

CHAPTER 15 VOCABULARY - Nonrenewable Energy

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bitumen	Goosey, black, high-sulfur, heavy oil extracted from tar sand and then upgraded to synthetic fuel oil. See <i>oil sand</i> .
CHP	(Combined heat and power) See <i>cogeneration</i> .
coal	Solid, combustible mixture of organic compounds with 30–98% carbon by weight, mixed with various amounts of water and small amounts of sulfur and nitrogen compounds. It forms in several stages as the remains of plants are subjected to heat and pressure over millions of years.
coal gasification	Conversion of solid coal to synthetic natural gas (SNG).
coal liquefaction	Conversion of solid coal to a liquid hydrocarbon fuel such as synthetic gasoline or methanol.
combined heat and power (CHP) production	See <i>cogeneration</i> .
crude oil	Goosey liquid consisting mostly of hydrocarbon compounds and small amounts of compounds containing oxygen, sulfur, and nitrogen. Extracted from underground accumulations, it is sent to oil refineries, where it is converted to heating oil, diesel fuel, gasoline, tar, and other materials.
kerogen	Solid, waxy mixture of hydrocarbons found in oil shale rock. Heating the rock to high temperatures causes the kerogen to vaporize. The vapor is condensed, purified, and then sent to a refinery to produce gasoline, heating oil, and other products. See also <i>oil shale</i> , <i>shale oil</i> .
kilowatt (kW)	Unit of electrical power equal to 1,000 watts. See <i>watt</i> .
liquefied natural gas (LNG)	Natural gas converted to liquid form by cooling it to a very low temperature.
liquefied petroleum gas (LPG)	Mixture of liquefied propane (C ₃ H ₈) and butane (C ₄ H ₁₀) gas removed from natural gas and used as a fuel.
LNG	See <i>liquefied natural gas</i> .
LPG	See <i>liquefied petroleum gas</i> .
meltdown	Melting of the highly radioactive core of a nuclear reactor.
natural gas	Underground deposits of gases consisting of 50–90% by weight methane gas (CH ₄) and small amounts of heavier gaseous hydrocarbon compounds such as propane (C ₃ H ₈) and butane (C ₄ H ₁₀).
net energy	Total amount of useful energy available from an energy resource or energy system over its lifetime, minus the amount of energy <i>used</i> (the first energy law), <i>automatically wasted</i> (the second energy law), and <i>unnecessarily wasted</i> in finding, processing, concentrating, and transporting it to users.

nuclear energy	Energy released when atomic nuclei undergo a nuclear reaction such as the spontaneous emission of radioactivity, nuclear fission, or nuclear fusion.
nuclear fusion	Nuclear change in which two nuclei of isotopes of elements with a low mass number (such as hydrogen-2 and hydrogen-3) are forced together at extremely high temperatures until they fuse to form a heavier nucleus (such as helium-4). This process releases a large amount of energy. Compare <i>nuclear fission</i> .
oil	See <i>crude oil</i> .
oil reserves	See <i>proven oil reserves</i> .
oil sand	See <i>tar sand</i> .
oil shale	Fine-grained rock containing various amounts of kerogen, a solid, waxy mixture of hydrocarbon compounds. Heating the rock to high temperatures converts the kerogen into a vapor that can be condensed to form a slow-flowing heavy oil called shale oil. See <i>kerogen</i> , <i>shale oil</i> .
peak production	Point in time when the pressure in an oil well drops and its rate of conventional crude oil production starts declining, usually a decade or so; for a group of wells or for a nation, the point at which all wells on average have passed peak production.
petrochemicals	Chemicals obtained by refining (distilling) crude oil. They are used as raw materials in manufacturing most industrial chemicals, fertilizers, pesticides, plastics, synthetic fibers, paints, medicines, and many other products.
petroleum	See <i>crude oil</i> .
proven oil reserves	Identified deposits from which conventional crude oil can be extracted profitably at current prices with current technology.
radioactive waste	Waste products of nuclear power plants, research, medicine, weapon production, or other processes involving nuclear reactions. See <i>radioactivity</i> .
shale oil	Slow-flowing, dark brown, heavy oil obtained when kerogen in oil shale is vaporized at high temperatures and then condensed. Shale oil can be refined to yield gasoline, heating oil, and other petroleum products. See <i>kerogen</i> , <i>oil shale</i> .
SNG	See <i>synthetic natural gas</i> .
synfuels	Synthetic gaseous and liquid fuels produced from solid coal or sources other than natural gas or crude oil.
synthetic natural gas (SNG)	Gaseous fuel containing mostly methane produced from solid coal.
tar sand	Deposit of a mixture of clay, sand, water, and varying amounts of a tarlike heavy oil known as bitumen. Bitumen can be extracted from tar sand by heating. It is then purified and upgraded to synthetic crude oil. See <i>bitumen</i> .
watt	Unit of power, or rate at which electrical work is done. See <i>kilowatt</i> .