Water-Powered Generator

Producing Electricity from an Artesian Well

BLUE TEAM B

2.009 – 4 October 2007
Customer: Nuestras Raices, Holyoke MA
Current use: drip irrigation
Need: electricity generation from Artesian well
Current Configuration
Design Concept and Sketch Model

Water Motivated Energy Conversion System: WATERWHEEL

1. Low Cost
2. Technologically Simple
3. Fitting for Customer
Critical Questions

- Can we build a waterwheel to generate electricity? (Technical Feasibility)

- If so, will a waterwheel fulfill the customer’s needs?

- What are the constraints at the customer’s site?
What We Learned

- Customer’s Needs
  - Uses for electricity (power tools and batteries)

- Constraints
  - Topography
  - Access to water
  - Full Capacity Flow rate (120 GPM) good for 1500 W
    - Farm cannot handle this rate without discharge
  - $2500 Water Discharge Fee
What We Learned

- Sketch Model
  - Small-scale waterwheel works with moving fluid
  - Mechanical Difficulties
  - Design Alternatives
Future Considerations

- Water Discharge
- Water Conservation and reuse
- Adaptable alternatives
- Economics
Sketch Model Demo
Questions?