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# CELLULOSIC ETHANOL

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## ROAD TO REPLICATION



AOET

UPDATE:

# LIBERTY

- POET-DSM Advanced Biofuels continues to make significant progress at LIBERTY
- Plant is operating at ever higher capacities
- OSM was announced earlier this year



# REQUIREMENTS FOR REPLICATION

CONTINUOUS  
TECHNOLOGY  
IMPROVEMENT



MARKET ACCESS  
FOR HIGHER  
ETHANOL BLENDS

PUBLIC POLICY SUPPORT

CONTINUOUS

# TECHNOLOGY IMPROVEMENT

Technology improvement must drive:

- Capital cost reduction

- Operating cost reduction

- Conversion efficiency

- Create co-product value

First commercial plants allow practical evaluation

# TECHNOLOGY SPECIFICS

Current pretreatment technologies becoming more reliable

Potentially disruptive technologies being researched

Robustness

Time for commercialization

Enzyme efficacy improving & cost is being reduced

Multiple commercial yeast offerings with ongoing optimization

# PUBLIC POLICY SUPPORT

- RFS is essential for growth of cellulosic ethanol
  - De-risk investment
  - Ensure market access
- Eliminate market obstacles
  - RVP
- Build on public/private collaboration



# HIGHER ETHANOL BLENDS

- Higher ethanol blends are required to absorb volume
  - Market access
  - Consumer pull through



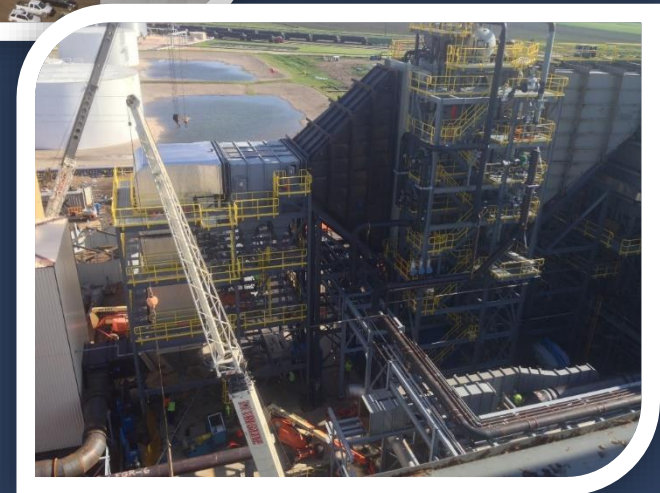


# EASIER THE SECOND TIME

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Issues that will be easier on replication

- Raw material procurement and handling
- Reduced capital costs
- Process startup



# CONCLUSION

- Commercial plants are underway in the U.S.
- Replication will be driven by
  - TECHNOLOGY IMPROVEMENT
  - PUBLIC POLICY
  - MARKET ACCESS
- Significant learnings from current plants will rapidly improve replication
- POET and POET DSM Advanced Biofuels are committed to advancing cellulosic ethanol

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