

DEPARTMENT OF ENERGY

Record of Decision, Orlando Gasification Project, Orlando, Orange County, FL

AGENCY: Department of Energy.

ACTION: Record of Decision.

SUMMARY: The Department of Energy (DOE) has prepared an environmental impact statement (EIS) (DOE/EIS-0383) to assess the environmental impacts associated with a proposed project that would be cost-shared by DOE and Southern Company (in partnership with the Orlando Utilities Commission) (OUC) under DOE's Clean Coal Power Initiative (CCPI) program. The project would demonstrate advanced power generation systems using Integrated Gasification Combined Cycle (IGCC) technology at OUC's existing Stanton Energy Center near Orlando, Florida. After careful consideration of the potential environmental impacts, along with program goals and objectives, DOE has decided that it will provide, through a cooperative agreement with Southern Company, a total of \$235 million in cost-shared funding (about 41% of the total cost of approximately \$569 million) to design, construct, and demonstrate the Orlando Gasification Project proposed by Southern Company.

ADDRESSES: The final EIS is available on the DOE NEPA web site at <http://www.eh.doe.gov/nepa/documentspub.html> and on the DOE National Energy Technology Laboratory web site at http://www.netl.doe.gov/technologies/coalpower/cctc/EIS/eis_orlando.html, and the Record of Decision (ROD) will be available on both web sites in the near future. Copies of the final EIS and this ROD may be requested by contacting Mr. Richard A. Hargis, Jr., National Environmental Policy Act (NEPA) Document Manager, U.S. Department of Energy, National Energy Technology Laboratory, 626 Cochran Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940; telephone: 412-386-6065; or e-mail: Richard.Hargis@netl.doe.gov.

FOR FURTHER INFORMATION CONTACT: To obtain additional information about the project or the EIS, contact Mr. Richard A. Hargis, Jr., National Environmental Policy Act (NEPA) Document Manager, U.S. Department of Energy, National Energy Technology Laboratory, 626 Cochran Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940; telephone: 412-386-6065; or e-mail: Richard.Hargis@netl.doe.gov. For

general information on the DOE NEPA process, contact Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585-0103; telephone: 202-586-4600; or leave a toll-free message at 1-800-472-2756.

SUPPLEMENTARY INFORMATION: DOE has prepared this ROD pursuant to Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA [40 Code of Federal Regulations (CFR) Parts 1500-1508] and DOE NEPA regulations (10 CFR Part 1021). This ROD is based on DOE's final EIS for the Orlando Gasification Project (DOE/EIS-0383, January 2007).

Background and Purpose and Need for Agency Action

In 2002, the U.S. Congress established the CCPI program to accelerate commercial deployment of advanced coal-based technologies for generating clean, reliable, and affordable electricity in the United States. Congress indicated that projects in the program should be industry enterprises assisted by the government and not government-directed demonstrations. These projects are expected to showcase technologies in which coal-fired power plants can continue to generate low cost electricity with improved efficiency and comply with more stringent environmental standards expected in the future.

DOE issued the second-round CCPI solicitation in February 2004 and received 13 proposals in June 2004. The Orlando Gasification Project ("Orlando Project") was one of four projects selected in October 2004 for further consideration. Evaluation criteria used in the selection process included technical merit of the proposed technology, potential for a successful demonstration of the technology, and potential for the technology to be commercialized. DOE also considered the participant's funding and financial proposal; DOE budget constraints; environmental, health, and safety implications; and program policy factors, such as DOE's preference for projects that represent a diversity of technologies, utilize a broad range of U.S. coals, and represent a broad geographical cross-section of the United States.

DOE selected the Orlando Project for further consideration in view of two principal needs. First, the project would meet the Congressional mandate to demonstrate advanced coal-based technologies that can generate clean, reliable, and affordable electricity in the United States. Second, the demonstration would provide a more cost-effective fuel supply for integration with a privately funded combined-cycle unit to generate electricity.

More specifically, the Orlando Project could demonstrate advanced coal gasification for power generation applications using IGCC technology at a sufficiently large scale to allow industries and utilities to assess the project's potential for commercial application. A successful demonstration would confirm that the technology could be implemented at the commercial scale. The cost-shared contribution by DOE would help reduce the risk to the Southern Company team in demonstrating the technology at the level of maturity needed for decisions on commercialization.

