

Atma Vichaaram on Atma Nirbhar – the case of Solar Energy Components

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In December, the Business Standard reported that the Ministry of New and Renewable Energy had proposed a 20% basic custom duty on solar module and cell imports. Fast forward three months later, the proposal has gone up to a proposed duty of 40% on solar photo-voltaic (PV) modules and 25% on solar photo-voltaic cells from April 2022. There is a safeguard duty which was first imposed in 2018. That is expiring in July.

There is also another question of whether the proposed duties would apply to the PV modules and cells manufactured in special economic or export processing zones (SEZ or EPZ) in the country. 63% of India's solar cell and 43% of module manufacturing facilities are located in SEZs. Technically, they are outside the custom borders of India and therefore, any purchases from those units is the equivalent of import and must attract duty. In that case, the purpose of locating these manufacturing units in SEZ or in EPZ would be defeated as would the purpose of levying the customs duty on an essential domestic requirement. As of now, that is an unresolved question.

The first thing to note here is that it is BCD and not ACD (additional customs duty). India's BCD rates have been steadily declining over the years. According to World Bank data, India's average import tariffs had dropped to a low of 4.88% in 2018 from over 50% in 1990, prior to liberalisation. This enhanced Basic Customs Duty on solar modules and cells will be part of the reversal of this trend that had lasted nearly three decades.

That is not a problem in and of itself. Nothing ever needs to be cast in stone in public policy. Policy has to suit context and be relevant to the country's needs. That applies to import protection too. The question is one of a clear understanding of the costs and benefits of such a move. Second, does protection bring performance from domestic manufacturers? In other words, will they use the window of opportunity and time afforded by protection to up their game? Is that even possible?

One of the usual objections, i.e., that India's duties can be contested in the World Trade Organisation (WTO) is easily addressed. WTO takes a long time to adjudicate. The judgements can be appealed. Both the Trump and the Biden administration have refused to appoint appellate judges in WTO. This also means that India's import duties can be met with export duties on the part of China.

Solar panel manufacturing – Chicken or the egg?

When it comes to making solar panels, there are modules, cells, ingots and wafer and polysilicon, in the reverse order of 'finished' to 'raw material'. According to a World Intellectual Property Organisation working paper ('Understanding the dynamics of global value chains for solar photovoltaic technologies', November 2017), China's share of global manufacturing capacity in the different segments of solar energy generation was 81% in ingots, 84% in wafers, 66% in crystalline photovoltaic (PV) cells and 82% in crystalline PV modules. But, these data were as of 2012. A more recent article, 'The case for taking back solar', published in 'The American Prospect' (24th March 2021), puts the numbers at 95%, 99%, 80% and 75% respectively. Further, it adds that China's share in solar-grade polysilicon capacity at 64%. In fact, the industry is now moving from multicrystalline silicon to monocrystalline silicon and the technology required to produce mono ingots and wafers is both sophisticated and capital intensive.

Coming back to the core issue, if the intent of the proposed BCDs is to help Indian manufacturers develop capability in modules and cell manufacturing, the near-total reliance on China for the inputs that go into the production of cells and modules raises doubts over the possibility. China can retaliate by imposing export duties on the export of ingots and wafers and polysilicon, which are used for manufacturing modules and cells. It is also possible for Chinese manufacturers to relocate to other countries which are not affected by the duty and export to India from those countries. However, if the duty is imposed on all imports of PV modules and cells - regardless of their origin - then the question is whether it makes for a sound policy.

While, in principle, it makes sense to raise duties on 'finished' goods rather than on intermediate or basic inputs, it is important to remember two things: first is that one industry's finished good is another industry's input. Steel is a good example; it may be a finished good but it is also an important input in the manufacture of automobiles. Second, we must keep in mind the ability of other countries to retaliate.

So, if the purpose of the proposed duty is to 'Make in India' such that India's renewable energy ambitions and targets through solar power generation are realised through indigenously made photovoltaic solar panels, then it is imperative to take into account China's dominance and examine the record of the domestic industry in delivering on such expectations. Here, the evidence is mixed at best.

Low ambitions, low quality and low capacity

Take specialised glass used in solar panels for instance. It is made by Borosil in India but cannot meet the required domestic demand. It is the same for specialised plastics required to complete the electric circuitry for the panels, as current capacity is insufficient to meet demand. That needs to be imported as well.

