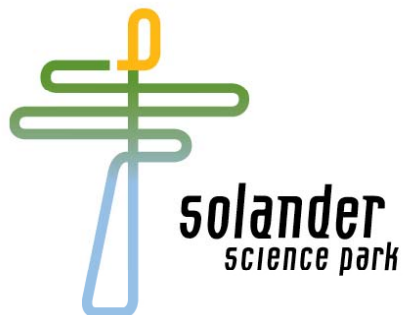


Welcome to the New Energy
Capital of Europe!



Finansing

En investering för framtiden



EUROPEISKA
UNIONEN
Europeiska
regionala
utvecklingsfonden



Piteå Kommun

Tillväxtavdelning



Länstyrelsen
Norrbotten



Piteå

A forestry centre in Europe



Focus areas: Renewable Energy (Wind, Sun, Biomass) , Tourism

www.solandersciencepark.se





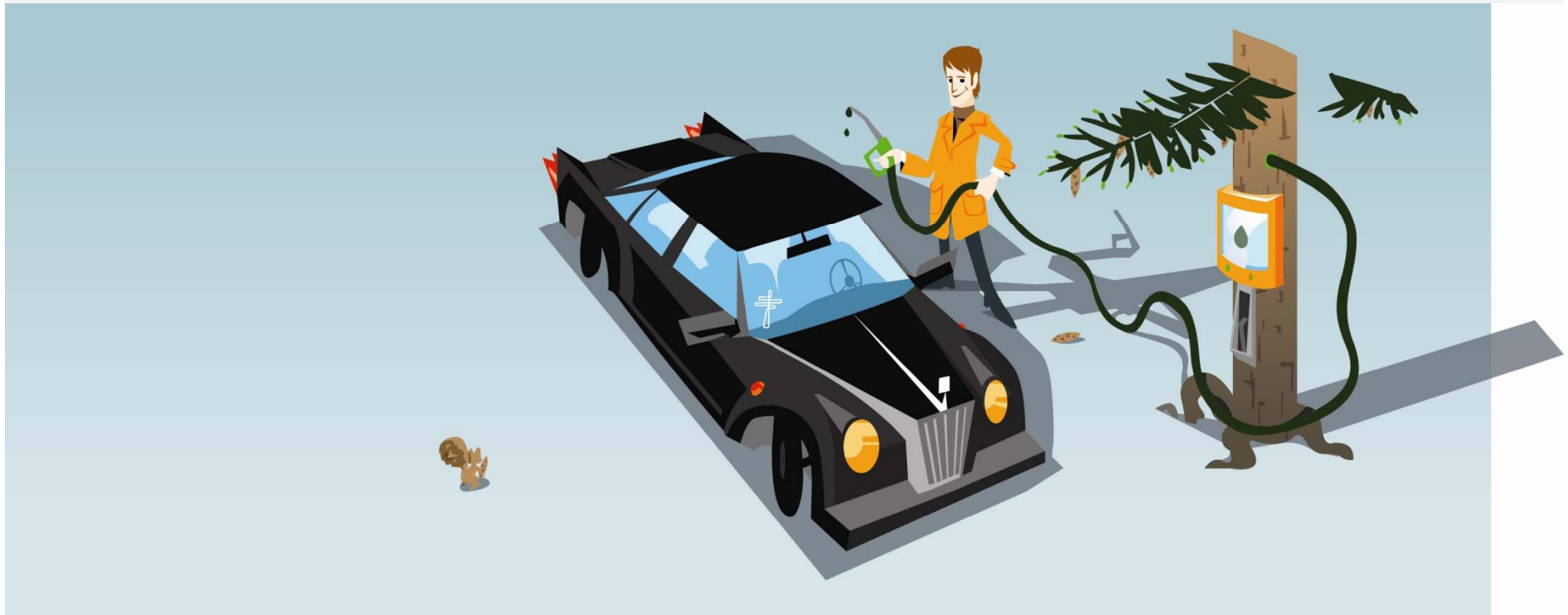
Vision

Solander Science Park will be a world leading centre for research and business development in forest industry based biorefining technology .”





