



**ANNUAL  
PROGRESS  
REPORT 2017**  
**ASSET MANAGEMENT**



## VISION

By 2020 the UK electricity industry will have delivered a sustained improvement in health and safety performance by applying and influencing best practice approaches utilised in the top performing sectors in the UK and beyond.

## CONTENTS

Introduction	02
Powering Improvement 2015 – 2020	03
Annual Focus Area for 2017: Asset Management	04
2017 Delivery Plan	05
2017 Champion	06
2017 Events	08
Wider considerations	10
2017 Delivery Plan – Outputs	12
2016 – Managing Occupational Ill Health	21
2018 – Human Factors	22
Appendix 1 Powering Improvement companies	23
Appendix 2 Powering Improvement Steering Group and 2017 Subgroup	24

## INTRODUCTION

The five year 'Powering Improvement' strategy was first launched in 2010 and brought together electricity companies, trade unions and the Health and Safety Executive (HSE) with the aim of making the UK electricity industry a world leader in occupational health and safety. Powering Improvement is designed to promote continuous improvement in the management of health and safety risks within the UK electricity industry, and in 2015 the strategy was re-launched to build on the success of the first phase.

The aim is to improve occupational health and safety performance through vision, leadership, direction and co-ordinated action into the future. The Powering Improvement strategy continues to align with the GB Strategy 'Helping Great Britain Work Well'.

ENA and Energy UK companies and the industry's trade unions, Prospect, Unite, GMB and Unison, together with HSE support the following principles:

- > All workers in our industry have the right to go to work each day and not be injured or made ill by their work;
- > We recognise the importance of cooperation between all groups that make up the electricity industry: generation, transmission, distribution, contractors, trade unions as well as government, regulators and other workers' representatives;
- > We recognise that everyone in our industry has a responsibility to look after their own, their colleagues', and the public's health and safety;

- > We recognise the serious consequences of work-related accidents and ill health; personal, economic and reputational;
- > A safe, healthy and competent workforce is essential to any business;
- > We are fully committed to addressing occupational health issues as well as safety ones;
- > We are committed to sharing best practice regarding health and safety risk management. This includes sharing lessons learned when things go wrong;
- > We aspire to exceed compliance with health and safety legislation to strive for continuous health and safety improvement, and to provide the leadership and resource to make this happen.

## POWERING IMPROVEMENT 2015-2020

The second phase of Powering Improvement (PI) (2015 – 2020) recognises that all workers in our industry have the right to go to work each day and not be injured or made ill by their work. We recognise the importance of cooperation between all groups that make up the electricity industry to help achieve this goal.

The first year of PI (2015 – 2020) focussed on 'Working with Contractors', but also featured the official launch of the second phase of the strategy. Work undertaken in support of the themes from the first phase 2010 – 2015 continued to be promoted. In 2016 the year was dedicated to 'Managing Occupational Ill Health Risks'.

This Annual Report is the third edition within the second phase of PI that summarises progress of the Powering Improvement strategy, and reports on work in support of the 2017 Annual Theme of 'Asset Management'.

### VISION

By 2020 the UK electricity industry will have delivered a sustained improvement in health and safety performance by applying and influencing best practice approaches utilised in the top performing sectors in the UK and beyond.

### STRATEGY

ENA and Energy UK companies will work in partnership with trade unions, HSE and contractors to ensure our industry has a realistic and inclusive approach to health

and safety at work. Powering Improvement is intended to provide a focus and line of sight between the electricity industry's interventions to deliver a sustained improvement in health and safety performance and the framework set out in the HSE electricity sector strategy (now the Utilities Sector Plan).

Throughout the 5 years we will maintain a focus on managing our priority risks, including working with electricity, working at height and driving. Although the strategy is focussed on occupational health and safety risks, public safety issues involving both members of the public and third-party contractors will also continue to be addressed as a priority. ENA has a dedicated Public Safety Strategy, 'Our Commitment to Public Safety', that has been running for over 10 years.

Many of these wider considerations both influence and impact on the management of industry assets.

## OVERARCHING THEMES

### Leadership – at all levels

Managers in our industry are genuinely committed to health and safety regarding it as an essential value. Throughout the strategy this commitment will be made clear to front line workers.

### Worker Involvement

We will continue to promote effective engagement and consultation on health and safety matters as a two-way process between management and workers.

## Building Competence

Skills – workers will be able, aware and empowered. Skill sets underpinning safe performance will always be in place and there will be a systematic checking of competence against clear and relevant standards. There is a commitment to the timely delivery of all training to avoid skill or competency gaps.

Corporate Memory – we will work together to ensure that, as experienced workers retire and are replaced, lessons are remembered from incidents and accidents and mistakes are not repeated.

## ANNUAL FOCUS AREA FOR 2017

### ASSET MANAGEMENT

The first phase of PI (2010- 2015) featured 'Asset Management and Maintenance' as an annual theme in 2012 leading to the publication of case studies, guidance and asset related incident learning. This included high level guidance for the electricity sector highlighting the link between asset management, process safety and the successful management of health and safety risks to both workers and members of the public, a message that was again prevalent in 2017. All of the 2012 outputs can be found on the PI web site: <http://www.poweringimprovement.org/2010-2015/2012-2/>

Following consultation with the strategy partners at the beginning of PI 2015 – 2020, it was agreed that a similar approach would be adopted and that a year should be dedicated to asset management, illustrating the importance and significance of this core topic within the industry.

