

Energy White Paper Gas Quality Exercise

Gas Customer Forum

Office of
Gas & Electricity Markets

Department of
Trade & Industry

Health & Safety
Executive

Department of The Environment
Food & Rural Affairs

Solihull. Monday 30th January 2006

Agenda

- **What's The Issue?**

What Have We Done?

The European Dimension

Where To From Here?

Q & A

Gas Quality – Some Background Info.

Natural gas usually comprises:

- Methane
 - The higher hydrocarbons (ethane, propane, butane, etc)
 - Small 'other' components e.g. H_2 , H_2S , O_2 , Impurities
- } Wobbe

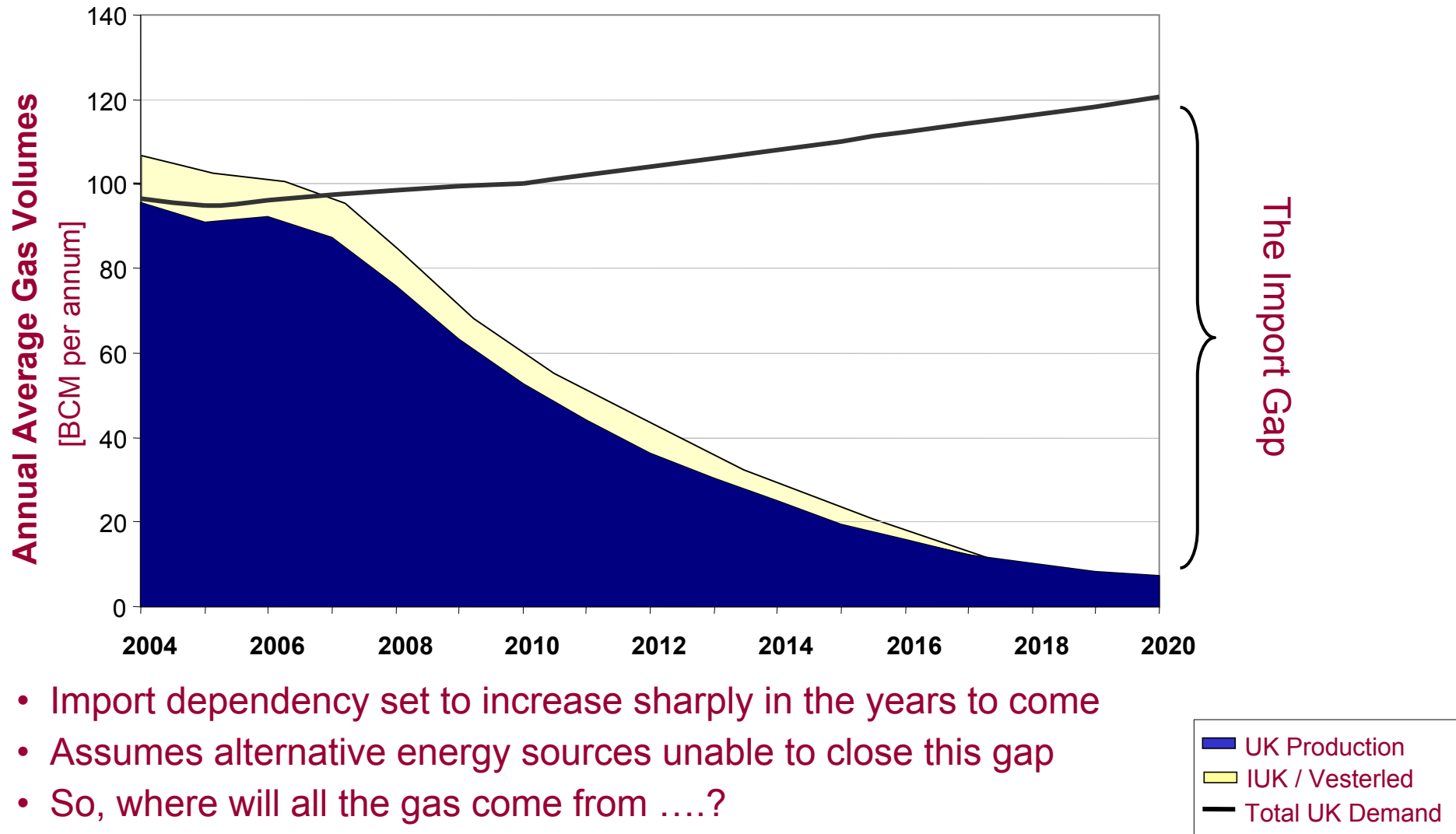
In the UK regulatory limits are placed on many of these constituents to ensure safe combustion in gas appliances and to safeguard the integrity of the pipeline system.

