

CURRICULUM ALIGNMENT – How Green is Canada’s Electricity?

Alberta

Grade	Course Name and Number	Unit	Outcome
9	Grade 9 Science	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	General Outcome 4: Describe and discuss the societal and environmental implications of the use of electrical energy.
9	Grade 9 Science	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Specific Outcome 4.1: Identify and evaluate alternative sources of electrical energy, including oil, gas, coal, biomass, wind, waves and batteries.
9	Grade 9 Science	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Specific Outcome 4.2: Describe the by-products of electrical generation and their impacts on the environment.
9	Grade 9 Science	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Skill Outcome (Analyzing and Interpreting): Analyze qualitative and quantitative data and develop and assess possible explanations.
9	Grade 9 Science	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Attitude Outcome (Stewardship): Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.
9	Knowledge and Employability Science Grades 8 and 9	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Specific Outcome 4.1: Identify alternative sources of electrical energy, including oil, gas, coal, wind, waves and batteries.
9	Knowledge and Employability Science Grades 8 and 9	Unit D: Electrical Principles and Technologies (Science and Technology Emphasis)	Specific Outcome 4.2: Identify the by-products of electrical generation and their impacts on the environment.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Specific Outcome 4.6: Assess, from a variety of perspectives, the risks and benefits of human activity, and its impact on the biosphere and the climate.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Performing and Recording): Use library and electronic research tools to collect information on a given topic.

		Emphasis)	
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Performing and Recording): Select and integrate information from various print and electronic sources or from several parts of the same source.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Analyzing and Interpreting): Compile and display, by hand or computer, evidence and information in a variety of formats, including diagrams, flow charts, tables, graphs and scatterplots.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Analyzing and Interpreting): Propose alternative solutions to a given practical problem, identify the potential strengths and weaknesses of each, and select one as the basis for a plan.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Analyzing and Interpreting): Propose alternative solutions to a given practical problem, identify the potential strengths and weaknesses of each, and select one as the basis for a plan.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Communication and Teamwork): Work as members of a team in addressing problems and apply the skills and conventions of science in communicating information and ideas and in assessing results.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Communication and Teamwork): Synthesize information from multiple sources or from complex and lengthy texts and make inferences based on this information.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Communication and Teamwork): Identify multiple perspectives that influence a science-related decision or issue.
10	Science 10	Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)	Skill Outcome (Communication and Teamwork): Develop, present and defend a position or course of action, based on findings.
10	Course PRS1020	Non-renewable Resources	Outcome 2: Identify and describe impacts resulting from the use of non-renewable resources.
10	Course PRS1020	Non-renewable Resources	Specific Outcome 2.1: Describe environmental impacts that result from the use of non-renewable resources; e.g. greenhouse gases, acid deposition, resource depletion, ozone depletion, smog, ecosystem destruction, water pollution.
10	Course PRS1020	Non-renewable Resources	Specific Outcome 2.3: Define sustainable energy development and research future impacts on resource supply and demand, and options for ensuring future sustainable

			development; e.g. social, economic, geological, technological and environmental.
10	Course ENS1010	Introduction to Stewardship	Outcome 2: Describe ways in which human intervention has affected the environment.
10	Course ENS1040	Living with the Environment	Outcome 1: Investigate and describe relationships between humans and their environments.
10	Course ENS1040	Living with the Environment	Outcome 1.4: Identify examples of human impacts on natural and built environments and the reasons for them based on human wants and needs.
11	Science 20	Unit A: Chemical Changes Themes: Matter, Change and Energy	Specific Outcome 20–A3.2sts: Discuss the appropriateness, risks and benefits of technologies, assessing each potential application from a variety of perspectives, including sustainability.
11	Course ENS2040	Environmental Health & Safety	Outcome 1: Identify environmental health and safety issues relevant to one of Alberta’s industries.
11	Course ENS2130	Renewable & Non-renewable Energy Resources	Outcome 1: Describe current and potential sources of energy.
11	Course ENS2130	Renewable & Non-renewable Energy Resources	Outcome 2: Analyze the potential environmental and economic impacts of a variety of current and future renewable and non-renewable energy sources (e.g. conventional oil, oil sands, hydrogen, direct solar, hydro, nuclear, wind, geothermal, biomass, waste, biofuels), considering but not limited to: <ul style="list-style-type: none"> • net energy and/or energy returned on energy invested (EROEI); • availability of source; • cost to develop, phase in and use; • governmental incentives; • national and global economic and political security; • facilities and equipment essential to energy production; • basic steps, including safety measures, involved in energy production; and • effects of extraction, transportation and use on the environment.
12	Science 30	Unit D: Energy and the Environment	General Outcome 1: Students will explain the need for balancing the growth in global energy demands with maintaining a viable biosphere.
12	Science 30	Unit D: Energy and the Environment	Specific Outcome 30–D1.5k: Describe the environmental impact of developing and using various energy sources; i.e. conventional oil, oil sands, solar power, wind power, biomass, hydroelectricity, coal burning power, nuclear power, geothermal.
12	Science 30	Unit D: Energy and the Environment	Specific Outcome 30–D2.1sts: Explain that decisions regarding the application of

			scientific and technological development involve a variety of perspectives, including social, cultural, environmental, ethical and economic considerations (evaluate the environmental and economic implications of energy transformation technologies).
12	Course ENS3040	Energy & the Environment	Outcome 1: Describe the social, economic and environmental significance of energy development.
12	Course ENS3040	Energy & the Environment	Specific Outcome 1.1: Describe the social, economic and environmental significance of an energy development; e.g. a hydro dam (Brazeau and Bighorn dams), windfarms (Pincher Creek), coal or gas fired power plant (Keephills).
12	Course ENS3040	Energy & the Environment	Specific Outcome 1.2: Analyze the relationship between an energy development and the environment; e.g. greenhouse gases, acid deposition, ecosystem destruction, resource depletion, ozone depletion, smog, water pollution.
12	Course ENS3130	Sustainable Energy	Outcome 2: Identify issues involving current and future energy supply and demand.