

Off-Grid Solar Products Tax Ready Reckoner October 2017



LIGHTING ASIA

Catalyzing markets for modern off-grid energy

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Abbreviations

AC	Alternating Current
AAR	Authority for Advance Ruling
B2B	Business to Business Supply
B2C	Business to Consumer Supply
BCD	Basic Customs Duty
BIS	Bureau of Indian Standards
B/L	Bill of Lading
BOE	Bill of Entry
CGST	Central Goods and Services Tax
CHA	Customs House Agent
CI	Commercial Invoice
CIF	Cost, Insurance and Freight
CST	Central Sales Tax
CTA	Customs Tariff Act, 1975
CVD	Countervailing Duty
DC	Direct Current
EDI	Electronic Data Interchange
ET	Entry Tax
FF	Freight Forwarder
GST	Goods and Services Tax
HAWB	House Airway Bill
HSN	Harmonised System of Nomenclature
ICC	International Chamber of Commerce
IFC	International Finance Corporation
IGST	Integrated Goods and Service Tax
Incoterms	International commercial terms
IGM	Import General Manifest
LED	Light-Emitting Diode
MAWB	Master House Airway Bill
MSDS	Material Safety Data Sheet
PL	Packing List
PV	Photovoltaic
SAD	Special Additional Duty
SGST	State Goods and Services Tax
SHS	Solar Home System
VAT	Value Added Tax
Wp	Watt (peak)

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Acknowledgement

This Tax Ready Reckoner has been prepared to help companies interested in importing solar products into India - as well as those already selling within India - navigate what can sometimes be a complex operating environment.

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Executive Summary

The Lighting Asia/India program aims to increase access to clean, affordable energy in rural India by promoting modern off-grid lighting products and systems, and efficient DC appliances. The program works with the private sector to remove market entry barriers, provide market intelligence, foster B2B linkages and raise consumer awareness on modern lighting options. As part of its market intelligence work, Lighting Asia/India aims to provide relevant, useable market insights to support companies operating in, or interested in, the India off-grid solar market.

India is a federal country and prior to introduction of the Goods and Services Tax (GST), multiple indirect taxes were levied on transactions in India. Some of the taxes such as Central Excise Duty on manufactured products, Service Tax on specified services, and the Central Sales Tax (CST) on interstate sale of products were levied and collected by the Central Government. Other taxes like Value Added Tax (VAT) on intra-state sale of products and Entry Tax/ Octroi Duty (as applicable) were collected by the State Governments. Accordingly, the pre-GST indirect tax regime was beset by myriad problems such as complexity, tax on tax and lack of credit fungibility. Considering the issues plaguing indirect tax regime, a comprehensive indirect tax regime has been introduced under GST, with effect from 1st July, 2017. All indirect taxes, barring a select few, are subsumed into the new GST.

This Tax Ready Reckoner has been prepared with support from EY to provide requisite information about the import of quality assured solar products into India, including impacts of the recently implemented GST.

The Tax Ready Reckoner contains five main sections:

- a) The first section provides a background, which includes the categorization of the off-grid products and the impact of GST, in the form of a comparison table of pre-GST and post-GST levies on import or sale of off-grid products/components.

Prior to the implementation of GST, the solar energy sector enjoyed various exemptions and concessions. Under GST, these exemptions have been removed.

At the same time, GST has introduced seamless flow of credit for the taxes paid on inputs. For all supplies, the credit of GST (Central Goods and Services Tax (CGST)/ State Goods and Services Tax (SGST) / Integrated Goods and Services Tax (IGST)) will move through the entire supply chain. For example, at the time of import of solar products, the importer will be liable to pay IGST but will receive and input tax credit (ITC) on sale of those products to the dealer. Similarly, on sale of goods by the dealer to the consumer, the dealer will get the ITC of the tax paid on the value addition in the products. The final consumer will thus bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages.

- b) The second section of the Reckoner lists the applicable import levies (Custom Duty and IGST) and levies on inter-state (IGST) and intra-state supply (CGST and SGST) of the products. The complete supply chain is explained by way of an example listing the applicable levies (rate and amount) starting from import of products (including Harmonised System of Nomenclature classification – HSN) to the sale to the dealer followed by sale to the end-consumer.

Even after the GST rollout, certain ambiguities still exist in terms of HSN classification (under Custom Tariff Act, 1975) and in ascertaining the specific entry number in the rate schedules under the SGST/CGST/IGST Act, 2017. The complexities involved include:

- i. Under CTA, 1975, for computing custom levies, identifying the right HSN code for a product and accordingly determining the levies, i.e., Basic Customs Duty (BCD) and Custom Cess (CC), is sometimes challenging. For instance, a solar lantern or lamp imported as a finished product can be classified under HSN code 9405 5040 at import duty of 5.15% or under HSN Code 8543 7092 (gadgets based on solar energy) at import duty of 7.73%.
- ii. Similarly, under the SGST/CGST/IGST Act, 2017, it can be a challenge to ascertain the specific entry that will be applicable to an off-grid product or its components. For example, LED lamps under GST schedule are placed under two headings: Entry no. 226, HSN code 9405 (LED lights or fixtures including LED lamps) at 12% or Entry no. 205, HSN code 8539 (LED Lamps) at 12%.

Given the above, the levies are listed along with the most appropriate HSN codes (both as per CTA and GST schedules).

- c) Companies in India import off-grid solar products as finished products or as components. Different taxes may apply, based on the different circumstances of imports. Given the multiple tax scenarios that a company importing SHS/PICO PV products may be faced with, **the third section** of the Reckoner outlines possible scenarios and provides information about the import and sale levies applicable to the product as a whole or to its components.
Under GST, the import duty for most of the finished products and their components has come down; however, levies on the sale of products vary from state to state. For example, levies on the sale of radio (HSN – 85271900, GST HSN - 8527) have come down in the State of Bihar (From 48.86% in VAT to 41.18% in GST) but increased in the State of Nagaland (From 35.91% in VAT to 41.18% in GST).
- d) The fourth section details the steps required to be taken to import off-grid products, i.e., from the issuance of a purchase order to the exporter to the receipt of the products by the importer. For users' ready reference, the Reckoner provides a list of required documents and the stakeholders involved during the import process. This section also highlights the changes made in the bill of entry (BOE) due to GST.
- e) The fifth section of the Reckoner lists challenges that still exist under the post-GST regime. For example, taxes on electricity are outside GST but the inputs and the input services attract GST. Therefore, the taxes paid on the inputs used for generation of electricity would continue to be non-creditable and any increase in these taxes would increase the costs for setting up power projects. Further, it is imperative to note that under the GST regime, the cost of import of components of off-grid solar products is reduced, but due to continuation of import levies (BCD and CC), which are outside the purview of GST and are covered under CTA, 1975, manufacturing (including assembly of goods) of off-grid solar products is still not cost effective when compared to import from countries such as China.
- f) In addition, ambiguities exist with respect to HSN code classification under CTA, 1975 and the CGST/IGST/SGST Act, 2017. Under GST regime, an Authority for Advance Ruling (AAR) has been constituted to provide a decision to an applicant on matters such as classification of any goods or services, and determination of the liability to pay tax on any goods or services. Companies may seek an advanced ruling from the AAR for clarity on the classification under HSN codes.

1. Background

1.1 Off-grid solar products

Lighting Global is the World Bank Group’s platform to support sustainable growth of the international off-grid solar market as a means of rapidly increasing energy access to the 1.2 billion people without grid electricity. As part of this effort, Lighting Asia/India is an IFC program aimed at increasing access to clean, affordable energy in rural India by promoting modern off-grid lighting products (lanterns and home systems) and efficient DC appliances. The program supports market development by working with private companies to lower first-mover risk and mobilize private sector investment through market intelligence, quality assurance, business support services and consumer education.

There are six key product categories in the off-grid lighting space. These categories are highlighted in Table 1.

Table 1: Categories and sub-categories of PICO-PV and SHS products

#	Category	Capacity	Sub-category	Description	Features
1	Pico-PV <10.999Wp	0 – 1.499 Wp (indicative)	Single light only	These lanterns can perform only one or two basic functions such as acting as a task light and/or as a solar torch/flashlight.	▶ Single light/task light
2		1.5 – 2.999 Wp (indicative)	Single light and mobile charging	These products come with more functionality than single light lanterns. These have single light and mobile charging facilities.	▶ Single light ▶ Mobile charging
3		3 – 10.999 Wp (indicative)	Multiple lights and mobile charging	These products have multiple lights and mobile charging facilities.	▶ Multiple lights ▶ Mobile charging
4	SHS	11 – 20.999 Wp	SHS, entry level	The light units of these products are separated from the charging/battery unit. This allows the lighting to be provided in different rooms as per the customer’s need unlike lanterns, which can only supply lighting at one location at a time.	▶ Up to four lights ▶ Outlets for charging mobile, and powering radio and fan ▶ May include an inbuilt radio
5		21 – 49.999 Wp	SHS, basic capacity	These are typically used for lighting up houses with multiple rooms, which would need more than one light, and for using fans, TVs, radios and other small electrical appliances as needed.	In addition to entry level SHS features: ▶ Power for TV, additional lights, and appliances as well as extended capacity
6		50 – 99.999 Wp	SHS, Medium capacity	These are very large systems (>40 Wp) that offer power to run loads such as multiple fans, color television and a large number of lights.	▶ As with basic capacity SHS but with extended capacities

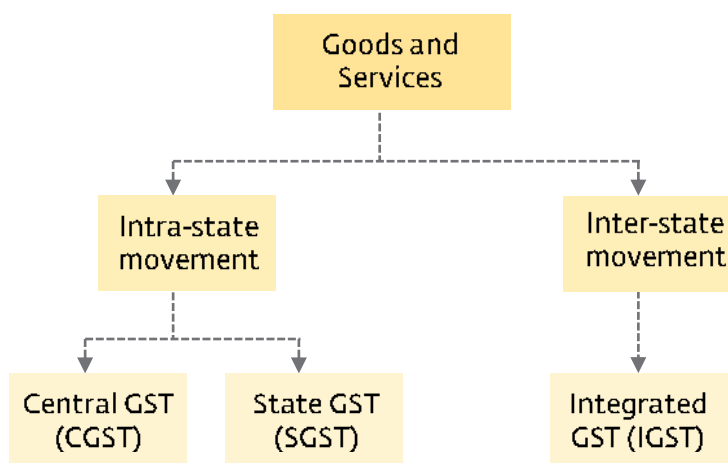
Note: Cells highlighted in light grey indicate the means of determining the product category: Products with solar module capacity of less than 11 Wp are categorized based on services provided, while products with capacity of 11 Wp and over are categorized based on wattage of the solar module provided.

1.2 Introduction of GST

India is a federal country and the authority to levy tax is derived by the Central and the state governments from the Constitution of India. The Constitutional (One Hundred and First Amendment) Act, 2016 granted the powers to the center and the states to impose the Goods and Services Tax (GST).

The Constitutional amendment marks the dawn of “cooperative federalism” in India, whereby both the Center and the states agreed to give up their powers to impose the existing taxes and replace them with GST on the supply of goods and/or services. GST came into effect from 1 July 2017.

GST is a single tax on the supply of goods and services and applies throughout the supply chain, right from the manufacturer/import till the product reaches the final consumer. Credits of input taxes paid at each stage will be available to dealers in the subsequent stages of value addition, which makes GST a tax only on the value addition at each stage. The final consumer will thus bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages.



The power to levy **CGST** is granted under the Central Goods and Services Tax Act, 2016. The earlier Central taxes such as Central Excise Duty, Additional Excise Duty, Special Excise Duty, Central Sales Tax (CST) and Service Tax have been subsumed under CGST.

The power to levy **SGST** is granted under the State Goods and Services Tax Act, 2016. The SGST has subsumed key state taxes such as the Value Added Tax (VAT), Luxury Tax, and Entry Tax.

