

OVERVIEW OF LOUISIANA ELECTRIC GENERATION, INDEPENDENT POWER PRODUCERS AND COGENERATORS¹

by
Patricia Nussbaum, Engineer

Louisiana investor owned utilities (CLECO, SWEPSCO, Entergy Gulf States, Entergy Louisiana, and Entergy New Orleans) dominate the Louisiana marketplace with nearly 75% of the customers, 85% of power sales and 55% of the electric generation capacity.

There are 22 cities in Louisiana that own their own independent municipal power distribution systems. The Louisiana Energy and Power Authority (LEPA), created in 1979, is a political subdivision of the State of Louisiana. LEPA is a non-profit, joint-action agency working to provide its member communities with firm, stable sources of electricity at the lowest possible cost. Eighteen Louisiana municipalities are currently LEPA members.

Independent power producers (IPPs) and cogenerators also provide power generation capacity. IPPs produce electricity for sale to the public. Cogenerators produce electric power, are connected to the grid and can sell power to the public. Industrial firms cogenerate power both for internal process plant use and for the sale of excess power into the market. Louisiana has total net power generation of approximately 95 million megawatt-hours (mwhrs). Electric Utilities generate about 55 million mwhrs, IPPs generate 17 million mwhrs and 23 million mwhrs comes from cogeneration (combined heat and power).

Fifty percent of Louisiana's electric power generation relies on natural gas as its fuel source. Twenty-three percent of power generation is coal fired, 18% comes from nuclear power and 9% comes from petroleum, hydroelectric, renewables and other.

Table 1. LOUISIANA 2002 NET GENERATION BY TYPE OF PRODUCER AND ENERGY SOURCE

Type Of Producer	Energy Source	Generation (mwhrs)	Percent
Total Electric Generation in the State	Coal	22,050,906	23%
	Petroleum	1,864,536	2%
	Natural Gas	47,900,848	50%
	Other Gases	1,497,624	2%
	Nuclear	17,305,328	18%
	Hydroelectric	891,441	1%
	Other Renewables	2,862,791	3%
	Other	597,490	1%
Total		94,970,964	100%
Electric Generators, Electric Utilities	Coal	12,258,694	22%
	Petroleum	68,460	<1%
	Natural Gas	25,085,994	46%
	Other Gases	203,484	<1%
	Nuclear	17,305,328	32%
	Hydroelectric	0	0
	Other Renewables	0	0
	Other	0	0
Total		54,921,960	100%

¹Sprehe, Bob (2005). *Louisiana Electric Generation and Distribution Utilities*. Louisiana Department of Natural Resources website <URL: http://dnr.louisiana.gov/sec/execdiv/techasmt/electricity/electric_2002.pdf> (October 1, 2005).

Table 1. LOUISIANA 2002 NET GENERATION BY TYPE OF PRODUCER AND ENERGY SOURCE (cont.)

Type Of Producer	Energy Source	Generation (mwhrs)	Percent
Electric Generators, Independent Power Producers	Coal	9,766,681	58%
	Petroleum	118,581	<1%
	Natural Gas	6,105,344	36%
	Other Gases	0	0
	Nuclear	0	0
	Hydroelectric	891,441	5%
	Other Renewables	59,087	<1%
	Other	0	0
Total		16,941,134	100%
Combined Heat and Power, Indep. Power Producers	Coal	0	0
	Petroleum	1,646,229	100%
	Natural Gas	3,683	<1%
	Other Gases	0	0
	Nuclear	0	0
	Hydroelectric	0	0
	Other Renewables	0	0
	Other	0	0
Total		1,649,912	100%
Combined Heat and Power, Commercial Cogenerator	Coal	0	0
	Petroleum	0	0
	Natural Gas	32,000	100%
	Other Gases	0	0
	Nuclear	0	0
	Hydroelectric	0	0
	Other Renewables	0	0
	Other	0	0
Total		32,000	100%
Combined Heat and Power, Industrial Cogenerator	Coal	25,531	<1%
	Petroleum	31,266	<1%
	Natural Gas	16,673,826	78%
	Other Gases	1,294,140	6%
	Nuclear	0	0
	Hydroelectric	0	0
	Other Renewables	2,803,704	13%
	Other	597,490	3%
Total		21,425,957	100%

Louisiana has approximately 2.1 million consumers of electricity. Fifteen thousand are industrial customers, 200,000 are commercial customers and the remaining customers are residential. This generates \$4,746,400 (revenue in thousand dollars).

Availability of electricity is critical for Louisiana's economic growth. Recently, however, the volatility of natural gas prices has driven up the price of electricity. With so much electric power generation in Louisiana and nationally dependent on the natural gas supply, the dependability of electric power generation becomes a public policy issue.

