

# THE INFRASTRUCTURE CARBON REVIEW - TWO YEARS ON

Climate Change affects us all, and last December in Paris the world agreed to take collective action to limit global temperature rises. The UK has a legally-binding commitment to achieve an 80% reduction in greenhouse gas emissions by 2050.

Infrastructure accounts for around 53% of the UK's greenhouse gas emissions, so action in this sector is crucial if we are to meet our domestic and international aims. It is a challenge the Construction Leadership Council recognises, and our ambition is to achieve a 50% reduction in greenhouse gas emissions in the built environment by 2025.

The *Infrastructure Carbon Review* (ICR) provides the framework for action and remains as important today as it was three years ago. The ICR identified the potential to reduce up to 24m tonnes of carbon every year from the construction and operation of the UK's infrastructure assets by 2050, and in the process to achieve a net saving of £1.4bn.

Focusing on cutting carbon encourages the development and adoption of new technologies, innovative construction techniques and the use of low carbon materials, which can all help improve productivity in the sector – in a phrase:

## Reducing Carbon Reduces Cost.

Industry is tackling this challenge. Since 2013 56 businesses and organisations have endorsed the ICR, and committed to using existing resources more efficiently. These include many of the UK's largest infrastructure capital projects, embracing government, clients, major contractors, consultants and professional services firms. Much of their progress is detailed in this report.

One of the ICR's main recommendations was the development of a Publicly Available Specification (PAS) to manage carbon in infrastructure, based on emerging best practice. We are delighted to see PAS 2080 launched at this conference and strongly encourage its wide adoption across industry.

**We urge more companies to endorse the principles of the ICR, recognise the opportunities they represent, and join this growing movement to reduce carbon and reduce cost.**

### Nick Boles MP

Minister of State for Skills and Co-Chair of the Construction Leadership Council



### Andrew Wolstenholme

CEO of Crossrail and Co-Chair of the Construction Leadership Council



## Leadership

The precast charter initiatives began in 2007 with 17 companies creating a sustainability strategy. It later expanded to include over 60 precast companies (responsible for 70% of the market) all committed to cutting their factory & supply chain carbon emissions. Between 2008 and 2015, members of British Precast (and their supply chain) introduced solutions and initiatives leading to overall carbon savings of up to 0.25MtCO<sub>2</sub>e averaging a 0.4 MtCO<sub>2</sub>e increase per year.

*British Precast Concrete Federation*



## Communication & Culture

Sweco ran the carbon literacy and engagement programme 'Carbon Conversations' internally tailored to projects. In doing so we developed a range of carbon literacy resources including a series of 'carbon quick guides' and a game around whole life carbon. Participants taking part in the sessions were energised and engaged with the carbon challenge and the session framework has since been used to structure a 'Carbon Week' event targeting AMP6 delivery partners.

*Sweco*



## Innovation & Standards

Cambridge Water Recycling Centre extension is a great example of meeting the needs of a growing population in a sustainable way. Design engineers across the supply chain focused on the challenge of halving the capital carbon against a 2010 baseline. Through collaboration, rigorous challenge on the need of assets in the baseline design, use of lower carbon materials, off-site build and reduction in waste, the team delivered a 64% reduction in carbon and a 24% reduction against cost.

*Anglian Water/  
@OneAlliance*



## Metrics

On the £104m Heysham to M6 link road, one of Lancashire's highest priority transport projects, Costain and Tarmac set out to realise the full potential of genuine, long term collaboration and early engagement to deliver greater transparency and make more informed specification decisions based on whole-life performance. Focusing on quarrying, deliveries and transport routes meant the team could target zero wastage at the quarry. The overall new design produced at ECI stage has reduced the aggregate tonnage by nearly 25%, saving over 200,000 tonnes of raw materials, and enabled a reduction of nearly 9,000 m<sup>3</sup> of readymix concrete, just over 26%. This translates into a 21% carbon saving (5018 tonnes CO<sub>2</sub>e) from the original design, which exceeds the KPI of 20%. The cost saving of £2.73m represented 11% of the total work package.

*Costain and Tarmac*



## Commercial Solutions

We shared our carbon measurement tool and the output from the tool with our suppliers as part of the procurement tender process. For our major infrastructure project tenders we have a 5% weighting related to carbon. This approach has unlocked cost savings of 3% and carbon savings of 39,000 tonnes. We have set up a carbon working group to understand how these savings will be delivered in practice in construction projects.

