

7.0 Economic and Social Effects of Plant Construction and Operation

The purpose of this chapter is to identify the direct and indirect economic and social effects of the CCC Project based on both short-term (construction) and long-term (operation) time periods, with an emphasis on effects not directly concerned primarily with the use of electricity. DEF estimates that the total Project costs will be approximately \$1.5 billion. Construction is anticipated to begin in early 2016 and conclude in 2018. This analysis assumes an operating life of 30 years for the purposes of estimating CCC Project life-cycle benefits.

Socioeconomic impacts of construction and operation of a project may occur when a project directly or indirectly changes economic activities, population, or infrastructure in the area. Direct effects are those that are the direct result of construction and operation of the Project. Direct effects include, for example, direct purchases of materials and equipment and wages. Indirect effects are those that are the result of changes in the economy in the vicinity of a project as a result of, for example, increased spending by construction and operation employees. Direct effects could also result in impacts to public facilities, noise, and neighborhood character.

This chapter is divided into two sections. Section 7.1 addresses the economic and social benefits. Section 7.2 addresses the economic and social costs and impacts of the Project. All costs and benefits are based on 2014 dollar values.

7.1 Economic and Social Benefits

Construction and operation of the Project will provide significant benefits to the economy of Citrus County and the state of Florida in terms of employment and revenues during construction and operation. Direct benefits from construction will include employment and payroll for an average monthly employment of approximately 450 workers, as well as the purchase of equipment and materials. Approximately \$600 million of construction expenditures for materials and services will occur during

the Project construction period, with approximately \$90 million to be spent in the local area.

Direct operational benefits from the Project include tax revenues, employment for approximately 50 (but up to 75) employees, and operational and maintenance expenditures. Annual expenditures for materials and services during operation will be approximately \$4 million. These expenditures will primarily occur locally for such items as chemicals, pumps, motors, valves, piping, equipment, and supplies and local subcontractors for maintenance of the plant, equipment, and machinery and vendor services for yard maintenance, mowing, waste removal, and equipment rental. Mechanical, chemical, and environmental consultants will be required during operation.

Project construction activities will require skilled labor. It is anticipated that the majority of construction wages paid by the Project will be spent within Citrus County and the surrounding region and will create additional demands for goods and services. As the money is spent, it will create a multiplier effect within the area, thereby generating additional jobs and earnings. The wages for permanent operation employees will likewise have a multiplier effect.

The total direct and indirect economic benefit of the construction of the Project is estimated to be \$633.57 million. With the CCC Project in operation, the anticipated direct and indirect economic output is expected to average \$13.3 million annually, with the total direct and indirect economic output during the operational life of the Project expected to be approximately \$400 million.

7.1.1 Temporary and Permanent New Jobs

7.1.1.1 Construction Employment

Employment during the construction phase of the Project will be a positive socioeconomic benefit to the area. As outlined in Section 5.6.2, construction is scheduled to begin in early 2016, and total construction employment will average approximately 450 workers for the overall 24-month construction period. The most labor-intensive period of construction will occur in 2017. A peak of approximately 700 workers is anticipated. Up to 1,000 workers could be needed.

Using an average of 450 workers for the 24-month construction period, construction payroll for the overall Project will total approximately \$48 million.

To analyze the wider indirect economic benefits of the construction of the proposed Project to Central Florida (Alachua, Citrus, Marion, Sumter, Lake, Orange, Hernando, Pasco, and Hillsborough Counties), the Regional Input-Output Modeling System (RIMS II) developed by the U.S. Department of Commerce Bureau of Economic Analysis (BEA) was used. RIMS II is widely used in both the public and private sectors to estimate regional impacts of a variety of projects. The modeling system accounts for the inter-industry relationships within a region, because these relationships largely determine how regional economics are likely to respond to project development. The outputs of RIMS II are region-specific multipliers that can be used to estimate the total impact of a project on earnings and jobs. The direct-effect multipliers are used in this instance, since the initial change in employment and earnings are known.