The IGST is levied under the Integrated Goods and Services Tax Act, 2016 on transfer of goods and services from one state to another state. Import of goods and services will also be deemed to be inter-state transactions and will be subject to IGST in addition to import duty. Revenue collected from IGST will be divided between the Central Government and state government as per prescribed rules.

The Center and the states now impose Central GST (CGST) and state GST (SGST) concurrently, and at the same rate, on the intra-state supply of goods and/or services. Similarly, Union Territories (UTs) will levy and administer UTGST on intra-state supplies. All inter-state supplies of goods and/or services will attract Integrated GST (IGST = CGST + SGST). Imported products will continue to be subject to Customs Duty.

Input tax mechanism for imported goods under GST: Any goods imported into India will be subject to import duty and IGST, to be paid by the importer at the time of clearance of the imported product. After import, if the product is re-sold and the supply is inter-state, it would again attract IGST. In case the re-sale is intra-state, CGST and SGST will be concurrently levied. In both the cases, credit will be available for the IGST paid at the time of the import.

Input tax mechanism for supplies under GST: The credit utilization under GST will be as follows:

- ▶ Input tax credit (ITC) on account of IGST shall be utilized first toward the payment of IGST, and the remaining amount shall be utilized toward payment of CGST, SGST, and UTGST, in that order.
- ▶ ITC on account of CGST shall be utilized first toward the payment of CGST, and the remaining amount shall be utilized toward the payment of IGST. ITC of CGST cannot be utilized for payment of SGST or UTGST.
- ▶ ITC on account of SGST shall be utilized first toward the payment of SGST, and the remaining amount shall be utilized toward the payment of IGST. ITC of SGST cannot be utilized for payment of CGST or UTGST.

1.3 Summary: Pre and Post-GST levies comparison

GST is based on the foundation of credit fungibility and reduction of exemptions. Considering the fact that the solar energy sector currently benefits from various exemptions and concessional duty, the cost of off-grid solar energy products would be impacted under the GST regime.

For all supplies, the credit of GST (CGST/SGST/IGST) will move through the entire supply chain. For example, at the time of import of solar products, the importer will be liable to pay IGST but will get ITC on the sale of those products to the dealer. Similarly, on the sale of goods by the dealer to the consumer, the dealer will get the ITC of the tax paid on the value addition in the products. The final consumer will thus bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages. Apart from GST levies, the cost to the consumer will increase only if there is blocked credit on the inputs used at any stage of the supply chain. Unless there is blocked credit, in some cases, the cost to the consumer may even reduce for some products on which the rates under GST have come down.

1.3.1 Import of off-grid solar products

Under GST, at the time of import of solar products, the importer will be liable to pay IGST on import of solar products and its components. In case, the import is for self-consumption (B to C supply), total import duty, an importer will liable to pay will be BCD, CC and IGST, i.e., serial no. H in Table 2 below. Whereas in case importer imports the products/components for use in assembling or manufacturing in India or for subsequent sale as B2B supplies, the charged IGST will be fully creditable as ITC to the importer and final burden of import duty on importer will be of BCD and CC only, i.e., as specified in serial no. I of Table 2.

Table 2: Comparative rate chart of total import duty and effective rate of solar product

#	Category	HSN code	HSN code description	GST HSN Code	GST HSN code description	Pre-GST import duty*	Post-GST import duty #	
						BCD + Cess + CVD + SAD	B2C supply – BCD + Cess + IGST	B2B supply – BCD + Cess + IGST – ITC ⁰⁰
A	B	C	D	E	F	G	H	I
FINISHED GOODS								
1	Single light only	9405 5040	Solar Lanterns and Lamps	84 or 85	Renewable energy devices & parts for their manufacture including Solar lantern/ solar lamp	5.15%	10.41%	5.15%
2	Single light & mobile charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%	10.41%	5.15%
3	Multiple light & mobile charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%	10.41%	5.15%
4	SHS, entry level	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%	10.41%	5.15%
5	SHS basic capacity/shs medium capacity (import duty would levied according to hsn classification)	9405 5040	Solar lamp/lantern	84 or 85		5.15%	10.41%	5.15%
		8527 1900	Radio	8527	Radio-Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus	29.44%	41.18%	10.30%
		8543 7092	Equipment gadgets based on solar energy- including DC FAN	84 or 85	Renewable energy devices & parts for their manufacture including solar power based devices*.	26.43%	13.12%	7.73%
		8543 7092	Equipment gadgets based on solar energy- including DC TV	84 or 85	* Solar power based devices will include DC Fan and DC TV	26.43%	13.12%	7.73%
COMPONENTS								
1	LED bulb	8541 4020	Light emitting diodes bulbs	9405/ 8539	LED lamps	10.43%	12.00%	0.00%
2	Solar panel	8541 4011	Solar cells whether or not assembled in modules or panels	84 or 85	Renewable energy devices & parts for their manufacture- Solar power based devices	0.00%	5.00%	0.00%

#	Category	HSN code	HSN code description	GST HSN Code	GST HSN code description	Pre-GST import duty*	Post-GST import duty #	
						BCD + Cess + CVD + SAD	B2C supply – BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC ⁰⁰
A	B	C	D	E	F	G	H	I
3	Solar lantern	9405 5040	Solar lamp / Lantern	84 or 85	Renewable energy devices & parts for their manufacture including Solar lantern/ solar lamp	5.15%	10.41%	5.15%
4	Solar torch (solar lamp)	9405 5040	Solar lamp / Lantern	84 or 85		5.15%	10.41%	5.15%
5	Multipurpose torch/remote	9405 5040	Solar lamp / Lantern	84 or 85		5.15%	10.41%	5.15%
6	Batteries	8507 2000	Battery Lead acid/ SLA	8507	Electric accumulators, including separators therefor, whether or not rectangular (including square)	29.44%	41.18%	10.30%
		8507 5000	Battery Nickel-metal hydride	8507		29.44%	41.18%	10.30%
		8507 6000	Battery Lithium-ion	8507		29.44%	41.18%	10.30%
		8507 8000	Battery others	8507		29.44%	41.18%	10.30%
7	DC fan	8543 7092	Equipment gadgets based on solar energy (Solar power based devices) - including DC FAN	84 or 85	Renewable energy devices & parts for their manufacture including solar power based devices*. * Solar power based devices will include DC Fan and DC TV	26.43%	13.12%	7.73%
8	DC TV	8543 7092	Equipment gadgets based on solar energy (Solar power based devices) - including DC TV	84 or 85		26.43%	13.12%	7.73%
9	Radio	8527 1900	Others	8527	Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus	29.44%	41.18%	10.30%

* Refer Annexure 1 and 2 for detailed breakup of pre-GST import duty

Refer Table 4 for post-GST import duty breakup

** Under B2B supplies, the charged IGST will be fully creditable as ITC to the supplier

1.3.2 Sale of off-grid solar products

Table 3 provides a comparison of pre- and post-GST tax levies on the sale of solar products/ components, by the importer, to the end consumer in the same state of import (intra-state) or in the different state (inter-state). Post-GST, in addition to import levies, end consumer will also bear the burden of IGST (in case of inter-state sale) or CGST and SGST (in case of intra-state sale), i.e., serial no. I and J respectively in Table 3.

Pre-GST, sale of off-grid product attracted VAT in case of intra-state trade and CST in case of inter-state trade. Since the enforcement of VAT and its collection were under the purview of the state governments, different states had different VAT rules and implementation guidelines. Similarly, in case of inter-state sale, the rate of CST was 2% or the rate of VAT (applicable in the state of selling dealer), whichever was lower. Thus, in the below table, under the pre-GST column, a range of rates is given against VAT/CST.

Further, as imported products are sold, import duty (BCD + CC + CVD and SAD as applicable) is considered while calculating total pre-GST and post-GST levies.

Table 3: Comparative rate chart of total Levies on sale of solar product

#	Category	HSN code	HSN code description	GST HSN Code	GST HSN code description	Pre-GST Levies		Post-GST Levies on Sale [#]	
						Inter-State Sale BCD + Cess + CVD and SAD + CST	Intra-State Sale BCD + Cess + CVD and SAD + VAT*	Inter-State Sale BCD + Cess + IGST	Intra-State Sale BCD + Cess + CGST+SGST
A	B	C	D	E	F	G	H	I	J
FINISHED GOODS									
1	Single light only	9405 5040	Solar Lanterns and Lamps	84 or 85	Renewable energy devices & parts for their manufacture including Solar lantern/ solar lamp	5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
2	Single light & mobile charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
3	Multiple light & mobile charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
4	SHS, entry level	9405 5040	Solar Lanterns and Lamps	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
5	SHS basic capacity/SHS medium capacity	9405 5040	Solar lamp/lantern	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
	(import duty would levied)	8527 1900	Radio	8527	Radio-Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with	32.03%	35.91%-48.856%	41.18%	41.18%

#	Category	HSN code	HSN code description	GST HSN Code	GST HSN code description	Pre-GST Levies		Post-GST Levies on Sale [#]	
						Inter-State Sale BCD + Cess + CVD and SAD + CST	Intra-State Sale BCD + Cess + CVD and SAD + VAT*	Inter-State Sale BCD + Cess + IGST	Intra-State Sale BCD + Cess + CGST+SGST
A	B	C	D	E	F	G	H	I	J
	according to HSN classification)				sound recording or reproducing apparatus				
		8543 7092	Equipment gadgets based on solar energy- including DC FAN	84 or 85	Renewable energy devices & parts for their manufacture including solar power based devices*.	26.43%-28.96%	26.43%- 34.01%	13.12%	13.12%
		8543 7092	Equipment gadgets based on solar energy- including DC TV	84 or 85	* Solar power based devices will include DC Fan and DC TV	26.43%-28.96%	26.43%-45.39%	13.12%	13.12%
COMPONENTS									
1	LED bulb	8541 4020	Light emitting diodes bulbs	9405/ 8539	LED lamps	10.43%-12.64%	10.43%-27.00%	12.00%	12.00%
2	Solar panel	8541 4011	Solar cells whether or not assembled in modules or panels	84 or 85	Renewable energy devices & parts for their manufacture- Solar power based devices	0%-2%	0%-6%	5.00%	5.00%
3	Solar lantern	9405 5040	Solar lamp / Lantern	84 or 85	Renewable energy devices & parts for their manufacture including Solar lantern/ solar lamp	5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
4	Solar torch (solar lamp)	9405 5040	Solar lamp / Lantern	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
5	Multipurpose torch/remote	9405 5040	Solar lamp / Lantern	84 or 85		5.15%-7.25%	5.15%-11.46%	10.41%	10.41%
6	Batteries	8507 2000	Battery Lead acid/ SLA	8507		32.03%	45.62%-48.86%	41.18%	41.18%

#	Category	HSN code	HSN code description	GST HSN Code	GST HSN code description	Pre-GST Levies		Post-GST Levies on Sale [#]	
						Inter-State Sale BCD + Cess + CVD and SAD + CST	Intra-State Sale BCD + Cess + CVD and SAD + VAT*	Inter-State Sale BCD + Cess + IGST	Intra-State Sale BCD + Cess + CGST+SGST
A	B	C	D	E	F	G	H	I	J
		8507 5000	Battery Nickel-metal hydride	8507	Electric accumulators, including separators therefor, whether or not rectangular (including square)	32.03%	45.62%-48.86%	41.18%	41.18%
		8507 6000	Battery Lithium-ion	8507		32.03%	45.62%-48.86%	41.18%	41.18%
		8507 8000	Battery others	8507		32.03%	45.62%-48.86%	41.18%	41.18%
7	DC fan	8543 7092	Equipment gadgets based on solar energy (Solar power based devices)- including DC FAN	84 or 85	Renewable energy devices & parts for their manufacture including solar power based devices*. * Solar power based devices will include DC Fan and DC TV	26.43%-28.96%	26.43%-34.02%	13.12%	13.12%
8	DC TV	8543 7092	Equipment gadgets based on solar energy (Solar power based devices)- including DC TV	84 or 85		26.43%-28.96%	26.43%-45.39%	13.12%	13.12%
9	Radio	8527 1900	Others	8527	Reception apparatus for radio- broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus	32.03%	35.91%-48.856%	41.18%	41.18%

* Refer Annexures 1 and 2 for pre-GST import levies and Annexure 3 for pre-GST VAT rates applicable under various states

[#] Refer Table 4 for import duties (BCD + Cess + IGST) and Table 7 for levies on sale (inter/intra supplies)

2. Post-GST levies

Under the GST regime, the following levies will be applicable on the import or sale of PICO-PV and SHS products:

- **BCD and Custom Cess:** Duty chargeable to all imported goods when imported into India as per the rate indicated in the first schedule of the CTA, 1975
- **IGST:** Tax levied under the IGST Act on the supply of any goods and/or services in the course of import or inter-state trade or commerce.
- **CGST + SGST:** Tax levied under the CGST and SGST Act on the supply of any goods and/or services in the course of intra-state trade or commerce.

