Long Beach Container Terminal

# net zero EMISSIONS by 2030

## The Future is NOW

# Statement from the CEO

We are honored to present Long Beach Container Terminal's Net Zero 2030 Climate Action Plan. This plan outlines how we will continue the path toward reducing our impact on the environment and the surrounding communities while supporting global decarbonization in our industry.

To ensure that LBCT takes a comprehensive approach toward achieving zero emissions, we have worked closely with the Port of Long Beach and our key investor, Macquarie Asset Management, to establish this Climate Action Plan and a Climate Change Action Group comprised of key stakeholders from across the region. Together, we will ensure that LBCT identifies and mitigates social and environmental impacts related to the Middle Harbor Terminal in the LA/LB Complex in Southern California. Although achieving these goals will not be easy, LBCT is committed to concrete actions and clear steps to rise to this challenge.

While climate change poses a significant threat to the movement of goods worldwide, it also presents an opportunity. By participating in a comprehensive response to energy management, LBCT will contribute to the stable demand for clean energy technologies while simultaneously boosting our energy actions and supply chain capacity. Just in the last seven years, LBCT has gone from moving 700,000 containers to 3.3 million while reducing our emissions and energy dependence on fossil fuels by more than half. Our $2.5 billion investment has paid off for the economy, the surrounding communities, and the environment.

LBCT is committed to accelerating the transition toward responsible workforce management while concurrently solidifying America's leadership role in the global green economy. The most important factors in our continued success are the dedicated, skilled, and diverse workforce that are the backbone of our operations. Thank you for your service and your active involvement in mobilizing us towards readiness, resilience, and a regenerative future.

Anthony Otto, Chief Executive Officer
Long Beach Container Terminal

# Net Zero 2030 Climate Action Plan

## Mobilizing to Maintain Efficiency & Reduce Community Impacts

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READINESS | RESILIENCE | REGENERATION

# Executive Summary

Long Beach Container Terminal (LBCT) in the Port of Long Beach, CA is the most technologically advanced, efficient, and environmentally friendly terminal in the United States. Through a multi-billion-dollar redevelopment project that began more than ten years ago, LBCT along with the Port of Long Beach combined two older, smaller terminals separated by a water basin into one of the most productive and environmentally sustainable terminals in the world with state-of-the-art technology. Still, more needs to be done.

The LBCT Net Zero 2030 Climate Action Plan defines the requirements to transform LBCT into a net-zero-emissions marine terminal by 2030, largely by way of a fleet of zero emissions infrastructure, vehicles and equipment. This plan is structured around three pathways and four priority actions.

## PATHWAYS

### Readiness

Through the deployment of fully electrified cranes including dual-hoist ship-to-shore cranes, dual-transaction stacking cranes, and intermodal rail cranes, LBCT is equipped to accommodate almost half the regular freight traffic of the Port of Long Beach. Located in California, the most stringently regulated economy, LBCT now has the lowest worldwide emissions per container. LBCT will eliminate all Scope 1 emissions by installing infrastructure and transitioning fossil-fueled equipment to electric or hydrogen over the next seven years.

### Resilience

Shifting to electric equipment requires a resilient grid and self-sufficiency to maintain cargo operations at all times. LBCT will achieve resilience through continued investments in renewable energy, a lower-carbon electricity grid in partnership with Southern California Edison (SCE), and off-terminal carbon investments with the objective of eliminating Scope 2 emissions by 2030. LBCT is also prepared to work closely with partners to invest in and offset Scope 3 emissions before most terminals will embark on and address Scopes 1 and 2.

### Regeneration

The most forward-looking of all the pathways, regeneration recognizes that true decarbonization requires innovative solutions, including new fuel sources, cutting-edge approaches to renewables and carbon offsets, and major projects that incorporate zero emissions, fuel decarbonization, and community benefits. This pathway also tackles emissions from sources over which LBCT has little to no control, such as ships, trains, trucks and tugs.

## PRIORITY ACTIONS

1. **Planning & Processes**
2. **Equipment, Facilities & Infrastructure**
3. **Funding & Advocacy**
4. **Community Responsibility**

Priority Actions are operationalized into daily business and supported from the very top of the organization to the bottom. Each action in the detailed Net Zero 2030 report contains:

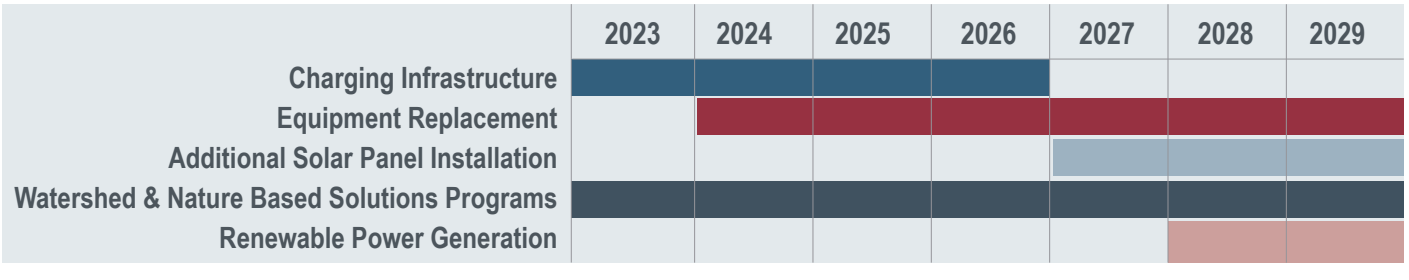
- Action Description
- Risks
- Opportunity
- Timeframe
- Implementation Methods
- Performance
- External Coordination
- Resource Implications
- Challenges & Considerations

The estimated cost of this Net Zero 2030 Plan is nearly $200 million. The bulk of this cost will go toward zero-emission equipment and infrastructure, as well as renewable energy, including on-site power generation. LBCT also plans to invest heavily in community partnerships, a major watershed management and nature based solutions program, as well as education and workforce programs.

| *Estimated Costs for Net Zero Plan* COST CATEGORY (2023-2030) | ESTIMATED COSTS |
|---|---|
| Zero-Emission Equipment & Infrastructure | $ 150M |
| Renewable Energy | 25M |
| Community Partnerships/Environmental Programs | 10M |
| Education & Workforce | 5M |
| Planning, Technical Support, Miscellaneous | 9M |
| **Total** | **$ 200M** |

LBCT's net zero plan is ambitious, and the cost is more than three times that of "business as usual". LBCT cannot do it alone – this plan articulates the path forward and the many partnerships required to be successful. To date, almost $2.5B has been invested to make this bold vision a reality. With another $200M, the community and the workforce can breathe easily and cleanly for decades to come.

### *Net Zero 2030 Climate Action Plan Schedule*




LBCT must begin today in order to meet its aggressive deadline of 2030. This high-level schedule provides a plan for executing the major equipment- and facilities-related components of the net zero 2030 plan. Planning, tracking, community programs, and workforce investments are ongoing, beginning in 2023 and continuing through 2030 and beyond.

# Why is LBCT the Partner of Choice?

## LBCT's Role in a Continuously Changing Landscape

Since 2015, LBCT has more than quadrupled its cargo throughput and now has the capacity to handle 3.3 to 3.5 million containers annually. If LBCT were its own seaport, it would be the sixth largest in the country. At the same time, LBCT has reduced its diesel fuel consumption by more than 50%, establishing itself as a goods movement leader in the quest to stave off climate change. More importantly, the neighboring communities will benefit from the improved air quality and the associated positive health impacts.

