Stirling Energy Systems, Inc. SES

2008 Solar Annual Review Meeting

Session: CSP – Wednesday, April 23, 2008
Company: Stirling Energy Systems, Inc.
Topic: Thoughts on DOE's CSP Programs

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Creating a brighter future for humanity through SOLAR ENERGY

Mega Themes

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- ✓ Each CSP technology has unique features/benefits
- ✓ Portfolio of solar solutions… not “one” winner
- ✓ All technologies are part of the solution
- ✓ All are needed to meet the global market needs

- ✓ Comments/suggestions applicable to all CSP

DOE CSP Program for Dish-Stirling

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- ✓ 1970's – 1980's = Solar Pioneering Efforts Yield Highest Efficiencies and Promise of Low Cost Electricity
- ✓ Late 1990's & Early 2000's = Focus on Technology Enhancements, Durability & Life
- ✓ Mid 2000's = Commercialization & Small Deployments
- ✓ All Projects & Efforts Successful…
- ✓ Budgets Limited Scope and Commercial Progress
- ✓ DOE/Labs/Industry Collaboration, Cost Share & CRADA
- ✓ DOE CSP Program has positioned solar dish-Stirling technology to realize commercial potential

DOE CSP Program ➔ Key Element in Ensuring Viability & Success !

SES & NTR - Announcement on Apr 17, 2008

SES
Stirling Energy Systems, Inc.

NTR

FOR IMMEDIATE RELEASE: April 17, 2008
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STIRLING ENERGY SYSTEMS ANNOUNCES $100 MILLION INVESTMENT BY NTR PLC

Large Scale Solar Generation to Become Reality

Stirling Energy Systems, Inc. (SES), a Phoenix-based developer of utility-scale solar powered electricity generation plants, today announces an agreement for NTR plc, a leading international developer and operator in renewable energy and sustainable waste management, to invest $100 million and take a controlling interest in the company.

SES is developing two of the world's largest solar generating projects in the Imperial Valley and Mojave Desert to bring clean, renewable power to Southern California. The partnership with NTR provides SES with the financial strength and commercial expertise to deliver these projects.

SES is the innovator of the highly efficient concentrating solar energy technology called the

SES is Poised to Make Large-Scale Solar Power a Reality !!

DOE CSP Program for Dish-Stirling

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- ✓ Industry is ready… But a lot of work remains to be done
- ✓ Focused effort ensures commercial reality in U.S.
- ✓ Two Broad Need Areas
  1. Accelerated Project Development
  2. Enhanced Technology/Products

DOE CSP Program ➔ Key Element in Ensuring Viability & Success !

Accelerate Project Development/Deployment

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- ✓ **Coordinate Programs To Streamline Project Siting & Permitting**
  - Active programs just in California: DOE, BLM, FERC, US F&W, CEC/CPUC, CAISO, CA F&G, and Western Governors' Assoc.
  - Many overlap and/or conflict with one another, and most are requiring studies that will delay -- not accelerate – deployment of large-scale solar
  - DOE can insure that existing projects currently under active development not deferred into restudy groups
- ✓ **Work With Utilities To Ensure That Projects With PPAs and/or Utility Support Get Expedited Handling By Permitting Authorities (CEC, BLM, US F&W, etc.)**
  - States & Utilities need these solar plants operational now!
  - Meet RPS mandates (e.g., SDG&E = 6% now; SES will provide 9% more)
- ✓ **Mount Active Programs To Garner Support of Environmental Interest Groups**
  - Many are currently taking positions against large-scale solar because of land usage, transmission requirements, etc.
  - DOE/Dept of Interior/BLM can provide leadership & guidance

DOE can help Accelerate Large-Scale Solar Deployment !

