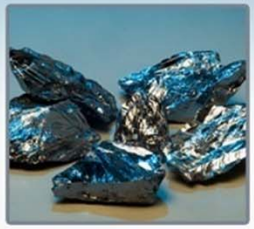
Silicor MATERIALS

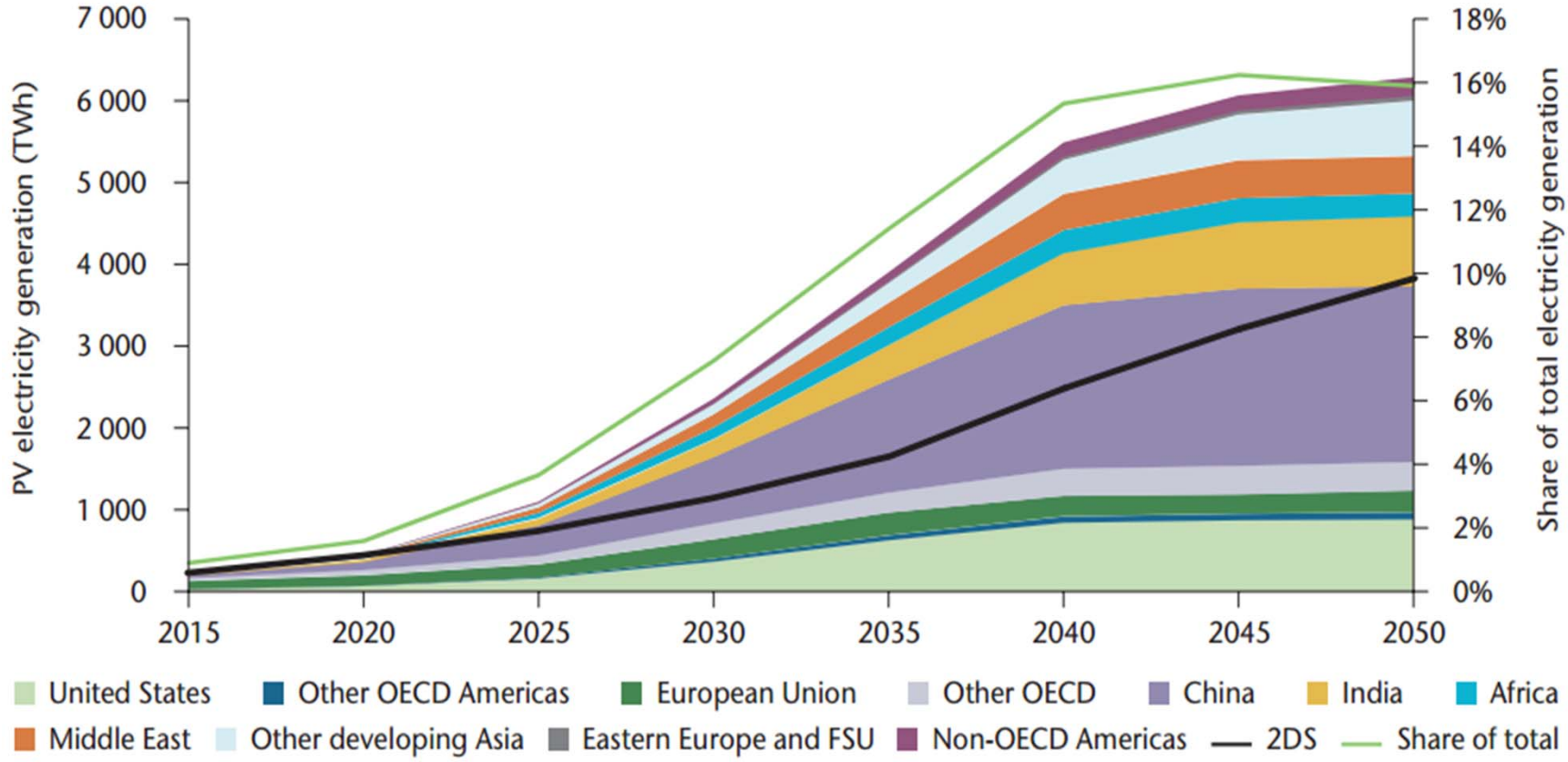





Solar Energy Growth, Market Development and Technology

GaAS Annual Meeting- October 2016

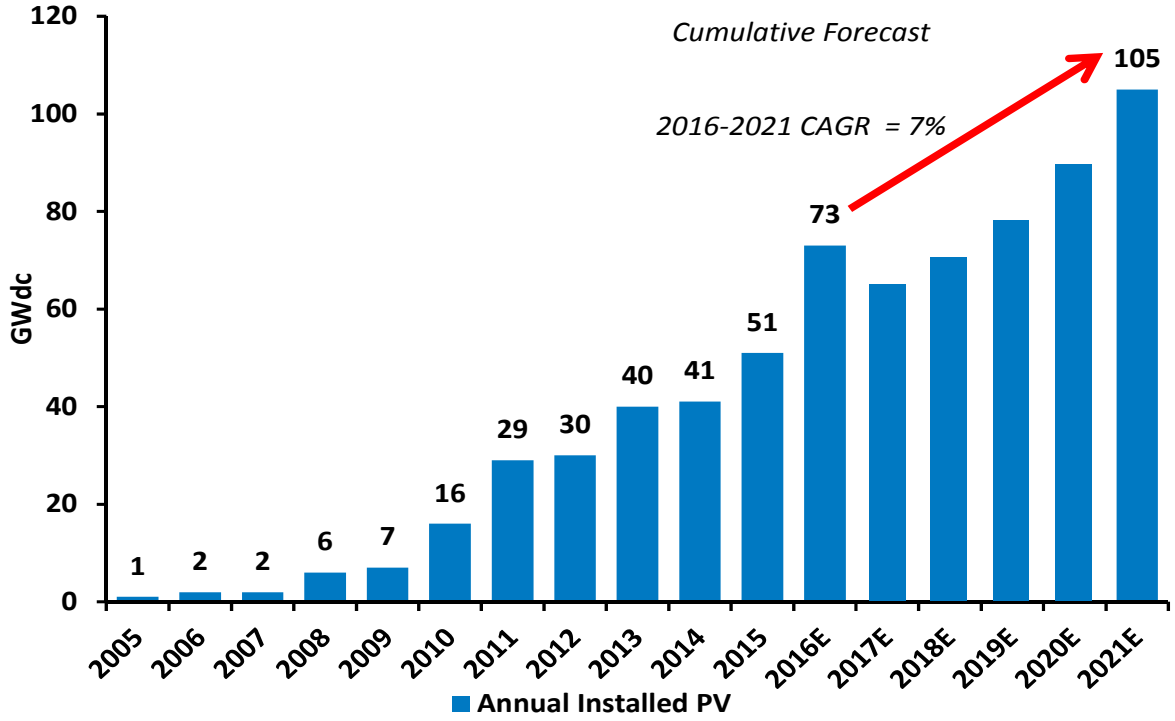
Forecast for Solar PV Growth



