novozymes®
Rethink Tomorrow

A ZYMER'S VIEW OF ENERGY
- A BRIGHTER FUTURE

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President, Novozymes – North America

EESI

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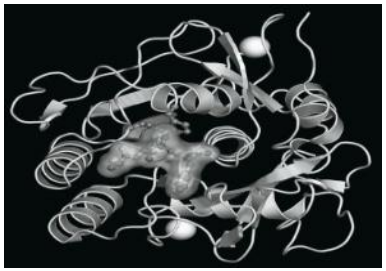
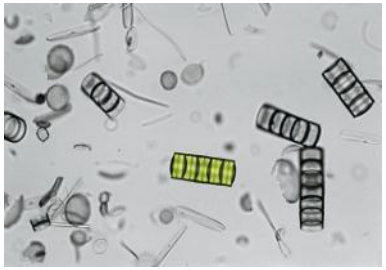
Nature inspires innovation at Novozymes

We find the microorganisms with unique enzymes

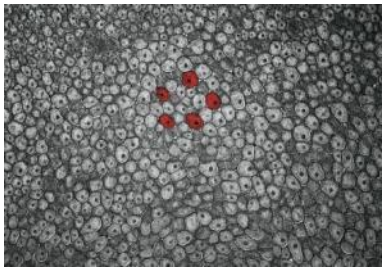
We produce them in big fermenters. From one microorganism to trillions in only 24 hours



Enzymes



Microorganisms



Other proteins

Bioinnovation effects on the GHG…

45 Million tons CO2 emission reductions in 2011 ~ 17 million cars

CO_2 COSTS PRODUCING 1KG ENZYME: 1-10 KG

CO_2 REDUCTION USING 1 KG ENZYME
IN DIFFERENT INDUSTRIES :

