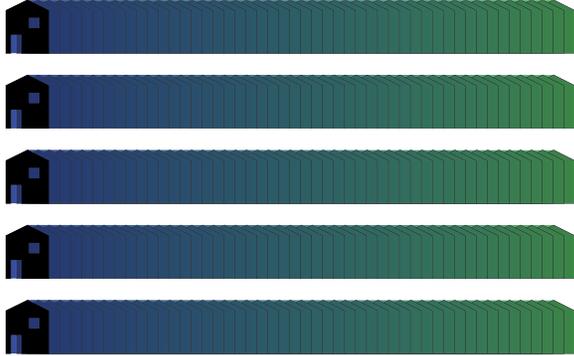


## What's a kilowatt hour?

- Hull Wind, prior to its additional turbine, produced 6 million kWhs of energy.
- The average house uses 500 kWhs each month, that's 6,000 kWhs every year.
- The power that Hull Wind harvested to date, is enough to power 1,000 houses for one year.



## What's the benefit of 6 million kWhs?

Each year of operation Hull Wind's first turbine, prevented the following tons of pollutants:

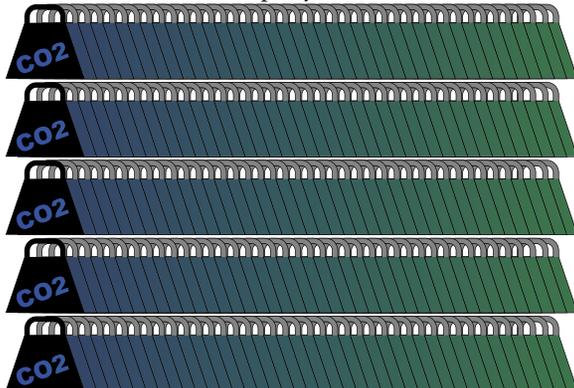
- 5 tons of NOX (nitric oxide) per year



- 7 tons of SO2 (sulfate dioxide) per year



- 1,200 tons of CO2 per year



## History

**1820's** - Hull Peninsula nicknamed "Windmill Point."

**1984-1996** - 40kW windmill installed adjacent to Hull High School. During the lifespan of this single turbine, the DOER estimates The Town of Hull saved \$70,000.

**1997** - Citizen Advocates for Renewable Energy (CARE) was formed by citizens eager to see the town of Hull replace its outdated 1984 windmill with a newer more efficient model. Headed by Malcolm Brown and Andrew Stern, CARE petitioned Hull Light to take on the project.

**1999** - With strong assistance from the DOER a full engineering survey and report was completed.

**2000** - At a Town public meeting strong support was shown for the new project.

**2001** - In January, at a price of \$700,000, Vestas' V47 turbine rated at 660kW was chosen to replace the 1984 model. Nicknamed Hull Wind 1, the turbine started producing electricity on December 27.

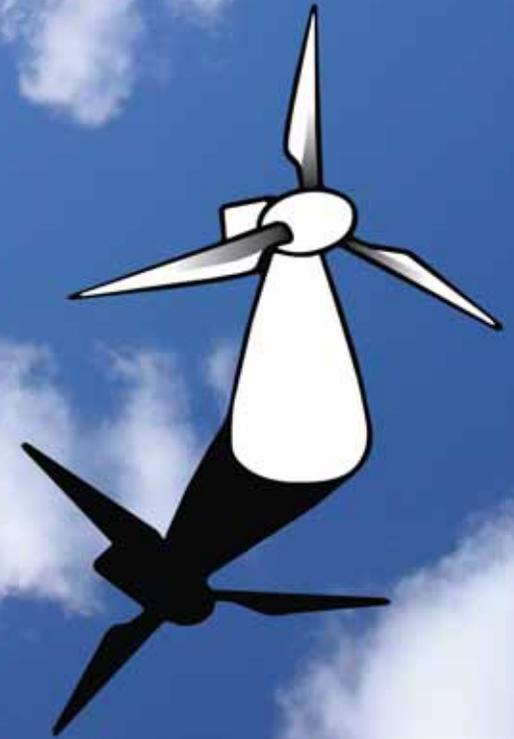
**2002** - Billing for the Hull's street lights and traffic lights suspended.

**2006** - After 1,544 days of operation, Hull 1 has generated over 6 Million kWhs and is installing a 1.8 MW machine at the town's landfill.



[www.hullwind.org](http://www.hullwind.org)

**HULL WIND**  
**6,000,000 kWhs**  
**of clean energy**



[www.hullwind.org](http://www.hullwind.org)  
as of December 1, 2005

## Frequently Asked Questions

### What are the dimensions of Hull Wind 1?

Hull Wind 1 weighs 145,900 lbs, stands 150' tall and each blade is 75' long.

### How much electricity does Hull Wind 1 produce?

During the first year of operation, Hull Wind 1 produced 1,597,963 kWh of electricity. With the average home using about 6,000 kWh per year. Hull Wind 1 produced enough electricity to power 250 homes!

