



Gas Insecurity: A Figment of the Imagination?

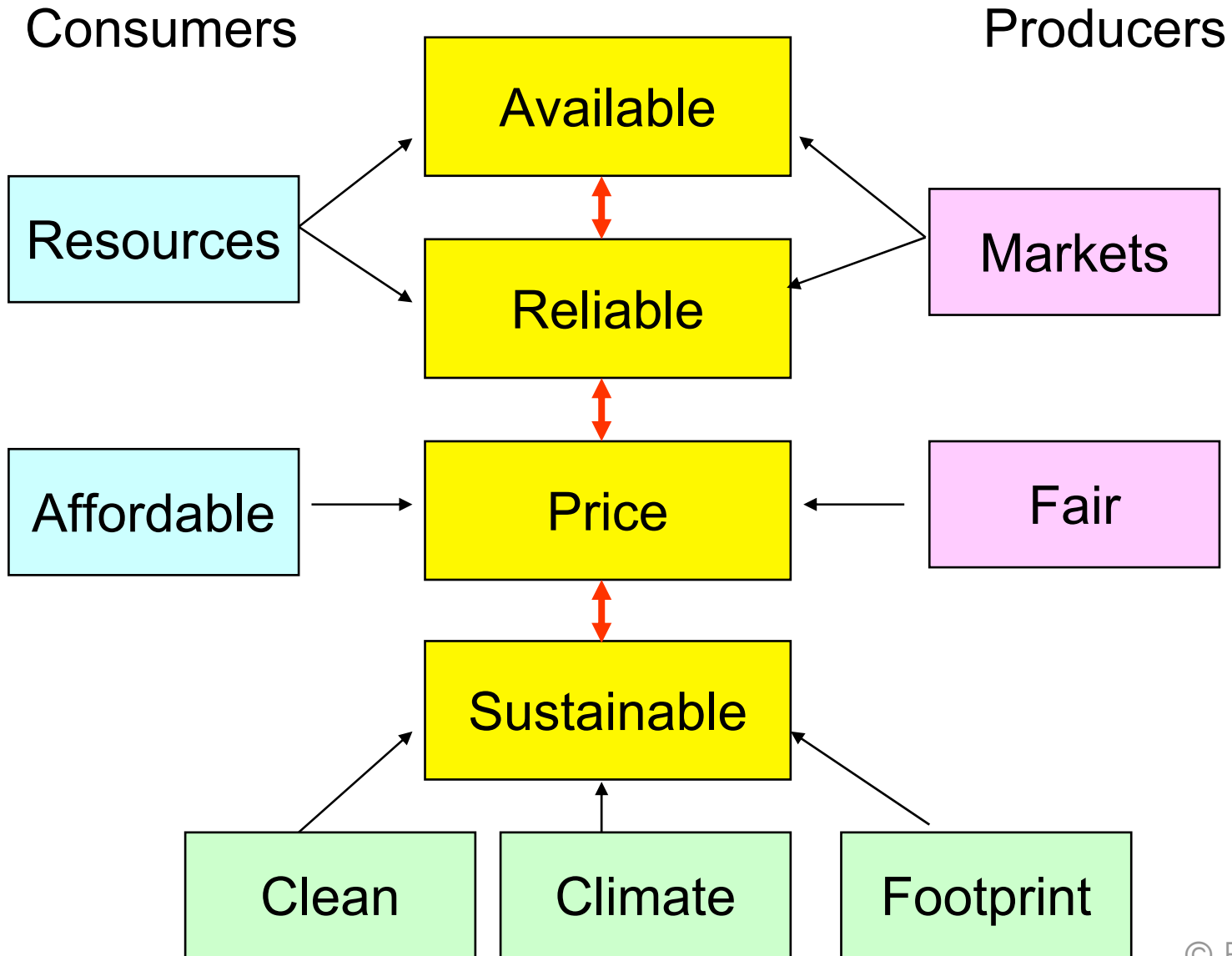
Peter Davies. Chief Economist, BP
EPRG. Cambridge. 19 May, 2006

Gas Security



- What is it?
- Does the UK have it?
- What is going to change?
- What can we do about it?

Energy Security





Gas security is the availability of reliable supplies at a reasonable price – in a sustainable manner



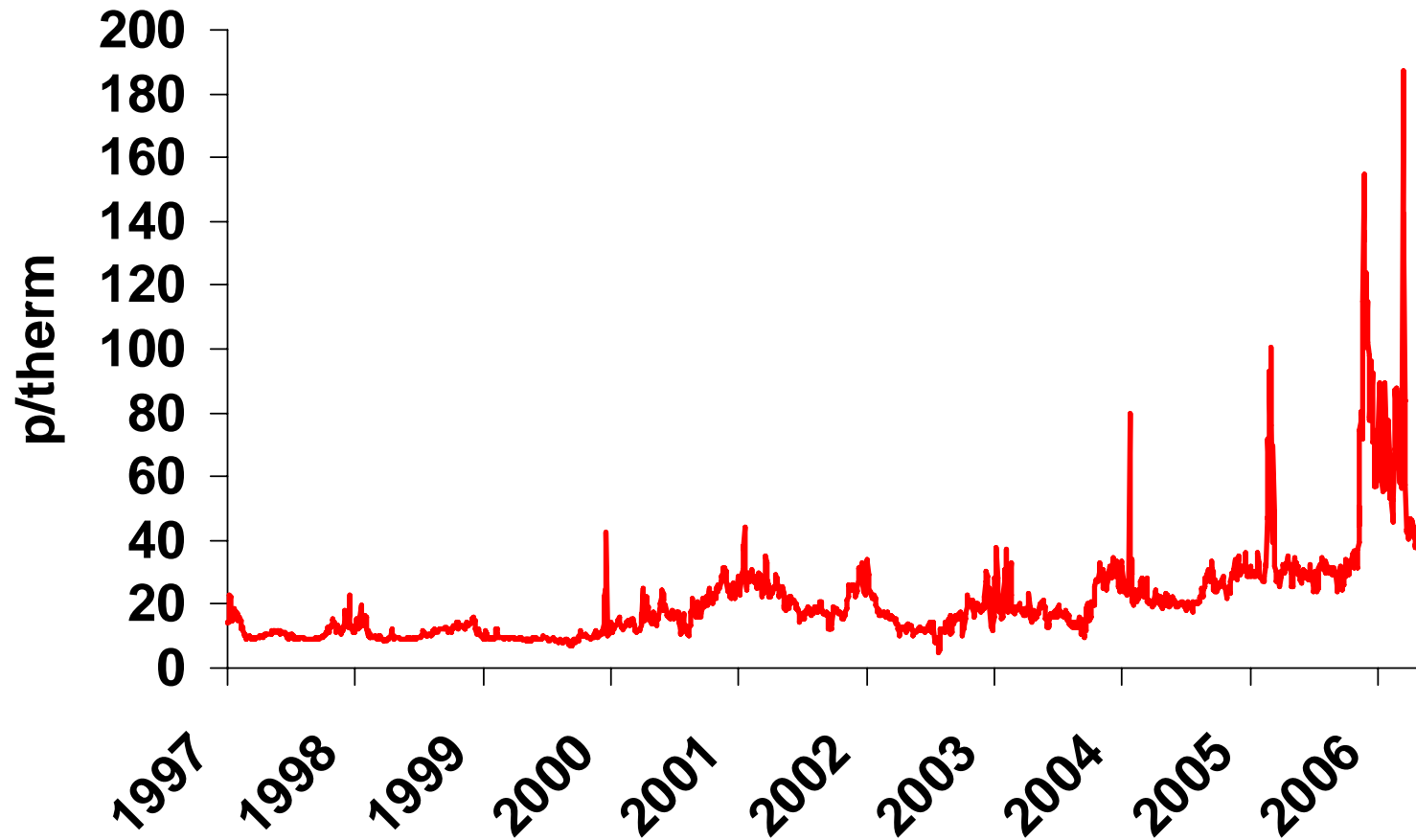
National Grid Gas Balancing Alert History

