# **SOLAR**RESERVE

Project Update Crescent Dunes Solar Energy Project

> NWRA Annual Meeting Las Vegas, Nevada February 2013

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### SolarReserve Overview

#### California-based developer of large-scale utility solar power projects

- Includes development of Concentrated Solar Power (CSP) and Photovoltaic (PV) projects, 5,000 MW of solar in development.
- More than \$1.8 billion of projects under construction lead projects in Nevada (CSP) and South Africa (PV).
- More than 500 MW of projects under full power sales contracts.

#### Founded in December 2007, with headquarters in Santa Monica, California

- Current staff of 70 employees headquartered in Santa Monica with offices in Las Vegas, London, Madrid, Istanbul, Johannesburg (South Africa), Santiago (Chile).
- Commercialized the world's leading Concentrated Solar Power technology which includes integrated solar energy storage
  - SolarReserve solar thermal projects (CSP) can run day and night, just like a conventional gas, coal or nuclear facility, but without the emissions or hazardous waste that come with fossil fuels or nuclear energy.
  - Lowest projected Levelized Cost of Energy (LCOE) of any solar thermal technology.
  - Significant projected future cost reductions and efficiency improvements expected.
- Experienced and proven management team with extensive energy industry success
  - Management team has built in excess of 15,000 MW and \$20+ billion in projects in more than a dozen countries.



# Lesedi Power Project, South Africa





# 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 MWhours annually
- **Power Purchaser:** NV Energy (25-yr contract)
- **EPC Contractor:** Cobra Thermosolar, Inc. (NV)



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St. Bark

### **Crescent Dunes Project Details**

#### Power Purchase Agreement

- 25-year power sales contract with NV Energy, Nevada's largest utility, for 100% of project output
- □ Fixed power price with 1% annual escalation, regardless as to world fuel prices

#### Financing

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- Debt and equity financial close reached in September 2011
- Debt supported by Department of Energy Loan Guarantee
- \$260 million of private equity from SolarReserve, ACS Cobra and Banco Santander

#### Construction Contract with ACS Cobra – one of the world's largest contractors

- Fixed contract price, guaranteed completion date and guaranteed performance with liquidated damage payments for any shortfalls
- Cobra is utilizing primarily Nevada and regional subcontractors to perform the construction activities

#### Renewable energy technology advancement

- Reliable and firm renewable energy that can meet the utility's peak demand into the evening hours – NV Energy peak continues to 11PM or later
- 10 hours of energy storage provides grid stability and reliability
- State renewable energy compliance (RECs and MWh)

# **Crescent Dunes Project Arrangement**



### Safety, Schedule & Costs

- Safety With more than 1,300,000 man-hours expended, there has only been one, noncritical lost time accident on the project from start of construction through December 2013.
- Schedule The project will be entering the commissioning phase this fall and will be substantially complete with construction just after the first of the year. First generation of electricity is scheduled for the first quarter of 2014 with the project entering into full load testing shortly thereafter.
- Cost Construction contract is a full wrap, fixed price and firm schedule. Overall project costs are slightly below the total budgeted costs.







# Jobs by the Numbers – Dec 31, 2013

Total construction man-hours on site (September 2013)	1,342,639 man-hours
Total construction man-hours from Nevada residents	668,441 man-hours
% of construction workforce by Nevada residents	50% Nevada workers
Current workforce on site	900-950 craft workers
Expected peak on-site manpower requirements	<b>950 craft workers</b> (achieved)
Expected total man-hour requirements for construction on site	> 1.0 million man-hours
Total direct, indirect and induced jobs which will be created	4,300 jobs



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### **Crescent Dunes Project – Domestic Benefits**

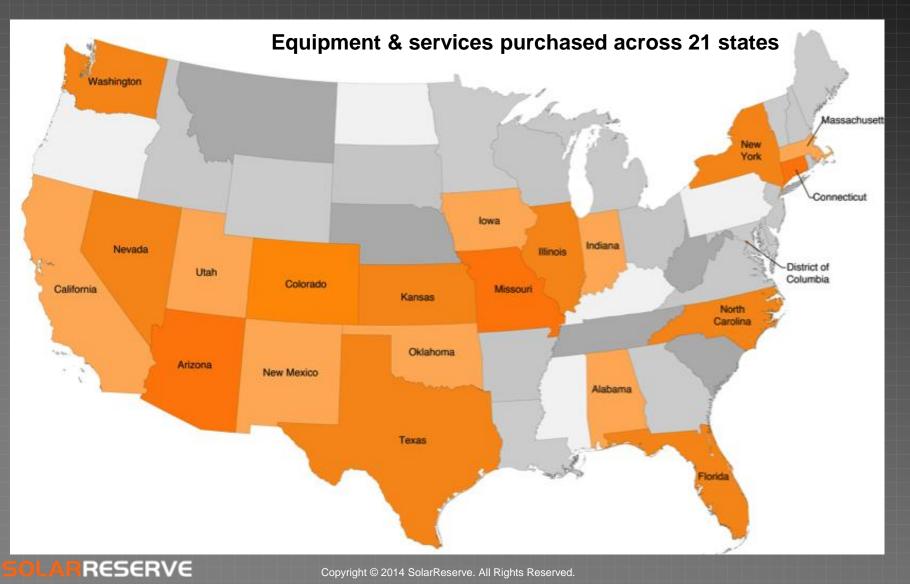
#### Job Creation:

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- More than 900 workers currently on site with 800 workers on site during peak
- 4,300 direct, indirect and induced jobs created
- **52%** 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 Project - Creating U.S. Jobs**



### **Crescent Dunes Construction – Dec 2013**



Hot salt pumps erection



Installing cable trays on the ACC



Installing heat trace junction boxes on SGS



Installing reheat valves



### **Crescent Dunes Construction – Dec 2013**



Main rack salt pipe



Superheaters



Power block

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Tower and receiver assembly

### Aerial – Jan 2014

#### ~ 50% of construction labor from Nevada residents





### **Contact Information**

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