

Update on the Southeast Resource Recovery Facility (SERRF)

Sustainable City Commission Meeting – December 3, 2021

SERRF - Historical Background

- Closure of a nearby landfill in 1980 led to a realization that Long Beach could no longer rely on the export of its solid waste to other neighborhoods, and it was important to City of Long Beach (City) leaders to be accountable for the waste generated within the City and by its businesses and residences.
- SERRF is a solid waste management facility that uses mass burn technology to reduce the volume of solid waste by about 80 percent while recovering electrical energy
- The City and the Los Angeles County Sanitation Districts co-own SERRF by a Joint Powers Authority (JPA) with a 2/3 to 1/3 split between the City and the Sanitation Districts, respectively
- SERRF began commercial operations in July 1988
- SERRF is currently operated by Covanta Long Beach Renewable Energy (Covanta) under contract with the City

This satellite map of Long Beach, California, provides a detailed view of the Port of Long Beach and its surrounding urban and industrial areas. A prominent red arrow points to a specific location near the intersection of the Seaside Freeway (SR 16) and the Harbor Freeway (SR 107), just south of the Gerald Desmond Bridge. The map is densely packed with labels for various points of interest, including:

- Industrial and Port Facilities:** NRG Long Beach Power, Eagle Rock Aggregates/Orca Sand & Gravel, Foss Maritime, Total Terminals International, LLC, SA Recycling, TTI(hanjin), TTI, LB 140, Hanjin, CEMEX Long Beach Cement Terminal, and various piers (Pier S, Pier T, Pier A, Pier B, Pier C, Pier D, Pier E, Pier F, Pier G, Pier H, Pier I, Pier J, Pier K, Pier L, Pier M, Pier N, Pier O, Pier P, Pier Q, Pier R, Pier S, Pier T, Pier U, Pier V, Pier W, Pier X, Pier Y, Pier Z).
- Transportation and Infrastructure:** Seaside Fwy, Harbor Fwy, 103, 47, 710, Pico Ave, and the Gerald Desmond Bridge.
- Commercial and Retail:** Marina Cafe, Island Yacht Anchorage, Vopak Terminal Long Beach, Covanta Long Beach Renewable, Pump Station 7, and various restaurants and shops.
- Recreational and Cultural:** Cesar E. Chavez Park, Rainbow Lagoon Park, Aquarium of the Pacific, ShoreLine Aquatic Park, and the Queen Mary.
- Geographical Features:** Los Angeles River, East Basin, Back Channel, and Harbor.

The map also shows a grid of streets in the surrounding urban areas, including North Pine, East 6th St, East 5th St, East 4th St, East 3rd St, East 2nd St, East 1st St, and various streets in the Harbor and Seaside areas.

SERRF - Facility Operations



- COST: \$108,000,000
- CAPACITY: 1,380 tons per day of solid waste
- SERRF has been successfully operating for nearly 34 years in the most regulated air basin in the United States
- SERRF's emissions are monitored continuously and must comply the rules, regulations, and permits issued by the SCAQMD and EPA. These regulations are continually being upgraded and changed as new technology is developed
- SERRF is equipped with the Best Available Control Technology (BACT) which removes 99% of HCl and 95% of SO₂ acid gasses as well as 99.5% of the particulate matter from the gas exhausted

SERRF - Facility Operations (continued)



- SERRF has been required to upgrade its pollution control technology over the years to stay in compliance
- Treated combustion ash is non-hazardous under federal and state test procedures and is used at a local landfill as road base material
- Source reduction and recycling reduce the amount of waste managed and reduce consumption of natural resources and the environmental damage associated with such use
- Recycling benefits SERRF by removing non-combustible materials that have minimal fuel value or can cause operational problems

SERRF – Waste-to-Energy vs Landfilling

- There are 76 waste-to-energy (WTE) facilities in the US that process nearly 94,000 tons of municipal solid waste per day, producing enough energy to power the equivalent of 2.3 million homes
- Multiple scientific studies have shown that WTE significantly reduces emissions of greenhouse gases (GHGs) when compared to that of landfilling waste
- WTE avoids the main consequences of landfilling – leaking of toxic chemicals into the ground and the release of methane
- Methane emitted by landfills is the second largest contributor to global climate change
- NASA scientists have identified landfills as super-emitters of methane

SERRF – Supporting California's Environmental Goals

- Reducing carbon dioxide (CO₂) emissions that otherwise will be generated from longer transportation distances to outside landfills
- Reducing the need for landfilling, thereby avoiding landfill emissions of methane (80x the warming power of CO₂ over the first 20 years after it reaches the atmosphere)
- Every ton of waste processed in a WTE facility avoids a ton of CO₂ equivalent emissions
- Offers a clean source of low-to-zero carbon baseload energy produced through transformation of municipal solid waste within the U.S. EPA Clean Power Plan or World Economic Forum standards

SERRF – Supporting City’s CAAP Goals

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Mitigation Actions

WASTE ACTIONS

Solid waste disposal creates emissions when organic waste, such as food scraps, yard trimmings, and paper and wood products, is buried in landfills and decomposition occurs that emits methane. Methane from landfill waste disposal is responsible for approximately 6 percent of the city’s GHG inventory.

