Learn What You Didn't Even Know You Didn't Know

Sometimes, the process of managing the energy can get overwhelming. There is so much to tackle when it comes to energy management, so much to learn to do it right and, frequently, not enough time to devote to really diving in. When you get in a situation where you feel that expanding your knowledge is the way forward, it can help to turn to some outside inspiration. Explore the EMA training courses and be inspired by energy management professionals who develop and deliver them, and by other participants sharing their ideas and experiences.

Fundamentals of Energy Management (2-day training course = 10 CPD hours)

This introductory course has been designed to provide a comprehensive and practical overview of the key energy management tasks with an emphasis on the energy management knowledge and skills that are required from an energy management professional. To understand energy management, it is important to recognise that it can differ across organisations. As the course unfolds the overview of regular energy management practices applied to manage and save energy, as well as to decrease energy related costs and emissions will be presented and discussed. The goal of the course is to leave a lasting impression about what energy management practices can be applied within businesses, what can be done to increase energy efficiency and what skills and knowledge are required to deliver these.

The course will help you to:

- Understand global view of energy consumption and its impact
- Define what energy management means for its practitioners and their organisations and /or clients
- Understand basic energy management practices
- Understand technical concepts of energy use
- Identify technical and non-technical responsibilities of energy management practitioners
- Understand basic monitoring and targeting principle
- Gain understanding of energy auditing
- Understand legislative compliance related to energy management
- Grasp waste and water management basics
- Gain energy procurement overview
- Understand relationship between all EMA Energy Management in Practice training courses

Energy Management in Building Services (2-day training course = 10 CPD hours)

Energy in buildings is consumed in a large variety of ways and on many different processes and types of equipment. This course is designed to introduce many of the most common energy consuming systems found in existing buildings and their operations. Some of the basic legislation that may apply in buildings such as Minimum Energy Efficiency Standard (MEES) is also covered during the course.

The course begins with describing the types of energy used in buildings and the basics of how they may be conditioned, including explaining power factor, how power factor correction works, 3 phase load balancing and voltage optimisation. It then continues with how electricity and gas is consumed in various types of equipment, discussing the main areas of energy consumption and the possible opportunities to change and reduce how energy may be consumed. The following areas are also covered during the course delivery: heating and cooling systems (including recovery of both), hot water systems, air handling and conditioning systems, lighting and their associated control systems as well as renewable and low carbon generation systems producing heat and power.

The course will help you to:

- Identify the types of energy used in buildings and how electricity may be conditioned
- Understand heating systems
- Understand cooling systems
- Understand domestic hot water
- Understand air handling and conditioning systems

- Understand lighting
- Review control systems for building equipment
- Understand renewable and low carbon generation systems producing heat and power such as solar and CHP
- Relate to how maintenance can impact energy management
- Identify and understand main applicable legislation such as MEES

SECR Compliance (1-day training course = 5 CPD hours)

Streamlined Energy & Carbon Reporting (SECR) extends reporting requirements to all large UK companies. This course aims to inform participants about the background and requirements of SECR, and give guidance on how to complete the process effectively within organisations.

The course examines the basis of the regulation, which companies need to comply, and the legal requirements. Material covered after the introduction helps participants to understand the processes needed to collect and report appropriate data, methodology, and the measures needed to be undertaken. Finally, the course guides participants on how to present the information to company decision-makers, auditors, and Companies House.

The course will help you to:

- Understand basic concepts contained within SECR
- Examine the scope of the regulations
- Identify data collection methods for energy, gas, and transport
- Understand the creation and use of intensity metrics
- Describe the stated methodology used
- Define and scope energy efficiency principal measures
- Compile the report for auditors, Board of Directors, and Companies House.

Monitoring, Targeting and Validation (1-day training course = 5 CPD hours)

This course introduces principles of monitoring, targeting and validating energy consumption. It is aimed at those needing an understanding of methods of gathering, using and interpreting data, as well as a range of available measurement technologies. The course is designed to give guidance on creating value and setting energy baselines and benchmarking, validating energy savings and ultimately using M&T to sustain energy savings.

