

Career Connections



CENTER FOR
MATHEMATICS, SCIENCE,
AND TECHNOLOGY
Illinois State University



Smart Grid for Schools Career Connections:

This document contains a listing of dozens of careers associated with the electrical power grid. As students interact with the Smart Grid for Schools program, many will find it particularly interesting and some may wish to pursue a career in it. All the following information is found in the preface of the student and teacher editions for each grade level. It is provided here as a comprehensive listing.

K-4 Career Connections:

While it is true that most children in elementary school are not seriously considering their career choice, many of them can tell you what they want to be when they grow up. It is important that they are exposed to a wide variety of career options so that as they move toward high school and college, they can make well-informed choices.

In this activity, students will be working with electricity, making an electrical grid, and using some of the tools of an electrician. Look for opportunities to discuss some of the following information with students showing exceptional aptitude and interest.

Electricians	Install, maintain, and repair electrical power, communications, lighting, and control systems.
2018 Median Pay	\$26.53 per hour \$55,190 per year
Typical Entry-Level Education	High school diploma or equivalent, apprenticeships or technical college
Job Outlook, 2018-28	10% (Faster than average)

Power line installers	Install or repair electrical power systems and telecommunications cables, including fiber optics.
2018 Median Pay	\$31.67 per hour \$65,880 per year
Typical Entry-Level Education	High school diploma or equivalent, apprenticeships or technical college
Job Outlook, 2018-28	4% (Faster than average)

Information on careers can be found in the Occupational Outlook Handbook published by the U.S. Bureau of Labor Statistics, www.bls.gov

4-8 Career Connections:

The Smart Grid for Schools program provides an excellent introduction to energy-related careers. All data is from the Occupational Outlook Handbook found at www.bls.gov. There is a page inserted for the student (pg 15 SE and pg 22 TE) but it does not contain as many listings as in the Teacher Edition.