Perhaps the biggest challenge for many solar power producers in India is that energy efficiency of Indian-made PV cells is less than what is claimed, leading to the actual cost of power generation being higher than what it ought to be. There are [reports](#) that some manufacturers falsely label their 380 W cells as 400 W because there are no government entities to ensure the quality of these cells. This lack of quality control undermines power generator's ability to deliver cheap solar power, in turn, to the grid and to users. Naturally, the result is that the financial viability of solar power producers comes under strain.

Further, in the last two years since the safeguard duty had been imposed, there has been no serious attempt to build domestic capability in these areas. Of course, it is correct to argue that two years is too short a time to build domestic capacity, and hence the duty protection is needed for longer, perhaps a decade. Even then, there is no visibility that domestic capacity will be enhanced during that time. Further, the technology in solar power generation is evolving rapidly and is becoming ever more capital intensive. Hence it is an open question as to how many manufacturers have the aptitude, willingness and the financial strength to keep investing and keep upgrading their technology.

Government interventions have been stillborn

Solar Energy Corporation India (SECI)'s Manufacturing-Linked Solar Tender was in effect the Government's attempt to link manufacturing with the permit to develop solar parks at pre-determined tariffs. The idea that solar energy developers will also have the capability and interest in manufacturing was flawed and therefore, the tender faced many obstacles, twists, turns, and multiple deadline extensions.

SECI has also amended various clauses of this tender to make it appealing for the interested developers. Initially the idea was to have the solar energy sale linked to complete value chain manufacturing but in the end, it seems it has also been limited to cells and modules only. China has huge global ambitions in almost every sector and has an artificially engineered lower cost of capital to finance such ambitions. India perhaps lacks both.

In the United States, for example, according to the article in 'The American Prospect' cited earlier, "the tariffs that the Trump administration placed on foreign solar modules, under Sec. 201 of the Trade Act, which allows retaliation against dumped imports, motivated three foreign producers (Hanwha Q Cells, Jinko, and LG) to open U.S. module plants in response to the tariffs." The article also notes that the Ultra-Low-Carbon Solar Alliance launched in October 2020 with the goal of increasing market demand for solar panels manufactured with low embedded carbon is talking to federal and state agencies to institute a purchase preference for PV modules with ecolabel. This will favour American and European producers since China-made cells and modules come from plants that are coal-fired. The energy content in China-made components is thus much higher.

India has the demand and knowledge to still scale up its manufacturing

All of this suggests the need for a higher degree of knowledge, preparation, planning and investment of financial resources on the part of the government. Post-Covid, fiscal resources are stretched and there are numerous legitimate competing claims on the government's scarce fiscal resources. Even if the government were to offer subsidies, ultimately, the private sector has to find the resources to invest and India's cost of capital is still on the high side. Then, there are issues with respect to power purchase agreements and their renegotiation by state government utilities that are cash-strapped or broke. So, it is not clear that, even with the proposed protection, India would develop domestic manufacturing capabilities in solar power equipment.

Almost 75 per cent of India's solar power capacity is built on Chinese solar cells, and modules. India's solar cell manufacturing capacity stands at 3GW and for modules it is 5GW, whereas the country's solar power generation capacity stands at 32GW. India adds about a gigawatt of solar power generation capacity every year. Therefore, there is another way to go about it.

One of us wrote in 2014 to the Power Ministry that India could become a world leader in the manufacture of ingots and wafers. The manufacturing of ingots requires high purity silicon and good quality electrical power. The skills and knowhow required are metallurgy and material science. The skill sets too are available in the country in both industry (steel and aluminium) and in the academia. In fact, the Department of Science and Technology has installed a Crystal Growth Centre in Anna University in Chennai. When wafers are manufactured in India, the cell and panel (module) manufacturing capacity that is already available can be expanded. Much of what we wrote then, nearly seven years ago, still remains valid.