The age of the infrastructure is also an area of concern in Louisiana. The majority of the generation capacity of the IPPs and the cogenerators has come on line in the past 10 years, but nearly 80% of the investor owned capacity and 95% of the publicly owned capacity is over 20 years old. This update tabulates the electric utilities and cogeneration facilities available in the state as of 2002. Data is secured from the

Table 2. EXISTING ELECTRIC GENERATING UNITS IN LOUISIANA IN 2002

<u>Company/Type of Producer</u>	<u>Prime Mover/Installed Capacity(Megawatts)</u>	<u>Energy Source</u>
Agrilectric Power Partners LTD/IPP	Steam Turbine/ 13.6 mw	Ag.Crop Byproducts
Air Products and Chem/Ind. Cogen.	Steam Turbine, Combustion (Gas) Turbine/ 31.2 mw	Natural Gas
Alexandria, City of/ Elec. Util.	Steam Turbine/ 175 mw	Natural Gas
BASF Corp/Ind. Cogen.	Combustion (Gas) Turbine/ 76.9 mw	Natural Gas
Bayou Cove Peaking Power LLC/ IPP	Combustion (Gas) Turbine/ 440 mw	Natural Gas
Big Cajun I Peakers/IPP	Combustion (Gas) Turbine/ 256 mw	Natural Gas
Boise Cascade Corp/Ind. Cogen.	Steam Turbine/ 61.5 mw	Black Liquor
Borden Chemicals and Plastics/Ind. Cogen.	Combustion (Gas) Turbine/ 103.6 mw	Natural Gas
BP America Production Co/ Ind. Cogen.	Steam Turbine/ 1.8 mw	Natural Gas
Calcasieu Power LLC/IPP	Combustion (Gas) Turbine/ 320 mw	Natural Gas
Calpine Corp/IPP	Combined Cycle Combustion, Steam Turbine, Combined Cycle/ 1220 mw	Natural Gas
Chevron Oronite Co LLC/Ind/Cogen.	Combustion (Gas) Turbine/ 25 mw	Natural Gas
CII Carbon LLC/IPP	Steam Turbine/ 46 mw	Petroleum Coke
CITGO Petroleum Corp/Ind. Cogen.	Steam Turbine/ 75 mw	Other Gas
Cleco Evangeline LLC/IPP	Combined Cycle Combustion, Combined Cycle/ 922.8 mw	Natural Gas
CLECO Power LLC/Elec. Util.	Steam Turbine, Combustion (Gas) Turbine/ 2162 mw	Lignite Coal, Natural Gas, Sub-bituminous Coal
Colonial Sugar Refinery/Ind. Cogen.	Steam Turbine/ 7.4 mw	Natural Gas
Dow Chemical Co/Ind. Cogen.	Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 788 mw	Natural Gas, Waste Heat
Dow Chemical – St Charles/Ind. Cogen.	Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 273.6 mw	Natural Gas, Waste Heat
DSM Copolymer/Ind. Cogen.	Steam Turbine/ 6 mw	Natural Gas
Dynegy Midstream Services/IPP Cogen.	Combustion (Gas) Turbine/ 2.5 mw	Natural Gas
Energry Gulf States Inc./Elec. Util.	Steam Turbine, Combustion (Gas) Turbine/ 5235.2 mw	Natural Gas, Sub- bituminous Coal, Nuclear
Energry Louisiana Inc/ Elec. Util.	Steam Turbine, Combustion (Gas) Turbine, Combined Cycle Combustion, Combined Cycle/ 6310 mw	Natural Gas, Nuclear
Energry New Orleans Inc./Elec. Util.	Steam Turbine, Combustion (Gas) Turbine/ 1108.1 mw	Natural Gas, Distillate Fuel Oil
Exxon Mobil/ Ind. Cogen.	Combustion (Gas) Turbine/ 507.4 mw	Natural Gas
Exxon Mobil Production Co./Ind. Cogen.	Internal Combustion Engine, Steam Turbine, Combustion (Gas) Turbine/ 147 mw	Natural Gas
First National Bank – Commerce/IPP	Hydraulic Turbine/ 192 mw	Water
Formosa Plastics Corp/Ind. Cogen.	Steam Turbine, Combustion (Gas) Turbine/ 143.7 mw	Natural Gas
Gayland Container Corp/Ind. Cogen.	Steam Turbine/ 99.5 mw	Natural Gas
Georgia Gulf Corp./Ind. Cogen.	Combustion (Gas) Turbine/ 306 mw	Natural Gas
Georgia-Pacific Corp/Ind. Cogen.	Steam Turbine/ 60 mw	Black Liquor

²U. S. Department of Energy, Energy Information Administration 2002 Data.

Table 2. EXISTING ELECTRIC GENERATING UNITS IN LOUISIANA IN 2002 (cont.)