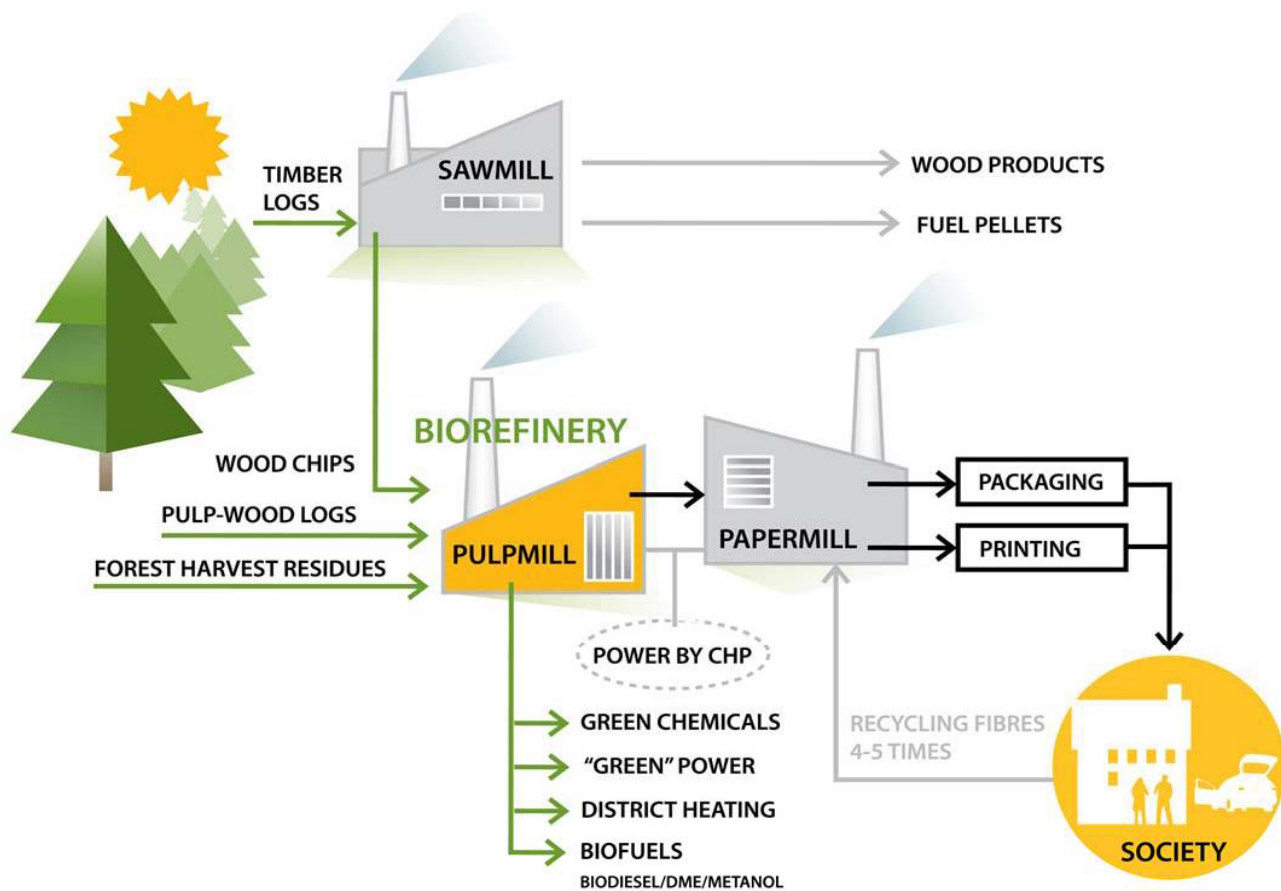
From wood to wheel & ...



