

## EXPLORING A JOB IN THE ENERGY INDUSTRY

### MAY ADVANCE THESE NATIONAL ENERGY LITERACY STANDARDS:

4 Various sources of energy can be used to power human activities, and often this energy must be transferred from source to destination.

**4.1 Humans transfer and transform energy from the environment into forms useful for human endeavors.** The primary sources of energy in the environment include fuels like coal, oil, natural gas, uranium, and biomass. All primary source fuels except biomass are non-renewable. Primary sources also include renewable sources such as sunlight, wind, moving water, and geothermal energy.

**4.5 Humans generate electricity in multiple ways.** When a magnet moves or magnetic field changes relative to a coil of wire, electrons are induced to flow in the wire. Most human generation of electricity happens in this way. Electrons can also be induced to flow through direct interaction with light particles; this is the basis upon which a solar cell operates. Other means of generating electricity include electrochemical, piezoelectric, and thermoelectric.

5 Energy decisions are influenced by economic, political, environmental, and social factors.

**5.2 Energy infrastructure has inertia.** The decisions that governments, corporations, and individuals made in the past have created today's energy infrastructure. The large amount of money, time, and technology invested in these systems makes changing the infrastructure difficult, but not impossible. The decisions of one generation both provide and limit the range of possibilities open to the future generations.

6 The amount of energy used by human society depends on many factors.

**6.3 Human demand for energy is increasing.** Population growth, industrialization, and socioeconomic development result in increased demand for energy. Societies have choices with regard to how they respond to this increase. Each of these choices has consequences.

**6.4 Earth has limited energy resources.** Increasing human energy consumption places stress on the natural processes that renew some energy resources and it depletes those that cannot be renewed.

7 The quality of life of individuals and societies is affected by energy choices.

**7.1 Economic security is impacted by energy choices.** Individuals and society continually make energy choices that have economic consequences. These consequences come in the form of monetary cost in general and in the form of price fluctuation and instability specifically.

**7.2 National security is impacted by energy choices.** The security of a nation is dependent, in part, on the sources of that nation's energy supplies. For example, a nation that has diverse sources of energy that come mostly from within its borders is more secure than a nation largely dependent on foreign energy supplies.

**7.3 Environmental quality is impacted by energy choices.** Energy choices made by humans have environmental consequences. The quality of life of humans and other organisms on Earth can be significantly affected by these consequences.

**7.4 Increasing demand for and limited supplies of fossil fuels affects quality of life.** Fossil fuels provide the vast majority of the world's energy. Fossil fuel supplies are limited. If society has not transitioned to sources of energy that are renewable before depleting Earth's fossil fuel supplies, it will find itself in a situation where energy demand far exceeds energy supply. This situation will have many social and economic consequences.