Further, the transport gasifier technology that would be demonstrated offers a simpler method for generating power from coal than other alternatives. It is unique among coal gasification technologies in that it is cost-effective when handling low rank coals and when using coals with high moisture or high ash content. These coals make up half the proven reserves in both the U.S. and the world. Moreover, the transport gasifier is capable of both air- and oxygen-blown operation. This inherent flexibility will allow it to readily adapt to other applications beyond power generation including chemical production and possible future carbon management requirements.

EIS Process

On August 11, 2005, DOE published in the *Federal Register* (70 FR 46825) a Notice of Intent (NOI) to prepare the EIS and hold a public scoping meeting. DOE held a public scoping meeting in Orlando, Florida, on August 30, 2005. DOE received 11 oral responses at the public scoping meeting and 11 responses by comment card, mail, e-mail, and telephone from members of the public, interested groups, and Federal, state, and local officials. The responses assisted in establishing additional issues to be analyzed in the EIS and in determining the level of analysis warranted for each issue.

On August 24, 2006, DOE published in the *Federal Register* (71 FR 50051) a Notice of Availability for the Orlando Gasification Project draft EIS. The Notice of Availability invited comments on the draft EIS and participation in the NEPA process. As part of the review process, DOE conducted a public hearing on September 13, 2006, in Orlando, Florida. DOE also conducted an informational session prior to the hearing for the public to learn more about the proposed project. The public was encouraged to provide oral comments at the hearings and to submit written comments to DOE during a 45-day public comment period that ended October 10, 2006. DOE received oral comments from two individuals at the public hearing, and written comments from three individuals, one non-governmental organization, two Federal agencies, and one local agency during and after the public hearing.

In January 2007, DOE issued the final EIS and the Environmental Protection Agency (EPA) published a Notice of Availability of the final EIS in the *Federal Register* on January 26, 2007 (72 FR 3846). In the final EIS, DOE considered and, as appropriate, responded to public comments on the draft EIS. Among the issues raised in the comments on the draft EIS were concerns about (1) carbon dioxide (CO₂) emissions and mitigation options; (2) vehicle and rail traffic; (3) mercury deposition and bioaccumulation; (4) ambient concentrations of ozone; (5) environmental justice considerations; and (6) air toxics impacts.

Project Location and Description

The Orlando Project would be located at OUC's existing 3,280-acre Stanton Energy Center in eastern Orange County, approximately 3 miles east of the eastern city limits of Orlando, Florida, and about 13 miles east-southeast of downtown Orlando. The topography of the area is relatively flat. The new facilities would be constructed on approximately 35 of the 1,100 acres of land that were previously cleared, leveled, and licensed for power plant use. The project equipment would be located between existing coal-fired units and an existing natural gas-fired combined-cycle unit. A short transmission line (approximately 3,200 ft in length), proposed to serve as an electrical interconnection from the proposed facilities to an existing onsite substation, would occupy a small amount of additional land. Land use in the vicinity includes undeveloped areas interspersed with a mixture of residential and commercial buildings, as well as a park, correctional facility, and landfill.

Construction would begin in late 2007 and continue until early 2010. An average of about 350 construction workers would be on the site during construction. Approximately 600 to 700 workers would be required during the peak construction period between fall 2008 and spring 2009. After mechanical checkout of the proposed facilities, demonstration (including data analysis and process evaluation) would be conducted over a 4.5-year period from mid 2010 until late 2014.

If the demonstration is successful, commercial operation would follow immediately. The combined workforce (i.e., including the Orlando Gasification Project and the combined-cycle generating unit) would consist of approximately 72 employees added to the existing Stanton Energy Center staff of 204 employees. Of the 72 new employees, 19 workers would provide support only during the startup and demonstration phases of the project, while 53 employees would be needed over the lifetime of the facilities. The facilities would be designed for a lifetime of at least 20 years, including the 4.5-year demonstration period.

The new coal gasifier would operate entirely on coal, consuming a total of approximately 1,020,000 tons per year to produce synthesis gas. Two to three trains per week would deliver low-sulfur subbituminous coal from the Powder River Basin in Wyoming. The heating value of the coal would average about 8,760 Btu/lb and the sulfur content would average about 0.26%. Most air emissions would result from combustion of synthesis gas in the gas combustion turbine during normal operations. The exhaust gas would be released to the atmosphere via a 205-ft stack.