Gas Day	Update Timestamp	Description
24-Mar-2006	23/03/2006 13:10	NONE
23-Mar-2006	22/03/2006 13:17	NONE
22-Mar-2006	21/03/2006 13:08	NONE
21-Mar-2006	20/03/2006 13:15	NONE
20-Mar-2006	19/03/2006 13:18	NONE
19-Mar-2006	18/03/2006 13:22	NONE
18-Mar-2006	17/03/2006 14:10	NONE
17-Mar-2006	16/03/2006 13:20	NONE
16-Mar-2006	15/03/2006 13:45	NONE
15-Mar-2006	14/03/2006 13:15	NONE
14-Mar-2006	13/03/2006 13:14	NONE
13-Mar-2006	13/03/2006 00:08	ALERT
13-Mar-2006	12/03/2006 13:32	NONE
12-Mar-2006	11/03/2006 13:15	NONE
11-Mar-2006	10/03/2006 13:14	NONE
10-Mar-2006	09/03/2006 13:17	NONE
09-Mar-2006	08/03/2006 14:09	NONE
08-Mar-2006	07/03/2006 14:02	NONE
07-Mar-2006	06/03/2006 16:06	NONE
06-Mar-2006	05/03/2006 13:12	NONE
05-Mar-2006	04/03/2006 13:20	NONE

Reasonable Prices?



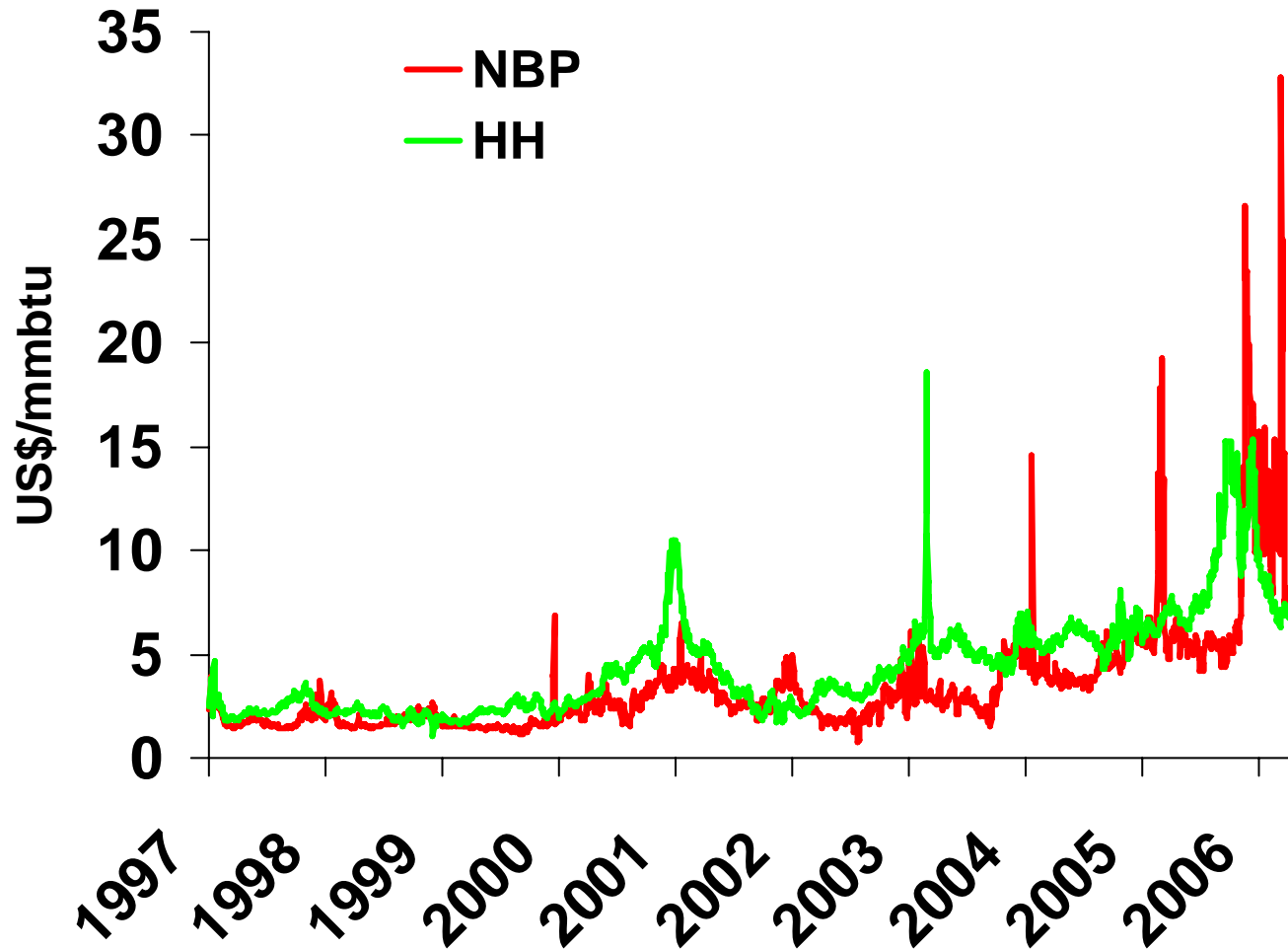
NBP Platts 24hr/Day Ahead



Reasonable Prices?



