

The 20th annual EI Awards celebrates industry innovators

The energy industry has transformed significantly in the two decades since the Energy Institute began honouring the sector's most exceptional people and projects. The diversity of award winners this year – from domestic solar energy champions to highly efficient oil refineries – reflect the speed and nature of this change.



Photo: Oliver Dixon

The energy industry has tremendous achievements to its name, extraordinary technological and professional accomplishments,' EI President Steve Holliday told attendees at this year's EI Awards ceremony, held at London's Sheraton Grand Hotel. 'It defines and enables modern life in so many ways. But it's never been under such public scrutiny as now. And under pressure from many quarters to change – and to change fast.'

The sector's relevance to the society it serves and, Holliday argued, perhaps its very survival, depends on it acting on two intrinsically linked challenges. The first is climate change. The second is workforce diversity. Both themes echoed throughout the evening, which celebrated the industry's recent achievements while continually acknowledging that there is still much work to be done.

Here we take a look at the initiatives and individuals that received the Energy Institute's highest honours this year.

Community Initiative Award:
energywise, UK Power Networks
Sponsored by Energy Industries Council

energywise is a flagship research project to address the needs of people in fuel poverty and ensure that people living in social housing developments can access

the energy saving and economic benefits of the national smart meter roll-out. To achieve this, the project engaged with both fuel poor customers and the public sector bodies that support them.

The project recruited more than 500 social tenants in the London Borough of Tower Hamlets living in inefficient properties. It signed up customers on prepayment meters to new 'Time of Use' (TOU) tariff arrangements. Trial participants were able to save money by reducing their energy consumption on average by 3.3%.

Prepayment participants were credited 10 units back for every unit of energy they saved during 'Bonus Time' periods that were flagged up via text message the day before. Credit customers were offered HomeEnergy FreeTime, a static, non-punitive TOU tariff. Customers could choose to receive free electricity on either Saturdays or Sundays between 9am and 5pm.

The initiative generated valuable learnings around customer engagement and explored a set of intervention measures tailored to the specific resources and needs of the community. energywise demonstrated that it's possible to engage successfully with vulnerable customer groups provided that they have the appropriate support.

Energy Champion Award:
Charlotte Adams, Assistant Professor (Research), Department of Earth Sciences, Durham University, UK
Sponsored by Arenko Group

Since arriving at Durham University, Energy Champion Award winner Charlotte Adams has worked in a number of departments – Engineering, Earth Sciences and Geography among them. In each instance she has helped develop masters and PhD students, either through formal supervision or mentoring. Adams also works tirelessly to promote geothermal energy and other low carbon technologies within Durham University, as well as the wider community and country as a whole.

She has written numerous feasibility studies in connection to community initiatives and decarbonising the university estate, which are being taken forward. In addition, she co-founded and manages the BritGeothermal partnership, an initiative that has brought practitioners, academics, local councils and government together to enable the exchange of ideas and development of networks on geothermal that will, ultimately, decarbonise the heating of the UK.

Adams' work on the potential to use water from abandoned mines to heat UK homes has led to a debate in Parliament. Across the

country, abandoned mines are flooded with water that can be used in domestic heating. In addition to providing secure, low carbon energy, this can bring economic and social benefits to regions that suffered following the abandonment of deep mining activities. Through her work, Dr Adams has highlighted the important contribution the energy sector can make to society and has championed geothermal as an option that can 'give back' to deprived communities.

Energy Champion Award – Highly Commended:

Sarah Jolliffe AMEI, Energy Manager, BAM Nuttall

Highly commended in the Energy Champion category is Sarah Jolliffe, the Company Energy Manager at civil engineering firm BAM Nuttall. In her role, Jolliffe's key responsibilities include: managing the business' energy portfolio; engaging with plant manufacturers to identify innovation and look to introduce projects across the business; working with suppliers to measure embodied carbon in materials and auditing projects and offices to identify opportunities for improvement and efficiency.

Jolliffe has a strong desire to lift the profile of energy efficiency and low carbon to a point where it is considered 'business as usual'. Ultimately, Jolliffe is highly commended due to the continued efforts to lead the civil engineering sector on energy and carbon related affairs. Sarah is keen to explore all means necessary to engage with people and change behaviours.

Energy Management Award:

*Dublin City University, Ireland
Sponsored by BSSEC*

The key features and aims of the Dublin City University Energy Management System (DCU EnMS) are the combination of a structured, motivated, strategic and innovative utilities management plan. The project combines the crucial operational elements needed to manage energy on a daily basis, whilst ensuring the strategic side focuses on conserving carbon emissions into the future.

A four-stage approach was devised to align utilities planning across the multi-campus DCU environment. It included:

- the implementation (and full independent certification) of the DCU EnMS;



Photo: Oliver Dixon

- implementation of a multi-campus energy and water conservation strategy;
- formalisation and structuring of all energy operations; and
- setting up three energy management teams to manage the overall process.

Over the past 15 years, the DCU EnMS has contributed to significant energy savings and avoided energy costs of €10mn, equivalent to 70 GWh. The programme has resulted in an annual energy performance improvement of 43.4% towards the public sector target of 33% – an overperformance of over 10% with two years to go.

Environment Award:

*Yanbu Refinery, Saudi Aramco
Sponsored by Drax*

Saudi Aramco's Yanbu Refinery Department (YRD) places a high premium on water conservation to reduce dependence on desalination technologies. Natural sources of fresh water are limited in the Middle East and the strain is compounded through the region's growing population.

Significant energy is used in desalination and reducing consumption by just 1 kWh can prevent the release of 0.4 kg of carbon dioxide. For every litre of freshwater produced through desalination, another litre of doubly concentrated saltwater must be dumped – with negative impacts on marine ecosystems.