The 2017 theme of 'Asset Management' was championed by Phil Swift (Operations Director, Western Power Distribution) and was supported by both the PI Strategy Steering Group and a dedicated Asset Management Subgroup comprised of all the Powering Improvement partners, which provided governance and oversight of the 2017 Delivery Plan. These two groups represent the executive arm of National HESAC, which retains overall governance of Powering Improvement. The Delivery Plan set out the Aims, Outcomes and Outputs for work in support of the theme, accompanied by considerations which illustrated the priorities and expectations of the various PI partners on how the strategy will be implemented within the industry. Further engagement and challenge was provided by the key industry company committees; the ENA SHE Committee and Energy UK Safety Leaders Group.

The intention in 2017 was to focus on those aspects of asset management that reflect the overarching themes of the PI strategy of Leadership, Worker Involvement and Competence, and to reinforce the importance of effective asset management strategies within the businesses. This included the collation of Energy UK and ENA incident case studies, highlighting the aspiration to share learning throughout the sector at all levels and help retain the corporate memory aspects of asset management failures (see '2017 SHE Review' publication).

ENA and Energy UK companies also considered how best to utilise and communicate the collaborative work in support of the 2017 Outputs within their own asset management and maintenance programmes, to ensure engagement with employees and contractors throughout the industry.

## 2017 DELIVERY PLAN

### AIMS

- To encourage collaboration between all stakeholders and interested parties, in particular Powering Improvement partners, in addressing health and safety risks arising from asset management;
- To focus the attention of stakeholders and member companies on new and existing asset management issues, including system automation, innovation related asset management projects, the smart meter roll out, and the development and introduction of smart systems;
- To promote asset management and maintenance learning outcomes amongst the workforce to ensure that lessons have been learned and not forgotten as the industry moves forward.

### OUTCOMES

- Build on the success of previous Powering Improvement annual themes in 2012 (Asset Management) and 2015 (Working with Contractors) to ensure a continuous process of sharing best practice and guidance on the principles of asset management and innovation and continued partnership working between companies and their contractors;
- Alignment of industry priorities with the 'Helping GB Work Well' strategy, the 'Utilities Sector Plan' and any associated frameworks;
- Review and update existing asset management and process safety frameworks to ensure the industry understands the operational risks to both its staff and the public;
- Assess the industry's performance against existing and new asset health models and indices to ensure asset risk levels are understood and help inform business expenditure decisions;
- Assess the industry's requirements and performance against Institute of Asset Management and National Skills Competency Frameworks;
- Effectively communicate messages to all staff through the framework of ENA and Energy UK Company HESACs, Powering Improvement Advocates and relevant Engineering and Asset Management Groups; this to include the development of case study, corporate memory and workshop material.

## OUTPUTS

### Output 1

The Powering Improvement Asset Management Subgroup will gather learning from within and outside our sector and produce a suite of case studies highlighting best practice in managing the health and safety risks from asset management and maintenance activities, including lessons learned from both managing equipment failures and failures to manage equipment. This information will be published in 2018 in the form of a new SHE Review of past incidents to help share knowledge and learning outcomes.

### Output 2

The Powering Improvement Asset Management Subgroup will review and collate evidence to determine the effectiveness of health and safety interventions related to the introduction and use of new technology and innovation, as the electricity industry moves towards smart operational systems.

### Output 3

The Powering Improvement Asset Management Subgroup will assess the industry's performance at a national level against good practice guidance from asset health models and competency frameworks, as part of the industry's overall assessment of asset related risk.

### Output 4

The industry will engage with managers, supervisors and operational staff and their representatives to highlight asset management issues throughout the year.

This will be achieved through the effective use of events in the industry calendar. A set of revised Asset Management and Corporate Memory workshop material, including relevant training tools, will be developed and used within the business.

## 2017 CHAMPION

To maintain continuity and the continued profile of PI within the industry each annual theme is led by a senior Champion. Phil Swift (Operations Director, Western Power Distribution) was appointed as the 2017 Champion, and his role as Chair of the ENA Electricity Networks & Futures Group also provided a clear line of sight between health and safety considerations and asset management principles.



As Champion Phil used the year to not only promote the continued importance of effective asset management in an industry that by nature is based on its core principles, but to challenge the industry to adapt its approach to face the significant challenges facing the sector in the coming years.

“Powering Improvement continues to provide the framework to address the existing and new health and safety challenges facing the industry. This is why I was pleased to be the 2017 Champion to promote the benefits of collectively working together with our strategy partners on the important theme of Asset Management.

The year provided the opportunity to revisit core principles, but also ensure that changes in the industry are accompanied by the adaptation of existing asset models to meet new technical, regulatory and customer requirements, whilst also ensuring the continued safety and welfare of our workers and the public.

The Outputs from the 2017 Delivery Plan were developed to encourage the industry to review its approach to the application of traditional asset models and standards, and assess their suitability in managing the introduction of new technology, equipment and working practices that are essential as the industry develops smarter operational systems. The sharing of lessons learned from asset related incidents also provides a constant reminder of the need to manage the risks from asset management and maintenance activities, and this must be accompanied by effective engagement with staff at all levels to maintain the health of our most important assets.