Alternatives

Congress directed DOE to pursue the goals of the CCPI Program by means of partial funding of projects owned and controlled by non-Federal sponsors. This statutory requirement places DOE in a much more limited role than if the Federal government were the owner and operator of the project. In the latter situation, DOE would be responsible for a comprehensive review of reasonable alternatives for siting the project. However, in dealing with an applicant under the CCPI Program, DOE must focus on alternative ways to accomplish CCPI's purpose that reflect both the application before it and the role DOE plays in the decisional process. It is appropriate in such cases for DOE to give substantial weight to the applicant's desires in establishing a project's reasonable alternatives.

Based on the foregoing principles, the only reasonable alternative here to the proposed action was the no-action alternative, including one scenario that could reasonably be expected to result as a consequence of the no-action alternative. DOE dismissed from further consideration other alternatives that did not meet the goals and objectives of the CCPI Program or of the applicant.

The Stanton Energy Center was the only location identified in Southern's CCPI proposal. It is an existing site at which the private partners have already established a business relationship. Because it is an existing site, DOE concluded that it would be preferable to any undeveloped location.

DOE considered alternative technologies but dismissed them as unreasonable. Technologies and approaches that did not involve the use of coal (e.g., natural gas, wind power, solar energy, and conservation) would not contribute to the CCPI Program goal of accelerating commercial deployment of advanced coal-based technologies. Other alternatives, such as reducing the size of the proposed project, were dismissed as unreasonable. The design size for the proposed project was selected because it is sufficiently large to show potential customers that the gasification technology, once demonstrated at this scale, could be applied commercially without further scale-up. The size of the proposed project is also related to OUC's projected need for power.

Proposed Action

The proposed action is for DOE to provide Southern Company a total of \$235 million in cost-shared funding to design, construct, and demonstrate the Orlando Project. A portion (\$13.762 million) of this funding has already been provided for activities in the first budget period, such as project definition, front-end engineering design, environmental permitting activities, and preparation of environmental information for NEPA analysis.

Although DOE funding would support only the Orlando Project (i.e., coal gasifier, synthesis gas cleanup systems, and supporting infrastructure), the Orlando Project would be integrated with a privately funded, combined-cycle unit, which together would constitute the IGCC facilities. The IGCC facilities would convert coal into synthesis gas to drive a gas combustion turbine, and hot exhaust gas from the gas turbine would generate steam from water to drive a steam turbine. Combined, the two turbines would generate 285 MW (megawatts) of electricity. This proven, reliable combined-cycle approach of using a gas turbine and steam turbine in tandem increases the amount of electricity that can be generated from a given amount of fuel. The IGCC facilities are expected to provide a source of electricity that is reliable, low cost, environmentally sound, and efficient. DOE expects that approximately 40% of the energy in the fuel would be converted to electricity compared to about 33% for conventional coal-fired power plants. The IGCC facilities would substantially reduce emissions of sulfur dioxide (SO₂), oxides of nitrogen (NO_x), and mercury relative to existing, conventional coal-fired power plants.

No-Action Alternative

Under the no-action alternative, DOE would not provide cost-shared funding for the design, construction, and demonstration of the proposed Orlando Project at OUC's Stanton Energy Center near Orlando, Florida. Based on information from the private partners, without DOE participation, Southern Company and/or OUC could reasonably be expected to pursue at least one option (i.e., the combined-cycle facilities would be built at the Stanton Energy Center and operated using natural gas as fuel, without the gasifier, synthesis gas cleanup systems, and supporting infrastructure). Accordingly, DOE analyzed a no-action alternative scenario in which combined-cycle facilities would operate using natural gas as fuel without the availability of synthesis gas. Under the no-action alternative, commercialization of the gasification facilities (alone or integrated with the combined-cycle facilities to form IGCC technology) would probably not occur

because utilities and industries tend to use known and demonstrated technologies rather than unproven technologies.

Potential Environmental Impacts and Mitigation Measures

In making its decision, DOE considered the environmental impacts of the proposed action and the no-action alternative on potentially affected environmental resource areas. These include: land use and aesthetics, atmospheric resources and air quality, geology and soils, water resources, floodplains and wetlands, ecological resources, social and economic resources (including environmental justice and cultural resources), waste management, human health and safety, noise, and transportation. While the proposed project consists of only the gasifier, synthesis gas cleanup systems, and supporting infrastructure, the EIS includes the combined-cycle generating unit in the analysis of environmental impacts because the facilities are operationally interdependent. The EIS considers the impacts from these facilities combined with those from other, existing facilities at the Stanton Energy Center, and also examines potential incremental impacts of the project in combination with other past, present and reasonably foreseeable future actions (i.e., *cumulative impacts*). The following sections provide key findings for areas of potential concern.

