



Developing the Green Print for economic regulation

R190 for 2050



Enabling net zero

We are now at a crucial point in the journey towards net zero: where we must turn ambition into action, and delivery for the benefit of consumers and wider society. As the UK's largest gas distributor we are acutely aware of the scale of change needed and are focused on playing our part. To enable the energy sector to make changes at pace, we need to ensure regulatory and industry frameworks are fit-for-purpose to support the energy transition.

The regulatory framework to deliver net zero

Over the past 18 months, the UK Government has set out a range of policies and strategies which collectively provide a road map for net zero delivery. These include The Energy White paper, The Hydrogen Strategy, The Net Zero Strategy and The Heat and Buildings Strategy.

Alongside this, we have been leading on key projects to develop hydrogen and other green gases to replace fossil fuels to heat our homes and fuel our economy – put simply, ‘keeping people warm, while protecting the planet’ – our new purpose.

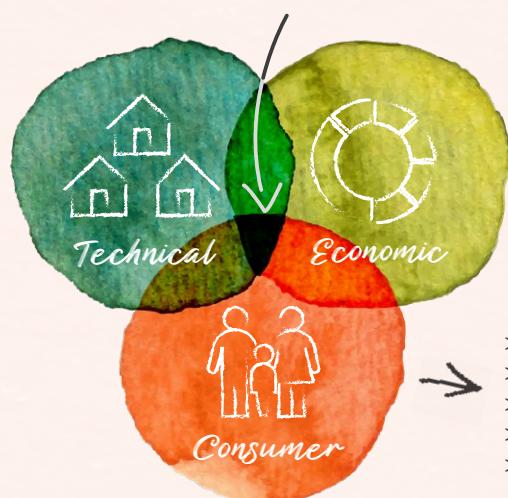
We are also actively contributing to the debate on how we achieve net zero and published the report ‘Our Green Print – Future Heat for Everyone’ last year. This goes beyond current thinking on the economic and technical aspects of achieving net zero which are typically covered, and argues for the need to place consumers properly at the centre of the debate (as illustrated below).

Our Green Print emphasised the need to review and reconsider whether current industry and regulatory frameworks are sufficient to bring forward investment, cope with uncertainties and unlock the right transition pathway to support net zero. Our ‘RIO for 2050’ initiative is intended to develop the thinking to address this.

Building on our experiences of the RIIO-GD2 price control process we have identified five key priority areas that need to be addressed for the benefit of consumers and wider society. We believe it is now timely to discuss these as Ofgem are expected to publish their Open Letter on the process for RIIO-GD3 this summer. In the build up to this, and throughout the RIIO-3 process, **we will be seeking to play a leading role by engaging with Ofgem, Government and the wider industry to help develop the right collective solutions to the challenges we face in making the transition to net zero happen.**

Our Green Print Future Heat for Everyone

- > Scale
- > Homes
- > Networks
- > Storage
- > Resilience
- > Transition



- > Production
- > Infrastructure
- > Appliances

- > Awareness
- > Cost
- > Reliability
- > Disruption
- > Choice

Open here to
read more about
our key priorities

The priorities

1. Determine robust scenarios across electricity and gas

to support consistent whole-systems planning



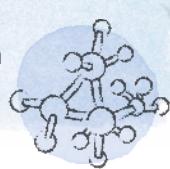
3. Create the right price control framework

to incentivise investment and promote change at pace



4. Ensure detailed rules and structures

are in place to develop hydrogen



5. Support customer choice and affordability

to deliver the right transition at a fair cost



2. Establish the correct roles and responsibilities

to support the functioning of new markets and improve coordination



1. Determine robust scenarios across electricity and gas

The precise mix of energy solutions we will require to reach net zero remains very uncertain, particularly for domestic heating. A number of organisations (the Climate Change Committee (CCC), and National Grid ESO amongst others) have developed future scenarios for how energy needs could be met in a net zero economy, which show a wide range of potential solutions. Electricity and gas networks have then been encouraged by Ofgem to take a 'whole-system' view when forming investment plans.

