ofgem
Promoting choice and value for all gas and electricity customers

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World Class Asset Management
in Utilities with SAP

23 June 2006
Birmingham

Asset Risk Management :
Regulatory Themes

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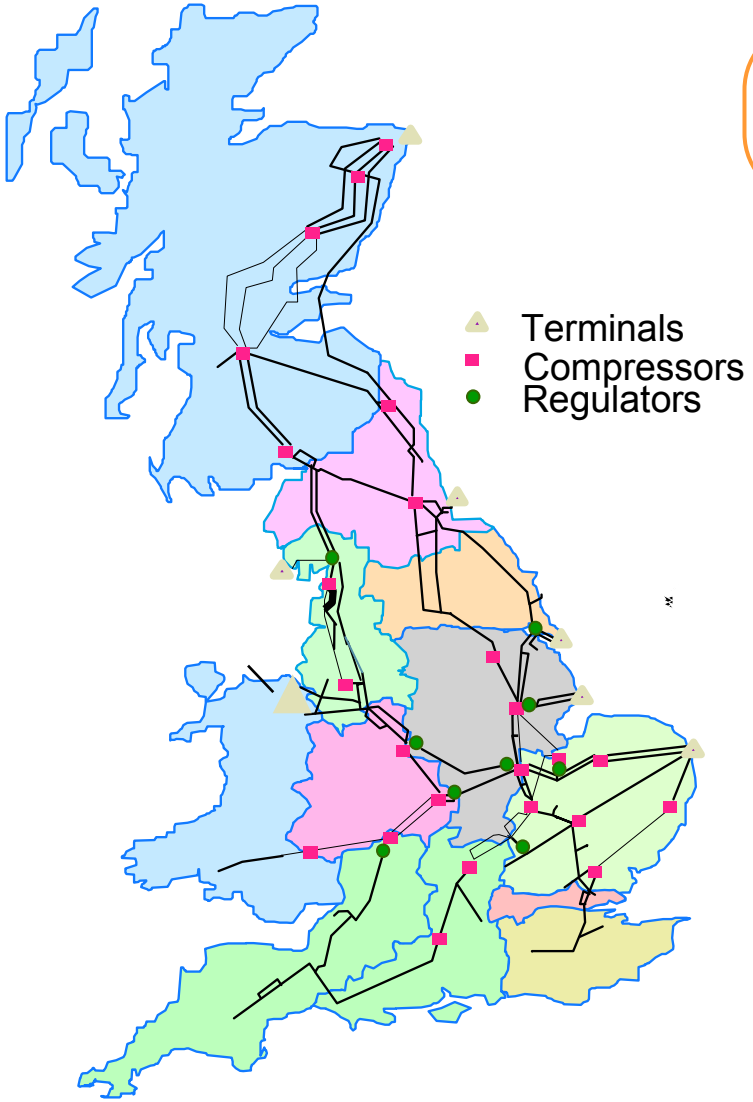
Asset Risk Management & GB Regulation

- Introduction
  - British Energy Networks and Regulator's aims
- Challenges – including ageing assets
- Regulatory assurance of good Asset Risk Management
  - Role for certification
- New Challenges
  - (For example regulated offshore transmission networks)



