

Lolland - Rural Development, Revitalization and Clean Technologies

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Baltic Sea Solutions

Baltic Sea Solutions

- Non-Profit Organization
- Specializing in sustainable economic regeneration of peripheral and island regions.
- Areas of expertise:
 - Regional Development policy and strategy.
 - Sustainable tourism, agriculture, and industrial development.
 - Renewable energy project development and research.

Baltic Sea Solutions

Local/National

- Lolland Community Test Facilities (www.lolland-ctf.dk)
- Hydrogen Community Lolland (www.hydrogen-community.dk)
- Denmark California Renewable Energy Program (www.local-re.org)
- Green Energy Lolland Falster

International

- ClimateActionMap.org (www.climateactionmap.org)
- Wind, Sea & Algae (www.wind-sea-algae.org)
- Renewable Islands (www.renewableislands.org)
- Places to Invest (www.placestoinvest.com)
- Working Group on Growth and Innovation in Peripheral Areas
- Nordic Clean Tech Alliance
- Renewable Energy Micro-Grid Test Bed at NASA Ames Research Center

Places to Invest



PLACES TO INVEST™

Why we rank cities' revitalization potential.

Are you a redeveloper or real estate investor?
Are you a foundation or public agency funding
community revitalization, infrastructure renewal,
or farmland / natural resource restoration?

Regeneration failures tend to be project-based;
not integrated, engaged, ongoing programs.

Now you can find the places that are most able to
enhance their economy, property values, & quality
of life...thus enhancing investors' safety and ROI.

Boom or gloom?

Places To Invest helps you avoid investing in the
wrong community, or at the wrong time.

[:: LEARN ABOUT THE PLACES TO INVEST REPORTS](#)



RENEWAL QUOTIENT™

How we measure revitalization potential.

Places To Invest "predicts" where revitalization
will happen by evaluating cities' *renewal capacity*.

The **RQ Test** measures factors that produce
rapid, resilient renewal. That score (-500 to
+1000) is a community's *renewal quotient* (RQ).
The RQ Test & **RQ Quiz** are free services created
by **Resolution Fund** and leading universities.

Our goal:

Attracting reinvestment to places that need it, and
that efficiently support restorative development.
Successful *global* economic recovery--& climate
change efforts--derive from *national* successes,
which derive from *local* and *regional* successes.

[:: LEARN ABOUT THE RENEWAL QUOTIENT](#)



RENEWAL CAPACITY PROGRAM™

How you can increase revitalization potential.

Want healthy economic growth in your city?
You can read a **book**. You can attend a **seminar**.
Or, enroll your community in our **R. C. Program**.

Coming soon.

The first Places to Invest "Top 10 Cities" media
report arrives in 2012. Our online PTI registry will
rank high-RQ cities, large & small, worldwide.

Want a head start?

During 2010 & 2011, 20 communities worldwide
will help our researchers & **faculty** refine the RQ
Test, while becoming great places to invest.
Yours can be one. **Contact us now** to learn if we
still need a city like yours in this **Advance Group**.

[:: LEARN ABOUT THE RENEWAL CAPACITY PROGRAM](#)



Geography and Demographics



- 1243 sq. km.
- 70,000 inhabitants
- Distance to Copenhagen 130 km

Historic Economic Infrastructure

- Agriculture
- Industry
 - Sugar
 - Grain
 - Heavy manufacturing/shipbuilding
- Services
 - Retail
 - Government

1987

- Nakskov Shipyard shuts down
- 2000 jobs lost
- Unemployment rates in Nakskov and western part of Lolland rises to more than 25%
- 10% population decline
- Lolland becomes one of the poorest regions in Denmark

1998

- New mayor elected breaking 75 years of social democratic rule
- New city council decides to purchase old ship yard
- New focus on environmental industries
- Massive Clean-up and renovation occurs

1999

- Vestas Blades chooses Nakskov for its new blade manufacturing plant
- 500 new jobs
- The Municipality begins aggressive business development with focus on attracting environmental Industries
- Business Development Office set up in 2001

Nakskov Shipyard



1998

1999



Nakskov Ship Yard Today



- **Vestas Blade Factory**
- **Rewair**
- **Skagens Sandblæsning**
- **DLF Trifolium**
- **Remming & Co**
- **Water Treatment Plant**
- **Recycling Park**
- **Biomass District Heating Plant**
- **Vestas turbine test site**

Lolland Energy Overview

Total Annual Electricity Generation = 1,150,000 MWh
Total Annual Electricity Consumption = 750,000 MWh

Wind (92%)



Biomass (4%)



Biogas (>1%)



Waste (4%)



Lolland Energy Overview

Local Heat Generation (70% Renewable)

Fossil Fuels (30%)



Biomass/
Biogas (41%)



Electricity (17%)



Waste (12%)



