



US Supply Chain Investments

Capital Markets Day

17 October 2013

Agenda

Chuck Davis – CEO, Drax Biomass International

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US Forest Resource

US Investment Objectives

Drax Biomass International

Gulf Cluster Investments

Options for Expansion



US Forest Resource

US has >750M acres of forest land

>35% of the landmass and 25% of global industrial wood production

US forests are growing

Protected by statutes, regulation and certification

- Designed to ensure forests continue to grow / flourish
- Best practices in forest management and sustainability

US Southeast – main point of focus

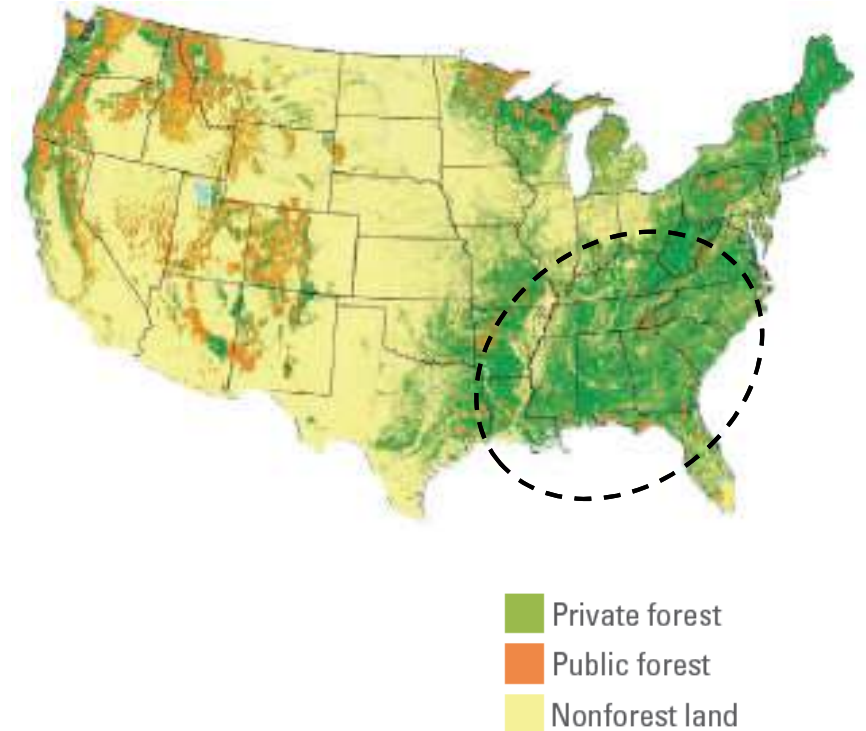
Favourable climate supports short timber rotation

Significant available volumes

- Current total harvest is 300Mt – 350Mt pa
- Forest residuals are underutilised
- Forest industry closures provide opportunity for new consumers

Straight forward commercial and regulatory environment

US Forest Cover and Ownership



Sources:

Forest area – USGS National Land Cover Database 2001
Ownership – CBI Protected Areas Database, Version 4.0

US Investment Objectives

Main driver is to deliver secure and reliable pellet supply

Insights into technology and business

- Become better informed buyer
- Assist suppliers with technical issues
- Support production process development

Mobilise further capital for supply chain investment

Success requires control over the three key legs of the supply chain:

Fibre

- Abundant sustainable fibre resource

Manufacturing

- Development, design, construction and operation of facilities

Logistics

- Structured contracts for moving pellets to port storage
- Aggregation and loading onto ships