Table 4 reflects tax levies on the complete supply chain (*from import of products/components to the sale to the end consumer*) of the PICO-PV and SHS products and their components. It includes:

Scenario 1: Import levies when importer imports products/components as B to C supply – Serial no. J (BCD + CC + IGST)

Scenario 2: Import levies when importer imports products/components as B to B supply – *Under business to business supplies, IGST paid is fully creditable to the importer, thus the final import duty burden on the importer will be the total of BCD and CC, i.e., as per serial no. K (BCD + CC).*

Scenario 3: Tax levies on the end consumer. The end consumer has to bear the final burden of import levies plus state levies, i.e., IGST or SGST + CGST:

- Intra-state purchase by the end consumer: Total tax levies will be as per serial no O (K+L+M: import levies + CGST + SGST).
- Intra-state purchase by the end consumer: Total tax levies will be as per serial no O (K+N: import levies + IGST). Instead of CGST and SGST, IGST will be applicable in case of intra state supply.

Table 4: Import levies of finished goods and its components

#	Category	HSN Code	HSN code description	GST HSN Code	GST HSN code description	IMPORT LEVIES			TOTAL IMPORT LEVIES TO IMPORTER		SALE LEVIES			TOTAL TAX LEVIES TO END CONSUMER
						BCD	CC	IGST#	B2C supply	B2B supply	Intra-State		Inter-state	
											CGST	SGST	IGST	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
									(G+H+I)	(G+H)				(K+L+M)/ (K+N)
FINISHED PRODUCTS														
1	Single light only	9405 5040	Solar Lanterns and Lamps	84 or 85	Renewable energy devices and parts for their manufacture including solar lantern/solar lamp	5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
2	Single Light & Mobile Charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
3	Multiple Light & Mobile Charging	9405 5040	Solar Lanterns and Lamps	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
4	SHS, Entry Level	9405 5040	Solar Lanterns and Lamps	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
		9405 5040	Solar lamp/ lantern	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
5	SHS Basic Capacity/ SHS Medium capacity	8527 1900	Radio	8527	Radio-reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus	10.00%	3.00%	28.00%	41.18%	10.30%#	14.00%	14.00%	8.00%	41.18%
		8543 7092	Equipment gadgets based on solar	84 or 85	Renewable energy devices and parts for their manufacture	7.50%	3.00%	5.00%	13.12%	7.73%	2.50%	2.50%	5.00%	13.12%

#	Category	HSN Code	HSN code description	GST HSN Code	GST HSN code description	IMPORT LEVIES			TOTAL IMPORT LEVIES TO IMPORTER		SALE LEVIES			TOTAL TAX LEVIES TO END CONSUMER
						BCD	CC	IGST#	B2C supply	B2B supply	Intra-State		Inter-state	
											CGST	SGST		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
									(G+H+I)	(G+H)				(K+L+M)/ (K+N)
			energy - including DC FAN		including solar power based devices*. * Solar power based devices will include DC Fan and DC TV									
		8543 7092	Equipment gadgets based on solar energy - including DC TV	84 or 85		7.50%	3.00%	5.00%	13.12%	7.73%	2.50%	2.50%	5.00%	13.12%
COMPONENTS														
1	LED bulb	8541 4020	Light emitting diodes bulbs	9405/ 8539	LED lamps	0.00%	3.00%	12.00%	12.00%	0.00%	6.00%	6.00%	12.0%	12.00%
2	Solar Panel	8541 4011	Solar cells whether or not assembled in modules or panels	84 or 85	Renewable energy devices and parts for their manufacture - Solar power based devices	0.00%	3.00%	5.00%	5.00%	0.00%	2.50%	2.50%	5.00%	5.00%
3	Solar Lantern	9405 5040	Solar lamp / Lantern	84 or 85	Renewable energy devices and parts for their manufacture including solar lantern/solar lamp	5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
4	Solar Torch (Solar lamp)	9405 5040	Solar lamp / Lantern	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%
5	Multipurpose torch/remote	9405 5040	Solar lamp / Lantern	84 or 85		5.00%*	3.00%	5.00%	10.41%	5.15%	2.50%	2.50%	5.00%	10.41%

#	Category	HSN Code	HSN code description	GST HSN Code	GST HSN code description	IMPORT LEVIES			TOTAL IMPORT LEVIES TO IMPORTER		SALE LEVIES			TOTAL TAX LEVIES TO END CONSUMER
						BCD	CC	IGST#	B2C supply	B2B supply	Intra-State		Inter-state	
											CGST	SGST		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
									(G+H+I)	(G+H)				(K+L+M)/ (K+N)
6	Batteries	8507 2000, 5000, 6000, 8000	Battery LA/ SLA/ Nickel/ Lithium- ion/others	8507	Electric accumulators, including separators therefor, whether or not rectangular (including square)	10.00%	3.00%	28.00%	41.18%	10.30%	14.00%	14.00%	28.00%	41.18%
7	DC Fan	8543 7092	Equipment gadgets based on solar energy - including DC FAN/ DC TV	84 or 85	Renewable energy devices and parts for their manufacture, including solar power based devices*. * Solar power based devices will include DC fan and DC TV	7.50%	3.00%	5.00%	13.12%	7.73%	2.50%	2.50%	5.00%	13.12%
8	DC TV	8543 7092		84 or 85		7.50%	3.00%	5.00%	13.12%	7.73%	2.50%	2.50%	5.00%	13.12%
9	Radio	8527 1900	Others	8527	Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus	10.00%	3.00%	28.00%	41.18%	10.30%	14.00%	14.00%	28.00%	41.18%

Relevant notifications applicable to the above central tax levies are listed in Table 5 below:

Table 5: Import levies: relevant notifications

Duty	Notifications against applicable rates listed in the above table	
BCD	*5%	<ol style="list-style-type: none"> BCD Notification no 12/2012 - Custom dated 17/03/2012, specifies general exemptions (S. No. 165), which provides the exemption and effective rates of basic and additional duty for specified goods of chapters 1 to 98. S.NO. 496 of Notification 12/2012, specifies BCD at the rate of 5% for goods falling under HSN code 9405 5040 (solar lanterns or solar lamps)
	Other than solar lantern, general exemption is not available for any other off-grid solar product, thus BCD and CC rates are specified as per the respective serial no. under CTA, 1975.	
IGST	The IGST rates have been specified as per Notification no 1/2017 of IGST rates under the IGST Act, 2017.	
	5%	<ol style="list-style-type: none"> As per Notification no 1/2017 of IGST rates dated 28 June 2017, S. No. 234 of schedule I specifies a 5% rate for "solar lantern/lamp" S.no 234: The following renewable energy devices and parts for their manufacture: <ol style="list-style-type: none"> Bio-gas plant Solar power based devices Solar power generating system Wind mills, Wind operated electricity generator (WOEG) Waste to energy plants / devices Solar lantern / solar lamp Ocean waves/tidal waves energy devices/plants
	28%	<ol style="list-style-type: none"> Radio: As per Notification no 1/2017 of IGST rates dated 28 June 2017, S. No. 153 of schedule IV specifies a 28% rate for "radio." Battery: As per Notification no 1/2017 of IGST rates dated 28 June, 2017, S. No. 139 of schedule IV specifies 28% rate for "electric accumulators, including separators therefor, whether or not rectangular (including square)"
12%	<ol style="list-style-type: none"> LED bulb: As per Notification no 1/2017 of IGST rates dated 28 June, 2017, S. No. 205 of schedule II specifies a 12% rate for "LED lamps" 	
The GST schedule does not specify the rates for photo voltaic cells; however, the addendum to the GST rate schedule for goods, issued on 4 June 2017, had placed photo voltaic cells, whether or not assembled in modules or panel, under chapter 85 at 5%.		

2.1 Example: Calculation of post-GST levies on import and sale of off-grid products/component

This sub section, explains the supply chain of off-grid products/components, by way of an example of a radio, i.e., from import of a radio by an importer to the sale of it by a dealer, at a *margin of 10%*, to the end consumer in the same state (intra-sale supplies) and in the different state (inter-state supplies).

Table 6: Duty calculation in case of intra-state supplies

#	Stakeholders involved	Description	Rate	Total Value (INR)
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		100.00
2		Add: Basic custom duty	10.00%	10.00
3		Add: Custom Cess	3.00%	0.30
4		Total assessable value for IGST (1+2+3)		110.30
5		IGST (4@28%)	28.00%	30.88
6		Total supply price to the dealer (4+5)		141.18
7	Dealer	Add: Margin (assumed @ 10% on 4)	10%	11.03
8		Add: CGST (4+7 @14%)	14%	17
9		Add: SGST (4+7 @14%)	14%	17
10		TOTAL SUPPLY PRICE POST-GST TO CONSUMER (4+7+8+9)		155.33*
11		ITC available of IGST to dealer		(30.88)
12		Adjust towards CGST payable		17
13		Adjust towards SGST payable		13.88
14		SGST PAYABLE BY THE DEALER		3.12

*The final consumer will bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages. In above example, the final tax of INR 34 (CGST+SGST) is borne by the consumer.

Similarly, the below table explains the supply chain of a radio, i.e., from import of a radio by an importer to the sale of it by a dealer, at a *margin of 10%*, to the end consumer in another state (inter-sale supplies):

Table 7: Duty calculation in case of inter-state supplies

#	Stakeholders involved	Description	Rate	Total Value (INR)
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		100.00
2		Add: Basic custom duty	10.00%	10.00
3		Add: Custom Cess	3.00%	0.30
4		Total assessable value for IGST (1+2+3)		110.30
5		IGST (4*28%)	28.00%	30.88
6		Total supply price to the dealer (4+5)		141.18
7	Dealer	Add: Dealer Margin (assumed @10% of the assessable value)	10%	11.03
8		Add: IGST (4+7)*28%	28%	34
9		TOTAL SUPPLY PRICE POST-GST TO CONSUMER (4+7+8)		155.33*
10		ITC available of IGST to the dealer		(30.88)
11		Adjust towards IGST payable		34
12		IGST payable by the dealer		3.12

*The final consumer will bear only the GST charged by the last dealer in the supply chain, with set-off benefits at all the previous stages. In above example, the final tax of INR 34 (IGST) is borne by the consumer.

3.Varied tax structures - scenarios

In India, off-grid solar products are mainly imported as finished products or as components that are eventually assembled in India. Any company that is in the business of importing SHS/PICO PV products may be exposed to different tax structures based on the scenarios under which products are imported and sold. The following three scenarios are discussed in this section:

- The first scenario is levies on finished products under the VAT regime vs. under the GST regime.
- The second scenario is levies on components under the VAT regime vs. under the GST regime.
- The third scenario is when a component such as TV is imported and sold where the company is able to establish that TV is only a DC TV that can only run on the solar energy vs. a case when a TV is imported and sold as a normal TV.

