

Solar PV Industry

Ahmad C Chatila – CEO

7 November 2013

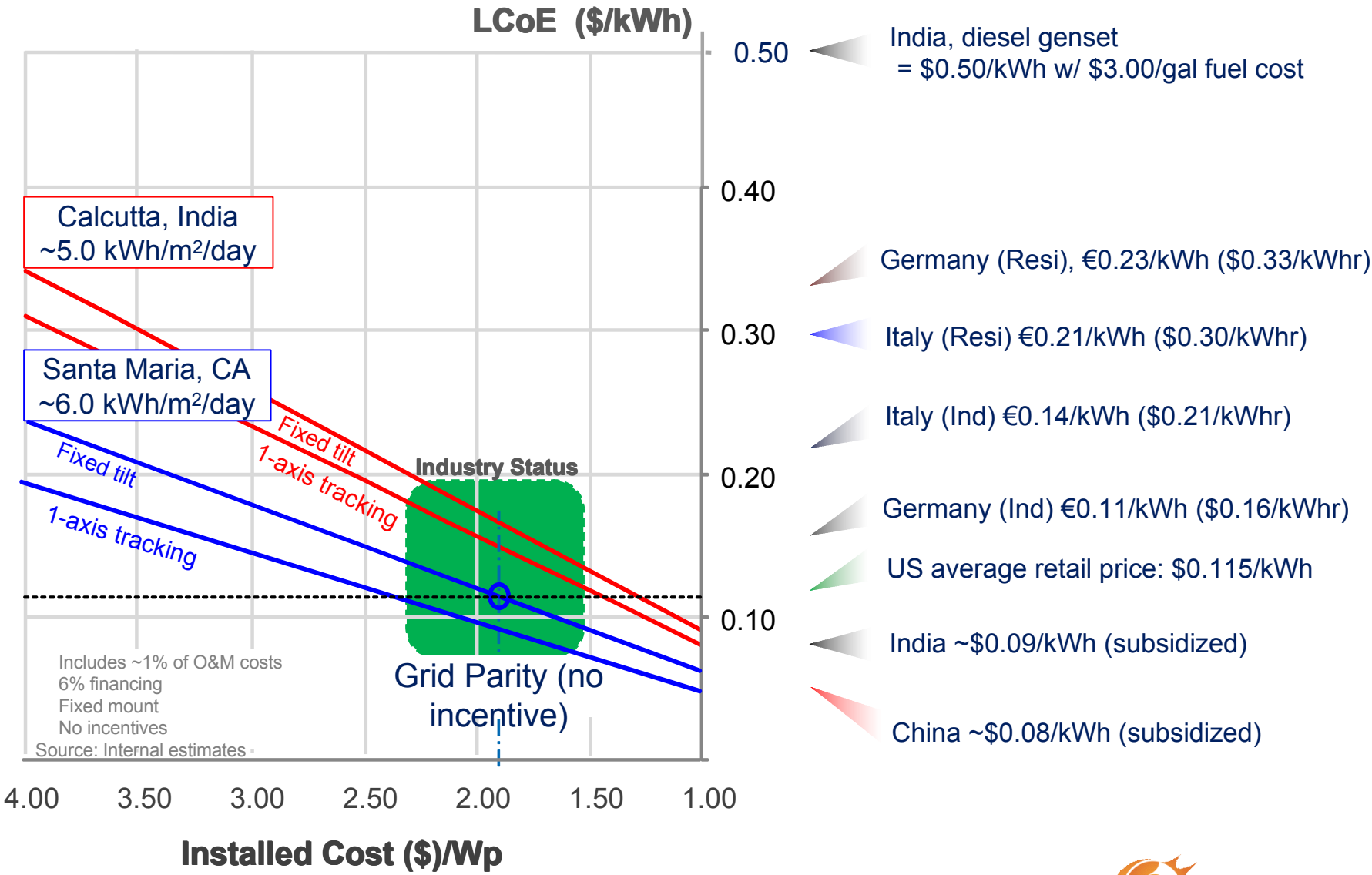


Agenda

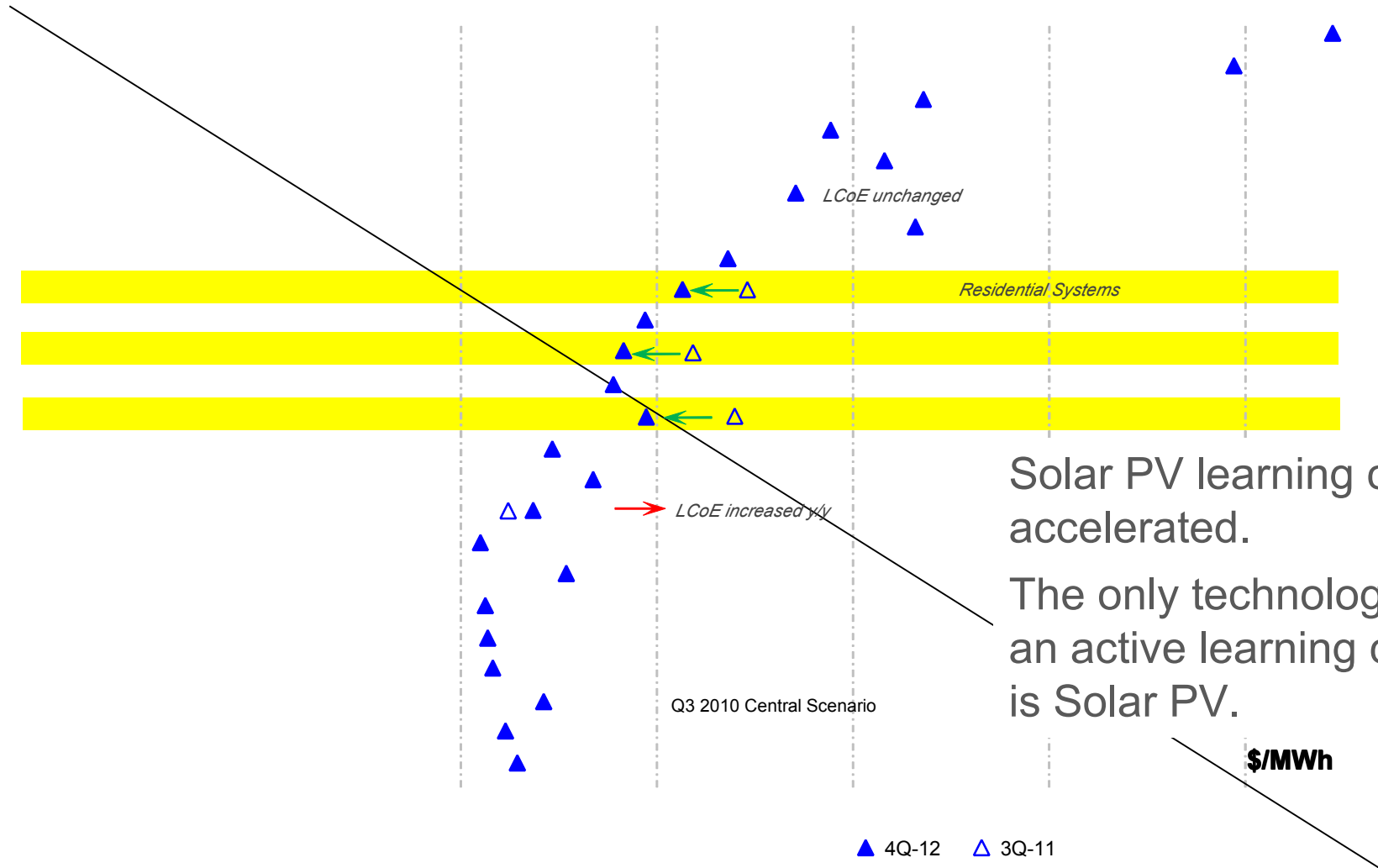
Solar PV Industry

SunEdison

Transition to Incentive-Free Markets



Solar PV Competitiveness Learning Curve



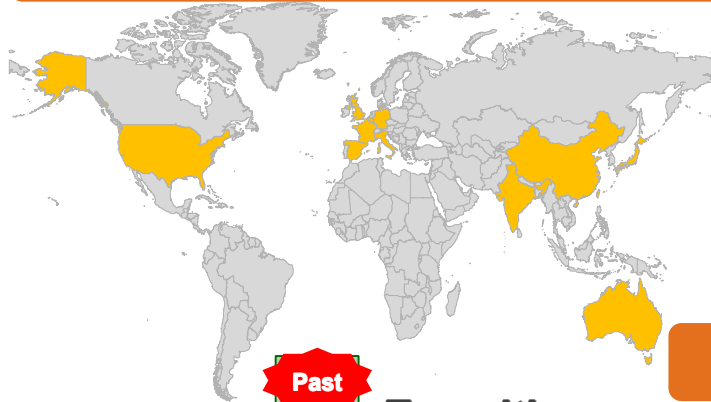
Solar PV learning curve accelerated.
 The only technology with an active learning curve is Solar PV.