UK NBP vs. US Henry Hub



Sustainability



- Clean
- Low CO₂
- No significant production or transportation externalities

Future Gas Security

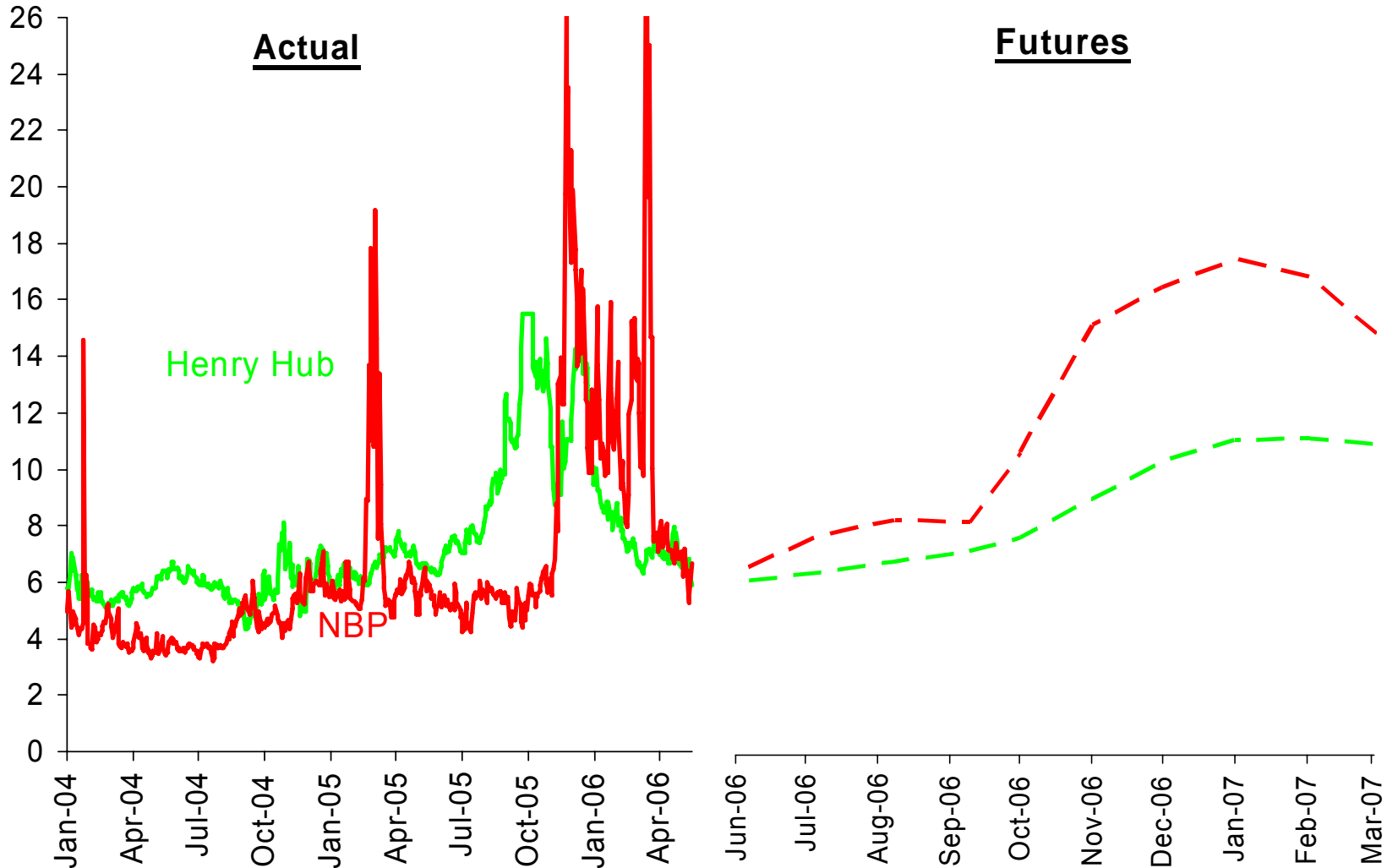


- What does the market think?

