POWERING JOBS GROWTH WITH GREEN ENERGY

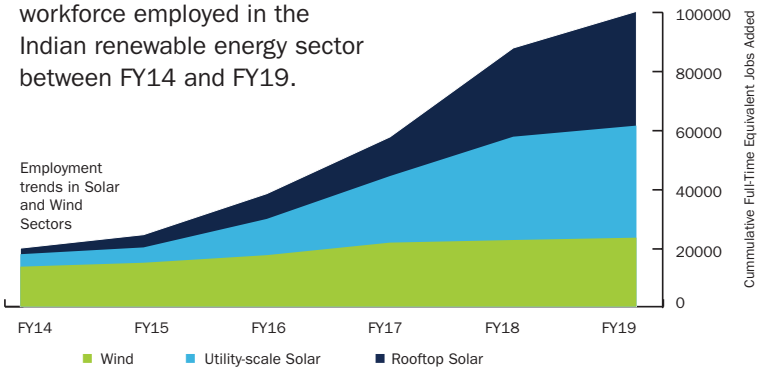
India's installed renewable energy capacity, which includes solar, wind, small hydro, and biomass power, has increased nearly five-fold in the last nine years from almost 17 gigawatts (GW) in financial year (FY) 2009-2010 (FY10) to over 80 GW in FY19. Renewables now account for 22% of India's installed capacity. The renewable energy sector deployed 21.2 GW capacity in just the last two years – 11.8 GW in FY18 and 9.3 GW in FY19. This remarkable growth in renewable energy also creates thousands of jobs in India. Jobs created in the renewable energy market offer a significant opportunity to meet the government's multiple goals of employment generation, clean energy expansion, and economic development.*

The Council on Energy, Environment and Water (CEEW), the Natural Resources Defense Council (NRDC), and the Skill Council for Green Jobs (SCGJ) in their study "Powering Jobs Growth with Green Energy" provide an analysis on direct jobs created from grid-connected solar (including rooftop solar) and wind sectors in FY18 and FY19. This factsheet provides key findings and recommendations from the study geared toward India's goal of 175 GW of installed renewable energy by 2022.

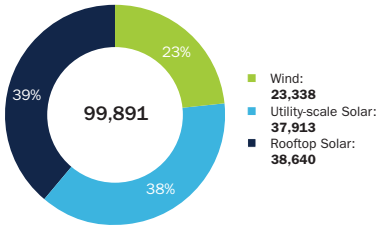
KEY FINDINGS

1. **The workforce employed in the Indian renewable energy sector grew nearly five-fold in the past five years, rising from nearly 19,800 workers in FY14 to nearly 99,900 workers in FY19.**

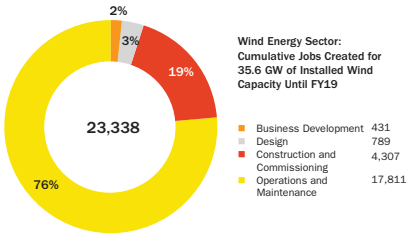
5-fold increase in the workforce employed in the Indian renewable energy sector between FY14 and FY19.



Cumulative Jobs Created in the Solar and Wind Sectors for 65.7 GW of Installed Capacity Until FY19

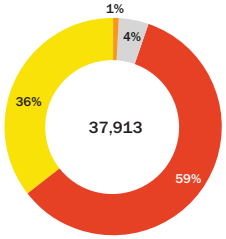


Nearly ***99,900 workers employed*** in solar and wind projects until FY19



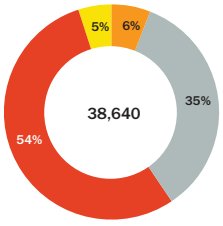
Wind Energy Sector: Cumulative Jobs Created for 35.6 GW of Installed Wind Capacity Until FY19

Business Development	431
Design	789
Construction and Commissioning	4,307
Operations and Maintenance	17,811



Utility-Scale Solar Sector: Cumulative Jobs Created for 26.2 GW of Installed Utility-Scale Solar Capacity Until FY19

Business Development	415
Design	1,660
Construction and Commissioning	22,407
Operations and Maintenance	13,431

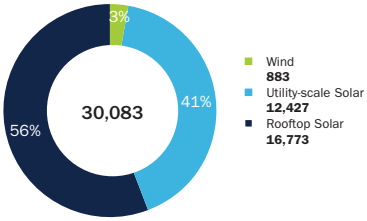


Rooftop Solar Sector: Cumulative Jobs Created for 3.8 GW of Installed Rooftop Solar Capacity Until FY19

