

# Avoiding an infrastructure crunch

Building the recovery.  
An ACE conversation starter

An ACE publication

January 2010



## 1.0 ACE suggests

1. Infrastructure investment is a critical component of economic growth. The UK is facing a £500 billion infrastructure crunch. The government needs to roll out a strategic infrastructure plan as a key cornerstone of our economic future and to get the country moving again;
2. The consultancy and engineering sector can play a crucial part in delivering efficiency savings on integrated supply and management contracts. Evidence suggests these can reduce infrastructure operational expenditure by up to 50%;
3. The government can help boost investment in infrastructure by offering engineering firms and investors tax and regulatory relief for providing critical infrastructure services;
4. ACE call on the government to explore ways of employing the Regulatory Asset Base finance model (as articulated by Dieter Helm, University of Oxford) to maximise infrastructure investment and enhance the capital expenditure environment,

## 2.0 The case for infrastructure

This paper proposes that there is a significant link between infrastructure investment and economic growth. It discusses a potentially effective financing mechanism – an ‘infrastructure contract’ – to fund the next generation of UK infrastructure assets. It concludes by annotating how consultancy and engineering firms are not only central to the delivery of sustainable infrastructure networks but also to enhancing the efficiency gains of governments and local authorities.



Strategic investment in the UK's infrastructure network will lead to increased economic activity as well as providing the infrastructure that UK plc needs to get from A to B, live in a sustainable way and raise revenue for government.

High quality infrastructure assets enhance a country's national output. It has been argued that a large part of private sector productivity growth is connected to the size of a country's infrastructure base and annual investment in it<sup>1</sup>.

Infrastructure spending generates a large multiplier effect across the full economy by creating additional demand for materials and services. Indeed, £1 spent on construction output produces almost £3 in total economic activity, meaning that construction can be one of the most effective sectors to stimulate demand. This can be compared with other sectors (see below):

Sector	Short term multiplier*
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\*(not including induced impacts and long term effects. If these were integrated into the calculations they would produce almost £3 in total economic activity)

Construction	£1 spent = 2.09
Agriculture	£1 spent = 1.92 (approx)
Banking & finance	£1 spent = 1.72 (approx)
Public administration	£1 spent = 1.30 (approx)

*Source: UK Contractors Group<sup>2</sup>*

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<sup>1</sup> Rodriguez, F, 2006, *Have collapses in infrastructure spending led to cross country divergence in per capita GDP?* Wesleyan University



Furthermore some studies<sup>3</sup> suggest that the economic yield of targeted infrastructure investment can be up to a factor of 10. Therefore, £1 billion spent could add around £10 billion of economic activity. The UK can stimulate its economy during the downturn as well as increasing its long term competitive advantage through investing in its transport, energy, communication and social infrastructure. There is then a 'dual dividend'. A dedicated, smart and integrated investment programme can achieve several public policy goals simultaneously. Furthermore, with interest rates at all time lows it is a perfect time for the public and private sector to invest.

## 2.1 The key benefits of infrastructure spending:

### Micro-economic

- Productivity gains through lower costs of production and innovation;
- Creating and improving assets that are needed in any case to reduce congestion and transport bottlenecks;
- Enhance the UK's skills base which can then be used for export advantage.

### Macro-economic

- Direct job creation;
- Increased labour market flexibility and access to markets;
- Strengthens the private investment by increasing the return on private capital and thus encourages FDI.

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<sup>2</sup> LEK/UKCG, 2009, *Construction in the UK Economy: The Benefits of Investment*

<sup>3</sup> Eddington, R, 2006, *The Eddington Transport Study, The case for action.*



## Societal

- Regenerating dilapidated localities through economic development driven by infrastructure assets;
- Constructing social infrastructure such as schools and hospitals;
- Greater access to jobs which increases social inclusion.

### 3.0 The UK's infrastructure gap

The UK is ranked 34<sup>th</sup> in the world in terms of infrastructure quality, behind Saudi Arabia and Malaysia, despite having the 6<sup>th</sup> largest economy<sup>4</sup>. The same report points out that the UK's government fixed investment averaged around 1.5% of GDP between 2000-2004 compared to around 6% in Japan and over 3% in France, the United States and Italy. It has been argued that the UK spends less on transport and development as a percentage of economic output than any other OECD country. France has a 20% higher productivity level than Britain despite having less flexible labour markets and this is predominantly due to better infrastructure provision<sup>5</sup>. It is hard to quantify the economic impact of this acute infrastructure investment but without doubt it has a critical constraining impact on our future growth trajectory<sup>6</sup>. The Eddington report outlined how congestion by 2025 could inflict economic damage of £22 billion per annum on top of the acute quality of life aspects.