Land Use and Aesthetics

The Orlando Project would be confined to the existing Stanton Energy Center site and thus would not directly affect offsite land use. The 1,100-acre developed portion of the power plant site is already zoned specifically for power generation through the site certification process under the Florida Electrical Power Plant Siting Act. The tallest new structures would be the 205-ft heat recovery steam generator (HRSG) stack, the 174-ft structure to house the gasifier, and the 114-ft HRSG. These structures would be shorter than the existing two 550-ft stacks serving two boiler buildings. Aesthetic impacts would be reduced because the facilities would be located between existing facilities, appearing as part of the site.

Under the no-action alternative, offsite land use would be the same, but because the 174-ft structure to house the gasifier would not be required, aesthetic impacts would be less than those predicted under the proposed action.

Air Resources

Modeling results based on emissions from the Orlando Project predicted that maximum concentrations would be less than their corresponding "significant impact levels." (Under EPA guidelines, if maximum predicted concentrations are less than

“significant impact levels,” then no further modeling for regulatory purposes is required.) Modeling results also predicted that, combined with ambient background concentrations, pollutant concentrations from Orlando Project emissions would be less than corresponding ambient air quality standards. Concentrations would be negligible at the nearest Prevention of Significant Deterioration (PSD) Class I area about 90 miles to the west-northwest. (Class I areas are designated areas in which the degradation of air quality is to be severely restricted.) Annual NO_x emissions from the Stanton Energy Center overall would not be expected to increase because, as part of the air permitting process, OUC has agreed to reduce NO_x emissions from other units at the Stanton Energy Center so that there would be a net decrease in NO_x emissions. Annual emissions of volatile organic compounds (VOCs), a precursor of the criteria pollutant ozone, would be 129 tons. The small percentage increase in VOC emissions (approximately 0.3% of the Orange County 2001 emission inventory) would not be likely to degrade air quality sufficiently to cause violations of the ozone standard, but the magnitude of the degradation cannot be quantified. The maximum ambient 24-hour concentration of mercury from the proposed HRSG stack is predicted to be 0.8% of its corresponding guideline value, and the maximum ambient 24-hour concentration of beryllium from the stack is predicted to be 0.4% of its guideline value. These results indicate that mercury and beryllium emissions from the proposed facilities alone or in combination with other sources would pose no threat to human health in the area. Any potential odors would be limited to the immediate site area and would not affect offsite areas. Increases in CO₂ emissions from the proposed facilities would add 1.8 million tons per year to an estimated global emission of 26,000 million tons per year.

The proposed project would significantly reduce additional SO₂, NO_x, mercury, and particulate emissions by removing constituents from the synthesis gas. The removal of approximately 80% of the fuel-bound nitrogen from the synthesis gas prior to combustion in the gas turbine would result in appreciably lower NO_x emissions compared to existing, conventional coal-fired power plants. The project is expected to remove up to 95% of sulfur and over 90% of mercury emissions. Over 99.9% of particulate emissions would be removed.

During operation, a number of means would be employed to reduce emissions of air pollutants, including: (1) application of Best Available Control Technology; (2) enclosure of coal unloading, transfer, and conveying equipment, plus application of water sprays, as needed, and use of baghouses at key transfer points; (3) use of high temperature, high pressure filters within the gasification process to collect particulate matter from the synthesis gas; (4) use of gas cleanup technology to reduce sulfur concentrations in the synthesis gas; and (5) use of activated carbon to remove mercury from the synthesis gas.

Southern would monitor to ensure emissions compliance. DOE expects the proposed facilities to be subject to the Clean Air Interstate Rule, Clean Air Mercury Rule, applicable New Source Performance Standards, and 40 CFR Part 75 (Acid Rain Program). In general, these Federal rules require continuous monitoring and recording of SO₂, NO_x, and mercury emissions. Monitoring would be subject to stringent quality assurance and control requirements to ensure that the monitored emissions data are accurate and complete.

Southern would conduct initial and periodic compliance testing pursuant to Florida Department of Environmental Protection requirements. This stack testing, using EPA reference methods, is expected to address the principal air pollutants emitted by the proposed facilities, including carbon monoxide, VOCs, and particulate matter.