Before explaining the above three scenarios, section 3.1 discusses the levies applicable across the supply chain, i.e., from import to sale (inter/intra sale), under both pre-GST and post-GST scenarios. This section can be referred for calculation of levies under the scenarios.

3.1 Finished product and components levies (import + sale)

The below tables provide a summary of pre- and post-GST levies applicable on import or sale of the following products and their components:

- a) Single light only / entry level solar home system
- b) Basic / medium solar home system

Under the pre-GST scenario, sale of off-grid product attracted VAT in case of intra-state trade and CST in case of inter-state trade. Since the enforcement of VAT and its collection was under the purview of the state governments, different states had different VAT rules and implementation guidelines. Similarly, in case of inter-state sale, the rate of CST was 2% or the rate of VAT (applicable in the state of the selling dealer), whichever was lower. Thus, in the below table, under the pre-GST column, a range of rates is given against VAT/CST (refer Annexure 3 for the VAT rates for different states).

Under the post-GST scenario, sale of finished goods attracts IGST (in case of inter-state sale) or CGST + SGST (in case of intra-state sale).

Further, as imported products are being sold, import duty (BCD + CC + CVD and SAD as applicable) is considered while calculating total pre-GST and post-GST levies.

Under the post-GST scenario, at the time of import of solar products, the importer will be liable to pay IGST on import of solar products and its components. In case, the import is for self-consumption (B to C supply), total import duty to the importer will be BCD, CC and IGST, i.e., serial no. 5 in Table 8 and 9 below. Whereas in case importer imports for use in assembling or manufacturing in India or for subsequent sale as B2B supplies, the charged IGST will be fully creditable as ITC to the importer and final burden of import duty on importer will be of BCD and CC only, i.e., as specified in serial no. 6 of Table 8 and 9.

Post-GST, in addition to import levies, end consumer will also bear the burden of IGST (in case of inter-state sale) or CGST and SGST (in case of intra-state sale), which is captured in Total of Sale row in below tables.

Table 8: Finished product - import and sale levies

Finished products (as a package)						
Category		Levies	Pre-GST		Post-GST (Inter/Intra)	
			Inter-State	Intra-State	B2C supply – BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC**
A		B	C	D	E	F
Single light/Entry Level SHS	Solar Lantern (HSN: 9405 5040)	BCD	5%	5%	5%	5%
		CC	3%	3%	3%	3%
		CVD	0%	0%		
		SAD	0%	0%		
		IGST			5%	5%
		Total on import	5.15%	5.15%	10.41%	5.15%
		CST/VAT	0%-2%	0%-6%		
		CGST + SGST/IGST				5%
		Total on Sale	5.15%-7.25%	5.15%-11.45%		10.41%

Finished Products (in a box)						
Category		Levies	Pre-GST		Post-GST (Inter/Intra)	
			Inter-State	Intra-State	B2C supply – BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC**
A		B	C	D	E	F
SHS - Basic/ Medium	Solar Lantern (HSN: 9405 5040)	BCD	5%	5%	5%	5%
		CC	3%	3%	3%	3%
		CVD	0%	0%		
		SAD	0%	0%		
		IGST			5%	5%
		Total on Import	5.15%	5.15%	10.41%	5.15%
		CST/VAT	0%-2%	0%-6%		
		CGST + SGST/IGST				5%
		Total on Sale	5.15%-7.25%	5.15%-11.45%		10.41%
	Radio (HSN: 8527 1900)	BCD	10%	10%	10%	10%
		CC	3%	3%	3%	3%
		CVD	12.50%	12.50%		

Finished Products (in a box)						
Category		Levies	Pre-GST		Post-GST (Inter/Intra)	
			Inter-State	Intra-State	B2C supply – BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC ^{**}
A		B	C	D	E	F
		SAD	4%	4%		
		IGST			28%	28%
		Total on Import	29.44%	29.44%	41.18%	10.30%
		CST/VAT	2%	5%-15%		
		CGST + SGST/IGST				28%
		Total on Sale	32.03%	35.91%-48.86%		41.18%
	DC FAN (HSN: 8543 7092)	BCD	7.50%	7.50%	7.50%	7.50%
		CC	3%	3%	3%	3%
		CVD	12.50%	12.50%		
		SAD	4%	4%		
		IGST			5%	5%
		Total on Import	26.43%	26.43%	13.12%	7.73%
		CST/VAT	0%-2%	0%-6%		
		CGST + SGST/IGST				5%
		Total on Sale	26.43%-28.96%	26.43%-34.01%		13.12%
	DC TV (HSN: 8543 7092)	BCD	7.50%	7.50%	7.50%	7.50%
		CC	3%	3%	3%	3%
		CVD	12.50%	12.50%		
		SAD	4%	4%		
		IGST			5%	5%
		Total on Import	26.43%	26.43%	13.12%	7.73%
		CST/VAT	0%-2%	0%-15%		
		CGST + SGST/IGST				5%
		Total on Sale	26.43%-28.96%	26.43%-45.39%		13.12%

Table 9: Components – import and sale levies

Standalone Components					
Category	Levies	Pre-GST		Post-GST (Inter/Intra)	
		Inter-State	Intra-State	B2C supply –BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC ⁰⁰
A	B	C	D	E	F
LED Bulb (HSN: 85414020)	BCD	0%	0%	0%	0%
	CC	3%	3%	3%	3%
	CVD	6%	6%		
	SAD	4%	4%		
	IGST			12%	12%
	Total on import	10.43%	10.43%	12.00%	0.00%
	CST/VAT	0%-2%	0%-15%		
	CGST + SGST/IGST				12%
	Total on Sale	10.43%-12.64%	10.43%-27.00%		12.00%
Solar Panel (HSN: 85414011)	BCD	0%	0%	0%	0%
	CC	3%	3%	3%	3%
	CVD	0%	0%		
	SAD	0%	0%		
	IGST			5%	5%
	Total on Import	0.00%	0.00%	5.00%	0.00%
	CST/VAT	0%-2%	0%-6%		
	CGST + SGST/IGST				5%
	Total on Sale	0%-2%	0%-6%		5.00%
Batteries (HSN: 85078000)	BCD	10%	10%	10%	10%
	CC	3%	3%	3%	3%
	CVD	12.50%	12.50%		
	SAD	4%	4%		
	IGST			28%	28%
	Total on Import	29.44%	29.44%	41.18%	10.30%
	CST/VAT	2%	12.5%-15%		
	CGST + SGST/IGST				28%
	Total on Sale	32.03%	45.62%-48.86%		41.18%

Standalone Components

Category	Levies	Pre-GST		Post-GST (Inter/Intra)	
		Inter-State	Intra-State	B2C supply –BCD + Cess + IGST	B2B supply - BCD + Cess + IGST – ITC ⁰⁰
A	B	C	D	E	F
DC FAN (HSN: 85437092)	BCD	7.50%	7.50%	7.50%	7.50%
	CC	3%	3%	3%	3%
	CVD	12.50%	12.50%		
	SAD	4%	4%		
	IGST			5%	5%
	Total on Import	26.43%	26.43%	13.12%	7.73%
	CST/VAT	0%-2%	0%-6%		5%
	CGST + SGST/IGST				
	Total on Sale	26.43%-28.96%	26.43%-34.02%		13.12%
DC TV (HSN: 85437092)	BCD	7.50%	7.50%	7.50%	7.50%
	CC	3%	3%	3%	3%
	CVD	12.50%	12.50%		
	SAD	4%	4%		
	IGST			5%	5%
	Total on Import	26.43%	26.43%	13.12%	7.73%
	CST/VAT	0%-2%	0%-15%		5%
	CGST + SGST/IGST				
	Total on Sale	26.43%-28.96%	26.43%-45.39%		13.12%

3.2 Scenario 1: Levies on finished products under the VAT regime vs. the GST regime

Tables 10 and 11 explain the supply chain of an SHS with a standalone radio (i.e. Not integrated into the housing) under pre- and post-GST regimes, from import to sale by a dealer (in the state of Bihar), at a margin of 10%, to the end consumer in the same state (Scenario 1(a) — intra-state supplies) or across states, e.g., Bihar to Assam (Scenario 1(b) — inter-state supplies).

Considering radio as a standalone component in the finished product, the levies on radio will be applicable as per the specific entry against radio under CTA, 1975 or the IGST/CGST/SGST Act. In the below example, the value of SHS part is considered as INR 100 and Radio as INR 50.

Table 10: Scenario 1(a): Levies on SHS with radio (intra-state)

Scenario 1(a): Levies on SHS with radio (intra-state)										
#	Stakeholders involved	Description	SHS				Radio			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Rate	Total Levies (INR) (A)	Rate	Total Levies (INR) (B)	Rate	Total Levies (INR) (C)	Rate	Total Levies (INR) (D)
1		Value under section 14(1)/ 14(2) of Customs Act		100.0		100		50.0		50
2	Importer	Add: Basic custom duty	5.00%	5.0	5.00%	5	10.00%	5.0	10.00%	5
3		Add: CVD (Pre-GST)		0.0			12.50%	6.9		
4		Add: CC on (BCD + CVD)	3.00%	0.15	3.00%	0.15	3.00%	0.4	3.00%	0.15
5		SAD (Pre-GST)		0.0			4.00%	2.5		
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)		105.15		105.15		64.72		55.15
7		IGST (Post-GST) (6@5%)		0.0	5.00%	5.26		0.0	28.00%	15.44
8		Total supply price to the dealer (6+7)		105.15		110.41				
9	Dealer	Add: Margin (assumed rate of 10%) on (6)	10%	10.5	10%	10.515	10%	6.5	10%	5.515

Scenario 1(a): Levies on SHS with radio (intra-state)

#	Stakeholders involved	Description	SHS				Radio			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Rate	Total Levies (INR) (A)	Rate	Total Levies (INR) (B)	Rate	Total Levies (INR) (C)	Rate	Total Levies (INR) (D)
10		SUPPLY PRICE BEFORE VAT/GST (6+9)		115.7		115.67		71.2		60.665
11		Add: VAT (Pre-GST)*	6%	6.9			15%	10.7		
12		Add: CGST (Post-GST)#		0.0	2.5%	2.89		0.0	14%	8.49
13		Add: SGST (Post-GST)		0.0	2.5%	2.89		0.0	14%	8.49
14		TOTAL SUPPLY PRICE to Consumer (Pre-GST: 10+11, Post-GST 10+12+13)		122.60		121.45		81.87		77.65
15		ITC available of IGST (=7)		0.0		(5.26)		0.0		(15.44)
16		Adjust towards CGST payable		0.0		2.89		0.0		8.49
17		Adjust towards SGST payable		0.0		2.37		0.0		6.95
18		SGST payable (12+13-15)		0.0		0.53		0.0		1.5
19		TOTAL SUPPLY PRICE (SHS+ Radio) Pre-GST (4A+4C)	204.48							
20		TOTAL SUPPLY PRICE (SHS+ Radio) Post-GST (4B+4D)	199.10							

NOTE: Refer Table 8 for applicable duty rates. *As the sale is in the state of Bihar, VAT rate of 6% is considered under the pre-GST regime
 #In the GST regime, CGST + SGST will be applicable on intra-state supplies as per the respective CGST/SGST Act, 2017

Table 11: Scenario 1(b): Levies on SHS with radio (inter-state)

