



# Clean Energy Innovation In Israel Opportunities for Brazil

**FIESP**

Noam Ilan

Founder

Eilat Eilot RE Initiative & Conference

Capital Nature



# START-UP NATION

## The Story of Israel's Economic Miracle

Wednesday July 2nd, 2014

### Israel 'best place' on planet for clean-tech entrepreneurs according to Cleantech Group and WWF

By: Mickey Chesla, Blog Manager

The [Cleantech Group](#) and [WWF](#) have published the Global Cleantech Innovation Index for 2014, and Israel is in the number 1 position.

According to the report, "Israel topped the 2014 index, with its relative outperformance on the measure of start-up companies per capita being a key reason that it did so. The country generates the culture, education and 'chutzpah' necessary to breed innovation, plus it has the survival instincts to manage a resource-constrained geography." The report cited a number of successful Israeli cleantech companies, including wastewater treatment company [Emefcy](#) and seed technology firm [Kaiima](#).

"We're pleased by the Cleantech Group and WWF declaration," said Oded Distel, who heads Israel NewTech, Israel's government program for the advancement of the cleantech sector, in the Ministry of Economy. "We at Israel NewTech have been working since 2006 to help Israel's innovative and quickly growing cleantech companies break through in international markets, and to support the sector in Israel in a variety of ways. We're happy to see many of Israel's cleantech companies succeeding and the international community taking note."

The report also pointed out government support as one of the country's success factors, saying "Israel has increased its supportive government policies and has early stage cleantech-oriented funds as well as substantial M&A activity, even while cleantech company revenues remain low. The country has seen an impressive number of cleantech companies voted into the Global Cleantech 100 index per GDP over the past 2 years."



According to the report: Israel is the cleantech innovation archetype for both embedding

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ISRAELI CLEANTECH  
COMPANIES DIRECTORY

