Gas Supply Forecasting Overview

May 2010





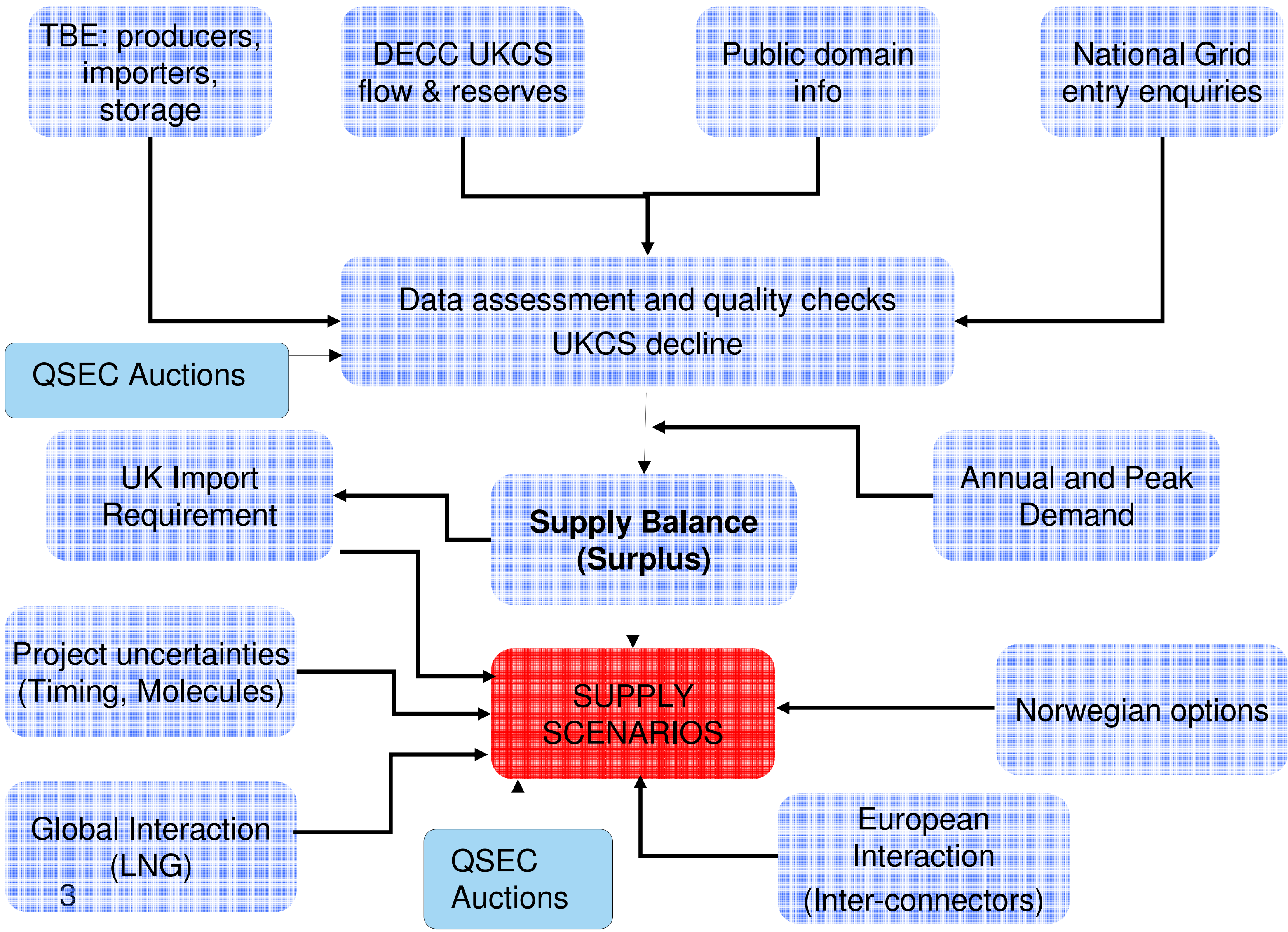
nationalgrid

The power of action.℠

Agenda

- Overview of process
- Understanding flow relationships
- Supply forecasts / capacity
- Changes in forecasts 2006 vs 2009
- Comparison of actuals vs forecasts
- Questions

Forecasting Imports, Storage & Developing Scenarios

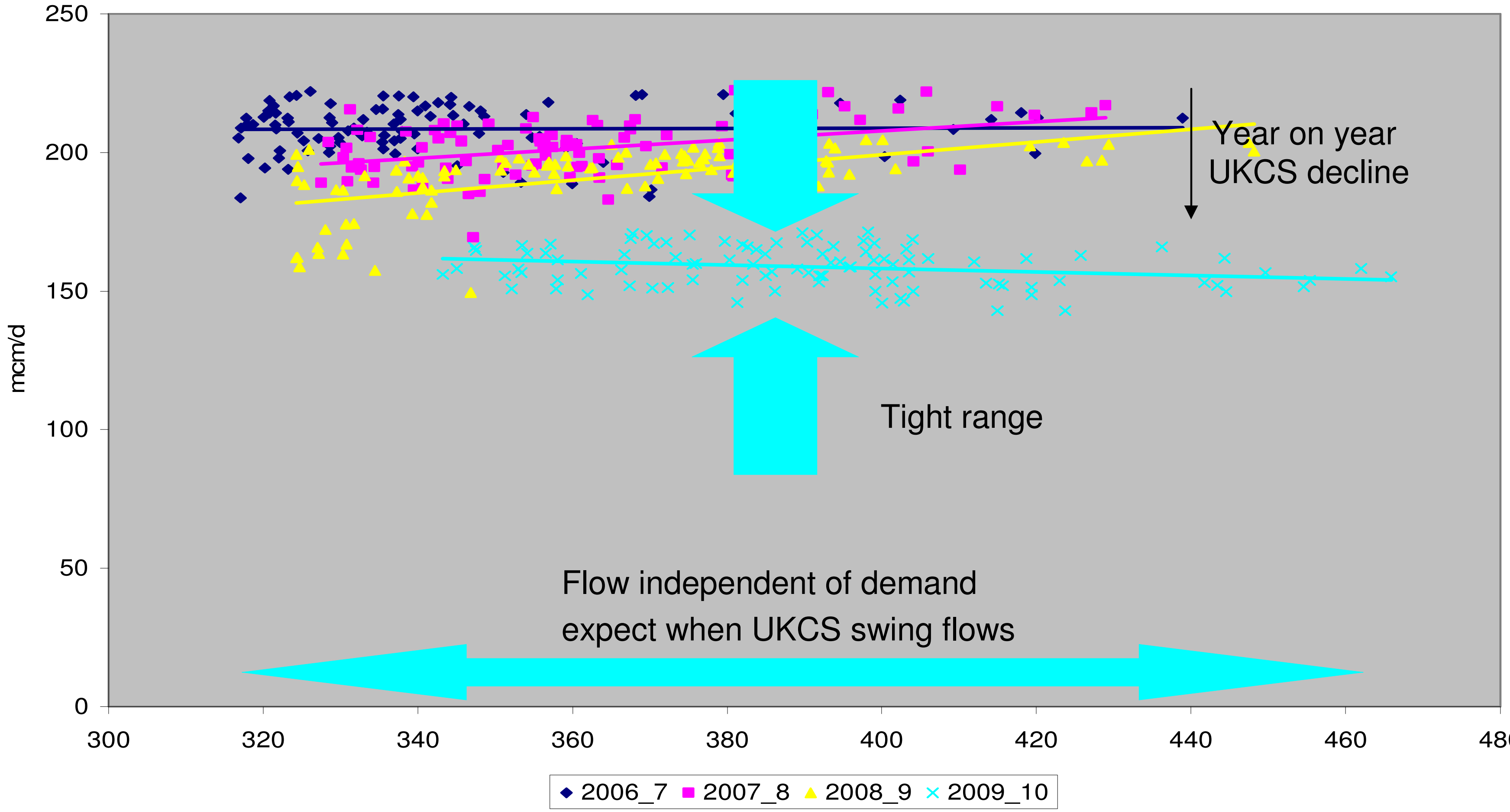


nationalgrid
The power of action.