Scenario 1(b): Levies on SHS with radio (inter-state)										
#	Stakeholders involved	Description	SHS				Radio			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Rate	Total Levies (INR) (A)	Rate	Total Levies (INR) (B)	Rate	Total Levies (INR) (C)	Rate	Total Levies (INR) (D)
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		100.0		100		100.0		100.0
2		Add: Basic custom duty	5.00%	5.0	5.00%	5	10.00%	10.0	10.00%	10
3		Add: CVD (Pre-GST)	0.00%	0.0			12.50%	13.8		
4		Add: CC on (BCD + CVD)	3.00%	0.2	3.00%	0.15	3.00%	0.7	3.00%	0.3
5		SAD (Pre-GST)	0.00%	0.0			4.00%	5.0		
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)		105.15		105.15		129.44		110.3
7		IGST (Post-GST)		0.0	5.00%	5.26		0.0	28.00%	30.88
8	Dealer	Total supply price to the dealer (6+7)		105.15		110.41		129.44		141.18
9		Add: Margin (assumed rate of 10%) on (6)	10%	10.5	10%	10.515	10%	12.9	10%	11.03
10		SUPPLY PRICE BEFORE CST/GST (6+9)		115.7		115.67		142.4		121.33
11		Add: CST ³ (Pre-GST)	2%	2.3			2%	2.8		
12		Add: IGST* (Post-GST)		0.0	5%	5.78		0.0	28%	33.97

Scenario 1(b): Levies on SHS with radio (inter-state)

#	Stakeholders involved	Description	SHS				Radio			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Rate	Total Levies (INR) (A)	Rate	Total Levies (INR) (B)	Rate	Total Levies (INR) (C)	Rate	Total Levies (INR) (D)
13		TOTAL SUPPLY PRICE (Pre-GST = 10+11, Post-GST 10+12)		117.98		121.45		145.23		155.30
14		ITC available of IGST		0.0		(5.26)		0.0		(30.88)
15		Adjust towards IGST Payable		0.0		5.78		0.0		33.97
16		IGST Payable (15-14)		0.0		0.53		0.0		3.1
17		TOTAL SUPPLY PRICE (SHS + Radio) Pre-GST (13A+13C)	263.21							
18		TOTAL SUPPLY PRICE (SHS + Radio) Post-GST (13B+13D)	276.75							

NOTE: Refer Table 8 for applicable duty rates.

*As the sale is from the state of Bihar to Assam, CST will be 2% or Bihar VAT rate of 6%, whichever is lower. In this scenario, it will be 2%.

3.3 Scenario 2: Levies on components under the VAT regime vs. the GST regime

Tables 12 and 13 explain the supply chain of a DC fan under pre-GST and post-GST regimes, from import to sale by a dealer (in the state of Bihar), at a margin of 10%, to the end consumer in the same state (Scenario 2(a) - intra-state supplies) or across states, e.g., Bihar to Assam (Scenario 2(b) - inter-state supplies).

Table 12: Scenario 2(a): Levies on DC fan (intra-state)

Scenario 2(a): Levies on DC fan (intra-state)							
#	Stakeholders involved	Description	Pre GST		Post-GST		
			Rate	Total Levies (INR)	Rate	Total Levies (INR)	
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		10000.0		10000	
2		Add: Basic custom duty	7.50%	750.0	7.50%	750	
3		Add: CVD (Pre-GST)	12.50%	1343.8			
4		Add: CC on (BCD + CVD)	3.00%	62.8	3.00%	22.5	
5		SAD (Pre-GST)	4.00%	486.3			
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)			12642.83		10772.50
7		IGST (Post-GST)		0.0	5.00%	538.63	
8		Total supply price to the dealer (6+7)		12642.83		11311.13	
9	Dealer	Add: Margin (assumed rate of 10%) on (A)	10%	1264.3	10%	1077.25	
10		SUPPLY PRICE BEFORE VAT/GST (6+9)		13907.1		11849.75	
11		Add: VAT* (Pre-GST)	15%	2086.1			
12		Add: CGST (Post-GST)*		0.0	2.5%	296.24	
13		Add: SGST (Post-GST)		0.0	2.5%	296.24	
14		TOTAL SUPPLY PRICE (Pre-GST= 10+11, Post-GST 10+12+13)			15993.17		12442.24
15		ITC available of IGST					(538.63)
16		Adjust towards CGST payable					296.24
17		Adjust towards SGST payable					242.38
18		SGST payable (12+13-15)					53.86

NOTE: Refer Table 9 for the applicable duty rates

*As the sale is in the state of Bihar, VAT rate of 15% has been considered

#In the GST regime, CGST + SGST will be applicable on intra state supplies as per the respective CGST/SGST Act, 2017

Table 13: Scenario 2(b): Levies on DC fan (inter-state)

Scenario 2(b): Levies on DC fan (inter-state)							
	Stakeholders Involved	Description	Pre-GST		Post-GST		
#			Rate	Total Levies (INR)	Rate	Total Levies (INR)	
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		10000.0		10000.0	
2		Add: Basic custom duty	7.50%	750.0	0.1	750.0	
3		Add: CVD (Pre-GST)	12.50%	1343.8			
4		Add: CC on (BCD + CVD)	3.00%	62.8	0.0	22.5	
5		SAD (Pre-GST)	4.00%	486.3			
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)			12642.8		10772.5
7		IGST (Post-GST)			0.0	0.1	538.6
8	Dealer	Total supply price to the dealer (6+7)					
9		Add: Margin (assumed rate of 10%) on (6)	10%	1264.3	0.1	1077.3	
10		SUPPLY PRICE BEFORE CST/GST (6+9)			13907.1		11849.8
11		Add: CST* (Pre-GST)	2%	278.1			
12		Add: IGST (Post-GST)*			0.0	0.1	592.5
13		TOTAL SUPPLY PRICE (Pre-GST= 10+11, Post-GST 10+12)			14185.2		12442.2
14		ITC available of IGST			0.0		(538.6)
15		Adjust towards IGST Payable			0.0		592.5
16		IGST Payable (15-14)			0.0		53.9

NOTE: Refer Table 9 for the applicable duty rates

*As the sale is from the state Bihar to Assam, CST will be 2% or Bihar VAT rate of 15%, whichever is lower. In this scenario, it will be 2%

3.4 Scenario 3: Import and sale of DC TV vs. TV

Tables 14 and 15 explain the supply chain of a standalone DC TV where the company is able to establish that the TV can only run on solar energy vs. TV under pre- and post-GST regimes, from import to sale by a dealer (in the state of Bihar), at a margin of 10%, to the end consumer in the same state (Scenario 3(a) - intra-state supplies) or across states, e.g., Bihar to Assam (Scenario 3(b) - inter-state supplies).

Table 14: Scenario 3(a): Levies on DC TV vs TV (intra-state)

Scenario 3(a): Levies on DC TV vs TV (intra-state)										
#	Stakeholders Involved	Description	A: DC TV (HSN: 85437092)				B:TV (HSN: 8528 7211)			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)
1	Importer	Value under section 14(1)/ 14(2) of Customs Act		10000.0		10000		10000		10000
2		Add: Basic custom duty	7.50%	750.0	7.50%	750	10.00%	1000.0	10.00 %	1000
3		Add: CVD (Pre-GST)	12.50%	1343.8			12.50%	1375.0		
4		Add: CC on (BCD + CVD)	3.00%	62.8	3.00%	22.5	3.00%	71.3	3.00 %	30
5		SAD (Pre-GST)	4.00%	486.3			4.00%	497.9		
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)		12642.83		10772.50		12944.10		11030.00
7		IGST (Post-GST)		0.0	5.00%	538.63		0.0	28.00 %	3088.40
8		Total supply price to the dealer (6+7)		12642.83		11311.13		12944.10		14118.4
9	Dealer	Add: Margin (assumed rate of 10%) on (6)	10%	1264.3	10%	1077.25	10%	1294.4	10%	1103
10		SUPPLY PRICE BEFORE VAT/GST (6+9)		13907.1		11849.75		14238.5		12133
11		Add: VAT* (Pre-GST)	15%	2086.1			15%	2135.8		

Scenario 3(a): Levies on DC TV vs TV (intra-state)

#	Stakeholders Involved	Description	A: DC TV (HSN: 85437092)				B:TV (HSN: 8528 7211)			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)	Duty rate	Total Levies (INR)
12		Add: CGST (Post-GST)		0.0	2.5%	296.24		0.0	14%	1698.62
13		Add: SGST (Post-GST)		0.0	2.5%	296.24		0.0	14%	1698.62
14		TOTAL SUPPLY PRICE (Pre-GST= 10+11, Post-GST 10+12+13)		15993.17		12442.24		16374.29		15530.24
15		ITC available of IGST				(538.63)				(3088.40)
16		Adjust towards CGST payable				296.24				1698.62
17		Adjust towards SGST payable				242.38				1389.78
18		SGST payable (12+13-15)				53.86				308.8

NOTE: Refer table 9 for the applicable duty rates

**As the sale is in the state of Bihar, VAT rate of 15% has been considered under the pre-GST regime

#In the GST regime, CGST + SGST will be applicable on intra state supplies as per the respective CGST/SGST Act, 2017

Table 15: Scenario 3(b): Levies on DC TV vs TV (inter-state)

Scenario 3(b): Levies on DC TV vs TV (inter-state)											
	Stakeholders Involved	Description	A: DC TV (HSN: 85437092)				B:TV (HSN: 8528 7211)				
#			Pre-GST		Post-GST		Pre-GST		Post-GST		
			Rate	Total Levies (INR)	Rate	Total Levies (INR)	Rate	Total Levies (INR)	Rate	Total Levies (INR)	
1	Importer	Value under section 14(1)/14(2) of Customs Act		10000.0		10000.0		10000.00		10000.00	
2		Add: Basic custom duty	7.50%	750.0	0.1	750.0	0.10	1000.00	0.10	1000.00	
3		Add: CVD (Pre-GST)	12.50%	1343.8			0.13	1375.00			
4		Add: CC on (BCD + CVD)	3.00%	62.8	0.0	22.5	0.03	71.25	0.03	30.00	
5		SAD (Pre-GST)	4.00%	486.3			0.04	497.85			
6		Total assessable value (Pre-GST = 1+2+3+4+5) (Post-GST = 1+2+4)			12642.8		10772.5		12944.10		11030.00
7		IGST (Post-GST)			0.0	0.1	538.6		0.00	0.28	3088.40
8		Total supply price to the dealer (6+7)		12642.8		11311.1		12944.10		14118.4	
9	Dealer	Add: Margin (assumed rate of 10%) on (6)	10%	1264.3	0.1	1077.3	0.10	1294.41	0.10	1103.00	
10		SUPPLY PRICE BEFORE CST/GST (6+9)		13907.1		11849.8		14238.51		12133.00	

Scenario 3(b): Levies on DC TV vs TV (inter-state)

#	Stakeholders Involved	Description	A: DC TV (HSN: 85437092)				B:TV (HSN: 8528 7211)			
			Pre-GST		Post-GST		Pre-GST		Post-GST	
			Rate	Total Levies (INR)	Rate	Total Levies (INR)	Rate	Total Levies (INR)	Rate	Total Levies (INR)
11		Add: CST ⁹ (Pre-GST)	2%	278.1			0.02	284.77		
12		Add: IGST (Post-GST)		0.0	0.1	592.5		0.00	0.28	3397.24
13		TOTAL SUPPLY PRICE (Pre-GST= 10+11, Post-GST 10+12)		14185.2		12442.2		14523.28		15530.24
14		ITC available of IGST		0.0		(538.6)		0.00		(3088.40)
15		Adjust towards IGST Payable		0.0		592.5		0.00		3397.24
16		IGST Payable (15-14)		0.0		53.9		0.00		308.84

NOTE: Refer Table 9 for the applicable duty rates

⁹As the sale is from the state Bihar to Assam, CST will be 2% or Bihar VAT rate of 15%, whichever is lower. In this scenario, it will be 2%.