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## The Map

Cleantech in the Making

#### Most Popular Topics

Adi Yefet Beeri Amiad Aqwise

Bermad Bird Foundation China

Cleantech Group Cleanvest Summit 11 topics

desalination Desalitech Diffusaire

Emefcy GE IDE India Investment

Promotion Center Israel Israel Cleantech

Israel Cleantech Ventures Israel

Export Institute Israel

NewTech Kaiima Kinrot

Ventures Mekorot Monsanto Naftali

Bennett Netafim Niv Morag

Oded Distel OECD Ophir

Gore Ormat Panoramic Power Photovoltaic

Powercom Solar SolarEdge Solar energy

Tahal Te

israelnewtech.com/tag/aqwise/

הצג את כל התוויות

Greenlet Techn....htm

Agenda Noam ....xlsx

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# Israel - Country ID



**Area:** 21,000 sqkm

**Population:** ~ 8 million

**GDP:** \$242,897 million (2011)

**Main Cities:** Jerusalem, Tel-Aviv, Haifa,  
Be'er Sheva



Sold to  for 1.1 B\$

How to Save **Gas**, Time and  
Money with Waze







# Ivanpah – Flagship Project for an Industry

392 MW in 3 tower units

Largest solar power plant in the world

*Complete in 2013*



*Photo taken April 2013*

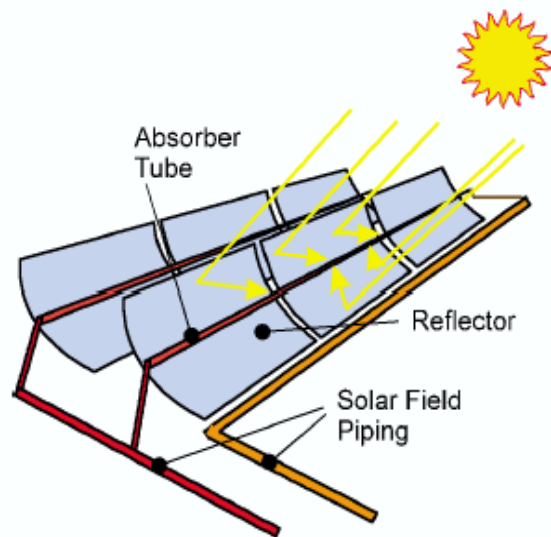




**September 2013**



# SEGS – LUZ – the 80'









# Global Cleantech leaders



Netafim - Drip (low volume) irrigation

Solel sold to SEIMENS for \$400M



Aqwise - Wastewater treatment solutions



TaKaDu - Monitoring water networks



Ormat – A global leader in Geothermal energy and residual heat



HelioFocus – Solar thermal solutions



Solar Edge – A Global leader in Power Electronics



Harry Tabor (left) demonstrates his selective-black collector to Israeli Prime Minister David Ben-Gurion prior to its shipment to the first solar congress in Arizona in 1955. Ben-Gurion actively encouraged solar R&D in Israel.

*“Solar energy is the largest and most impressive source of energy in our world”*

*David Ben Gurion 1955*



# Capital Nature

## Your gateway to green energy innovation from Israel

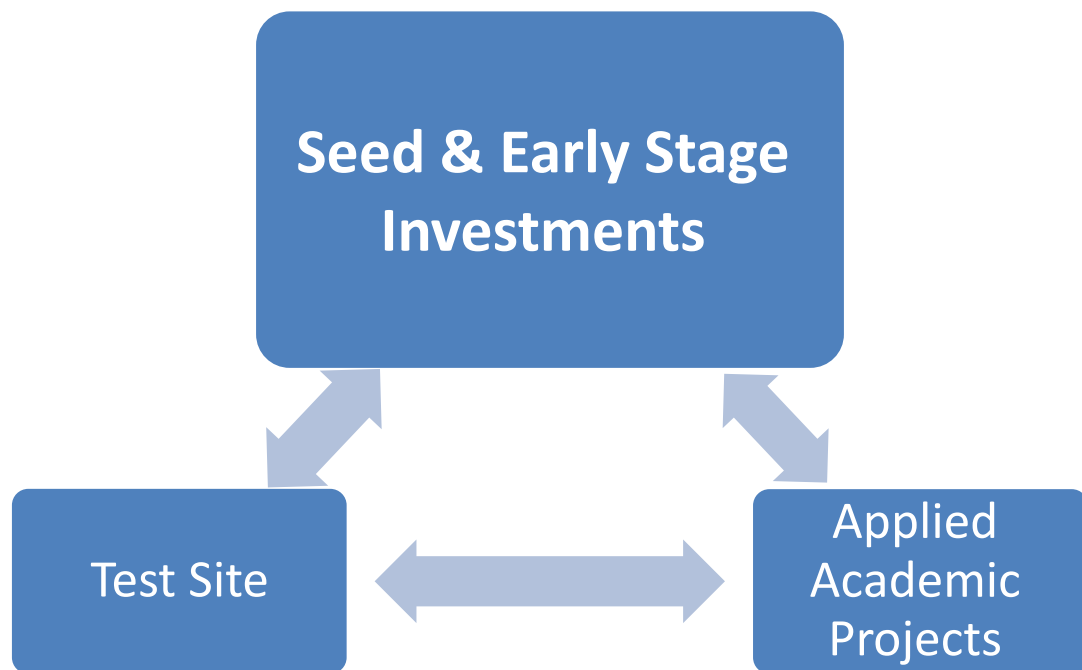
We incubate, invest and accelerate breakthrough technologies that promote Green Energy