Table 7.1.1-1 shows the estimates of the impacts of construction based on:

- Construction payroll: \$48,000,000
- Monthly average number of workers: 450
- Direct-effect multiplier for construction earnings: 1.3730
- Direct-effect multiplier for construction employment: 1.3698

Table 7.1.1-1. RIMS II Construction Impacts Based on Initial Changes in Earnings and Employment

Initial change	
• Earnings	\$48,000,000
• Employment	450
Direct-effect multiplier	
• Earnings	1.373
• Employment	1.3698
Impact on	
• Earnings	\$65,904,000
• Employment	616

Note: Earnings based on 2014 dollars.

Source: U.S. Department of Commerce BEA, 2014.

RIMS II estimates that the indirect impact in the region due to construction of the Project is an additional \$17,904,000 in earnings during the construction phase (difference between the initial construction earnings [\$48 million] and multiplier impact on construction earning [\$48 million X 1.373=\$65.904 million]) and 166 jobs (difference between the initial construction average monthly employment and multiplier impact of those jobs 450 jobs X 1.3698 = 616)).

7.1.1.2 Operation Employment

The Project will employ approximately 50, but up to 75, employees at operation with an approximate payroll of \$7.5 million annually, assuming 50 permanent employees. Similar to construction impacts, the RIMS II multipliers can be used to estimate the regional indirect economic effect of operation of the plant.

Table 7.1.3-2 shows the estimates of the impacts of operation based on:

- Operation payroll: \$7,500,000
- Number of workers: 50
- Direct-effect multiplier for construction earnings: 1.2397
- Direct-effect multiplier for construction employment: 1.5688

Table 7.1.3-2. RIMS II Operation Impacts Based on Initial Changes in Earnings and Employment

Initial change	
• Earnings	\$7,500,000
• Employment	50
Direct-effect multiplier	
• Earnings	1.2397
• Employment	1.5688
Impact on	
• Earnings	\$9,297,750
• Employment	78

Note: Earnings based on 2014 dollars.

Source: U.S. Department of Commerce BEA, 2014.

RIMS II estimates that the indirect economic impact in the region due to operation of the Project is an additional \$1,797,750 in earnings annually (difference between the

payroll earnings and multiplier impact on earning [\$7.5 million $\times$ 1.2397 = \$9.298 million]) and 28 jobs (difference between the operation employment and multiplier impact of those jobs [50 jobs $\times$ 1.5688]).

7.1.2 Tax Revenues

The Project will create both direct and indirect tax benefits. Local revenues will be generated from property taxes levied directly on the new plant facilities owned by DEF. State taxes will be generated through sales taxes on all nonexempt construction materials and supplies required for the construction and operation of the plant.

Property taxes will be a primary revenue benefit for Citrus County. The estimated additional property tax revenue to Citrus County in 2019 (once both combined cycle units are operational) is \$4.122 million, including the general county, school board, mosquito control, and hospital board taxes. The operation of the CCC Project is expected to generate \$123.66 million in property taxes over the expected life of the plant, assuming the same millage rate as is currently assessed.

Significant revenues are also expected to be generated through sales tax assessments on goods purchased directly for the plant or indirectly from purchase of goods and services by construction and operation workers/employees.

Based on DEF's estimate of \$4 million per year for operational purchases, the retail sales tax revenue, with a sales tax rate of 7 percent, is estimated to be approximately \$280,000.

Construction workers can be expected to purchase goods and services, particularly from local retail businesses and restaurants. Where applicable, such sales will result in increased retail sales tax collection. Retail sales taxes will apply to purchases of materials, supplies, and selected services required during operation.

7.1.3 Indirect Revenues

Indirect revenues, such as increased levels of spending in the Site area by the construction and operation workforce, will also benefit the state and local economies. The Project is expected to have a significant, positive impact on local businesses and

the local economy as a whole during construction and operation. Numerous local businesses will benefit by servicing the Project needs and the needs of its contractors and workers. Purchases of a wide variety of services and supplies such as concrete, aggregate, lumber, conduit, cable, building supplies, office supplies, and tools are likely to be made locally, whenever available. Motels, apartment complexes, other transient living facilities, such as mobile homes and trailer parks, restaurants, and retail businesses, will also benefit, particularly during construction. Additional indirect state and local revenues will be generated from the purchases previously described through corporate income taxes, as well as retail sales taxes paid by the businesses and their employees.

