Part of the present Administration's energy policy is to encourage research aimed at reducing the cost of biomass-based motor fuels to become competitive with petroleum-based fuels. We use a dynamic, CGE model to investigate the economy-wide implications of successful research and development to achieve commercial viability of cellulosic ethanol (as embodied in the DOE biofuels roadmap, which aims to lower the cost of cellulosic ethanol production to $1.07/gallon by 2012). We find in the long-run, 2020, that the U.S. would experience significant benefits arising from: (1) substitution of biomass whose price is likely to fall in the long-run for crude petroleum whose price is likely to rise; (2) reduction in the world price of crude petroleum; and (3) an increase in export prices.