This report sets out the variety and extent of work being undertaken within the industry on asset management and demonstrates not only the link to wider health and safety management, but also how the overarching Powering Improvement themes of Leadership, Competence and Worker Involvement remain as important as the technical challenges we face. Addressing these together will enable the industry to maintain its performance and commitment to health and safety, whilst promoting continuous improvement in the management of our assets. I encourage you to adopt the learning from this good practice and incorporate it within your asset strategies”.

The Asset Management Subgroup provided input into and oversaw the outputs for the year as set out in the 2017 Delivery Plan. Representatives on the group were drawn from ENA and Energy UK and their member companies, the trade unions and HSE. Individual members recognised the benefits of focussing on asset management issues and the collaboration that PI brings at a national level.



Paul Jewell (Policy Manager, WPD and 2017 Subgroup Chair) emphasised the value of the significant work undertaken on link boxes:

“This year the industry has taken a step change in its management of link disconnecting boxes. Work completed by an ENA group has created a risk assessed process for the inspection and maintenance of these assets and, additionally, the design specification for new assets has been amended to make them more resilient.”

Ian Burley (Principal Specialist Inspector, HSE) supported the aims for the year and specific events held to promote shared learning:

“The Powering Improvement theme of Asset Management provided a productive focus for health and safety matters. It ensured that valuable information about asset safety was shared across a diverse range of stakeholders in the industry. In particular, the Asset Management workshop in October 2017 enabled the discussion to be extended to those directly involved in resolving asset safety related matters. The range of topics discussed and the experience shared from previous asset related events provided for an engaging and thought provoking day.”

David van Kesteren and Paris Hadjiodyseos (Prospect H&S Representatives) noted the existing and new challenges in this field:

“Especially during a period of rapid changes in technology, effective asset management is a key part of safety. Working together through Powering Improvement in 2017, trade unions, employers and the HSE have produced some targeted advice on asset management issues from safe management of ageing assets to innovation required to run an active network. Reinforcing the links between safe asset management and the

core themes of leadership, competency and employee engagement has helped staff across the sector identify action to make the industry safer”.

## 2017 EVENTS

### CONFERENCES

ENA and Energy UK annual SHE Conferences included sessions on asset management programmes and company approaches, and the sharing of lessons and learning from asset related incidents. Information from these events is available from the respective web sites.



There was a focus on refreshing and redefining the asset management process and the asset models and systems that are applied. It was recognised that asset management principles align well with a traditional health and safety management approach, demonstrating a convergence between the two disciplines and this message was presented at these and other key events.

A process of continuous improvement is required to ensure that, as technology and innovation develop, so operational requirements are updated. Increasingly issues related to customer engagement and the external environment also need to be incorporated into the asset management approach. This is evident in company strategies which are increasingly adopting a whole systems approach to managing their business that also takes account of procedural, compliance and competence issues, all of which underpinned by leadership and engagement throughout the businesses.

Case studies were presented on the management of generation, transmission and distribution assets, including examples of asset failure and the impacts and consequences these have on both the system and on safety. Often significant events have led to learning points being embedded across the industry, and have resulted in revised risk assessments and the development of operational guidance for the use of existing equipment and assets (e.g. link boxes and cable pits). In all circumstances the challenge for companies is to consider and understand the impact of decisions on the ability of assets to perform to their desired function.

Asset management will again feature as a main topic for the 2018 SHE Conference, where many of the issues referenced in support of the 2017 Outputs will be presented and discussed.

### WORKSHOPS

A dedicated industry workshop was held in London in October 2017, which provided the opportunity to hear from both companies and external partners and regulators; this enabled key topics and asset challenges to be considered and debated. The content of the workshop has been developed into a training toolkit and published on the PI web site to share good practice and spread learning throughout the industry ([www.poweringimprovement.org/2015-2020/2017](http://www.poweringimprovement.org/2015-2020/2017)).

A clear message was presented on the need to reinvent the existing understanding of the scope and approach to asset management by establishing links with other business needs. A priority should always be placed on human assets, and the need to maintain the required levels of skills and training in the face of increasing system and industry changes. There is a need for a radical transformation in how assets are managed and standards are applied, not only when incorporating new assets but in the non-physical asset needs such as demand and voltage response on the networks.

Other future challenges that were presented included the UK wide smart meter roll out and the asset and customer issues this will raise, whilst the continuing need to manage, and where necessary remove, older equipment at the end of their asset lifetimes was reinforced.

Joint presentations from companies and HSE illustrated the need to take the learning from previous asset failures and apply this across all organisations, whilst other incidents also demonstrate the need for effective management of change in an engineering environment (‘creeping change’). Across a range of scenarios the workshop demonstrated that a business

as usual approach to the management of assets is no longer sufficient.

These national events were supported across the industry by company events and seminars, which help ensure that the overarching aims and messages of PI are permeated through the businesses in line with individual company practices and priorities.



Progress in network innovation was showcased at the annual Low Carbon Network Innovation Conference in December 2017 in Telford, allowing the key learning from innovation projects to be explored. Whilst not directly safety related, many of these projects are assessed through the Network Innovation Allowance (NIA) programme, which provides visibility for asset and SHE specialists to identify and address potential health and safety issues from the adoption of new technology. This is often introduced alongside existing assets and equipment utilising the same procedures and staff.

