

Renewable Energy Value Creation

IRENA's knowledge base on renewable energy value creation

Leading the work on jobs since 2011

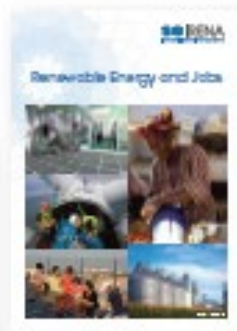
2011



2012



2013



2014



2015



2016



2017



2018

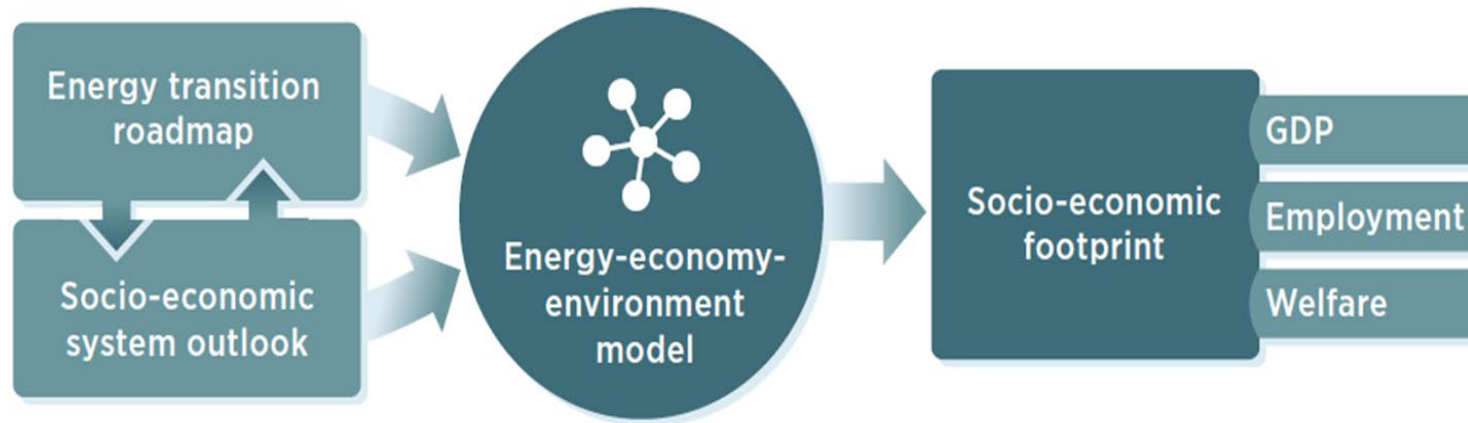


RENEWABLE ENERGY JOBS CONFERENCE IRENA



IRENA
Evaluating Renewable Energy Manufacturing Potential in the Arab Region
Jordan, Lebanon, United Arab Emirates

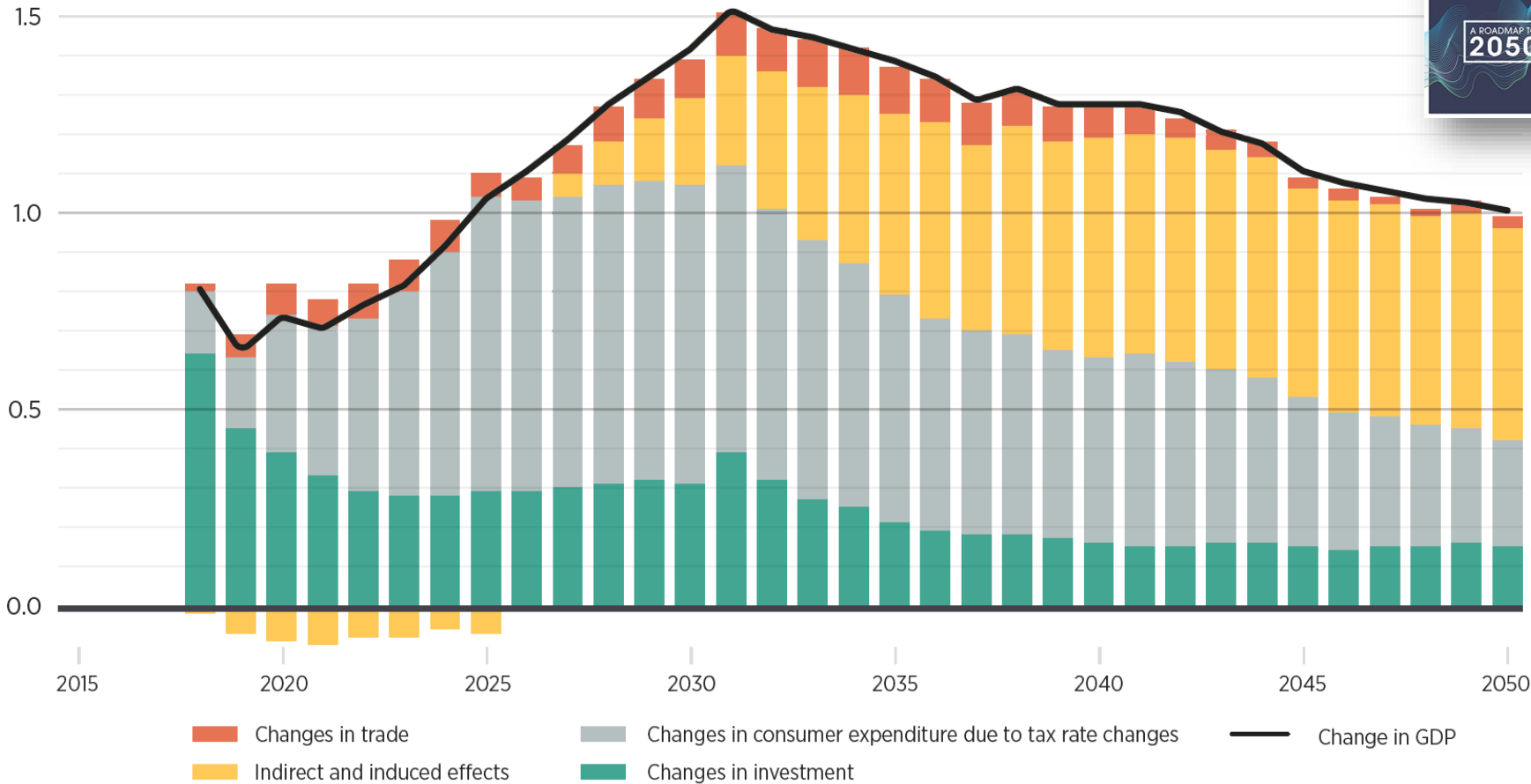
The energy transition and the socio-economic system



