ABENGOA

Innovative Technology Solutions for Sustainability

ABENGOA

"Solar Energy Opportunities"

Completing Transformation

9th Annual Analyst and Investor Day

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International Buss. Development Director – Abengoa Solar

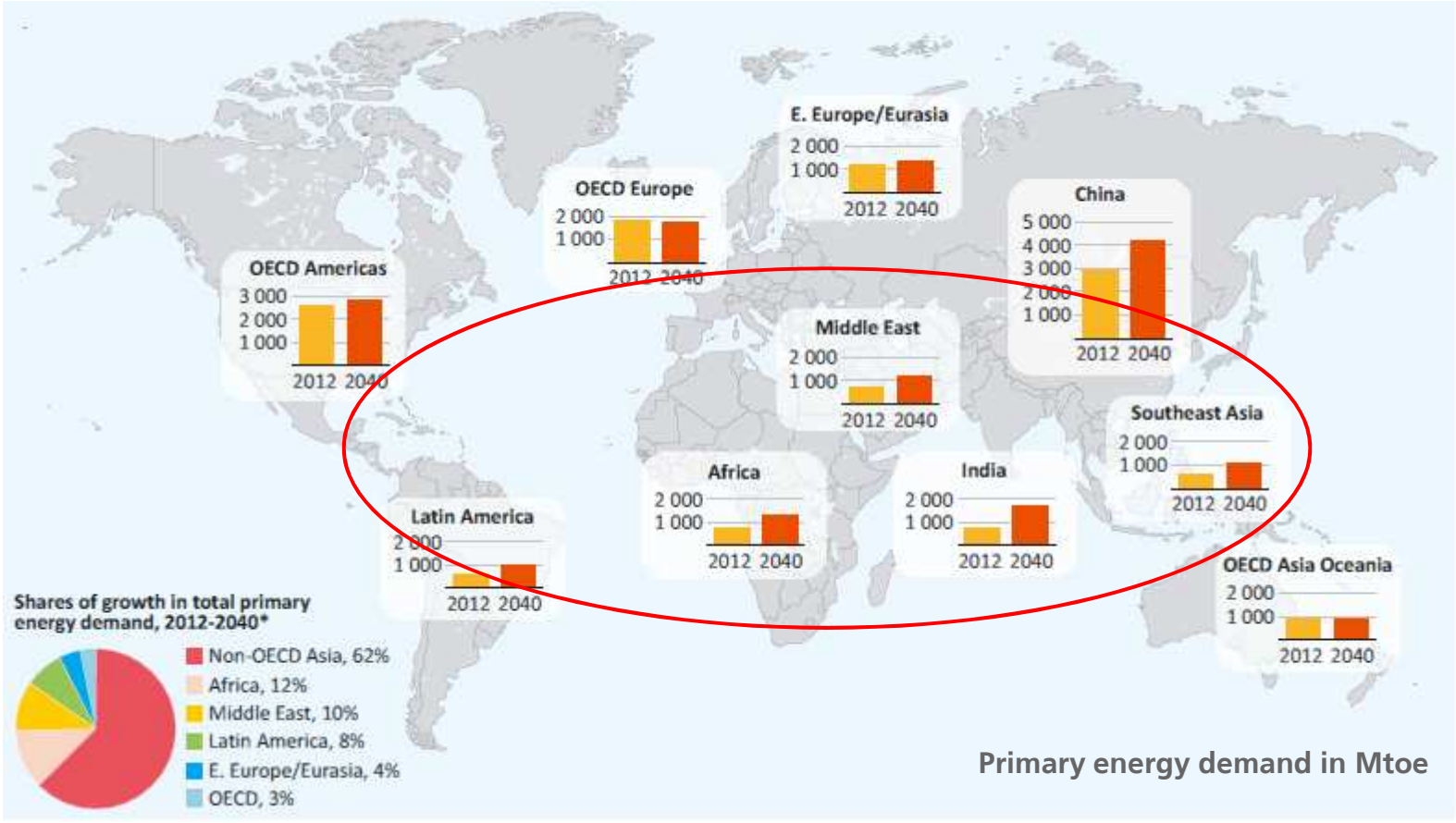
New York City & London, April 7 & 9, 2015

Agenda

1. Energy market growth opportunities
2. Competitive strategy and products
3. Milestones achieved 
4. Focal solar markets

