What the future holds for Britain's major infrastructure

The Government's reforms aren't all about neighbourhood planning says Fiona Howie

Fiona Howie is Head of Planning at the Campaign to Protect Rural England

The Coalition Agreement confirmed the Government's intention to promote 'decentralisation and democratic engagement' in the planning system. This, it is claimed, spells the end of 'top-down government' in favour of giving new powers to local councils, communities, neighbourhoods and individuals. The creation of a neighbourhood tier within the planning system has often been the focus of debate around what the Localism Bill will mean for planning in practice.

The Government's commitment to a more local approach does not, however, stretch to planning for major infrastructure. They recognise, as did the previous Government, that there is a need for a separate, efficient and 'fast-track' process. While London may not see the direct physical impacts of much of this development many people argue that new infrastructure will be essential if we are to 'keep the lights on' and enable critical investment. So what difference will the proposed new 'democratically accountable system' really make?

Abolition of the Infrastructure Planning Commission

To be clear, the Campaign to Protect Rural England (CPRE) opposed the creation of the Infrastructure Planning Commission (IPC) and we have broadly welcomed the reforms being made through the Localism Bill. Contrary to some preconceptions of CPRE this is not because we think the new system will be a block to new development. We might not agree with developers or the Government about the scale of the need, or where it should be located, but we recognise the need for infrastructure investment as long as it is properly planned.

We support therefore the proposal to abolish the IPC and to create a Major Infrastructure Planning Unit within the Planning Inspectorate. We also support the clauses of the Localism Bill that will give the final decision on whether or not to approve a major infrastructure application back to the relevant Secretary of State as this reintroduces an important democratic element to the decision making process.

Opponents have raised concerns that this could delay decision making but discussion in the Localism Bill Scrutiny Committee in March should have offered some reassurance. During Committee the Minister for Decentralisation, Greg Clark MP, stated that applications we re 'not something that can sit on the desk of the Secretary of State for as long as he wants to have it there. We are subjecting Ministers to the same time frame that governs appointees to the IPC.' And concerns about possible delays caused by the transition to the new arrangements have also been allayed with the Minister clarifying that 'there will be no requirement for stages to be repeated.'

Parliamentary approval for National Policy Statements

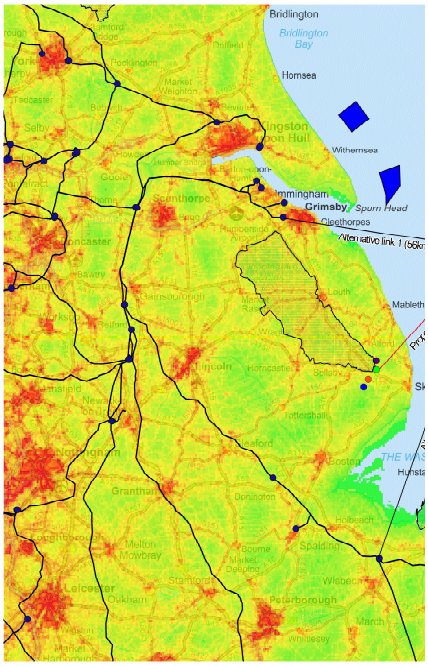
Under the new system the National Policy Statements (NPSs) will be retained. The Localism Bill intends, however, to amend the Planning Act 2008 so these documents are approved by the House of Commons before they can be designated, rather than simply presented to them.

Some people might argue this will make little to no difference to the process, but CPRE believes it is an important change in light of the role of the Secretary of State. As mentioned above a concern about the proposed new arrangements is that Secretaries of State will cause delays to the decision making process by simply not making a final decision. Major infrastructure projects generally have significant impacts on the communities and the built and natural environment within which they are located. This often makes decisions around them controversial. If a NPS has the support of the majority of the House of Commons it should provide some reassurance to those making the tough decisions, and a degree of legitimacy to the final decision. Assuming the decision is in line with the NPS you could also argue that it would enable the Secretary of State to spread the blame for an unpopular decision more widely!

Contents of the NPSs

CPRE is supportive of the principle of NPSs but we were critical of the contents of the suite of draft energy NPSs when they were published for consultation in late 2009. So while we were pleased that the new Government consulted on revised drafts of the documents last year we were disappointed that a number of our concerns remained unaddressed.

