



Utility Scale Solar Projects in the USA

Evolving Alternative Energy to Mainstream Energy



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Solar Success in the USA (1 of 2)

Companies and countries have experienced ups and downs in the worldwide clean energy race. **For consumers, however, the clean energy race has been consistently positive**, driving down prices and interjecting new renewable energy choices into a marketplace dominated by century-old technologies.

2012 was Another Banner Year for Solar Power.

- Solar is the fastest growing energy source in the U.S.
- 2012 had installations of more than 3.3 GW of solar, a capacity increase of 76 % over 2011
- 2012 had a value of \$11.5 billion, an economic value increase of 34% over 2011

Source: U.S. Solar Energy Industries Association along with GTM Research



Solar Success in the USA (1 of 2)

Total U.S. PV Installed Capacity Approaching 10 GW

- The United States accounted for 11 percent of the growth in the global solar installed capacity in 2012
- In total, the installed PV capacity in the U.S. now stands at 7.2 GW, by the end of 2013, the industry expects that it will top 10 GW
- PV grew in each of its three sectors:
 - Residential, to 488MW
a growth rate of 62%
 - Commercial , to 1.04 GW
a growth rate of 26%
 - Utility “large scale”, to 1.78 GW
a growth rate of 134%





Solar Success in the USA (1 of 2)

Utility-scale: 8 of the 10 largest PV installations in the USA were completed in 2012

Top 10 USA Solar Projects Under Construction, all in the Southwest

- **Agua Caliente Solar Project, 290MW** Developer: First Solar Location: Yuma County, AZ
- **AV Solar Ranch One, 230MW** Developer: First Solar Location: Antelope Valley, CA
- **Desert Sunlight Solar Farm, 550MW** Developer: First Solar Location: Riverside County, CA
- **California Valley Solar Ranch 250MW** Developer: SunPower Location: Riverside County, CA
- **Topaz Solar Farm 550MW** Developer: First Solar Location: Carrisa Plains, CA
- **Imperial Solar Energy Center South 130MW** Developer: Tenaska Solar Ventures Location: Imperial County, CA
- **Mesquite Solar Ranch One 150MW** Developer: Sempra Generation Location: Arlington, AZ
- **Copper Mountain Solar Two 150MW** Developer: Sempra Generation Location: Boulder City, NV
- **Independence Solar 165MW** Developer: Clean Power Group Location: Independence (Owens Valley), CA
- **Moapa Solar, 250MW** Developer: K-Road Power: Moapa Indian Reservation, NV



There are 48 Operating Utility Solar Plants in the USA

Operational PV Plants in the US



Project Name	City/County	State	Technology	Status	Land Type	Online Date	Capacity (MW)	Developer	Electricity Purchaser
1 Copper Mountain Solar Project	Boulder City	NV	Thin-Film	Operating	Private	2010	55	First Solar/Sempra Generation	Pacific Gas & Electric
2 Albuquerque Solar Energy Center	Albuquerque	NM	Thin-Film	Operating	Private	2011	22	First Solar	PNM
3 Austin Energy PV Project	Webberville	TX	PV	Operating	Private	2012	30	Fotowatio Renewable Ventures	Austin Energy
4 Bagdad Solar Project	Yavapai	AZ	PV	Operating	Private	2011	15	Recurrent Energy	Arizona Public Service
5 Blue Wing Solar Project	San Antonio	TX	PV	Operating	Private	2010	16	Juwi Solar Inc.	CPS Energy
6 BNB Napoleon Solar LLC: Phase 1	Napoleon	OH	PV	Operating	Private	2011	10	BNB Renewable Energy Holdings	Campbell Soup Company
7 BNL Area 1	Brookhaven	NY	PV	Operating	Public	2011	19	BP Solar	Long Island Power Authority
8 BNL Area 2	Brookhaven	NY	PV	Operating	Public	2011	18	BP Solar	Long Island Power Authority



