certification and inspection

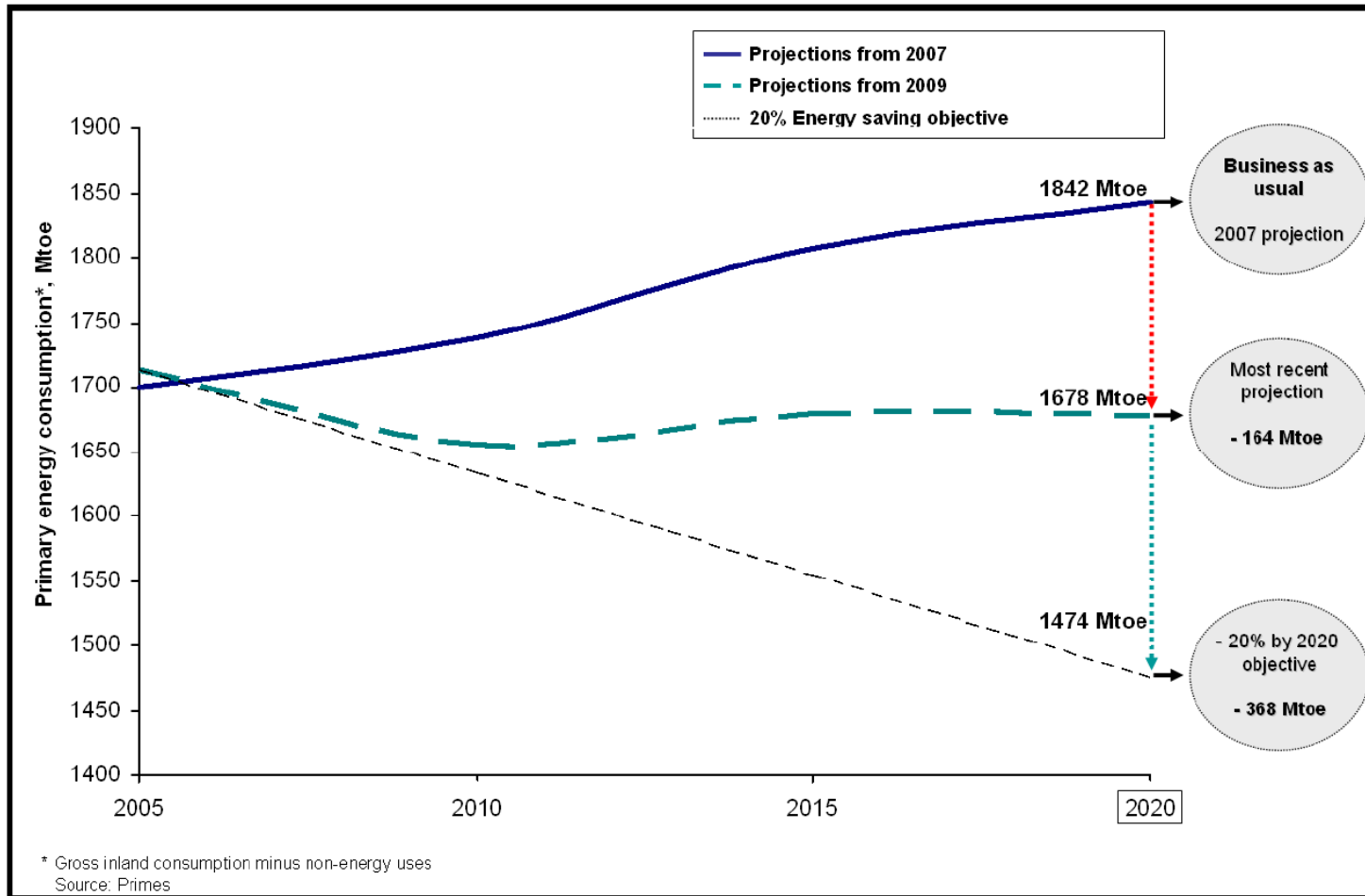
UK Legislation and Policy



- Climate Change Act – A legally binding target to reduce carbon emissions by at least 80% by 2050
- Zero carbon regulatory standards for dwellings in 2016 and by 2019 for all buildings. (Zero Carbon Hub to oversee housing, no clarity on non-dwellings!)
- Existing stock improvement – Energy Company Obligation (ECO) and the Green Deal. (*Capital investment linked to savings*).
- Green Construction Board (GCB) set up to create a low-carbon, sustainable construction industry.
- Innovate UK (TSB) programmes for low-carbon construction.