The course will help you to:

- Define what monitoring, targeting and validating energy consumption mean
- Identify methods of gathering, using and interpreting data
- Understand a range of measurement technologies available
- Interpret data and create value
- Develop energy baselines and benchmarking
- Validate energy savings
- Use M&T to sustain energy savings.

Understanding and Delivering Behavioural Change Programme (1-day training course = 5 CPD hours)

This course provides participants with the knowledge of how to prepare and deliver a behavioural change programme, and more importantly an insight into the psychology of people and the way they behave which is essential in ensuring that any behavioural change programme is correctly structured and targeted in order to achieve a successful outcome.

The course will help you to:

- Understand why people behave the way they do, why people behave differently?
- Grasp the psychology of persuasion, just how are we going to change people's behaviours?
- Identify the potential audience for change, who's going to make the biggest impact? Who will be your key allies?
- Identify your different options for a behavioural change programme
- Prepare a business case using tangible and intangible elements
- Gain approval to your proposal
- Plan how to make it happen, the key elements of delivering the programme
- Make sure that you are able to measure the success and report effectively on this
- Identify what next steps you should always take to ensure a successful completion to the current programme and setting the foundations for future programmes

Energy Management Strategy and Plan (1-day training course = 5 CPD hours)

This course offers an overview of the key steps in developing an energy management strategy as part of organisational energy management practices. The key drivers and various approaches to setting the strategy are examined during the course. The aspects of an essential energy management strategy: scope, baseline, targets and resources, achieving the target, monitoring, targeting and control, behavioural change, efficiency, reporting and reviewing are also taken into consideration.

The course will help you to:

- Understand the key strategy drivers
- Review organisation's energy use and requirements for its improvement
- Identify how to gain a stakeholder commitment and build business case
- Set targets, identify opportunities for improvement and setting an action plan
- Plan the implementation of the opportunities, report on the outcomes and review the strategy

Waste Management (1-day training course = 4 CPD hours)

This course is designed as a comprehensive overview of waste management. It focuses on waste legislation in the UK, waste disposal and recycling options. The course provides participants with all the essential knowledge of mapping waste streams, undertaking waste auditing, identify improvement opportunities and setting SMART waste targets and KPIs, as well as measurement, monitoring and reporting techniques relevant to waste data. The course programme draws on established practices of organisational waste management and helps participants to develop more waste efficient practices.

The course will help you to:

- Understand the benefits of managing waste effectively
- Identify the key components of current waste legislation in the UK
- Understand what happens to waste when sent for disposal
- Formulate how to carry out a waste audit to help identify improvement opportunities
- Recognised how to set suitable waste targets that are SMART
- Measure, monitor and report waste data

Energy Procurement (1-day training course = 5 CPD hours)

This course guides participants through the essential procurement processes for electricity and gas in the UK. It describes how the electricity and gas industries are structured, and how this impacts on the prices customers pay. It explains the main drivers of energy pricing in the UK and how electricity and gas tariffs are structured. It also explains the types of energy contracts that are available and the simple procurement processes that can be used by energy buyers. The course also includes information about how third party intermediaries (TPI) work, how to get the best out of them, reveals how they get paid and how to minimise their cost.

The course will help you to:

- Describe the UK electricity and gas industry structures
- Understand what makes up delivered energy tariffs
- Identify what are the basic drivers of energy prices in the UK
- Understand the basic contract types available in the UK
- Formulate how to run a basic procurement exercise
- Understand what third party intermediaries do and how they get paid

Water Management (1-day training course = 5 CPD hours)

This course presents information about how the water industry is structured, how it works, how it prices its product and what businesses may be able to do to reduce cost. It also informs participants about the opening of the competitive retail market in England from 2017 and any developments since the opening.

The course describes how water is metered and monitored and how to analyse consumption. It gives participants advice on carrying out a basic water audit, identifying likely areas of consumption and techniques that may allow reductions in water consumed. It also explains the link between water and energy use and identifies some techniques for raising staff awareness to help behaviour change towards water consumption.

The course will help you to:

- Understand the UK water industry structures
- Understand what makes up a water bill
- Understand the opening of the English water market to retail competition
- Review water metering and monitoring systems
- Identify basic techniques on how to undertake a water audit and what can be done to reduce water consumption
- Relate water to energy consumption
- Identify techniques to change behaviour to reduce water consumption.