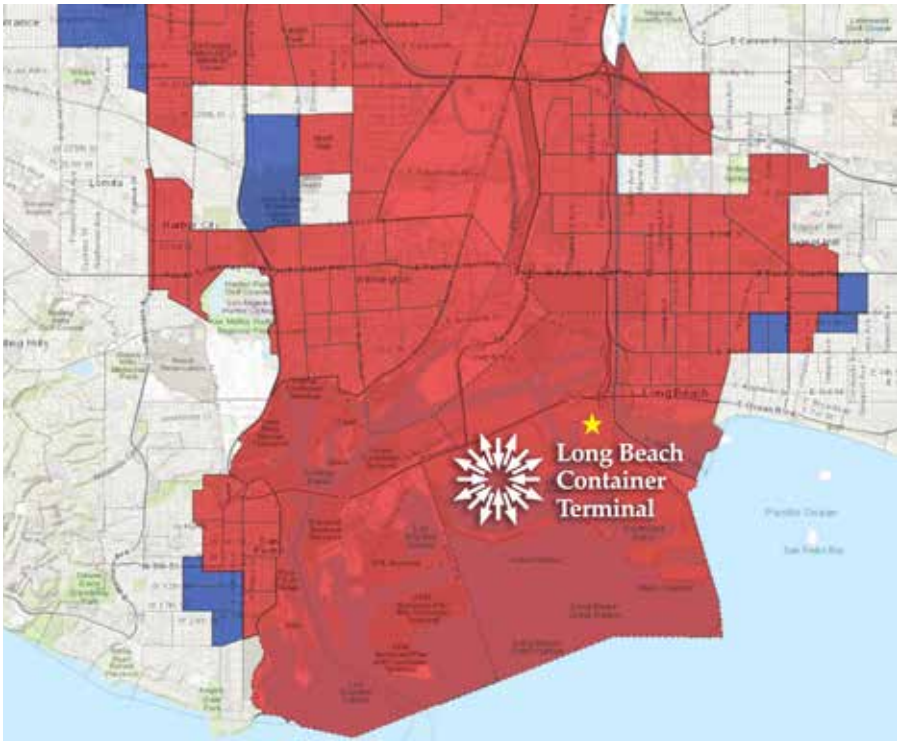
Internationally, the Paris Agreement calls for swift action to limit global warming to 1.5°C compared to pre-industrial levels. In support of this global goal, Macquarie Asset Management (MAM) is asking its portfolio companies – LBCT included – to set emission-reduction targets that align with a 1.5°C pathway and that result in net zero carbon emissions by 2040. LBCT will be carbon neutral and close to surpassing this goal by 2030.

In parallel, the State of California Air Resources Board (CARB), has adopted targets to reduce greenhouse gas emissions, reverse climate change, and minimize air-quality and health impacts, particularly on disadvantaged populations. The state is working toward carbon neutrality by 2045 with efforts to eliminate combustion engines in cars by 2035 and to transform the freight industry to zero emissions beginning as soon as 2024. CARB has already adopted new regulations to reduce emissions from ships and harbor craft. Regulations to clean up cargo-handling equipment, heavy-duty trucks, and rail are currently underway.


### The Net Zero 2030 Climate Action Plan aligns with:

- World Resources Institute (WRI)
- World Business Council for Sustainable Development (WBCSD)
- Environmental Protection Agency (EPA)

### *Disadvantaged Communities Around LBCT*




**Highly Disadvantaged Communities**

**Disadvantaged Communities**

*Source*
California Environmental Protection Agency

Regionally, the South Coast Air Quality Management District (SC AQMD) is pursuing a rule that would require significant emission reductions at marine terminals caused by ships, trucks, trains and tugs. The Ports of Long Beach and Los Angeles have jointly adopted a Clean Air Action Plan (CAAP) that nudges port-serving trucks to zero emissions by 2035 and sets a goal for Cargo Handling Equipment (CHE) to be zero emissions by 2030. These strategies are designed to support global, national and statewide initiatives and to minimize impacts on the neighborhoods surrounding the Port complex. Communities around LBCT are in the top 25% of "disadvantaged communities" statewide with high levels of pollution and low socioeconomic indicators, according to CalEPA.

The Port's CAAP, through lease-based measures, encourages the purchase of zero-emission CHE when there is equipment turnover, if the technology is available. The Ports are doing this in support of the state's proposed regulatory development efforts. CHE includes all cranes, yard tractors, top handlers, reach stackers, rail moving carts and heavy forklifts. With the support of the Port of Long Beach and with federal and state funding, LBCT seeks to be the first marine terminal to meet all CAAP goals by 2030.

LBCT's 2030 goal is one of the industry's most aggressive standards against the state (2045), major cargo owners like Amazon, Walmart, Target and Unilever, and other MAM assets (2040).

## LBCT is committed to improve the climate, local health, and the environment

# To Build Trust, LBCT Sought Independently Verified Baseline Emissions

To measure its emission-reduction progress, LBCT conducted in-depth analyses dating back to 2015 and independently verified the calculations* of its baseline emissions for Scope 1 and Scope 2.

For the agreed upon baseline year of 2021 due to the accelerated pandemic-related growth, LBCT's total Scope 1 emissions were 4,253 metric tons (MT) of carbon dioxide equivalents (CO2e) and 15,620 MT of Scope 2 CO2e emissions.

Unlike other marine terminals in the state, nation and world, LBCT invested almost a billion dollars electrifying its ship-to-shore vessel, stacking and intermodal train cranes. LBCT endeavors to reach net zero emissions for Scope 1 emissions by 2030 by electrifying the remaining cargo handling equipment. Hydrogen technologies will also be investigated and potentially installed. To address total emissions under Scope 2 created by purchased electricity, LBCT must work closely with SCE to advance more ambitious goals, to continuously invest in renewables, and further investigate innovative technologies. LBCT has begun to address Scope 2 by deploying an array of solar panels designed to offset 1% electricity consumption from on-site sources.

**Scope 1** Direct carbon emissions generated by equipment or vehicles owned and operated by LBCT, such as all the cranes and cargo-handling equipment.

**Scope 2** Indirect carbon emissions from electricity consumption, which includes buildings and electric equipment. This scope largely reflects the renewable content of Southern California Edison's (SCE) grid.

**Scope 3** Greenhouse gases (GHG) which are emissions generated at LBCT by sources over which LBCT has little or no control, such as ships, trucks, harbor craft tugs, rail, and third-party vendors. LBCT plans to quantify its Scope 3 emissions and identify reduction targets in 2023.

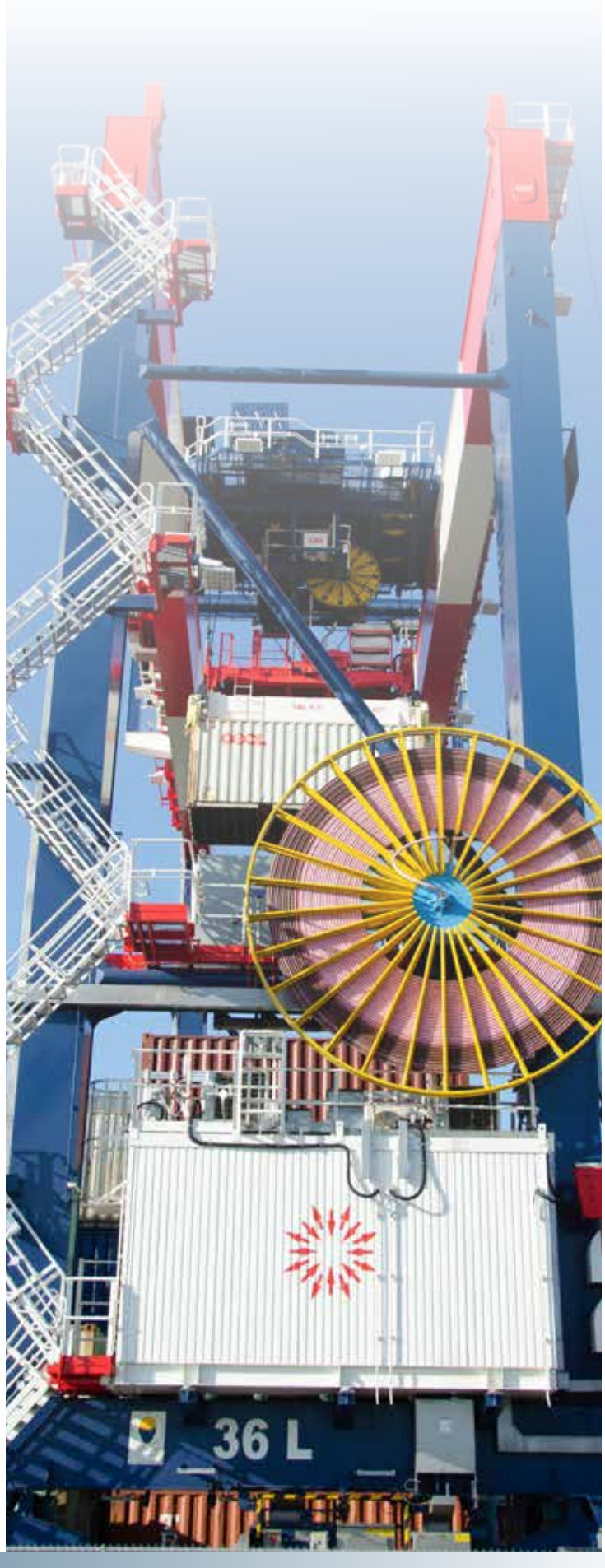
* LBCT's Independently Verified Third Party Report by Cameron Cole is available upon request

# LBCT Recognizes Its Responsibility to Act

LBCT's ambitious net-zero goal is driven by two long-held corporate values: innovation and environmental sustainability. Climate impacts are affecting the local and global communities and the environment now. The Future is Now and LBCT accepts the urgent call to action to be bold and invest.