Source: Bloomberg New Energy Finance 4Q-12 report



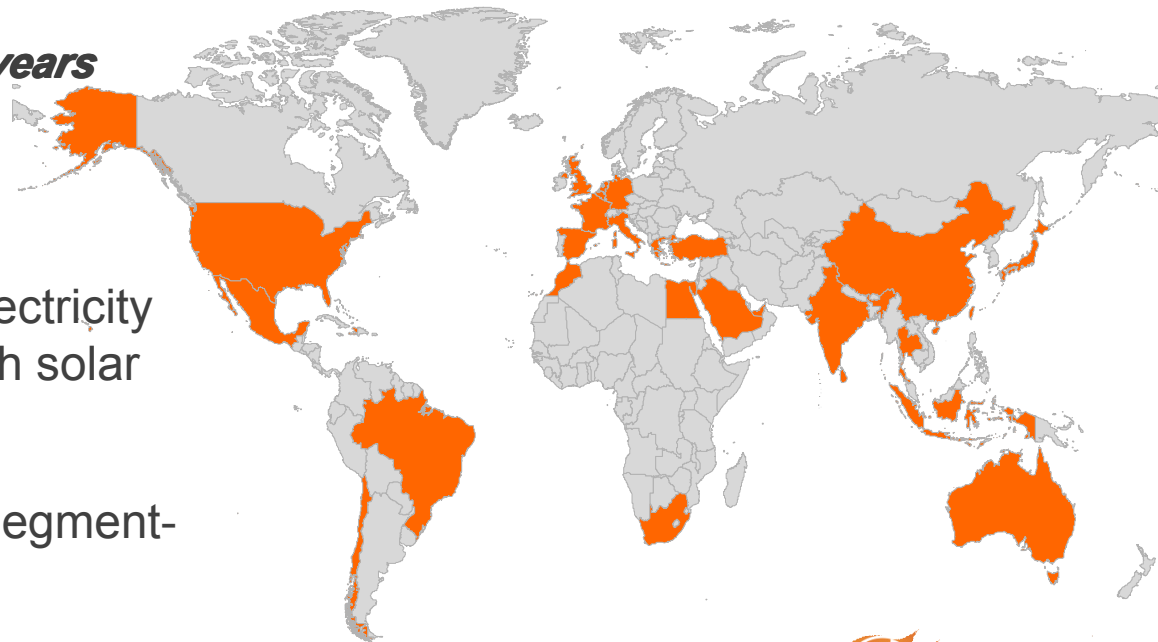
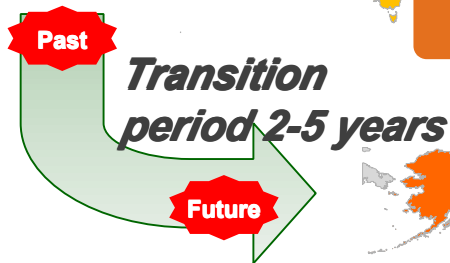
Electricity Markets Will Drive Solar Industry

Historic Subsidy-driven Solar Markets



- Markets enabled via public policy measures
- Over 100 GW of PV installed worldwide

Future Economics-driven Electricity Markets



- Countries with (a) large electricity markets/demand & (b) high solar irradiation
- Countries at 'grid parity' (segment-dependent)

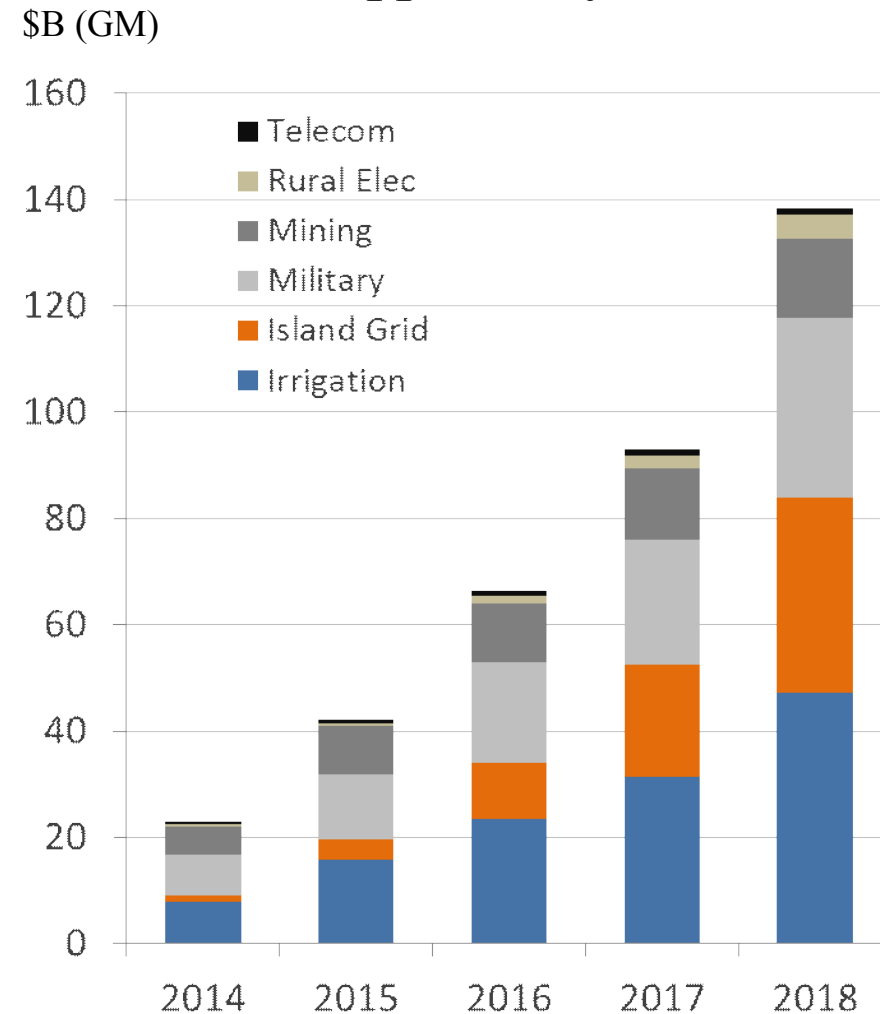
Sources: IHS, EPIA

Emergence of New Markets

Problem

- Fossil fuel is expensive
- T&D is expensive
- Solar is intermittent
- No Grid
- Grid not designed for DG
- No Power
- Some complementary technology not ready