GB Gas Market

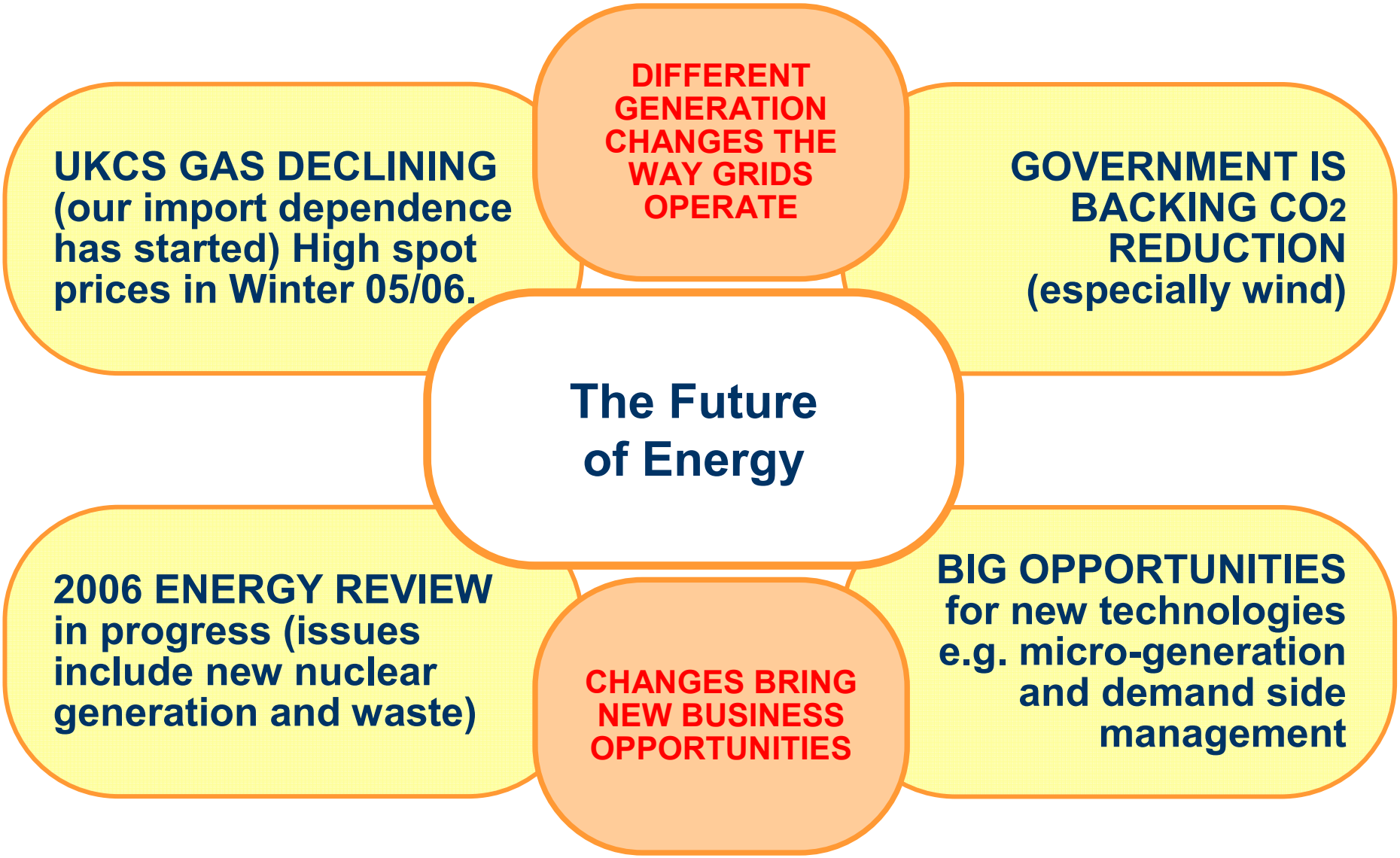
commodity type market	
System Peak Day Capacity	6 TWh
Peak Day Demand	5 TWh
Annual energy consumption	1035TWh
Regulated Networks	
Transmission Max Pressure	85 Bar
1 Operator Owner	
Distribution Max Pressure	7 Bar
8 Licenced Distribution areas (5 companies)	

See www.nationalgrid.com/uk/Gas/TYS/ for further details

GB Electricity Market

commodity type market	
Generation Capacity	76.2 GW
Peak Demand	~60 GW
Annual energy consumption	~ 300TWh
Regulated Networks	
Transmission Max Voltage	400 kV
1 System Operator + 3 Trans. Owners	
Distribution Max Voltage	132kV
14 Licenced Distribution areas (7 companies)	

See www.nationalgrid.com/uk/library/documents/SYS05 for further details


UKCS GAS DECLINING (our import dependence has started) High spot prices in Winter 05/06.
DIFFERENT GENERATION CHANGES THE WAY GRIDS OPERATE
GOVERNMENT IS BACKING CO_2 REDUCTION (especially wind)
The Future of Energy
2006 ENERGY REVIEW in progress (issues include new nuclear generation and waste)
CHANGES BRING NEW BUSINESS OPPORTUNITIES
BIG OPPORTUNITIES for new technologies e.g. micro-generation and demand side management

