

GST ARTICLE

Solar Inverters are a part of ‘Solar Power Generating System’: Rate of GST must be determined keeping in mind the evolution of Renewable Energy Technology

Rishab J, Associate Partner, Dhanyatha R, Senior Associate and Ananya K, Associate, Shivadass & Shivadass Law Chambers



India’s renewable energy sector is no longer limited to conventional solar panels and basic generation systems. The industry has evolved into a sophisticated technological

ecosystem involving smart inverters, energy management systems, battery storage solutions, grid synchronization technologies, and AI-enabled monitoring devices. As the solar sector advances, taxation frameworks must also adapt to reflect commercial realities and policy priorities.

One of the most debated issues under GST today is the classification of ‘solar inverters’, which becomes an essential part of the entire system. Tax authorities in several instances have attempted to classify solar inverters as ordinary electrical inverters taxable at 18% GST, while the industry contends that they are integral components of solar power systems eligible for the concessional GST rate of 5% applicable to “solar power-based devices or systems.”

The controversy is not merely a tariff dispute. It raises a larger legal question: **Can a device that enables the very usability of solar energy be treated separately from the solar power ecosystem itself?**

This issue requires interpretation not only through technical classification principles but also through the lens of India’s renewable energy policy and the practical realities of solar technology.

The Central Role of Solar Inverters in the Solar Ecosystem

A solar panel alone cannot power a factory, household, or commercial establishment. The electricity generated by photovoltaic panels is in the form of Direct Current (DC). However, electricity consumed in households, industries, commercial establishments, and electricity grids generally operates on Alternating Current (AC). The conversion of DC into AC is performed by the solar inverter. Without this conversion, the electricity generated through solar panels remains largely unsuitable for practical applications.

Modern solar inverters perform functions extending far beyond simple power conversion. They incorporate advanced technologies such as Maximum Power Point Tracking (MPPT) to optimize energy generation, grid synchronization mechanisms, anti-islanding protection, monitoring capabilities, and integration with battery storage systems. As essential components enabling the efficient and safe utilization of solar energy, their role extends beyond being merely supplementary to solar infrastructure. This raises an important legal question: whether equipment specifically designed and engineered for operation within solar power systems should be classified independently as electrical converters or considered integral to the broader renewable energy ecosystem.

The distinction between ordinary electrical inverters and solar inverters lies in their functionality and design. While conventional inverters are primarily support backup power through battery systems. Solar inverters are specifically engineered to process and optimize solar-generated electricity, with their technology and commercial identity intrinsically linked to renewable energy applications.

GST Interpretation and Renewable Energy Policy

The interpretation of GST entries relating to **“solar power-based devices or systems”** becomes significant in this context. The relevant entry is entry 234 of Schedule I of Notification No. 1/2017-CT(R) dated 28.06.2017 which imposes a 5% GST on the goods mentioned therein and the same is extracted below:

S. No.	Chapter/ Heading/ Sub- heading/ Tariff item	Description of Goods
234.	84, 85 or 94	<p><i>Following renewable energy devices & parts for their manufacture</i></p> <p><i>i. Bio-gas plant</i></p> <p>ii. Solar power based devices</p> <p>iii. Solar power generating system</p> <p><i>iv. Wind mills, Wind Operated Electricity Generator (WOEG)</i></p> <p><i>v. Waste to energy plants/ devices</i></p> <p><i>vi. Solar lantern/ solar lamp</i></p> <p><i>vii. Ocean waves/ tidal waves energy devices/ plants</i></p> <p><i>viii. Photo voltaic cells, whether or not assembled in modules or made up into panels</i></p> <p>Explanation: <i>if the goods specified in the entry are supplied, by a supplier, along with supplies of other goods and services, one of which being a taxable service specified in the entry at S. No. 38 of the Table mentioned in the notification No. 11/2017-Central Tax (Rate), dated 28th June, 2017 [G.S.R. 690(E)], the value of supply of goods for the purposes of this entry shall be deemed as seventy per cent. of the gross consideration charged for all such supplies, and the remaining thirty per cent. of the gross consideration charged shall be deemed as value of the said taxable service.</i></p>

From the perusal of the above entry, it is clear that the goods covered under Chapter 84, 85 and 94 are covered within the ambit of Notification, subject to the condition that they are either energy devices per-se or are parts which are used in the manufacture of Solar power-based devices or Solar power generating system, amongst others. In terms of explanatory notes to Chapter Heading 8504, a device

which converts AC to DC is an electric inverter and therefore covered under classification mentioned entry 234 of the Notification.

