Distributed Solar Power
1.3 BILLION
People in Emerging Markets Without Electricity

FOSSIL FUELS
Limited Access to Fossil Fuels

POWER-GRID
No Power-grid Infrastructure

A formidable challenge for most.

A massive opportunity for Infinia.
These same emerging markets leapfrogged challenges with access to traditional telephone infrastructure through

RAPID MOBILE ADOPTION
Lack of Telephony because of:
• No Telecom Infrastructure
• Lack of Access to Capital
• Local vs Regional Demand

= SEVERLY LIMITED ECONOMIC OPPORTUNITES
ALONG COMES MOBILE TECHNOLOGY

Opening the door for broad telephone access.

Adoption is driven by:

- Micro-financing/leasing
- Business model for locals
5.9 BILLION
Mobile Subscriptions Worldwide

77% Developing Countries

23% High-Income Countries
Mobile revolution has set the stage for highly-localized energy economies in emerging markets.

**SIMILAR HURDLES**
- No power-grid infrastructure
- Limited access to fossil fuels
- Local demand overwhelming regional capacity

**INCREASING DEMANDS**
- New need to power cell towers and phones
- Awareness of powered economies
- Greater knowledge of technology

**MOBILE ENABLERS**
- Micro-financing/leasing
- Cell tower power solutions
Powering developing countries with distributed solutions.

- Augment grid-connected cities via utility-scale solar
- Power cell towers and phone charging stations
- Power/augment micro-grids for 24/7
- Optimize micro-grid/distributed generation
What is required to leapfrog traditional power infrastructure for emerging markets’ electricity needs?

<table>
<thead>
<tr>
<th>LOCAL FUELS</th>
<th>24/7 NEEDS</th>
<th>LOW-COST</th>
<th>INDIGENIZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of locally available fuel sources in the right quantities</td>
<td>Variety of configurations to meet the unique, 24/7 needs of each territory</td>
<td>Low-cost operation with minimal maintenance requirements</td>
<td>Products that can be indigenized to support local economies</td>
</tr>
</tbody>
</table>
Infinia’s technology is uniquely capable of meeting the needs of emerging markets.

- Fuel agnostic engine
  - Solar, biomass, biodiesel, natural gas, diesel
- Products for variety of needs
  - Utility-scale, microgrid, remote/village, field operations
- Low-cost, minimal maintenance operation
- NASA Deep-Space Certified maintenance free engine
- Product components can be sourced and manufactured locally
Infinia’s path to the emerging market opportunity.

POWERDISH™

MULTI-FUEL GENERATOR

SOLAR/FUEL HYBRID
Infinia’s Free Piston Stirling Generator

External Heat – solar, waste heat
Burner – biogas, diesel, liquid fuels
Zero Maintenance Generator
Water for mirror cleaning only
  hermetically sealed: Free Piston design
  flexure bearings/gas dynamics “lock in” the cycle
  no lubricants; no seals; no touching parts

Robust & Efficient
  uses external heat sources from 250C to 700C
  very high efficiency – 34% heat to electric
  long life (25 years+ for solar)

Quiet – <65dB compared to diesel at +90dB

Designed for Volume Production
  common materials and standard processes
  low part count (63 total part numbers)

Over 1.3 million Hours of Operation
  generators sizes produced from 10MW – 3.5KW
  in development 7KW – 30KW
Infinia’s PowerDish – Solar Electric Generator

DNI World Map
Infinia’s Free-Piston Stirling Engine is unsurpassed in the market

31 PATENTS

Infinia has 31 Domestic and International Patents.

22 YEARS

Infinia has spent 22 years of rigorous programs and investment with the most demanding organizations:
- NASA - 38 projects/25 yrs
- DOD - 34 projects/22 yrs
- DOE - 19 projects/23 yrs
- NIH - 4 projects/27 yrs

1.5 MILLION HOURS

The sophisticated and proven design has more than 1.5 million hours of operation. The very low part count and sealed design is NASA deep-space and zero-maintenance certified.
# PowerDish Development Path to Pilot Testing

<table>
<thead>
<tr>
<th>Technology Demonstrator</th>
<th>Prototype Test Unit</th>
<th>Field Test Unit</th>
<th>Commercial Test Unit</th>
<th>Pre–Production Pilot Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2006</td>
<td>October 2007</td>
<td>May 2008</td>
<td>December 2008</td>
<td>2009 - 2010</td>
</tr>
<tr>
<td>• Demonstrates Basic Technology Capability</td>
<td>• Concept Demonstrator</td>
<td>• Concept Refinement</td>
<td>• DFMA Demonstrator</td>
<td>• Tooling Demonstrator</td>
</tr>
<tr>
<td></td>
<td>• Demonstrates Technology Form, Function &amp; Performance</td>
<td>• Demonstrates Refined Performance</td>
<td>• Demonstrates Improved Manufacturability</td>
<td>• Demonstrates Use of Production Tooling</td>
</tr>
</tbody>
</table>
History of Successful PowerDish Partnerships