7.1.4 Overall Economic Benefits

The Project will have significant economic benefits to Citrus County and the surrounding area. During construction, the average annual economic benefit from direct and indirect wages will be approximately \$33 million, with a total annual average economic benefit of \$633.57 million. During operation, the average annual direct and indirect wages are estimated to be approximately \$9.3 million. The total direct and indirect benefits from operations are expected to be approximately \$400 million over the life of the Project.

7.1.5 Environmental Benefits

In addition to providing safe, clean, and reliable power to DEF's customers, the Project will result in significant environmental benefits. As currently planned, certification of the proposed CCC Project would allow DEF to retire Crystal River coal-fired Units 1 and 2 in 2018, in coordination with CCC Project commercial operations. The location of the Site adjacent to the existing CREC will allow DEF to minimize environmental impacts through use of existing infrastructure.

DEF has avoided and minimized impacts to wetlands by focusing the impacts of construction and operation of the Project on the eastern half of the 400-acre Site, thus avoiding impacts to the majority of wetlands on the Site. The entire 400-acre Site is currently permitted for limestone mining. Construction and operation of the CCC Project will result in substantially fewer on-Site impacts compared to mining on the Site.

Finally, the CCC Project's use of combined cycle generation and closed-cycle cooling substantially reduces water demand and thermal loading to the environment. Surface water intake will be reduced by 93 percent relative to similar steam electric generating plants that use open-cycle cooling. The peak flow of seawater of 120.2 MGD is a substantial reduction compared to the design withdrawal rates for Crystal River Units 1, 2, and 3 (446.4, 472.3, and 979.2 MGD, respectively). The operation of the CCC Project, in combination with the retirement of Crystal River Unit 3 in 2013 and the planned retirement of Crystal River Units 1 and 2 in conjunction with the CCC Project becoming operational, will result in a net benefit to aquatic resources through reductions in cooling water use and thermal loading.

7.2 Economic and Social Costs

Socioeconomic impacts to the area, including impacts on community services, associated with the Project construction and operation are expected to be minimal. Construction and operation of the Project will not negatively affect essential community services or facilities. Since, in all likelihood, the projected construction workforce will primarily commute from existing residences or temporary housing such as motels and apartments (with few permanent relocations anticipated), project-associated increases in spending are expected to benefit the local and regional economies, while not creating new demands on public services and facilities or housing. This was the experience encountered during the construction of CREC Units 4 through 5. There will be approximately 50 (and up to 75) additional employees required during the operational phase of the Project.

7.2.1 Temporary External Costs

It is anticipated that about up to 750 workers during peak time will temporarily migrate into Citrus County and the surrounding area to support construction of the CCC Project. The population increases from in-migrating workers represents a small percentage (less than 0.5 percent) of the Citrus County projected population during the construction peak. Therefore, the CCC Project construction will not have an adverse population impact to Citrus County and the surrounding area.

Labor demands associated with the construction and operation of the CCC Project are not anticipated to create any labor shortages, because there is a substantial construc-

tion industry in Citrus County and nearby counties, and because many workers will migrate to the Project Site due to the specialized nature of the work. The local expenditures identified in Section 7.1 and consumption by newly hired workers will boost economic activity in Citrus County and the surrounding area. Housing, population, education, and public infrastructure impacts will be minimal.

The primarily temporary external impacts associated with the Project are short-term increases in traffic generation during construction, including that of construction workers and trucks delivering fill and materials to the Site. Construction traffic may result in increased wear on existing roadways and cause some traffic congestion during peak hours. As shown in Section 5.7.3, the adjacent roadways are operating at an acceptable LOS and will continue to do so during construction. Even the potential for short-term congestion at arrival and departure times will be mitigated by transportation demand management techniques such as carpooling and off-peak travel.

The construction of the Project will not significantly impact existing residential or commercial development or recreational values. The nearest permanent private residence is approximately 1.8 miles from the Site. The closest areas of nonresidential development are approximately 1.2 miles from the Site. Residential and commercial areas are expected to experience minimal impacts from the Project due to distance from the Site and the presence of intervening vegetation. The only structures that might be visible from a distance are the stacks. The viewscales of construction activities will blend in with the industrial nature of the existing CREC.

As discussed in Section 5.6, noise during construction will be attenuated by distance and the buffer area that separates the Site from the nearest residential communities.

