

GOVERNMENT OF INDIA  
MINISTRY OF NEW AND RENEWABLE ENERGY  
**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 450**  
ANSWERED ON 06/02/2024

**PRODUCTION OF SOLAR CELLS AND PANELS**

450. DR. V. SIVADASAN

Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

- (a) whether the country has acquired self-sufficiency in the production of Solar cells and panels;
- (b) the percentage and monetary value of imports of solar products from other countries, the details thereof for the last five years, country-wise; and
- (c) the monetary value of Solar exports from the country for the last five years, countrywise?

**ANSWER**

**THE MINISTER OF NEW & RENEWABLE ENERGY AND POWER**

**(SHRI R.K. SINGH)**

(a) The solar power generation capacity added in the country in Financial Year 2022-23 was around 12.78 GW. As per data in respect of solar module manufacturing capacity enlisted in Approved List of Models and Manufacturers (ALMM) or applied for enlistment in ALMM and independent assessment by Nation Institute of Solar Energy (NISE), the installed capacity of solar PV module manufacturing capacity in the country is around 50 GW. As per industry feedback the installed capacity of solar cell manufacturing in the country is around 6 GW. Thus, the country has achieved self-sufficiency in the production of solar modules/panels but the country is yet to achieve substantial capacity in production of solar cells.

(b) Around 11,171 USD Million of solar cells and modules have been imported in the country in the last five years, which is around 0.4% of total India's merchandise imports during the same period. The details of solar cells and modules imported in the country for last five years, country-wise, as per the website pertaining to Export-Import Data Bank of Department of Commerce, are at **Annexure-I**.

(c) The details of solar cells and modules exported from the country for the last five years, country-wise, as per the website pertaining to Export-Import Data Bank of Department of Commerce, are at **Annexure-II**.

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Annexure referred to in reply of part (b) of the Rajya Sabha Unstarred Question No. 450 for 06.02.2024 regarding 'Production of solar cells and panels'

**Details of solar cells and modules imported in the country for last five years, country-wise**

Country	Value of Import in USD Millions						
	2018-19	2019-20*	2020-21*	2021-22*		2022-23*	
	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414012	HS Code 85414200	HS Code 85414300
	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
Anguilla	0.14						
Australia				0.01	0.22		
Cambodia	0.43	5.97	6.69	1.72		52.72	
Canada	24.04	7.92	0.8	1.32		0.01	
Chad			0.24				
Chile				0.63			
Taiwan	65.58	20.97	11.28	5.48	0.13	1.92	
China PRP	1694.04	1307.03	494.87	1069.88	3075.32	581.45	874.89
France	0.01		0.06				
Germany	20.1	3.73	0.03	0.19	0.21	0.05	0.13
Hong Kong	45.37	31.3	3.22	0.55	229.12	1.17	3.04
Indonesia		0.11	0.01	0.78		1.56	
Italy	0.15	0.27	0.16			0.01	
Japan	0.4	3.41	0.15			0.61	
Kenya						0.01	
Korea RP	10.72	1.72	0.16	0.13		0.03	
Lithuania	0.09						
Luxembourg					0.01		
Malaysia	15.31	3.91	7.46	26.83	31.43	176.05	1.24
Myanmar		0.98	5.78	2.17			
Netherland	0.04						
Philippines	0.01	0.04		0.34		1.21	0.01
Qatar	0.01						
Russia		0.02	0.04				
Saudi Arab			0.01				
Singapore	126.3	31.32	6.69	4.64	22.76	2.18	24.09
Spain		0.18	0.1	0.01	0.13		0.33
Sri Lanka DSR	0.25	1.28					
St. Helena	0.06						
Swaziland					0.08		
Switzerland	0.03		0.01	0.75	3.78		
Thailand	55.05	120.47	18.76	16.26	0.01	261.31	0.01
Tunisia		0.01					
Turkey	0.01					0.07	