BioRefinery technology for developing the future fuels from wood residues and chemicals and more ...

www.solandersciencepark.se





Biorefinery Concept





Biorefinery Today

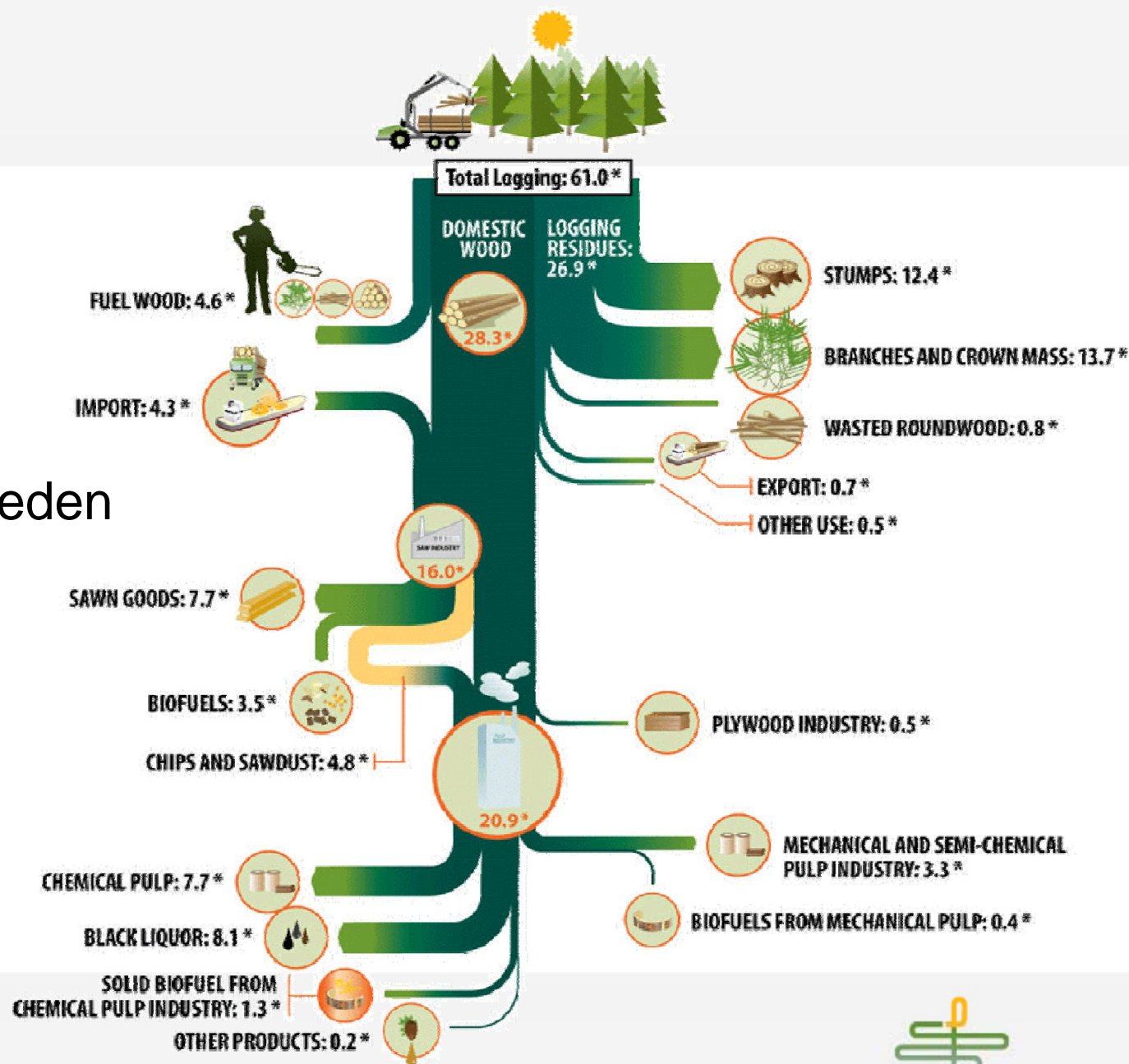
Europé´s
biggest
Kraftliner Mill
700.000 ton/y