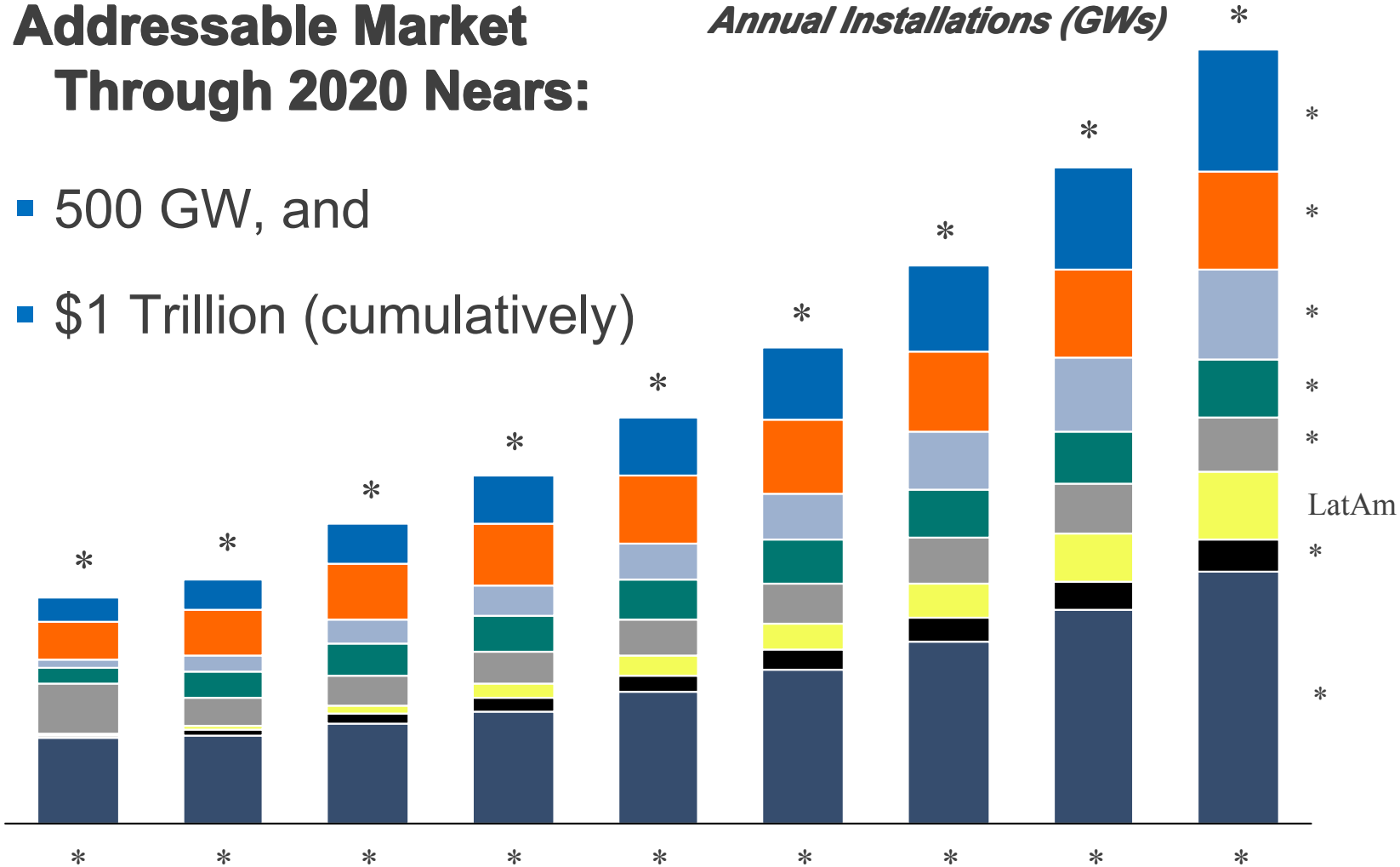
Opportunity



Addressable Solar PV Market is Large

Addressable Market Through 2020 Nears:

- 500 GW, and
- \$1 Trillion (cumulatively)



Source: 2012-2016 installations based on IHS, GTM and SunEdison. 2017-2020 extrapolated from 2015-2016 growth rate