These regulations are the GS(M)R – the 1996 Gas Safety (Management) Regulations

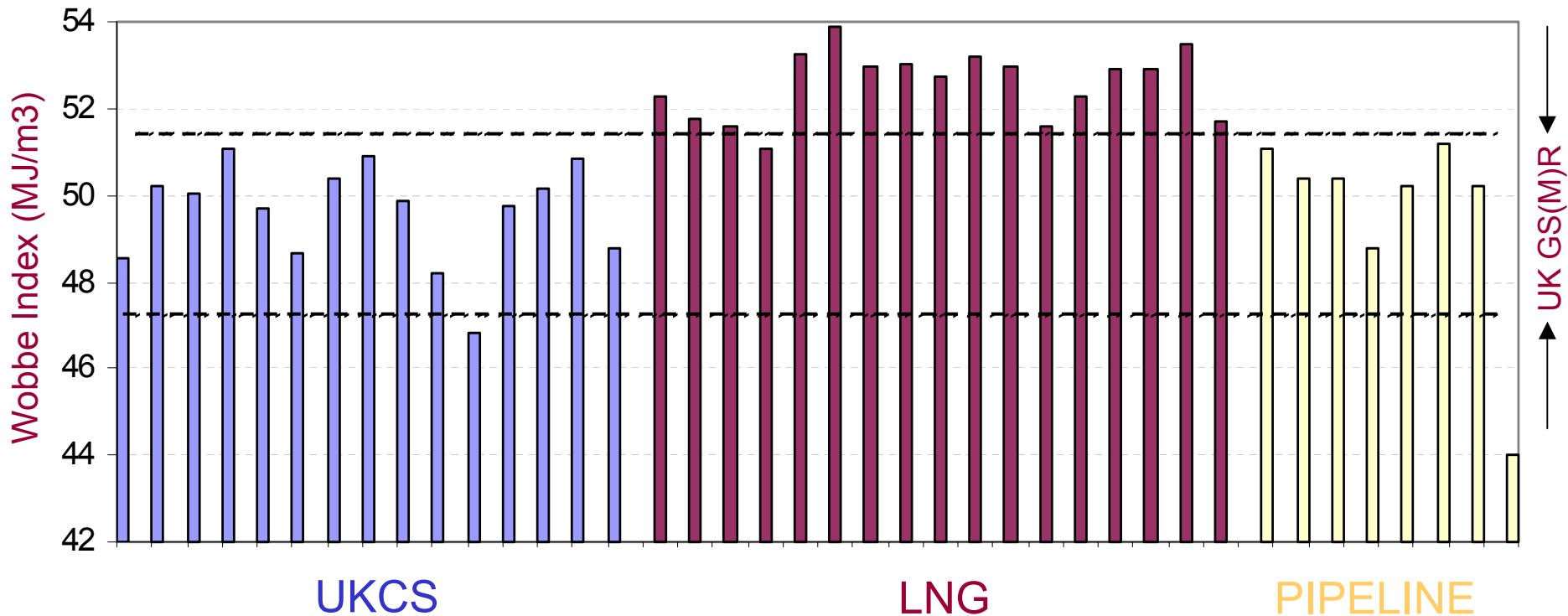
Why Is This An Issue?

- Domestic Consumers
 - Safety
 - Fuel Poor
- Security of Supply
- I & C Users
 - Gas turbines
 - Chemical industry
 - Glass & Ceramics industry
 - Gas storage
 - Natural Gas Fuelled Vehicles
- Emissions Impact
- Fuel Efficiency

Why Now?



