



PARTNERSHIP AGREEMENT

“PACT FOR SKILLS ON THE DIGITALISATION OF THE ENERGY SYSTEM”

(December 05th, 2023)

1. Challenge

The Energy Sector in Europe is on the course towards an unprecedented transformation. As in all other areas of our world, with trends and forces globally linked, the Energy Sector is constantly changing and subject to unpredictable events, such as perturbations in European energy marked triggered by the unprovoked invasion of Ukraine by Russia.

Besides that, Europe is at the forefront of decarbonisation as a principal contributor to the fight against climate change. The European Green Deal [1], the “Fit for 55” targets [2], and the REPowerEU plan [3], the last one being a response to the energy crisis exacerbated by the invasion of Ukraine, confirm the resolve to proceed with a rapid clean energy transition in Europe.

In parallel, the digitalisation of our society is set on its course, and all economic sectors are being impacted in one way or another. In most cases, digitalisation represents a leverage for efficiency improvements and, in the particular case of the Energy Sector, it could become a clear opportunity to speed up its transition in the right way. For example, the integration of renewables and demand-response through flexibility will be faster and more resilient with the appropriate digitalisation of networks.

The Digital Decade Policy Program 2030 [4] sets up a monitoring and cooperation mechanism to achieve common objectives and targets for Europe’s digital transformation in all areas of the European society. Of course, the Energy Sector is explicitly mentioned. The Digital Decade Policy Program 2030 is based on the Digital Compass [5], which was issued upon realising “that COVID-19 pandemic has radically changed the role and perception of digitalisation in our societies and economies, and accelerated its pace”. One of its main pillars is “a digitally skilled population and highly skilled digital professionals”.

As it is detailed in section 2 of this document (Strategic view) the EC has established an Action Plan for the digitalisation of the energy system which is fully relevant for the purpose of this Agreement. Focusing on education, the EC has established the Digital Education Action Plan [6], where it is recognised that “the use of the digital technologies is also crucial for the achievement of the European Green Deal objectives” and where the objective of “equipping Europe’s workers and job seekers with digital skills” plays a key role.

Quite recently the EC has published the Green Deal Industrial Plan [15], to address the opportunity that the green transition will represent for the European industry. One of its four pillars is enhancing *skills-focused in green and digital at all levels and for all people, with inclusiveness of women and youth at the heart of the Plan*". The Plan states that the Commission proposes to put forward a Net-Zero Industry Act: the proposal was adopted in March 2023 and contains a Chapter V entitled "*Enhancing skills for quality job creation in net-zero technologies*". The Commission proposes to the launch of specialised **Net-Zero Industry Academies** for key net-zero technology sectors (such as hydrogen, raw materials and solar) to design and roll out learning content for the up and reskilling of the workforce required for the net-zero technology value chains. The learning content should be developed and deployed together with education and training providers in Member States, to ensure full respect for their competence in the area of education and training. Mobility of workers and transparency of skills acquired will be ensured by the development of learning credentials. These actions build on the results of the EU Pact for Skills and other existing EU initiatives, such as the Blueprints for sectoral cooperation on skills and the EU Industrial Alliances.

Based on these three major areas of our framework (1) Energy, (2) Digitalisation, and (3) Education, our challenge can be well stated as follows:

How to better contribute to education for the required digitalisation of the Energy Sector?

Responses to this question are provided in details in the rest of the document. However, they can be summarized as follows, in terms of the main commitments of the members of the proposed Partnership:

"Structured networking and knowledge-sharing, especially between training providers and Energy-Sector companies, as well as related Digital Technologies companies on the following topics:

- Present and future digital skills required by employees.
- Design, implementation, and dissemination of specialised training programmes.
- Career opportunities, attracting talent to the Sector, not only to the industry but also to R&I centers as well as education and training providers

2. Strategic view.

Recently published in October 2022, the EU action plan "Digitalising the energy system" [7] confirms the need for a skilled workforce to accelerate the digital transition "*minimising the risk that the new data-driven services and innovative technology solutions would not be implemented fast enough if there are not enough skilled workers and trained professionals to help deploy them*". In this regard, action 4.4 of the Plan is adopted to support the establishment of a Large-Partnership on the digitalisation of the energy value chain as part of the EU's Pact for Skills, announced in 2020 [8]

Firmly anchored in the principles of the European Pillar of Social Rights and supporting the goals of the Green Deal and the digital transformation, the Pact for Skills aims to mobilise and incentivise private and public stakeholders to take concrete action for the upskilling and reskilling of people at working age, and, when relevant, pool efforts in the partnerships. As a matter of fact, this Pact for Skills is one of the initiatives fully supporting the many events and activities going on during this 2023 European Year of Skills.

