Overview: Starting with the simple idea of getting elementary school students excited about science and engineering, the Energy and U Show has developed into a semiannual event bringing over 13,000 students to the University of Minnesota campus. The show focuses on energy, one of the most important and misunderstood topics affecting our world. It has a running theme of converting different forms of energy from one to another. Many of the demonstrations involve student and teacher volunteers from the audience. The students erupt when we ignite a six foot column of methane-filled suds; jump out of their chairs and dance when a new form of energy is unveiled; and recoil and then cheer after a large hydrogen explosion. Students leave understanding the first law of thermodynamics – that you can’t create or destroy energy – and excited about the idea of going to college and pursuing a career in science and engineering.

Audience: The Energy and U Show is targeted primarily at 3rd-6th grade students, an age often identified as critical to future interest in science, particularly for girls. The audiences continue to grow and in just the last 5 years more than 40,000 students have attended, with over 13,000 in 2017 alone. Student demographics in 2017 included 58% students of color and 58% of students qualified for reduced-cost or free lunches (an economic indicator that is strongly, and inversely correlated with the probability of attending college). We have been successful at targeting and serving a severely underserved student population in part by paying for the transportation to and from the show. Without this, many of these schools are simply unable to participate. Often, this is the only field trip these schools take all year.
The feedback is overwhelmingly positive:

"Thank you SO MUCH for the awesome opportunity to attend the Energy and U event today. My kids loved it. I teach at a very high needs school on the west side of Saint Paul, and many of my students do not know people other than their teachers who have been to college. On the way there, one of my 3rd grade students asked, "Why are we going to a university? This isn't for us - I'm not going to go to college." On the way out, she said "I want to be a chemist when I grow up!!" Showing the kids that science has fun, real world applications is the first step in inspiring them. I am so happy that your team planted the seed that she should strive to work hard and do something great in her life.

– teacher

"I wish I could stay here forever! … You can't make or destroy energy!"

– 4th grader

"The show taught the students to our curriculum standards in a format that was engaging and lessons that were easily remembered. Students were engaged and excited. They definitely learned a lot; our students loved the show. They want to come again next year. They had more questions after the show and for days following as they talked about it and shared ideas on what they experienced and why.

– teacher

"I went to an Energy and U show in 5th or 6th grade … and I remember thinking it was the coolest thing I ever saw. Definitely got me interested in science – 7 years later, here I am.

– UMN Chemistry major

Impact: Using feedback devices during the shows (iClickers), we have data clearly demonstrating that the primary message is delivered with high fidelity. At the start of the show 95% of students say “Yes” to the question, “Can you create energy?” At the end of the show, 95% correctly say “No” to the same question. There is also clear evidence for year-over-year retention from returning students."