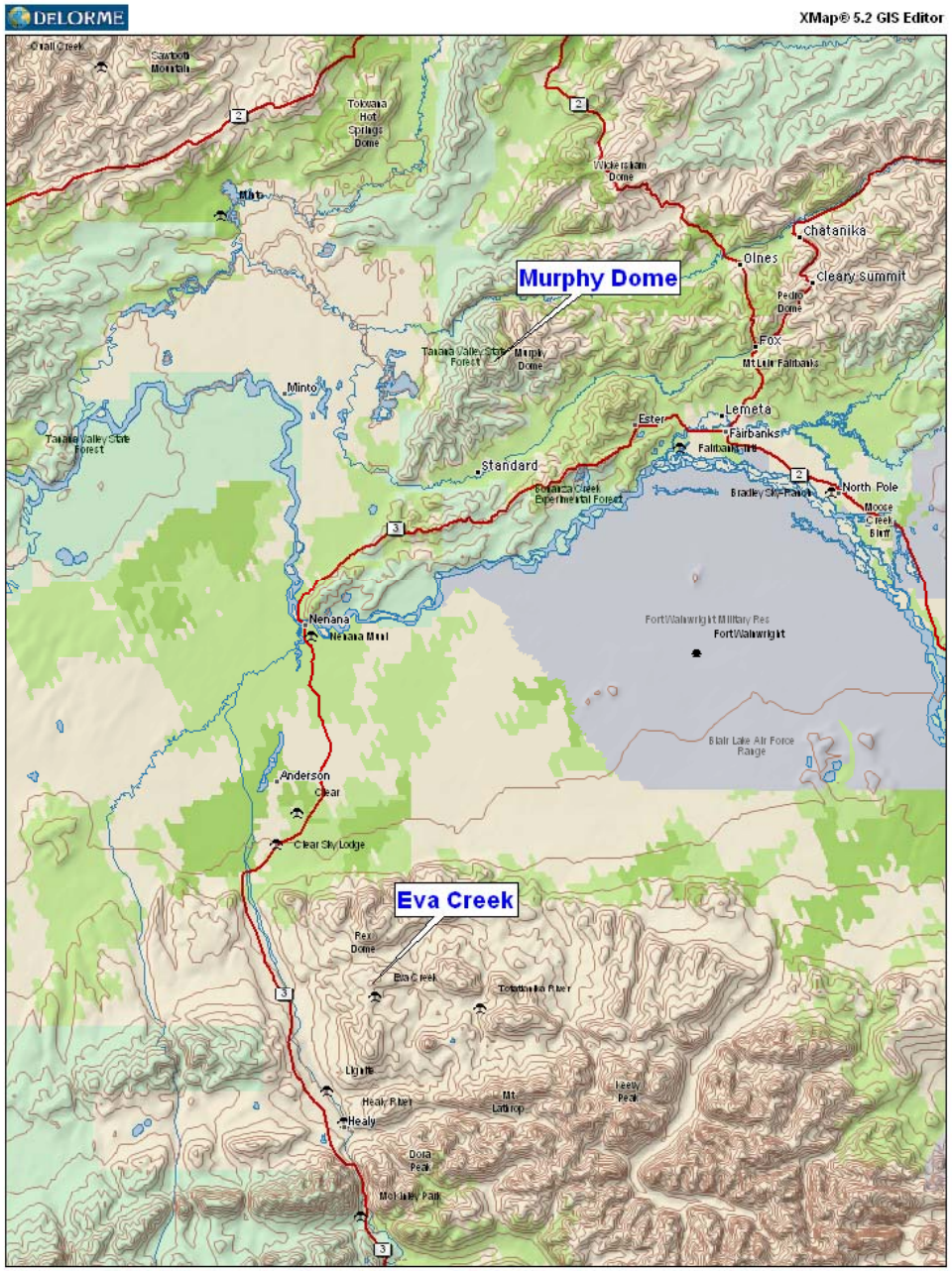
GVEA Eva Creek Wind Project Update

Presented by Mike Wright

April 28, 2010


DELORME
XMap® 5.2 GIS Editor
Murphy Dome
Eva Creek
Chatanika
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Nenana
North Pole
Anderson
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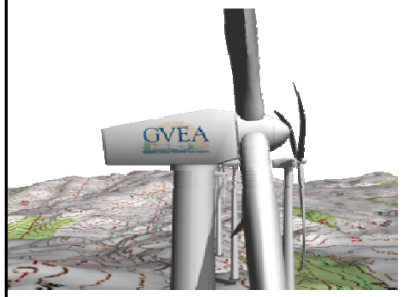
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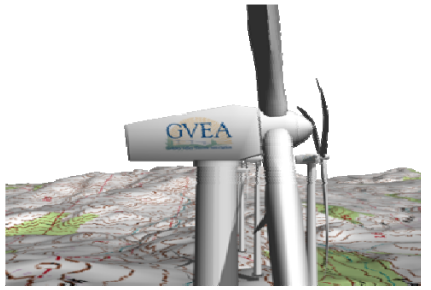
Generic Wind Project Development Steps and Schedule