## WIDER CONSIDERATIONS

PI provides an overarching framework in the electricity industry to support individual company programmes, and assist in the further step change required in the drive towards leading health and safety performance. Through its outputs and collaborative efforts PI has previously been promoted as a case study in support of the 'Acting Together' theme of the GB Health & Safety Strategy 'Helping Great Britain Work Well'. PI has also featured in Commitments publications from HSE, and the strategy provides evidence of application of all six of the GB Strategy themes. In 2017, in order to maintain the currency and relevance of PI, revised Commitments were submitted in support of the 'Acting Together', 'Tackling Ill Health', 'Managing Risk Well' and 'Keeping Pace with Change' Commitments, with the last two referencing aspects of the 2017 focus on asset management.

Powering Improvement 	Focus on the aspects of asset management that reflect the overarching themes of the electricity industry's Powering Improvement strategy	Focus on managing ageing assets and the potential risks to members of the public and workers.	Appoint Champion	Sharing best practice and guidance on the principles of asset management	1. Managing risk well
		Assess and manage risks from new technologies and procedures as they move from trial phase into business as usual.	Asset Management Workshop	Align industry priorities with Utilities Sector plan	2. Keeping pace with change
		Share lessons learned from managing process safety risks.	Publish 'SHE Review' (past asset related incident case studies)	Review existing asset management and process safety frameworks	
		Work with others to share lessons learned from managing the H&S challenges from the smart meter roll out.			

This also illustrates how PI both takes account of, and is aligned to, the Utilities Sector Plan, which was launched by HSE in 2017. The regulator identified key challenges in the sector as being an ageing workforce, the maintenance and upgrading of essential assets and infrastructure, and managing rapid developments in technology. The ambition for health and safety performance not to be detrimentally affected by sector developments led to three key outcomes, including the requirement that new large infrastructure projects and ageing plant and assets

do not lead to an increase in injuries or ill health. The management and control of risk made specific reference to the smart meter programme and the need to adapt flexibly and proportionately to technological developments, considerations that were included within the PI 2017 programme of work.

## 2017 DELIVERY PLAN

### OUTPUTS

#### Output 1

The Powering Improvement Asset Management Subgroup gathered learning from within and outside our sector and produced a suite of case studies highlighting best practice in managing the health and safety risks from asset management and maintenance activities, including lessons learned from both managing equipment failures and failures to manage equipment. This information was published in the form of a new SHE Review of Asset Related Incidents to help share knowledge and learning outcomes.



#### Output 2

The Powering Improvement Asset Management Subgroup reviewed and collated evidence to determine the effectiveness of health and safety interventions related to the introduction and use of new technology and innovation, as the electricity industry moves towards smart operational systems.

### INNOVATION

The issues within this Output by nature represent work in progress, and most of the focus was on industry projects and frameworks that are designed to facilitate the introduction of innovation and new assets. The role of PI and SHE colleagues was to ensure that health and safety issues were considered and addressed as this work progresses.

The Open Networks project was launched in 2017 and is an initiative designed to transform the way the energy networks function underpinning the delivery of the smart grid, which will transition the electricity industry from generators and networks that deliver one directional flows to a system that enables a whole range of technologies that generate, consume and manage electricity. These include solar PV, wind farms, battery storage and electric vehicles. This will take a whole system approach to designing solutions and, whilst the focus is on ensuring that all energy customers can benefit from a smart, flexible energy system, the project includes the need to continue to deliver the safe and secure operation of electrical networks.

Similarly R&D activities designed to facilitate innovation, such as the Network Innovation Allowance programme introduced by Ofgem as part of the RIIO

price control system, is intended to identify emerging technologies and opportunities that could not only increase the efficiency of operations, but enhance the overall safety and reliability of the network and provide benefits to both employees and the public alike. The industry response to this challenge is outlined in the Electricity Network Innovation Strategy, which was launched in 2017 setting out how innovation projects could deliver up to £1.7 billion of benefits by 2031 and the final Strategy was published in March 2018.

Assessment of these projects and initiatives by R&D managers includes health and safety considerations of new equipment and their adoption into existing asset systems. The approach taken was outlined at the PI Asset Management workshop describing the current technologies, staff competencies, benefits and learning gleaned from the introduction and use of equipment such as fault current limiters, voltage capability and fault level monitors. Pilot projects employed the use of skilled Senior Authorised Persons (SAPs) using modified policies and procedures, which were collated into Application and Connection Guides to ensure consistency across different asset environments. A process of engineering out issues at the design stage, pilot trials and subsequent asset roll out needs to be adopted to ease the transition to business as usual whilst ensuring continued safety performance. Experience to date has shown that a perfect innovation system cannot be designed, but through proper planning, performance monitoring, review and improvement, the introduction and use of new technology can be successfully managed.

The smart meter roll out also represents a cross sector initiative related to the introduction and use of new technology

and therefore falls within the remit of Output 1. This initiative has been subject to extensive Government governance and programme control by suppliers, meter operators and network companies. The industry Smart Meter Operational Group (SMOG) provides oversight of the programme, including the assessment and reporting of safety related incidents through the SMOG Health & Safety Subgroup.