LBCT has long been an industry leader, and it's important that we maintain our competitive edge. LBCT seeks to be the Number 1 choice for companies looking to ship their goods to the U.S. in the most efficient and sustainable way possible. Leading cargo owners, including Amazon, IKEA, and Walmart, have set their own near-term emission-reduction targets and 2040 goals to reach net zero. These shippers are actively seeking logistics partners with a shared vision for decarbonizing the supply chain. Coupled with our industry-leading efficiency metrics, LBCT's investments in zero emissions give us a competitive advantage to attract the world's most sought-after cargo.

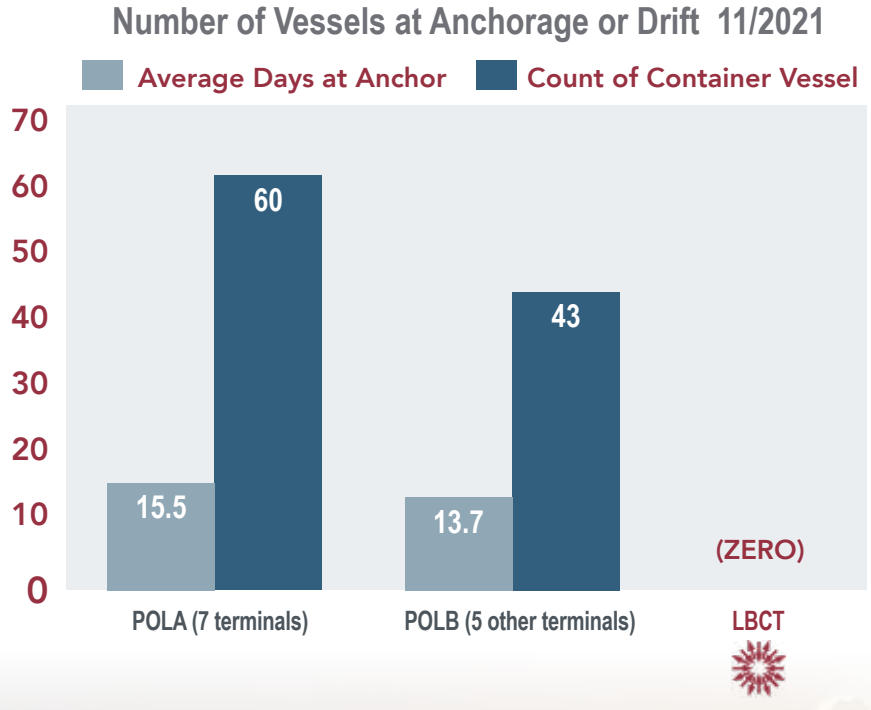
LBCT also has a moral imperative to reduce our emissions. We cannot continue to support good-paying local jobs and a healthy economy if our neighbors experience the brunt of our impacts. LBCT is a part of the community. Our employees, including our management, live in and around surrounding neighborhoods. As individuals, we support the schools, markets, and parks every day, experiencing the vibrancy of our community. As a company, LBCT has built a playground in a nearby park, donated to local nonprofit organizations, and supported internships and workforce development programs.



## The Preferred Partner on the Path to Zero

LBCT's cargo-handling equipment fleet is the cleanest in the state and the country and our operations are faster, safer, and more streamlined than any competitors. But our work is not done until we have transformed our entire fleet to zero emissions, working closely with the Port of Long Beach and all our partners and competitors to ensure that the surrounding community is breathing cleaner air than ever before.

LBCT unequivocally leads the industry in efficiency, handling more cargo than any of its competitors with fewer delays. It is also important that the vessels, trucks, trains and tugs have an efficient and positive experience while doing business at LBCT to consider us **Partner of Choice**. These graphs point to externally validated leading standards and metrics by organizations such as the Ocean Alliance, the Harbor Trucking Association and the Port of Long Beach.

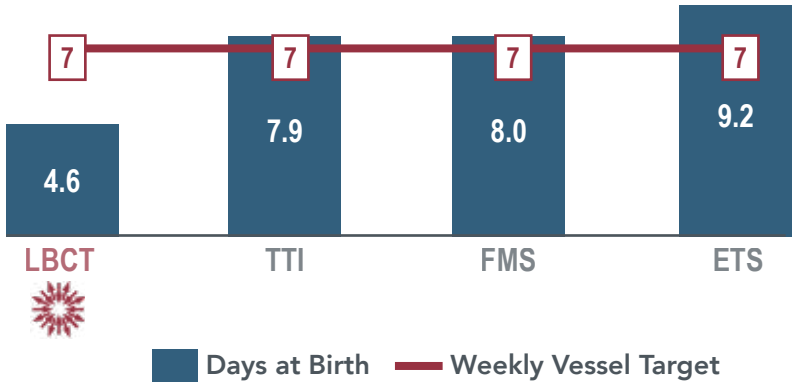



## LBCT had the lowest number of days at berth & vessels at anchorage/drift from 2020-2022

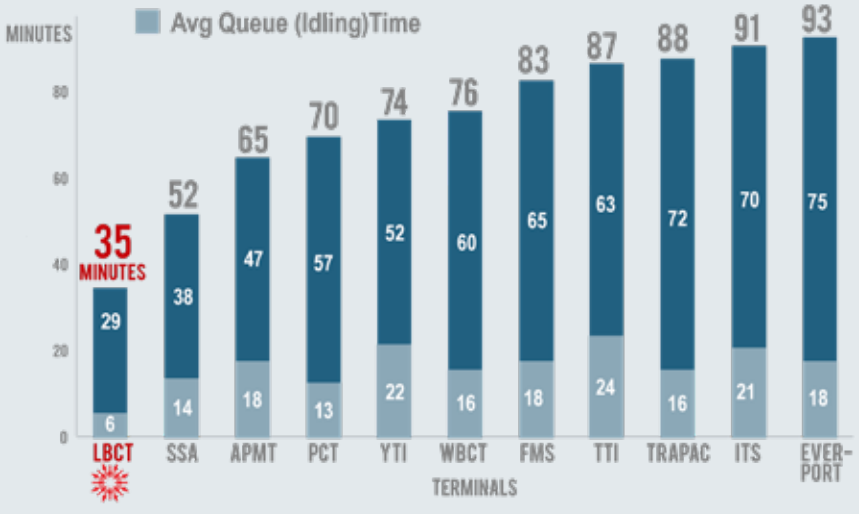
Even during the pandemic in November of 2021, the busiest goods movement time in history, LBCT did not have one ship at anchor when more than 100 ships were backed up near the San Pedro Port Complex. In addition to fully servicing its scheduled vessel calls, LBCT took in approximately 40 more ships than planned. No other marine terminal in the country is better positioned to decarbonize its operations on an expedited timeline.

**During the pandemic, LBCT optimized operations** and met its aggressive 3.3M TEU goal to prove that the model works and more importantly that the $2.5B investment was worth its weight and worth the wait.