Supply considerations

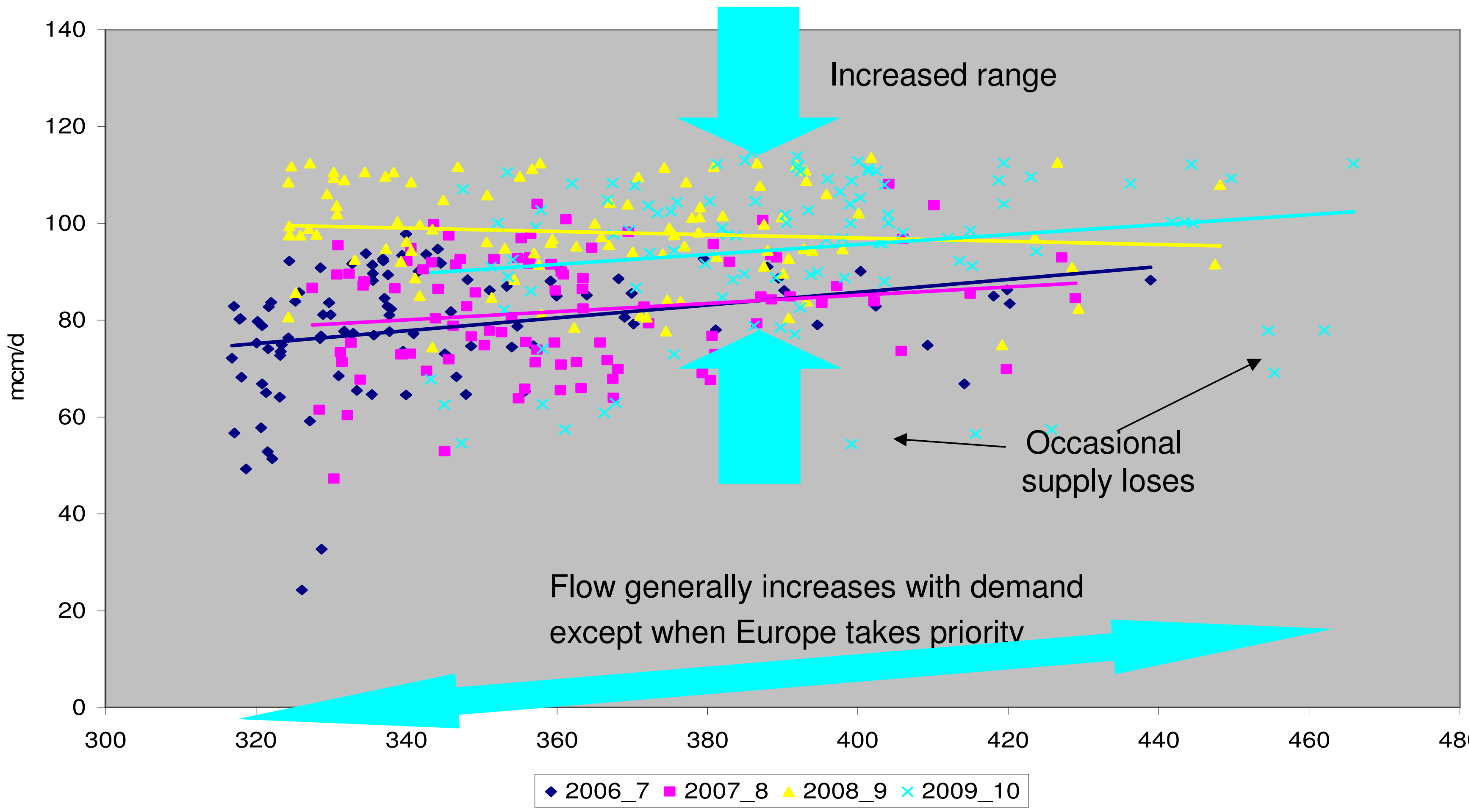
- **UKCS still largest supply component**
  - Operates at high load factor
  - Year on year decline
- **Norway is currently second largest supply**
  - High import capacity and utilisation
  - Options to prioritise production to continent
- **LNG increasingly important**
  - High import capacity
  - Global market options hence import uncertainty
- **Continent**
  - BBL currently linked to import contract that expires mid-decade
  - IUK continues to operate as balancer between UK and Continental market
- **Storage**
  - All available UK storage is used commercially

UKCS



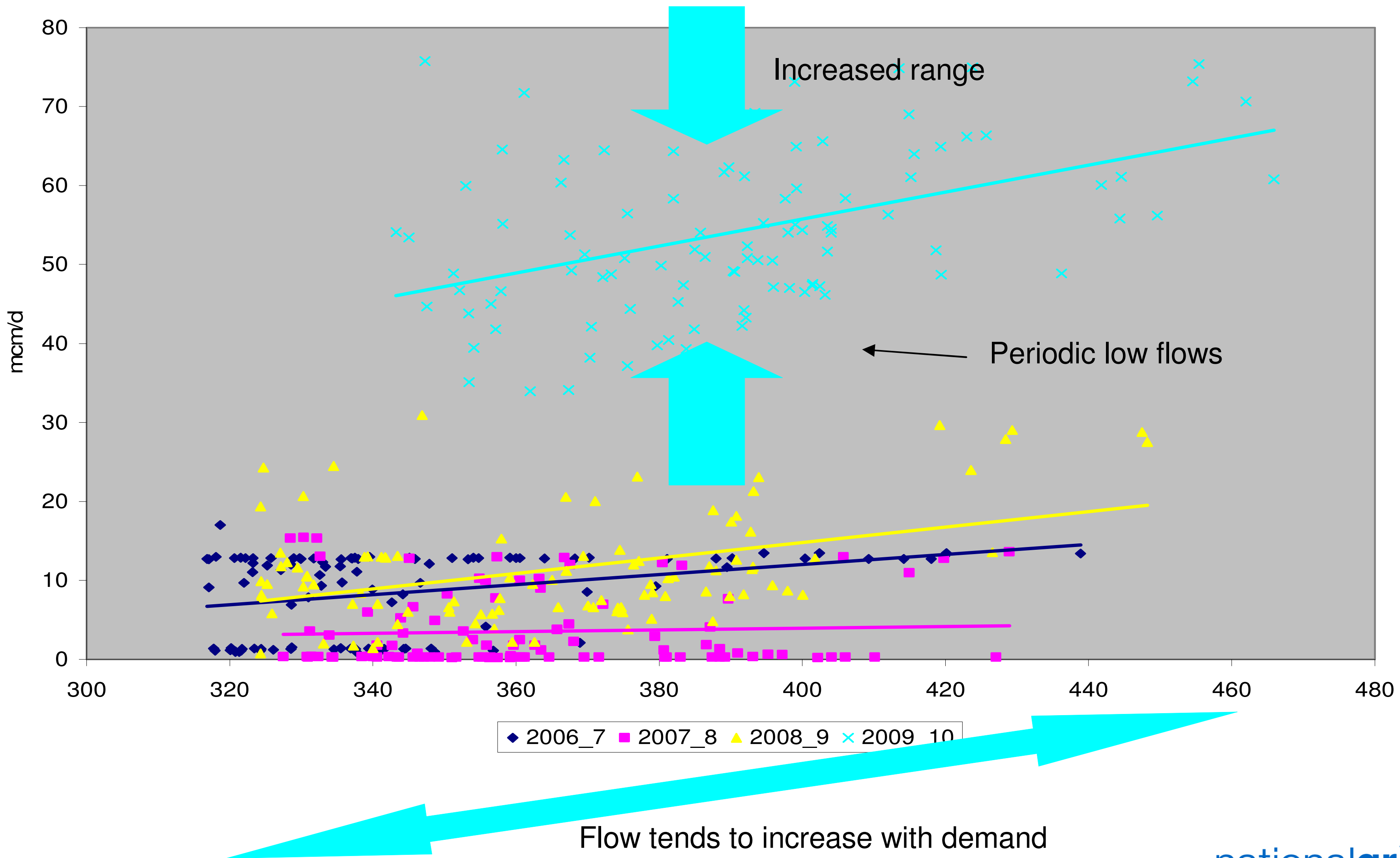
nationalgrid
The power of action.

