Welcome to all participants!

We are looking forward to two cooperative, integrated and fruitful days

UN - COP 21 World-Wide agreement Paris 12.12.2015, has set the Scene for a big movement!!!
Conversion of Energy Systems towards 100% RES, Energy Efficiency and Energy Savings all over the world but how!?!?

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A NETWORK UNIVERSITY

STUDENT POPULATION:
(ordinary students, without continuing education)

Aalborg: 15,849
Esbjerg: 607
Copenhagen: 3,685

CAMPUSES IN AALBORG, ESBJERG AND COPENHAGEN
WE STRONGLY BELIEVE IN..

• Problem and project based learning
• Interdisciplinarity
• Innovations & industrial relations
• Applied research and excellence
Conference of the Parties
Twenty-first session
Paris, 30 November to 11 December 2015
Agenda item 4(b)
Durban Platform for Enhanced Action (decision 1/CP.17)
Adoption of a protocol, another legal instrument, or an
agreed outcome with legal force under the Convention
applicable to all Parties

ADOPTION OF THE PARIS AGREEMENT

Proposal by the President

Draft decision /CP.21

The Conference of the Parties,

Recalling decision 1/CP.17 on the establishment of the Ad Hoc Working Group on
the Durban Platform for Enhanced Action,

Also recalling Articles 2, 3 and 4 of the Convention,

Further recalling relevant decisions of the Conference of the Parties, including
decisions 1/CP.16, 2/CP.18, 1/CP.19 and 1/CP.20,

Welcoming the adoption of United Nations General Assembly resolution
A/RES/70/1, “Transforming our world: the 2030 Agenda for Sustainable Development”, in
particular its goal 13, and the adoption of the Addis Ababa Action Agenda of the third
International Conference on Financing for Development and the adoption of the Sendai
Framework for Disaster Risk Reduction,

Recognizing that climate change represents an urgent and potentially irreversible
threat to human societies and the planet and thus requires the widest possible cooperation
by all countries, and their participation in an effective and appropriate international
response, with a view to accelerating the reduction of global greenhouse gas emissions,

Also recognizing that deep reductions in global emissions will be required in order
to achieve the ultimate objective of the Convention and emphasizing the need for urgency
in addressing climate change,

Acknowledging that climate change is a common concern of humankind. Parties
should, when taking action to address climate change, respect, promote and consider their
respective obligations on human rights, the right to health, the rights of indigenous peoples,
Scenarios for the global mean temperature

Temperature change wrt 1961-1990

Source: IPCC
Sustainable Global Energy

→ Bioenergy will be here to stay, and grow!
182 Mtoe can be achieved from biomass cultivated on 20% of arable land in EU-27. This corresponds to more than 10% of primary energy demand in 2020, equals 50-60% of the RES share.
<table>
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<td>Biomass + Waste</td>
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<td>Solarpower</td>
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<td>666</td>
<td>678</td>
<td>576</td>
<td>524</td>
<td>200</td>
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<tr>
<td>Total consumption</td>
<td>+/-825</td>
<td>809</td>
<td>846</td>
<td>756</td>
<td>720</td>
<td>600</td>
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<tr>
<td>VE pct.</td>
<td>15,2%</td>
<td>17,6%</td>
<td>19,4%</td>
<td>23,8%</td>
<td>27,9%</td>
<td>66%</td>
</tr>
</tbody>
</table>

Source: JBHN – Centre for Bioenergy, AAU, Esbjerg 2011-16, Energistyrelsen, Årlig Energistatistik ENS.
Comparison of the basic principles of the petroleum refinery and the biorefinery, Source: Kamm et al. 2006

Two-platform biorefinery concept
Source: NREL 2006, Biomass Programm, DOE/US]
Querstromzerspanungstechnik Fa. MEWA

z.T. Werkbilder Fa. MEWA

Maissilage.
Biogas and biogas + separation, upgrading facilities

Animal manure
– from farming problems to society resources!
"Engen er agerens moder"
(Meadows - the "mother" of arable land)
Benefits

- Production of Renewable Energy
- Alternative to fossil fuel
- Prevents leaching of nutrients
- Recycling of nutrients to croplands
- Potential for organic/ecological fertilizer
- Preserves the open landscape
- Increase in biodiversity
- Recreational value will increase
Current gassector
Future gas sector?
Vast Areas of the Globe Are Not Suitable for High Levels of Terrestrial Agriculture

a. Crop lands - green area
b. Pasturelands - partly green areas
c. Rain forests and natural forests - no go!!!
d. Deserts areas - algal productions
Solar-biofuels refineries!!!
e. More actions now - What are we waiting for?

But could be used for algal culture.
Thank you for your attention!

Have a fruitful workshop 😊

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