



# FuelCell Energy

Ultra-Clean, Efficient, Reliable Power

## Company Update

### September 2013



Ultra-Clean, Efficient, Reliable Power

This presentation contains forward-looking statements, including statements regarding the Company's plans and expectations regarding the development and commercialization of fuel cell technology. All forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected. The forward-looking statements speak only as of the date of this presentation. The company expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any such statements to reflect any change in the Company's expectations or any change in events, conditions or circumstances on which any such statements are based. The Company may refer to non-GAAP (generally accepted accounting principles) financial measures in this presentation. The Company believes that this information is useful to understanding its operating results and the ongoing performance of its underlying business.

# *Integrated Fuel Cell Company*



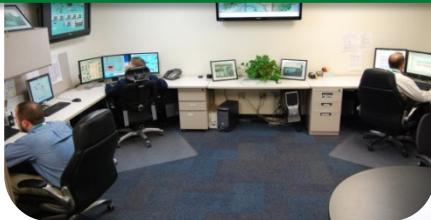
## **Design & Manufacture**

*Megawatt –class power generation solutions*



## **Services**

*Over 80 DFC® plants operating at more than 50 sites – 1.7 billion kWh ultra-clean power produced*



## **Direct Sales and Sell via Partners**

*Installations/orders in 9 countries*



## **Engineering / Construction**

*Over 300 megawatts installed and in backlog*



## Positioned for Global Growth

- **Strong global footprint**
  - North America: NRG Energy agreement expands sales channel
  - Asia: Local manufacturing to support market growth / higher production volume reduces product costs globally / license-royalty structure / second source of supply
  - Europe: Growing market awareness / High profile installations in Berlin and London / German manufacturing
- **Increased annual run-rate in N. America by 25%**
  - 70 MW annual run rate implemented May 1, 2013
- **Multi-MW fuel cell parks providing global visibility**
  - 14.9 MW Bridgeport Fuel Cell Park under construction
  - 59 MW fuel cell park in S. Korea under construction
- **World's largest renewable biogas plant operational**
  - 2.8 MW plant operating at a wastewater treatment facility
- **Data center project with Microsoft**
- **Landfill gas project with Village Farms**



## Ultra-Clean Baseload Distributed Generation Solution

- Easy to site in populated areas: clean, quiet and modest space needs
- Generates more power output per unit of fuel w/ 47%-70% electrical efficiency
- Up to 90% total efficiency when using Combined Heat and Power (CHP)
- Fuel flexible: Clean natural gas, renewable on-site biogas or directed biogas

### On-site Power

- High efficiency drives economics
- Virtual lack of pollutants eliminates future clean air compliance concerns
- CHP reduces costs & supports sustainability
- Energy security enhanced
- Power reliability improved



*Fuel cell power plants  
at a University, a  
commercial bakery,  
and a municipal  
pump station*

### Electric Grid Support

- Cost-effectively add power generation when/where needed
- Reduces grid congestion
- Supports renewable portfolio standards
- Enhances power supply resiliency
- Heat sold to neighbors or used to generate additional electricity



*Fuel cell park  
supporting the  
electric grid*

## North America

Partners:



## Europe



## Asia



## Customers

Electric utilities & IPP's:



On-site power:



## ABENGOA



- **\$12 billion market opportunity**

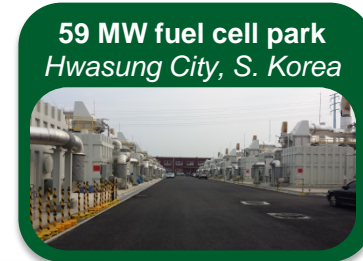
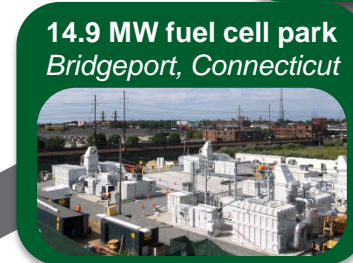
- \$6 billion power plants & \$6 billion Services
- Targeting markets that value efficient and clean distributed generation