¹⁰In the GST regime, IGST will be applicable on interstate supplies as per the IGST Act, 2017.

4. Import process for off-grid solar products

In India, a significant number of off-grid solar appliances are imported from China¹ via sea or air routes. Listed below are the common terms used or parties involved during the import process of these solar appliances:

Table 16: Import process: common terms with descriptions

Term	Definition
Buyer/Importer	For Customs purposes, there is a party who makes (or on whose behalf an agent or broker makes) the import declaration, and who is liable for the payment of duties (if any) on the imported products. Normally, this party is named either as the consignee in the shipping documents and/or as the buyer in the exporter's invoice.
Bill of lading	Bill of lading is a negotiable document issued by a carrier, or its agent, to the shipper as a contract of carriage of products. It is also a receipt for cargo accepted for transportation, and must be presented for taking delivery at the destination. Among other items of information, a bill of lading contains (1) consignor's and consignee's names, (2) names of the ports of departure and destination, (3) name of the vessel, (4) dates of departure and arrival, (5) itemized list of products being transported with the number of packages and kind of packaging, (6) marks and numbers on the packages, (7 weight and) /or volume of the cargo, (8) freight rate and amount.
Bill of entry (BOE) ³	BOE is a legal document filed with the Customs department by an importer or his or her customs house agent (CHA) to undergo necessary import customs clearance formalities.
Shipping bill	The shipping bill is the document required by customs authority for clearance of goods for shipment.
Carrier	It is a company that transports products by air, land, or sea, in its own or chartered vessels or equipment, and is named as the carrier in the contract of carriage.
Custom house agent (CHA)	CHA is a person who is licensed to act as an agent for transaction of any business to the entry or departure of conveyances or the import or export of products at any Customs station.
Commercial invoice	When used in foreign trade, a commercial invoice is a customs document. It is used as a customs declaration provided by the person or corporation that is exporting products across international borders.
Certificate of origin	In a printed form or as an electronic document, it is completed by the exporter and certified by a recognized issuing body, attesting that the products in a particular export shipment have been produced, manufactured, or processed in a particular country. For exports from India, the Indian Chamber of Commerce issues certificate of origin.
Delivery order	It is written directions from a shipper of a shipment to freight forwarder to release the shipment to the named delivery party on payment of the specified freight charges.
Delivery note	It is a document accompanying a shipment of products that lists the description and quantity of the products delivered. A copy of the delivery note, signed by the buyer or consignee, is returned to the seller or consignor as a proof of delivery.
Exporter/shipper of products/vendor	For customs purposes, it is the party who makes (or on whose behalf an agent or broker makes) the export declaration.

¹ Source: <http://commerce.gov.in/EIDB.aspx> - During 2016-17 (Apr-Feb), number of SOLAR LANTERNS/ LAMP (HSN code 94055040) imported from China are 99% of the total import of these goods in India during the given period.

³BOE: With the implementation of GST, BOE would have a field option for commercial tax type "C" for GST taxpayers. As of 01 July 2017, users had to quote "NOEXCISE" for items for which Central Excise is not applicable.

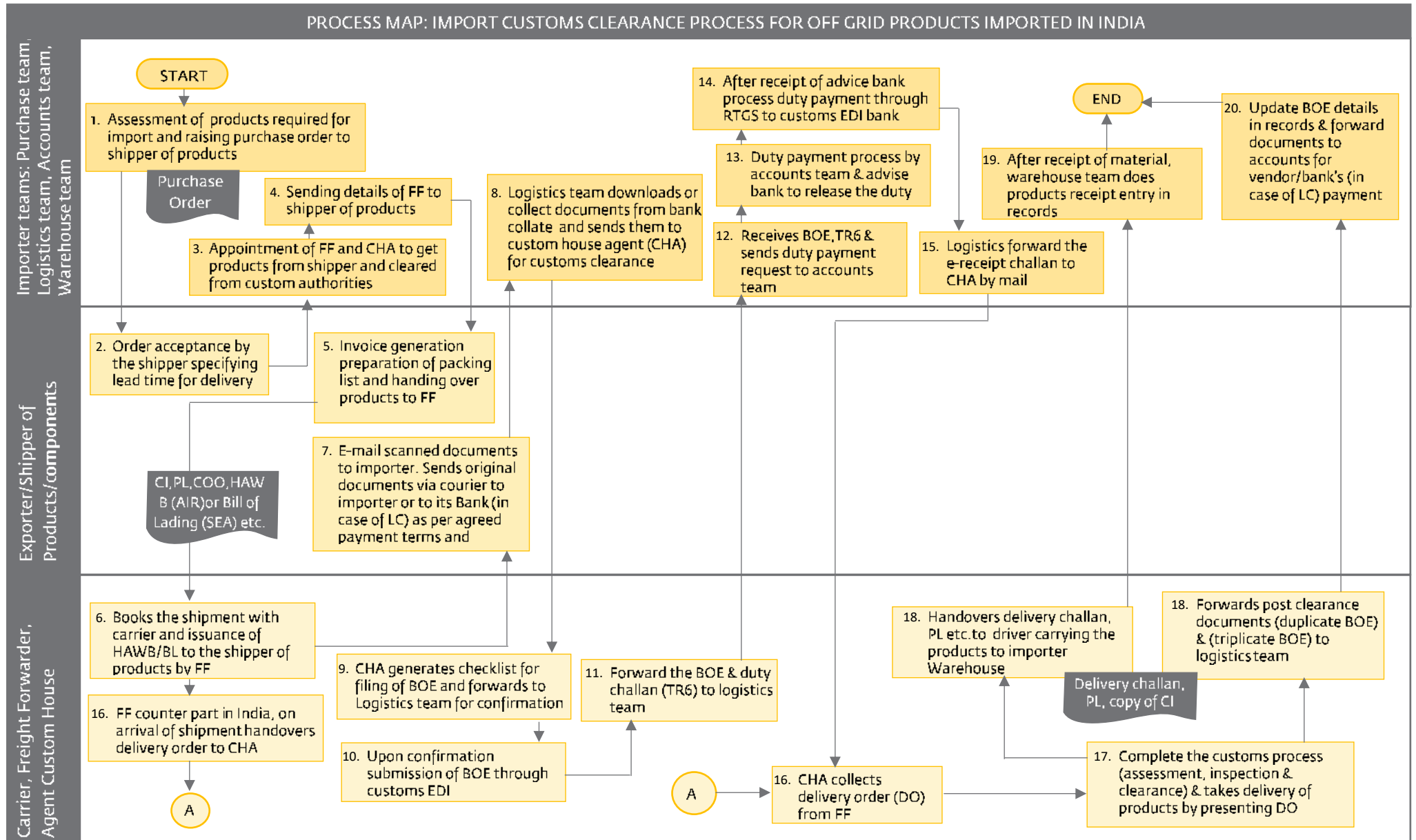
Term	Definition
Freight forwarder	A freight forwarder, or forwarding agent, is a person or company that organizes shipments for individuals or corporations to get products from the manufacturer or producer to a final point as specified by individual or a company. Freight forwarders have expertise in preparing and processing customs and other documentation and performing activities pertaining to international shipments.
House airway bill (HAWB)	HAWB is issued by a freight forwarder on receipt of products from the shipper agreeing to deliver products at a destination by air. Unlike the bill of lading, it is a non-negotiable agreement.
Import general manifest (IGM)	IGM is a document filed by a carrier of products with the Customs department, containing the details of the products arrived at a Customs location. An IGM contains the IGM number, line number, importer name and address, description of products, port of loading and other details of cargo arrived.
International commercial terms (Incoterms)	Incoterms are a series of pre-defined commercial terms published by the International Chamber of Commerce (ICC), accepted worldwide in assignment of costs and responsibilities between the buyer and the seller. In brief, these terms are (1) Cost And Freight, (2) Cost, Insurance and Freight, (3) Delivered At Frontier, (4) Delivered Duty Paid, (5) Ex Quay, (6) Ex Ship, (7) Ex Works, (8) Free Alongside Ship, (9) Free On Board/Airport, (10) Free On Rail/Free On Truck, (11) Free carrier, (12) Free Carriage Paid To and (13) Free Carriage Paid To And Insurance.
Letter of credit	It is a letter issued by a bank (opening bank) to another bank (especially one in a different country — notifying bank) to serve as a guarantee for payments made to a specified person under specified conditions. During import of off-grid products, in case the buyer arranges to open a letter of credit with his or her bank, it should be as per the terms and conditions of purchase order and business contract between the buyer and seller, i.e., exporter.
Master airway bill (MAWB)	MAWB is issued by the main carrier of products on receipt of products from a freight forwarder to deliver at the destination, via air, as per the agreed terms. Unlike the bill of lading, it is a non-negotiable agreement.
Material safety data sheet (MSDS)	An MSDS is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product.
Purchase order	It is a buyer/importer generated document that authorizes a purchase transaction. When accepted by the seller, it becomes a contract binding on both parties. A purchase order sets forth the descriptions, quantities, prices, discounts, payment terms, date of performance or shipment, other associated terms and conditions, and Incoterms and identifies a specific seller/exporter.
Packing list (PL)	PL is a document that details the contents, and often dimensions and weight, of each package or container being exported by the exporter.

4.1 Import process summary

Table 17: Summary of import process

Process Particulars	Details
Objective	Explain import process of off-grid products, i.e., from issuance of a purchase order to products receipt by the importer of the products
Mode of import	AIR or SEA route
Primary Actors	<ul style="list-style-type: none"> ▶ Origin Countries ▶ Bank ▶ Importer teams: <ul style="list-style-type: none"> ▶ Supply chain Management/Purchase team ▶ Logistics ▶ Accounts Department ▶ Custom House Agent (CHA) ▶ Freight Forwarder ▶ Custom authorities of India ▶ Local Transporters ▶ Airport Authority of India (in case of air shipment) ▶ Port Trust (in case of sea shipment)
Process Input	<ul style="list-style-type: none"> ▶ Assessment of products/components requirement and placement of order to the shipper
Process Output	<ul style="list-style-type: none"> ▶ Custom clearance of finished products/ components and their receipt by importer at its premises/warehouse
List of documents involved	<ul style="list-style-type: none"> ▶ Commercial Invoice ▶ Packing list ▶ House Airway Bill (air shipment) ▶ Master Airway Bill (air shipment) ▶ Bill of Lading (sea shipment) ▶ Examination Order (issued by customs) ▶ Non-DG/DG Certificate (if applicable) ▶ Product certification (if required) from Bureau of Indian Standards (BIS) ▶ Insurance cover ▶ Payment Challan receipt from Bank ▶ Lorry Receipt ▶ Delivery Note ▶ Duplicate BOE (importer's copy) ▶ Triplicate BOE (exchange control copy).

4.2 Import process flowchart



4.3 Import process description

Table 18: Import process description

Note: Relevant activities are hyperlinked from the process chart above.