Natural Gas: Henry Hub vs NBP



\$/mmbtu

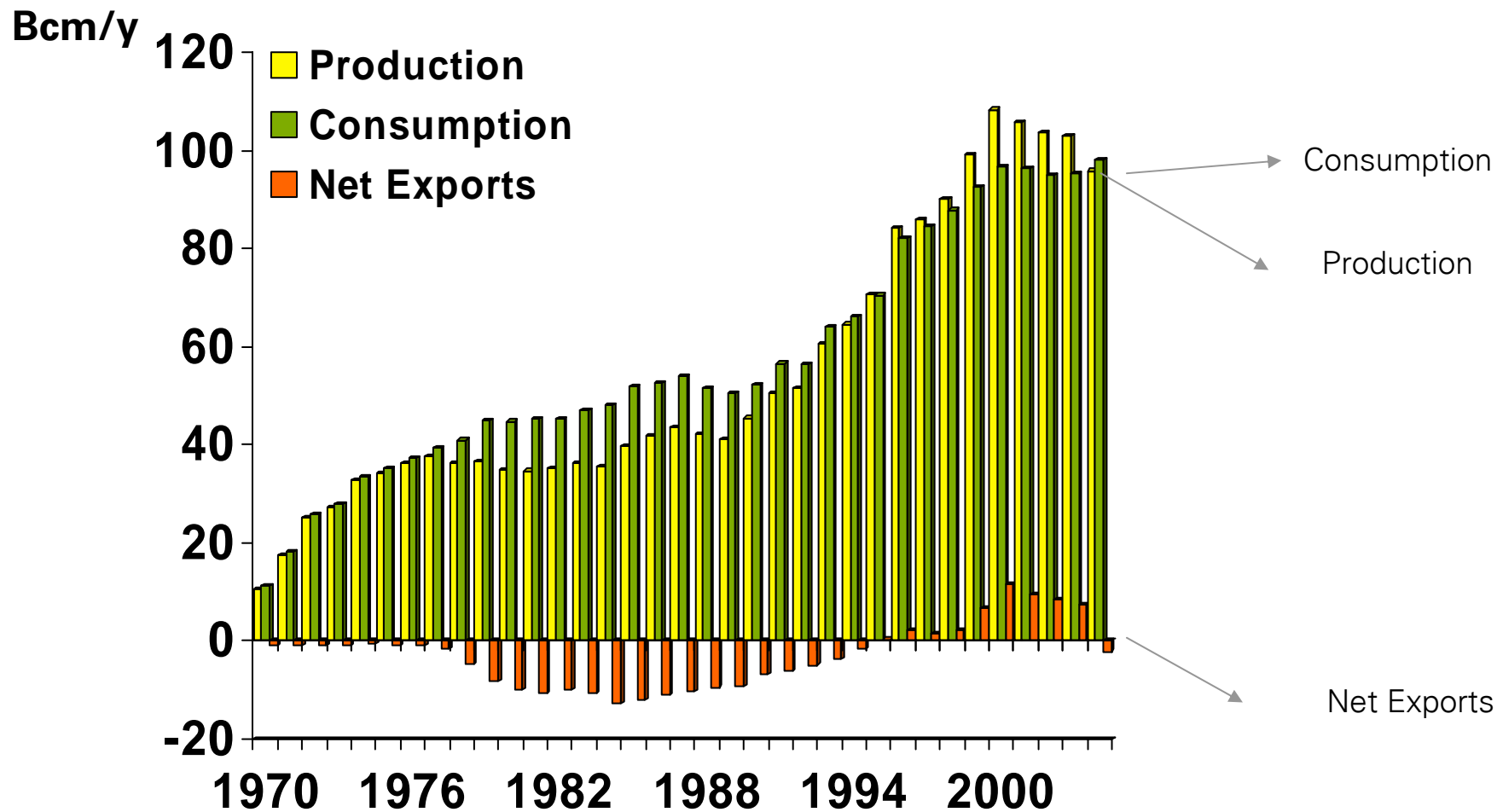


Future Gas Security



- What does the market think?
- What is changing?

UK Gas Supply and Demand

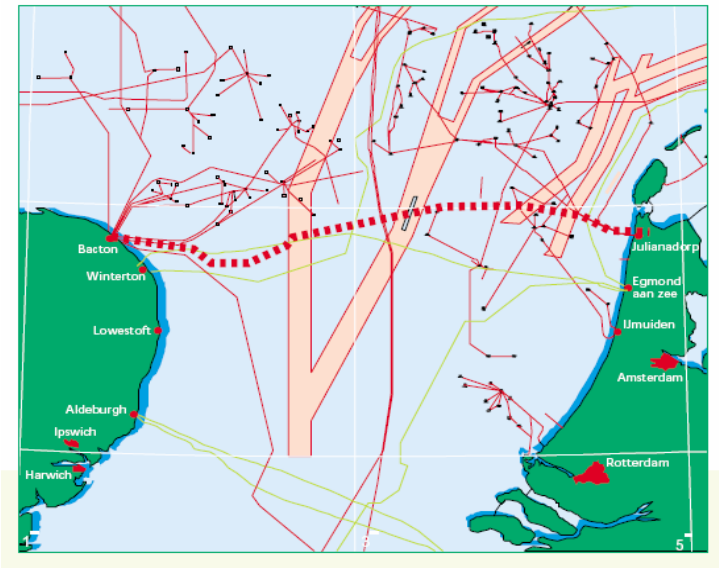


Source: BP Statistical Review of World Energy 2005

New Pipeline Import Capacity



Interconnector Expansions



Balgzand-Bacton (BBL)



