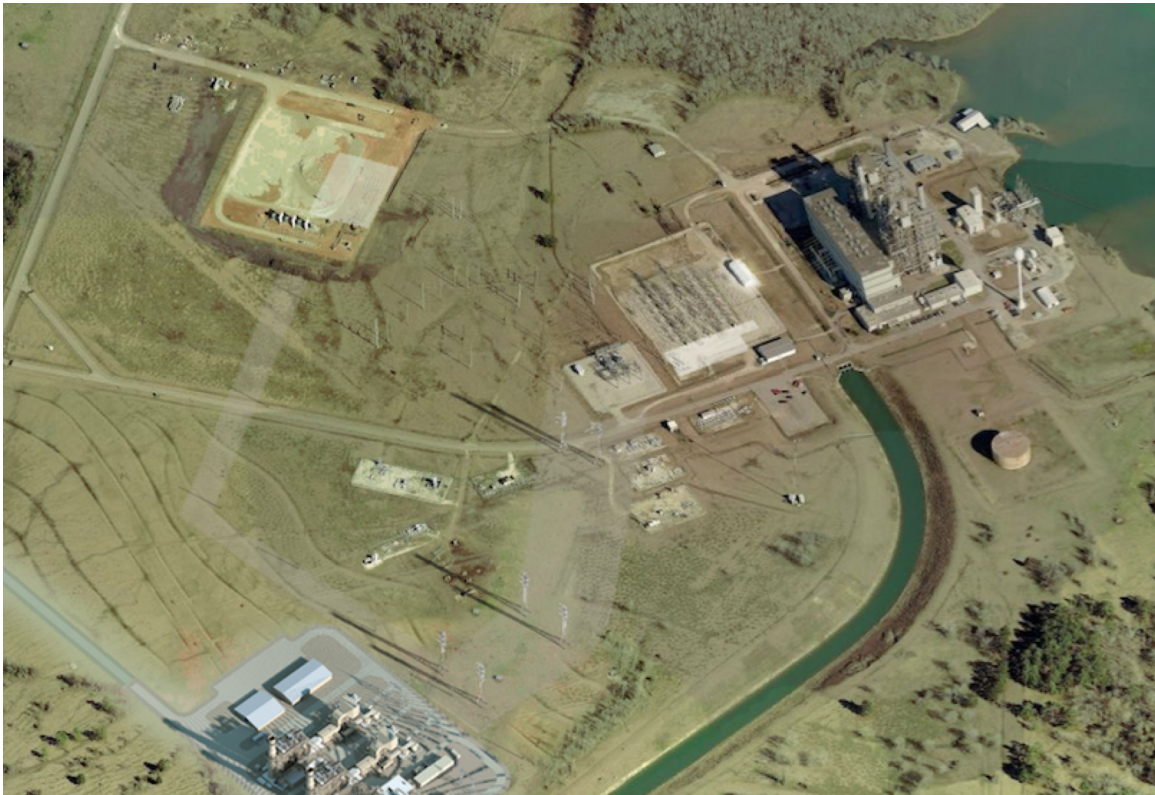


The Potential Economic Impact of Entergy Texas' Montgomery County Power Station

prepared for



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Overview

There has been much academic review and discussion concerning the role of energy in economic development on a global scale, with consensus emerging that growth is increasingly a function of access to reliable, affordable power. Beyond its role as a key factor of production, firms that provide electricity can also have a significant impact on regional economies in several ways, such as through their capital investments and associated construction activities, the impact of their operations, and participation in efforts to recruit and retain firms to the region. In order to better understand this role and inform stakeholders, TXP was retained by Entergy Texas to evaluate the economic impact of its' proposed Montgomery County Power Station (Entergy MCPS). Specifically, this analysis concentrates on the impact of construction and ongoing operations of this new facility.

Entergy MCPS Economic Impact Analysis

The economic benefits of Entergy MCPS to the region and the state primarily consist of the day-to-day operations of the firm, normal operating expenditures, purchases from local vendors, and spending of people employed by these businesses. To support this core mission, Entergy Texas intends to invest approximately \$410 million in new generating capacity in Montgomery County. As a result of both construction and ongoing operations, the region realizes increased employment and income, along with taxes and fees paid to the State and local jurisdictions.

Modeling the Impacts

The economic impacts extend beyond the construction and direct operational activity outlined above. In an input-output analysis of new economic activity, it is useful to distinguish three types of expenditure effects: direct, indirect, and induced. Direct effects are production changes associated with the immediate effects or final demand changes.