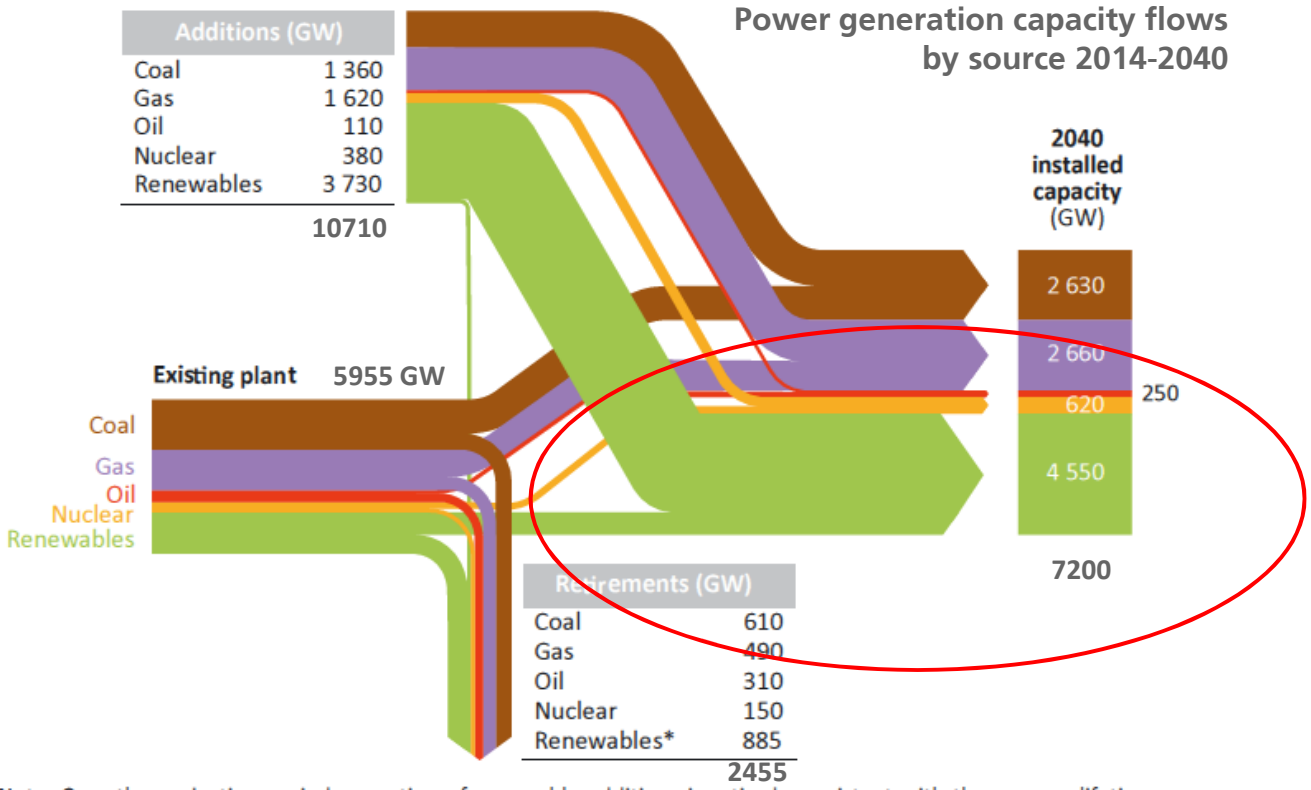
1 Energy demand growth

Next 25 years the energy demand growth is outside OECD



Source: IEA World Energy Outlook 2014

Majority power capacity additions will be in renewables



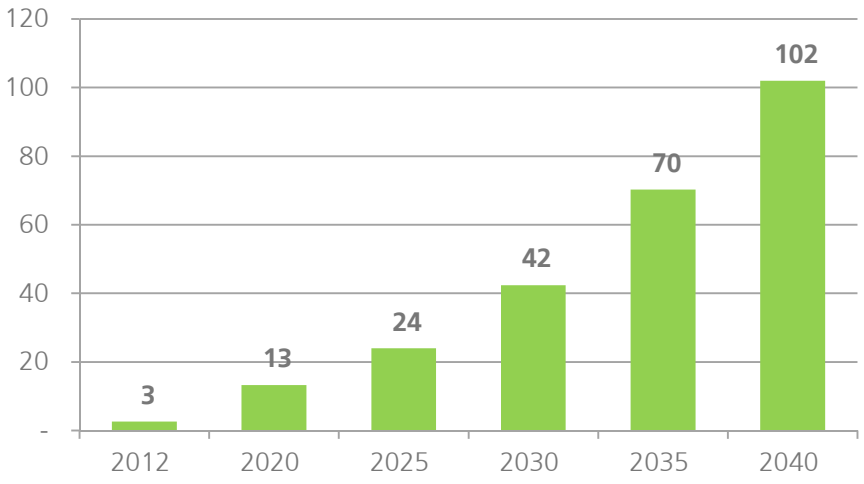
*Note: Over the projection period, a portion of renewable additions is retired, consistent with the average lifetime assumption for wind and solar PV of 25 years.

5. The technical lifetimes of thermal plant vary, but average around 40-50 years for fossil fuel-fired plants, 40-60 years for nuclear, 70 years for hydropower. The normal lifetime for solar and wind is around 25 years.

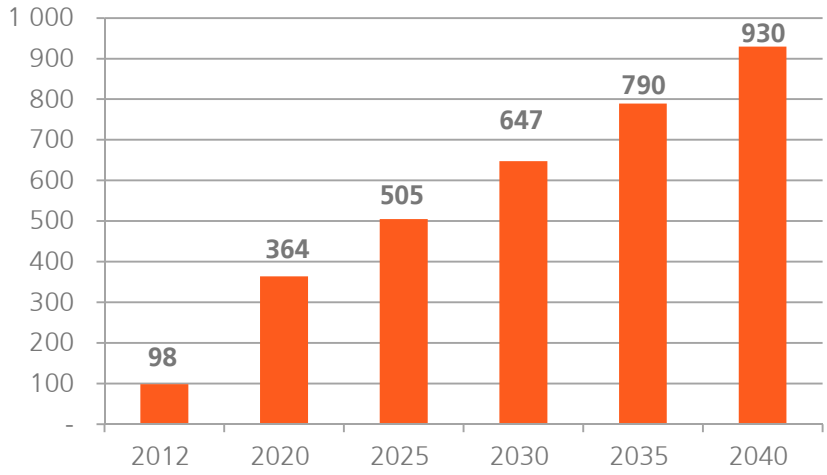
Source: IEA World Energy Outlook 2014

Over a 4th of future renewable investments go into solar

STE global capacity installed in GW



PV global capacity installed in GW



Source: IEA World Energy Outlook 2014

2

Competitive strength and products

3 keys to success

2.1 Own Technology

Drive cost down and performance up by innovation

- 3rd generation of parablic troughs
- Superheated steam towers
- Molten salt towers