There is an ongoing debate about whether or not these documents should be 'spatial'. While we do not believe they should be site specific, we do believe they should set out spatially explicit guidelines



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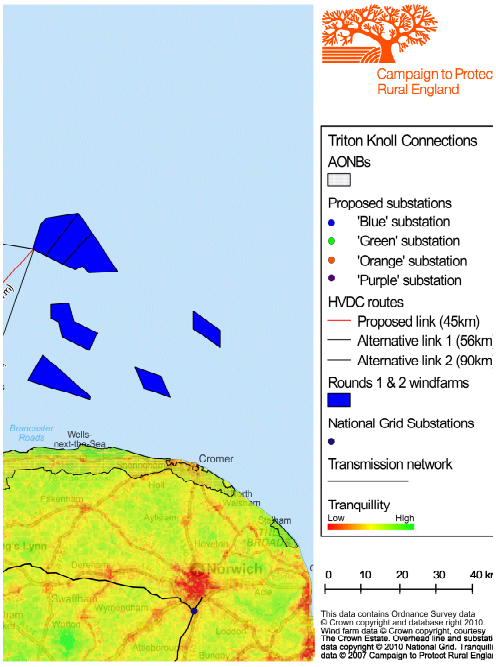
to help direct the future development of energy infrastructure. Giving a stronger steer to decision-makers about the optimum locations for new energy infrastructure would make it more likely that future energy infrastructure could be developed in a coherent manner taking effective account of environmental, social and economic considerations. It could also reduce uncertainty for developers and the public.

Being an environmental charity, with a particular interest in landscape, we are concerned that the absence of more explicit spatial guidance will lead to poorer outcomes for the natural environment. There is also a need for a joined-up approach to ensure that the impacts of the whole development, even if part of it will come forward as a later application, are considered.

The experience of pre-application consultation for the substation required to connect the Triton Knoll offshore wind farm to the national grid highlights the risk of the current approach. The location of the substation is subject to consultation, but the fact that all proposed sites for the substation are approximately 40km from the nearest suitable 400kV overhead lines is not considered. Indeed, the required overhead lines to connect the substation are entirely outside of the consultation and risk being subject to a planning application only after a substation is built. At this stage, an application for the new connection will effectively leave the planning system with the limited options of insisting on substantial undergrounding, accepting unacceptable environmental harm, or refusing the connection and thereby rendering the substation redundant!



We have also been critical about how the need for new energy infrastructure is considered in the NPSs. The revised draft overarching energy NPS asserts the need for 59GW of new generation capacity by 2025. Of this, approximately 16.5GW is already consented, with a further 23GW in the planning process or firmly proposed, as evidenced by National Grid's 7 year statement. In total, there is therefore some understanding of where around two thirds of required capacity for new energy infrastructure may be built. While not all of this will be consented, and some of those projects that are consented may not be built[1], the draft NPS still simply asserts that need has been demonstrated and that it is urgent. But for the purposes of environmental protection, CPRE believes need should be considered in a more complex and realistic manner.

The cumulative amount of consented infrastructure should be considered in relation to how it affects need. If the planning system is required to continue to allocate sites for development after identified need has been fulfilled or is likely to be fulfilled, it will be impossible to protect the natural environment by refusing consent on the basis that the benefits in relation to the fulfilment of need are outweighed by harm to the environment – the core task of an effective planning system CPRE would argue.

Strategic approach to all major infrastructure?

A number of draft NPSs have now been consulted on but the timing of the draft national networks NPS is currently unclear. It should cover the strategic road and rail networks and strategic rail freight interchanges. The Government is, however, currently consulting on a National High Speed Rail Network. The proposals envisage the network linking London to Birmingham, Manchester and Leeds, and having direct links to the High Speed 1 line and into Heathrow Airport.

CPRE is not opposed to the principle of high speed rail but it cannot be consulted on or planned in isolation. It must be integrated into a wider long term transport strategy – which was the aim of NPSs in the first place. We need a national transport strategy that considers how rail connectivity can be improved across the country, environment impacts can be minimised and environmental benefits can be maximised by making rail the mode of choice for long distance domestic travel.