Ormen Lange

LNG Import Terminals



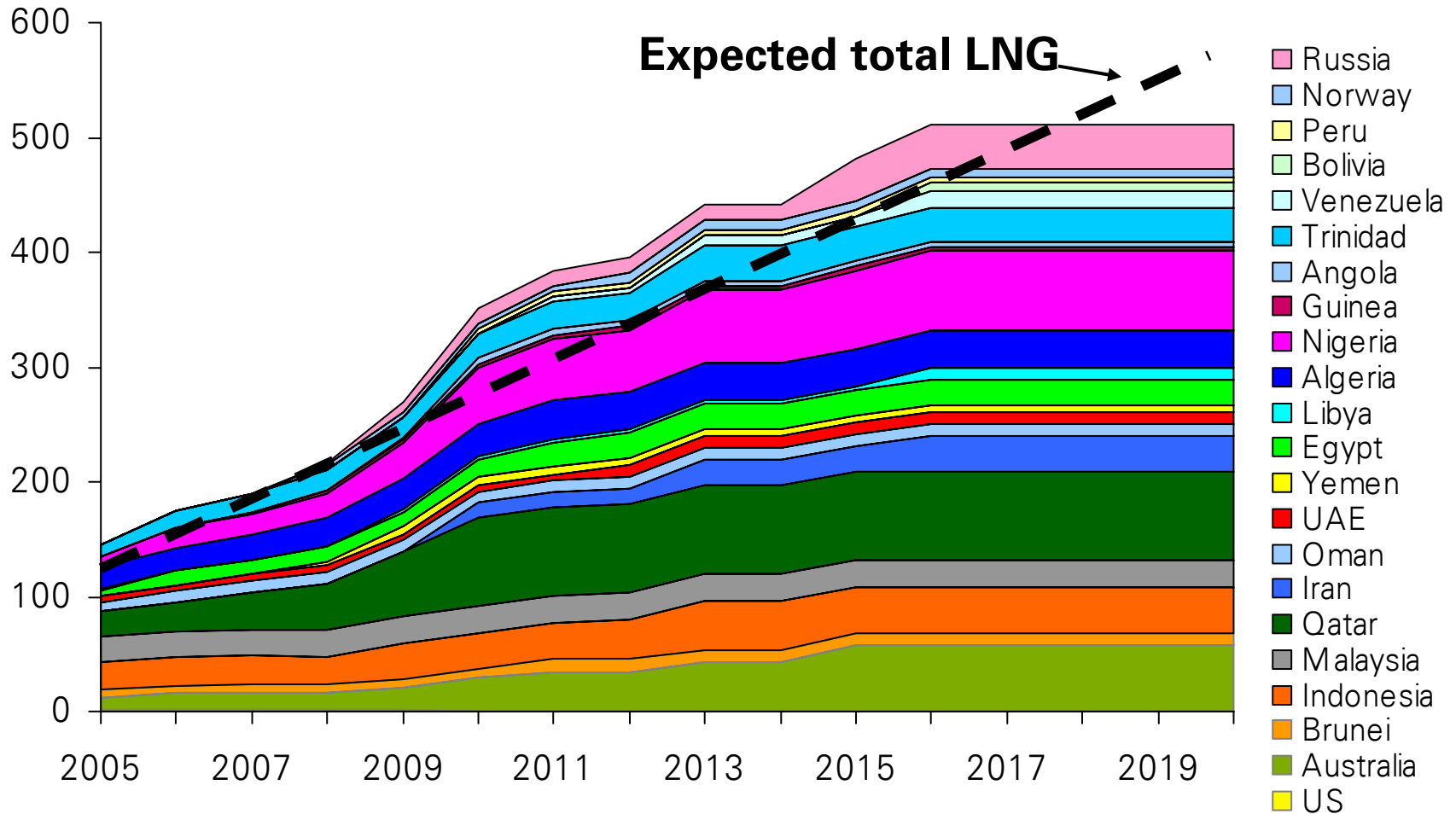
Isle of Grain LNG Terminal in Kent

Dragon & South Hook LNG Terminals Milford Haven

Global LNG Growth



LNG volumes (mtpa) existing, in development, probable and speculative



Future Gas Security

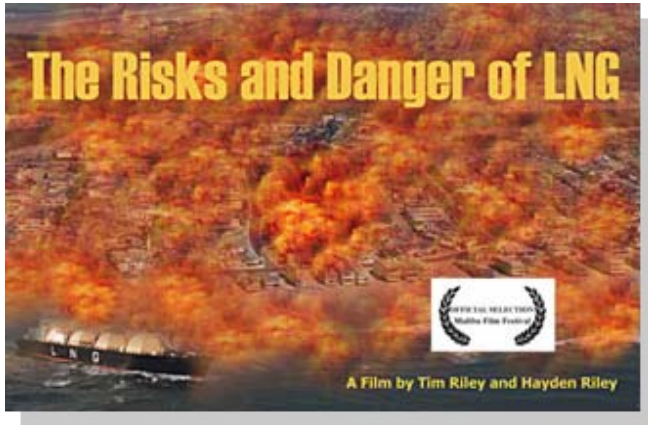


- What does the market think?
- What is changing?
- What could happen?