A true and complete transition includes both the energy transition and the socio-economic system transition, and their interlinkages.

Global economic growth (measured in GDP)

% difference in GDP from Reference Case



Investment

↑

+0.31%

compared to the Reference case in 2030

↑

+0.15%

compared to the Reference case in 2050

Trade

↑

+0.10%

compared to the Reference case in 2030

↑

+0.03%

compared to the Reference case in 2050

Tax rate

↑

+0.76%

compared to the Reference case in 2030

↑

+0.27%

compared to the Reference case in 2050

Indirect and induced

↑

+0.22%

compared to the Reference case in 2030

↑

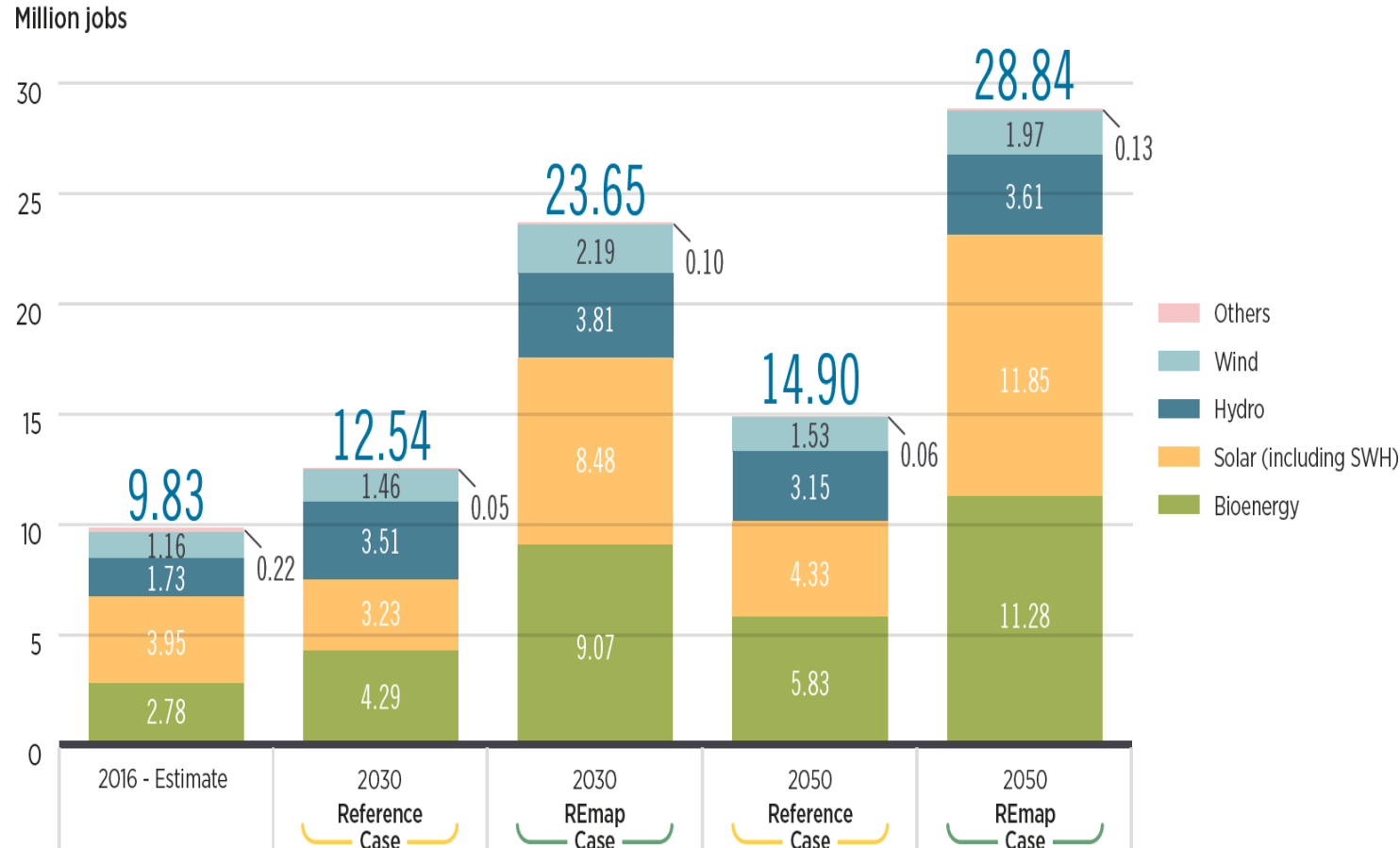
+0.54%

compared to the Reference case in 2050

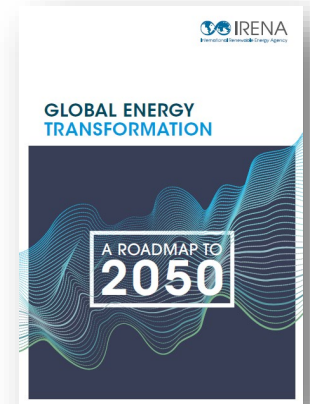
The energy transition is estimated to increase the global GDP by 1.0% in 2050, compared to the reference case. This is primarily driven by indirect and induced effects post 2035.

Renewable energy jobs in the transition

 The energy transition to renewables will result in 24 million jobs worldwide in 2030, and 28.8 million in 2050.



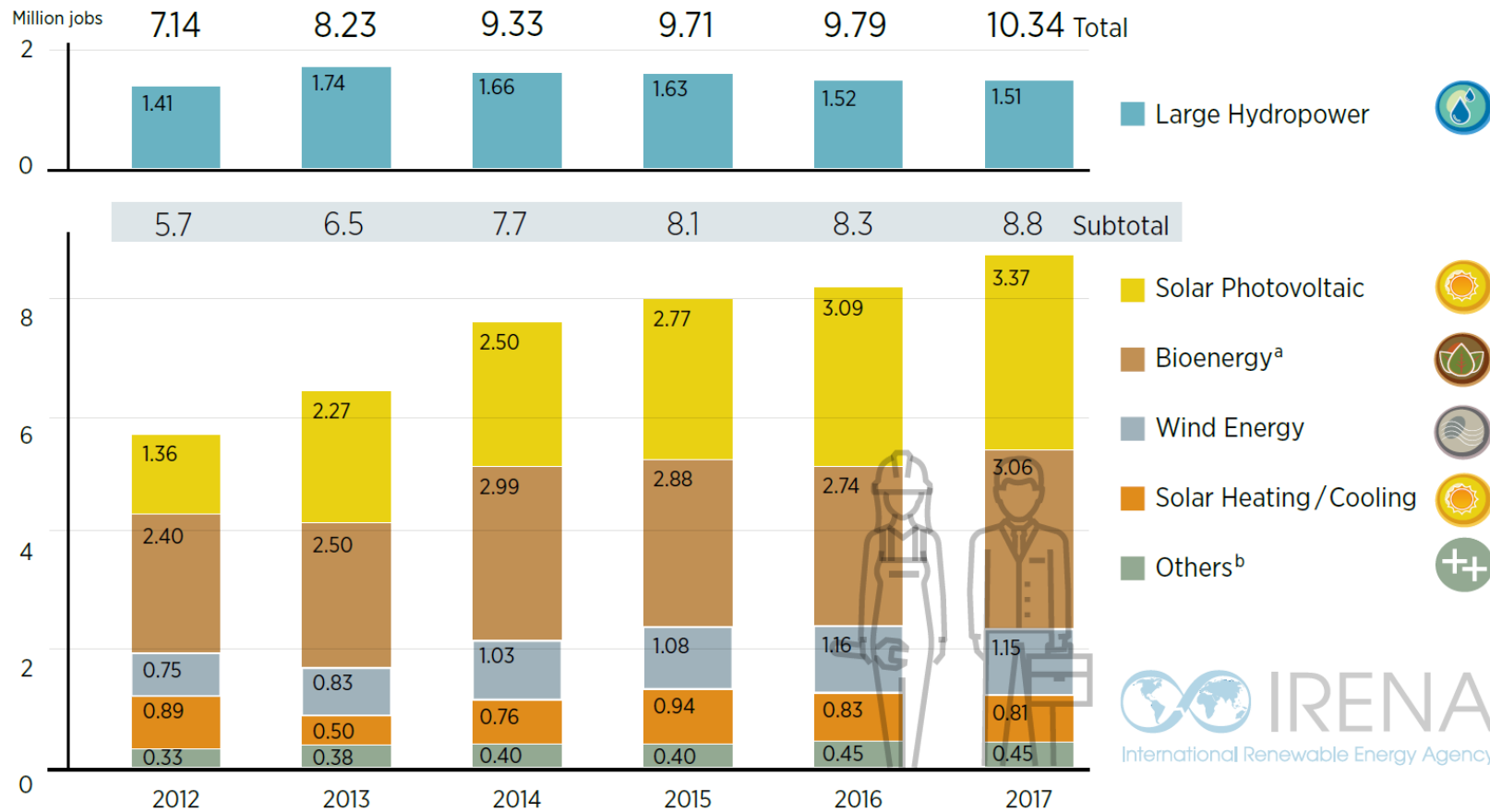
Fossil fuels: loss of 8.4 million jobs in fossil fuels by 2050