So, while the Government's reform of major infrastructure planning may not be as headline grabbing as the creation of neighbourhood planning, it will be critically important for the whole country. While it is essential to have an appropriate legislative framework, adopting the right strategic policies in the National Policy Statements is vital. •

[1] *Note that this only partially takes into account the spatially explicit proposals for new nuclear power stations.*

A Smarter approach to planning

Steve Hornsby and Robert Musgrove of IBM Global Business Services say we have to be much more long-term and market-focused

Steve Hornsby leads the Asset Management Consulting team for IBM within North East Europe.
Robert Musgrove is the lead for Capital Programme Management within the UK Asset Management team.

Effective infrastructure is fundamental to our economic, our social and our environmental wellbeing Ongoing investment in our infrastructure is critical if we are to sustain and grow our quality of life and prosperity as a nation.

How, where, and when we invest in the development of our infrastructure systems are important and complex questions. If we invest wisely in our infrastructure we provide the platform upon which our cities will prosper, get it wrong and we face severe consequences. Particularly, the threats of security of energy supply and future climate change present significant challenges to our economy, society and environment. This IBM paper considers the balances which must be struck in planning our future infrastructure investment, and asserts our view that the development of "systems of systems" visualisations can provide a powerful perspective which simplifes the complex, draws focus on the critical planning issues, and significantly eases the planning burden.

Our infrastructure comprises a broad array of point and networked assets that include: roads, water pipelines, sewers, power grids, telecommunications, and railways (both above and below ground). The planning, management and maintenance of this infrastructure is complicated as the various components are managed separately by multiple private and public organisations, each accountable to a disparate array of governing bodies and stakeholders.

As such, investment in infrastructure improvement has tended to take place in a piecemeal and unstructured way – and is perhaps one of the reasons why we hear the stories of new roads being re-surfaced one week, only for fresh trenches to be dug the following week to accommodate pipeline replacement or cables laying programmes.

London's infrastructure, in common with many established cities in the western world, is ageing under-maintained and stressed, and in need of significant ongoing investment to support the prosperity of the society it supports. The challenges experienced at the city scale are also replicated at a national scale

New infrastructure is needed not only to meet the challenges of cost reduction, climate change, an affordable energy supply reduction and economic competitiveness and growth, but also to replace the old assets which are often just plain worn out. And where they still have life in them, they frequently need substantial modification or even replacement to meet EU regulations on environment or safety. And then there is the question of capacity as we become ever more populous, ever more urban and place ever more demands on our infrastructure assets and systems.

All this is recognised in the National Infrastructure Plan which we feel is a helpful document. However, we also recognise it as an ambitious plan which will require cross-Government and cross-Industry coordination for it to be realised.

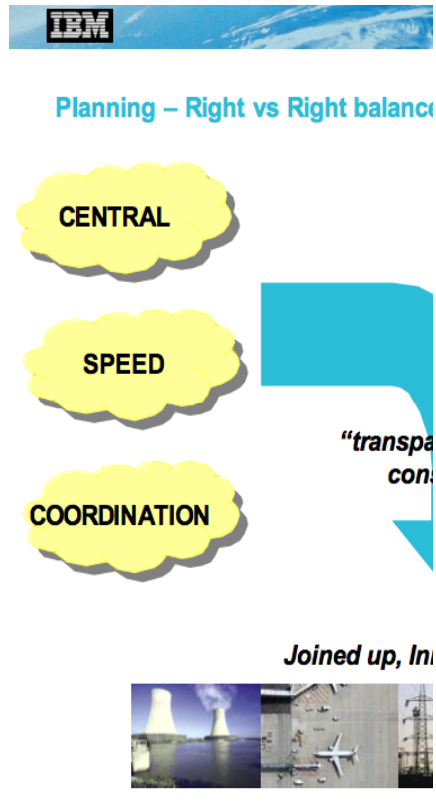
IBM has long been a leading player in IT infrastructure and we are equally concerned with the planning, construction and operation of the next generation of the UK's physical infrastructure - energy, transportation, water and cities. This all comes together in our Smarter Planet vision – of instrumented, interconnected and hence intelligent assets - where digital infrastructure meets concrete and steel to optimise the way things work – getting better outcomes, cheaper, faster and at less risk.