30 KG

ANIMAL FEED

40 KG

LEATHER

100 KG

TEXTILES

150 KG

BIOETHANOL

150 KG

DETERGENT

200 KG

FOOD

UP TO
600 KG

PAPER

1,300 KG

OIL & FATS

3,400 KG

BIOCATALYSIS

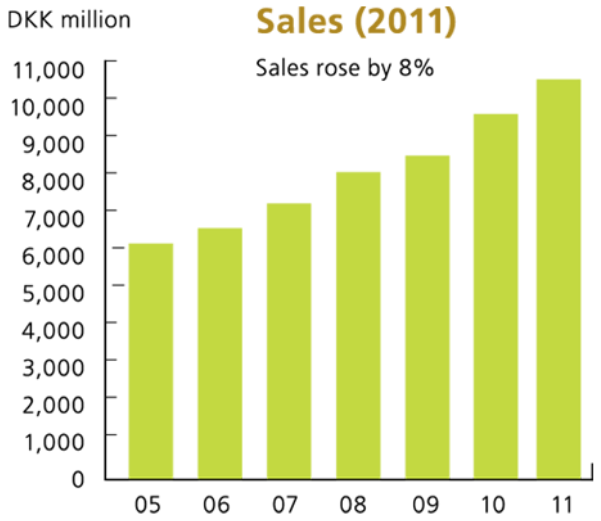
3,800 KG

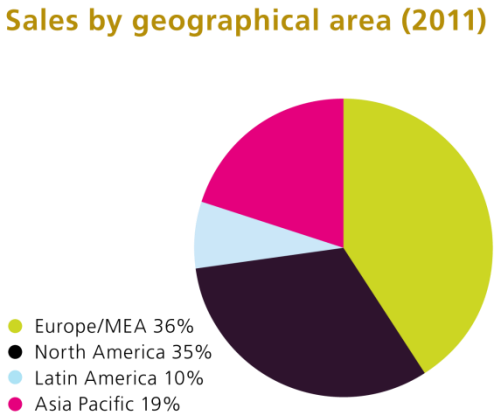
CEREAL

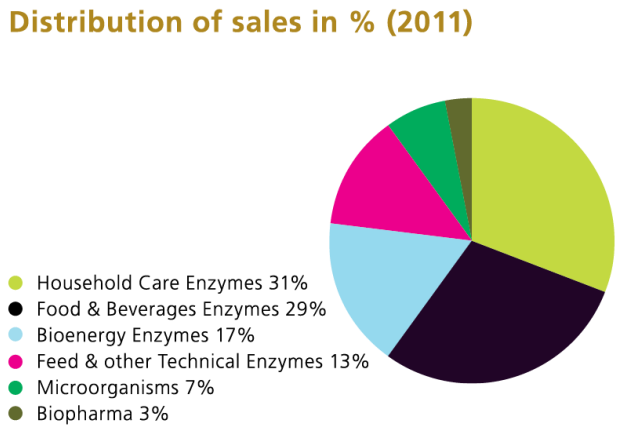
Today's facts

2011 Performance

