National Grid – Gas Industry Forum

23rd October 2014

Paul Rogers

Stakeholder Deliver Manager

Gas Distribution

UK GAS DISTRIBUTION

Outline for the day

10:00 – 10:30	**Refreshments / Registration**
10:30 – 10:40	Welcome and Introduction
10:40 – 11:00	Gas Distribution - Stakeholder Commitments Update
11:00 – 11:20	Gas Distribution – RIIO Delivery 2013/14 outputs
11:20 – 11:40	**Break for Refreshments**
11:40 – 11:55	Gas Distribution - Pricing update
11:55 – 12:15	Industry Updates
12:15 – 12:35	Emergency Planning 2014 Exercise output
12:35 – 12:55	Bio-methane Connections Overview
12:55 – 13:55	**Break for Lunch**
13:55 – 14.25	REMIT / EU Gas Target Model
14:25 – 14:45	Winter Outlook / Future Energy Scenarios outputs
14:45 – 15:00	AOB
15:00 – 15:15	**Feedback / Close**

House Keeping

No fire alarm tests scheduled

Smoking only permitted in designated areas

Phones on silent

Introduction to National Grid Gas Distribution

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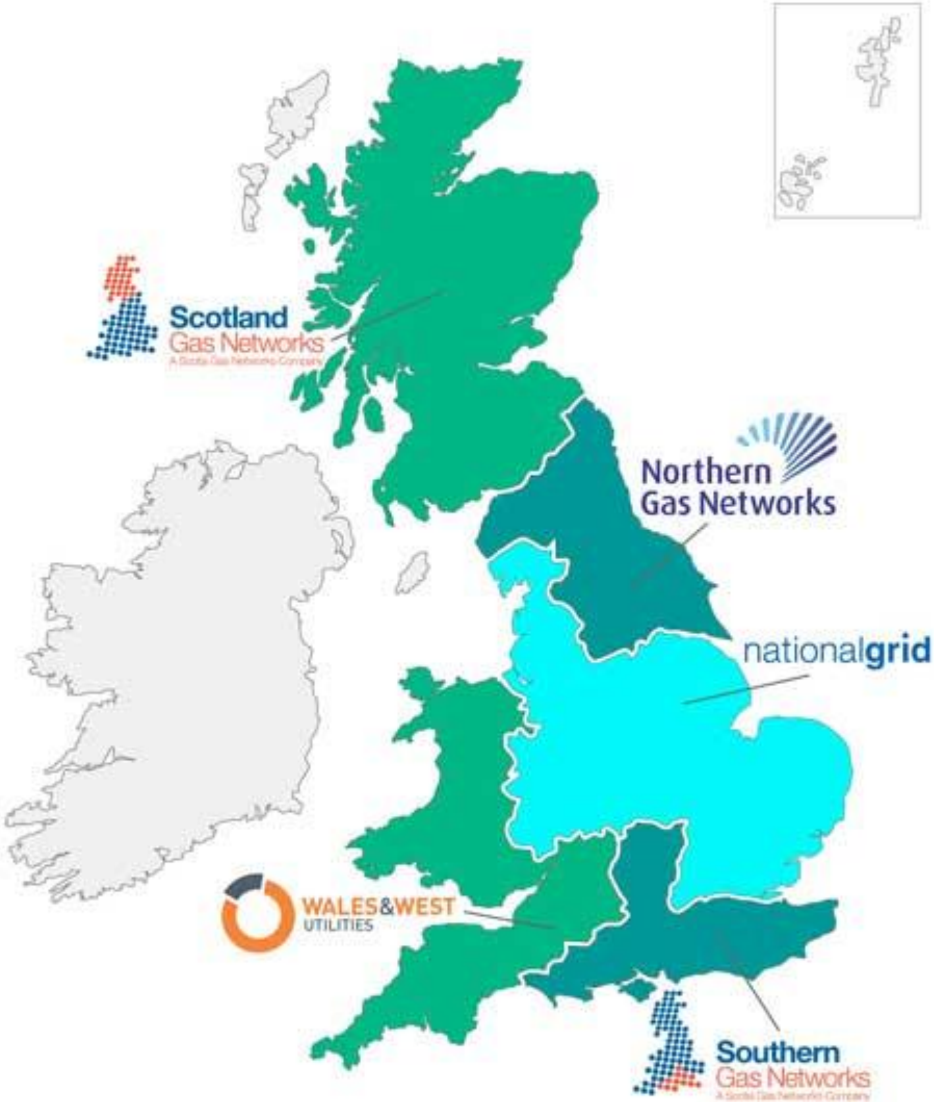
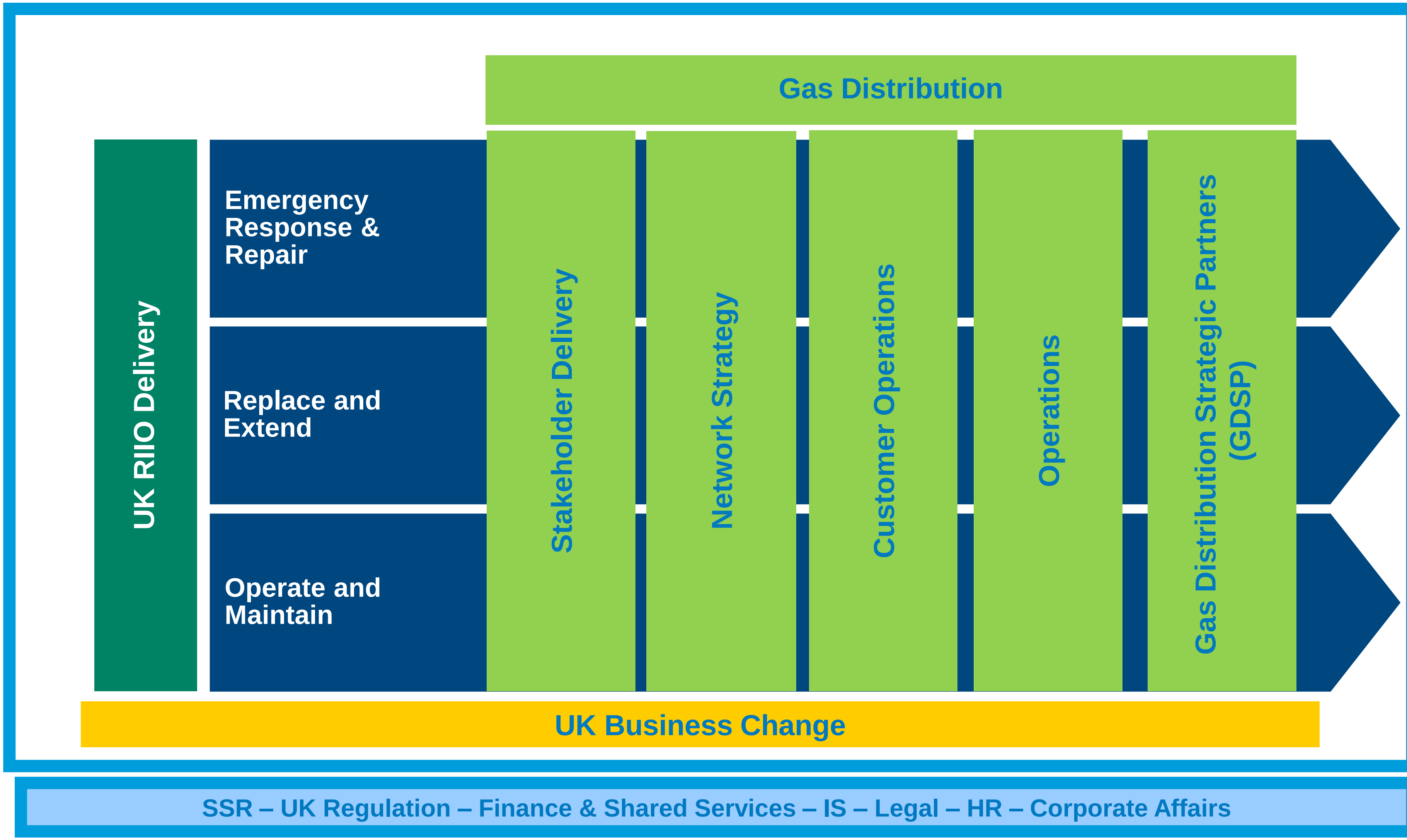
Distribution Network Companies



Gas distribution



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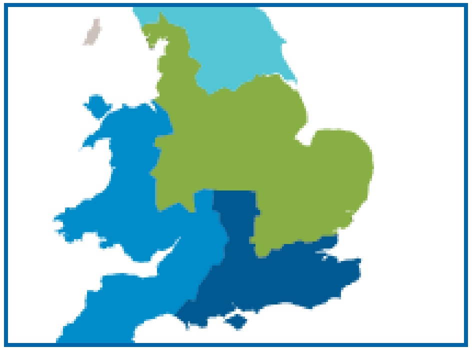
Scale of our operations



131,000 kilometres of pipelines

26 active gas shippers

10.8 million consumers

operate 24 hours a day, 7 days a week

£400 million running the gas emergency service

Reducing risk of iron mains over 8yr RIIO

maintain gas distribution above ground assets

replace complex gas mains

Annual increases in customer satisfaction

over 3 million calls per year

meter number enquiry service

enquiries line

appliance repair helpline

national gas emergency number (0800 111 999)

Reliability levels of 99.99%

533,000 emergency jobs

616,000 metering jobs

70,000 repair jobs (7000 caused by 3rd parties)

24,000 connections jobs

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c5,000 fuel poor homes connected to gas p.a.

45 live biomethane connection projects

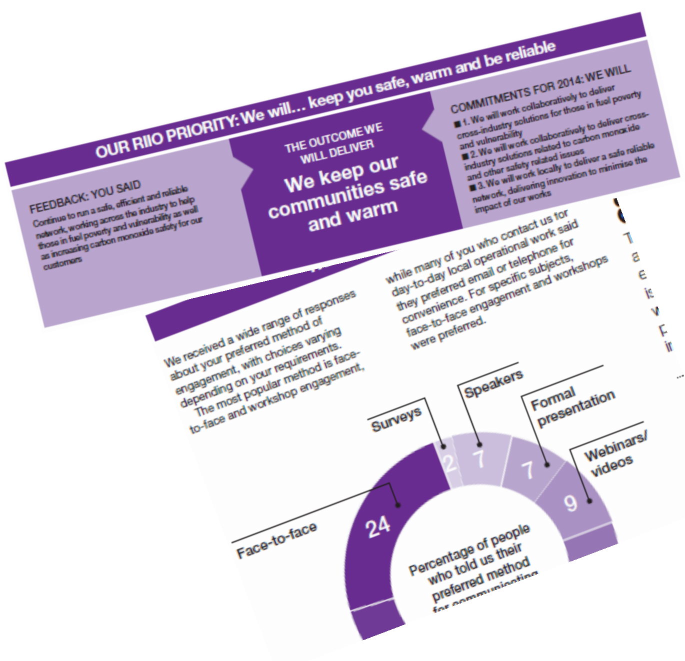
Gas Industry Forum
October 2014

Stakeholder Commitments
Sangeeta Squires

UK GAS DISTRIBUTION

Our Stakeholder Commitments

- April 2014 launched our 12 commitments for 2014/15
- Based on stakeholder feedback from ‘Have Your Say’
- Designed to deliver the outcomes you want
- **‘Committing to you for 2014’ on Talking Networks**



Outcomes for 2014/15

OUR RIIO PRIORITY: We will… keep you safe, warm and be reliable

FEEDBACK: YOU SAID

Continue to run a safe, efficient and reliable network, working across the industry to help those in fuel poverty and vulnerability as well as increasing carbon monoxide safety for our customers

THE OUTCOME WE WILL DELIVER

We keep our communities safe and warm

COMMITMENTS FOR 2014: WE WILL

- 1. We will work collaboratively to deliver cross-industry solutions for those in fuel poverty and vulnerability
- 2. We will work collaboratively to deliver cross-industry solutions related to carbon monoxide and other safety related issues
- 3. We will work locally to deliver a safe reliable network, delivering innovation to minimise the impact of our works

OUR RIIO PRIORITY: We will… deliver quality service

FEEDBACK: YOU SAID

Continue our involvement in industry meetings; understand others' issues while facilitating changes to the gas industry, working together with local and highways authorities to improve our streetworks as well as providing timely honest communication to all

THE OUTCOME WE WILL DELIVER

We are easy to do business with

COMMITMENTS FOR 2014: WE WILL

- 4. We will play our role in industry change, working collaboratively and across the industry while understanding the issues of others
- 5. We will be active in our communities, keeping them informed of local plans, working with others for solutions, and increase visibility of what we do
- 6. We will take an open and honest approach to develop effective working relationships, listening to our stakeholders and acting on their feedback

Outcomes for 2014/15

OUR RIIO PRIORITY: We will… safeguard future generations

FEEDBACK: YOU SAID

Make changes to improve our bio-methane connection process, looking to innovation for new ways of working while considering the environmental impact as well as telling the story for the future use of gas

THE OUTCOME WE WILL DELIVER

We're developing a future network to connect you to your energy

COMMITMENTS FOR 2014: WE WILL

- 7. We will continue to improve and modernise the sustainable gas connections process
- 8. We will focus on innovation facilitating new uses of gas sources
- 9. We will continue to articulate the story for gas, with a focus on the environment, while providing long-term value for money for consumers

OUR RIIO PRIORITY: We will... provide value for money

FEEDBACK: YOU SAID

Provide information on how we spend your money, sharing our RIIO performance widely. Review our processes to identify areas to improve, and work with smaller companies and our supply chain to focus on innovation and reduce costs

THE OUTCOME WE WILL DELIVER

We are delivering value for money

COMMITMENTS FOR 2014: WE WILL

- 10. We will provide transparency of costs and how money is spent, as well as how we are delivering our RIIO targets
- 11. We will focus on our end-to-end processes bringing improvements and efficiencies
- 12. We will work across our supply chain, including smaller organisations, and identify areas for collaboration

We keep our communities safe and warm

Commitment	Update	Status
1. Cross-industry solutions for fuel poverty and vulnerability. *(includes commitment no. 14 from 2013)*	**Fuel Poverty**: Leading cross-industry off-gas grid working group - developing a database of off-gas grid properties, inform and shape government policy, develop solutions for those in fuel poverty. **Vulnerability:** Leading industry wide Customer Safeguarding Working Group (CSWG) - identify & provide fair and tailored response to eligible customers through coordinated industry approach. 3 sub groups: Data, Shared Best Practice, Incidents & Severe Weather.	G
2. Cross-industry solutions for carbon monoxide and safety related issues.	**Gas Safety & CO:** Input into conferences, including launch of Gas Safe week at House of Commons. Working with GDNs and industry, e.g. Gas Safe Register, All-Party Parliamentary Carbon Monoxide Group, IGEM, Policy Connect. Partnered with Staffordshire Fire Service – co advice and alarms to vulnerable customers. Aim to roll out to other networks. Fresher fairs to raise students' awareness, supported home safety comic for school children with other GDN's.	G
3. Deliver a safe reliable network, innovate to minimise impact of our works. *(includes commitment no. 6 from 2013)*	**Innovation & Minimising Impact**: Trials in 2 new keyhole technologies - CISBOT - robotic machine seals and strengthens many joints in one excavation; TORS - Tier One Replacement System renews a street's gas main, only one excavation at each end of the road. Sharing long term mains replacement plans with Local Authorities in many areas, developing plans and engaging LA's where we haven't.	A

We are easy to do business with

Commitment	Update	Status
4. Play our role in industry change and understand the issues of others. *(includes commitment no. 2 from 2013)*	**Industry Change:** driving changes to UNC for Project Nexus (major industry system changes). Assisting and guiding shippers to develop modifications. Reduced shipperless and unregistered sites by 30%. **Understanding Issues:** Stakeholder days, gas industry forum days providing insight into our business and industry changes. Identifying key issues and solutions for stakeholders preparing for Smart metering roll out.	A
5. Active in our communities, keeping them informed of plans, increase visibility of what we do.	**Active in Communities & Increase Visibility:** QR code trial on street barriers & online information about our works. Feedback on size, position, colour, information and more promotion to local stakeholders affected by our works. Asked to share at future industry conferences. Trialing new gas distribution visual identity on barriers in London network to increase visibility of what we do.	A
6. Develop effective working relationships, listen to stakeholders, act on feedback. *(includes commitment no. 7 from 2013)*	**Listen & Act:** Building a customer panel for ongoing feedback (telephone surveys, face-to-face focus groups, on-line discussions). Cost-effective. 1,000 customers inputting into improvement initiatives, starting with our gas mains replacement process. **Effective Relationships:** With National Grid Land & Development, implementing final stages of a one-stop shop provided by AMEC, for gas distribution and gas transmission strategic planning requests from Local Authorities.	G

We are developing a future network

Commitment	Update	Status
7. Improve and modernise the sustainable gas connections process.	**Sustainable Gas Connections:** First commercial bio-methane project in Oct 2013. Several process changes after feedback (internal and external). New technology and revised gas sampling regime. Commissioned three further projects and will continue to capture the learning.	A
8. Innovation, facilitating new uses of gas sources.	**Innovation & Gas Sources:** With our partners, obtained funding to build renewable gas production plant - thermal gasification of domestic and commercial waste. Completion due in March 2017. By early next decade a fleet of BioSNG plants could be in operation, injecting large quantities of renewable natural gas into Britain's gas pipelines. Extensive research into CNG for large vehicles to establish benefits and if our gas network can support it. Engaging Department of Energy and Climate Change and Department for Transport.	G
9. Articulate story for gas, focus on the environment, provide long-term value for money for consumers. *(includes commitment no. 12 from 2013)*	**Environment & Value for Money:** Assessing long-term options for the gas grid, impacts of bio-methane, other gas sources such as shale gas. Working with the GDNs to look more specifically at the gas distribution impact of different futures.	G

We are delivering value for money

Commitment	Update	Status
10. Transparency of costs and how money is spent and delivering our RIIO targets. *(includes commitment no. 28 from 2013)*	**Transparency of RIIO Targets:** RIIO performance document on Talking Networks in Sept 2014. Safety and reliability performance, customer and environmental outputs. **Transparency of Costs:** Engaging shippers at the Distribution Charging Methodology Forum on data required for transportation charging. Provided information for shippers to gain visibility of our charging changes.	G
11. End-to-end process focus, brining improvements and efficiencies.	**Process Improvements:** Using Lean methodology to improve our process for responding to design queries from UIPS / IGTs, by balancing workload and resource to drive efficiency, customer focus and reducing waste. Will change the related telephony system, held review sessions to identify improvements that make it easier for customers and stakeholders to contact us.	A
12. Work across supply chain, including smaller organisations, and identify areas for collaboration.	**Supply Chain & Smaller Organisations:** In the process of implementing a new Supplier Contract Control Framework covering the end to end contract management process and will include sourcing. We will work with our supply chain as this develops.	A

What next?