2.2 Own International Development

First in having new projects ready to bid

- development teams in all regions of the sunbelt
- prospection of resource and land securement
- obtainment of grid connection and permits

2.3 Own Operation and Maintenance

Best in maximizing production and performance

- Critical mass of STE plants worldwide
- Online monitoring of their performance
- Lessons learnt shared between all plants

Technology leader in the 3 key areas within STE and in HCPV

STE Solar Thermal Electricity

- Tower
- Trough
- Storage

HCPV High Concentrated PV

Integrating STE and PV into Smart Solar Plants

STE

The STE advantages

- Dispatchable with thermal storage
- Hybridable with conventional power in combined cycles and coal plants
- Utility scale power generation
- Stabilizes grids like a conventional power plant

PV

The PV advantages

- Cost in many regions close to grid parity
- Short construction times
- High modularity

Smart Solar Plant

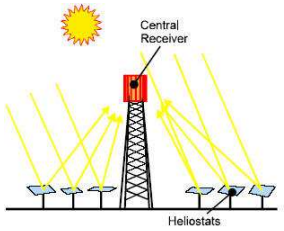
STE + PV = the smart solar match

- Minimize cost by taking advantage of PV cost reductions
- Complement with STE and storage to match solar supply with local demand
- Stabilize grid by smart control and operation

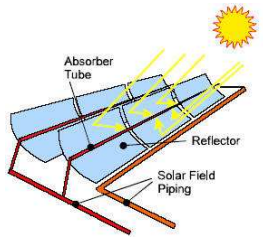
Abengoa's smart solar technology box …

Solar Thermal Technology

Solar Tower

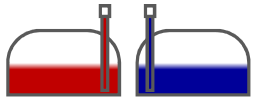


Parabolic Trough

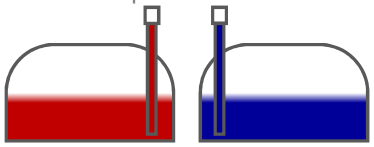


Thermal Energy Storage

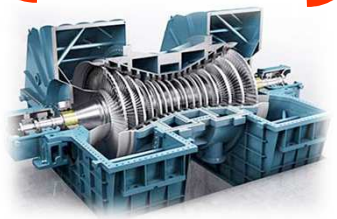
from 3 hours



… up to17 hours



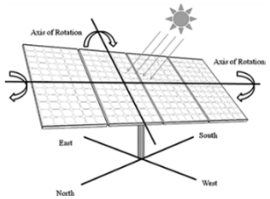
Power Block



Solar PV Technology

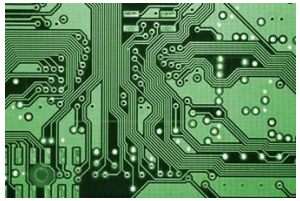
Fixed

2-axis tracked high concentration

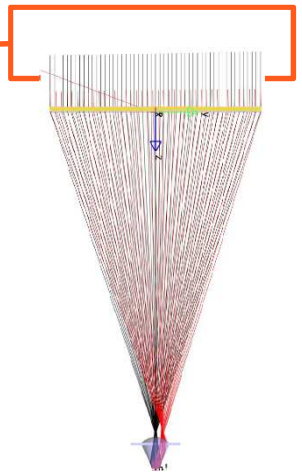


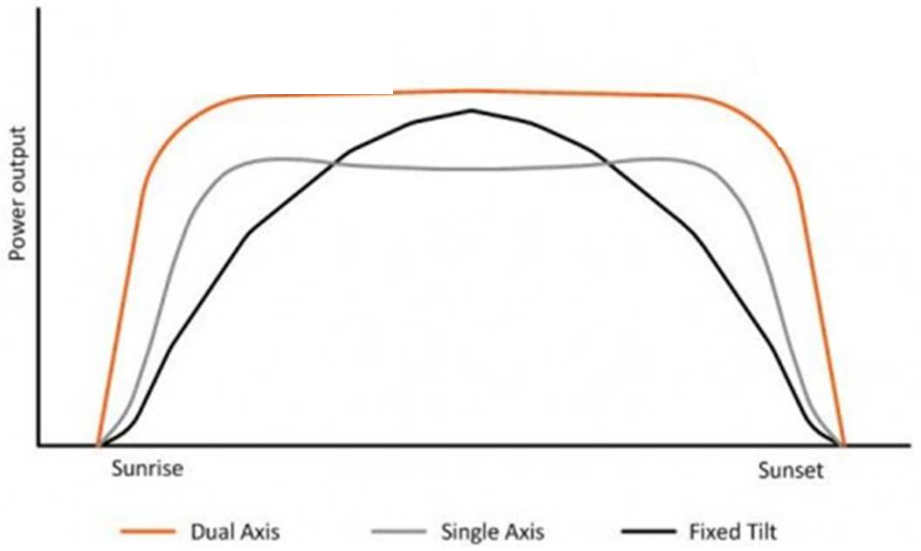
Electrical Storage

Smart Control



Complementing STE with High Concentrated PV (HCPV)