In practice, it has been challenging for networks to do this, and this is exacerbated by price review processes that are undertaken at different times for electricity and gas, meaning investment plans may be being produced that are not in all cases taking a whole systems view. This creates the risk of assumptions and decision-making not being effectively joined up.

For example, electricity distribution plans for RIIO-ED2 consider increases of electric vehicle and heat pump connections and are seeking significant expenditure allowances to expand electricity networks. However, hydrogen and other technologies (such as heat networks) could also play a significant role in delivering a solution in heat and transport as well as supporting greater UK energy resilience.

We need to ensure investments are robust to the different energy pathways that customers may choose, whilst also enabling that choice. Customers will then be protected against paying for any potentially unnecessary investments and supported in adopting optimal solutions.

2. Establish the correct roles and responsibilities

Delivering the future scenarios and developing new energy vectors like hydrogen will also require significant coordination and systems planning as well as the establishment of new roles and responsibilities across industry.

Our work on HyNet and across other key hydrogen demonstration projects has highlighted the need to consider what new/different roles and responsibilities need to be played to support the development of this new energy vector. This also includes how these projects and the development of hydrogen is regulated, by who and how this could change over time.

Local area energy plans will also be crucial. Our work with Electricity North West to develop Greater Manchester's local decarbonisation pathways was a very effective way of planning at a local level and similar plans will aid our understanding of how the transition is likely to occur. At present, however, there is a lack of clarity over how these feed into national policy and the regulatory framework.

In addition, even with alignment of scenarios, a real question still remains as to whether the current institutional framework is able to effectively plan long-term electricity and gas capacity needs. A new entity may be required to undertake this systems planning and coordination, which could be the Future System Operator (FSO) that BEIS and Ofgem are currently consulting on. It must, however, be given sufficient focus on the long-term to be effective.

Establishing the correct roles and responsibilities in each of these areas will support customers by ensuring the right solutions are developed to support different energy transitions across different regions of the UK.

3. Create the right price control framework

Ofgem's RPI-X framework successfully managed the transition of public utilities to privatised network companies, driving out cost inefficiencies. This was followed by the current RIIO framework which built in greater incentives to ensure better delivery of outcomes for customers. However, their success relied on a relatively stable operating environment.

Today, there needs to be a long-term sustained shift in what energy networks need to deliver: increasing the level of investment in new and uncertain technologies (with the CCC estimating the need for an additional £50bn per annum by 2030). We therefore have to ask – is the current framework fit-for-purpose?

Key to this is understanding whether there are sufficient incentives to move from focussing on productive efficiency to delivering huge levels of investment at a low cost to customers. Ofgem recently finalised its RIIO-GD2 control for Gas Distribution Networks. This provided the ability to re-open arrangements to take decisions on investments more regularly as uncertainties are resolved. However, it is unclear if being able to do this will be sufficient to support meeting targets. Greater regulatory intervention with re-openers and a lack of wider incentives to invest over and above pre-set allowances inhibits network desires to bring forward critical net zero outputs.

To provide focus on meeting net zero goals, it is also necessary to consider if/how regulatory frameworks can be implemented in a more simplified way. For example, the Network Output Measures and Network Asset Risk Metrics introduced by Ofgem have the potential to be powerful tools to manage asset risk. In practice though they have been complex to implement – creating significant cost and burden on Ofgem and networks.

Ensuring the regulatory framework incentivises investment and delivers outputs in a more simplified way will support customers by ensuring net zero is achieved on time and for an efficient cost.

4. Ensure detailed rules and structures are in place to develop hydrogen

In our Hydrogen Ten Point Plan we set out commitments to deliver: the UK's first scaled blended hydrogen facility by 2025 and the development of at least 5GW of hydrogen by 2030 through HyNet.

To support the growth of blended and full hydrogen markets, it is essential for greater emphasis to be placed on enabling regulatory and industry rules and structures (e.g. codes, charges, and other mechanisms). This includes considering what barriers there currently are to developing hydrogen and how these can be overcome. For example, through changes to current industry charging approaches to support green gas entry or through development of new business models as previously developed for offshore wind and nuclear and currently being considered for carbon capture, usage and storage (CCUS).

