

MOAS Project: Wind Energy Demonstration



Members

Nicholas Bembridge Victor Fontecchio

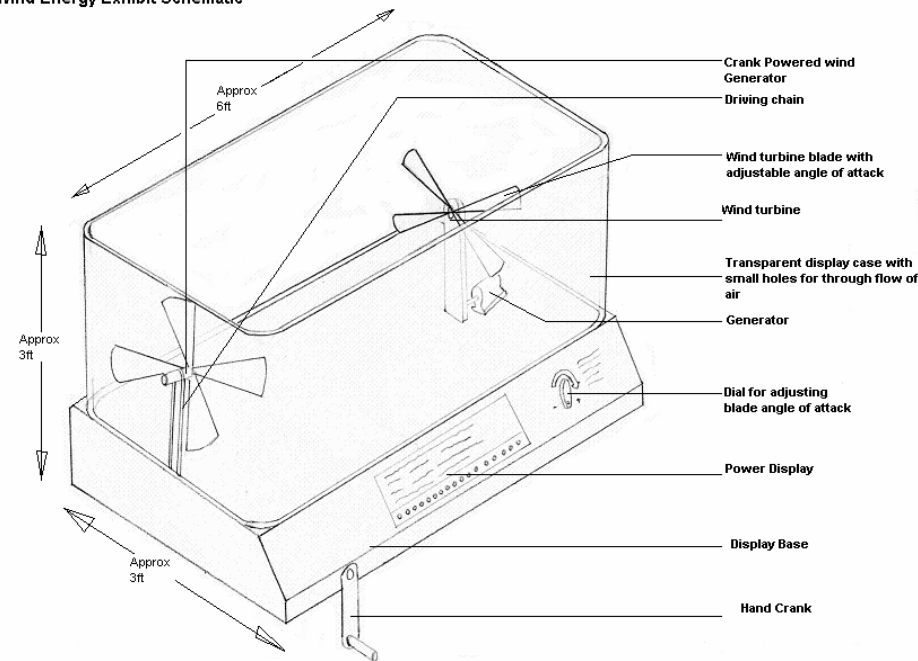
Bradley Kroger Michael Sheehan

Suzanne Shepherd

Review

- We were given the challenge of designing an exhibit that would educate the public about wind as an alternative energy source.

MOAS Wind Energy Exhibit Schematic
9/16/04



Needs Assessment

A white wind turbine stands in a field with mountains in the background. The image has a blue tint.

- Safety
- Entertaining for all ages
- Durable
- Interactive
- Visually Appealing
- Remain within a budget of \$5000
- Visibility of moving parts
- Size Requirements

Product Specifications

A white wind turbine stands in a field with mountains in the background. The turbine has three blades and a tall tower. The background shows a range of mountains under a cloudy sky. The foreground is a flat, grassy field with some tire tracks.

- Plastic casing
- Power meters
- Anemometer
- Wind turbine generator unit
- Flow management system
- Exhibit needs to be powered discretely
- Rough dimensions of 6ft x 3ft x 6ft

WBS

A white wind turbine stands in a field with mountains in the background. The image is overlaid with a semi-transparent blue filter. The turbine has three blades and a tall tower. The background shows a range of mountains under a cloudy sky.

- Wind generation
 - Variable speed motor
 - 18-36" Fan
- Power generation
 - Wind Turbine(s)
 - Generator
- Electrical Systems & Instrumentation
 - Anemometer with display
 - Power meter with display
 - Control dials
 - Tachometer with display

WBS (continued)