November
2014

February
2015

April
2015

Acting on Your Ideas
2014/15

Have Your Say
2015/16

Collate Feedback

Committing to You
2015/16

Talking Networks

Your feedback and ongoing input is very much welcomed.
We'll also email the survey to you.
Register for updates!

National Grid Gas Distribution

Our Performance 2013/14

Tony Nixon

RIIO Strategy and Innovation Manager

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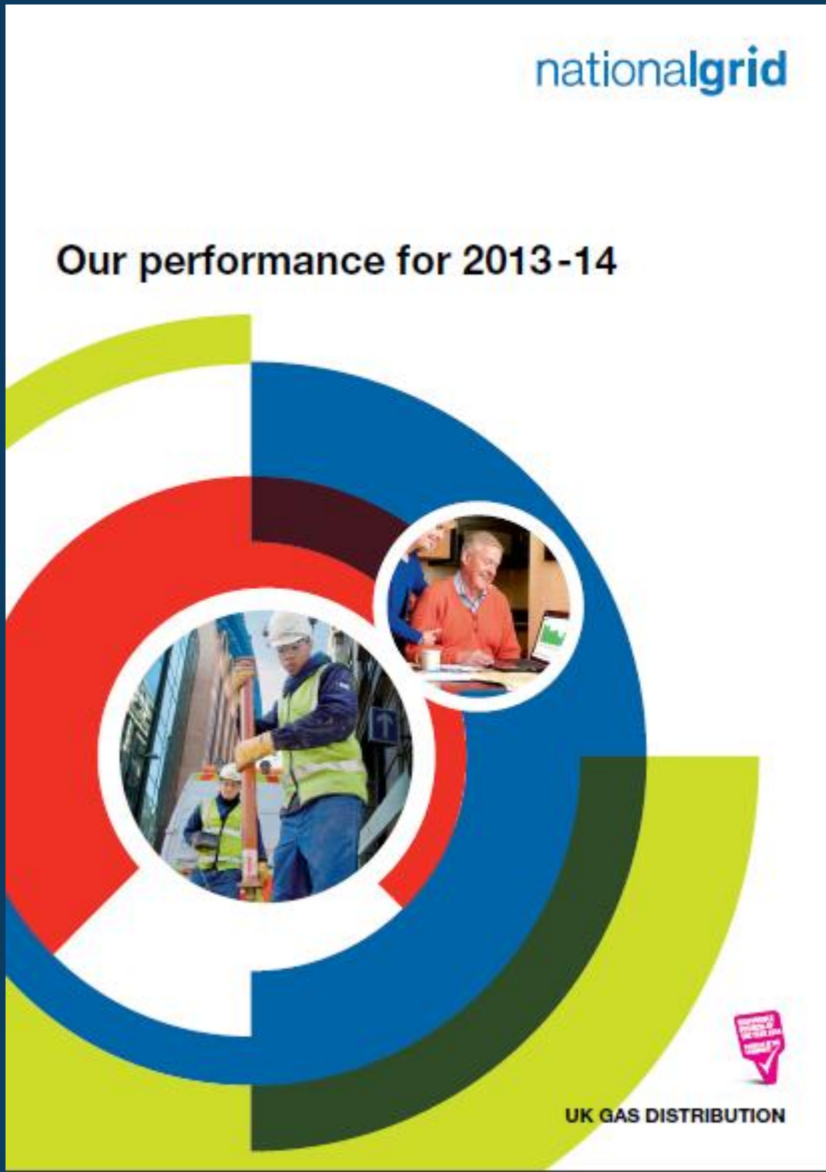

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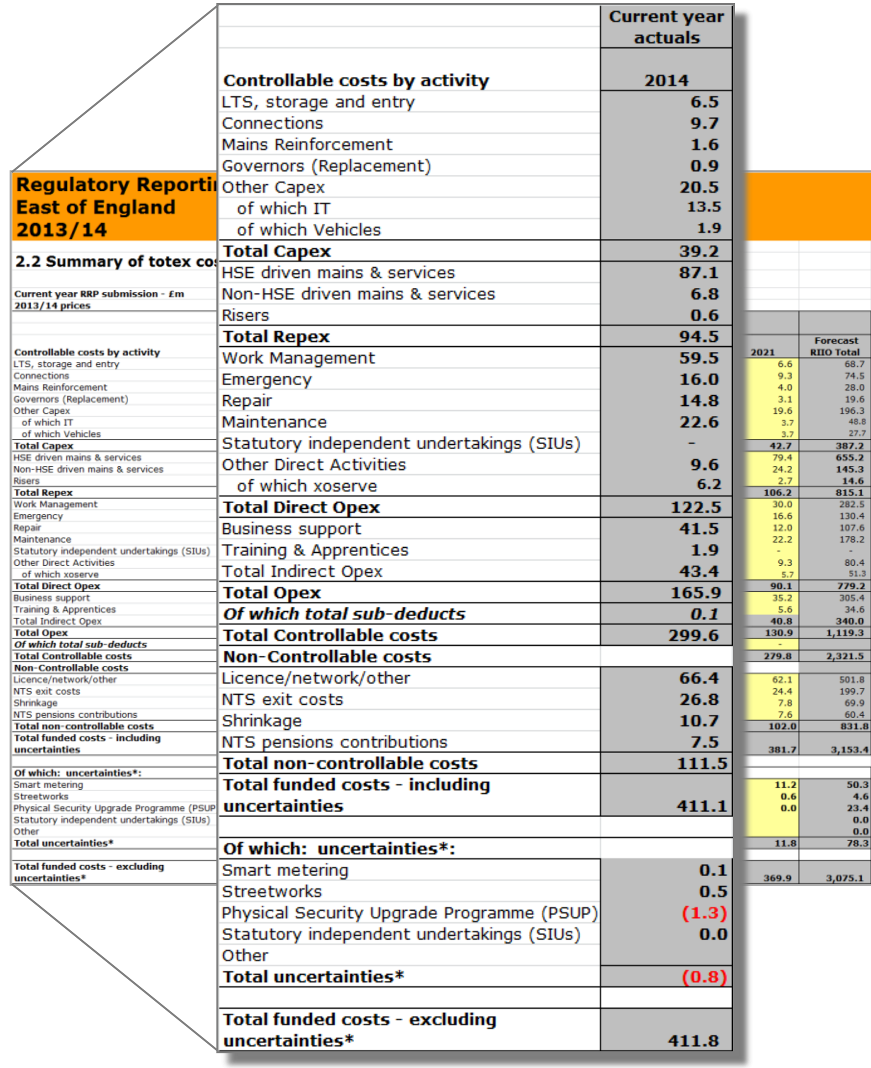
Our commitments

“provide transparency of costs and how money is spent, as well as how we are delivering our RIIO targets”.

- Data tables showing forecast of workload and forecast of costs
- Supporting narrative explaining cost performance
- Document for stakeholders highlighting our output delivery and key projects throughout 2013/14



Regulatory Reporting
East of England
2013/14

2.2 Summary of totex costs

	Current year actuals
Controllable costs by activity	**2014**
LTS, storage and entry	6.5
Connections	9.7
Mains Reinforcement	1.6
Governors (Replacement)	0.9
Other Capex	20.5
of which IT	13.5
of which Vehicles	1.9
Total Capex	39.2
HSE driven mains & services	87.1
Non-HSE driven mains & services	6.8
Risers	0.6
Total Repex	94.5
Work Management	59.5
Emergency	16.0
Repair	14.8
Maintenance	22.6
Statutory independent undertakings (SIUs)	-
Other Direct Activities	9.6
of which xoserve	6.2
Total Direct Opex	122.5
Business support	41.5
Training & Apprentices	1.9
Total Indirect Opex	43.4
Total Opex	165.9
Of which total sub-deducts	*0.1*
Total Controllable costs	299.6
Non-Controllable costs	
Licence/network/other	66.4
NTS exit costs	26.8
Shrinkage	10.7
NTS pensions contributions	7.5
Total non-controllable costs	111.5
Total funded costs - including uncertainties	411.1
Of which: uncertainties*:	
Smart metering	0.1
Streetworks	0.5
Physical Security Upgrade Programme (PSUP)	(1.3)
Statutory independent undertakings (SIUs)	0.0
Other	
Total uncertainties*	(0.8)
Total funded costs - excluding uncertainties*	411.8

Our Outputs

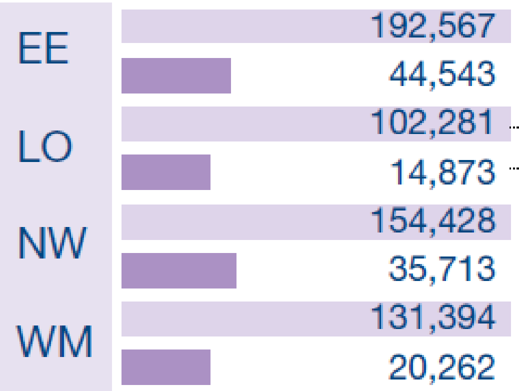
Outputs

Agreed after extensive engagement with stakeholders and set out in the licence so customers know what is being paid for, with incentives on network companies to deliver.

- **Report of outputs covers**
  - Description of Output
  - Targets for RIIO period
  - Statement of performance; On target, behind target, etc.
  - Performance for 2013/14

  - Designed so that each year can show specific progress during RIIO-GD1

Main risk removed:
8 year target
Level of risk removed from our pipelines through maintenance or replacement.
Above target: We are on track to deliver our Mains Risk targets over the eight years and both East of England and North West networks are ahead of plan.



8 year target for London

2013-14 performance for London

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Significant changes to deliver our outputs

New contracting partners

- Significant administration savings
- Design and planning moved to partner

Revised terms and conditions for workforce

- Reward output delivery
- Reward high performance

Domestic connections transformation

- Simplify the process
- Explain our charges through single points of contact

Our Output achievements

- **Emergency Attendance and Emergency Customer Satisfaction:**
  - Equates to one every minute of every day.
- **Removed 20% of our iron mains risk in first year**
  - 4.4km per day and 330 customers reconnected every day
- **CO discussions have improved awareness by 48%**
  - Looking to increase the volume of interactions
- **Maintained reliability at 99.999%**
  - Further work in progress to collect asset health data and complete methodology
- **Interruption volumes of planned and unplanned reduced**
  - Focus required to reduce unplanned interruption duration

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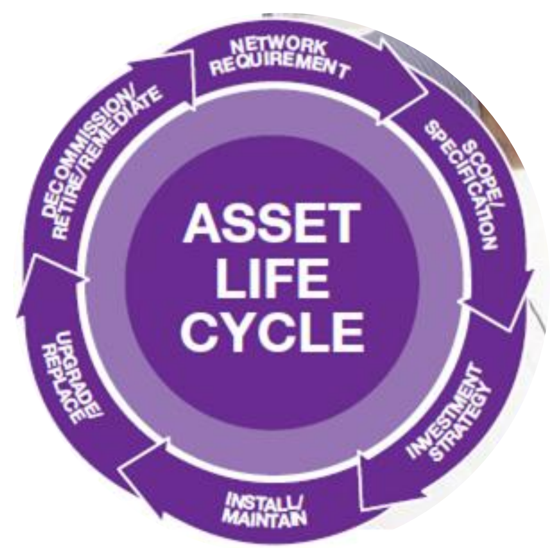
More work to do

- **Connection Satisfaction**
  - Performance below our aspirations and looking for our transformation to show improvements
- **Planned work Satisfaction**
  - Looking to improve customer satisfaction through improved communications and reducing interruption duration
- **Asset Health Methodology completion**
  - On track for completion in December 2014
  - Includes completion of asset health surveys in short term to improve investment decisions

Streetworks QR code

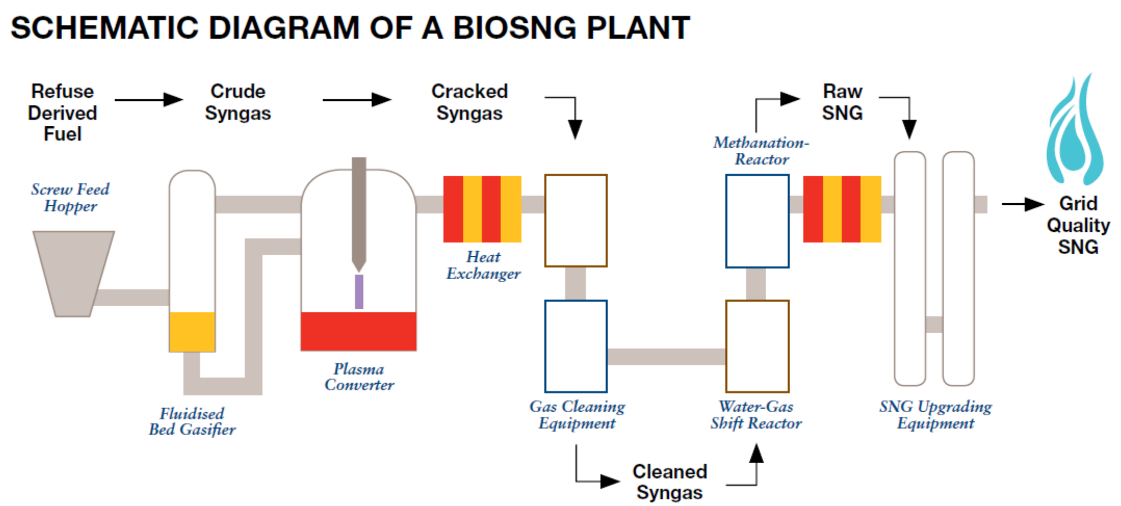


Safeguarding Future Generations

- **Facilitating Renewable Connections**
  - First 500MW connection made in our East of England network
  - Over 10TWs of applications in progress

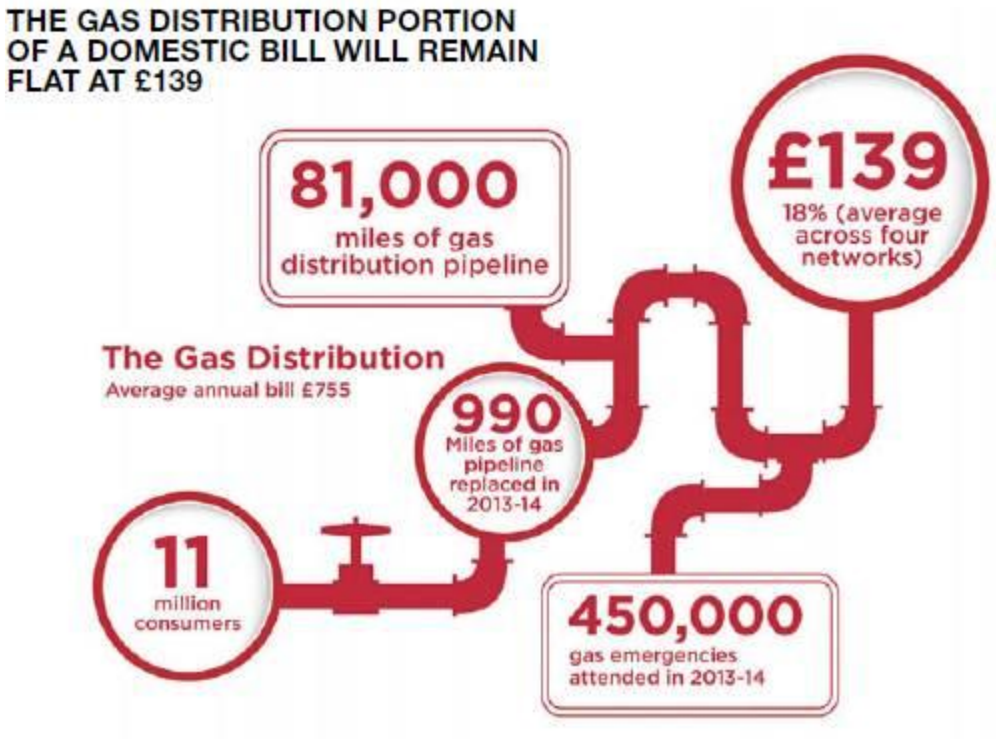
Network Innovation Competition - Bio Synthetic Natural Gas

