

Extract from our Quarterly Update Report

The third quarter of 2017 has seen momentous achievements by the CSP industry. Not only has CSP's leveled cost of electricity fallen to a record-low \$73/ MWh in Dubai and \$78/MWh in South Australia, but governments are also showing unprecedented confidence in the technology.

While Australia is providing a concessional loan for its first utility-scale CSP plant, Dubai's state utility has awarded more than triple the capacity originally set in its CSP tender. In China, two large-scale CSP parks have been separately proposed by Shouhang IHW Resources Saving Technology Co. and Northwest Electric Power Design Institute Co. for Tulufan, eastern Xinjiang and Xinjiang Uyghur Autonomous Region respectively.

These remarkable developments could pave the way for stalled projects elsewhere in the world, such as Atacama 1 in Chile, and may even change Eskom's perspective on the technology. Figure 1 shows that the world has no shortage of solar resources (DNI) and as CSP becomes increasingly cost effective we will see more of earth's solar resource utilised than ever before. Almost all of the countries with significant solar resources have announced renewable energy generation targets, as table 1 shows these targets represent thousands of megawatts of new capacity over the coming years.

As the industry approaches SunShot's cost target of \$60/MWh by 2020, the U. S. Department of Energy is accelerating advancements with \$62 million in new CSP funding aimed at de-risking various aspects of CSP technologies. Global installed CSP capacity has now reached 5,040 MW after the completion of Xina Solar One in South Africa last August. Figure 2 shows that there are 23,000MW of CSP projects in the announced, planning, development and construction phases already. In the next six months,

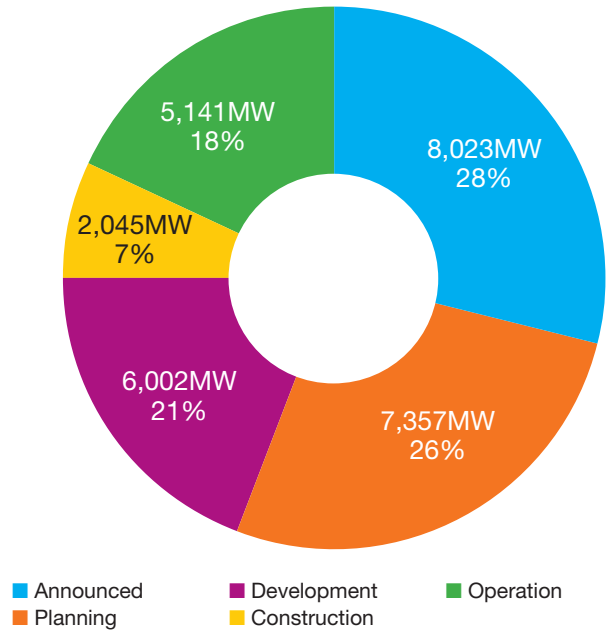
National Solar Resources

Country	Solar Resources (DNI)	Capacity Announced (MW)	Capacity Under Construction (MW)
Algeria	2,500	510	
Argentina	1,468		
Australia	2,400	20	2
Brazil	1,900	50	
Chile	3,300	1445	220
China	2,000	4512	575
Egypt	2,300		
France	1,504		21
Germany	1,000		
Greece	1,519		
India	2,100	50	25
Israel	2,500		231
Italy	1,500		
Jordan	2,500		1
Kenya	1,229		
Kuwait	1,848		50
Mexico	1,135		12
Morocco	2,500		351
Namibia	2,190		
Oman	2,000		
Portugal	1,717		
Qatar	2,266		
Saudi Arabia	2,400		93
South Africa	2,800		300
Spain	2,100		
Thailand	1,005		
Tunisia	2,100		
Turkey	1,980		
United Arab Emirates (UAE)	2,000		
USA	2,700		

National Renewable Energy Targets

Country	Targets
Algeria	2 GW of CSP by 2030
Argentina	3.3 GW of solar power by 2020
Australia	33 GW of renewable energy by 2020
Brazil	16% from renewables by 2020 (excluding hydro)
Chile	70% from renewables by 2050
China	1.8 GW of CSP by 2018; 10 GW of CSP by 2020
Egypt	20% from renewables by 2020
France	23% from renewables by 2020
Germany	35% from renewables by 2020
Greece	18% from renewables by 2020
India	20 GW of solar power by 2022
Israel	10% from renewables by 2020
Italy	600 MW of CSP by 2020
Jordan	10% from renewables by 2020
Kenya	7.3 GW of renewables by 2033
Kuwait	10% from renewables by 2020; 15% by 2030
Mexico	5% from renewables by 2018
Morocco	2 GW of solar energy by 2020
Namibia	
Oman	15% from renewables by 2030
Portugal	20% from renewables by 2020
Qatar	20% from renewables by 2030
Saudi Arabia	9.5 GW of renewable energy capacity by 2030
South Africa	1200 MW of CSP by 2030; 17.8 GW (42%) from renewables by 2030
Spain	
Thailand	25% from renewables by 2021
Tunisia	16 GW (30%) from renewables by 2030
Turkey	5 GW of solar PV by 2023
United Arab Emirates (UAE)	7% of electricity from renewables by 2020 (Abu Dhabi); 25% from solar energy by 2030 (Dubai)
USA	

