Unlocking the cellulosic bio-ethanol opportunity

DSM and POET make advanced biofuels a reality
Safe harbor statement

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A more comprehensive discussion of the risk factors affecting DSM’s business can be found in the company’s latest Annual Report, which can be found on the company's corporate website, www.dsm.com
DSM and POET to make advanced biofuels a reality

- POET - DSM Advanced Biofuels JV to commercially demonstrate and license cellulosic bio-ethanol:
  - DSM and POET each hold 50% share
  - Initial capital expenditure of ~ US$ 250m
  - Headquartered in South Dakota
  - Initial capacity expected to be 20 million gallons, growing to ~ 25 million, scheduled to start in H2 2013
  - Raw material corn crop residue
  - Favorable GHG effect

- JV intends to license proven Integrated Technology Package
  - Replicate technology throughout POET’s existing network of 27 corn ethanol plants
  - Worldwide to third parties
Highly attractive market opportunity

- Global cellulosic ethanol market expected to grow to 18bn gallons in 2022, ~ US$ 50bn
- Resulting in market value for enzymes & yeasts of ~ US$ 3-5 bn in 2022
- US is leading, forecast ~ 7.5bn gallons of cellulosic bio-ethanol by 2022
- It can be calculated that by 2022 ~ 150-200 plants to produce cellulosic bio-ethanol from corn crop residue could be required in the US.

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Market expectations(*)

cellulosic ethanol
(global demand in billion gallons)

*: derived from Hart’s Global Energy Study
From biomass to cellulosic bio-ethanol
Two innovative leaders, one shared vision

**DSM**
- Has more than 140 years of experience in biotechnology
- Has a proven track record in scaling up industrial operations
- Leadership position in conversion technologies (yeast and enzymes) for cellulosic biomass to ethanol
- DSM is the only company that can simultaneously co-ferment all C6 and C5 sugars (xylose & arabinose) in cellulosic biomass

**POET**
- Has significant experience in scaling up technology within its network of corn ethanol plants
- Has a leadership position in cellulosic ethanol process technology and has been operating a pilot scale cellulosic ethanol plant since 2008
- Has spent five years developing a system to harvest, transport and store cellulosic biomass and has built an infrastructure for corn crop residue around the Emmetsburg, Iowa facility
Production costs comparison & development

Corn ethanol

Cellulosic bio-ethanol

2012 2008 2012 Future

POET Pilot Plant

POET - DSM Plant

POET - DSM Goal

Source: POET and DSM
Value creation now & tomorrow

- Goal is to establish a solid leadership position in the global cellulosic bio-ethanol market

- First revenues expected in 2013. JV is expected to be profitable in first full year of production (2014)

- Projected sales (cellulosic bio-ethanol, biogas and later on licensing) from JV to grow to > US$ 200m* with above average EBITDA contribution in the medium/longer term. Future license income could add up to several tens of millions of US$.

- JV expected to contribute significantly towards DSM strategic aspirations for the EBAs by 2020

* Due to IFRS rules as of 2013 DSM will consolidate the JV using the equity method
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