



The importance of infrastructure in driving economic growth and prosperity is nothing new. Before COVID-19, data showed that nearly US\$4 trillion¹ needed to be spent every year to meet the requirements of a growing and advancing global population.

The quality and condition of key infrastructure assets, such as roads, railways and ports, as well as power plants, water treatment facilities and their supply networks is a significant influencing factor on social wellbeing and associated economic prosperity. Now, with the financial impact of the lockdown being felt across the world, infrastructure's role as an economic stimulus is more pronounced than ever.

It is crucial, however, that economic recovery does not subdue global efforts to reduce carbon emissions or run roughshod over the environment. The recent announcement of changes to the National Environmental Protection Act in the United States – which will reduce the environmental review process for infrastructure schemes – is a concerning shift, which must not become the norm. A post-COVID, infrastructure-led recovery must be 'green', and industry must step up to the plate to ensure that.

As long as we implement the right due diligence in regard to the environment and communities, there is no reason why infrastructure shouldn't lead the recovery.

That's certainly the view of the UK government. The Prime Minister's recent call to 'build, build, build' gave our industry a clear message – infrastructure must be at the forefront of the post-lockdown economic recovery. An initial £5 billion government fund to back key schemes, under the banner of 'Project Speed', makes clear that the programme delays and delivery challenges of the past will no longer be excused.

A similar tone has been taken by Australia's Federal Government, with Prime Minister, Scott Morrison, recently announcing AU\$72 billion plans to fast-track 15 critical infrastructure projects, including an inland rail scheme from Brisbane to Melbourne, as part of a strategy to help the country recover from COVID-19 and the devastating bushfires from earlier in the year.

The entire industry must rise to the challenge, although the sectors that have traditionally received the most funding – energy and transport – need to lead from the front by delivering schemes that achieve long-term social benefits and help to meet the UK's 2050 net zero carbon target.

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Before the UK locked-down...

£640bn



of infrastructure investment had already been set aside for the next five years in the Spring Budget

The signs are promising. In addition to the Brisbane to Melbourne rail link, Australia will expedite plans for a subsea electricity interconnector between Victoria and Tasmania. In the UK, the High Speed 2 Rail programme was given the notice to proceed during lockdown, while regional road schemes and the Castlefield rail corridor in Manchester have received funding boosts.

The DCO application for Sizewell C nuclear power station and the start of construction on what will be the world's longest subsea electricity interconnector between the UK and Denmark show that the energy sector is also ramping up.

The upcoming transport and energy infrastructure opportunity is significant, not least from the perspective of creating jobs to rebuild the economy and reducing our carbon emissions. So, what is the opportunity and how can we capitalise on it?

1

Transport as an enabler for growth

In the short term, the way that we use transport infrastructure has changed. We have had to adjust quickly – the rapid proliferation of cycling infrastructure to reduce pressure on public transport and roads in the UK is one example, while the struggles of the aviation sector are well known.

In reality, these and other changes – such as changed attitudes to public transport and an associated increase in car use – may endure for the longer term and the world must adapt to ensure that pipelines are deliverable and fit for purpose in the context of new social norms.

We’re seeing this concept in the US, with a US\$1trillion government infrastructure stimulus to drive confidence in the sector through the prospect of significant government contracts. Past analysis suggests that this investment could see around 2.9 million jobs come to market if there is a focus on schemes that prioritise employment.ⁱⁱ

In Australia, the Brisbane to Melbourne rail link could create 2,000 regional jobs, while the wider portfolio of 15 fast-tracked schemes is expected to unlock 66,000 direct and indirect roles.

Indirectly, better and more accessible transport infrastructure enables people to find and reach jobs outside of their immediate area. In the UK, the Northern Powerhouse Rail programme, through shortening journey times, will result in over 14 million people living within 90 minutes of nearly half a million businesses and the employment opportunities that enables.ⁱⁱⁱ

Transport infrastructure is about more than jobs, of course. Its role in refilling the shelves when panic buying took its grip and making sure the surge in online deliveries got to their rightful owners is easy to look past. And, looking to the future, its role in helping us to return to our full social lives will be just as important.

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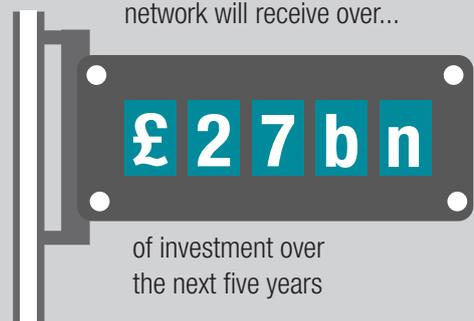
It’s estimated that NPR could generate productivity benefits of

£3.4bn

a year through improved connectivity



The UK’s strategic road network will receive over...