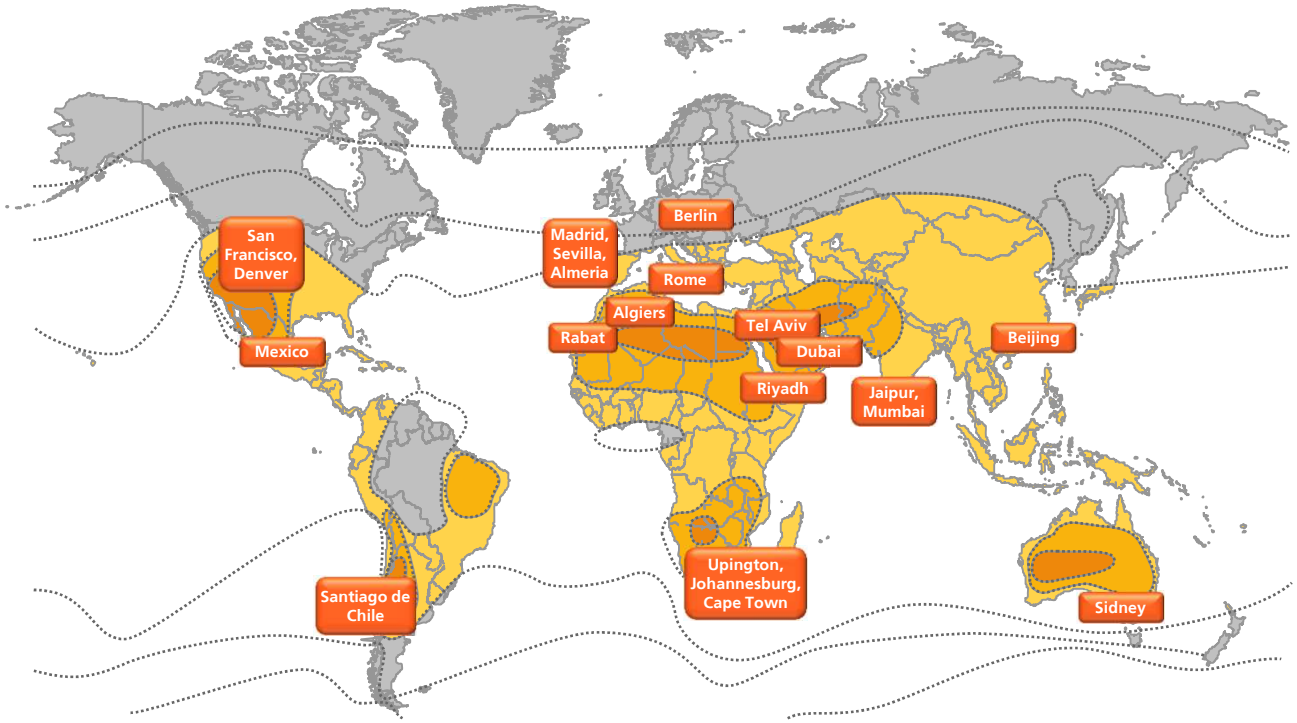




Advantages of Abengoa HCPV Technology

- Current efficiency 32%, double than silicon, and room to go above 40% by 2020
- power production curves following demand profile superior to existing PV technologies;
- high precision, dual axis tracking system;
- scalable in size from kW to MW;
- greater synergies with final markets, reaching location values that out compete other PV technologies.

Abengoa has own international solar development teams



Secure new solar projects by

- being first in new markets
- developing greenfield projects
- preparing bids
- measuring resource
- securing land and servitudes
- obtaining all permits
- obtaining grid connection
- securing local finance

Over 2040GWh generated worldwide in 2014

MW in construction

	2012	2013	2014
	100,0	-	-
	560,0	280,0	-
	150,0	150,0	150,0
	100,0	-	-
	-	-	420,0
	910,0	**430,0**	**570,0**

MW brought in operation

	2012	2013	2014
	593,0	693,0	-
	-	280,0	280,0
	-	-	-
	-	100,0	-
	-	-	-
	593,0	**1.073,0**	**280,0**

GWh generated

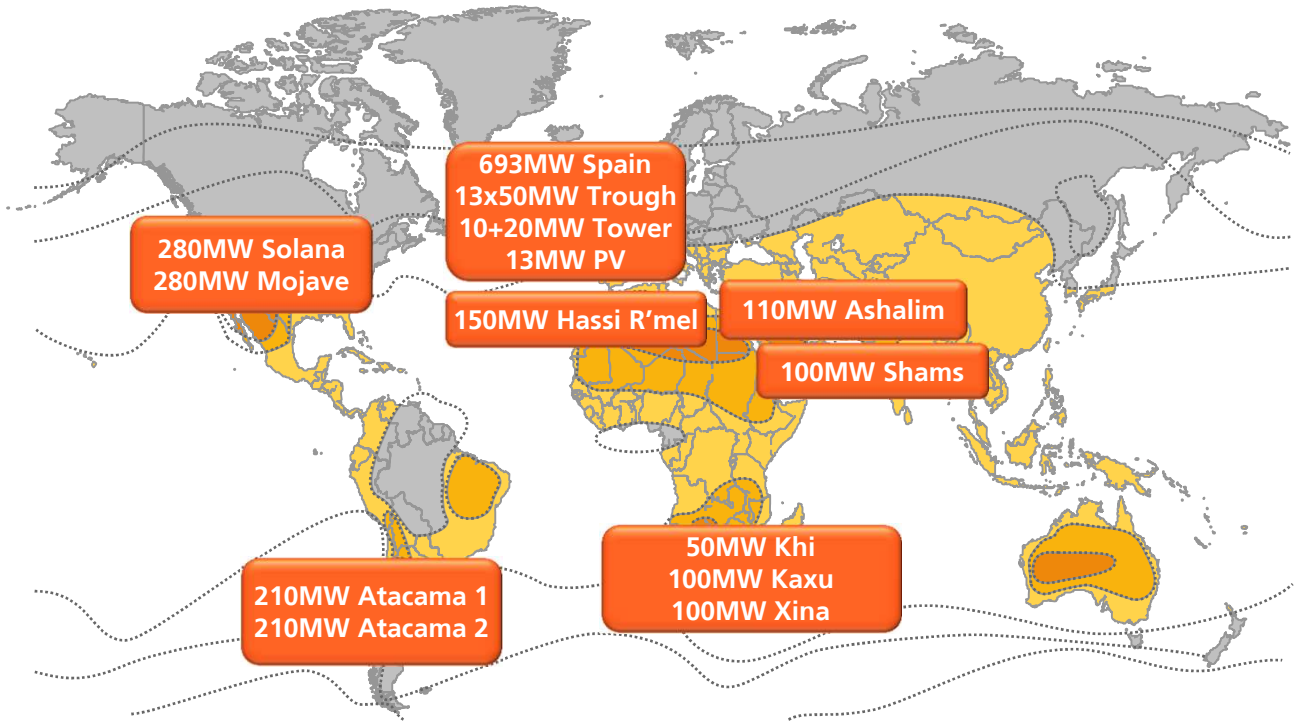
	2012	2013	2014
	963,9	1.130,5	1.077,9
	-	89,3	236,7
	-	-	-
	-	-	-
Third Parties	-	-	726,3
	963,9	**1.219,8**	**2.040,90**