Lighting – Basic Understanding (1-day training course = 5 CPD hours)

This course provides an understanding of the lighting systems commonly found in the UK, their general uses and guidance on how organisations can become generally more energy efficient with respect to lighting. The course is also aimed at helping people to engage at a higher level with lighting suppliers who may be presenting them with information. This can quite often be complicated and misleading, and this course helps participants to understand what may be presented to them.

The course will help you to:

- Understand basic measurements for lighting output and efficacy to help participants gain knowledge and be able to engage with lighting companies/supplier
- Identify and understand the common types of lighting currently found in the UK, their general uses and basic, pros and cons
- Understand the basic process for new lighting installations and upgrades with pictorial examples
- Understand basics of lighting design using free software to help participants be able to understand what information lighting companies may present them with
- Identify basic lighting control systems that can increase energy efficiency while maintaining required light levels and safe environments

Essential HVAC Control and Optimisation (1-day training course = 5 CPD hours)

Heating, ventilation and air conditioning (HVAC) systems are an essential part of most modern buildings and can consume a large part of any energy used. This course aims to inform participants about the most widely used form of HVAC, their basic control and potential methods for optimising their operation for the least energy use while maintaining the comfort within buildings.

The course also covers:

- Basic operation and control of systems such as boilers, air handlers, fan coil units, chillers, pumping systems and air conditioning and relate them to energy consumption
- Potential control methodologies that can be used for optimisation such as speed, flow and differential temperature which can be used to optimise their use for lowest energy consumption while maintaining adequate temperatures and comfort levels. This also includes how many of these systems can be controlled via a BMS
- Implementation and correct use of variable speed drives across the range of HVAC systems
- The renewable versions of some of the HVAC equipment such as biomass boilers and heat pumps

The course will help you to:

- Understand the operation and energy use of the main types of HVAC
- Identify the standard control philosophies which tend to be used for the equipment
- Understand potential optimisation methods to reduce energy cost of HVAC and improve its performance
- Identify where to install variable speed drives on HVAC and optimise their use
- Control HVAC through systems such as a BMS
- Gain a basic understanding of biomass boiler use and heat pumps

BMS Essentials, Monitoring and Optimisation (1-day training course = 5 CPD hours)

The aim of the building management system (BMS) is to guarantee the safety of buildings operation, while also monitoring and optimising the use and efficiency of the building's electrical and mechanical equipment such as power system, lighting, and HVAC to assure efficiency. This course focuses on the essential aspects of BMS: what it is for, its suitability and integration, how to monitor its performance, how to optimise its functionality, how to build a business case for BMS.

The course will help you to:
- Understand what the BMS is and what it does
- Describe the below listed examples of the major subsystems controlled by the BMS and explain their integration:
  - HVAC
  - Central Fume Collection, Dust Collection System, Central Vacuum System, Heat blowers
  - Steam systems
  - Hot Water System and Central Heating
  - Chilled Water System
  - Sprinkles System
  - Electrical Monitoring System
- Identify how to make the most of your already installed system
- Apply structured approach to designing a strategy to drive all changes associated with BMS
- Draw connections between different types of stakeholders when integrating the system into the facility
- Construct a business case for BMS.

On-site Electricity Generation (1-day training course = 5 CPD hours)

On-site generation of electricity can be a good way of reducing grid consumption but the varying technologies, their suitability for implementation, income streams, ongoing costs and grid connection requirements can be complex and are different for every site. This course aims to inform participants about the main types of on-site generation and provide information on how to effectively deploy it and gain commercial benefit. It describes how the most common forms of on-site generation such as solar, wind and CHP can be specified, installed and operated, how to effectively size the generation, how they would connect within an existing site and the financial incentives and mechanisms available to each technology. The course also includes the process for applying for and obtaining permission from the local Distribution Network Operator (DNO) to connect any type of generation and to understand how to find out whether export provision may be available.