Average Days at Berth by San Pedro Bay Terminal



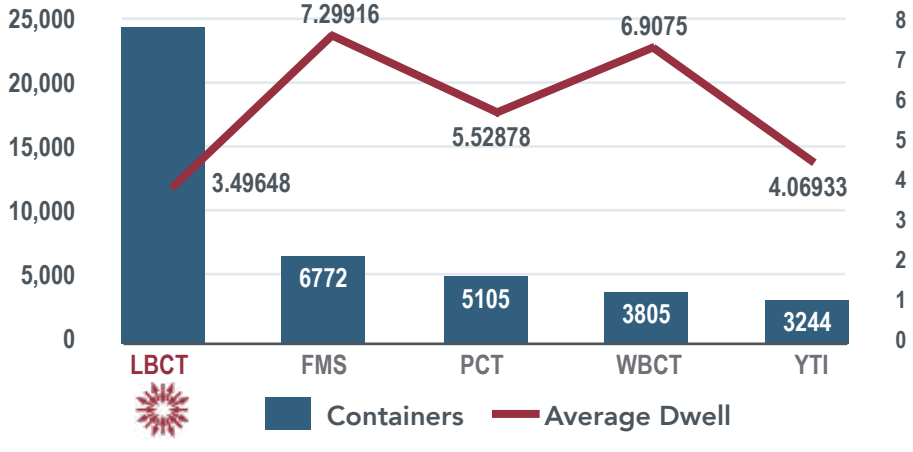

Truck Turn Times in San Pedro Bay




The Harbor Trucking Association (HTA) reported that at LBCT, truck turn times are significantly below other terminals.

**LBCT has the largest on-dock rail facility on the West Coast.** For trains, LBCT's intermodal cargo handling is extremely efficient as LBCT handles more cargo with less dwell time than any of its competitors.

Intermodal Cargo Volumes and Dwell Time

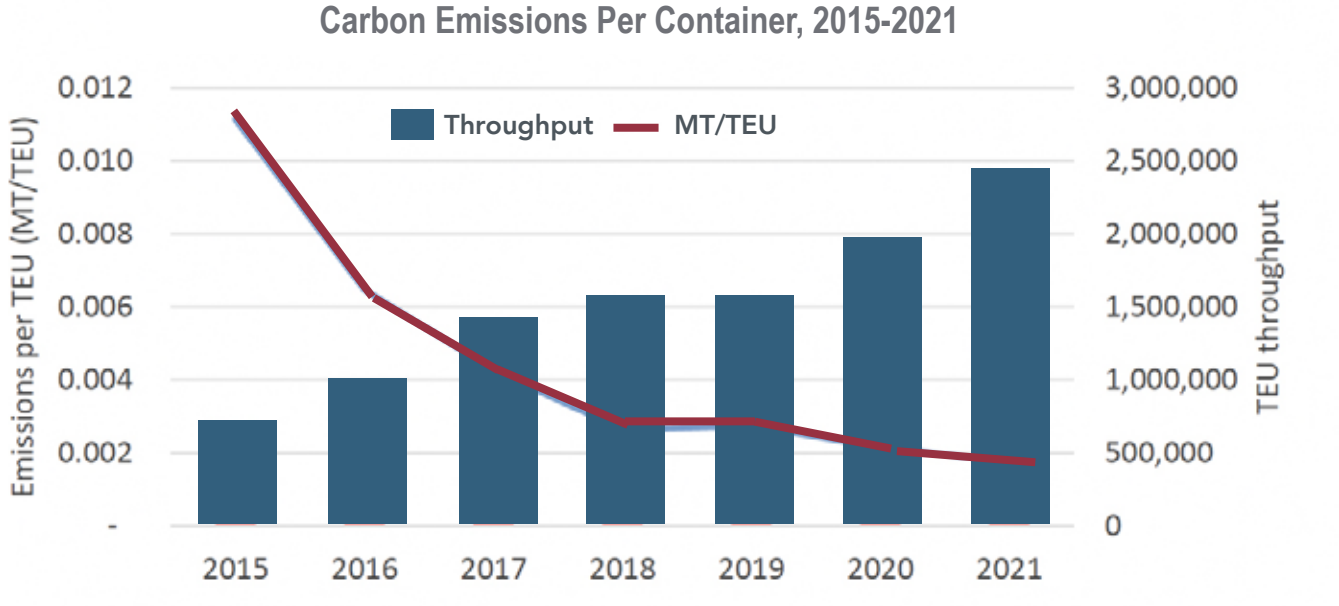



*Source: OOCL*

## LBCT is Committed to Continually Challenge Itself, Listening & Learning

LBCT has demonstrated over the past 10 years that the economy and environment can thrive together. Since 2015, LBCT's throughput has increased steadily while its greenhouse gas emissions from equipment and vehicles (Scope 1 emissions) have declined. On a per-container basis, LBCT is emitting fewer emissions than ever before.

**LBCT has maintained its industry-leading efficiency while reducing emissions**




TEU: Twenty-foot Equivalent Unit

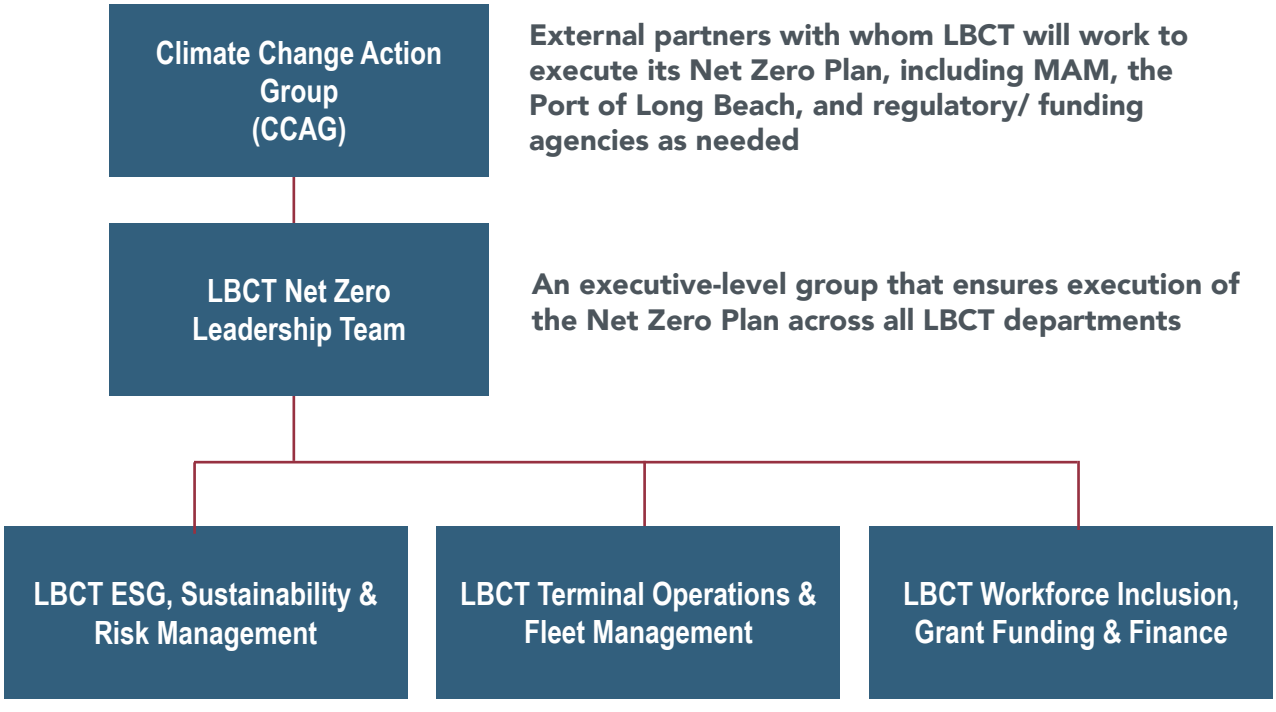

2 TEUs =
1 Forty-foot Container

## LBCT is Starting with a Strong Foundation, but Challenges Remain.

Although the shift to zero-emission electric equipment has significantly reduced carbon emissions from fuel consumption, it has led to a corresponding increase in electricity usage, which itself results in carbon emissions. LBCT minimizes its reliance on the grid by generating Low Carbon Fuel Standard (LCFS) credits due to avoided emissions and in turn purchasing renewable electricity with authenticated renewable energy certificates (RECs).

