KIC InnoEnergy

EIT Awareness Day

Porto – 09/09/2013

Mikel Lasa
CEO – KIC InnoEnergy Iberia

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KIC InnoEnergy – A European Company
with Relevant Shareholders

Leading Engine of Innovation in Sustainable Energy

KIC InnoEnergy – A European Company

Local Partners in CC Iberia

Shareholders KIC InnoEnergy Iberia S.L.

KIC InnoEnergy Iberia S.L. is a subsidiary of KIC InnoEnergy S.E.
Shareholders: KIC SE (51%), each other partner (5.9%)

KIC InnoEnergy – A European Company
Organized as a Business

KIC InnoEnergy – A European Company
Run as a Business

- Management **team** with extensive **industry experience**

- Continuously **monitoring performance**

- **KPIs**:
  - Labour impact
  - Economic growth and competitiveness
  - Sustainable energy
  - Awareness

Innovation in the Field of “Sustainable Energy”

Innovation = Invention + Commercialization

TRL	IPRL	MRL	CRL	SRL
Technology	Freedom to operate	Market	Consumer behaviour	Society

INNOVATION READINESS LEVEL

Innovation in the Field of “Sustainable Energy”

Sustainability by:

- **Reducing the cost** in the energy value chain (generation, transport, storage, distribution and retail)
- **Increasing the security** (autonomy vis à vis the resource holders, intrinsic operational security)
- **Reducing** CO2 and other green house gas **emissions**.

Focusing on 6 thematic areas

- Clean Coal Technologies
- Smart Grids and Storage
- Smart Cities and Buildings
- Chemical Fuels
- Renewable Energies
- Convergence Nuclear-Renewables

Innovation in the Field of "Sustainable Energy"

Addressing Global Key Societal Challenges

Cost of Energy

Security in the Supply

New Balance Demand-Supply

Safety

GHG Emissions Global Warming

Depletion Fossil Fuels

Energy Geopolitics

Access to Energy

Output-Oriented Organization

KIC InnoEnergy delivers

1. **Talent - Future Game-Changers,** specialized in the energy field with entrepreneurial spirit
2. **Innovative products and services** - Technology with a market impact
3. **New businesses** - Start-ups with high growth potential

By integration of the three sides of the Knowledge Triangle

Output-Oriented Organization
Talent – The Future Game Changers

Value Proposition

- International Programs – **Mobility**
- **Quality** of our Programs (top Universities and Business Schools)
- Complementary **training in business and entrepreneurship**
- **Industry** involvement
- **Scholarships** available

KIC InnoEnergy SELECT MSc students place second in the finals of the 2012 Hult Global Case Challenge Energy Track

Achievements (end 2012)

506 students in our **MSc programs**
28 engineers in our **PhD school**
25 professionals in our **Executive Programs**

http://www.kic-innoenergy.com/education/

Output-Oriented Organization
Innovative Products and Services

Effective Collaboration among Excellent Actors - Open Innovation

- Complementary in terms of **value chain**
- Complementary in terms of **background knowledge**
- With clear **IP ruling**
- **International** consortia
- Led by **industry**

Assessing and Permanently Monitoring Business Opportunities

- As part of the initial and regular progress assessments
- With an **international** approach
- Including the **commercializing party** in the consortium
- **Freedom to operate** analysis

Achievements (as of end 2012)

24 **patents filed** (1/1M€; 1/67M€ in FP7)
82 **new** technology-based **products** under development

http://www.kic-innoenergy.com/innovationprojects

Output-Oriented Organization

New Businesses

Adding Value to Entrepreneurs in Four Dimensions …

- **Technology**
- **Market**
- **People**
- **Finance & Other Resources**

… through the KIC InnoEnergy Highway™

Achievements (as of end 2012)

