Open Innovation for the bio based economy

Ir. Tom Anthonis – Ghent Bio Energy Valley

World Future Energy Summit, January 2012, Abu Dhabi
Investment Lunch – Belgian Embassy
GHENT BIO-ENERGY VALLEY

A Public Private Partnership for the promotion of sustainable bio-energy activities and bio based economic development in Ghent.

PUBLIC ORGANISATIONS

UNIVERSITEIT GENT
STAD GENT
PORT OF GHENT
POM

INDUSTRIAL MEMBERS

ALCO BIOFUEL
BIORO
CARGILL
OILTANKING
ELECTRABEL
STORAENSO
OWS
OLEON
WATERLEAU
GENENCOR
SEA-INVEST
INDUS
DESMET BALLESTRA
FABRICOM GTI
GRONTMIJ INDUSTRY
SPE
CAPRICORN VENTURE PARTNERS
BIO-ENERGY PRODUCTION

- Biogas technology – anaerobic digestion
- Biodiesel production
- Bio-ethanol production
- Green electricity generation
- Bio Base Europe: Pilot Plant & Training Center
ACTIONS OF GHENT BIO-ENERGY VALLEY

- **Technological innovation**: building Research and Development expertise in the field of bio-energy and the bio based economy

- **Cluster formation** in the port of Ghent: building synergie between the industrial partners

- **Sensibilisation of the public**: organisation of information campaigns about bio-energy
RODENIHUIZEDOK BIOREFINERY CLUSTER

Electrabel

Oiltanking

EuroSilo

Cargill

bioro biodiesel refinery

alcoBiofuel Energy by nature
RODENHUIZEDOK BIOREFINERY CLUSTER
MAX GREEN

Electrabel Max Green Power Plant runs on imported biomass
120T/h pellets (and coal)
Advanced plans to run it completely on biomass
Output : 180 MWe
Industrial integration at Ghent Bio-Energy Valley: Biorefinery Cluster at Rodenhuize docks

- Alco Biofuel: 150 000 m³ bio-ethanol
- Bioro: 250 000 ton biodiesel
- Eurosilo: 650 000 tons storage capacity
BIOREFINERY RODENHUIZE DOCKS
THE POWER OF CLUSTER FORMATION AND SYNERGY

- **Strong integration**: complete value chain from raw material to biofuel on a single production site
- **Efficient low cost** production
- **High eco-efficiency** of the production process
- Exploitation of **the advantages of scale**
- **Strategic collaboration** between the partners

Excellent position in a competitive market
THE TRANSITION FROM AN ECONOMY BASED ON FOSSIL RESOURCES TO A BIOBASED ECONOMY BASED ON RENEWABLE RESOURCES STATES TWO PROBLEMS

- Gap in the innovation chain. Need for a multipurpose pilot plant for biobased products and processes
- Lack of process operators for biobased industries. Need for a dedicated training facility for process operators in biobased industries

Bio Base Europe Pilot Plant
Gent

Bio Base Europe Training Center
Terneuzen
Bio Base Europe
Pilot Plant
Knowledge and expertise are present but insufficient translation of knowledge into industrial innovation.

Not enough value creation on scientific results.
BIO BASE EUROPE PILOT PLANT

• **One-stop-shop**: the whole value chain from the green resource to the final product can be performed in the same plant

• **Multipurpose** pilot facility with its own specialised personnel

• **Open-innovation model**
  - **Service model.** Pilot projects are performed for customers that maintain the rights to the developed technology
  - **Accessible.** The Bio Based Europe Pilot Plant is open for all companies and research partners from chemical, energy, agro-industrial, etc sector
THE BIO BASE EUROPE PILOT PLANT ACTIVITIES

- Development and optimization of biobased processes: proven and non-proven technologies: biomass fractionation, fermentation, bioconversion, green chemistry, up-stream and down-stream processing
- Scale-up of biobased processes up to 10 m³/ton scale
- Custom manufacturing: first production of ton quantities of new bioproducts for testing the application and market potential
Bio Base Europe Training Center offers *general and company-specific training for biobased and sustainable energy processes*. General training programs are complementary to the existing technical education. Company specific training programs make sure that your staff can perform new biobased processes in a safe and responsible way.

- Bio Base Europe *encourages network activities, technological innovation and entrepreneurship in the biobased economy*. We serve as a knowledge broker and business center for supporting the sustainable economic growth of our society. In the exhibition area you can find general information on sustainable technologies and biobased products and processes.
BIO BASE EUROPE IS SUPPORTED BY:
GHENT HAS EXCELLENT CONDITIONS FOR BUILDING THE BIO-BASED ECONOMY

- BBE partners have strong knowhow on the handling of agricultural commodities

- The bio-energy valley of Bio Base Europe is a world class player in the field of biotechnology

- Started with biofuels the bio-energy valley of Bio Base Europe has now become a world player in the knowledge and technical innovation of the biobased economy. = R&D – Governance – B2B !