The course will help you to:
- Define the main technologies used for on-site electricity generation
- Identify the correct technology for deployment in a building
- Understand how to size the generation technology required
- Assess how and where to connect the generation technology
- Evaluate the financial incentives and returns available for each technology
- Recognise what may prevent on-site generation from being deployed
- Understand the process of dealing with DNOs to gain permission for generation and the possibility of exporting to the grid

Battery Storage for Business (1-day training course = 5 CPD hours)

Battery storage has been the subject of a substantial amount of publicity and market interest recently. This course provides a basic understanding of battery storage systems, the various battery technologies and their general use, how they can be deployed within buildings, charging and discharging methodologies, as well as looking at their limitations.

The course also looks at the financial incentives and electricity charge savings available, the energy contract type required to achieve savings and guide on how to evaluate the benefits of battery systems in businesses. The course equips participants with the basic knowledge, skills and tools to consider integrating battery storage systems into their organisations.

The course will help you to:
- Understand how battery storage systems work and can be integrated into buildings
- Be able to identify whether battery storage is suitable for your use and would be allowed
- Be able to perform a risk and mitigation analysis
- Be able to review your electrical system, usage, charging and discharging cycles, current energy contract and define your objectives and targets
- Be able to use tools to review the cost modelling for battery storage and establish what variables may affect viability at your sites

Turning Data into Energy Savings (1-day training course = 5 CPD hours)

This course gives participants an opportunity to learn how to maximise the savings that can be achieved from the effective use of energy data. Using real examples this course is designed to help participants to establish their data requirements and the different ways to deliver real measurable savings.

The course also covers:

- Sources of data
- What is data commonly used for, what else could it be used for
- How will you use your data within your organisation
- What do you really need:
  - . Displays
  - . Dashboards
  - . Reports
  - . Alerts
- Scoping data requirements
- The types & uses of metering devices
- Types of data analysis and performance indicators
- Identifying the opportunity
- Delivering the opportunity
- Real life examples

The course will help you to:

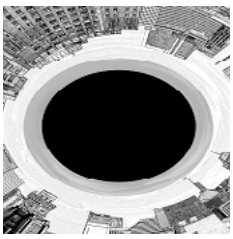
- ✔ Make the best use of your existing data, turning it into deliverable savings
- ✔ Assess what additional data will genuinely help in achieving better results and how would you go about delivering this

Energy Auditing Techniques (1-day training course = 5 CPD hours)

Energy auditing is a relatively specialist skill but one that can identify and produce major savings in energy use and cost. While energy audits will always be specific to each building, this course provides the basic techniques and the key elements to look out for during an audit. The course describes the basic techniques of energy auditing, from initial data analysis through to the on-site process or equipment identification and operational review. It explains the main types of opportunities that are likely to be identified, the types of equipment that can be replaced or upgraded and will discuss the control of energy consuming process and equipment where much of the savings can be made. The course also covers the basic outcomes of an audit in relation to reporting and calculation of savings and return on investments.

The course will help you to:

- ✔ Understand the basic process for energy auditing
- ✔ Prepare and conduct an energy audit
- ✔ Scope and interpret site data before an audit commences
- ✔ Grasp auditing techniques that will be addressed for the systems below, but they can be applied to most energy consuming items:
  - Heating systems
  - Cooling systems
  - Pumping systems
  - Air handling systems
  - Lighting
  - Compressed air
- ✔ Identify appropriate control systems
- ✔ Gain understanding of basic reporting techniques
- ✔ Undertake basic calculation of savings and return on investment



Regulatory and Legal Compliance and Carbon Management (1-day training course = 5 CPD hours)

This course is designed to provide overview of energy management and environmental regulatory landscape, explain any upcoming regulatory changes and help energy and environmental managers to fit them into their organisation's plans and strategy.

The course will help you to:

- ✔ Identify the key EU directives and UK legislation relevant to energy management and climate change
- ✔ Understand key economic incentives
- ✔ Interpret impact of legislation on company operations
- ✔ Identify sources of up-to-date and accurate information
- ✔ Define the difference in boundaries of simple carbon footprints.

For more information about the EMA training courses, up-to-date schedule, fees and in-house delivery, please contact jana.skodlova@theema.org.uk, visit www.theema.org.uk or call +44 (0) 203 1762834. You can also talk to Jana on the EMA stand in the EMA Networking Area on 27-28 November 2019 at EMEX.