Co-funded by the Erasmus+ Programme of the European Union

Engineering curricula modernization in renewable energy in Albanian Universities

ENGINE

Project reference No. 619338-EPP-1-2020-1-AL-EPPKA2-CBHE-JP

(Deliverable 1.2)

Questionnaire and competence matrix report

Co-funded by the Erasmus+ Programme of the European Union

This document is produced in the framework of the Erasmus+ Capacity Building in Higher Education Project: Ref. No. 619338-EPP-1-2020-1-AL-EPPKA2-CBHE-JP ENGINE – "Engineering curricula modernization in renewable energy in Albanian Universities".

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Work Package snapshot

Project Acronym:	ENGINE
Project full title:	Engineering curricula modernization in renewable energy in Albanian Universities
Project No:	619338-EPP-1-2020-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	UPT
Work Package:	WP1 – Development
WP Leader:	KHAS and UAMD
Task:	"Development of questionnaires and interviews with relevant stakeholders and creation of the competence matrix"
Task Leader:	KHAS and UAMD

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Abbreviations

UET	European University of Tirana
UPT/PUT	Polytechnic University of Tirana
UAMD	University “Aleksander Moisiu” of Durres
OSHEE	Electricity Distributor Operator
KHAS	Kadir Has University
KPT	Professional College of Tirana
ERE	Energy Regulator Entity
EU	European Union
RE	Renewable Energy
HEI	Higher Education Institution

1. WORK PACKAGE OVERVIEW

1. Introduction

This document is produced in the framework of the Erasmus+ Capacity Building in Higher Education Project: Ref. No. 619338-EPP-1-2020-1-AL-EPPKA2-CBHE-JP ENGINE – "Engineering curricula modernization in renewable energy in Albanian Universities". The project consortium is led by Polytechnic University of Tirana (PUT/UPT) which consortium brings together 11 partners. The project aim is the modernization and internationalization of VET and Bachelor curricula in Engineering for Renewable Energies in the targeted universities in Albania through innovation of curricula in line with the new development in the area and the labor market demand.

The use of renewable energy sources and the improvement of energy efficiency ensures a sustainable economy based on the conditions of scientific development. More specifically this document is a report of the work performed from 4 Albanian HEI-s, prepared under the umbrella of WP1 "Preparation" for deliverable 1.2. It presents a summary of deliverable 1.2 Development of questionnaire and interviews with relevant stakeholders and creation of the competence matrix.

2. Summary

In the frame of the Erasmus + CBHE Engine project, under WP1 "Preparation", since, *inter alia,* the overall aim of the WP is to assess the current market needs in Albania in the field of energy and assess current academic offer at each partner HEI, the Partner HEIs were willing to improve their academic offer to the Albanian electricity and energy sector and related fields / sector, each Albanian HEIs namely, PUT, UAMD, UET and KPT endured interviews with

stakeholders and questionnaires. Initially an in-depth desk research took place based on the provisions of the related Work Package.

The in-depth interviews have been carried out mostly in person and in some cases remotely using Skype / Teams etc. The respondents to the interviews were: policymakers, representative of governmental organization, local municipalities, businesses companies, power sector companies' private ones, or join stock companies with 100% capital owned by state as well as companies which operate under legal status of public private partnership in the field of power sector especially for renewable generation capacities. Interviews have been carried out also with education Institutions, academics and experts.

The findings obtained from questionnaires / interviews provided the necessary input for the creation of the competence matrix, that followed afterwards, as an important corner stone in the creation and /or update of the academic offer of the Albanian HEI-s, as the case might be in HEI-s, orienting them toward students and market needs and demands.

Thus, a competence matrix was prepared from and for each HEI in this regard.

A detailed analysis of the developed interviews and questionnaires and their related findings and conclusions in each HEI is presented in separate section below in this document for a comprehensive reading.

3. Conclusions:

In a nutshell, despite peculiarities each HEI has, the findings emphasized that higher education /university curricula and in capacity building in the renewable energy field have room for improvement. It is noted that business, energy sector and academia should create a stronger bond together to build the experts of the future. The future of energy is seen in renewable

energy and energy efficiency, which are considered as very important in cost reduction, environment protection etc.

2. Development of questionnaire and interviews with relevant stakeholders and creation of the competence matrix in PUT/ Survey related to ENGINE Project in PUT in focus of development and improvement of teaching curriculas

1. Indicators and data analysis

Analysing labour market data and specifically labour power market described in Section 1.1 is important for the scope of our Project in order to identify and understand issues that affects our decisions in respect of updating the curriculas in accordance with power sector challenges and main Energy Strategy objectives.

Institute of Statistic in Albania provide a wide range of data in respect of labour market, education, etc through the surveys and natioanl census, but such data are very general and limited for the scope of the Project.

A clear and realistic picture of the labour market in the reformed electrical power system at one point, or over the last decade will serve as strong base in the proccess of improving the teaching curricula. To that extent a dedicated Questionnaire was prepared and distributed to the main actors and stakeholders of Albanian Power System which are the main sources of our data gathering.

1. Methodology - Gathering and analysing labour market data

The purpose of the Questionnaire is to serve to the statistical data elaboration and indicators for all graduated students holding a diploma in the Electrical Engineering mainly supported by the Power System Department of Faculty of Electrical Engineering.

2. Choosing indicators for the data collection

Once we have identified what we want to know, the next step is to choose the indicators that will make it possible to measure it. To get a good picture of what is going on in the power sector labour market, it is important to analyze together all chosen indicators.

According to *"A guide for workers 'organization"* published by International Labor Office Geneva (ILO) 2015 depending on the purpose of the survey, the indicators to measure the necessity of the labor market in the supply side can be classified and grouped in different ways.

The employment data have been classified based on the year of graduation usually of students holding a Professional or Scientific Master Diploma in Electrical Engineering – Energetics, by asking them ***"GRADUATED YEAR"***. All interviewers have had the possibility to be identified or to be anonymous.

The concept of employment of graduated students in the electrical engineering- energetic is broken down into sub-groups to capture the range of their employment situations in the Power Sector in Albania. Following *"A guide for workers 'organization"*, there are two main ways to break it down:

• by sector and type of economic activity

• by type of work or conditions of employment.

3. Sector and economic activity

When breaking down employment data on this basis, we have used one of these classification methods:

- The International Standard Industrial Classification of All Economic Activities, Rev.4
- The employer's status (public or private)
- The productive organization mode (formal or informal)

The Questionnaire include questions in respect of the employer's status in power sector (public or privat), i.e companies with 100% capital owned by state such as Transmission System Operator, Distribution System Operator, Albanian Power Corporation, private companies that operate in the generation sector where are included private hydropower plants or concessions Hydro power plants, private companies that operate in the field of inspection and verification of metering system, education institutions, traders, Regulatory Body for Energy, etc . Contact details of the Employers are also included in the Questionnaires by asking ***"DETAILED CONTACT OF THE EMPLOYER/COMPANY".***

4. Type of work or status in employment

When breaking down employment data on this basis, we have used one of these classification methods:

- The International Standard Classification of Occupations (ISCO): This organizes jobs based on the tasks and duties undertaken in the job.

- The International Classification of Status in Employment (ICSE): This classification is based on the type of contract a person has with other persons or organizations when performing a job.

International Standard Classification of Occupations (ISCO-08) introduces the Major Groups as follows:

Table N0.1 Major Groups Classification of Occupations (ISCO-08)

1	Managers
2	Professionals
3	Technicians and associate professionals
4	Clerical support workers
5	Service and sales workers
6	Skilled agricultural, forestry and fishery workers
7	Craft and related trades workers
8	Plant and machine operators and assemblers
9	Elementary occupations
10	Armed forces occupations

Referring to the Classification of Occupations as per table N0.1, the Questionnaire prepared includes question in respect of the ***"FUNCTION AND POSITION HOLD IN THE COMPANY"*** of

the electrical engineers holding a Diploma supported by Power System department of Faculty of Electrical Engineering.

The concept of employment of graduated students in the electrical engineering- energetic is broken down into other subgroups showing the position, functions and field of occupation in the power sector in order to allow us to understand and classified furthermore also their comments or suggestions in respect of improving the curricula.

6. Inadequate employment situations

According to *"A guide for workers' organization"* ILO) 2015 there are three types of inadequate employment situations:

1. Skill-related inadequate employment: This includes people who want to change their current work situation to use their current occupational skills more fully, and are available to do so.

2. Income-related inadequate employment: This includes people who want to change their current work situation to increase their income by increasing their productivity, by getting such things as better tools and equipment, training or improved infrastructure.

3. Inadequate employment related to excessive hours: This includes people who want to work fewer hours with a corresponding reduction of income.

The Questionnaire gave data also for the first type of inadequate employment situations, i.e skill – related inadequate employment, through the formulation of Question: ***"PLEASE INDICATE FROM 1 TO 10, THE COMPLIANCE OF YOUR JOB DESCRIPTION WITH THE EDUCTION AND YOUR ENGINEERING DIPLOMA".***

7. Feedback/suggestions

The Questionnaire includes also a rubric for suggestions and comments in respect of curricula. As far as the suggestion asked ***"HOW COULD HAVE BEEN IMPROVED ENGINEERING CURRICULA IN RENEWABLE ENERGY TO THE SATISFACTION OF YOUR JOB POSITION AND FUNCTION***", we were seeking from the interviewers very short and simple suggestions in respect of knowledge (new or deeper knowledge in specific disciplines) that they consider that should have been treated during the Courses, and could have served better to their role, position and job description that they have in the company/agency that they are employed.

The feedback and suggestions received have been broken down into several groups referring to the position, function and the respective roles covered in the companies or organizations.

8. Interpreting the data

Thy results obtained from the survey have been further elaborated in order to calculate the indicators such as:

- Percentage of interviewed versus the Year of Graduation;
- Employed and unemployed rate in percentage of the total the graduated interviewed students;
- Percentage of the interviewed referring to the breakdown Sector /Economy Activity, in order to see the range of employment situation according to the sub sectors of the economy
- Percentage of the interviewed versus type of work, function, position or status in employment

- Percentage of the interviewed versus the compliance of their diploma with the position, function or company where they are employed, in order to indicate Inadequate employment situations

Analyzing percentage of interviewed versus the Year of Graduation, it can be observed that around 74% of the interviewed belongs to the last decade, i.e period 2010-2020, which corresponds also with all reforms undertaken in the power sector and the recent development on this sector (Fig.1).

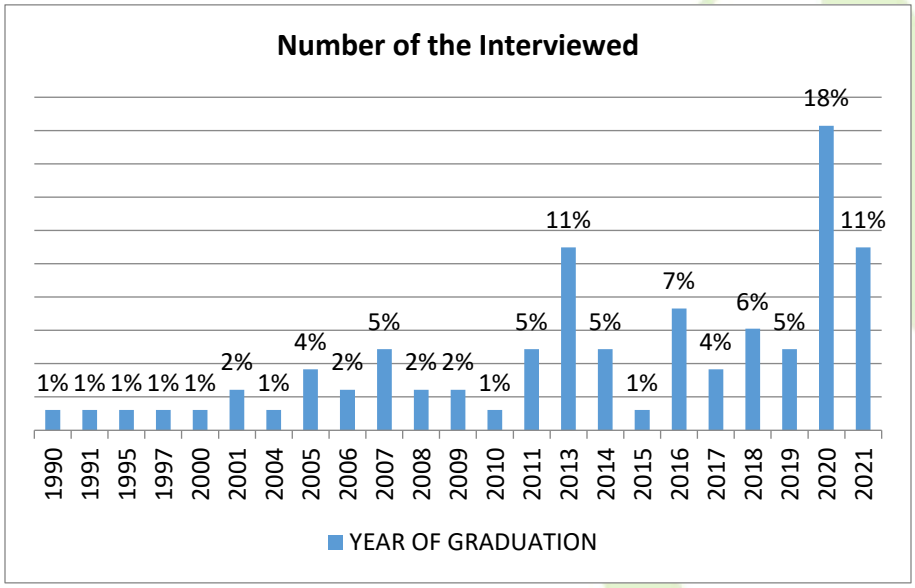

Fig.1 The interviewed versus the Year of Graduation

It can be observed the high rate of employment as well of all graduated students interviewed, which accounts for 92.68 % of the total (Fig.2).

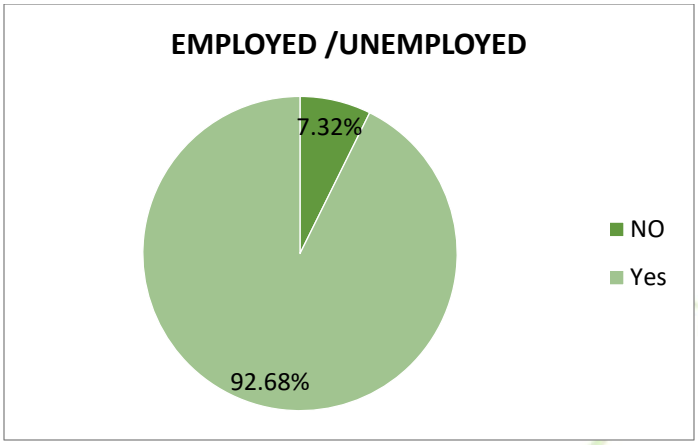

Fig.2 The rate of employment of interviewed.

The indicator of percentage of the interviewed referring to the breakdown Sector /Economy Activity shows that the range of employments situation accounts for 44% in the Distribution System Operator, 15% in the Transmission System Operator and around 23% belongs to the private sector of the power system (Fig.3).

Distribution System Operator absorbs the highest number of the graduated students in electrical engineering, which can be explained with the nature of this network that is geographically extended to the whole territory of the Country and in the same time is also developed and reorganized according the Law No. 43/2015 “For the electric power sector” and the rules for Albanian Power Market, absorbing a lot of investments in the infrastructure during the last decade.

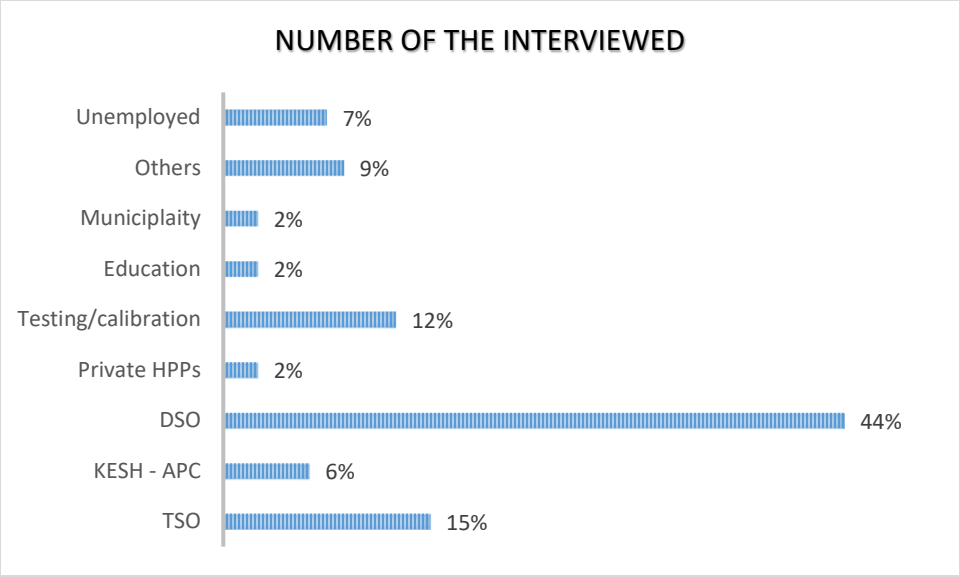

Fig.3 The interviewed referring to the breakdown Sector /Economy Activity

The following graph shows percentage of the interviewed versus type of work, function, position or status in employment in different companies' public or private ones. It can be observed that around 63% of the interviewed have the function/position of specialist in different sectors such as maintenance department, relay protection department, Project department, dispatching center etc. In the Education filed are employed around 2% of the interviewed, while 17% have the position of the Chief of the Sector and 5 % have the position of Administrators (Fig.4).

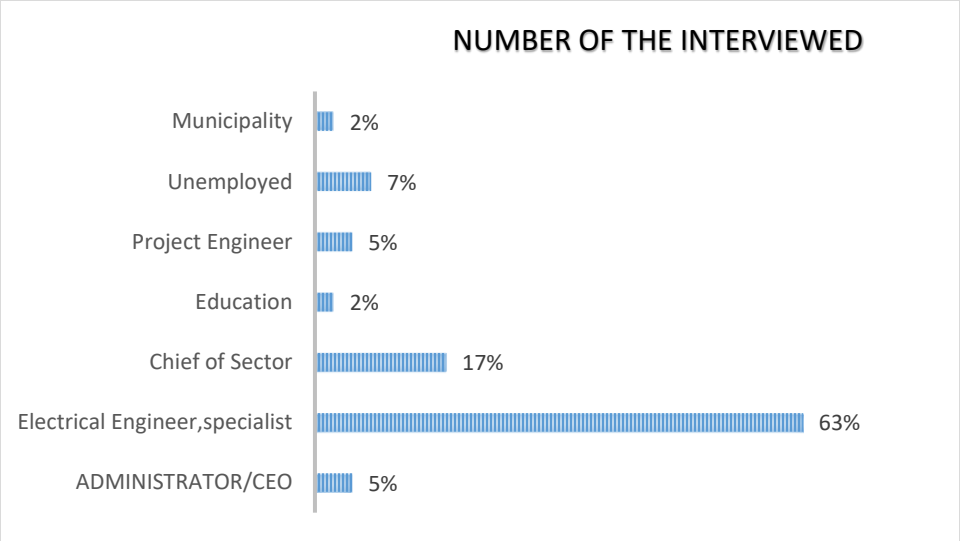

Fig.4. The interviewed versus type of work, function, position, or status in employment

The compliance of the diploma with the position, function, or company where the interviewer are employed, is shown in the following Graph. It can be observed that 87% of the interviewer report to have compliance with their Diploma obtained in the Electrical Engineering referring to the question made to them: *"Please indicate form **1 to 10,** the compliance of your job description with the education and your engineering diploma"* (Fig.5.).