Source: IEA Solar Photovoltaic Energy, Technology Roadmap, 2014

Market Outlook Near Term

Rapidly growing demand for solar energy and solar silicon



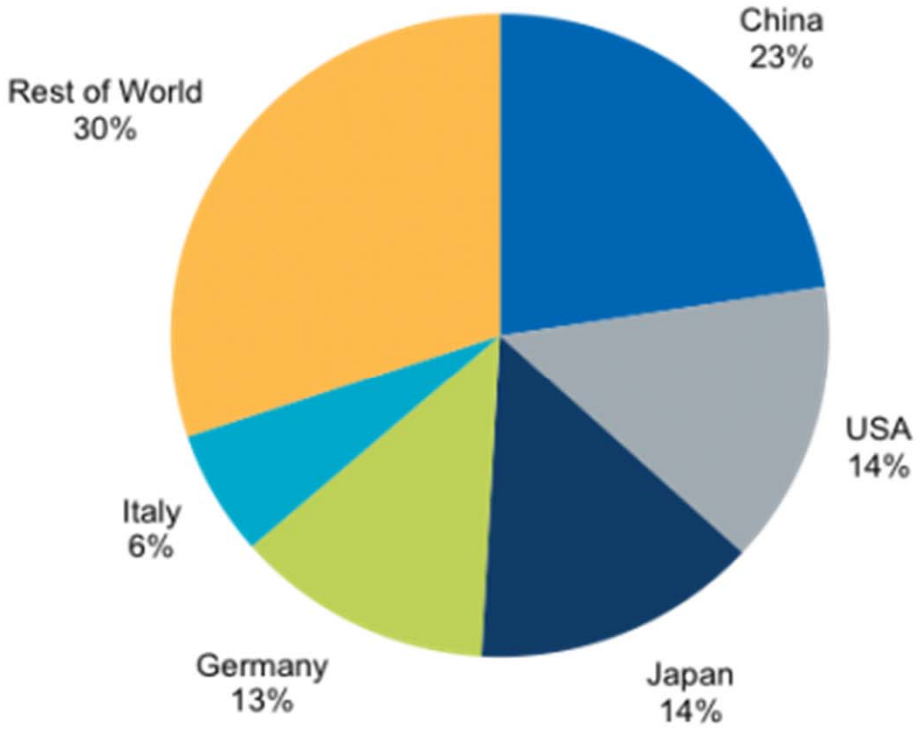
Source: GTM Research Global Solar Demand Monitor G2 2016