Forest



Harvesting



Transport



Processing



Transport

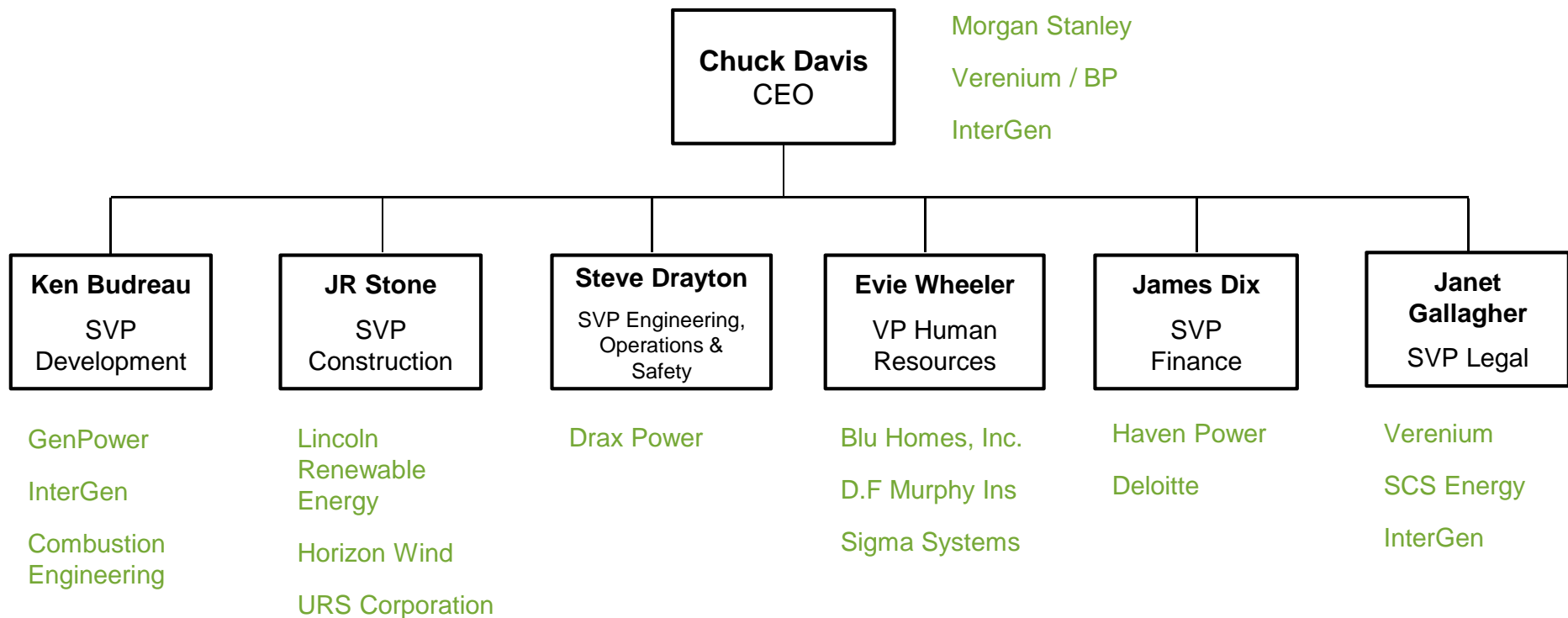


Port storage and handling

Drax Biomass International (DBI)

DBI established in December 2011

Strong team – local US expertise supplemented by Drax expatriations



Gulf Cluster Investments

Two 450kt pa pellet plants

Amite (Mississippi)

Morehouse (Louisiana)

Baton Rouge Port facility

Up to 3Mt pa throughput

80kt storage

Rationale:

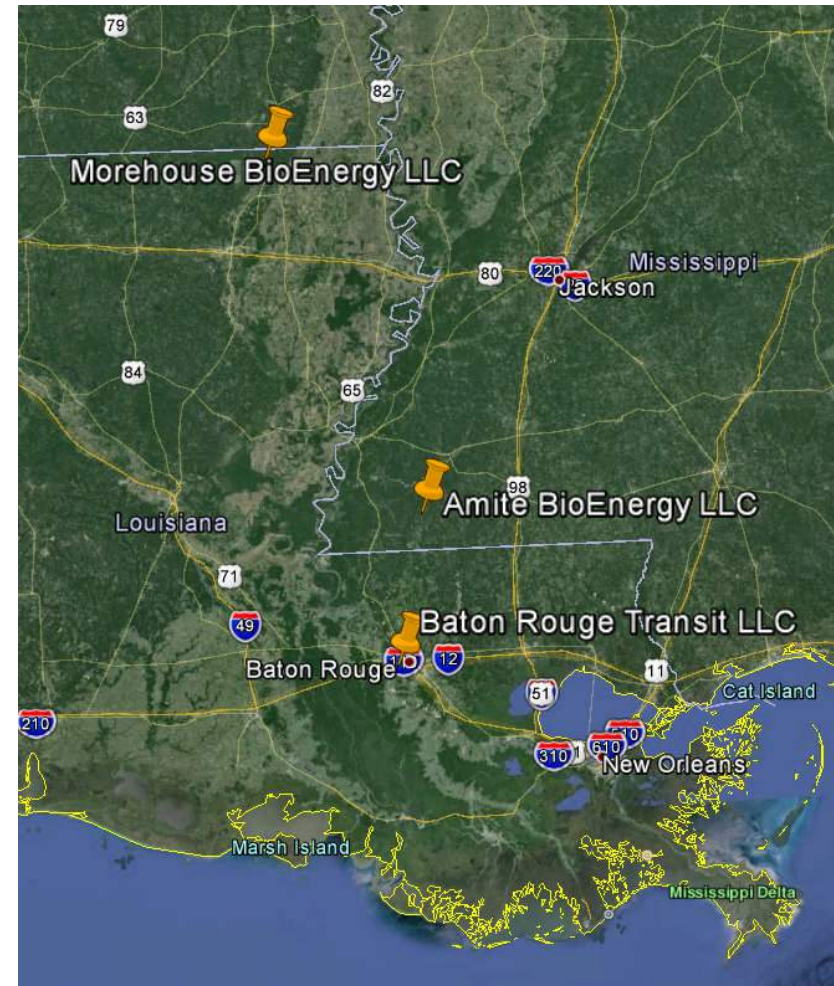
Abundant fibre supply

Access to deep water port

Transportation interconnections

Supportive local authorities

US Gulf Region



Fibre – Sources

Fibre requirement

Each plant requires c.1Mt pa

- Forest / mill residues, thinnings, tree tops and limbs – lower value fibre

Sustainable sources

Plum Creek

- 770kt pa
- 10-year contract

Regional providers

- >80% forests in the South East held by small forest owners
 - Active timber markets provide economic incentives for landowners to grow a wood crop
- Portfolio of medium-term contracts (3–5 year) and short-term agreements (1 year or less)



Plum Creek is one of the largest landowners in the US

Approximately 6.4 million acres of timberlands

Managed following sustainable forestry practices

Contributing to the revival of the forest products industry

“Woody biomass provides a reliable energy source while providing an opportunity for my state, among others in the Southeastern US, to put people back to work”

Georgia Governor, Nathan Deal

Fibre – Amite

5M forested acres within the catchment area⁽¹⁾

- Covering 56% of the landscape

Total forest growth is 21.9Mt pa⁽²⁾

- Total drain is 8.8Mt pa
- Growth to drain ratio⁽³⁾ = 2.5

Generates 4.4Mt pa of forest residues

- Low to no utilisation

Sited near closed forest products facilities

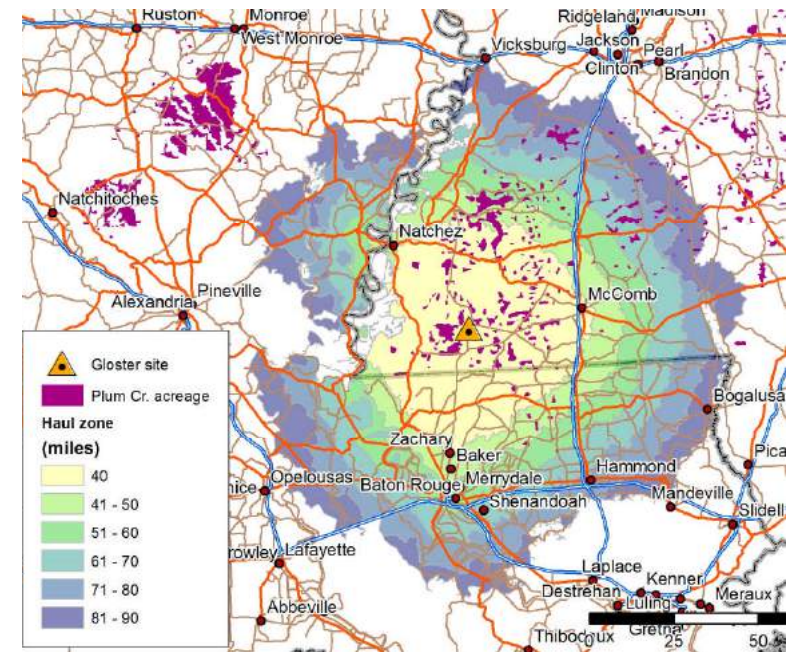
- GP Gloster plywood plant; IP Natchez pulpmill
- Available workforce for plant operations and logging revival

