

Technologies for Goal #2: Reducing Emissions from Energy Supply

	NEAR-TERM	MID-TERM	LONG-TERM
Fossil Power	<ul style="list-style-type: none"> • IGCC Commercialization • FutureGen Demonstration • Solid Oxide Fuel Cells • More Efficient, Lower-Cost, Cleaner Coal Plants 	<ul style="list-style-type: none"> • Pre-Combustion Technology for Cleaner Coal-Based Electricity Generation • Zero-Emission Coal Plants (FutureGen) • H₂ Co-Production from Coal/Biomass 	<ul style="list-style-type: none"> • Zero-Emission Fossil Energy
Hydrogen	<ul style="list-style-type: none"> • Integrated Stationary Fuel Cell System • Codes & Standards • Demonstrations of Renewable Hydrogen Production 	<ul style="list-style-type: none"> • Low-Cost H₂ Storage & Delivery • H₂ Production from Nuclear • H₂ Production from Renewables • Renewable-H₂-Powered Fuel Cell Vehicles 	<ul style="list-style-type: none"> • H₂ & Electric Economy
Renewables	<ul style="list-style-type: none"> • Lower-Cost Wind Power • Biodiesel, Demos of Cellulosic Ethanol • Photovoltaics on Buildings • Cost-Competitive Solar PV • 1st Generation Biorefinery • Distributed Generation Systems 	<ul style="list-style-type: none"> • Low-Wind-Speed Turbines • Advanced Biorefineries • Cellulosic Biofuels • Community-Scale Solar • Photolytic Water Splitting • Energy Storage Options 	<ul style="list-style-type: none"> • Widespread Renewable Energy • Bio-Engineered Biomass • Bio-inspired Energy & Fuels
Nuclear Fission	<ul style="list-style-type: none"> • Advanced Fission Reactor and Fuel Cycle Technology • New Fuel Forms and Materials 	<ul style="list-style-type: none"> • GenIV Nuclear Plants • Closed Proliferation-Resistant Fuel Cycles • Minimization of Wastes Requiring Geological Disposal 	<ul style="list-style-type: none"> • Widespread Nuclear Power • Advanced Concepts for Waste Reduction
Fusion Power	<ul style="list-style-type: none"> • Greater Understanding of Plasmas • Demonstration of Burning Plasmas (ITER) • Identification of Technology Options • Understand Potential of High-Energy-Density Physics Research 	<ul style="list-style-type: none"> • Fusion Pilot Plant Demonstration 	<ul style="list-style-type: none"> • Fusion Power Plants

Figure 5-22. Technologies for Goal #2: Reducing Emissions from Energy Supply (Note: Technologies shown are representations of larger suites. With some overlap, “near-term” envisions significant technology adoption by 10 to 20 years from present, “mid-term” in a following period of 20-40 years, and “long-term” in a following period of 40-60 years. See also List of Acronyms and Abbreviations.)