

#### **SOLARRESERVE OVERVIEW**

- Leading global developer of large-scale solar power projects and advanced solar thermal technology
- More than \$1.8 billion of projects in construction around the world both Concentrated Solar Power projects (CSP) and Photovoltaic (PV) projects
- Development pipeline of more than 5,000 MW in Europe, Asia, the Middle East, Africa and Latin America
- Commercialized world's leading solar thermal technology (CSP) with integrated energy storage – providing reliable and non-intermittent electricity, day or night
- Experienced and proven management team previously built more than 15,000 MW and financed more than \$15 billion in energy projects in more than fifteen countries
- US Headquarters in Santa Monica, California with international offices in Dubai, Istanbul, Johannesburg, London, Madrid, Perth and Santiago

#### CSP AND PV SOLAR PROJECTS

# Geographically diverse portfolio of more than 3,000 MW of Concentrated Solar Power Projects

- Lead 110 MW project in construction Crescent Dunes Solar Energy in Tonopah, Nevada
- Late-stage projects represent more than 600 MW of fully permitted projects in US and overseas
- 10 sites and more than 150,000 acres under control

## Expanded into Photovoltaic activities in early 2009

- Three projects totaling 246 MW in construction in South Africa with capital costs of \$820 million
- Development pipeline in the US and international of more than 2,000 MW

Developing combined CSP and PV solutions that can provide competitive 24-hour solar energy





## DIFFERENTIATED TECHNOLOGY

The Solution for solar energy to operate day and night and the ability to replace coal, oil, natural gas, diesel and nuclear

# THE CASE FOR SOLAR THERMAL WITH INTEGRATED STORAGE

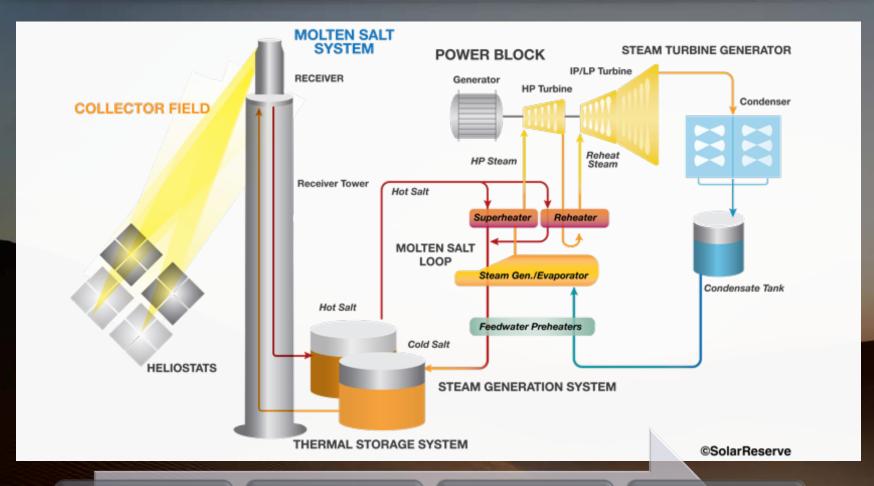
- Energy storage allows the generator to control a plant's output, matching supply with demand and dispatching when electricity is most valuable
- Solar thermal with storage power plants can operate like conventional generation, dramatically reducing GHG emissions
- Storage allows the facility to produce more than twice as much net annual output (MWh) than any other solar technology
- Firm output ensures a more stable and secure transmission system (wind and PV challenges)



Other than CSP with storage, no other solar resource can operate like a conventional power plant. Solar PV, trough, and direct steam have the disadvantage of not being able to generate electricity when there is no sunlight, relying on flexible fossil-fueled generation to meet demand.

SolarReserve's solar thermal with storage facility deploys commercially viable technology that can displace fossil fuel generation

#### **SOLARRESERVE'S ENERGY STORAGE TECHNOLOGY**



Sunlight heats the molten salt directly

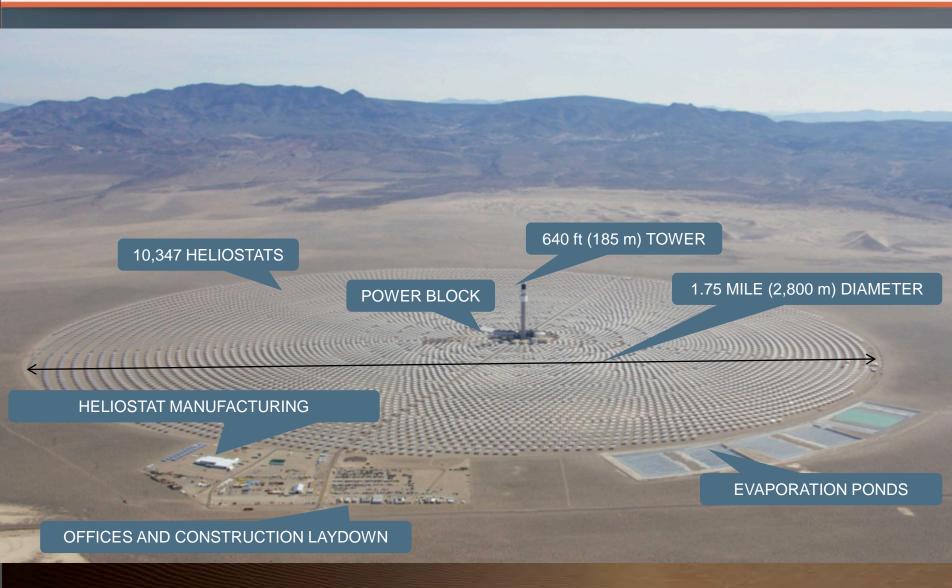
Fewer heat exchange steps, higher temperature Higher efficiency than other molten salt storage designs

