

# Renewable Energy Education and Skills Needs

2 April 2014

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TABLE 1.2 EMPLOYMENT IN RENEWABLE ENERGY GLOBALLY AND FOR SELECTED COUNTRIES/REGIONS

	WORLD	CHINA	INDIA	BRAZIL	UNITED STATES	EUROPEAN UNION (EU)		
						GERMANY	SPAIN	OTHER EU
	Thousand jobs							
Biomass <sup>aj</sup>	753	266	58		152 <sup>f</sup>	57	39	178
Biofuels	1 379	24	35	804 <sup>e</sup>	217 <sup>g</sup>	23	4	82
Biogas	266	90	85			50	1	20
Geothermal <sup>a</sup>	180				35	14	0.3	37
Small Hydropower <sup>b</sup>	109		12		8	7	2	18
Solar PV	1 360	300 <sup>d</sup>	112		90	88	12	212
CSP	37				17	2	18 <sup>i</sup>	
Solar Heating/ Cooling	892	800	41		12	11	1	20
Wind Power	753	267	48	29	81	118	28	124
TOTAL <sup>a</sup>	5 729	1 747	391	833	612	370 <sup>h</sup>	105	691

# Current Labour Gap

## EU wind industry faces critical worker shortage

» By Tom Rowe | Published 05 Aug 2013



The European wind industry has grown steadily over the last decade that it is facing a critical shortage of workers, a new report reveals. There is currently a shortage of 15,000 personnel required by the European wind industry, a figure that could increase to 15,000 by 2020 if the number of graduates taking courses relevant to the sector does not increase.

The figures come from a new report by the Technology Platform (TPWind), based on

energy consultancy GL Garrad Hassan: "Workers wanted: The EU wind energy sector skills gap". A



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The Solar Industry May Soon Face a Shortage of Skilled Labor  
Comly Wilson  
Comly Wilson is a Research Associate at CleanEdison, a

## Renewables Training Network

The Renewables Training Network (RTN) was set up by RenewableUK to tackle the shortage of skilled workers in the renewable energy sector.



Wednesday, April 2, 2014

## Canada's Renewable Energy Industry Faces Critical Shortage of Skilled Workers

EHRC labour market research confronts pressing HR issues with 12-point strategic plan for Industry, Government and Educators.

