ENERGIZING THE CITY OF LONG BEACH

PRINCIPAL PHOTOGRAPHY: Kenji Everitt, Long Beach, California
THE RIGHT TEAM, RIGHT NOW
Energy Resources has 64 full-time, trained workers that are ready to respond to gas emergencies. This includes 24-hour dispatch operations and field representatives on call to cover all work functions.

In 1923, as Americans danced the Charleston, the citizens of Long Beach approved $3 million in revenue bonds for the purchase of the existing privately held natural gas pipeline system and establish a municipal gas department. On May 24, 1924, the Long Beach Gas Department began service to approximately 4,600 customers. Today, as one of the nation's largest municipal natural gas utilities and proudly titled, Long Beach Energy Resources, we have for nearly 100 years carried out our mission to provide safe, reliable and affordable natural gas to our customers.

Energy Resources now serves approximately 500,000 customers (155,000 accounts) in the cities of Long Beach and Signal Hill and portions of Los Alamitos, Bellflower, Compton and Los Angeles County. We are consistently recognized for our leadership in engineering, safety, sustainability and efficiency. We look forward to the next 100 years of service by leading the way to California's clean energy future. One example is the use of renewable gas sourced from the nation's agricultural and urban waste streams, which along with solar and wind power, will help us achieve our city's ambitious sustainable energy goals.

FAST FACTS
- Each year we handle about 265,000 customer inquiries through the Utility Call Center with calls regarding gas, water, sewer and refuse services.
- We annually respond to more than 14,000 requests for locating and marking underground gas pipeline facilities to minimize damage to gas pipelines associated with excavations.
- In 2019, Energy Resources helped 5,800 low-income customers receive discounted utility bills.

SAFETY AND ENVIRONMENTAL INTEGRITY
Recently, LBER replaced 62,000 feet of natural gas pipeline and one regulating station to improve the integrity of the natural gas distribution system.

• Bunsen burners are an important tool in every medical laboratory. Uses for the clean-burning natural gas range from heat sterilization when culturing microorganisms to heating glass tubes for custom pipettes.
Natural gas powers many of our everyday activities, such as cooking, heating, bathing and washing clothes. Getting that natural gas to homes and businesses is accomplished through a state-of-the-art gas distribution infrastructure designed, operated and maintained in-house by dedicated engineers, construction and field service professionals. In fact, did you know that a complex network of over 1,900 miles of pipe operates just underfoot? In compliance with many stringent federal and state regulations, this system is constantly monitored 24 hours a day, seven days a week and annually audited by oversight agencies.

Energy Resources uses natural gas as an economically efficient alternative fuel source by partnering with the Aquarium of the Pacific to provide natural gas for two zero-emission fuel cells each producing 400 kilowatts daily which essentially covers all their electricity needs during cool nights and nearly half on a hot day. In addition, we deliver Renewable Natural Gas (RNG or biogas) to Long Beach Transit for their entire fleet of CNG-powered buses and biogas for the city’s fleet of street sweepers and refuse trucks.

FAST FACTS
* Gas Field Service Representatives provide services to residential and commercial customers:
  - Over 100,000 customer service orders annually
  - Over 30,000 gas and water turn-on orders annually
  - Light over 6,000 appliance pilot lights annually

* Gas Construction crews have implemented the U.S. Department of Transportation (DOT) rule requiring excess flow valves or curb valves be installed on each new or replaced service pipeline.

FAST FACTS
* One of our many new efficiencies is the "soft close" process which places gas meters in an electronically monitored status rather than physically interrupting service. This provides for significantly reduced operations costs, cuts greenhouse gas emissions and facilitates faster customer service. In fact, over 5,600 truck trips are saved annually.

NATURAL GAS IS THE FIRST CHOICE
Chefs and residents appreciate the clean-burning, easy-to-control heat that only natural gas can provide. In addition, the Long Beach community typically realizes the lowest rates in the state.
THE LONG BEACH AQUARIUM LEADS THE WAY
Caring for 11,000 animals takes plenty of energy. Using fuel cell technology, the Aquarium of the Pacific produces 1.2 megawatts of electricity continuously.

In addition to responding to over 14,000 annual requests for locating and marking underground gas pipeline facilities to minimize damage to gas pipelines associated with excavations, the Energy Resources team works throughout the year to provide safe, reliable natural gas to homes and business throughout the city.

The City’s 155,000 gas utility customers can access an array of interactive tools to monitor and optimize natural gas consumption through our Advanced Metering Infrastructure (AMI) system.

Energy Resources staff are constantly trained in the most up-to-date industry standards and receive all required certifications and more. Our daily activities include: leak surveys, pipeline patrols, exterior and internal corrosion control, valve inspection, underground vault maintenance and pressure-monitoring devices. Our system is designed to operate using a combination of intrastate storage and pipelines supplies to meet customer demand.