*National Grid*



**56**  
LEADING  
ORGANISATIONS HAVE  
ENDORSED THE ICR AND  
PLEGGED ACTION  
TO CUT CARBON

**150+**  
COMMITMENTS  
HAVE BEEN PUT INTO  
ACTION AND ARE STARTING  
TO DELIVER RESULTS

**90**  
PER CENT  
OF ICR SIGNATORIES ARE  
MEASURING CARBON ON  
AT LEAST SOME OF THEIR  
PROJECTS

**300**  
THOUSAND  
TCO<sub>2</sub>e CUT FROM  
16 LOW CARBON  
EXEMPLAR PROJECTS

**140**  
£ MILLION  
SAVINGS RECORDED BY  
16 LOW CARBON  
EXEMPLAR PROJECTS

**80**  
PER CENT  
ICR SIGNATORIES HAVE  
IMPROVED THEIR  
CARBON MATURITY

**40**  
**25**  
PER CENT  
CAPITAL CARBON/COST  
SAVINGS ACHIEVED BY  
INDUSTRY LEADERS

**1.5**  
£ BILLION  
POTENTIAL ECONOMIC  
BENEFIT THROUGH CHASING  
DOWN CAPITAL CARBON



# Are you high carbon and high cost, or low carbon and cost-efficient?

ICR signatories have gauged their levels of 'carbon maturity' using this simple matrix. The overall average carbon maturity is increasing across the infrastructure value chain - reflecting a combination of growing maturity of the early signatories and new signatories beginning the carbon journey.

*"PAS 2080 can make a real difference in the infrastructure we build, providing a sustainable legacy"*  
Thomas Faulkner, Skanska UK

*"Decarbonisation requires committed and enthusiastic leadership to break down the barriers and drive a much more innovative approach"*  
Tim Chapman, Arup

*"The industry has been calling for a clear, consistent approach to delivering low carbon infrastructure for the 21st Century. PAS2080 provides just that. It is now up to us all to use it to make a quantum leap forward in carbon reduction"*  
Adrian Johnson, Chair of PAS 2080 Technical Advisory Panel, MWH Global

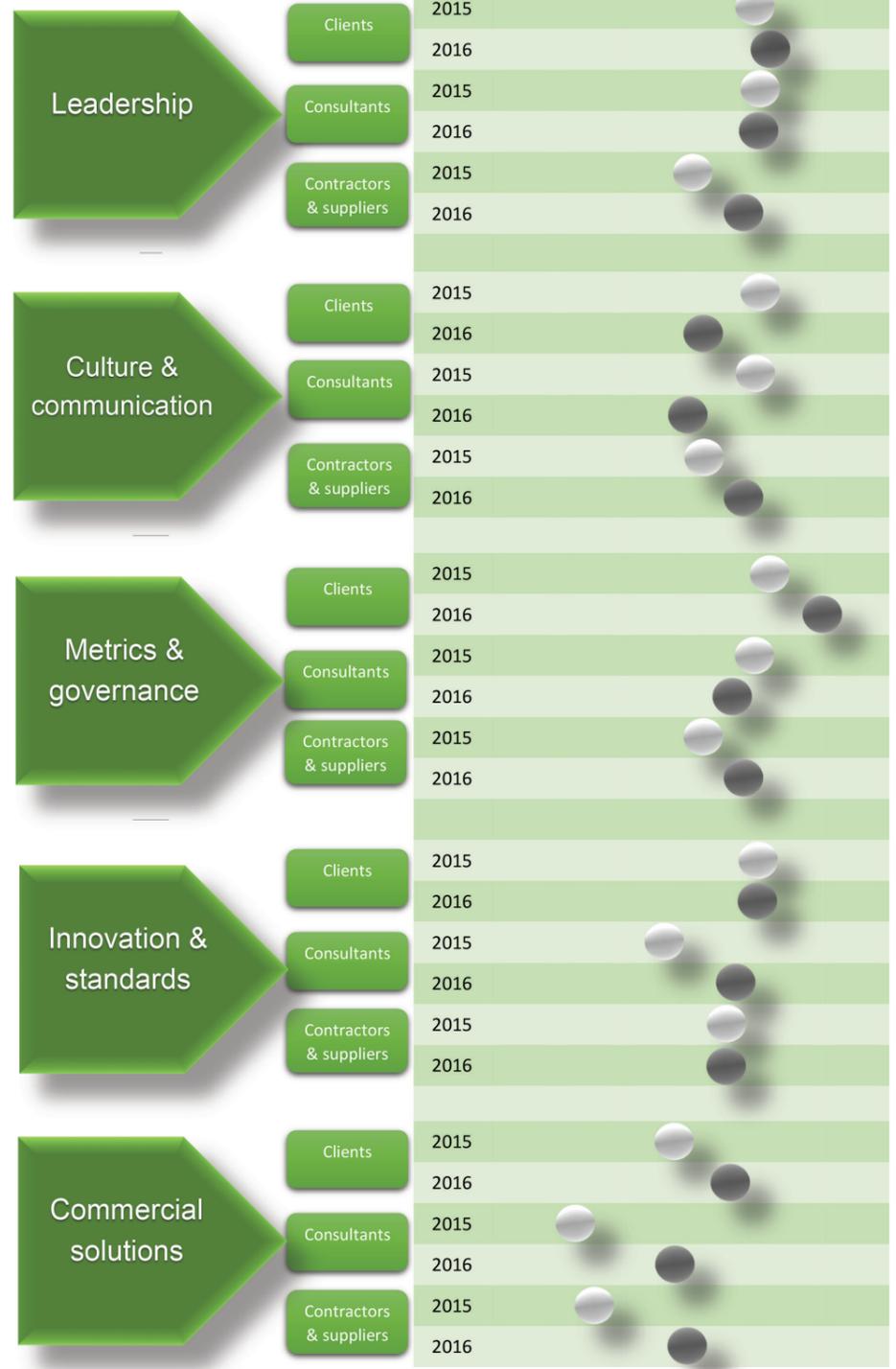
*"Sustainability is enshrined in our values, and whilst it is the right thing for a leading global professional services consultancy to do, we also recognise the reputational and financial value that it brings to us and to our clients."*  
Mike Sheehan, WSP|Parsons Brinckerhoff