- Funding obtained from Europe and through innovation fund to build a demonstration plant for renewable gas production



Providing value for money

- **Future performance**
  - Innovation
  - Performance Excellence
- **Uncertainties**
  - Site security
  - Smart Metering
  - Streetworks



Summary

- Good performance across all output categories, but still improvements to be made
- We want to make it clear to our customers the work we do and value we deliver
- Providing transparency of costs and what our customers get for their money is a priority for us

Refreshment Break

UK GAS DISTRIBUTION

Distribution Transportation Charges

Dave Chalmers
Pricing & Shrinkage Manager

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UK GAS DISTRIBUTION

Distribution Transportation Charges

Topics

- Charging calendar
- How to calculate transportation charges for your site
- Latest information on Revenues and the future path of charges

Charging Calendar

- Distribution charges change on 1st April each year
  - Expected to apply for 12 months – No October change
  - Level of charges varies by distribution network
- Indicative charges for April published 2nd November
- Definitive charges for April published 1st February
- Quarterly Revenue Reports indicating potential level of future charges and uncertainties published quarterly:
  - Mid-January, April, July, October
- All information is published on Joint Office of Gas Transporters website: gasgovernance.co.uk

How to calculate Transportation Charges for your Site

- Charging Calculator available to estimate NTS and Distribution transportation charges for any UK site
- Uses Supply Point characteristics (Maximum peak day usage, annual usage, location, etc.) to estimate transportation charges
- At http://www.gasgovernance.co.uk/DNcharges
- Select: October 2014 Transportation Charge Calculator

How to calculate Transportation Charges for your Site - Inputs

Charge Calculator Input Sheet

Reset Calculator to Default Values

Step 1 - Select Entry to Exit Information

Where are you Entering Gas into the System?	National Balancing Point (NBP)
Where are you Transporting Gas to?	Distribution / CSEP Connected Load
Please input Post Code	
Please input the Full Postcode	CV34 6DA
LDZ	WM3

Thank You Step 1 Complete

Step 2 - Please input Load / Site Required Information

Are you on a Shorthaul tariff?	No
Please enter your ratio of throughput for the period Oct - Apr. e.g. 55%	50%
Load Type	Firm Load
What type of load is the site, i.e. Daily Metered,	Non Daily Metered Site
Is the Site Monthly Read?	Yes

Thank You Step 2 Complete

Step 3 - Please provide the required usage (Demand / Peak Day Demand) information

Annual AQ kWhr/annum (AQ)	800,000
SOQ Calculation Method	EUC Code Entry
EUC Code (We suggest :E1304B)	xx:E1304W02
Load Factor	37.2%
Peak Day Usage kWhr/day (SOQ)	5,892

Thank You Step 3 Complete Please Review Result Page

Commentary

To ensure accuracy please reset the calculator each time a charge is estimated.

This calculator only gives an estimate of the annual charges for Transmission and Distribution Transportation Charges

This calculator does not include the NTS TO Entry Capacity Charges, NTS Shorthaul or LDZ Shorthaul Charges.

It is mandatory for supply points with an annual consumption greater than 293 MWh to be monthly read, however, at the shipper's request, sites below this consumption may also be classified as monthly read.

EUC Code	Annual Load (MWh)	Winter Annual Ratios (WAR)			
		W01	W02	W03	W04
xx:E1301B	0 to 73.2	-	-	-	-
xx:E1302B	73.2 to 293	-	-	-	-
xx:E1303B	293 to 732	0.00 - 0.49	0.49 - 0.58	0.58 - 0.68	0.68 - 1.00
xx:E1304B	732 to 2,196	0.00 - 0.49	0.49 - 0.58	0.58 - 0.68	0.68 - 1.00
xx:E1305B	2,196 to 5,860	0.00 - 0.44	0.44 - 0.53	0.53 - 0.63	0.63 - 1.00
xx:E1306B	5,860 to 14,650	0.00 - 0.38	0.38 - 0.48	0.48 - 0.58	0.58 - 1.00
xx:E1307B	14,650 to 29,300	0.00 - 0.37	0.37 - 0.41	0.41 - 0.51	0.51 - 1.00
xx:E1308B	29,300 to 58,600	0.00 - 0.36	0.36 - 0.41	0.41 - 0.51	0.51 - 1.00
xx:E1309B	> 58,600	-	-	-	-

For monthly read sites where the relevant meter reading history is available, the winter annual ratio (WAR) is the consumption from December to March divided by the annual quantity. If the required meter reading information is not available, the supply point is allocated to an EUC simply on the basis of its annual quantity.

How to calculate Transportation Charges for your Site - Outputs

Charge Calculator Results

Distribution Network	**West Midlands**
Distribution Network Company	**National Grid**
Transmission Network Company	**National Grid**

Input Data

AQ (kWh/a)	800,000
Load Factor	37.2%
SOQ (kWh/pd/a)	5,892

The site is categorised as a Non Daily Metered Site
The site is categorised as a Firm Load
The site is connected to the Distribution Network
The site is a Non Daily Metered Site and read monthly
Transmission charges calculated on gas flows from National Balancing Point (NBP)
Transmission charges calculated on gas flows to Distribution / CSEP Connected Load

Distribution Network Charges

		Unit Rates	
LDZ System Capacity	£3,742.01	0.1740	pence per peak day kWh per day
LDZ System Commodity	£222.40	0.0278	pence per kWh
LDZ Customer Charge (Capacity)	£227.96	0.0106	pence per peak day kWh per day
LDZ ECN Charge (Capacity)	£223.66	0.0104	pence per peak day kWh per day
TOTAL	**£4,416.03**		

Transmission Charges

		Unit Rates	
NTS TO Exit Commodity Charge	£125.60	0.0157	pence per kWh
NTS SO Exit Commodity Charge	£172.00	0.0215	pence per kWh
TOTAL	**£297.60**		

Total Charge	**£4,713.63**

Information on Future Charge Levels

- Quarterly Revenue Reports
  - Provide potential changes to charges for next 5 years
  - Particularly useful for likely changes for next year
  - Latest Revenue Report was published 17th October
  - Indicative charges for Apr-15 published 31st October
  - Next report due mid-January 2015
  - At http://www.gasgovernance.co.uk/0186oct2014
  - Final charges for Apr-15 published 31st Jan 2015

Oct-14 Quarterly Revenue Report Summary

National Grid Gas Distribution	Update at October 2014					
NGGD Total Distribution Networks	Actual	Actual	Forecast	Forecast	Forecast	Forecast
Description	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Base Allowed Revenue	1,793.6	1,786.8	1,858.6	1,882.8	1,930.3	1,987.7
Pass Through Cost Revenue Adjustment	0.2	-	3.8	3.4	3.0	2.8
NTS Exit Capacity Cost & Incentive Revenue	-	-	1.0	8.2	12.8	10.1
Shrinkage Cost & Incentive + Environmental Emissions Incentive Revenue	-	-	1.3	-5.9	-6.6	-7.2
Broad Measure of Customer Satisfaction Revenue Adjustment	-	-	5.8	7.0	8.0	9.0
Discretionary Award Scheme Revenue Adjustment	0.9	0.8	-	-	-	-
Network Innovation Allowance Revenue Adjustment	2.5	7.7	8.4	9.6	10.8	12.1
Revenue Correction Term "K" (added)	6.1	-	-20.7	-3.4	0.2	-
Maximum DN Allowed Revenue (Incl NTS Exit Capacity	**1,803.4**	**1,795.3**	**1,858.1**	**1,901.6**	**1,958.5**	**2,014.5**
Total Distribution Charges April Price Change (%)		0.0%	5.3%	5.0%	5.6%	5.5%

Impact on Typical Dometsic Gas Bill (excl. NTS Exit Recharge) (15,300 kWh/a in 2014-15 reducing by SOQ change each year)		15,300	14,920	14,550	14,189	13,837
Bill Impact in 2014-15 Prices		£138.79	£139.61	£137.86	£137.76	£136.86
Year-on-year % Change (excluding inflation)			0.6%	-1.3%	-0.1%	-0.6%
Actual / projected % change in aggregate peak load in October		-2.3%	-2.5%	-2.5%	-2.5%	-2.5%

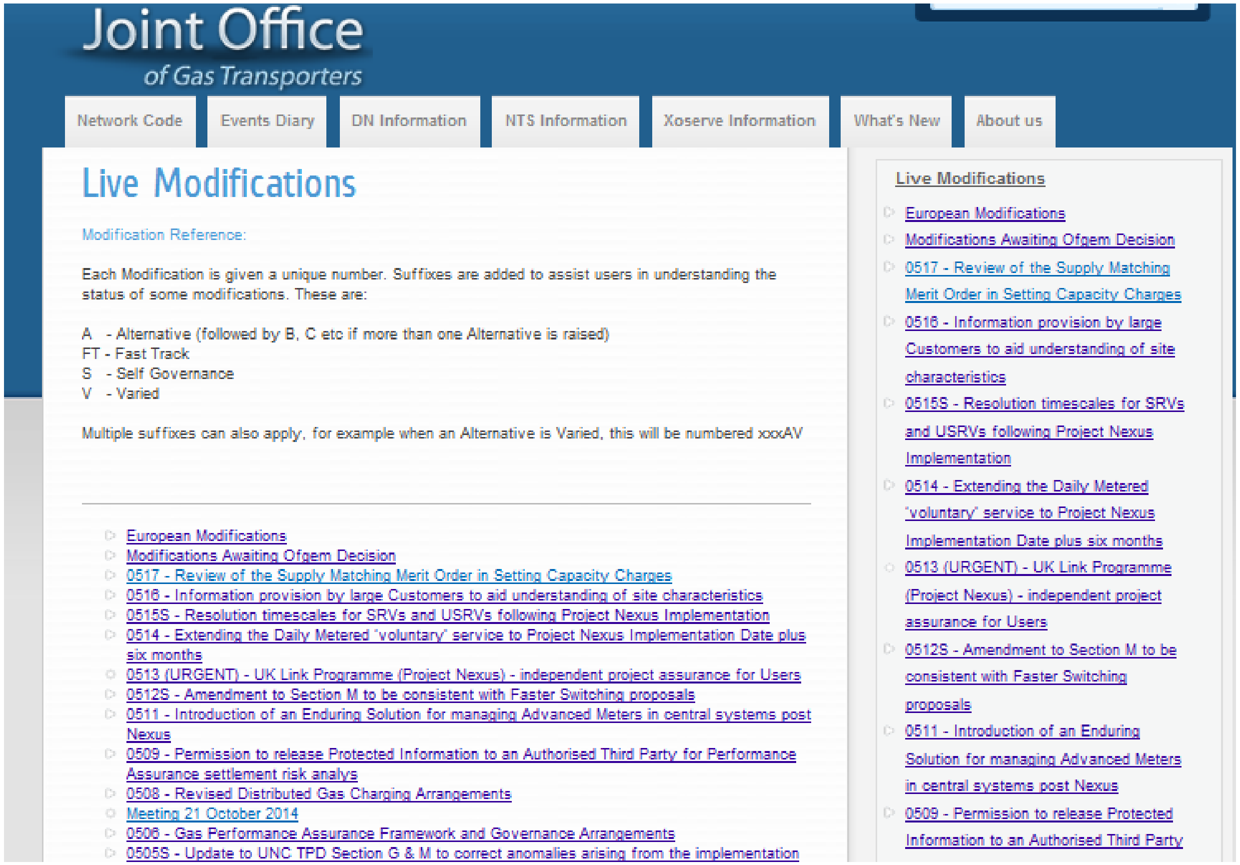
Drivers for Apr-15 price change	**2015-16**
Year-on-year RPI Inflation	2.5%
Net movement in Allowed Revenue	1.0%
Increase in unit rates to adjust for reduced peak load	1.8%
Total Change	5.3%

UNC Modifications Update

Chris Warner
Stakeholder Implementation Manager

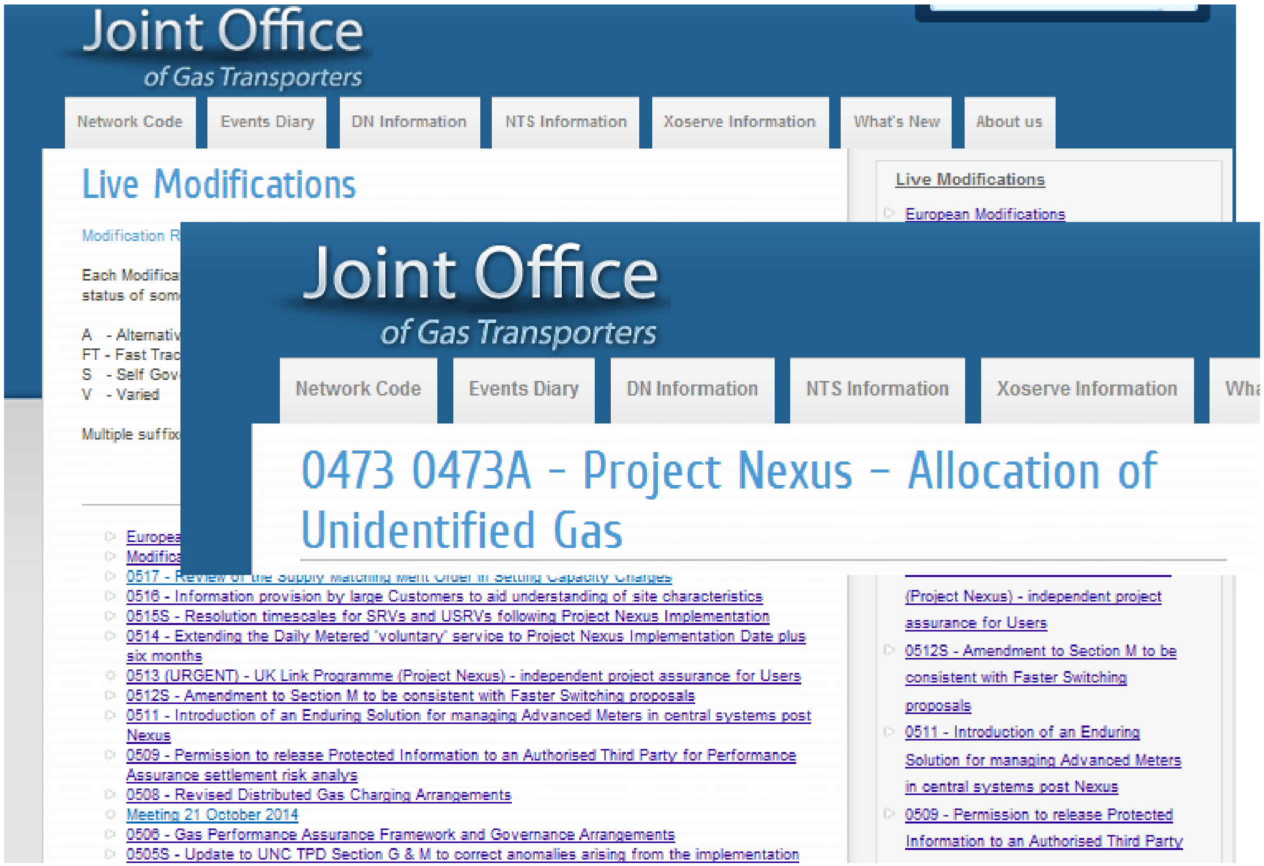
UK GAS DISTRIBUTION

UNC Modifications



- For further information or the full list of modifications you can visit the Joint Office of Gas Transporters website:
  - www.gasgovernance.co.uk/mods

