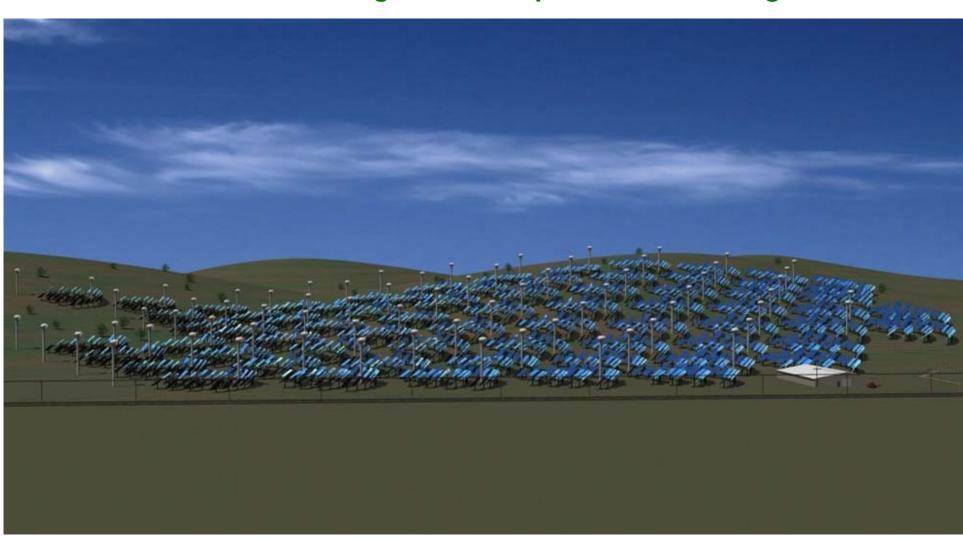
India's CSP leadership opportunity

Affordable, 24/7 guaranteed power on- or off-grid





Bruce N. Anderson, CEO Wilson Solarpower Corporation 01-617-290-9913 "Clean energy is important but...

if it won't produce electricity

ALL the time, then what?!"



"But what good is 24/7

clean power if it can't

compete with conventional

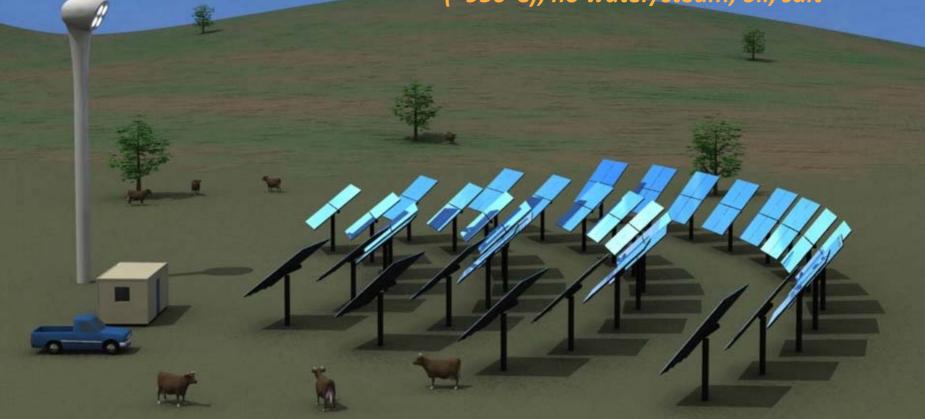
power without subsidies?"



Wilson's solution: modular power towers

24/7 "baseload" grid competitive or stand alone

- India-produced, identical modules
- 300 kilowatts each
- Uses compressed, super-heated air (~950°C); no water/steam, oil, salt



India: huge economic opportunity

Wilson CSP is tailor-made for India

- **Grid competitive** without subsidies
- Guaranteed power 24/7, not intermittent
- Low-risk, good bankability
- Simple, low/medium skill fabrication, operation
- Off-grid, micro-grid villages, industry, etc to utility scale
- Waste heat for chilling, cooling, water purification, crop drying
- Low water use; no water/steam, salts or oil
- "Made in India" jobs!
- Large export revenue opportunity
- Significant grid benefits