Smurfit Kappa
Kraftliner





Use of forest feedstock in Sweden



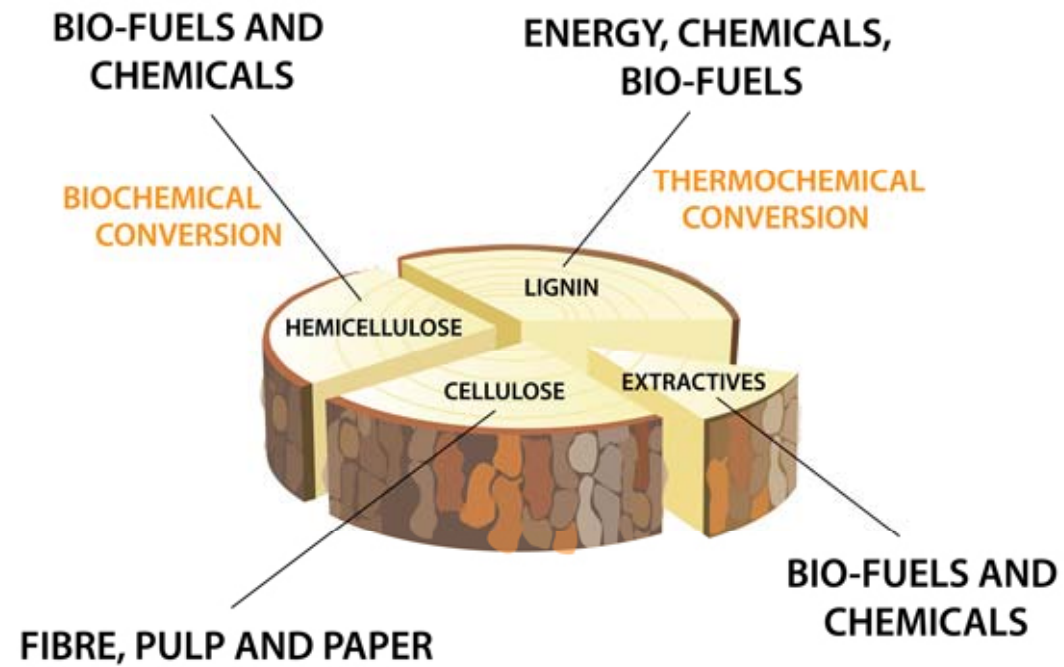
*Million tons dry biomass

Source:

Biomassaflöden i svensk skogsnäring 2004, Per Olov Nilsson.
 Rapport 23-2006 Skogsstyrelsen ISSN 1100-0295

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Gasification Centre



Energy Technology Center in Piteå www.etcpitea.se
Experts on biomass gasification / Luleå Technical University

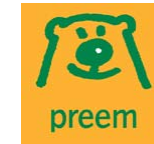
www.solandersciencepark.se





BioDME plant in Piteå

<http://www.biodme.eu/> In operation november 2010



VOLVO

CHEMREC
Energy to Succeed



ETC
BIOENERGYLAB

DELPHI™



The worlds first black liquor gasifier in production from Chemrec.
Are now building a BioDME-pilot plant. 4 tons/day production.

