Solera

Solar Electricity – day and night.

Small mid-temperature solar thermal systems
(25-50 kw)

- Capable of generating electricity 24/7.
- Competitive with distribution tariffs in high tariff and solar irradiation regions.

Presenter:
Eduardo Saucedo, CEO

The Problem

Catastrophic effects of global warming

Need to break oil addiction

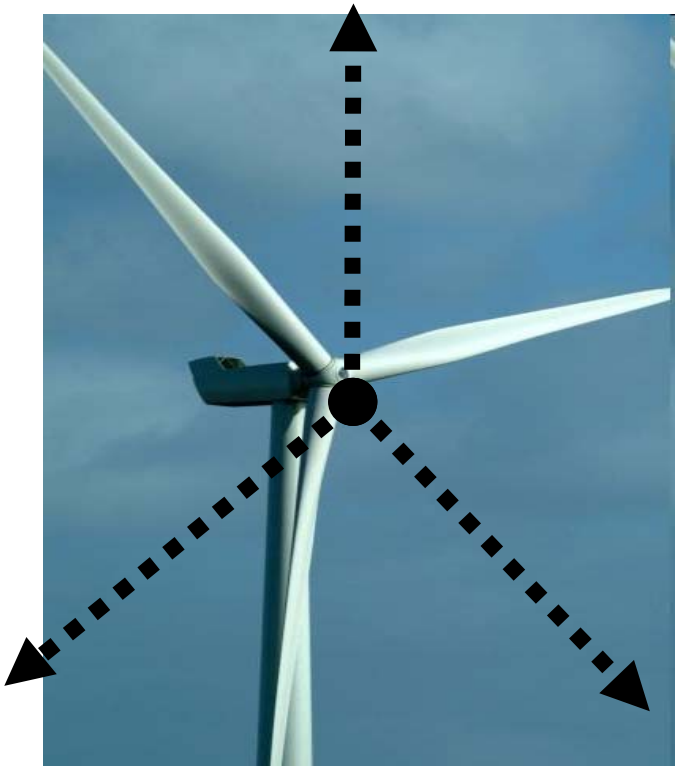
High energy prices

Tax credits for renewables

It is a societal problem – not an individual problem.

Current Alternatives

Wind Energy



- Less expensive way of generating electricity.
- Unfortunately, not predictable.
- Use – complement a robust system.

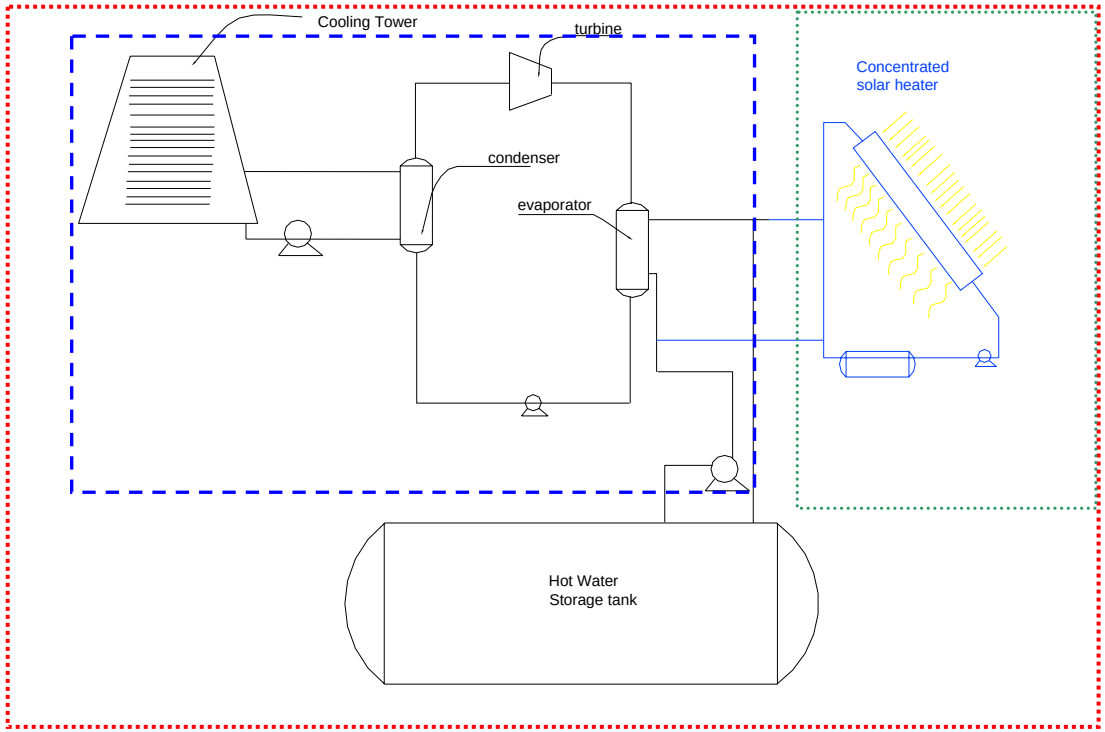
Photovoltaic Panels

- Solid state, no moving parts
- Totally scalable
- Diurnal and expensive

Simple and Proven Technology

Mid temperature solar thermal system

Cost



Efficiencies

Integral Approach: simple and economic way to generate electricity 24/7.