IRENA's analysis goes beyond the global aggregated impacts on GDP, employment and welfare to also include regional and structural aspects, labor market dynamics and the role of finance

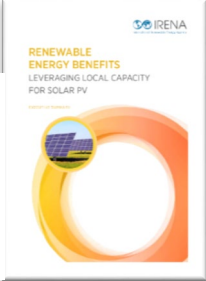
Renewable energy jobs today

Jobs in renewable energy globally (2012 – 2017)



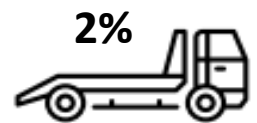
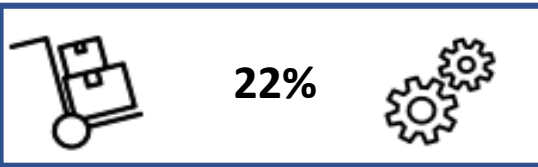
Source: IRENA (2018), Renewable Energy and Jobs - Annual Review 2018

Solar PV

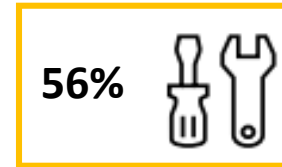


Project Planning 1%

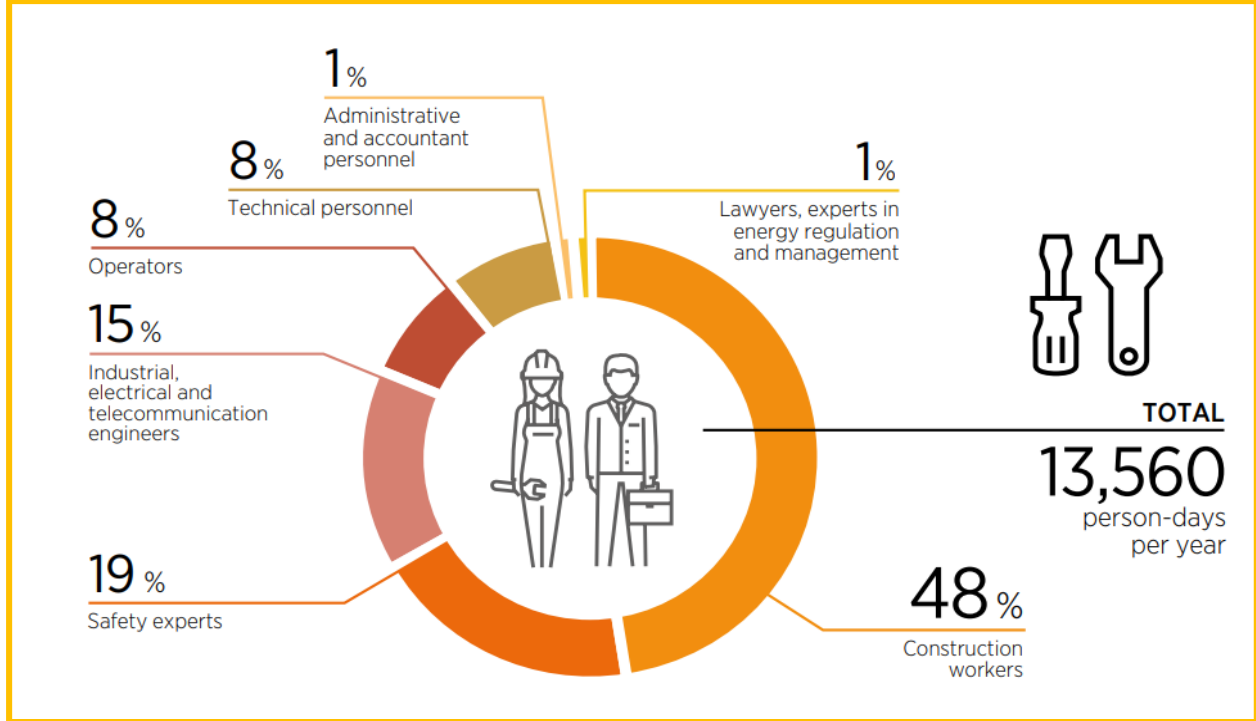
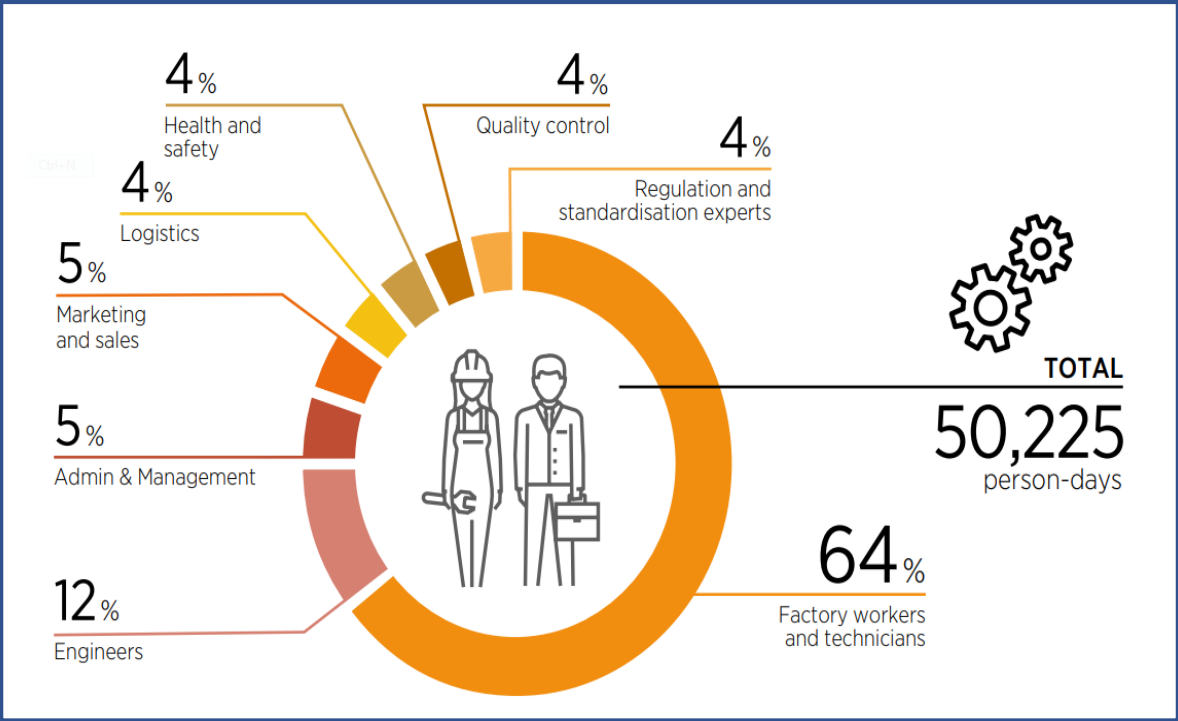
50 MW Solar PV: 229 055 person days