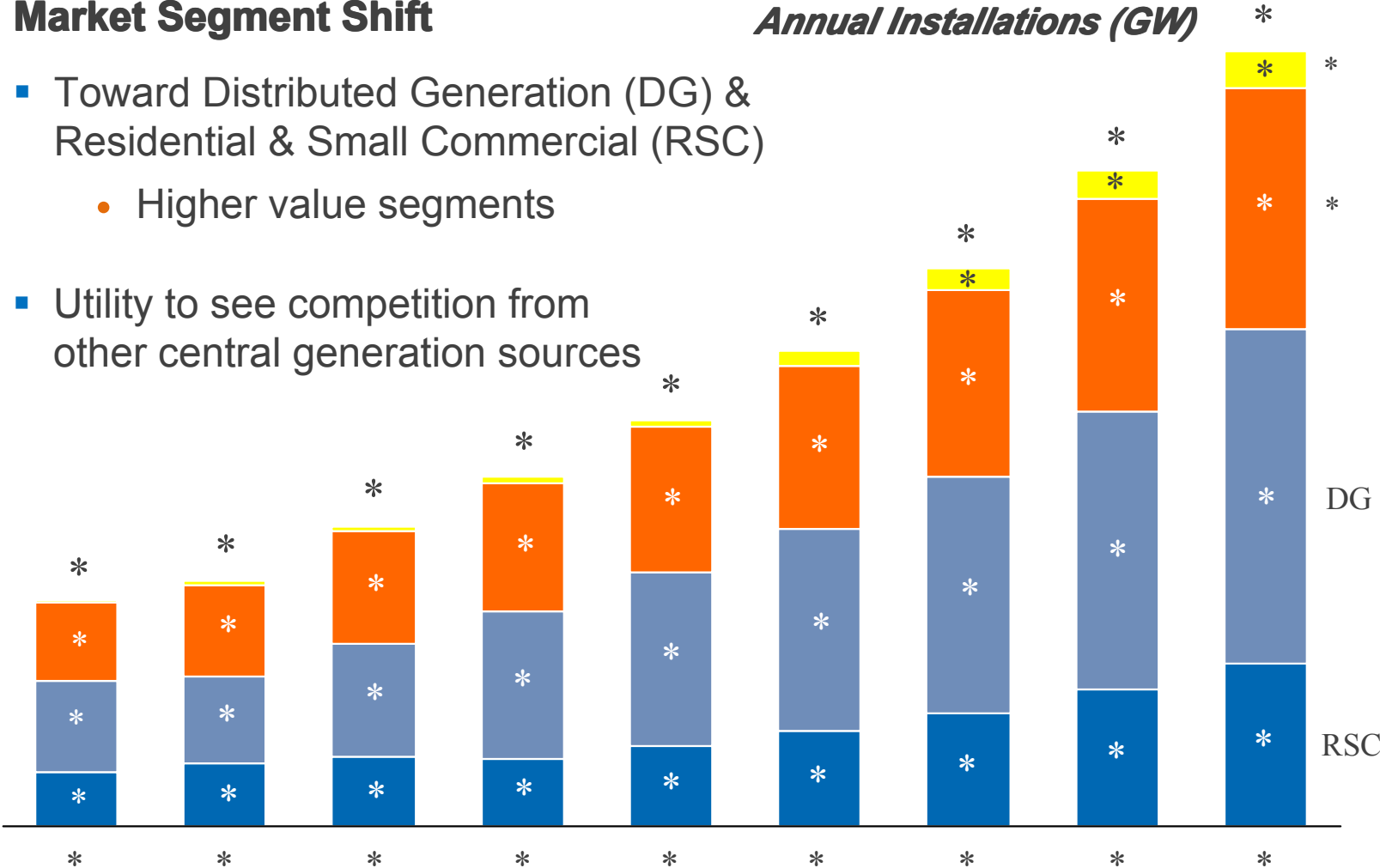


Transition Toward Distributed Generation

Market Segment Shift

- Toward Distributed Generation (DG) & Residential & Small Commercial (RSC)
 - Higher value segments
- Utility to see competition from other central generation sources

Annual Installations (GW)



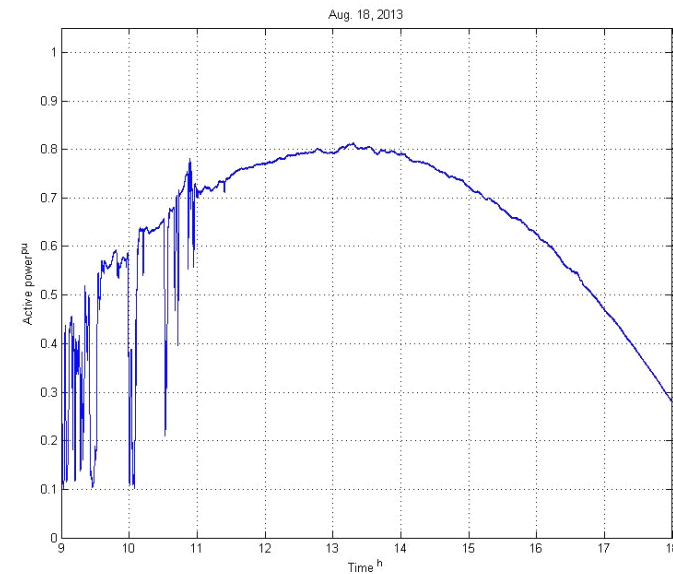
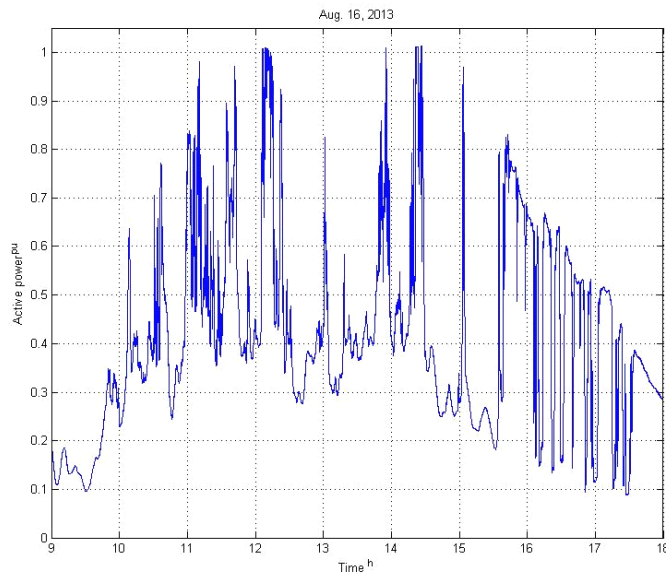
Source: 2012-2016 installations based on IHS, GTM and SunEdison. 2017-2020 extrapolated from 2015-2016 growth rate
 Utility (>10MW), Commercial (10kw-10MW), Residential (<10Kw)