## Renewable Energy Employment – skills gap

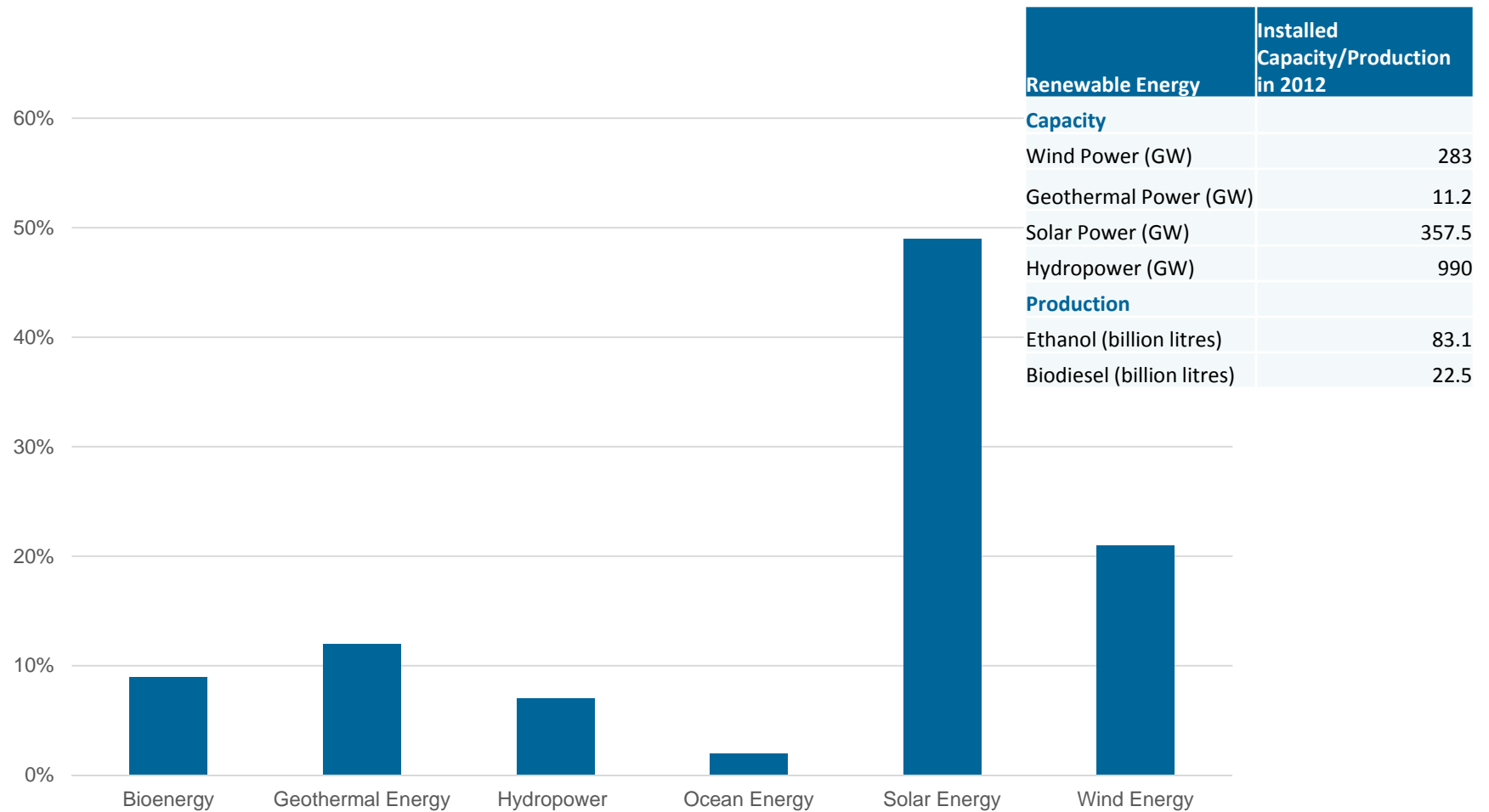
- Given relatively high level of skills required, and urgent demand to fill occupations, the sector is often faced with a shortage of adequate skills to successfully complete projects.
- Currently, most companies are recruiting experienced individuals with comparable skillsets and then providing job specific training.

### Occupations Identified as Difficult to Fill

RE Sector	Occupation
Wind Energy	Project developers; service technicians; data analysts; electrical, computer, mechanical and construction engineers.
Solar Energy	Photovoltaic and solar thermal system installers and maintainers; building inspectors.
Hydropower	Electrical, and operations and maintenance engineers; technicians; tradespersons; sustainability specialists.
Geothermal	Trainers; geothermal engineers.
Bioenergy	R&D and design engineers; service technicians; trainers.

Source: IRENA Renewable Energy and Jobs 2013, based on International Labor Organization (ILO), 2011