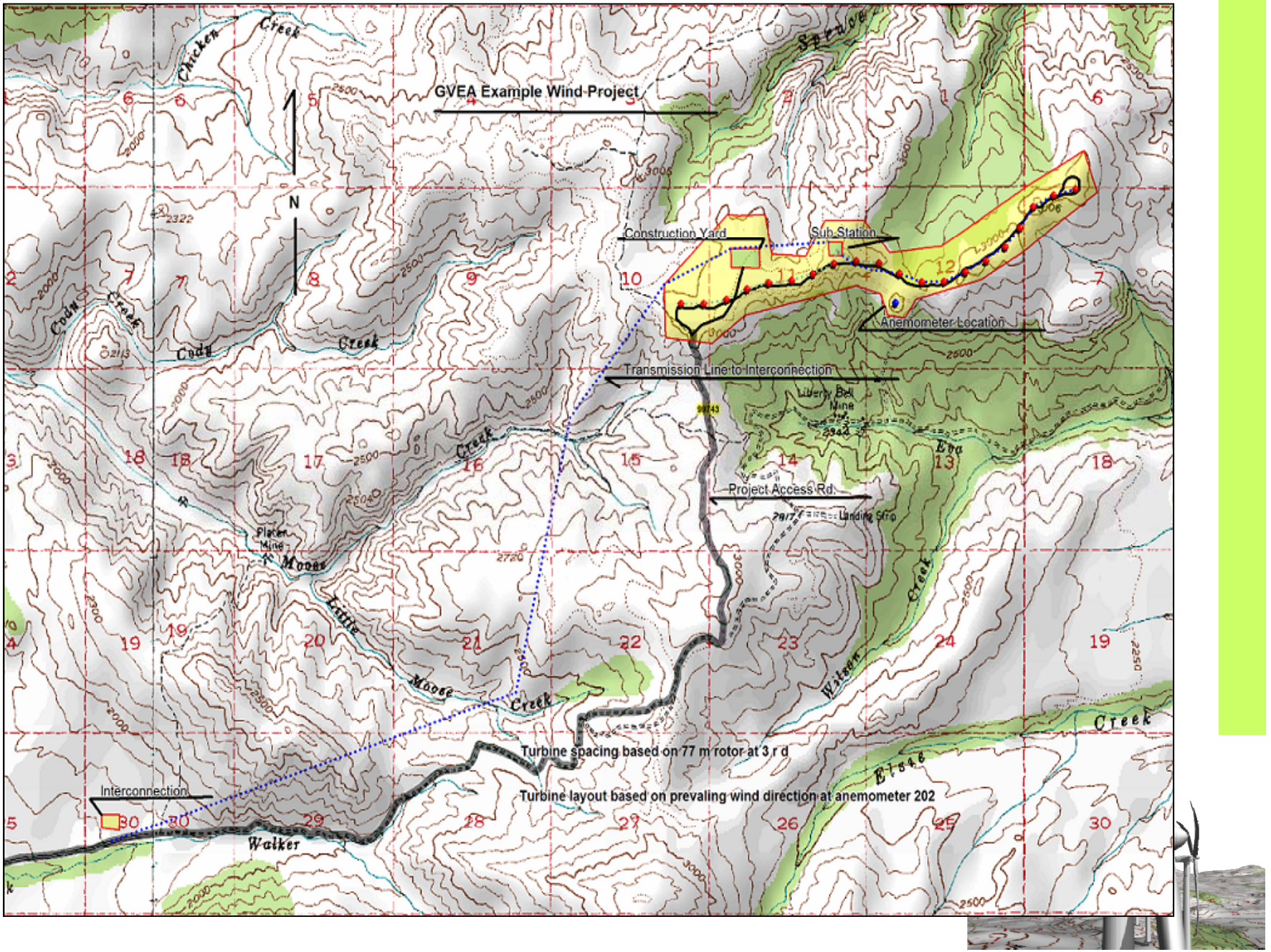
In general, a wind project takes 24 to 36 months to develop.