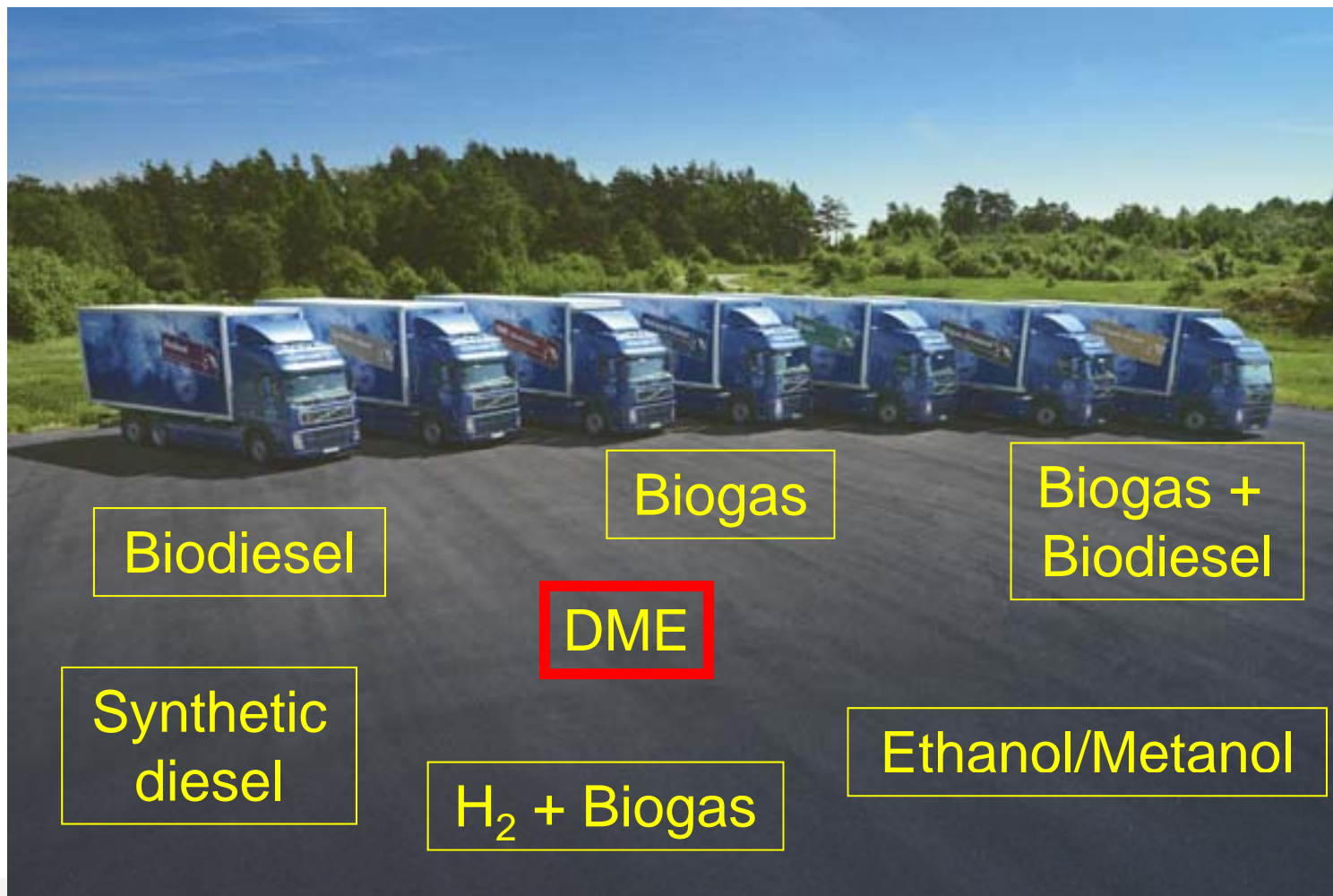
www.chemrec.se

www.solandersciencepark.se





7 Volvo vehicles with 9 liter engines converted
7 different renewable fuels (August 2007)



Source: AB Volvo



Energy efficiency for different renewables fuels



← Biodiesel from rape seed oil

Ethanol fr wheat



Ethanol fr cellulose



Synthetic diesel fr forest



Synthetic diesel fr black liquor



DME / Metanol fr forest



DME / Metanol fr black liquor



Milage (in km per year)
for different fuels available
from biomass source grown
on one hectare of land per
year.