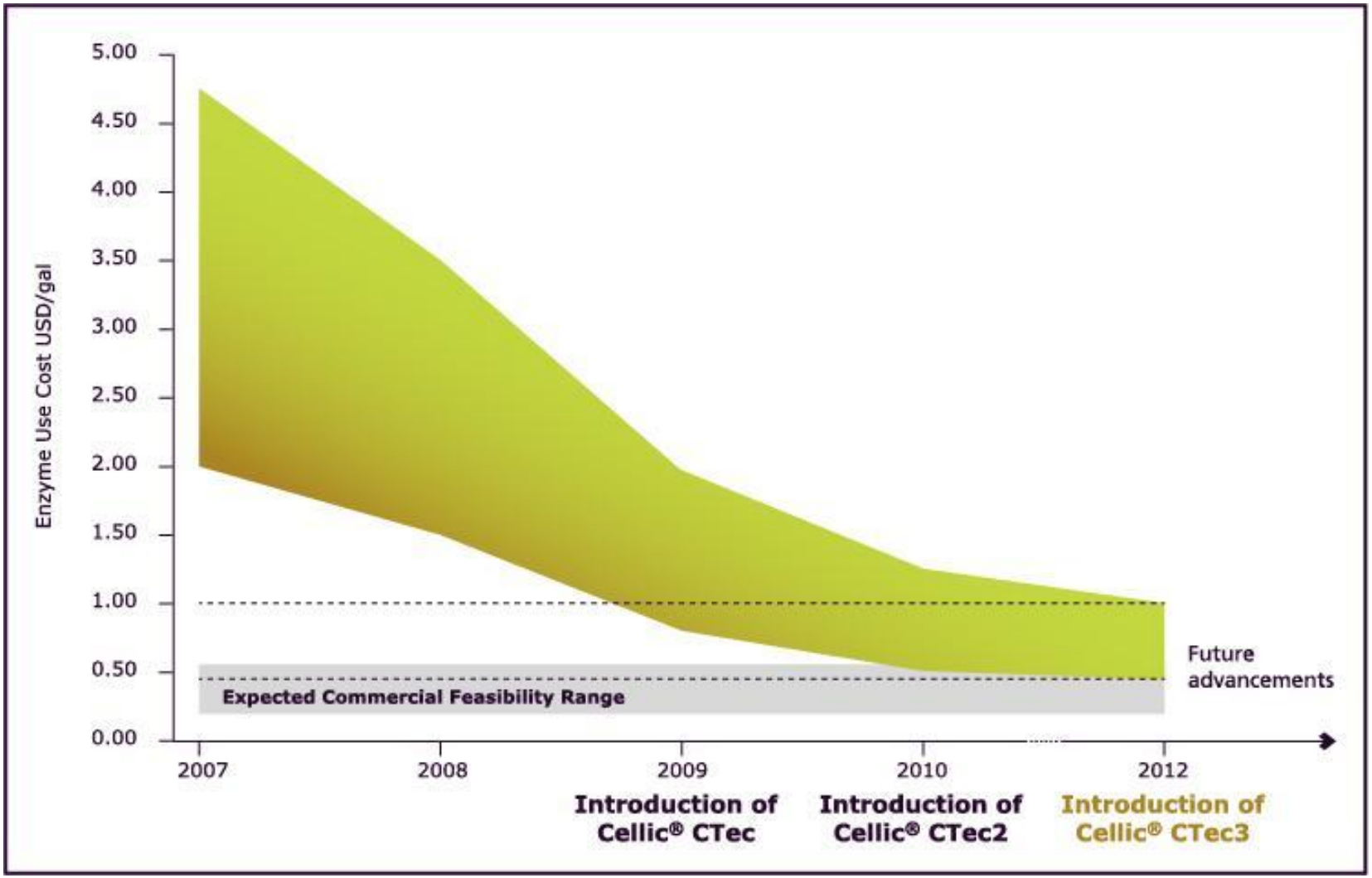
- 2011 global sales DKK 10.51B (FY 2011)
- Operating profit margin 56,2% (FY2011)
- ROIC 21,3% (FY2011)
- **~14% of sales invested in R&D**
- **More than 6,500 patents in place**
- 47% global market share within industrial enzymes
- Global leader in Industrial enzymes & microorganisms
- Market leader in all main industries







