The NEED Project
National Energy Education Development

Mary Spruill, Executive Director
“... our nation faces an increasing shortage of traditional energy sources. The growing dependence on foreign energy supplies present a serious threat to the national security and economy of the United States and to the health, safety and welfare of its citizens.”
NEED Mission and Goals

The mission of The NEED Project is to promote an energy conscious and educated society by creating networks of students, educators, and business, government and community leaders to design and deliver objective multi-sided energy education programs.

In 2008-2009 NEED hosted over 600 workshops and reached 65,000 classrooms across the U.S.
NEED exists to prepare future leaders, train teachers to teach energy from a balanced perspective, and to reach parents and community decision makers through energy outreach and education.

NEED delivers up-to-date energy education materials. Materials are developed and reviewed with the assistance of a Teacher Advisory Board and an Energy Advisory Board in an effort to remain current – in both the education and the energy industry realm.
The NEED Connection

Curriculum Materials
Professional Development
Teacher Support
Student Recognition
Curriculum Development

NEED understands the needs of the classroom teacher and the workforce development needs of the energy industry.

Collaborative effort:

    What do Teachers Need to Teach?
    What do Students Need to Learn?

Educators who use NEED materials report that their students score better on end-of-grade testing, are more actively engaged in learning and develop leadership skills as members of the community.
Steps of Energy Education

- The Science of Energy
- The Sources of Energy
- Electricity
- Transportation
- Efficiency & Conservation
- Synthesis
- Evaluation
- Recognition
Science of Energy

With hands on activities, students learn the science behind energy - forms of energy and energy transformations:

- Heat
- Light
- Motion
- Sound
- Nuclear
- Electricity
- Chemical
Sources of Energy

NEED provides comprehensive and objective materials on energy sources that power the country. Both renewables and nonrenewables are explored:

- Natural Gas
- Petroleum
- Uranium
- Coal
- Propane
- Solar
- Wind
- Biomass
- Hydro
- Geothermal

Students learn about the economic and environmental impacts of these sources and are able to explore the history of energy, the current energy situation, and the possibilities for the future.
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Expanded Modules for:

Electric Power
Hydropower
Energy Development on Public Lands
Offshore Energy
LNG

Solar, Wind
Hydrogen
Climate
Electricity & Transportation

Particles that make up atoms and the movement of electrons are incorporated into hands on activities. Electricity is discovered with hands on experiments and reinforcement activities.

NEED students study all transportation options and consider technologies for the future. NEED’s Transportation Fuels portfolio includes resources for teaching about fleet fuel choices.
Efficiency and Conservation

NEED helps schools and students make wise energy decisions. At home and at school students learn how to reduce energy costs, to understand energy technology such as meters, and to be smart consumers.

Schools look to NEED not only to provide science and energy education in the classroom but also to help them reduce energy costs.
Evaluation and Curriculum Connections

Materials are updated annually. NEED has a dedicated Teacher Advisory Board of educators and an Advisory Board of energy experts to review materials.

Program participants evaluate materials, training programs, and new activities.

Materials and training are designed to actively engage students in the application of science concepts – applying the science and technology to energy concepts and issues.
Teacher Professional Development

NEED offers a variety of training opportunities for teacher and students.

**School year:** training programs are offered for teachers, students, and the community. At some workshops, professional development or graduate credit can be earned.

**Summer:** National Energy Conference for Educators. Educators can meet other teachers from around the country, develop a NEED unit for their classroom, and increase their own energy knowledge.
Student Leadership

NEED students do not read text and answer questions. They are actively engaged in their own learning and in teaching others. Education and industry efforts for students can take many forms: camps, workshops, internships.

It is this student leadership that will allow the energy industry to find talent for the future.

The energy industry needs to make an investment in students – or the current human resources shortages will continue.
Teacher Networking and Support

NEED provides a support system for educators, helping them plan individual energy units, connecting them with each other and with resources in their area.

The **NEED Network** connects educators, students, directors, coordinators, sponsors and community partners.
Recognition

NEED rewards student leadership and innovation with a Youth Awards Program for Energy Achievement. Many schools submit reports on their energy activities.

Awards are given at the local, state and national level with the National Recognition Ceremonies held in Washington D.C. each June.
Developing Partnerships

Energy Education Programs have strong foundations for success when the following are present:

- Funding diversity
- Private and public investment
- Longitudinal funding
- Educator engagement
- Industry engagement
- Spiraling Capability
Partnership Programming

- Demand Side Management Programming with utilities
- Partnerships for nuclear workshops with utilities – Dominion, PG&E to provide teacher training and curriculum materials
- Energy and outreach training for energy professionals
- Speakers bureau training
- Energy Industry Study Program – DOE/EIA employees through nuclear power stations
- NSTA and other education associations – teacher events at conventions and conferences
- Affinity with trade associations and organizations – USEA, NEI, API, IPAA, ANS
Collaborative Projects: Partnerships = Progress

- Solar Installations and education with PG&E and other agencies and companies
- Home energy efficiency programs with EPA and Energy Star
- School energy management programs with utilities and school districts
- Local Energy Activities – LNG with Southern LNG - Elba
- Local Energy Education workshops with local energy interests – training hosted at nuclear stations CT, WI, VA, CA
- Career Education Programming – with CAPT, CVCC sends local teachers to NEED training in summer each year
- EIA Kid’s Page and other energy education websites
- EIA Energy Education Resource Guide – compendium or energy resources
Students and Teachers Learn by Doing
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