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Skilled Manpower Requirements in the Solar Energy Sector and Veteran Recruitment

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Abstract

Solar energy ranks as one of the best forms of energy for the sustainable development of the world, due to its renewable, reliable, clean and green nature. The recognition of this fact has encouraged many countries to adopt solar energy focus in their respective energy policies. Hence, nations are competing with each other to promote the solar energy sector and increasing their solar energy capabilities, resulting in the emergence of the solar energy sector as a potential source of employment for future generations. Various factors affect the growth of the solar energy industry, worldwide. Among these, an important concern is the acute shortage of skilled and employable graduates in this field. The growth of the solar energy market has created a huge demand for skilled employees and the future holds a promise of providing significant employment to skilled manpower. However, due to various factors, unless new recruitment and training strategies are adopted globally, it is not possible to exploit the massive potential for employment that the solar energy sector can generate, in the next few decades. This paper reviews the recruitment of veterans and training them with the skills needed to discharge various duties in the solar energy sector, as a method of addressing the problem of skilled manpower shortage in the solar energy sector.

Keywords: Recruitment, training, employment, veterans, skills, renewable, solar, energy

INTRODUCTION

In recent times, due to the large scale deployment of solar energy both at the domestic level and the industrial level, every country has been able to harness solar energy in a big way. This has paved the path for sustainable development through solar photovoltaic and solar thermal technologies which are practically free from emissions, economical in the long run and easy to install, operate and maintain. The increasing rate of growth in the solar energy sector is a welcome development as this offers an effective strategy for combating the consequences of climate change, and contributing significantly to energy conservation opportunities at every level and in every aspect of life influenced by solar energy, either directly or indirectly. To meet the human resource needs of the rapidly growing solar energy industry which offers scope for large scale employment, adequately trained and dedicated professionals have to be provided for successful implementation of large scale and small scale projects alike. This paper suggests that the recruitment of veterans in the solar energy industry is a feasible solution to meet the shortage of skilled manpower being faced by many countries in the world. This measure will provide the solar energy sector with employees who are capable of hard work and willing to take up challenging tasks as well. The expertise, dedication and skills of

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veterans who have served the defence sector in the past, stands out as a strong reason for their potential to discharge their duties in the solar energy sector.

HUMAN RESOURCE REQUIREMENTS IN THE SOLAR ENERGY INDUSTRY

There is a need for employees equipped with the skills and competencies that are required for efficiently managing, handling and servicing solar equipment in various type of applications ranging from stand-alone rooftop solar photovoltaic panels to grid integrated solar systems and large scale solar power generation plants. The current research practices in the solar energy sector are mostly focused on technical aspects like cell efficiency, energy storage, hybrid solar applications etc. Hence the world is not yet braced fully to cater to the human resource needs of the solar energy sector. In this light, some studies have been done, which have pointed out deficiencies in manpower planning for the future. Countries like India and China have a large population and a vast potential for human resources in the renewable energy sector. The current trends in solar energy suggest that there is an imminent need for catering to the manpower needs of the industry. However, a wide gap between the employment potential and the extent of skilled manpower available in the market, to meet the human resource requirements of the solar energy sector. The universities and training institutes have not been able to produce graduates and trained manpower who can be employed by industries in the solar energy sector or who can establish themselves as entrepreneurs with support from the government and financial institutions. Hence various strategies are being adopted by different countries, to meet the growing demand for skilled manpower in the solar energy sector.

India's Efforts to Promote Solar Energy

India launched Jawaharlal Nehru National Solar Mission (JNNSM) in the year 2010. This is a joint initiative by the central and state governments to promote solar energy in all parts of the country. The National Solar Mission which has been revised twice has been working towards a target of 100GW of solar photovoltaic power generation, by the end of 2022. This is likely to establish India as a world leader in the solar energy sector by promoting its deployment in all parts of the country. The National Solar Mission has three phases namely, Phase 1 (2010- 2013), Phase II (2014–2017), and Phase III (2017–2022). Phase III is in progress and is in tune with the 13th Five Year Plan. The cumulative target for grid-connected solar photovoltaic applications is 100,000 MW while the target for off-grid solar photovoltaic applications is 2000 MW.

Floating Photovoltaic technology (FPV technology) involves the installation of solar photovoltaic panels on water bodies. They offer several advantages when compared with ground-mounted solar plants. There are some associated environmental benefits too. There may be some challenges in maintaining FPV plants that can only be reached by boats, however. If given importance and necessary support, FPV technology can help in the cause of India's clean energy transition. It also has the potential to generate employment in many parts of the country. The Indian government has set a target of achieving 10 GW of FPV capacity by 2022. A small-scale FPV plant with a capacity of less than 1 MW, directly employs 58 people.