There are 28 Under Construction Utility Solar Plants in the USA

Under Construction PV Plants in the US



Project Name	City/County	State	Technology	Status	Land Type	Online Date	Capacity (MW)	Developer	Electricity Purchaser
1 Agua Caliente	Yuma County	AZ	PV	Under Construction	N/A	2013-2014	290	First Solar	Pacific Gas & Electric
2 Atwell Island	Tulare County	CA	PV	Under Construction	Public	Jun 2012	20	Solar Project Solutions	Pacific Gas & Electric
3 AV Solar Ranch One	Antelope Valley	CA	PV	Under Construction	Private	2013	230	First Solar	Pacific Gas & Electric
4 Blythe Solar Power Project: Phase I	Blythe	CA	PV	Under Construction	Public	N/A	500	Solar Millennium	Southern California Edison
5 Bruceville	Sacramento	CA	PV	Under Construction	Private	2013	19	Recurrent Energy	Sacramento Municipal Utility District
6 California Valley Solar Ranch	San Luis Obispo	CA	PV	Under Construction	Private	2013	250	SunPower	Pacific Gas & Electric



There are 122+ Under Development Utility Solar Plants in the USA

PV Plants Under Development in the US



Project Name	City/County	State	Technology	Status	Land Type	Online Date	Capacity (MW)	Developer	Electricity Purchaser
1 Adobe Solar	Kern County	CA	PV	Under Development	Private	2013	20	SunEdison	Southern California Edison
2 Alpaugh	Tulare County	CA	PV	Under Development	Public	2012	50	Solar Project Solutions	Pacific Gas & Electric
3 Alpaugh North	Tulare County	CA	PV	Under Development	Public	Nov 2012	20	Solar Project Solutions	Pacific Gas & Electric

