The Air Force has conducted research and development (R&D) and is currently certifying fuel blends of Fischer Tropsch fuels with petroleum-derived fuels. Fischer Tropsch fuels are produced from hydrocarbon feedstocks such as biomass, natural gas, coal, and coal and biomass combinations. The hydrocarbon feedstock is gasified into a mixture of carbon monoxide and hydrogen and then polymerized into waxes. The waxes are hydrocracked and isomerized into high quality jet fuels. To meet the current specification requirement of JP-8, the Fischer Tropsch fuel is blended 50/50 with petroleum-derived fuels to ensure that fuel density and fit-for-purpose properties such as elastomer swell are met. The Air Force has conducted extensive laboratory, ground engine, and flight tests as part of its fleet certification process and plans to have all aircraft certified by 2011. Fischer Tropsch fuel blends have demonstrated reductions in pollutant emissions. Fischer Tropsch fuels contain no sulfur or aromatic compounds. When blended with petroleum fuels and burned they produce 50% less sulfur emissions, reduced particulate emissions depending on the engine type and less CO$_2$ emissions at the tailpipe. These first generation alternative fuels will pave the way for renewable biofuel blends, which are currently in the early research phase but offer promise for reduced greenhouse gas emissions.