A study conducted by Ghosh, Arunabha et al. (for 'Council on Energy, Environment and Water' in collaboration with the National Research Development Corporation (NRDC), Government of India) found that solar developers will need a large number of skilled personnel across every phase of a solar project. The key findings of the study include the following:

- India's target of generating 100 GW of solar power would generate more than 11 lakh jobs by the year 2022.
- Every year, nearly 81,000 highly skilled workers would be required to carry out annual and ongoing performance monitoring of solar projects scheduled for completion by the year 2022.
- An additional 1,82,400 workers would be needed annually by 2022, for low-skilled operation and maintenance functions in solar rooftop and utility-scale projects.
- To reach a 40 GW target for rooftop solar power generation by 2022, India requires 2,10,800 skilled site engineers and 6,24,600 semi-skilled technicians for construction.

- The availability of appropriately skilled manpower is a major challenge. The solar sector would benefit by recruiting workers from conventional labour markets with pertinent skill sets.
- Other key challenges include inadequacy of advertising platforms for solar energy-related jobs, low salaries, lack of local proximity to training institutes, deficiencies in existing solar power training programs etc.

Employment Status of Veterans in India

In India, there are about 26 lakh ex-servicemen, and 60,000 widows seeking employment. They include junior Commissioned Officers, Non-Commissioned Officers, and other ranks, and about 14 per cent are officers as per Wikipedia.

A study conducted in Gurdaspur district by Panjab University inferred that there is a high degree of unemployment among ex-servicemen in India and that many of them are not able to lead comfortable lives after retirement. Intending to provide useful employment and help ex-servicemen in the country, the Indian government had established Directorate General Resettlement (DGR). Through the services offered by the Department of Ex-Servicemen Welfare (Ministry of Defence), the institution offers employment assistance facilities to ex-servicemen in India. Ex-servicemen only need to be registered in a District Sainik Board to avail employment assistance facility. This has been done to increase transparency and to empower ex-servicemen.

Categories of Ex-servicemen

The definition of Ex-servicemen has been changing from time to time. At present, there are as many as four definitions for four different periods. The eligibility of the person to the status of ex-serviceman will be governed by the definition in vogue at the time of his discharge and will not be affected by the changes in the definition after his discharge [1].

The aforesaid four definitions for different periods are as under.

Those Released on or After 01 Jul 87

'An ex-serviceman' means a person, who has served in any rank whether as a combatant or non-combatant in the Regular Army, Navy and Air Force of the Indian Union and:

1. Who retired from such service after earning his/ her pension or [2]
2. Who has been released from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension or [3]
3. Who has been released/ retired or discharged at his request, but after having earned pension or as a result of a reduction in establishment; or
4. Who has been released from such service after completing the specific period of engagements, otherwise than at his request or by way of dismissal or discharge on account of misconduct or inefficiency, and has been given a gratuity; and includes personnel of the Territorial Army of the following categories, namely:
   i. Pension holders for continuous embodied service,
   ii. Persons with disability attributable to military service, and
   iii. Gallantry Award winners [4]

Explanation

The persons serving in the Armed Forces of the union, who on retirement from service, would come under the category of "Ex-servicemen" may be permitted to apply for re-employment one year before the completion of the specified terms of engagement and avail themselves of all concessions available to ex-servicemen but shall not be permitted to leave the uniform until they complete the specified terms of engagement in the Armed Forces of the Union [5].

Personnel of Army Postal Service

The personnel of Army Postal Service, who are the part of the Regular Army and retire from such service (that is, directly from the Army Postal Service itself without reversion to P&T Department)

with a pension or who have been released from such service on medical grounds attributable to military service or circumstances beyond their control and awarded medical or other disability pensions, come within the definition of ex-servicemen.

Those released on or after 01 Jul 79 but Before 01 Jul 87

Any person who had served in any rank (whether as a Combatant or not) in the Armed Forces of the Union for a continuous period of not less than six months after attestation, if discharged for reasons other than at their request or by way of dismissal or discharged on account of misconduct or inefficiency and not less than 5 years of service if discharged at his request [6].

Those released on or after 01 Jul 68 but before 01 Jul 79

Any person who had served in any rank (whether as a combatant or not) in the Armed Forces of the Union for a continuous period of six months after attestation and released therefrom otherwise than by way of dismissal or discharge on account of misconduct or inefficiency [7].

Those released before 01 Jul 68

Any person who had served in any rank (whether as Combatant or not) in the Armed Forces of the Union and has been released therefrom otherwise than by way of dismissal or discharged on account of misconduct or inefficiency [8].

Figure 1. Members of the military learn how to install solar panels at a Solar Ready Vets training program at Ft. Carson in Colorado. Source: Solar Ready Vets.

Potential of Veterans in the Solar Energy Sector

The fast-paced growth in the solar energy sector will serve as a springboard to success for veterans in every country. The following factors suggest that veterans have the skills required to be successful in the solar industry [Figure 1]:

- During their tenure of military service, veterans are trained to lead, and given responsibility early in their career [9];
- Veterans are usually focused on their mission, and are committed to the successful completion of any job, on time;

Figure 2. Employment categories in the solar photovoltaic sector.
Source: North American Board of Certified Energy Practitioners.