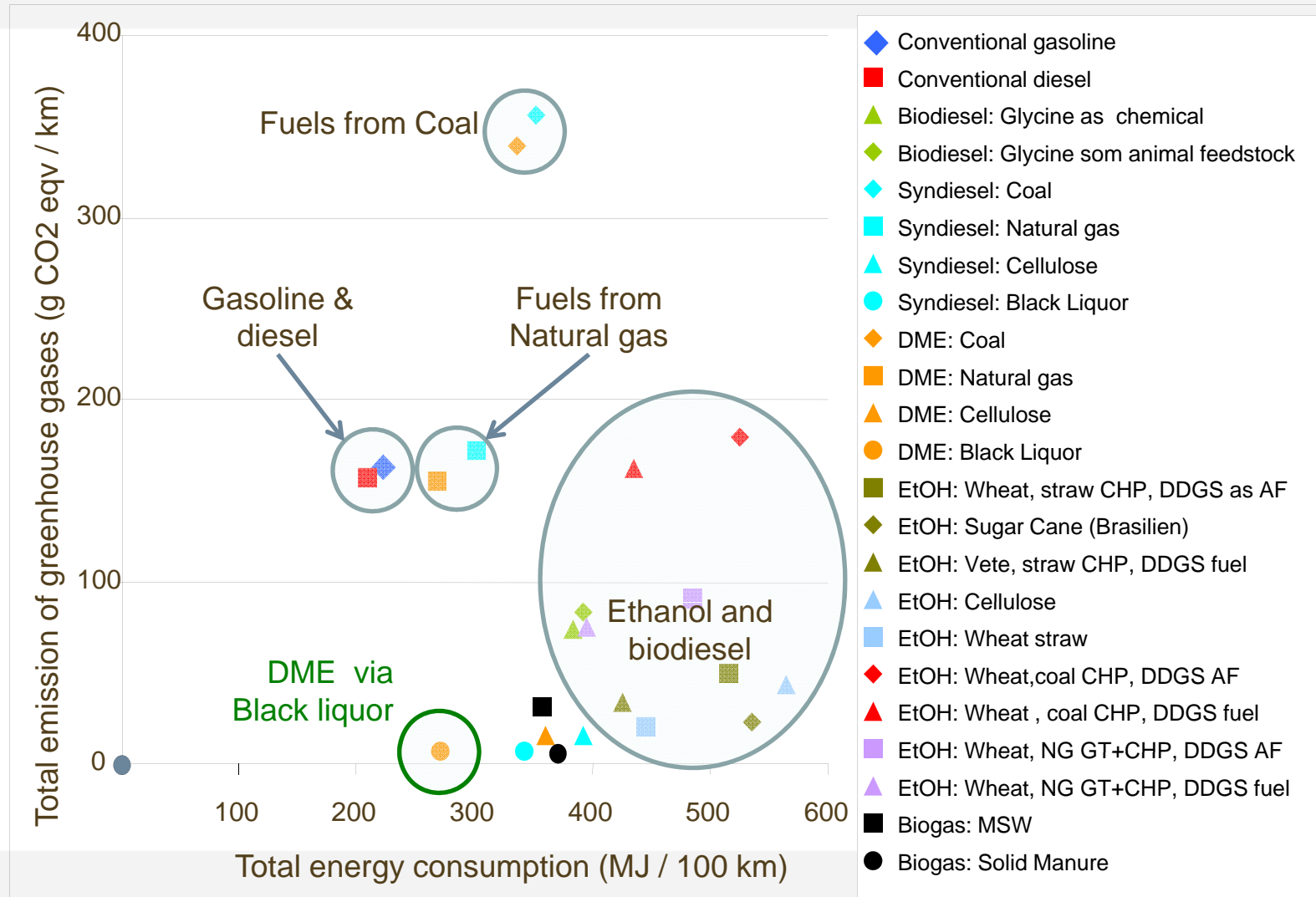


Source: Volvo Renewable Fuel Study

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Total emission of CO₂ and the required energy use for different fuel alternatives (Well to Wheel)