## Market reaction - Education and Training by Sector



Source: IRENA Renewable Energy Learning Partnership, 2014

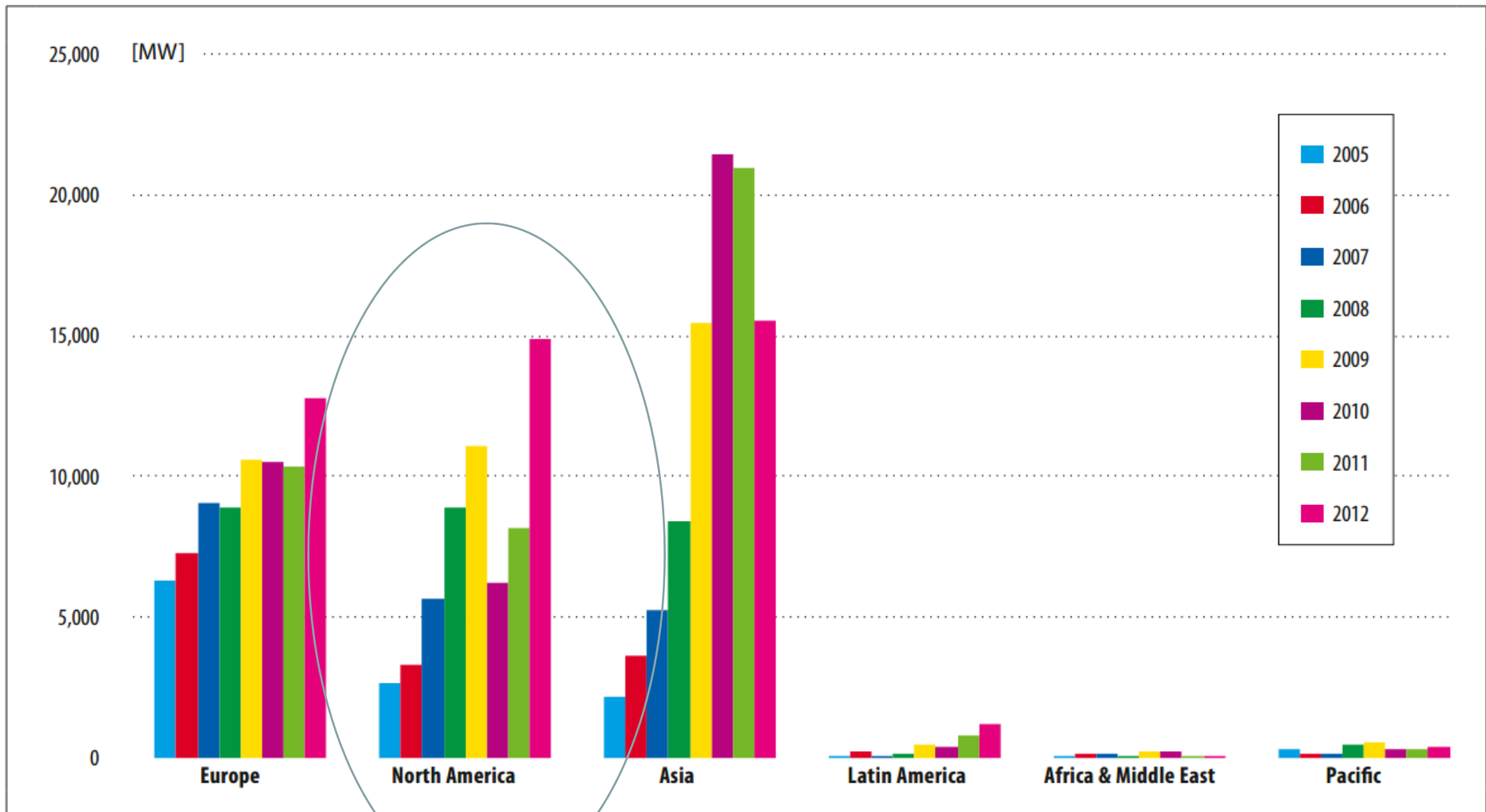
## Geographic gap - Education and Training in Geothermal



Source: IRENA Renewable Energy Learning Partnership, 2014

# Policy drive – ex. wind

Annual Installed Capacity by Region 2005-2012



Source: GWEC

# Policy drive – 2012 US PTC



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## Wind industries lay off hundreds of workers

 Dan Gunderson · MOORHEAD, Minn. · Nov 6, 2012

Business

### Siemens Lays Off 38% of US Workforce - Cites Lack of Wind Power Support Romney Favors



Mat McDermott (@matmcdermott)  
[Energy / Renewable Energy](#)  
September 20, 2012