The City, along with its franchise waste haulers, is responsible for collecting solid waste from homes and businesses. The portion of waste that the City collects is processed at the Southeast Resource Recovery Facility (SERRF), where it is sorted to remove additional recyclables and then incinerated to generate electricity. Through this process, SERRF helps to avoid landfill emissions and extends the operational life of regional landfills, while also providing energy recovery that can offset the additional use of non-renewable energy sources for electricity generation. SERRF generates enough power each year to supply 35,000 residential homes with electricity and has reduced the volume of solid waste entering landfills by more than 4 million cubic yards.

To address the city’s solid waste emissions comprehensively, the CAAP includes waste actions directed at services provided by the City and by private waste haulers. These actions include ensuring compliance with State waste regulations, which set requirements for different property types, and expanding community-wide participation in organic waste collection.

W

Waste

Goal: Long Beach is a zero-waste city

GHG Reductions 116,680 MT CO₂e

OBJECTIVES	NO.	ACTIONS
Materials that can be recycled are recycled	W-1	Ensure compliance with state law requirements for multifamily and commercial property recycling programs
	W-2	Develop an organic waste collection program for City-serviced accounts
Collect all organic waste for composting or clean energy generation	W-3	Partner with private waste haulers to expand organic waste collection community-wide
	W-4	Identify organic waste management options

- The City’s Climate Action and Adaptation Plan (CAAP) incorporates the continued future use of SERRF
- Trucking the City’s waste to a landfill instead of using SERRF adds another GHG impact to the City’s CAAP
 - Additional reductions from another sector would be required to keep the CAAP in balance

SERRF – FY 21 Operating Performance

- SERRF processed its 15 millionth ton of refuse equating to 7 million megawatts of electricity produced. This is equal to an area the size of a football field piled 2.5 miles (13,200 ft) high with solid waste
- On average, SERRF produces 212,000 megawatts of energy per year, enough to support 31,000 households or 65,000 electric vehicles
- Generated \$9.1 million in electricity sales
- Processed 385,000 tons of refuse and recycled 7,776 tons of metals that otherwise would have gone to landfills
- Destroyed 17,000 pounds of law enforcement confiscated narcotics each month
- Completed over \$11.3 million in facility equipment upgrades

SERRF – Current Challenges

- SERRF has been operating for nearly 34 years and is at a pivotal moment where in order to ensure operation for the next 30-years, significant capital investment is required
- HDR Engineering, Inc's (HDR) facility condition assessment study completed in 2018 indicates \$12.9 million capital investment needed to continue through 2024 (completed in FY21) and up to \$66.3 million additional capital investment to continue long term operation through 2039
- Current operations agreement with Covanta ends on June 30, 2024
- Current SERRF Fund pro forma projections indicate the facility solvent through at least June 2024. However, the City may be forced to shut down earlier if projected facility performance, electrical revenues, and anticipated tip fees are not realized.

SERRF – Current Challenges (continued)

- The regional waste market is facing upward pressure in landfill prices and uncertainty in long-term landfill availability
- Orange County landfills are rumored to be shut off to LA county trash at the beginning of 2025
- If SERRF closes, the only options for disposal of the City's trash will be El Sobrante landfill in Riverside County or more distant landfills in San Bernardino or Arizona. This would significantly increase the City's current disposal costs.
- The City and the State of California have significant organics diversion goals without the infrastructure to meet them

SERRF – Next Steps

- City staff are now engaged in a formal study regarding the future of SERRF that includes evaluating potential organics disposal options and how to continue and improve SERRF operations into the future
- City Council awarded contract to HDR for professional engineering and recycle/solid waste management consulting services on September 7, 2021
- HDR's scope of work includes:
 - Providing technical, financial, and regulatory compliance expertise
 - Assisting with preparation of an RFP for the continued operation and future development of SERRF, including organic materials processing, addressing the City's disposal needs
 - Assisting in the evaluation of proposals and operating options for the SERRF plant
 - Assisting with contract negotiations between the City and operator under the preferred proposal

SERRF – Next Steps

- Initial kick-off meeting with City staff, HDR & stakeholders is scheduled for December 13th and will focus on the following:
 - Project approach - Deliverables, Schedule and Key Milestones
 - Integration with other programs - SB 1383 Compliance and Implementation (Ordinance), Climate Action and Adaptation Plan (CAAP), Sustainable City Action Plan, Los Angeles County Sanitation Districts, City and County of Los Angeles
 - Project concepts:
 - a. SERRF - Current discussions with Covanta/EQT Infrastructure, discussions with other developers/operators, role of SERRF to support SB 1383 implementation, status of power purchase agreement/power pricing, potential operations scenarios, potential operators
 - b. Organics - Status of current discussions (City, City and County of LA, Developers/operators), processing site(s), potential operations scenarios, potential operators
 - c. Financing and Cost Recovery Assumptions
 - d. Legal support during procurements

A nighttime photograph of the Long Beach skyline. The city lights, including several tall buildings and palm trees, are reflected in the calm water in the foreground. A semi-transparent white rectangular box is overlaid on the left side of the image, containing the text "Thank you".

Thank you