- **Preliminary Project Definition** *
- **Initial Feasibility Assessment** *
- **Pre Development Tasks** *
- **Development Tasks**
- **Procurement**
- **Construction**
- **Startup**

Included in the plan are the detailed steps of the following project development elements:

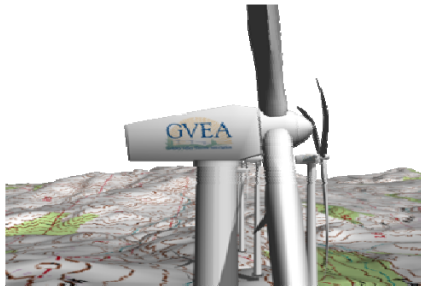
- **Wind Resource Assessment** *
- **Wind Project Layout** *
- **Land Requirements** *
- **Interconnect Requirements** *
- **Environmental and Permitting Requirements** *
- **WTG and Major Equipment Procurement**
- **Construction Contracting and Management**
- **Startup and Commissioning**




GVEA Example Wind Project
Construction Yard
Sub Station
Anemometer Location
Transmission Line to Interconnection
Project Access Rd.
Interconnection
Turbine spacing based on 77 m rotor at 3 r d
Turbine layout based on prevaling wind direction at anemometer 202
N
Chicken Creek
Moose Creek
Walker
Wilson Creek
Eva Creek
Placer Mine
Liberty Bell Mine

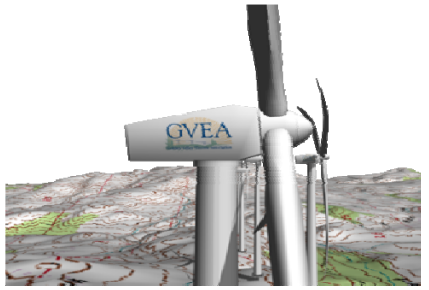
Project Studies

- Integration Studies
- Wind Studies
- Avian Studies
- Geo-Tech
- Renewable Energy Consultant
- GVEA received $2 million REF grant



Integration Studies

- Eva Creek Wind Farm Limited Study
- Power Flow & Transient Stability



Wind Studies

- Two Minute Mean Wind Analysis
- Adding additional Met Towers
  - 50 Meter
  - 80 Meter (2)

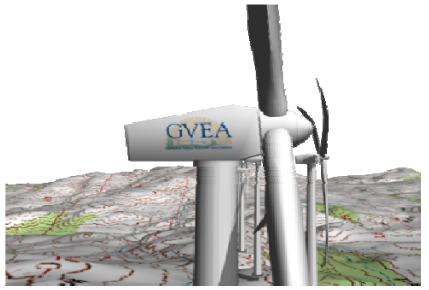
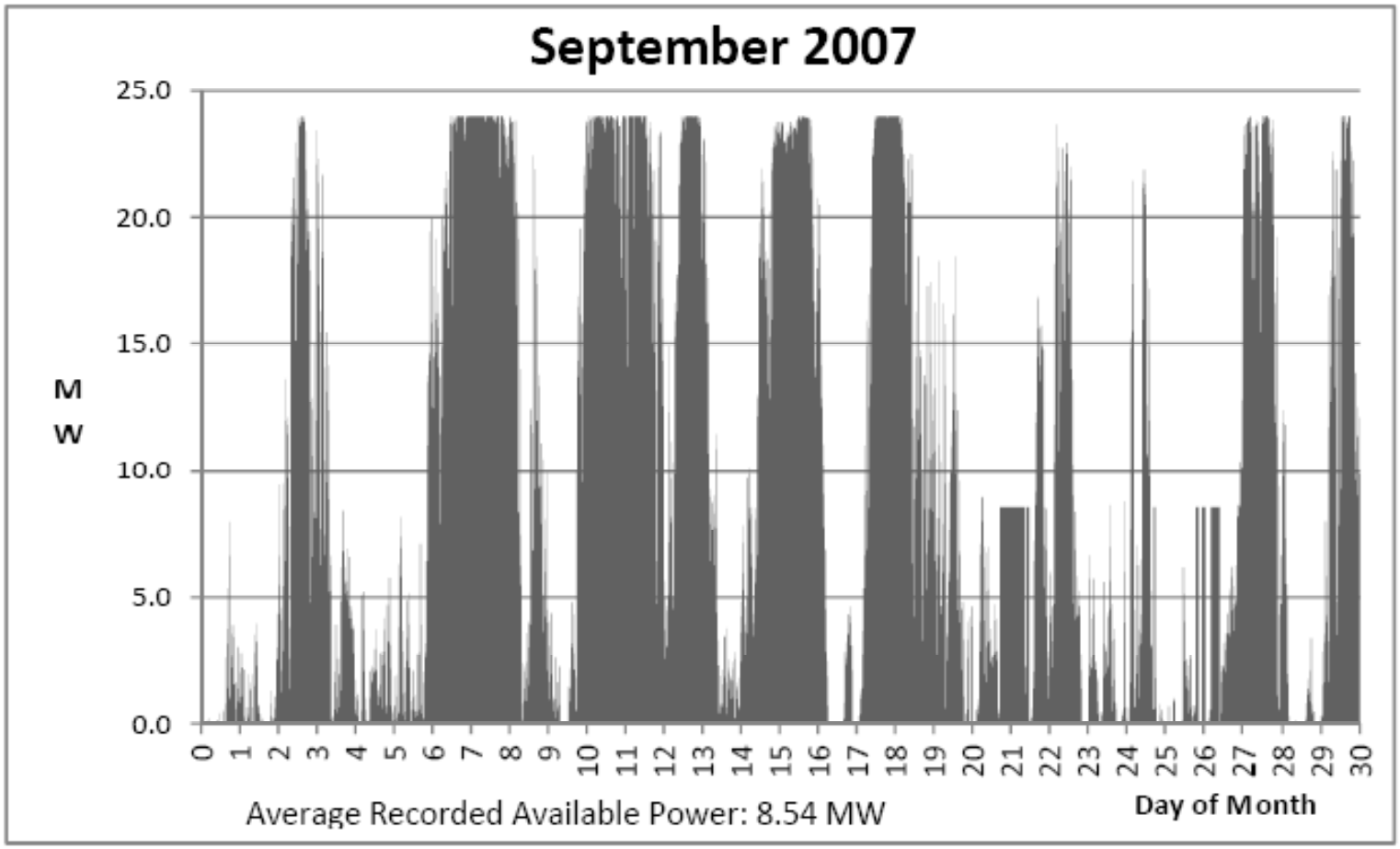
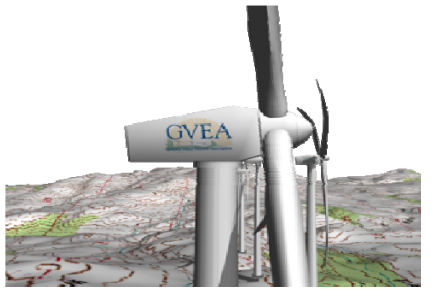