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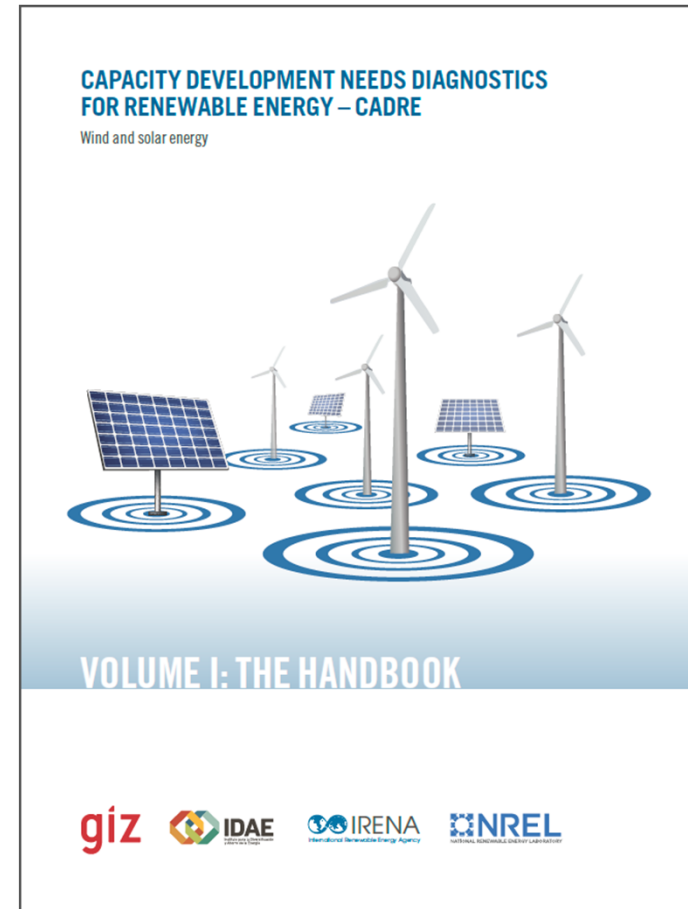
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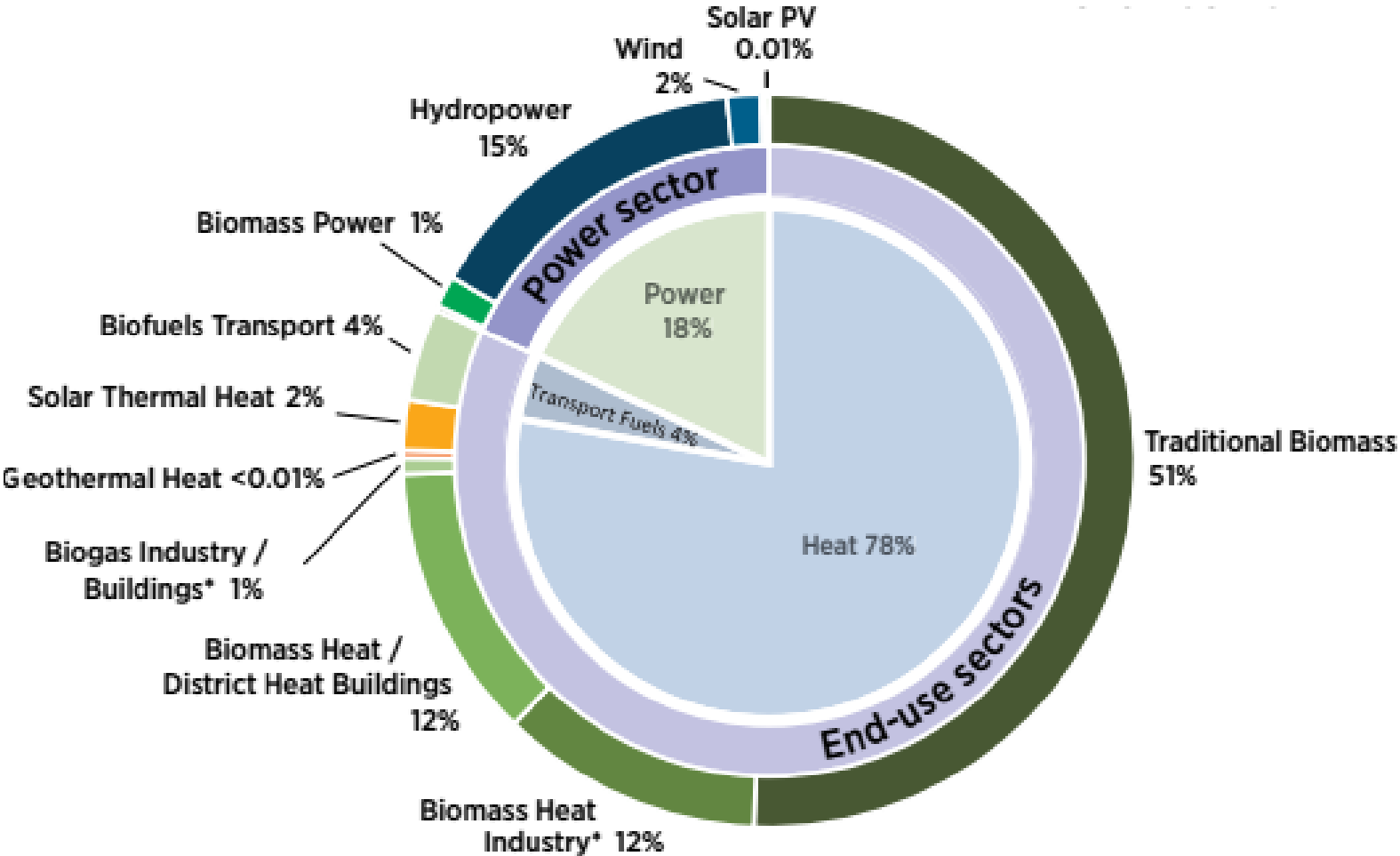
Tax Credit in Doubt, Wind Power Industry Is Withering