The net zero energy system more generally will also need to function in a far more joined up way than today. For example, in sectors such as heat, industry and transport where gas, electricity, CCUS and heat networks will all have roles to play to support resilience in supply. Therefore, going forward we need to understand and consider what additional interface issues could arise and what measures need to be introduced to support greater integration across energy vectors.



Ensuring the right structures are in place to facilitate the development and integration of hydrogen into the energy system will support customers by providing greater diversity of energy supply and net zero solutions.

5. Support customer choice and affordability

The impact of decarbonising home heating will be felt by consumers in a very personal way. In making any choices they will need to weigh up a number of factors including: cost, the disruption arising from installation, reliability and user experience. At present, this is complicated by some solutions, such as heat pumps, being available to install today and others still being in development. So that customers can make the right decision for their homes it's important to build optionality into network planning and investment. This means bringing forward projects at pace to prove new technologies that may better serve certain customer needs.

Greater levels of investment, however, needs to be balanced with short-term affordability – which recent increases in costs of living have brought into sharp focus. New technologies will benefit the UK as a whole, but the costs of their development are likely to fall unequally. Current approaches to charging are related to energy consumption making them regressive – disproportionately impacting those least able to pay. We therefore must determine the right level of expenditure to provide choice at an affordable cost and consider changes to charging structures, approaches to network depreciation and other levies to share the cost of the transition in a fair way.

Placing greater emphasis on supporting optionality and affordability in Ofgem's price controls and in charging approaches will allow customers to make the right decision for their home heating and ensure they pay a fair cost to transition.

These issues each require urgent attention.

Progress is needed in all of the areas listed above ahead of RIIO-3 settlements for gas (2026) and electricity (2028) to ensure we can put the necessary steps in place between 2026-2033 to meet net zero goals.

For each priority area we intend to focus on these key questions:

1 Determine robust scenarios across electricity and gas



What could consistent future scenarios look like across energy networks to support investment planning?

How can these scenarios be phased to push forward low-regret investments?

How can we better align price reviews to promote consistency in assumptions, structure and outcomes used by networks for planning and Ofgem in assessing investment options?

3 Create the right price control framework



How can price control building blocks (outputs, incentives, base costs, returns, uncertainty mechanisms, timings and scope) be built on to support the energy transition at pace?

Whether a different approach is needed for methane and investments that support hydrogen?

How can we simplify aspects of the current regulatory regime while maintaining benefits?

5 Support customer choice and affordability



How much value do customers place on having choice in their source of heating?

How can price controls be built on to support greater optionality in net zero solutions at an affordable cost to customers?

What changes to charging approaches or extra protections are needed to support those least able to contribute to the costs of the transition?

2 Establish the correct roles and responsibilities



What roles and responsibilities are needed to develop and facilitate a new hydrogen market? How should regulation work and how could this differ from methane today?

What could a new process for local energy plan development, assessment and delivery look like?

What is the appropriate role/remit of an FSO to support coordinated energy planning?

4 Ensure detailed rules and structures are in place to develop hydrogen



How do industry and regulatory structures need to evolve to support the development of blending and full hydrogen networks alongside electrification? What new mechanisms are needed to relieve potential barriers?

How should the different stages of hydrogen demonstration projects be regulated?

What new regulatory and industry structures are required to support greater integration across energy vectors?

Next steps for the work

Understanding what RIIO for 2050 should look like – developing solutions

We have set out our initial views on the priorities for the regulatory framework needed to deliver net zero. In the run up and throughout Ofgem's Open Letter process for RIIO-GD3, we seek to play a leading role to engage widely across networks, industry and with Ofgem and Government to bring these issues to life and develop solutions.

Have we captured the right issues? How can you get involved?

We have discussed these issues in a broad way with a number stakeholders including Ofgem and BEIS but would welcome further views.

Solutions to complex issues are never straightforward and there are rarely singular approaches. We'll be reaching out for a wide range of views and ideas, if you would like to get involved, please get in touch.