CN owns and operates the  
*Israeli national center for  
Renewable Energy*

# Unique and Holistic Investment Strategy

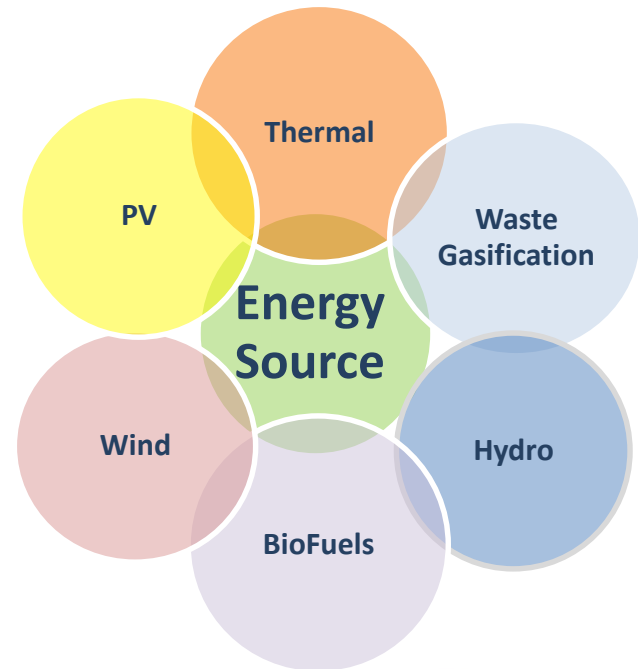
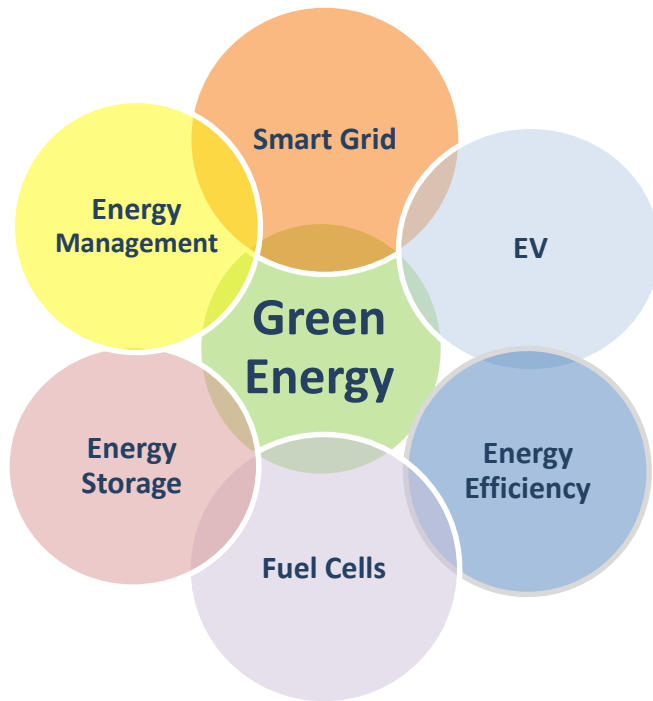
- Enhanced incubation track – from applied research to market
- Current fund – 30m\$; 50-50 ratio (CN/Gov't)



**CAPITAL NATURE**  
INVESTING IN GOOD ENERGIES



# Capital Nature's Green Energy Mandate





*Production  
cost:*

**\$500**

*MSRP:*

**\$1999**

*Target  
Audience:*

**25-70**

**MUV-e**  
PERSONAL TRANSPORTATION

Confidential



# Next Generation Personal Transportation



- Simple to Use
- 5 seconds automatic folding system
- Original Design and Layout
- Eco Friendly
- Maximum Flexibility
- Advanced constriction technology

- Patent pending (PCT Stage)
- Lightweight GRP body: 12-15 Kg
- More than 30km range\*
- Minimalistic Hi-Tech look
- Lifestyle product
- Smartphone full integration

# MUVe Innovation - Smart phone Integration

Developing a mobile app to enhance the user experience

- > One touch folding / unfolding Command
- > Dashboard gages
- > Battery optimization to user`s track
- > Malfunction online report to base
- > Anti theft user recognition
- > User behavior data gathering
- > Selective operation modes:
  - Performance
  - Normal
  - Economy
- > Social driving experience



# MUve Innovation – Smart City Solution

## MUve revolutionary rental station

- > Full utilization of MUve's unique structure
- > Up to 16 vehicles storage
- > Compact and easy deployment
- > Online status transmit for vehicles distribution optimization
- > Pay per use or hourly rates
- > Solar recharging option
- > Minimal urban footprint





# SolView

Online system for fully automatic  
estimation of rooftop solar potential

Utilizes available imagery from Google /  
Microsoft

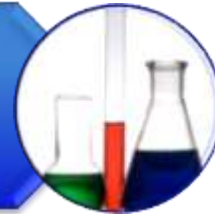
Based on IP protected novel approach in  
Computer Vision and Image Processing