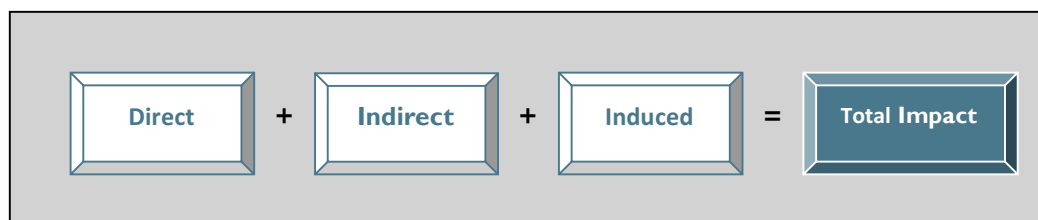
Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries – typically, additional purchases to produce additional output. Satisfying the demand for electricity will require the utility to purchase feed stocks such as natural gas, for example, and the utility will have to purchase turbines and other equipment to turn the feedstock into electricity. These downstream purchases affect the economic status of other local merchants and workers.

Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. Both the feedstock provider and turbine manufacturer realize increased revenue and income from providing goods to the utility, for example, as do the workers at the utility itself. Induced effects capture the way in which this increased income is in turn spent in the local economy.

Once the ripple effects have been calculated, the results can be expressed in a number of ways. Four of the most common are “Output,” equivalent to sales/receipts; “Gross State Product (GSP),” which corresponds to GDP and represents sales/receipts less cost of goods sold; “Earnings,” which represents the compensation to employees and proprietors; and “Employment,” which refers to permanent, full-time jobs that have been created in the local economy. These variables are not additive, but rather represent different points on the balance sheet at which the impact under analysis can be measured.

The interdependence between different sectors of the economy is reflected in the concept of a “multiplier.” An output multiplier, for example, divides the total (direct, indirect and induced) effects of an initial spending injection by the value of that injection – i.e., the direct effect. The higher the multiplier, the greater the interdependence among different sectors of the economy. An output multiplier of 1.4, for example, means that for every \$1,000 injected into the economy, another \$400 in output is produced in all sectors. For this study, TXP employed the RIMS II models of the Houston MSA maintained by the U.S. Commerce Department.¹

Figure 1: The Flow of Economic Impacts



Entergy MCPS Construction Economic Impact

The cost of building Entergy MCPS is estimated at \$937.3 million, with \$410 million to be spent locally. Per the discussion above, this data is used as inputs into local models of the regional economy; when the multiplier effects are included, the translation is \$919.9 million in economic activity, \$499.0 million in Gross State Product (GSP), worker earnings of \$307.2 million, and 7,065 total supported jobs.

Table 1. Summary Entergy MCPS Construction Economic Impact (\$2016)

	Output/Activity	Gross State Product	Earnings	Employment
Direct	\$410,000,000	\$222,423,675	\$136,940,767	2,819
Indirect & Induced	\$509,917,000	\$276,628,325	\$170,313,233	4,246
Total	\$919,917,000	\$499,052,000	\$307,254,000	7,065

Source: Entergy Texas, TXP.

¹ For more information, see https://bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf

The impact is spread across every sector of the regional economy. For example, in addition to the concentration in the Construction sector (just under half of the total jobs impact), other production sectors (agriculture, mining, utilities, and manufacturing) account for about five percent of the total. Business support segments (i.e., transportation, wholesale trade, financial activities, information, professional/business services, etc.) represent about 20 percent, with the balance found on the consumer side. Detailed results by industry are presented in Table 2.

Table 2. Detailed Entergy MCPS Construction Economic Impact (\$2016)

	Output/Activity	Gross State Product	Earnings	Employment
Agriculture, etc.	\$697,000	\$246,000	\$123,000	8
Mining	\$6,806,000	\$3,444,000	\$1,435,000	22
Utilities	\$12,751,000	\$7,626,000	\$2,624,000	25
Construction	\$414,141,000	\$206,599,000	\$159,695,000	3,301
Manufacturing	\$92,578,000	\$31,980,000	\$18,245,000	330
Wholesale Trade	\$32,267,000	\$21,812,000	\$10,455,000	146
Retail Trade	\$51,332,000	\$33,661,000	\$17,958,000	654
Transportation/Warehousing	\$23,124,000	\$11,316,000	\$7,749,000	168
Information	\$18,983,000	\$10,455,000	\$4,018,000	64
Finance & Insurance	\$40,713,000	\$23,985,000	\$12,013,000	303
Real estate	\$69,372,000	\$51,250,000	\$6,027,000	307
Prof./Technical Services	\$48,749,000	\$32,636,000	\$22,591,000	349
Management of Companies	\$9,225,000	\$5,740,000	\$3,813,000	54
Admin./Waste services	\$17,999,000	\$11,849,000	\$8,200,000	318
Educational Services	\$4,592,000	\$2,624,000	\$1,927,000	70
Healthcare & Social Services	\$35,301,000	\$21,484,000	\$16,769,000	376
Arts, Entertainment, etc.	\$3,567,000	\$2,173,000	\$1,312,000	64
Accommodation	\$2,870,000	\$1,845,000	\$861,000	33
Food services, etc.	\$14,350,000	\$7,462,000	\$4,633,000	257
Other services	\$20,500,000	\$10,455,000	\$6,396,000	161
Households	N.A.	\$410,000	\$410,000	53
Total	\$919,917,000	\$499,052,000	\$307,254,000	7,065