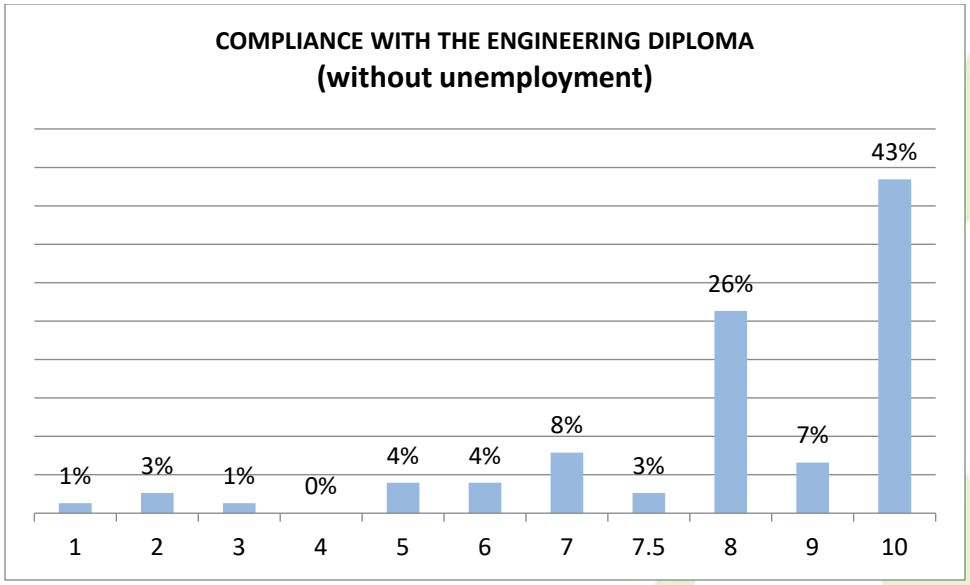

Fig.5. The compliance of the diploma with the position, function or company (without unemployment)

Around 13% of the interviewer, report noncompliance of the Diploma with their position, function holds in the companies where they are employed, which indicates inadequate employment situations (Fig.6.)

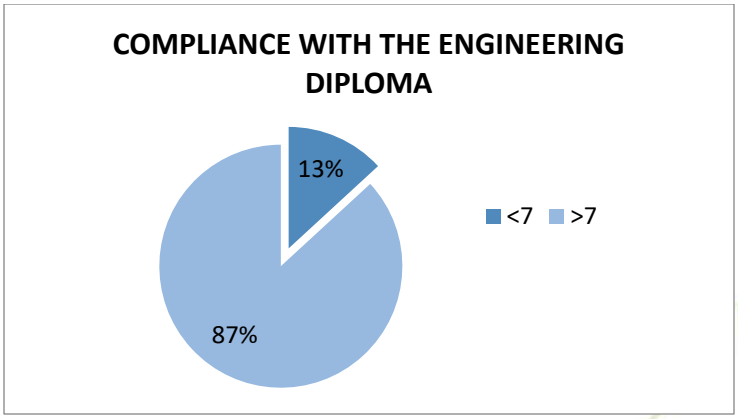

Fig.6. The compliance of the diploma with the position, function, or company

9. The feedback and suggestions

Following the answers received from the Questionnaire (Table N0.2), we have also performed interviews with representative of governmental organization, local municipalities, businesses companies, power sector companies' private ones, or join stock companies with 100% capital owned by state as well as companies which operates under legal status of public private partnership in the field of power sector especially for renewable generation capacities. Interviews have been carried out also with education Institutions such as Polytechnic University of Tirana, Faculty of Electrical Engineering.

The in-depth interviews have been carried out mostly in person and in some cases remoteness from site on line using Skype. The in-depth interviews for engineering curricula modernization in renewable energy in Albanian Universities are summarized in Annex 1. After a careful analysis of all answers and the exclusion of similar ones, we have obtained the most informative interviews of this questionnaire regarding of its purpose. In Table N0.3 "Engine stakeholder database" are presented these ones.

Based on this database is built the matrix with feedback and suggestion (Table N0.4) for the three classifications: The Sector /Economy Activity, The breakdown Sector /Economy Activity, The compliance of the diploma with the position.

This matrix will help us to determine the degree of intervention in the current curricula covered by the department in function of the project objective for updated and modernization of engineering curricula in renewable energy.

Table N0.2. QUESTIONNAIRE

NAME SURNAME	
GRADUATED YEAR	
DO YOU ARE EMPLOYED	
DETAILED CONTACT OF THE EMPLOYER/COMPANY	
FUNCTION AND POSITION HOLD IN THE COMPANY	
PLEASE INDICATE FROM **1 TO 10,** THE COMPLIANCE OF YOUR JOB DESCRIPTION WITH THE EDUCTION AND YOUR ENGINEERING DIPLOMA	
SUGGESTIONS HOW COULD HAVE BEEN IMPROVED ENGINEERING CURRICULA IN RENEWABLE ENERGY TO THE SATISFACTION OF YOUR JOB POSITION AND FUNCTION	

Note:

The purpose of the Questionnaire is to serve to the statistical data elaboration for all graduated students with the electrical Engineering diplomas supported by the Power System Department of Faculty of Electrical Engineering

As far as the suggestion asked to you "how could have been improved the curricula of Professional Master or Scientific Master Diploma", we are seeking from you very short and simple suggestions in respect of knowledge (new or deeper knowledge in specific disciplines) that you consider that should have been treated during the Courses, and can serve better to you role, position and job description that you have in the company/agency that you are employed. Your suggestions will contribute to improve the teaching curricula in the future as well as the work of our department.

Erasmus+ Capacity Building Project										
Engineering curricula modernization in renewable energy in Albanian Universities										
ENGINE										
ENGINE Stakeholders Database										
No	**Stakeholder type** (GO/NGO, int/national/regional/local, academic/political/business)	**Rationale**	**Name of organisation/institution**	**Availability for Internships**	**Website**	**Address**	**Contact Person**	**Email**	**Comments**	**Country**
1	TSO is established as an independent nation company company 100% owned by state, full member of ENTSO-Es		OST sh.a.	YES. Yearly contract are signed between Polytechnic University of Tirane and TSO in respect of interships	www.ost.al	Autotrada Tirane-Durres, Km 9 , Yrshek, Kashar, Tirane, Tel +355 4 2225581, Fax +355 4 2225581, info@ost.al	Elio Voshtina - Head of Short-Term and Medium-Term Operation Planning Sector	voshtina@hotmail.com	The Master curricula could be supplemented by adding applications of theoretical concepts obtained from the current curricula to real projects (case studies) such as. e.g. 1. Examples of calculation and setting value of relays for feeders, transmission lines, generators and transformers. So examples of complete methodology for obtaining a complete setting values card of relays for various elements of electrical systems, as well as examples of applications for protection coordination relay in distribution and transmission networks; 2. Examples of studies for the connection of generating resources (conventional or RES) in the transmission or distribution network; 3. Examples of studies of dynamic stability of the power system. 4. Examples of cost-benefit analysis (CBA) for projects in transmission and distribution networks for new technologies such as FACTS, SVC and PST equipment; 5. Examples of simulations of electricity markets and / or their integration through software for "market simulation";	Albania
2	TSO is established as an independent nation company company 100% owned by state, full member of ENTSO-Es		OST sha	YES.	www.ost.al	Autotrada Tirane-Durres, Km 9 , Yrshek, Kashar, Tirane, Tel +355 4 2225581, Fax +355 4 2225581, info@ost.al	Fation Zekaj - Chief of the Long Term Planning Office	fatjonzekaj@hotmail.com	1. Alternation of Theory with Practice for example practice in system substations, acquaintance with the distribution network cabins and feeders 6,10,20kV, hydro power plants, wind, solar, 2. Addressing the problems of the energy system with application programs for calculating the electricity networks 3. Updating the problems of the country's electricity network, updating its data, specifications and technical standards applied by system operators, etc. in some subjects taught in the Master. 4. Familiarity with the terms and rules of the energy market, for example the subject Energy Economics is the basic subject in this direction which requires a practical approach based on the current situation of market opening in the country, the rules that apply in the European Market where our country requires to integrate, etc.	Albania
3	TSO is established as an independent nation company company 100% owned by state, full member of ENTSO-Es		OST sha	YES. Yearly contract are signed between Polytechnic University of Tirane and TSO in respect of interships	www.ost.al	Autotrada Tirane-Durres, Km 9 , Yrshek, Kashar, Tirane, Tel +355 4 2225581, Fax +355 4 2225581, info@ost.al	Irma Gjordumi (Sota)		My opinion is that the Curricula are good and the information is considerable and sufficient for a student. Personally I think to add attention to practice. Do not become superficial and only in one institution. The practice should be translated into concrete work in institutions for the student, even with simulative payments, to look responsibly at the given task.	Albania

10. Table N0.3 Engine stakeholder database related to PUT Survey result

No	Stakeholder type (GO/NGO, Int/national/regional/local, academic/political/business)	Rationale	Name of organisation/institution	Availability for Internships	Website	Address	Contact Person	Email	Comments	Country
4	TSO is established as an independent nation company company 100% owned by state, full member of ENTSO-Es		OST sha	YES. Yearly contract are signed between Polytechnic University of Tirane and TSO in respect of interships	www.ost.al	Autotrada Tirane-Durres, Km 9 , Yrshek, Kashar, Tirane, Tel +355 4 2225581, Fax +355 4 2225581, info@ost.al	Endri Veizi-Chief of Planning Sector	endriveizi@hotmail.com	Development of inter-institutional cooperation and equivalence of programs even with Universities known as promoters of technological development in the labor market.	Albania
5	Private Company -VME sh.p.k; Bussiness. Certificate of acreditation17025 for testing with N0.LT 074 and Certificate of Acreditation for		VME - Verifikimi i Matësave Elektrik	YES	www.vme.al	Rruga "Perlat Rexhepi" Pallati 6. Kati 4/Ap.20, 1019,Tirane, ALBANIA	M.Celo Administrator	info@vme.al	Deeper knowledge in reference to the standarts for measurements and calibration of electrical measuring instruments, tracebility in measuring, evaluation of uncertenities in measuring etc	Albania
6	Private Company -VME sh.p.k; Bussiness. Certificate of acreditation17025 for testing with N0.LT 074 and Certificate of Acreditation for Inspection 17020 with N0 TI 034. VME provides both testing and inspection service for electrical meeters both in the lab and in the field		VME - Verifikimi i Matësave Elektrik	Yes	www.vme.al	Rruga "Perlat Rexhepi" Pallati 6. Kati 4/Ap.20, 1019,Tirane, ALBANIA	Julian RUÇI Quality Manager responsible for Inspection and testing	julian@vme.al	A)New Master Programs/Diploma , ie more Specialization Categories in order Students to have more opportunities to choose their direction according to the requirements of the National and International labour Market in power sector. There are currently only 2 very general Study Programs for Students: 1- Industry Automation; 2- Energetic Power system B) Integration of Courses related to Communication and MicroSystems with the target to be much closer with the Technology.	Albania
7	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSHE Distribution System Operator	YES	oshee.al	OSSH sh.a. Shkoder, Albania	Frida Dalipaj Chief Enginner. Regional Directorate Shkoder	frida.dalipaj@oshee.al	The 5-year system has had very good programs and practices have been done in industrial enterprises of the time, attention should be given to laboratories and practices in order to be carried out in the industrial and power systems companies	Albania
8	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH Distribution System Operator	YES	oshee.al	OSSH sh.a. OSHEE Drejtoria Rajonale Elbasan, Rruga Kadri Abdihoxha, Elbasan, Shqipëri	Ardian Gjana Chief of Techmical Department Regional Directorate Elbasan	ardian.gjana@oshee.al	Detailed studies for penetration and connection of RES generating sources into the distribution and transmission network;	Albania
9	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH Distribution System Operator	YES	oshee.al	OSSH sh.a. Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1, Njësia Administrative Nr. 7, 1023 Tiranë, Shqipëri	Arben Xheleku Chief of Maintenance Sector		1. There are still subjects not supported with the appropriatte lecture texts, or in the texts are described old equipment technologies which in nowadays are no longer in the market or installed in the power system. So I propose that the literatures should be updated, renwed, and some of the texts should be revised in some subjects	Albania
10	Ragional Directorate of Distribution System Operator - Elbasan City		OSSH Distribution System Operator	YES	oshee.al	OSSH sh.a. OSHEE Drejtoria Rajonale Elbasan, Rruga Kadri Abdihoxha, Elbasan, Shqipëri	Nazmi Tanushi Chief of Techmical Department Regional Directorate Elbasan	Tel.0699680540 Nazmi.Tanushi@oshe.al	Since we have finished the sudy in the direction of Automation Industry, I think to enrich my knowledge with some additional qualification courses in the Power System - Eenergetic.	Albania

No	Stakeholder type (GO/NGO, Int/national/regional/local, academic/political/business)	Rationale	Name of organisation/institution	Availability for Internships	Website	Address	Contact Person	Email	Comments	Country
11	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH Distribution System Operator	YES	oshee.al	OSSH sh.a. Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1,	Etnaldo Metaj Chief of Sector		I suggest to separate the category of the diploma according to the job position, in order to be more profilized in one direction and to have many training courses for this direction or profile	Albania
12	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSHDistribution System Operator	YES	oshee.al	OSSH sh.a. Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1, Njësia Administrative Nr. 7, 1023 Tiranë, Shqipëri	Jurgen Miraka Chief of Sector		To revise the existing programs by including a higher number of practice hours on site especially in the distribution network in order to get more and detailed knowledge for the elements of the distribution network.	Albania
13	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH, Regional Directorate Elbasan	YES	oshee.al	OSSH sh.a. Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1, Njësia Administrative Nr. 7, 1023 Tiranë, Shqipëri	Julmir Boja Chief of Operational Team / Elbasan 2	julmir.boja @oshee.al	More : 1. There should be more hours in the curricula for electrical measurements (ie more in-depth and practical knowledge of this subject) 2. There should be more hours in the curricula for Electrical Equipment and Instalations (The lietrature should be updated and renewed in this direction)	Albania
14	KESH Sh.a (Albanian Power Corporation is a Joint Stock Company- power utility 100% owned by state		KESH Albania Power Corporation	YES	www.kesh.al	KESH Headquarters Block, "Vasil Shanto", Tirana, Albania	Edlir Dushi Chief of Sector		I think that in parallel with technological developments and with the updating of programs, mainly software, should be updated / changed also the master curricula for students who attend it. The scientific level and manner of application of science in the daily work of an engineer, must be adapted to contemporary developments, technological innovations and be in coherence with practice and application according to the respective fields. The cooperation of the university with the companies that operate in the labor market according to the respective profiles, in respect of combination of the practice with the curriculum that is applied in the master, would be another positive process for the young engineers, as well as for the companies that require to expand the staff with employees who have a suitable training with the labor market.	Albania
15	KESH Sh.a (Albanian Power Corporation is a Joint Stock Company- power utility 100% owned by state		KESH Albania Power Corporation	YES	www.kesh.al	KESH Headquarters Block, "Vasil Shanto", Tirana, Albania	Silvana Gega Chief of Sector		Master in energy production optimization and familiarity with various software that enable analysis and programming of energy production	Albania
16			KESH Albania Power Corporation	YES	www.kesh.al	KESH Headquarters Block, "Vasil Shanto", Tirana, Albania	anonimous Chief of Sector		I think that the development of some subjects should be done more practically than theoretically. I'm of the opinion that more priority should be given to the internship in the master and should be carried out seriously, as it is a great help for all students to facilitate adaptation to the work environment in the future.	Albania

No	Stakeholder type (GO/NGO, Int'national/regional/local, academic/political/business)	Rationale	Name of organisation/institution	Availability for Internships	Website	Address	Contact Person	Email	Comments	Country
17	Erdat Lura SH.P.K C Built Operation e Transfer - Concession Legal Form Public Private Partnership of Lura HPP 1, 2 and 3		Erdat Lura shpk	NO	http://opencorporates.al/sq/nuis/k82321008q	Tiranë, Kashar, Kthesa e Kamzës, Pallati përballë Spitalit Hygeia, Kati 4	Edona Logu Electrical Engineer		I think that a better coordination of practise with theoritical knowledge is necessary to be done in order to achieve a better and more successful result, since it is evident that practice is very important.	Albania
18	FISHTA electric sh.p.k Bussiness Privat company		Fishta Elektrik	YES	http://www.fishtaelectric.com/	JEZUITEVE, 7 - SHKODER	Naxhije Balla Electrical Engineer	xhina-balla@hotmail.com	I'm of the opniom that is neccessary to be increased the number of assignments or projects courses that are in compliance with different positions of the engineer (eg substation design, civil buildings design, relay setting values cards and metodology, protection scheme, or how can we increase the quality of power supply) with the aim to be treated as real case study and to avoid penalization because most of the students work during the master courses (the assignment can be evaluated and graded with points that can be also considered in the the final exam grade). The students will be engaged and more responsible during the academic yearin and it will be much more easy for them to learn and to memorize the curriculum. It is not appropriatte to learn long formulas that will soon be forgotten but simply the metodology and the steps to be followed for solving the problem. It is alsoimportant to be familiar with the different softwares that facilitate our job, but avoiding to be passive. I'm of the opinion that usually the softwares shoud be used for verification or comparison of results.	Albania
19	Municipality Vlore Local governement		Ujesjelles Kanalizime Bashkia Vlore	YES	vlora.gov.al	Rruga Zigur Lelo, Vlorë 9400	Xhoni Tushaj Electrical Engineer		Establishment of PLC laboratories, SCADA	Albania
20	Encoal ah.p.k - Prib=vate Company - Bussiness in construction and instalation of transmission lines, substation etc		Encoal sh.p.k , Private Company operating in power sector	YES		Rr. Teodor Keko Pallati Pelivani Shkalla 2, Kati 3, Tirane, Albania	Renato Maliqi Electrical Engineer		It should be increased the practice on site with combination and interaction of theoretical explanations and application of new technologies and alternative generation sources.	Albania
21	Private Company -VME sh.p.k; Bussiness. Certificate of acreditation17025 for testing with N0.LT 074 and Certificate of Acreditation for Inspection 17020 witn N0 TI 034. VME provides both		VME - Verifikimi i Matësave Elektrik	YES		Rruga "Perlat Rexhepi" Pallati 6, Kati 4/Ap.20, 1019,Tirane, ALBANIA	Anonimous Specialist of inspection and testing of electrical meeters		Splitting the curricula into more branches, profiles or specific specializations would make it possible to increase not only the student's professional preparation but also achievement of the results.	Albania
22	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH Distribution System Operator	YES	http://ossh.al		ERNOLD ALABAKU specialist for connection of renewable generating sources	ernold.alabaku@oshee.al	I suggest that the Faculty of Electrical Engineering should include in the curricula the full course on energy efficiency so that electrical engineers do not need additional postgraduate courses in order to provide them with Certificate of Energy Auditor and Energy Efficiency. Save time and money for the state and for engineers seeking to obtain these types of certificates.	Albania
23	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH ODistribution System Operator	YES	http://ossh.al		Florinda Ponari Specialist for connection of renewable energy sources		To increase knowledge on renewable generating sources, solar panels, hydropowerplants , etc.	Albania