### How fast do Hull Wind 1's blades turn?

No matter how fast the wind blows, the blades will never turn faster than 28.5 revolutions per minute.

### How will Hull Wind 1 be maintained?

Hull Wind 1 is under a 5 year maintenance contract with Vestas.

### Will Hull install more turbines? If so, When?

Yes, Hull has voted to install a second, larger turbine at the closed town landfill. The machine is a Vestas V80, 1.8MW turbine, able to power approximately 900 homes per year.

### What is the educational value of Hull Wind 1?

Even during the construction process, students and teachers were watching with interest. A math teacher gave geometry lessons using the wind turbine during that time and now the Hull School Department plans to use Hull Wind 1 for long-term science and environmental studies.

### Who can we contact for more information on Hull Wind 1?

**Malcolm Brown, President**  
Citizen Advocates for Renewable Energy  
[Malcolm.Brown@comcast.net](mailto:Malcolm.Brown@comcast.net)

**Andrew Stern, Vice President**  
Citizen Advocates for Renewable Energy  
[ASternWind@hotmail.com](mailto:ASternWind@hotmail.com)

## Why Wind Power?

- Wind Energy is **clean**. A single wind turbine displaces 1,200 tons of CO<sub>2</sub>, 7 tons of sulfur dioxide and 5 tons of nitrogen oxide. More wind power means less smog, acid rain and greenhouse gas emissions.
- Wind Energy is **abundant**. Wind energy could provide 20% of the US electricity with turbines installed on 1% of its land area.
- Wind Energy is **inexhaustible**. To generate the amount of electricity that the U.S. wind resources could supply, 20 billion barrels of oil per year would be needed. But unlike oil, wind energy is renewable, year after year.
- Wind Energy is **domestic**. It will never be subject to embargoes or "price shocks" due to international conflict.

## Economics of Hull Wind 1

**Total Purchase Price \$700,000**

### Annual Cost

Purchase Price	\$35,000
Maintenance/Warranty	8,000
Insurance	8,000
<b>Total Year Fixed Price</b>	<b>\$51,000</b>

**$\$51,000/1,500,000 \text{ kWh} = \$ 0.034$**   
**Cost to Hull is 3.4 cents/kWh**

### Credit

Green Certificates .030/kWh
Renewable Credit .015/kWh
.045kWh -.034kWh = .011

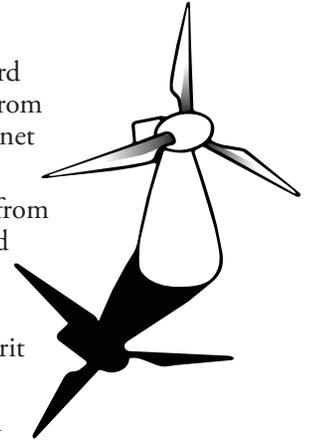
### Annual Savings

1,500,000 X .0749 kWh	\$ 112,350
1,500,000 X .011 kWh	16,500
<b>Total Annual Savings</b>	<b>\$ 128,850</b>

**Savings To Date**  
**5,840,026 kWh = \$515,400**

## Awards

- Certificate of Congressional Recognition from Congressman William Delahunt
- 2003 Climate Award for Communities from Clean Air Cool Planet
- 2003 Utility Leadership Award from the American Wind Energy Association
- 2002 EPA Environmental Merit Award
- 2003 MMA Award
- 2002 USDOE Award



## Helpful Links

Learn more about alternative energy

### Support Local Wind

[www.state.ma.us/doer](http://www.state.ma.us/doer)  
[www.capewind.org](http://www.capewind.org)  
[www.mtpc.org](http://www.mtpc.org)  
[www.massenergy.com](http://www.massenergy.com)  
[www.enn.com](http://www.enn.com)  
[www.windustry.org](http://www.windustry.org)

### Solar Power

[www.pvpower.com](http://www.pvpower.com)  
[www.unisolar.com](http://www.unisolar.com)  
[www.bpsolar.com](http://www.bpsolar.com)  
[www.epri.com](http://www.epri.com)

### Turbine Manufacturers

[www.gewind.com](http://www.gewind.com)  
[www.vestas.dk](http://www.vestas.dk)  
[www.neg-micon.com](http://www.neg-micon.com)

### Wind Power

[www.awea.org](http://www.awea.org)  
[www.nrel.org](http://www.nrel.org)  
[www.windpower.org](http://www.windpower.org)  
[www.ceere.org](http://www.ceere.org)  
[www.wind-power.com](http://www.wind-power.com)  
[www.eintoday.com](http://www.eintoday.com)

### Electric Vehicles

[www.evii.com](http://www.evii.com)  
[www.evworld.com](http://www.evworld.com)  
[www.acpropulsion.com](http://www.acpropulsion.com)  
[www.evuk.com](http://www.evuk.com)

### Fuel Cells

[www.dodfuelcell.com](http://www.dodfuelcell.com)  
[www.enrgfuel.com](http://www.enrgfuel.com)  
[www.fuelcelltoday.com](http://www.fuelcelltoday.com)