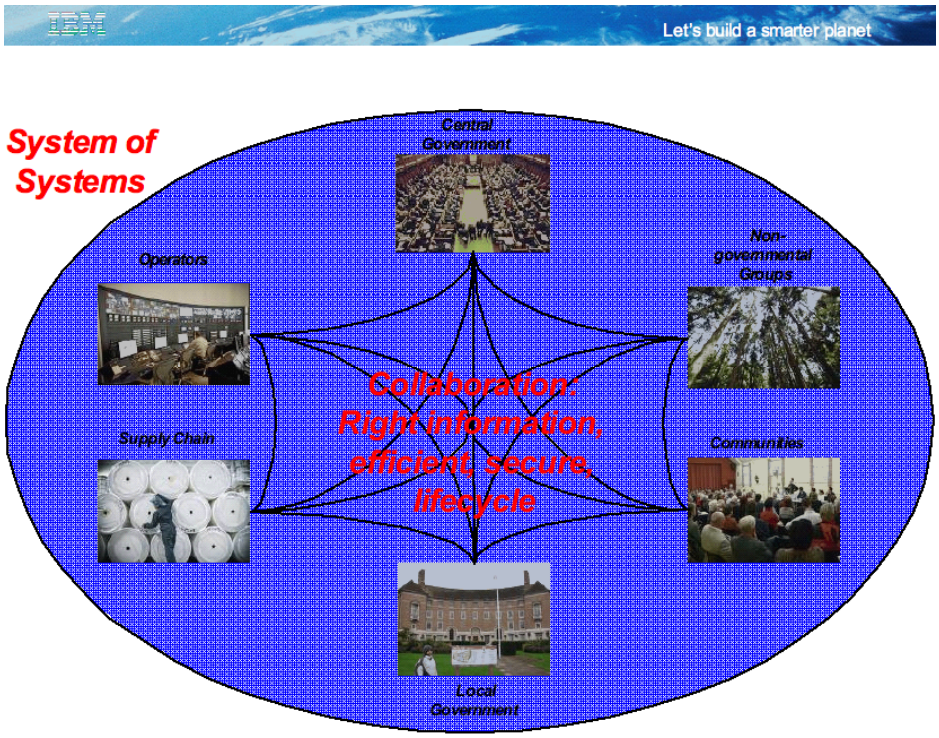
In recent years, through our Smarter Planet agenda, we have started to consider the confluence between this physical world with the virtual digital world. Our view is that to be successful, it will require a Smarter approach – we will not just have to build smarter infrastructure but also build that infrastructure more smartly.

Recent advances in both the creation of "systems of systems" city models and the application of advanced visualisation techniques, such as those piloted in the city of Peterborough, are helping to encourage improved collaboration and support a more effective and more efficient approach to infrastructure planning – at both the macro and the micro level.

As IBM, we are part of the supply chain. What happens to the planning process is not just of great interest to us, it will determine if we can be part of the eventual solution to our country's infrastructure challenges.

And like every other business operating in the UK, our future success, and the prosperity of UK plc, depends on us being able to capitalise on an efficient, effective and intelligent infrastructure. You could say we have a vested interest in the outcome.





Balancing our decision making

Looking at planning across England and Wales, we see the planning process as a series of 'right versus right' balances:

- Speed v Certainty: It is right to build infrastructure quickly to support and sustain the growth agenda, yet it is also right to ensure that a full range of options are explored and evaluated to determine the right answer;
- Coordination v Consultation: It feels right to have expert coordinators taking a strategic role in helping to plan our national infrastructure, yet it is also right to consult the local communities who will be impacted by such schemes;
- Central v Local: It is right that we want a robust national infrastructure requiring national planning to address the strategic needs of the country and it is also right that we consider local planning to meet the specific needs of our cities and local communities.

What may be right at the national level may well create issues at the local level and striking the right balance requires tough decisions. If we consider energy again, the challenge here is not about reaching a simple binary decision on wind versus nuclear; it is about projecting future demand and evaluating generation, transmission and distribution options across the full range of economic, environmental and social impacts.

In this regard robust National Planning Statements (NPS) are essential and provide the foundations for an optimal energy mix, at optimal locations, deliverable within an assured timeframe. The recent additional consultation period should pave the way for eventual parliamentary approval, local government buy-in and greater public acceptance.