CSP Projects by status (MW) Q3 2017



Source: *CSP Today Global Tracker*, September 2017

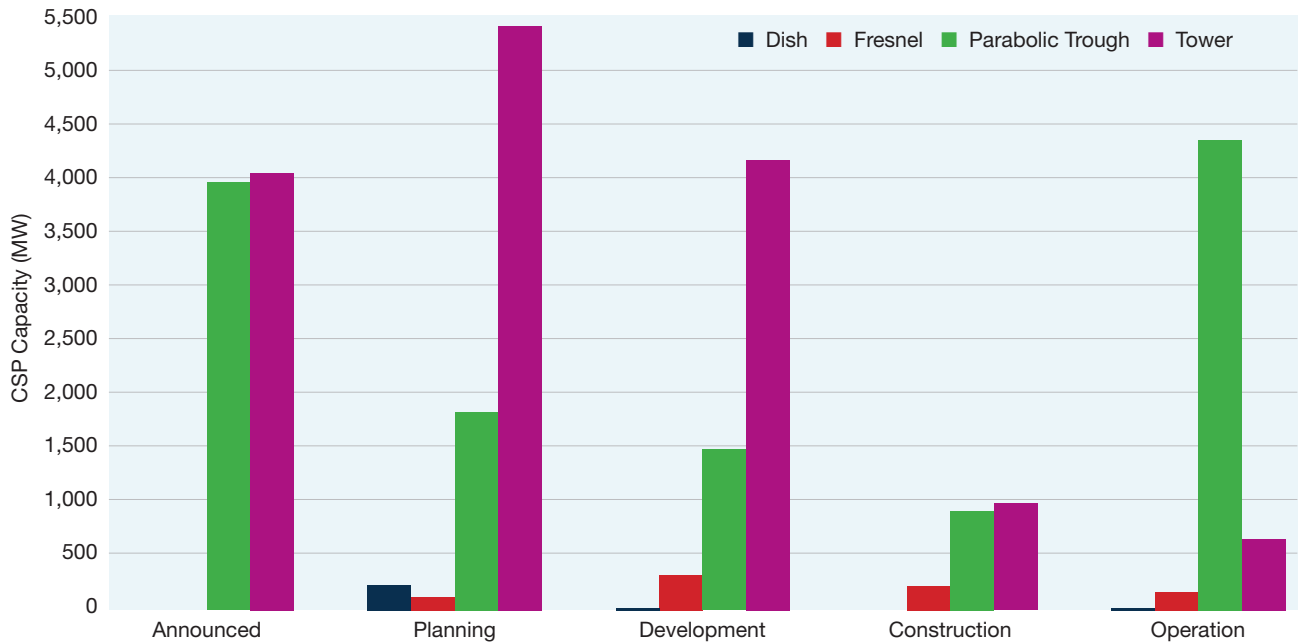
we should see projects such as Noor II and Noor III in Morocco, Ashalim Plot B in Israel, and Qinghai Delingha - China’s first commercial CSP plant – all enter operation.

While the majority of plants in operation are parabolic trough, the future is bright for tower projects which as figure 3 shows make up the majority of projects in planning and development. Of the 8,000MW of announced projects the technology split is even between parabolic trough and tower technologies.

There also remain 1,000MW of CSP projects in the planning phase and 570MW announced which have yet to confirm which technology they will be using. These projects confirm the future for CSP as the technology continues to mature and costs continue to fall.



Global Technology break-down according to project status Q3 2017



	Announced	Planning	Development	Construction	Commissioning	Operation	TOTAL
Dish	0	200	10	0	0	1.22	211.22
Fresnel	0	131.29	315	211	1	170.1	828.39
Parabolic Trough	3,982.50	1774	1,468.80	893	50	4,318.46	12,486.76
Tower	4,040.40	5,252	4,208	941	0	650.9	15,092.30
TOTAL	8022.9	7357.29	6001.8	2045	51	5140.68	28,618.67

Projects with technology to-be-confirmed

Title	Country	Capacity (MWe)	Current Status
1 GW Solar Corridor (Phase I)	South Africa		Announced
Arandis CSP Plant	Namibia	150	Planning
Datong CSP Project	China	100	Announced
Fotoelectricidad El Loa	Chile	300	Announced
Gujarat State Electricity Corporation (GSECL) CSP Project	India	50	Announced
Gwanda CSP Project	Zimbabwe	120	Planning
Karoshhoek 1 GW Solar Park	South Africa		Planning
KenGen CSP Project	Kenya	20	Announced
KOC Solar EOR Project	Kuwait	60 (MWth)	Planning
Lebanon CSP Project	Lebanon	50	Announced
NamPower/ MME Pilot Project	Namibia	50	Planning
Noor Midelt	Morocco	400	Planning
Qinghai Golmud (Abengoa)	China	50	Announced
Taiba ISCC	Saudi Arabia	180	Planning
West Nile CSP Project	Egypt	50	Announced

New Energy Update’s **CSP Quarterly Update** is produced using selected data from the **CSP Tracker**, a comprehensive database with details on every single CSP project worldwide. The **CSP Quarterly Update** features detailed project pipelines for the CSP market as well as updates on all the market and project developments from the quarter. **For more information on the CSP Tracker please contact:**

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