2

Building a cleaner and greener future

Lockdown has highlighted the need to drive a reduction in both carbon emissions and air pollution; the populist mandate has never been stronger.^{iv} So, in addition to spurring economic growth, future infrastructure must be developed in a way that helps to bring down emissions and address climate change.

At the forefront, there must be a prioritisation of the rapid development of nuclear and renewable energy sources across the world; for the sake of our planet, we cannot continue to rely on fossil fuels.

In many regards, the data is encouraging. Figures indicate a continued global growth in renewable energy, with wind and solar spurring the record increase of over 40% seen in 2019. Challenges remain, however, with coal still holding the largest share at 36% of global power, while renewables only account for 10%.^v

The biggest challenges are presented by the Asia Pacific region. In 2019, China accounted for over 75% of energy growth, while India and Indonesia were next. Fuel type is also a problem. China, Indonesia and Vietnam, for example, all saw an increase in coal consumption in 2019.

It would be unfair to point to Asia Pacific alone. Data shows that, since the start of the COVID-19 pandemic, of the nearly US\$279 billion committed by G20 countries for different energy types through new or amended policies, over 54% has been for fossil fuels, while around 33% has supported 'clean' energy.^{vi} 'Other' energy types make up another 10%. The United States, Canada and France are among the nations with an emphasis on fossil fuels.

It's not just about environmental betterment. Recent research has highlighted that a focus on 'green' policy initiatives, could also offer governments the best economic return on their investments, thus boosting the post-COVID economic recovery. The study, which surveyed over 200 leading economists found that investment in clean energy scored particularly high both in terms of having a high economic multiplier and strong potential to decrease greenhouse gas emissions.^{vii}

In 2019, coal provided...



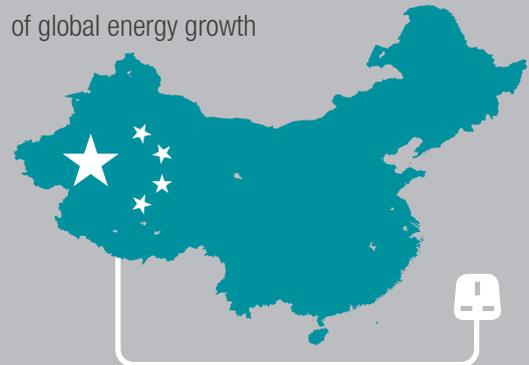
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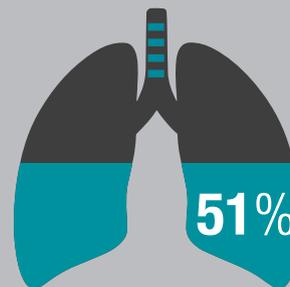
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of global energy growth



At the peak of lockdown...



of people in the UK said they noticed cleaner air

The key to the success of renewable energy generation is having a diverse mix. This will only happen if governments and energy generation companies unite to identify how they can deliver the right projects in the right locations, to suit national needs and address the three strands of the energy trilemma: security, affordability and environmental sustainability.

3

Setting a course for the future

It is clear that, while the opportunity associated with new infrastructure is significant, so are the challenges. In order for the infrastructure industry to spearhead an economic recovery, especially through transportation and energy schemes, we must find a better way. Here are four recommendations for how we can do this.

1. Create sustainability exemplars

Sustainable delivery needs to consider both the environment and society in tandem. There has been a shift towards in many countries, but the industry's reputation still needs work.

To drive awareness of the progress the industry has made, but also to ensure continued progression, we need to create a group of exemplar projects, backed by industry and respective governments. In the UK, this would include the likes of the Infrastructure Projects Authority, National Infrastructure Commission, Institution of Civil Engineers and Construction Leadership Council all working together with industry to create as a blueprint for what must become the norm.

These pilot schemes need to cut across sectors and geographies, with bespoke sustainability plans developed so that communities and the environment are placed firmly at the forefront of the thinking. Major programmes in the public eye, like Hinkley Point C and HS2 Euston Station in the UK are prime candidates.

Raising the bar through an exemplar initiative will provide a best-practice blueprint for how to maximise social value and ensure environmental rigour. Developing this into a government-approved handbook will steer the sector forwards with focus and consistency.

