

The logo for the SET PLAN Conference 2015 is contained within a white right-angled triangle. The triangle is positioned in the upper left corner of the slide. The text 'SET PLAN' is in a large, bold, black font. Below it, 'Conference' is in a smaller, regular black font, and '2015' is in a regular black font. The background of the slide features a diagonal split: the top-left portion is white, and the rest is a gradient of blue and purple, transitioning into a red and orange gradient at the bottom right.

**SET
PLAN**
Conference
2015

Research, innovation
and competitiveness
for the Energy Union

BIOFUELS FOR TRANSPORT

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Biochemtex (Italy)

SESSION 4

Sustainable energy for transport - and the link to
the strategic transport research and innovation agenda
Tuesday 22 September 2015

summary

- 1 Biobased industry and adv. biofuels
- 2 Adv. Biofuels and the transport system
- 3 Set plan and adv biofuels

We'll talk about:

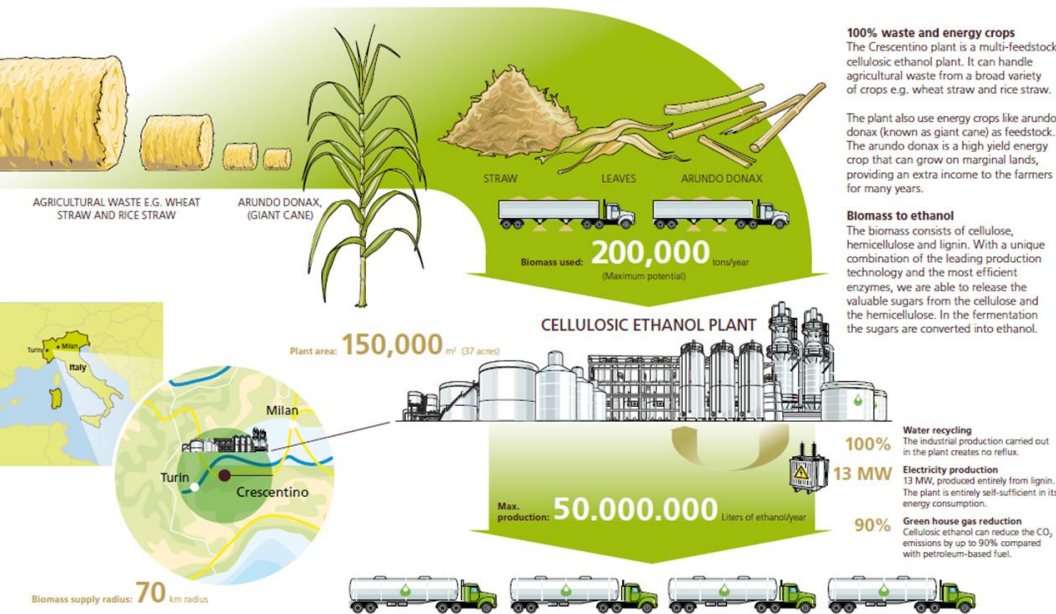
- Eu bio-technologies to be deployed
- european jobs, Investment
- Energy security - better export/import EU balance
- GHG reduction in transport (up to neutrality)
- Needs of R&D, grants/finance, policies