PRODUCERS WILL INVEST THE EXTRA HORSE POWER
TO SAVE ON OTHER COST ITEMS THAN ENZYME COST



BNEF STUDY BASED ON
THE AGRICULTURAL POWERHOUSES

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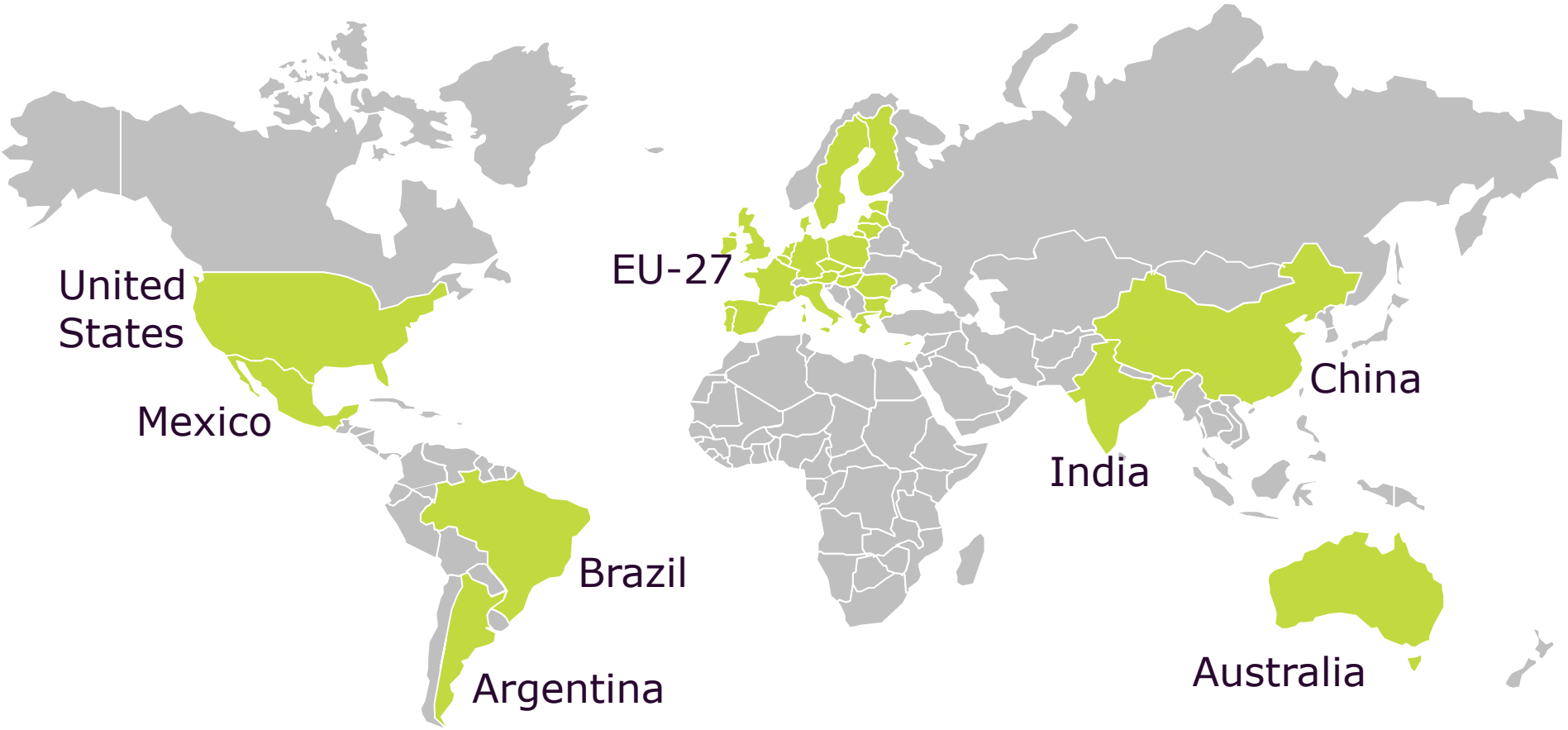
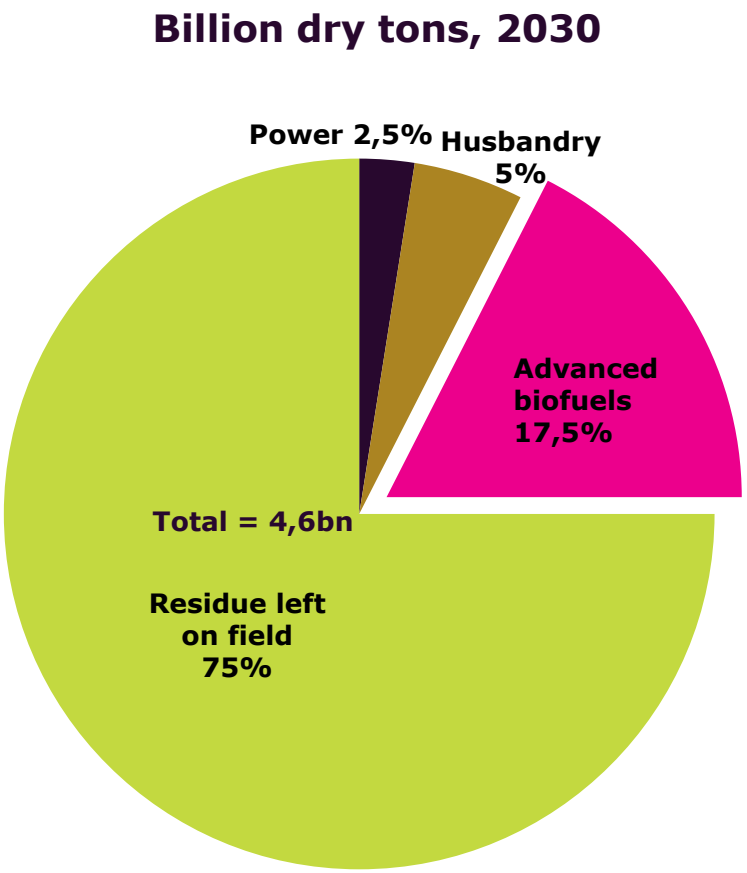


G20 countries not included: Canada, Indonesia, Japan, Russia, Saudi Arabia, South Africa, Republic of Korea, Turkey

