GLOBAL SOLAR ATLAS
BY WORLD BANK GROUP

Uttarakhand

29.861805°, 078.364144°
Uttarakhand, India
Time zone: UTC+05:30, Asia/Kolkata [IST]

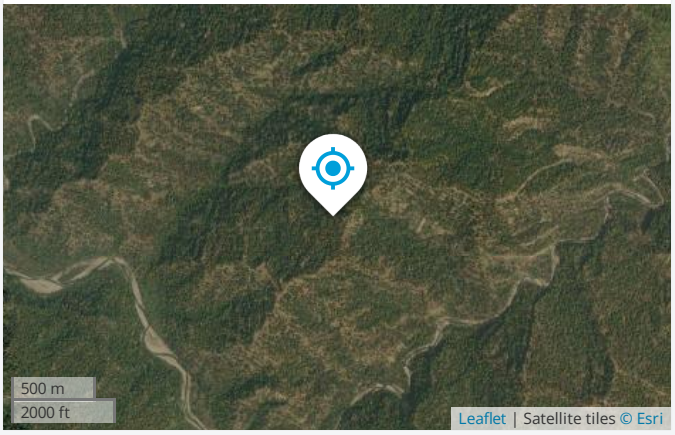
Report generated: 30 Aug 2024

SITE INFO

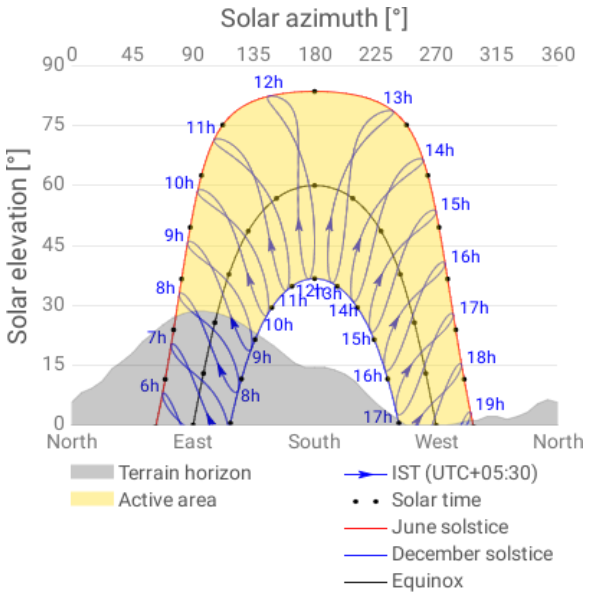
Map data — Per year

Specific photovoltaic power output	PVOUT specific	**1536.6**	kWh/kWp
Direct normal irradiation	DNI	**1379.0**	kWh/m²
Global horizontal irradiation	GHI	**1756.5**	kWh/m²
Diffuse horizontal irradiation	DIF	**846.6**	kWh/m²
Global tilted irradiation at optimum angle	GTI opta	**1935.1**	kWh/m²
Optimum tilt of PV modules	OPTA	**29 / 180**	°
Air temperature	TEMP	**21.6**	°C
Terrain elevation	ELE	**704**	m