Gas Quality of Potential Supply Sources



- Most sources are partially consistent with UK GS(M)R Wobbe index. But ...
- LNG is almost totally outside current limits. Could be >25% supply by 2020

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Mitigation Methods – Plans & Progress

2003

Issue of gas quality identified in Energy White Paper (para.6.21).

PHASE 1

Independent report commissioned during 2003 with ILEX Energy Consulting
Concluded that future gas compatibility issues likely to be faced

2004

PHASE 2

Launched by Stephen Timms Parliamentary Written Statement on 8th January 2004

2005

Stage 2A - External research

- Dialogue with producers, transporters, consumer groups & industry

Stage 2B - Full public consultation exercise

- Will promote favoured option(s) on basis of output from Stage 2A
- Intended to consult on optimal scope and implementation

2006

PHASE 3

Policy implementation, fully informed by the output from Phase 2

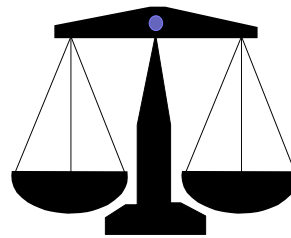
Policy Options

No Change
GS(M)R

Change
GS(M)R

Process on import

Downstream impact



To define gas quality specifications for the UK that achieve an optimal balance between costs, fuel efficiency and emissions, whilst upholding established safety criteria

Pointers from Research

Blending & Ballasting

- Costs relatively modest
- Within reach of current technology
- Some scope for (short-term?) blending
- Implications for security of supply ...?

Appliance Testing / Survey

- Emissions increase with Wobbe Index
- Efficiencies largely unaffected
- Many at-risk from change in gas quality
- Conversion exercise would be expensive

Implications for UK

- There will be no early change in the UK's specifications
- Gas leaving import terminals must meet UK's specifications
- Investment will be required. Prefer market-led solution
- Likely to see higher proportions of inert gases and the higher hydrocarbons in the UK gas supply

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What's The Issue?

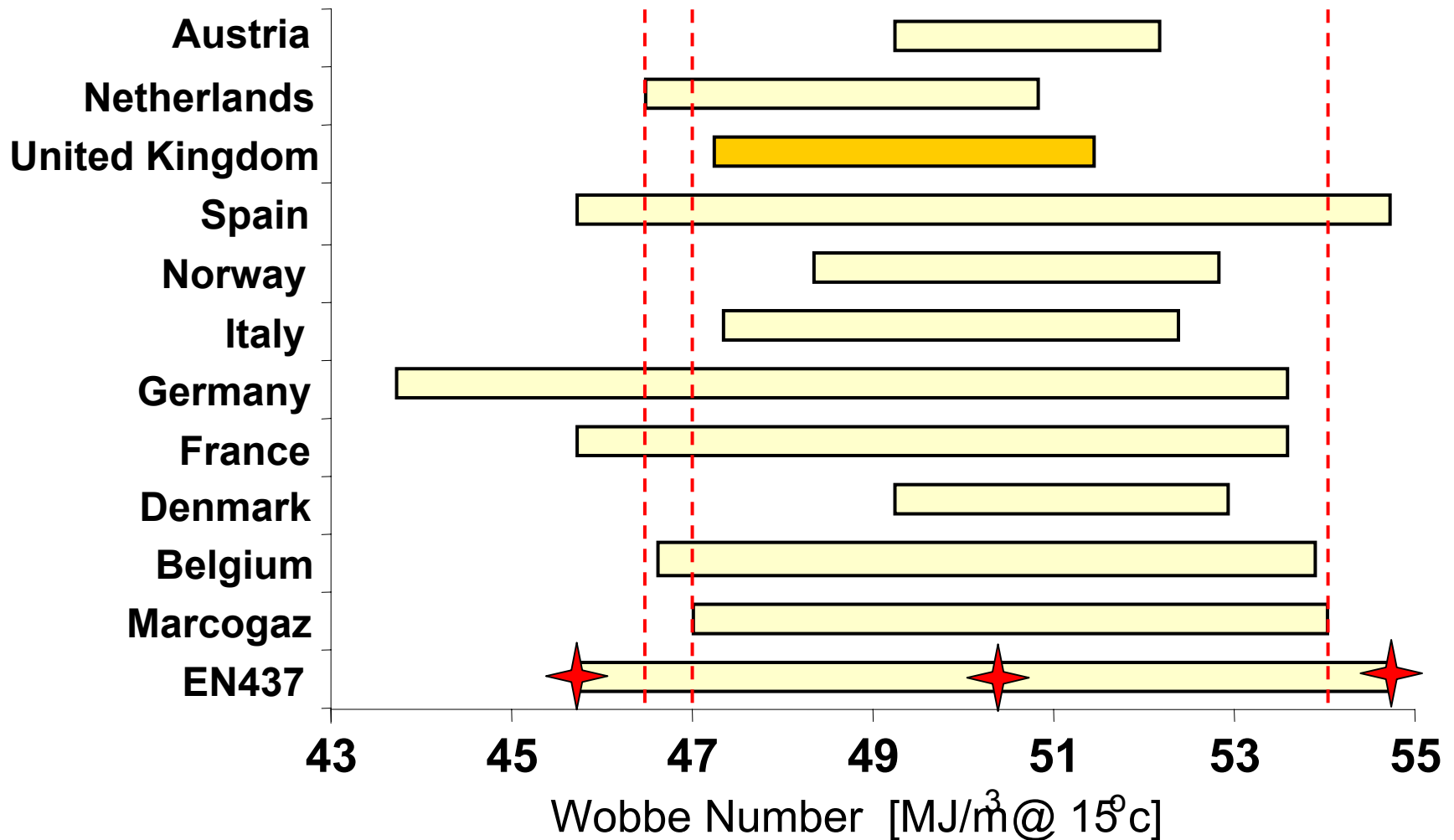
What Have We Done?