Pilot Field Testing

- Kennewick, WA, Ogden, Utah (development/test, since 2008)
- Belen City Hall, NM (demo, 2009 – 11/2011)
- Las Virgenes Water District, CA (demo, 2009)
- Sandia National Laboratories, NM (development/test, 2009)
- ONGC, Gurgaon, India (demo, 2010)
- Villarrobledo Spain, development test 2008 - 2010
PowerDish II Grid-Connected Installation
Commissioned August 2010
Dairy Processing Facility | Yuma, AZ (PowerDish II)

Bankable
15 y PPA with Utility
20 y PPA with Dairy

Performance
Availability: 88%

Reliable
80 kWac capacity
Over 200,000 kWh generated
Fully remote operation

Rated
2.0kW PowerDish II
80 kWac Field Capacity
PowerDish III Grid-Connected Installation
Commissioned January 2011
PepsiCo, Frito-Lay | Casa Grande, AZ

Performance: Feb 2011 – Apr 2012
Aggregate Performance Ratio 91.6%
Availability: 96.3%

Reliable
119,000 kWh generated
Fully remote operation

Rated
2.7kW PowerDish III
27 kWac Field Capacity
Infinia’s relationship with the U.S. DOD lends credibility worldwide - rapidly opening new opportunities.

TOOELE ARMY DEPOT - RELAUNCH INSTALLATION

• Utility-Scale PowerDish™ Solar
• 1.5 MW Field
• 430 systems
• Technology and economics validated by U.S. Army Corp of Engineers (USACE)
• Under construction – fields available for showcase Dec ‘12/Jan ‘13
• Groundbreaking with Joint Chiefs of Staff, Gen. Martin E. Dempsey: August 16, 2012

U.S. DOD*
• $7B renewable power initiative
• Well-positioned for military bases with near-term decisions
• Driving relationships with major ESCOs: Chevron, Bechtel

PARTNERSHIPS
• India (The Kirloskar Group)
• Chile
• China
• Pakistan
• Saudi Arabia

PIPELINE DEALS
• Chile
• India
• Italy
• Mexico
• Morocco
• Pakistan

* Infinia must move immediately and quickly to capture share of DOD
Solar Hybrid

7.5 KW Solar Electrical Power
5.0 KW Bio-gas Electrical Power
10.0 KW Harvestable Heat

24 Hours of Continuous Energy

The Village Power system will be able to run off of Biogas (aka gobar gas), Natural Gas and Propane. Heat from the engine can be used to enhance the existing bio digestion process. A biogas system at Rupantar is pictured below.

Infinia’s Village Power unit – 2.5 KW of Electrical Power
7.0 KW Harvestable Heat for Heat or Adsorption Cooling

Run’s on unfiltered bio-gas, Natural Gas or Diesel
Infinia’s product roadmap is defined to rapidly deliver emerging market solutions.

- **UTILITY-SCALE SOLAR**
  - PowerDish 4
    - 3.5 kWe
  - PowerDish 5
    - 3.5 - 7.5 kWe
  - PowerDish 6
    - 10 - 30 kWe

- **MULTI-FUEL REMOTE**
  - Biogas Cell Tower Generator
    - 3.5 kWe
  - Multi-Fuel Tactical Quiet Generator
    - 3.5 - 7.5 kWe
  - Off-Grid/Micro-Grid Generator
    - 3.5 - 7.5 kWe

- **HYBRID SOLAR/MULTI-FUEL**
  - Hybrid Tactical Quiet Generator
    - 3.5 - 7.5 kWe
  - Hybrid Off-Grid Power Solution
    - 3.5 kWe
  - Off-Grid/Micro-Grid Hybrid Power Solution

Timeline:
- **Today**
- 2013
- 2014
- 2015
- 2016
Award winning manufacturing team has product ready for mass manufacturing.

The Infinia team includes 3 former plant managers with extensive training in industry leading Japanese lean manufacturing.

- Shingo Academy
- TPS Training Toyota
- Toyota Sensai Training

YEARS OF AVERAGE MANUFACTURING EXPERIENCE

19

SHINGO PRIZES FOR OPERATIONAL EXCELLENCE

21

PACE AWARDS FOR EXCELLENCE IN INNOVATION (AUTOMOVIE MANUFACTURING)

03

INDUSTRY WEEK “BEST PLANT” AWARDS

02
PowerDish more competitive than PV in $/Watt.

PD vs. PV single axis $/W DC installed (USA Basis)
Indigenization Manufacturing:
- Chassis Fabrication
- Generator Assembly
- Electronic Box Build

PowerDish Installations
**PowerDish Installations**

**Local Jobs** *(25 MW project example)*
Temporary during construction (>200,000 labor-hours)
Permanent (~20+)

- Cable Distribution
- Post Installation
- Assembly
- Plant Operation
THANK YOU

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