Källa: EUCAR/CONCAWE/JRC

11/9/2011

1
4

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Gasification of wood residues

No need for black liquor

In operation january 2011



ETC
BIOENERGYLAB

IVAB
INFJÄRDENS VÄRME AB

SVEASKOG

Smurfit Kappa
Kraftliner i Piteå

L
LULEÅ
TEKNISKA
UNIVERSITET

Synthetic gas from wood residues – no need for black liquor
PEBG – Pressurized Entrained flow Biomass gasification

www.solandersciencepark.se





VIPP Cyclone Gasification

In operation Sept 2010



VIPP - Vortex Intensive Power Process

Small scale biomass gasifier for production of electricity and heat. Find more at www.mevainnovation.se

www.solandersciencepark.se





Green Diesel Plant

www.sunpine.se – Production 100.000 m³/year
In operation may 2010



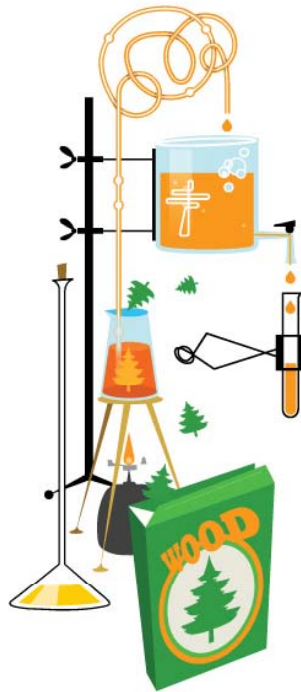
SUNPINE



 **SÖDRA**  **SVEASKOG** **Kiram AB**

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Solander Research

SSP joined R&D projects performed by actors



Solander Business

Partner activities and a Centre for trade and industry
Incubator



Solander Communication

Seminars and public information

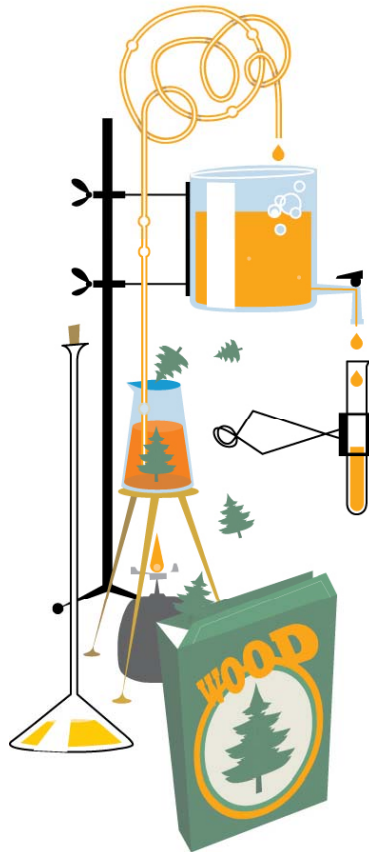




Solander Research

Example of projects :

- Direct gasification of biomass for fuel production (BioDME)
- Fuel synthesis via BLG
- Feeding of biomass
- Evaporation of alkali in entrained flow gasification
- Entrained flow biomass gasification within HighBio
- Lignin extraction from black liquor (BioLime)



KIRAM AB



www.solandersciencepark.se





KIRAM AB

Solander Business

- ETC Bioenergy Lab
- Pilot and Demo Plants
- Incubator
- Office space



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Solander Business Innovation Model