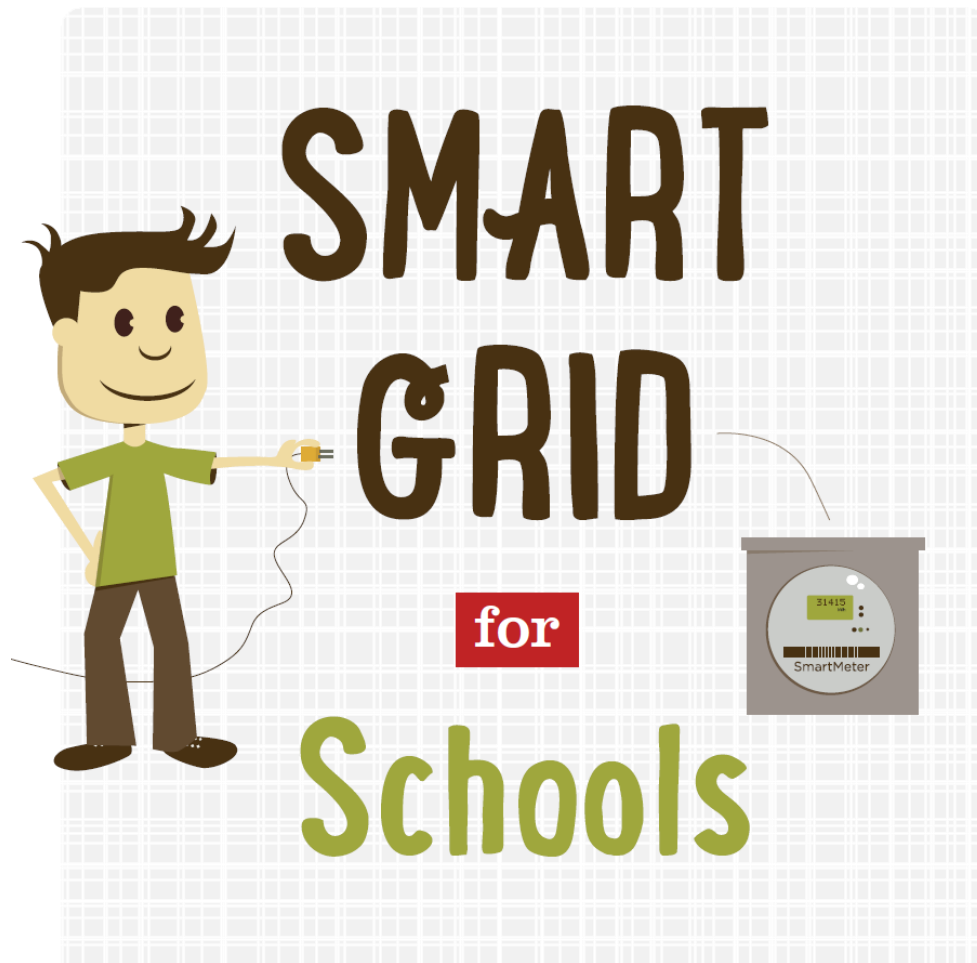
Career Title	Description	Education Required	Median Salary In 2018	Job Outlook 2018-2028
Power plant operator	control the systems that generate and distribute electric power.	High school diploma. Long-term on-the-job training	\$83,020 per year \$39.92 per hour	-6% decline -3,100 jobs
Line installers and repairers	install or repair electrical power systems and telecommunications cables, including fiber optic	High school diploma. Long-term on-the-job training	\$65,880 per year \$31.67 per hour	+4% increase +10,700 jobs
Solar photovoltaic (PV) installers	assemble, install, and maintain solar panel systems on rooftops or other structures.	High school diploma. Moderate-term on-the-job training	\$42,680 per year \$20.52 per hour	+63% increase +6,100 jobs
Nuclear Engineers	research and develop the processes, instruments, and systems used to derive benefits from nuclear energy and radiation.	Bachelor's degree	\$107,600 per year \$51.73 per hour	-1% decline -100 jobs
Wind turbine service technicians	install, maintain, and repair wind turbines.	High school diploma. Long-term on-the-job training	\$54,370 per year \$26.14 per hour	+57% increase +3,800 jobs
Electrical engineers	design, develop, test, and supervise the manufacture of electrical equipment	Bachelor's degree	\$99,070 per year \$47.63 per hour	+2% increase +8,000 jobs
Geoscientists	study the physical aspects of the Earth	Bachelor's degree	\$91,130 per year \$43.81 per hour	+6% increase +1,800 jobs
Environmental engineers	use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems.	Bachelor's degree	\$87,620 per year \$42.13 per hour	+5% increase +2,900 jobs
Electricians	install, maintain, and repair electrical power, communications, lighting, and control systems.	High school diploma or equivalent	\$55,190 per year \$26.53 per hour	+10% increase +74,100 jobs
Electro-mechanical technicians	operate, test, and maintain unmanned, automated, robotic, or electromechanical equipment.	Associate's degree	\$57,790 per year \$27.78 per hour	+1% increase +100 jobs
Heating, air conditioning, and refrigeration technicians	work on heating, ventilation, cooling, and refrigeration systems.	High school diploma. Long-term on-the-job training	\$47,610 per year \$22.89 per hour	+13% increase +46,300 jobs

8-12 Career Connections:

The Smart Grid for Schools program provides an excellent introduction to energy-related careers. Some of this are listed in the Student Edition on page 25. All data is from the Occupational Outlook Handbook found at www.bls.gov.