Approximately 25% less CO₂ would be produced per unit of power generated compared to typical emission rates at existing, conventional coal-fired power plants. However, there would be a net increase in global emissions of CO₂. For this project, mitigation, such as capture and sequestration, is not feasible because the planned sulfur removal technology would not generate a concentrated CO₂ stream. However, even if the facilities were to generate a concentrated CO₂ stream, the nearest location amenable to CO₂ sequestration options that have been demonstrated at the scale needed (i.e., enhanced oil recovery) would be hundreds of miles away. The feasibility and effectiveness of other sequestration options, such as injection into saline formations, are not promising for this area and have not been fully characterized. Sequestration options for all regions of the country are still under investigation in DOE's Carbon Sequestration Program. A program goal is to initiate at least one large-scale demonstration, at the scale required for a power plant, in 2009 to demonstrate the appropriateness for CO₂ injectivity and validate storage capacity estimates and permanence.

Under the no-action alternative, emissions of air pollutants would be less than those predicted for the new facilities. Also, because the flare would not be required, no occasional emissions from a flare would occur.

Water Resources

Because construction would occur in developed site areas where surface water runoff is directed to onsite stormwater retention ponds and is used in the facilities, no impacts to natural surface waters would be experienced, except in the unlikely event of a major storm that caused overflow of the site stormwater collection system. Transmission line construction outside the main plant area could result in soil erosion and sediment deposition to streams, but best management practices described below would minimize

erosion and sedimentation. Impacts from lowering the water table during dewatering would be inconsequential.

Because operation of the facilities would not withdraw surface water or discharge liquid effluent, surface waters would experience no direct impacts. The Stanton Energy Center's use of reclaimed water would increase by an average of 2.1 million gallons per day (from 10.2 million to about 12.3 million gallons per day), thus reducing by a similar amount the water volume discharged to the wetlands downstream from the Eastern Water Reclamation Facility and from those wetlands to the Econlockhatchee River. Because this surface water is not used, reduced flow would not affect water users. Water quality in the river could be affected if reduced streamflow also reduced the river's capacity to dilute contamination discharged from other parts of the watershed, however any such effects would be temporary. Increased groundwater withdrawals would not produce discernible impacts. Facility operation could add localized contamination to shallow groundwater from the possible placement of additional waste in the onsite ash landfill. Because any contamination would be limited to the shallow aquifer and any contaminated groundwater would be designed to discharge to onsite stormwater collection systems, impacts to water users are unlikely.

The new coal pile would be lined and leachate collected to prevent the introduction of pollutants into groundwater. Use of treated wastewater effluent and other reclaimed water for cooling water makeup would minimize the withdrawal and consumption of Floridan aquifer groundwater. Measurement programs specified in the Stanton Energy Center Conditions of Certification would ensure continued monitoring of groundwater withdrawal rates from the Upper Floridan aquifer. In the unlikely event of a fuel spill or other release, assessment and recovery would be conducted in accordance with Florida Department of Environmental Protection requirements.

Runoff during construction and operation, as well as all effluents from operation, would flow through the existing Stanton Energy Center collection and reuse system. No offsite discharges would occur, except during a major storm event. Site-specific Best Management Practices to prevent the deposition of sediments beyond the construction areas would include silt fences, hay bales, vegetative covers, and diversions, to reduce impacts to surface water. No process wastewater would be directly discharged to any surface waters, but would be reused.

Under the no-action alternative, cooling water requirements would be about 20% less than under the proposed action. Releases to wetlands downstream from the Orange County Eastern Water Reclamation Facility and from the wetlands to the Econlockhatchee River would be reduced by 20%, and use of groundwater would be the same as under the proposed action.

Floodplains and Wetlands

No floodplains would be affected by the Orlando Project because no construction would occur within a floodplain. During construction, wetland and other vegetation communities within the transmission corridor would be altered. Because tall-growing vegetation would be cut and kept at a height low enough to prevent interference with the conductors, forest cover habitats would be reduced and shrub or other low-growing vegetation would eventually dominate the corridor. Construction of the transmission line would require submittal of a joint (1) Army Corps of Engineers Section 404 dredge-and-fill wetlands application and (2) Florida Department of Environmental Protection environmental resource permit. This permitting process would also require OUC to commit to a mitigation plan for any unavoidable wetland impacts. The net effect of clearing and maintaining 3.95 acres of wetland habitat for the transmission line would be (1) loss of 1.04 acres of wetland due to fill and (2) modification of vegetation in wetlands in the remainder of the corridor due to right-of-way maintenance. This would shift, to a small extent, the balance of wildlife habitat in the area away from wetland and forest toward shrub and brushland. To mitigate impacts to the wetland area, OUC would purchase credits at a local mitigation bank. The total number of acres required to mitigate the wetlands impacts would be determined after deliberations between the Florida Department of Environmental Protection, the St. John's River Water Management District, and the Army Corps of Engineers.