Norway



nationalgrid
The power of action.

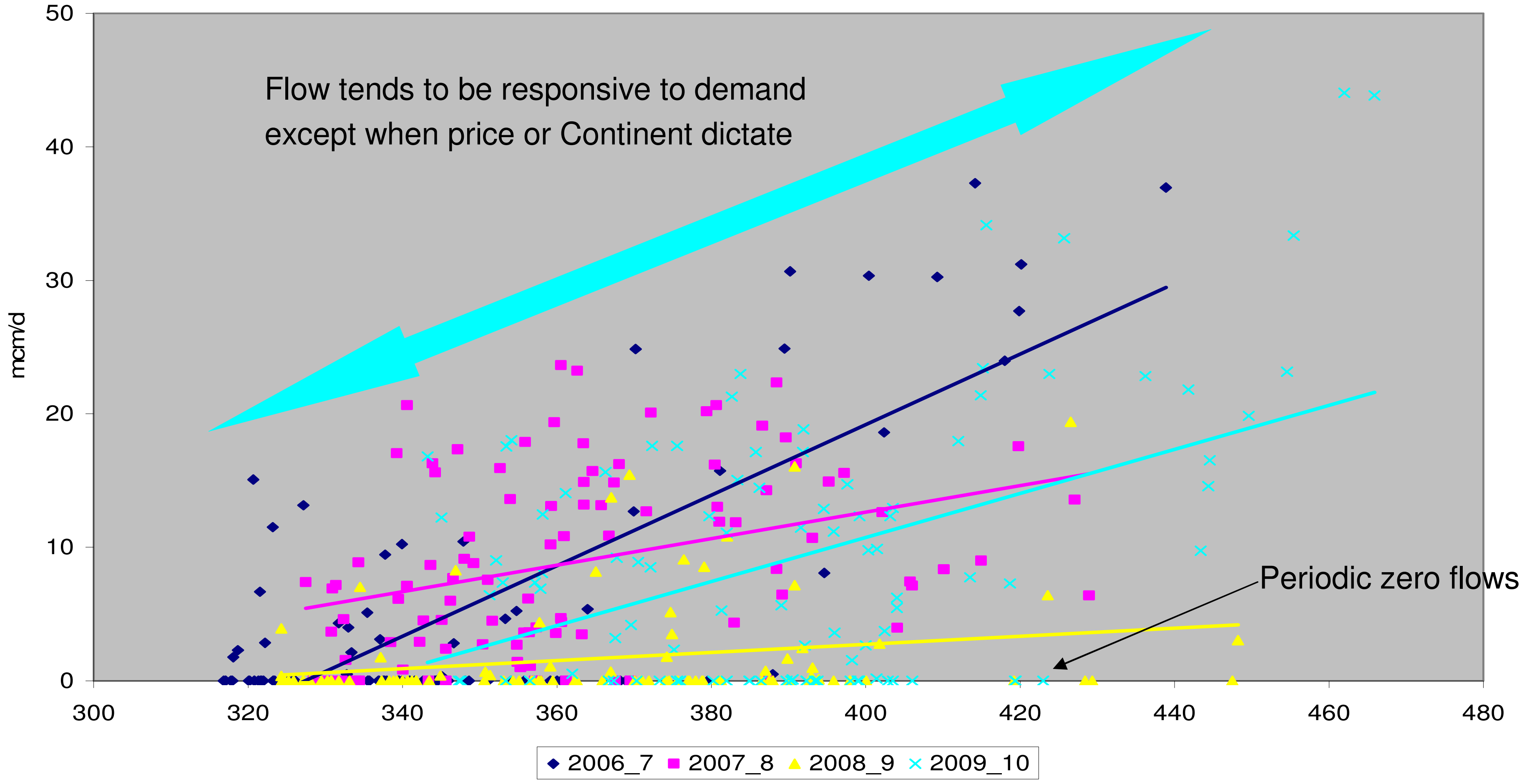
LNG



Flow tends to increase with demand
except when stocks are depleted

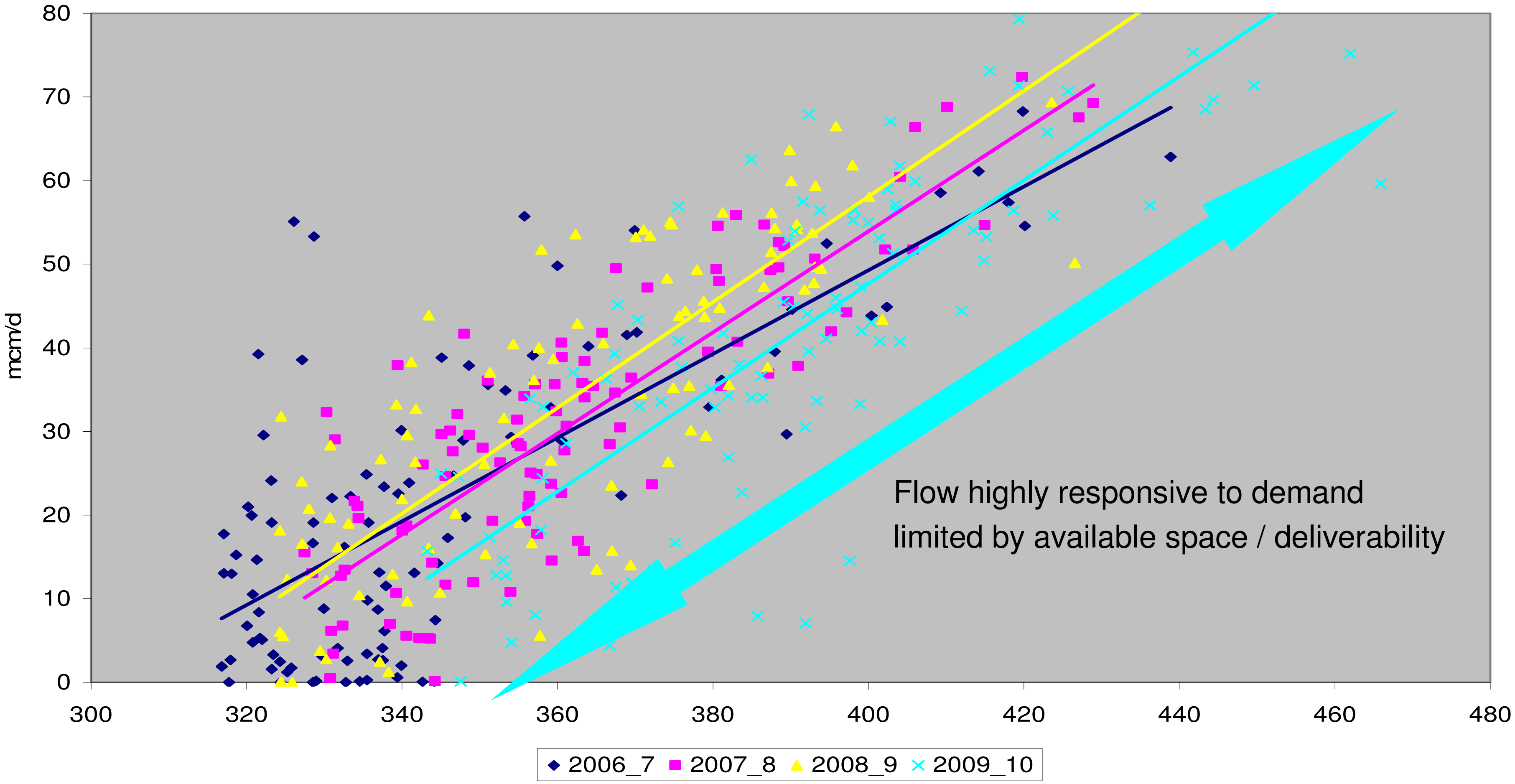
nationalgrid
The power of action.