Power Industry Integration

Key Emerging Themes:

- Grid Integration
- Solar PV as an emerging segment of the Global Power Industry

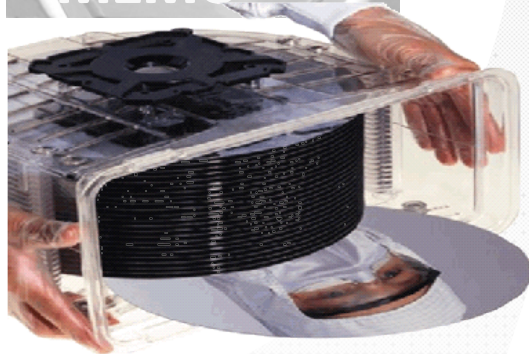
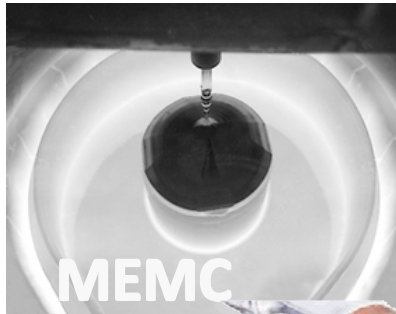


Agenda

Solar PV Industry

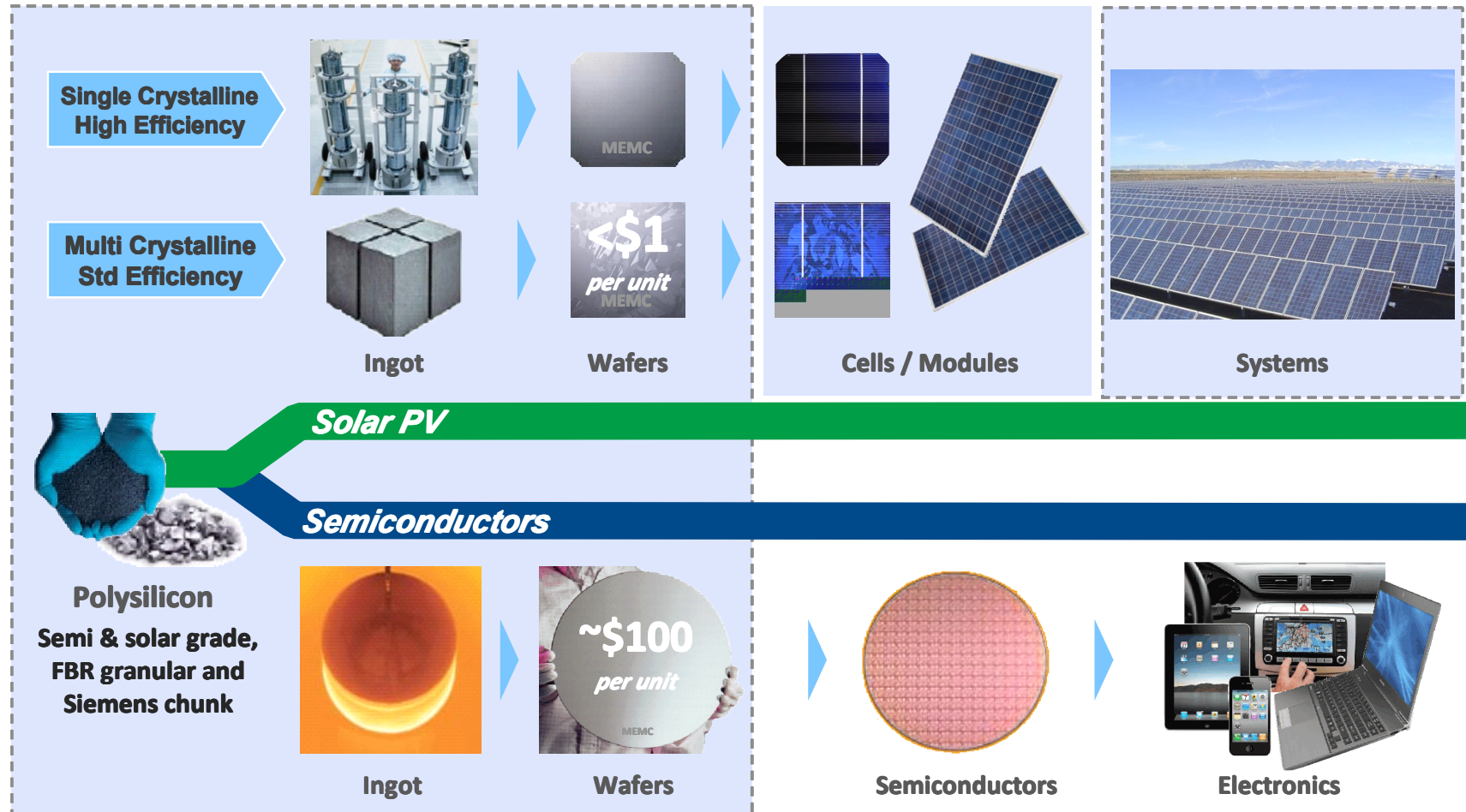
SunEdison

>50 Years as a Technology Leader



- 1959** Monsanto Electronic Materials Company (MEMC) formed
- 1962** Czochralski (CZ) silicon crystal process developed
- 1965** MEMC develops polishing process for silicon wafers
- 1975** First commercial production of 100mm wafers
- 1984** Commercialized 200mm wafers
- 1989** MEMC acquired by E.ON affiliate
- 1991** 300mm wafers developed
- 1995** MEMC IPO on the NYSE
- 2002** Significant 300mm expansion
- 2004** Crossed \$1B revenue mark; acquired Taisil
- 2005** First 300mm production in Taiwan
- 2006** Entered the solar PV wafer market on a large scale
- 2007** MEMC added to S&P 500; began solar wafer deliveries
- 2009** Acquired SunEdison and expanded into solar energy market
- 2010** Acquired Solaicx and Continuous Czochralski (CCZ) technology
- 2011** SunEdison one of the largest global solar PV companies

Business and Served Markets



Global Presence



Manufacturing Facilities ■

- | | |
|------------------------|-----------------------|
| Chonan, South Korea | Pasadena, Texas |
| Hsinchu, Taiwan | Portland, Oregon |
| Ipoh, Malaysia | St. Peters, Missouri |
| Kuala Lumpur, Malaysia | Sherman, Texas |
| Kuching, Malaysia | Utsunomiya, Japan |