YRD set about conserving 500mn litres of water using

enhanced instrument air compressors, which require less fresh water to function. The refinery also pursued upgrades to other equipment, including air distribution infrastructure, for the purpose of saving water and energy. The result was that the facility reduced its desalinated water consumption by 30% – thereby conserving resources for future generations.

Health and Safety Award:

Step Change in Safety: Major Accident Hazards

Sponsored by Shell

Step Change in Safety's Major Accident Hazards (MAHs) Understanding workgroup has created a series of engagement packs containing short animated films and presentations. These aim to educate the oil and gas workforce, whatever the job role, helping employees understand that everyone has a part to play in managing MAHs.

The workgroup created four engagement packs covering MAH identification, the 'bow tie model' of risk evaluation and barriers to preventing major accidents. Each pack is made up of a film describing an incident, a short film specific to that pack topic and a presentation which can be customised to suit the company, the asset or the job role. The quarterly release of each pack enabled each 'shift' on an oil platform to participate.

All the planning of content, script writing and reviewing of products was completed by a diverse workgroup of technical experts passionate about health

and safety. The Major Accident Hazard Awareness programme set out to increase the workforce's awareness of the MAHs that surround them and show how they can play their part in preventing and mitigating against a major accident.

Innovative Technology Award:
Viking Cold Solutions
Sponsored by Northern Gas Networks

Facilities that store food at low temperatures have the highest energy demand per volume treated of any industrial sector. The cost of this energy has increased in many markets across North America, where peak energy demand charges can account for up to 70% of a consumer's electricity bill. Often, during periods of high demand, carbon-intensive 'peaker' generation plants are fired up to meet demand on the grid.

Not only is this expensive for operators – it also requires tremendous amounts of energy production and results in an increased carbon footprint for the industry.

Viking Cold Solutions' thermal energy storage (TES) systems increase efficiency of refrigeration upwards of 20–30% and offer the chance to avoid peak energy periods for up to 13 hours per day. The technology provides the cold chain with a tool to cut energy costs, improve temperature stability, reach sustainability goals faster and to dramatically lower the industry's carbon footprint.

The technology does this by leveraging facilities' existing refrigeration systems to store cold energy and discharge that energy over long periods of time (as a thermal battery) when it is most economical for the grid and the facility operator, thus lowering energy costs and positively impacting the environment.

Incentivised by energy utilities across the US and in use around the world, Viking delivers cost-effective and flexible thermal energy management solutions which preserve food, save energy and help reduce environmental impact.

Public Engagement Award:
Balance of Power, USEF Foundation
Sponsored by POWERful Women

Since 2015, the Universal Smart Energy Framework (USEF) Foundation has set out to support the establishment of a commercially viable flexibility market. Since, above all, the creation of a large-scale flexibility market requires a broad



understanding of the problem and the possibilities of flexibility, USEF started working on the creation of a tool that could fuel societal discussion, shedding light on various interests and benefits.

Promoting a better understanding of the future energy system, *Balance of Power* is an interactive film, playing out the consequences of 25 key decisions for our future market design. This 'serious game' is intended to stimulate the necessary dialogue at many levels. *Balance of Power*'s primary target groups are policymakers, government officials and politicians dealing with the energy transition. The game aims to increase their understanding of the wider context when making market design choices.

Since its launch in November 2018, the game has been played by around 5,000 people around Europe – individually or in groups – and this number grows by the day. As a starting point for discussion it has been used in workshops for the European Commission, government bodies, energy companies and universities.

Young Energy Professional of the Year Award:

Maria McKavanagh, MD, Verv
Sponsored by Chrysaor

McKavanagh joined Verv in January 2016 as Chief Operating Officer. She worked closely with the CEO and founder of the company, Peter Davies, who strives to find forward-thinking solutions to tackle energy challenges.

When Davies devised the concept of peer-to-peer energy trading – following a trial which demonstrated just how much domestic solar was being sent back to the grid – he tasked McKavanagh with bringing this vision to life. She was subsequently appointed acting MD of R&D. The aim of Verv's platform was to improve access to affordable green

energy and incentivise the uptake of renewables.

McKavanagh headed up the team that set out to power a social housing community in London with sunshine. The target community was an estate in Hackney that had solar panels installed on 14 of the blocks of flats. The green energy generated by the solar panels was being used to power the community areas but could not benefit the residents directly. Using its energy trading platform, based on its smart hub that uses AI and blockchain technology, Verv looked to unlock the solar energy to help power residents' homes and bring down their energy bills.

The pilot has become renowned as a pioneering project representing the power of technology to change the energy landscape. McKavanagh speaks at events worldwide, from industry to parliamentary, to bring attention to the problems humanity is facing and the technological solutions at our fingertips.

Young Energy Professional of the Year – Highly Commended:

Shantell Richards, Energy Engineer, United Utilities, UK

Shantell Richards' current role as an energy engineer with United Utilities is focused on driving improvement in energy performance in terms of efficiency, generation and demand management. In the past three years, she has led the development and integration of a biomethane-to-grid facility into United Utilities' largest bioresources centre and led the first UK green gas certificate trading in Europe. This project required extensive work with regulators and non-government organisations.

Richards has also been pivotal in piloting and embedding the energy engineering position within United Utilities. In this engineering position, she leads the management of an energy cost of around £15mn per year and generation of £9mn per year. She is committed to delivering sustainable energy production solutions and stimulating markets for biomethane.

Finally, Richards has worked to engage a wide and complex stakeholder community to establish new markets for green gas, which is crucial in supporting future project deployment. ●