IUK



nationalgrid
The power of action.

Storage

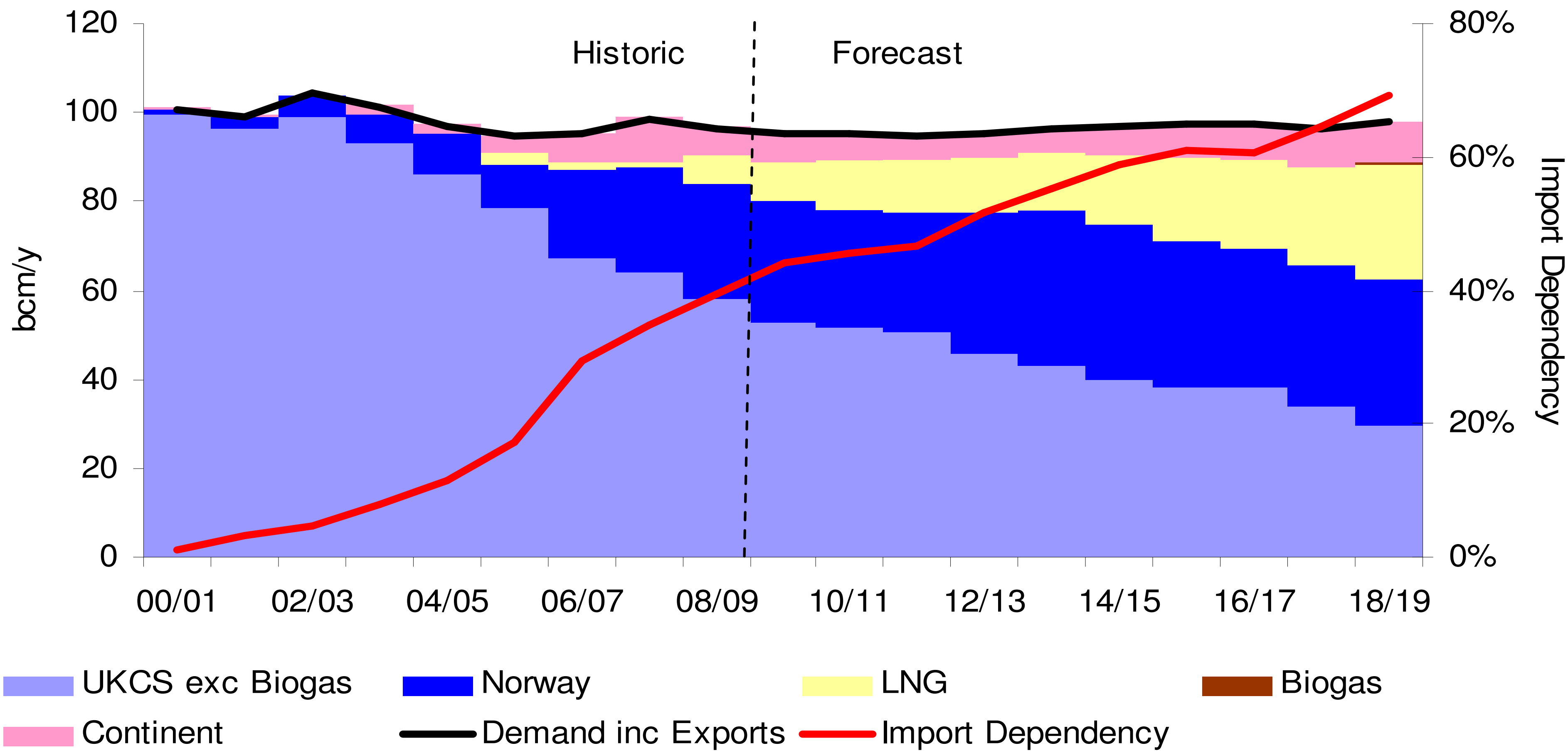


nationalgrid
The power of action.