Of*GEM** = ***Of*fice of* **G**as and **E**lectricity **M**arkets

Independent Regulator

established by Government to oversee gas and electricity markets in Great Britain

Ofgem's Statutory Duties

Ofgem's principal duty in law is:

To protect the interests of gas and electricity consumers, present and future, wherever appropriate by promoting effective competition

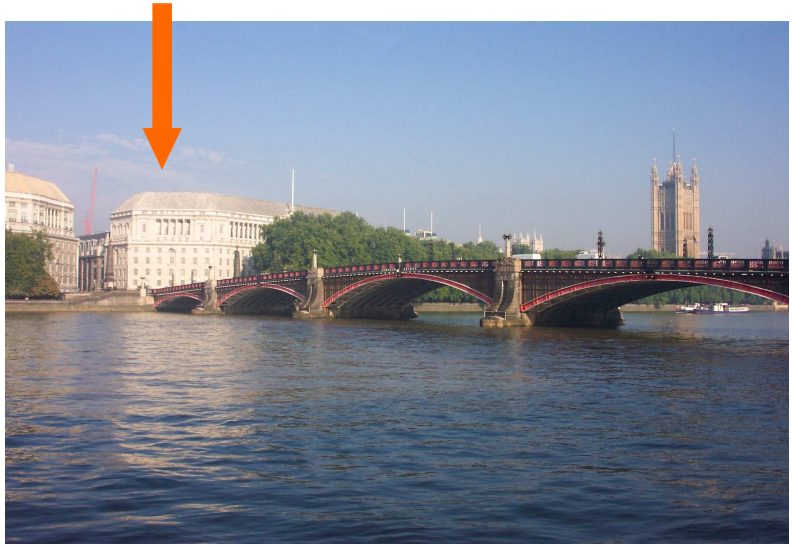
Other objectives

- *" to secure that, so far as it is economical to meet them, all reasonable demands in GB …"*
- *" to secure a diverse and viable long term energy supply "*
- + *" to contribute to .. sustainable development " (S83 Energy Act)*

about ofgem

- Total staff currently ~300
- Principal disciplines:
  - Economists 50%
  - Finance/Admin 15%
  - Legal 5%
  - Social/Environmental 5%
  - Technical 4%
- Overall Budget £34m

Ofgem's main office near Houses of Parliament



+ small office in Scotland

Why a Regulator ? – primarily to protect the interests of customers

What's important to the Regulator?

- ✓ Choice and best value for customers
- ✓ By competition wherever possible, …… and by regulation of the monopoly networks
- ✓ Decisions made wherever possible *by* customers, not *for* customers
- ✓ Cost-reflective pricing that prevents hidden cross-subsidies
- ✓ Avoiding intervention in markets and 'micro management' of the regulated companies
- ✓ Evidence of good management in the companies

Asset Risk Management - GB

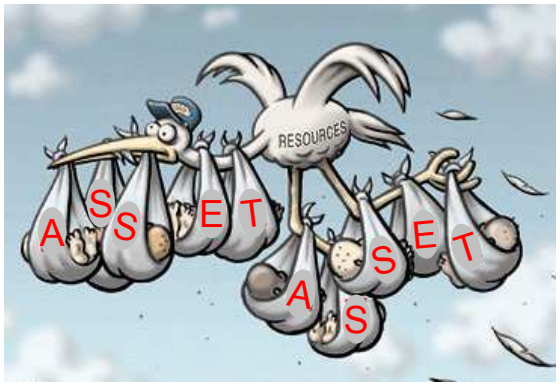
- **Background:**
  - Energy networks are key to security of supplies
  - Increasing public expectations, but ageing networks (electricity)
  - Shareholders want ever better performance (and confidence)
  - But regulatory pressure is for greater investment efficiency
  - Even well run companies cannot eliminate all risks
  - Asset Risk Management is therefore a key function

"utility infrastructure" - an increasingly demanding and high profile responsibility

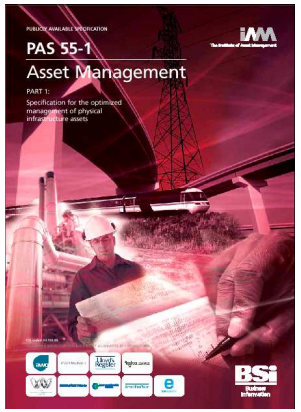
Asset Risk Management in Networks
Three broad themes