So, it's right to focus on certainty, but speed is also critical. We all know the risks of not reaching prompt decisions on energy in the UK; increasing inability to meet national energy needs; over dependency on international markets; and the issues associated with fossil fuel emissions and climate change. We also recognise that a smooth planning process requires significant collaboration that transcends both national and local stakeholders

IBM believes that to achieve the right balance we need to develop the systems to present and share information in a form that will support collaboration across the disparate stakeholder organisations to support an efficient and effective planning process.

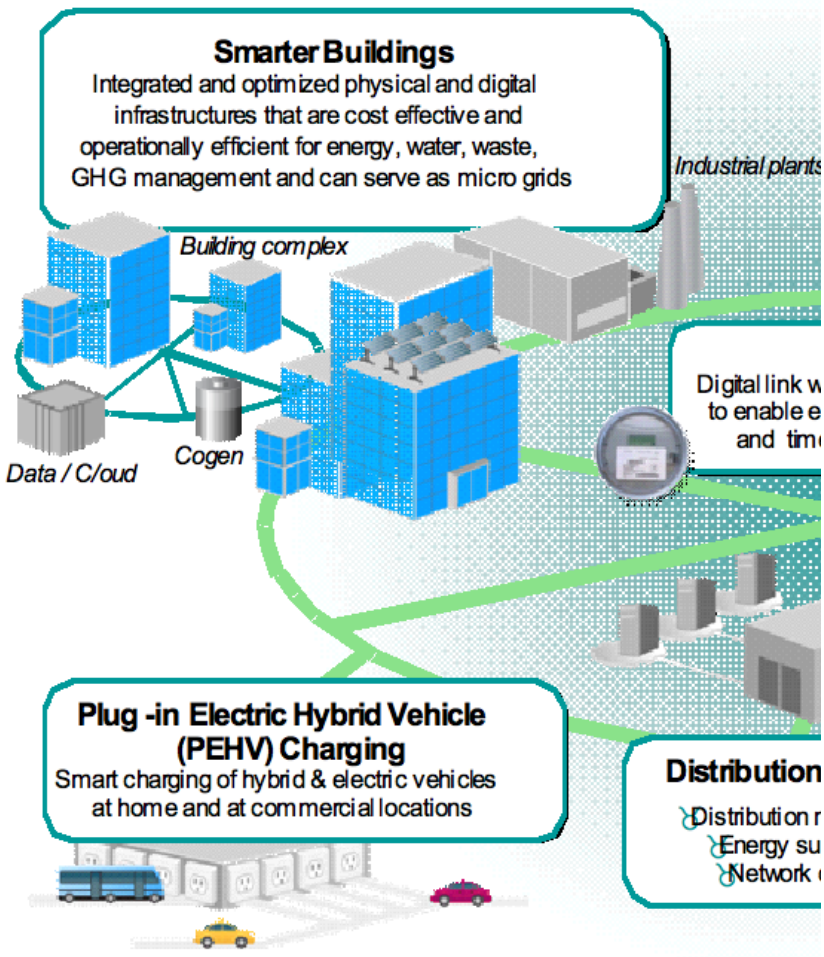
In terms of planning, a "system of systems" view can be used to visualise, for example,

- how materials will be transported to site and how the traffic will be managed;
- options for the delivery of power, water and telecommunications
- how the development may impact the environment;
- how future climate change scenarios could impact on the proposed developments (e.g. flood scenarios)
- how the development may impact residents and the view from their homes;
- how the development will evolve across the duration of the programme cycle providing a site vista from various perspectives; and
- how site workers may affect the local environment and economy through analysis of worker volumes, location, movement and likely spend.

Not only can such visualisation improve the process prior to consent but build and operate phases can be optimised through the capture of all forms of asset information during the lifecycle.