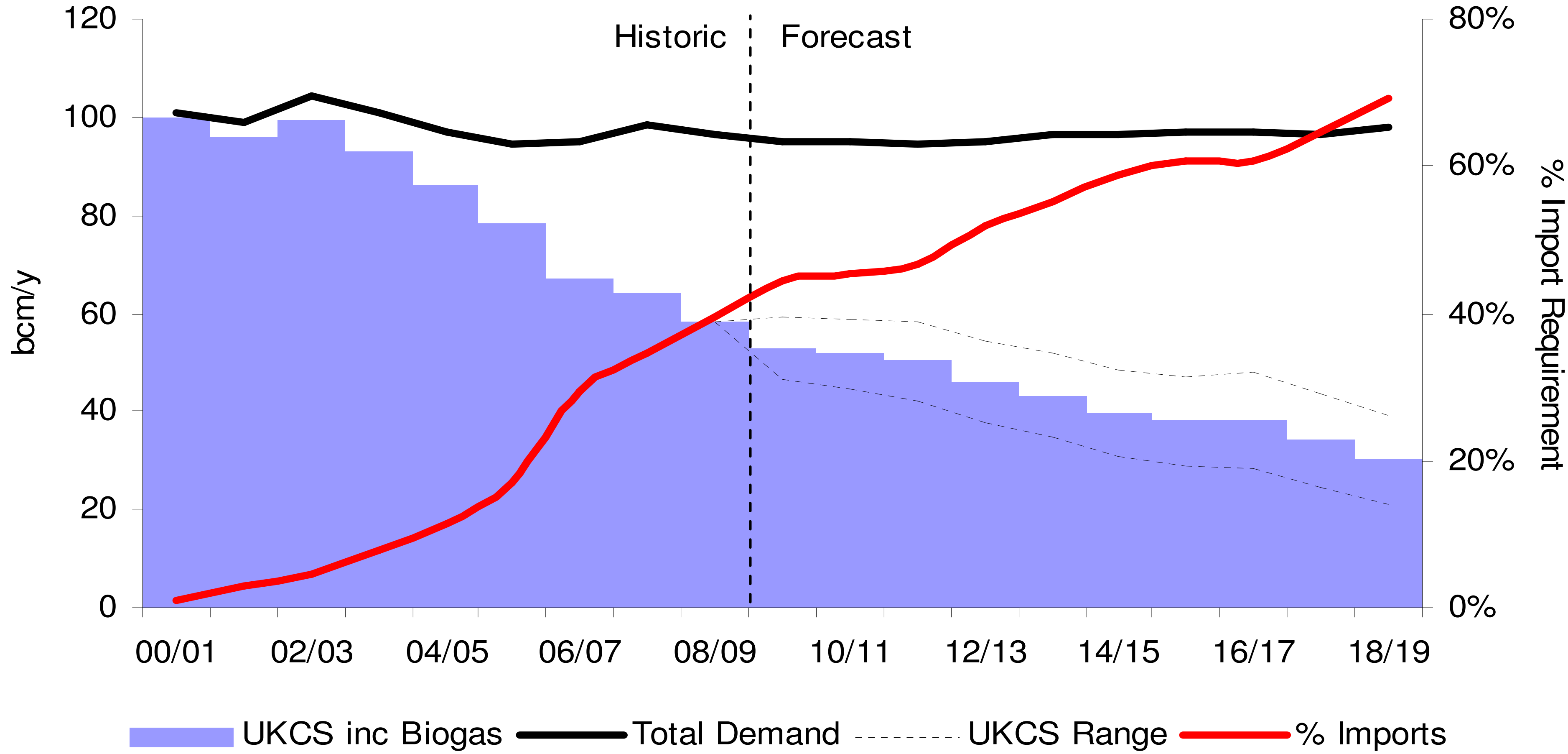
Annual Supply Forecasts

- Annuals – less uncertainty
  - UKCS flows!
  - BBL flows based on Centrica contract
  - Norwegian flows subject to difference between production and Continent
  - LNG dependent on global position
  - IUK peak balancer, net exporter
  - Storage in = storage out
- Changes to demand