The detailed climate action plan (available upon request) defines the coordinated activities needed for a carbon neutral marine terminal by 2030. LBCT cannot achieve this aggressive goal without the support of its expansive network of partners: vendors, technology developers, shipping lines, trucking companies, funding agencies, equipment manufacturers, the Port of Long Beach, Macquarie Asset Management Group (MAM), and community organizations. Together, we must work to execute these pathways and priority actions to establish LBCT as the paragon of readiness, resilience, and regeneration. If successful, LBCT will achieve a highly efficient, large-volume Net Zero container terminal by 2030.

## Every LBCT division must be involved in this effort, and we must actively engage outside partners.




**Leaders within each LBCT division will execute the actions defined in this plan within their own program areas**

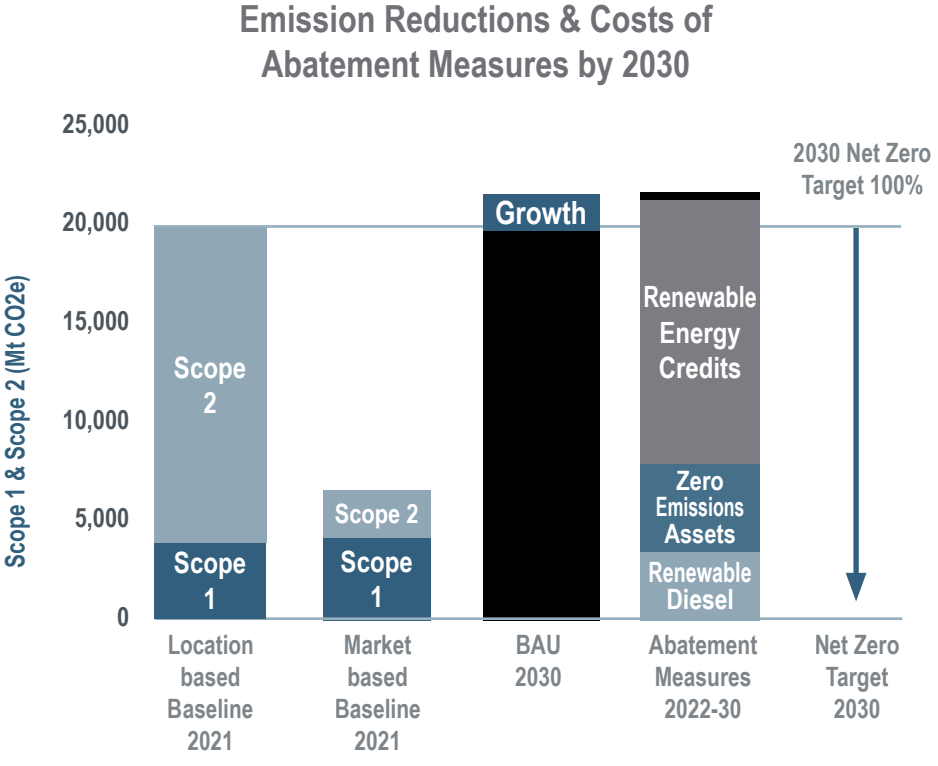
# PATHWAYS

| READINESS SCOPE 1 | RESILIENCE SCOPE 2 | REGENERATION SCOPE 3 |
|---|---|---|
| Near Term | Mid Term | Long Term |
| Reducing Carbon from LBCT Owned & Operated Equipment by 2030 | Reducing Emissions from the Grid | Innovative Solutions to Reduce/Eliminate Systemwide Emissions |

## 3 Pathways to Net Zero

There is no ONE way to achieve net zero, rather multiple pathways toward reducing emissions, and ultimately decarbonizing completely. Within each pathway, there is flexibility to expand and adapt to changing realities, all while marching toward the end goal of net zero.

Each pathway roughly correlates to a timeframe, although planning for all pathways will need to begin today. Each pathway is also correlated to a greenhouse-gas emissions scope. The graph summarizes the actions within each of the pathways, along with the emission reductions relative to the 2021 baseline emissions and business as usual (BAU) and how LBCT anticipates moving towards net zero.



READINESS SCOPE 1

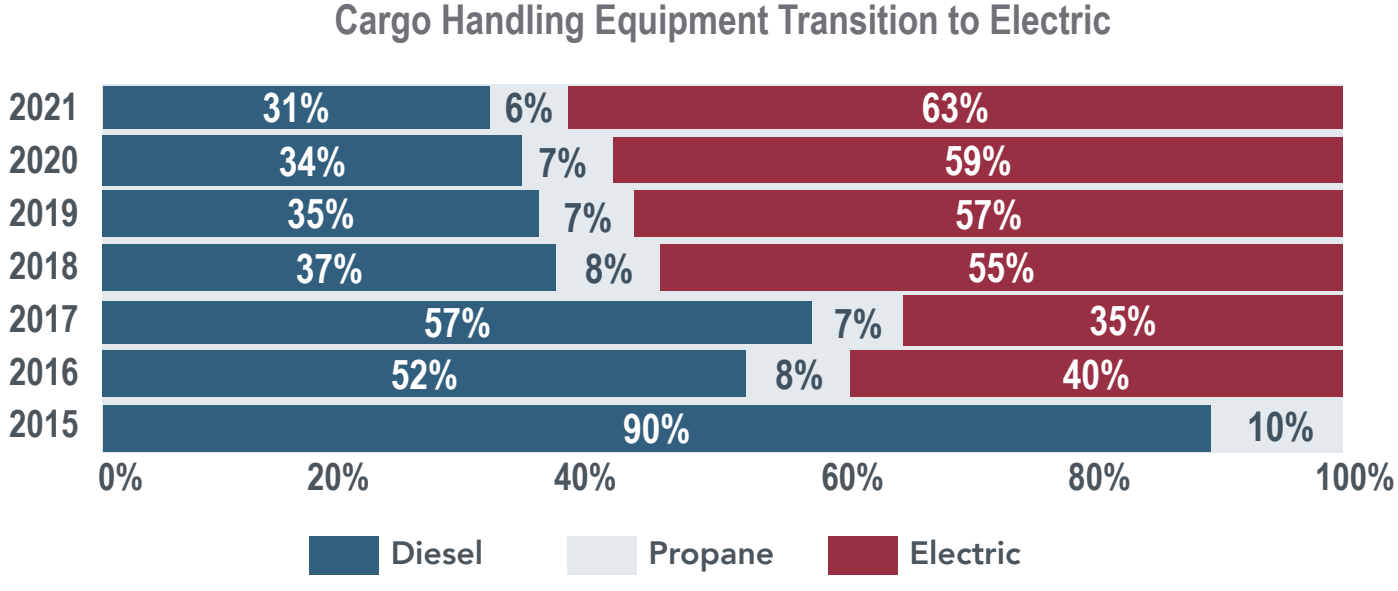
# LBCT has the Lowest Emissions Per Container in the World

Building upon its significant zero-emission fleet, LBCT commits to converting all remaining equipment and vehicles to zero emissions over the next seven years. Zero emissions could be electric, as is the case with LBCT's current fleet, or hydrogen fuel-cell.

Through the deployment of fully electrified dual hoist container ship to shore cranes, stacking cranes capable of performing dual transactions for trucks, and intermodal yard cranes for trains, LBCT is already equipped and capable of accommodating almost half of the Port of Long Beach's freight traffic. The figure below shows LBCT's transition to electric cargo-handling equipment over the past decade. Today, 63% of LBCT's heavy equipment is zero emissions – the highest proportion of any West Coast marine terminal.

In 2022, LBCT submitted and received $30.1M from the Port Infrastructure Development Program (PIDP) for converting its yard tractor fleet on the rail side into zero emission vehicles. By purchasing the 60 yard tractors (UTRs), and converting them to zero emission vehicles, LBCT will reduce its remaining diesel emissions by a whopping 93%!

This pathway requires significant investments in new equipment and infrastructure as well as development of technology that does not yet exist in zero-emission platforms. Although the timeline for full deployment is short, LBCT endeavors to distribute the costs and risks gradually over the next seven years, mindful of technology limitations and the risk of undue delays.



