Silicon Valley
Photovoltaics Society
May 13, 2009

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Our Company

- Balance of System, HW and SW for PV Solar Installations:
  - Reduce cost per kilowatt hour and accelerate ROI
  - Distributing electronics achieves same CapEx of today’s systems
  - O&M costs reduced

- Web Application:
  - Reduced customer acquisition cost
  - Hosting & Service revenues for installers

- On going installations in US, Europe, Japan
  - Beta since May 2008

- Semiconductor industry methodology

- Venture funding from ...
Problem Statement Summary

- Mesh PV module arrays (serial/parallel) - power output not optimized per module
- Weaker modules drag down chain, temperature and soil major offenders
- “Non ideal” power source
- Safety hazard
- More ... resulting less than optimal power production
Module Mismatch

- Project Factors
  - module rating, shade, orientation
- Environmental Factors
  - thermals, soiling, clouds
- Lifecycle factors
  - failure, performance degradation

A weak module affects the overall system performance
Berkeley California: Even without shade ... module output varies greatly
Cloud Effect – Voltage Response

Santa Cruz: Traditional inverter can’t stabilize during changing light
Find the malfunctioning module ... ?
Tigo’s Modular & Distributed System

- Improved power efficiency up to 20%
  - DYNAMIC module balancing
  - Annual system degradation by 0.45%
- Cost and ease of installation (Art to Science)
- Hazard mitigation
- Extended system uptime
- “MICRO manager”
  - Management at module or cell
- Significantly improved Inverter reliability
- W/O any additional conversion stage, cost, components and etc.
The Tigo Energy Advantage

Side by side installation in Italy
THANK YOU