*"Since 2006/07 we have saved just over 9000 tonnes CO2 and approximately £150k for our pumping activities which account for around a third of our CO2 emissions."*  
Keith Solts, Environment Agency

*"PAS2080 shows a more systematic way for managing whole life carbon in infrastructure delivery. By joining up the value chain, a new culture of challenge and innovation is encouraged to drive down carbon and cost"*  
Maria Manidaki, PAS2080 Lead Technical Author, Mott Macdonald

**Where are you?**  
Assessing your maturity can help you to identify and prioritise actions to improve carbon and cost-efficiency in your organisation.

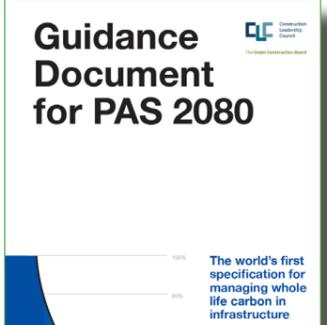
## Average carbon maturity



## Who's already signed up to the ICR?



To find out more about the work of the Green Construction Board, visit [www.greenconstructionboard.org](http://www.greenconstructionboard.org)



Download the brand new PAS 2080 Guidance Document and find details of how to order copies of the new PAS 2080 specification from BSI.



Watch the new Infrastructure Carbon Review video infographic to find out how you can start your low carbon journey today.

## THREE KEY CHALLENGES

- 1. Advancing Commercial Models**  
Share risk and reward low carbon innovation, making carbon central to procurement
- 2. Getting clients to demand carbon reduction, accept innovation and accelerate the pace of change**  
The value chain must find ways to exert influence.
- 3. Setting standards for carbon measurement**  
Over 90% of ICR signatories are measuring carbon but there's little consistency in methods or data. The new PAS 2080 will help with this challenge.

## Five steps you can take

- 1. Provide strong and effective leadership**  
*Articulate carbon as an organisational value and provide a vision of how the company should address it, underpinned by clear, consistent policy*
- 2. Embed carbon in your organisation's culture**  
*Make it part of the DNA – by communicating to change behaviours, sharing best practice and developing new low carbon skills*
- 3. Measure performance, set targets and beat them**  
*Set a baseline and report progress against it, using the insight gained to inform strategic decisions*
- 4. Support innovation**  
*Challenge your supply chain to reduce carbon, defining outcomes but allowing creative freedom over the process, and by enabling standards and specifications to be challenged*
- 5. Bake carbon into procurement**  
*Make carbon reduction a prerequisite for winning work, integrating your supply chain, managing risk effectively and rewarding outperformance of your targets.*

- Sign up to the Infrastructure Carbon Review
- Pledge action on cutting carbon and cost
- Join a network to embrace low carbon
- Download and implement the new PAS 2080