3

Milestones Achieved

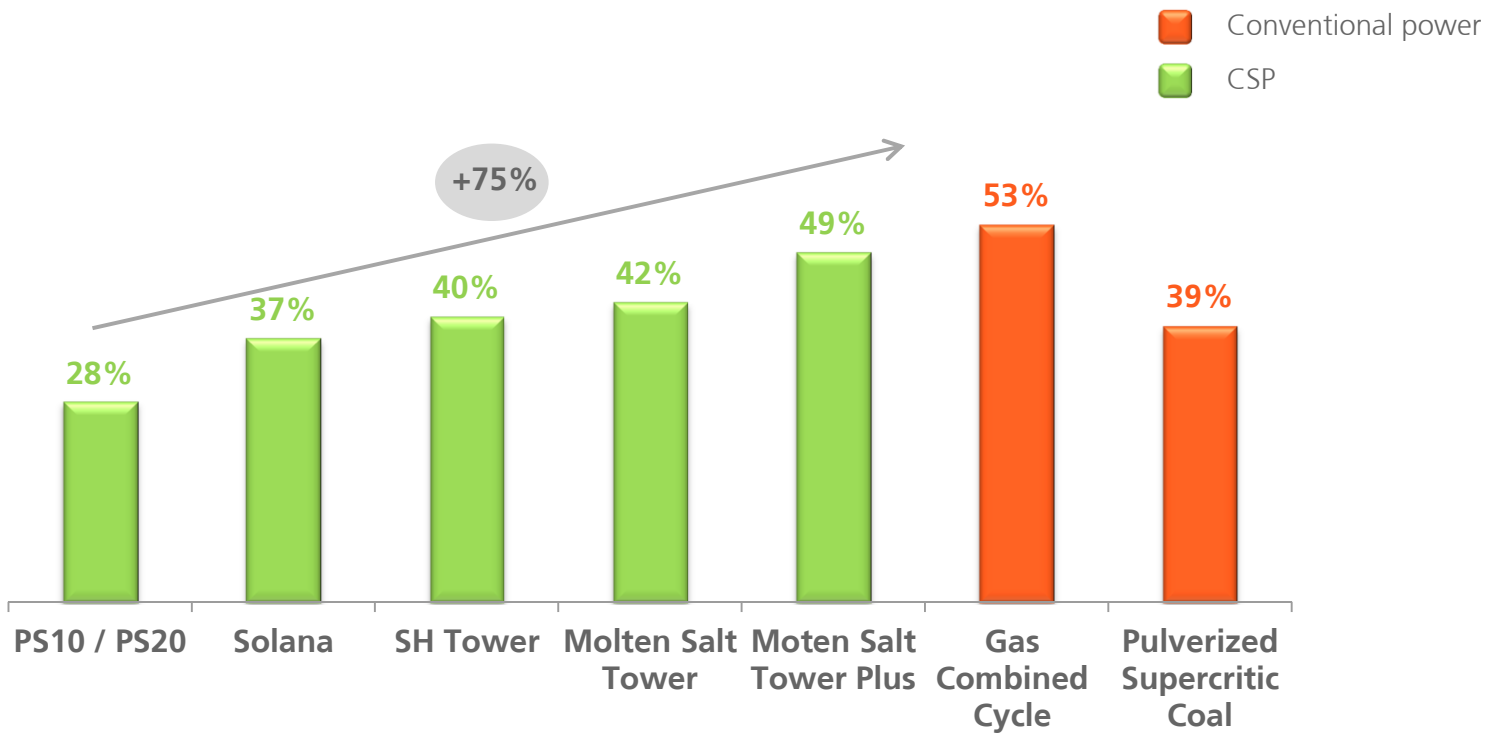
By April 2015 Abengoa has 1603MW solar plants in operation and 680MW in construction