No	Stakeholder type (GO/NGO, int/national/regional/local, academic/political/business)	Rationale	Name of organisation/institution	Availability for Internships	Website	Address	Contact Person	Email	Comments	Country
24	OSSH Sh.A (Distribution System Operator) with identification L81530018E, part of OSHEE Grup with 100% capital owened by state		OSSH, Regional Directorate SHKODER	YES	http://ossh.al		ARMIR TUZI Specialist for Project design	armir.tuzi@oshee.al	In order to improve the Curriculum in the Master, I think it would be necessary to increase the work in laboratories and practice on site with the aim that the graduated students to be capable andto have more detailed and specific knowledge in their work as Engineers.	Albania
25	Education - Polytechnic University of Tirana		Faculty of Electrical Engineering - mPower System department - DSEF/FIE/UPT	NO	http://www.fie.upt.al/	Sheshi "Nënë Tereza", Nr. 4, Tiranë. Tel: +355 4 222 37 26	Andi Hida Lecturer	hidaandi@gmail.com	Paying attention to new areas, such as renewable energy sources and technologies, smart grid, energy efficiency, etc.	Albania

11. Table N0.4. The feedback and suggestions based on PUT survey result.

Nr.	The feedback and suggestions	The Sector /Economy Activity									The breakdown Sector /Economy Activity							The compliance of the diploma with the position			
		TSO	KESH - APC	DSO	Private HPPs	Testing / calibration	Education	Municipality	Others	Unemployed	Administrator/ CEO	Electrical Engineer, specialist	Chief sector	Education	Project Engineer	Unemployed	Municipality	P5-P6	P7-P7.5	P8-P9	P10
1	Recent technological developments	√	√				√					√	√	√	√					√	√
2	Equipment and software for control, monitoring and protection	√										√								√	
3	Study of real projects	√		√	√		√					√	√	√				√			√
4	Interweaving Theory with Practice (more practical)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5	New literature	√	√									√	√								√
6	Different professional trainings, focused according to the respective fields			√		√					√	√	√							√	√
7	Laboratories and investments (also by companies), more laboratories works			√		√			√		√	√	√		√			√		√	√
8	Accessible digital library			√								√									√
9	Lab and PLC, SCADA							√									√				√
10	Create some profiles (electives courses)			√		√						√	√							√	√
11	School materials for each subject would help us to be online in pdf text format.			√								√									√
12	Procedures for following and implementing projects								√			√									√
13	More on the distribution network			√				√				√	√						√	√	√
14	Generation resource linkage studies (conventional or RES);	√					√						√	√							√
15	Courses related to Communication and MicroSystems to be closer to Technology.					√							√							√	

Nr.	The feedback and suggestions	The Sector /Economy Activity									The breakdown Sector /Economy Activity							The compliance of the diploma with the position			
		TSO	KESH - APC	DSO	Private HPPs	Testing / calibration	Education	Municipality	Others	Unemployed	Administrator/ CEO	Electrical Engineer, specialist	Chief sector	Education	Project Engineer	Unemployed	Municipality	P5-P6	P7-P7.5	P8-P9	P10
16	Examples of cost-benefit analysis (CBA) for projects	√											√								√
17	Relay protection complete methodology of tariffs,	√										√									√
18	More on electrical measurements			√		√						√	√					√		√	
19	Smart grid						√							√							√
20	Examples of electricity market simulations	√											√								√
21	Lectures on the field of PLC			√								√									
22	In-depth studies in electrical networks and substations			√								√	√					√		√	√
23	Dynamic stability studies	√											√								√
24	For energy efficiency			√			√					√		√							√
25	Implementation of installations of different voltage levels according to technical codes,			√					√			√						√			
26	More in-depth knowledge of defect management.			√								√						√			
27	Procedures for following and implementing projects			√					√			√									√
28	Master in optimizing energy production		√									√							√		
29	Standards for measuring and calibrating measuring instruments					√					√	√									√
30	Development of inter-institutional collaborations, university with companies	√	√							√		√	√		√	√			√	√	√

12. Conclusions

From the Table N0.4 we have identified the suggestions for updating the curricula. Regarding the Bachelor curricula in Electric Engineering-profile Energetic the update will be focused on suggestions number 1, 9, 13-15, 18, 19, 21 and 25.

As far as curricula of Science Master in Electric Engineering-profile Energetic is concerned, the update would be focused on suggestions number 2- 4, 6, 9-10, 12-14, 16-17, 19-20, 22-27.

Curricula of Professional Master in Electric Power System will be updated focus on suggestions number 2-4, 6, 9-10, 12, 17-19, 22 and 24-27.

In a further analysis and an open discussion, we will identify the new courses or those that need to be updated to ensure our graduates an easier adaption with the labor market as well as to prepare them for the challenges of future developments in power sector with a high penetration of renewable energy sources.

References:

- ILO. 2013b. *Key indicators of the labour market*, 8th edition, Indicator 17: Labour productivity (Geneva). Available online athttp://www.ilo.org/empelm/what/WCMS_114240/ lang--en/index.htm.
- "*A guide for workers'organization*" published by International Labour Office Geneva (ILO) 2015
- LIGJ Nr. 43/2015 *PËR SEKTORIN E ENERGJISË ELEKTRIKE*, (ndryshuar me ligjin nr. 7/2018, datë 15.2.2018)

3. Development of interviews with relevant stakeholders and creation of the competence matrix in UET

1. Summary

This document highlights the main findings of the survey conducted by UET in the framework of ENGINE project. This deliverable thus corresponds to task D.1.2. "Development of questionnaire and interviews with relevant stakeholders and creation of the competence matrix", led by UAMD and KHAS.

Following are highlighted shortly the major project pillars identified in the data collected through the interviews.

Firstly, the improvement of universities curricula and laboratories. Next important topics are focus on renewable energy sources and investments. Lastly, the importance of collaboration between business, institutions, and academia. *Detailed facts on these matters are in the "results section" and "conclusion section".*

2. Survey Objectives and Design

In the framework of the ENGINE project in-depth interviews were developed and composed by UAMD. UET conducted a total of 13 interviews.

Both qualitative and quantitative questions were part of the interview. Compilation of all findings obtained from in-depth desk research and questionnaires / interviews will provide the basis in setting of required competences and technical background in Albanian HEIs. A matrix of competences is created for UET. The identified set of competences will be used during the creation of the new VET degree curricula and update of the existing VET and bachelor study programs in electrical engineering and energy related disciplines. On this way, new study programs and the updated curricula will be based on the students and industry's needs and enable them to respond in varying and complex situations.

2.1. Methodology

When choosing the sample of interviewees, it was taken in consideration their background. The sample is composed of different target groups:

- Policymakers.
- Representatives of public institutions in the area of Electrical Engineering and Energy sector.
- Academics and experts.
- Private sector representatives in area of Electrical Engineering and Energy sector.
- Others as judged by researchers.

Questions in the interview were categorized in 3 main types:

- General questions related to engineering profile education.

In the first category of question interviewees were asked about graduation, the function they hold within the company, years of experience within the energy sector, etc. In this category of questions interviewees were requested to give their opinion about potential improvement in the universities' curricula and on issues like "Engineering, Economics and Environment" and the challenges toward them.

- Questions related to the energy sector in Albania.

In this group of interrogations, the participants were requested to give their opinion on topics related directly to the energy sector in Albania: technological or organizational changes of the energy market in Albania; the relation and comparison with EU countries and other Balkan countries; the management and operation of power systems; use of renewable energy sources; etc.

- The future of market needs / demands

The last group of question was focused on matters of market needs and demands in the future. In this section were enquired topics like the qualification of the workforce, collaboration with the academic institutions and the role of the universities in the energy market.

At the end of the interview participants were given the option to include further comments they considered important.

The complete interview questions are included at the end of this report (Annex. i)

Interviews were conducted from April 14th until April 24th by UET staff. The in-depth interviews have been carried out mostly in person and in some cases remotely using Skype/Teams. The complete in-depth interviews for engineering curricula modernization in renewable energy in Albanian Universities are attached in Annex 1 of this report.

2.2 Sample composition

From 13 interviews, 8 of them or 62 % were conducted in the public sector like ministry or companies that are owned 100 % from state like OSHEE, OST, etc.

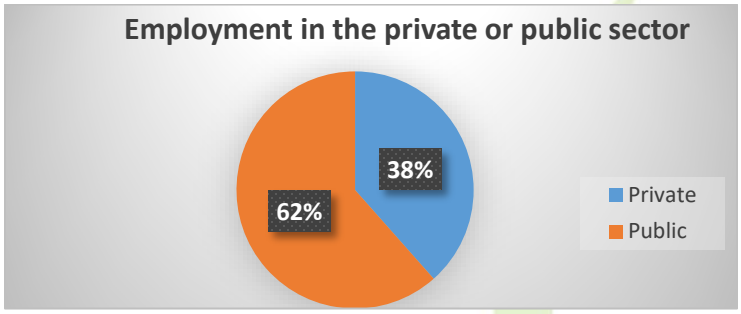

Fig.1 The employment in the private or public sector

More than 50% of the participants are in managerial positions. *(fig.2)*

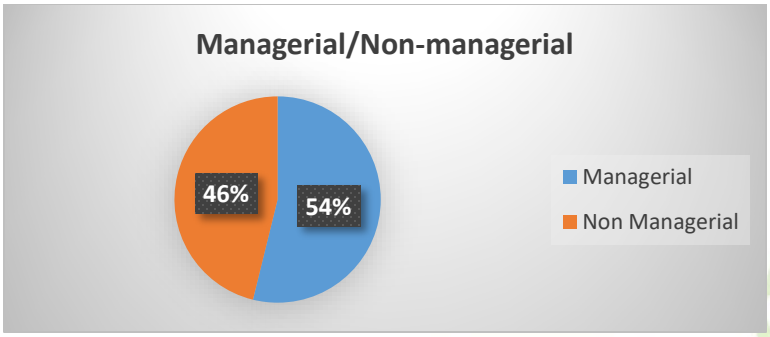

Fig. 2 Role of the Interviewees within their organizations

Regarding the years of experience in the energy industry the majority of the participants have between 5-10 years of experience, concretely 6 from 13. Four of the respondents have between 10 – 20 years of experience, and one of them is on the industry for more than 34 years. (fig. 3)

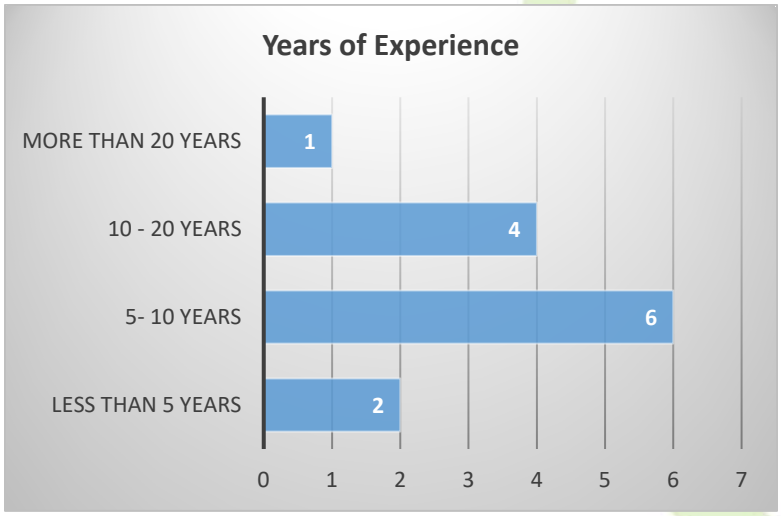

Fig. 3 Years of experience in the Energy Sector

3. Results

Following are highlighted the main findings of the interviews:

There are 5 main topics for which respondents shared the same opinion. All respondents agreed that **university curricula have room for improvement**. Energy sector is an area that is depended on innovation; thus, university programs should follow the same strategy and steps. 100 % of the participants agreed that the key to improve university curricula and to develop further the energy market is the **collaboration of business and universities**. This can be done through sharing experiences, guest lectures from businesses at the universities, internships, workshops, and trainings, etc. 70% of the respondents defined the energy market in Albania as an **"emerging market",** that has a great potential for further development and can be a focal point for the country development in general. None of the participant was able to make **a prediction of the energy prices**, but all of them agreed that it will depend of market deregulation, energy production, beginning of full operation of the energy exchange, investment on renewable energy sources, etc. Also, all the participants agreed that the future of energy is **renewable energy,** and more investments should be focused on this.

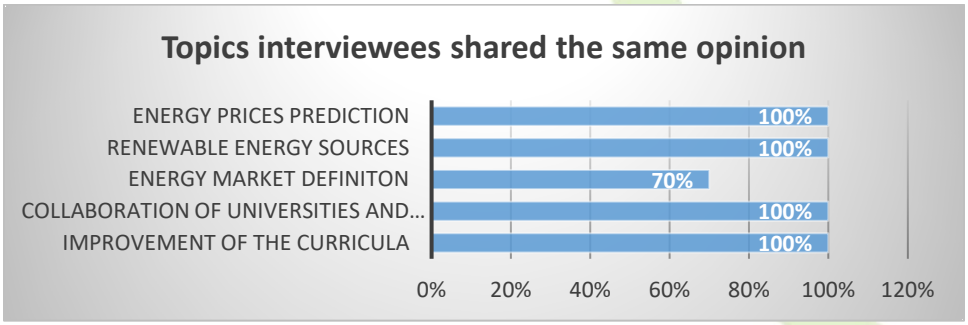

Fig.4 Topics interviewees share the same opinion

Collaboration with Academia

Surprisingly, more than 50% of the respondents declared that the institution or the business that they represent do not collaborate with academic institutions.

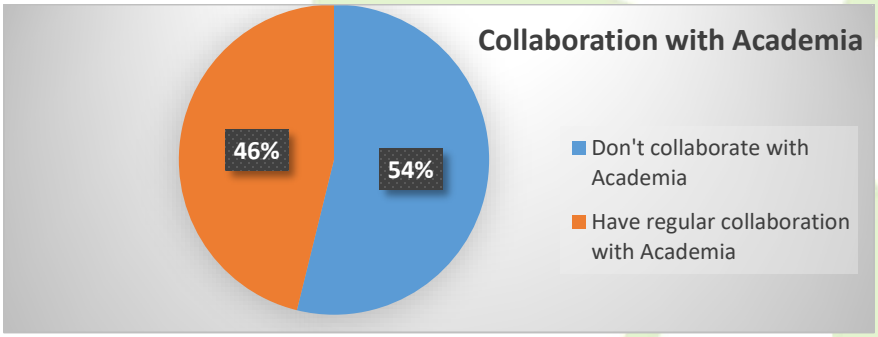

Fig. 5 Businesses and Institutions collaboration with universities

Curricula Improvement

Based on their education experience and professional practice main suggestions regarding curricula improvement are as follows:

- Including in the curricula subject related to “Safety of Industrial Plants”.
- Students should have more time practicing during school years: in laboratories, industrial equipment usage, internships, research performed on site, etc.
- Giving more focus to topics related to renewable energy sources and their energy.
- Continuous “cross-checking” between business, university and technology on latest development and work practice.
- Exchange with international universities.
- Lack of curricula for energy trade.

However, only 3 out 13 respondents stated that their job skills were gained on trainings and on job site. 10 of them declared that their job was 100% with their job profile.

Workforce Qualification

5 out of 13 respondents declared that they don't have a fully qualified workforce. Energy is a sector which requires nonstop training and investment in human capital, and this is a challenge for the industry.

4 out of 13 respondents acknowledged that in the last years one main problem in the emigration of the professional due to low level of wages compared to EU countries in this field.

Universities' role in the market

All the participants approved that universities have an important role in preparing experts in this field, thus a stronger bond and collaboration between academia and market is necessary.

Policymakers' role

All the respondents agreed that renewable energy sources should be in focus of policymakers and more investment should be concentrating on this given the potential that this sector represents for Albania.

A summary of the respondents' input is at the end of this report (Annex.ii)

The database of the stakeholders is in the Annex iii.

4. Conclusions

Main discoveries of this report regarding academia and energy market are as follows:

- Curricula improvement should emphasis subjects of Safety of Industrial Plants"; renewable energy sources; practice in laboratories and equipment usage, etc. as explained in the "results section".
- Business, Energy Sector and academia should create a stronger bond together to build the experts of the future.
- More importance should be given to energy sector on nationwide spectrum, due to the high potential it has for development. The future development will require more professionals and universities should be pro-active on this matter.