- **The Challenges**

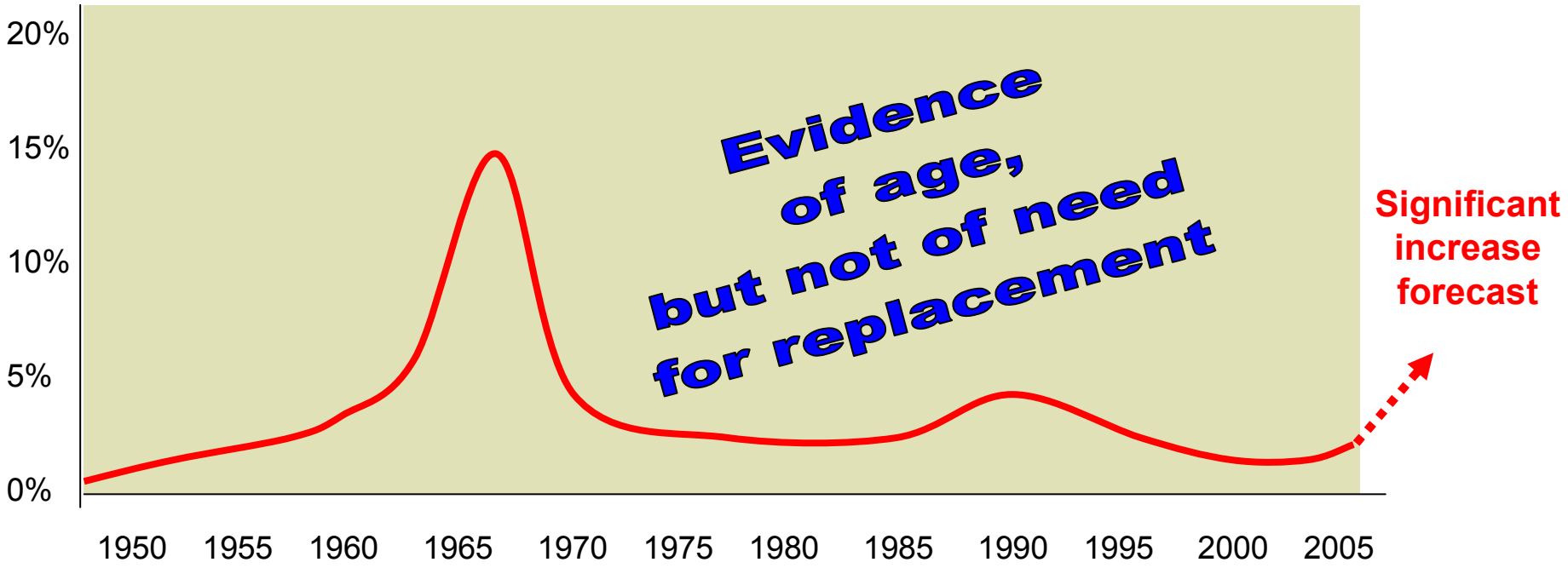
- **Efficient delivery**



- **Role for Standards?**

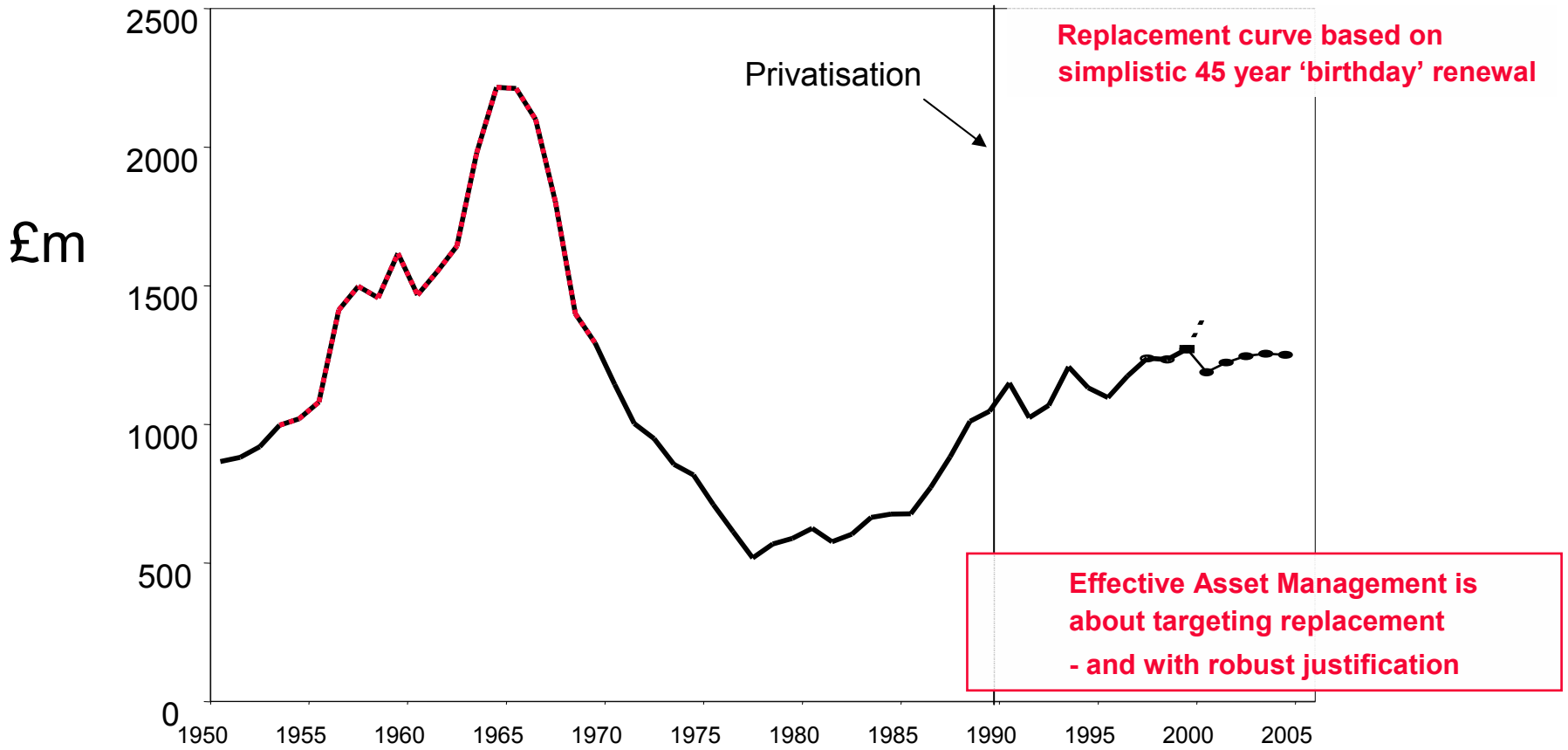


Electricity Transmission (approx) asset age profiles



Peak activity in mid-1960s. Many assets now ~ 40 yrs old

Capital investment in electricity distribution networks since 1950



Challenges of ageing assets

- Addressing the challenges
  - asset risk management approach – value of BSI PAS 55
  - convincing the Regulator
  - evidence or assertions ?
- Ramping up capital programmes
  - Resourcing – manufacturers, network staff, contractors?
  - More of the same… or a strategic approach
- Managing risks during works
  - Outage management; best practices
  - Contingency planning; communications

Efficient delivery

- **Like-for-like replacement ….. or effective innovation**
  - Can fresh thinking deliver more efficient capital investment ?
  - Can innovation mitigate construction & outage risks ?
- **Responding to new technologies**
  - For example renewables and microgeneration
  - And whatever the Energy Review might bring….
- **The dynamics of innovation**
  - Enablers and potential pitfalls of the ‘innovation chain’

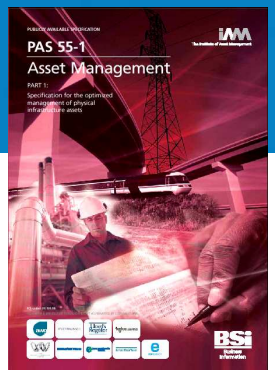
Sufficient Skilled Staff?