- Europe 693MW
- USA 560MW
- Africa Middle East 610MW
- Latin America 420MW

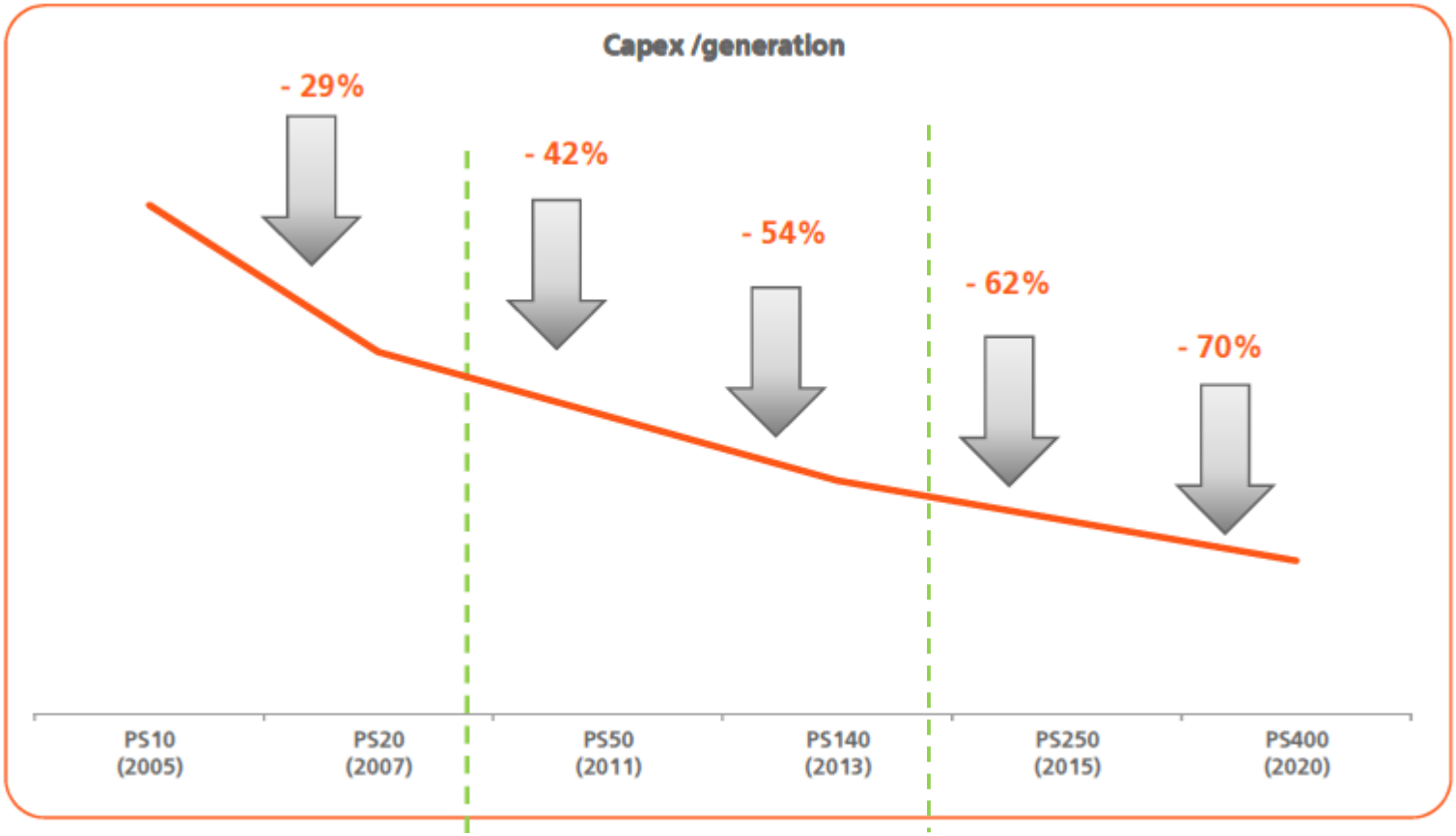


Proven performance improvements approaching competitiveness

CSP efficiency evolution and comparison with combined cycles



We Have Followed our Predicted Roadmap and Will Keep Reducing Costs According to it