ACE's own forecasts point to a reduction in fixed investment in the UK of 12% this year. This will constrain future economic growth. It has also been suggested that

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<sup>4</sup> Bosanquet, N et al., *Road to Recovery, 2009, Reform*

<sup>5</sup> Helm, D, Wardlaw, J & Caldecott B, 2009, *Delivering a 21<sup>st</sup> Century infrastructure for Britain, Policy Exchange*

<sup>6</sup> Grimes, A, 2003, *Economic growth and the size and structure of government: Implications for New Zealand, Motu Economic and Public Policy Research Trust and department of Economics, University of Waikato Motu, Working Paper 03-10*



over the next decade the UK will need to replace one third of its energy generation capacity because of increased demand and existing stations coming to the end of their life span. One report<sup>7</sup> has stated that Britain has an acute infrastructure deficit requiring at least £434 billion of new investment by 2020 (the actual figure could be nearer to £500 billion).

This aggregated amount is broken down as follows:

- Energy £264 billion
- Transport £120 billion
- Communications £5 billion
- Water £45 billion
- Total UK infrastructure deficit of £434 billion<sup>8</sup>

This infrastructure requirement is then approximately a third of annual UK GDP.

The consequences of not investing will be the gradual erosion of the UK's competitive advantage and living standards – which will be especially pronounced as the economic centre of gravity shifts east and emerging nations invest trillions in new infrastructure systems.

The OECD believes that investment in infrastructure should be one of the UK's top three priorities over the medium term<sup>9</sup>. It seems that public infrastructure spending provides the biggest 'payoff' in terms of economic growth, way in front of education, health and welfare provision. Essentially then we need to invest in our future to safeguard it and avoid an economically and socially damaging

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<sup>7</sup> Helm, D, Wardlaw, J & Caldecott B, 2009, *Delivering a 21<sup>st</sup> Century infrastructure for Britain*, Policy Exchange

<sup>8</sup> According to Policy Exchange this figure is based on estimates of "simultaneously replacing aging infrastructure and investing in new infrastructure to improve our competitiveness, while meeting the challenge of decarbonisation" (2006:p6). This is seen as a conservative financial estimate and is on top of the spending needs of public sector infrastructure in schools, hospitals and IT systems.

<sup>9</sup> OECD, 2009, *Economic Outlook No. 85*



infrastructure crunch. This is why even in a tough fiscal climate the UK government needs to prioritise capital rather than current spending.

## 4.0 The way forward: policy options

### 4.1 Move towards an enhanced Regulatory Asset Base (RAB)

#### The problem

- Successful and productive infrastructure investment is a time and capital intensive endeavour. The cost of capital is vital. The regulatory regime has to ensure that investors are properly remunerated – to attract investment – whilst governments need to try and hold down the cost of capital and manage risk;
- Debt financed investment needs a secure flow of yield and eventually the full return of their investment unlike equity finance which relies on capital appreciation. If UK infrastructure is to be financed through private sector debt i.e. corporate bonds, then investors need to know that their investment will be protected, especially the large sunk costs of major infrastructure projects;
- Such infrastructure investment, funded through debt, is effectively guaranteed through the asset's revenue stream and the regulatory framework meaning that equity risk is not significant as the risk has been transferred to users and financed through debt;
- The Policy Exchange suggests that this has a “radical implication” for financing infrastructure as if the RAB is guaranteed, it can be financed by debt and that



“debt in turn is effectively guaranteed through the duty to finance functions”<sup>10</sup>.

This means that the cost of the RAB should be near to sovereign borrowing;

- Furthermore, the exemptions for the interest on RAB based bonds will help encourage more private finance to help combat the infrastructure deficit, as purchasers of such bonds will be willing to accept a lower rate of interest than is generally available from taxable debt of a comparable risk and maturity, which helps reduce the bond issuer’s borrowing costs;
- The RAB works towards this by optimising incentives - guaranteeing that the average cost of investment will be paid after project completion - and thus efficiently allocating risk;

## The mechanics

- The RAB is an innovative procurement route (currently used in some utilities regulation) that ensures long term thinking (which overcomes the time-inconsistency problem of governments and regulators) and efficient and competitive incentives for private finance in public goods;
- ACE believe it could provide a new finance model to reinvigorate the UK’s infrastructure base;
- Essentially, the RAB is an effective accounting model which determines an optimal valuation of assets to ensure long term investor confidence through increased depreciation and tax allowances. It is the ‘market value’ of the asset on which pricing structures are determined by the regulator;
- It is a model which provides understanding from the regulator of the investors depreciation and treatment of working capital;

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<sup>10</sup> Helm, D, Wardlaw, J & Caldecott B, 2009, *Delivering a 21<sup>st</sup> Century infrastructure for Britain*, Policy Exchange: 35



- This methodology allows the inclusion of all capital expenditures into the asset base at the start of the regulatory period as well as ex-post assessments of spending;
- Therefore ensuring all project investments (and cost of capital) will be recognised by regulators and agreed costs recovered whilst at the same time incentivising companies to undertake only efficient investments through the potential for investments to be rejected as regulated contributions. There is then a dual focus on ‘used’ and ‘useful’ capital contributions;
- The regulated value of the investors assets correspond to the value their investment yields and the value that is returned over the life of the assets (regulated depreciation);

## The solution

- The RAB allows investors a fixed return on their venture in addition to depreciation allowances which in effect represent the eventual return of capital;
- This reduces investor risk through a fixed regulatory framework and more transparent average costs of capital. These lower costs of capital could save billions of pounds;
- This would encourage extensive investment by pension and insurance funds who are looking for secure long term yields;
- The RAB can then be understood as a more efficient long term “infrastructure contract” which defines the obligations of all parties and could encourage a balanced and mutually beneficial approach to investing in the UK’s infrastructure network.



