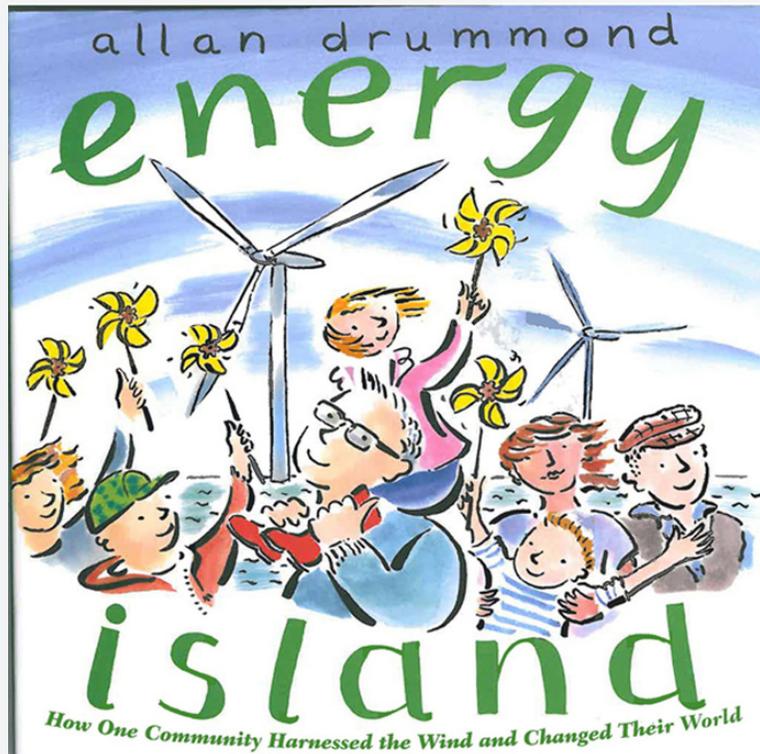


Second Reaction: Pinwheels and Wind Turbines as a Lesson in Renewable Energy

Drummond, Allen. *Energy Island: How One Community Harnessed the Wind and Changed Their World*. New York: Farrar, Straus and Giroux, 2011.

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Hold on to your hats! In *Energy Island*, Allan Drummond's illustrations bring to life the real story of how the residents of the windy Denmark island of Samsø attained energy independence by working together to create big change. The smoothly flowing narrative succinctly outlines how the "ordinary" island was transformed into the self-labeled "Energy Island" through implementation of renewable energy projects such as wind turbines, biomass burning, and solar energy. The inspiring true story encourages discussion about renewable energy and ways in which the readers can assist in making their lives a little less dependent on nonrenewable energy sources.

Several advanced science concepts and vocabulary are introduced, such as non-renewable and renewable energy, global warming and climate change (unpaged). Though simplistic in nature, the sidebars (highlighted with green backgrounds) provide definition of the key terms and connection to real world issues. However, some of the ideas (e.g. greenhouse effect, generation of electricity, fossil fuel generation) could benefit from more direct instruction and discussion, especially for younger readers. This would be an excellent book to pair with a science lesson on renewable energy or even climate change.

This book was read aloud to three 10-year-olds in a group after-school setting. Due to the wind turbine farm in the area, all three had seen turbines themselves and were able to relate the basic properties prior to the beginning of the story (aka wind turbines spin to generate electricity). They were quite excited to tell me that their community already had turbines installed.

The theme was well organized and the illustrations referenced the text appropriately. Sometimes, however, the concepts from the preceding page were difficult to connect, especially when the ideas presented continued after a page was turned. During the story, I was asked to go back and re-read a previous page, since the sidebar interrupted the flow of the narrative. I also found that interest tended to wane a bit when reading the more factual information in the sidebars, but the children would focus easily on the story. It was difficult to share the book with three readers as the multiple illustrations per page were too intricate to be viewed in a group. I often had to pass the book over so another could see, interrupting the flow of the story.

Throughout the book the simple image of a pinwheel connects the theme of the book, and also provides an engaging prop for discussion thereafter. We talked about how the blades turn on a pinwheel and the similarities between a pinwheel and a turbine. As an additional activity I challenged the children to count the amount of pinwheels in the story, and they had a very friendly competition going through the book a second time. This allowed them to more intently look at the pictures and catch things they didn't see before, like when the girl's hat keeps blowing away.

Even though the science concepts presented in the sidebars weren't as well received as the story, we still managed to strike up a conversation on wind energy.

They were particularly interested in how many homes a single turbine could support, with guesses ranging from one to a million. However, some rudimentary understanding of how wind turbines generate electricity may be needed to answer some of the questions posed by the children, such as how the turbine generates electricity and the electrical output of a single turbine.

For further discussion (especially with older audiences) I encourage the following:

- Discuss the difference between energy conservation and renewable energy, and how they are related.

- Generate ideas to reduce energy dependence at home or in the community (such as the children in the book did).
- Discuss what happens in places that aren't as windy as Samsø; would turbines be better in a valley or on a mountaintop?

I felt that this book was noteworthy in its ability to make renewable energy relatable to children, especially since it was based on real events. The story and illustrations are entertaining to all, and the narrative has the potential to create interesting conversations both in and out of the classroom.

Note: Website for the book (www.energyislandbooks.com) identified in the Author's Note (last page) isn't currently available.

About the Author

Brianna Dorie is a PhD student in Engineering Education and Ecological Science and Engineering at Purdue University, where her research centers on informal ways that young children learn about engineering, with special focus on media sources. She has also developed a very special interest in sustainability and has been involved with several initiatives at Purdue.