UNC Modifications



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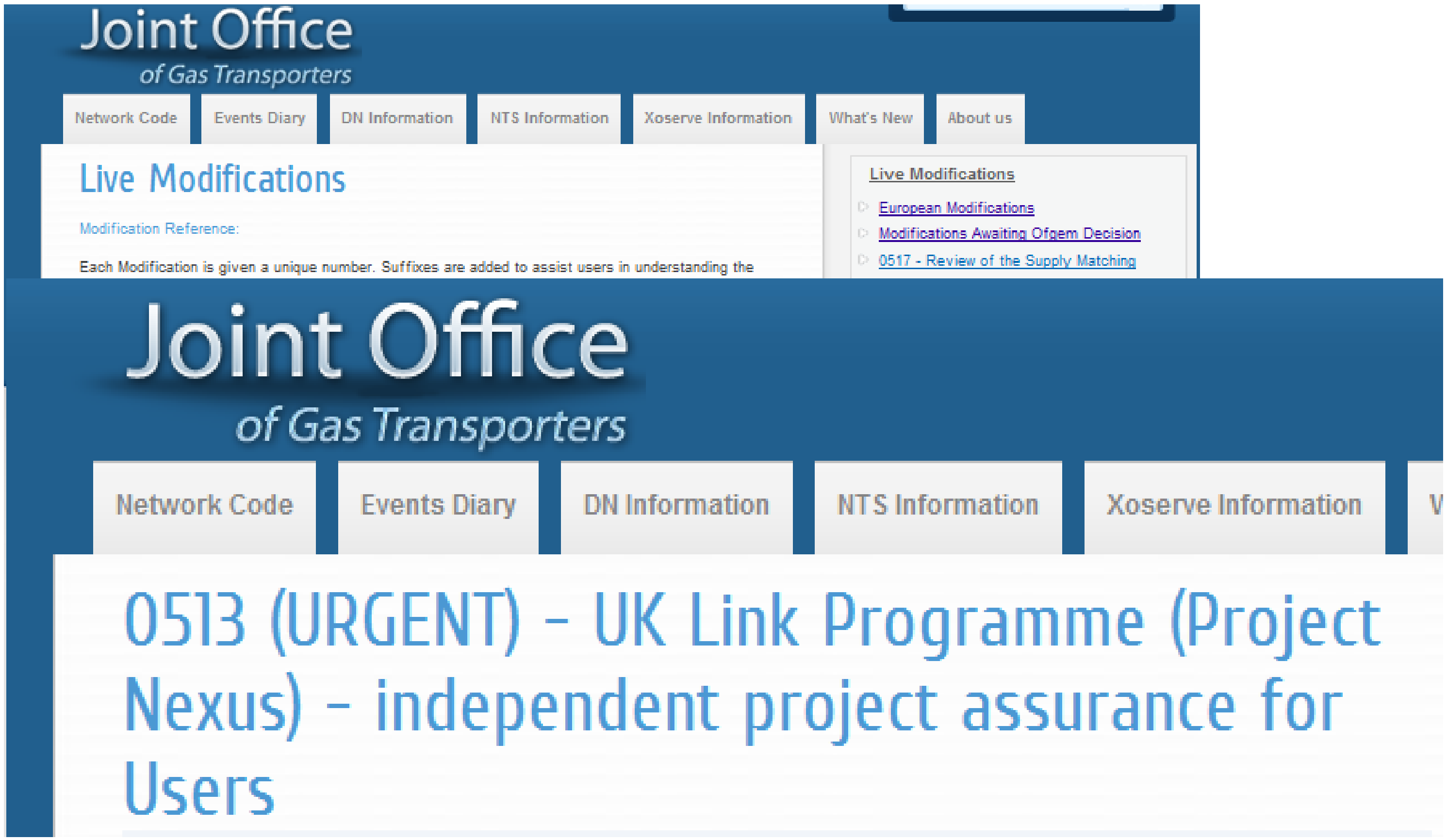

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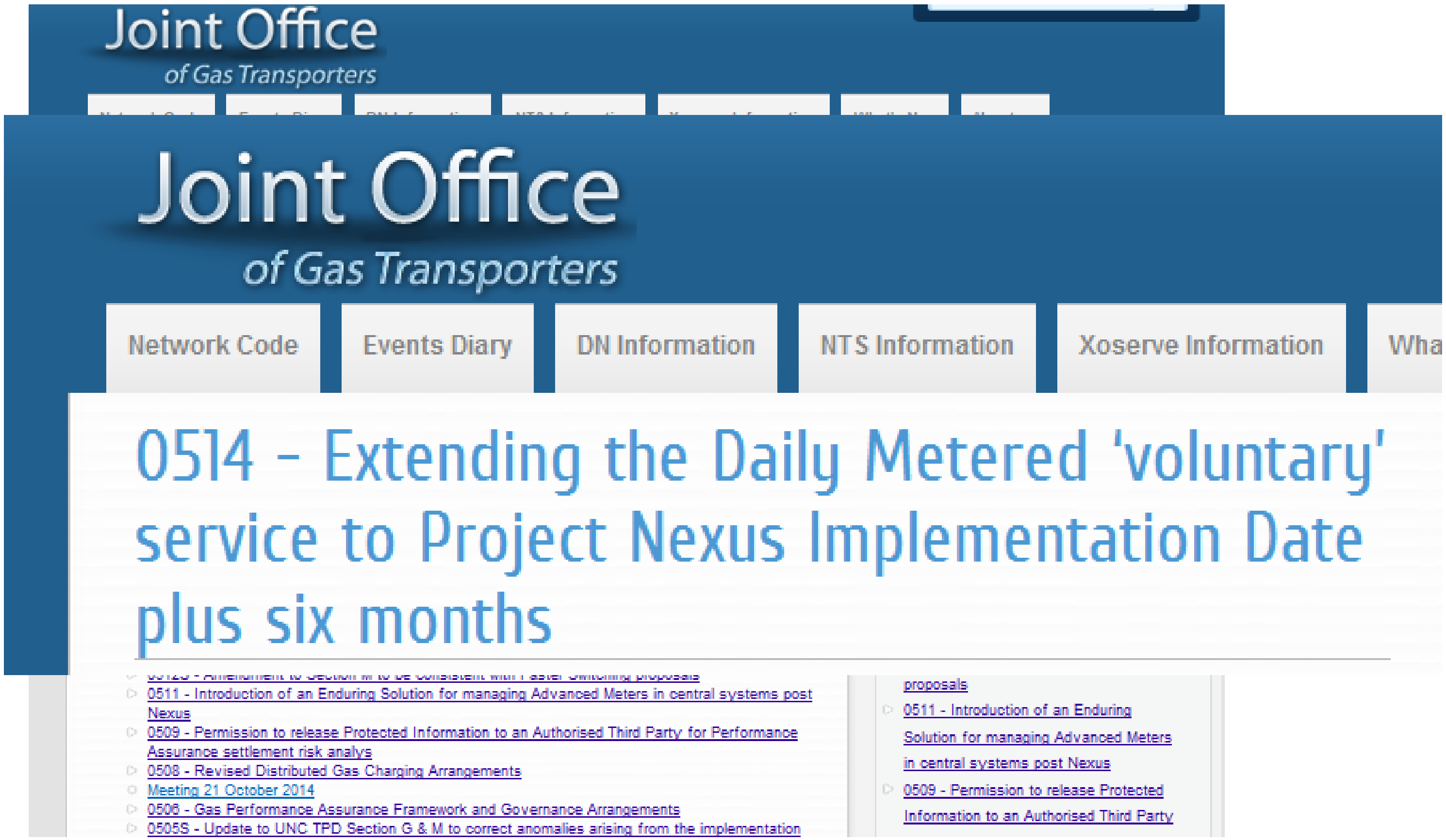
UNC Modifications



- For further information or the full list of modifications you can visit the Joint Office of Gas Transporters website:
  - www.gasgovernance.co.uk/mods

UNC Modifications

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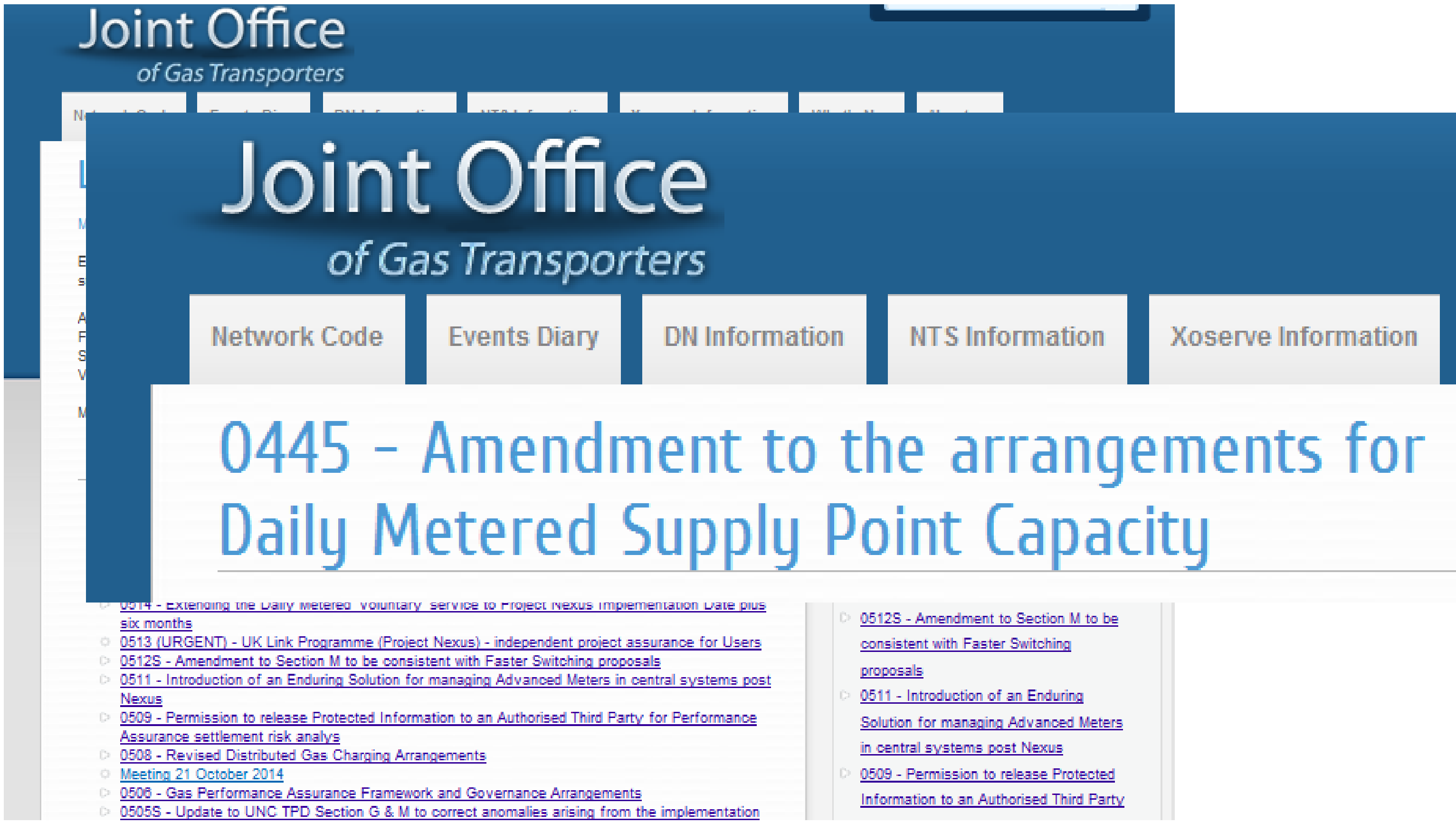
UNC Modifications



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UNC Modifications

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Firm Load Shedding Overview

Chris Bowler

UK GAS DISTRIBUTION

Firm Load Shedding Agenda

- What is Firm Load Shedding
- Process
- Exercise Viper results
- Continual Improvement
- Questions

Firm Load Shedding

- Firm Load Shedding is used during Gas Supply Emergencies, as a means of reducing non domestic sites gas usage in order to maximise gas supplies to priority and domestic consumers

Firm Load Shedding

	Network Gas Supply Emergency Classification		
	Gas Deficit: Insufficient Gas Supplies Available to the NTS		Critical Transportation Constraint in the NTS
Emergency Stage	Gas Deficit Emergency	GSMR Monitor Breach	Critical Transportation Constraint
1 (Potential)	• Emergency Spec Gas • NTS Linepack • Distribution Network Utilisation ○ Distribution Network Storage ○ Emergency Interruption • Public Appeals	• Instruct shippers & storage operators to amend storage flows • Public Appeals	• Emergency Spec Gas • NTS Linepack • Distribution Network Utilisation ○ Distribution Network Storage ○ Emergency Interruption • Public Appeals
2	• National Grid Gas plc's participation in the OCM will be suspended • Maximise Supplies • Firm Load Shedding	• National Grid Gas plc's participation in the OCM will be suspended • Maximise Supplies • Firm Load Shedding	• Maximise Storage • Firm Load Shedding
3	• Allocation & Isolation	• Allocation & Isolation	• Allocation & Isolation
4	Restoration		

Process

In a Gas Supply Emergency

- Sites are contacted directly, largest Site Off take Quantity first
- Sites are requested to stop using gas
  - Successful Firm Load Shed
  - Unsuccessful Firm Load Shed
- Sites are expected to reduce load as quickly and safely as possible
- There are no guaranteed supplies

Exercise Viper

Network Emergency Controllers annual test to contact the largest sites in each Network requesting co operation in Firm Load Shedding

- 1000 sites were contacted
- 4544 Calls made
- 3827 Call Agent
- 717 Escalation Agent

Exercise Viper 2014 results

Site Analysis

EXERCISE Viper 2014 RESULTS

	EA		EM		NT		WM		NW		ALL LDZ'S	
	%	No	%	No	%	No	%	No	%	No	%	No
Exercise Required Contact		146		171		206		247		175		945
Calls Made		819		761		838		1150		976		4544
Sites Where Contact Made	82.19%	120	78.95%	135	87.38%	180	76.11%	188	75.43%	132	79.89%	755
Contact Details Incorrect / Unavailable	17.81%	26	21.05%	36	12.62%	26	23.89%	59	24.57%	43	20.11%	190
Could Turn Off	71.92%	105	66.67%	114	72.82%	150	61.54%	152	65.14%	114	67.20%	635
Could Not Turn Off	10.27%	15	12.28%	21	14.56%	30	14.57%	36	10.29%	18	12.70%	120
	100.00%		100.00%		100.00%		100.00%		100.00%		100.00%	

EXERCISE ULYSSES 2013 RESULTS

	EA		EM		NT		WM		NW		ALL LDZ'S	
	%	No	%	No	%	No	%	No	%	No	%	No
Exercise Required Contact		62		108		60		99		130		459
Calls Made		239		415		274		496		493		1917
Sites Where Contact Made	87.10%	54	89.81%	97	90.00%	54	88.89%	88	93.85%	122	90.41%	415
Contact Details Incorrect / Unavailable	12.90%	8	10.19%	11	10.00%	6	11.11%	11	6.15%	8	9.59%	44
Could Turn Off	85.48%	53	87.96%	95	76.67%	46	80.81%	80	86.92%	113	84.31%	387
Could Not Turn Off	1.61%	1	1.85%	2	13.33%	8	8.08%	8	6.92%	9	6.10%	28
	100.00%		100.00%		100.00%		100.00%		100.00%		100.00%	

2013 - 2014 COMPARISON

	EA		EM		NT		WM		NW		ALL LDZ'S	
	%	No	%	No	%	No	%	No	%	No	%	No
Exercise Required Contact		84		63		146		148		45		486
Calls Made		580		346		564		654		483		2627
Sites Where Contact Made	-4.91%	66	-10.86%	38	-2.62%	126	-12.78%	100	-18.42%	10	-10.52%	340
Contact Details Incorrect / Unavailable	4.91%	18	10.86%	25	2.62%	20	12.78%	48	18.42%	35	10.52%	146
Could Turn Off	-13.56%	52	-21.29%	19	-3.85%	104	-19.27%	72	-21.78%	1	-17.11%	248
Could Not Turn Off	8.66%	14	10.43%	19	1.23%	22	6.49%	28	3.37%	9	6.60%	92

Comparison of Exercise Viper and Exercise Ulysses

Exercise Viper 2014 has shown an reduction in overall results compared to Exercise Ulysses 2014

- The number of sites able to be contacted decreased by 10.52%
- Sites with incorrect contact details or unavailable increased by 9.4%
- Each site that is unable to turn off could result in smaller non- domestic consumers have to be contacted

Continual Improvement

- What has National Grid undertaken to improve performance of FLS?
  - Continued Data Validation 200 sites per Network
  - Making customers aware they could be contacted
  - Escalation agents
  - Informing suppliers of inaccurate data
  - Continued re issue of large end user leaflet
  - Using Exercise data to assess the potential success of Firm Load Shedding

Firm Load Shedding

- Any questions?