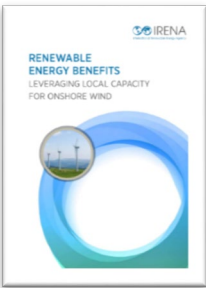
17%



2%

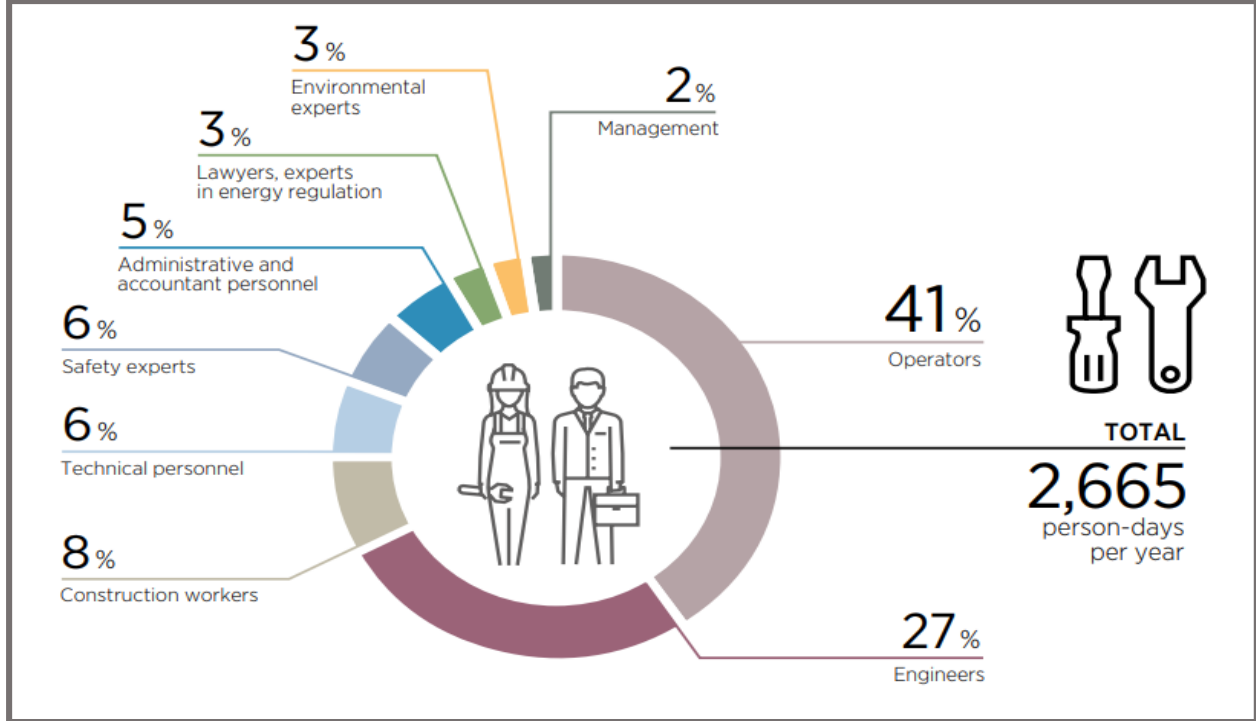
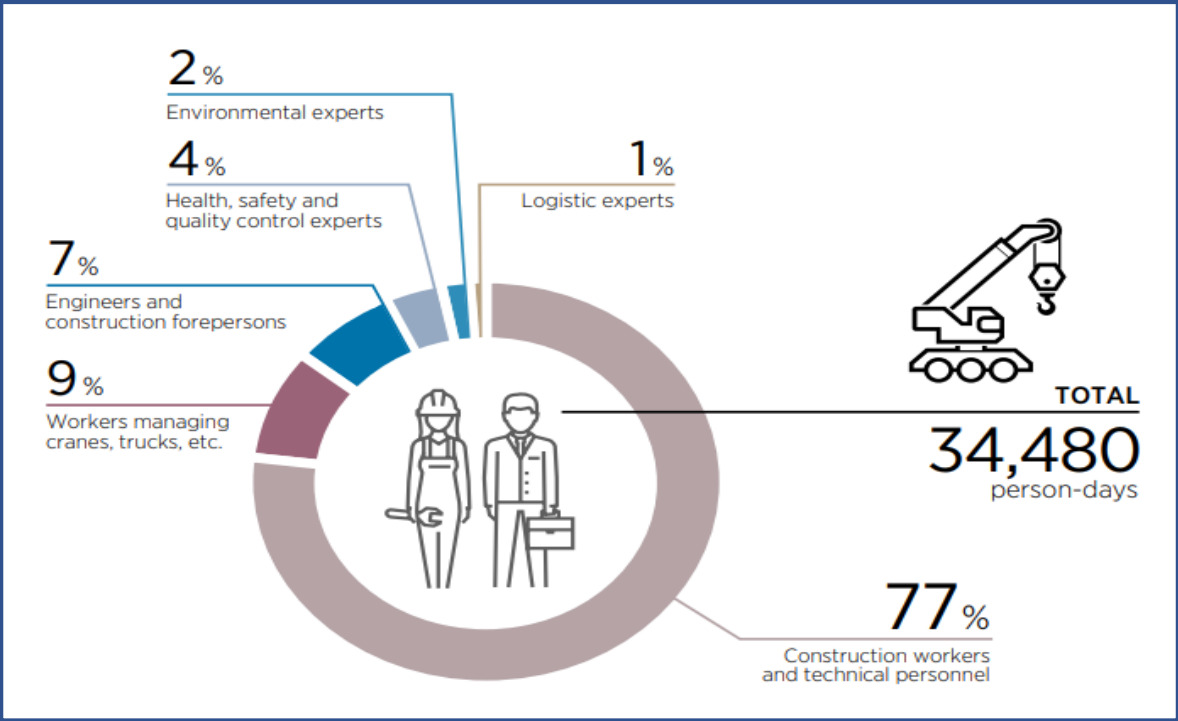