| Novara, Italy | Newmarket, ON, Canada |

SunEdison Offices ●

- | | |
|----------------------|------------------------|
| Belmont, California | Madrid, Spain |
| Beltsville, Maryland | Milan, Italy |
| Athens, Greece | Minden, Nevada |
| Bangkok, Thailand | Pennsauken, New Jersey |
| Barcelona, Spain | Portland, Oregon |
| Chennai, India | Prescott, Arizona |
| Denver, Colorado | Recife, Brazil |
| Dubai, U.A.E. | Sacramento, CA |
| Leece, Italy | |

Sales & Support Offices ▲

- | | |
|-----------------|----------------------|
| Hsinchu, Taiwan | Sherman, Texas |
| Novara, Italy | Singapore |
| Paris, France | Seoul, South Korea |
| Shanghai, China | St. Peters, Missouri |
| Santa Clara, CA | Tokyo, Japan |
| | Toronto, Canada |

* Indicated locations are Polysilicon manufacturing facilities



SunEdison Representative Projects



Rovigo, Italy – 70 MW



Karadzhalovo, Bulgaria – 60 MW



Colorado, USA – 8 MW



MASDAR City, U.A.E. – 1 MW



Cádiz, Spain – 2.3 MW

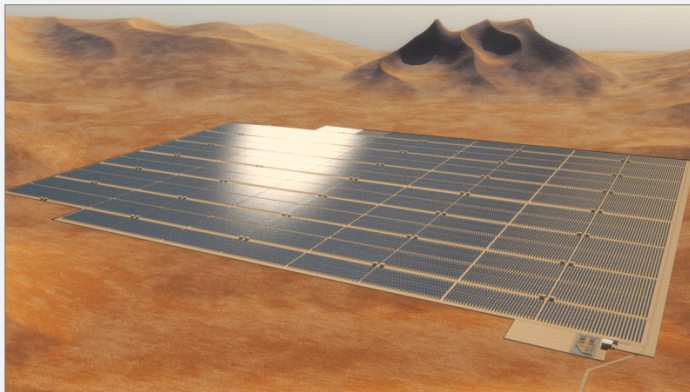


Lazio, Italy – 3 MW

Developing A Profitable IPP Model

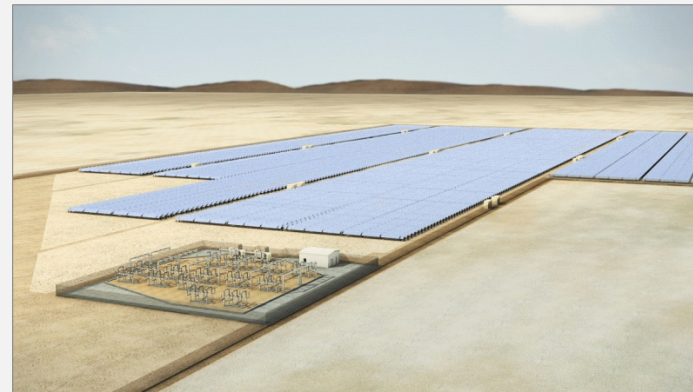
CAP – 100 MW_{DC}

- **Under construction** in Chile
 - Completion expected in Feb 2014*
- **PPA signed** with mining group CAP
- **212.5 M\$ financing recently closed** with OPIC and IFC
 - Also 45 M\$ VAT facility with Rabobank
- **Cash positive +35 M\$** on construction
 - **Future annual cash-flows ≈ 6 M\$/year first 18 years and 26 M\$/year afterwards**