Continental European Gas Liberalisation



Catastrophic Risks



Accident



Nature

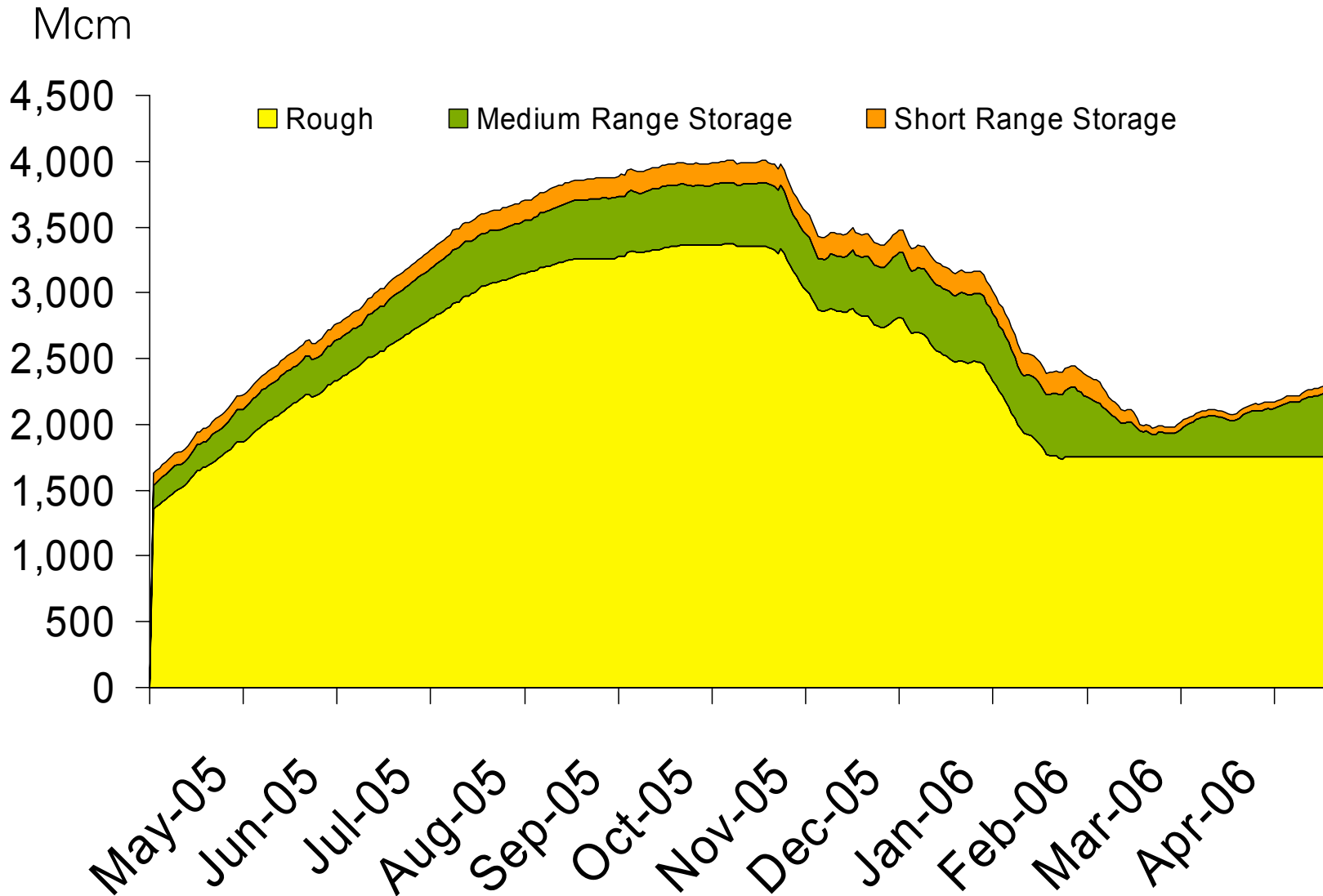


Interruption



Terrorism

UK Natural Gas Storage



Policy Options



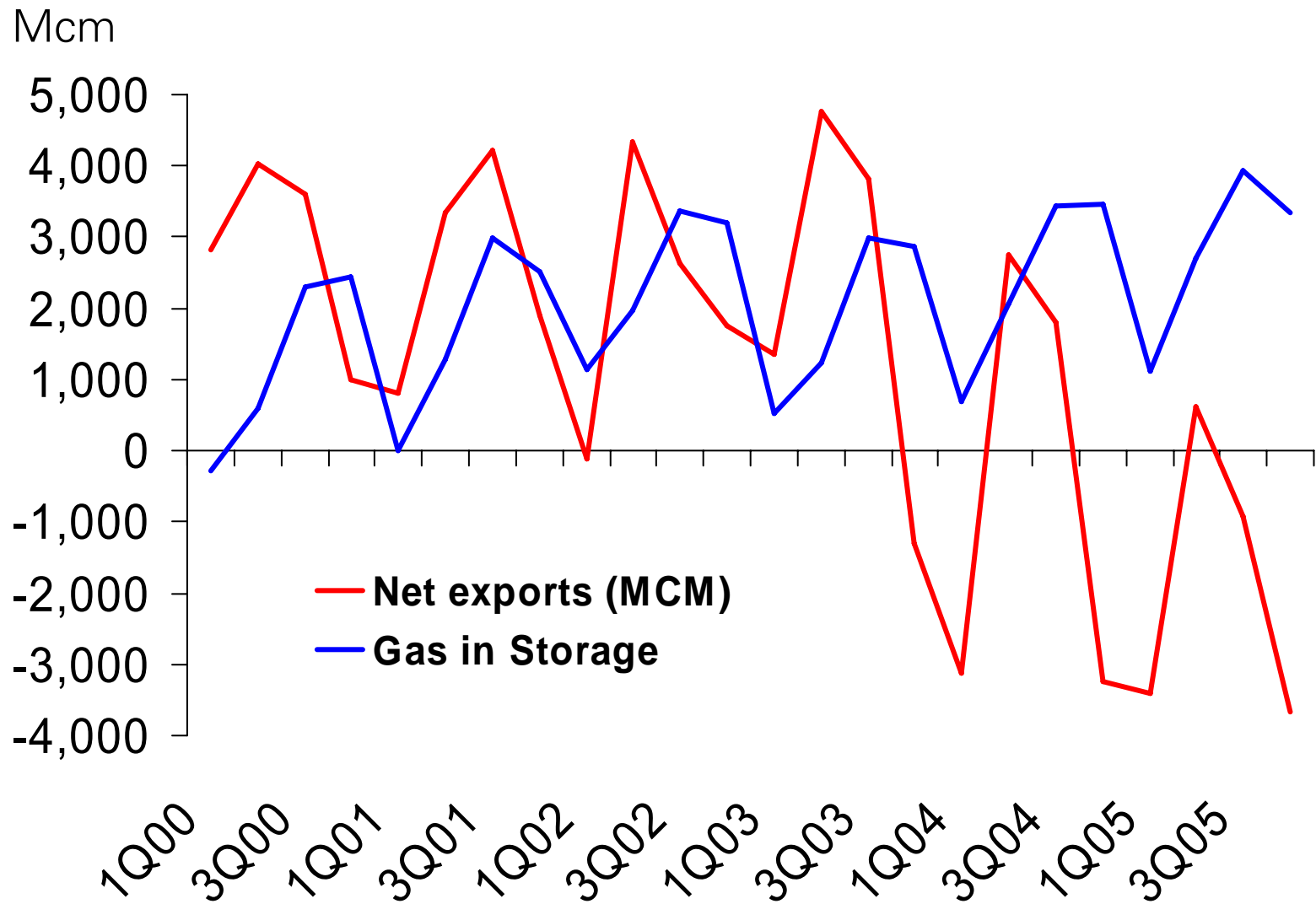
- Fuel choice interventionism – nuclear, renewables
- EU policy
- Storage:
 - Mandatory storage
 - Capacity market
- Long term contracts

Conclusions

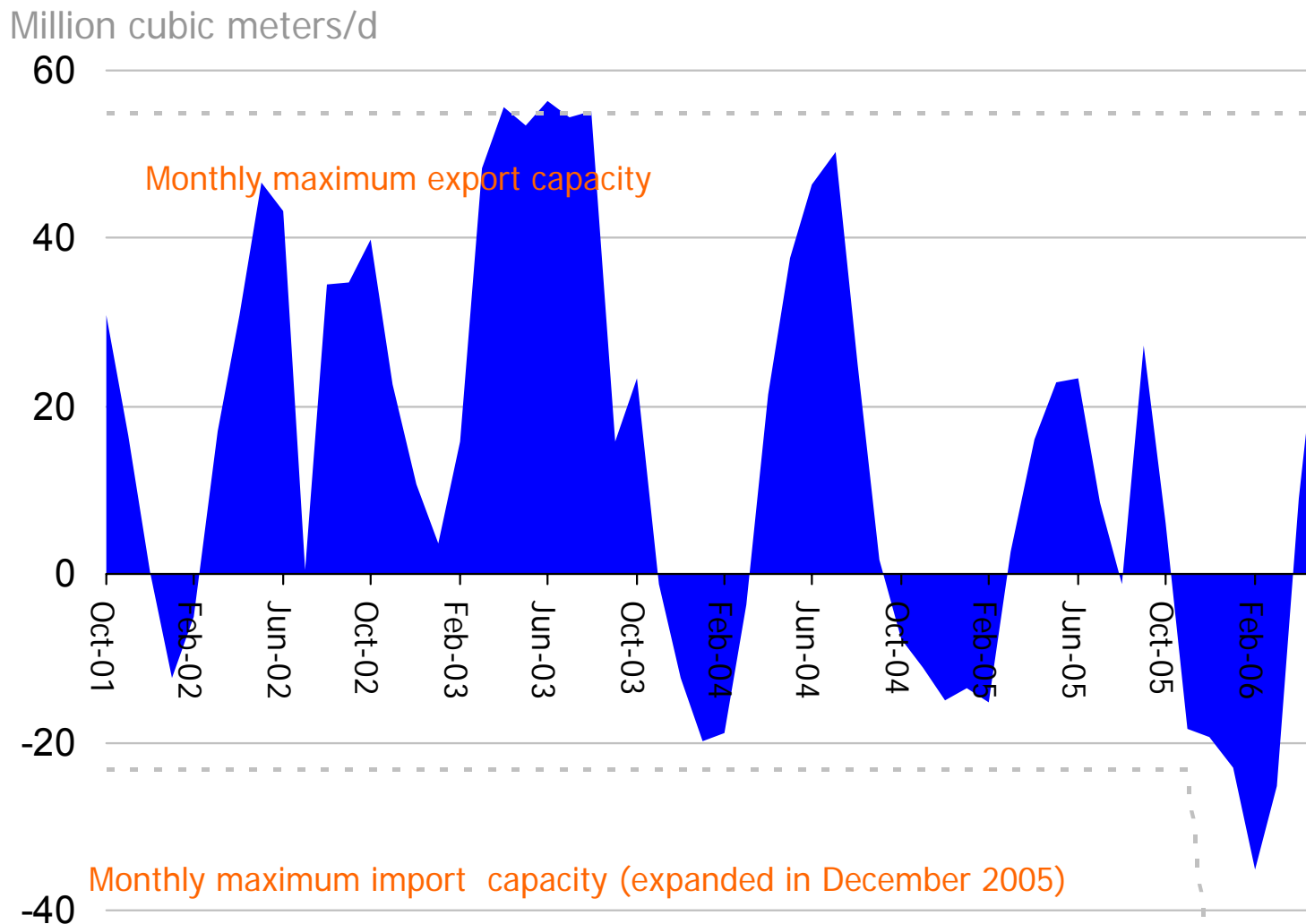


- The UK has had gas security
- Imports will rise but import capacity will rise even more
- International gas market developments to support UK security even though the depth of EU liberalisation remains uncertain
- UK gas security should be maintained – but catastrophic interruptions pose a risk, as they do to all energy markets
- Gas storage can provide some insurance, at a cost. Debate over strategic storage is valid.