Given the existing infrastructure in the area and the availability of hotels, motels, vacant housing, apartments, and other transient housing opportunities, potential impacts on facilities are expected to be minimal during construction. Citrus County has the resources to absorb temporary impacts from tourists and has the housing resources for temporary workers.

Construction of the Project is expected to generate some construction debris and municipal solid waste. Attempts will be made to minimize the amount of construction

waste generated and will seek to segregate and recycle as much waste material as possible. Certain construction wastes, such as scrap steel, aluminum, copper, lumber, paper, and cardboard, etc., will be segregated for recycling, providing there is sufficient interest from local recycling firms. Authorized and licensed waste-handling contractors will remove all other construction waste materials from the Site for proper disposal at the nearby county landfill. Given the size, capacity, and life expectancy of the county landfill, the wastes generated temporarily during construction will not adversely impact that facility.

Although the local community may experience some temporary adverse impacts during the construction period, such as localized traffic congestion and noise, the overall socioeconomic impacts associated with the construction and operation of the Project will be favorable.

7.2.2 Long-Term External Costs

The socioeconomic costs resulting from the long-term operation of the CCC Project are expected to be minimal and localized. The following summarizes some of these potential impacts.

7.2.2.1 Land Use

The CCC Project is compatible with mining activities and electrical generating facilities existing in the region. The Site is located in one of two designated enterprise zones in Citrus County. The entire CCC Site is undeveloped and predominantly wooded. CREC, which has long been in use for power generation, is located adjacent and immediately to the west. Undeveloped land is located to the north and east. An area used for material storage and contractor parking is located adjacent to the southeastern corner of the Site. An electrical transmission line corridor, West Power Line Street, and North Access Road are located to the south. The Site and the northern and eastern adjacent properties are part of a permitted limestone mining operation. Also, the Site is fully permitted for mining.

7.2.2.2 Aesthetics and Noise

DEF will minimize the Project's impacts on the environment and the community. Due to the location of the Site, noise and visual impacts associated with development of the facility will not adversely impact the local community. The Project is not located

near any scenic viewsheds. Although the Project's tallest structures (stacks) will be 180 ft tall, the buffer provided by the distance of the planned plant facilities from the nearest residential and commercial properties will minimize aesthetic impacts. The tallest structures may be visible from selected offsite area vantage points, but the view will not be incongruous and will blend in with the existing CREC plant facilities, and the height will be less than the tallest structures of the existing units. Therefore, impacts to aesthetic quality of the vicinity resulting from new structures will be negligible. Predicted noise levels for the operation of the CCC Project are not predicted to change existing noise levels in the community.

Given the location of the Site adjacent to the existing CREC, and considering the potential impacts associated with the Project as described in Chapter 6.0, no adverse impairment of recreational use, deterioration of aesthetic or scenic values, or restrictions on access to scenic, historic, cultural, natural, or archaeological resources are anticipated.

7.2.2.3 Public Services/Facilities

The CCC Project operation will not have long-term, negative effects on local services or facilities (e.g., schools, police, transportation). While the CCC Project will rely on local police and fire protection, the adjacent CREC is already equipped with its own fire protection and other safety-related systems, and the Site will be secured with controlled, fenced access. Treated potable water to service the Project will be provided by a new water treatment plant to be located onsite. Potable water will be provided by an existing well(s) at CREC. An on-Site septic system or package plant will be designed and constructed to meet the maximum domestic wastewater generation during operation. Trips generated by operation of the Project will result in minimal transportation impacts to the local roadways during operation and will not degrade the LOS of U.S. 19 North. Solid waste generated during operation will be disposed at the Citrus County Landfill, which has adequate capacity.

As explained in Section 7.1, the capital investment made for the CCC Project will result in increased ad valorem tax revenues. These taxes paid to Citrus County, the school board, mosquito control, and hospital board will provide a long-term revenue source. The Project will have a net fiscal benefit, with the long-term benefits far outweighing any costs. No additional infrastructure needs have been identified, and the

expected costs to Citrus County as a result of the construction and operation of the Project are anticipated to be minimal. As a result, there will be an overall net benefit to Citrus County with the construction and operation of the Project.

REFERENCES

U.S. Department of Commerce, Bureau of Economic Analysis (BEA). 2014. BEA's 2010 National Benchmark Input-Output Accounts.