EU Energy Targets

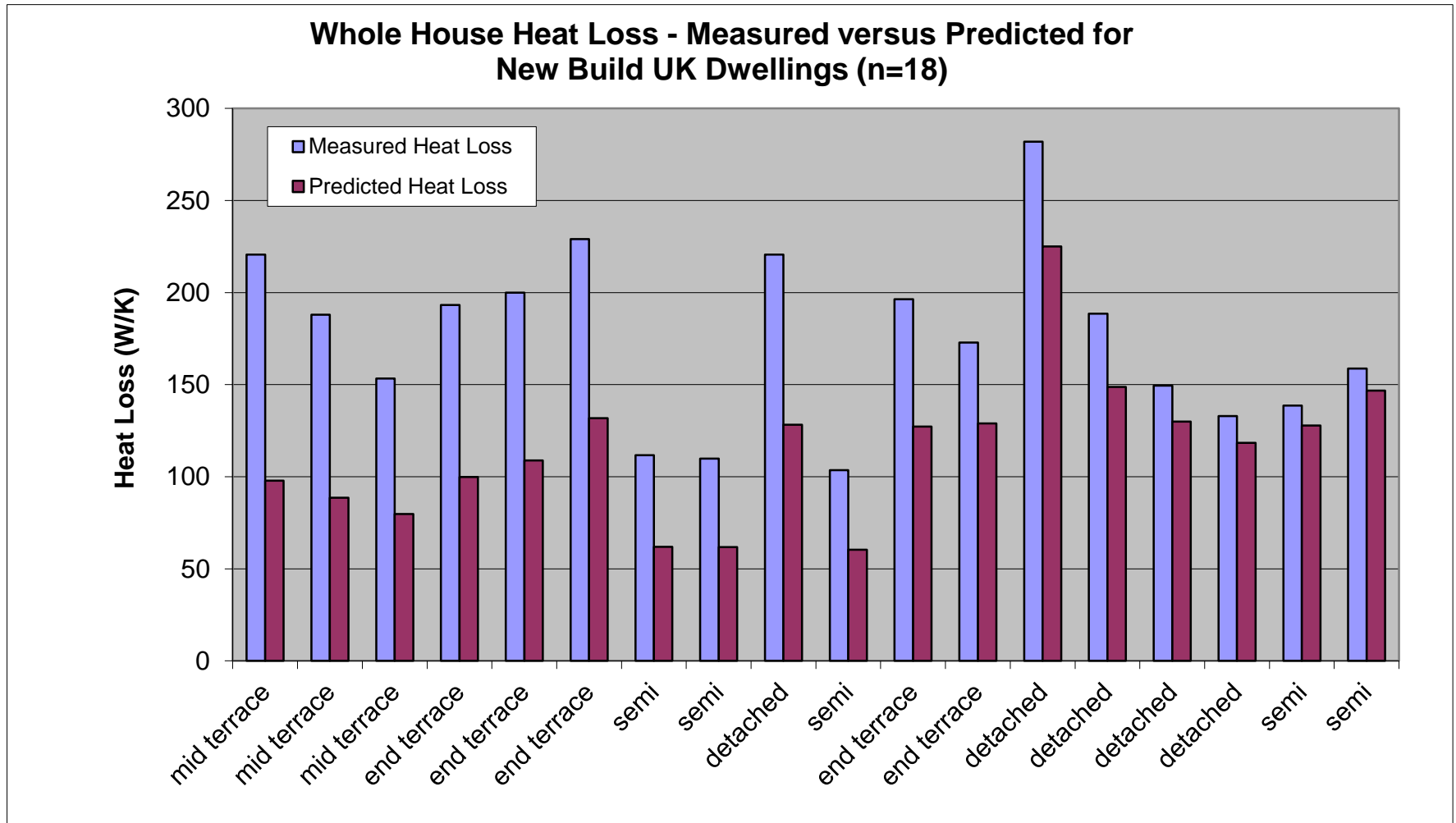
EU Heads of State Commitment for 2020



Only 45% of
the target
likely to be
met

European
Commission
(2012)