<u>Company/Type of Producer</u>	<u>Prime Mover/Installed Capacity(Megawatts)</u>	<u>Energy Source</u>
IMC Phosphates Co./Ind. Cogen.	Steam Turbine/ 22 mw	Other
International Paper Co/Ind. Cogen.	Steam Turbine/ 59.3 mw	Natural Gas
IPC Mansfield Mill/Ind. Cogen.	Combustion (Gas) Turbine, Steam Turbine/ 135 mw	Natural Gas, Wood/Wood Waste Solids
IPC – Pine/Ind. Cogen.	Steam Turbine/ 25 mw	Natural Gas
Jeanerette Sugar Co. Inc./Ind. Cogen.	Steam Turbine/ 2.5 mw	Agricultural Crop
Kaiser Aluminum/Ind. Cogen.	Combustion (Gas) Turbine, Steam Turbine/ 117.3 mw	Natural Gas
Lafayette, City of/ Elec. Util.	Steam Turbine/ 379.6 mw	Natural Gas
Louisiana Energy & Power Authority (LEPA)/Elec. Util.	Internal Combustion Engine/ 9.4 mw	Distillate Fuel Oil
Louisiana Generating LLC/IPP, IPP Cogen	Steam Turbine/ 2170.2 mw	Natural Gas, Sub-bituminous Coal
Louisiana Tech Univ./Commercial	Steam Turbine/ 7.5 mw	Natural Gas
Lyondell Chemical Co/Ind. Cogen.	Steam Turbine/ 4.3 mw	Natural Gas
M A Patout & Sons Ltd/Ind. Cogen.	Steam Turbine/ 3 mw	Agricultural Crop
Minden, City of/Elec. Util.	Steam Turbine, Internal Combustion Engine/ 35.3 mw	Natural Gas
Mobil Oil Corp – Chalmette/Ind. Cogen.	Other/5.7 mw	Other
Morgan City, City of/Elec. Util.	Steam Turbine/ 70.3 mw	Natural Gas
Natchitoches, City of/Elec. Util.	Internal Combustion Engine, Steam Turbine/ 53 mw	Natural Gas
Nelson Industrial Steam Co./IPP Cogen.	Steam Turbine/ 280.2 mw	Petroleum Coke
NRG South Central Generating/IPP	Combustion (Gas) Turbine/ 216 mw	Natural Gas
Ouachita Operating Services LLC/IPP	Combined Cycle Combustion, Combined Cycle/ 1018.5 mw	Natural Gas
PCS Nitrogen LP/Ind. Cogen.	Combustion (Gas) Turbine/ 26 mw	Natural Gas
Perryville Energy Partners/IPP	Combined Cycle Combustion, Combined Cycle/ 533.2 mw	Natural Gas, Waste Heat
Placid Refining Co. LLC/Ind. Cogen.	Combustion (Gas) Turbine/ 7.6 mw	Natural Gas
Plaquemine, City of/Elec. Util.	Steam Turbine/ 44 mw	Natural Gas
PPG Industries Inc/Ind. Cogen.	Combined Cycle Single Shaft, Combined Cycle, Combined Cycle Combustion/ 576 mw	Natural Gas, Waste Heat
Rayne, City of/Elec. Util.	Internal Combustion Engine/ 8.2 mw	Natural Gas
Reliant Energy Field Services/Ind. Cogen.	Internal Combustion Engine/ 1.2 mw	Natural Gas
Riverwood International Corp./Ind. Cogen.	Steam Turbine/ 63 mw	Natural Gas
Ruston, City of/Elec. Util.	Steam Turbine/ 80.9 mw	Natural Gas
Southwestern Electric Power Co./Elec.	Steam Turbine/ 403 mw	Natural Gas
Stone Container Corp./Ind. Cogen.	Steam Turbine/ 74.4 mw	Natural Gas
Taft Cogeneration LP/Ind. Cogen.	Combined Cycle Combustion, Combined Cycle/ 835 mw	Natural Gas
TEMBEC/Ind. Cogen.	Combustion (Gas) Turbine, Steam Turbine/ 57.5 mw	Natural Gas, Black
Terrebonne Parish Consolidated Gov't/ Elec. Util.	Internal Combustion, Steam Turbine/ 99.3 mw	Natural Gas
The American Sugar Refining Co./Ind.	Steam Turbine/9 mw	Natural Gas
TOSCO Refining Co./Ind. Cogen.	Other, Steam Turbine/ 25 mw	Other Gas
Vulcan Materials Co/Ind. Cogen.	Combined Cycle Combustion, Combined Cycle/ 113 mw	Natural Gas
Western Gas Resources Inc/Ind. Cogen.	Internal Combustion Engine/ 2.8 mw	Natural Gas