

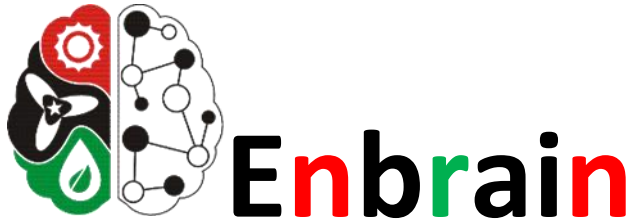
Despite the pressing need to tackle the energy challenge, the world is still stuck in taking a resolute action. Today, we are contributing to medium-term natural changes with a deadly cocktail of greenhouse effect and plundering of ecosystems. On the other hand, access to energy is imperative to eradicate global poverty.

It is needed to promote education in the energy field capable to grasp the energy question as a pillar of the sustainability challenge. Our knowledge is compartmentalized, fragmentary and disjointed while reality and challenges are global, complex, multi-dimensional and planetary. Innovative solutions and strategies to match the economic growth with the multidimensional targets of sustainability need to be developed. In this scenario, educational institutions, acting within their surroundings, become a fundamental player to create and empower new professional and future generations able to cope and implement the new paradigms.

Africa is a crucial player to tackle the world energy challenge since major global energy, climate and sustainable goals depend strongly on the future of this region. Energy demand in Africa is expected to rise from 897 to 1322 Mtoe in the period from 2012 to 2040 according to the International Energy Agency 2014 as a result of economic and population growth. Although African greenhouse gas emissions could share around 5% of global emissions at 2040, major impacts from climate change could affect this vulnerable region with extreme weather events (IPCC 2014) and major socio-economic disruptions (EC 2015). Finally, the achievement of 2030 Sustainable Development goals (UN 2016) will depend on how the access to affordable, reliable, sustainable and modern energy will be provided in Africa.

Beyond these challenges, energy can be a game changer to promote sustainable development in Africa. In particular, Northern Africa has a key role because of its overlooking position on Europe, its historical tradition in the energy field (i.e. in the oil and gas sector) and the huge potential in renewable energy sources.

Libya has the largest proven oil reserves in Africa as well as a huge potential for renewable energy. It receives a strong solar radiation with an average of 2200 kWh/m<sup>2</sup> and 3500 hours of solar brightness per year. The potential for wind energy is high too. Morocco, Egypt and Tunisia have taken significant steps towards the exploitation of wind power (Global Wind Energy Council 2015) with a total installed capacity at 2015 slightly less 2 GW. However, Libya is not even among the list of the countries that are using wind power. The country still depends on fossil fuels to meet increasing energy demands. Above all, the current conflict and its reflection on the energy scene have led to the unavoidable conclusion of promoting renewable energy and energy efficiency actions. However, so far there has been no assessment of renewable energy supply options in Libya. Barriers facing energy efficiency and renewable energy include economic, institutional, legal, regulatory and financial impediments. Furthermore, there remains an insufficient enabling environment to support the energy efficiency and renewable energy markets—lack of awareness, low capacity, no standardized contracts and protocols, underdeveloped financing modalities.



In line with the 2030 Agenda for Sustainable Development and its focus on people, the cross-cutting role of human capital becomes crucial to achieve a transformative change in energy – one that is efficient, effective, equitable, empowering, and long lasting.

## **Project Idea and activities**

The overall objective of this proposal is to fill this gap through the design and development of an innovative educational platform based on new courses, e-learning methods and digital tools that may promote a systemic multi-dimensional vision of the global energy challenge. This quality shift is able to capture the disrupting changes of future energy transitions that deals with the growing use of renewable energy sources and access to modern energy services in Africa.

### **General aims of the project are to:**

- 1) Raise awareness about the importance of a multi-dimensional approach to the global energy challenge.
- 2) Enforce the role of Libya universities to promote energy transition within the multidimensional targets of sustainability.
- 3) Create a new class of thinkers able to cope with global energy challenges, envisage future targets for local community, support institutions in decision-making, engage citizens in sustainable practices;

### **Specific achievements of the projects are to:**

- 1) Design of a Master in Renewable and Sustainable Energy with a multi-level approach to capacity building;
- 2) Pilot start-up multi-disciplinary seed-courses and curricula about Renewable and Sustainable Energy, using digital tools and with a linkage to the international community and the needs of the job market;
- 3) Create an open platform to engage citizens in renewable and sustainable energy via the creation of a MOOC for citizens.