Facilitating the Future

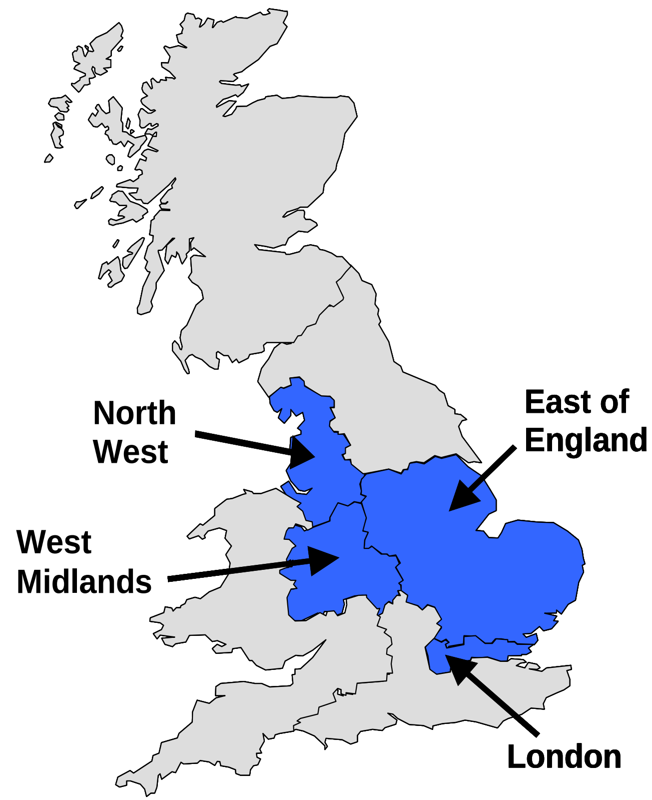
Sustainable Gas – Stakeholder Delivery

8 October 2014

Steven Haskayne

National Grid Gas Distribution

- Owner and Operator 4 Gas Distribution Networks
- 190,000 kilometres of Gas Distribution Pipelines
- Operate 24/7 Emergency Service
- Deliver Connections to our networks
- We serve 11 million customers

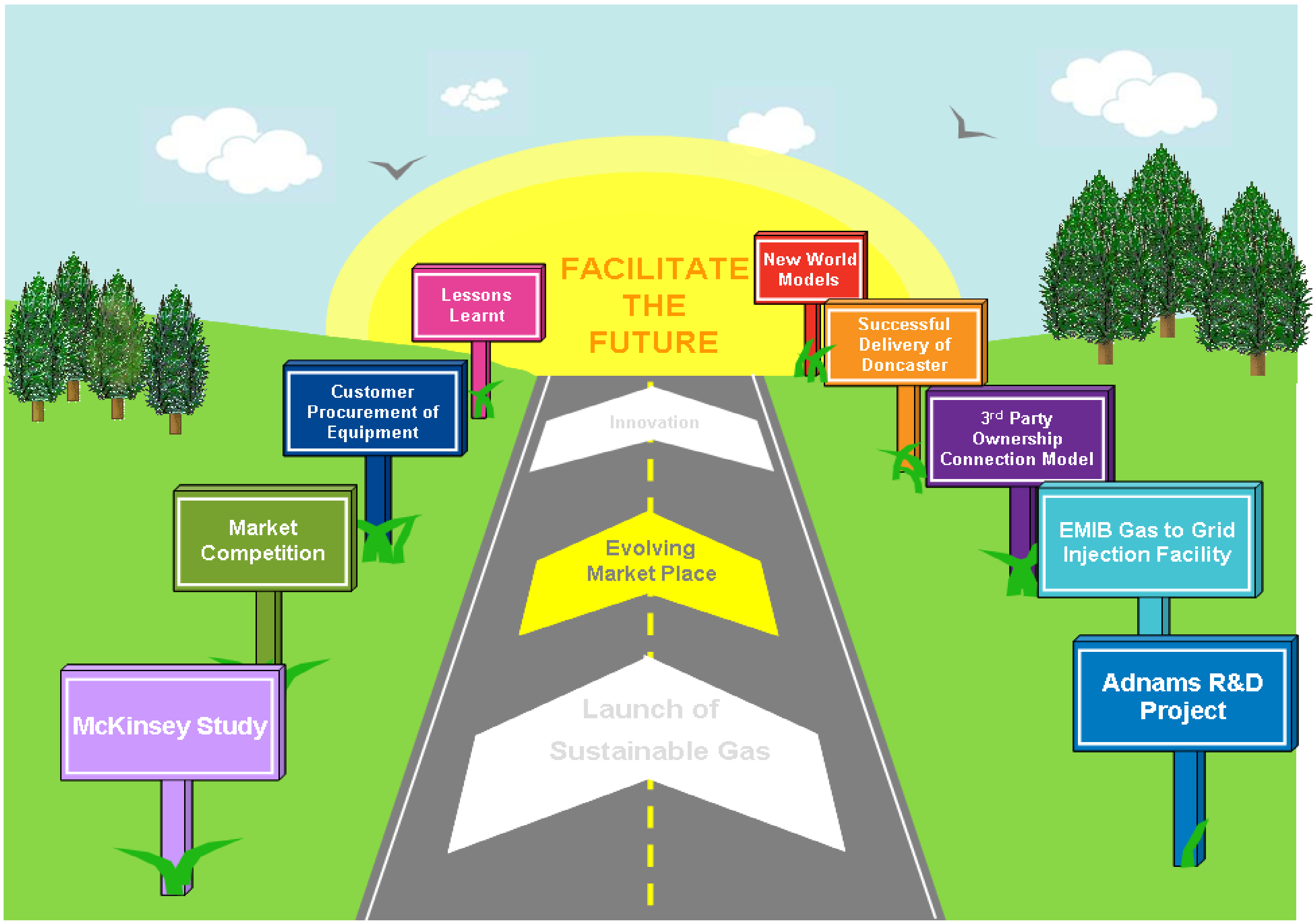


National Grid is striving to reach its target of an 80% reduction in carbon emissions by 2050.

Our Journey


FACILITATE
THE
FUTURE
Lessons Learnt
New World Models
Successful Delivery of Doncaster
Customer Procurement of Equipment
3rd Party Ownership Connection Model
Market Competition
EMIB Gas to Grid Injection Facility
McKinsey Study
Adnams R&D Project
Innovation
Evolving Market Place
Launch of
Sustainable Gas

Our Journey



FACILITATE THE FUTURE
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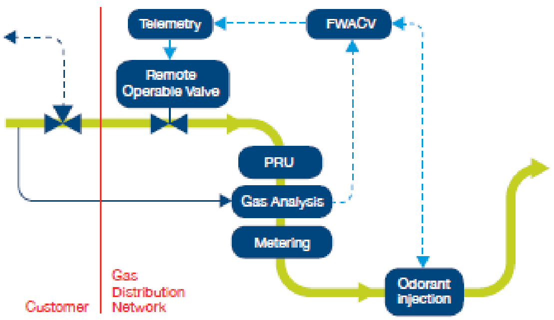
Connection Models – the evolution

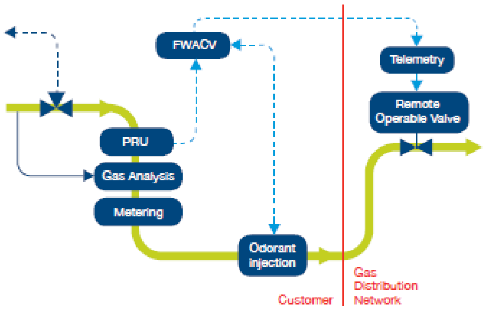
Maximum Model | Minimum Model | | What Next?

Maximum Model



- National Grid manages the end to end delivery of the connection
  - Injection facility procurement from our approved framework agreement
  - Connection Design
  - Pipeline connection
- National Grid will own, operate and maintain the injection facility

Minimum Model



- Enables customer choice/market competition
- Customer procures direct the Injection facility from our approved vendors and is responsible for its operation and maintenance
- Network Entry Agreements – development of 3rd party contractual operational requirements
- Support UIP Connections *(does not include LTS connections)*

First Commercial 3rd Party Owned and Operated Bio-gas Project Connected

- Key Numbers
  - 350m3 Gas + 500KW Elec
  - 35,000t agricultural feedstock
  - 15 local farmers
  - 2 full time staff

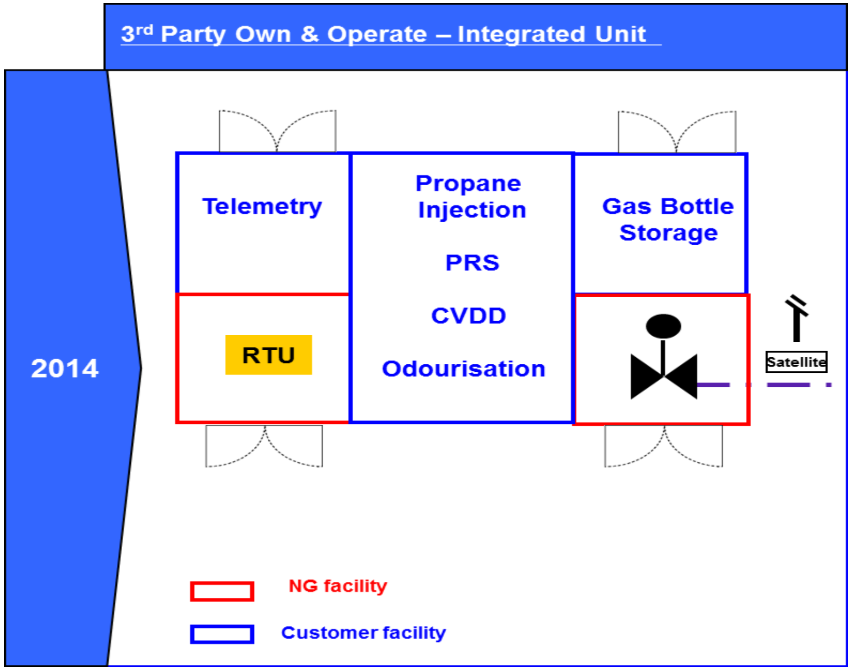
Biogas
Plant

Renewable Gas for:
3,500 local homes in Winter
50,000+ homes in Summer !!

28,000 tonnes of
organic fertiliser

First commercial single integrated kiosk
Bio-gas project

- 2nd commercial sustainable gas connection
- First 'single box' integrated connection model
- Commissioning - Flowed gas on 27th June 2014
- Flow rate: 1231 scmh
- Food Waste – 90,000 tonnes of supermarket & domestic council waste



First Commercial project connected to our >7barg (LTS) network

- First Commercial project connecting to our LTS Network
- Located in Sutton Coldfield, Birmingham
- Process c.4000 m3/hr sewage
- 16 Anaerobic digesters on site
- Flow Rate: 900 scmh

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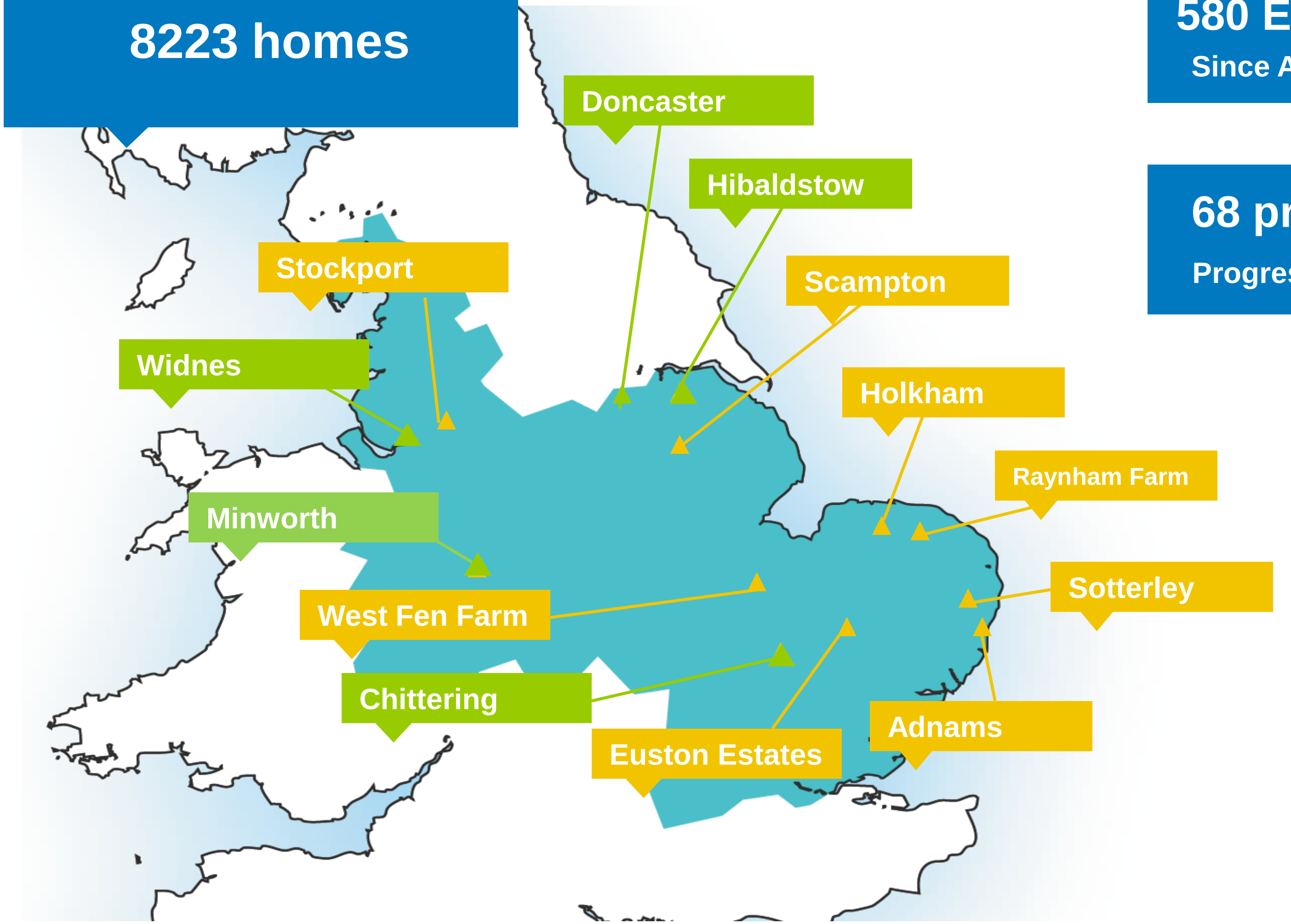
Our Biomethane Sites

Confirmed projects will heat

8223 homes



580 Enquiries
Since April 2012

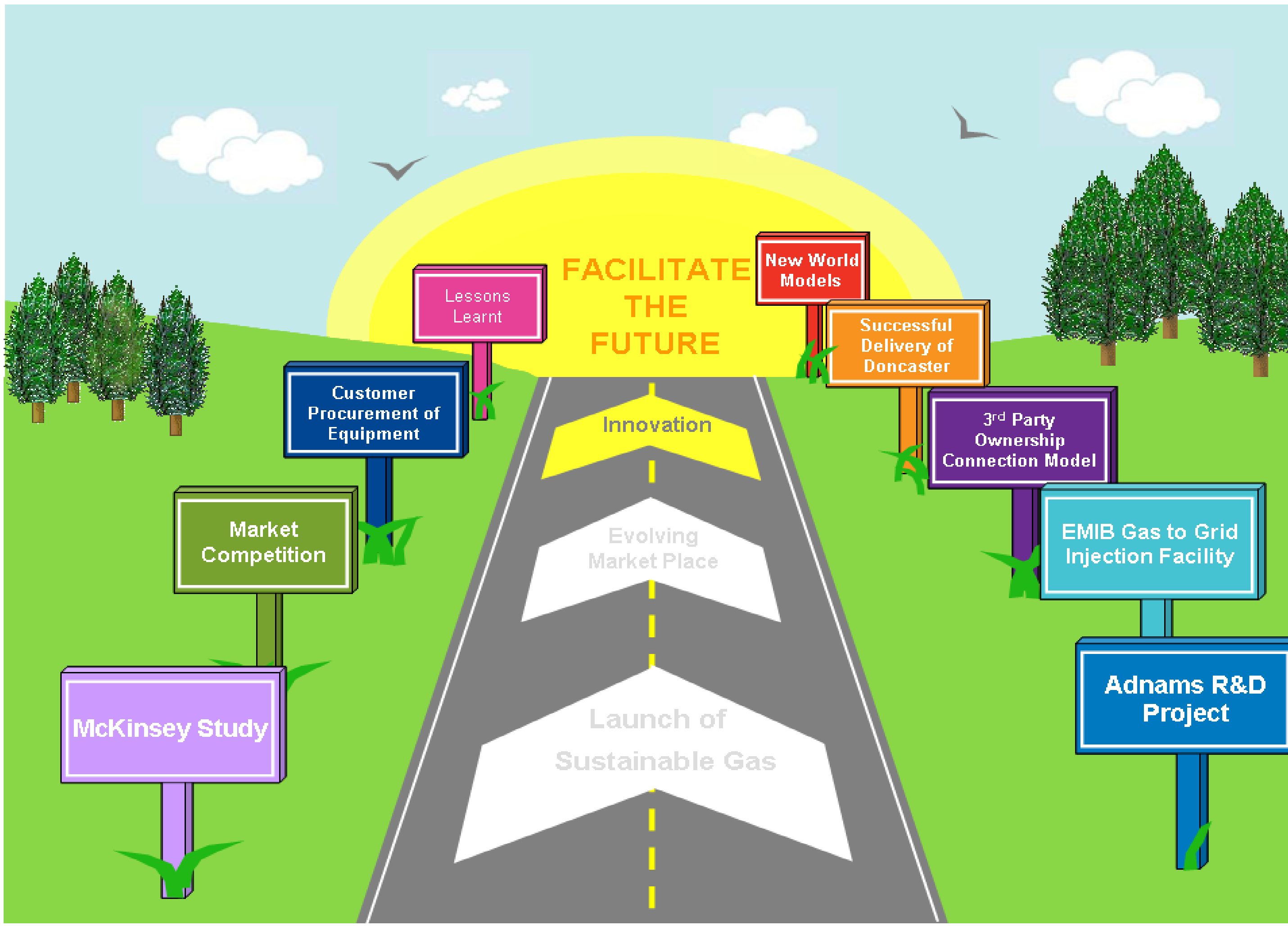
68 projects
Progressing through process

8 projects
Under construction

5 Projects
Connected and Commissioned

75 to Go!