# The Israeli Oil-Free Initiative

To become a global leader in energy R&D, and a catalyst for worldwide implementation of Oil Alternatives:

**Land of Innovation**



**Test bed**  
(Innovative Solutions)



**Global Projects**  
(Promotion & Leadership)



**Advocacy**  
(Policy & Diplomacy)



Create local  
supply of  
innovation

Increase global  
demand for  
innovation

AL NATURE  
IN GOOD ENERGIES

# The Israeli Oil-Free Initiative

- ❑ Government Budget of over \$ 400 Mln on R&D for 10 years
- ❑ Tax Incentives of over \$ 5 Bln for Electric and Hybrid Vehicles \*

Management Under the Prime Minister's Office

International Cooperation & Activities

Local Regulation & Incentives

Supporting Regulation for Pilots

Venture Capital Co-Investment

Research Centers & Grants

Research

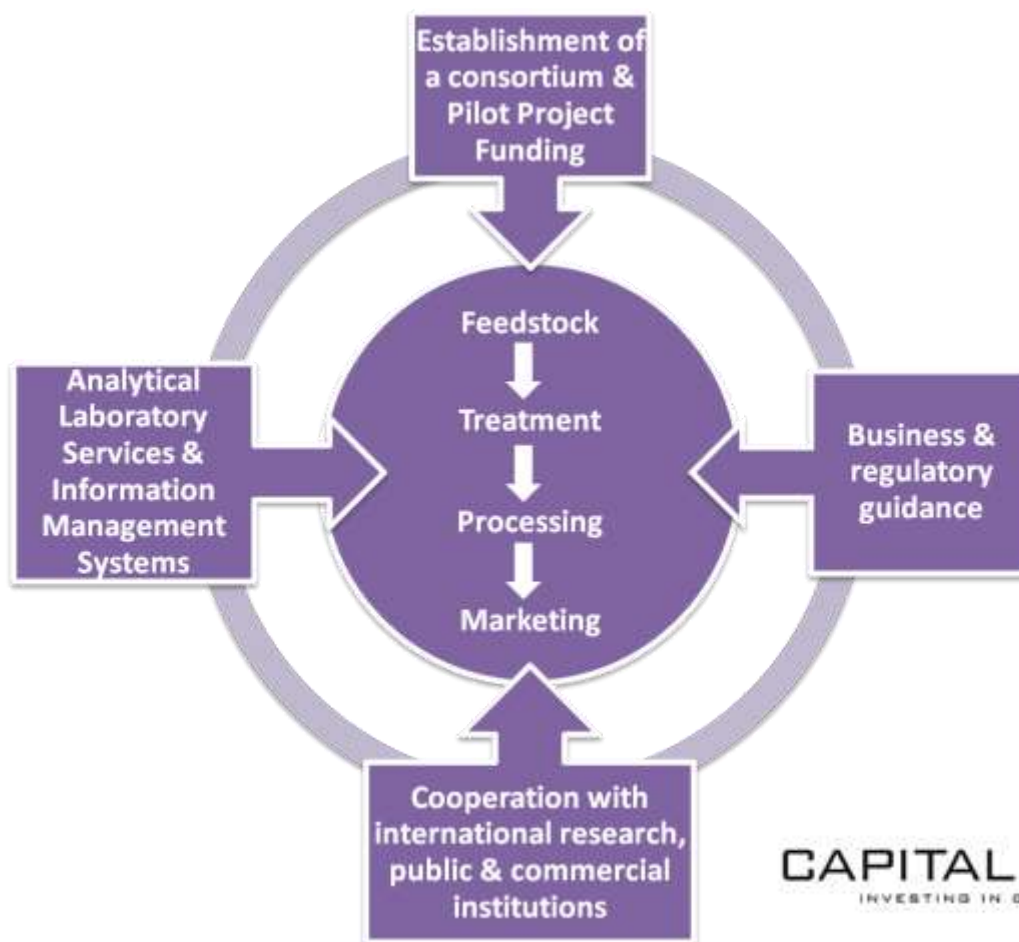
Industrial R&D

Pilot

Scale Up



## A NATIONAL CENTER FOR BIOFUEL PRODUCTION TECHNOLOGIES IN ISRAEL

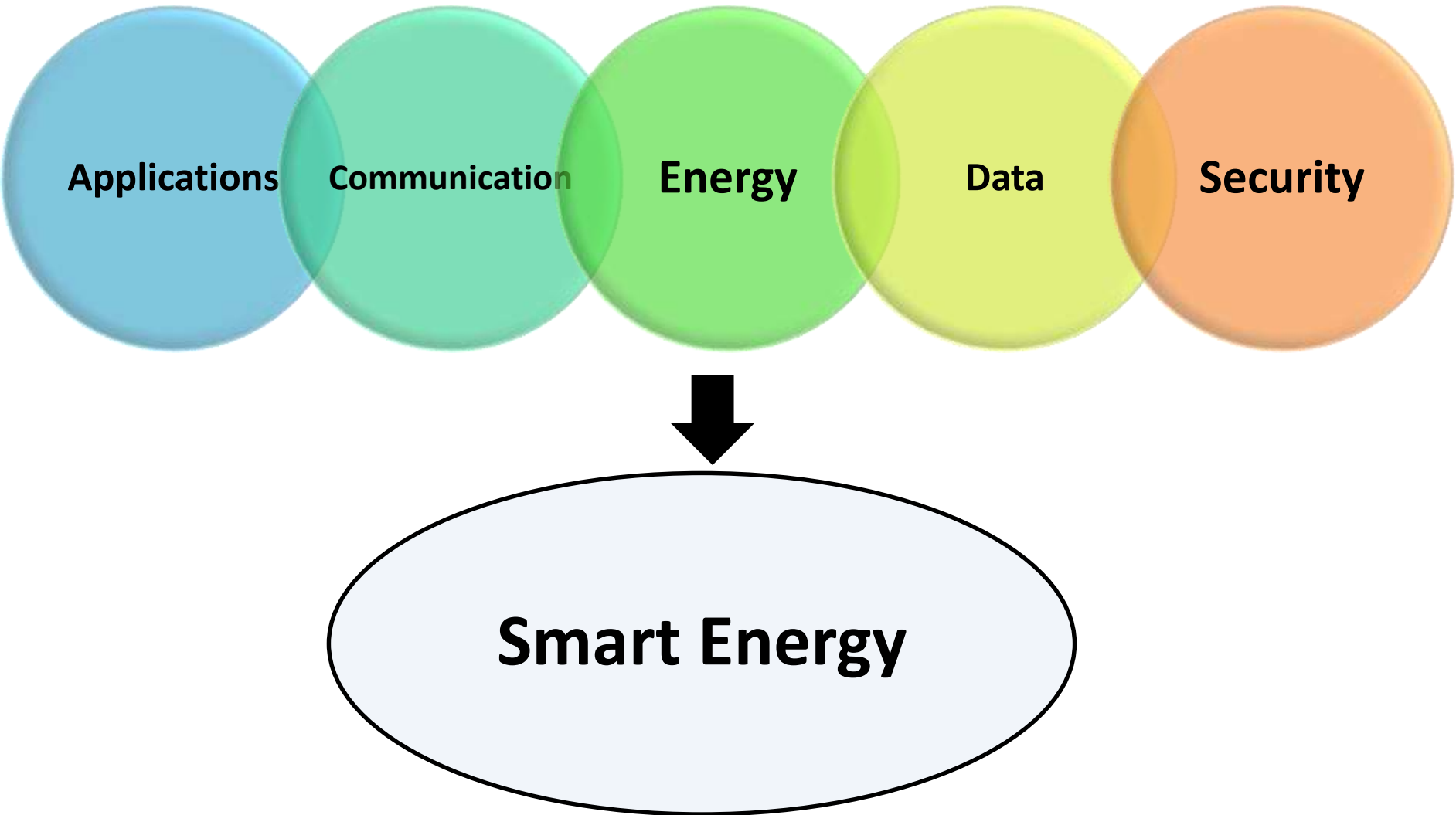


**CAPITAL NATURE**  
INVESTING IN GOOD ENERGIES

## Fuel Choice in Southern Israel ☺



# Israel Hi-Tech Innovation Relevant to Energy





# Sample Israeli Smart Energy Companies

## Sample Solutions

- Smart Metering
- Monitoring devices
- Energy efficient HVAC
- Revenue Assurance
- Smart Grid security
- Communications
- Fault Current Limiters
- Remote sensors
- Automated maintenance
- Data Analytics
- Energy Storage
- MicroGrids
- Energy Management