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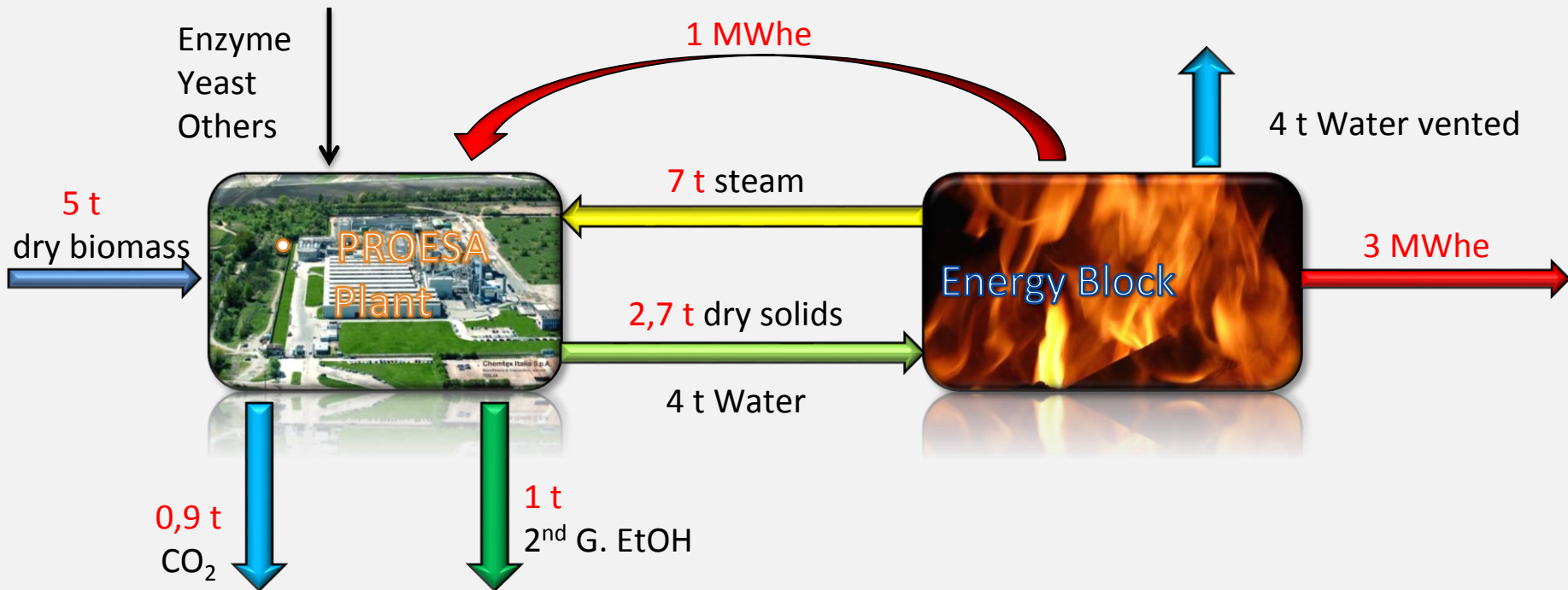
CRESCENTINO FAST FACTS

The world's first commercial scale cellulosic ethanol plant is up and running. With a cost of € 150 million it will pave the way for one of the most sustainable alternatives to gasoline. Fuel made from agricultural waste is now a reality.