- **11 customer segments**

- 7 distinct segments for natural gas & 4 distinct segments for renewable biogas

# Trend to Larger Installations

- **Ten years ago** - installations were individual sub-megawatt plants
- **Five years ago** - megawatt-class plants



**Today**  
Multi-megawatt plants  
and fuel cell parks

Vision: **Pricing below the grid, without incentives**

Business Objective: **Attain profitability, continued global growth**

- Volume drives prices below the grid, accelerating adoption
  - 210 MW drives LCOE below grid costs
  - Integrated global supply chain supports production in USA, S. Korea and Europe
- Revenue diversity
  - Power Plants, Kits, Services, Royalties, Advanced Technology programs
  - Geographic and Market diversity
- Leverage resources with strong global partners

## *Global Technology and Manufacturing footprint*

### Connecticut, USA

Produces for global markets



### Ottobrun, Germany

Capacity for European market



### Pohang, South Korea

Capacity being built for Asian market





- **On-site power opportunities**
  - California
    - municipalities, universities, and State government
    - SGIP Program with commercial customers
  - CT with LREC program, CT150 & others
  - Data centers
  - NJ near term CHP opportunities
- **Electric Utility opportunities**
  - Validation and attention from Dominion project
  - Economical RPS compliance
  - CT: Renewable Connections Program
- **Project finance enables orders**
  - Repeatable project finance offerings with customers and project investors (ownership, PPA, Lease)
  - NRG Energy PPA option
  - Establish additional tax equity project finance programs

## Bridgeport fuel cell park

- 14.9 MW grid-support
- Developed by FCE / sold to Dominion
- Fully operational by end of 2013
- Private capital for public benefits
  - Local demand drives local job creation
  - Legislators value the tax revenue generated
  - Clean distributed power generation
- FCE operates and maintains plants for 15 years
- Strong local, State & Federal support



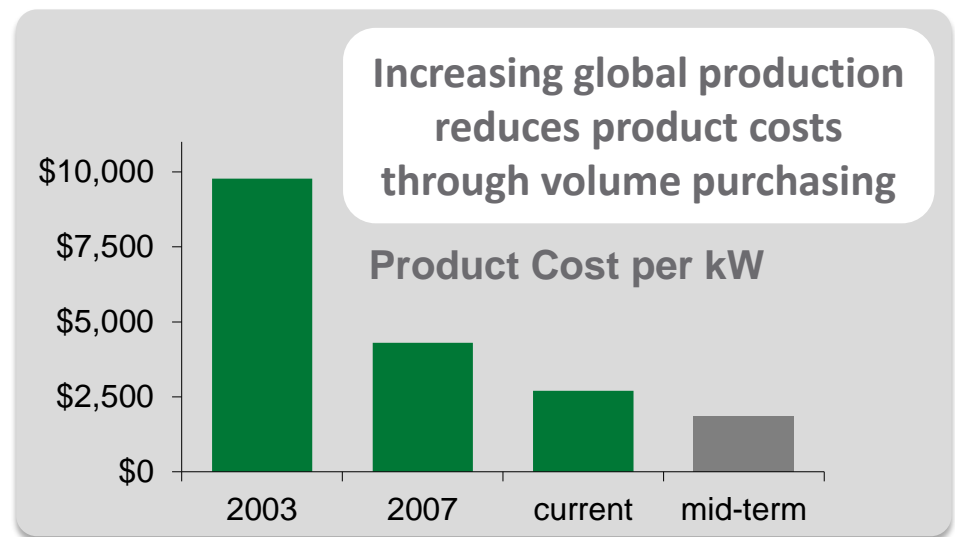
**Dominion**



**UI**  
The United Illuminating Company

- **Expanding market opportunities through POSCO Energy relationship**
  - RPS demand / Export opportunities / Seoul City 230 MW program
- **Benefit from Asian market growth with royalties and lower product costs**
- **Cell component manufacturing in S. Korea**
  - Expands global manufacturing footprint without direct capital investment
  - Leverage global supply chain for cost reductions
  - Second source of supply important to prospective customers
- **121.8 MW multi-year order provides committed production to USA facility**
- **POSCO investments validate market opportunity**