Feedstock costs relatively low and stable compared to other parts of US South

Supply chain well developed to produce pulpwood

Need to develop residuals supply chain

Amite⁽⁴⁾ Site – Harvest Radius



(1) Catchment area radius is c.50 miles, or 5m acres

(2) Source: USDA FIA

(3) Growth to drain ratio = growth / drain

(4) Town of Gloster, Amite County (Mississippi)

Fibre – Morehouse

5M forested acres within the catchment⁽¹⁾ area

- Covering 50% of the landscape

Total forest growth is 21.7Mt pa⁽²⁾

- Total drain is 14.8Mt pa
- Growth to drain ratio⁽³⁾ = 1.5

Generates 4.4Mt pa forest residues

- Low utilisation c.10%

Sited near closed forest products facility

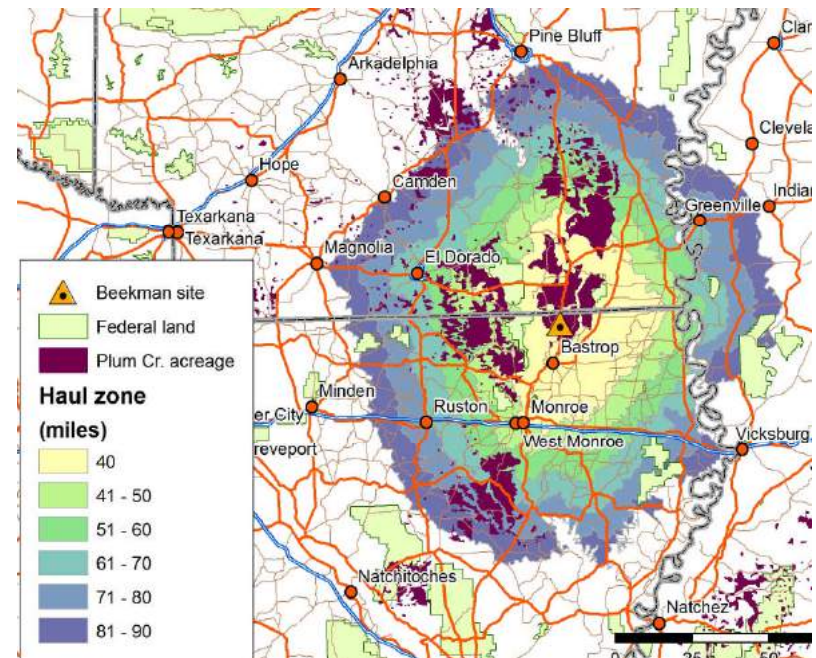
- IP Bastrop paper mill
- Available workforce for plant operations and logging expansion

Feedstock costs are relatively low and stable compared to other parts of US South

Supply chain well developed to produce pulpwood

Supply chain for residuals in place and will expand

Morehouse⁽⁴⁾ Site – Harvest Radius



- (1) Catchment area radius is c.50 miles, or 5m acres
- (2) Source: USDA FIA
- (3) Growth to drain ratio = Growth / Drain
- (4) Town of Beekman, Morehouse Parish (Louisiana)