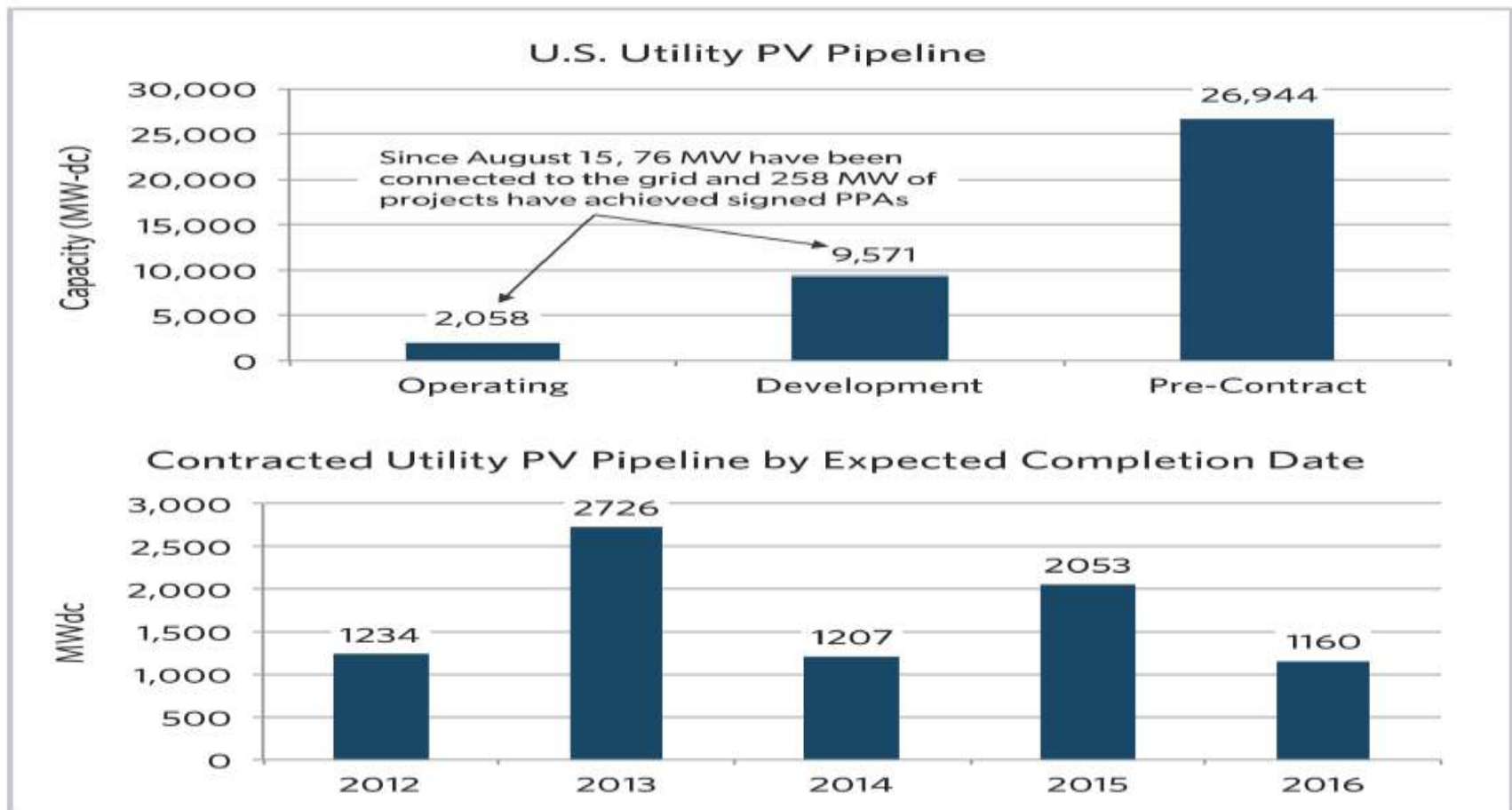


Utility Scale Solar Pipeline in the USA

PV DATA