Develop Expanded Transmission Systems

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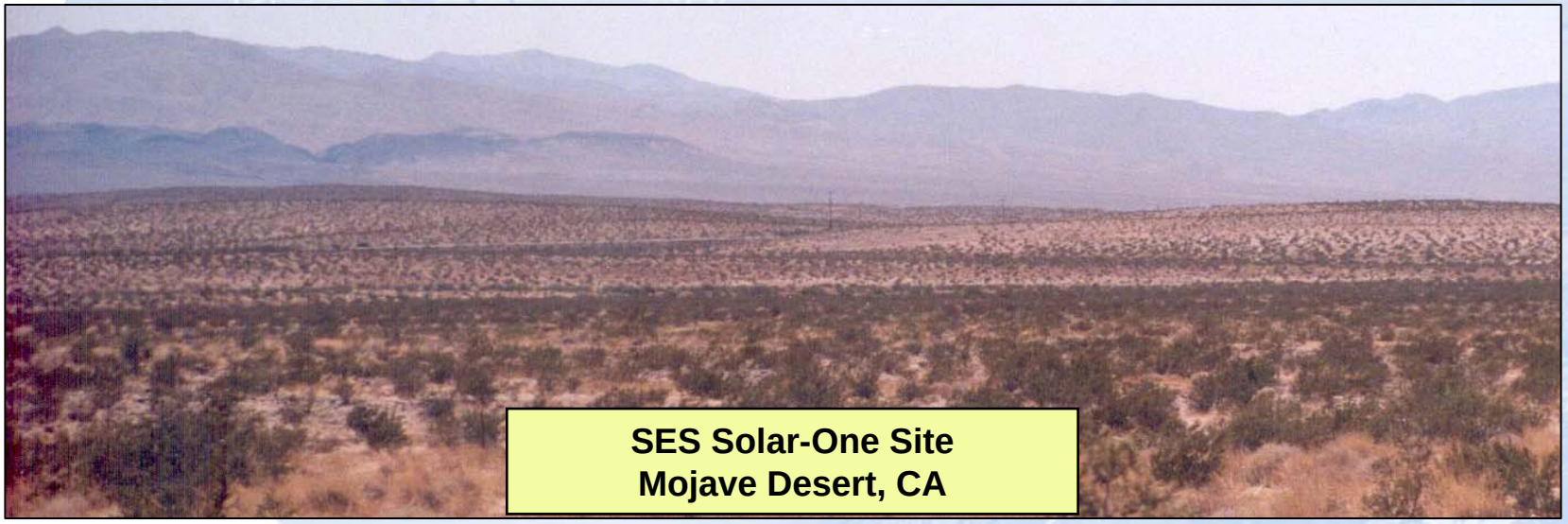
- ✓ **Additional "pipelines" into key Southwest electricity markets**
- ✓ **Development of network of long-distance HV lines**
  - Broaden the CSP market from a generally SW regional to national scope

220KV T-Line Adjacent to SES Solar-One Site



SES Solar-One Site Mojave Desert, CA

Transmission is a Bottleneck to Large-Scale Solar Deployment !

Support Product Commercialization

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- ✓ **Dramatically increase support to CSP industry**
  - Listen to the Utilities on what they think are key drivers
  - Help fund technologies that have highest potential for "lowest cost of electricity." Look at efficiency & cost !!

- ✓ **Support Product Development for Commercialization**
  - Expand testing & evaluation programs at labs, not reduce them
  - Expand lab facilities to accommodate multiple projects side-by-side
  - Added funds for lab programs should translate into expanded support for industry

Ensure Technologies Cross the Threshold !

Sandia National Laboratories

Support for Longer-Term R&D

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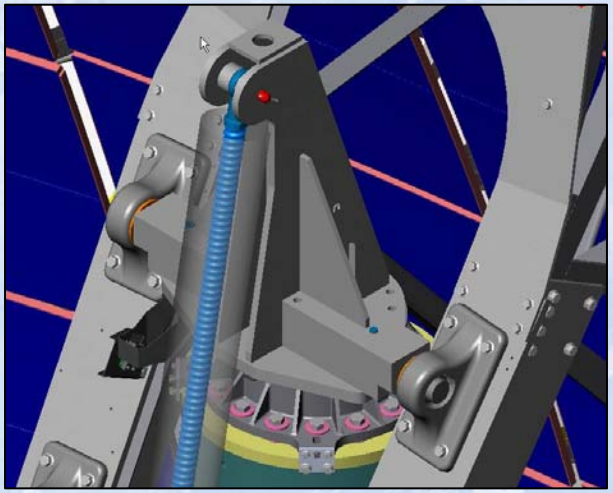
✓ Technology Roadmapping is Critical

- Total cost of electricity production
- Need high Sun-to-Grid efficiency
- Installed cost (included Balance of Plant)
- O&M cost
- Environmental (including water usage)

✓ Key Advanced Component R&D Areas

- Higher-temperature materials for receivers
- Lower-cost “next generation” mirror systems
- Cost-effective tracking drive systems
- Electric storage systems
- Hydrogen/fuel cell storage media
- Next Gen ultra-low cost solutions



Fund Technologies with High Probability of Economic Success !

Summary

Stirling Energy Systems, Inc. SES

- ✓ SES Accelerating Deployment of Calif. Projects (GWs)
  - $100M Investment solidifies Commercialization in 2009
  - Deployment in early 2010 paced by siting, permitting & transmission
- ✓ Key areas where DOE CSP can help
  - Support Deployment
    - Coordinate programs to streamline project siting & permitting
    - Help expedite permitting of projects With PPAs and/or Utility Support
    - Launch programs to garner support of Environmental Interest Groups
  - Help develop Expanded Transmission Systems
    - Additional pipelines into key electricity markets
  - Support Product Commercialization
    - Increase support to U.S. CSP Industry
    - Support product development for Commercialization
    - Increase CSP funding at the labs… Not decrease it !
  - Support Longer-Term R&D
    - Key component R&D areas (performance, life & cost TCOE))

SES thanks DOE for your past and future support !