Wilson Solarpower Corporation

Mission: Competitive clean power without subsidies

- MIT high-tech spin-off company; Boston and Washington, DC, USA
- Owned by MIT, State of Massachusetts, private individuals
- World-leading Technology Development Partners:
 - German Aerospace Center (DLR)
 - WorleyParsons
 - Saint-Gobain
 - Oak Ridge National Laboratory
 - Sandia National Laboratory
- \$5 million, 3 years, US Department of Energy funding to develop a baseload CSP system that can compete with conventional power without subsidies





Bruce N. Anderson, Co-founder, CEO

- Began solar career in 1973 with Masters degree at MIT
- 1980 Advisory Board Member of National Renewable Energy Laboratory (NREL)
- 1982 First recipient "Lifetime Achievement Award," American Solar Energy Society
- Twice testified to US Congress on energy matters
- Member, MIT Corporation (Board of Governors)
- 35-year career CEO



Lifetime solar lessons learned

- > KISS is paramount Keep It Simple
- New lowest cost paradigm: factory production + central power, e.g., solar farms, wind farms
- Cultural compatibility is essential (environmental, visual, grid benefits, bankability, local jobs, skill level, etc, etc)
- > Strong technology pipeline to maintain competitiveness





US D.O.E. funded

Brayton-Cycle Baseload Power Tower CSP System

Phase 1 Report, US Department of Energy
July 2011





Funding Opportunity Announcement Number: DE-FOA-0000104

Baseload Concentrating Solar Power Generation

Recipient: Wilson Solarpower Corporation

Award Number: EE003587

Project Team: Wilson Solarpower, DLR, EZKlein, WorleyParsons, Solaflect

Energy

Contacts: Bruce Anderson

Phone: 617-290-9913

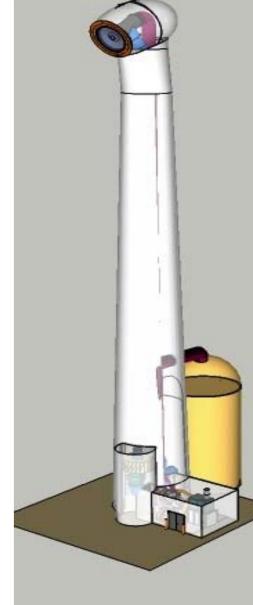
Email: Bruce Anderson@WilsonSolarpower.com

Proprietary Wilson Solar System ***

BASELOAD: 300 kilowatts/module

PEAKERS: 600 kilowatts/module

- Single units (<1 MW)
 - Villages, industrial/commercial companies, military bases, islands...on-grid or off-grid/micro-grid
- Multiple units (<20 MW)</p>
 - Towns, communities, developments, mines
- *100s of units* (20-100s MW)
 - Central power





Simple Proprietary System

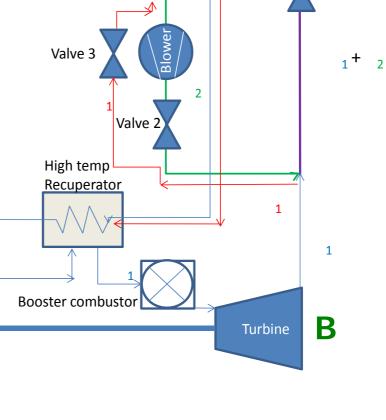
Recuperator

- Sun heats solar receiver (A), which heats air
- Some solar-heated air powers turbine (B)