5. Annexes

Interviews

Interviews with stakeholders in the energy sector

1 - **General questions related to engineering profile education?**

- Name and surname / code of the respondent
- Where and when did you graduate?
- What is the function and position you hold in the company?
- What is the compatibility of the job position with the degree of engineer?
- How long have you been employed in this field?
- Do you work only in Albania or elsewhere?
- How could the curriculum be improved in the Bachelor or Master study programs at HEIs, to better serve your job position?
- How do you think the challenges in the university system can be overcome regarding the 3 main topics "Engineering, Economics and Environment"

2. Questions related to the energy sector in Albania

- Do you have cooperation relations with foreign companies?
- Have you noticed technological or organizational changes during the time you have been working in this sector? (describe somewhat longer the answer to this question)
- How would you describe the energy sector in Albania?
- Can you compare it with the countries of the region or the European ones?
- What are the challenges faced by the management and operation of power systems?
- Can you give your opinion on the following issues:
    - o control and stability of power systems
    - o use of renewable energy sources

- o Smart Grid implementation and intelligent energy use
- o Insulation and electrical materials
- o Electrical equipment
- o Relay equipment and power system monitoring
- o Energy price forecast
- o Energy efficiency

3. The future of market needs / demands

- Do you have a skilled workforce?
- What are the difficulties you face in relation to the workforce?
- What skills do you require from the workforce in this sector?
- Do you plan to increase investments in the implementation of Renewable Energy Sources?
- Do you cooperate with the Academy?
- Your opinion on the policies and reforms needed for the future in the energy sector.
- What is the role of universities in this matter?
- How do you think Albania's EU Integration will affect?

4. Conclusions

- Please comment further on the topic of the interview

6 Main Topics Input

Questions	General Question Related to Energy Education						Energy Market		Future Demands					
Institution	Graduation Institution	Function	Compliance with Degree	Years of Experience	Employment Country	Curricula Improvement	Changes in Energy Market	Comparison with BE and Region	Qualified Workforce	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
Ministry	UPT	Managerial	100%	15	Albania	Yes	Yes, Positive	Needs Improvement	No	Continous Trainings	Yes	No	Needs to be reinforced	Positive
OST	UPT	Non-managerial	100%	3	Albania	Yes	Yes, Positive	Needs Improvement	No	Lack of Investment in Human Capital	Yes	Yes	Needs to be reinforced	Positive
OST	UPT	Non-managerial	100%	8	Albania	Yes	Yes, Positive	Needs Improvement	Lack of Opinion	Prefer not to answer	Yes	No	Needs to be reinforced	Positive
OST	UPT	Managerial	100%	11	Albania	Yes	Yes, Positive	Needs Improvement	Lack of Opinion	Prefer not to answer	Yes	No	Needs to be reinforced	Positive
Ministry	UPT	Managerial	100%	34	Albania	Yes	Yes, Positive	Needs Improvement	No	Lack of Investment in Human Capital	Yes	Yes	Needs to be reinforced	Will increase the
Ministry	UPT	Non-managerial	100%	7	Albania	Yes	Yes, Positive	Needs Improvement	Yes	Needs for Improvement	Yes	Yes	Needs to be reinforced	Lack of Opinion
OSHEE	UPT	Managerial	80%	5	Albania	Yes	Yes, Positive	Needs Improvement	Yes	Low level of wages. Masiv Immigration	Yes	No	Needs to be reinforced	Positive
OSHEE	UPT	Managerial	On job training	8	Albania	Yes	Yes, Positive	Needs Improvement	Yes	Low level of wages. Masiv Immigration	Yes	Yes	Needs to be reinforced	Positive
Private Business	UPT	Managerial	60%	8	Albania	Yes	Yes, Positive	Needs Improvement	Yes	Low level of wages. Masiv Immigration	Yes	No	Needs to be reinforced	Positive
Private Business	Other	Managerial	On job training	11	Albania	Yes	Yes, Positive	Needs Improvement	No	Lack of curricula for energy trading	Yes	No	Needs to be reinforced	Positive
Private Business	UPT	Non-managerial	100%	10	Albania	Yes	Yes, Positive	Needs Improvement	Yes	Low level of wages. Masiv Immigration	Yes	No	Needs to be reinforced	Lack of Opinion
Private Business	UPT	Non-managerial	100%	20	Albania	Yes	Neutral	Needs Improvement	Yes	Needs for Improvement	Yes	No	Needs to be reinforced	Lack of Opinion
Private Business	Albanian University	Non-managerial	90%	4	Albania	Yes	Yes, Positive	Needs Improvement	Not fully qualified	Mungesa e stafit te kualifikuar	Yes	Yes	Needs to be reinforced	Positive

7 ENGINE Stakeholder Database

Erasmus+ Capacity Building Project							
Engineering curricula modernization in renewable energy in Albanian Universities							
ENGINE							
ENGINE Stakeholders Database							
No	**Stakeholder type** *(GO/NGO, int/national/regional/local, academic/political/business)*	**Name of organisation/institution**	**Availability for Internships**	**Website**	**Address**	**Contact Person**	**Country**
1	Public Institution	Ministry of Infrastucture and Energy	Yes	https://www.infrastruktura.gov.al	Rruga Abdi Toptani, 4 ,Tirana, Albania	Gjergji Simaku (General Director responsible for energy)	Albania
2	Public Institution	Ministry of Infrastucture and Energy	Yes	https://www.infrastruktura.gov.al	Rruga Abdi Toptani, 4 ,Tirana, Albania	Jonida Rika (Specialist at the Sector of Development Programs for Renewable Resources and Energy Efficiency)	Albania
3	Public Owned Company	Transmission System Operator	Yes	https://www.ost.al/	Tirane – Durres Highway, Km 9, Kashar	Elgi Haxhiraj (Transmission Planning Sector Specialist)	Albania
4	Public Owned Company	Transmission System Operator	Yes	https://www.ost.al/	Tirane – Durres Highway, Km 9, Kashar	Endri Veizi (Transmission Planning Sector Specialist)	Albania
5	Public Owned Company	Transmission System Operator	Yes	https://www.ost.al/	Tirane – Durres Highway, Km 9, Kashar	Fatjon Zekaj (Head of Transmission Network Planning Sector)	Albania
6	Public Institution	State Technical and Industrial Inspectorate	Yes	http://www.ishti.gov.al/	Rruga: M. Gjollesha, Nr: 56, Tiranë.	Aleksander Paci (Head of technical supervision sector)	Albania
7	Private Company	Miell Tirana Sha	Yes	https://www.mielltirana.com/	Bulevardi Teodor Keko Rruga Agim Qarri Nr.14, Tiranë 1001, Albania	Robert Kodra (Electronic Engineer)	Albania
8	Private Company	Albanian Energy Supplier	Yes	https://www.balfin.al/index.php/en/portfolio/energy/albanian-energy-supplier	Street 'Papa Gjon Pali II', 11th Floor, ABA Center, 1010, Tiranë, Albania	Code 003 (Electricity Trading Manager)	Albania
9	Private Company	Statkraft Devolli Hydropower	Yes	https://www.statkraft.com/en-al/	ABA Business Centre, Office No. 1206 (Papa Gjon Pali II Street, Tirana, Albania)	Code 004 (Energy trader for Albania and South-Eastern Europe)	Albania
10	Private Company	Credins Bank, Auditues Energjie i Certifikuar (Freelancer)	No	https://bankacredins.com/en/	Vaso Pasha Street, Nr.8, Tirana, Albania	Code 005 (Electric Engineer)	Albania
11	Private Company	SINANI shpk	No	sinani.al	Autostrada Tirane- Durres ,km 26 Xhafzotaj Durres	Code 005 (Electric Engineer)	Albania
12	Public Owned Company	OSHEE	Yes	oshe.al	Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1, Njësia Administrative Nr. 7, 1023, Tiranë, Shqipëri	Code 001(Head of Technical Assistance Department)	Albania
13	Public Owned Company	OSHE	Yes	oshe.al	Bulevardi "Gjergj Fishta", Ndërtesa Nr. 88, H. 1, Njësia Administrative Nr. 7, 1023, Tiranë, Shqipëri	Code 002 (Head of Projects Sector)	Albania

8 Competence Matrix

Competence MATRIX														
Legend	No/Not applicable/ Not managerial/ lack of curricula for energy trading/ lack of qualified staff. 	Basic Level/ not fully qualified/ great need of improvement /on job training/ lack of investment in human capital/ low level of wages massive immigration 	Advanced level/ 50 - 60% / partially/ neutral/continuous trainings 	Expert/ 75-90%/Needs more improvement. 										
							Specialist/ 100%/ positive / managerial 						
	General Question Related to Energy Education							Energy market		Future Demands				
Question	Graduation	Function	Compliance with the degree	Years of Experience	Employment Country	Curricula Improvement		Changes in Energy Market	Comparison with EU and Region	Qualified Workforce	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
1	UPT			15	Albania										
2	UPT			3	Albania										
3	UPT			8	Albania										
4	UPT			11	Albania										
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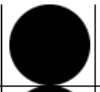
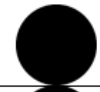
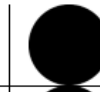
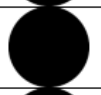
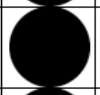
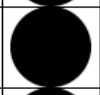
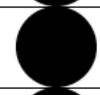
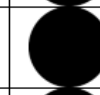
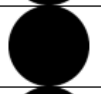
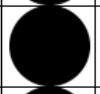
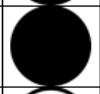
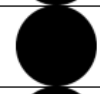
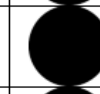
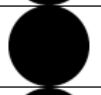
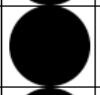
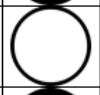
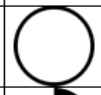
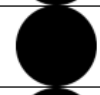
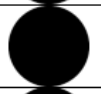
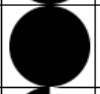
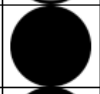
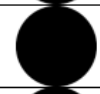
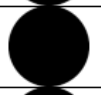
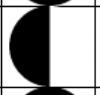
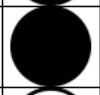
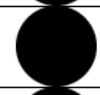
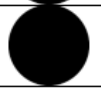
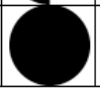
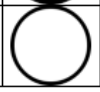
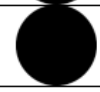
7	UPT			5	Albania									
8	UPT			8	Albania									
9	UPT			8	Albania									
10	Other			11	Albania									
11	UPT			10	Albania									
12	UPT			20	Albania									
13	Albanian University			4	Albania									

Co-funded by the
Erasmus+ Programme
of the European Union

4. Development of interviews with relevant stakeholders and creation of the competence matrix in KPT

1. Summary

This document highlights the main findings of the survey conducted by KPT in the framework of ENGINE project. This deliverable corresponds to task D.1.2. "Development of questionnaire and interviews with relevant stakeholders and creation of the competence matrix", led by UAMD and KHAS.

2. Survey Objectives and Design

In the framework of the ENGINE project in-depth interviews were developed and composed by UAMD. KPT conducted a total of 8 interviews.

Both qualitative and quantitative questions were part of the interview. Compilation of all findings obtained from in-depth desk research and questionnaires / interviews will provide the basis in setting of required competences and technical background in Albanian HEIs.

The identified set of competences during the interviews will be used during the update of the existing VET study programs of KPT in energy related disciplines, being thus in accordance to the market's demands and need and in the light of a dynamic technology.

3. Methodology

The Questionnaire

Questions in the interview were categorized in 3 main sections and one last one left for Conclusions, if they deemed to include any further comments they considered important.

Section 1. General questions related to engineering profile education

Respondents were asked about graduation, the function they hold within the organization, years of experience within the energy sector, etc. In this category of questions respondents were requested to give their opinion about potential improvement in the universities' curricula and on issues like "Engineering, Economics and Environment" and the challenges toward them.

Section 2. Questions related to the energy sector in Albania.

Respondents were requested to give their opinion on topics related directly to the energy sector in Albania: technological or organizational changes of the energy market in Albania; the relation and comparison to EU countries and other Balkan countries; the management and operation of power systems; use of renewable energy sources; etc.

Section 3. The future of market needs / demands

The last group of question was focused on matters of market needs and demands in the future. In this section were enquired topics like the qualification of the workforce, collaboration with the academic institutions and the role of the universities in the energy market.

The sample aimed to be inclusive: that is to include the private sector as a very active shareholder, and the public sector in terms of public entities and public owned companies. The aim was to avoid overlapping with other actors already subject of interview from other HEI-s.

Some of the public stakeholders were identified by means of the National Action Plan for Renewable Energy Resources in Albania, 2015-2020, prepared by the Ministry of Energy and Industry, pages 28 and on.

The sample is composed of different target groups:

- Representatives of public institutions in the area of Electrical Engineering and Energy sector such as the Energy Regulation Entity (ERRE) and the National Agency of Natural Resources (AKBN) or related to environment such as the National Ozone Unit;
- Private sector representatives in area of Electrical Engineering and Energy sector (actually 4 companies but 2 belong to the same group and the administrator in charge was the same person).
- Public companies operating in the related area (KESH and "Furnizues i Tregut te Lire", part of the Electric Utilities Industry.

Interviews were conducted from April 15th until April 24th by KPT staff mostly in person and in some cases remotely using the telephone or followed up via e-mail.

The template of the interview for engineering curricula modernization in renewable energy in Albanian Universities are attached in EXHIBIT I of this report.

4. Sample composition

Out of 8 interviews, 3 of them were conducted in the public institutions in the area of Electrical Engineering and Energy and environment, 2 in companies that are owned 100 % from state and 3 in private companies (see *Fig.1 below*).

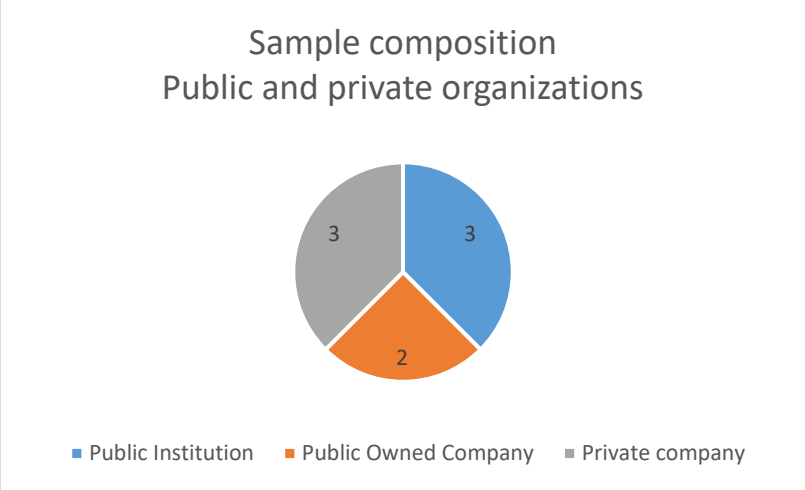


Fig.1. Sample composition; public and private entities

4 of the participants are in managerial positions within their organization and 4 are in non-managerial positions (engineers/ specialist) (*Fig. 2).*

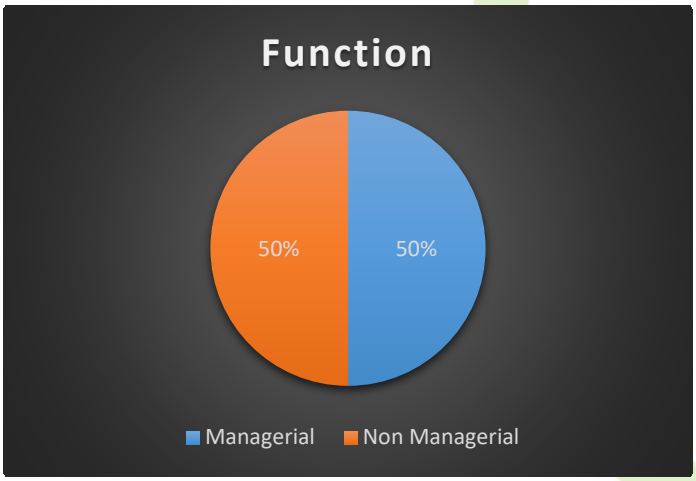


Fig. 2. Sample composition - Function

Regarding the years of experience in the energy industry: the youngest has 2 years and one month in the industry, while the oldest has 30 years.

The years of experience is as follows below in *Fig. 3:*

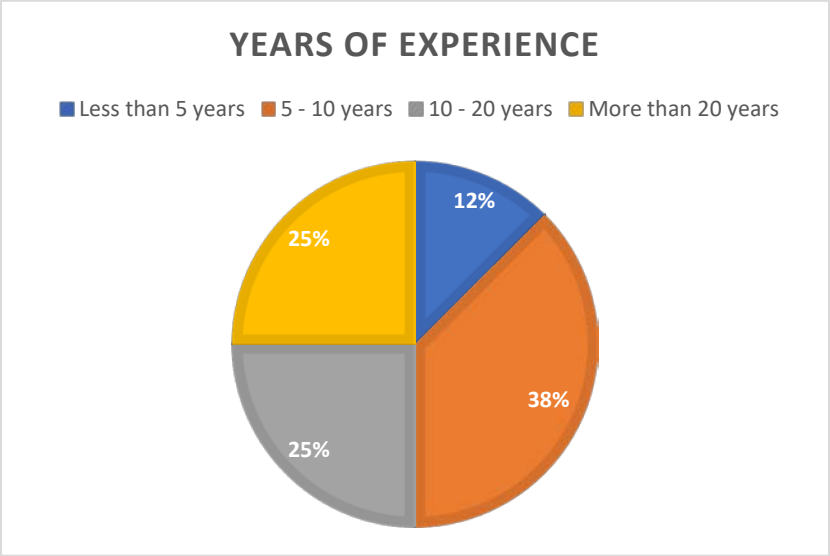


Fig. 3

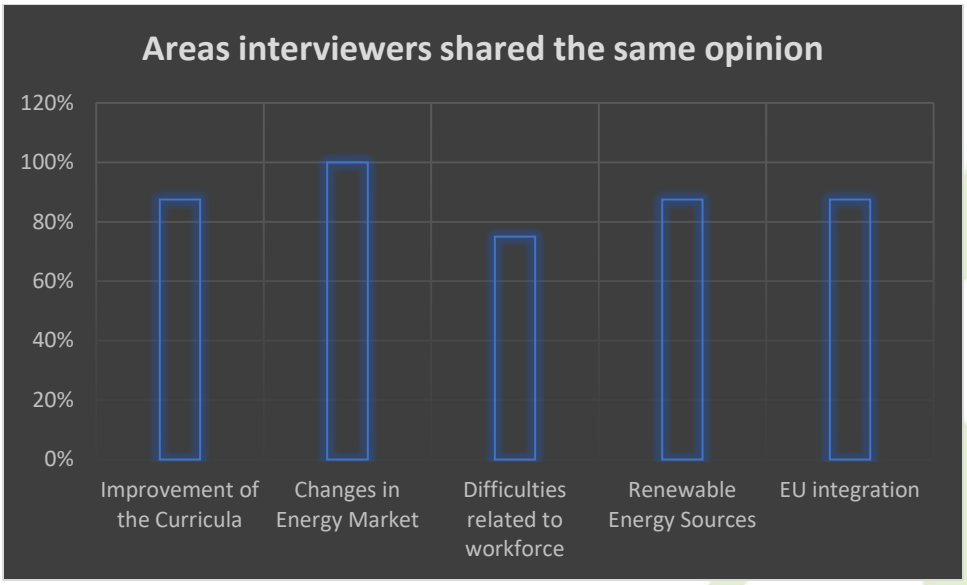
5. Results

The main findings of the interviews are as follows:

1. All the respondents except for one, work only in Albania.
2. All the respondents (except for one who did not provide an answer), agreed that the curricula does have room for improvement. Their main suggestions were to improve, update, enrich the curricula and syllabuses with novelties of technologies that make use of RER, energetic efficiency, RER energy, SMART grid etc. and specially to add more practice, internship, and lab hours in the curricula.