## Sample Companies



# Greenlet UVP: Scalability ⇔ Simplicity

## 1. SEND



Our pluggable outlets are  
**SENT** to customers by mail

## 2. CONNECT



Customers simply  
**CONNECT** them to loads

## 3. CONTROL

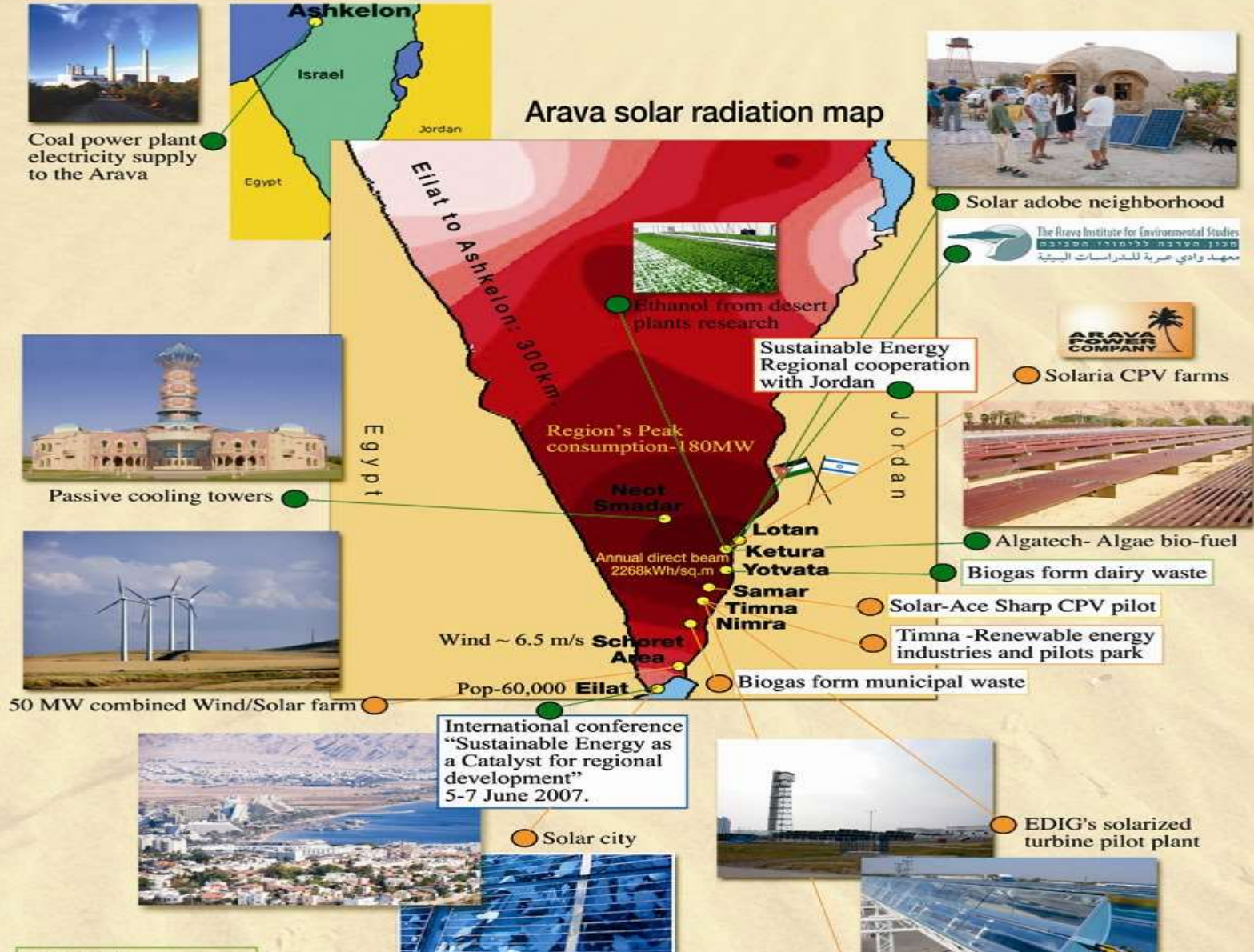


Utilities & Customers  
**CONTROL** loads via web

- 5-minute installation per home , for non-technical person