Current Economic Development Efforts

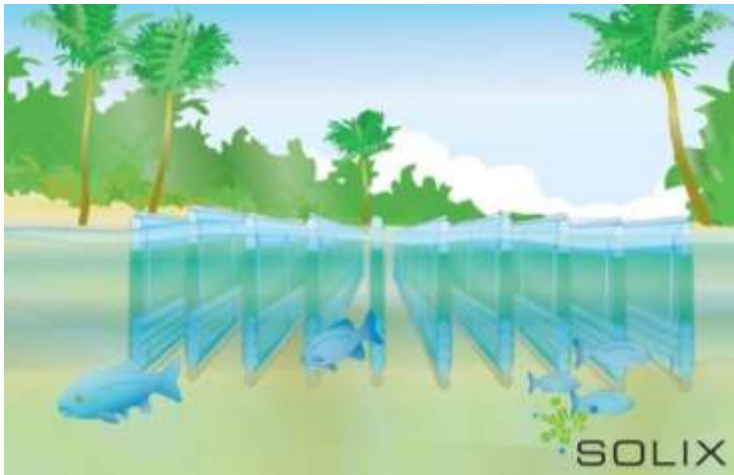
- Focus on Renewable Energy Business Development (Lolland CTF)
 - Hydrogen & Fuel Cells
 - Algae/Biomass/Biofuels
 - Wind Energy
 - Wave Energy
 - Water Treatment

Algae



Onsevig Climate Park

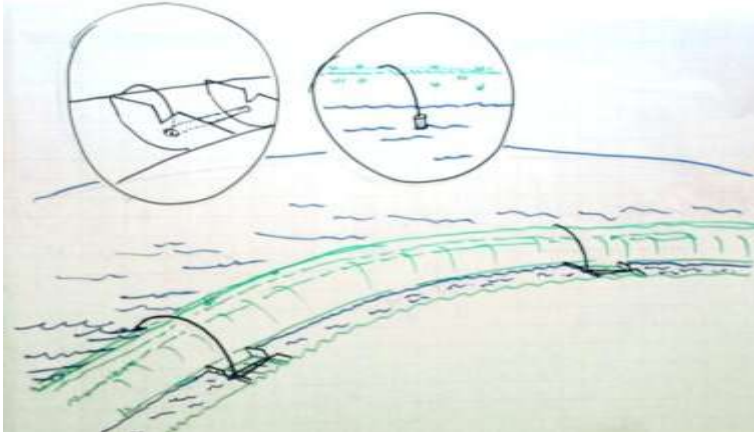
- Climate Adaptation
- Grey Water Treatment
- Carbon Sequestration
- Algae cultivation



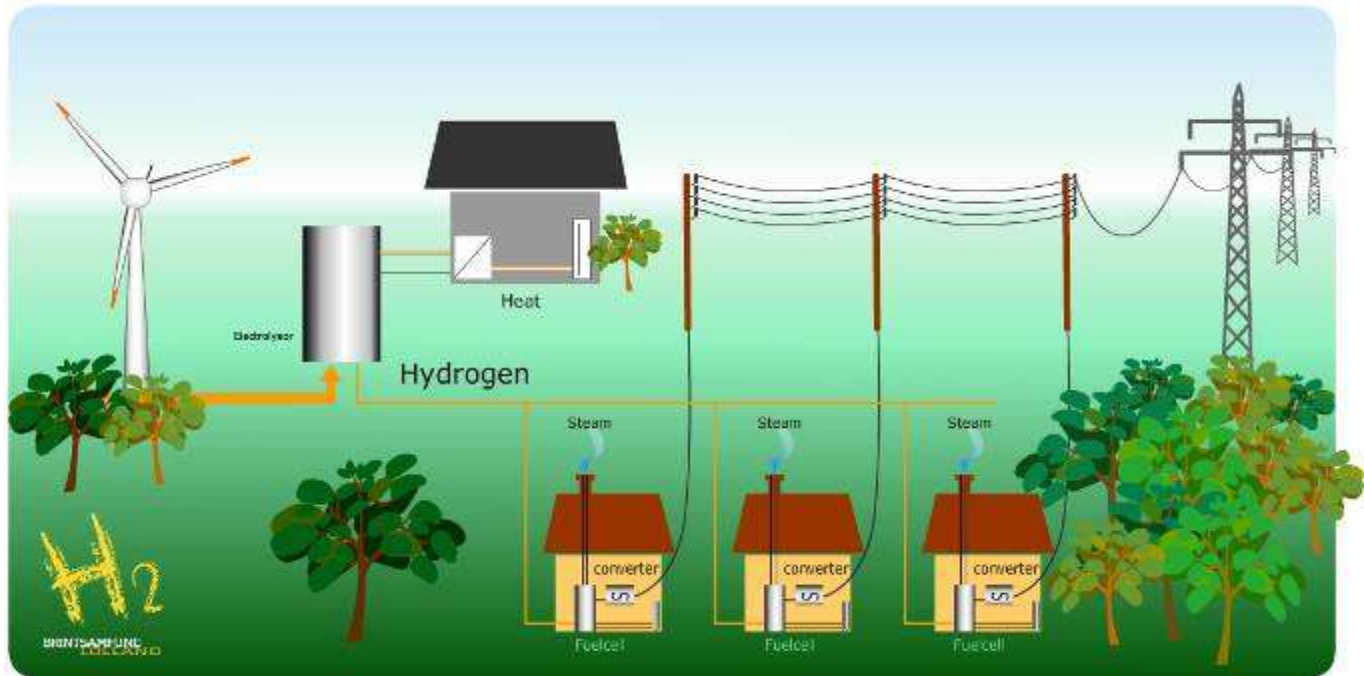
Offshore Algae Cultivation

- International Research Workshop April, 2009
- Proof of concept demonstration project