Another tangible support – instead of protection through higher import duties – that the government can offer is through provision of public goods at least in select industrial areas. The intent is to reduce the project cost. These are in the form of state provided worker housing, power backup systems and environmental management systems. Full operating cost recovery takes place but only on actual use basis. The capital costs are incurred by the State /Industrial Area authority. Bank loans are secured by escrows on rentals and become self-liquidating. Loan tenures are long dated. The net impact is that while the project investment cost reduces very sharply, there is no fiscal burden on the state. This however requires that the industrial area authority be a state enterprise but functioning as a pure non-profit service provider. The signalling generated by this support system may be as effective as, if not more than, the protection envisaged through customs duties.

Indeed, a World Bank blog [post](#) from November 2010 points out that the ‘plug-and-play’ facilities made available in Chinese industrial zones “played a critical role in facilitating the growth of Chinese SMEs from family operations catering to the local market to global powerhouses, avoiding the ‘missing middle’ problems that other countries still face.”

Active industrial policy is a complex beast to tame

Pursuing an active industrial policy, per se, is not wrong. Many countries have done that in the past. Further, protectionism and ‘me first’ attitudes and policies are making a definite comeback. Evidence is mounting by the day. European Union is practising vaccine nationalism openly by restricting export of vaccines, produced in EU territory, to other nations. An [editorial](#) in ‘BusinessLine’ newspaper, citing the UN Secretary-General noted, “Just 10 countries have administered 75 per cent of all Covid-19 vaccines. Meanwhile, more than 130 countries have not received a single dose.” In the financial sector, the failure of the hedge fund/family office Archegos saw attempts at cooperation by banks that stood to lose from the fire sale of securities held by the fund collapse and each bank looked to recover its own loss unmindful of the impact such behaviour would have on themselves and other banks. Third, the signing of the Regional Comprehensive Economic Partnership Agreement did not stop China from imposing crippling duties on Australian wines.

Our note of caution with respect to the adoption of protectionist policies is not motivated by ideology but by considerations of efficacy. In an industry with sophisticated technology which is also rapidly evolving, the specialised domain knowledge required and expected of policymakers to pursue and implement an active industrial policy have grown manifold.

With discretion comes the risk of policy capture. Recently, Indian Light Emitting Diode bulb manufacturers have appealed to the government for a total ban on the import of China-made LED lighting, failing which they have appealed for the imposition of import duty of 50%. The chip used to make the LED bulbs is almost completely made in China for the sector that Indian LED light manufacturers operate in, i.e., low-cost street and residential lighting. Hence a policy intervention will only have unintended consequences for the final consumers.

Once the industry realises that the government is inclined towards supporting enhancement of domestic manufacturing capabilities, demands will proliferate and the bureaucracy may not have either the time or the skill nor the experience required to make informed decisions that can assess costs and benefits for the nation. Setting up a benchmark to assess such costs and benefits is rather difficult.

While it sounds nice to articulate the principle of protection in return for performance, setting up performance criteria for the industry to meet and choosing relevant and realistic time horizons for its delivery are not easy. Additional factors such as cost of capital and evolution of technology have a substantial bearing on the outcomes. In the end, the country may be left with protection with no commensurate domestic capability acquisition as a payoff to show for it. This will be the worst of both worlds, as consumers pay more, producers do not produce, and government policy fails. Mutual blame game will be the eventual outcome while there is a knock-on effect on other goals and policy objectives of the government.

In the final analysis, while it may sound somewhat tame, the best protection the government can offer to Indian businesses is to lower the cost of operating or doing business in India. There is still plenty left to do in that regard. India's Licensing, Inspection and Compliance (LIC) regime at all levels of the government is intricate, time-consuming and costly, without a clear sense of the benefit derived from maintaining such a system.

Then, there are tax rates and tax administration. Availability of electricity at the right time, at the right price and of the right quality and reliability is still a challenge for small industries. All these constitute huge competitive barriers, protecting incumbents at the expense of newcomers. Small businesses have neither financial nor manpower resources to comply with the LIC Raj. Once these are simplified, there will be a huge unlocking of domestic production and costs at all levels of production will come down. Until these are done, it may not be possible for India to strive for self-sufficiency in a wide range of industries. It may have to be selective, based on well-informed criteria of domestic capabilities and costs.

Therefore, an appropriate industrial policy for India is one that trains all of the government's efforts and intellectual firepower on tearing down internal barriers rather than erecting external ones.

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