Table 1: Measurement Wind Conditions and Average Available Wind Farm Output Power

Month	Year	Low Wind Cut-off	High Wind Cut-off	No Data	Production Time	Total Time	Average Available Farm Pwr.
		Hours	Hours	Hours	Hours	Hours	MW
September	2007	133.53	0.60	26.93	558.93	720	8.54
October	2007	169.60	0.57	119.50	454.33	744	5.37
November	2007	91.33	4.80	42.53	581.33	720	10.64
December	2007	72.47	1.17	190.03	480.33	744	11.87
January	2008	107.00	11.27	261.97	363.77	744	9.24
February	2008	91.70	10.23	100.23	493.83	696	12.70
March	2008	116.17	0.10	24.27	603.47	744	10.71
April	2008	123.13	0.00	7.70	589.17	720	7.65
May	2008	150.63	0.50	4.47	588.40	744	8.16
June	2008	87.33	0.00	0.00	632.67	720	7.26
July	2008	120.27	0.00	0.00	623.73	744	7.52


September 2007
25.0
20.0
15.0
10.0
5.0
0.0
MW
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Day of Month
Average Recorded Available Power: 8.54 MW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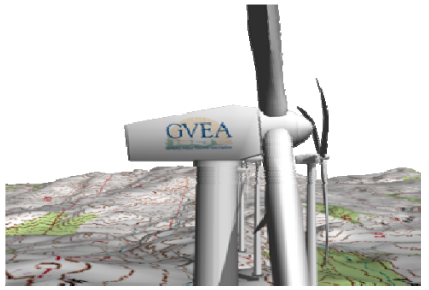
Avian Studies

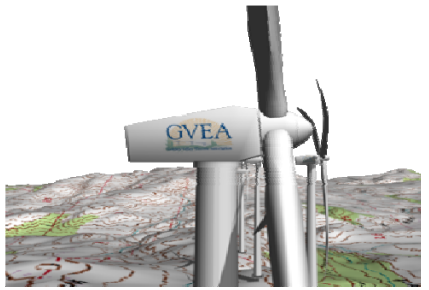
Avian Studies

- Phase 1 – Design
- Phase 2 – Spring Migration



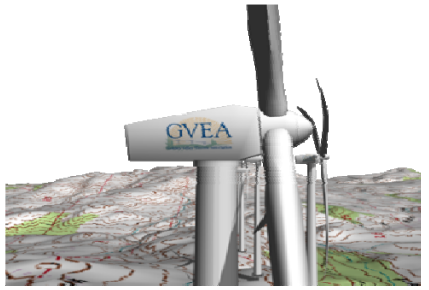
Renewable Energy Consultant

- Detailed Site Screening and Constraints Mapping
- Ventos Complex Flow Analysis
- Bankable Energy Yield Analysis



Geo-Tech

- Summer of 2010 – Hire Geo-Tech firm to investigate proposed site
  - Drilling Program at Tower Sites
  - Subsurface Analysis
  - Foundation Analysis



The GVEA board of directors has, by unanimous decision, voted to move forward with a 24-megawatt wind project near Healy.