- Veterans work well in teams, simultaneously completing their work and supporting their colleagues to reach the goal at hand [10];
- The work ethics of veterans are of a high order. Veterans are accustomed to working for long hours in diverse environments.
- Veterans view climate change as a threat to national security. Working in solar is one way for them to continue in their service as defenders of our nation.
- Energy independence—particularly achievable through clean, domestic sources of power—is vital for any country's security.
- Working in the solar energy sector allows veterans to continue their powerful experiences of service to the nation.
- Many skills learned by veterans in the military service are just the skills they need to thrive in the solar industry [11].

Types of jobs in the Solar Industry [Figure 2]

Various types of jobs exist in the solar industry, for veterans from all backgrounds. Some of the important solar energy-related jobs are listed below:

- Solar photovoltaic installers completing installations of solar arrays by mounting the racking structures on rooftops, assembling the panels, and connecting electrical equipment [12].
- Solar system inspectors monitoring quality and ensure that all aspects of a solar energy system have been safely installed and meet established standards.
- Solar sales representatives working with potential solar customers, and communicate the benefits of clean energy for both residential and commercial projects [13].
- Solar electricians providing technical expertise to an installation team, incorporating safety measures and ensuring successful connections between the home and the panels [14] [Figure 3].

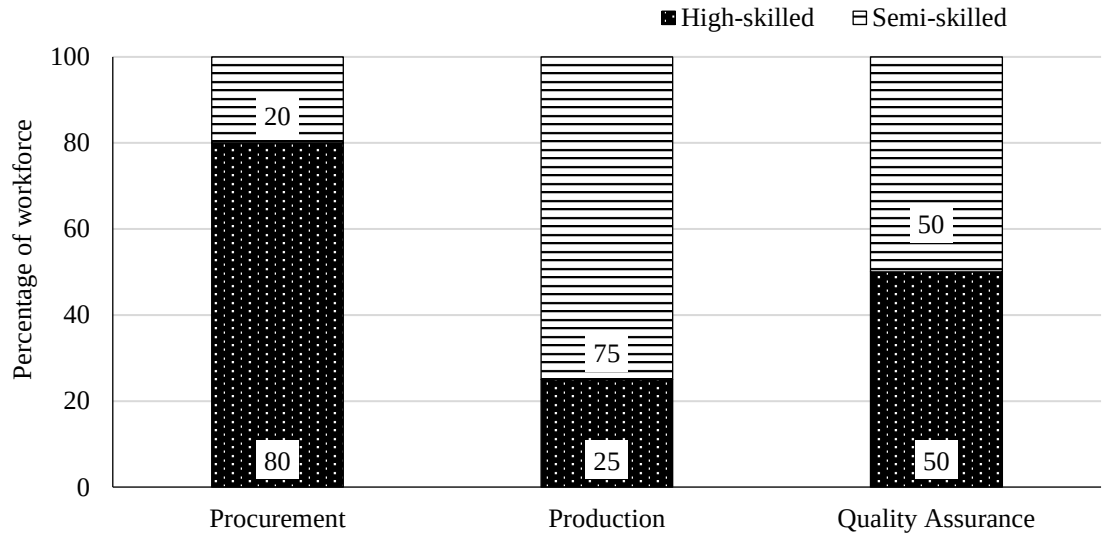

Figure 3. Relative proportions of High-Skilled and Semi-Skilled workers engaged in the production of a Mid-Scale floating photovoltaic power plant.
Source: Council on energy, environment and water.

CONCLUSION

The solar energy sector has been evolving and growing significantly during the last two decades; and continues to grow, owing to the numerous advantages that solar energy offers to the industrial world. It provides ever new opportunities for individual and organizational growth in our global pursuit of sustainable development. The recruitment of veterans in the solar industry is mutually beneficial, helping veterans find employment in jobs that will support the national economy, and helping rapidly expanding solar companies fill their new roles with competent, motivated workers.

The skills that ex-servicemen acquire during their military service can easily be used by the industry, given the nature and extent of hard work involved in the jobs that are available in the solar energy sector. Many veterans have the opportunity of learning crafts and technical skills that can benefit the solar industry during their training schedules, in active duty. However, veterans acquire many assets which transcend technical skills. The intensive, well designed and scientific training that veterans receive during their service enables them to operate individually and also helps them to effectively work with each other as a team. This, along with their inherent and acquired leadership skills, makes many veterans suitable for challenging assignments in the solar industry. Hence, it is concluded that the problem of manpower shortage can be addressed effectively, by enabling the recruitment of veterans, and providing them with the training and resources necessary for achieving high productivity, thus facilitating the attainment of solar power generation targets outlined in the national policy. The development of a veteran talent pipeline by any country calls for a sustained endeavour from different sectors of society. The skills and talents of veterans can be successfully utilized in the solar energy sector by the synergistic efforts of the governments of different countries, renewable energy companies, military organizations, ex-servicemen welfare associations, trade associations, and education and training partners in universities and colleges across the world. Veterans bring with them the important perspectives they learned during their tenure in the country's defence services—and these have the potential to reinforce a nation's security and build a bright energy future.

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