Work continued throughout 2017 on the collection of data on safety performance, compiled by Energy UK and ENA member companies from RIDDOR and ESQCR sources. This focussed on quarterly incident data, consistency of reporting and establishing root causes and drivers for any observed trends, with particular consideration of installation issues, electrical fires, connection issues and cross polarity incidents. Priorities for safety related work in 2018 include additional governance in the form of a new Safety Advisory Group within Government, and the continued assessment of risks associated with asbestos and emergency control valves, equipment and tools to mitigate known safety risks, and progress with metering labelling. This will be assisted by the continued timely submission of safety data and incident analysis work. PI governance provided through National HESAC now features smart metering as a standing agenda item, and will enable cross sector safety discussions between generators, network companies, suppliers and meter operators.

## CURRENT WORK

Output 2 considered issues related to existing asset management and maintenance regimes to highlight important work carried out at a national level by both companies and HSE on the impact from asset operations, and to reinforce the link between managing existing and new equipment side by side.

Asset programmes on existing equipment included the continued work of the Link Box and Cable Pits Working Group, which was originally established to review the management of these assets and assess the risk posed to both members of the public and electricity employees from faults and disruptive failures. A previously commissioned independent risk assessment examined the existing asset management approaches to inspection, maintenance, mitigation and replacement, and assessed what changes would be effective in reducing the risk posed by such assets. In 2017 this led to the production of ENA Position Paper 08 on the management of link boxes and cable pits setting out an agreed industry approach, and outlining the control and mitigation activities that can be adopted to mitigate any risk taking into consideration the cost, time and resource to do so. The working group continues to collate failure rate records on a regular basis to monitor asset performance.

The group also instigated a revision of the industry technical specification to ensure learnings from failures are captured in the design of link boxes. This specification includes details of enhanced testing of link boxes, and its development followed consultation with equipment manufacturers and other industry groups. The new specification will be reissued in 2018 and manufacturer visits will then be undertaken to determine the response by suppliers to the requirements of the new industry document.

Industry safety and engineering working groups contributed to the revision and update of an existing Engineering Technical Report on underground fluid-filled cable assets to ensure the continued safe operation of these assets and manage the environmental impact from failures. The work involved consultation and input from the Environment Agency, and resulted in the upgrading of the document to an Engineering Recommendation (EREC) C135 'Guidance for the Operation and Management of Fluid-filled Cables'. Implementation of the management principles and technical guidance within the document is enhanced through working in partnership with the Environment Agency and the other environmental regulators, namely SEPA, Natural Resources Wales and the Northern Ireland Environment Agency. To support this approach a workshop will be held in May 2018 as a joint training and awareness event for network and Environment Agency staff to ensure that national agreements are implemented at regional working level.



### Switchroom management & controls

Energy UK Safety Rules Working Group

During the year Energy UK's Generation H&S Forum, and specifically their Switchroom Working Group, published new guidance, 'Switchroom Management & Controls'. The aim of this document is to share the approach taken by operators to manage the risk posed by electrical switchrooms and the operation of switchgear. Prior to making decisions concerning the management of switchboards it is appropriate to make an assessment of the level of risk posed by the switchgear and the switchboard. The document starts by identifying the factors that influence the level of risk posed by such equipment. This is achieved via fault level arc and flash studies and the assessment of local site specific factors, such as age, occupation rates and operating cycle.

The main part of the document sets out the practices that can be deployed to manage risk; these are set out using the ERIC PD model, Eliminate – Reduce – Isolate – Control – PPE – Discipline. Messages include the use of high speed protection equipment to reduce fault clearance times (reduce), remote switching of electrical equipment (isolate), access, authorisations, training requirements, risk assessments and standard operating practices (control), arc

flash protection clothing (PPE) and inspection and preventative maintenance schedules (discipline). An annex to the document then sets out an industry example of a graded approach to switchroom access.

The HSE Electrical Inspectors Work Plan for 2017/18 included priority interventions on matters considered to be public safety risks that require the effective management of assets, which therefore fall within the scope of the 2017 PI Delivery Plan. A number of specific network asset equipment types were identified, with the current management of these issues determined by the inspection of management systems, policies and procedures. An assessment was made of the ability of companies to modify the approach taken if found to be ineffective or in the event of any non-conformance. A programme of compliance visits have been undertaken and evidence provided by the industry will be assessed and reported on by HSE in 2018, leading to a set of recommendations to be implemented as appropriate.

## FORWARD LOOK

Moving into 2018 work will continue in all of the above programmes even though the focus of PI shifts to a new annual theme. Further proposals will also be considered on assessing the health and safety impact from the incorporation of new technology, including LV automation equipment and battery storage systems. Whilst these issues again fall within the remit of engineering and futures programmes and working groups, there may be a need for SHE related work to assess the risks to personnel and members of the public, potentially leading to internal industry policies and/or standards. Considerations should be given to human interaction with these new asset types arising from the installation, operation, maintenance and decommissioning of such equipment. Specific issues relating to fault impact, capacity limits, protection, voltage regulation, third party damage, the environment and operation beyond capability all have the potential for introducing increased levels of risk into asset operations.