Onshore Wind



Project Planning 2%

50 MW Onshore Wind: 144,000 person days

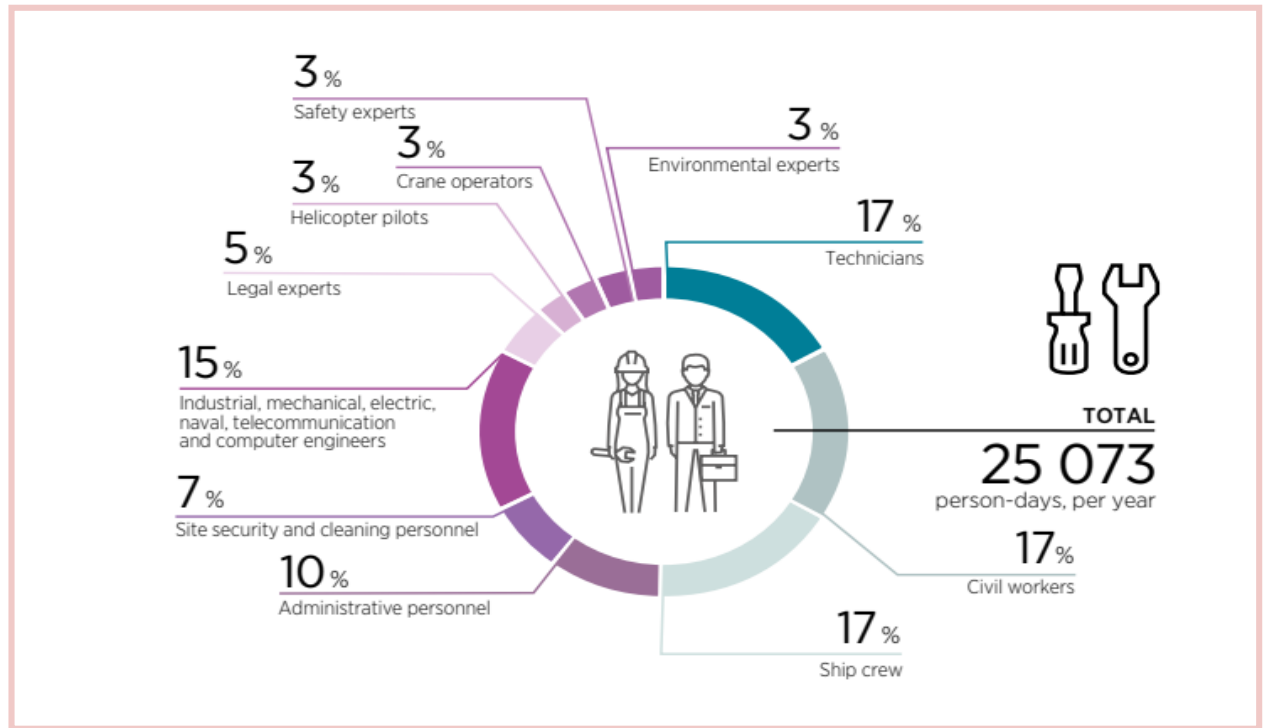
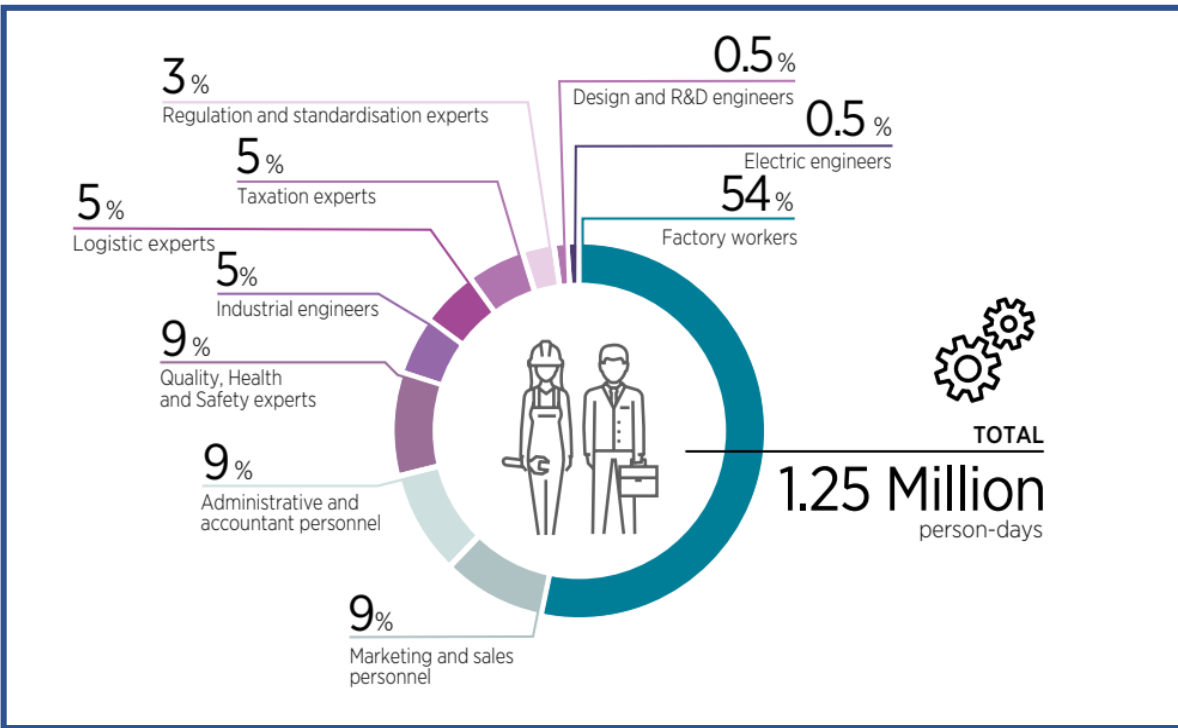
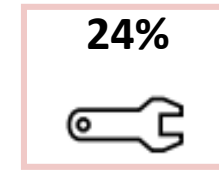
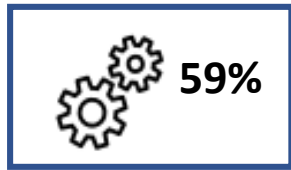
