Engineering Ambassador Program
Worcester Polytechnic Institute

Fall 2013 Update
Lynn McElholm, Program Manager
The WPI Engineering Ambassador Program is a leadership development program with an outreach mission.

- **Improve Public Understanding of Engineering**
- **Engage in Outreach Events**
- **Partner with National Grid**
Some perceptions that middle and high school students have about engineering need to be reshaped.
Our messages should be guided by the findings of the National Academy of Engineering

Engineering makes a world of difference

Engineering encourages creativity

Engineering is essential to our health, happiness, and safety
Two corporate partners sponsor 33 WPI Engineering Ambassador students
There are 12 National Grid Engineering Ambassadors
The National Grid Engineering Ambassador presentations focus on the power industry and smart grid technology.

**Engineering Your Appliances for a Greener Future**

Sandra Garcia-Fine
Veronica Rivero
National Grid Engineering Ambassadors
Worcester Polytechnic Institute

**Hydropower Electricity:**
Evolution, Mechanisms, and Environmental Effects

Danielle Riccardi
Kristina Walker
Engineering Ambassadors
Worcester Polytechnic Institute

**Batteries:**
Energy Storage and Applications

Justin Rice
Electrical and Computer Engineering ’15

Mai Tomida
Chemical Engineering ’15

Engineering Ambassadors
Worcester Polytechnic Institute
Engineering Ambassadors take part in outreach events on and off campus

25 on-campus middle school groups

5 off-campus visits
Our goal this year is to reach 2,000 students.
During internships Engineering Ambassadors complete projects on National Grid’s Smart Energy Solutions Program

WPI student Mai Tomida, center, with National Grid president Marcy Reed and Massachusetts Secretary of Energy, Richard Sullivan
The EA Network: A network of tomorrow’s leaders dedicated to changing the conversation about engineering
Welcome!

Engineering Ambassadors Presentation
Smart devices play an important role in connecting people.

Smart Devices

Communication Waves

Smart Grid Application
What are some smart devices?
Smart devices communicate to each other through various networks.
Smart devices play an important role in connecting people.
Electronically charged objects produce an electromagnetic field, which creates waves.
A wave is an oscillation that travels through space and matter
There are three main properties of a wave:

- Amplitude
- Wavelength
- Frequency
Amplitude is the height of the wave
A wavelength is the distance between the peaks of two waves.
Frequency is the number of waves per second.
The electromagnetic waves have a wide spectrum, and radio waves have the longest wavelength.
A radio wave is transmitted at the speed of light and through any medium.
Do you think these devices are smart devices?
Do you think these devices are smart devices?
Do you think these devices are smart devices?
Smart devices play an important role in connecting people.
Today smart devices are used in a variety of communication applications
Engineers also apply this type of technology to our electricity meters.
Smart meter is used to communicate with other appliances through a smart grid
With the smart grid, you can check how much electricity you’re using at home in real time.
Another advantage of the smart grid is the quick response in an outage.
Through the smart grid pilot in Worcester, engineers are implementing steps in the future of the electric utility.
We worked this summer with National Grid as Sustainability Hub Interns
Engineers work hard to improve the system and create smart devices that bring people and technology closer.