## READINESS SCOPE 1

# LBCT proactively participates in zero-emissions equipment demonstrations to advance technologies & ensure that suitable equipment exists before 2030

### To demonstrate our continued readiness, LBCT intends to enact these measures:

- In 2022, switch all diesel-fueled equipment to renewable diesel, which has a lower carbon intensity than conventional diesel.
- Beginning in 2022, develop an infrastructure design plan to support new zero-emission equipment.
- In 2023, complete site infrastructure and equipment plans and begin the permitting processes for conversion.
- Beginning in 2023, transition the remaining fossil-fueled equipment to zero emissions on a phased schedule until all equipment/ vehicles are zero emissions by 2030.
- Implement LBCT's funding strategy and seek grants to offset the cost of new equipment.
- Implement new policies and procedures to evaluate the state of zero-emission technology on an annual basis
- Incorporate zero-emission procurement decisions into annual and long-range planning with corresponding infrastructure.

### Expected results of these measures in annual emission reductions

- Renewable diesel: 3,721 MT of CO2e per year
- Fleet replacement with zero emissions: 4,651 MT of CO2e per year

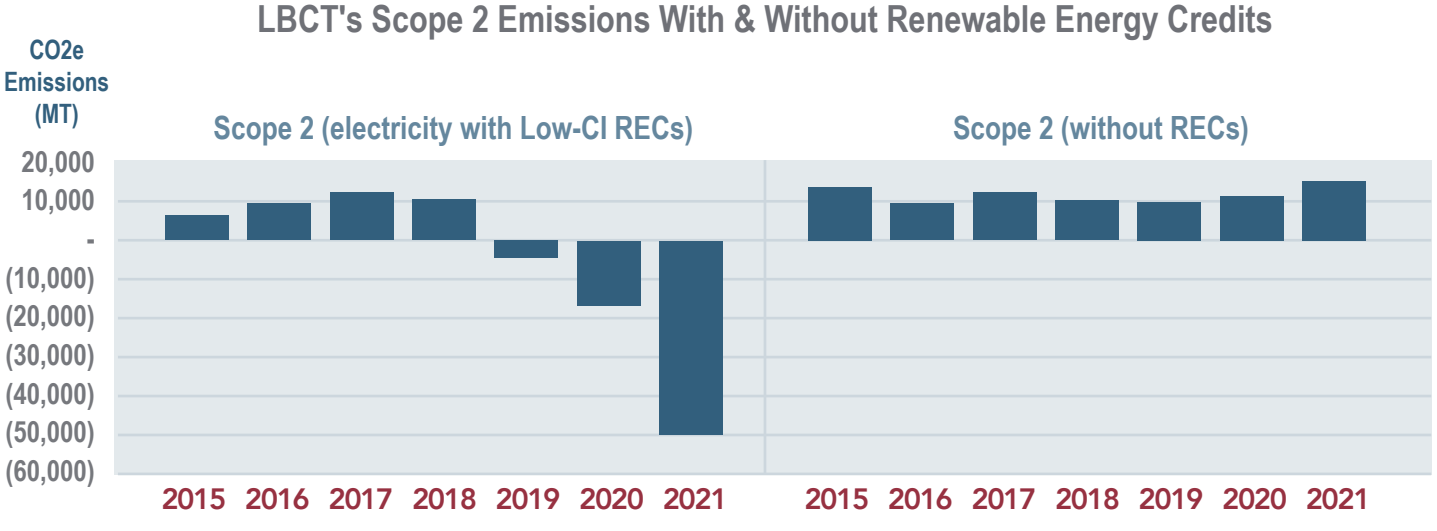
## RESILIENCE SCOPE 2 Highly Efficient Operations, Low Emissions, & a Reliable Electric Grid are Critical

Shifting to electric equipment requires a resilient grid and self-sufficiency to maintain cargo operations at all times. LBCT will strive for resilience through continued investments in renewable energy, a lower-carbon electricity grid, and potentially off-terminal carbon investments with the objective of eliminating Scope 2 emissions by 2030. LBCT is also prepared to work closely with partners to invest and offset Scope 3 emissions before most terminals will fully address Scopes 1 and 2.

The resilience pathway focuses chiefly on emissions from the grid itself (Scope 2), over which LBCT has little control. Even more, there is tension between this pathway and the readiness pathway; adding even more zero-emission electric equipment will cause a corresponding increase in electricity use, potentially increasing Scope 2 carbon emissions. For this, LBCT plans to more fully optimize operations and capture some of the regenerative nature of the electrified cranes.

LBCT has experienced this trend already. The graph depicts LBCT's Scope 2 emissions since 2015, when LBCT first introduced electric equipment. As shown on the right, Scope 2 emissions have risen steadily and have been managed by purchasing renewable electricity generated from biogas on dairy farms with sub-zero (negative) carbon intensity, which is represented on the left side of the figure. The increase in Scope 2 emissions would have outweighed the significant reductions in Scope 1 emissions, resulting in a net emissions increase absent the purchase of renewable electricity that benefits the regional carbon budget. Continuing to manage Scope 2 emissions will be a major challenge and opportunity for LBCT.

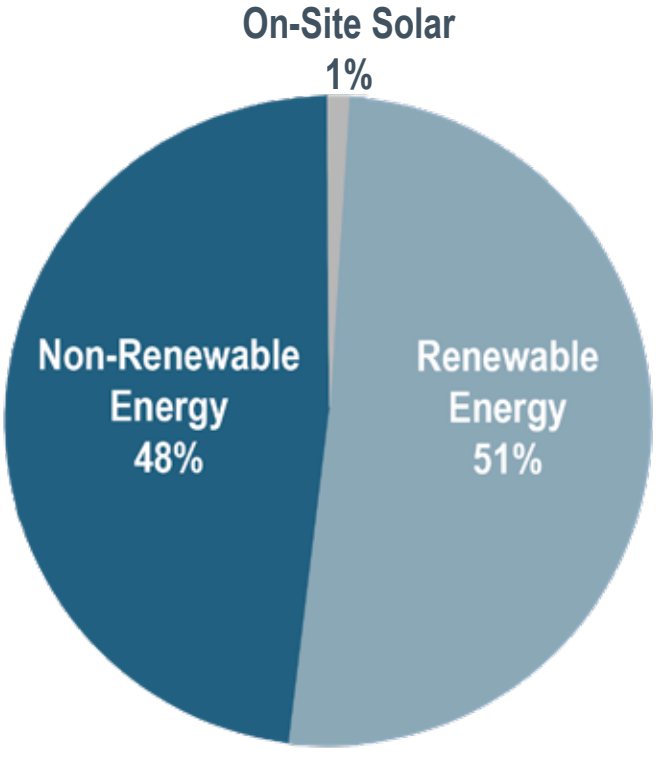
In addressing Scope 2 emissions, LBCT benefits from Southern California Edison (SCE)'s grid purchase of renewable electricity. Additionally, renewable energy credits (RECs) are being applied to LBCT's scope 2 (purchased electricity), not scope 3 which is our supply chain. SCE has committed that its grid will be 100% renewable in 2045 and 80% by 2030. LBCT is committed to seeking alternative renewables and technologies to offset SCE's shortfall. LBCT will still choose to purchase RECs based on incremental value/benefits/income through the Low Carbon Fuel Standard (LCFS). Scope 3 will be addressed independently with mechanisms such as insetting.



## RESILIENCE SCOPE 2

# SCE has a Sizable & Growing Portfolio of Renewables. LBCT will Continue to Monitor Grid Intensities as Part of its ongoing Net Zero Plan

In 2021, just under half (48%) of LBCT's electricity was purchased from SCE, thus considered "non-renewable." Roughly 1% of LBCT's electricity was generated by on-site solar panels, which are owned and operated through a third-party power purchase agreement, and 51% was renewable electricity due to the purchase of RECs and environmental attributes depicted in the pie chart.




Importantly, LBCT purchases renewable electricity with sub-zero carbon intensities on a lifecycle emissions basis as certified by CARB, where the carbon intensity is negative because of methane avoidance. This renewable electricity allows LBCT to be carbon neutral for Scope 2 emissions in years in which sub-zero carbon intensity electricity is purchased. The RECs are a mix of zero CI (conventional – wind/solar/hydro) and sub-zero or negative CI (renewable electricity from projects that avoid methane, such as dairy digester and biogas projects). Carbon sequestration and removal are potential future projects for sub-zero CI.