Major shifts in the global solar market in 2016:

1. **China:** FIIT pullback of 11% and major grid curtailment
2. **U.S.:** Total solar installations eclipsed 1 million = 27.5 GW
3. **Japan:** Scaling back FIT support – 12% drop in 2016 demand
4. **U.K.:** FIT pullback of 65% – 45% drop in 2016 demand
5. **India:** 25 GW tender pipeline

Market Outlook

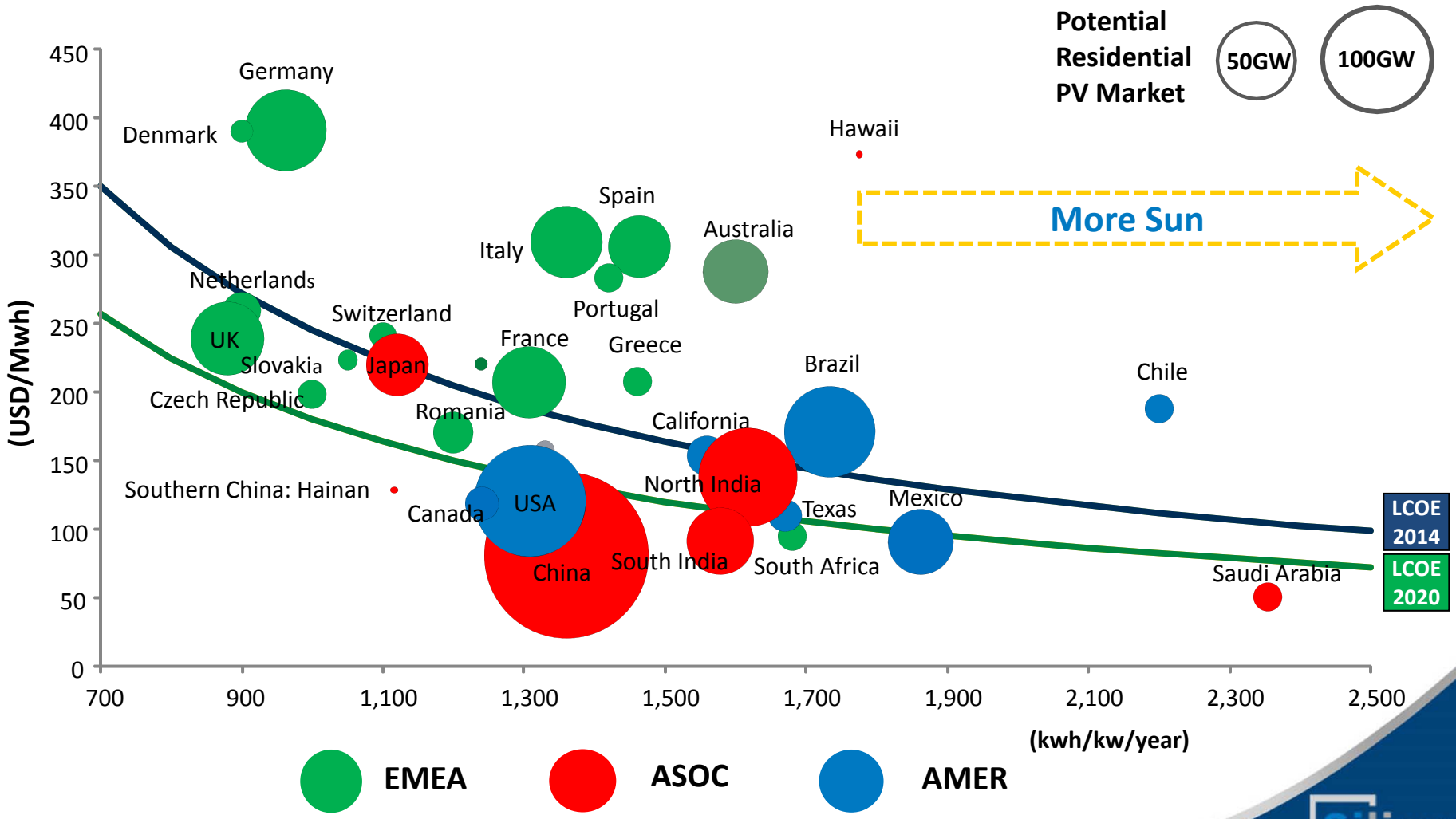
Cumulative Global PV Installations 2016



Source: IHS

Price Declines Are Opening Up New Markets…

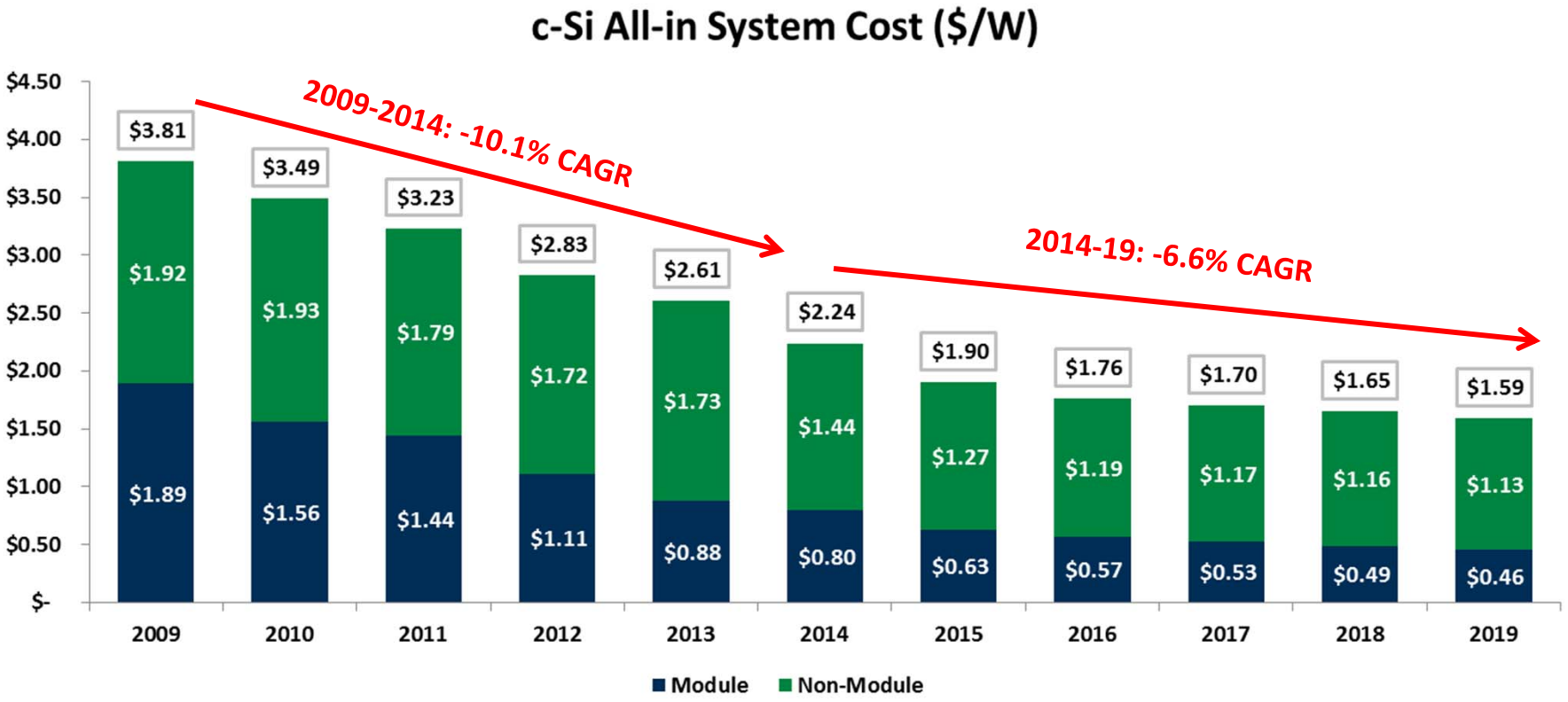
Residential Electricity Price 2014
Residential PV LCOE: 2014 and 2020



