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| CHAPTER 15 SUMMARY

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| 1. Nonrenewable energy sources are obtained from the earth’s crust and primarily from carbon-containing fossil fuels. They are non-renewable because they have finite lifetimes, but the different forms of non-renewable fuels (e.g., oil, coal, uranium) have highly variable lifetimes. 2. The advantages of oil include low cost, high net energy yield, easy transportation, low land use, well-developed technology, and efficient system of distribution. Disadvantages include need for a substitute discovery; low price encourages waste, air pollution, and water pollution. Oil supplies are estimated to be approximately 80% depleted between 2050 and 2100. 3. The advantages of natural gas include plentiful supplies, high net energy yield, low cost, less air pollution than oil, moderate environment impact, and easy transport. Disadvantages include the fact that it is a nonrenewable resource, comparative high cost, release of carbon dioxide when burned (although lower than other fossil fuels such as coal), leaks, and requirement for pipeline infrastructure for transport. 4. The advantages of coal include plentiful supplies, high net energy yield, low cost, well-developed technology, and air pollution can be partially managed with appropriate technology. Disadvantages include very high environmental impact, land disturbance, air and water pollution, threat to human health, high carbon dioxide emissions, and release of radioactive particles and mercury. 5. The advantages of nuclear power include large fuel supply, low environmental impact, low carbon dioxide emissions (none from energy generation), moderate land disruption and use, and low risk of accidents. Disadvantages include high cost, low net energy yield, high environmental impact in case of accident, catastrophic accidents, long-term storage of radioactive waste, and potential for nuclear proliferation.  |

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