You can contact us at RIIOfor2050@cadentgas.com

About Cadent

Cadent is the largest gas distribution company in the UK

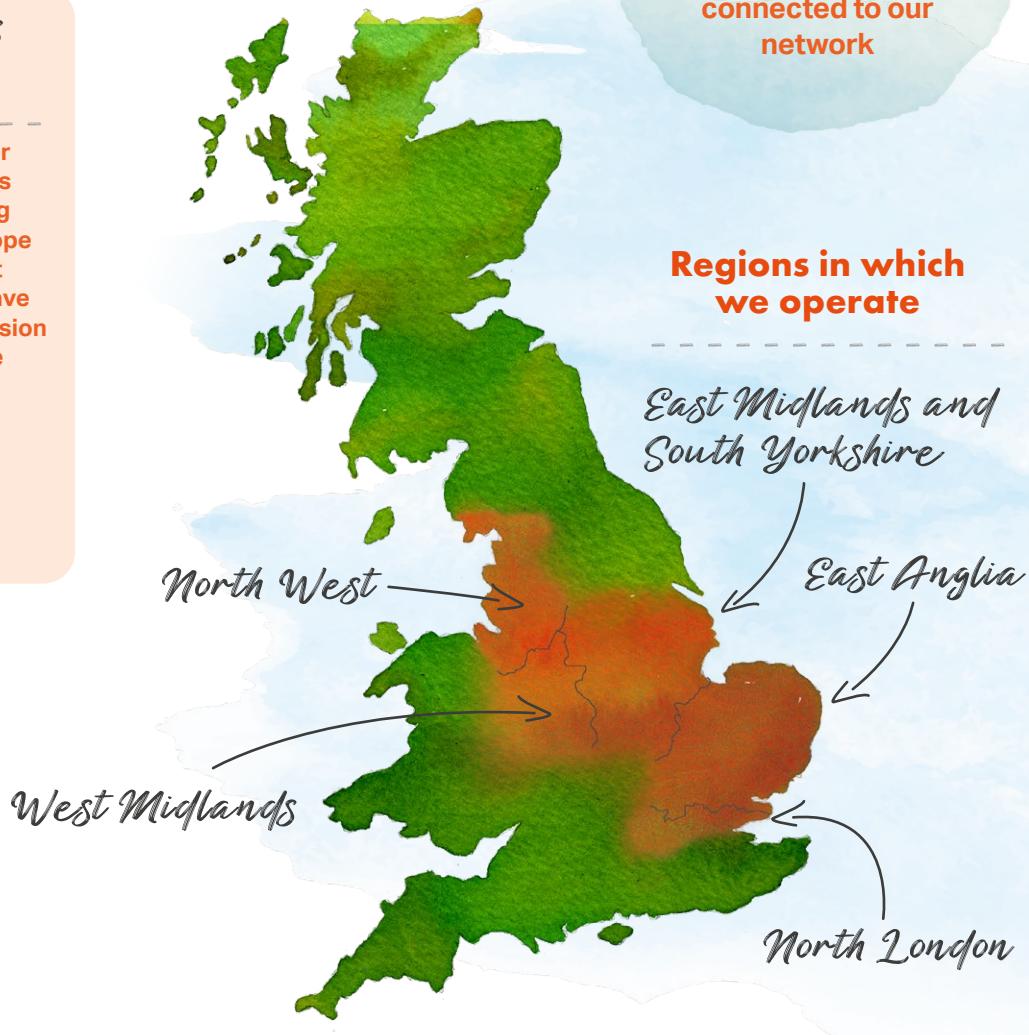
We deliver natural gas to over 11 million homes and businesses throughout the North West, West Midlands, East Midlands, South Yorkshire, East of England and North London. We are responsible for the installation and maintenance of the gas distribution network, ensuring that it operates safely and reliably for those who need it. We also help homes, businesses and renewable gas suppliers connect to our network.

We are in the process of demonstrating that the conversion of our existing gas network to deliver 100% hydrogen is safe, technically feasible and economical. As part of this programme, we are exploring blending hydrogen and the process of conversion to 100% hydrogen.



What about Cadent's carbon footprint?

We are committed to addressing our own emissions, having set ourselves the ambition of our operations being net zero by 2026. We've set new scope 1 and 2 targets in line with the latest science-based methodology. We have also started to introduce zero-emission vehicles into our operations and are committed to further significant reductions in methane emissions from gas leakage.



#RIOfor2050

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