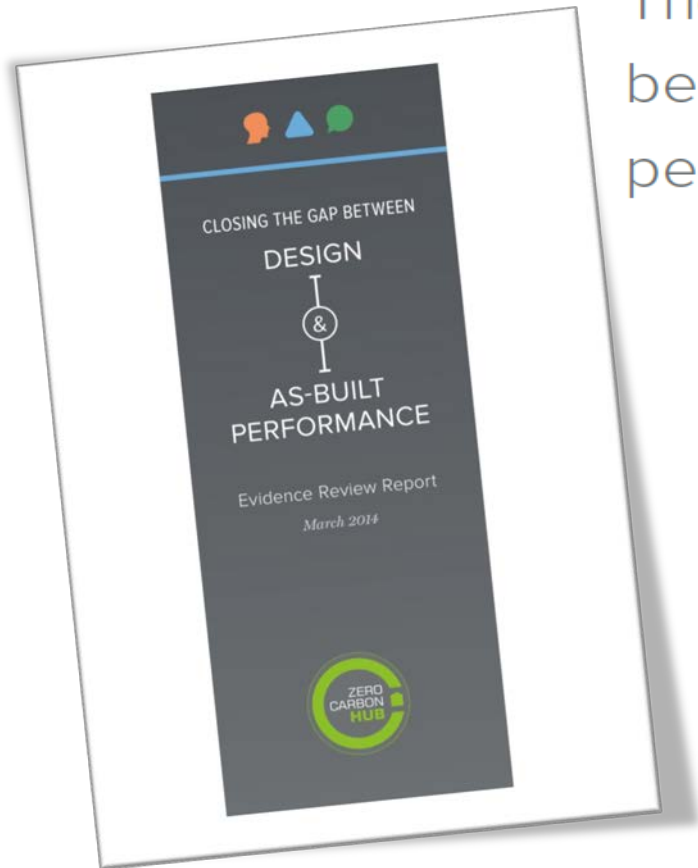
The Performance Gap: Fabric performance (new housing)



Zero Carbon Hub: Design & As-built performance (Evidence report March 2014)



There is now clear evidence of a gap between the designed and as-built energy performance of new homes.



Closing the Performance Gap – the 2020 Ambition:

From 2020, be able to demonstrate that at least 90% of all new homes meet or perform better than the designed energy / carbon performance.

Zero Carbon Hub: End of Term Report (July 2014)



Achieving Zero Carbon Housing “for real”