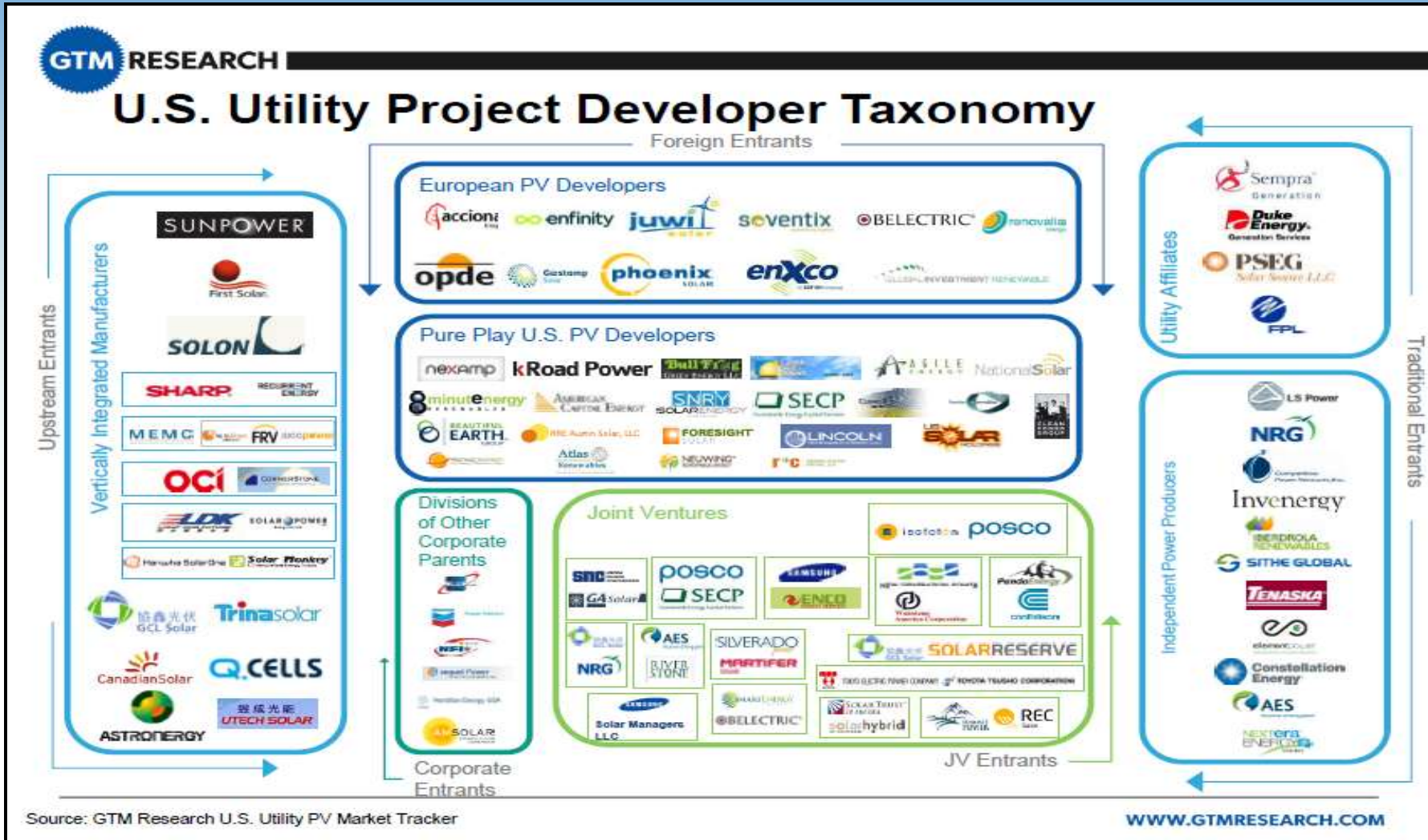
UTILITY-SCALE PROJECT PIPELINE (As of September 15, 2012)