- **The European Dimension**

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Wobbe Index



The European Dimension

- Different European specifications are a potential barrier to trade
 - Industry group “EASEE-gas” appointed to address the issue
 - EASEE-gas favour a broad-bandwidth ‘one-size-fits all’ model
 - Final recommendations presented September 2005
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- UK Position: Adoption must balance costs and concerns for safety & the environment against considerations of security of supply

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Public Consultation Exercise

Future Arrangements for Great Britain's Gas Quality Specifications



Available on DTI 'gas quality' web page:

<http://www.dti.gov.uk/energy/>

Deadline for responses:

Friday 24th March 2006

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- **Q & A**

BACKUP SLIDES

1996 Gas Safety (Management) Regulations

| Content or Characteristic | Value |
|--|--|
| Hydrogen sulphide content | $\leq 5 \text{ mg/m}^3$; |
| Total sulphur content (including H ₂ S) | $\leq 50 \text{ mg/m}^3$; |
| Hydrogen content | $\leq 0.1\%$ (molar); |
| Oxygen content | $\leq 0.2\%$ (molar); |
| Impurities | shall not contain solid or liquid material which may interfere with the integrity or operation of pipes or any gas appliance (within the meaning of regulation 2(1) of the 1994 Regulations) which a consumer could reasonably be expected to operate; |
| Hydrocarbon dewpoint and water dewpoint | shall be at such levels that they do not interfere with the integrity or operation of pipes or any gas appliance (within the meaning of regulation 2(1) of the 1994 Regulations) which a consumer could reasonably be expected to operate; |
| WN | (i) $\leq 51.41 \text{ MJ/m}^3$, and |
| | (ii) $\geq 47.20 \text{ MJ/m}^3$; |
| ICF | ≤ 0.48 |
| SI | ≤ 0.60 |

