HSE Shared Research Programme: Energy Storage

Energy storage has a key role to play in delivering a secure, sustainable and affordable energy system for the future.

In response to this, the Health and Safety Executive (HSE) is proposing a shared research programme to ensure that health and safety considerations do not create unnecessary barriers to the commercial deployment of energy storage technologies. The purpose of this programme is not to search out improbable risks and raise unnecessary concerns but rather to:

- demonstrate a sound understanding of the hazard and risk profile
- anticipate the risk management and regulatory needs, and
- identify and fill any knowledge gaps

The benefits

The high-level benefits of investing in this shared research programme are:

- A shared understanding (between industry, policymakers & HSE) of the hazard and risk profile of the energy storage sector and relevant good practice in terms of risk management
  - informs technology and policy design
  - underpins the principles of inherently safe design
  - long-term cost reduction/cost avoidance
  - supports investor confidence
  - supports public confidence
  - highlights priorities and effectively targets any further research
  - requirements
- Risk assessment and risk management 'health checks' from the experts for pilot and demonstration projects
- HSE understands and remains aligned with the government's plans for promoting new energy storage technologies. Health and safety issues associated with the deployment of new energy technologies are kept off the 'critical path'.

HSE Shared Research Programme:
Energy Storage

Workstream 0 - *Programme Management*

As a shared research programme is a new way of working for HSE we will appoint an advisory board with an independent chair. Membership of this board will be drawn from the industry, government, relevant regulators and funding bodies.

The advisory board will:

- Advise on general strategy for the programme, to achieve its overall objectives; acting as a critical friend in relation to the overall shape, direction and policy relevance of the research programme
- Advise on potential sources of funding and opportunities for commissioned research
- Advise on publications and other outputs - offering advice on the development of the communication plans; supporting the dissemination of its research outputs to key audiences and potential users of the research; offering pathways into user group.

HSL has a competent project management system in place aligned to the Association of Project Management Standards. We have an established track record of successful project management and are committed to delivering projects to the highest standards of safety and quality as well as to time and cost.

Workstream 1 - Technology Timeline Deployment

The purpose of work stream 1 is to capture the current, probable and possible energy storage technologies available by 2050. It will inform the shape of the remaining work streams.

In the first instance, the scope will be restricted to electrical storage and distribution and will include mechanical, electrochemical, electrical and thermal technologies. The focus will be on commercial or grid scale technologies. Mature technologies (e.g. pumped hydro and lead acid batteries) will be excluded.

- A review of published scenarios to understand the potential balance of technologies
- A technology deployment timeline based on technology readiness levels
- A global outlook highlighting demonstration and pilot projects overseas

  A summary of
  - the benefits of key technologies
  - known incident history
  - hazard potential (familiar occupational hazards in unfamiliar environments, increased potential for non-major hazard risks to the public based on known incidents, new major hazards with low frequency but high-impact consequences)
  - Identification of existing or developing industry good practice guidance and EU/ISO standards

Work stream 1 will be delivered by HSE's Foresight Centre who maintain a watching brief on developments within the energy sector in general and energy storage in particular.

Work stream 2: Risk Assessment

This work stream will take a closer look at the hazards and consider the risks. Key outputs will include technology specific risk assessment

HSE Shared Research Programme:
Energy Storage

Work stream 3: Risk Management

This work stream will evaluate the relevance and effectiveness of existing standards and guidance with a focus on avoiding unnecessary 'gold plating'. Key outputs will include technology specific risk management guidance.

Work stream 4: Regulation and Risk Communication

This work stream will endeavour to identify regulatory barriers and take a forward look to emerging regulations including international standards.

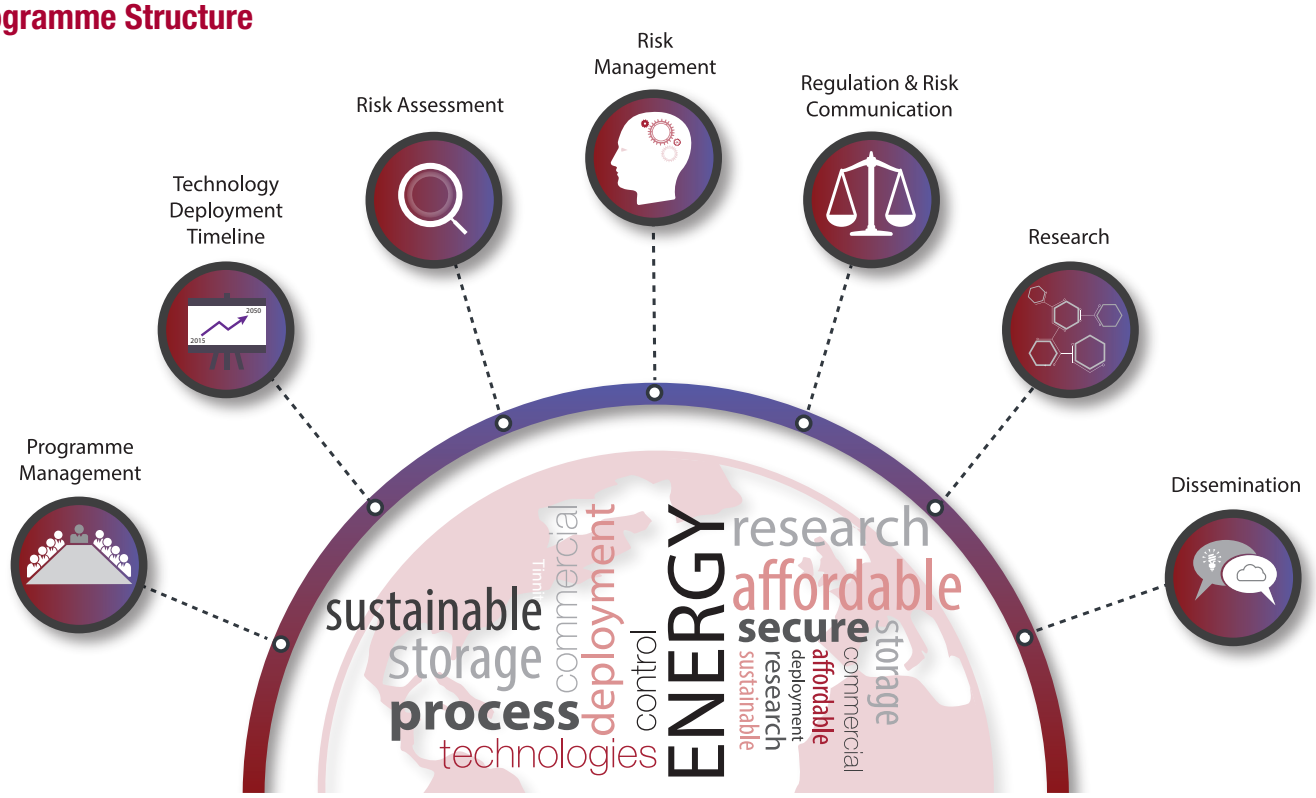
Work stream 5: Research

It is intended that this programme will identify knowledge gaps and research priorities. Carrying out or contributing to discrete research projects will be managed under work steam 5.

Work stream 6: Dissemination

The shared research programme will be a partnership between the public and private sectors so careful consideration has been given to dissemination. Information will be presented for 3 different audiences: the public, policymakers and technical users. Outputs will be hosted on a website with access controlled as required.

Programme Structure



Timescales

The programme will run for three years. Work on work stream 1 has already begun and will be completed by HSE in March 2016. The shape and scope of work streams 2 to 5 will be influenced by programme partners.

If you are interested in joining the shared research programme please contact us for further information.

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