Source: TXP

Entergy MCPS Operations Impact: Total

Once fully operational, Entergy MCPS will have an ongoing impact on the regional economy. The facility will employ a permanent workforce of 25, with total annual compensation in current dollars approximately \$3.2 million. Per the discussion above, this data is used as inputs into a model of the regional economy; when the multiplier effects are included, the translation is \$27.7 million in annual economic activity, \$17.6 million in Gross State Product (GSP), total worker earnings of \$6.1 million, and 88 total jobs. Summary results follow.

Table 3. Summary Entergy MCPS Operations Economic Impact (\$2016)

	Output/Activity	Gross State Product	Earnings	Employment
Direct	\$15,862,187	\$10,085,274	\$3,189,033	25
Indirect & Induced	\$11,809,399	\$7,505,892	\$2,914,695	63
Total Annual	\$27,671,586	\$17,591,166	\$6,103,728	88

Source: Entergy Texas, TXP;

The impact is also spread across every sector of the regional economy. For example, in addition to the focus in the utility sector (just under one-third of the total jobs impact), virtually every other industry in the area has at least one full-time position supported due to the impact of the facility on the regional economy. Detailed results by industry are presented in Table 4.

Table 4. Detailed Entergy MCPS Operations Economic Impact (\$2016)

	Output/Activity	Gross State Product	Earnings	Employment
Agriculture, etc.	\$9,517	\$4,759	\$1,356	0
Mining	\$915,248	\$463,176	\$160,018	2
Utilities	\$16,119,155	\$10,965,530	\$3,234,257	25
Construction	\$561,521	\$279,174	\$184,427	3
Manufacturing	\$1,037,387	\$310,899	\$150,525	2
Wholesale Trade	\$498,073	\$336,278	\$138,320	2
Retail Trade	\$772,489	\$506,004	\$230,534	7
Transportation/Warehousing	\$1,099,250	\$475,866	\$250,875	4
Information	\$429,865	\$231,588	\$82,721	1
Finance & Insurance	\$1,092,905	\$658,281	\$269,860	6
Real estate	\$1,597,322	\$1,173,802	\$100,350	5
Prof./Technical Services	\$964,421	\$669,384	\$416,317	5
Management of Companies	\$182,415	\$114,208	\$65,092	1
Admin./Waste services	\$407,658	\$268,071	\$151,881	6
Educational Services	\$111,035	\$63,449	\$39,326	1
Healthcare & Social Services	\$816,903	\$498,073	\$330,884	6
Arts, Entertainment, etc.	\$90,414	\$53,931	\$29,834	1
Accommodation	\$74,552	\$47,587	\$18,985	1
Food services, etc.	\$479,038	\$249,036	\$131,540	6
Other services	\$412,417	\$212,553	\$108,487	2
Households	N.A.	\$9,517	\$8,136	1
Total	\$27,671,586	\$17,591,166	\$6,103,728	88

Source: TXP

Conclusions

Entergy MCPS will touch the local and statewide economy in a number of ways. First, the presence of cost-effective and reliable energy is crucial to the modern economy, especially in a region with such a strong concentration of capital-intensive manufacturing and petrochemical activity as Montgomery County and the Houston MSA. Beyond its important role in providing a factor of production competitively for the region, construction of new generating capacity adds hundreds of millions of dollars to the regional economy. Entergy MCPS operations will also have a substantial annual economic impact, adding millions of dollars in worker income and close to one hundred permanent, good-paying jobs to the area. The firm also is actively engaged in recruiting business and industry to the region. In addition, Entergy pays millions annually in franchise fees and state and local taxes. Beyond these measures, energy savings programs and charitable giving by the firm and its employees (along with a high volume of volunteer hours each year) all contribute to community well-being in the area. Taken together, Entergy provides a product that is a fundamental underpinning of the regional economy while also directly adding to the area's economic base through its facility construction, own operations and economic development efforts. The combination clearly serves the Houston area well.

About TXP

TXP, Inc. is an economic analysis and public policy consulting firm founded in 1987 in Austin, Texas that consults on a range of projects across the country. Jon Hockenyos founded TXP while attending the LBJ School of Public Affairs at the University of Texas at Austin in 1987. In his role as President of the firm, Mr. Hockenyos is involved in managing the day-to-day operations of the organization, performing technical analysis, and developing strategies for clients. In addition, he makes numerous public presentations and speeches, and has served as a resource witness on a variety of issues in front of city councils, state legislatures, and the U.S. Congress.

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