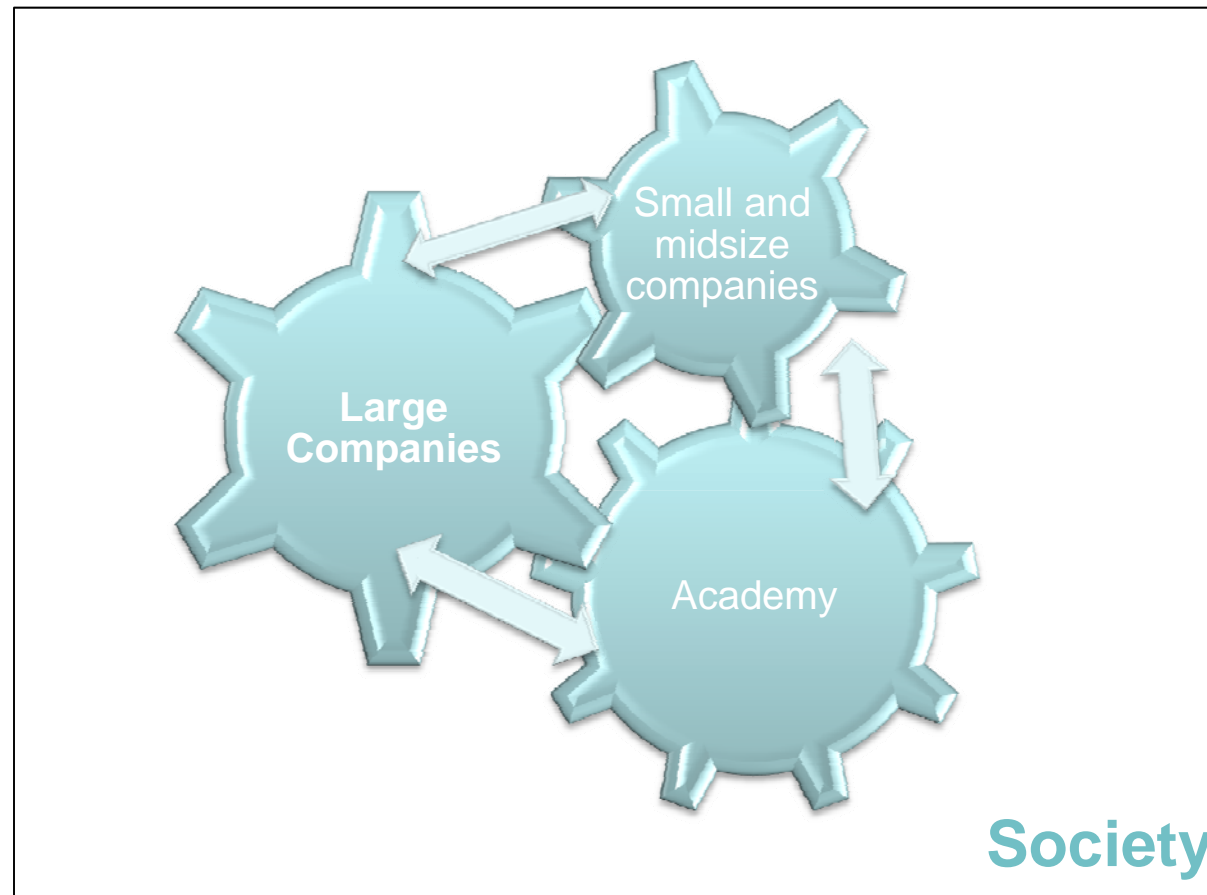
Alternative Triple Helix

Society takes the lead and invites to partner meetings

Don't forget to clarify your aim and be open and positive

Meet in a neutral place and talk about:

1. What is going on in the academy
2. At every meeting – have a theme
3. Talk about how to get more business together
4. Encourage meetings one and one between the partner meetings





Welcome to Solander Symposium 16-17 November 2011 in Piteå SWEDEN

FROM WOOD TO WHEEL

SOLANDER SCIENCE PARK

Endeavour

ETC får Vägverkets miljöpris

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Inbjudan till Symposium

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Till miljöprisets nominering...



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Thanks!