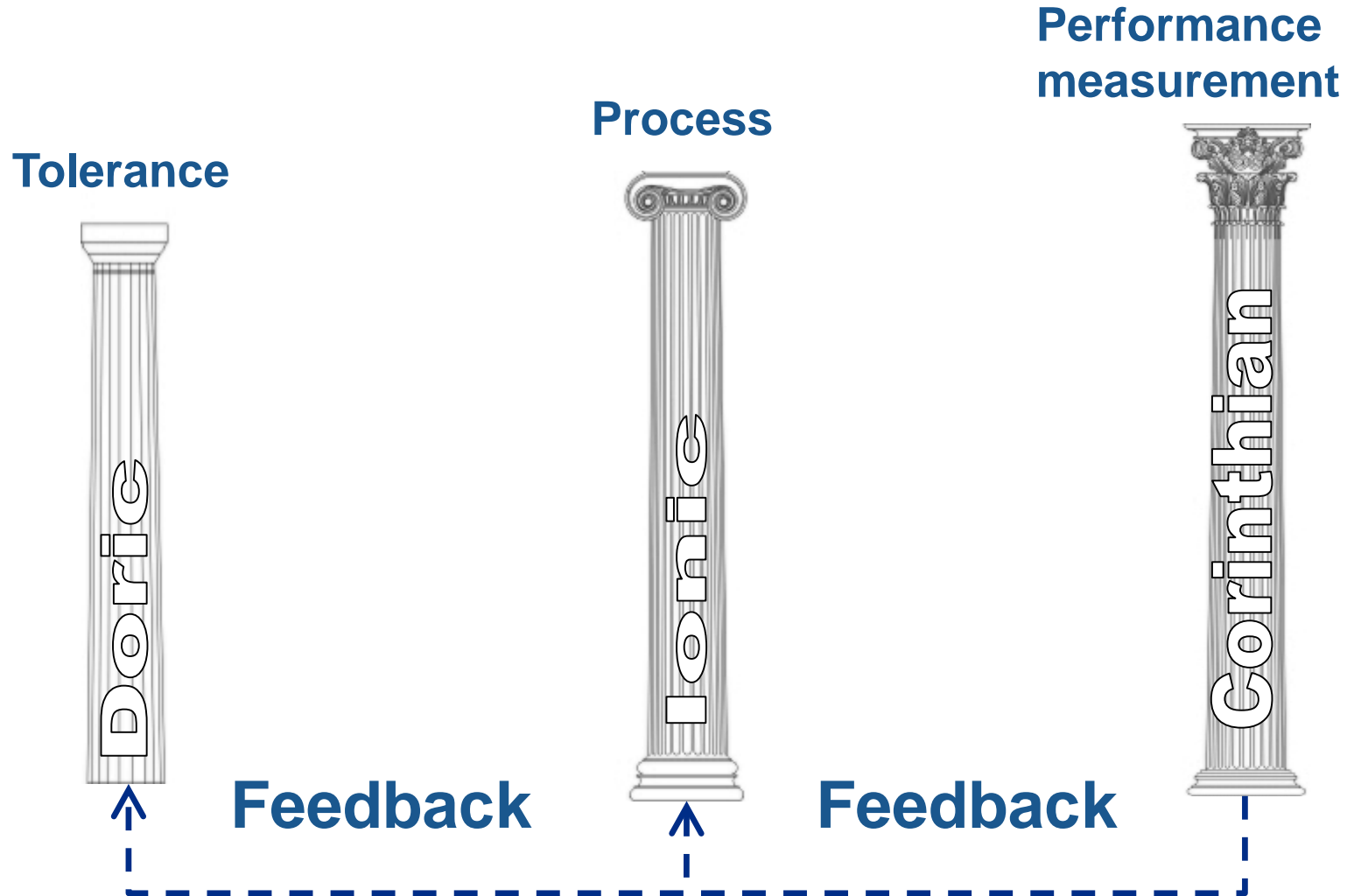
Two interconnected issues :

1. Performance Engineering
(understanding science and technology)

2. The Policy Environment

Performance Engineering: The three pillars of performance

(Bell et al., 2010 – ZCH report)



The Policy Environment



The existing policy and regulatory system is perverse:

- It does not distinguish between good and bad performance
- Therefore there is no commercial advantage for developers to invest in improving energy and carbon performance

