

## Industry Overview

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**Objective:**

The Indian Regulations<sup>2</sup> prescribe that the comparability of an international transaction with an uncontrolled transaction shall be judged with reference to the conditions prevailing in the markets in which the respective parties to the transactions operate. Hence, for the purposes of transfer pricing analysis an overview of the industry is essential. Since Renewsys India is engaged in the manufacturing of solar modules and related components, the performance of Renewsys India is directly linked to the performance of solar manufacturing and supply chain industry in India.

**Background of the Energy industry:**

Before going to industry of components for solar energy and hence solar modules & its components in India, it is important to understand the overall energy industry in India. Energy use is an important factor for the growth of a nation which in turn ensures the socio-economic development of a country. Power plays an important role in industrial, regional and overall societal development as it supports in employment, knowledge and skills generation thereby creating long term sustainable growth. India is taking proactive steps to sustain its rapid economic growth. The increasing per capita income and large population moving into middle class has led to high level of consumerism in India. In India, energy demand and supply gap has widened over time as the demand has increased faster than the supply over time. India is in need of sustainable energy solutions and amongst the various energy sources, solar energy can be considered as preferred option since it is available across geographies, relatively unlimited vis-à-vis other green sources, freely available and in fact the country is endowed with possibly the highest band of average annual solar energy globally. In addition to grid connected solar energy generation and solar thermal applications across industrial and commercial verticals, solar power is also well suited for decentralized and distributed power requirements which can assist in electrifying 400 million people with no access to electricity. Solar can play a huge role in bridging the increasing peak load power gap and also base load electricity demand which is expected to double by 2020.

Solar Sector is poised for intense growth. In India, however this industry is still at a nascent stage though it has developed multifold over the last two decades. However, since the last 2 years the demand in the domestic market has grown multifold due to various central and state government initiatives which have the potential to catalyze this industry enormously. However, the Indian photovoltaic and solar energy industry is competing and facing challenges with global players who have overcapacity, far lower interest costs and higher incentives or subsidies as compared to Indian companies involved in manufacture of Modules, cells, EVA sheet, Backsheet and other components. As a result, several solar

manufacturing companies in India and abroad- are either operating at sub-optimal capacity and/or have shut down production.

***Overview of the solar supply chain industry:***

The current solar energy manufacturing base in India comprises primarily of Photovoltaics cells ('PV cell')s and module manufacturing with 1.5 GW installed and 1.1 GW operational of cells and 5.8 GW installed and 4.3 GW operational capacity of solar modules as on June 2016 (MNRE Website). By and large, Indian solar industry has been dependent on imports of critical raw materials such as EVA sheet, Backsheet, reflective glass, balance of system (BOS) for Solar PV industry. There is clearly tremendous scope for development of domestic production base for many products including PV modules and its components to secure and strengthen the supply chain to reduce the foreign exchange outflow and create direct and indirect long term employment in the solar industry.

The key elements in the solar energy supply chain framework consists of raw materials and component suppliers to solar photovoltaic module manufacturing, balance of system which includes inverters, connecting wires, trackers etc. and the integration of the different components. It is important to have different equipment and components integrated with proper specification and compatibility, as in some cases even slight variation results in failure or loss of final output.

***Key Issues:***

The impact of changing global economic scenarios has created demand-supply imbalance and non-competiveness for several Indian manufacturers making them to operate at a sub-optimal capacity or even to shut down their production facilities. The Indian market which is evolving currently is seen as one of the huge potential markets globally for solar and to that extent a number of players from developed solar markets are making their presence felt here rapidly. With the announcement of Jawaharlal Nehru National Solar Mission ('JNNSM'), many international companies diverted their resources towards India to take benefit of emerging solar market. These entities need to be encouraged to support the setting up of facilities with long term plans to invest in India. With the right policy framework, this scenario can change thereby establishing a robust Indian solar manufacturing sector and re-capitalizing the current players.

**Summary**

The potential for renewable energy, including grid and off-grid solar applications in India, for the next 10 years is projected to be in the range of 200 – 300 GW. To meet this demand, it is vital to assess the requirements at various levels of supply chain to select and strengthen the strategic links of the value chain based on their advantages as per the Indian conditions. India should carefully prioritize parts of the supply chain that it wishes to take a lead based on the strength of the Indian economy. Even to achieve the objectives of the JNNSM, it is necessary to secure a high quality and cost effective supply chain for the Indian solar



industry else it will put tremendous pressure on foreign exchange outflow and loss of employment opportunities in future.

Additionally, the international trade trends have created an opportunity for Indian manufacturers to tap certain established solar markets as well. As appropriate trade penalties and measures are implemented and global prices stabilize towards a sane price structure with a demand balanced capacity, Indian manufacturers will start getting a part of the global demand. In fact, because of the low cost of human resource capital, the fact that several elements in the solar supply chain are not technology intensive, India can leverage its domestic demand to have a self-sufficient solar manufacturing ecosystem.