U.S. Utility PV Pipeline (Top), Contracted Expected Completion Date (Bottom)



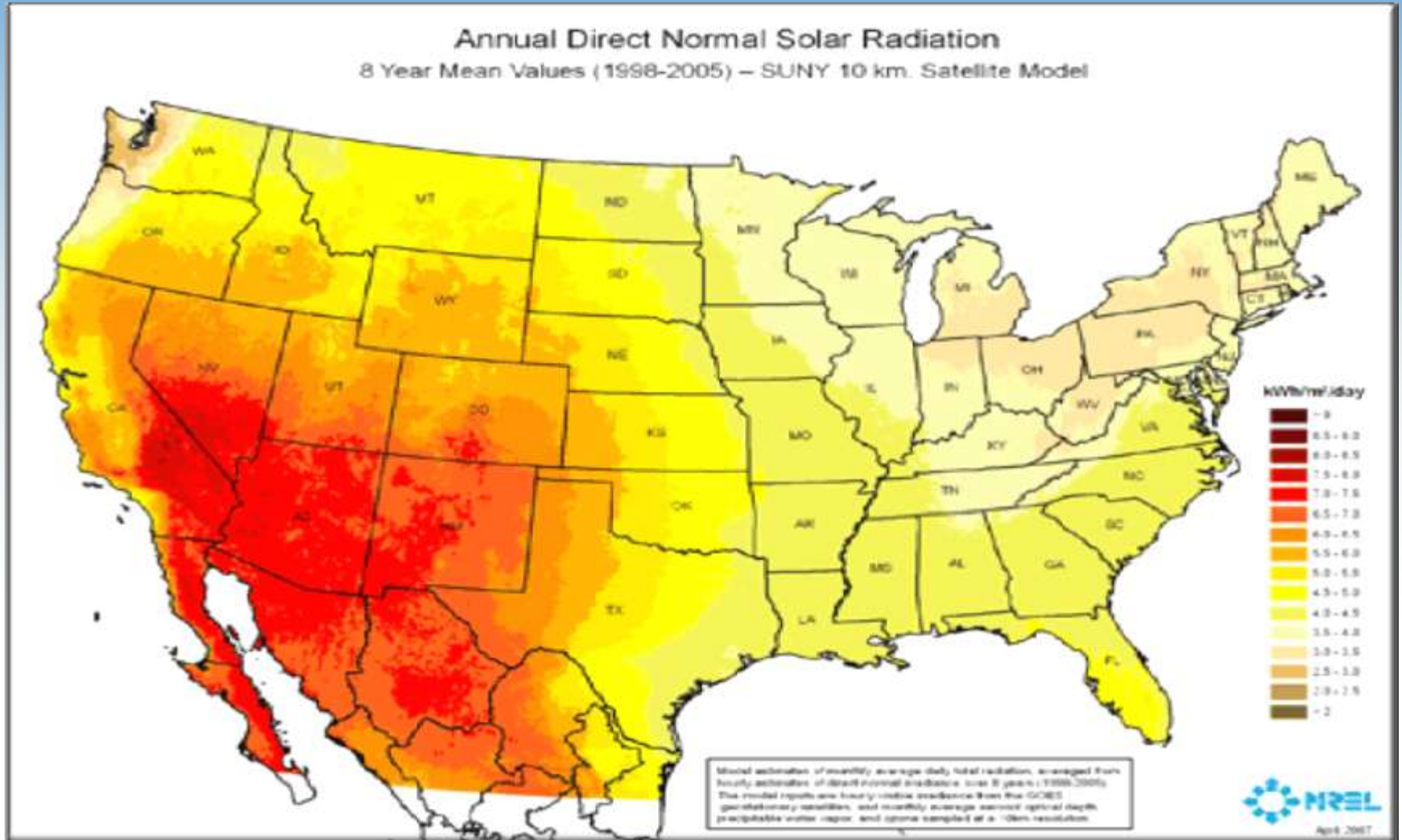


US Utility Solar Project Development Landscape





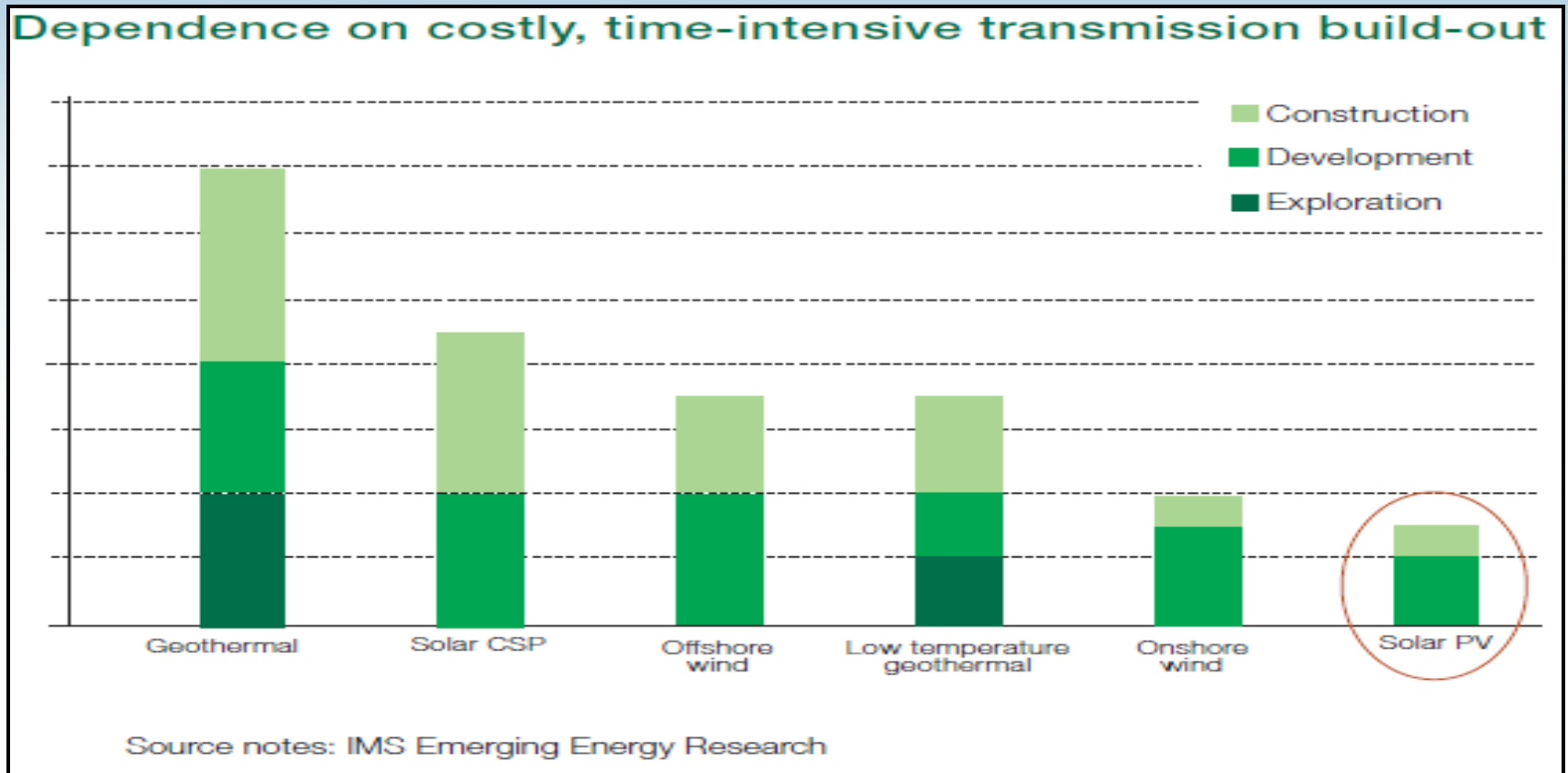
America's Solar Resource





Solar is Faster to Market

The rapid deployment makes solar an attractive solution for states and utilities scrambling to meet their renewable portfolio standards, and keep up with increasing energy demand. This provides opportunity for investors and developers





Solar – 6 Stages of Bankability

The decisions a solar developer makes during project planning, construction and operations will have a significant impact on a project's risk and bankability.



The 6 Stages to Banakbility

- Site and Project Assessment
- Design and Optimization
- Engineering and Procurement
- Construction and Commissioning
- Asset Management (Operations & Maintenance)
- Customer Enablement



Applying Best-of-Breed PV Solutions

- Crystalline (mono or poly) silicon-based PV systems are currently the most proven and bankable solar solution.
- Thin film PV modules are ideal for large solar farms where land is not at a premium or in diffused light conditions.
- Concentrating PV may provide lowest LCOE in the high DNI locations and generate higher revenues in the TOD markets.





Clean Power Group

Leads an Affiliation of Utility Solar Businesses



Clean Power Group (“CPG”) is an Independent Power Producer whose mission is to develop, own and manage utility-scale PV solar energy facilities.

CPG develops meaningful 5 - 50+MWp power projects across the US America, Mexico and Japan with the flexibility to apply best-of-breed solar energy solutions to specific locations and requirements. CPG contributes the essential development expertise with regional market knowledge to apply the best solar technologies and EPC management with optimal project financing and asset management (operations and maintenance) for each location.

For more information please see www.CleanPowerGroup.com