2. Prioritise shovel worthy over shovel ready schemes

In recent years, the term 'shovel ready' has become increasingly common and it's one the British government has touted in recent weeks. However, it is flawed and should not be used to set expectations around our future infrastructure pipeline. Just because something is ready – or more ready than the alternatives – it doesn't make it the right thing to build.

Progressing shovel ready schemes as a priority plays into a notion of blindly following the call to 'build, build, build' and risks focusing more on delivering outputs centred on point-in-time KPIs that will, ultimately, result in delivering infrastructure that does not meet the requirements of future populations.

Instead, the emphasis must be on delivering 'shovel worthy' projects. What makes them worthy is that they have been planned and progressed with long-term value and outcomes in mind.

Take the rapid transit system in Hyderabad, India, as an example. With around half a million cars being added to the city's roads every year, the transport infrastructure was at breaking point. The public called for change and, in 2008, an ambitious rapid transit scheme was proposed in response. Capable of accommodating 60,000 users an hour, reducing journey times by up to 70% and reducing carbon emissions by 3,100 tonnes a year, the project focused on the wishes of the people and it is now seen as a major success story in India, with a second phase planned.

While every project and programme will have its own requirements, a standardised approach that offers a framework for delivering value-based outcomes should be adopted. The Construction Innovation Hub (CIH) recently published its 'Value Toolkit' to offer guidance on this. Crucial to the CIH approach is the creation of a 'value profile'. This helps the industry to understand the value drivers for their schemes in the context of the 'five capitals model' – which considers natural, social, human, manufactured and financial factors.

Uptake of this Toolkit will ensure better outcomes for everyone by driving a more holistic value proposition – based on the five capitals – through planning, delivery and operation. Importantly, the Toolkit allows for ongoing measurement and benchmarking. This not only provides the opportunity to adapt and respond on the project in question but, when combined with benchmarks from other projects, offers a clearer understanding for how future schemes need to be planned in order to achieve maximum value and the right outcomes for everyone.

3. Capitalise on data through a PMO

The lockdown has put pressure on project and programme schedules, and the economic impact has heightened budget awareness, particularly in the public sector. To navigate through this period of increased scrutiny we must utilise and interrogate data more than ever before. To do this, schemes need to embed a Programme Management Office (PMO).

New challenges require new solutions and industry must push the envelope in order to move PMO away from the more traditional view, which focuses too much on reporting, and towards one that can help to identify and mitigate challenges (and capitalise on opportunities) early on through the intelligent interpretation of data.

To do this, there is a need for an integrated approach – which combines a range of PMO services with people who understand the client, project and sector. By developing an understanding that goes beyond the data, we can develop strategies that encompass governance, people and processes. Through a more considered approach like this, we can capture issues before they become a problem and put mitigations in place.

It is this ‘predictive’ value, combined with its transferability across projects, programmes and portfolios of any scale, in any sector and in any geography, that makes this PMO model a more compelling offer than the traditional approach.



4. Embrace and evolve Construction to Production

To ensure that we build our future transport and energy infrastructure more effectively, at pace, at scale and with reduced carbon emissions, our industry needs to embrace innovative solutions and take them to the next level. Construction to Production (C2P) is a perfect example of this.

C2P standardises the construction process by setting clear parameters for design and delivery and placing everything on a digital platform to offer unparalleled accessibility. Crucially, this C2P approach can be transferred across sectors, allowing us, in theory, to have a single, repeatable design – whether for a road or power station control room – that can be configured to suit specific locations and requirements.

Taking C2P to the next level, to support shovel worthy transport and energy schemes, requires a shift away from a typical ‘off-the-shelf’ output approach. Rather than responding to a request for a solution to a problem that could have been avoided, C2P needs to be blended with consultancy expertise and embraced early on. This will create an offering that provides more front-end support, and which can feed in to a wider outcomes approach.

In driving consistency in approach, C2P can support a faster delivery of major infrastructure in a more cost-effective way. Even if we only look to deliver certain elements of a project, the cumulative impact across a portfolio of many schemes, such as a succession of nuclear power plants, or a long-linear transport project, can be significant.

References

- i. Mace Calculations using the Global Infrastructure Outlook Report, Oxford Economics, 2017
- ii. A jobs-centric approach to infrastructure investment, The Boston Consulting Group, 2017
- iii. Potential of Northern Powerhouse Rail, Transport for The North, 2019
- iv. YouGov Survey commissioned by the RSA’s Food, Farming and Countryside Commission (FFCC), 2019
- v. Statistical Review of World Energy, BP, 2020
- vi. G20 COVID-19 energy spending, energypolicytracker.org, 2020
- vii. Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change? Smith School of Enterprise and the Environment, 2020