Merchant – 50 MW_{DC}

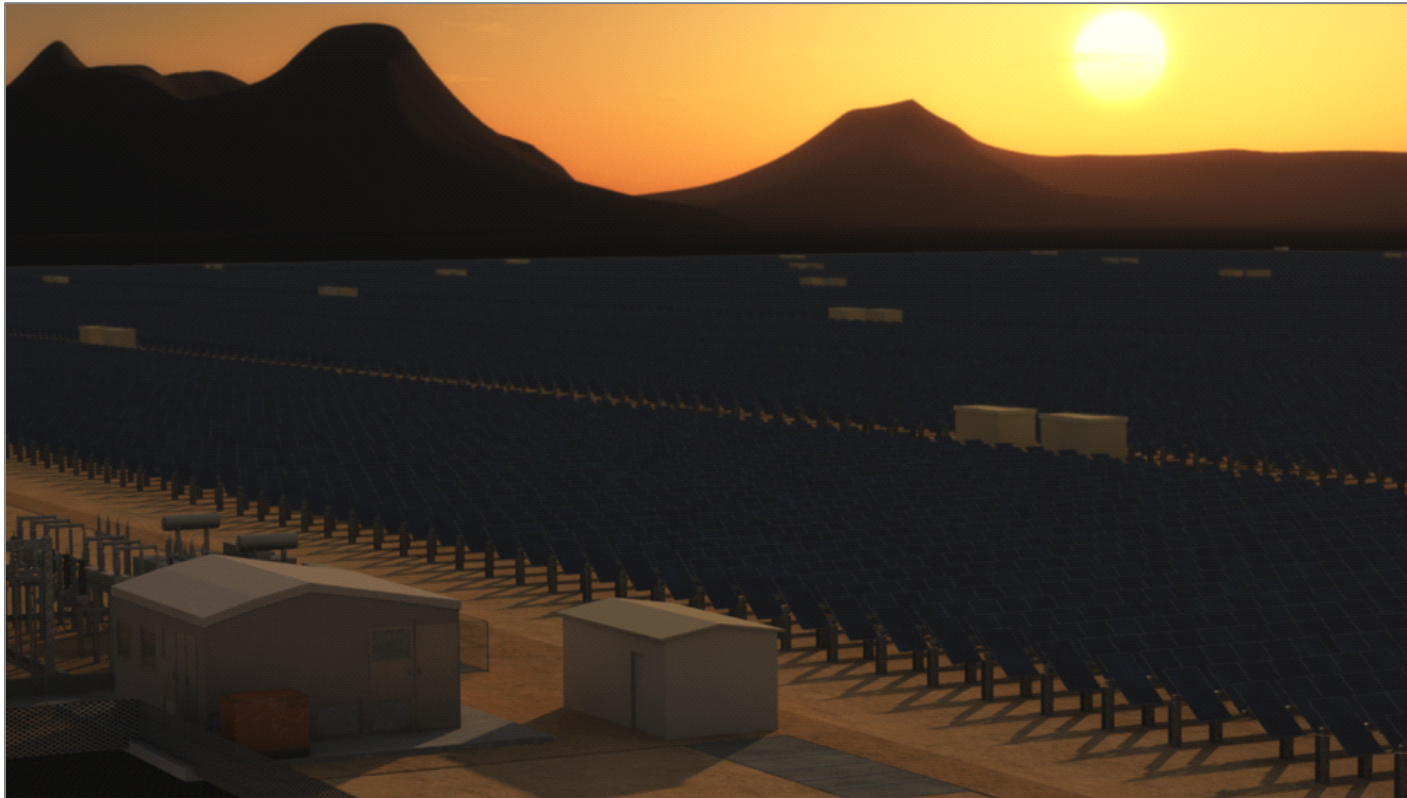
- **Under construction** in Chile
 - Completion expected in Jan 2014
- **Merchant plant** to sell energy in the SIC wholesale 'spot' market
- **102 M\$ financing nearly closed** with OPIC and IFC
- **Cash neutral** during construction
 - **Future annual cash-flows ≈ 6 M\$/year first 14 years and 18 M\$/year afterwards**



* 75 MW interconnected in Dec 2013 + 25 MW in Feb 2014. *Note:* Images are computer-generated, not actual photographs

Innovation resulted in two flagship projects

100 MW CAP project - *under construction*



50 MW Merchant project - *under construction*

SE Transforms Farmers' Lives by Enabling them to Expand

Farmer Benefit



Land holding fully utilized by irrigation on account of solar



Daytime irrigation is safer & entails lower cost of labor



Cash crops can be grown through precise irrigation



Farmers achieve payback in ~36 months



Execution Essentials

Brand

Product Platforms

After Sales Service

Channels

Financing Solutions

Success in Solar Water Pumps



230 Systems Installed
2000 Systems in pipeline by end of 2013





Rural Electrification





Eradication
of
Darkness
**Mithun Kheda Village, Gwalior
& Tapkan school**