2009 Base Case annual supply

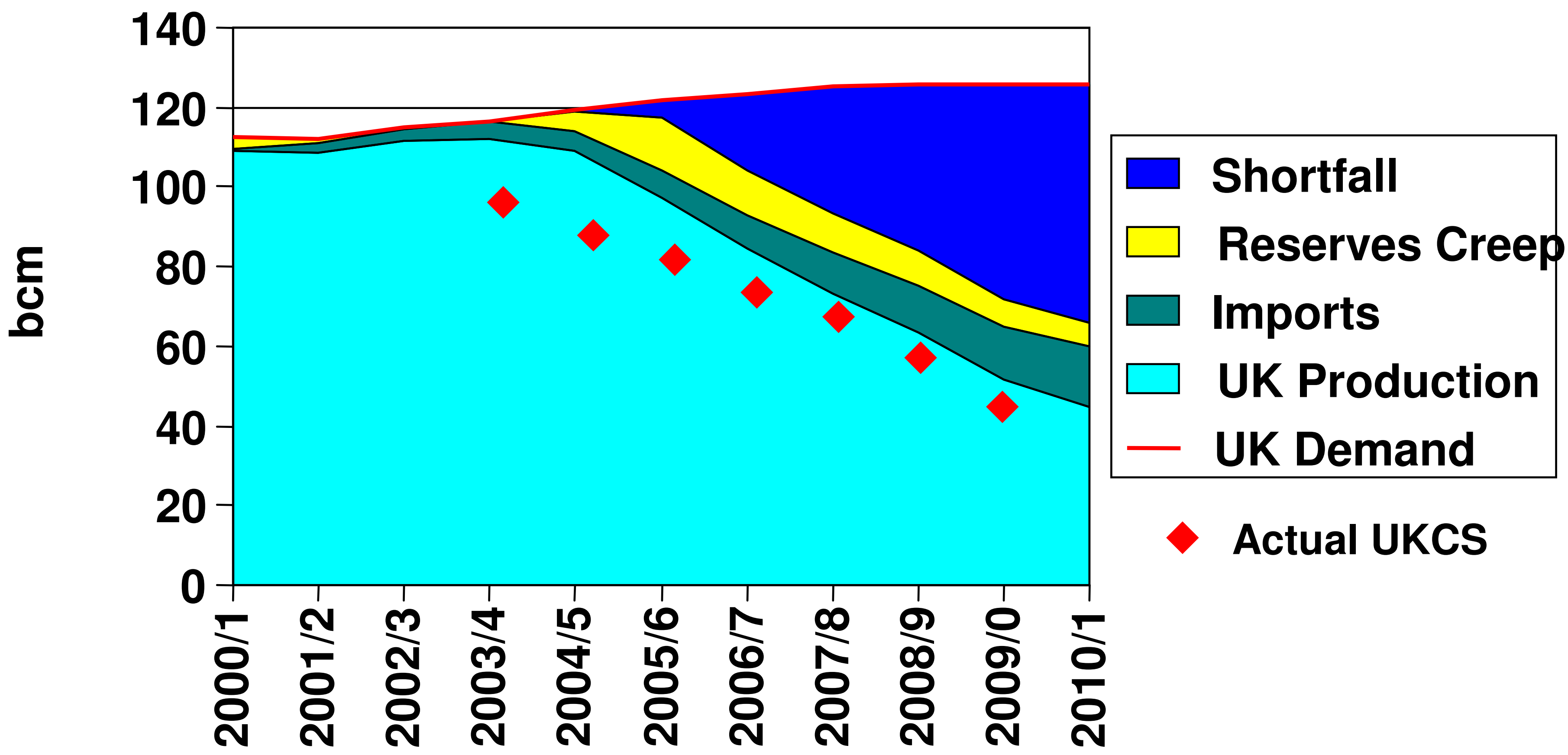


UKCS

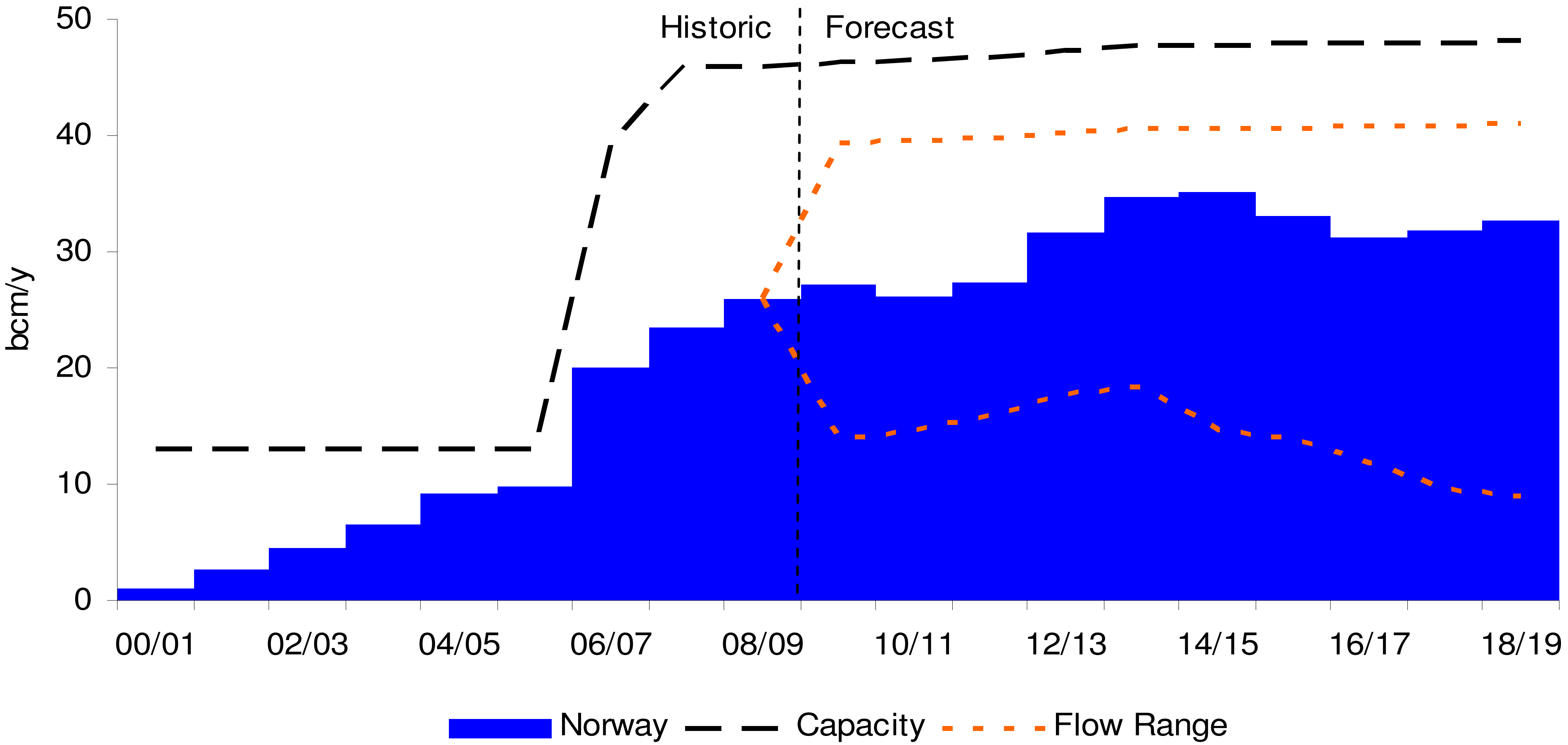


nationalgrid
The power of action.

UK Annual Supplies (as produced in 2000)