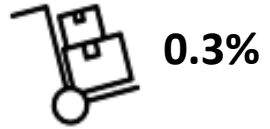


Offshore Wind

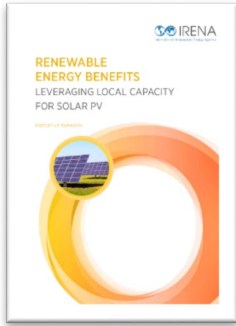


Project Planning 1%

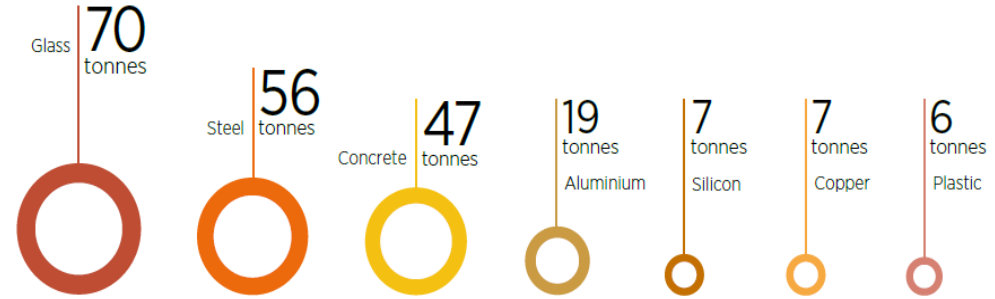
500 MW Offshore Wind: 2.1 million person days