59 MW fuel cell park under construction



## Need clean baseload distributed generation

- Germany replacing nuclear power
- UK pursuing low-carbon power generation

## Near-term opportunities

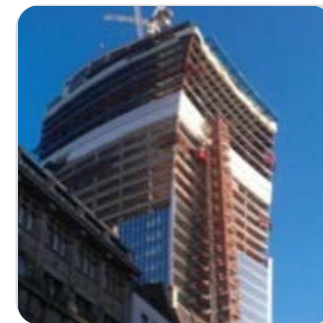
- Attractive economics
  - Low emission profile and CHP valued
- Establish showcase installations
- MW-class opportunities emerging

## Multi-channel Strategy

- **Direct** via FuelCell Energy Solutions, GmbH
  - JV Partner with Fraunhofer IKTS
  - European manufacturing presence essential
  - Invest to support backlog
- **Partner** with Spanish-based Abengoa



DFC® plant to be installed in  
Federal Ministry of Education  
Research complex  
Berlin, Germany



DFC® plant to be installed in 20 Fenchurch  
office tower  
London, England



FuelCell Energy Solutions  
Saubere, effiziente, zuverlässige Energie

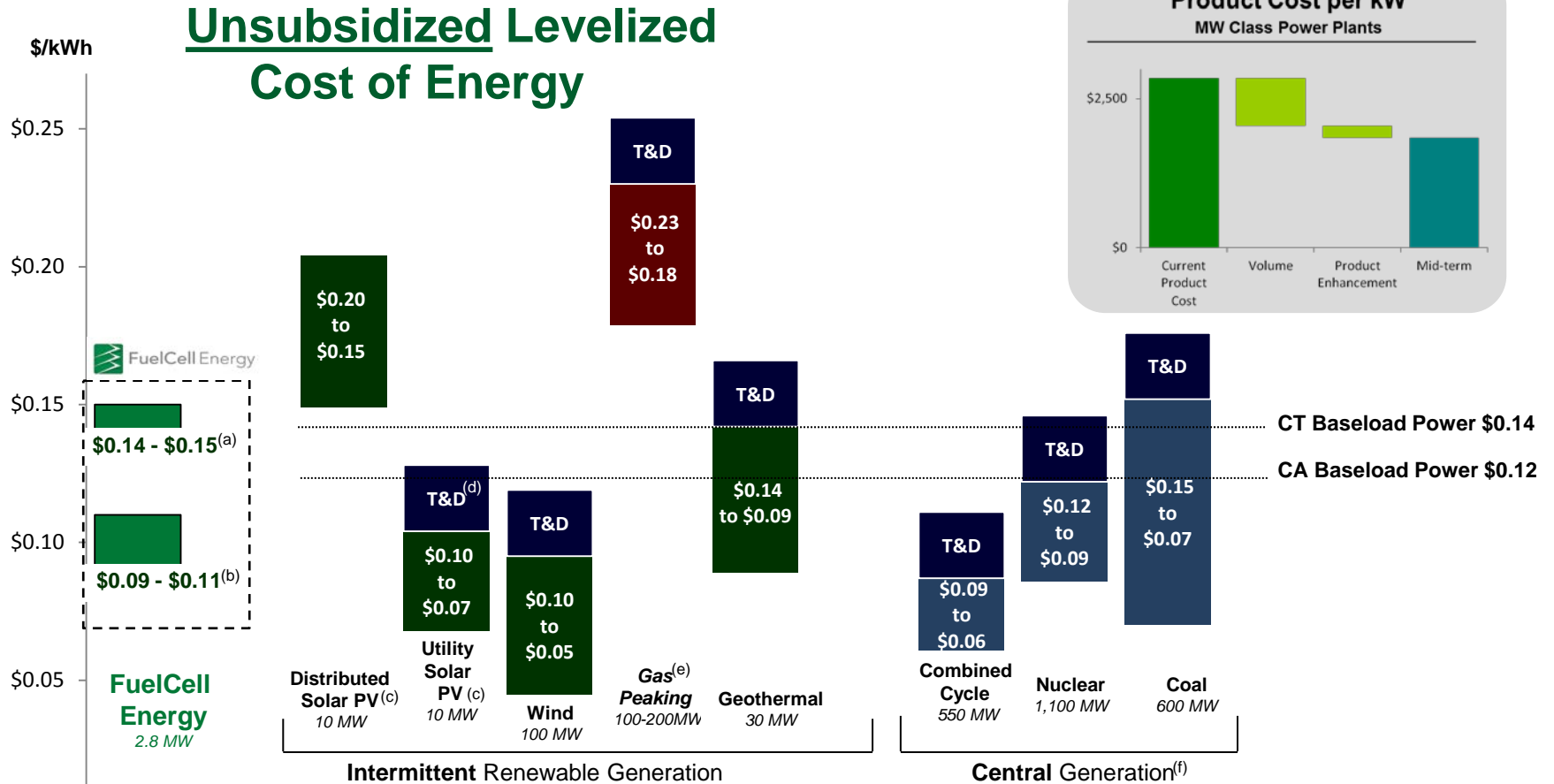


**Fraunhofer**  
IKTS

**ABENGOA**

Innovative technology solutions for **sustainability**

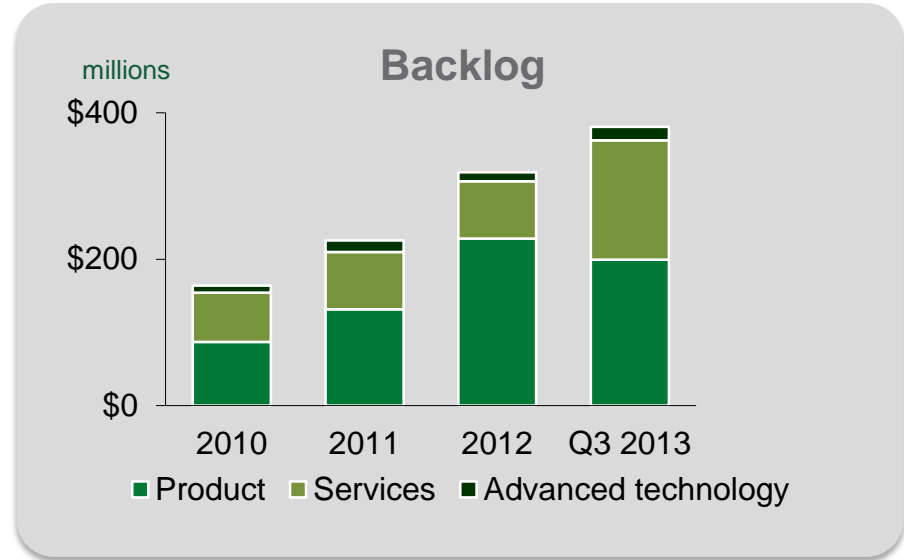
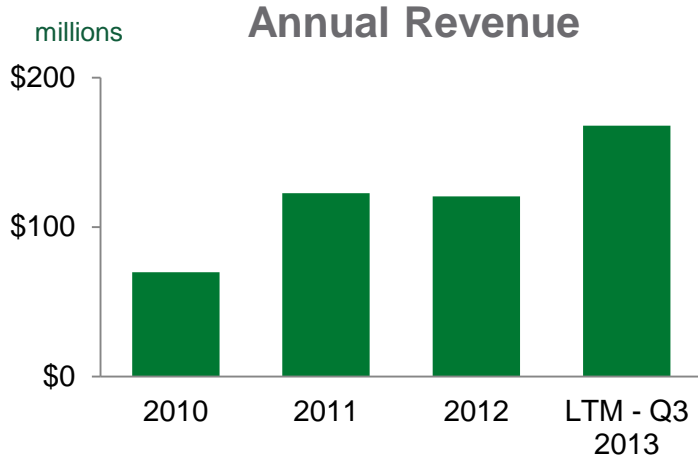
# Competitive LCOE - USA



