

# Enzymes for production of 2G bioethanol

- where are we at?

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# Novozymes and biofuels

## Leading the way in enzymes for 1<sup>st</sup> and 2<sup>nd</sup> generation biofuels

- Largest supplier of enzymes to the existing fuel ethanol industry
  - Market share of more than 60% in this field
- ~17% of total Novozymes sales in 2008
- Predominantly a US business
- Leading the way in development of cellulosic ethanol in collaboration with industry leaders around the globe
  - 150 people working on this development
- Enzymes for commercial production of cellulosic ethanol ready by 2010













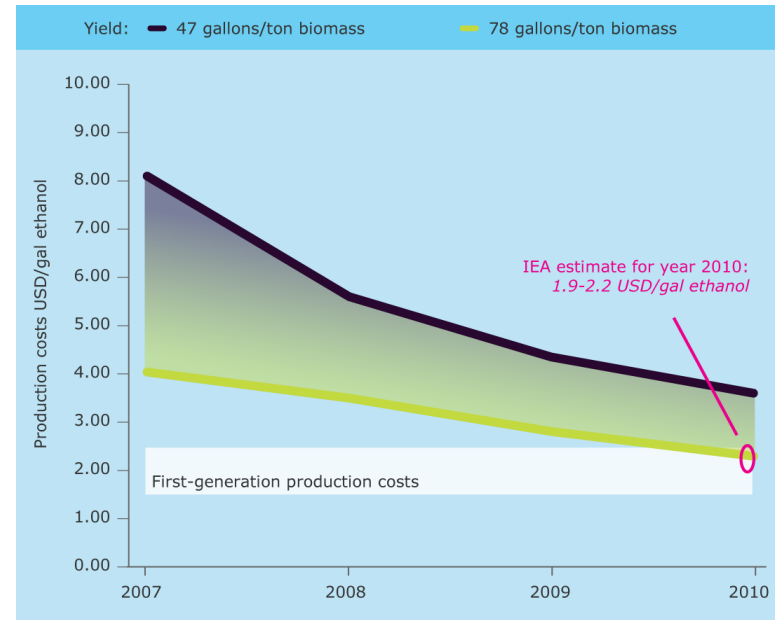
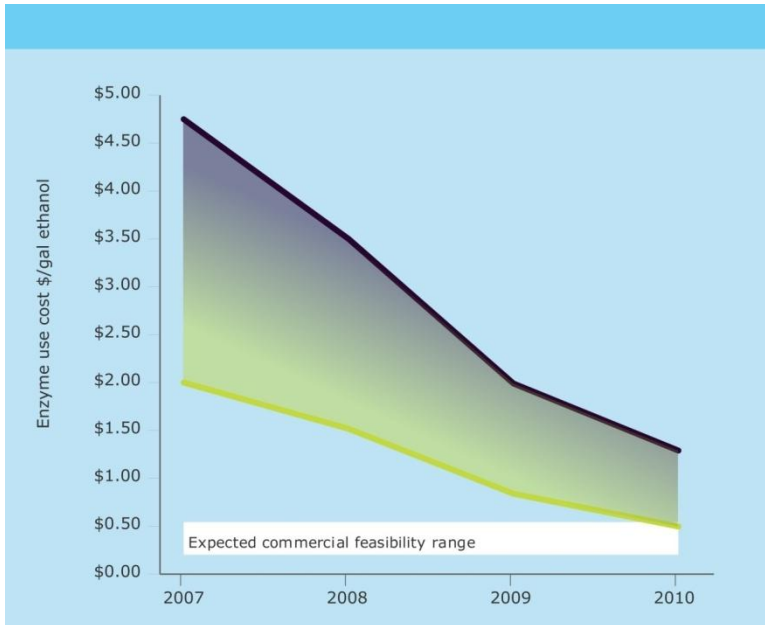








# Cellulosic ethanol approaching feasible production costs ...



**Enzyme costs are declining and becoming a smaller and smaller fraction of the total process costs**

**Production costs for second generation ethanol becoming comparable with production costs for first generation**

# Rethink tomorrow and help create a more secure, sustainable – biobased society

- A more sustainable and less oil dependent energy system is needed
- For the transport sector biofuel is the only pathway currently available
- Enzyme technology is constantly developing – making bioethanol even more sustainable and climate friendly
- Industrial biotechnology enables not only bioethanol – but sustainable solutions across a range of industries