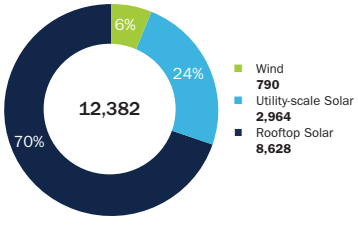
Business Development	2,319
Design	13,417
Construction and Commissioning	20,981
Operations and Maintenance	1,923

2. **The largest renewable energy employment growth occurred in FY18 with over 30,000 new workers added in utility-scale ground mounted solar (referred to as utility- scale solar in the issue brief), rooftop solar, and wind energy. In FY19 this number dropped to nearly 12,400 newly-added workers given the limited renewable energy capacity added that year.**

Solar and Wind Sector Jobs Added in FY18

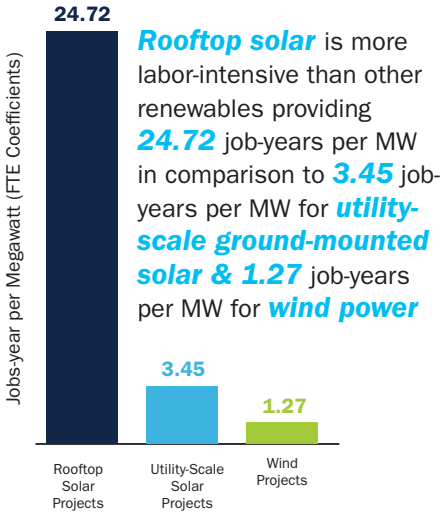


Solar and Wind Sector Jobs Added in FY19



Over ***30,000*** new workers added to solar & wind energy workforce ***in FY18*** but workforce growth in solar & wind energy reduced to nearly ***12,400*** workers in ***FY19***

* The report on "Powering Jobs Growth with Green Energy," is available at https://www.nrdc.org/sites/default/files/jobs-growth-green-energy.pdf. For more information please contact: Madhura Joshi, NRDC: mjoshi@nrdc.org or Neeraj Kuldeep, CEEW: neeraj.kuldeep@ceew.in or Tanmay Bishnoi, SCGJ: tanmay@sscgj.in



Rooftop solar is more labor-intensive than other renewables providing ***24.72*** job-years per MW in comparison to ***3.45*** job-years per MW for ***utility-scale ground-mounted solar & 1.27*** job-years per MW for ***wind power***

3. **Rooftop solar and other decentralized renewable energy technologies continue to employ far more workers than utility-scale solar and wind energy – nearly 38,640 workers were employed for just 3.8 GW of** total cumulative installed rooftop solar capacity until FY19, as compared to over 37,910 workers for 26.2 GW of total utility-scale solar and nearly 23,340 workers for 35.6 GW of total cumulative wind energy capacity installed in India until FY19.
4. **Stronger government programs and market investments are needed to meet India's clean energy targets of 175 GW, creating employment potential for over 330,000 workers to participate in nearly 1 million job opportunities (short-term and long-term) in the wind and solar sectors by 2022.**
5. **Training programs by SCGJ trained over 58,000 workers in the renewable energy sector between FY16 and FY19, demonstrating that training centres in smaller towns and rural areas can help develop the skills needed in the local workforce and help expand the renewable energy market across India.**

Over ***58,000*** workers trained by SCGJ between ***FY16 and FY19***

Over ***330,000*** workers will be employed to take up nearly 1 million job opportunities (short-term & long-term) if India achieves its solar and wind energy targets ***by 2022.***

KEY RECOMMENDATIONS

As India works toward meeting these goals, there is significant opportunity to combine the government's job creation and energy transition goals. The following recommendations can help:

1. **Strengthen support for decentralized renewable energy projects such as solar rooftops** since decentralized renewable energy (DRE) has the maximum job creating potential and the share of utility-scale RE and DRE projects installed in India will be pivotal in determining how many jobs are created in this sector.
2. **Expand government programs and market investment to ensure steady renewable energy growth** to achieve India's clean energy targets and support clean energy job-creation potential of at least 330,000 workers and 1 million short- term and long-term job opportunities in the wind and solar sectors by 2022.
3. **Support local training centres collaborating with industry, particularly in the rural areas**, to provide a specialised workforce needed by developers, to expand clean energy jobs across India, and to spur local green entrepreneurs.
4. **Increase reporting of employment generation from renewable energy companies** by encouraging companies to report the number of jobs created at every stage of the value chain and the kind of skills required to ensure market growth and political support over time.
5. **Promote domestic solar module manufacturing industry to boost employment** since meeting the demand for solar modules required for 100 GW of solar capacity domestically, can employ an additional 45,000 workers.

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NRDC NATURAL RESOURCES DEFENSE COUNCIL

SCGJ SKILL COUNCIL FOR GREEN JOBS ISO 9001 : 2015 CERTIFIED