U.S. Department of Energy
Office of Indian Energy

WHAT ENERGY PROJECT IS RIGHT FOR MY TRIBE?

MISSISSIPPI BAND OF CHOCTAW INDIANS – CASE STUDY

Mississippi Choctaw

Federal Recognition in 1945

10,800 enrolled members

35,000 acres of Trust Land

8 Communities in East Central Mississippi

Democratically-elected Government

Tribal Business Overview: 5,000 jobs

Metal Fabrication

Powder Coating

Plastic Injection Molding

Security Guard Services

Wire Harness Assembly

Organic Fresh Produce Farming

General Contractor

Casinos, Hotels, Golf Courses, Water Park

Licensed Nursing Home

Commercial Laundry Services

3 Primary Economic Development Goals

1. Earn new business revenues to help fund Tribal Government services
2. Create new job opportunities for Tribal Members
3. Develop reliable and cost-effective infrastructure to support growth

What role could ‘energy’ play in achieving our Economic Development goals?

Energy Deal Flow (2010-2015)

1. Natural Gas fired ‘peaker plant’ proposal
2. Utility-scale biomass plant proposal
3. Utility-scale solar project proposal
4. Energy efficiency offers from local utilities
5. Natural gas service proposal
6. Compressed Natural Gas vehicle conversion proposal
7. Tribally-owned Utility Company proposal
8. Hydropower Plant proposal
9. Wood Pellet Mill proposal
10. Combined Heat & Power (CHP) to serve casino electricity and laundry steam loads

Deal Review was SLOW

Consistent deal flow related to energy development opportunities

BUT: every project evaluation was a 'heavy-lift' in terms of time & attention

Which opportunities should I spend time evaluating?

Some of Our Challenges

1. Status Quo: We have cheap and reliable electricity. Why rock the boat?
2. Organizational Structure: Energy projects cut across several Tribal Departments: Finance, Natural Resources, Economic Development, Environmental, Facility Maintenance, Public Works, Independent Tribal Enterprises, etc. We did not have an 'Energy Manager' responsible for guiding these efforts.
3. Perceived Market Risks: Energy markets, technology, and Federal priorities are volatile. Seems risky!
4. Differing Priorities: Differing internal opinions on 'renewables' vs. 'fossil fuels'

Bottom Line

There appeared to be significant economic opportunities for us related to Tribal Energy

BUT: Every project evaluation was a 'heavy-lift'

Needed to get all key stakeholders on the same page

Solution: Develop a Tribal Strategic Energy Plan

Strategic Energy Planning 2015-16

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Our Strategic Planning Timeline

September 22: Attended National Tribal Energy Summit D.C.

October 12: Contacted NREL

November: Gathered energy data

Dec. 1-2: Two day planning session at Choctaw

Dec. 3: Two-page plan summary received from NREL

Jan. 5: Received 1st draft of Strategic Energy Plan (20 pages)

Jan. 15: Tribal Council adopted Strategic Energy Plan

Key Stakeholders

Coordinator (1): Economic Development Director

Core Team (6): Chief of Staff, Development Director, Economic Development Director, Public Works Director, Choctaw Electrical General Manager, Housing Development Coordinator

Elected Officials (18): Tribal Chief and Tribal Council

Key Stakeholders (30): Housing, Schools, Casinos, Natural Resource, Hospital, Environmental, Tribal Administration, Forestry, Finance, Legal, Baker-Tilly (energy development consultants)

- Large energy users
- Anyone that would need to be involved in a development project

Tip: everyone was invited to attend by a written letter from Tribal Chief

Our Plan

Vision Statement: Maximize economic benefits and quality of life for the Mississippi Band of Choctaw Indians through responsible, efficient, and strategic energy development and use.

1. Energy Efficiency: audits, workforce training, replacement plan, new building codes
2. Transit Authority: replacement plan, natural gas conversion study
3. Renewable Energy: select pilot project
4. Heating: explore natural gas service expansion
5. Operations: develop energy usage database, hire Energy Manager
6. Other: review existing & proposed new energy contracts

Energy Efficiency

- We spend millions of $$$ every year on energy: electricity, natural gas, LP gas, gasoline
- Very dispersed (hidden) in hundreds of departments, programs, and enterprise budgets
- The staff that consume energy are 'detached' from actual energy expenses
- Staff replacing light bulbs had a limited budget, with no incentive to consider long-term operating costs (e.g., LED vs. incandescent)
- Housing programs needed to build as many homes as possible with a limited budget. No incentive to consider the tenants' cost of occupancy.