Competition

Incumbent: Strong ($100+ billion/y in sales), well connected, and has enjoyed a natural monopoly.

Inertia

Other green products: many backed by strong companies.

Markets for renewable energy

Large scale = selling to incumbent - feed in tariffs (low);

Small scale = selling to incumbent – net metering (best case – no bill);

Medium scale – distributed electricity – best alternative.

Our Strengths

- Functional product;
- More kilowatts per dollar invested;

Value Proposition - Peaking Plants

Cost of Generation			Operating Costs			
	Efficiency	Hours of Operation	Investment per MW	Fixed	Variable	Total
Combined Cycle	57%	8,000	1,000,000	6.25	35.93	42.18
Coal thermal	40%	7,000	800,000	5.71	51.20	56.91
Gas Turbines	34%	7,000	600,000	4.29	60.23	64.52
Gas Turbines (peaking)	32%	1,440	500,000	17.36	63.99	81.35
Solera (300 days)	mid-teen	7,200	14,000,000	97.22		97.22

Capital cost 5%; natural gas $6/MMBTU; peaking plant 4hrs/d; assumes 30% incentive for Solera.

Small renewable operator as peaking plant

PG&E Base Tariff	0.0930¢/kwhr
Peak Factors (*)	
Possible tariff (**)	0.1736¢/kwhr
20y IRR (***)	5.5%

Assumptions
- PG&E Peak Factors (*)
  - Summer 2.037
  - Winter 1.203
  - Spring 1.030
- Possible tariff (**)
  - Projected monthly with production during peak
- IRR (***)
  - 70% financing with 10 year loan at 7% pa, constant tariffs

Value Proposition - Small Upscale Community

Economics of unit serving 40 houses

Unit Cost	1,000,000
Nominal Capacity	60 kwhr
Actual Capacity	50 kwhr
Partners	40
Cost of Ownership	$25,000
Federal Tax Credit	$7,500
Net Cost	$17,500
Free Electricity	1.25 kw
Electricity Prices (*)	$0.2449/kwhr

	With Unit	Without unit
Cost of the House	$600,000	$600,000
Plus Parnership	$625,000	$600,000
Mortgage	70%	70%
Loan	$437,500	$420,000
Down Payment	$187,500	$180,000
Interest Rate	7%	7%
Mortgage Payment	($2,910.70)	($2,794.27)
Utilities	0	$220.41
Monthly payment	($2,910.70)	($3,014.68)
Monthly savings	$103.98	
Tax Shelter (2nd y)	$30,013	$28,812
Tax Impact (2nd y)	$360.15	
Monthly savings	$30.01	
Total Monthly Savings	$133.99	

* Current PG&E tariffs for 1.25 kw consumption

Marketing

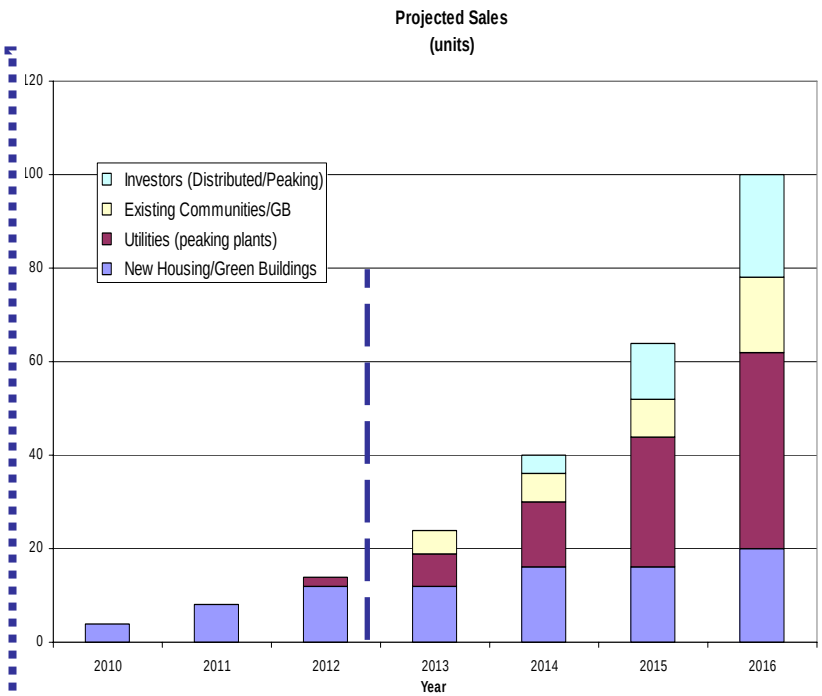
Marketing Tool: Demonstration Unit

First years: Innovators – turn-key;