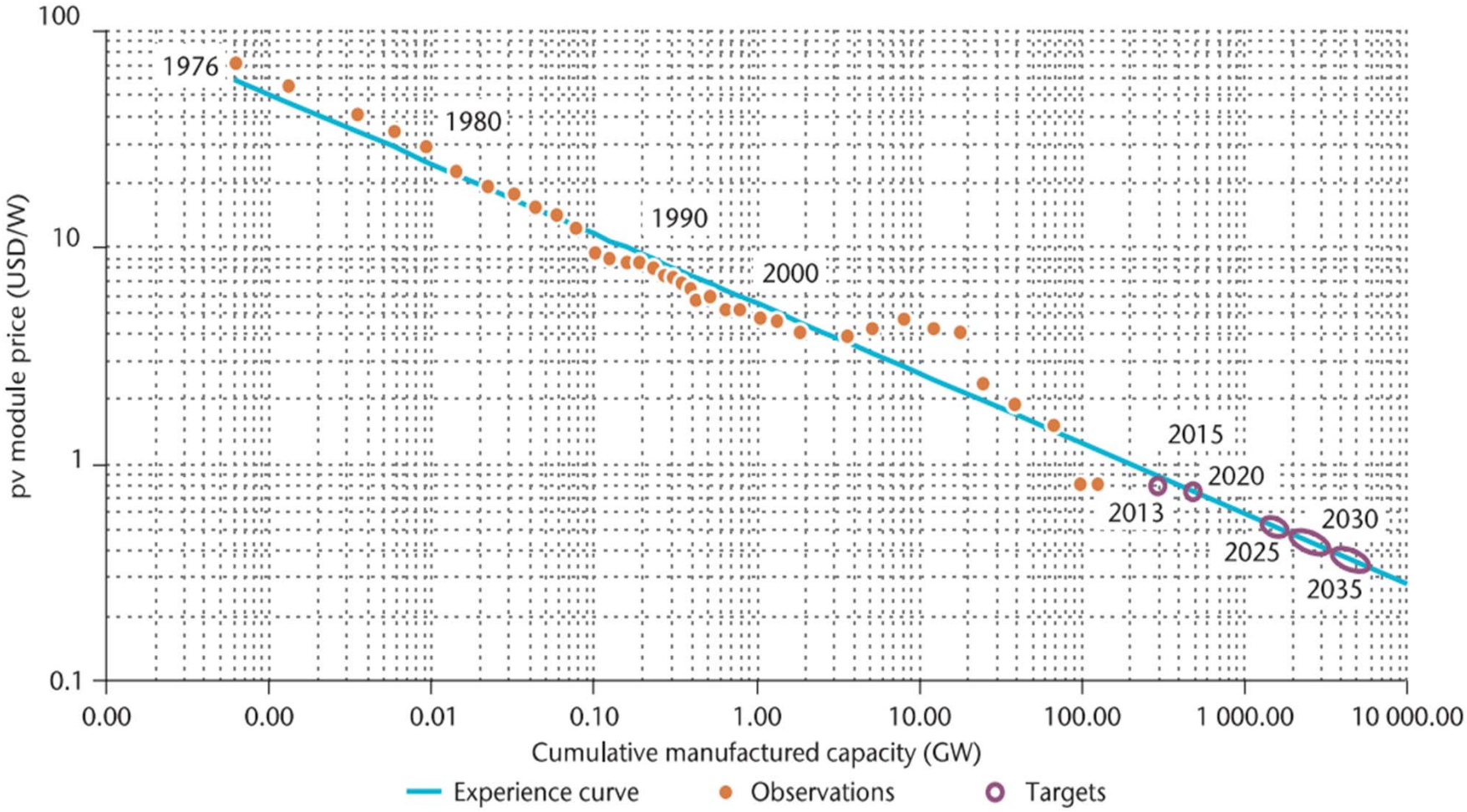
Systems are increasing in size

Solar Costs Continue to Decline

Declining Solar Costs Driven By Higher Efficiency, Lower Production Costs, Innovative Financing Solutions