Much of this work will be implemented through the Electricity Network Innovation Strategy, which was published in March 2018 after extensive consultation with stakeholders. This sets out the issues to address in order to assist in the integration of new technologies onto the energy networks and seek continuous improvement in the provision of more reliable, affordable accessible, cleaner and safer services.



This must take account of the health and safety implications for employees and members of the public and is one of the key identified innovation themes. The strategic focus is to Innovate, Implement and Collaborate in order to transition proven innovation to Business As Usual systems, but this must be accompanied by the development of safer and more efficient working practices from the outset.

A roadmap has been developed to help set a positive course for the energy sector following the identification of key industry trends, and this will be realised through the implementation of innovation themes and addressing the challenges these present, including safety, health and environmental considerations.

These are:

- Improve the safety and health of the public and workers;
- Further improve safety and health and reduce impact on the environment;
- Reduce the visual and noise impacts of assets.

A number of innovation projects within the Network Innovation Allowance scheme feature health and safety considerations either directly or partly within their remit, but it is acknowledged that the level of innovation here can be improved. Ultimately sensible and proportionate risk management is an integral part of delivering growth, innovation and protecting people, and this needs to be supported by equipping the workforce with the appropriate knowledge and skills to manage these new systems. Examples include advances in asset management and inspections, safer methods of earthing equipment, reduced risk from excavations from the use of new technology, safer

working practices, and reducing the level of human/asset interface from increased automation.

## Output 3

The Powering Improvement Asset Management Subgroup assessed the industry's performance at a national level against good practice guidance from asset health models and competency frameworks, as part of the industry's overall assessment of asset related risk.

## STANDARDS

The original BSI PAS 55 Standard required organisations to establish, implement and maintain an asset management policy, strategy, objectives and plans. Electricity companies have been certified against asset management standards for a number of years, reflecting both the importance of asset management as a core aspect of these businesses and their track record in network performance and customer service. More recently assessment has moved to accreditation against ISO 55001 following the introduction of this new standard. Certification lasts for three years and annual surveillance visits explore continued compliance. This regular scrutiny by independent auditors provides both a good challenge to businesses and insights of good asset management practice from other organisations that help inform any required refinements to processes.

The ISO 55001 standard does not directly determine how a company is structured or its objectives, but it does provide a useful reference point to test that asset management strategies, policies and activities are aligned to the delivery of the company objectives. It also adopts a competency based approach again

providing challenge that these issues are embedded in an organisation's processes. Companies have developed their approach to ensure that they are aligned with the principles of ISO 55001, thereby reflecting best practice in asset management.

Companies reported that their certification against an asset management specification provides the confidence that their asset management practices are in line with internationally recognised best practices, which in turn gives confidence to investors and regulators that the businesses are responsible custodians of the electricity networks. ISO 55001 also provides a common language for asset management professionals to discuss issues with colleagues from other sectors, and a framework to ensure the completeness of their asset management approach.

Developments were monitored on the development of the new ISO 45001 Standard for Occupational Health and Safety Management Systems, important not only in its own right but also in the parallel and linked approach to the implementation of successful asset management practices. ISO 45001, which was launched in 2018, will aim to proactively improve employee safety, reduce workplace risks and create better, safer working conditions. It has replaced the current BS OHSAS 18001 and organisations holding the existing standard will have a period of three years in which to migrate to the new one.

The purpose of occupational health and safety management systems is to underpin the creation of safe and healthy workplaces, and to provide a mechanism for organisations to continually improve their occupational health and safety performance. ISO 45001 therefore adopts

a management approach founded on the universally applied 'Plan, Do, Check, Act' model, which provides a basis for common understanding of how to apply the standard, and the focus is on identifying and controlling risks, compared to 18001's focus on hazards. There is a much stronger emphasis on organisational context, meaning organisations will have to look beyond their boundaries to society as a whole as part of their consideration of the impact of how they manage health and safety.

The role of the 'leader' is also more prominent, with a requirement for organisations to demonstrate that the occupational health and safety management system is driven from the highest level. The importance of supply-chain relationships is highlighted, with a need to confirm that the organisation has considered how suppliers and contractors are managing the risks within their sphere of activity.

**WORK PROGRAMMES**

A number of work streams in 2017 encapsulated the aim to retain and enhance competency levels within the industry as part of an overall approach to improved health and safety and asset management.

A project was set up to develop a national campaign to raise awareness and promote the benefits of live working amongst all employees, contractors and third parties. Although there are only a small number of serious incidents, the consequences of an incident can be severe. Due to this potential severity, and as a result of the number of live working operations carried out, workers were reminded of the safety procedures they need to follow and managers' responsibilities towards live

workers. Messages for workers were built around the importance of procedures and the use of personal protective equipment (PPE), and for managers on the importance of authorisation, supervision and competence of those carrying out the work.

ENA was instructed to develop a suitable industry wide policy and communications template for use by all member companies, and a campaign provider was appointed to deliver this work. The initiative was intended to reinforce the precautions taken that ensure live working is a safe and effective way of working on the electricity networks and focussed on three core principles; Justification for Live Working (Electricity at Work Regulation 14), Competency (skills, authorisation and training needs) and Procedures (company policies and practices and the correct use of PPE).