50 ventures nurtured in our Highway

8 start-ups created

http://www.kic-innoenergy.com/businesscreationservices/

KIC InnoEnergy Partnership Program

Rights & Obligations

		Partnership Type		
		Formal	**Associate**	**Project**
Governance & Operation KIC level	▪ Shareholders of KIC SE ▪ Overall strategy & yearly budgets ▪ Appoint CEO ▪ Admit new formal partners	Yes	No	No
Governance & Operation CC Iberia	▪ Shareholders of KIC Iberia S.L. ▪ CC strategy ▪ Appoint CC Manager ▪ Admit new associate partners	Yes	Yes	No
Activities	▪ Number of activities (in year)	Unlimited	Unlimited	2
	▪ Thematic areas allowed	All	All	All
	▪ Lead activities	Yes	Yes	No
Grant	▪ Max. yearly EIT-funding allowed	No limit	400k€	100k€
Yearly Contribution	▪ Cash	100k€	30k€	None
	▪ Inkind (non-EIT funding)	900k€	270k€	

Industry Buying-in

Only industry involvement and leadership legitimizes KIC

Approx 2/3 are SMEs

- Covering complete value chain
- Covering all thematic fields
- Covering all activities

KIC InnoEnergy Financial Sustainability (1/3)

10 Revenue Streams Towards Financial Sustainability

1. **Partners cash** contribution
   - Yearly contributions committed upfront (100K€/Formal; 30K€/Associate)
2. **Partners in-kind** contribution
3. **EIT Grant**
4. **Other public competitive grants**
5. **IP royalties**
   - **10% of royalties of all IP** generated goes back to KIC
6. **ROI from direct commercialization of products**
   - **Different mechanisms** are possible
7. **Monetization of equity**
   - **At least 10% of equity** in the new start ups is owned by KIC
8. **Commercialization of educational contents**
9. **Services to external** customers
10. **Donations**

KIC InnoEnergy Financial Sustainability (2/3)

KIC InnoEnergy Financial Sustainability (3/3)

Innovative Products and Services

Project Portfolio in Thematic Renewables - Solar PV

EnThiPV

Advanced high barrier measurement instrument for flexible solar cells and other electronic products:

- Mass spectrometry (multigas testing)
- Isotope labelling (high sensitivity)
- Rapid measurement (helium screening)
- Dedicated software: measurement control, simulation and prediction
- Fully automated system

BIPV- INSIGHT

New 2013

Software tool to predict BIPV products performance and building behaviour in real operational conditions:

- Input: characteristics of BIPV modules, location within building, building location and surroundings
- Output: optical, thermal and electrical behaviour of the system, energy production and economic assessment of installation.

SIMJS

New 2013

Si-based multi-layered (tandem) **PV solar cells**

- Higher efficiency.
- Lower cost.
- Compatible with common production methods.
- Based on easy accessible and abundant silicon.

Innovative Products and Services

Project Portfolio in Thematic Renewables - Solar Thermoelectric

New 2013

AHRT-DECO

Air-resistant high-temperature durable and economical coatings for increased efficiency in Direct Steam Generation Compact Linear Fresnel Reflector (DSG-CLFR) type CSP power plant:

- Higher temperature outlet steam up to 550-600˚C.
- LCOE reduction of current Solar Thermal Energy power plants

TESCONSOL

Cost effective thermal energy storage systems (TES) for CSP with investment cost < 25€/kWh

- New **thermocline storage tank (IP)**
- **Software** for detailed **design of CSP storage tanks**
- **Software for CSP plant design and optimisation** including TES

Innovative Products and Services

Project Portfolio in Thematic Renewables – Wind Energy

AFOSP

Alternative floating platform designs for offshore wind turbines using low cost materials.

MICROLUBGEAR

New 2013

New lubrication system for WT yaw and pitch gears, resulting in reduced O&M costs and higher reliability

KASTRION

Advanced **Condition Monitoring System** that maximizes production time of offshore WT farms:

- Highly reliable failure forecasting
- No human interpretation required
- No threshold setting required
- No operational experience of turbine required

NEPTUNE

- Floating LIDAR equipment and software to reduce costs and risks for offshore wind farm site assessment.
- Energy resource and operational condition short term forecasting tools.