- We automatically connect millions of appliances to control center
- Control many Megawatts, reduce energy usage
- Electric companies can avoid building new power plants
- Customers control appliances and get payback for power reduction

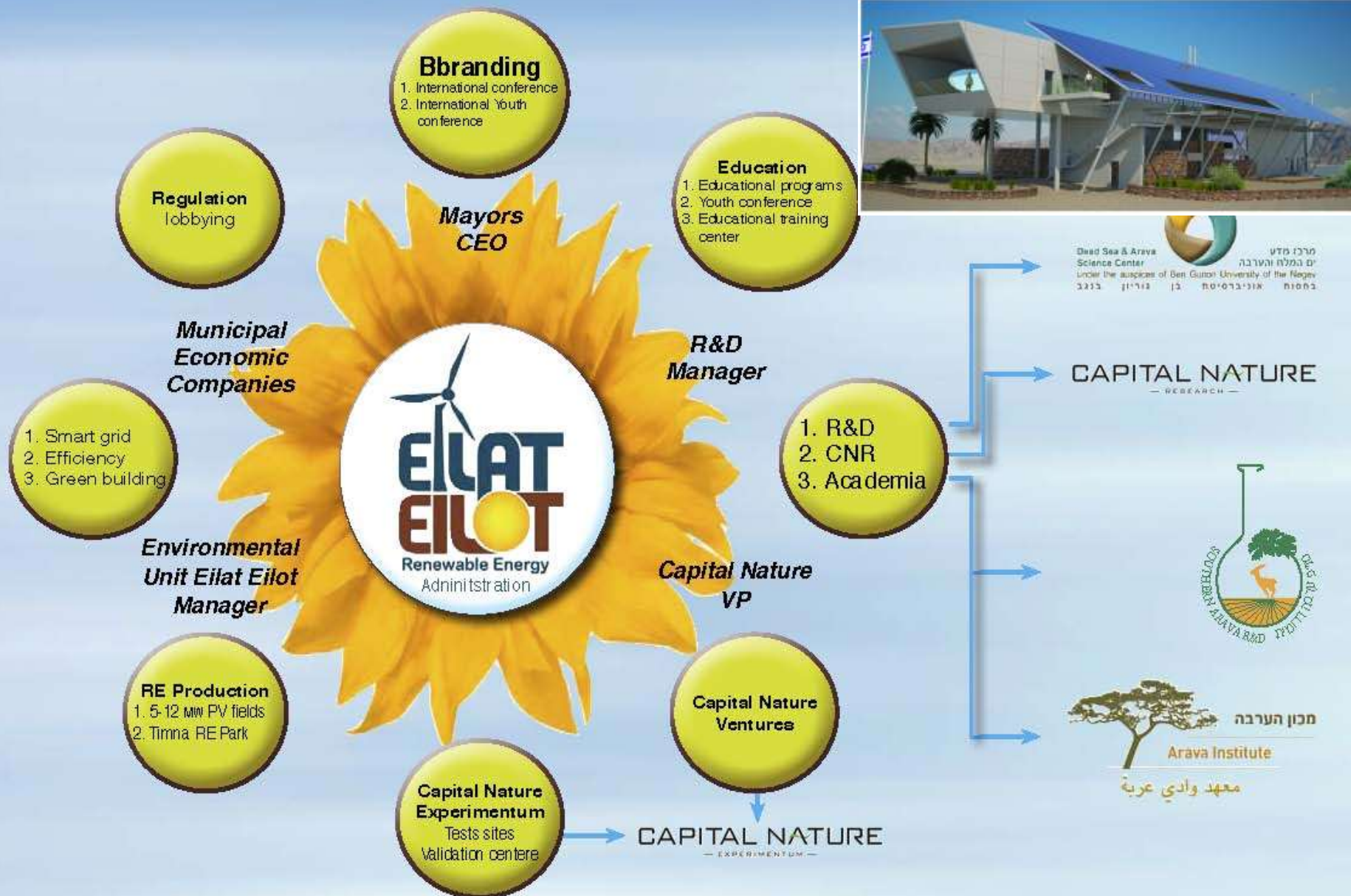
# Southern Arava Renewable Energy Technologies Park