Module prices through 2035 based on learning curve

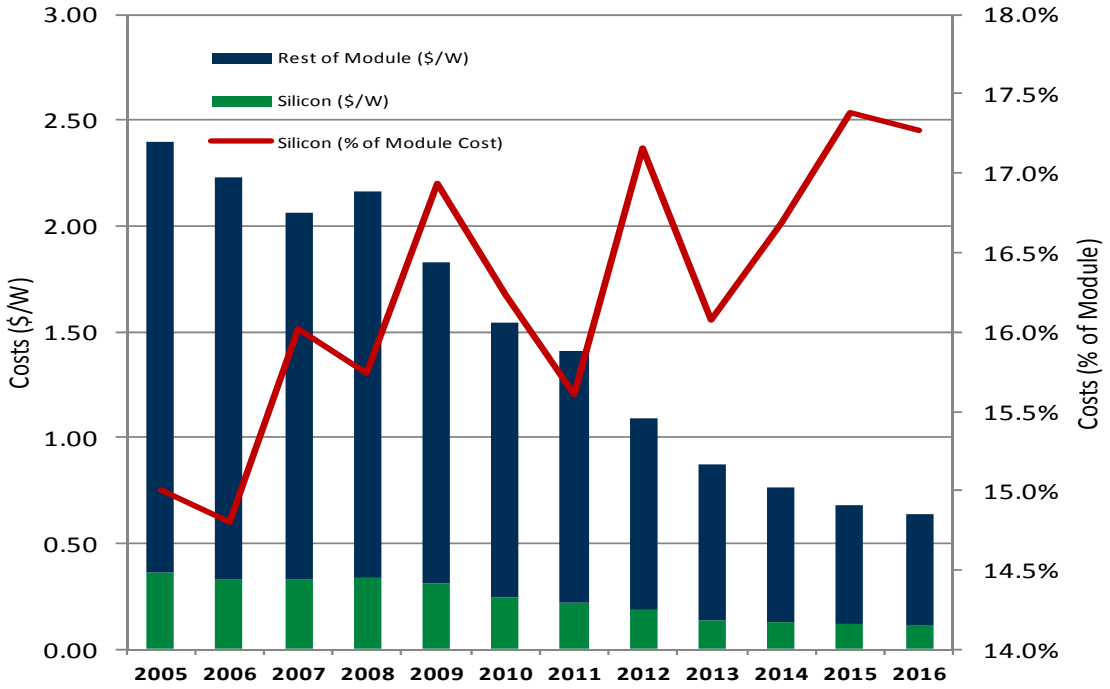


Source: IEA Solar Photovoltaic Energy, Technology Roadmap, 2014

Value of Silicon within the Solar Value

Polysilicon remains the single most valuable component of the solar value chain

Silicon % of All-In Module Costs



Source: Photon Consulting

Silicor – Unique in the Solar Industry

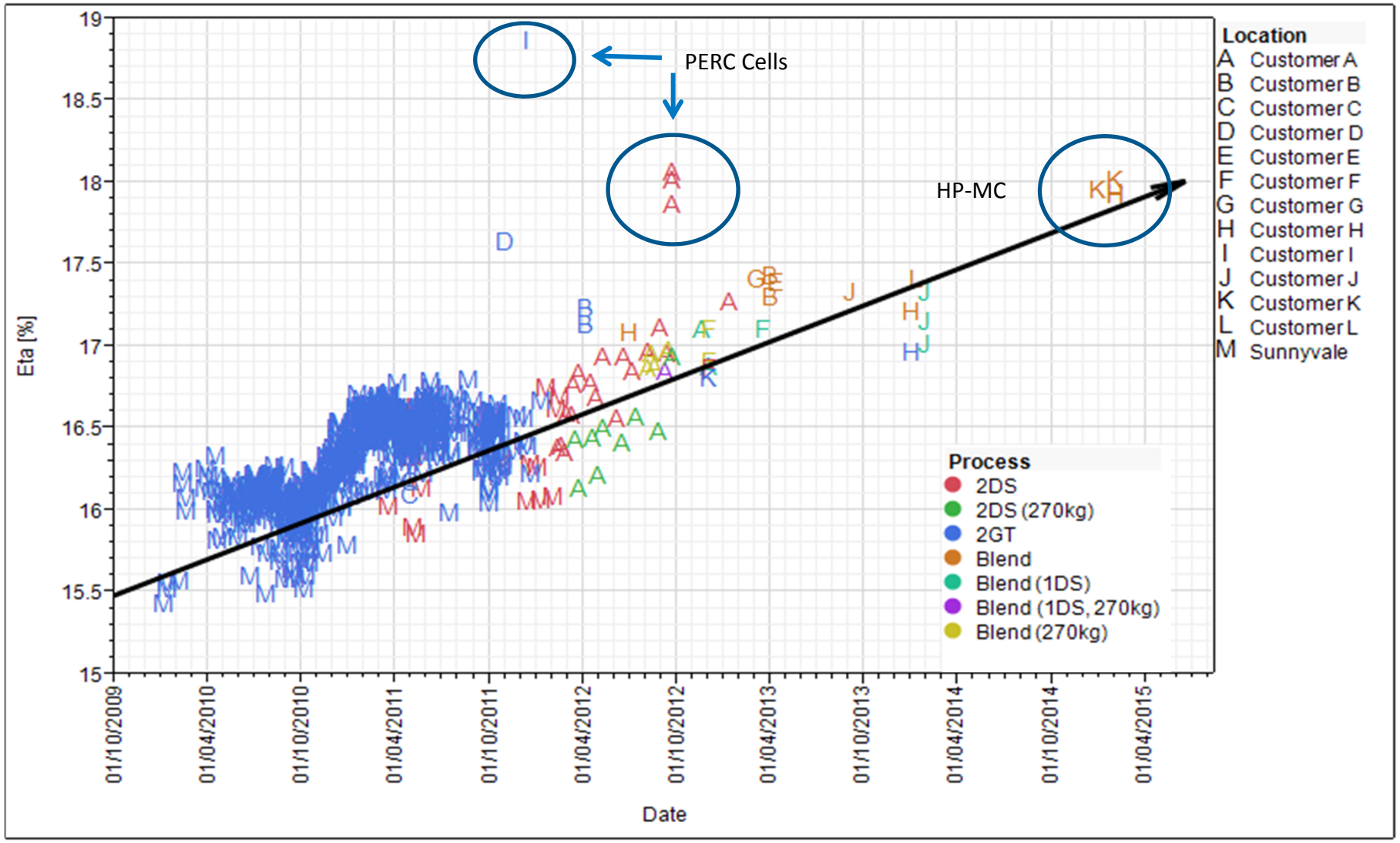
- Silicor is poised to become the world's lowest cost producer of solar grade silicon
  - — Expected cash costs ~$7/kg after ramp up, 40% below industry average
  - — Roughly ½ the capital costs ($36/kg) of best-in-class competitors
  - — Patent protected technology developed and owned by Silicor and proven through years of commercial production and sale
- Silicor will break ground on a 21,000MT manufacturing facility in Iceland next to a deep water port in Q1 2017 - Iceland has free trade agreements with China and the EU enabling it to ship all of its product virtually duty free
- Sales agreements in place for over 100% of facility output

Silicor's Simple and Disruptive Technology

Silicor Purification Process

Step 1	Step 2	Step 3	Step 4	Step 5
▪ MG-Si dissolved, not gasified, at relatively low temperatures ▪ Uses a molten aluminum metal solvent ▪ Aluminum extracts impurities from MG-Si during three separate passes ▪ Patented process	▪ With each pass, solidified "solar flakes" are harvested ▪ Master alloy is removed ▪ Master alloy contains