Our Journey



FACILITATE
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Innovation
Evolving
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Sustainable Gas

Connection Models – the evolution

Launch → Evolving market place → **Innovation**

Lessons learnt

- Customer and Internal Stakeholder Engagement
- Review lessons learnt from Doncaster project
- Analyse and Identify areas for development and opportunities
  - Initial Enquiry – very fast
  - Detailed analysis study
  - Connection Agreement – the deal
  - Network Entry Agreement – no pre-accreditation
- Process Improvement Strategic Plan
- **Problems solved**
  - GS(M)R derogation allows up to 1% O2 in <37 bar
  - Speed of connections – months not years

Innovation

- Innovative technology solutions
  - HPPE PIPE
  - >7bar Self Lay Connection
  - Integrated Injection Unit
- Customer choice
- Ease and efficiency of connection
- Reduced Cost to Serve

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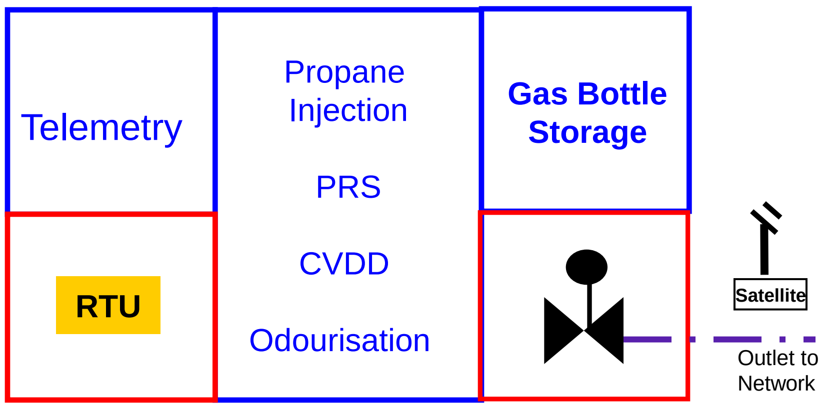
Innovation – Integrated Injection Unit

3rd Party Own & Operate – Integrated Unit

2014



NG facility

Customer facility

- Model at Hibaldstow (Future Biogas), Widnes (ReFoods), Chittering (Pretoria Energy)
- Allows the complete BtG facility to house customer & NG Assets (RTU & ROV) in one kiosk
- NG sole access to NG facilities
- Reduce cost to the customer and streamlined delivery.
- Reduced land requirement and any possible planning objections
- Customer control of supply chain.

Newly refreshed website

- Available at: **http://www2.nationalgrid.com/UK/Our-company/Gas/Sustainable-Gas/**
- Includes key information such as:
  - Our Customer guide to connect
  - Eight key steps to connect and what you can expect at each stage of the project
  - Connection Models & what options are available
  - Our project portfolio map

Thank you

Lunch

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REMIT / Bridge to 2025 / EU Gas Target Model

Michael Jenner

REMIT – Market Integration + Transparency

- Legal framework for the monitoring, detecting and detering market manipulation. ACER will screen trading at EU level to uncover abuses.
- National authorities will have to carry out investigations and enforce penalties.

- **Enters into force December 2014**
- **Compliance by February 2016**

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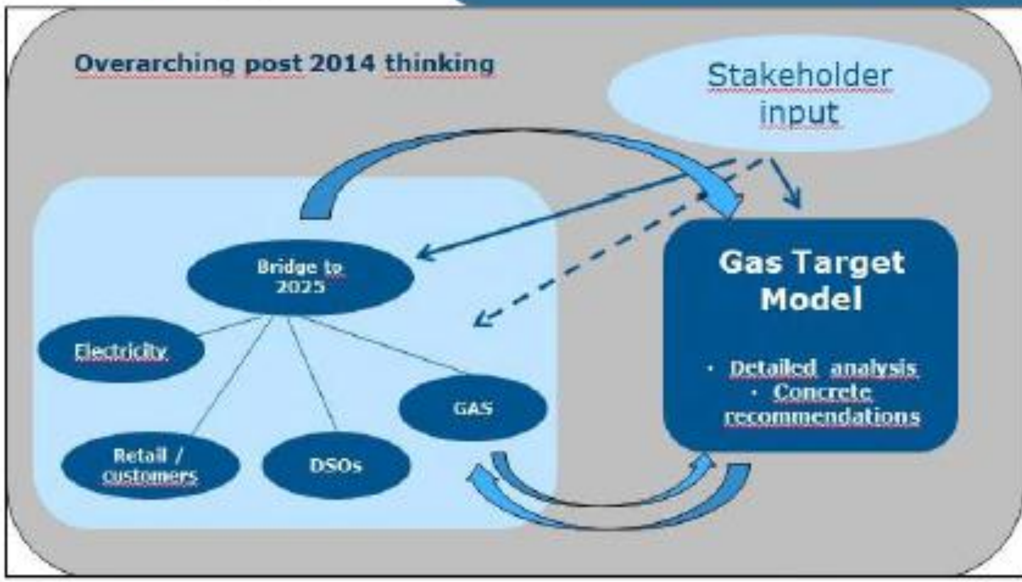
ACER Bridge to 2025

- European energy regulators' conclusions on the challenges they expect the electricity and gas sectors to face over the coming decade and on the appropriate regulatory response.

OVERALL CONTEXT



Our major **focus** and commitment remains:

- **3rd Energy Package** implementation; and
- Development and implementation of **FGs / NC**

2014 deadline for the IEM completion is soon approaching
→ Need for **strategic thinking on post-2014** aspects

We developed a **vision**: "**Energy Regulation – A bridge to 2025**" – overarching strategy on key factors, challenges and possible responses for the coming years to 2025.

Part of this work is the enhancement of the electricity and **gas target models.**

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ACER bridge 2025 – Cross-sector

When	Cross-sectoral	Who
Imminent - Medium	**Collective action is needed to achieve the implementation of the Third Package to deliver consumer rights, energy efficiency and market integrity; to ensure the speedy adoption of Network Codes and Comitology Guidelines** in gas and electricity, where possible, ahead of their entry into force; and to join efforts to ensure **the rapid application of the present Electricity and Gas Target Models** which regulators commit to evolve, as appropriate, in consultation with all stakeholders, consumers and EU Institutions. **Gas and electricity sectors' collaboration should be improved** (in practical ways, including timelines for the organisation of the gas and electricity markets before and after gate closure, information flows, and European network planning), and **co-operation between the TSOs for gas and electricity intensified**.	EU Institutions, ACER, NRAs, All energy actors
	We **propose greater cooperation between DSOs and TSOs.** Recommendations to clarify the distinct roles and responsibilities of TSOs and DSOs will be made to strengthen cooperation and technical data exchange between them.	EC

ACER bridge 2025 - DSOs

When	DSOs	Who
Medium	CEER will: - monitor the activities of vertically integrated DSOs to ensure a level-playing field; will assess the adequacy of the current rules on business separation against the evolving role of DSOs; - **define DSOs functions** to facilitate the development of potentially competitive services; - develop a **toolbox for the regulation of DSOs** to ensure the market is not foreclosed; and, - identify and share **good practices of distribution network tariffs** and **Guidelines of Good Practices for incentive schemes**.	CEER

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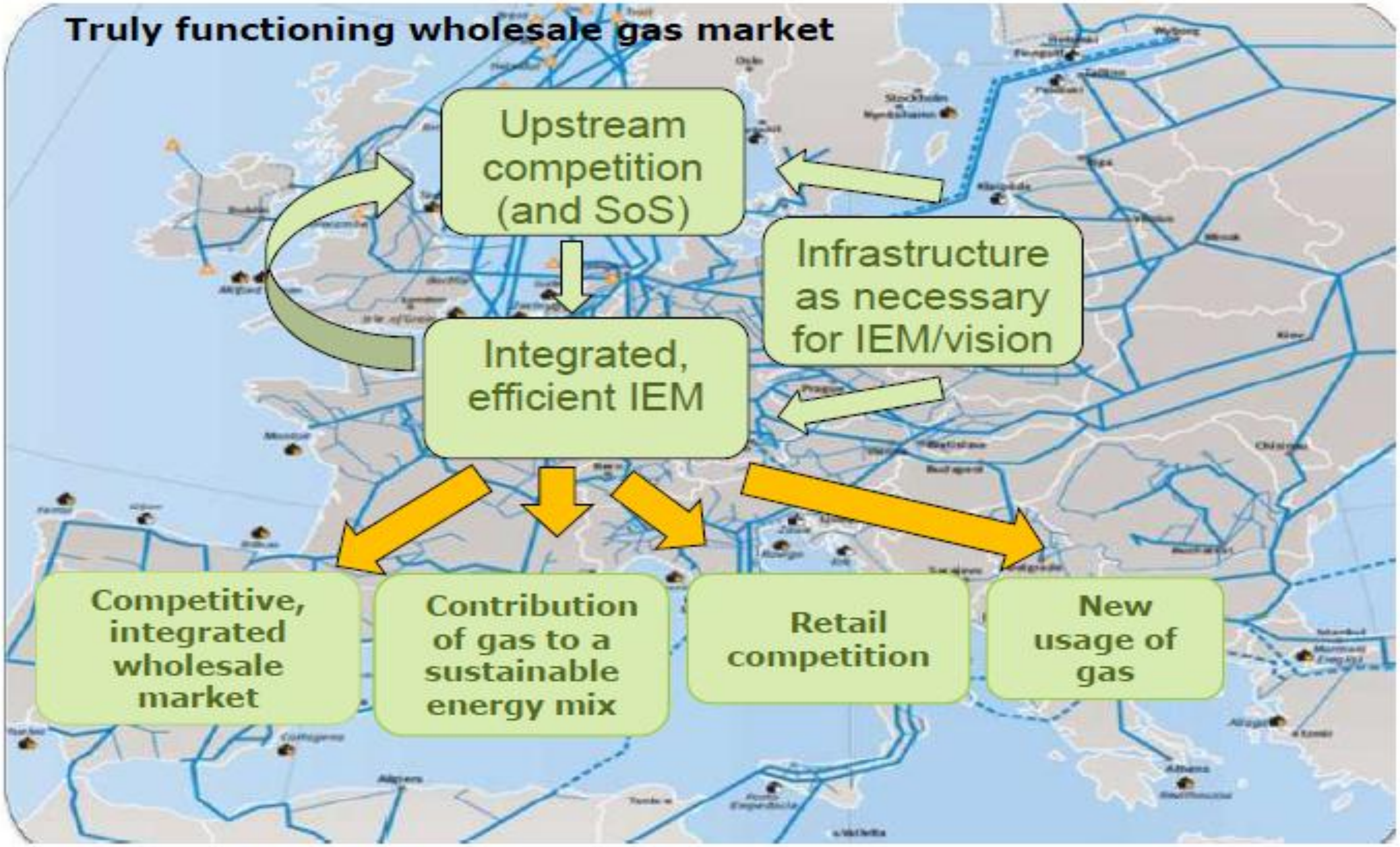
ACER Bridge 2025 - GTM

Medium	Regulatory arrangements should be developed that **facilitate: new uses of gas**; removal of unnecessary regulatory barriers to powers to gas and other technologies; and, r**emoval of barriers to the extension of the gas distribution grid** to new areas and custom-ers.	NRAs, CEER

ACER Bridge 2025 - Governance

Medium	It is recommended that the European Commission considers proposing new legislation so that the Agency be empowered to take decisions directly rather than only in those cases where all NRAs fail to agree especially in the case of EU-wide proposals – with clarity on division of responsibilities between regulatory bodies and with due respect to the European legal framework and subsidiarity.	EC
	The Agency costs (which should remain under the scrutiny of the EU institutions) should be partially funded through fees.	
Medium	The **European Commission should consider proposing new legislation so that the Agency is given adequate powers to fulfil its monitoring functions including in respect of information gathering** in a way that ensures full and effective enforcement.	EC
Medium	Should the Agency be granted decision making powers through new legislation, as we recommended, then appropriate measures should be put in place to ensure compliance with those decisions as far as it is legally possible to do so.	EC

Challenges for the future gas market(s)



Recommendations - Wholesale market functioning

Criteria

- The set of additional criteria should be used as an indicative basis for analysis in a "holistic" way taking into account market specificities
- The aim will be to specify what matters directly to market participants and ultimately consumers

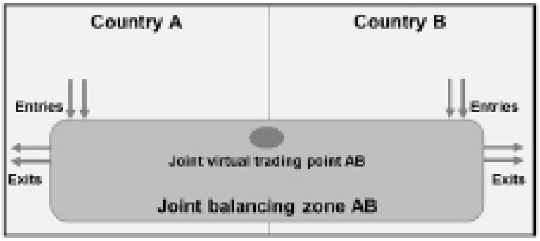
„Market participants' needs" metrics	Threshold		
Metric	Day-Ahead Product	One-Month-Ahead Product	Forward
Order book volume	≥ 120 MW on each bid- and offer-side	≥ 120 MW on each bid- and offer-side	≥ 120 MW on each bid- and offer-side for 24 months ahead
Bid-offer spread	≤ 0.50% of bid-price	≤ 0.75% of bid-price	≤ 1.00% of bid-price for 24 months ahead
Order book price sensitivity	≤ 0.50% price distance between average price for 120 MW and best price on each bid- and offer-side	≤ 0.75% price distance between average price for 120 MW and best price on each bid- and offer-side	≤ 1.00% price distance between average price for 120 MW and best price on each bid- and offer-side for 24 months ahead
Number of trades	≥ 50 trades per day	≥ 15 trades per day	≥ 8 trades per day for 24 months ahead
„Market health" metrics	Threshold Spot, prompt and forward market together		
Herfindahl-Hirschmann Index (HHI)	< 2000		
Number of supply sources	3		
Residual Supply Index (RSI)	> 110% (> 95% of days/year)		
Market concentration for bid and offer activities	≤ 40% market share per company (or groups of companies) for the best 120 MW on each bid- and offer-side		
Market concentration for trading activities	≤ 40% market share per company (or groups of companies) for the sale and purchase of gas each		

Recommendations - Wholesale market functioning

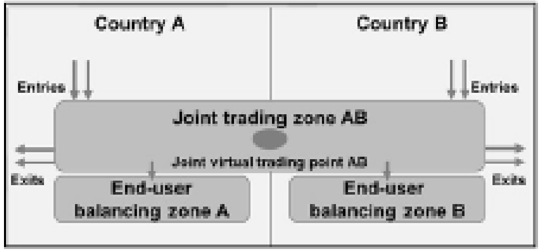
Market integration tools

- As a result of the self-evaluation, if Member States is unlikely to have a functioning wholesale gas market by 2017, structural market reform to be evaluated
- All such measures should be designed to further „market health" and „meeting participants needs" (see criteria above)
- Subject to rigorous CBA
- Options include (but not limited to):
  - Market merger
  - Trading region
  - Satellit market

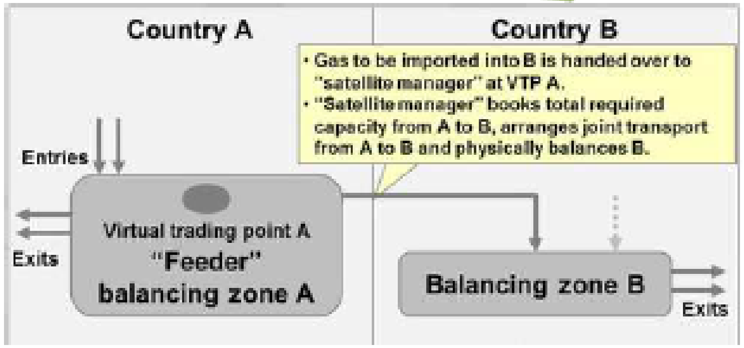
Market merger



Trading region



Satellit market



New usage of gas

ACER undertakes a study with the aim to analyse the potential of several new uses for natural gas and to identify the regulatory reforms required to support their further development

- **Examined technologies** include:
  - use of gas in the **transport sector**
  - storage of gas with non-conventional means (**Renewables-to-Gas** applications or conversion of **gas to hydrates**)
  - **virtual pipeline applications** for Liquefied Natural Gas **(LNG)** and Compressed Natural Gas **(CNG)**
- These developments:
  - create new prospects for the increase of gas consumption
  - may facilitate the achievement of the internal EU market objectives

ACER has requested the elaboration of a study to the consultancy company Kantor with the objective to:

- ✓ assess the forecast potential of the new uses of gas
- ✓ assess whether the current/planned regulatory framework promotes or hinders new uses for gas
- ✓ recommend adaptations that may be required

The study's results and recommendations will feed into the Gas Target Model

- **GTM on ACER website:**
- http://www.acer.europa.eu/Gas/Gas-Target-Model/Pages/default.aspx
- 9 December 2014: stakeholder workshop to launch the updated Gas Target Model (Brussels)

- **ACER Bridge to 2025**
- **http://www.acer.europa.eu/Events/Presentation-of-ACERs-Conclusions-Paper-Energy-Regulation-A-Bridge-to-2025/default.aspx**

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UK Future Energy Scenarios 2015

Gas Industry Forum 23 October 2014

Nigel Fox, Energy Demand Manager

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email: transmission.ukfes@nationalgrid.com

We develop scenarios that affect & inform how important decisions are made

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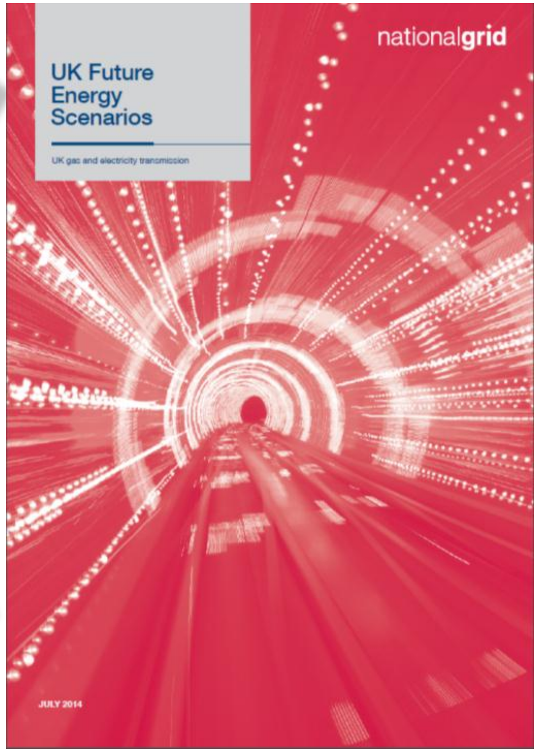
Development of transmission systems



Supply & demand for the year ahead

European developments

Security of supply & decarbonisation

We follow an annual cycle of scenario development

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Your Views

Our stakeholder engagement allows us to listen to your views, which are vital to our outputs. They drive our processes and inform both our scenarios and our consultation process.