3. To the respondent save one, the energy market in Albania is seen as "**Stable**", an **"emerging market",** that has a great potential for further development in terms of solar, wind energy etc., that has attracted investment and having diversification of energy in focus. Only for one of the responded (private company) considered the market to be "**legging behind**", **with losses where the opinion of stakeholders is not considered**.
4. Changes have been noted from the organization point of view and technological point of view, including changes in law that enabled such.
5. Regarding the **prediction of the energy prices**, establishment of energy stock market, liberalization, investment on renewable energy sources will decrease the price of energy. One respondent pointed that as incentives are missing in this regard, investment will be low.
6. Participants agreed that the future of energy is **renewable energy,** and more investments should be focused on this; especially the private sector mentioned that legal framework in some case i.e., energy auditing is lacking, other legal framework should be more elaborate and to provide incentives for business, to attract investments. The same stance was supported by one public institution who also emphasized the need to finance a better lab infrastructure for schools for research and teaching. For the rest of the respondents the legal framework is up to date and in accordance with EU acquis, providing accurate legal references.

   (See graph below)



Collaboration with Academia

5 of the respondents declared that the institution or the business that they represent collaborate with academic institutions, such as organizing trainings etc. 2 private companies have had contact and expected that HEI establish research groups to make research on real cases. *(See Fig. 4 below)*

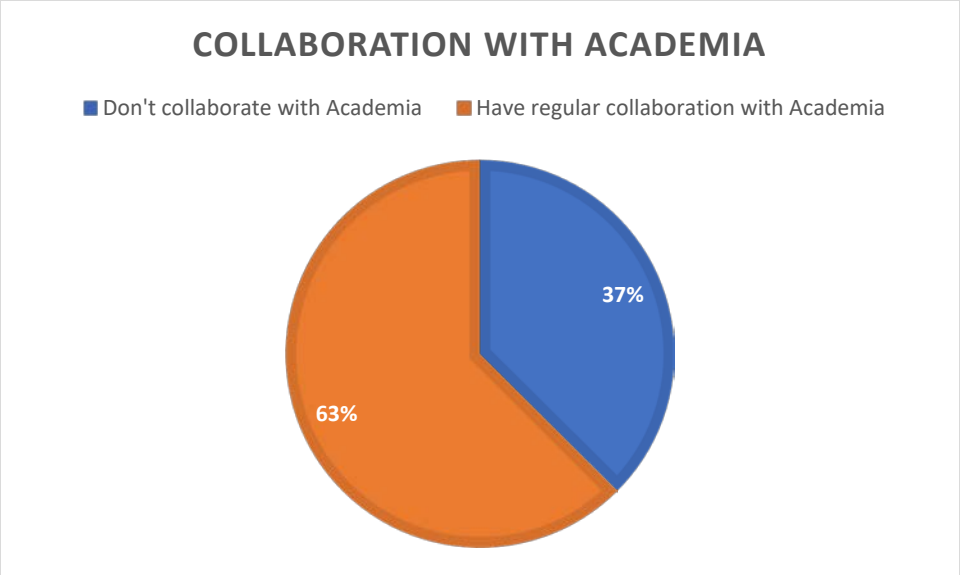


Fig. 4

Curricula Improvement

Main suggestions regarding curricula improvement are as follows:

- Professional Practice is lacking and should be added.
- It should be enriched with innovations in technologies that use Renewable Energy Sources.
- It should be enriched with accurate curricula and their combination with best practices in this field.
- Special courses should be added on the energy produced from renewable sources, the implementation of the Smart Grid and the intelligent use of energy, as well as on the energy efficiency.

- Introduction to renewable energy course curricula, and adaptation of Syllabuses related to renewable energy and energy efficiency, that have direct impact on the environment etc.
- Updating the curricula based on the evolution of technology in each sector. Increase of laboratory / practice hours.

6 respondents stated their job was 100% fit with their diploma.

1 responded that it was fit and 1 said was partially fit.

Universities' role in the market and Workforce Qualification

From the interviews it results that 6 out of 8 respondents declared that the market with the dynamic changes, energy and technology lacks qualified workforce. One has a skilled and trained workforce and training is provided to them. One did not answer the question.

Investment in human capital is seen as crucial as it lack becomes a barrier to the development of the sector.

Reasons for such lack of skilled workforce is seen related to:

- The market needs are not met. As such the market takes advantage of the unskilled ones
- Many new technologies making their way to the market and the workforce is thus unprepared.
- Emigration

All the participants approved that HEI (universities and professional colleges) have an important role in preparing experts in this field, in making relevant research etc.

Preparation of senior technician in vocational colleges is also seen as a solution to the need of a skilled workforce.

6. Conclusions

Main discoveries of this report regarding academia and energy market are as follows:

- Curricula improvement: curricula and syllabuses should be enriched with innovations in technologies that use Renewable Energy Sources and their combination with best practices in this field.
- Universities should be pro-active and play their role with regard to curricula improvement, research groups and specific related research and their collaboration with industry and business in preparing the skilled workforce.
- Encouraging new technologies as well as vocational education.
- Energy efficiency is considered as very important in cost reduction, environment protection although it:

  should be more friendly user to consumer, there is lack of legal framework, is missing and due to poor enforcement is increasing the construction cost.

  Strong emphasis is put on market liberalization.

Please note:

- The template of the interview is in EXHIBIT I
- The database of the stakeholders is in EXHIBIT II
- A summary of the respondents' input is at the end of this report EXHIBIT III

EXHIBIT I – The interviews

Interviews with stakeholders in the energy sector

1 - **General questions related to engineering profile education?**

- Name and surname / code of the respondent
- Where and when did you graduate?
- What is the function and position you hold in the company?
- What is the compatibility of the job position with the degree of engineer?
- How long have you been employed in this field?
- Do you work only in Albania or elsewhere?
- How could the curriculum be improved in the Bachelor or Master study programs at HEIs, to better serve your job position?
- How do you think the challenges in the university system can be overcome regarding the 3 main topics "Engineering, Economics and Environment"

2. Questions related to the energy sector in Albania

- Do you have cooperation relations with foreign companies?
- Have you noticed technological or organizational changes during the time you have been working in this sector? (describe somewhat longer the answer to this question)
- How would you describe the energy sector in Albania?
- Can you compare it with the countries of the region or the European ones?
- What are the challenges faced by the management and operation of power systems?
- Can you give your opinion on the following issues:
    - o control and stability of power systems
    - o use of renewable energy sources

- o Smart Grid implementation and intelligent energy use
- o Insulation and electrical materials
- o Electrical equipment
- o Relay equipment and power system monitoring
- o Energy price forecast
- o Energy efficiency

3. The future of market needs / demands

- Do you have a skilled workforce?
- What are the difficulties you face in relation to the workforce?
- What skills do you require from the workforce in this sector?
- Do you plan to increase investments in the implementation of Renewable Energy Sources?
- Do you cooperate with the Academy?
- Your opinion on the policies and reforms needed for the future in the energy sector.
- What is the role of universities in this matter?
- How do you think Albania's EU Integration will affect?

9 Conclusions

- Please comment further on the topic of the interview

7. Exhibit II ENGINE Stakeholders Database

Erasmus+ Capacity Building Project							
Engineering curricula modernization in renewable energy in Albanian Universities							
ENGINE							
ENGINE Stakeholders Database							
No	**Stakeholder type** *(GO/NGO, int/national/regional/local, academic/political/business)*	**Name of organisation/institution**	**Availability for Internships**	**Website**	**Address**	**Contact Person**	**Country**
1	Public Institution	Energy Regulation Entity (Enti Rregullator i Energjise)	Yes	https://www.ere.gov.al/	Rruga Abdi Toptani, 4 ,Tirana, Albania	Msc.ing. Gledis Kalemi specialist e-mail: gledis88@ere.gov.al mob: 0692348619	Albania
2	Private Company	POWER SHPK	Yes	https://swidalb.com/	TIRANE Njesia Bashkiake Nr.6, Rruga Ilia Dilo Sheperi, Banese Private Nr.2/1, Albania	Pirro Kaltani, Administrator, e-mail: office@swidalb.com; mob: 0675448696	Albania
3	Private Company	Advanced Business Solution	Yes	www.abs-al.com	Rruga "Papa Gjon Pali II", Nr.19, Tirana, Albania	Irdi Goce (Head of Electrical Department)	Albania

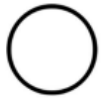
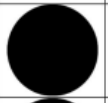
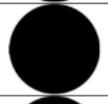
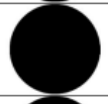
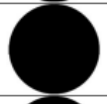
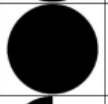
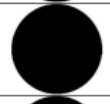
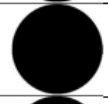
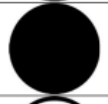
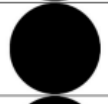
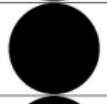
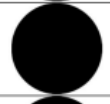
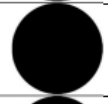
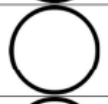
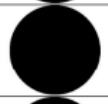
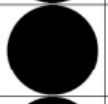
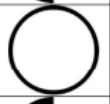
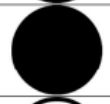
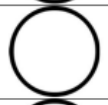
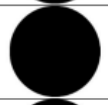
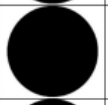
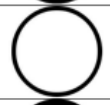
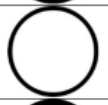
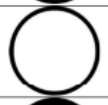
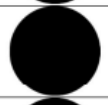
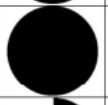
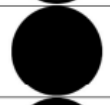
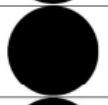
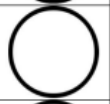
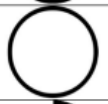
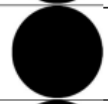
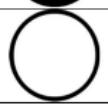
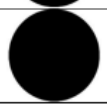
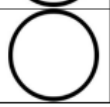
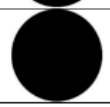
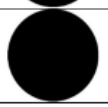
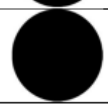
4	Public Owned Company	Furnizues I Tregut te Lire Sh.A.	Yes	www.oshee.al	BULEVARDI GJERGJ FISHTA 88, H.1, KATI IV, Tirana, Albania	Edmond Celmeta, engineer	Albania
5	Public Institution	AKBN		http://www.akbn.gov.al/	Bulevardi "Bajram Curri", Blloku "Vasil Shanto", Tirana, Albania	Teuta Thimjo Head of the Renewable Energy Sources Monitoring Sector, Directorate of Renewable Energy, AKBN.	Albania
6	Public Owned Company	KESH		http://www.kesh.al/en/about-us/contact/	Block, "Vasil Shanto", Tirana, Albania	info@kesh.al	Albania
7	Private Company	Koka Ergi Energy Peshk Koka Ergi Energy Stavec	Yes	https://koka-shpk.com/en/energjitike/	Rr. Dibres,Pall.AK, H.11, K. 3, Ap.8, Tirana-Albania	Ersi Salaj, Administrator, mob: 0684089001	Albania
8	Public Institution	National Ozone Unit	Yes	https://ozoneal.com/fillimi/	Bulevardi Zogu I, Tirana 1016, Albania	Fatmir Tafaj, spcialist, Cel.: 0682041200 Email: fatmir.tafaj@ozoneal.com	Albania

8. EXHIBIT III

Questions	General Question Related to Energy Education						Energy Market		Future Demands					
Institution	Graduation Institution	Function	Compliance with Degree	Years of Experience	Employment Country	Curricula Improvement	Changes in Energy Market	Comparison with BE and Region	Qualified Work force	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
AKBN	UPT	Managerial	100%	21	Albania	Yes	Yes, Positive	Doing well	NA	NA	Yes. INCREASING	YES	Needs to be reinforced	Positive
Advanced Businnes Solution	UPT	Managerial	100%	2 Yrs and 1 month	Albania	Yes	Yes, Positive	Doing well	No	Lack of Investment in Human Capital	Yes	No	Needs to be reinforced	Positive
POWER shpk	UPT	Managerial	100%	22	Albania	Yes	Yes, Positive but needs more attention	Needs Improvement	Partially	Low number of skilled employees.	Yes	Low level of cooperation	Needs to be reinforced	Positive
ERRE	UPT	Non-managerial	100%	6	Albania	Yes	Yes, Positive	Doing well, still needs Improvement	No	Low number of skilled employees.	Yes	Yes	NA	Positive
Furnizues I Tregut te Lire Sh.A.	UPT	Non-managerial	100%	30	Albania	NA	Yes, Positive	Needs Improvement	Partially	Gaps in education followed by an	No	No	NA	NA

									undeserved career				
KESH	UBT	Non-managerial	100%	17	Albania	Yes	Yes, Positive	Towards continuous improvement, doing well.	Yes	There are no difficulties. Workforce is doing quite well	Yes	Yes	In continuous cooperation	Positive
Koka Ergi Energy, Stavec	UPT	Managerial	100%	10	Albania and other countries	Yes	Changes need to be made	There is a great need for improvement	No	Lack of technical communication	Yes	Yes	NA	Positive
National Ozone Unit	NA	Non-managerial	Partially	8	Albania	Yes	Changes need to be made	Needs Improvement	No	Low number of skilled employees.	Yes	Yes	In continuous cooperation	Positive

9. Competence Matrix

Competence MATRIX														
Legend	No/Not applicable/ Not managerial 	Basic Level/ great need of improvement 	Advanced level/ 50% / partially 	Expert/ 75-80%/Needs more improvement. 									Specialist/ 100%/ positive / managerial 	
	General Question Related to Energy Education						Energy market		Future Demands					
Question	Graduation	Function	Compliance with the degree	Years of Experience	Employment Country	Curricula Improvement	Changes in Energy Market	Comparison with EU and Region	Qualified Workforce	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
1	UPT			21	Albania									
2	UPT			2 Yrs. and 1 month	Albania									
3	UPT			22	Albania									
4	UPT			6	Albania									
5	UPT			30	Albania									
6	UBT			17	Albania									
7	UPT			10	Albania and other countries									
8	NA			8	Albania									

Co-funded by the
Erasmus+ Programme
of the European Union

5. Development of interviews with relevant stakeholders and creation of the competence matrix in "Aleksander Moisiu" University of Durres

1. Summary

This document highlights the main findings of the survey conducted by UAMD in the framework of ENGINE project. This deliverable corresponds to task D.1.2. "Development of questionnaire and interviews with relevant stakeholders and creation of the competence matrix", led by KHAS and UAMD.

Based on the findings obtained from the questionnaires and interviews, the existing curricula will be updated, and programs of some new subjects will be developed in the professional and Bachelor studies programs, as a result the modernization of the education curricula in the field of energy in accordance with labour market needs.

2. Survey Objectives and Design

In the framework of the ENGINE project in-depth interviews were developed and composed by UAMD, which has conducted a total of 10 interviews.

Survey objectives are the analyzing of the educational needs in engineering for renewable energies through problem and job analysis, and the defining of the necessary knowledge, skills and competencies of engineers in the sector of renewable energies in terms of learning outcomes.

Another objective of survey is the design of syllabi and course content and assessment for compulsory and elective courses in VET and bachelor engineering education for renewable energy to meet the market needs and upgrade the university academic offer accordingly.

Both qualitative and quantitative questions were part of the interview. Compilation of all findings obtained from in-depth desk research and questionnaires / interviews will provide the basis in setting of required competences and technical background in Albanian HEIs.

3. Methodology

Both qualitative and quantitative methodologies are used. Online questionnaires are distributed to specific stakeholders in various fields. In parallel with this, a total of 10 interviews were conducted.

The summary of all the findings obtained from the in-depth research and the questionnaires/interviews provided the basis for determining the competencies and training techniques required in Aleksander Moisiu University of Durres. The competency matrix was created.

I. The Interviews

The questions in the interview were categorized into 3 main sections and in the last section comments were requested for each of the interviewees if they considered any issue important and which was not mentioned in the interview.

Section 1. General questions related to engineering profile education.

In the first section, the interviewers were asked about general issues related to education, position, adaptation of education to the workplace, as well as the challenges that the university system had to overcome in the future.

Section 2. Questions related to the energy sector in Albania.

In the second section, the interviewees were asked about important issues related to the energy sector in Albania, how they could describe the energy sector, technological and organizational changes, how they see the energy sector in Albania compared to those of European countries, as well as to give their opinion regarding the use of renewable resources, electrical equipment, monitoring system, price forecasting, etc.

Section 3. The future of market needs / demands

In the third section, the interviewees were asked for their opinion on the future of market needs, the policies that should be followed, the connection of this sector with academic life, etc.

The sample aimed to be inclusive the private sector as a very active stakeholder, and the public sector in terms of public entities and owns companies.

The sample is composed of different target groups:

- The interviewers of public institutions in the area of Electrical Engineering and Energy sector such as the Albanian electric energy corporation (KESH), Regional Directorate (OSHE) Durres, Distribution System Operator, or related to environment such as the National Ozone Unit (JSC), the Municipality of Durres, Aleksander Moisiu University Private sector representatives in area of Electrical Engineering and Energy sector (actually 5 companies).

