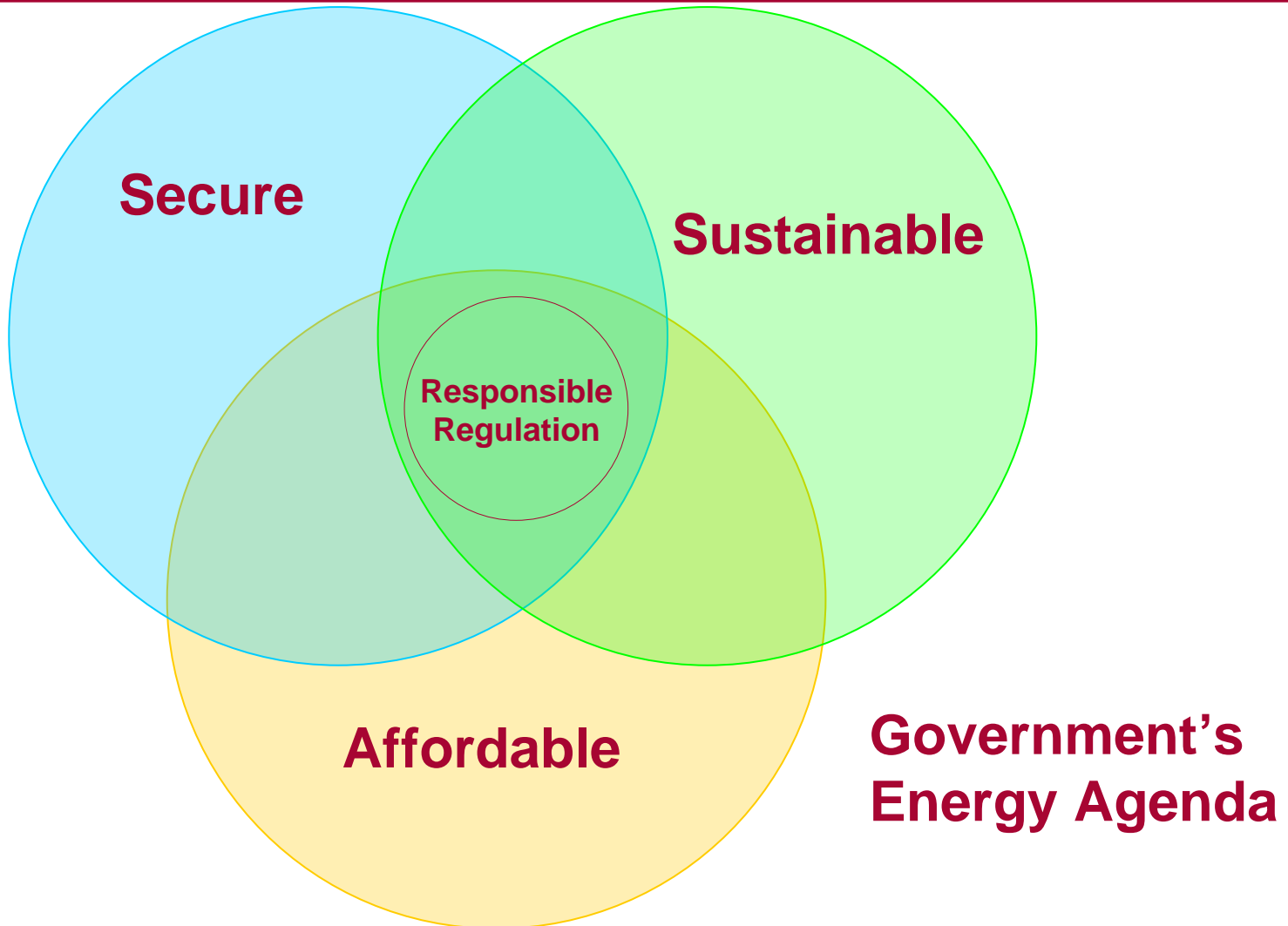

Emerging Energy Technologies

Taf Powell
EET Director

Strategic overview:



