



Analysis of labour market needs for engineers with enhanced knowledge in sustainable renewable energy solutions in the built environment in some Asian countries

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Outline

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Main objective

Enhancing the skills of engineering students at all levels for application of sustainable renewable energy solutions to be integrated into the built environment in several Universities of Europe and Asia

Specific objective

Evaluate the labour market need for specialists with enhanced knowledge and skills on renewable energy to be integrated into the built environment in some Asian Countries

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In the last decade, the labour market related to green economy has been boosted, creating an ever-increasing demand of linked employment.

Renewable energies are widely recognized as one of the key pillars in energy transition for carbon but sometimes the knowledge and skills gained at University level do not fit with the practical needs of the industry sector.

Moreover, as reported by Wojuola and Alant in a recent paper published in Renewable Energy journal, the public awareness for a sustainable development is still limited and there is a need of educational curricula incorporating themes related to renewable energy and sustainable livelihood.

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Beside a cleaner energy production, also energy efficiency is another pillar for reducing carbon emissions worldwide and of the building sector in particular.

In this context, under the EU co-funded project Skybelt several Universities of Asia and Europe are working at improving the renewable energy curriculum at different university levels with special attention to their integration into the built environment.

A survey on the labour market needs for specialists with enhanced knowledge and skills in sustainable renewable energy solutions to be integrated into the built environment has been carried out in the related Asian Countries

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Indeed, the modernized teaching methods and contents to be implemented in Skybelt project have as their focus the satisfaction of the current and future market needs. High quality specialists in renewable energy engineering will play a key role in the potential success of the green economy.

A questionnaire has been defined and presented to different stakeholders acting in this field in order to carry out an analysis of the market demand and its training needs. In particular, industrial companies, NGOs as well as public and private organizations have been contacted.

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The contacted organizations are considered representative of the labour market needs because they:

- represent the different activities in the renewable energy sector
- have shown a high interest in renewable energy research and education

Therefore, they have been asked for assistance and advice based on their significant expertise in the energy field.

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The questionnaire consisted of three parts:

- 1) Info related to the company profile (i.e. typology of organization, size of the company, market extent, activity in the renewable energy sector...)
- 2) Info on their employees level of qualification (i.e. degree of qualification, knowledge in renewable energy, main renewable energy field of knowledge...)
- 3) Info on training needs of the labour market (i.e. willingness of the company to hire Bachelor, Master and/or Ph.D. engineers with high knowledge and skill in renewable energy solutions for the built environment, main topic of renewable energy specialization and the related knowledge and skills required...)

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107 answers (and others to come)

Size of the organization (global level)

Global Level	Percentage
<10	15.4%
10<=X<50	28.8%
50<=X<100	9.6%
100<=X<500	23.1%
=>500	23.1%

Market of the organization

Level	Percentage
Regional	21.2%
National	26.9%
Continental	1.9%
International	50.0%

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Type of activity on renewable energy of the organization

Activity	Total	Percentage
Power Production	36	11.0%
Power Transmission & Distribution	17	5.2%
Monitoring, Inspection & Maintenance	28	8.6%
Design & Engineering development	67	20.5%
Research & Development	56	17.1%
Sales and Marketing	24	7.3%
Energy Auditing	22	6.7%
Capacity Building	28	8.6%
Policies & Economics	20	6.1%
Other	29	8.9%

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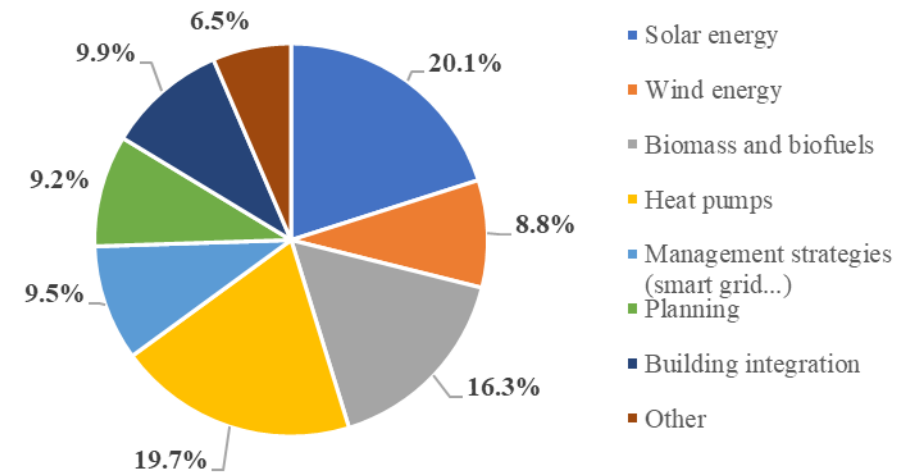
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Range of the present employees

Level	Percentage
Bachelor	32.7%
Master	31.3%
PhD	26.1%
Other	10.0%

Knowledge of present employees on renewable energy



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Focus on solar energy

Kind of technology	Percentage
PV	41.0%
Solar Thermal	41.9%
Concentrated solar technologies	13.3%
Other	3.8%

Kind of application	Percentage
Cooling	12.5%
Heating	42.3%
Electricity	37.5%
Other	7.7%