Operational Readiness

Recruitment

Key management hired

Currently 38; moving to c.130 in spring 2014

Detailed operational planning

Development of operational / maintenance manuals

Training

Safety

Equipment / task specific

Maintenance

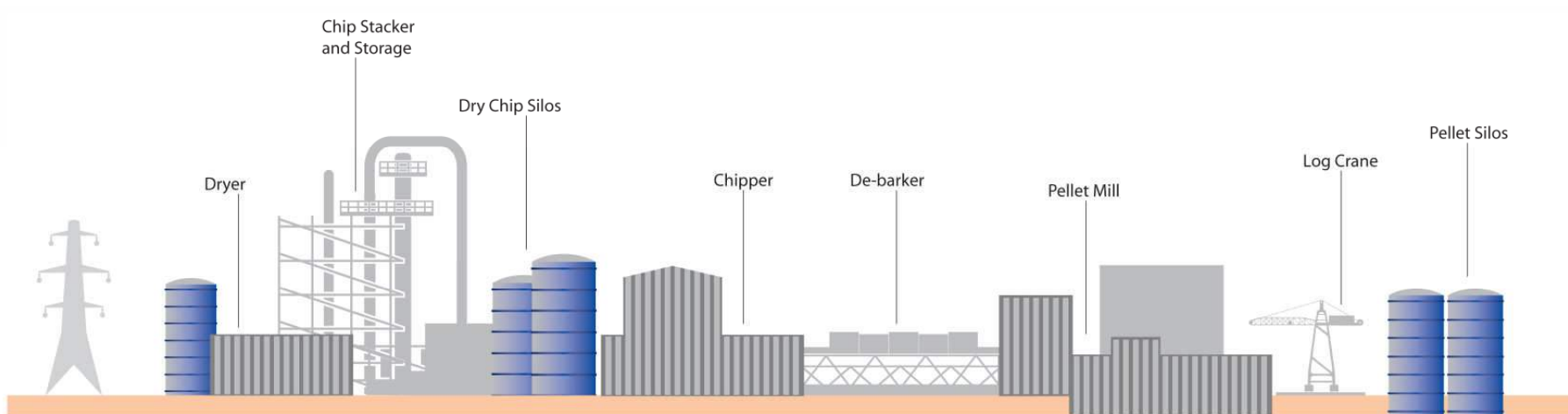
OEM service contracts