Further, it is pertinent to note that the Solar power generating system as a whole is covered under the said entry. The phrase 'system' indicates that it would consist of various individual machines which would function together to provide the desired output result. In this regard, reference can be made to the decision of the Supreme Court in case of ***CCE vs. Hewlett Packard India Sales Pvt Ltd.***, [2007-VIL-24-SC-CU](#) wherein the meaning of the word 'System' was explained with reference to the pre-loaded operating system recorded in the hard drive of the computer is an integral part of the Computer, without which the computer cannot open and work and been classified as operating system under entry relating to computer itself.

Therefore, a combination of elements or parts, which function together to render a desired output can be regarded as constituents of a system and accordingly, the inverters for use in solar power generating system will be covered within the ambit of entry 234 of the Notification as being part of solar power generating system.

The relevant entry employs broad language and does not narrowly define the term "device." nor does it expressly restrict coverage to end-use appliances alone. In legal interpretation, where concessional provisions aimed at promoting specific policy objectives employ wide terminology, a purposive approach often becomes necessary. Such an interpretation requires consideration of legislative intent alongside technical and commercial realities.

The functional role of a product is a key consideration in classification disputes. Solar inverters perform an indispensable role in converting, regulating, and enabling the use of solar-generated electricity, making them integral to renewable energy systems rather than standalone electrical appliances. Further, industry and trade practices recognize solar inverters as components of solar systems, with their commercial identity rooted in enabling efficient solar energy operations rather than ordinary electrical conversion. This commercial identity cannot be ignored while determining classification.

The issue assumes greater significance when viewed against India's renewable energy objectives. The Government has consistently adopted policies aimed at reducing dependence on conventional energy sources and encouraging investment in renewable infrastructure. Tax incentives and concessional rates form an important part of such policy measures. Interpreting classification provisions in a manner that increases costs for critical solar components may inadvertently undermine these objectives by raising project costs and affecting affordability within the sector.

Insights from Karnataka High Court

Recent judicial developments indicate that courts are increasingly examining classification disputes involving solar equipment through a broader lens rather than relying solely on conventional tariff descriptions.

The issue recently came under judicial scrutiny before the Karnataka High Court in the case of ***ABB India Limited v. The Joint Commissioner of Commercial Taxes (Appeals-6) and Anr*** [[2026-VIL-506-KAR](#)], where substantial GST demands had been raised on the premise that solar inverters attracted GST at 18% rather than the concessional rate applicable to solar power-based devices. The Court's decision is significant because it adopts a functional and system-based approach to classification rather than a narrow product-centric interpretation.

The Court recognized that a solar power generating system ordinarily comprises of interconnected components including solar panels, inverters, controllers, and batteries functioning together as a unified system. The Court further observed that solar inverters, by converting solar-generated electricity into usable power, constitute an **integral part of the solar power generating system** and therefore fall within the ambit of concessional treatment applicable to such systems.

Importantly, the Court clarified that concessional treatment under the relevant notification is not restricted only to suppliers of complete solar power generating systems but extends to **parts intended for manufacture or assembly of such systems**. The Court clarified that the relevant notification grants concessional treatment not only to suppliers of entire solar power generating systems but also to parts used in the manufacture of such systems. Referring to the definition of

“manufacture” under [Section 2\(72\)](#) of the Central Goods and Services Tax Act, 2017 (CGST Act) which means processing of raw material or inputs in any manner that results in emergence of the new product having a distinct name, the Court observed that the Solar inverter as a part which is assembled along with other parts results in emergence of a new product which has a distinct name, character and use and hence amounts to manufacture ***in any manner*** specified under the said provision of the CGST Act. By adopting a functional and system-oriented interpretation, the Court acknowledged the interconnected nature of renewable energy technologies and avoided a narrow classification approach based solely on generic product descriptions.

The Hon’ble High Court also observed that the usage of the solar inverters is restricted as a part of solar power generating system and consequently, it the same may be treated to have intended usage for the solar inverters to be as parts of solar power generating system. The judgment also reinforces an important principle of tax interpretation: where fiscal provisions are intended to support broader public policy objectives, interpretation should remain harmonious with those objectives unless legislation expressly provides otherwise. In the renewable energy sector, this requires consideration of technological realities, functional utility, and the role performed by products within integrated systems rather than examining components in isolation.

As India advances towards ambitious clean energy targets, consistency and certainty in GST treatment of renewable energy components will become increasingly important. Clear and policy-aligned tax interpretation can reduce litigation, improve investment confidence, and support continued growth of the renewable energy sector. The intersection between renewable energy policy and GST classification therefore represents more than a technical tax issue it reflects the broader challenge of ensuring that taxation evolves alongside technological innovation and sustainability objectives.

[Date: 20/05/2026]

(The views expressed in this article are strictly personal.)