Conclusion: Needed a full-time Energy Manager that can coordinate energy efficiency initiatives, building code revisions, expense tracking, contract reviews, etc. Position funded in FY 2017

3 Energy Development Opportunities

Natural Gas Service Line Extension

Wood Pellet Production Mill

Biomass Combined Heat & Power (CHP) Plant

3 Primary Economic Development Goals

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Natural Gas Service Extension - Background

- Most of our energy for heat comes from liquid propane (lp)
- This is inconvenient and expensive
- We received 2 offers to extend natural gas service in 2013
- Wanted to explore the feasibility of converting various parts of our existing energy infrastructure over to natural gas

Decisions to Make

- Should we convert any of our vehicle fleet over to compressed natural gas (CNG)?
- Should we convert tribal homes?
- Should we develop a natural gas-fired combined heat & power facility to generate electricity & steam for our casinos?
- Should we buy-down any of the upfront costs of the service in order to have lower expenses in the future?

Natural Gas Service Analysis

BIA-DEMD Grant Award

- Awarded a grant to conduct a detailed Financial Analysis
- Partnered with Baker-Tilly to conduct the analysis
- Covered 100% of the costs of this analysis

BIA-DEMD Grant Natural Gas Service Analysis

Summary of Findings:

- Residential
  - Not feasible at this time
- Combined Heat & Power (casino)
  - Not feasible at this time
- Compressed Natural Gas Fleet Conversion
  - Not feasible at this time
- Commercial & Governmental Facility Conversion
  - ***Will save the Tribe $1 million per year***

Phase 1:

- Commercial & Government load
  - Partial buy-down on upfront costs
  - Groundbreaking in June 2017
  - Completion in Spring 2018

Wood Pellet Mill Opportunity

Background:

- MBCI has +/-25,000 acres of timberland
- Wood prices have been depressed so we are looking for ways to increase their value
- Contacted by 2 separate groups that were interested in developing a wood pellet production mill on tribal lands
  - Group 1: Export to European Utilities that have a strict 'renewable energy portfolio standard'
  - Group 2: Sell to U.S. retailers 'residential-sized' bags
- Estimated investment: $10-$15 million

Decision: Should we pursue either project?

Wood Pellet Mill Market Analysis

BIA-DEMD Grant Award

- Awarded a grant to conduct a Market Analysis & Feasibility Study
- Partnered with Baker-Tilly to conduct the analysis
- Covered 100% of the costs of this analysis

Wood Pellet Mill Market Analysis

Summary of Findings:

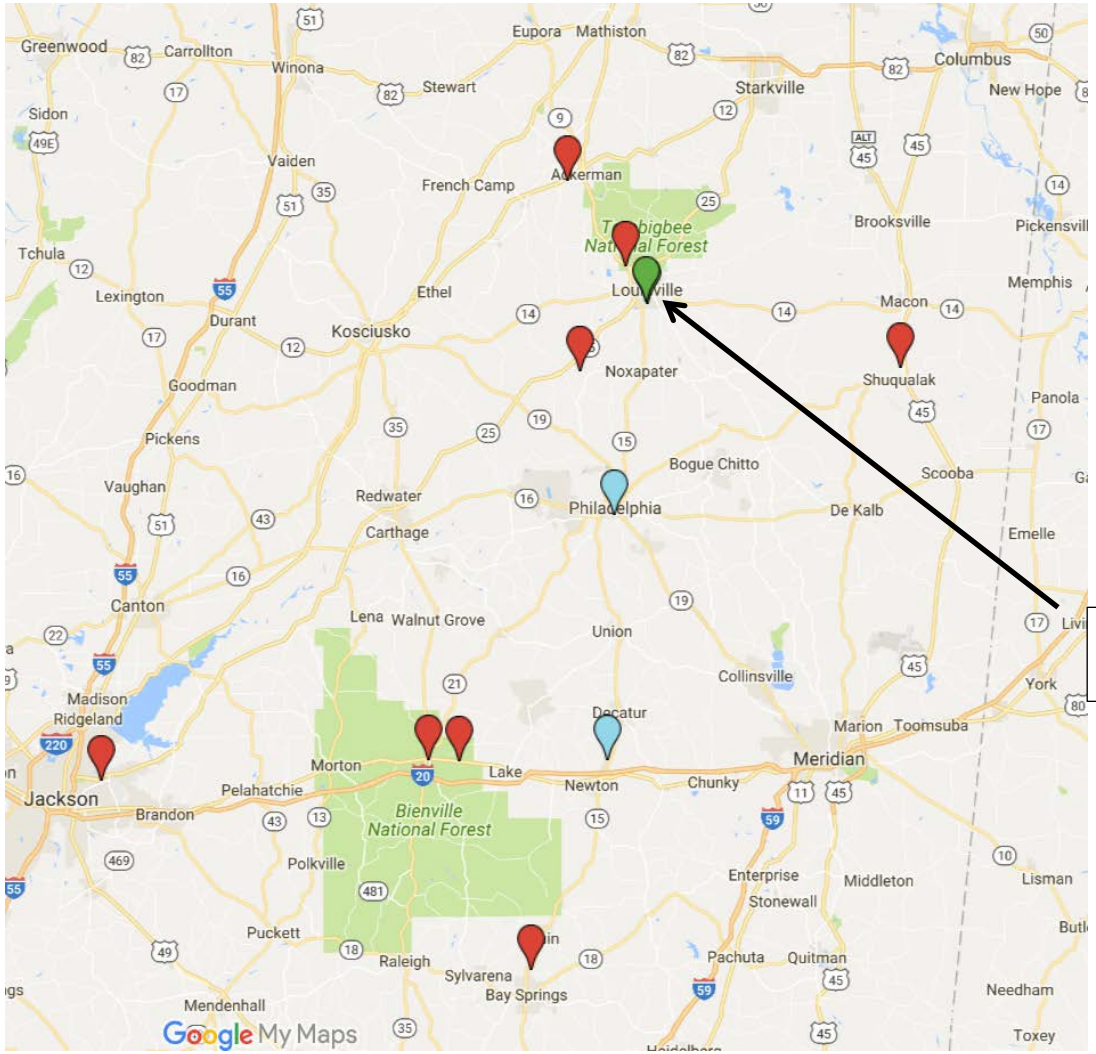
- Verified business model assumptions
- Determine options for financing, capital structure, and potential project partners
- Finalized Pro-Forma Financials
- Finalized written report and present findings
- Appeared feasible under existing market conditions (2015)
- Define Phase 2 timeline

Wood Pellet Mill Phase 2: Development RFP

BIA-DEMD Grant – Phase 2

- To develop and issue a Request for Proposal for Wood Pellet Mill development
- ~6 months into the project, determined the market was NOT feasible
- Market was saturated and U.S. plants were decreasing production

A New Opportunity Developed:
Biomass to Energy (B2E) Facility – Growth in Feedstock Sources



New Plywood Facility

- Notes:
  - Sawmill #1(Newton, MS – 57 mi) 280,000 TPY Chips, 90,000 TPY Bark, 60,000 TPY Sawdust, 36,000 TPY Shavings
  - Sawmill #2 (Philadelphia, MS – 28 mi) 25,000 TPY Bark
  - Others (red marks) - TBD