Interviews were conducted from April 15th until April 24th by UAMD staff mostly in person and in some cases remotely using the telephone or followed up via e-mail.

The template of the interview for engineering curricula modernization in renewable energy in Albanian Universities are attached in Appendix 1 of this report.

4. Sample composition

Out of 10 interviews, 4 of them were conducted in the public institutions in the area of Electrical Engineering and Energy and environment, one of them is the public owns company and 5 in private companies (see *Fig.1 below*).

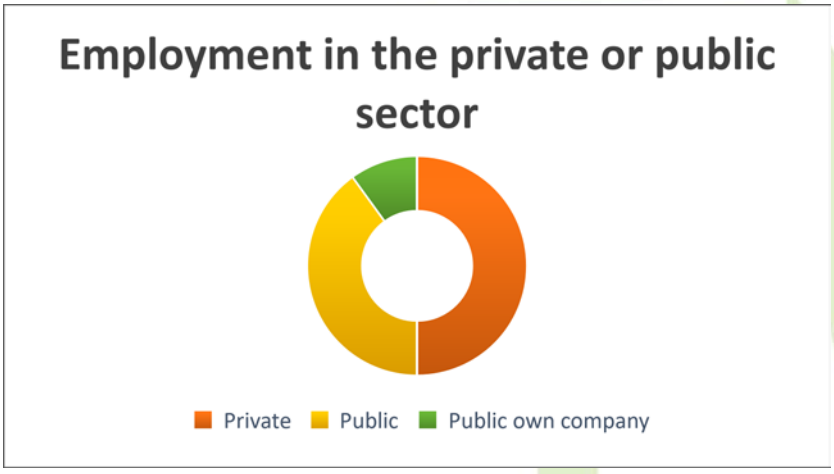


Fig.1. Sample composition; public and private entities

Out of 10 interviews, 4 of the participants are in managerial positions within their organization and 4 are in non-managerial positions (engineers/ specialist), 2 are NA. (*Fig. 2).*

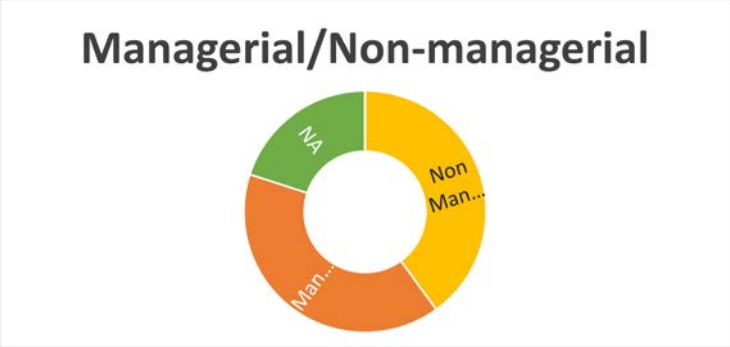


Fig. 2. - Sample composition – Function

Regarding the years of experience in the energy industry: the youngest has 3 years in the industry, while the oldest has 35 years.

The years of experience is as follows below in *Fig. 3:*

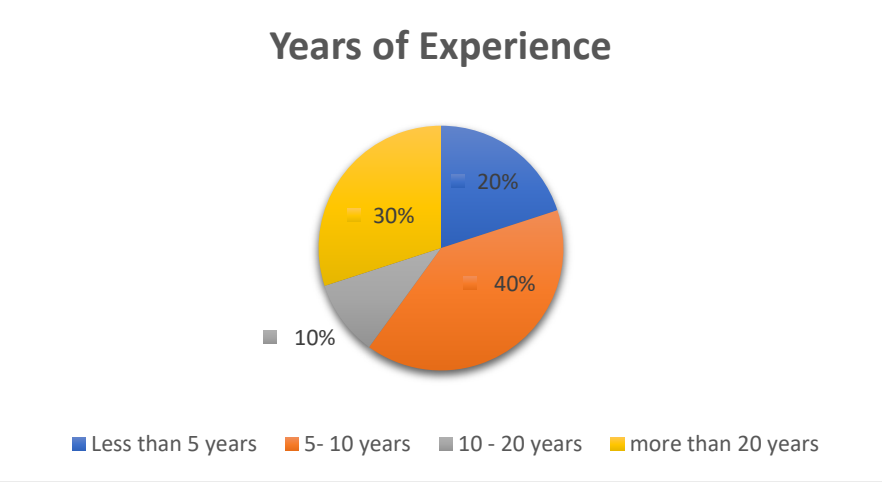


Fig. 3

Regarding the compliance with degree, out of 10 interviews, 7 of the participants are totally compliance with their degree, while 3 of the participants are participially compliance with degree (fig. 4).

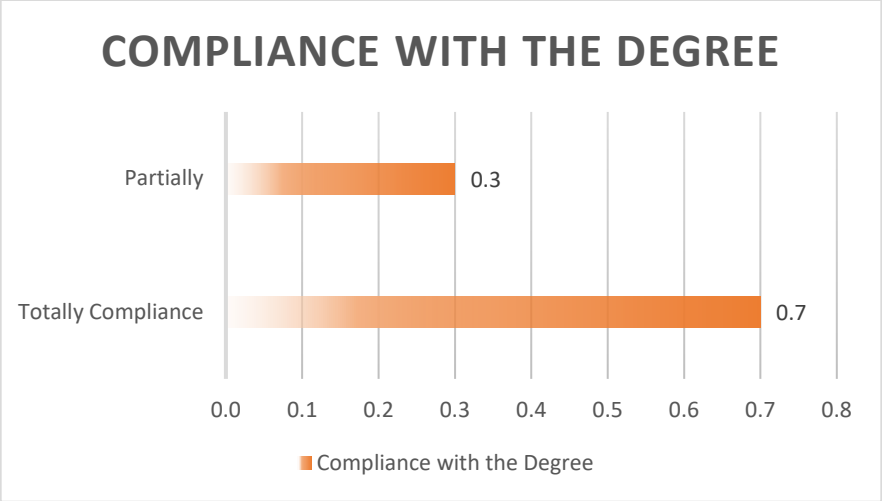


Fig. 4

The change energy market in Albania is as follows below in fig. 5:

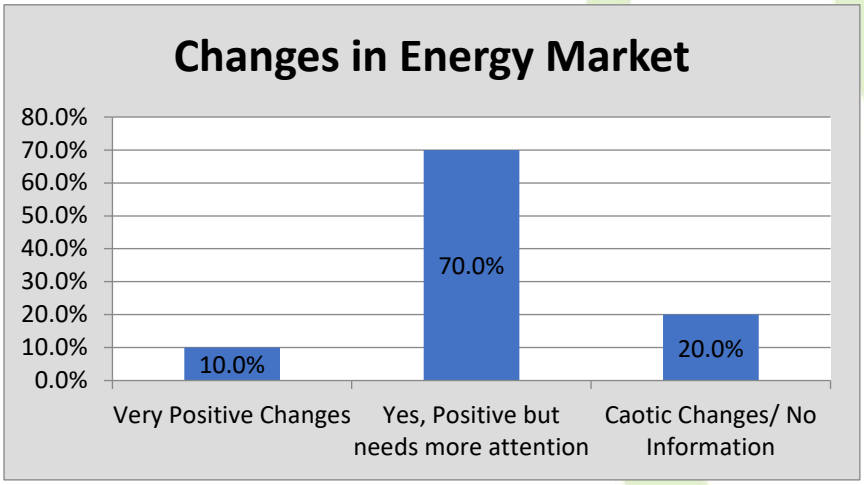


Fig. 5

Regarding the cooperation with the Academy out of 10 interviews, 2 of the respondents declared that the institution or the business that they represent collaborate with academic

institutions, such as organizing trainings etc. 2 private companies have had contact and expected that HEI establish research groups to make research on real cases. *(See Fig. 6 below)*

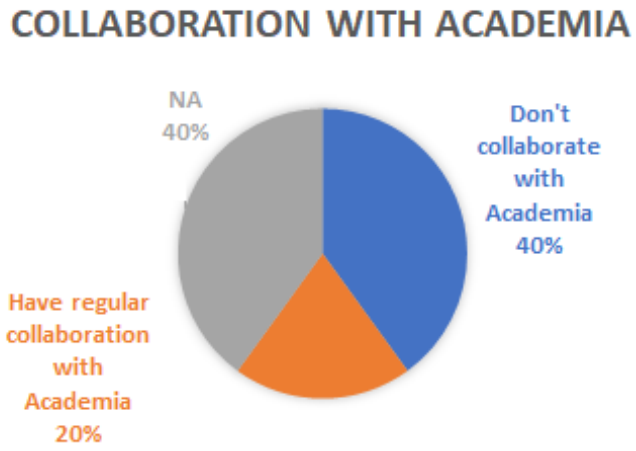


Fig. 6

From the interviews it results that 6 out of 8 respondents declared that the market with the dynamic changes, energy and technology lacks **qualified workforce** (see fig. 8 below). One has a skilled and trained workforce and training is provided to them. One did not answer the question.

Investment in human capital is seen as crucial as it lack becomes a barrier to the development of the sector.

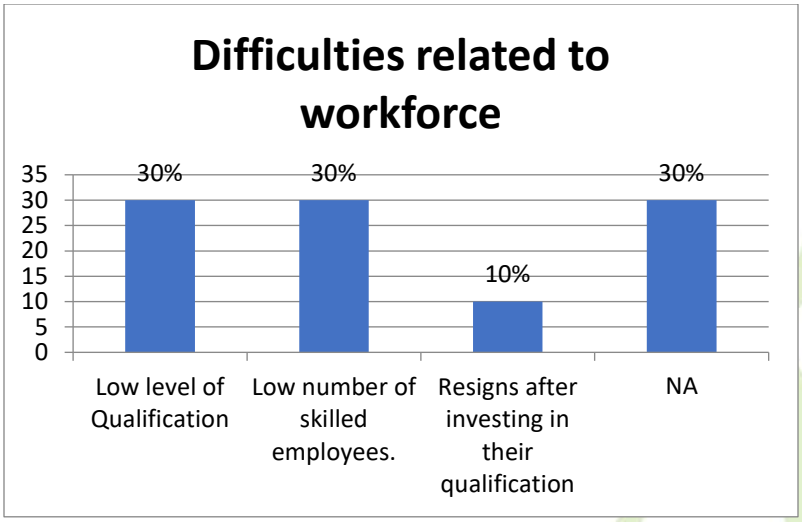


Fig. 8

5. Results

The main findings of the interviews are as follows:

10. All the respondents work only in Albania.
11. All the respondents (except for one who did not provide an answer), agreed that the curricula should be improved. Their main suggestions were to improve, update, enrich the curricula and syllabuses with novelties of technologies that make the use of RES, energetic efficiency, grid etc. and specially to add more practice, internship, and lab hours in the curricula. Main suggestions regarding **curricula improvement** are as follows:

- ✓ Professional Practice is lacking and should be added.
- ✓ It should be enriched with accurate curricula and their combination with best practices in this field.

- ✓ Special courses should be added on the energy produced from renewable sources, the implementation of the Smart Grid and the intelligent use of energy, as well as on the energy efficiency.
- ✓ Introduction to renewable energy course curricula, and adaptation of syllabuses related to renewable energy and energy efficiency, that have direct impact on the environment etc.
- ✓ Updating the curricula based on the evolution of technology in each sector. Increase of laboratory / practice hours.

12. In terms of **cooperation with the Academy**, the connection between engineering education and public and private companies in the field of energy should be increased, contributing to the improvement of curricula, in connection with the development of professional practices, etj.
13. The change energy market in Albania is generally seen as "**Positive but needs more attention**", one of the interviewers sees it as "chaotic" and another interviewer does not answer, that has a great potential for further development in terms of solar, wind energy etc., that has attracted investment and having diversification of energy in focus. Only for one of the responded (private company) considered the market to be "legging behind", with losses where the opinion of stakeholders is not considered.

14. Changes have been noted from the organization point of view and technological point of view, including changes in law that enabled such.
15. With regard to the **prediction of the energy prices**, establishment of energy stock market, liberalization, investment on renewable energy sources will decrease the price of energy.

One respondent pointed that as incentives are missing in this regard, investment will be low.

16. Participants agreed that the future of energy is **renewable energy,** and more investments should be focused on this; especially the private sector mentioned that legal framework in some case i.e., energy auditing is lacking, other legal framework should be more elaborate and to provide incentives for business, to attract investments. The same stance was supported by one public institution who also emphasized the need to finance a better lab infrastructure for schools for research and teaching. For the rest of the respondents the legal framework is up to date and in accordance with EU requirements.

17. Reasons for such lack of skilled **workforce** is seen related to:

- The market needs are not met. As such the market takes advantage of the unskilled ones
- Many new technologies making their way to the market and the workforce is thus unprepared.
- Emigration

15. All the participants approved that **HEI**s (universities and professional colleges) **have an important role** in preparing experts in this field, in making relevant research etc.

1. Preparation of senior technician in vocational colleges is also seen as a solution to the need of a skilled workforce.

Areas where the interviewers shared the same opinion is shown below (figura 9):

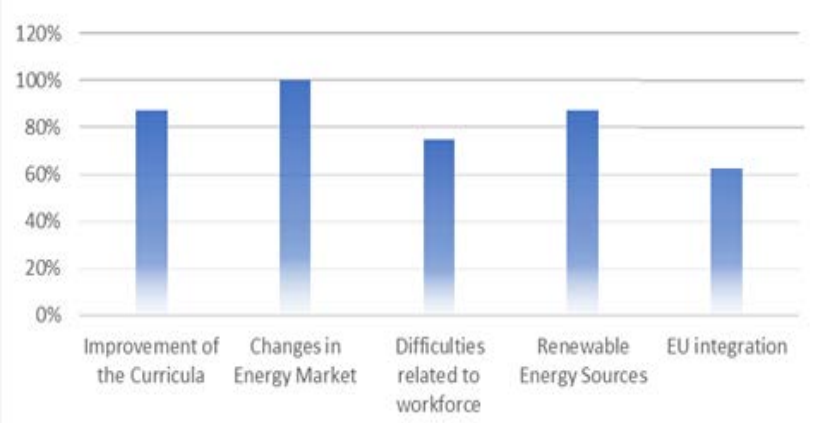

120%
100%
80%
60%
40%
20%
0%
Improvement of the Curricula
Changes in Energy Market
Difficulties related to workforce
Renewable Energy Sources
EU integration

Fig. 9

6. Development of questionnaire with relevant stakeholders from Albanian Partner HEIs (UAMD, UET, KPT)

The development of questionnaires with relevant stakeholders for creation of the competence matrix needs the opinion of students, academic staff, and business sector specialists. The most important target group are considered *students*, current and prospective willing to study Energy efficiency, renewable energy, etc. and related courses. *Academic staff* will benefit from capacity building programs and activities. They enrich their professional background. The *business sector*, ERE, foreign investors, government and the wide society too will benefit from the development project.

During the analysis made in the preparation phase from teams of UAMD, UET dhe KPT (interviews with academic staff, researchers, students, professionals from the industry sector), it was realized that all institutions of partner countries face similar problems and needs that reflect the needs for creating an systematic approach in the introduction and implementation of new mechanisms in WBC HEIs.

For the preparation of individual evaluation reports, a survey was conducted for current needs, that is, the identification of current problems in existing university programs that are mainly related to Renewable Energy sources as well as the connection of HEIs with the energy sector. In this survey participated more than 214 different actors from different fields (lecturers, graduated students, economics, engineeriners, etc.) for feedback on existing and future cooperation between HEIs and business sectors, including knowledge transfer issues and the aspect of innovation.

1. Questionarie addresed to busineses.

- *Type of company: Are you a private or public business?*

  In this survey we have 30 respondents, 92.9% of which have answered that are private companies and 7.1% of the respondents are public companies (Fig. 10).

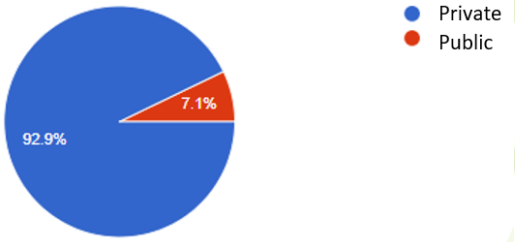


Figure 10

- The question "*Is there cooperation between your company and higher education institutions*?" - most respondents answered "NO" about 60.7%. 39.3% of respondents answered "YES" (Fig.11).

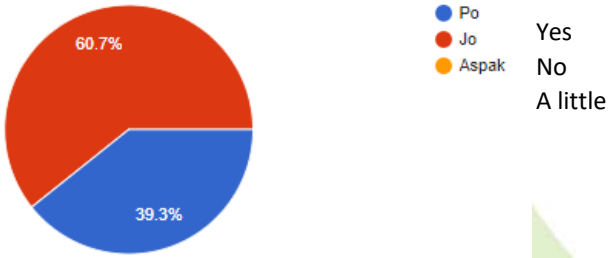


Figure 11

➢ *Cooperatin between business with Energy Sector*

Regarding the question "*How related is the business interviewed with the Energy Sector*?", 32.1% have checked the scale "1-not at all", followed with 28.6% of the businesses are answered "5-totally agree" and 21.4% of them are answered with “3-neutral” (fig.12).

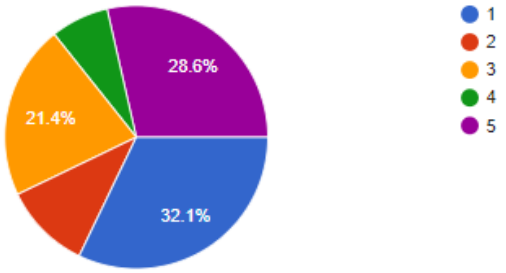


Figure 12

➢ *Are you familiar with the term "Renewable Energy"?*

Meanwhile, 92.6% of respondents are familiar with the term "Renewable Energy" and only 7.4% of them are less familiar with the term (fig.13).