Career Title	Description	Education Required	Median Salary In 2018	Job Outlook 2018-2028
Power plant operator	control the systems that generate and distribute electric power.	High school diploma. Long-term on-the-job training	\$83,020 per year \$39.92 per hour	-6% decline -3,100 jobs
Line installers and repairers	install or repair electrical power systems and telecommunications cables, including fiber optic	High school diploma. Long-term on-the-job training	\$65,880 per year \$31.67 per hour	+4% increase +10,700 jobs
Solar photovoltaic (PV) installers	assemble, install, and maintain solar panel systems on rooftops or other structures.	High school diploma. Moderate-term on-the-job training	\$42,680 per year \$20.52 per hour	+63% increase +6,100 jobs
Nuclear Engineers	research and develop the processes, instruments, and systems used to derive benefits from nuclear energy and radiation.	Bachelor's degree	\$107,600 per year \$51.73 per hour	-1% decline -100 jobs
Wind turbine service technicians	install, maintain, and repair wind turbines.	High school diploma. Long-term on-the-job training	\$54,370 per year \$26.14 per hour	+57% increase +3,800 jobs
Electrical engineers	design, develop, test, and supervise the manufacture of electrical equipment	Bachelor's degree	\$99,070 per year \$47.63 per hour	+2% increase +8,000 jobs
Geoscientists	study the physical aspects of the Earth	Bachelor's degree	\$91,130 per year \$43.81 per hour	+6% increase +1,800 jobs
Environmental engineers	use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems.	Bachelor's degree	\$87,620 per year \$42.13 per hour	+5% increase +2,900 jobs
Electricians	install, maintain, and repair electrical power, communications, lighting, and control systems.	High school diploma or equivalent	\$55,190 per year \$26.53 per hour	+10% increase +74,100 jobs
Electro-mechanical technicians	operate, test, and maintain unmanned, automated, robotic, or electromechanical equipment.	Associate's degree	\$57,790 per year \$27.78 per hour	+1% increase +100 jobs
Heating, air conditioning, and refrigeration technicians	work on heating, ventilation, cooling, and refrigeration systems.	High school diploma. Long-term on-the-job training	\$47,610 per year \$22.89 per hour	+13% increase +46,300 jobs

Career Title	Description	Education Required	Median Salary In 2018	Job Outlook 2018-2028
Architects	plan and design houses, factories, office buildings, and other structures.	Bachelor's degree	\$79,380 per year \$38.16 per hour	+8% increase +11,200 jobs
Environmental science and protection technicians	monitor the environment and investigate sources of pollution and contamination.	Associate's degree	\$46,170 per year \$22.20 per hour	+9% increase +3,200 jobs
Administrative services managers	plan, direct, and coordinate activities that help an organization run efficiently.	Bachelor's degree	\$96,180 per year \$46.24 per hour	+7% increase +21,800 jobs
Nuclear technicians	assist physicists, engineers, and other professionals in nuclear research and nuclear energy production.	Associate's degree	\$79,140 per year \$38.05 per hour	-4% decline -300 jobs
Chemical engineers	apply the principles of chemistry, biology, physics, and math to solve problems that involve the use of fuel,	Bachelor's degree	\$104,910 per year \$50.44 per hour	+6% increase +2,100 jobs
Industrial engineers	devise efficient systems that integrate workers, machines, materials, information, and energy to make a product or provide a service.	Bachelor's degree	\$87,040 per year \$41.84 per hour	+8% increase +23,800 jobs
Civil engineers	design, build, and supervise infrastructure projects and systems.	Bachelor's degree	\$86,640 per year \$41.65 per hour	+6% increase +20,500 jobs
Boilermakers	assemble, install, maintain, and repair boilers, closed vats, and other large vessels or containers that hold liquids and gases.	High school diploma or equivalent Apprenticeship	\$62,150 per year \$29.88 per hour	+6% increase +900 jobs
Public relations specialists	create and maintain a favorable public image for the organization they represent.	Bachelor's degree	\$60,000 per year \$28.85 per hour	+6% increase +17,300 jobs
Mathematicians and statisticians	analyze data and apply mathematical and statistical techniques to help solve problems.	Master's degree	\$88,190 per year \$42.40 per hour	+30% increase +14,400 jobs
Training and development managers	oversee staff and plan and coordinate programs to enhance the knowledge and skills of an organization's employees.	Bachelor's degree	\$111,340 per year \$53.53 per hour	+8% increase +3,100 jobs



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