Axioms

An axiom is a premise or starting point of reasoning. The axioms that we produce are a reflection pf the stakeholder feedback that we receive through our consultation process. These axioms influence our modelling.

Modelling

Once our axioms have been defined, they underpin our detailed modelling and drive our specific electricity and gas, demand and supply scenarios.

Future Energy Scenarios

The scenarios are the end result and a vision of the future that stakeholders have informed. The publication of the Future Energy Scenarios document marks the start of our annual process and the continuation of our stakeholder consultation.

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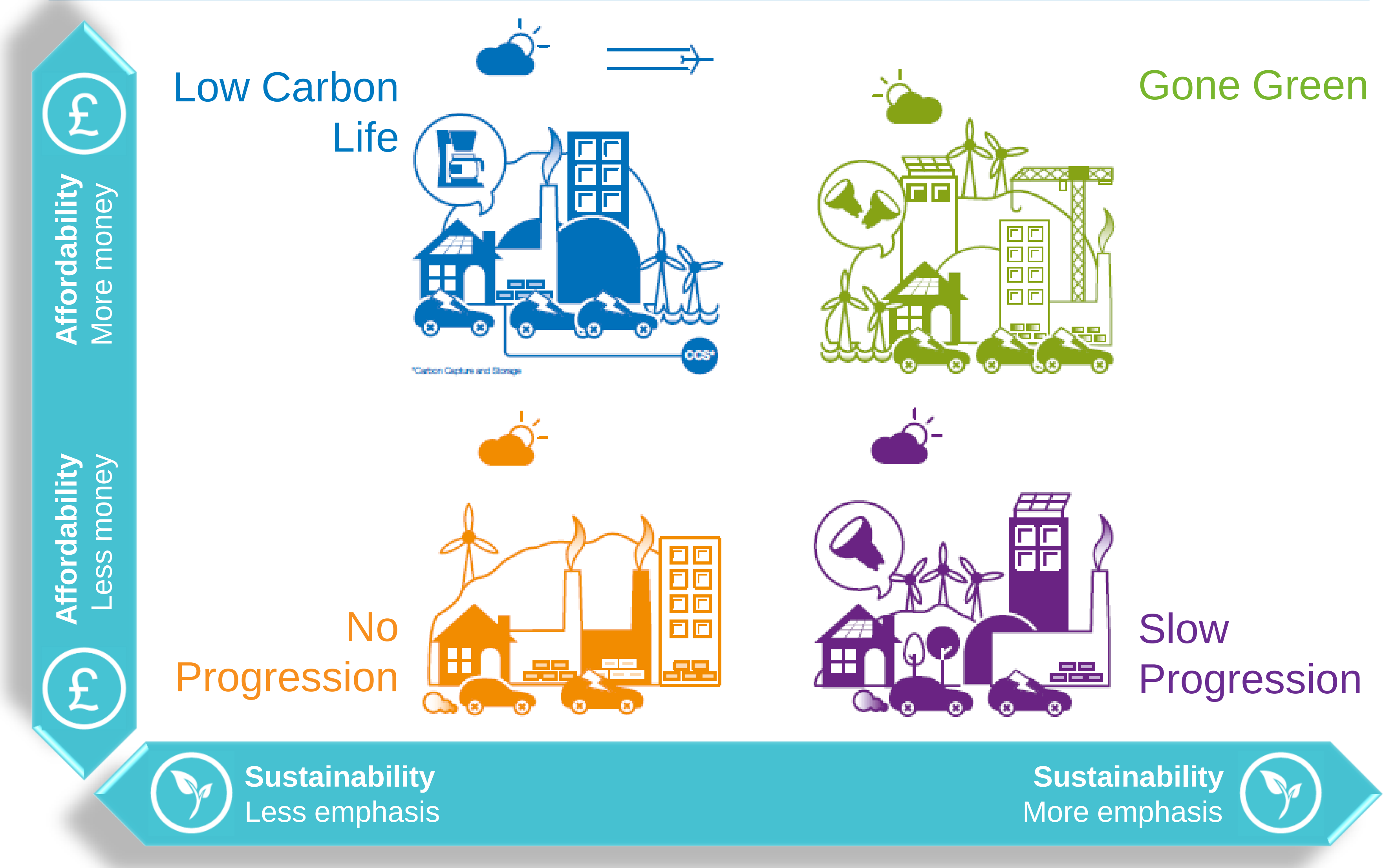
What do the 2014 scenarios look like?



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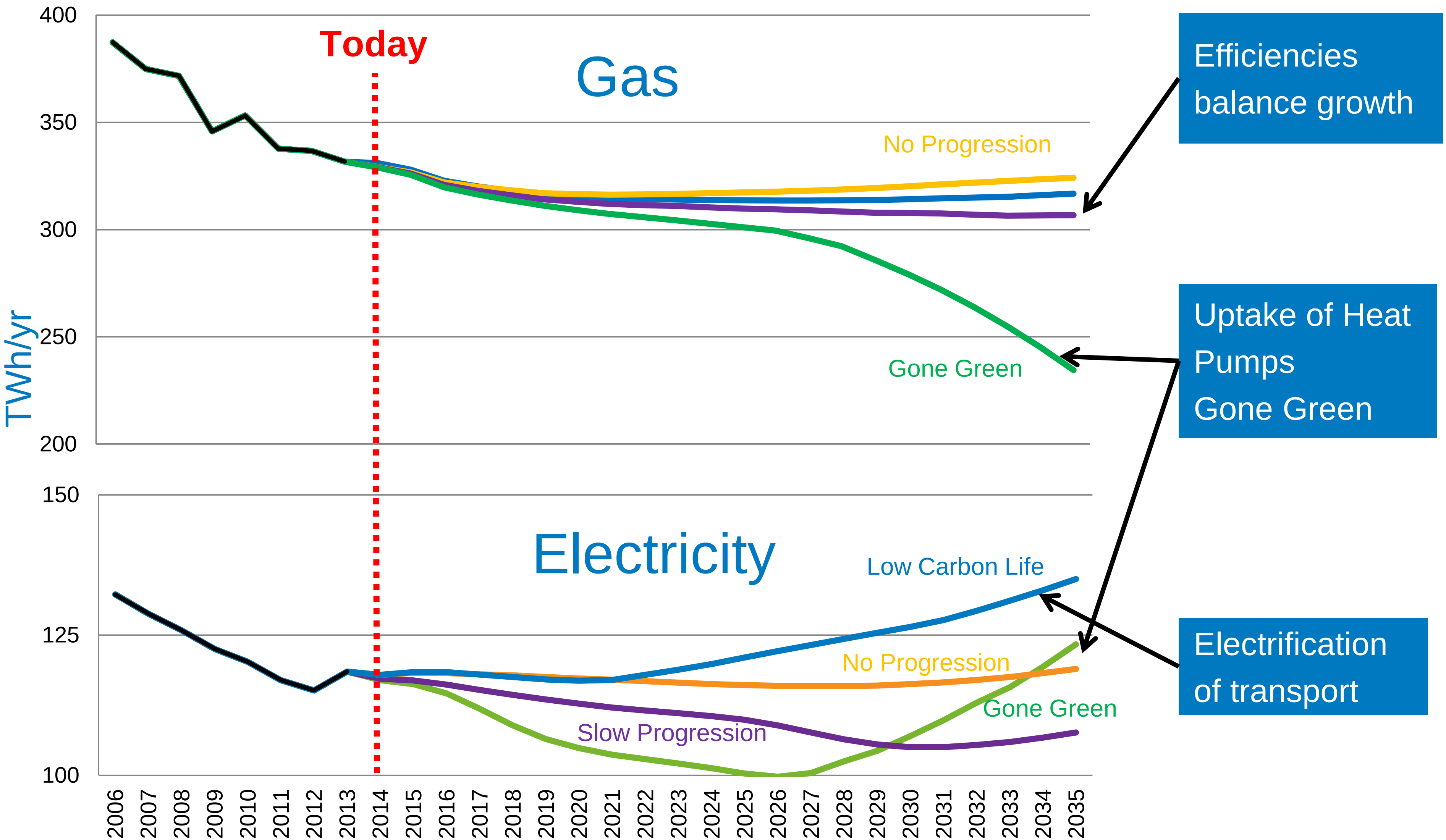
Energy Demand

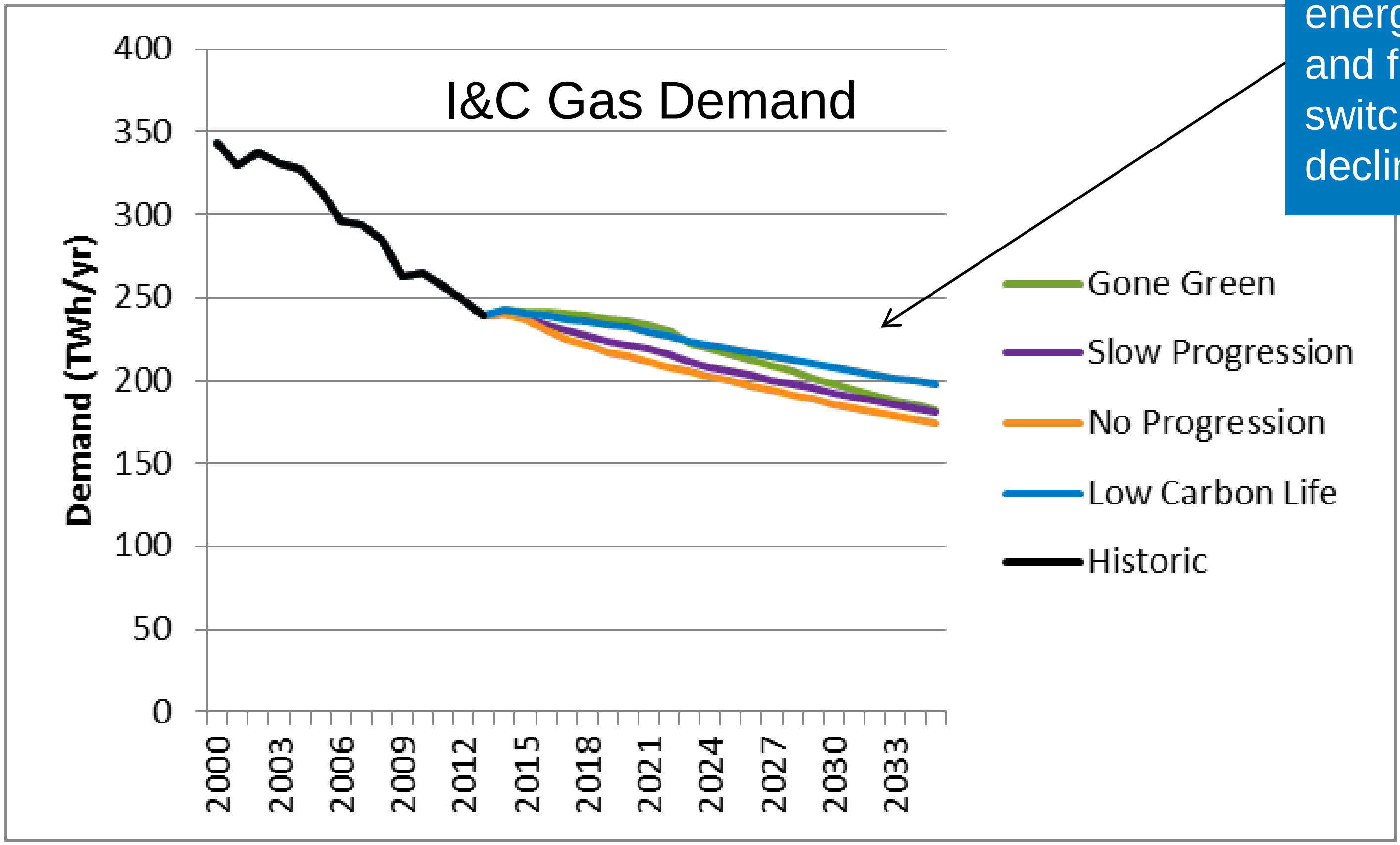
Twitter: #ukenergy
email: transmission.ukfes@nationalgrid.com

Residential energy for gas is stable to 2020, range of outcomes for electricity is wider