- GB Electricity industry staff down 60% since privatisation
- 30% of the workforce now aged between 45 and 59
- Apprentices account for only 4% of the workforce
- Reduced UK power engineering undergraduates

Responses

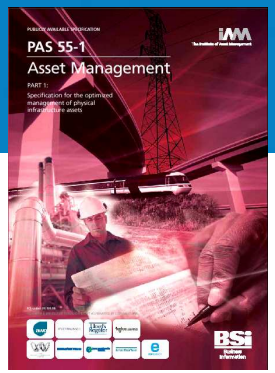
But - is more required?

- IEE Academy (Launch 2004) – 40 undergraduate
  - At Univ. Southampton, Manchester and Strathclyde (more in 2006)
- Ramping up graduate and apprentice schemes
  - Utilities sector skills council + Company schools initiatives



Ofgem & Asset Risk Management

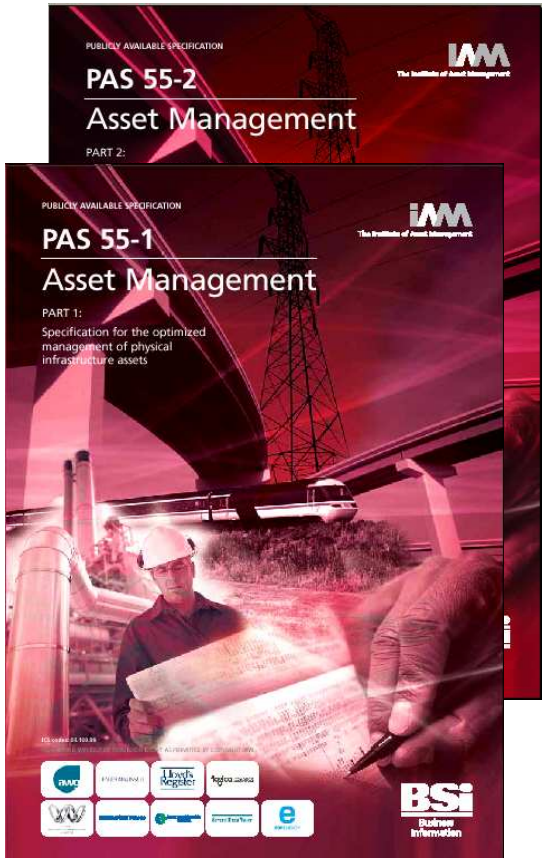
- **Initially Ofgem ARM 2002 Survey**
  - sought 'assurance' of good asset stewardship for the longer term
  - Learning points fed into IAM development of 'asset management standard'
- **Ofgem focus now based on BSI-PAS 55**
  - Reflecting Better Regulation principles
  - Encouraging certification by independent third party
  - With high level reporting via Ofgem website
- **Proposing a generic "sector neutral" scoring system**
  - Based on framework of BSI-PAS 55
  - To be developed during 2007 by Industry Stakeholder Group
- **Ofgem welcome and note take up of BSI-PAS 55 to date**
  - Certification for NGET in November 2005
  - Strong interest by other UK sectors and internationally (e.g. ESSENT)



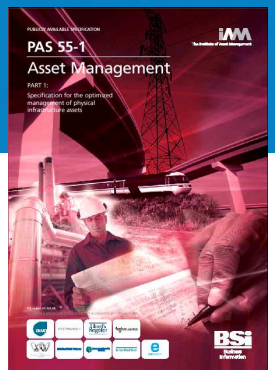
What is BSI PAS-55?

The Institute of Asset Management

- **Specification for the optimized management of physical infrastructure assets** developed in response to demand from **industry**
- Sponsored by the IAM and published in 2004
- PAS = Publicly Available Specification
- It is applicable to **any** organisation where physical assets are a key factor in achieving business objectives and effective service delivery
- Part 1: Specification for the optimised management of physical infrastructure assets
- Part 2: Guidelines for the application of PAS-55-1