Country	Value of Import in USD Millions						
	2018-19	2019-20*	2020-21*	2021-22*		2022-23*	
	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414012	HS Code 85414200	HS Code 85414300
	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
U.A.E.	0.86	0.43					0.13
U.K.	0.56	0.02	0.06				
U.S.A.	8.2	2.57	0.03	0.08		0.03	0.03
Vietnam Soc Rep	91.97	140.63	14.97	6.09		229.91	39.63
Unspecified			0.07				
<b>TOTAL (USD million)</b>	<b>2159.73</b>	<b>1684.29</b>	<b>571.65</b>	<b>1137.86</b>	<b>3363.20</b>	<b>1310.30</b>	<b>943.53</b>
<b>Total Merchandise Import (in USD Million)</b>	<b>514,078</b>	<b>474,709</b>	<b>394,436</b>	<b>613,052</b>		<b>715,969</b>	

*\*Till FY 2020-21, Solar Cells, whether or not assembled in modules were classified under HS Code 85414011.*

*In FY 2021-22, the HS Code 85414011 was retained for Solar PV Cells and new HS Code 85414012 was brought in for Solar PV Modules.*

*Subsequently, from FY 2022-23, the Solar PV Cells and Solar PV Modules (other than those exclusively used with ITA-1 items) are put under HS Codes 85414200 and 85414300 respectively.*

Annexure referred to in reply of part (c) of the Rajya Sabha Unstarred Question No. 450 for 06.02.2024 regarding 'Production of solar cells and panels'

**Details of solar cells and modules exported from the country for the last five years, country-wise**

Value of Export in USD Millions							
Country	2018-19	2019-20*	2020-21*	2021-22*		2022-23*	
	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414012	HS Code 85414200	HS Code 85414300
	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
AFGHANISTAN	0.07	0.14	0.30	1.02	2.57		4.03
ANGOLA	0.02		0.02				
AUSTRALIA	3.08	0.11	0.05	0.09	0.06	0.04	0.18
BAHAMAS				0.01			
BAHARAIN IS			0.03	0.07			
BANGLADESH PR	0.41	0.05	0.28	0.07	0.03	0.11	
BELGIUM	3.49	6.87	0.23	0.03			0.45
BENIN				0.01			0.07
BHUTAN	0.02	0.05	0.06	0.11	0.06	0.01	0.03
BOLIVIA							0.01
BOTSWANA		0.01					
BRAZIL		0.04					
BULGARIA	0.24	0.05					
BURKINA FASO		0.04	0.04				
BURUNDI							0.01
C AFRI REP			0.01				
CAMBODIA			0.11				
CAMEROON		0.01	0.01				
CANADA	0.77	0.36	0.58	0.60	0.57		0.76
CAPE VERDE IS			0.01		0.01		
CHAD	0.01						0.05
CHINA P RP	1.45	1.45	0.01		0.12	0.55	0.05
COMOROS		0.05					
CONGO D. REP.	0.28	0.06	0.31	0.10	0.08	0.08	0.12
CONGO P REP	0.03		0.25				0.01
COSTA RICA		0.02					
COTE D'IVOIRE			0.04	0.01			
CZECH REPUBLIC	0.01						
DENMARK	10.56		0.15	0.29	0.15		0.33
DJIBOUTI	0.06						
ECUADOR		0.03	0.03	0.40			

Value of Export in USD Millions							
Country	2018-19	2019-20*	2020-21*	2021-22*		2022-23*	
	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414012	HS Code 85414200	HS Code 85414300
	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
EGYPT A RP	0.13	0.17	0.23				
ERITREA				0.02	0.09		
ESTONIA	0.30	0.34			0.27		
ETHIOPIA	0.01			0.01			
EQUTL GUINEA							
FINLAND	0.02						
FRANCE	0.44	0.39	0.09	0.07			0.06
GABON	0.02	0.01	0.01	0.01			
GAMBIA	0.02		0.20				
GEORGIA							
GERMANY	1.36	0.14	0.15	0.11	0.01		0.33
GHANA	0.01	0.35	0.31	0.01			
GREECE	0.74	0.59					
GUINEA	0.03	0.03			0.06		0.01
GUYANA	0.02						0.30
HAITI			0.04	0.39			0.08
HONDURAS							
HONG KONG				0.07			
INDONESIA		0.09					
IRAN	0.02			0.03			0.12
IRAQ	0.02	0.17	0.31				
IRELAND	0.31	0.09			0.02		
ISRAEL	0.10	0.01					
ITALY	0.51	0.11	0.08	0.11	0.01	0.01	0.05
JAPAN	1.19	0.01			0.06		0.12
KAZAKHSTAN							
KENYA	0.62	0.21	0.34	0.05	0.45		0.65
KOREA RP	0.08	0.46					
KUWAIT	0.03	0.03		0.02			
LEBANON			0.01	0.14	0.03		
LIBERIA	0.01		0.01				
LIBYA							0.01
LITHUANIA	0.01						
MADAGASCAR	0.05	0.14		0.02	0.03		
MALAWI	0.03	0.03	0.02	0.01	0.01	0.01	0.07
MALAYSIA		0.09	0.01			0.14	
MALDIVES							0.34
MALI	0.11	0.12	0.13	0.09	0.03		
MAURITIUS					0.02		3.34
MAURITANIA	0.08						0.05