#	Activity
1	Buyer's/importer's purchase team assesses the requirement of import of off-grid products or their components and issues a purchase order to the shipper/exporter of these products. The purchase order includes the terms and conditions of purchase, Incoterms, technical specifications of the product/component, payment terms, warranty conditions, etc.
2	Vendor/exporter of products gives order acceptance and specifies the lead time, i.e., time required from manufacturing till actual shipment of products to the importer.
3	On order acceptance, importer engages the freight forwarder (FF) and CHA for carrying shipment from the shipper and completing the custom clearance process respectively.
4	Importer shares FF details with shipper for handing over shipment of products to FF (as per the agreed Incoterms in purchase order).
5	Before handing over products for shipment to FF, shipper prepares an invoice and a PL of the products/components being shipped to India.
6	Before receipt of products/components, FF books the shipment with carrier agency and on receipt of it for export, FF issues a HAWB (in case of air shipment) or bill of lading (In case of sea shipment) to shipper agreeing to deliver products at destination by agreed mode of transport.
7	On shipment of products, shipper e-mails commercial invoice (CI), PL, certificate of origin (COO), HAWB/bill of lading, Non-DG/DG or test certificate (if any) to the importer and, depending on the payment terms, sends original documents by courier. In case payment term involves payment via letter of credit, shipper sends all original documents to its own bank (negotiating bank), which in turn sends them to opening bank of importer. In such case, importer collects originals from his or her own bank.
8	On receipt of documents, importer's logistics team forwards all documents, including product certificate from BIS* in case of import of standalone batteries, LEDs and accessories, to CHA for custom clearance of consignment.
9	Based on information in documents, CHA generates a checklist, i.e., declaration form for filing of a BOE (Annexure 1 to the P.N. 242/98 of customs) in Customs' system and forwards it to logistics team for confirmation for final submission of BOE in electronic data interchange (EDI), Customs.
10	Logistics team verifies the checklist information, e.g., duty payable amount in checklist matches against amount calculated internally etc., and confirms to CHA for filing BOE.
11	CHA files BOE through EDI and forwards generated BOE, duty challan (TR 6) and examination order to logistics team on completion of assessment at customs. (Till this stage, assessment of BOE has happened in the EDI system only by the Appraising Officer (A.O.)/Asst. Commissioner (A.C.). After assessment is over by A.O./A.C., EDI system generates one (customs) copy of BOE and three copies of TR 6 Challans for payment of duty and the documents are handed over to CHA at Customs' service centers).
12	Logistics team on receipt of BOE sends duty payment request to accounts department.
13	Accounts team verifies and processes duty request and advises bank to release duty payment within agreed timelines.
14	Bank processes duty payment request and sends e-receipt challan to logistics/accounts team by e-mail and also verifies duty payment through EDI, Customs
15	On receipt of duty payment challan (through mail) from bank, logistics team forwards it to CHA to initiate delivery process.
16	CHA collects delivery order from freight forwarder and presents it along with challan receipt to custom authorities.
17	After duty receipt, Customs either does the physical verification of the consignment or directly gives out of charge order. Along with out of charge order, Customs also issues triplicate and duplicate original BOE to CHA.
18	On completion of Customs process, CHA: <ul style="list-style-type: none"> a) Forwards post-shipment documents to logistics team and b) Hands over copy of invoice, packing list, and delivery challan to driver carrying assignment to importer warehouse.
19	On receipt of products, warehouse team enters "products receipt" in its record/system.
20	On receipt of shipping documents, logistics team updates BOE in records and forwards it to finance for vendors/bank (in case of LC) payment.

* BIS - Product Certification:

BIS is the national standard body of India established under the BIS Act 1986 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto. Thus, keeping in view the interest of consumers as well as the industry, BIS is involved in various activities such as standards formulation, product certification scheme, and laboratory services.

The Product Certification Scheme of BIS aims at providing third party guarantee of quality, safety, and reliability of products to customers. Although the scheme itself is voluntary in nature, the Government of India, on considerations of public health and safety, security, infrastructure requirements, and mass consumption, has enforced mandatory certification on various products through orders issued from time to time under various acts. While BIS continues to grant licenses on application, the enforcement of compulsory certification is done by the Ministry of Electronics & Information Technology (MeitY).

The list of products covered under the compulsory registration scheme (CRS), which requires mandatory registration, includes standalone batteries, LED and adaptors <http://www.bis.org.in/cert/ProdUnManCert.asp>. In case these products are imported as a part of finished goods and are not detachable, registration is not compulsory for the manufacturer/importer of such products. For example, if a solar lamp is imported with inbuilt LED light and batteries, registration for LED or batteries is not mandatory.

Below are the steps involved to apply to BIS for grant of CRS:

1	Applicant has to apply online at http://crsbis.in/BIS/login.do for grant of registration. Refer the checklist of documents to be submitted along with the application form.
2	To support the product certification scheme, which requires testing of products on a regular basis for checking conformity to the relevant Indian Standards, BIS has established a network of laboratories. For products covered under CRS, it is mandatory to have them tested at labs recognized by BIS under CRS and to submit test reports with the registration application.
3	All foreign applicants having no liaison office or branch office in India have to appoint an Authorized Indian Representative (AIR) as per the guidelines issued by BIS in the prescribed nomination form.
4	AIRs of applicants located outside India have to submit an affidavit cum undertaking as per Format A/Format B as mentioned in the guidelines.
5	All applicants located in India have to submit an affidavit cum undertaking as per Format C in the guidelines.
6	Applicant has to deposit fee as per the fee structure.
7	Applicant has to submit a hard copy of application within 15 days of the online submission of the application form.
8	BIS scrutinizes the applications and communicates discrepancies/queries (if any). On satisfactory response from the applicant, a registration letter is granted to the applicant.
9	For inclusion of any new models of the same product and brand, the applicant can request BIS under the same registration number.

5. Post-GST challenges

The pre-GST indirect tax regime was beset by myriad problems such as complexity, tax on tax and lack of credit fungibility. The GST is intended to be a comprehensive indirect tax regime, barring a few exceptions including basic custom duty, stamp duty, taxes on consumption or sale of electricity.

Even though tax on consumption or sale of electricity is outside the purview of GST, inputs and the input services attract GST. Therefore, the taxes paid on the inputs, e.g. 5% GST paid on solar panel used for generation of electricity, is non-creditable and thus adds to the cost for setting up power projects.

Further, before GST, in the case of inter-state purchases, a concessional CST rate of 2% was provided against the issuance of statutory form (Form C) in case the goods were to be used in generation or distribution of electricity. However, under GST, as CST has been subsumed in GST, the concessional rate of tax is not available even if the goods are to be used in the generation or distribution of electricity. IGST at 5% would be applicable on inter-state procurements, which is a blocked credit as electricity is outside the purview of GST. This would lead to a substantial increase in tax costs as compared to the pre-GST regime and have a direct impact on the cost of renewable energy.

Despite the cost of import of components of off-grid solar products reducing under GST, as compared to the cost of components under the pre-GST scenario (as evident from *table 2 Comparative Rate Chart of Total Levies on Sale of Solar Product*); manufacturing (including assembly of goods) of off-grid solar products is still not cost effective as compared to import from countries such as China. The continuation of import levies (BCD and CC), which are outside the purview of GST add to the cost of goods/components imported for assembling in India and are not creditable.

In addition, following ambiguities still exists with respect to HSN code classification under CTA, 1975 and CGST/SGST/IGST Act, 2017, for the solar industry irrespective of GST implementation and free flow of input credit:

- a. **CTA:** The below products can be considered under different HSN codes:
 - i. **Basic solar lantern:** HSN code (solar lantern) 9405 5040 at 5.15% or 8543 7092 (gadgets based on solar energy) at 26.43%
 - ii. **Adaptor:** HS code 8536 6990 (lamp-holders, plugs and sockets) or HS code 8536 9090 (Other Apparatus) at 29.44%
- b. **GST schedule:** Similarly, under the GST schedule, though the tax rate for the following products/components is the same, the HSN code is not clear:
 - i. LED lamp: Entry no. 226, HSN code 9405 (LED lights or fixtures including LED lamps) at 12% or Entry no. 205, HSN code 8539 (LED Lamps) at 12%
 - ii. IGST Act, Schedule — Entry no. 234, chapter 84 or 85, specifies a 5% tax rate for the **following renewable energy devices and parts for their manufacture:**
 - a. Bio-gas plant
 - b. Solar power based devices
 - c. Solar power generating system
 - d. Wind mills (Wind Operated Electricity Generators)
 - e. Waste to energy plants / devices
 - f. Solar lantern / solar lamp"

This entry clearly covers solar lanterns and solar lamps, but ambiguity still exists for components such as TVs and fans. They can be covered under sub-bullet (b) "solar power based devices" subject to the establishment to the tax authorities that these components can run only on DC and thus are solar devices. In case of failure to prove this, the tax authorities will classify these products under HSN code 8528 7211 and will be charged at a rate of 10% BCD + CC and 28% sale levies.

Under the GST regime, an Authority for Advance Ruling (AAR) is constituted to provide a decision to an applicant on matters or on questions specified in sub-section (2) of section 97 or subsection (1) of section 100 of the CGST Act, 2017, in relation to the supply of goods or services or both being undertaken or proposed to be undertaken by the applicant. Section 97(2) and 100(1) include matters like classification of any goods or services or both, determination of the liability to pay tax on any goods or services or both and so on. Further, advance ruling can be obtained on a proposed transaction as well as a transaction already undertaken by the appellant. For HSN classification issues, companies may wish to obtain an advanced ruling. Detailed advance ruling mechanism under GST is specified at <http://www.cbec.gov.in>

Glossary: links and relevant documents

Table 19: Glossary

#	Particulars	Links
RELEVANT MARKETS		
1	Market research report published by the Lighting Asia/ India program	www.lightingasia.org/india/reports/
2	Quality assured products listed by lighting Global	www.lightingglobal.org/products/?view=grid
3	Tariff of the components (CBEC website)	www.cbec.gov.in/htdocs-cbec/customs/cst1617-300616/cst1617-3006-idx
4	Icegate (for duty rates)	www.icegate.gov.in/Webappl/Trade-Guide-on-Imports
5	Goods and Service Tax Network	www.gstn.org/
6	The Clean Energy Access Network (CLEAN)	www.thecleannetwork.org
7	The Global lighting and energy access partnership (global leap)	www.globalleap.org/
8	The Global off-grid lighting association (GOGLA)	www.gogla.org/
STATE EXCISE & TAXATION DEPARTMENTS		
9	Uttar Pradesh	http://comtax.up.nic.in/
10	Bihar	https://www.biharcommercialtax.gov.in/bweb/
11	Rajasthan	http://rajtax.gov.in/vatweb/
12	Odisha	https://odishatax.gov.in/
13	Nagaland	http://www.nagalandtax.nic.in/
14	Arunachal Pradesh	http://www.aruntax.nic.in
15	Assam	http://www.tax.assam.gov.in/AssamTimsInfo/index.html
16	Manipur	http://www.manipurvat.gov.in
17	Meghalaya	http://megvat.gov.in
18	Mizoram	http://www.zotax.nic.in
19	Sikkim	http://www.sikkimtax.gov.in
20	Tripura	http://taxes.tripura.gov.in

6. Annexure

6.1 Annexure 1: Pre-GST import duty rates of off-grid solar products

Table 20: Pre-GST rates of off-grid solar products

#	Products	HSN code and description		BCD	CVD	Customs Cess	SAD	Total Import duty
1	Single light only	9405 5040	Solar Lanterns and Lamps	5.00%	0.00%	3.00%	0.00%	5.15%
2	Single Light & Mobile Charging	9405 5040	Solar Lanterns and Lamps	5.00%	0.00%	3.00%	0.00%	5.15%
3	Multiple Light & Mobile Charging	9405 5040	Solar Lanterns and Lamps	5.00%	0.00%	3.00%	0.00%	5.15%
4	SHS, Entry Level	9405 5040	Solar Lanterns and Lamps	5.00%	0.00%	3.00%	0.00%	5.15%
5	SHS, Basic Capacity /SHS, Medium capacity	9405 5040	Solar Lanterns and Lamps	5.00%	0.00%	3.00%	0.00%	5.15%
		8527 1900	Radio	10.00%	12.50%	3.00%	4.00%	29.44%
		8543 7092	DC FAN (Equipment gadgets based on solar energy)	7.50%	12.50%	3.00%	4.00%	26.43%
		8543 7092	DC TV (Equipment gadgets based on solar energy)	7.50%	12.50%	3.00%	4.00%	26.43%