Under the no-action alternative, no floodplains would be affected and, because the new transmission line would still be required, the same alteration of wetland and other vegetation communities within the transmission corridor would be experienced.

Ecological Resources

The land where the Orlando Project would be constructed is not important habitat for wildlife, and no areas of ecological sensitivity would be affected directly. Wildlife species would be affected by construction activities and resultant loss of habitat in the transmission corridor. Smaller less mobile animals would be at greatest risk, whereas larger more mobile animals would likely move from the disturbed areas and increase surrounding habitat use. No Federally-listed threatened or endangered plant species are known to occur within the immediate vicinity of the main proposed facilities or the transmission corridor. Five plant species protected by the Florida Department of Agriculture and Consumer Services are known to occur along or in the vicinity of the transmission corridor. Clearing and maintenance activities on the right-of-way would be expected to destroy some individual plants, but populations would persist in undisturbed

areas. Other than transient or incidental use by some wildlife species, no federally-listed threatened or endangered animal species are found within the previously cleared 1,100 acres. Except for the five protected plants, no direct impacts are expected to listed species from proposed construction and operations. The site contains no appreciable natural aquatic resources.

Impacts under the no-action alternative would be the same as for the proposed facilities.

Social and Economic Resources

Construction and operation of the Orlando Project would not result in major impacts to population, housing, local government revenues, or most public services in Orange County. However, because the county's public schools are already above capacity, even the small increase in the number of students as a consequence of the new facilities would contribute to overcrowding. Overall, construction and operation of the proposed facilities would have positive effects on employment and income in the region.

The relatively large minority populations in and around the census tract in which the Stanton Energy Center is located (Census Tract 167.22) represent "environmental justice" populations to which adverse impacts could be distributed disproportionately. However, impacts to land use and aesthetics would not be significant for the population as a whole and would not contribute to disproportionately high and adverse impacts. Likewise, with regard to health effects and noise, there would be no significant adverse impacts to the population as a whole, and no disproportionately high and adverse effects would be experienced.

Under the no-action alternative, the peak and average construction work force would be reduced, and the construction period would be cut from 28 months to 24 months. Fewer operational workers would be required (21 rather than 72). Positive economic benefits would also be less.

Waste Management

The Orange County Sanitary Landfill would have ample capacity to receive project construction wastes. Ash generated by the Orlando Project is being evaluated for several possible beneficial uses that could avoid disposal in the onsite landfill. If no beneficial use is found, the 347-acre dedicated landfill would provide more than enough space to dispose of this ash, as well as other coal combustion wastes generated by the Stanton Energy Center. The existing generating units would use the anhydrous ammonia produced by the new facilities to satisfy their requirements, and any excess would be sold commercially. If the elemental sulfur generated by the facilities proves to be as pure as it

is projected to be, it would be sold commercially. Otherwise, it would be placed in the onsite landfill. Elemental sulfur would not be a hazardous waste, and the quantity produced would be small in comparison with the total capacity of the landfill.

Under the no-action alternative, the quantities of construction wastes would be slightly less. Also, because no ash would be generated, no disposal sites would be needed to accommodate ash. No anhydrous ammonia or elemental sulfur would be produced.

Human Health and Safety

Minimal adverse impacts to human health would be expected from operational SO₂, NO_x, and particulate matter emissions from the new facilities. With regard to health effects of hazardous air pollutants, the Orlando Project would pose less risk than most existing plants, many of which were built decades ago. A health risk analysis of hazardous air pollutants from the proposed facilities estimated that concentrations of all hazardous air pollutants would be below the threshold concentrations (below harmful levels).

A catastrophic accident (e.g., a significant hazardous material release, fire, or explosion) associated with the facilities, including transportation of anhydrous ammonia off the site, would be unlikely.