## 4.2 Infrastructure stimulus

The UK's infrastructure deficit creates congestion and reduces the relative competitiveness of the regions. It is then also a regional infrastructure deficit. To combat this, the government could encourage the regeneration of communities through infrastructure development and increasing the connectivity of communities to markets. The government can help boost investment in infrastructure by offering engineering firms and investors tax and regulatory relief for providing critical infrastructure services. This support could also entail:

- Tax credits for new employees and apprenticeships for engineering firms working in infrastructure development areas;
- Tax credits for VAT and depreciation on capital equipment for infrastructure projects;
- Offer long term infrastructure franchises and efficient planning routes for firms who wish to build assets themselves and provide their own investment;
- Institutional investors could be drawn towards infrastructure equity investments as a source of indexed long term and stable cash flows especially those in a RAB. A productive government policy could expand retail ISA's into broader tax free investment vehicle for institutional (and perhaps even retail) investors;
- Pension and insurance funds should then be encouraged to invest in new infrastructure assets through certain tax exemptions and the ability to reclaim money taxed from dividend income on such investments;
- Commercial banks can deduct net interest revenue on loans to infrastructure projects. The government could also encourage state controlled banks to hold a minimum of infrastructure assets as part of their holding requirements;



- Providing entrepreneurial infrastructure firms and investors with minimum revenue guarantees;

Such an approach would help stimulate UK regional economies and help build the infrastructure needed for the recovery by reducing the cost of infrastructure provision to these areas and incentivising job creation and market expansion. To further enhance a market based solution firms should be encouraged to invest in projects themselves perhaps using revenue bonds backed by an equity share in asset revenues such as tolls on new bridges and roads. The government could also take a stake in such assets through revenue bonds and again borrow against the proceeds of asset income. These assets with a constant income stream can in effect be 'floated' on the market. In such a policy government's can invest initially with low borrowing costs and then sell such assets for a profit at a later date. This would also advance competition and efficiency. Revenue bonds would benefit from low interest rates, long term financing and allows projects to be completed now and repaid from future revenues. The UK should work towards broad infrastructure coalitions with the engineers, contractors, investors, clients and local communities.

## 5.0 How consultancy and engineering can make a difference

ACE member firms can help enhance cost and service efficiency by working with local authorities and government agencies in long term infrastructure supply and management contracts across the whole project life cycle from feasibility through to planning, design and operational management.



Public client procurement has a propensity towards fragmentation. Transport engineers can help provide an integrated design and management interface which evidence suggests can reduce transport asset operation expenditure by up to 50% or more. Only a minority of the 434 local authorities in England and Wales currently utilise rationalised transport contracts. Externalising design and maintenance services can help save public sector clients money – in a period of constrained budgets –whilst at the same time removing the backlog of work and increasing standards and network safety. Most importantly, they can reduce congestion and drive forward long term economic development and sustainability.

ACE member firms have extensive experience in providing world class joined up infrastructure and support services to help regenerate communities cost effectively. Such an approach could save local authorities and government agencies hundreds of millions of pounds per annum. We could be on the threshold of a huge public sector cost saving. The consultancy and engineering sector just needs to be given the opportunity to do so.

## 6.0 Conclusion

UK plc can grow through the creativity and energy of the consultancy and engineering sector and through utilising innovative infrastructure funding models. As we have explained the RAB could provide an effective solution to the UK's infrastructure deficit by ensuring that investors are appropriately remunerated and governments can restrain capital outlay and the cost of capital. The RAB can then help manage risk through a long term accounting guarantee for all stakeholders. It should also encourage more private sector activity in UK infrastructure markets.



Some of the UK's most iconic and functional infrastructure was constructed in the Victorian era, from our sewerage to underground systems, when great engineers such as Brunel and Telford identified market opportunities and gaps in infrastructure provision and built it themselves. It is no coincidence that some of the greatest leaps in UK science and technology were made at this time.

Today, in a world of integrated, global engineering firms, there exists the capability for private sector development of the UK's infrastructure base. These firms can help regenerate run down areas through the role of entrepreneurial infrastructure provider and the power of economic development and smart management systems. ACE members can also play a key role in cost efficiency savings

Engineers can support a sustainable recovery, help mitigate climate change and secure the UK's energy supply. The consultancy and engineering sector is crucial in providing the solutions to UK and global challenges. ACE call on the government to give engineers the opportunity to help build the future. This paper helps outline ways that this can happen. This will hopefully trigger some conversations about the future of infrastructure investment and UK plc.