In 2019, using its ERASMUS+ program, the EC addressed the opportunity of setting up a Sector Skills Alliance, through the appropriate call for projects, in the area of Digitalisation of the Energy Sector. In 2020, the project EDDIE [9] was kicked off with the support of the funding offered in the call, with the main objective of establishing a strategy, or blueprint, to address the challenge of education for the Energy Sector under its transition and digitalisation.

During the first three years of the project, EDDIE has confronted the demand for skills from the industry with the offers from education and training institutions (from VET to University, including informal learning), learning how to detect skill gaps. EDDIE has also analysed in detail the education and training systems of five European countries, complementing it with the consideration of the surveys done by European education systems like CEDEFOP on all European countries, and designed and implemented a database to support a strategic map of stakeholders. The sectorial skills strategy and a possible implementation roadmap have been designed, in parallel with these activities

The fourth and last year of the project addresses the deployment of several demos and pilots and the establishment of an association (the EDDIE Entity – thereafter “the Association”) which will ensure the continuity of the project’s activities in the future, beyond the end of the project.

Therefore, the synergies between, on one side, the actions decided by the EC in the Action Plan [7] to establish the aforementioned partnership and, on the other side, the strategy decided for the EDDIE Project, presents a clear opportunity to define a common strategic target:

The creation of a Large-Partnership on skills for the digitalisation of the Energy System (henceforth the Partnership), with the vision of contributing to the digital skills required by the European Energy Sector during its transition, building on the results and strategy of EDDIE, its database, and platform and keeping the EDDIE association as the responsible coordinator, as it is detailed in section 5 of this document.

Within the Partnership, all types of activities related to education and skills of the digitalisation of the energy value chain may be performed, based on the commitments pledged by specific partners upon adhesion to the Partnership.

To successfully implement this strategy, it is absolutely necessary to cooperate with other related initiatives and/or groups, such as, but not limited to, the following ones;;

- Large Partnership for renewable energy. The Partnership on Digitalisation of the Energy System should explore the possibility to cooperate with it on common issues, in accordance with the Pact for skills [8]

- The Large Scale Partnership for the digital ecosystem. The Partnership on Digitalisation of the Energy System should explore the possibility to cooperate with it on common issues and involve digital stakeholders that could take an interest.
- Heat Pumps skills Partnership, exploring the possibility to cooperate with it on common issues.
- The European Digital Innovation Hubs (EDIHS), regionally oriented and acting as one-stop shops supporting companies to respond to digital challenges and become more competitive. EDIHS are well organised within the Digital Europe Strategy [10], funded through their program [11] and properly catalogued [12] so as to focus on the ones that are related to the Energy Sector that will be part of the upcoming GEDI-EU Platform¹.
- ETIP-SNET (European Technology Integrated Platform on Smart Networks for Energy Transition) [13], as a main advisory industrial body for the Research and Innovation in Energy. This cooperation is considered absolutely necessary and crucial as it will ensure the industrial view (operators and technology vendors) to the skills gaps detection and coverage.
- EIT (European Institute of Innovation and Technology) InnoEnergy and its large ecosystem, operating at the centre of the energy transition and building connections worldwide, bringing together innovators and industry, entrepreneurs, graduates, and employers [14]

The activities of the Partnership will exploit synergies with actions under the New European Innovation Agenda, which include a flagship action on fostering, attracting, and retaining deep tech talents, including in the sustainable energy sector, and targets 1 million deep tech talents over a 3-year period across all Member States.

3. Skills needed for the Digitalisation of the Energy System in its transition

The digitalisation of the energy system requires rapid transitions from the present level of knowledge to a more future-oriented one, and from some types of occupations to other ones, increasing the need to continuously upskill and reskill. The skills needed for the digital transformation must be offered by education and training providers, to equip young professionals with the necessary skills and competencies, but also up-skill and re-skill the current workforce, to adapt to the new environment.