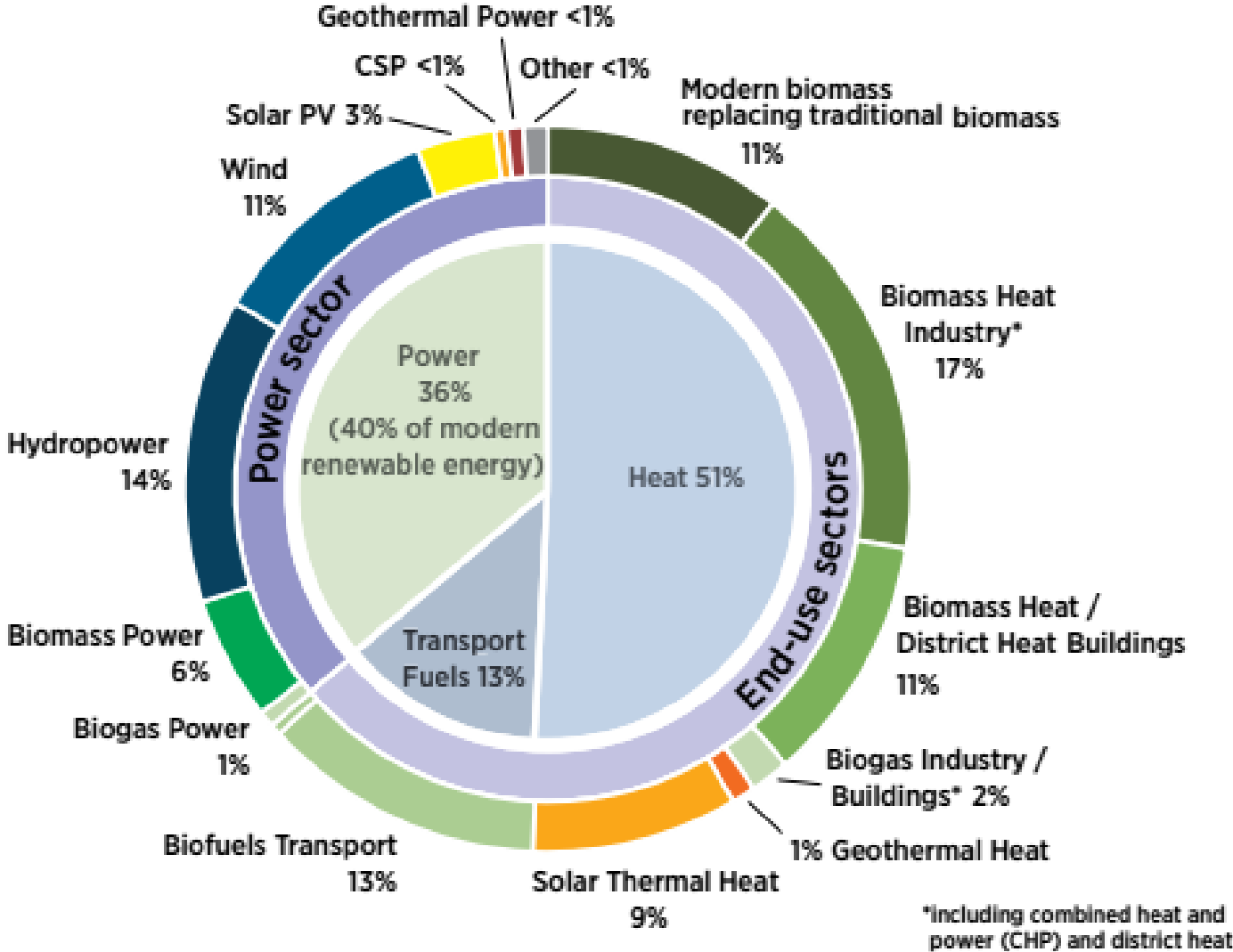
- The policy and regulatory environment has a significant influence on the number of renewable energy jobs available and required supply of skills.
- Countries that experience sudden changes in policy (either the enactment or removal of policy) typically experience either a shortage of adequate skills or an oversupply of labour.
- Need for stable and long-term renewable energy policy to support skills development and well planned education and training strategies.
- Both quantitative and qualitative research is necessary to effectively project skills needs and target areas for training and skill development.