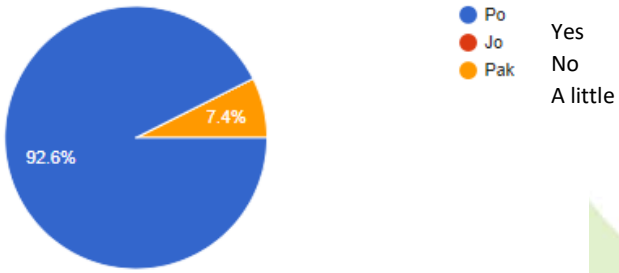


Figure 13

- About the question "*In your opinion, what are the main challenges that the education system in the field of Engineering in Albania is facing*?" the most choosen alternative is: "Lack of infrastructure and academic resources (eg libraries, laboratories, computers, updated teaching materials)" with 66.7%, following: "Lack of funds for new technologies" with 55.6% and the third most checked alternative is: "Lack of cooperation with the industry sector" with 40.7% (fig.14).

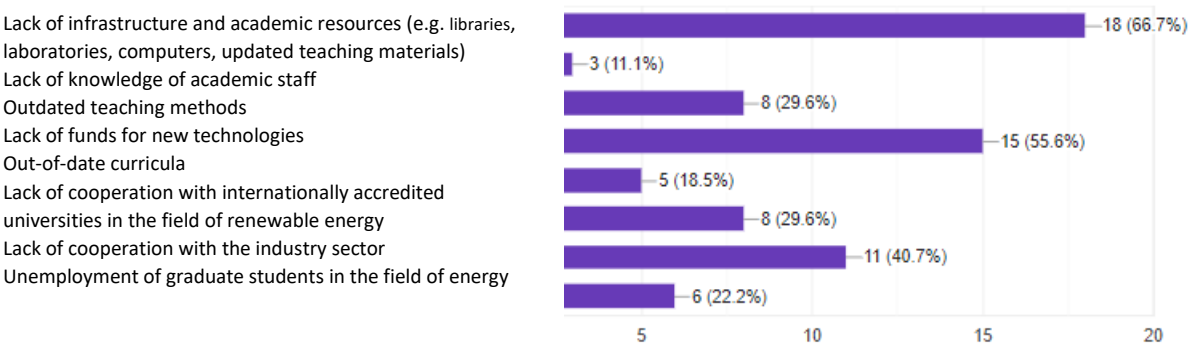


Figure 14

- *What are the positive aspects that can overcome the challenges mentioned above?*

  Obstacles that exist can be overcome by improving: Capacity building of faculties and staff (e.g. Scholarships, teaching by foreign professors, training programs, etc.) 63%; Investment in infrastructure and resources needed for the learning process (eg libraries, laboratories, computers, updating of teaching materials) 66.7% and increase cooperation with the industry sector, 48.1% (fig.15).

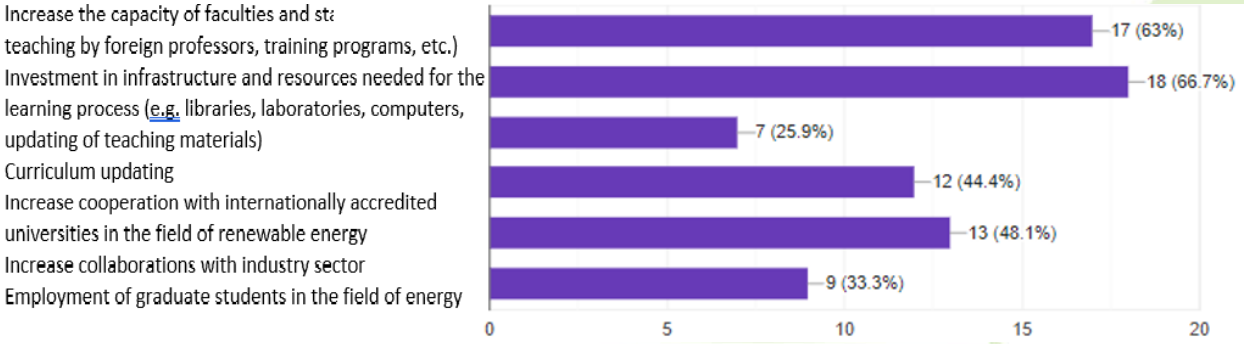


Figure 15

- *Do you think there should be more specialists in the industry sector?*

92.9% of respondents think that there should be more specialists in the field of industry and 100% of respondents think that Albania should adopt renewable energy instead of non-renewable energy (fig.16).

Figure 16

- *Do you think that Albania should acquire renewable energy instead of non-renewable energy?*

Each of the respondents thinks that Albania should acquire renewable energy instead of non-renewable energy (fig.17).

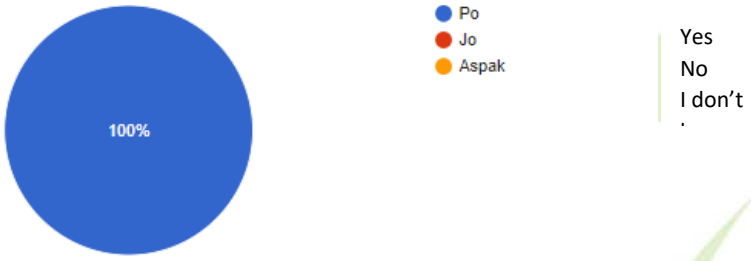


Figure 17

96.4% of respondents think that Albania should adopt exactly solar energy instead of wind or other energy sources.

2. Questionarie addresed to academic staff.

- The cycle of study where you teach

In this survey we have 87 respondents. 42.5% of which give lectures at proffesional level, 40.2% of them lecture at bachelor level and 34.5% lacture at master level (fig.18).

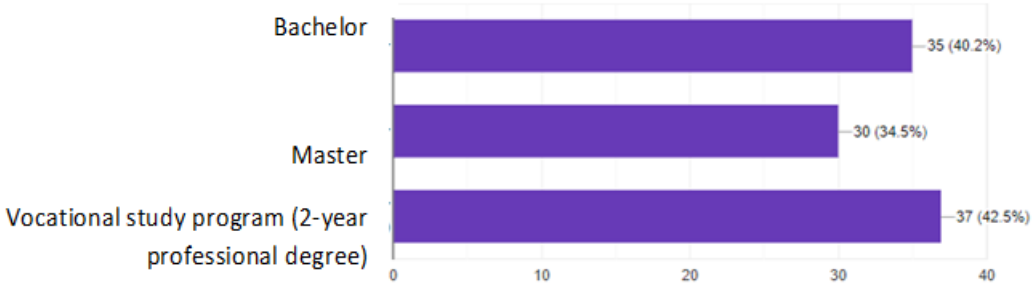


Figure 18

- *Which of the study program elements left the best impression on you*

Regarding some of the constituent elements of the study program "program curriculum" was voted 37.9% for the best impressions, followed by the option "All of the above" with 35.6% (program curriculum, academic level of students and infrastructure where the program was implemented (buildings, laboratories, equipment, etc.), from 21.8% infrastructure where the program was implemented (buildings, laboratories, equipment, etc.) and 9.2% the academic level of students (fig. 19).

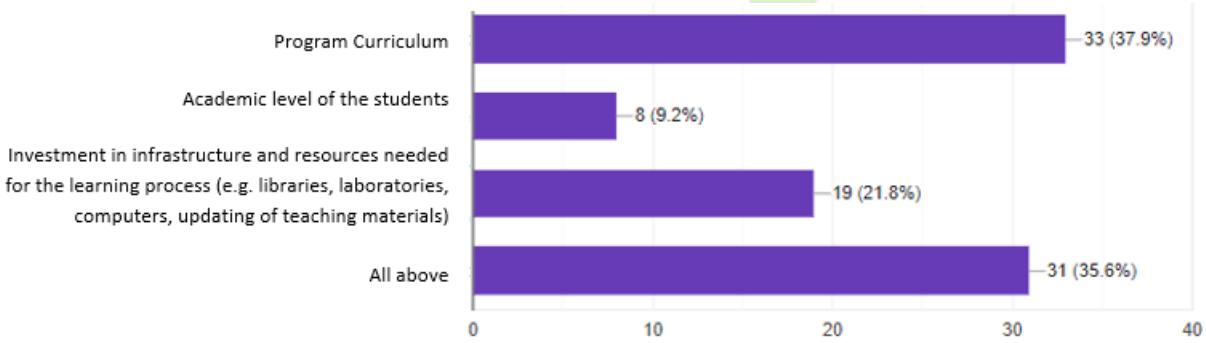


Figure 19

- *Are you familiar with the term "Renewable Energy"?*

Meanwhile, 88.5% of the respondents are familiar with the term "Renewable Energy" and only 85.1% of them know the difference between renewable and non-renewable energy. 9.2% of them are less familiar with the term who are not familiar with the difference between renewable energy and non-renewable energy (fig.20).

Figure 20

- *"In your opinion, what are the main challenges that the education system in the field of Engineering in Albania is facing?*

The three most selected answers (fig. 21) are:

- Lack of infrastructure and academic resources (e.g. libraries, laboratories, computers, updated teaching materials), 56.3% ;
- Lack of funds for new technologies, 54%;
- Lack of cooperation with the industry sector, 54%.

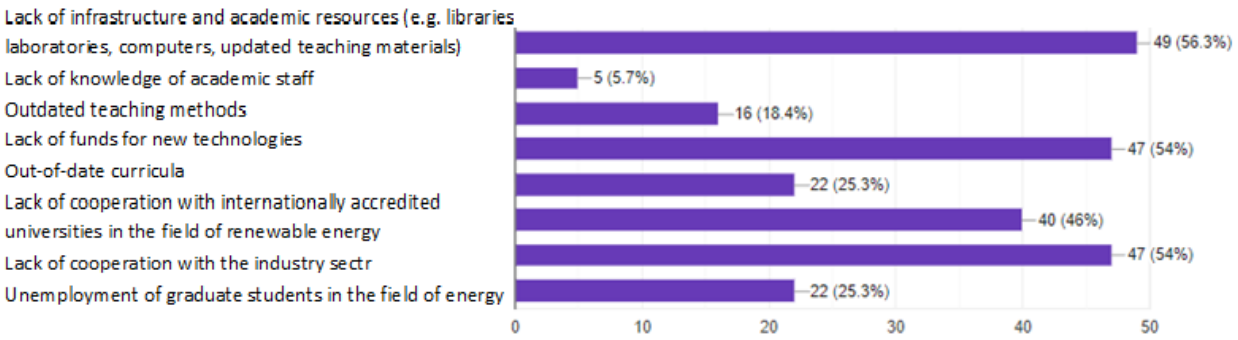


Figure 21

- *What are the positive aspects that can overcome the challenges mentioned above?*

Existing barriers can be overcome by improving: Investment in infrastructure and resources needed for the learning process (eg libraries, laboratories, computers, updating of teaching materials) 69%, Increase cooperation with internationally accredited universities in the field of renewable energy, 59.8% (fig 22).

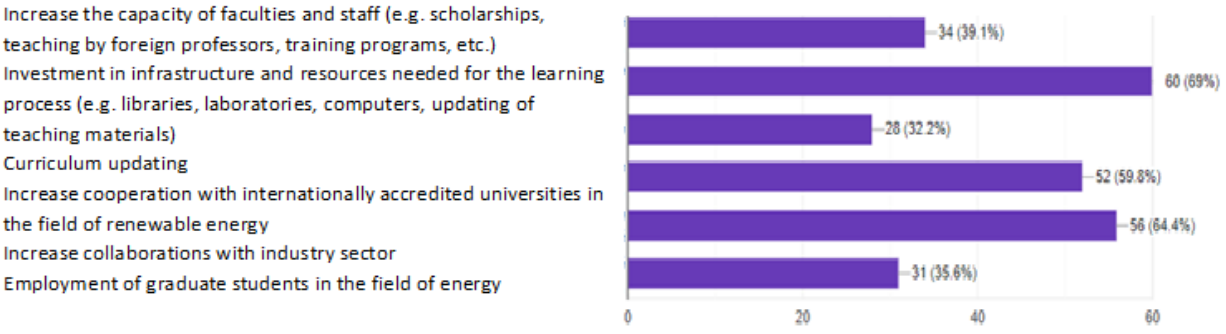


Figure 22

- *Do you think that the course "Renewable Energy" should be a mandatory part of the curriculum of professional study programs?*

Regarding the inclusion in the curriculum of the course "Renewable Energy", 72.4% of the staff answered positively, 16.1% are not convinced if this course should be added to the curriculum and 11.5% of them answered negatively (fig. 23).

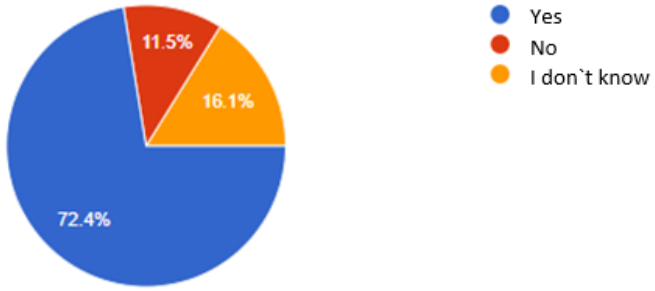


Figure 23

- *Do you think that a new professional study program for renewable energy should be opened?*

Regarding the opening of a new study program dedicated to "Renewable Energy", 73.6% think that a new program should be opened and 25.3% answered "NO" (fig.24).

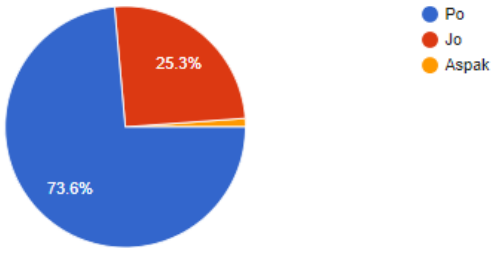


Figure 24

Some of the suggestions on how to improve the curriculum to better serve the job position are:

- Adaptation of our curricula to European ones;
- Inclusion of as many materials related to renewable energy.
- Improving laboratories, establishing links with similar European institutions, links with industry, etc.
- More practical
- Taking the best practices from international universities and adapting them to our country.

3. Questionarie addresed to students.

o *Are you currently employed in institutions?*

The interview of students showed that 60.8% of them are unemployed. Meanwhile, 30.9% are employed in private institutions and 8.2% are employed in public institutions; 64.9% of the interviewees are bachelor students, 20.6% of them are in the master cycle and 14.4% are enrolled in professional study programs (fig. 25 & 26).

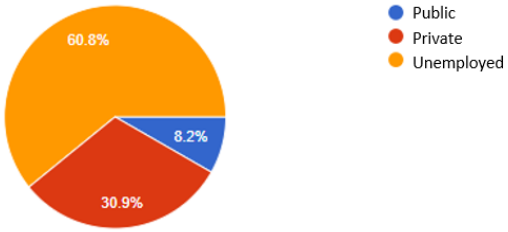


Figure 25

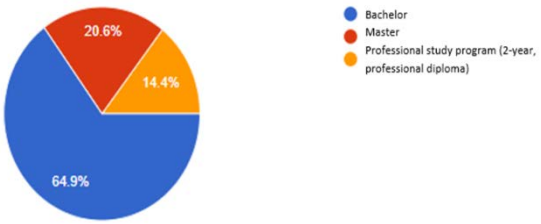


Figure 26

o *Which of the study program elements left the best impression on you?*

The main elements of the study program that students have left the best impressions (fig.27) are:

- Teaching staff 44.3%;
- 23.7% Infrastructure where the program was implemented (buildings, laboratories, equipment);
- 23.7% curriculum of the study program.

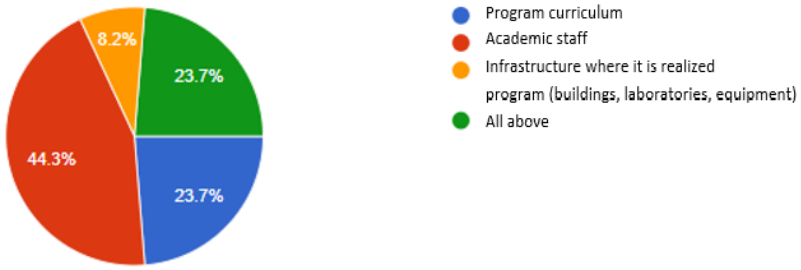


Figure 27

o *How much do you think your degree is valued in the job market, from (1) not at all to (5) a lot?*

The diploma is valued at an average of 32% in the labor market, 13.4% think that it is not valued at all and 13.4% think that it is fully valued (fig. 28).

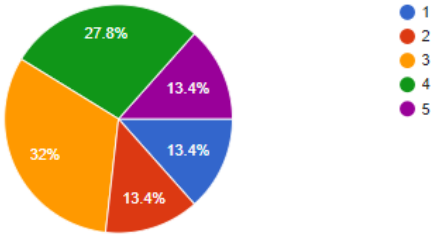


Figure 28

- *How much has this study program affected your stable employment, from (1) not at all to (5) a lot?*

Students think that in their stable employment the study program they attend has influenced on average 13.4%. 43.3% think that it does not affect at all and 8.2 percent of them think that it does (fig.29).

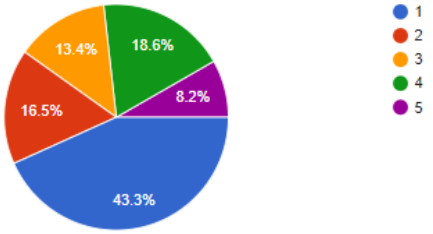


Figure 29

- *Are you familiar with the term "Renewable Energy"?*

Students are familiar with the term “Renewable Energy only 56.7% of them and only 73.2% of them know the difference between renewable and non-renewable energy; 16.5% of them are not familiar with the term, 26.8% knew a little bit regarding the renewable energy (fig.30).

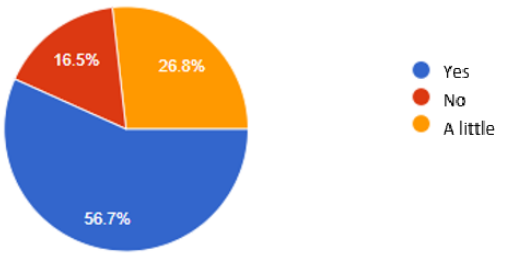


Figure 30

- *Do you think that the course "Renewable Energy" should be a mandatory part of the curriculum of professional study programs?*

37.1% of students answered "I DON'T KNOW" if the course "Renewable Energy" should be part of the curriculum and 37.1% of them answered "YES", while 25.8% answered "NO" (fig.31).

