**Solar Power: Need of a Techno-nationalistic Approach**

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Recent revision of targets for raising the solar power capacity in the country to 100 Gigawatt by 2021-22, in place of 22 GW set earlier, would place India ahead of rest of the world, with 9% share of solar power in the total power generation, from a current level of 0.5%. Currently, the Germany has highest capacity of 35 GW of solar power and Italy has the highest share of 7.2% in total generation. A 33 fold rise in solar power capacity in India from the current 3.3 GW to 100 GW in 7 years would set another world record, reflecting Modi government's resolve to reduce Carbon emissions effectively, which would also strengthen India's position at the upcoming 21st Conference of Parties (CoP-21) on climate change, scheduled in Paris.

Such a huge addition of solar power capacity would also provide an opportunity for the country to kickstart stagnating investments in the economy by infusion of more than Rs. 6.5-7 lac crores into the sector, capable to add manifold more output in GDP and investment by ancilliarisation and development of vast supply line for components down the supply chain, along with development of a state of the art technology. But, it would happen if larger participation of indigenous firms is ensured in adding the new capacity. To the contrary, if we would dole-out this opportunity to Chinese, German and American suppliers in the name of bringing foreign direct investment (FDI) to tide over the ongoing current account deficit (CAD) the country may loose this dream opportunity of kickstarting growth and development, including the technology development as well as components sector via a multiplier impact, capable to generate employment, income and growth on a sustainable basis. Each of the top 10 solar power generating countries of the world have preferred to develop their indigenous solar power industry to meet the domestic demand. In our case as well, if the domestic firms are provided an initial breather by imposing anti-dumping duties on imported hardware and/ or are subsidized to give them a level playing, we can build a booming solar power sector to cater growing indigenous as well as global demand. A forbearance of 2-4 paisa of extra cost per KWHr, arising from imposing of anti-dumping duty on imported hardware or from providing a subsidy to the indigenous industry would pay rich dividends in developing the domestic capacity and resultant employment, income and growth. An attempt to provide a level playing field to the indigenous industry, *inter alia* by imposition of precautionary anti dumping duty on imported hardware, R&D support, equity funding and a host of other measures are the need of hour and which may help the country see a thriving domestic manufacturing sector with its entirely domestic supply chain to save forex and preserve the outflow of forex to be involved in the component import or likely to be repatriated as dividends; which would outweigh the investment inflow.

Therefore, India should not repeat the past mistakes wherein the country had badly lost similar opportunities of growth from the development of domestic capacity in telecom, power, shipbuilding etc.; by doling out the bounties of supply-orders to foreign players. For instance, India had made a praiseworthy breakthrough developing in the first generation of telecom technology of world order. The Indigenous hardware, including switching systems for electronic exchanges upto 80,000 lines were developed indigenously and were well at par with those of the Motorola (an erstwhile American company now taken over by the Chinese) and Siemens (a German company). But, the country doled out more of the domestic orders to foreign suppliers, and for that reason alone the indigenous players including the C-DOT could not generate enough revenues to envision and develop 2nd generation telecom (2G) technology for mobile telephony. China, thereafter over-stretched to overtake the Euro-American companies in developing the 3rd generaton telecom technology (3G) but it could develop only a very primitive and tortuous technology, the TD-SCDMA (a modified version of 2G SCDMA technology). Notwithstanding this it kept pursuing a techno-nationalistic course and permitted to roll out only indigenously developed 3G network in China, pursuing further research to improve upon it inspite of the fact that this Chinese indigenous technology was far inferior to the Euro-American 3G technology. But, China did not adopt Euro-American technology. So, out of the resources generated from rolling out their indigenous 3G technology alone, China succeded to develop very superior 4th generation telecom (4G) technology ahead of, and also better than the Euro-American companies. They (Chinese) developed the TD-LTE as 4G telecom technology from the same tortuous, but indigenous TD-SCDMA technology. Now, according to various estimates, the Chinese TD-LTE has been adopted by 45% of world's 4G networks, including the Reliance, Qualcomm etc. India, inspite of having the first generation technology in early 90s, much superior to that of Chinese has got badly crippled and become fully dependent upon external supplies for 2G, 3G and 4G telecom technologies and largely upon China, a security threat of first order for the country, solely because of patronizing foreign firms in 1990s. Now, China has been working on 5th generation telecom technology from the revenues generated from the indigenously developed 3G and 4G technologies, while we missed the train from the time of 2G till date. China could take this escalator in developing the indigenous telecom technology and pursue techno-globalism solely by the techno-nationalistic approach.

In the field of power sector also, Indian hardware had been much superior to the Chinese in 90s. But, now more than half of our orders for super-critical thermal power plants are being poured into Chinese coffers instead of being given to indigenous players. Order books of indigenous suppliers like BHEL, L&T and others including hundreds of their ancilliary units are below their capacity. Moreover, there are reports that power hardware of the Chinese origin of approx Rs. 2 lac crores is experiencing snags due to inferior Chinese-supplies. In shipbuilding we have suffered most badly. Indeed in shipping the share of Indian flagged ships in our total foreign trade is very dismal and withdrawal of support to shipbuilding from the eleventh five year plan onwords has brought down our share in world shipbuilding to 0.01 percent. South Korea which accounts for less than 5 percent of geographical area and population of India, and having far less than 70 percent of our GDP, today accounts for 40% of world-shipbuilding. Needless to say India is the 3rd largest steel producer with a large pool of skilled manpower and 7100 Km coast line can easily capture at least 10% of world shipbuilding if proper policy, design, R&D and fiscal support is extended by the government. Overall, the Korea has been spending 4 % of its GDP on R&D while India spends less than 1 percent of its GDP on R&D, inspite of our repeated assertions to raise our R&D outlay to 2% of our GDP in the science and technology declarations being made since 2003. Indeed our share in the world shipbuilding was 0.1 percent in 2002. Very small budgetary support extended to ship building in the 10th five year plan (2002-07) from the government raised India’s share from 0.1 to 1.4% by 2009. But, the support was soon discontinued in 11th plan, so it has how receded to 0.01% just on account of discontinuance of that support in 11th plan. To the contrary, a single policy support to pharma sector extended in 1970 by replacing the provision of product patents with process patents in the Indian Patents Act of 1970, India could acquire record 10% share in the world Pharma-Manufacturing by volume. Besides, we have ushered in a new era in the area of pharma education and Research & Development just by virtue of this policy support. Though it is also now bound to erode with our reverting back to product patents since 2005 and our gradual succumbing to Euro-American pressure in the field of IPR.

 Therefore, in our endeavor to raise solar power capacity, if a proper blend of fiscal support, purchase priority, integrated policy support and R&D support is extended to indigenous manufacturers for building the domestic capacity in solar power hardware manufacturing, India can do the miracle, become world leader in solar power and usher in a new era of growth and development. Already, the cost of power per unit has come down to Rs. 5.5 from 20 in last few years. The solar is therefore only hope for global energy woes. And India can ride this global wave. If India can send Mars orbitat at one sixth of the global cost, then, in solar power as well, we may emerge as world leader by pursuing a techno-nationalistic approach as has been done by China in telecom, power, shipbuilding etc. But, if we would add solar power capacity through foreign supplies and FDI we would miss another escalator for a quantum leap for next more than a decade.