The key messages were incorporated into a Communications Toolkit of campaign information and messaging, comprised of a campaign logo and branding, leaflet and poster material, social media tools, communications copy material and suggestions for employee engagement. The final campaign material and communications toolkit were circulated to companies and is being used to support individual company communications and initiatives that promote and reinforce their own specific policies and practices. A review of the effectiveness of the

campaign and individual company approaches will be conducted in 2018, and the material has been designed to enable continued use in future campaigns and refresher training.



This initiative was supported by an industry review of procedures for live working on LV distribution systems, and industry guidance on the common agreed approach to managing this risk was updated. The industry SHE Standard helps reduce any conflict between keeping systems energised to maintain supplies to consumers and making systems dead to minimise the risk to employees and others. There is a continuing need to set out the criteria where it is reasonable to work live and the strict procedures and controls required to prevent injury, including the lack of an alternative supply, thorough risk assessment and the implementation of approved control measures (including use of appropriate PPE). A new requirement for accompaniment by designated authorised competent persons was also introduced. All companies have reinforced the need to take active and effective steps to ensure their approved procedures are followed and that the work is carried out by competent and authorised staff. The Live Working campaign also provided another opportunity to reiterate these messages.

The HSE Electrical Inspectors Work Plan for 2017/18 also included compliance visits to assess the competence and management systems in place for SAPs and their implementation of Operational Safety Rules (OSRs); this included contractor SAPs authorised to work on company assets. HSE investigated the function and role of the SAP and the application of OSRs in light of serious industry incidents to determine whether the necessary competencies and abilities remain in place to discharge their duties, and looked for evidence on measures taken to prevent future incidents. This required a demonstration of adequate policies and procedures to ensure continued staff and contractor competencies and the ability to revise these controls when necessary. Again evidence provided by the industry was assessed and reported on by HSE and will lead to a set of recommendations to be implemented as appropriate.

**Output 4**

The industry engaged with managers, supervisors and operational staff and their representatives to highlight asset management issues throughout the year. This was achieved through the effective use of events in the industry calendar. A set of revised Asset Management and Corporate Memory workshop material, including relevant training tools, was developed to be used within the businesses.

A key event during the year was an Asset Management workshop held in London in October 2017. This was attended by over 70 industry delegates from companies, contractors, regulators and trade unions. Presentations were delivered on the theory and importance of asset management coupled with case

studies from inside and outside of the sector, highlighting learning from past incidents and the benefits from current initiatives and asset related programmes. A wider perspective was promoted through consideration of the issues from the adoption of new technology, and the continued importance of human factors issues in working on electrical assets.

A highlights film is available on the PI web site that provides an overview of the topics discussed on the day, whilst each individual presentation is also available in a combined audio/visual format. This is to enable the material to be used for training purposes and to help ensure the learning is available throughout the companies and thereby reach a wider audience. The films are available at [www.poweringimprovement.org/2015-2020/2017](http://www.poweringimprovement.org/2015-2020/2017).

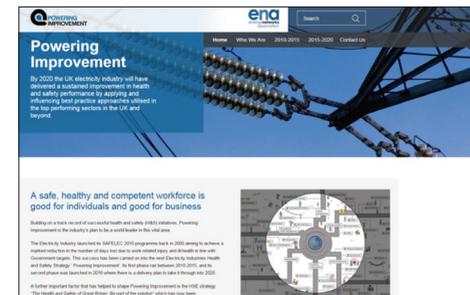
Member companies continue to use opportunities to remind both existing and new industry colleagues of the key asset management messages and learning from past incidents. Output 1 represents collaborative industry work in support of this aim, but a number of company events and publications were used to engage with staff in this respect. Examples include a new film from Scottish Power marking the 20th anniversary of Barrhead and the industry wide actions in response to the lessons learned from that incident.

Scottish & Southern Electricity Networks have adopted a transparent and open approach to sharing the learning from the Beaully-Dounreay incident in 2012, similarly reminding the industry of the changes to standards and working practices that have been introduced. A detailed case study presentation featured within the 2017 Asset Management workshop.

UK Power Networks have published a collection of asset related incidents for circulation amongst operational staff, again to ensure the dissemination of learning throughout the business and help maintain a safety related focus.

## 2016 THEME – MANAGING OCCUPATIONAL ILL HEALTH

Work in 2016 was based around delivering the Outcomes and Outputs in the 2016 PI Delivery Plan on 'Managing Occupational Ill Health Risks'. This included the 'Journey on Health Road Map', which is hosted on the PI web site. HSE held its inaugural annual conference in London in September 2017 and this was used to officially launch the Utilities Sector Plan as well as to launch the new HSE Occupational Health Strategy 'Go Home Healthy'. ENA was invited to submit a case study for the 'Tackling Ill Health' theme, which showcased the 'Journey on Health Road Map'; this was one of only a handful of case studies included in the delegate packs. A priority for the Occupational Health Committee, which continues to be chaired by the 2016 PI Champion Geoff Earl (SHE Director, Northern Powergrid), is now to ensure that the content of the Roadmap is both promoted and updated on a regular basis, and that the tool remains both current and comprehensive going forward.



