



Biorefineries Commercialization Issues & Requirements – An Overview

Dr. Jacquelyn-Danielle McNutt
The Center for Paper Business & Industry Studies
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An Overview

- Research in Biorefineries indicates the Forest Products Industry (FPI) is a potential major fuels producer and co-generator of electricity/power
- However – The opportunities and challenges of deploying this technology are many and complex
 - *Not just true for the technology side of the equation...*
 - *Successful commercial implementation is fraught with a myriad of Driving forces and*
 - *Barriers required to* fully exploit this promising product platform in a successfully *commercial context*

Driving Forces – *Briefly*

- Climate change; societal pressures; politics – global, national, and regional; the sustainability movement; growing global resources constraints; sustainability potentials for forests...
- Emergence of new policies and regulations
- A chaotic global, regional and national economy
- Rapid technology developments/innovations
- Commercially attractive business environment(s)
- An industry in (dis)stress & global competition

Biorefineries – *Business Reminders*

- Our industry has a track record in which new technologies are often deployed without early and continuous analysis of the *business, social, policy, and market place factors* that heavily influence success or failure...
- This should send us a message that this time for commercial success – *we must consider issues beyond whether or not we are able to achieve technical success* in this rapidly evolving arena

Biorefineries – *Business Reminders*

- New business innovations of any sort must be –
 - Driven by a compelling strategy designed to create and capture value over the time, and
 - Have an effective business model *or failure is certain*
- Solid Technology success *will never alone create transforming industry success*
- As such, our industry needs to –
 - *Develop an effective commercially oriented vision, mission, strategy and tactical concepts for the biorefineries arena*
 - *And assure a business plan that creates and delivers value to stakeholders across time*

Absent – this is the first major barrier to success

Biorefineries – *Business Reminders*

- Major current lagging/missing ingredients in advancing commercial successful Biorefineries –
 - *Understanding the markets*
 - *Understanding then role of and need for a compelling mission, vision, and strategic plan*
 - *Identification of and development of the correct value adding business model*
 - *Being socially & politically “correct”*
 - *Seeing the handwriting on the wall*

Biorefineries – *Business Reminders*

- Here again are we to be guilty of the historic *“build it and they shall come”* failed business philosophy?
 - *What energy products will best fit the future market place for energy needs & differentiation?*
 - *What are the needed delivery and logistics systems?*
 - *Who is going to provide the business model development – and how?*
 - *What will be the most successful and sustainable model – and how?*
 - *Who do we need to partner with and why to assure success?*



Biorefineries – *Understanding the Markets*

- Success dictates we understand –
 - *Existing and future market structures*
 - *Potential sizes and demand profiles of new target market sectors for products from the biorefinery*
 - *Competitive market-place landscape – competitors, competing products, alternative products, patents....*
 - *How to move from –*
 - *Being technology centric to market centric*
 - *A commodity culture to specialty culture, and*
 - *From being manufacturing centric to margin centric...*

Biorefineries – *Understanding the Markets*

- Key questions abound – including –
 - *Should we pursue commodity or specialty products?*
 - *What will happen to pricing for each new product across time?*
 - *Can a forest products company deliver this product economically to chemical plants for further processing?*
 - *Or is a different player better suited?*
 - *Who else will be introducing such a forest-based product?*
 - *Who should we partner with to assure market exploitation?*

Biorefineries – *Understanding the Markets*

- We need to understand the supply/value chain requirements for *each different energy – power – chemicals market sector* – such as –
 - *How does supply/value chain management fit into the commercial success picture?*
 - *Where and how do we secure a sustainable, cost effective and quality raw material flow?*
 - *Will our new products be more economical to produce and transport as a liquid or as a gas and be collected in tank cars, carried through lengthy pipelines, or hauled by trucks?*
 - *How do we best connect to the new markets?*
 - *Who should our partners be and why to allow us to advance a comprehensive supply/value chain driven business model?*

Biorefineries – *The Business Model*

- What is the role of the business model?
- An effective business model will –
 - *Be driven by a compelling mission, vision and strategy...*
 - *Assure a return on innovation investment...*
 - *Consider both the value created and the value captured by the innovator – now and across time...*
 - *Align cost and profit potential...*
 - *Be margin and market centric...*
 - *Allow the innovator to create and sustain a commercially viable and rewarding competitive advantage in the new markets and the new marketplace...*



Biorefineries – *The Business Model*

- The biorefinery arena has great commercial potential
- But we need to ask & assess –
 - *Is this radical innovation arena one where industries and firms can achieve and sustain the true potential alone?*
 - *What will be the key business model attributes that will both attract investors , partners and fuel real commercial success?*
 - *What is the business process required to take a sound biorefineries' technological innovation outcome and link it to a business model designed for commercial success in new markets?*
 - *What do we need to do to be ready for designing and implementing the “right” business model concept & structure?*

Biorefineries – *Being Socially & Politically Correct*



- The Biorefineries Arena Is Fraught With Social and Political Realities & Barriers –
 - *Global pressures and confusion around climate change & its true causative factors*
 - *Conflicting global, regional & national needs & goals*
 - *Bad/conflicting science, information & knowledge = social polarization*
 - *Social and political ignorance*
 - *Bad (or at least confused) corporate politics*
 - *The poor linkages among factors affecting climate change....*

Biorefineries – *The Handwriting on the Wall*



- The Forest Biorefinery arena has been a sustained topic for our industry leaders for 5+ years now – *and yet* –
 - *Who in our industry in NA has truly advanced this ball?*
 - *Why not?*
 - *Who has advance this ball elsewhere – and why?*
 - *What is needed for the ball to be advanced by our industry here in NA?*
 - *Will our NA Industry leaders see and understand the handwriting on the wall?*



Biorefineries – *Key Takeaways*

- Challenges & Opportunities.... *The difference makers –*
 - *Know your driving forces inside and out...*
 - *Identify and know well your weaknesses & strengths...*
 - *Be driven by a clear vision, mission & strategy...*
 - *Embrace the entire supply/value chain...*
 - *Develop and follow a sound value creating business plan...*
 - *Become margin and market centric...*
 - *Understand & capitalize on the market – current and future...*
 - *Identify and secure quality & value adding partners...*
 - *Above all – recognize that technological excellence is not enough – neither is market competence – together they create the foundation for true sustainable success....*



Wrap Up...

Questions ~ Answers ~ Discussion

Dr. Jacquelyn-Danielle McNutt

Executive Director CPBIS

Jacquelyn.McNutt@CPBIS.gatech.edu

910-253-1208