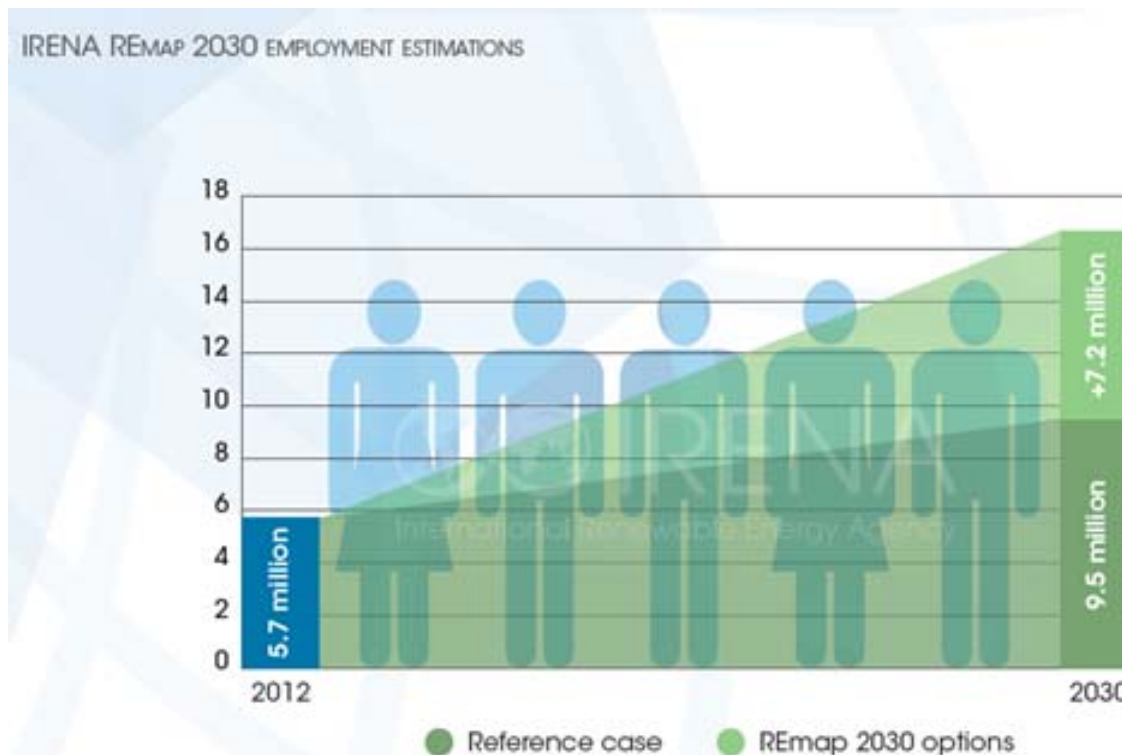


# REMAP 2010 – 63 EJ



# REMAP 2030 – 132 EJ



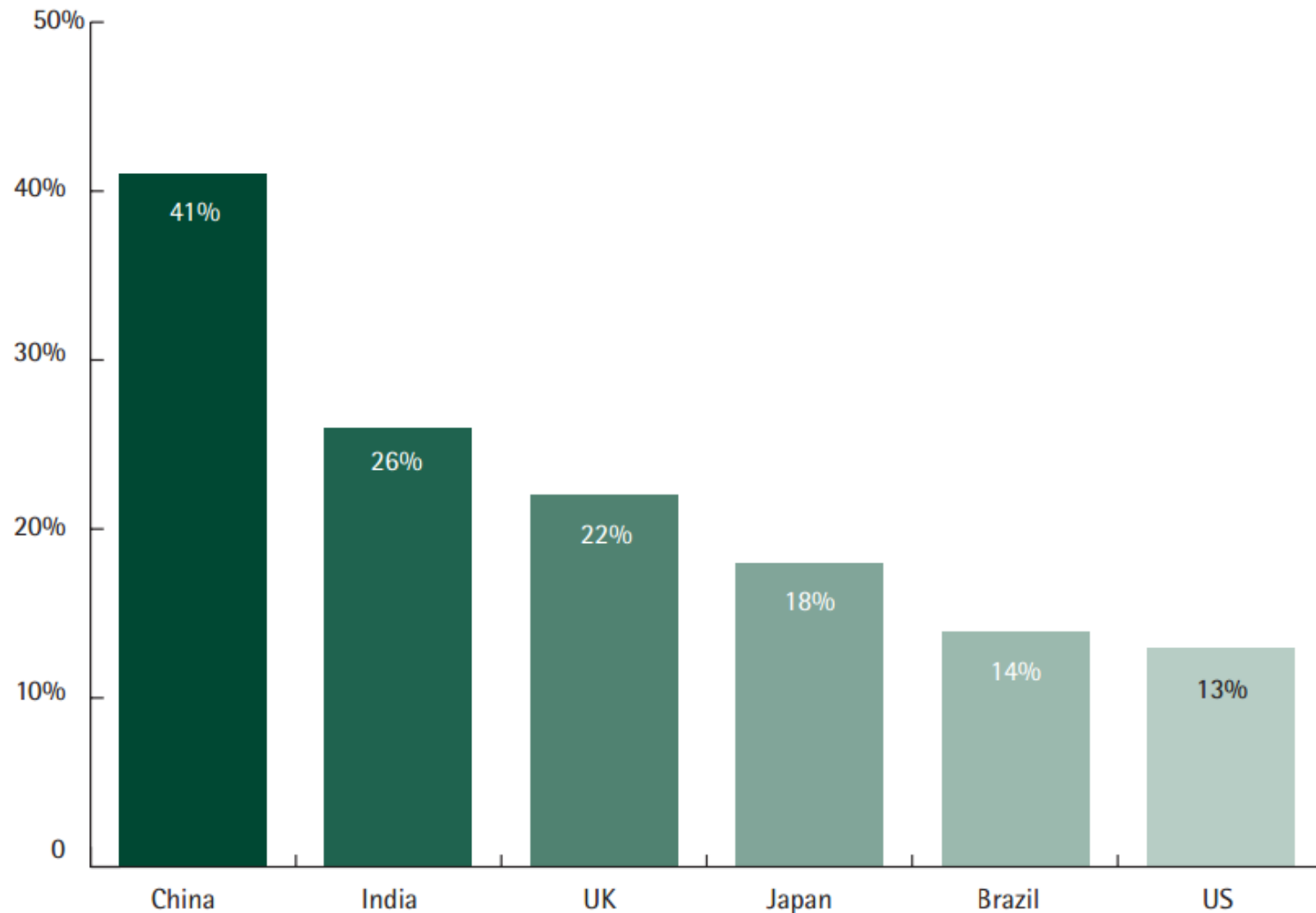


## Doubling the share of renewable energy by 2030: 16.7 million jobs

- Bioenergy: 9.7 million
- Wind energy: 2.1 million
- Solar PV: 2 million
- Solar water heating: 1.8 million
- Small hydro: 0.6 million
- Other RETs: 0.5 million