Value of Export in USD Millions							
Country	2018-19	2019-20*	2020-21*	2021-22*		2022-23*	
	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414011	HS Code 85414012	HS Code 85414200	HS Code 85414300
	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
MEXICO		0.05	0.02				
MOROCCO	0.18		0.05	0.30			
MOZAMBIQUE	0.03	0.05					0.02
MYANMAR	0.06	0.19					
NAMIBIA			0.02				
NEPAL	1.23	4.05	0.62	0.63	0.25		0.83
NETHERLAND	1.29		0.03			0.01	
NIGER			1.04				
NIGERIA	1.33	0.71	0.40	2.18	0.12		0.57
NORWAY	0.04		0.08		0.02		
OMAN	1.17	1.45	0.48	0.66	0.45		0.26
PAKISTAN IR	0.06	0.24		0.05			1.58
PAPUA N GNA							
PHILIPPINES	0.03	0.03	0.03	0.03	0.35		0.43
POLAND	1.90						
PORTUGAL	0.08	0.16			0.05		
PUERTO RICO							
QATAR	0.19						0.01
REUNION	0.07			0.03			0.17
RUSSIA			0.01				
SAUDI ARAB	0.32	0.05	0.23		0.24		0.03
SENEGAL	0.02	0.01	0.30	0.10	0.04		0.11
SEYCHELLES	0.78	0.14		0.01			
SIERRA LEONE	0.01		0.03	0.01			0.01
SINGAPORE		0.08					0.02
SLOVENIA	0.11	0.16					
SOMALIA		1.30		0.19	7.77		
SOUTH AFRICA	4.29	5.51	1.93	0.44	4.55		5.15
SOUTH SUDAN		0.01	0.01				
SPAIN	1.07	0.83	0.17	0.01	0.06		0.14
SRI LANKA DSR	0.17	0.09	0.18	0.26	0.09		0.19
SUDAN	0.02		0.03	0.07	0.04		
SWEDEN	0.01	0.07					
SWITZERLAND	0.01						
SYRIA			0.04				
TANZANIA REP	0.21	0.01	0.14	0.03	0.02		0.04
THAILAND				0.01		0.11	
TIMOR LESTE							0.03
TOGO	0.01	0.02					

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	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells & Modules	Solar PV Cells	Solar PV Modules	Solar PV Cells	Solar PV Modules
TUNISIA		0.01					
TURKEY	0.15	9.65	0.27		1.59		3.80
U ARAB EMTS	3.54	1.63	1.12	0.40	1.97		5.67
U K	0.09	0.01	0.40	0.05	0.11		0.19
U S A	52.91	172.37	63.30	19.07	60.75	0.02	1000.30
UGANDA	1.17	0.28	0.40	0.28	0.12		0.14
VIETNAM SOC REP	21.18	0.02	0.31			0.01	
YEMEN REPUBLIC	0.28		0.07	0.05	0.09		
ZAMBIA	0.08	0.31	0.54	0.09	0.08		0.03
ZIMBABWE	0.22	0.24	0.05	0.06			0.01
<b>TOTAL (USD million)</b>	<b>121.08</b>	<b>212.65</b>	<b>76.76</b>	<b>28.98</b>	<b>83.50</b>	<b>1.10</b>	<b>1031.36</b>

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*Subsequently, from FY 2022-23, the Solar PV Cells and Solar PV Modules (other than those exclusively used with ITA-1 items) are put under HS Codes 85414200 and 85414300 respectively.*