Utilities: seal of approval – critical

Contractors: selling equipment only

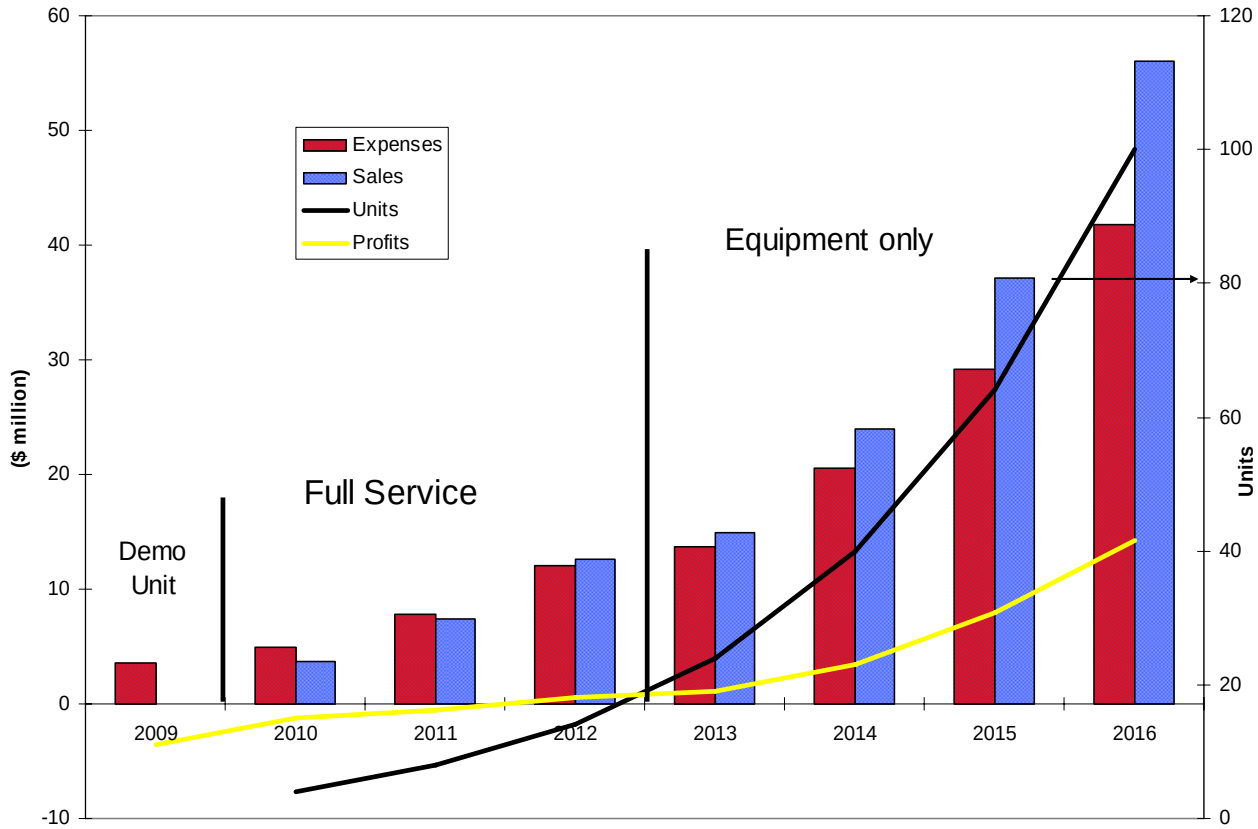
Developers: profitable selling electricity



Full Service

Equipment Only

Financial Projections



Demonstration Unit

- Prototype is cheaper.
- No need to demonstrate that the sun can heat water or that a Rankine engine works, however:
  - Prototypes are not scalable;
  - There are not many small turbines to choose from, and their operating efficiencies under fluctuating conditions can not be calculated with desired accuracy;
  - Need UL or similar agency rating to qualify for tax incentives;
  - Provides buyers with power utility receipts;
  - Economics will depend on actual output.
- One is needed eventually.

Funding

(US$ '000)

Source		Application	
Equity	$7,000	Fixed Assets	$9,943
Cash Generation	$9,172	Deferred Assets	$1,715
		Working Capital	$4,514
Total	$16,172		$16,172

- Equity invested in two tranches of $3.5 million each, the first one to finance the construction of the demonstration unit and the second one the construction of the manufacturing facility.
- Contingencies on first tranche ~$600k with burn rate of $87,500/month.

Team

- Eduardo Saucedo – MS Chem Eng UCB; financial experience (IFC/private equity fund); independent for 15 years; two patents.
- Working relations with Solar House and Constructed Facilities Laboratory at NCSU.
- Working with Kolsa Group to get LOI from agro-business.
- California ideal starting place
  - High solar irradiation;
  - High electricity tariffs;
  - Benign weather and low average consumption.
- Initial team engineering background; others once demonstration unit is operating.

Summary

50% less than PV panels and works during the night

Competitive at the distribution level in California.

Opens the market – investors/developers could finance distributed generation systems or peaking plants.

Strategy:
Build a full scale demonstration unit
$3.5 million