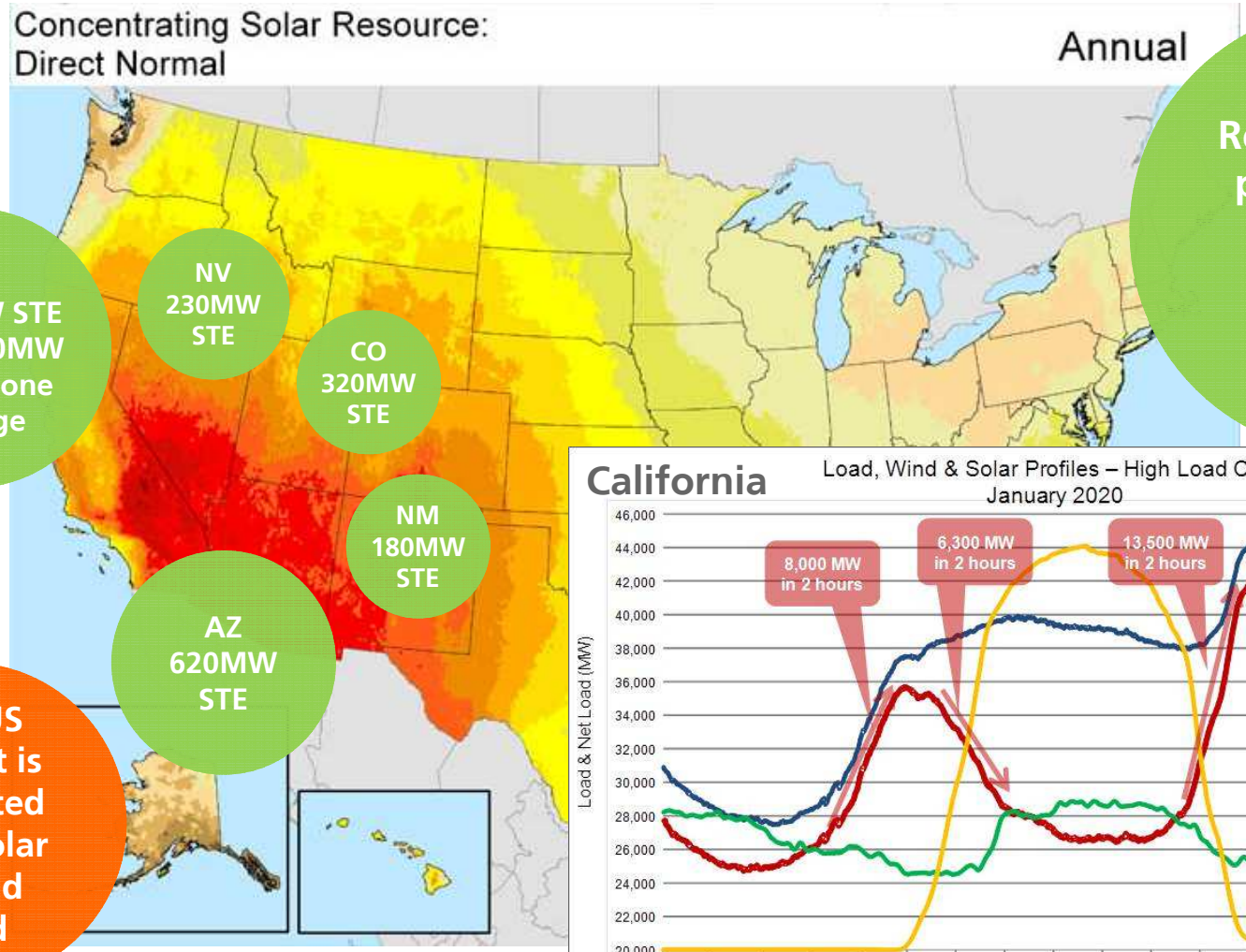


Saturated Steam → Superheated Steam → Molten Salt

4

Focal Solar Markets

Almost 3GW STE and 1.3GW Storage projected by 2020



Required solar projects that provide flexible capacity

The US market is saturated with solar PV and wind

Source: NREL, SunShot and EIA

Source: California Independent System Operator (CalISO)