The Committee has developed a new Business Plan 2018 – 2020, which will focus on industry priorities for the remaining years of PI 2015-2020 and ensure alignment to the 'Go Home Healthy' strategy. The Committee will also continue to benchmark industry occupational health management data and health and wellbeing initiatives in order to identify priorities and any emerging health trends.

A revised Commitment was submitted to HSE in support of the 'Tackling Ill Health' GB Strategy theme outlining the industry intention to 'Increase the profile of occupational health and wellbeing in electricity industry companies and share knowledge and visibility of best practice'.

This included the following expected impacts:

- Demonstrate leadership and commitment to improve occupational health in the electricity sector;
- Sharing of best practice across the electricity sector;
- Ongoing resource for use by the industry;
- Reduction in ill health issues.

## 2018 THEME – HUMAN FACTORS

The annual focus theme for 2018 is Human & Organisational Factors. The year will be jointly championed by Peter Emery (Chief Executive, ENWL) and Sue Ferns (Senior Deputy General Secretary, Prospect), and this mirrors the successful approach taken in 2013 in PI 2010 – 2015 when this was also the theme. Joint Champions reflect the need for partnership working between PI partners in tackling human factors and behaviour related issues at both an organisational and individual level. The year will also provide the opportunity to define and promote suitable messages not only for 2018, but to 2020 and beyond.



It is recognised that companies are at different stages in their approach to behavioural safety interventions and the promotion of safety culture, and adopt different routes to engaging and working with staff on these issues. The intention will be to review and share lessons from within the sector and other high hazard industries to raise awareness of the potential benefits of improving the related processes, leadership and behaviours.

The outputs and achievements of 2013 will be reviewed and current safety programmes within the companies assessed. However, the main focus will be to focus on the human and organisational factors associated with certain aspects of operational activities within the businesses, specifically the roles, responsibilities and interactions between senior authorised persons, and live working operations; this will cover both LV systems on electricity networks and HV systems in generation companies. The industry will work with HSE and HSL to implement the learning from both research and assessments of the companies undertaken in recent years, with a particular focus on human factors issues.

## APPENDIX 1

### DETAILS OF ENA & ENERGY UK COMPANIES AND TRADE UNIONS FORMALLY SUPPORTING POWERING IMPROVEMENT

Powering Improvement is managed and directed by the National Health and Safety Committee (HESAC), comprised of representatives from Energy UK and ENA electricity member organisations, the industry trade unions and the Health and Safety Executive (HSE).

### DETAILS OF ENA COMPANIES FORMALLY SUPPORTING POWERING IMPROVEMENT

- BU-UK
- Electricity North West
- ESB Networks
- Mutual Energy
- National Grid
- Northern Ireland Electricity Networks
- Northern Powergrid
- Scottish Power Energy Networks
- Scottish and Southern Electricity Networks
- UK Power Networks
- Western Power Distribution

### DETAILS OF ENERGY UK COMPANIES FORMALLY SUPPORTING POWERING IMPROVEMENT

- Calon Energy
- Centrica
- Drax Power
- EDF Energy
- Engie
- E.ON
- ESB
- Innogy
- Lynemouth Power
- Magnox
- Scottish Power
- SSE
- RWE

### DETAILS OF TRADE UNIONS FORMALLY SUPPORTING POWERING IMPROVEMENT

- GMB
- Prospect
- Unison
- Unite

## APPENDIX 2

### POWERING IMPROVEMENT STEERING GROUP AND 2017 ASSET MANAGEMENT SUBGROUP MEMBERS

#### 2017 CHAMPION

Phil Swift  
Western Power Distribution

### MEMBERS OF THE POWERING IMPROVEMENT STRATEGY STEERING GROUP

Richard Gough  
Scottish and Southern  
Electricity Networks (Chair)

David Lefever  
HSE

Peter Vujanic  
UK Power Networks

Lee Wallace  
Western Power Distribution

Bud Hudspith  
Unite

Mike Macdonald  
Prospect

Tanisha Beebee  
Energy UK

Nick Summers  
ENA

Mike Leppard  
ENA

### MEMBERS OF 2017 ASSET MANAGEMENT SUBGROUP

Paul Jewell  
Western Power Distribution (Chair)

Ian Burley  
HSE

Gus Carroll  
Centrica

David van Kesteren  
Northern Powergrid  
(Prospect TU representative)

Paris Hadjiodyseos  
Northern Powergrid  
(Prospect TU representative)

Tanisha Beebee  
Energy UK

Nick Summers  
ENA

Mike Leppard  
ENA



For further information see  
[www.poweringimprovement.org](http://www.poweringimprovement.org)

## **PARTNERS**

Energy Networks Association (ENA) is the voice of the Networks. The industry body for the UK electricity transmission and distribution companies.

Energy UK is the trade association for the UK electricity generation companies.

## **TRADE UNIONS:**

GMB  
Prospect  
Unison  
Unite

## **GOVERNANCE**

Powering Improvement is managed and directed by National Health, Safety and Environment Committee (HESAC) comprising representatives from Energy UK and ENA member companies, the industry trade unions (GMB, Prospect, Unison and Unite) and HSE.

Executive decisions on behalf of ENA member companies rest with the ENA SHE Committee and ultimately the ENA Board.

Executive decisions on behalf of Energy UK companies rest with the Energy UK Safety Leaders Group