TAWA Power Projects (“TAWA”) is a Native American renewable energy project company. TAWA is a Disadvantaged Business Enterprise (“DBE”) certified by the California Public Utilities Commission. TAWA execute a standardized and streamlined development process for Native American Renewable Energy projects both on and off Indian Reservations.

For more information please see www.TawaPower.com





Clean Power Group

Leads an Affiliation of Utility Solar Businesses (2 of 2)

Clean Power Group Mexico (“CPGM”) is an Independent Power Producer whose mission is to develop, own and manage utility-scale PV solar energy facilities.

CPGM develops meaningful 5 - 50+MWp power projects in Mexico with the flexibility to apply best-of-breed solar energy solutions to specific locations and requirements. CPGM contributes the essential development expertise with regional market knowledge to apply the best solar technologies and EPC management with optimal project financing and asset management (operations and maintenance) for each location; for more information please see

www.CleanPowerGroup.com



Maharishi Clean Energy Japan (“MCEJ”) is an Independent Power Producer whose mission is to develop, own and manage utility-scale PV solar energy facilities.

MCEJ develops meaningful 5 - 50+MWp power projects in Japan with the flexibility to apply best-of-breed solar energy solutions to specific locations and requirements. MCEJ contributes the essential development expertise with regional market knowledge to apply the best solar technologies and EPC management with optimal project financing and asset management (operations and maintenance) for each location; for more information please see

www.CleanPowerGroup.com



Clean power advisors (“CPA”) provides advisory services to the clean technology and renewable energy industries.

The clean tech revolution is the next big growth and investment opportunity. The commercializing of clean technologies is a profitable enterprise that is moving steadily into mainstream business.

For more information please see www.CleanPowerAdvisors.net





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Thank you for your time and consideration !