The "Peterborough Model"

At the city level it is worth considering how Peterborough has taken a lead with its Sustainable City Visualisation Project. Here IBM, Opportunity Peterborough, Royal Haskoning and Green Ventures have collaborated with Peterborough City Council to build an innovative and interactive solution for visualising city infrastructure and sustainability issues, including energy, water transport, waste, social and ecosystem data. The visualisation platform provides integrated views of Peterborough's infrastructure and environmental performance



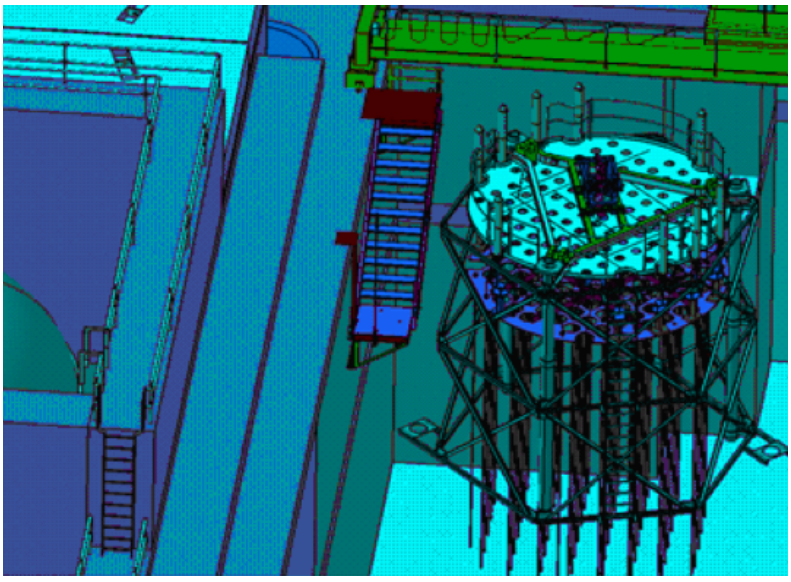
which enable government agencies, local businesses, public utilities and citizens to collaborate to better understand the infrastructure challenge at the city scale, and to work effectively with utility suppliers to plan the long term energy and water infrastructure for a sustainable future.

Peterborough City Council Leader Councillor, Marco Cereste, states that the Peterborough visualisation "is setting a global lead with a big picture overview of its current sustainability performance. It identifies how organisations and individuals can collaborate and prioritise investment to secure truly sustainable growth."

The visualisations already developed for Peterborough - are precisely the type of integrated, multi-criteria decision making solutions which would ease the planning process from both the perspectives of: those looking to submit, those looking to evaluate; and those with whom one must consult and communicate.

Such 'system of systems" models can be used for multiple purposes:

- During strategy planning and development cycles
- As a tool that shows infrastructure overlays between organisations to help identify opportunities, overlaps and pinch-points. The Peterborough Model can be used as a basis for an informal review to evaluate, challenge, prioritise and shape infrastructure development plans.