The resilience pathway requires LBCT to manage its electricity usage, not only to keep emissions in check but also to reduce reliance on a potentially fragile grid. These goals may be difficult to balance. For example, LBCT is investing in a second battery storage facility to provide redundant power in the event of an outage, which is critical for maintaining operations, but will increase the terminal's electricity usage. The resilience pathway strives to manage these infrastructure investments and operational challenges.

In addition to adding solar, LBCT is exploring new sources of on-site power that do not rely on the grid. For example, LBCT could invest in a large-scale generator fueled by renewables, such as biogas, green hydrogen, or green ammonia (or any combination). This distributed generation system could generate 8 MW to 10 MW for the entire facility. The cost is estimated at $28.6 million, less $8.6 million from an investment tax credit, for a net capital cost of $20 million.

RESILIENCE SCOPE 2

# New & Evolving Renewable Energy Options with Partners are the Key to Success

## LBCT Intends to Enact these Measures:

- Continue to purchase renewable electricity for LBCT's usage
- Continue to maintain the on-site solar panels and purchase them outright from the third-party vendor
- Install new on-site solar arrays at LBCT.
- Investigate other on-site renewable options, including new distributed generation
- Continue to monitor SCE's grid intensity
- Explore additional opportunities for on-site solar generation
- Conduct an energy audit every three years to identify ways of reducing the load from buildings and equipment

## Expected results of these measures in annual emission reductions

- Off-site renewables: 13,000+ MT of $CO_2e$ per year
- On-site renewables (existing solar): 273 MT of $CO_2e$ per year
- Other renewable options and technologies: not quantified

# REGENERATION SCOPE 3 Rethink the Way Marine Terminals do Business

## Complete decarbonization requires bold & innovative strategies

The regeneration pathway focuses on innovative solutions for Scope 1 and Scope 2 emissions, including new fuel sources, cutting-edge approaches to carbon offsets, and major projects that incorporate zero emissions, fuel decarbonization, and community benefits. This pathway also tackles emissions from sources over which LBCT may have limited influence, such as ships, trucks, harbor craft and rail, and possibly other supply-chain partners, such as rail and crane maintenance, information technology providers and service/delivery vehicles.

This pathway is fraught with uncertainty. A wholesale shift from fossil fuels across all sources will take creative thinking and technologies that do not yet exist. LBCT must ask itself tough questions:

- Is electric equipment the best way to go in the long run?
- Should we consider fuel-cell equipment with renewable hydrogen generation on-site?
- Can/should we accommodate more on-site solar or off-site hydrogen generation?
- Can/should we invest in off-site carbon-capturing projects that offset Scope 2 emissions while also benefiting our local community?

## Partnerships are Key

Strong alliances with the Port, the City and County, SCE, regional planning associations, regulatory agencies, our many supply-chain partners, and community organizations are needed. The answers are not yet apparent, and abatement measures will need to evolve over time, but the visioning process must start today.

It is too early to identify all the potential abatement measures given the need for bold, innovative strategies that may not be apparent today. As a first step, LBCT will quantify its Scope 3 emissions and identify Scope 3 emission-reduction targets in 2023. The Scope 3 emissions for a marine terminal include ships and trucks that call the terminal, on-dock rail, and on-site vendors.

For 2021, some of the Scope 3 emissions that have been identified and calculated include:

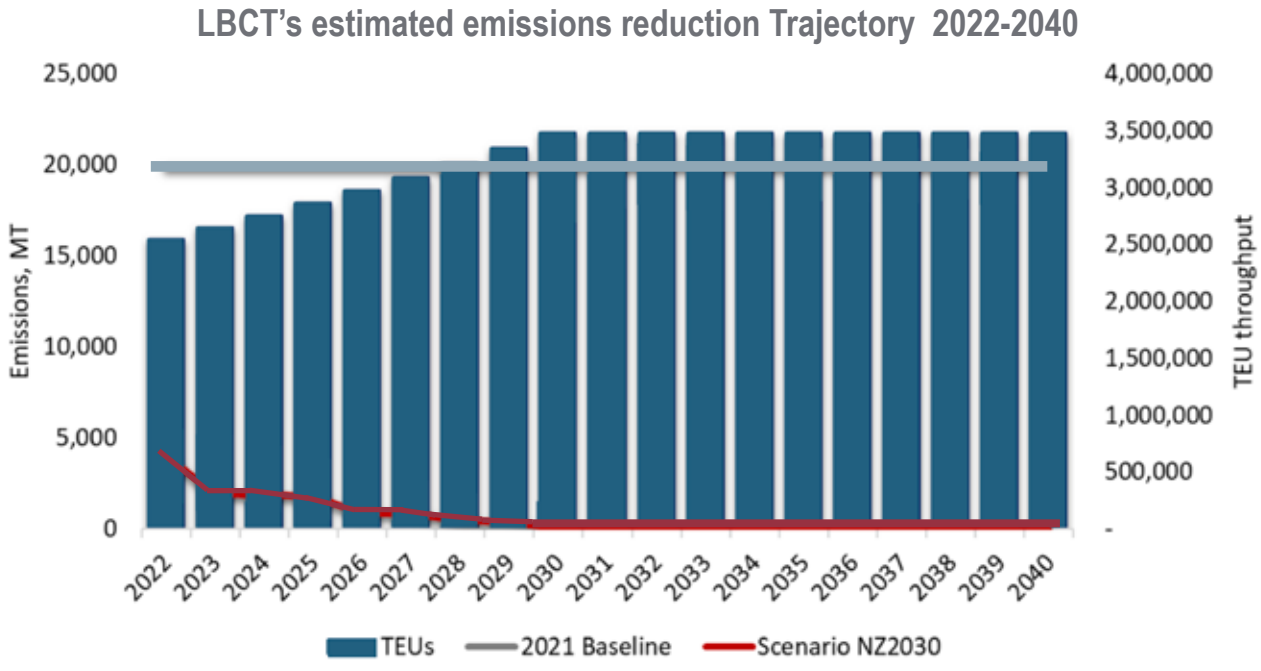
- Ocean-going vessels at berth emissions: 10,655 MT of $CO_2e$
- Trucks on-terminal emissions: 6,824 MT of $CO_2e$

Projects could include:

- Invest in community projects including watershed management of a 305-acre site
- Invest in carbon offsets that benefit the local community
- Partner with the City, County and Port of Long Beach on programs that support the local community and ecosystems
- Explore ways to prioritize education, workforce development, and jobs for our neighbors

## Projects Benefiting the Community

LBCT plans to explore large-scale community-based projects with emissions benefits. Given the uncertainty of abatement measures and new technologies, it is difficult to identify specific supportive strategies. LBCT will benefit from new and proposed state regulations requiring Scope 3 sources to transition to zero emissions over the next 20 years as well as SCE's continued investments in renewable energy. Beyond that, LBCT is committed to working with new technology and community partners to identify supportive net zero, carbon positive strategies and nature based solutions. It will be to LBCT's and the region's great benefit to pursue opportunistic grants, projects and partners.




## Results

LBCT's commitment to reach Scope 1 Net Zero by 2030 is bold and aggressive, and cannot be achieved without a focused, collaborative effort across the entire supply chain with support from government, community groups, and funding agencies.

Results are expected to be seen as early as 2023. This graph depicts LBCT's projected emissions through 2040. The gap between the Net Zero scenario and the 2021 baseline emissions is wide; working toward carbon neutrality by 2030 results in steep drops compared to 2021 emissions even as cargo throughput rises to 3.3 million containers annually.

# Priority Actions

LBCT has developed this Net Zero Action Plan to strategically focus resources, provide technical assistance and develop tools to decarbonize its operations while strengthening its competitive advantage. The Priority Actions in this section cut across all the pathways, and are critical for the successful execution of LBCT's Net Zero goal. Priority Actions are operationalized into daily business, supported from the very top to the bottom of the organization, keeping our corporate values front and center.