Major maintenance support

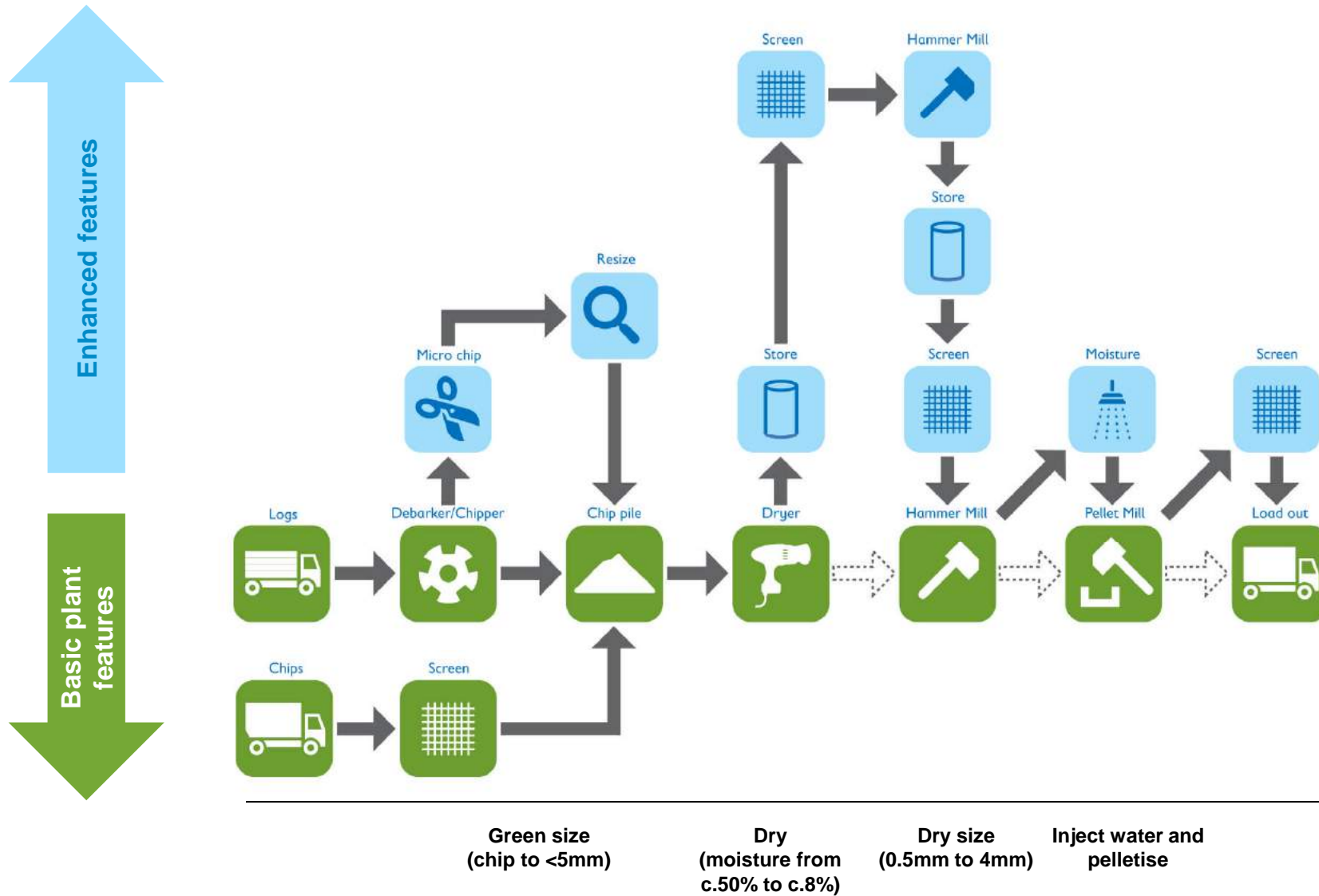
IT / ERP systems

Inventory control

Amite Pellet Plant – Site Section



Manufacturing Process



Storage and Loading

Aggregate up to 80kt

Through rail and truck dumpers

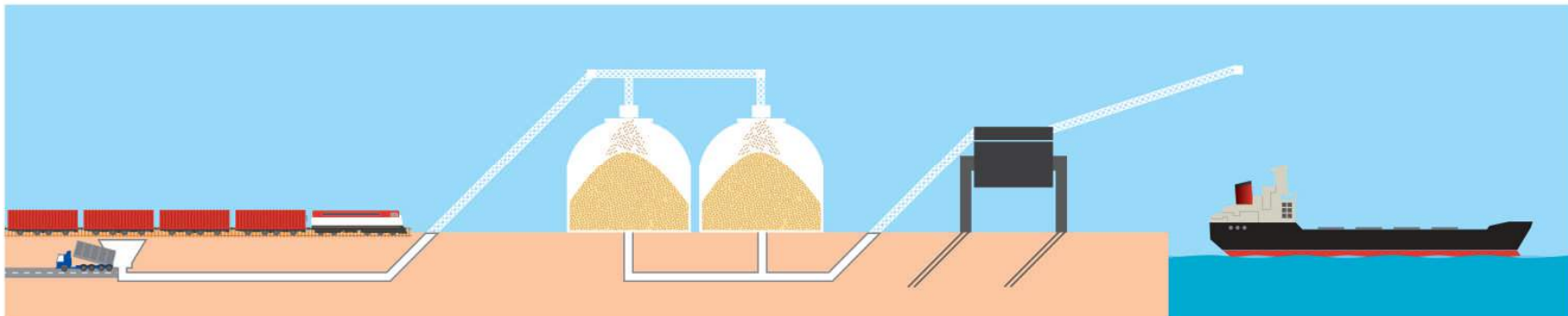
Store pellets in climate controlled environment