aluminum, polysilicon impurities and 15-20% of original silicon ▪ Master alloy later sold to aluminum suppliers	▪ Dissolves away aluminum from the surface of polysilicon flakes ▪ Polyaluminum chloride ("PAC") is created ▪ PAC later sold to water treatment facilities for use in water purification	▪ Melt flakes in a furnace, cast and directional solidification molds ▪ Polysilicon allowed to solidify into an ingot	▪ Cutting and packaging

Cell Chart – Cell Performance – η (Eta) %



Environmentally Friendly Production Process

Low-energy, waste-free process

- 2/3 less energy than traditional manufacturing methods
- Focus on eliminating harmful inputs and emissions
  - No SO2
  - No fluoride
  - Only 60 tons of particulate (vs. 10,000 tons annually in Reykjavík by studded tires)
  - Less than 50 tons of CO2/year
- Safe, saleable by-products:
  - Aluminum master alloy - used by the auto/aviation industries to enhance component strength and lower weight
  - Poly-aluminum chloride (PAC) - used in water purification and food industries

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…and world's first fossil fuel free, carbon-neutral silicon manufacturing facility

- To offset the already low CO2 emissions from its Iceland plant, Silicor has committed to plant trees to create a carbon neutral facility
- 2,800 tons of CO2 emissions per year (48 process, 2,750 vehicles), offset by approximately 25k trees planted, resulting in carbon neutral manufacturing