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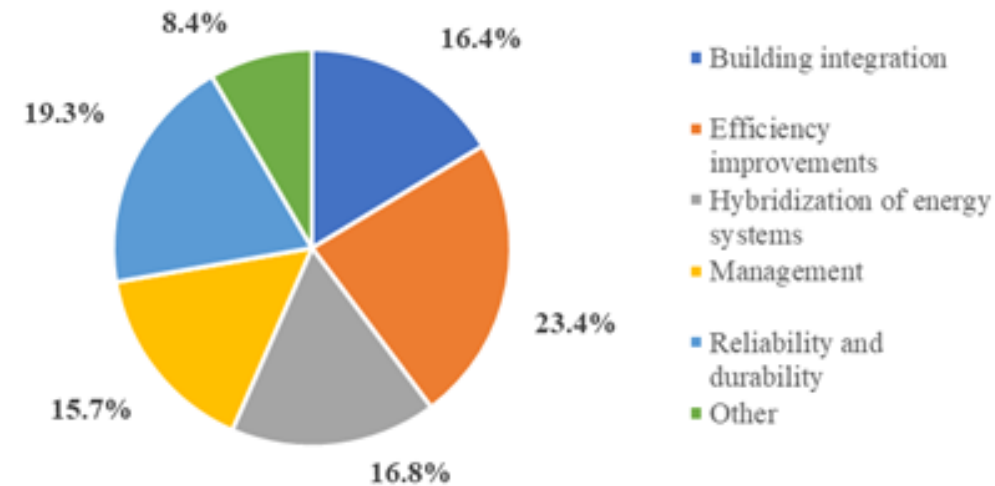
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Main challenges for Sustainable RES in the next years



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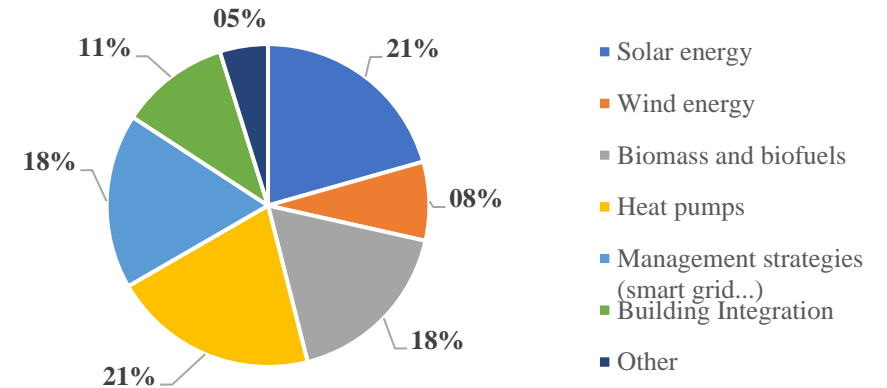
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Interest in recruiting new engineers

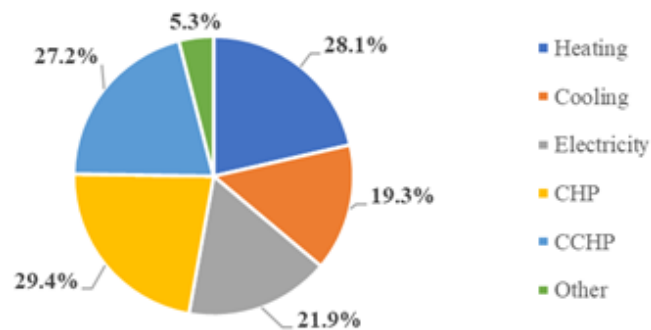
72% interested in recruiting new engineers with enhanced knowledge in the field of the project topic



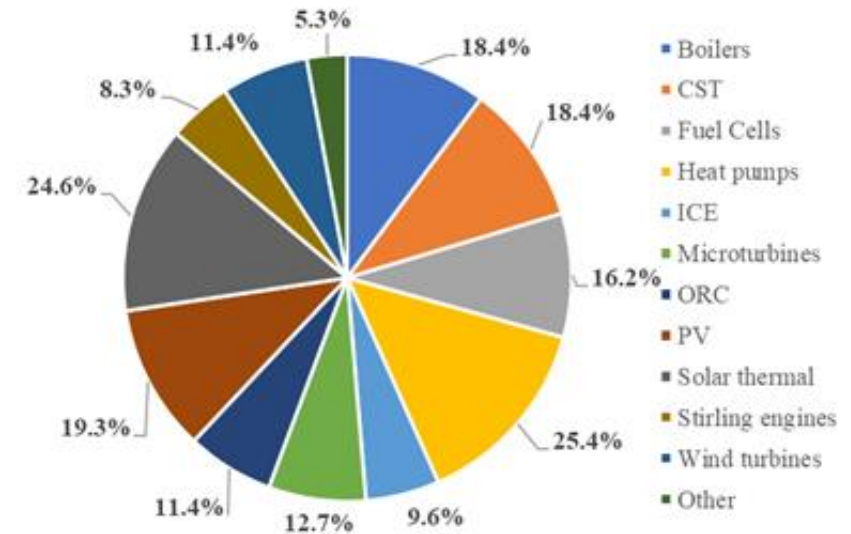
Degree level	Percentage	Number
Bachelor	35%	850
Master	42%	178
PhD	23%	158

Interest in recruiting new engineers

Kind of application of knowledge



Kind of technology



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- satisfaction of the knowledge of the current employees on renewable energy is limited especially at Bachelor degree level
- 72% of the interviewed organisations interested in recruiting new employees with enhanced knowledge and skills in renewable energy solutions for the built environment
- solar technologies and heat pumps are the most required field of expertise
- expertise in control and automation, data analysis and predictive control and energy storage are mostly needed
- modernisation of modules at bachelor, master and PhD levels based on the outcome of this survey



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Thanks for your attention

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