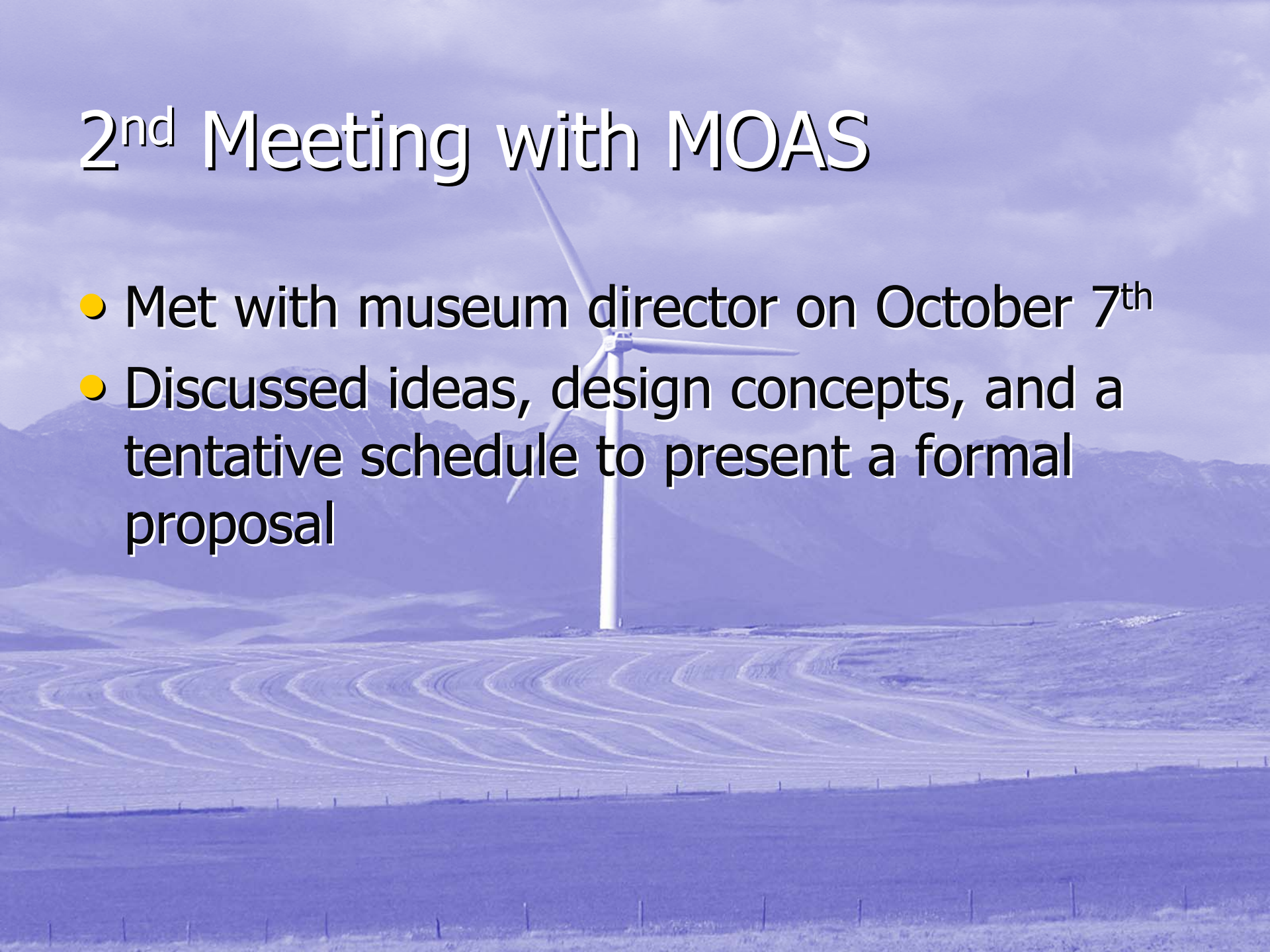
- Exhibit Casing
 - Removable plastic casing with cover
 - Laminated wooden display base
 - Leveling supports
- Flow management System
 - Nozzle
 - Diffuser
 - Honeycomb Panels
- Power Input
 - 110V wall source compatible

Project Schedule Deadlines

- Calculations (10/19)
- Budget Analysis (10/25)
- Pro/E Design(10/25)
- Formal Written Proposal for MOAS (11/4)
 - Present Proposal to the museum to approve of our design concept, budget, and schedule of completion

