

Scaling Up logen Background

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A Long Time Player in Cellulosic Biofuels



2007



2010

- **Cellulosic ethanol developer since the late 1970s**
- **In addition to cellulosic ethanol**
 - Enzymes for cellulose conversion
 - Renewable natural gas
 - Renewable hydrogen
- **Now a large registered producer of cellulosic biofuels in the U.S.**
 - 5% of all U.S. cellulosic biofuels
 - Focus is renewable natural gas
- **Partnered with major energy companies to bring our cellulosic biofuels to market**

A Leading Developer of Cellulosic Ethanol



- **Active since the 1970s**

- First piloting – Jayhawk 1979
- Ottawa pilot – 1983
- Demo plant – 1999+
- First commercial – 2014+

- **Partnered with a number of major corporations**



- **Manufactured cellulase enzymes**

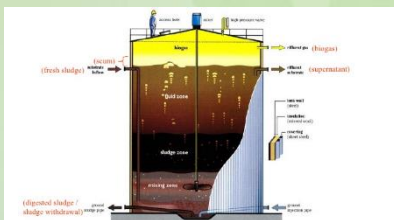
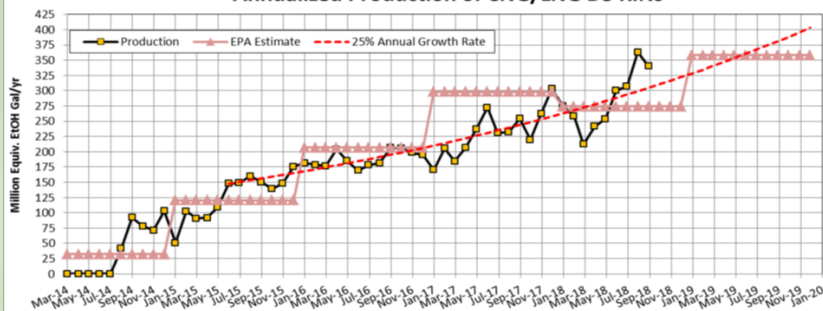


- ***Lessons learned:***
this is a complex, difficult business



Developing opportunities in renewable natural gas

Annualized Production of CNG/LNG D3 RINs



- **One of top registered cellulosic biofuel producers in the U.S.**
 - 5% of all U.S. cellulosic biofuel
 - Renewable natural gas
- **\$750 million per year market growing at 25%**
 - RNG from landfill and digester biogas
 - One billion gal/yr potential
- **Developing new opportunities**
 - e.g. Renewable hydrogen in diesel



Thank You



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