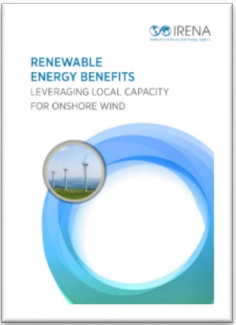
Solar PV and wind value chains



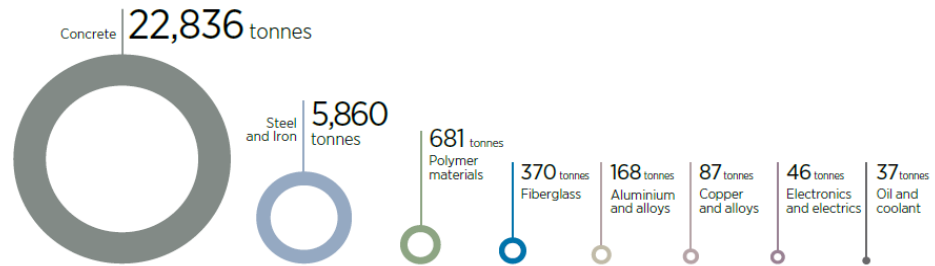
50 MW solar PV



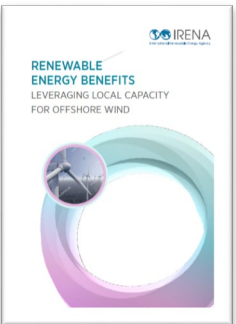
Source: Results of surveys and questionnaires conducted for this study.



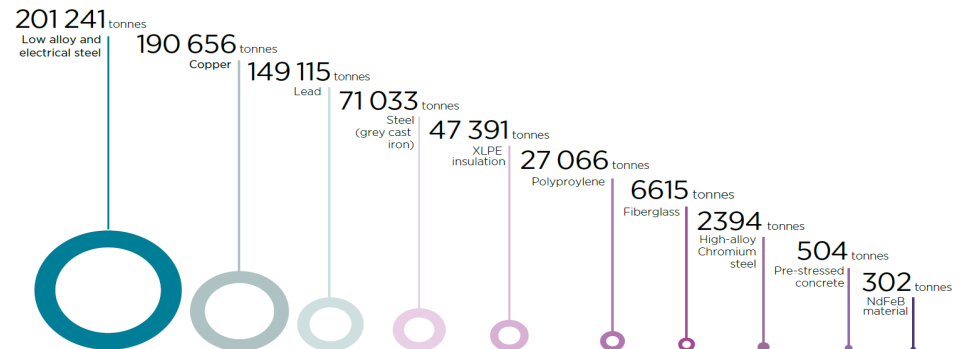
50 MW onshore wind



Source: Vestas, 2015



500 MW offshore wind



Priority Actions

Leverage existing capacities in support of value chain development (labour, materials and equipment needs along the supply chain)

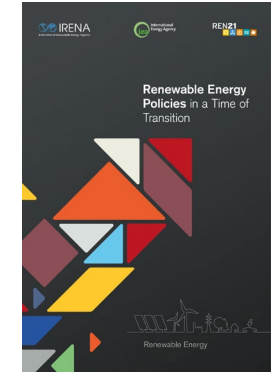
Education and training programmes to ensure well-trained workforce

Design industrial policies to strengthen the capability of domestic value creation

Industrial upgrading, supplier development programs and joint ventures

Overarching framework for renewable energy policy

Policies to achieve the energy transition		Deployment of renewables in the general context	Deployment of renewables in the access context	Maximisation of socio-economic development from renewable energy
Direct policies	Push	<ul style="list-style-type: none"> • Binding targets • Quotas and obligations • Codes and mandates • 	<ul style="list-style-type: none"> • Rural targets, strategies, programmes 	Deployment policies designed to maximise benefits and ensure a sustainable transition (e.g., communities, gender) including requirements, preferential treatment and financial incentives provided to installations and projects that help deliver socio-economic objectives
	Pull	<ul style="list-style-type: none"> • Regulatory and pricing policies • Tradable certificates • Instruments for self-consumption • Support voluntary programmes 	<ul style="list-style-type: none"> • Regulatory and pricing policies (e.g. legal provisions, price/tariff regulation) 	
	Fiscal and financial	<ul style="list-style-type: none"> • Tax incentives • Subsidies • Grants 	<ul style="list-style-type: none"> • Tax incentives • Subsidies • Grants • Concessional financing • Support for financial intermediaries 	
Integrating policies		<ul style="list-style-type: none"> • Measures to enhance system flexibility 	<ul style="list-style-type: none"> • Integration of off-grid systems with main-grid • Coupling with efficient appliances and services 	
		<ul style="list-style-type: none"> • Policies for infrastructure, sector coupling and R&D • Better alignment of energy efficiency and renewable energy policies • Incorporation of decarbonisation objectives into national energy plans • Adaptation measures of socio-economic structure to the energy transition 		
Enabling policies		<ul style="list-style-type: none"> • Policies to level the playing field • Policies to ensure the reliability of technology 		<ul style="list-style-type: none"> • Industrial, trade policy and environmental and climate policies
		<ul style="list-style-type: none"> • National renewable energy policy • Access to finance, Education, Labour, Land-use, RD&D and innovation, Urban and Public health policies 		
Enabling and integrating policies		<ul style="list-style-type: none"> • Supportive governance and institutional architecture • Awareness programmes • Social protection policies to address disruptions • Measures for integrated resource management 		





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