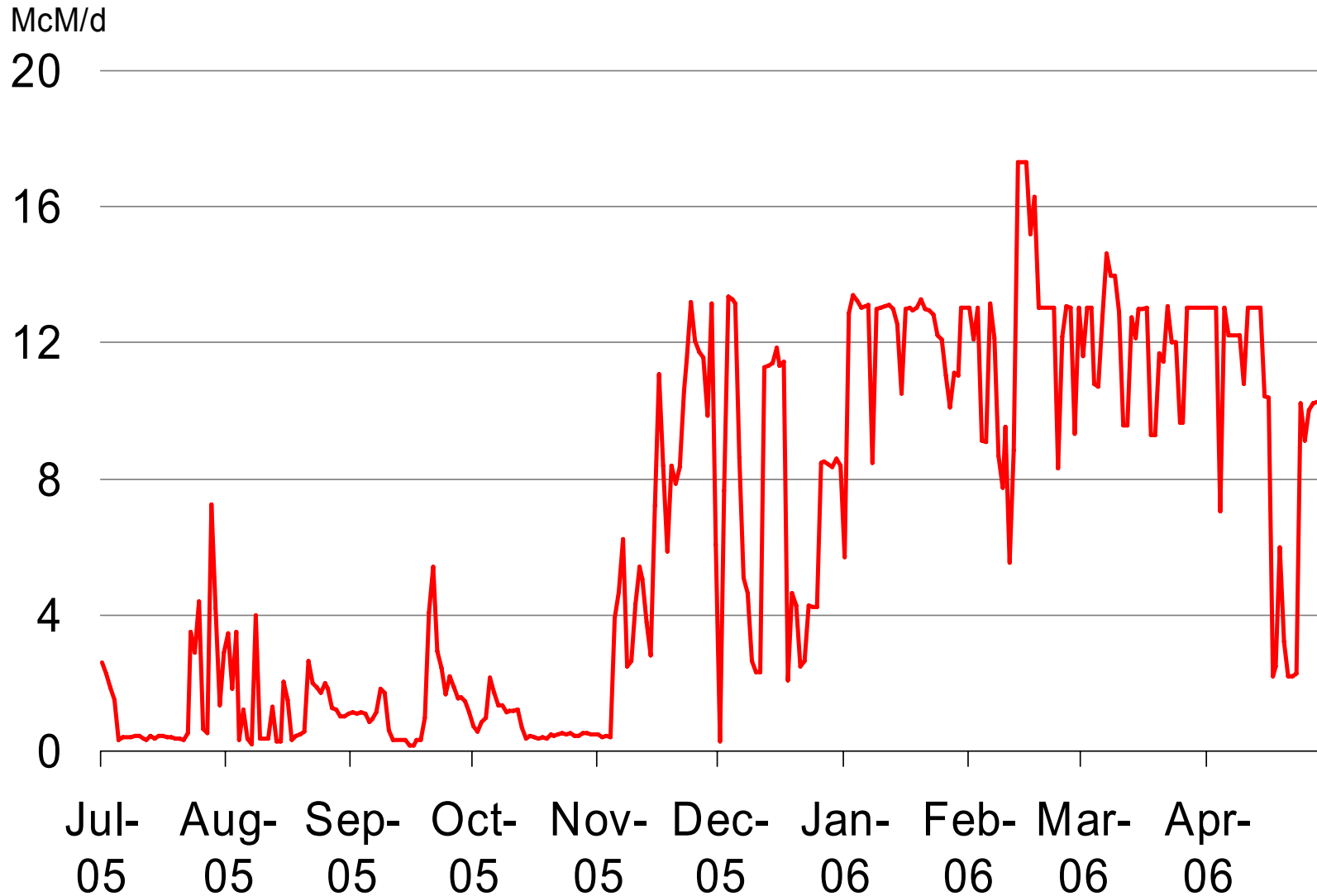
UK net exports and gas in storage



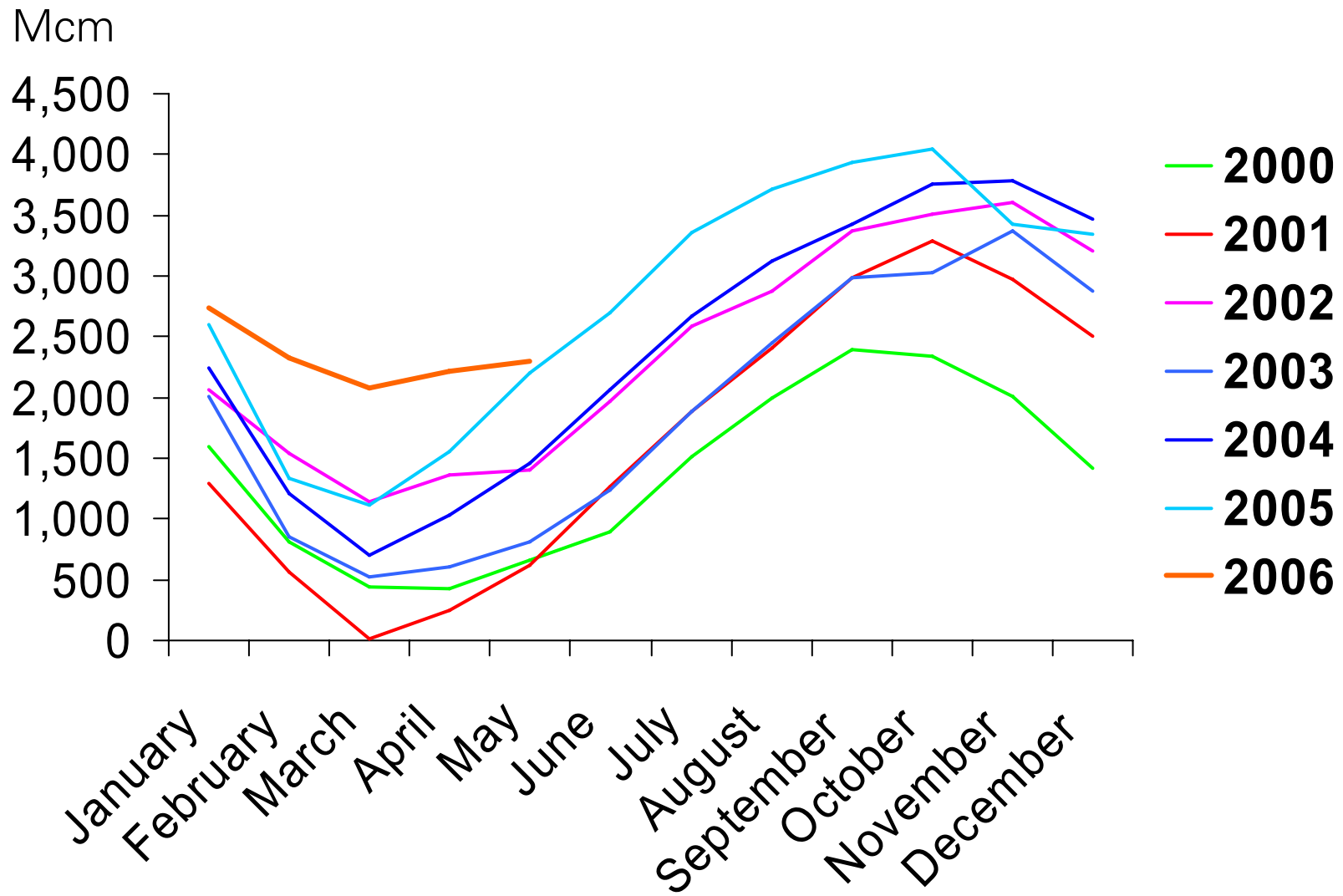
UK Interconnector Flows



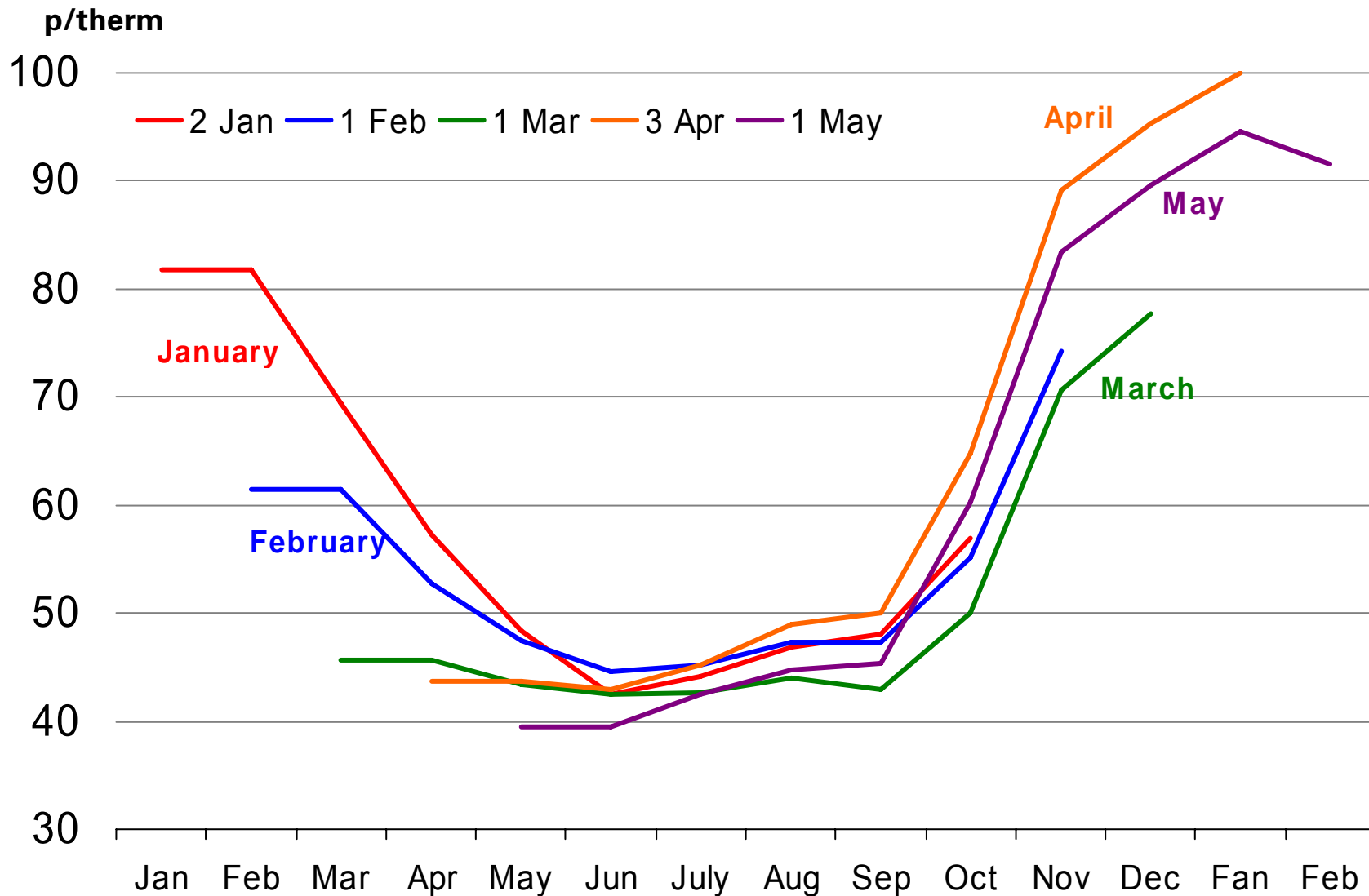
Isle of Grain send-out



Total UK gas in storage



UK future gas prices 2006



UK gas import capacity expansion



Project	Capacity	As % 2005 consumption	Date	status
Isle of Grain phase II	Increase from 12 to 38Mcm/d	9.1%	2008	Planning permission granted
Interconnector import capacity (phase II)	Increase to 66Mcm/d	6.6%	Dec. 2006	Under construction
Bacton – Balgzand interconnector	27Mcm/d	9.4%	Dec.2006	Under construction
Milford Haven – Dragon LNG	16.5Mcm/d	5.8%	4Q2007	Under construction
Milford Haven – South Hook	29Mcm/d	10.1%	2007	Under construction
Langeled – Ormen Lange gas	Up to 70Mcm/d	24.4%	2007/08	Under construction
Statfjord late life gas project – via FLAGS pipeline	14Mcm/d	4.9%	2007/08	Under construction
Total	202.5Mcm/d	61%		

UK planned gas storage capacity expansion



Project	Capacity	Date	status
Humbly Grove	280Mcm	Nov. 2005	complete
Aldbrough storage	420Mcm	2007	Under construction
Byley storage facility	170Mcm	2008	Planning permission approved
Welton storage facility	435Mcm	2007/08	Planning application submitted
Total	1,305 Mcm		

Source: DTI, Star energy.