Silicor MATERIALS

Commercial Manufacturing in Iceland

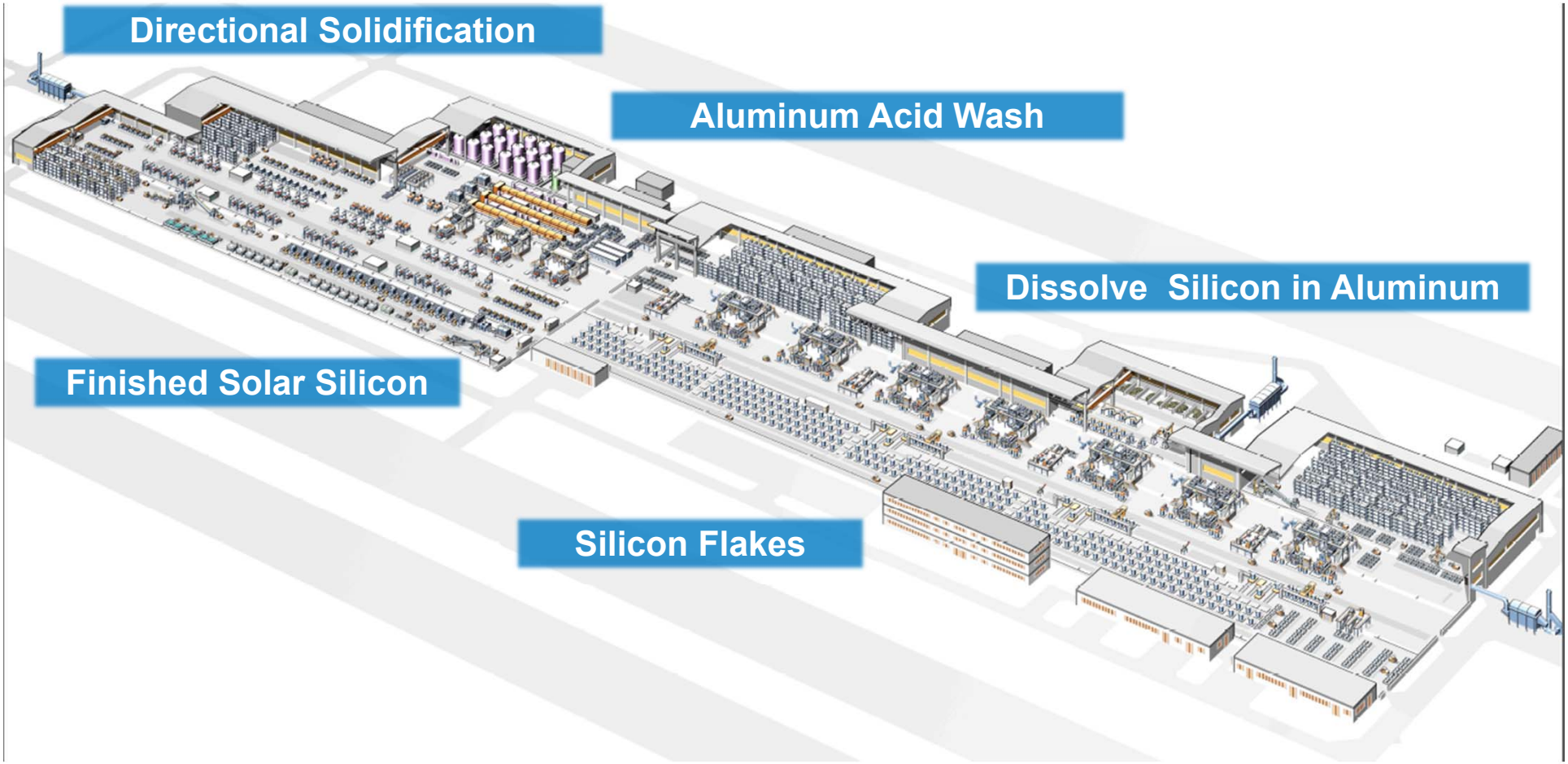
Plant Profile

- 1M square foot footprint
- Up to 21,000MT solar silicon production
- 450 full-time workers
- Equipment from SMS Siemag
- Construction by MT Højgaard

Why Iceland?

- Free trade with China
- Low cost, clean power
- Existing infrastructure in place
- Local supply and off-take partners

Iceland Plant Layout



All project development has been completed; construction to begin upon close of financing

Geographic Expansion Strategy

Silicor is pursuing its second plant site in a number of key markets with low electricity prices and a large metals sector