With appropriate fire management systems

Rapidly load onto ships up to 65kt

1,200t/hr

Baton Rouge – Site Section



Safety, Engineering and Procurement

Safety – principal focus

Experienced safety team supported by Drax UK expertise

- Working closely with contractors / sub-contractors

Engineering – plants built using industry-leading capability and lessons learned

Drax pellet plant experience

- Process design
- Equipment vendors
- Pellet quality
- Material handling

Mid-South Engineering Experience

Strong field team

Equipment and technology

Pellet plants – same vendors for both: cost-effective procurement and consistency

- Construction, operations, maintenance

Storage and loading based on Drax UK experience

- Dome Technologies – supplier to Drax in the UK

Construction Contracts

Manufacturing

Haskell Companies

- Headquartered in Jacksonville, Florida
- Providing design, construction and operations services to a range of industries
- Privately held
- Revenue – \$568m (2012)
- 105th – Engineering News-Record (ENR) Top 400 Contractors

Fixed price contract

- Date certain
- Performance guarantees



Storage and Loading

Gray Construction

- Headquartered in Lexington, Kentucky
- Design-build contractor offering architecture, engineering and construction services to domestic and international companies
- Privately held
- Revenue – \$484m (2012)
- 126th – ENR Top 400 Contractors

Fixed price contract

- Date certain
- Performance guarantees



Consolidated Schedule

Capital investments progressing on schedule and budget

Targeting commercial operations: Amite and Baton Rouge Q1 2015, Morehouse Q2 2015

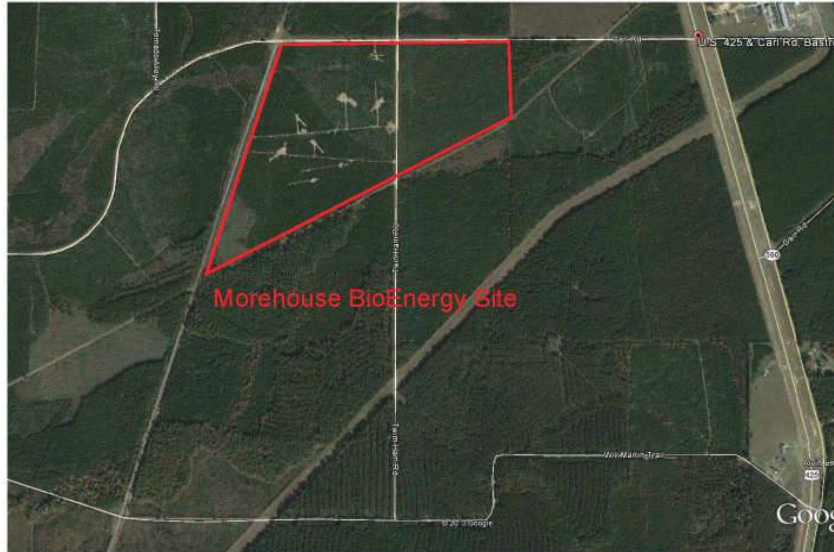
Full capacity: 6 months after commercial operations begin

Gulf Cluster Investments	2013				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Amite BioEnergy												
Construction		Construction										
Commissioning							Commission					
Commercial Operations									Commercial Ops			
Morehouse BioEnergy												
Construction		Construction										
Commissioning							Commission					
Commercial Operations									Commercial Ops			
Baton Rouge Transit												
Construction		Construction										
Commissioning							Commission					
Commercial Operations									Commercial Ops			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2013				2014				2015			

Amite – Progress



Morehouse – Progress



Baton Rouge – Progress



Construction Summary

Construction progress to date

Site clearing

Grading

Storm water management systems

Foundations

Near-term activities

Dryer equipment

Site access

Construction is on schedule and budget

Options for Expansion

Gulf Cluster

Assessing opportunity for expanding manufacturing capacity in region

- Scale improves economics for region and port facility

Opportunity to purchase pellets on a delivered basis

East Coast

Performed extensive analysis of potential East Coast ports and manufacturing sites

Developing options for manufacturing capacity and port facilities

Expansion focused on aggregation potential

Forestry Cover – US East Coast and Gulf Region



Summary

Strong team

Local expertise supplemented by Drax expatriations

Good locations

Abundant fibre and efficient logistics

Robust contracts

Capped price, date certain with performance guarantees

Execution on track

Evaluating options for expansion