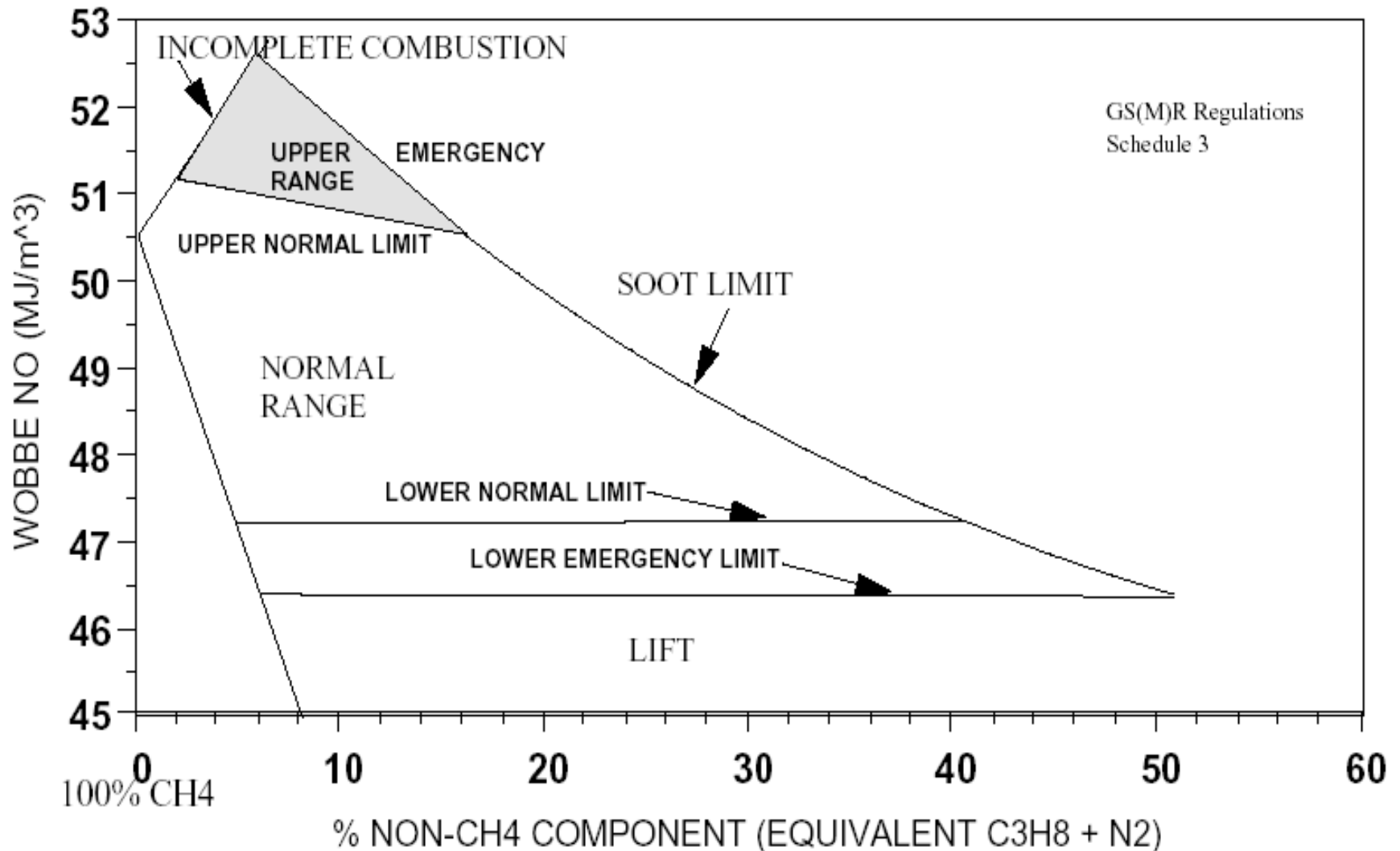
Requirements for gas conveyed to prevent a supply emergency

WN $\leq 52.85 \text{ MJ/m}^3$, and

WN $\geq 46.5 \text{ MJ/m}^3$, and

ICF ≤ 1.49

Interchangeability Diagram



Timing

Current Ministerial Line

“There is no question of the Government recommending to the HSC, who are responsible for the GS(M)R, an **early change** in the UK’s gas quality regulations. The effective choice, for consideration in due course when the results of a number of research exercises are apparent, is expected to be between recommending no change at all versus the option of making no immediate change but **implementing transitional measures** that would provide the **flexibility to introduce a change** in the gas quality specifications at a **later date**, perhaps towards the end of the next decade.”