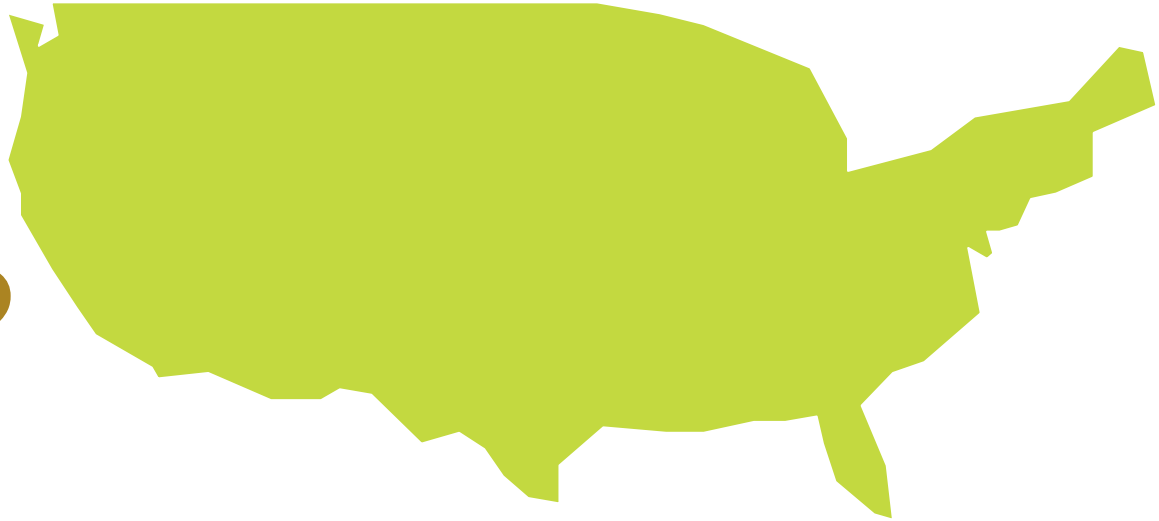
AGRICULTURAL RESIDUE AVAILABILITY
IN THE 8 SELECT REGIONS



- A maximum of 17.5% is assumed to be available for advanced biofuel production
- Collecting only 25% of agricultural residue is a conservative methodology that takes into account technical and ecological constraints
- This purposefully aims to preserve soil quality and is in the low-to-medium range of comparable studies

Source: Bloomberg New Energy Finance, "Moving towards a next-generation ethanol economy" 2012

WHAT'S IN IT FOR THE US?



Energy security

The US can replace 16% of its annual gasoline consumption by 2030 with advanced biofuels

Jobs

Create almost 1.37 million jobs between 2010 and 2030 mainly in rural areas

Economy

American players would be the major beneficiaries, including 96 billion USD domestic engineering, construction and feedstock market

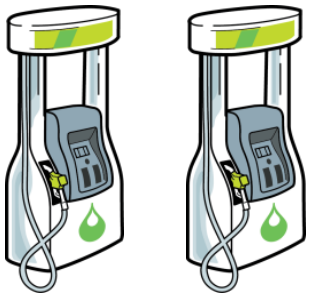
Environ-ment

Save CO2 and reducing GHG emission from gasoline related road transport by 11%

Source: Bloomberg New Energy Finance, "Moving towards a next-generation ethanol economy" 2012

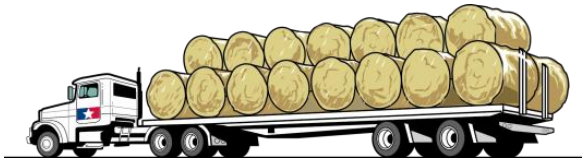
BUT POLICY SUPPORT IS NEEDED
TO KEEP US MOVING TOWARD COMMERCIALIZATION

To attract investments and commercialize cellulosic ethanol, policymakers must support the industry with:



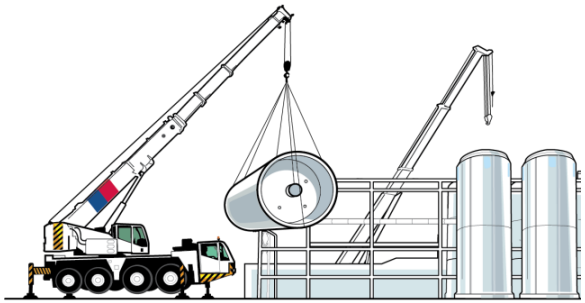
Bankable future demand for advanced biofuels

RFS
Market Access
•Blender Pump Support
•E15



Support for scale-up of sustainable biomass supply

Biomass Supply Innovation and Incentives



Support for demo and first commercial-scale plants

Investment Tax Credits
Loan Guarantees

We are investing in this potential

THANK YOU

Visit us and Learn More:

www.bioenergy.novozymes.com/sweet-spot