Southern Company and OUC would add project specific health and safety-related plans to those already in place for existing Stanton Energy Center units to prevent or minimize potential adverse impacts. These measures would include appropriate training and supervision of employees and enforcement of workplace safety policies.

Southern Company and OUC would develop and implement a safety program for the chlorine and ammonia systems that would include emergency response measures as well as specify training protocols.

Excess ammonia generated at the proposed facilities would be handled and transported according to the Department of Transportation's hazardous materials regulations.

Because emissions of air pollutants would be less under the no-action alternative, adverse impacts to human health would be less.

Noise

During operation of the proposed facilities, the predicted noise level at the nearest residence (about 6,500 ft to the northeast) would be 46.5 dBA. No adverse community reaction would be expected as a result of noise levels below 50 dBA. Noise from infrequent steam blows would attenuate to a level of about 66 dBA at the nearest property

boundary and 60 dBA at the nearest residence. A level of 60 dBA would be typical of normal conversation.

Noise would be essentially the same under the no-action alternative.

Transportation

Much of the work on planned road projects could coincide with construction and operation of the new facilities, creating a major cumulative impact to traffic flow on the local road network. This impact would be reduced if the Avalon Park Boulevard extension is completed in mid-2008 before the peak construction period. Also, Southern Company and OUC have committed to a number of measures that would mitigate these potential traffic impacts. A construction traffic impact mitigation program, which is required by the Stanton Energy Center Conditions of Certification, would be developed and implemented. Such a program could include encouraging construction workers to carpool; working with the local mass-transit system to provide workers with a park-and-ride service to the site; using the existing railway access to the Stanton Energy Center site for the delivery of some construction equipment and materials; staggering construction work schedules and shifts to avoid peak traffic hours; and working with the Florida Department of Transportation to provide temporary traffic control devices and alter signal times to assist in maintaining proper traffic flow. If the Avalon Park Boulevard extension project is completed prior to project construction, traffic issues would largely be mitigated and more modest mitigation could be considered. However, DOE acknowledges that these mitigation steps would not completely eliminate traffic impacts.

Noise related to transportation would not be expected to be significant. At the nearest residence, noise levels from truck traffic on Alafaya Trail would be at about the same level as that of a quiet subdivision during daylight hours. Noise levels from current rail traffic have not caused any public complaints. Increased rail traffic due to the proposed project would result in more frequent noise from rail traffic, but the noise levels would be the same.

Traffic congestion would be less under the no-action alternative. No additional trains would be needed to deliver coal, but trucks would continue to deliver anhydrous ammonia to the site once per week. Noise levels associated with transportation would be the same as for the new facilities but would be less frequent.

Environmentally Preferred Alternative

The no-action alternative is environmentally preferable because it would result in slightly less impacts than those predicted for the proposed action.

Comments Received on the Final EIS

The only comments that DOE received on the final EIS were from the U.S. Environmental Protection Agency (EPA), Region 4, NEPA Program Office. EPA stated that the final EIS was responsive to their comments on the draft EIS, but observed that direct, indirect, and cumulative impacts are inherent in projects that generate power. Therefore, EPA stated that verification of the impacts on air quality, wetlands, hazardous waste, and cumulative impacts will need to take place as the project progresses, with appropriate avoidance and mitigation measures implemented. DOE anticipated verifying impacts through an environmental monitoring plan. This plan will be developed as part of the cooperative agreement with Southern Company, and reports on monitoring activities will be included in the reports required under the cooperative agreement.

EPA also expressed appreciation of DOE's consideration of diesel retrofit technology to minimize emissions from construction equipment. As stated in the final EIS, specification of the use of diesel retrofit technologies is not warranted since impacts from diesel engines during construction are not expected to be a concern. However, DOE will encourage Southern Company to consider the use of biodiesel and diesel retrofit technologies during construction activities to further reduce impacts.

Decision

DOE will implement the proposed action, providing, through a cooperative agreement with Southern Company, a total of \$235 million in cost-shared funding to design, construct, and demonstrate the Orlando Gasification Project.

DOE's decision was made upon careful review of the potential environmental impacts, presented in the EIS, and incorporates all practicable means to avoid or minimize environmental harm. DOE plans to verify the environmental impacts predicted in the EIS and the implementation of appropriate avoidance and mitigation measures.



Issued in Washington, DC, on this 28th day of March 2007

James A. Slutz, Acting Assistant Secretary for Fossil Energy