Accelerated community engagement and cross-organisation consultation

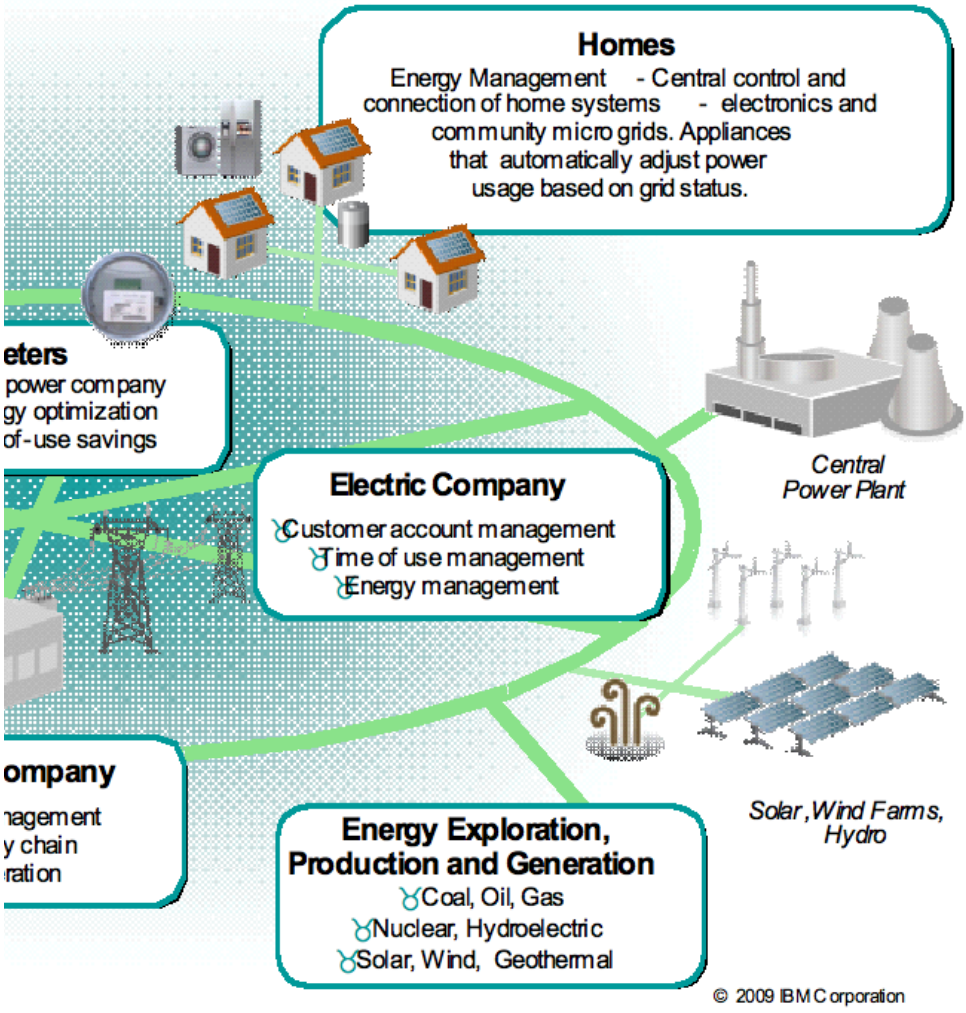
To achieve accelerated community engagement and both formal and informal consultation. There are many different organisations working across all cities to drive similar behaviour changes, although they may be aiming for different ultimate targets. These Models provide the opportunity for organisations to engage with communities in collaboration, which is likely to both achieve cost savings and result in more successful outcomes.

Peak demand management

To model, plan and improve the management of peak demand for both energy and water utilities and to assess and optimise infrastructure solutions needed to meet future demand patterns.

A Smarter approach to programme delivery

As indicated earlier there is a need to build the required infrastructure more



smartly. Based on a review of previous capital programmes, we have identified five themes for smarter Programme Delivery:

- Smarter governance – leadership which is empowered to make decisions on behalf of the stakeholders, and structures which support the determination of timely decisions
- Smarter team-working – programme teams, potentially spanning organisations, comprising the right people with the right skills
- Smarter information - that is accurate, up to date and accessible across the delivery eco-system to provide the basis for timely and decision making
- Smarter processes - which promote clarity, structure and accountability
- Smarter environment - which fosters collaboration, innovation and knowledge sharing.

Looking forward

As the National Infrastructure Plan notes, as a nation we face an unprecedented series of challenges. There is significant demand for ongoing investment in UK infrastructure, yet UK public finances are stretched and our infrastructure programmes are competing for a finite pool of investment funds. Hence there are a number of macro imperatives which concern our planning process:

- "Austerity": Public funding is limited, so we must (i) be more efficient overall (the cost / benefit for the country as a whole of some choices could mean speed is more important than individual cost) and (ii) get private funding flowing.
- "Growth": Getting energy infrastructure right will be vital to the success of UK Plc both for the economy served by the infrastructure and the new economy required to create it.
- "A Systemic Solution": Everything is interconnected, so we simply cannot treat each component separately, e.g. Electronic vehicles without the smart grid to mitigate their demand impact and allow them to smooth intermittency of renewables?
- "Low Carbon": We need the optimum net carbon outcome which works for society and the economy. This may not mean lowest carbon absolutely in every single choice.

Projects such as the Peterborough initiative are showing the way forward. They are bringing together the interested, but disparate stakeholders; they are helping to visualise the impact of future demands; and they are helping to shape and prioritise a more integrated approach to planning. Yet such initiatives, on their own, provide only part of the solution. Looking ahead we must be:

- Much more long-term and market-focused;
- Focused on encouraging both innovation and entrepreneurship;
- Focused more on overall net outcome and less on component outcome (e.g. storage may never be attractive on its own but may be vital as a cog in the system).

This approach may result in some very different planning outcomes. This may bring more profound change than fine-tuning the process, re-running consultation or changing the people who make the end decision. •