Algae Workshop April 2009

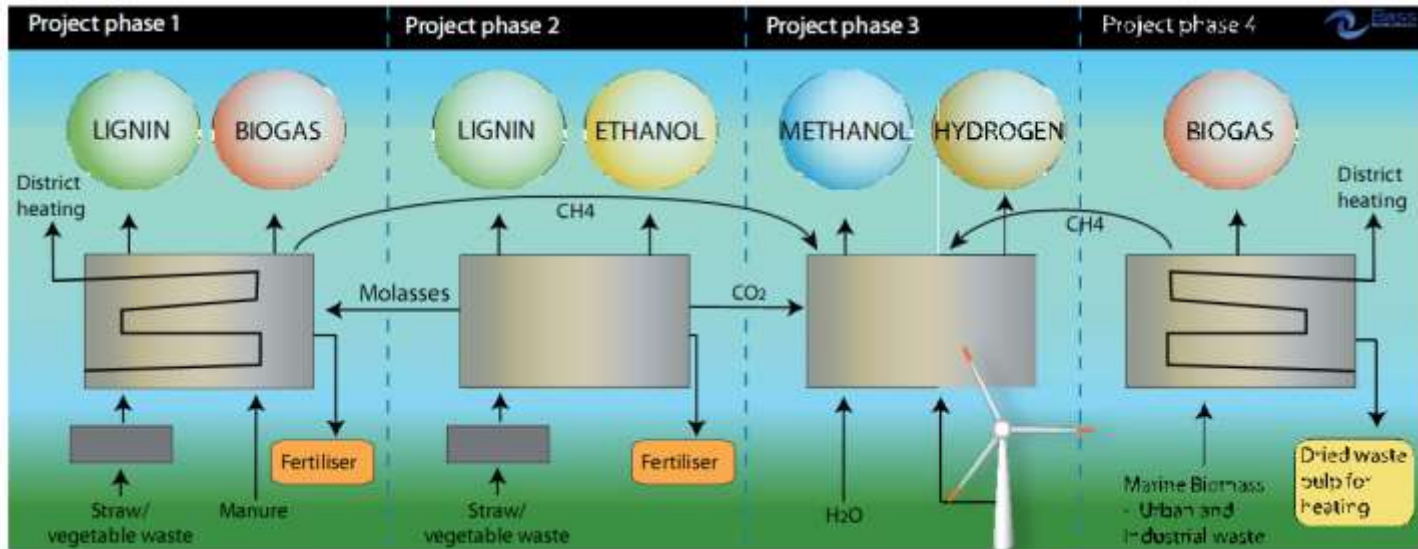


Hydrogen Community Lolland



- μ CHP fueled by a hydrogen grid. Hydrogen from renewable energy will be used.
- 5 private houses in 2008, 35 in 2009

Biomass/Biofuels



- Cellulosic Biogas and Ethanol production
- Multiple feedstock options: Straw, vegetable waste, algae, industrial waste, manure
- District Heating
- Methanol & Hydrogen

International Wind Academy Lolland



- Test of next generation offshore wind turbine (5-10MW)
- Research & Development in maintenance and operations
- Research and development for subsuppliers.

Wave Energy



- Floating Power Plant
- Proof of Concept scale 1:6
- Launched November 2008
- Full Scale = 30MW



Training/Education



Climate Factory

- Climate Research and education
- Science on a Sphere[®]
- Renewable energy showcase



LoCal RE Research Program

- Interdisciplinary university program
- UC Merced
- UC Davis
- UC Santa Cruz
- UC Berkeley
- Technical University of Denmark
- University of Copenhagen
- University of Aarhus

Marketing/Promotion

- 75+ international delegations from countries outside of the EU in 2009.
- Tours arranged in collaboration with Danish Ministry of Foreign Affairs – National showcase.
- Collaboration with Invest in Denmark
- Presentations at conferences in North America, Africa and Asia.
- NBC Evening News show coming soon.

Today

- ~~1000~~ 600 jobs directly related to environmental industries/services
- Proactive local government with investment capital
- Research projects involving world class research institutions
- International attention
- Hope!

Links

- www.bass.dk
- www.lolland-ctf.dk
- www.hydrogen-community.dk
- www.wind-sea-algae.org
- www.local-re.org
- www.climateactionmap.org
- www.placestoinvest.com

Thank You