Best Practices for Lifelong Learning

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From the review of the practices identified, it was established that overall, the initiatives in lifelong learning programs focusing on energy digitalization are commendable steps towards upskilling the workforce. These programs have the potential to equip individuals with the necessary skills and knowledge to stay relevant in the rapidly changing energy sector. However, it can easily be demonstrated that digital tools, apart from the online provision of the courses, were not incorporated in the practices, which renders the necessity of the EDDIE results still valid and up to date.

Best Practice	Organization	Objectives	Practice
Predictive Maintenance	Maintenance Manager HQ	Provide training in maintenance management, including predictive maintenance	1. Effective utilization of digital tools and solutions, including artificial intelligence and machine learning 2. Building and maintaining strong links with industry/research stakeholders, including a large global network 3. Providing on-the-job training and practical skills, including real-world case studies and hands-on mentorship
Professional Certificate of Competency in Smart Grids Industrial Automation	Engineering Institute of Technology (EIT)	Introduce engineers to the principles of smart grids in power system application under various network conditions	1. Comprehensive coverage of the smart grid infrastructure and its associated technologies 2. In-depth coverage of various digital tools such as process control, instrumentation, control valves, process plant layout, piping design, SCADA 3. Practical assignments that allow students to gain skills in interpreting simulation results
Digitalisation and smart technologies for the power sector	Renewables Academy AG (RENAC)	Contribute to decarbonisation while maintaining a high level of digital solutions	1. Comprehensive coverage of relevant digital technologies 2. Strong links with industry and research stakeholders

			3. On-the-job training and practical skills
The Energy Training Centre	Energy Training Centre	Provide training for clients who are undertaking a transition in the energy sector	1. Relevant and up-to-date training content that addresses the needs of both conventional and renewable energy professionals 2. Partnerships with world-renowned institutions from various sectors such as oil & gas, electricity, utilities, power, and energy 3. Emphasis on on-the-job training and practical skills
Siemens Xcelerator Academy	Siemens	Provide specific trainings that enables companies to secure value realization from the investment in digital transformation	1. Provides a comprehensive and modular digital platform for energy transition software and tools 2. Covers various topics related to digitalization and energy, including IoT, simulation, optimization, and manufacturing 3. Provides on-demand training, instructor-led training, certification, and customized learning programs that use digital tools and solutions
Energy Academy	DNV	Provide a wide range of courses for the electricity supply chain	1. Relevance to digitalisation and energy, covering topics such as cybersecurity, IoT, data management, and remote energy meter interrogation 2. Customized in-house training, which can be delivered using digital tools and solutions 3. On-the-job training and practical skills
Intelligent and Integrated Energy Systems	EdX platform	Enable professionals to deploy intelligent technology, strategy and business models to adapt to significant	1. Focuses on how to digitalize the conventional grid using AI, machine learning, blockchain, and computer simulations 2. Equips professionals with the knowledge and

		changes in the energy field	skills to deploy intelligent technology, strategy, and business models to adapt to significant changes in the energy field 3. Provides practical knowledge and skills that professionals can apply to the transition of existing highly reliable energy eco-systems
Digital Transformation in Energy and Utilities Certification Course	International Institute of Executive Careers (IIEC)	Focus on the Utilities Industry and support the digitalization of conventional power generators	1. The course content covers various aspects of digitalization 2. Links with Industry/Research Stakeholders, providing participants with access to cutting-edge research and industry best practices 3. Relevant to the energy industry, providing participants with a comprehensive understanding of digital transformation in energy and utilities

Good Examples for Lifelong Learning

Program Name	Organizer	Objectives	Topics	Target
European Energy Manager-EUREMnext	Chamber of Commerce (CCI) Nuremberg	Train and certify energy managers, while creating a network of certified professionals worldwide	Reskilling of the workforce in the field of renewable energy sources Provision of training in alignment with the needs of the sector	Professionals in the energy sector
ingREeS - Scheme for Middle and Senior Level Construction Professionals on Energy Efficiency and Use of Renewable Energy Sources in Buildings	Build Up Skills Pillar I project	Analysis of the construction industry's knowledge about energy efficiency and using renewable energy sources in buildings. Revision of the skills that were lacking and what needed to be done to deliver these skills to construction professionals	Development of qualification standards Development of certification mechanism Upskilling of the workforce	Middle and senior level construction professionals

Fit-to-nZEB-Innovative training schemes for retrofitting to nZEB-levels	4.2.3. Fit-to-nZEB project	Develop large scale training schemes and programmes on deep energy renovation	Capacity building of trainers Improvement of training provision in the deep energy sector	Trainers in the field of deep energy
QualitEE-Quality certification frameworks for Energy Efficiency services to scale up responsible investment in the building sector	QualitEE-project	Develop tools for quality assessment, financial assessment, and procurement	Establishment of mechanisms to implement quality assurance schemes for energy efficiency services Establishment of cooperation structures among the different stakeholders in the energy efficiency sector	Companies that undertake energy efficiency services projects
ENERGISE-European Network for Research, Good Practice and Innovation for Sustainable Energy	ENERGISE project	Develop a social science programme to enhance understanding of changes in energy consumption in the households	Establishment of mechanisms to mainstream energy consumption Fostering individual and community initiatives to achieve energy efficiency	The general public
eTEACHER-end-users Tools to Empower and raise Awareness of Behavioural CHange towards EneRgy efficiency	eTEACHER project	Encourage and enable energy behaviour change of building users by means of continuous interventions displayed through a set of empowerment tools to drive informed decisions in order to save energy and optimise indoor environment quality	Digital tools for energy behavioural change Fostering individual and community initiatives to achieve energy efficiency	Schools, office buildings, healthcare centres and residential buildings
Digital Energy and Optimization	GLOMACS	Prepare professionals for the digital world and Industry 4.0	Upskilling of workforce related to energy digitalization	Professionals and companies in the energy sector