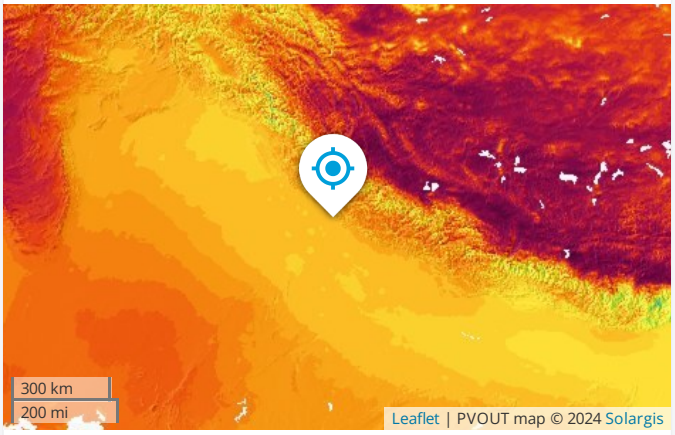
Map



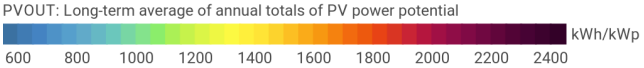
Horizon and sunpath



PVOUT map



PVOUT: Long-term average of annual totals of PV power potential



PV ELECTRICITY AND SOLAR RADIATION

Annual averages

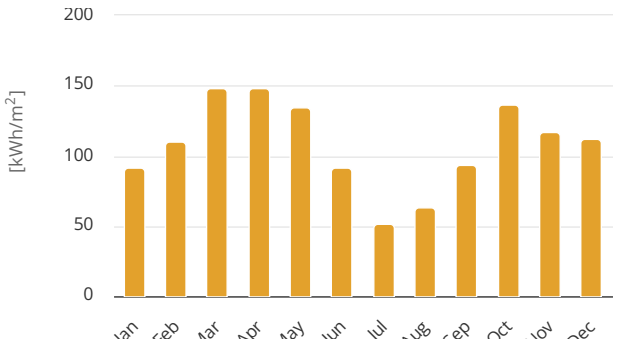
Direct normal irradiation

1297.9

kWh/m^2 per year

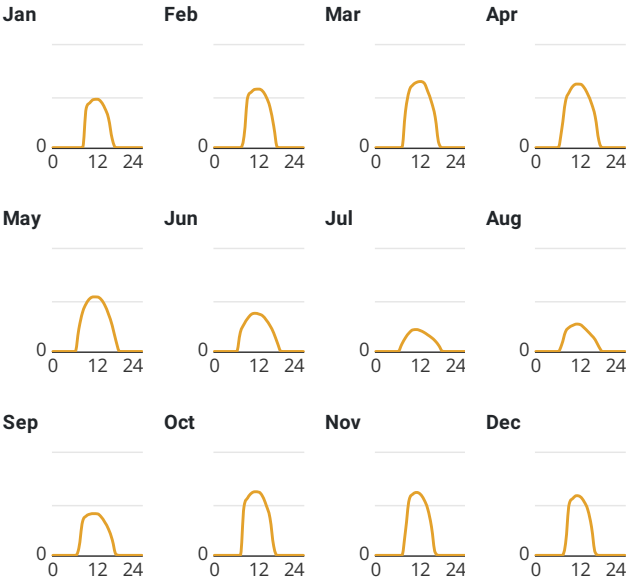
Monthly averages

Direct normal irradiation



Average hourly profiles

Direct normal irradiation [Wh/m^2]



UTC+05:30

Average hourly profiles

Direct normal irradiation [Wh/m^2]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 - 1												
1 - 2												
2 - 3												
3 - 4												
4 - 5												
5 - 6												
6 - 7												
7 - 8				183	221	186	71	70	70			
8 - 9		110	355	453	383	266	135	193	330	477	238	113
9 - 10	387	493	554	543	469	324	183	236	385	563	544	503
10 - 11	439	544	613	601	518	363	211	256	403	607	599	557
11 - 12	470	570	638	621	534	373	214	268	408	622	615	583
12 - 13	473	572	646	620	532	366	204	262	406	618	598	572
13 - 14	448	552	631	587	509	349	187	232	377	576	544	525
14 - 15	385	493	549	521	452	307	162	196	324	487	453	445
15 - 16	286	394	446	431	364	253	136	158	255	364	281	278
16 - 17	84	211	300	302	253	181	103	115	152	90	28	28
17 - 18		4	41	67	104	83	57	46	11			
18 - 19					1	1	2					
19 - 20												
20 - 21												
21 - 22												
22 - 23												
23 - 24												
Sum	2,971	3,944	4,774	4,928	4,339	3,053	1,666	2,032	3,120	4,403	3,898	3,606

GLOSSARY

Acronym	Full name	Unit	Type of use
DIF	Diffuse horizontal irradiation	kWh/m², MJ/m²	Average yearly, monthly or daily sum of diffuse horizontal irradiation (© 2024 Solargis)
DNI	Direct normal irradiation	kWh/m², MJ/m²	Average yearly, monthly or daily sum of direct normal irradiation (© 2024 Solargis)
ELE	Terrain elevation	m, ft	Elevation of terrain surface above/below sea level, processed and integrated from SRTM-3 data and related data products (SRTM v4.1 © 2004 - 2024, CGIAR-CSI)
GHI	Global horizontal irradiation	kWh/m², MJ/m²	Average annual, monthly or daily sum of global horizontal irradiation (© 2024 Solargis)
GTI	Global tilted irradiation	kWh/m², MJ/m²	Average annual, monthly or daily sum of global tilted irradiation (© 2024 Solargis)
GTI_opta	Global tilted irradiation at optimum angle	kWh/m², MJ/m²	Average annual, monthly or daily sum of global tilted irradiation for PV modules fix-mounted at optimum angle (© 2024 Solargis)
OPTA	Optimum tilt of PV modules	°	Optimum tilt of fix-mounted PV modules facing towards Equator set for maximizing GTI input (© 2024 Solargis)
PVOUT_total	Total photovoltaic power output	kWh, MWh, GWh	Yearly and monthly average values of photovoltaic electricity (AC) delivered by the total installed capacity of a PV system (© 2024 Solargis)
PVOUT_specific	Specific photovoltaic power output	kWh/kWp	Yearly and monthly average values of photovoltaic electricity (AC) delivered by a PV system and normalized to 1 kWp of installed capacity (© 2024 Solargis)
TEMP	Air temperature	°C, °F	Average yearly, monthly and daily air temperature at 2 m above ground. Calculated from outputs of ERA5 model (© 2024 ECMWF, post-processed by Solargis)

ABOUT

This pdf report (the “Work”) is automatically generated from the Global Solar Atlas online app (https://globalsolaratlas.info/), prepared by Solargis under contract to The World Bank, based on a solar resource database that Solargis owns and maintains. It provides the estimated solar resource, air temperature data and potential solar power output for the selected location and input parameters of a photovoltaic (PV) power system.

Sources: Solar database and PV software © 2024 Solargis