9. THE RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

The proposed project would occupy about 75 acres of the Northside Generating Station property (including the footprint for the new facilities associated with the repowered Unit 1) and consume resources including coal, limestone, natural gas, fuel oil, and water. Water for plant operation would be supplied from both the St. Johns River and four deep wells. However, groundwater consumption would decrease compared with current use because JEA's management has established a target of a 10% reduction in total annual groundwater consumption by Northside Generating Station compared to 1996 levels (Section 2.1.3). Following the Unit 1 repowering, natural gas and fuel oil consumption would also decrease because the existing Unit 1 combustor that uses natural gas and fuel oil would be replaced by the CFB combustor that uses coal and petroleum coke as its primary fuels. Wherever possible, existing facilities and infrastructure located at Northside Generating Station would be used for the proposed project. These include the discharge system for cooling water to the St. Johns River, the wastewater treatment system, and the electric transmission lines and towers.

The project would generate air emissions, liquid effluents, and solid wastes (unless all of the combustion ash were sold). JEA's management has established a target of a 10% reduction in total annual emissions of SO_2, NO_x, and particulate matter from Northside Generating Station compared to emissions during the most recent typical 2-year operating period (1994–95) of the station (Section 2.1.3). These reductions would be accomplished while increasing the total annual energy output of the station from 2,320,000 MWh to 6,220,000 MWh. Discharges to the St. Johns River would include once-through cooling water and small amounts of liquid effluent (Section 2.1.7.2).

The long-term benefit of the proposed project would be to demonstrate an environmentally sound and innovative technology for the utilization of coal. CFB technology is an advanced method for burning coal and other fuels efficiently while removing air emissions inside the sophisticated combustor system. CFB technology provides flexibility in utility operations because a wide variety of solid fuels can be used, including high-sulfur, high-ash coal and petroleum coke. The technology is expected to remove up to 98% of SO_2 emissions, reduce NO_x formation by approximately 60% compared with conventional coal-fired technologies, and remove more than 99% of particulate emissions. Unlike with many conventional technologies, the combustion ash is suitable for beneficial uses such as road construction material, agricultural fertilizer, and reclaiming surface mining areas. The technology also has lower operating and maintenance costs and a shorter "down time" for maintenance than conventional coal-fired technologies.

The design size for the proposed project was selected because it is large enough to convince utilities that the technology, once demonstrated at this scale, can be commercialized using similar sized or larger combustors, without further scale-up to verify operational or economic performance. Therefore, although the proposed project would consume resources and generate emissions, effluents, and perhaps solid wastes, it would demonstrate a technology that, once commercialized,

would reduce resource consumption and waste generation both domestically and abroad compared with conventional coal technologies.