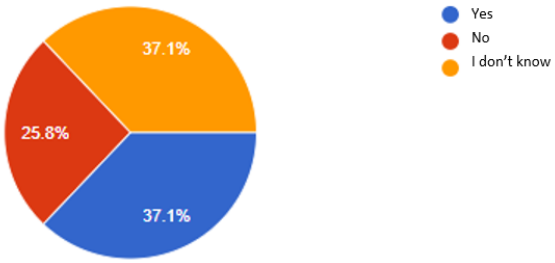


Figure 31

o *Do you think that a new professional study program for renewable energy should be opened?*

From the answers it is noticed that the students are interested and 76.3% of them think that a new study program for Renewable Energy should be opened and 18.6% think that it should not be opened (fig.32).

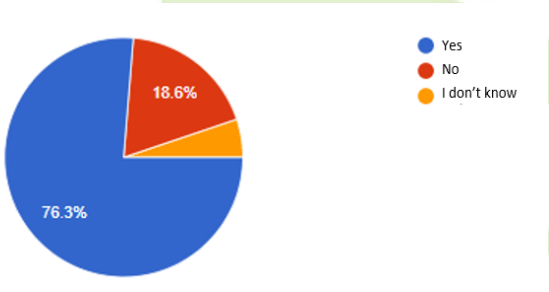


Figure 32

The most common answers to how the curriculum should be improved, to better serve the job position, are:

- More practices should be added
- Realization of these subjects in everyday life and practice in the laboratory;
- The subjects of the profession should be added more and the subjects that have general knowledge should be reduced;
- To create more practical environments.

Based on the results of development of the questionnaries and interviews the competence matrix was drawn up, as follows:

Co-funded by the Erasmus+ Programme of the European Union

COMPETENCE MATRIX

Legende	No / Not Aplicable / Non-managerial / 0-5 years exsperience	Basic Level / 5-10 years experience	Advance Level / 50% / partiallity / 10-20 years experience	Expert / 75-80% / needs more / 20-30 years experience	Specialist / 100% / positive / managerial / Yes / more than 30 years experience

Questions	General Question Related to Energy Education						Energy Market		Future Demands					
Institution	Graduation Institution	Function	Compliance with Degree	Years of Experience	Employment Country	Curricula Improvement	Changes in Energy Market	Comparison with EU and Region	Qualified Workforce	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
1	UPT				Albania									
2	Dalhousie University, Canada				Albania									
3	UPT				Albania									
4	UPT				Albania									
5	UPT				Albania									
6	UBT				Albania									
7	UPT				Albania									
8	Metropolitan University Tirana				Albania									
9	UPT				Albania									
10	UPT				Albania									

4. Conclusions:

Development of questionnaire with relevant stakeholders highlights need for:

- Modernize curricula in engineering for renewable energies
- Capacity building in the renewable energy field
- Investment in infrastructure and resources needed for the learning process (eg libraries, laboratories, computers, updating of learning materials) and encouraging new technologies related to renewable energy
- Increase cooperation with the industry sector
- Taking the best practices from international universities and adapting them to our country

Please note:

- The database of the stakeholders is in EXHIBIT I
- A summary of the respondents' input is at the end of this report (EXHIBIT II)
- The template of the interview is in EXHIBIT III
- Questionnaires (EXHIBIT IV)

5. EXHIBIT I – The database of the stakeholders UAMD

Erasmus+ Capacity Building Project							
Engineering curricula modernization in renewable energy in Albanian Universities							
ENGINE							
ENGINE Stakeholders Database							
No	**Stakeholder type** *(GO/NGO, int/national/regional/local, academic/political/business)*	**Name of organisation/institution**	**Availability for Internships**	**Website**	**Address**	**Contact Person**	**Country**
1	Public Institution	Drejtoria rajonale, OSHE Durres	Yes	www.oshee.al	Rruga Asti Gogoli, Durres, Albania	gezimmuuca@gmail.com	Albania
2	Privat Institution	Albtelekom.sh.a.	yes	http://**www.albtelecom.al**	Rruga "Muhedin Llagami", Kompleksi "Square 21", Tirana, Albania	ferit.godolej@albtelecom.al	Albania
3	Privat Institution	SOLARON sh.p.k		https://www.enfsolar.com/solaron-4	Komuna Parisit, Tirana, Albania	joli.delimeta@solaron.al	Albania
4	Privat Enterprice	KKG Project SEMAN1SOLAR-L8141600140	Yes	www.kkgproject.com	Rruga Sami Frasheri, Ndertesa nr.19, H8/9. Njesia Bashkiake Nr.5. Kodi Postar 1019. Tirana, Albania.	henrialeksi@kkgproject.com	Albania
5	Public Institution	Operatori I Sistemit te Shperndarjes	Yes	www.oshe.al	Rruga Bulevardi Gjergj Fishta, Ndertesa 88/H1, Njesia Bashkiake nr.7 Kodi Postar 1023. Tirana, Albania	vangjush.lubonja@oshe.al; vangjush.lubonja@ossh.al	Albania
6	State Owned Company (JSC)	Albgaz sh.a		www.albgaz.al	Rruga Ndreko Rino 10, Tirana	alban.ibrahimi@albgaz.al	Albania
7	Public Institution	Bashkia Durrës	Yes	www.durres.gov.al	Sheshi ILIRIA, Durres, Albania	mariglen.jahollari@gmail.it	Albania
8	Privat Institution		Yes		Lagja nr. 3 , rr.Egnatia, Durres,Albania	dianadedja@gmail.com	Albania
9	Public Institution	Aleksander Moisiu University, Durres	Yes	www.uamd.edu.al	Lagja nr. 1 , rr.Taulantia, Durres,Albania	erionmali@uamd.edu.al	Albania
10	Privat Institution	INCEPTIO STUDIO	Yes		Lagja nr. 3 , rr.Egnatia, Durres,Albania	suela.dragovoja@gmail.com	Albania

6. EXHIBIT II - A summary of the respondents' input

Questions	General Question Related to Energy Education						Energy Market		Future Demands					
Institution	Graduation Institution	Function	Compliance with Degree	Years of Experience	Employment Country	Curricula Improvement	Changes in Energy Market	Comparison with EU and Region	Qualified Workforce	Difficulties related to workforce	Investment in renewable energy	Collaboration with academia	Role of Universities in Energy market	EU integration
1	UPT	Managerial	100%	21	Albania	Yes	Yes, Positive	Doing well, still needs Improvement	Partially	Low number of skilled employees.	Yes	No	NA	Positive
2	Dalhousie University, Canada	Managerial	80%	6	Albania	Yes	Yes, Positive but needs more	No Comparison	No	Low level of Qualification	No - ist not our responsibility	Yes	NA	Maybe Positive
3	UPT	Managerial	100%	35	Albania	Yes	Yes, Positive but needs more	Comparable with Region but not with EU	Partially	Low number of skilled employees.	No - ist not our responsibility	NA	Needs to be reinforced	Positive
4	UPT	Managerial	Enough	5	Albania	Yes	Yes, Positive but needs more	Towards continuous improvement, doing well.	Yes	Resigns after investing in their qualification	Yes	NA	NA	NA
5	UPT	Non-managerial	100%	11	Albania	NA	Yes, Positive but needs more	Comparable with Region but not with EU	Partially	NA	No - ist not our responsibility	NA	NA	Positive
6	UBT	NA	100%	9	Albania	Yes	NA	No Comparison	NA	NA	NA	NA	NA	NA
7	UPT	NA	Enough	3	Albania	Yes	Caotic	No Comparison	No	Low number of skielled employees	No	No	NA	No Influence
8	Metropolitan University Tirana	Non-managerial	100%	3	Albania	Yes	Yes, Positive but needs more	Doing well, still needs Improvement	Partially	Low level of Qualification	Yes	No	NA	Positive
9	UPT	Non-managerial	100%	30	Albania	Yes	Yes, Positive but needs more	Doing well, still needs Improvement	Yes	No	Yes	Yes	NA	NA
10	UPT	Non-managerial	100%	9	Albania	Yes	Yes, Positive but needs more	Comparable with Region but not with EU	Partially	Low level of Qualification	Yes	No	Needs to be reinforced	Positive

7. EXHIBIT III – The interviews

Interviews with stakeholders in the energy sector

1 - **General questions related to engineering profile education?**

- Name and surname / code of the respondent
- Where and when did you graduate?
- What is the function and position you hold in the company?
- What is the compatibility of the job position with the degree of engineer?
- How long have you been employed in this field?
- Do you work only in Albania or elsewhere?
- How could the curriculum be improved in the Bachelor or Master study programs at HEIs, to better serve your job position?
- How do you think the challenges in the university system can be overcome regarding the 3 main topics "Engineering, Economics and Environment"

2. Questions related to the energy sector in Albania

- Do you have cooperation relations with foreign companies?
- Have you noticed technological or organizational changes during the time you have been working in this sector? (describe somewhat longer the answer to this question)
- How would you describe the energy sector in Albania?
- Can you compare it with the countries of the region or the European ones?
- What are the challenges faced by the management and operation of power systems?
- Can you give your opinion on the following issues:

  o control and stability of power systems

  o use of renewable energy sources

- o Smart Grid implementation and intelligent energy use
- o Insulation and electrical materials
- o Electrical equipment
- o Relay equipment and power system monitoring
- o Energy price forecast
- o Energy efficiency

3. The future of market needs / demands

- Do you have a skilled workforce?
- What are the difficulties you face in relation to the workforce?
- What skills do you require from the workforce in this sector?
- Do you plan to increase investments in the implementation of Renewable Energy Sources?
- Do you cooperate with the Academy?
- Your opinion on the policies and reforms needed for the future in the energy sector.
- What is the role of universities in this matter?
- How do you think Albania's EU Integration will affect?

10 Conclusions

- Please comment further on the topic of the interview

References

Some of the public stakeholders were identified by means of the National Action Plan for Renewable Energy Resources in Albania, 2015-2020, prepared by the Ministry of Energy and Industry, pages 28 and on.

8. EXHIBIT IV – Questionnaires (in Albanian language)

Pyetësor për studentët në kuadër të projektit ENGINE

Ky pyetësor ka për qëllim të analizojë të gjitha problematikat që hasen në programet aktuale të studimit profesional dhe synon përmirësimin e kurrikulave aktuale apo hapjen e programeve të reja të studimit.

* Required

- Gjinia *
- Femër
- Mashkull
- Mosha (në numër) *
- A jeni i punësuar aktualisht në institucione? *
- Publike
- Private
- I papunë
- Kompania ku jeni të punësuar? *
- Cikli i studimit *
- Bachelor
- Master
- Program studimi 2-vjeçar (diplomë profesionale)
- Cila(t) nga elementet e programit të studimit ju ka lënë përshtypjet më të mira *
- Kurrikula e programit
- Stafi mësimdhënës
- Infrastruktura ku është realizuar programi (godina, laboratore, pajisjet)

- Të gjitha të mësipërmet

- Sa mendoni se vlerësohet diploma juaj në tregun e punës, nga (1) aspak në (5) shumë? *

  1 2 3 4 5

- Sa ka ndikuar në punësimin tuaj stabël ky program studimi, nga (1) aspak në (5) shumë? *

  1 2 3 4 5

- Nga 1 deri ne 5, sa përputhet pozicioni juaj i punës me diplomën tuaj, nga (1) aspak në (5) shumë? *

  1 2 3 4 5

- A jeni të njohur me termin “Energji e Rinovueshme”? *
  - Po
  - Jo
  - Pak

- A e njihni ndryshimin midis energjisë së rinovueshme dhe asaj të pa-rinovueshme? *
  - Po
  - Jo
  - Pak

- Mendoni që kursi “Energji e Rinovueshme” duhet të jetë pjesë e detyruar e kurrikulës së programeve profesionale të studimit? *
  - Po
  - Jo
  - Nuk e di

- A mendoni që duhet të hapet një program i ri profesional studimi për energjinë e rinovueshme? *

- Po
- Jo
- Aspak

Sugjeroni si mund të përmiresohej kurrikula, për ti shërbyer më mirë pozicionit tuaj të punës? *

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Pyetësor për stafin akademik në kuadër të projektit ENGINE

Ky pyetësor ka për qëllim të analizojë të gjitha problematikat që hasen në programet aktuale të studimit profesional dhe synon përmirësimin e kurrikulave aktuale apo hapjen e programeve të reja të studimit.

* Required

- Gjinia *
  - Femër
  - Mashkull
- Mosha (në numër) *
- Cikli i studimit ku jepni mësim? *
  - Bachelor
  - Master
  - Program studimi 2-vjeçar (diplomë profesionale)
- Cila(t) nga elementet e programit të studimit ju ka lënë përshtypjet më të mira *
  - Kurrikula e programit
  - Niveli akademik i studentëve
  - Infrastruktura ku është realizuar programi (godina, laboratore, pajisjet)
  - Të gjitha të mësipermet
- A jeni të njohur me termin “Energji e Rinovueshme”? *
  - Po
  - Jo
  - Pak

- A e njihni ndryshimin midis energjisë së rinovueshme dhe asaj të pa-rinovueshme? *

- Po
- Jo
- Pak

- Sipas mendimit tuaj cilat janë sfidat kryesore me të cilat po përballet sistemi i edukimit në fushën e Inxhinierisë në Shqipëri? (zgjidhni 3 alternativa) *

- Mungesa e infrastukturës dhe burimeve akademike (psh. Libraritë, laboratorët, kompjutera, materialet mësimore të përditësuara)
- Mungesa e njohurive të stafit akademik
- Metoda të papërditësuara të mësimdhënies
- Mungesë fondesh për teknologjitë e reja
- Kurrikula të pa-përditësuara
- Mungesa e bashkëpunimeve me universitete ndërkombëtare të akredituara në fushën e energjisë së rinovueshme
- Mungesa e bashkëpunimeve me sektorin e industrisë
- Pa-punësim të studentëve të diplomuar në fushën e energjitikës

- Cilat janë aspektet pozitive që mund të kapercejnë sfidat që përmendet më sipër? (zgjidhni 3 alternativa) *

- Rritje kapaciteti të fakulteteve dhe të stafit (psh. Bursat, mësimdhënia nga profesorë të huaj, programe trajnimi etj.)
- Investim në infrastukturë dhe burimet e nevojshme për procesin e të mësuarit (psh. Biblioteka, laboratorë, kompjutera, përditësimi i materialeve mësimore)

- Perditësimi kurrikulave
- Rritja e bashkëpunimeve me universitete ndërkombëtare të akredituara në fushën e energjisë së rinovueshme
- Rritja e bashkëpunimeve me sektorin e industrisë
- Punësim të studentëve të diplomuar në fushën e energjitikës

- Mendoni që kursi “Energji e Rinovueshme” duhet të jetë pjesë e detyruar e kurrikulës së programeve profesionale të studimit? *

- Po
- Jo
- Nuk e di

- A mendoni që duhet të hapet një program i ri profesional studimi për energjinë e rinovueshme? *

- Po
- Jo
- Aspak

- Sugjeroni si mund të përmiresohej kurrikula , për ti shërbyer më mirë pozicionit tuaj të punës? *

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Pyetësor për bizneset në kuadër të projektit ENGINE

Ky pyetësor ka për qëllim të analizojë të gjitha problematikat që hasen në programet aktuale të studimit profesional dhe synon përmirësimin e kurrikulave aktuale apo hapjen e programeve të reja të studimit.

* Required

- Jeni biznes privat apo publik? *

- Privat
- Publik

- Sa është i lidhur biznesi juaj me sektorin e industrisë energjitike? (1) aspak në (5) shumë *

1 2 3 4 5

- A keni bashkëpunim me Universitetet? *

- Po
- Jo
- Pak

- A keni mbështetje nga institucionet e arsimit të lartë, në terma të të diplomuarve të rinj në fushën e industrisë?

- Po
- Jo
- Pak

- A jeni të njohur me termin “Energji e Rinovueshme”? *

- Po

- Jo
- Pak

- Sipas mendimit tuaj cilat janë sfidat kryesore me të cilat po përballet sistemi i edukimit në fushën e Inxhinierisë në Shqipëri? (zgjidhni 3 alternativa) *

- Mungesa e infrastukturës dhe burimeve akademike (psh. Libraritë, laboratorët, kompjutera, materialet mësimore të përditësuara)
- Mungesa e njohurive të stafit akademik
- Metoda të papërditësuara të mësimdhënies
- Mungesë fondesh për teknologjitë e reja
- Kurrikula të pa-përditësuara
- Mungesa e bashkëpunimeve me universitete ndërkombëtare të akredituara në fushën e energjisë së rinovueshme
- Mungesa e bashkëpunimeve me sektorin e industrisë
- Pa-punësim të studentëve të diplomuar në fushën e energjitikës

- Cilat janë aspektet pozitive që mund të kapercejnë sfidat që përmendet më sipër? (zgjidhni 3 alternativa) *

- Rritje kapaciteti të fakulteteve dhe të stafit (psh. Bursat, mësimdhënia nga profesorë të huaj, programe trajnimi etj.)
- Investim në infrastukturë dhe burimet e nevojshme për procesin e të mësuarit (psh. Biblioteka, laboratorë, kompjutera, përditësimi i materialeve mësimore)
- Perditësimi kurrikulave

- Rritja e bashkëpunimeve me universitete ndërkombëtare të akredituara në fushën e energjisë së rinovueshme
- Rritja e bashkëpunimeve me sektorin e industrisë
- Punësim të studentëve të diplomuar në fushën e energjitikës

- A mendoni që duhet të ketë më shumë specialist të sektorit të industrisë, pra ka me shume nevoje per specialiste te fushes? *

- Po
- Jo
- Nuk e di

- A mendoni që Shqipëria duhet të përvetësojë energjinë e rinovueshme në vend të asaj të parinovueshme? *

- Po
- Jo
- Nuk e di

- Sipas mendimit tuaj në kushtet e Shqiperisë, cili nga burimet e rinovueshme duhet të implementohet për prodhimin e energjise elektrike? *

- Energjia e erës
- Energjia diellore
- Burime të tjera energjie