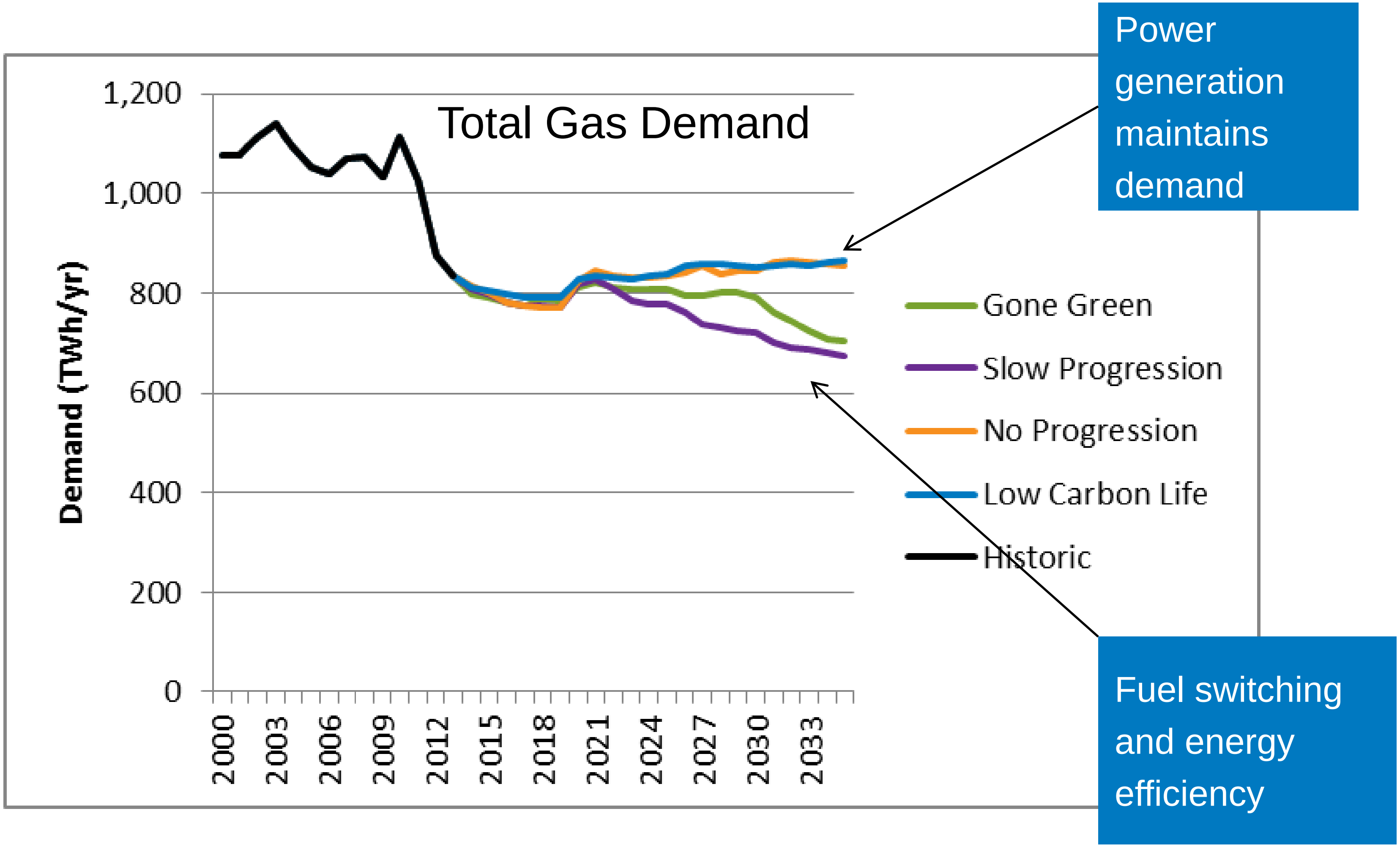


Industrial & Commercial gas demand continues to decline

Sectoral change, energy efficiency and fuel switching drives decline



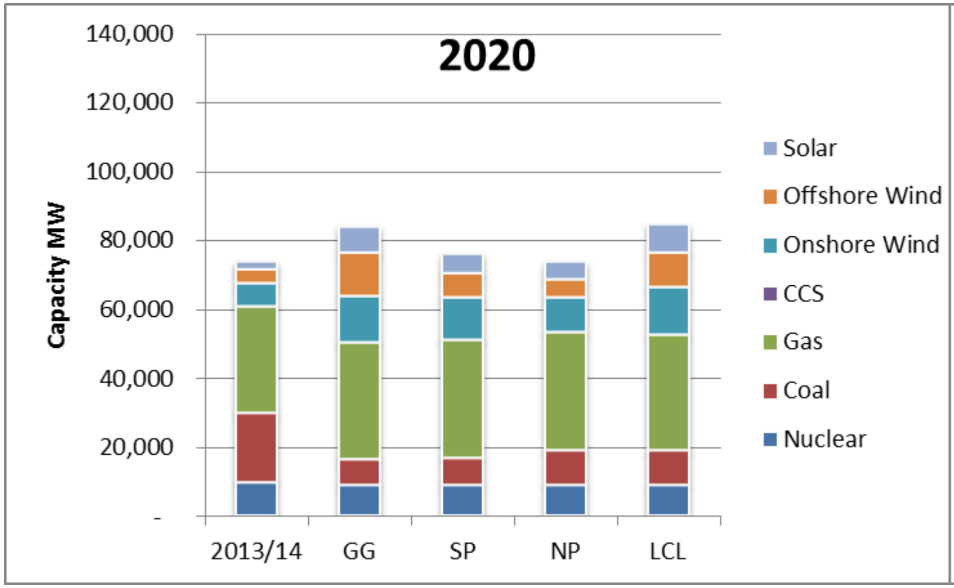
Gas demand falls in the greener scenarios and plateaus in the other two

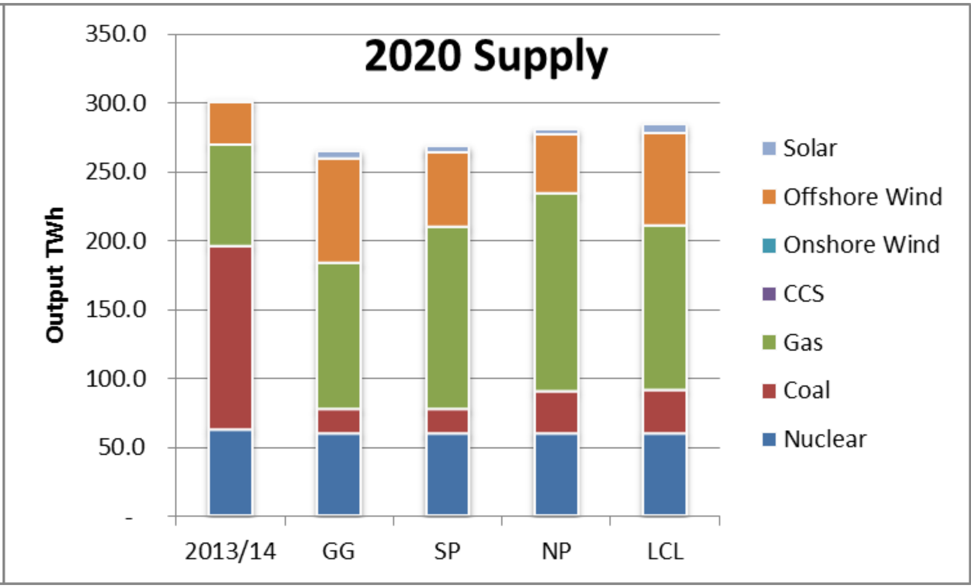


Power Supply

Twitter: #ukenergy
email: transmission.ukfes@nationalgrid.com

By 2020 Gas will be the dominant generation fuel, with wind and solar more prevalent in the wealthier scenarios

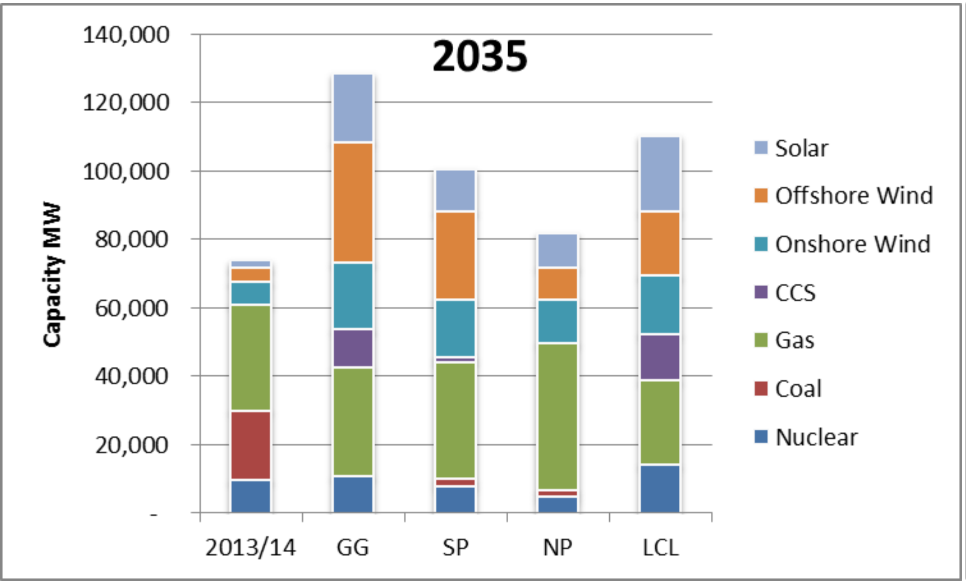


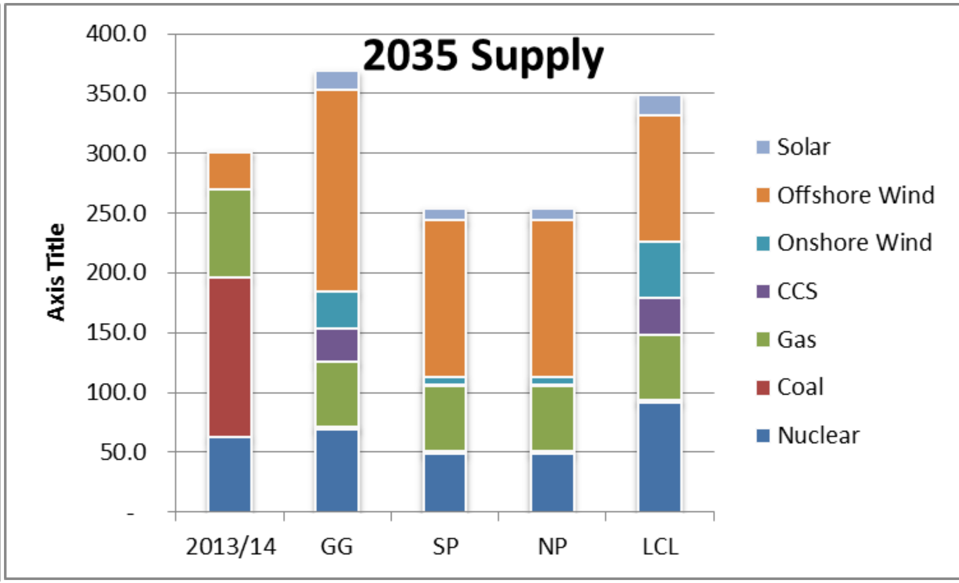


Generation scenarios

Gas capacity and usage increases across all scenarios

By 2035 we have a much wider range, with CCS for gas in the greener scenarios





Generation scenarios

Gas capacity retained but annual usage changes

Gas Supply

Twitter: #ukenergy

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Due to the large amount of uncertainty around Shale production we have a broad range

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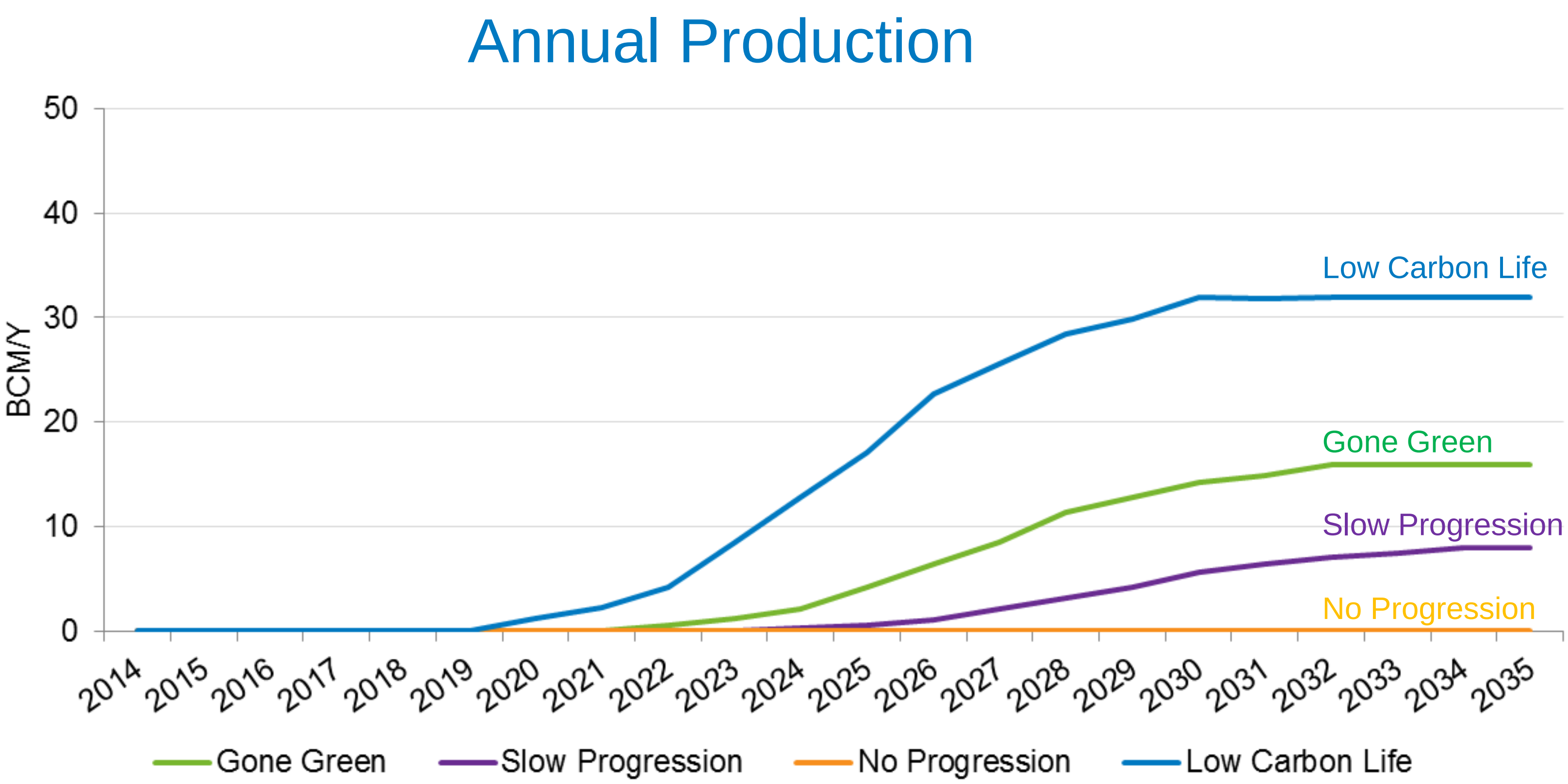
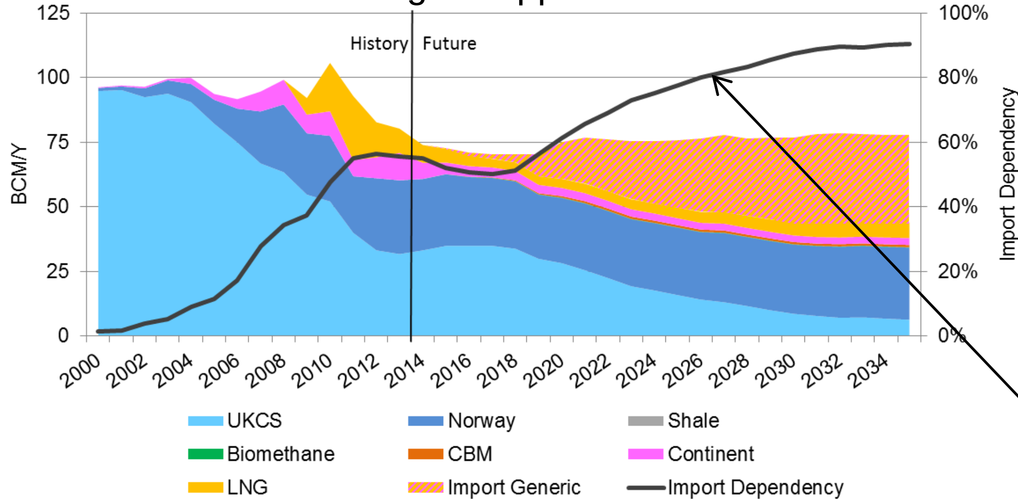


Shale has the potential to significantly impact import dependency

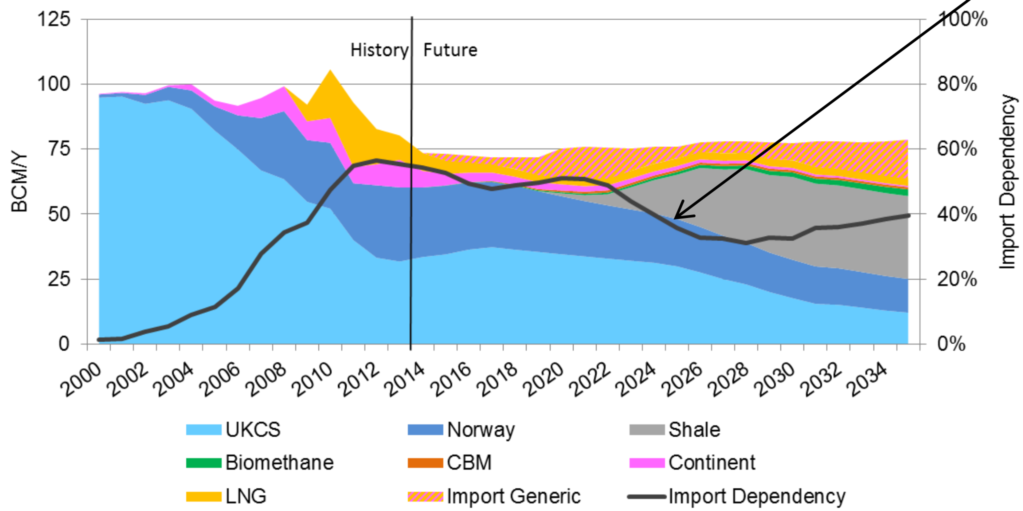
No Progression

Annual gas supplies



Import dependency

Low Carbon Life



Issues for the coming winter?

- Demand expected to be very similar to last year
- Gas supply position secure
- Diverse supply
- Storage well stocked
- Impact of Russian gas curtailment low

Summary

- Broad range of plausible and credible scenarios to capture uncertainty
- Demand for gas is expected to plateau or fall
- However, gas still has an important role in both heat and power out to 2035
- Shale could have a big impact on import dependency

Thank You

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AOB

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Future Gas Industry Forum Events

The next Gas Industry Forum is scheduled to take place on **7th May 2015**

Possible topics for the next forum:

- **Smart Metering**

If you are interested in attending the next Gas Industry Forum, please send us an email to:

talkingnetworks.distribution@nationalgrid.com

Thank you all for coming and have a safe journey home!