The State of California requires Energy Resources to collect funds from our customers for programs that reduce greenhouse gas emissions. We have contributed over $5 million toward this effort for programs throughout the city. Today, we meet all the regulatory requirements with the utmost confidence in our data.

Through AMI, we have reduced annual vehicle trips by 160,000 with a corresponding reduction in CO2 emissions of 400,000 pounds every year.

Fuel cells apply zero-emission technology by converting the chemical energy from methane gas into electricity through a chemical reaction with oxygen, with by-products of water and nitrogen that run quiet, clean and green.

Our use of renewable gas in busing and fleet operations qualifies the city for renewable energy credits that cover roughly 80 percent of the cost of fuel itself.

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The Energy Resources Call Center handles over 265,000 customer inquiries annually regarding gas, water, sewer and refuse services and processes monthly utility bills for nearly 155,000 customer accounts.
Energy Resources is responsible for the administration of drilling for developing, producing, and processing oil and gas substances throughout the city.

Since the early 1900s, the City of Long Beach has held the West Wilmington Oil Field (Wilmington Field) in trust on behalf of the state. The Wilmington Field is the largest oil field in Los Angeles County and one of the largest in the nation. The field sits beneath the Long Beach Tidelands and the reservoir is accessed through THUMS artificial islands in the San Pedro Bay and facilities in the Port of Long Beach.

Oil operations in Long Beach provide many financial benefits for the local economy. The estimated job total includes over 2,000 individuals directly employed by all oil producers, field contractors and oversight entities, as well as more than 500 workers in indirect industries that supply goods and services to those organizations. Over the past 15 years, oil operations have provided approximately $4.8 billion in revenues to the state, county and city.

Energy Resources takes seriously its role operating in Long Beach under the guidance of California's stringent safety, labor, human rights and environmental standards. Along with its contractors, Energy Resources takes great pride in the unique coastal environment in which we operate and have a proven track record of safety, sustainability and environmental protection.

**FAST FACTS**

- Long Beach has over 2,000 active wells producing about 28,000 barrels of oil a day.

- The subsidence management program maintained stable elevations as verified by results obtained from approximately 540 elevation benchmarks throughout the oil field.

**THE OIL ISLANDS**

*Built in 1965, the unique landscaping and sound walls were designed to beautify the operation and reduce noise. Today, they are the only "decorated" oil islands in the United States.*

**FAST FACTS**

- Known as the “Astronaut Islands,” they were named in 1967 in honor of the four American astronauts who lost their lives in the service of NASA, Island Freeman, Island Grissom, Island Chaffee and Island White.
THE POWER OF A GREAT IDEA

On average, SERRF provides 222,000 megawatts of energy each year, enough to support 35,000 households or 65,000 electric vehicles.

F A S T  F A C T S

• The SERRF facility processes up to 1,300 tons of municipal solid waste each day and recycles more than 10,000 tons of ferrous (steel) metal per year. This dramatically reduces landfill needs and truck trips.

The Southeast Resource Recovery Facility, SERRF, began operations in July 1988. It is a publicly owned solid waste management facility that uses mass burn technology to reduce the volume of solid waste by about 80 percent while recovering electrical energy.

Residential and commercial solid waste is combusted in high temperature boilers to produce steam which in turn is used to run the turbine generator producing electricity. The electricity is used to operate the facility with the remainder sold on the California Independent System Operator (CAISO) “day ahead” market. SERRF processes 1,290 tons of municipal solid waste each day which generates up to 36 megawatts of electricity.

Plainly put, SERRF generates enough power each year to supply 35,000 residential homes with electricity and has reduced the volume of solid waste entering a landfill by over 15 million cubic yards. That is equal to an area the size of a football field piled 2.5 miles high with solid waste.

SERRF is equipped with The Best Available Control Technology (BACT). Air emissions which result from burning waste are controlled by several measures. SERRF uses ammonia to control nitrogen oxides, lime slurry to control sulfur dioxide and acid gases and a multichamber fabric filter baghouse for removal of particulate matter. The flue gas which exits the baghouse is continuously monitored using CEMS to ensure compliance with our strict permits.

Boiler ash, a byproduct of incineration, is treated using a Wes-Phix ash immobilization process. This process adds phosphates and Portland cements to the ash thereby reducing the solubility of heavy metals found in the ash. Due to this process and the back-end recycling of metals, SERRF ash is being used at the local landfill as road base material.

SOLVING A DIFFICULT PROBLEM

Sent by cities from across California, SERRF destroys an average of 17,000 pounds of narcotics each month. This commitment by the City of Long Beach has saved law enforcement agencies hundreds of man hours and thousands of dollars in alternative disposal costs.