To keep up with the changing environment, the EDDIE project developed a multidimensional methodology to address skill mismatches between industry and education/training providers. An industry-driven approach is applied, where the skills emerge as a need driven by the practical application, through consultation with the industry in the Energy Sector. During this process, several channels were used to gather feedback, by designing and deploying surveys

¹ The 'Gathering Energy and Digital Innovators from across the EU' (GEDI-EU) platform will gather: on the one hand, the **European Digital Innovation Hubs (EDIHS)** and the **Artificial Intelligence Testing and Experimentation Facilities (AI TEFs)** that focus on energy; on the other hand, the EU network of innovators and research institutions in the energy sector set up under the **Strategic Energy Technology Plan (SET Plan)** for increased interaction among these players.

to reference stakeholders in industry and education, personalised interviews, and reviews of relevant curricula across Europe. Based on industry survey, the highest expertise needs are observed in engineers' and researchers' occupations, with technicians and specialists following in the expertise demand. Apart from the technical skills that will play an important role in the digital transformation of the Energy Sector, the interdisciplinary transversal, green and business skills will also be crucial. The analyses showed a discrepancy between the demand for skills by the industry and the skills offered by education and training providers. It was found by different analyses performed in the EDDIE project, **that the main skill gaps are found in data management and analysis, big data, cybersecurity, and programming & development competencies [16].**

The current education and training systems in Europe still need to improve their ability to provide good employability to graduate students and vocational learners in relation to the knowledge and skills demanded by the ongoing transformation of the Energy Sector. Alignment of academia and vocational education and training (VET) providers with the labour market is needed to teach students both theoretical and practical, hands-on skills directly applicable to the work environment. To this end, significant effort is already being made by some universities and VET providers, and European initiatives. Areas such as smart grids, information & communication technology, and innovative methods of simulation & analysis (e.g., machine learning, artificial intelligence, big data analytics) appear to be growing in several academic and VET programmes throughout Europe.

Given the important contribution of an organisation's human capital to its business success, aligning training and competence development with business needs has become a key challenge. Thus, in the last 10 years, many companies have created corporate universities, to face this challenge which normally cover all levels of education from vocational levels up to higher levels, covering both initial and continuing training. Corporate universities are put in place when companies see the education of their employees as a strategic instrument to create competitiveness and support overall corporate strategy and culture. They generally form dedicated units acting as partners with senior leadership to develop strategic skills and capabilities.

Online training platforms are another useful source of education and training, as is evidenced by the increasing interest in online courses in the last few years, and they have been further promoted by the social effects of the Covid-19 pandemic.

Considering occupations, data handling abilities are emerging as the amount of information collected is increasing. A mandatory word which should go hand in hand with data handling is 'cybersecurity' for creating a safe and sustainable Energy Sector as well as a common ground based on trust between industrial companies and consumers. Therefore, more skills covering all facets of cybersecurity must be made available in the labour market. Moreover, as energy systems become more complex and digitalized, occupations related to IoT engineering, optimization, machine learning, and cloud computing are emerging rapidly.

Although important steps have been taken, there is still significant work needed to align the industrial needs with the education/training supply in the digitalisation of the Energy Sector. The mitigation of these mismatches is a process that requires time and commitment from

different stakeholders in the energy value chain. The EDDIE project provided a methodology to identify the gaps and bring together stakeholders that can lead the process of adapting education and training. The Partnership will take over the effort to continuously anticipate and tackle the emerging needs and keep education and training adapted to the labour market's needs, taking always into account the efficient introduction of the digital capabilities, in terms of human resources and equipment.