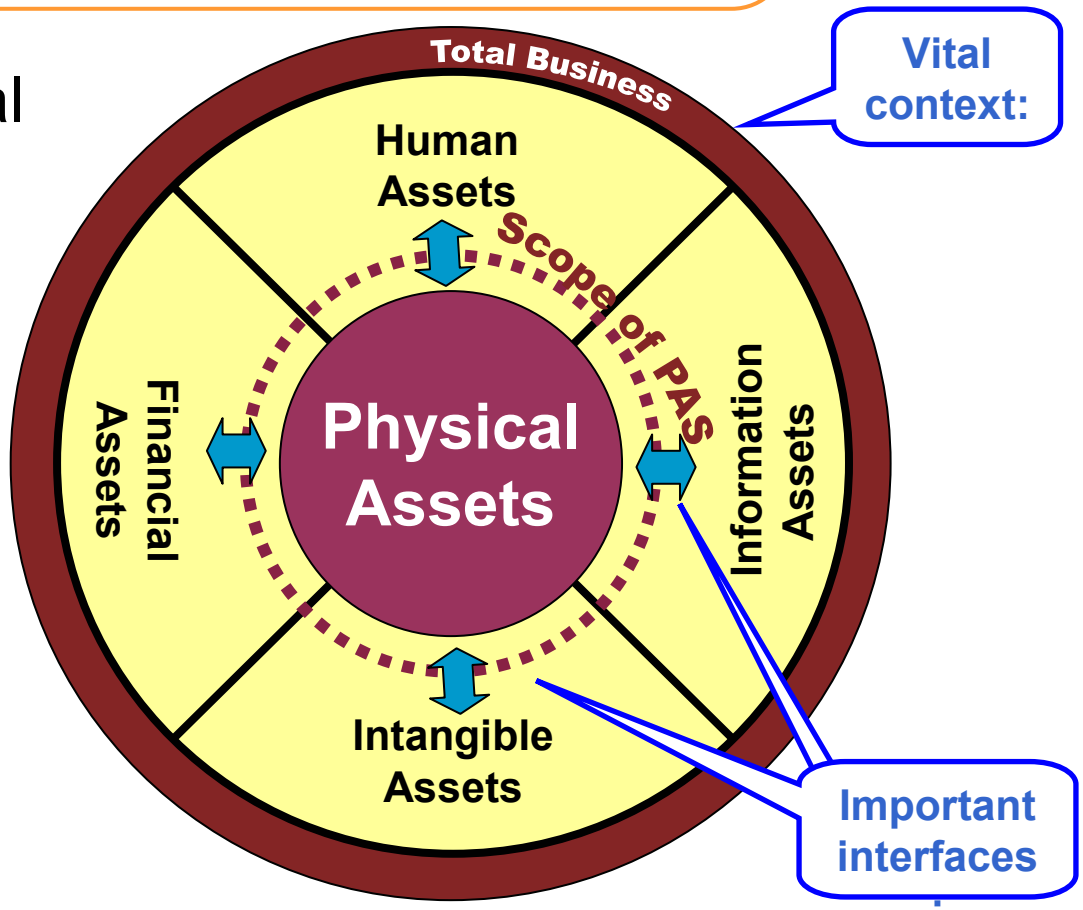


A framework of 21 requirements -
provide evidence of Asset Management competence

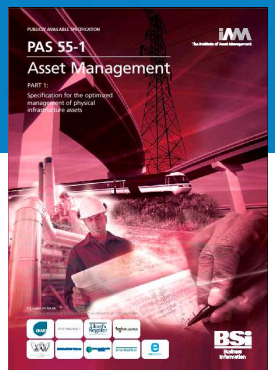


BSI PAS 55 - scope definition

- Scope limited to "physical infrastructure assets".
- Useful clarification of terms and definitions
- Stress on continual improvement
- Similarities with Ofgem ARM survey structure
  - Clear strategy
  - Understanding risk
  - Systems and processes
  - Audit and review



PAS 55 acknowledges important interfaces

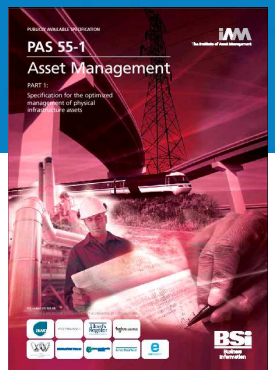


Ofgem & ARM – way forward

Ofgem are fostering:

- BSI PAS-55 Certification and audit by an independent body
- Development of a consistent scoring methodology for assessing performance towards Certification, by the sector

Ofgem reporting of certification status from 2007/8



Better regulation principles..