Innovative Products and Services

Project Portfolio in Thematic Renewables – Ocean Energy

OTS

Ancillary products for offshore energy generation plants and test stations:

- Buoy and SW for ocean environmental impact assessment
- SW tool for managing O&M in offshore plants

New 2013

HIWAVE

New **wave energy converter,** resulting in lower LCOE

- Lower CAPEX & OPEX
- Higher energy density
- More compact units
- Higher Survivability

New 2013

SYMBIOTRACKER

Tracking device and **sensors** for **location of underwater HVAC cables** in offshore energy plants and other applications.

Business Creation

Example Ventures – Northstar Telemetrics

Northstar Telemetrics

THE NEED

Big opportunity for cost and emmissions savings by implementing smart grids and metering technologies.

Industry predicts the smart grid business to grow from $356 million in 2010 to nearly $4.2 billion in 2015.

THE SOLUTION

- Optical Automatic Meters Reader (OAMR) enables smart meter functionality on existing mechanical meters.
- Automating the collection of utility meter data in housing and industry.
- Without changing the actual meter infrastructure, enabling big savings for customers.

VALUE PROPOSITION

- Reduces gas, water and electric consumption acquisition process.
- Improves the reliability and security data through increased consumer awareness.
- Reduces risk of fraud or leakage through a more continuous monitoring of consumption.
- Reduces operational costs and increases energy efficiency.
- Increases productivity in the value chain and improves customer service.

Business Creation

Ventures Supported by KIC InnoEnergy Iberia as of June 2013 (I)

Northstar Telemetrics www.northstartelemetrics.com	**Northstar Telemetrics** develops and markets advanced innovative products, using their own image processing algorithms, for smart energy, environment control and home automation. This sector is also called Internet of Things.	
noem www.noem.com	**Noem** is a versatile wood-based construction system that combines modularity and pre-industrialisation to allow personalized energy efficient buildings to be designed, built and assembled on site in weeks. Noem builds the houses of the XXI century.	
worldcoo Co-funding cooperation www.worldcoo.com	**Worldcoo** is an interactive network, where members propose sustainable energy projects of cooperation and where business and people fund them. It is a new model for co-financing projects, based on a person-company model.	
Open Domo services www.opendomo.com	**OpenDomo** Services brings you the management of your electrical installation just one click away. Discover inefficiencies that cost you money, learn how to optimize your electrical installation and let OpenDomo take the decisions, making your life easier.	

Business Creation

Ventures Supported by KIC InnoEnergy Iberia as of June 2013 (II)

www.enerbyte.com	**Enerbyte** offers an IT solution based on advanced algorithms and behavioural science for the benefit of electricity retailers -business intelligence-, energy distributors -demand response-, end-consumers -energy management- and society -efficient use of energy resources-.	
www.bn-star.com	**BNSTAR** develops hardware and software using the latest technologies in automation, engineering and communication to provide a permanent and real time system that analyses and optimises the water consumption in buildings.	
www.smalletec.com	**Smalle Technologies** designs and commercializes innovative devices for generating clean electrical energy from any kind of movement. In a marine environment, Smalle devices are suitable to provide extra energy to recreational sailboats and buoys.	
NegaWatt@diname.net	**NegaWaTT** provides solutions to Power System Operators, enabling intelligent and integrated management of electricity demand, distributed generation and local energy storage. This is a strong alternative to investments in traditional power generation and distribution, at a lower environmental and economic cost.	

www.kic-innoenergy.com

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KIC InnoEnergy Iberia S.L.
C/ Jordi Girona, 29 - Building NEXUS II
08034 – Barcelona
Spain
info.iberia@kic-innoenergy.com
www.kic-innoenergy.com