A new energy mix (non nuclear)

CCS

CCS

- Government committed to 3/4 demonstration projects
- No new coal power stations without CCR

Gas storage

Gas storage

Renewables

- 80% of demand to be met by imported natural gas by 2020

Distributed
Generation

- Significant increase in infrastructure required for imports & storage

Renewables

Cleaner Coal
Technology

- Meeting 30% of UK's energy needs by 2020 (currently 5.5%)
- $\frac{2}{3}$ from wind (possible 50 fold expansion in 10 years)
- Significant contribution from biomass plus a contribution from wave, tidal etc

A new energy mix (non nuclear)

CCS

Distributed Generation

Gas storage

Renewables

- A shift in energy production from a ‘one - to - many’ to a ‘many - to - many’ model
- Underpinned with grants of up to 30% of capital costs
- Considering a future for the ‘Hydrogen Economy’

Distributed
Generation

Clean Coal Technology

Cleaner Coal
Technology

- Extensive R&D funding available for technical innovation
- Improving power station efficiency – oxyfuel combustion, IGCC
- Maximising production from domestic coal reserves
 - Coal bed methane extraction
 - Underground coal gasification

Resource implications

- HSE facing unsustainable and increasing demands to give advice or make interventions – affecting delivery on planned work
- Impact on cost recovery
- Effort required to build a strategic framework for dealing with all the sectors in a consistent way