Remaining air heats thermal storage (C)
Low temp

To stack

Compressor



Thermal storage



ow pressure

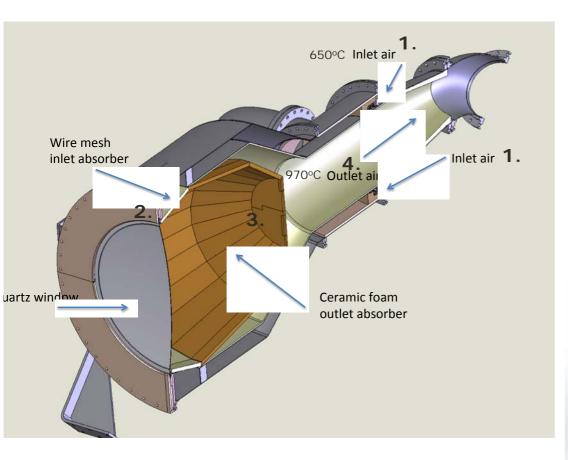
Solar

receiver

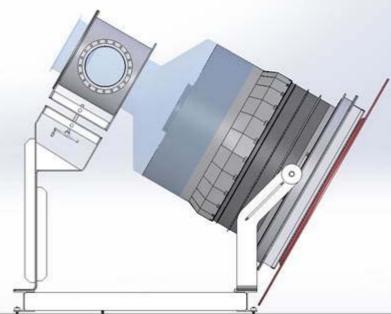
Valve 1

Proprietary Wilson Solar Receiver

German Aerospace Center development partner



- 1. Inlet air flows around the perimeter of the receiver
- 2. Enters at the front of the receiver near the window
- 3. Passes through the ceramic absorber
- 4. Exits through the rear.





Wilson Solar Receiver

Testing by Sandia National Laboratory, National Solar Test Facility



Wilson Thermal Storage m

Saint-Gobain development partner; 100+ year-old technology

- Low cost:
 - ~15% of batteries
- Locally-made insulated steel tank filled with fist-size ceramics or firebrick
- Solar-heated air blown from top to bottom to heat up
 - Air blown from bottom to top to power turbine
- ~3m diameter, 12m tall





Proven commercial turbine packages

Also locally-made towers (~35m) and third-party heliostats (1.5 - 2 hectares)



- Simple, operation-ready
- 10 years between overhauls
- Fuel flexible



Cost analysis process

- Model the productivity of the system (by DLR)
- Determine current component costs plus site/BOP costs using vendor quotes, BOM estimates, & public information for 100 MWe plant (by whole team)
- Extrapolate costs to 2 GW of cumulative deployment using cost learning curve analysis assuming 10% cost reduction for each doubling of cumulative factory production, 5% for commodities such as piping (by Wilson and team)
- Determine current O&M costs using published & anticipated MTBFs,
 SOPs for power plants (by whole team)
- Extrapolate O&M costs to 2 GW of cumulative deployment experience (by whole team)
- Run the SAM model using the above as inputs, plus additional data from DOE (by WorleyParsons)



See Wilson's *Brayton-Cycle Baseload Power Tower CSP System, Final Report Phase 1*, DOE CSP Project, July 2011, beginning on Page 31, for detailed costing information

MIT-invented Proprietary IP

Wilson's strong technology pipeline

- 1. Path to even lower cost CSP power <4 Rupees/kWh
- 2. Secondary applications (4 years)
 - Ultra-efficient engine for distributed power, trucks
 - Ultra-efficient **heat exchanger** for industrial waste heat recovery

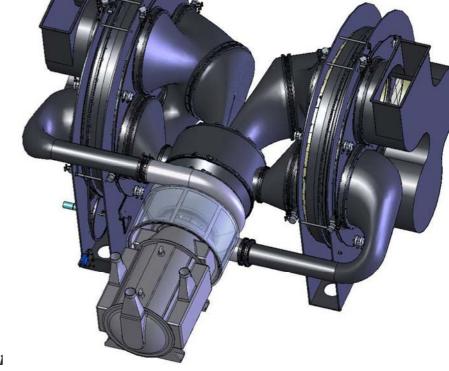


Wilson Microturbine M

Reduce CSP CAPEX by up to 25%

- ~50% fuel/electricity efficiency (28-33% typical)
- \$1 million US government funding to develop ceramic rotors this year with CoorsTek, Oak Ridge National Lab