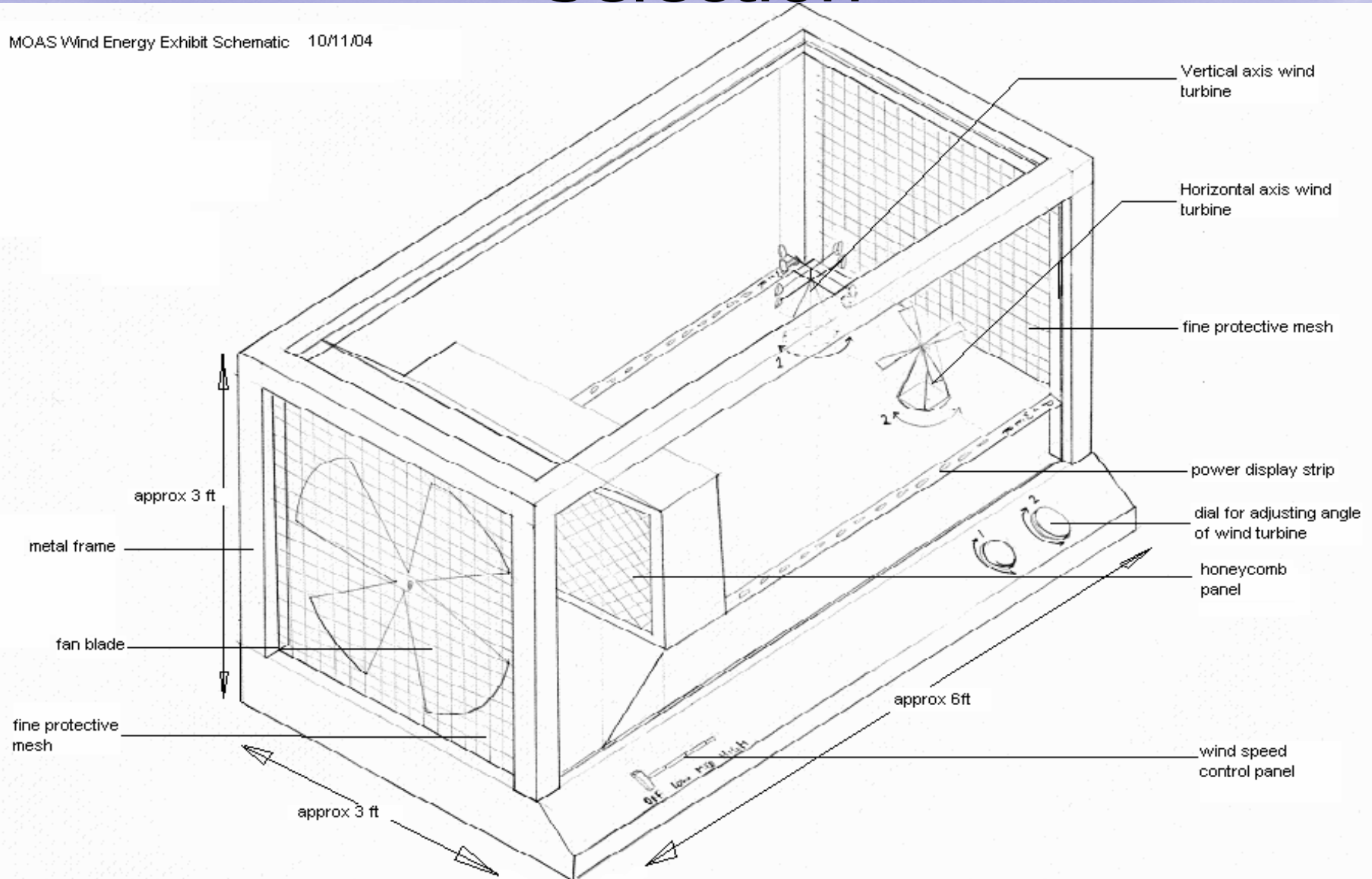
2nd Meeting with MOAS

- Met with museum director on October 7th
- Discussed ideas, design concepts, and a tentative schedule to present a formal proposal



Concept Generation and Selection

MOAS Wind Energy Exhibit Schematic 10/11/04



Direction of Future Work

A white wind turbine is the central focus, standing in a field with mountains in the background. The image has a blue tint. The turbine is positioned in the middle ground, with its three blades extending outwards. The background shows a range of mountains under a cloudy sky. The foreground is a field with some tracks or furrows.

- Present formal proposal to museum
 - Complete part selection
 - Budget Analysis
 - Pro/E Design
- Start to order parts for next semester