A big effort in categorization and quantifying skills needs should be done. And this effort has to be continued so as to address adequately its coverage in the sector, as a recent note prepared by JRC is addressing. The Partnership has a clear opportunity to cover also this action [17]

4. Partnership's commitments and Key Performance Indicators

The large scale partnership on education for digitalisation of the energy system has committed to promote collaborative actions to support the education to meet the demand for skills needed for the sustainable growth for the European Energy sector affected by its transition and digitalization. For all of them, its evolution along the time will be tracked so as to allow

Key indicators:

- **Coverage of the Partnership: number of organisations involved in the partnership/ number of countries and regions represented in the Partnership.**
- **Communication, dissemination and policy recommendation activities:**
 - **Number of events promoting the Partnership and other initiatives within the partnership carried out under the framework of the Pact for Skills and other relevant events and beyond (e.g. communication on skills needs and gaps, the overall knowledge and understanding of the digitalisation of energy, case studies, success stories, best practices in the energy value chain, etc.)**
 - **Number of social media posts and website posts promoting the relevant events and other initiatives.**
 - **Reach of those social media posts (number of views/likes depending on the platform)**
- **Assessments on skills intelligence in the sector. Number of surveys circulated within the Partnership to identify skills gaps and needs in the sector.**
- **Commitment on training programmes**
 - **Number of training actions posted on the platform (upskilling and reskilling)**
 - **Number of participants engaged (considering the levels of training, gender, age, geographical balance).**
- **Promoting careers in the energy value chain (using the EDDIE data base platform as the tool to track on this indicators).**
 - **Number of job opportunities promoted and posted on the platform within the Partnership**
 - **Number of applications submitted through the platform**
 - **Number of job offers matched with the right candidate through the platform.**

5. Arrangements for coordinating the partnership.

The operation of the Partnership has to be dynamic, in the sense that it should allow many interested parties to join in the most open possible way. The activities require some degree of organisation which implies time and resources from the partners. A database or digital platform is needed to operate efficiently, especially when the goal is to reach a large number of partners.

The requisite, for a company or institution legally established in the EU, EEA and candidate countries to join the Partnership, would be to sign the agreement and commit to specific objectives adapted to its situation, in accordance with the strategy of the Partnership. As prerequisite to this signature, the company or institution should adhere to the EU act for Skills.

A minimum critical number of committing partners need to have joined the Partnership before launching. The members of the EDDIE project, as well as the members of its International Advisory Board, could make up to that critical number.

After its official launch, the Partnership will monitor the compliance with members' commitment, as well as the evolution of the KPIs, acting in very close contact with the EC units responsible for the Pact for Skills and keeping the appropriate level of communication and relationship with other initiatives and groups listed in Section 2 of this document.

As mentioned in section 2, the Association (EDDIE Entity) envisioned in the EDDIE project, as the practical way to ensure the continuity of the EDDIE project's activities (keeping its strategy for activities like detecting digital skills education and training gaps, detecting and disseminating best training practices, etc.) could become instrumental to manage and coordinate the Partnership. It will provide the necessary structure and platform (EDDIE database) to perform the intended activities. It is conceived as a non-profit type of association in Brussels, with a minimum organisational staff to run the structure in charge of the Partnership operations.

Members of the Association (EDDIE Entity) will provide resources, mainly volunteer work and annual fees required to ensure the operations. These fees should not be used for activities that are already covered and provided for by the Pact for Skills Support Services. The main motivation of the members should be their interest in having a prominent role in contributing to the development of digital skills needed in the Energy Sector.

Members of the Partnership do not necessarily have to become members of the Association with obligation to pay fees (they can become associated members) but conversely, members of the Association should be members of the Partnership.

Finally, all the advantages that come with the status of legal entity will be brought to the Partnership by the Association. These include setting agreements, getting access to funding opportunities, being responsible for the data, and managing the database itself.

The governance of the Partnership will be done by the Association in such a way that this Agreement and its following revisions must become mandatory and of committed compliance to the governing bodies of the Association.

References

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- [4] COM (2021)574. Establishing the 2030 Policy Programme “Path to the Digital Decade”
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- [8] pact-for-skills.ec.europa.eu
- [9] <https://www.eddie-erasmus.eu>
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- [13] <http://www.etip-snet.eu>
- [14] <http://www.innoenergy.com>
- [15] COM (2023)62 “A Green Deal Industrial Plan for Net-Zero Age”
- [16] EDDIE deliverable D2.2 Current and future skills needs in the Energy Sector v2.0
- [17] Input to Partnership Agreement “Pact for skills on the Digitalisation of the Energy System” Unit JRC.C7