Energy storage with greater flexibility at lower cost

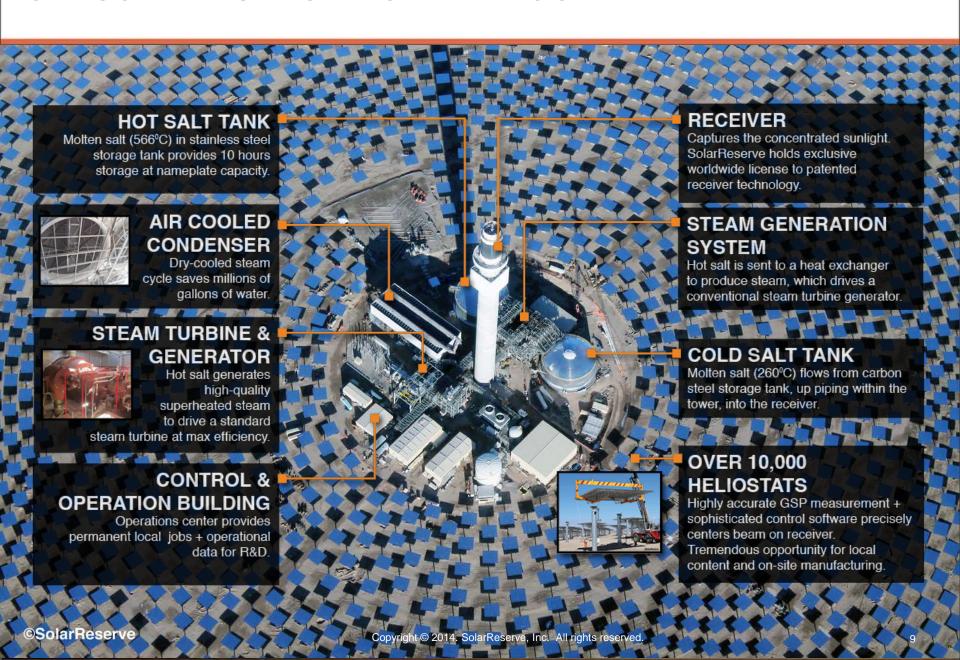
#### THE CRESCENT DUNES SOLAR ENERGY PLANT

- Location: Tonopah, Nevada
- Technology: CSP with Molten Salt Thermal Energy Storage
- Size: 110 MW facility output
- Storage: 10 hours full load storage
- Electricity Production: more than 500,000 MW-hours annually
- Power Purchaser: NV Energy (25-year contract)
- ▶ EPC Contractor: Cobra Thermasolar, Inc. (NV)

#### CRESCENT DUNES - PROJECT ARRANGEMENT



#### CRESCENT DUNES - POWER BLOCK



## CRESCENT DUNES CONSTRUCTION - POWER BLOCK



Able to provide peak or baseload power - day and night



Molten salt (1,050°F) in hot storage tank provides 10 hours storage at nameplate capacity



Air cooled condenser for hybrid cooling system saves millions of gallons of water



Hot salt is sent to a heat exchanger to produce steam which drives a **conventional steam turbine generator** 

## CRESCENT DUNES CONSTRUCTION – 10,347 HELIOSTATS



On-site heliostat assembly and installation



Heliostat Control Unit (HCU) for individual control



Dual axis tracking for optimal electricity production



Highly accurate GSP measurement + sophisticated control software precisely centers beam on target

#### **CRESCENT DUNES - DOMESTIC BENEFITS**

#### Job Creation:

- Over 900 workers currently on site
- 4,300 direct, indirect and induced jobs created
- Equipment and services purchased across 21 states
- 45% of craft workers are Nevada residents
- Tax Revenues: Project forecasted to generate more than \$73 million in local and state tax revenues over first 20 years of operation
- Operating Expenses: During the 30+ year operating life, the project will expend more than \$10 million per year in salaries and operating costs, much of this spent in the region
- Capital Investment: Project will generate in excess of \$750 million private capital cost investment in Nevada



#### CRESCENT DUNES - CREATING U.S. JOBS



#### **CONTACT INFORMATION**

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