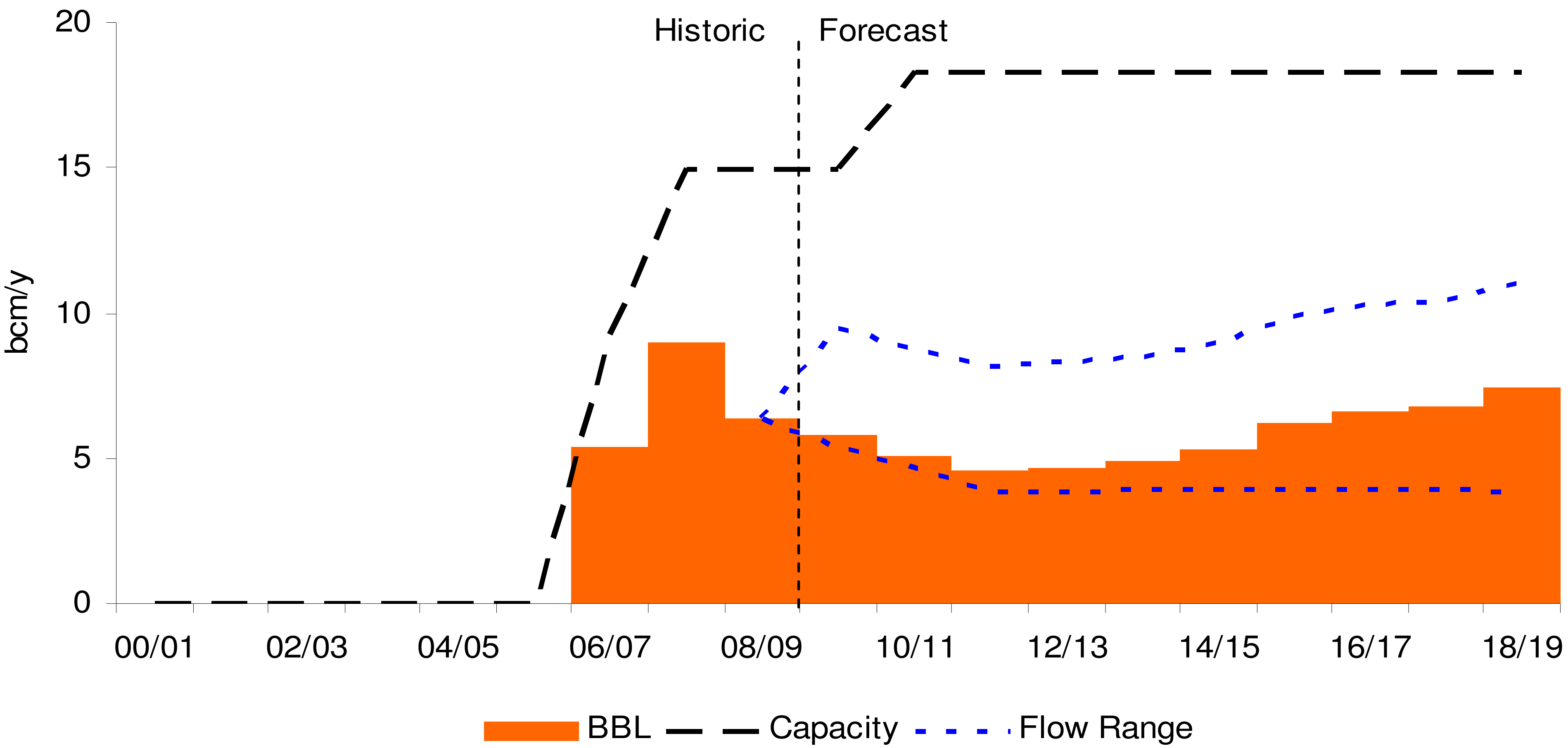


Norwegian



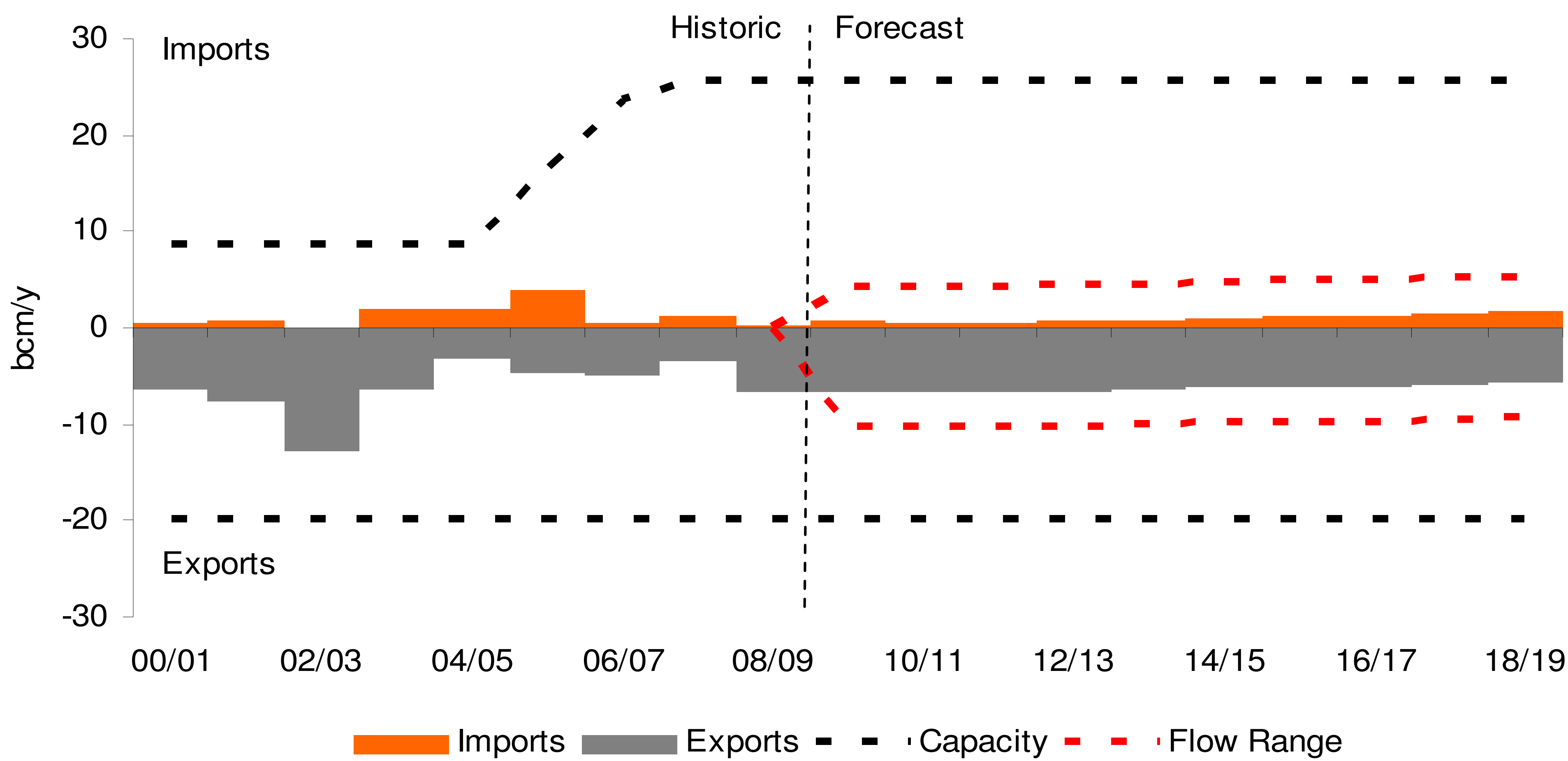
nationalgrid
The power of action.

BBL



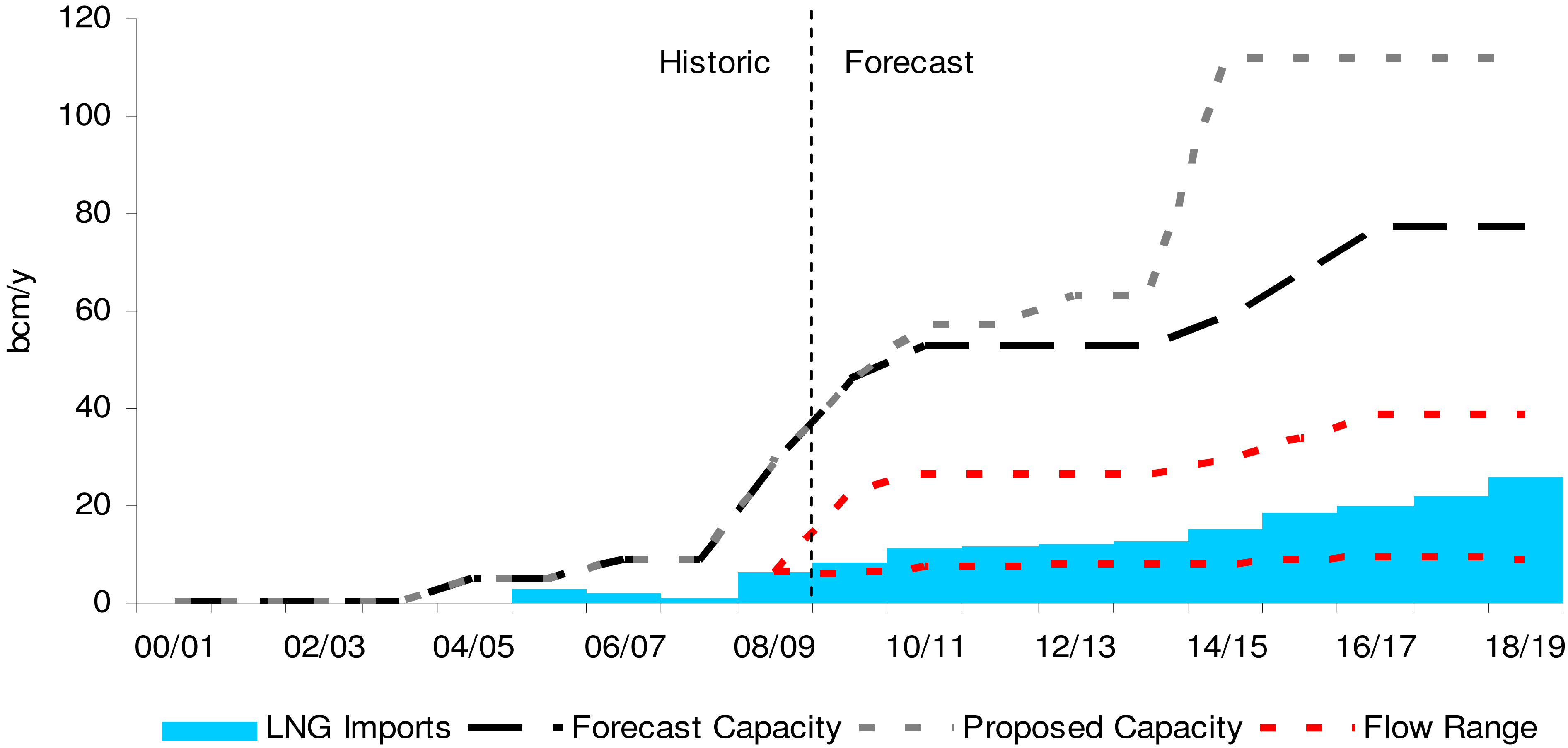
20
15
10
5
0
bcm/y
Historic
Forecast
00/01
02/03
04/05
06/07
08/09
10/11
12/13
14/15
16/17
18/19
BBL
Capacity
Flow Range