Turning disadvantages into advantages on the way to regional energy independence





# Eilat-Eilat RE Initiative Model





# Eilat-Eilot Off-Grid Hub

## Background

*A new center for off-grid solutions in Kibbutz Ketura in cooperation with **Arava Institute** focusing on water, energy, agriculture. Presenting comprehensive approach to changing climate. Launched during Eilat Eilot Conference Dec. 7<sup>th</sup>, 2014*



## Technologies

- Biogas
- Aquaponics
- Autonomous farming solution
- Mini-grid management solution
- Security for solar panels

## Services provided

- Demonstration site
- R&D support through network of experts
- Business development services through network of innovation and climate change centers



# **The Energy Week: 3 – 9 December**

## **Focused & Synergetic Approach**

**The 3<sup>rd</sup> Israeli Smart Energy Conference**

**Energy Utility Infrastructure Conference**

**Eilat Eilat Conference & Exhibition**

**Oil Alternatives for Transportation Conference**

**Electricity 2014 Convention**

**Energy Vest**





**EILAT-EILOT RENEWABLE ENERGY**  
5<sup>th</sup> International Conference & Exhibition  
November 27 - 29, 2012 • Eilat, Israel

[www.eilatenergy.org](http://www.eilatenergy.org)

# See Everything Israel has to offer in the Field of Green Energy







**MATALON ENERGY**



A thermal solar project that combines the need for clean energy with the need to develop the region.









Confidential



















# Storage – the Key for the Future

- Nation – E
- Celera
- En-Storage
- AUG Wind
- Chacratec



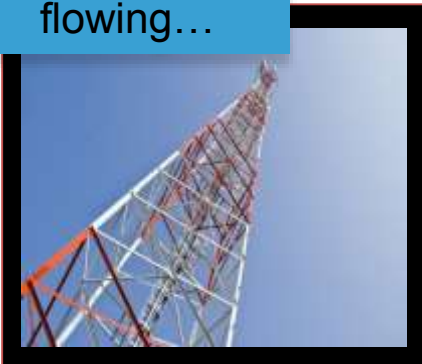
# GenCell. Keep Running, No Matter What™



GenCell's innovative high-end backup solution based on fuel cell technology allows you to regain control over power uncertainty.

The GenCell G5 enables you...

To keep data  
flowing...



To keep business  
running...



A  
a

To keep people  
alive...



a

To keep the world  
moving...



A  
A

# Reinventing wind Energy

- Winflex
- Smart Wind
- Pentalum
- Levaiathan





# End to OIL

- HCL – Cellulose Ethanol
- Univere – Holistic system for algae biodiesel
- Symbiotic – utilizing flue gas from coal burning power stations for algae cultivation
- Evogene - Castor Bean as a viable 2nd generation feedstock for Biodiesel and Biojet
- TranseBiodiesel - Enzymes for Biodiesel production
- Kaima - Doubles Chromosomes To Make More Plant Power
- EBZ – Bio-coal







# Solar Thermal (CSP) Pioneer

- BrightSource - Utility scale solar tower
- Ormat – Geothermal & CSP
- Heliofocus
- Aora Solar



# Brazil - Israel

## Potential Collaboration

- Petrobras
- Vale
- Elctrobras
- Olympic Committee
- BNDES
- R&D
- Sao Paulo State

**OBRIGADO!**