IREC
Workforce Development Conference 2011

Building Local Capacity – WindSenators Network

Michael Arquin
KidWind Project
What is KidWind?

The KidWind Project is a team of teachers, students, engineers and practitioners exploring the science behind wind energy in classrooms around the US. Our goal is to introduce as many people as possible to the elegance of wind power through hands-on science activities which are challenging, engaging and teach basic science principles.
The “Four Pillars” of KidWind

- Teacher Training & Outreach
  - WindWise Workshops
  - Wind Senators
- Product/Kit Development
- Curriculum Development
  - WindWise Curriculum
  - Other Open Source Lessons
- KidWind Challenge
Teacher Training

• 2 hour to 5 Day Training Events
• My Goal is to get teachers to bring one idea back to their classroom
• Better understand promise and challenges of wind energy
WindWise Curriculum

• Grades 6-12
• 15 Lessons
  – Comprehensive
  – Hands-on
  – Engaging
  – Technical

www.windwiseeducation.org
Kits & Materials

Wind Energy Kits

ALTurbine
This kit is for any wind turbine project or classroom activity. Test different blades, change gears and generators, and power LED bulbs or a mini water pump.
Full Kit price: $114.00
SALE! Save $14.00 on Parts Only Kit through March!
Full Kit: KW701A2
Parts Only: KW701B1
Classroom Pack: KW7001C

Basic Turbine
The Basic Turbine is a great start for experimenting with wind.

KidWind Project | www.kidwind.org
The KidWind Challenge
The KidWind Challenge

• In 2010 we held five KidWind Challenges in New York and one in Texas
• In 2011 are holding 14 KidWind Challenges in NY, AK, CA, CO, and IA & MN.
• 2012 – Nationwide?
Portable Wind Tunnel
Judging from Industry Professionals
Innovative Designs!
How do you share your ideas so that people can use them?

• Online?
• Free on Web?
• Give Equipment Away?
• Face to Face Training?
2008 Train the Trainers

- Morrisville, NY << SUNY Morrisville
- 8 Teachers
- 6 Became Solid Trainers
- 50 Workshops/Events in two years
- Great >> Local - Less Travel
- Connected >> Live in the region
- First year of program 16 Half or Full Day Training Events
2010 Wind Senators Training

We trained 25 Master Teachers from 15 states:

- AK
- AZ
- CA
- CO
- CT
- ID
- IN
- VA
- KS
- MI
- MN
- NH
- NY
- PA
- SD
- VA
Case Study: New York

- NYSERDA funds $20,000 in teacher training annually
- KidWind matches this sponsorship with donations and in-kind
- Trained 8 Wind Senators in 2008
- 16 Events in 2009 (Workshops, Challenges, Presentations)
- 8 New Wind Senators in 2010 (16 Total)
- 26 Events in 2010 (Workshops, Challenges, Presentations)
- Real investment leads to real results
NY K-12 Outreach Events*

NEW YORK (NYSERDA Funding/KW Matching):
- September 28 – NAAEE (Andy Lueth & Niels Anderson)
- October 2 & 9 – Cortland Workshops (Tim Connor)
- October 16 – Oswego Rice Creek Workshop (Ray Pitcher)
- October 28 – Oswego Tech Conf. (Ray Pitcher)
- October 29 – Oswego Tech Conf. (Niels Anderson)
- November 4 – Iridescent Opening (Lynda Elie)
- November 7-9 – STANYS Workshops (Brad Weaver, Pat M.)
- November 12 – Setauket Workshop (Ed Maloney)
- November – Buffalo Science Museum Workshop (Andy Lueth)
- December 15 – Herkimer Workshop (Ray Pitcher)

*Since 9/1/10 (post Wind Senators Training)
- 75+ wind energy workshops
- 21 states and Costa Rica
- 20 Teachers/Workshop
  - 1,500 Teachers trained
- 75 students / teacher
  - 112,500 students impacted
How much do teacher learn?

Pre/Post Test Scores – Illinois – October 2010

- Average: 37%
- Average: 83%

Data from Pre- and Post-workshop evaluations
How do you **PAY** for extending the network?

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- Full Kit: KWT001A1
- Parts Only: KWT001B1
- Classroom Pack: KWT001C

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How much oversight?

• Teachers can use and adapt materials for each situation.

• We support with materials and stipends for teachers.

• If local teachers can raise a small amount of funds we leverage this by getting more materials into teachers hands.

• Decentralized…
Areas for Improvement Wind Senators

Collecting More Data on Performance

- How many teachers trained?
- What did they learn? (Pre/Post Evaluations)
- How did they integrate into their classrooms?
- More curricular reviews/evaluations by teachers
- Student learning?
- What skills/knowledge did they learn?
Concerns for Workforce K-12

• Lack of Support…

• Acknowledge workforce connection to K-12 but little action or PR. Not getting them excited!

• Gender Issues --- So much focus on tech front forgets all the other sciences related to wind Biology, Economics, materials science etc.
Want to Join the Party?

• July 24 - 30
• CSU - Fort Collins
• Space for 30 Teachers
• $1750/Teacher
  (All housing, food, $800 KidWind Gear, FOK for Life)
• Join a great network of dedicated educators