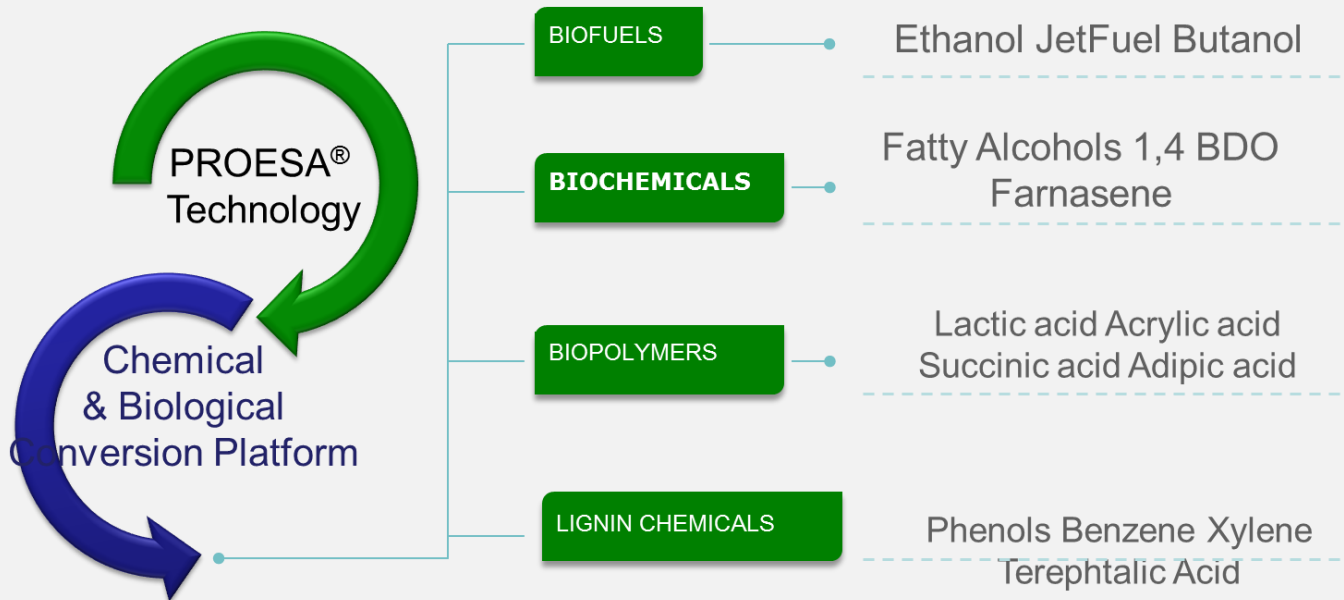


The first 2g etoh biorefinery Crescentino, Italy Biochemtex/Beta





PROESA® Technology for cellulosic sugars production



*production of all the reported chemicals have been already proven at lab /pilot scale in collaboration with Beta Renewables partners

Advanced Biofuels and the biobased industry

The should NOT be seen as a separate value chain in competition with other biobased products

Biofuels are one product to be obtained by the « Biomass barrel » in the same way many different products are obtained in a oil refinery from the oil barrel

Biofuels are today the first large scale biorefinery product, they are essential to bring economy of scale and all related advantages



Advanced biofuels state of art

Several EU technologies are now de-risked

Most of lignocellulosic biofuel technologies are european: Biochemtex/Beta, Clariant, Dong/Inbicon, DSM, Abengoa...

They are at TRL 8/9 level, they are ready for implementation in large scale

BUT

we can forecast the next 10 years of extreme improvement of technologies, efficiency, capex and opex costs reduction

An even bigger development has to come from the biomass value chain, optimisation of demand and offer management, optimisation of logistics, etc

Lot of work still to be done in R&D (pretreatment, enzymes, fermentation etc)

They have been developed with huge public+private effort (IN EU)

These technologies can be the enablers of a multitude of investments and jobs (IN EU!)

Investment and jobs

meaning of 1% oil substitution

2.912.000	toe	1,00% of eu consumption
4.550.000	tons 2g etoh	
19.945.205,48	oil barrels	
50,00	eur/barrel	
997.260.274	euros of oil import avoided	
8.736.000.000	of mobilised investment for biorefineries	

impact on agro sector

24.570.000	tons of EUROPEAN biomass (waste/residues)	
45	euros/ton excl transport/logistics	
1.105.650.000	euros paid to farmers	this means new jobs

job creation opportunity

400	jobs every large biorefinery	
58	large biorefineries	
23.296	jobs direct + indirect	
		Possible target for 2030: 4% Including 2g green diesel

Advanced Biofuels and transport

Adv biofuels are one way to reduce GHG emission in transport
in some transport modes they may be the only one (heavy duty v., air, marine)

Transport sector is a complex system:

- Requires EU standards of fuels (E10, E85 etc)
- Managed by Oil companies, blending adv biofuels and distributing them across Europe
- Involving Car companies optimising their engines to new standardised blends
- Involving car drivers

Diffusion/market uptake of biofuels will never occur « naturally »

Adv biofuels are oftaken by oil companies, which need strong reasons to buy them,
blend them, distribute them

Some of the strategic energy technology plan goals related to adv biofuels

4.2. Reduce the cost of key technologies

4.8. strengthen market take-up of renewable fuels needed for sustainable transport solutions:

«...Market uptake requires cooperation with national authorities, adv biofuel producers and potential users at a European scale»

«Creation of the necessary demand to enable the commercialisation of biobased fuels...»

5.2. adding market pull to technology push

«...Regulatory measures are essential to encourage market uptake at large scale...»

«...Additional enabling conditions such as standards, public procurement, market access...»

...what is needed to deploy adv biofuels in EU:

1. Creation of consolidated Biomass supply chains that is fully sustained and well perceived by citizens and policy makers
2. Additional R&D on process improvement (grants) to improve processes
3. Financing of first biorefineries: in this case finance instruments instead of grants (Credit/loan guarantees) to make projects more bankable
4. Create conditions for offtake certainty (= more bankable projects), mandating the use of adv biofuels

Only a systemic approach, elaborated at Eu level can make the difference
It must be translated into a clear/stable and positive policy framework
Possibly with a pan European approach.



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