- **Targeted** - focused to minimise side effects
- **Consistent** - rules and standards implemented fairly
- **Accountable** - justify decisions under public scrutiny
- **Proportionate** - solutions appropriate to the risk posed, and costs minimised
- **Transparent** - open, simple and friendly regulations

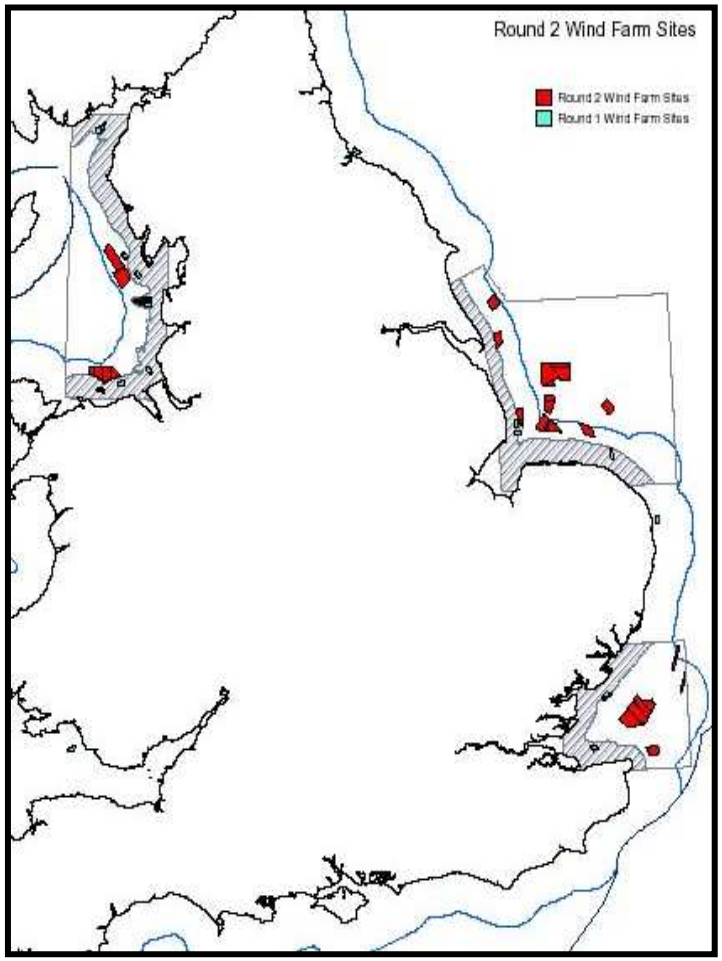
Ofgem believe encouraging network companies to seek BSI PAS 55 certification and publicly reporting progress accords with these principles

New regulated area – offshore networks

- Will ARM (& PAS 55) framework be useful?
- Fundamentally YES
  - Ensures understanding of both assets and risks
  - Framework for developing strategy, objectives, targets & plans
  - Clear risk management – both capex and opex
  - Optimized for asset life cycles and functional demand
- Helps Ofgem and new network company(s) achieve appropriate price control in this new area

Background - Offshore Round 2 projects

COMPANY	PROJECT NAME	TOTAL MW
Airtricity-Fluor	Greater Gabbard	500
AMEC	Docking Shoal	500
AMEC	Race Bank	500
Delatic	Gunfleet Sands II	64
DONG/Statkraft	Walney	450
Ecoventures	Sheringham	315
Humber Wind Limited	Humber	300
London Array	London Array	1,000
National Wind Power	Gwynt y Mor	750
National Wind Power	Triton Knoll	1,200
Offshore Wind Power	Lincs	250
Scottish Power	West Duddon	500
Total	Westernmost Rough	240
Warwick Energy	Thanet	300
Warwick Energy	Dudgeon East	300
		7,169



No plans to connect via overhead!

Different assets (and costs)

offshore132/33 kV substations

Nysted substation (Denmark) contains:

- Transformer 132/33/33 kV (180MVA)
- 132 kV GIS circuit-breaker
- 33 kV busbar (12 bays)
- 400 kVA Aux. transformer
- 90 kVA backup diesel generator

Different Risks (and access)

Conclusions for the future

- Networks are facing the most significant challenges & opportunities in 50 years
- Undiminished dependence on assets
- Industry best able to manage risks

Ofgem:

- Seeks assurance (especially for longer term asset management)
- Sees benefits in BSI PAS 55 framework and accreditation

Asset risk management remains crucial

for existing and new challenges facing utlities

ofgem

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