Strictly Con

Wilson Heat Exchanger™

World's highest temperature heat exchanger



Jobs jobs jobs in India

% of Wilson system manufacturable in India

Component	Immediate	Near term	% of total cost
Turbine package			16%
Heliostats			29%
Receiver			2%
High temperature recuperator			4%
Storage			21%
Pipes			6%
Valves			2%
Blower			4%
Bottoming cycle (ORC)			3%
Tower			3%
Balance of Plant and site prep			11%
Manufacturable in India	62 %	100%	100%

Note: Red denotes not made in India; green denotes made in India



Significant grid benefits

In addition to peak or baseload firm dispatchability

- Reduces costs of transmission/distribution
- Rapid, minute-by-minute load following up/down, leveling, demand response, system balancing
- Reduces spinning reserves requirements
- Voltage and frequency regulation
- Highest capacity value, 100% year round reliability from module redundancy vs planned, unplanned outages of conventional power plants



Wilson CSP expands market size

Does not need large, perfect, isolated sites

- Wind, PV, biomass project developers as customers
- Village, micro-grid, chilling, water purification
- Scarce water locations
- Distribution, not transmission, connection
- Small sites, irregular terrain, expensive land
- Mines, islands, military bases, end-of-grid
- Point of use, behind meter
- Landfills and other brownfields
- Etc, etc



Huge business opportunity

Seeking a single major company to lead and drive commercialization in India

- Company naming/branding for India
- Co-engineering for local manufacturability/deployment
- Sole manufacturing rights
- Sole commercialization rights
- Full support from Wilson



Testimonials — this is big

"The right direction and the future of CSP."

Arnold Goldman
A founder of Brightsource CSP, decades-long CSP visionary and leader

"A home run."

Dr. Fred Morse

"Mr. CSP"

Directed US Department of Energy's solar program under both President Carter and President Reagan

"I cannot remember when DOE has added funding to an existing CSP award"

Wilson's US Department of Energy Financial Manager after DOE awarded Wilson additional funding



"Smartest approach to CSP I've seen"

"If it works at the price points Wilson is targeting, AES is a customer."

Robert F. Hemphill

President and Chief Executive Officer at AES Solar Power and co-founder of the AES Corporation Fortune 150 worldwide power-plant developer investing \$1 billion in solar energy projects

Also

- "Other than CSP, there is no dependable 24/7 clean power technology"
- "Current CSP is too complicated and expensive"



India: huge economic opportunity

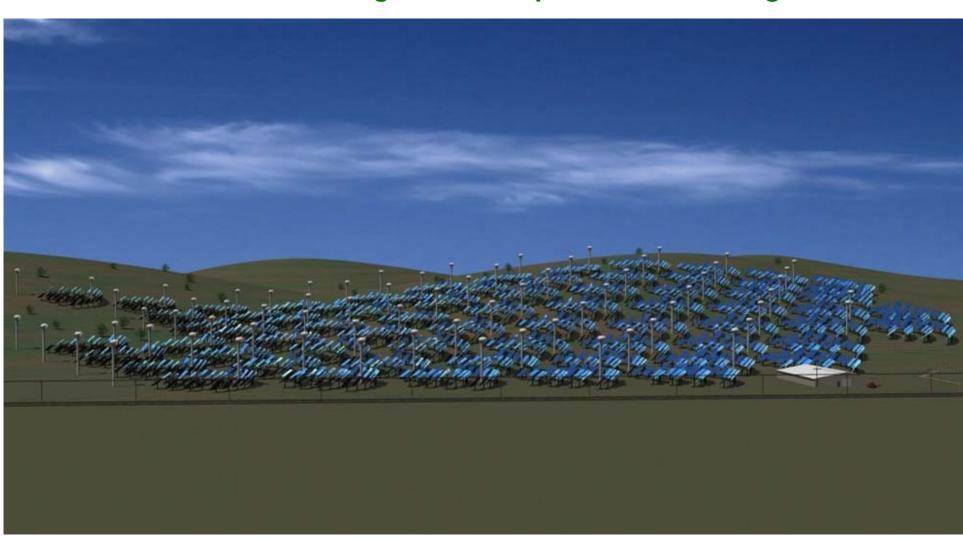
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