5. IMPACTS OF COMMERCIAL OPERATION

Following completion of the 4.5-year demonstration in late 2014, three scenarios would be reasonably foreseeable: (1) a successful demonstration of the Orlando Gasification Project followed immediately by commercial operation of the facilities at approximately the same production level; (2) an unsuccessful demonstration followed by continued commercial operation of the combined-cycle power-generating unit using the gasifier to the extent possible, while using natural gas to serve the balance of the combined-cycle unit's requirements not met by the gasifier; and (3) an unsuccessful demonstration followed by continued commercial operation of the combined-cycle unit using natural gas exclusively. The demonstration would be considered successful if the results indicate that continued operation of the gasifier to fully meet the fuel needs of the combined-cycle unit would be economically and environmentally viable (i.e., the project would be demonstrating commercially competitive performance in terms of availability, thermal efficiency, emissions, and cost of electricity). However, if the fuel needs of the combined-cycle unit would need to be met or supplemented by using natural gas for continued commercial operation, then the demonstration of synthesis gas production by coal gasification would be considered unsuccessful.

Under all three scenarios, the expected operating life of the facilities would be at least 20 years, including the 4.5-year demonstration period. An extension beyond 20 years would be based on economic analysis at that time.

Under the first scenario (successful demonstration followed by commercial operation of the facilities), the level of short-term impacts for other resource areas during commercial operation would not change from those described for the demonstration in Section 4 because the proposed facilities would continue operating 24 hours per day with the same operating characteristics. For long-term effects, the level of impacts would be nearly identical to those discussed in Section 4, except for impacts that accumulate with time (i.e., solid waste disposal and CO_2 emissions).

As described in Section 4.1.8.2, gasification ash would be used beneficially to the extent possible and would be placed in the onsite landfill only if no beneficial use were found. Disposal of gasification ash would increase the waste volume in the landfill, but would not change other potential impacts associated with the landfill. Beneficial use of coal combustion ash from the Stanton Energy Center's existing coal-fired generating units has extended the potential operating life of the 347-acre onsite area dedicated for landfill use. Consequently, the landfill site would have sufficient space for at least 50 years' future operation of both the existing coal-fired units and the proposed facilities, assuming continuation of current disposal rates for the existing units plus disposal of all of the gasification ash generated by the proposed facilities. Because the adjacent Orange County Sanitary Landfill (Section 3.8) is estimated to have sufficient capacity to operate for approximately the next 20 years and sufficient land for approximately the next 50 years, that landfill would likely be able to receive other solid wastes from the proposed facilities throughout their lifetime of 20 years or more.

Emissions of CO_2 over the 20-year commercial life of the project would be about 36 million tons.

Commercial sale of elemental sulfur generated by the proposed facilities would continue, if the material were sufficiently pure (Section 4.1.8.2). However, while sulfur consumption currently exceeds production in the United States, global sulfur production is increasing while global demand is decreasing, and supply already exceeds demand globally (Ober 2002). If this trend continues, marketing sulfur could become difficult in the future, which would increase the potential that some or all of the 2,800 tons generated annually by the proposed facilities would need to be placed in the onsite landfill (Section 4.1.8.2).

Commercial sale would continue of a portion of the 7,300 tons of anhydrous ammonia that would be produced annually by the proposed facilities. Because the existing Stanton Energy Center generating units would continue to use the ammonia to satisfy their requirements and because this chemical has many uses in agriculture and industry, all of the ammonia should be used beneficially throughout the 20-year period.

Under the second scenario (an unsuccessful demonstration followed by commercial operation of the combined-cycle unit using the gasifier to the extent possible, while using natural gas for the balance), the types of impacts resulting from the proposed facilities would be similar to those in the first scenario. However, the level of impacts would be reduced because less coal would be used and less ash, elemental sulfur, carbon dioxide and anhydrous ammonia would be produced. Fewer trains would be needed to deliver coal to the Stanton Energy Center than when the gasifier was operating at full load. Disposal requirements and/or transportation off the site for commercial sale of ash, elemental sulfur, and anhydrous ammonia would correspondingly be reduced. During periods when the gasifier was not operating, cooling water demand for project facilities would be about 20% less than under the first scenario. Because the Stanton Energy Center would use less treated wastewater effluent, effluent could be made available for other uses or could be discharged to the wetlands downstream from the Eastern Water Reclamation Facility.

Under the third scenario (an unsuccessful demonstration followed by commercial operation of the combined-cycle unit using natural gas exclusively), operational impacts would be nearly identical to operational impacts for the no-action scenario (the combined-cycle facilities built to use natural gas without the gasifier) (Section 4.3). Because the gasifier and related equipment would no longer be required, they would likely be dismantled and removed from the site, which would result in minor impacts (e.g., fugitive dust and emissions from engines during dismantlement and offsite transport of unneeded equipment, additional traffic associated with hauling the equipment off the site, temporary social and economic impacts from additional workers to perform the dismantlement and removal). Similar minor impacts would be associated with construction and installation of any replacement equipment. Depending on the magnitude of the required conversion, a temporary period of time would likely exist with negligible operational impacts because the facilities would not be operating during the conversion.

As discussed in Section 4.1.7, the social and economic impacts of the proposed facilities would be most noticeable during the construction and demonstration periods rather than during commercial operation. However, the project would continue to have impacts under all three scenarios after

completion of the demonstration. Under the first two scenarios, 53 of the 72 demonstration workers would be employed as operations workers. The types of social and economic impacts generated by the presence of this operations work force would be similar to those of the demonstration work force (Section 4.1.7). Although the social and economic impacts during operations would last longer than those during demonstration, the scale of the operations impacts would be smaller than that of the demonstration impacts because fewer workers would be present (i.e., 53 during operations vs. 72 during demonstration). Under the third scenario, the number of workers during operations would drop to 21 because the gasifier and related equipment would no longer be required.