



Executive Summary



Future skills and job creation with renewable energy in Turkey

Assessing the co-benefits of decarbonising the power sector

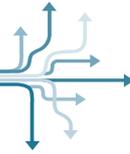
The energy transition is inducing new investments in the electricity production and infrastructure sectors worldwide. Turkey, with its increasing energy demand met mostly by fossil fuel resources, faces significant risk of augmenting its future dependency degree on energy imports. In order to address this issue, Turkey's public policy framework includes not only strategies to increase the share of renewable energy resources in its energy mix but also aims to develop a local manufacturing industry and to enable technology transfer. This study examines how increased deployment of renewable energy in Turkey can provide co-benefits¹ for job creation and meeting future skills requirements. The research is carried out in the context of the COBENEFITS project, which assesses a range of additional co-benefits of renewable energy in developing countries, besides reducing energy sector greenhouse gas emissions, when compared to conventional energy systems.

The study also provides initial insights on the estimated occupational distribution, thus predicting the changes and employment opportunities available to Turkey in its solar and wind sectors.

The study methodology focused firstly on defining value chains for the solar and wind energy sectors in Turkey. This was done using licence and pre-licence information from the Energy Market Regulatory Authority and a unique administrative micro dataset (EIS) that includes all registered firms in Turkey and their employees registered with the Social Security Institution (SGK). Secondly, coefficients for the current ratio of employment per megawatt (MW) in the solar and wind sectors were calculated. Finally, projections of employment increases and skills requirements were estimated according to four scenarios for increased renewable energy (RE) capacity. The results show that increased employment is possible through renewables.

- **Key policy message 1:** Turkey can significantly boost gross employment by increasing the share of renewables. With the decision by the Turkish Government to increase solar energy capacity by 60% and more than double wind electricity capacity over the next 10 years, the government paved the way to create more than 7,400 jobs along the solar value chain and more than 59,000 jobs along the wind value chain in the next ten years alone.
- **Key policy message 2:** There is room for more: By following more ambitious renewable pathways for Turkey, the expected employment effect can be doubled across the wind power value chain and increased eightfold along the solar value chain, pushing up employment by more than 200,000 jobs in the next ten years compared to the present day.
- **Key policy message 3:** While the expected growth of Turkey's wind and solar power producers will increase the demand for high-skilled jobs, middle-skilled workers are the main beneficiaries of job creation across the whole wind and solar value chains, with 55% of job additions in this labour segment.

¹ The term 'co-benefits' refers to simultaneously meeting several interests or objectives resulting from a political intervention, private sector investment or a mix thereof (Helgenberger et al., 2019). It is thus essential that the co-benefits of climate change mitigation are mobilised strategically to accelerate the low-carbon energy transition (IASS, 2017a).



KEY FIGURES:

- Up to 61,400 full-time equivalent jobs (FTE employment²) in the solar sector and 147,700 in the wind sector can be created nationally through the power sector transformation between 2018 and 2028.
- Over that ten-year period each additional MW in wind energy production leads to increased employment of 6.3 full-time equivalent workers across the entire value chain. Across the solar value chain each additional MW leads to an increased employment of 2.5 full-time equivalent workers.

COBENEFITS
Future skills and job creation with renewable energy in Turkey. Assessing the co-benefits of decarbonising the power sector

available on
www.cobenefits.info

KEY FINDINGS:

- **Turkey can significantly boost employment by increasing investment in renewable energy technologies.** On the basis of current policy, employment can already be expected to increase by an additional 7,400 FTE jobs across the solar value chain and 59,000 FTE jobs across the wind power value chain by 2028. By following SHURA's high-ambition scenario (scenario B), these numbers can be increased eightfold along the solar value chain and more than doubled in the wind power value chain, in total providing more than 200,000 additional FTE jobs in the next ten years.
- **A significant part of Turkey's workforce is already connected to renewable energy investments.** Among formally registered employees, almost 8 million are connected to the wind sector value chain, and more than 4 million to the solar sector value chain (available data as of 2016). With 16,200 FTE jobs directly in wind energy production firms and only an emerging solar energy production sector, at present this energy-producing segment only contributes a small fraction to total employment in the solar and wind value chains.
- **To date, a substantial share of the jobs created through renewable energy investment in Turkey are upstream of electricity producers.** For each job directly created among wind energy producers, 1.75 additional jobs are created indirectly in upstream segments of the value chain in the country, irrespective of the scenario assessed. Given the hitherto low numbers of licensed solar energy producers in Turkey, more than 9 out of 10 FTE jobs in the solar value chain are being created in upstream segments of the value chain, such as in manufacturing or the transport and construction sectors.
- **While large proportions of jobs created among wind and solar power producers are highly skilled, middle-skilled workers are the main beneficiaries of job creation across the whole wind and solar value chains.** Across all scenarios, 55% of the FTE jobs generated are among the middle-skilled labour group, such as machine operators or sales workers. In the solar value chain a quarter of the additional jobs created are for high-skilled professions such as managers and technicians, whereas this is slightly higher for the wind power value chain, accounting for 30% of additional FTE jobs. Among wind power producing segment this figure increases to 40%.

² As defined in Box 3.