IUK



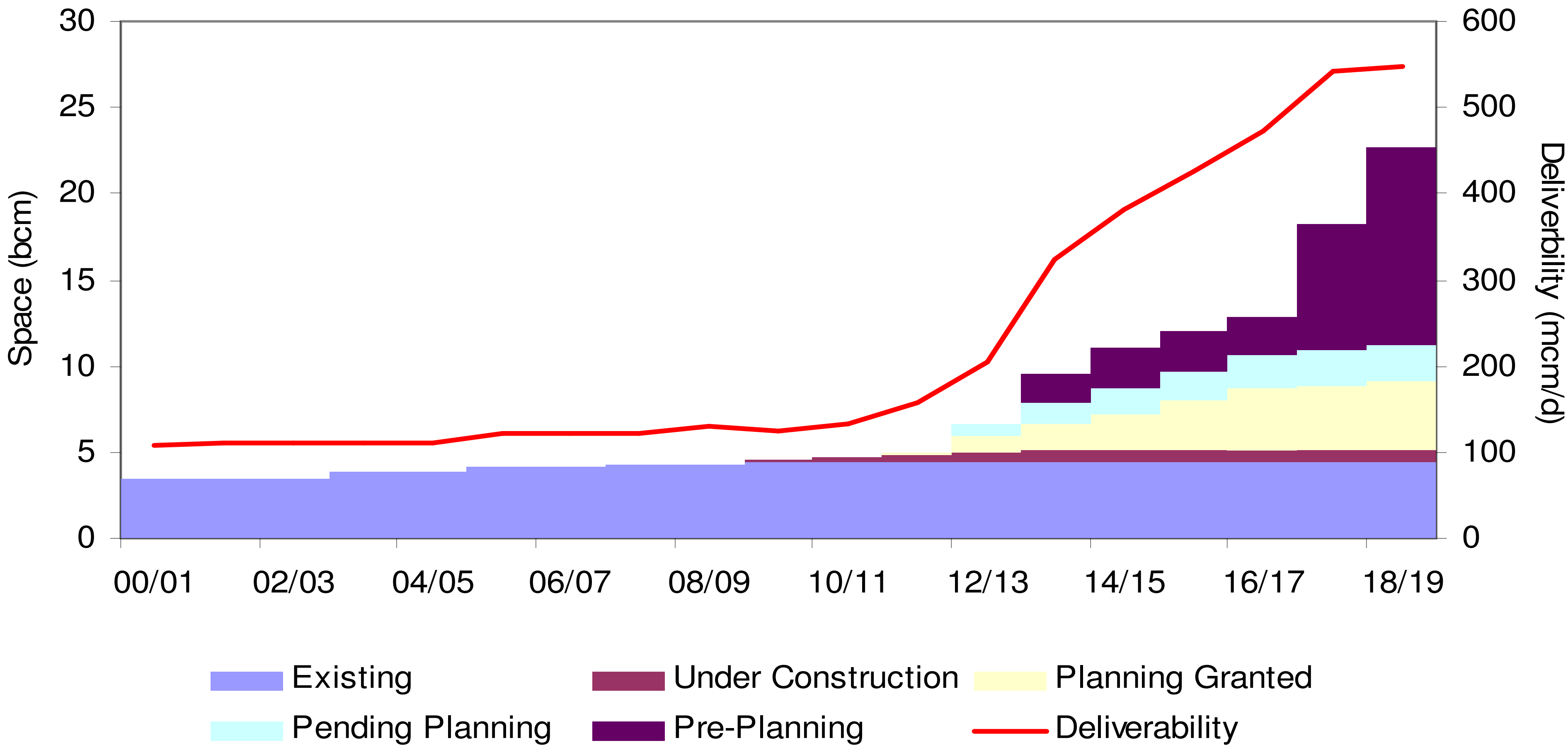
nationalgrid
The power of action.

LNG



nationalgrid
The power of action.

Storage forecast



2006 vs 2009 Annual Forecasts

bcm/yr	2006 Forecast			2009 Forecast		
	05/06	09/10	15/16	09/10	15/16	Comments
Bacton	24	17	11	20	19	higher 15/16
Barrow	7	4	2	4	2	identical
Easington	5	21	21	19	20	very similar
St Fergus	41	36	36	30	28	lower
Teesside	9	6	10	7	8	similar
Thed'pe	9	7	3	5	2	similar
IOG	3	5	12	3	7	lower but will be higher in 2010
Milford Haven	0	15	28	6	10	lower but will be higher in 2010

Forecasting Annual Performance

bcm	2006	2009		2006	2009	
	09/10	09/10	Actual*	% diff	% diff	Comments
Bacton	17	20	23.6	26%	10%	Higher imports
Barrow	4	4	3.5	-25%	-24%	Low flows due to low UK gas price
Easington	21	19	19.4	-8%	1%	
St Fergus	36	30	25.4	-43%	-19%	UKCS production decline & operational problems
Teesside	6	7	8.1	31%	16%	Less 'direct' gas
Thed’pe	7	5	5.7	-28%	11%	UKCS decline for 2006
IOG	5	3	4.6	-17%	39%	Highlights long term & short term problems associated with LNG forecasts
Milford Haven	15	6	10.4	-47%	46%	Highlights long term & short term problems associated with LNG forecasts

Peak Supply Forecasts

- Peak – considerable uncertainty
- What is peak?
  - Network Design vs Operational expectations
  - Booked capacity
  - Physical import capacity vs molecules
  - Use of storage, future storage
- May need demand / gas price to deliver ‘peak’ supplies

- Terminal specifics
  - Bacton – IUK and to a lesser extent BBL
  - Teesside – Ship to shore LNG imports, ‘direct’ gas to local power station
  - Barrow – swing gas, future projects
  - Milford & Grain – capacity vs molecules, global LNG dynamics
  - Storage – future developments

2006 vs 2009 Peak Forecasts

	2006 Forecast			2009 Forecast		
	05/06	09/10	15/16	09/10	15/16	Comments
Bacton	120	82	63	146	125	higher due to IUK assumptions
Barrow	29	18	9	15	8	similar
Easington	61	128	113	125	120	very similar
St Fergus	130	116	120	118	100	lower for 2015/16
Teesside	30	17	40	25	42	slightly higher
Thed'pe	28	24	10	15	7	lower
IOG	13	30	55	32	49	similar
Milford Haven	0	73	91	57	69	slightly lower
MRS	29	112	112	46	257	lower for 09/10, higher for 15/16
LNG	49	49	49	36	36	lower due to closures / reductions

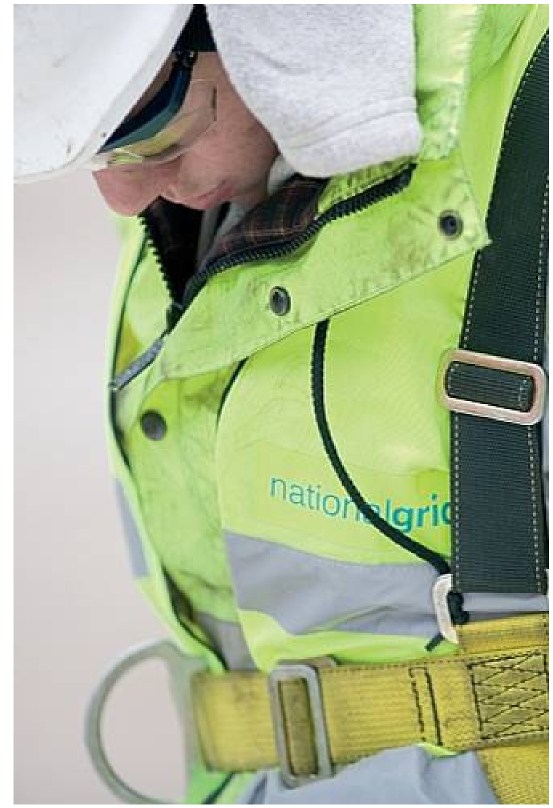
Forecasting Peak Performance

mcm/d	2006	2009		2006	2009	
	09/10	09/10	Actual*	% diff	% diff	Comments
Bacton	82	146	123	33%	-18%	Variable in forecasts was IUK & BBL assumptions
Barrow	18	15	18	3%	16%	
Easington	128	125	122	-5%	-2%	
St Fergus	116	118	101	-15%	-17%	UKCS production decline & operational problems
Teesside	17	25	28	38%	10%	Less 'direct' gas
Thed'pe	24	15	18	-34%	14%	UKCS decline for 2006
IOG	30	32	30	0%	-5%	Surprisingly good
Milford Haven	73	57	63	-16%	10%	Surprisingly good
MRS	112	46	39	-188%	-19%	New MRS not built for 2006
LNG	49	36	17	-186%	-113%	LNG not used due to demand

nationalgrid
The power of action.

Gas Supply Forecasting Overview

Questions?



nationalgrid

The power of action.℠