The Policy Environment

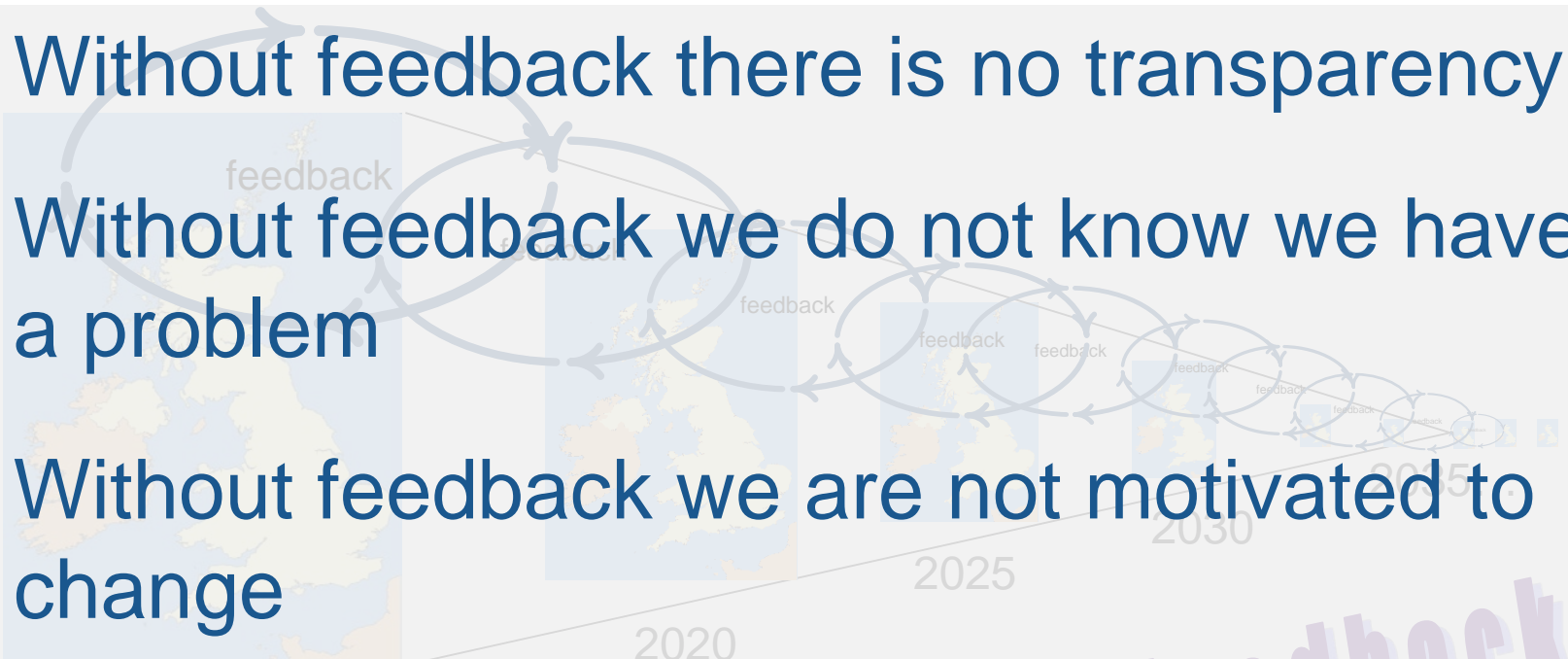


Two interconnected roles :

1. To motivate and drive change

2. To support and enable change

The Policy Environment: Motivating change

- Without feedback there is no transparency
 - Without feedback we do not know we have a problem
 - Without feedback we are not motivated to change
 - Without feedback we do not know how to solve the problem.
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The Policy Environment: Motivating Change



Market Transparency

- Government must work with industry to develop the measurement tools that will provide feedback
- Tools must be used within a performance assurance system such that:
 - Poor performance and good performance is made clear in a robust and fair way.
 - There are commercial consequences for both success and failure.

The Policy Environment: Enabling change



- A Government & Industry R&D partnership that:
 - Develops understanding of technological tolerances
 - Develops production process blueprints and standards for use across the industry (*Industry funding led*)
 - Develops robust measurement & testing methods (*Government funding led*)
 - Develops performance feedback methods for use at national, developer and site levels (*Government and industry matched funding*)
 - Develops systems that foster and demonstrate continuous improvement

Changing the way things are: Some concluding thoughts



- There is a performance gap in the UK and across the EU, which will undermine UK and EU policy
- Fundamental change is required in house building processes, technologies and cultures
- A performance engineering approach will be central
- Change will require high quality feedback at all levels
- Feedback must drive change through market transparency
- Feedback must be used not only to close the performance gap but to keep it closed