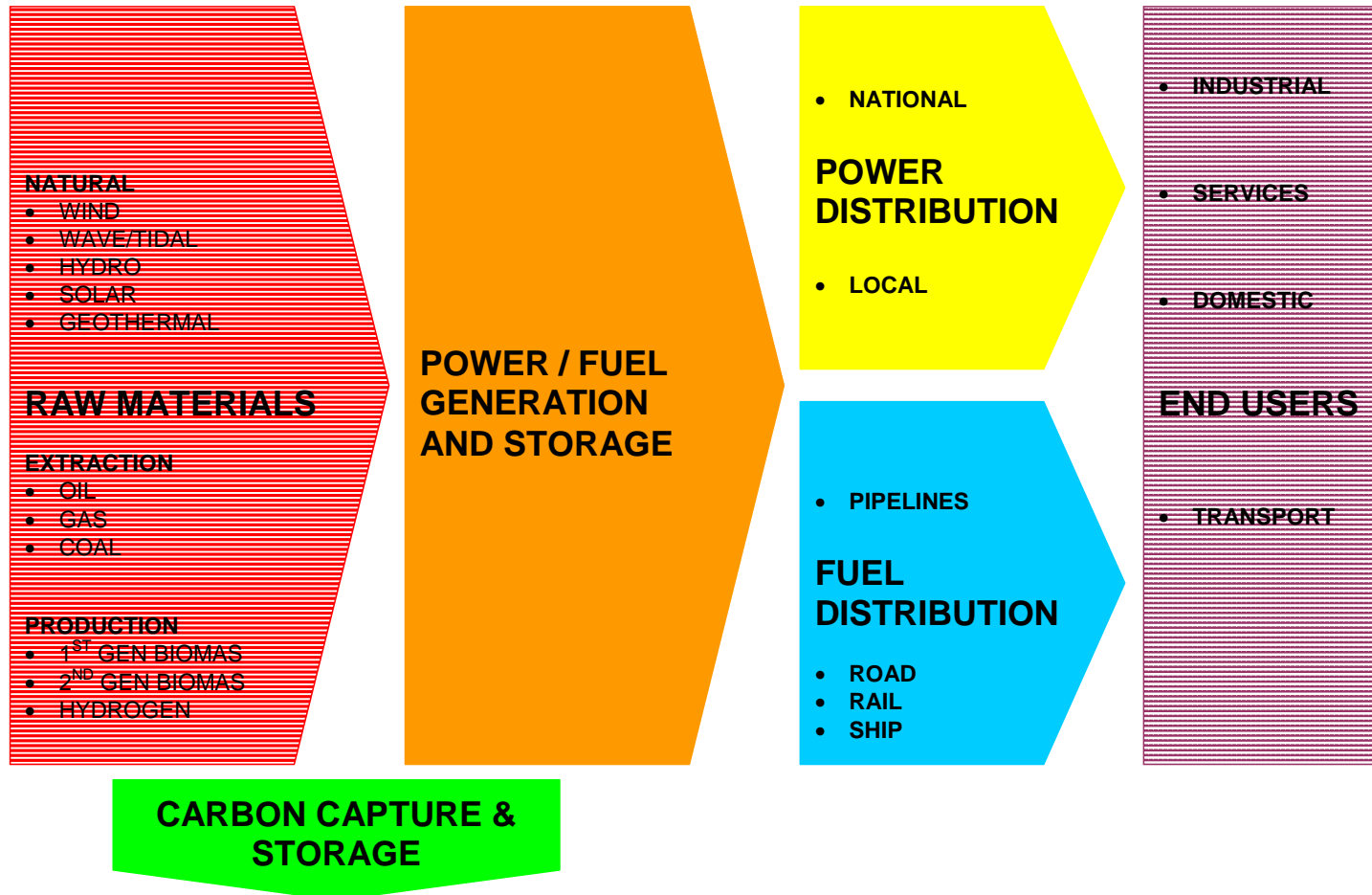
EET outcomes

By 2011 we aim to deliver

- A coherent organisational strategy for HSE's regulation of the (non nuclear) emerging energy technologies
- Guidance to enable HSE divisions to plan and deliver against this strategy

..for HSE to be an effective regulator of emerging energy technologies

The Energy Sector



Common challenges across the emerging energy sectors

- Engineering unknowns
- Availability of appropriate standards/guidance
- Anomalies in the regulatory regime resulting in inconsistency (& implications for cost recovery)
- Diverse range of duty holders
- Competency and skills (industry and regulators)
- Interface with other regulators/government departments
- Challenges with public acceptance at a local level
- Infrastructure challenges

Key Message

HSE is an enabling regulator, working in the public interest to facilitate the safe introduction and proliferation of the new energy technologies

A responsible enabling regulator

- Expertise & pragmatism; using different levers for securing H&S outcomes
- Sufficient foresight to ensure that H&S issues are adequately addressed without falling on the critical path
- Sufficiently engaged with OGD's and early enablers (BWEA?) at early stages to manage consequences further down the line
- Does not take on industries problem solving role but works to facilitate a solution where necessary

Meeting the EET challenges - 1

- Working closely with DECC on biomethane guidance and undertaking problem solving to support pilot schemes
- engagement with the professional institutions and the science and skills councils to identify realistic options for producing the skilled workforce for the future energy economy;

Meeting the EET challenges - 2

- active with UK regulators, with EU, with other North Sea partners, and more widely (e.g. International Energy Agency (IEA) and the Global CCS Institute) to secure a consistent regulatory approach that is sensible and not competitively unfavourable to the UK; and
- publishing an expert report on the status of the emerging energy sectors, transport and storage, and HSE's assessment of future energy scenarios

Meeting the EET challenges - 3

- Developing interim strategy for regulation of new energy structures in the Renewable Energy Zone to inform longer term strategy
- working with early enablers to identify gaps in the science and encouraging collaboration
- Quid pro quo for industry to engage with HSE with data, information, priorities...

Embedding safety – offshore renewables



- High reliability organisations
- Offshore asset integrity design & maintenance
- Campaign planning
- Harmonisation of standards
- Jargon standardisation
- Offshore competency & seasonal operations

Working well together?

- **Layout** – segregation, equipment, ergonomics
- **Structural** – loads, vibration, collision
- **Electrical** – inc accredited HV equipment
- **Fire & Explosion** – transformers, fire safety engineering
- **Access & transfer** – air & marine, stairs or ladders
- **Emergency response**
- **Inherent safety** - design, construction & operations inc maintenance

Contact us at



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