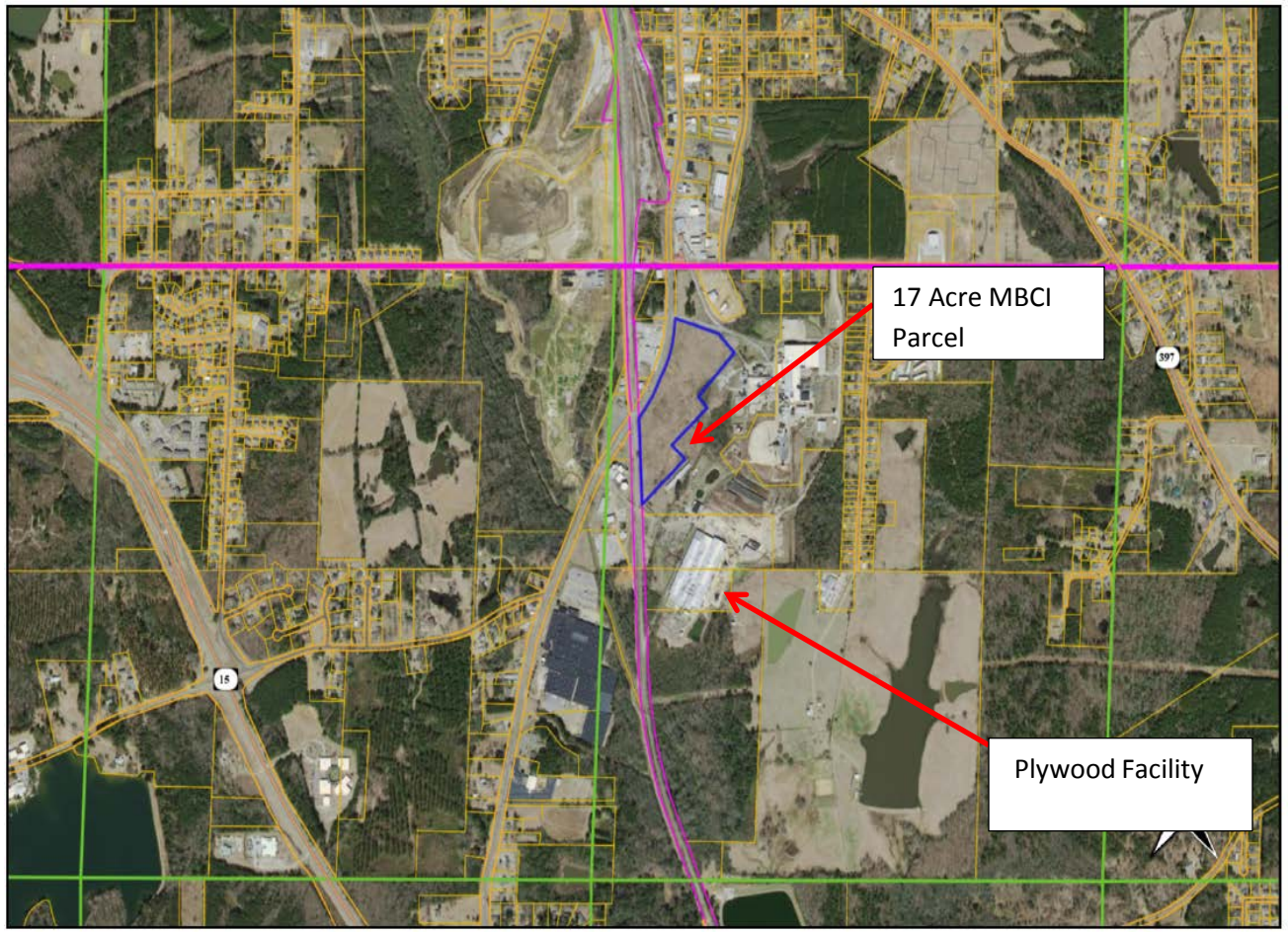
Wood Pellet Mill Phase 2: Development RFP

BIA-DEMD Grant – Phase 2 (continued)

- Pivoted to a new biomass project opportunity
  - Use of ‘excess wood residuals’ to develop a biomass CHP project
- BIA allowed us to redirect our BIA-DEMD grant to this new energy opportunity

Conclusion: Biomass Project #2 appeared to be feasible

Biomass to Energy (B2E) – Project Overview



- Notes:
  - New Plywood & Veneer will generate 400 M square feet of plywood per year
  - The new plywood facility will employ about 400 workers
  - MBCI is proposing a B2E facility be constructed directly adjacent to the plywood manufacturing facility that would use waste wood to create steam and electricity for use in their production processes

Progress To-Date

- Engineering Completed => Feasible
- Project Budget => +/-$12 million
- Pro-forma Financial Analysis Completed => Positive ROI
- Job Creation Estimates => 14 FTEs
- Letter of Intent submitted to development partner (plywood mill) => Supportive
- Project Specs submitted to contractors => Bids due July 17, 2017
- Potential Funding Sources => Several identified and high level of interest
- Next Goal => Mutual decision to develop in late summer 2017

How did we decide what energy projects were right for us?

1. Recognized the need for a Comprehensive Strategic Energy Plan to get stakeholders on the same page and prioritize
2. Identified and responded to the need for a change in Organizational Structure and New Staff
3. Identified the energy development opportunities that are available in our region and leveraged available BIA-DEMD grant funding opportunities to test feasibility (helped us avoid making ‘no decisions’ or ‘bad decisions’)
4. Compared opportunities for alignment with our stated goals of 1) job creation, 2) business revenues, and 3) cost-effective infrastructure

Yakoki!

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