South America does first steps in solar

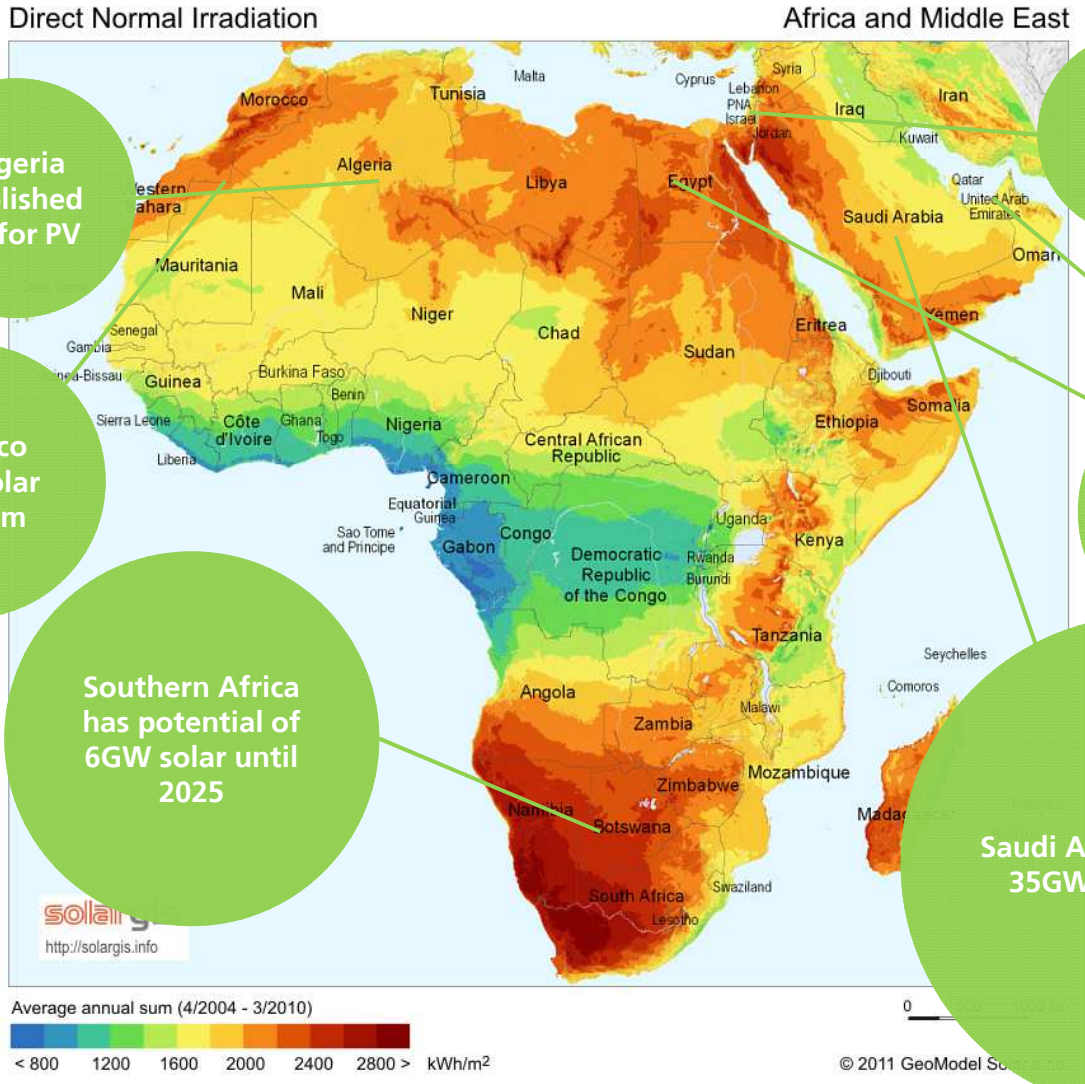
Chile
2025

20% renewables
1.2GW solar
1.6GW wind

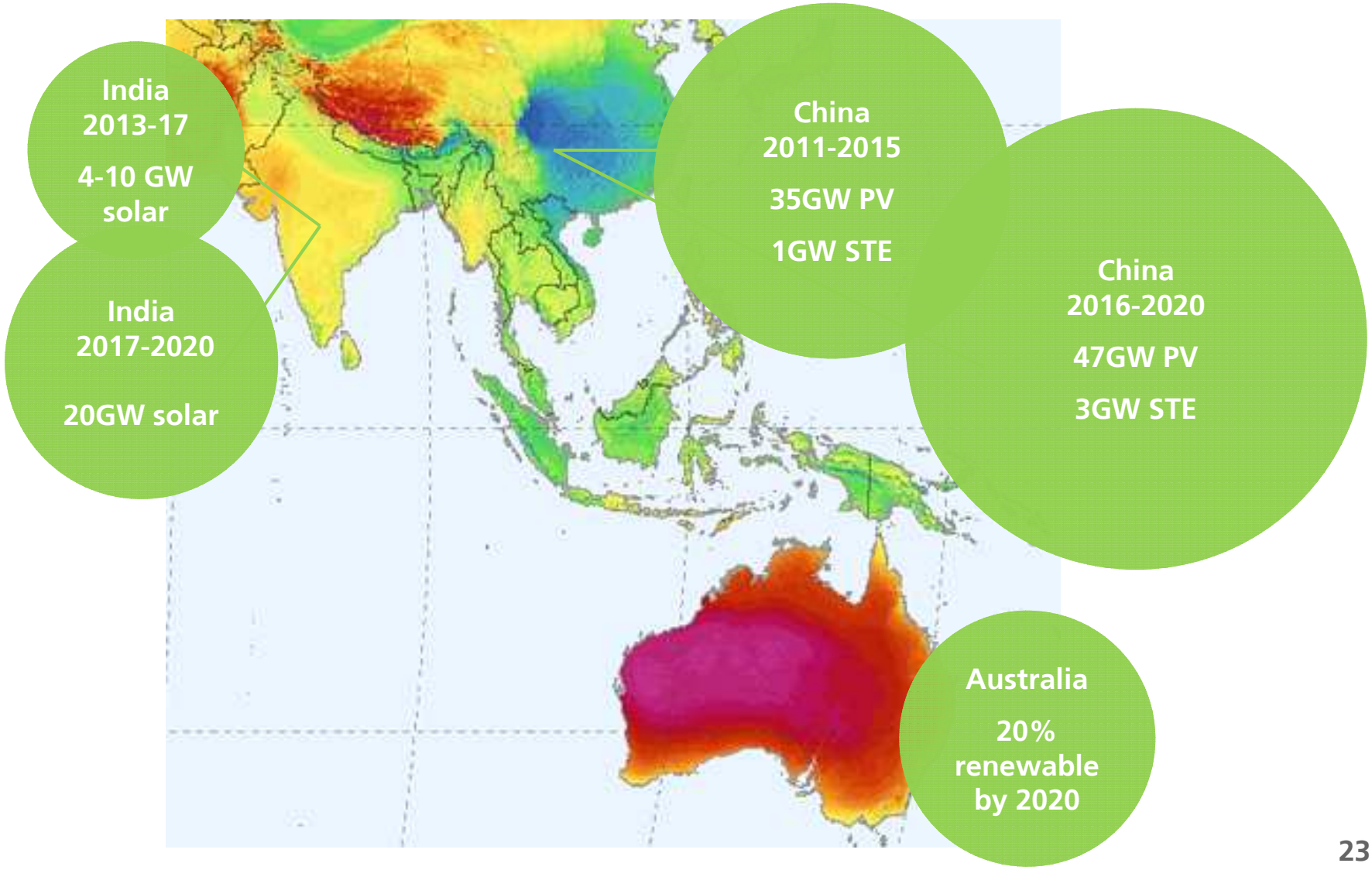
Brazil:
2014-23

3.5GW solar

Project Opportunities in Africa and Middle East



Over 120GW solar in Asia by 2020



1. Dispatch ability of STE with storage covers volatility of PV and Wind
2. Abengoa is world leader in STE with Trough, Tower and Storage
3. Power market grows outside OECD countries, majorily in renewables
4. Abengoa is at the forefront of development in those new markets
5. In combining STE and PV, Abengoa is offering most competitive dispatchable power

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Thank you

April 7 & 9, 2015