6.2 Annexure 2: Pre-GST import duty rates of off-grid solar product components

Table 21: Pre-GST Rates of off-grid solar product components

#	Components	HSN Code	HSN code description	BCD	CVD	Customs Cess	SAD	Total Import duty
1	LED bulb	8541 4020	Light emitting diodes	0%	6%	3%	4%	10.43%
2	Solar Panel	8541 4011	Solar cells whether or not assembled in modules or panels	0%	0%	3%	0%	0.00%
3	Solar Lantern	9405 5040	Solar Lanterns and Lamps	5%	0%	3%	0%	5.15%
4	Solar Torch (Solar lamp)	9405 5040	Solar Lanterns and Lamps	5%	0%	3%	0%	5.15%
5	Multipurpose torch/remote	9405 5040	Solar Lanterns and Lamps	5%	0%	3%	0%	5.15%
6	Batteries	8507 2000	Battery Lead acid/ SLA	10%	12.5%	3%	4%	29.44%
		8507 5000	Battery Nickel-metal hydride	10%	12.5%	3%	4%	29.44%
		8507 6000	Battery Lithium-ion	10%	12.5%	3%	4%	29.44%
		8507 8000	Battery others	10%	12.5%	3%	4%	29.44%
7	DC Fan	8543 7092	Equipment gadgets based on solar energy	7.5%	12.5%	3%	4%	26.43%
8	DC TV	8528 7211	Equipment gadgets based on solar energy	7.5%	12.5%	3%	4%	26.43%
9	Radio	8527 1900	Others	10%	12.5%	3%	4%	29.44%

7.3 Annexure 3: Pre-GST rates sale of finished goods

Table 22: Pre-GST rates sale of finished goods

#	State	Category	VAT rate	Schedule	Serial no.	Entry Tax	Schedule	Serial no.
1	RAJASTHAN	Pico-PV, SHS	0%	Schedule I	107	0%	Rate of Tax under The Rajasthan Tax on Entry of Goods into Local Areas Act, 1999 (Act No. 13 of 1999) with effect from 08.03.2016	-
2	UTTAR PRADESH	Pico-PV, SHS	0%	Schedule I	13	0%	NOTIFICATION No.KA.NI.-2-2757/XI-9(1)/08-U.P. Act-30-2007-Order-(31)-2008 Dated: 29th September 2008	-
3	BIHAR	Pico-PV, Entry Level SHS	6%	Schedule III	123	0%	Bihar entry of goods and local areas for consumption (schedules)	-
		Basic SHS, Medium Capacity SHS	15%	-	-	0%	Bihar entry of goods and local areas for consumption (schedules)	-
4	ODISHA	Pico-PV, SHS	5%	Schedule B (II)	96	0%	ODISHA ENTRY TAX ACT SCHEDULE Part-I/II	-
5	ASSAM	Pico-PV, SHS	6%	Second schedule (A)	130	4%	RATE OF TAXES UNDER THE ASSAM ENTRY TAX ACT, 2008	68
6	Arunachal Pradesh	Pico-PV, SHS	4%	Schedule 3	59	No entry tax in the state of Arunachal Pradesh		
7	SIKKIM	Pico-PV, SHS	4.5%	Schedule III (12c)	61	No entry tax in the state of Sikkim		
8	NAGALAND	Pico-PV, SHS	5%	Schedule IV	122	0%	Entry tax act, schedule	-
9	MIZORAM	Pico-PV, SHS	5%	Schedule 2, Part C	90	0%	Mizoram Entry Tax Act, 2015	-
10	MEGHALAYA	Pico-PV, SHS	5%	Schedule 2	77	No entry tax in the state of Meghalaya		
11	MANIPUR	Pico-PV, SHS	5%	Schedule 1(B)	122	No entry tax in the state of Manipur		
12	TRIPURA	Pico-PV, SHS	5%	Schedule II (A)	83	No entry tax in the state of Tripura		

6.4 Annexure 4: Pre-GST rates sale of components

Table 23: Pre-GST Rates sale of components

#	Name of good/ component	VAT rate ²	Schedule	Serial no.	Entry Tax ³	Schedule	Serial no.
A	RAJASTHAN						
1	Solar Lantern	0%	Schedule I	107	0%	Rate of Tax under The Rajasthan Tax on Entry of Goods into Local Areas Act, 1999 (Act No. 13 of 1999) with effect from 08.03.2016	-
2	Solar Panel	0%	Schedule I	135	0%		-
3	Batteries	14.50%	Schedule V	9	4%		7
4	LED Bulb	3%	Schedule VI	20	4%		7
5	Radio	5.50%	Schedule IV	219	0%		-
6	DC TV ⁴	0%	Schedule I	107	0%		20
7	DC FAN ⁵	0%	Schedule I	107	0%		-
B	UTTAR PRADESH						
1	Solar Lantern	0%	Schedule I	13	0%	NOTIFICATION No.KA.NI.-2-2757/XI-9(1)/08-U.P. Act-30-2007-Order-(31)-2008 Dated: 29th September 2008	-
2	Solar Panel	0%	Schedule I	13	0%		-
3	Batteries	12.50%	Schedule V	1	5%		16
4	LED Bulb	0%	Schedule I	13	0%		-
5	Radio	12.50%	Schedule V	1	5%		16
6	DC TV	0%	Schedule I	13	0%		-
7	DC FAN	0%	Schedule I	13	0%		-
C	BIHAR						
1	Solar Lantern	6%	Schedule 3	123	0%	Bihar entry of goods and local areas for consumption (schedules)	-
2	Solar Panel	6%	Schedule 3	123	0%		-
3	Batteries	15%	-	-	8%		17
4	LED Bulb	15%	-	-	8%		17
5	Radio	15%	-	-	8%		17
6	DC TV	15%	-	-	0%		-
7	DC FAN	6%	Schedule 3	123	0%		-
D	ODISHA						
1	Solar Lantern	5%	Schedule B (II)	96	0%	Odisha Entry Tax Act schedule Part - I /II	-
2	Solar Panel	5%	Schedule B (II)	69	0%		-
3	Batteries	14.50%	Schedule B (II)	-	2%		7

² Source: VAT are listed from the schedules given at respective States commercial tax department's websites as on April'2017.

³ Source: ET are listed from the schedules given at respective States commercial tax department's websites as on April'2017.

⁴ DC TV which is specifically built for working with a solar home system and runs on electricity generated by photovoltaic devices.

⁵ DC FAN which is specifically built for working with a solar home system and runs on electricity generated by photovoltaic devices.

#	Name of good/ component	VAT rate ²	Schedule	Serial no.	Entry Tax ³	Schedule	Serial no.
4	LED Bulb	14.50%	Schedule B (II)	-	2%	Odisha Entry Tax Act Schedule Part – II	7
5	Radio	14.50%	-	-	2%		7
6	DC TV	5%	Schedule B (II)	96	0%		-
7.	DC FAN	5%	Schedule B (II)	96	0%		-
E	ASSAM						
1	Solar Lantern	6%	Second schedule (A)	130	4%	Rate of Taxes Under The Assam Entry Tax Act, 2008	68
2	Solar Panel	6%	Schedule second	24	4%		68
3	Batteries	14.5%	Schedule V	1	4%		63
4	LED Bulb	6%	Schedule second	135	4%		63
5	Radio	14.5%	Schedule V	1	4%		4
6	DC TV	6%	Second schedule (A)	130	4%		68
7	DC FAN	6%	Second schedule (A)	130	4%		68
F	Arunachal Pradesh						
1	Solar Lantern	4%	Schedule 3	59	NO ENTRY TAX in the State of Arunachal Pradesh		
2	Solar Panel	4%	Schedule 3	59			
3	Batteries	12.50%	-	-			
4	LED Bulb	12.50%	-	-			
5	Radio	12.50%	-	-			
6	DC TV	4%	Schedule 3	59			
7	DC FAN	4%	Schedule 3	59			
G	Sikkim						
1	Solar Lantern	4.5%	Schedule III (12c)	61	NO ENTRY TAX in the State of Sikkim		
2	Solar Panel	4.5%	Schedule III (12c)	61			
3	Batteries	13.5%	Schedule 5	20			
4	LED Bulb	13.5%	Schedule 5	178			
5	Radio	13.5%	Schedule 5	176			
6	DC TV	4.5%	Schedule III (12c)	61			
7	DC FAN	4.5%	Schedule III (12c)	61			
H	Nagaland						
1	Solar Lantern	5%	Schedule IV	122	0%	Entry tax act, schedule	-
2	Solar Panel	5%	Schedule IV	122	0%		-
3	Batteries	14.5%	Schedule V	21	4%		41
4	LED Bulb	14.5%	-	-	4%		41
5	Radio	14.5%	Schedule V	171	4%		4

#	Name of good/ component	VAT rate ²	Schedule	Serial no.	Entry Tax ³	Schedule	Serial no.
6	DC TV	5%	Schedule IV	122	0%		-
7	DC FAN	5%	Schedule IV	122	0%		-
I	Mizoram						
1	Solar Lantern	5%	Schedule 2, Part C	90	0%	Mizoram Entry Tax Act, 2015	-
2	Solar Panel	5%	Schedule 2, Part C	61	0%		-
3	Batteries	13.5%	Schedule II, Part D	1	4%		22
4	LED Bulb	13.5%	Schedule II, Part D	1	4%		22
5	Radio	13.5%	Schedule II, Part D	1	4%		22
6	DC TV	5%	Schedule 2, Part C	90	0%		-
7	DC FAN	5%	Schedule 2, Part C	90	0%		-
J	Meghalaya						
1	Solar Lantern	5%	Schedule 2	77	NO ENTRY TAX in State of Meghalaya		
2	Solar Panel	5%	Schedule 2	50			
3	Batteries	14.5%	Schedule IV	3			
4	LED Bulb	14.5%	Schedule IV	3			
5	Radio	14.5%	Schedule IV	3			
6	DC TV	5%	Schedule 2	77			
7	DC FAN	5%	Schedule 2	77			
K	Manipur						
1	Solar Lantern	5%	Schedule 1(B)	122	NO ENTRY TAX in State of Manipu		
2	Solar Panel	5%	Schedule 1(B)	122			
3	Batteries	13.5%	Schedule 1-C	18			
4	LED Bulb	13.5%	Schedule 1-C	168			
5	Radio	13.5%	Schedule 1-C	166			
6	DC TV	5%	Schedule 1(B)	122			
7	DC FAN	5%	Schedule 1(B)	122			
L	Tripura						
1	Solar Lantern	5%	Schedule II (A)	83	NO ENTRY TAX in State of Tripura		
2	Solar Panel	5%	Schedule II (A)	83			
3	Batteries	13.5%	Schedule II (B)	21			
4	LED Bulb	13.5%	Schedule II-B	193			
5	Radio	13.5%	Schedule II-B	191			
6	DC TV	5%	Schedule II (A)	83			
7	DC FAN	5%	Schedule II (A)	83			

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About Lighting Asia/India

Lighting Asia/India is an IFC program aimed at increasing access to clean, affordable energy in rural India by promoting modern off-grid lighting products (lanterns and home systems) and solar powered DC appliances. The program supports market development by working with private companies to lower first-mover risk and mobilize private sector investment through market intelligence, quality assurance, business support services and consumer education.

Lighting Asia/India Program is implemented in partnership with Australia, Austria, Canada, Hungary, Iceland, Italy, Luxemburg, Netherlands and Norway.

For more information, visit <http://lightingasia.org/india/>

Lighting Asia/India Program is implemented in partnership with 

About Lighting Global

Lighting Global is the World Bank Group's platform to support sustainable growth of the international off-grid solar market as a means of rapidly increasing energy access to the 1.2 billion people without grid electricity. Through Lighting Global, the International Finance Corporation (IFC) and the World Bank work with the Global Off-Grid Lighting Association (GOGLA), manufacturers, distributors, and other development partners to develop the modern off-grid energy market.

For more information, visit <https://www.lightingglobal.org/>

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