- (a) LCOE of \$0.15/kWh with natural gas at \$8/mmBtu or \$0.14.kWh at \$6/mmBtu; each \$2/mmBtu change equates to about \$0.01/kWh
- (b) Mid-term LCOE target of \$0.09-\$0.11/kWh based on global production volume of approximately 210 MW annually
- (c) Distributed solar based on rooftop installation in SW USA with 20-23% capacity factor; Utility solar based on tracking technology and 27-28% capacity
- (d) Installation and maintenance cost of Transmission & Distribution (T&D) is estimated to add up to \$0.024/kWh
- (e) Gas peaking addresses intermittency of solar and wind when power is required but sun not shining/wind not blowing
- (f) Does not include waste disposal costs, incremental emission clean-up costs or nuclear-related security costs

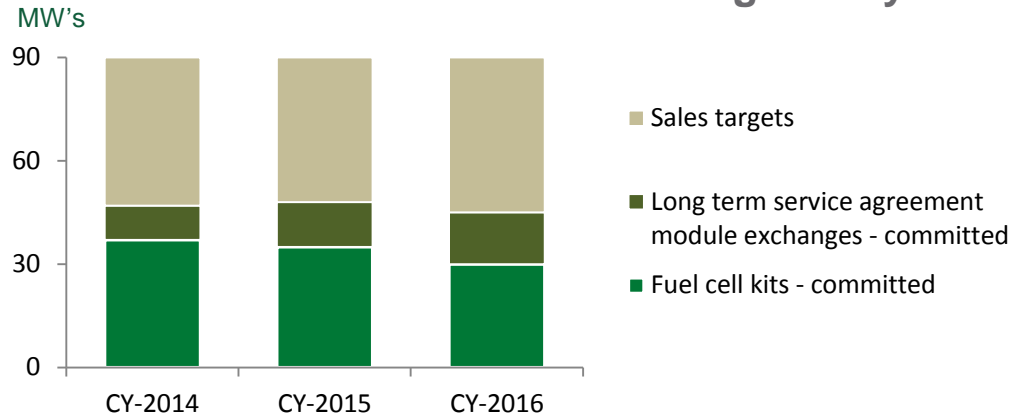
Source: Company estimates, Lazard's Levelized Cost of Energy Analysis—Version 7.0, U.S. Energy Information Administration (EIA) & Oak Ridge National Lab.

# Advancing to Profitability



- Volume drives margin expansion
- Gross margin positive at 50MW
- Currently producing at 70 MW annually
- Positive EBITDA at ~80MW
- Net income positive 80-90MW

### Multi-year Committed & Available Production for N. American manufacturing facility



## Carbon-neutral data center application



- 2% USA power usage is by data centers
- DFC® plant will convert renewable biogas into power for a Microsoft data center

## Renewable Hydrogen Generation, Compression & Storage

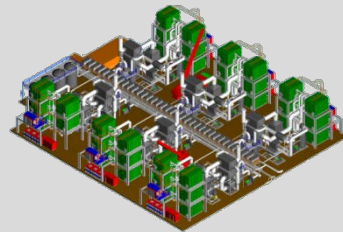


- Tri-generation: hydrogen, electricity & heat
- Markets: vehicle fueling & industrial applications
- Enables hydrogen infrastructure
- Commercialization path with:



## Carbon Capture

- Flue gas from coal-fired power plants directed to DFC® plant for CO<sub>2</sub> separation
- Programs with US DOE and US EPA



44 MW carbon capture system

## Advanced applications



- SOFC propulsion system for unmanned submersible under US Navy program
- Unmanned aerial powered by SOFC combined with storage under contract with Boeing

**Leveraging Core Technology to Expand Market Opportunities**

- **Highly efficient and ultra-clean distributed generation solution meets market needs**
- **Clear path to profitability with committed order backlog and growing global market adoption**
- **Production and supply chain being developed to enable pricing below the grid, without incentives**
- **Leverage strong partners globally**
  - Partners helping to drive market adoption
  - FCE benefits with margin improvement, while optimizing capital deployment
- **Well capitalized to support growth**



*2.8 MW  
power plant*