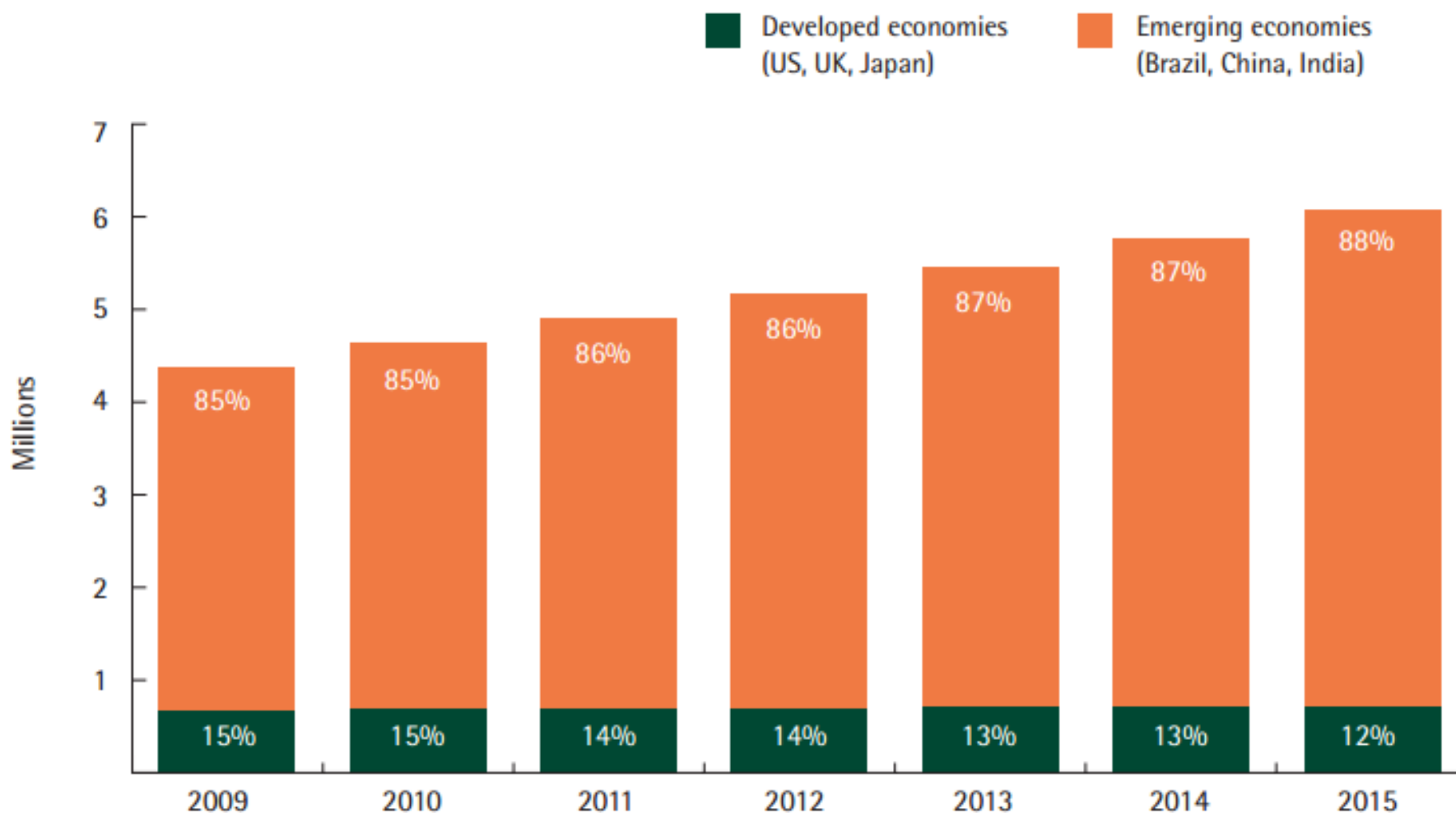
Source: International Renewable Energy Agency (IRENA), 2013  
Jobs report and REMAP 2030

# STEM degrees as a percentage of all degrees (2011)



Source: Accenture Institute for High Performance analysis

# Share of STEM talent: Emerging and developed economies



Source: Accenture Institute for High Performance analysis.



- Harmonised curricula and qualifications across countries can be helpful for reducing the time needed to react to market signals, easing company's workforce selection, and facilitating mobility of students and workers.
- Common quality standards make it possible to evaluate training programmes in an accreditation process against a set of defined requirements for competency, quality management, required resources and qualification.

- Seeing a particular need not only for engineers and technicians, but also for specialized individuals within financial institutions who can adequately understand and review proposals for renewable energy developments.



Source: NREL

- There is also a large need for teachers and trainers in order to scale-up of education and training.



**Thank you**