## LBCT Corporate Values

| SAFETY | OUR PEOPLE | ENVIRONMENTAL SUSTAINABILITY | INTEGRITY | CUSTOMER FOCUS | INNOVATION |
|---|---|---|---|---|---|
| Maintaining the safest workplace possible for all employees is our #1 priority. "Safety in All Directions" means every employee, on every shift, shall take swift and immediate action to prevent accidents and injuries, and report all near misses as soon as they occur. The lives of every person in our workplace is valued above everything else. | Our people are the key to LBCT's continued success. We value the diversity of our team members. We strive for an environment of inclusion, respect, and professionalism. We must consistently work as one team to not only achieve but exceed company objectives across all departments and disciplines. A key objective is to thoughtfully improve our surrounding communities. | As a steward of the surrounding community, our industry, stakeholders, and our people, LBCT has implemented aggressive environmental measures through the deployment of technology, low emission equipment, and our green infrastructure. Despite the size of our geographical footprint, we strive to reduce our environmental footprint by all available means, now and for future generations. | Integrity is the first rule of order in our Code of Conduct. It is a key ingredient of our DNA and must be honored in every business decision made individually and as an organization. In order to maintain our reputation of an honest company, we must do what is right at all times: tell the truth, face the facts straightforward and with transparency, and be leaders regardless of our titles. | Building and promoting a customer-focused culture across the company for internal and external stakeholders is what connects our people above and beyond the company's footprint. We actively and continually seek input to create the best terminal operator experience in the industry. | With vision and entrepreneurial spirit, LBCT must take calculated risks to create a competitive advantage. Our people explore and use the best technology, but also set challenging goals for themselves and their work groups to maintain operational excellence. We hold ourselves accountable to these goals for our employees, our stakeholders, and our industry. |

PRIORITY ACTION 1

# PLANNING & PROCESSES

## Incorporate Zero Emissions Planning, Processes and Goals into LBCT Policies, Programs, & Investment Decisions

**GOAL** **Operationalize net-zero equipment and infrastructure procurement and deployment into annual policy, planning, management, and budgeting processes throughout LBCT**

**DESCRIPTION** Eliminating all fossil-fueled equipment and vehicles will require a significant amount of long-range procurement planning, capital budgeting, workforce training, and new operational procedures. The entire organization must be focused on achieving the 2030 Goal, and each department must consider its policies, procedures, and investment decisions.

Decision-making in the context of zero emissions can be especially challenging. For many equipment and vehicle types, zero-emission options and technologies are only now emerging, and there is much uncertainty around performance, infrastructure needs, and cost. The company has addressed this in the past and understands the risks of early adoption. Electrification versus hydrogen are examples of competing technologies and innovative equipment that are becoming available, especially in battery and charging infrastructure.

LBCT must use the best available science, data and partnerships to understand the implications and ensure seamless coordination throughout the organization. It is only by thoroughly integrating climate actions into LBCT's strategies, policies, programs, and budget planning processes, will we make better-informed decisions around resource allocation. To remain progressive, LBCT must turn to lifecycle asset management, detailed data analytics, and other strategies.

**LBCT WILL:**

- Create a cross-departmental team to integrate zero emissions across the company
- Review the current budget planning process to ensure it accounts for zero emissions purchases and develop a budget protocol to handle the cost uncertainty around zero-emission equipment
- Review worker training policies to ensure adequate skills for zero-emission equipment
- Develop procurement policies and procedures to maximize purchases of zero-emission equipment and vehicles in the near term and to avoid purchases of fossil-fueled equipment, if possible, minimizing pollution waste by keeping vehicles beyond their expected lifespan
- Develop processes to insert carbon neutral requirements into vendor contracts
- Review infrastructure development policies to align with zero emissions goals

PRIORITY ACTION 2

# EQUIPMENT, FACILITIES & INFRASTRUCTURE

## Ensure Zero-Emissions in All Aspects of the Organization

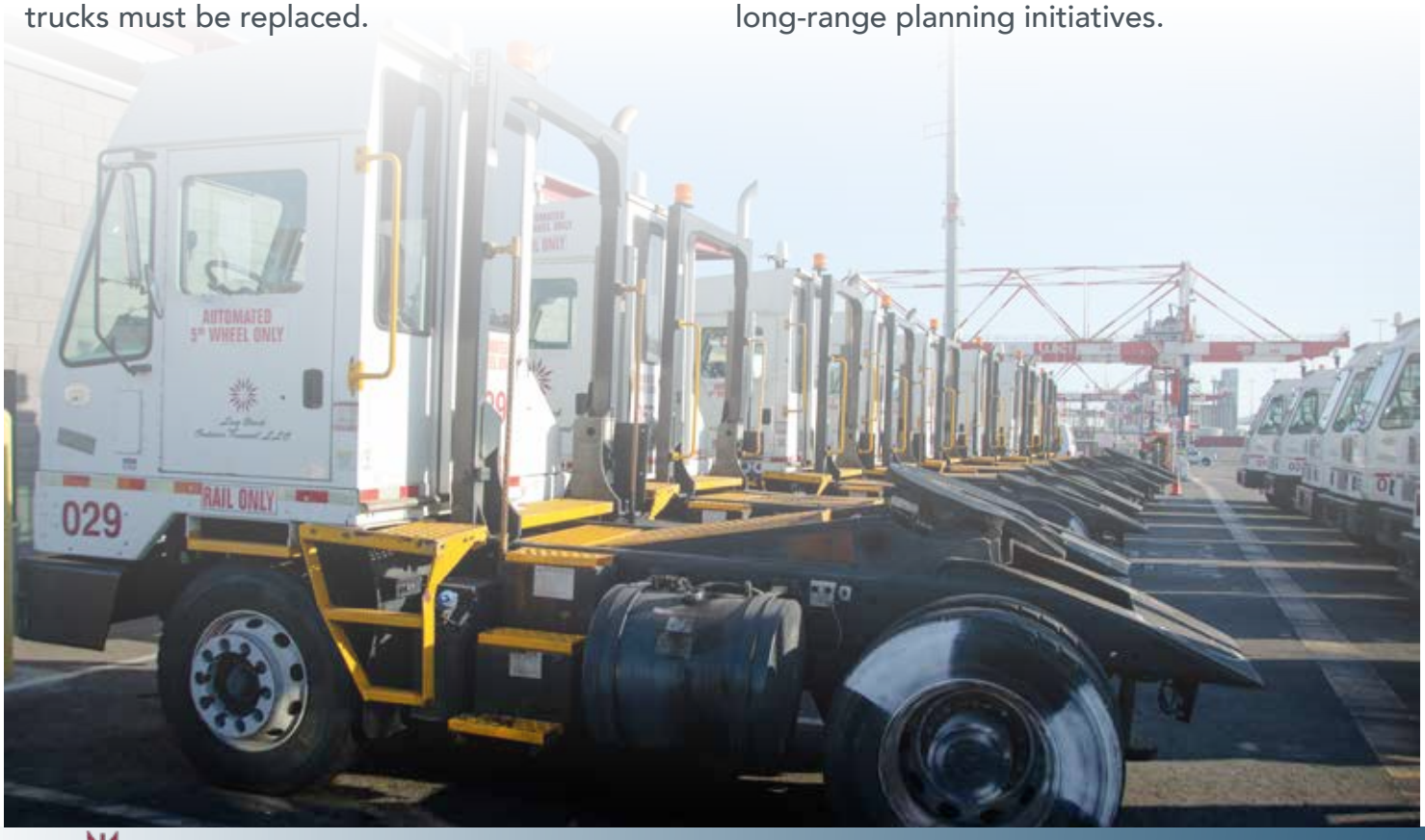
**GOAL** **Convert fossil-fueled equipment and vehicles to zero emissions over the next 5 to 7 years and ensure sufficient infrastructure to support the goal.**

**DESCRIPTION** The bulk of LBCT's cargo-handling equipment and vehicles is zero emissions, but we still have approximately 300 pieces of equipment and vehicles that must be replaced. The fossil-fueled fleet consists largely of yard tractors at the rail operation, pick-up/service trucks, buses, sweepers, and forklifts.

Zero-emission options are not available for everything, but they are on the horizon. Based on exchanges with the Port of Long Beach and potentially available state and federal funding, priorities will be placed on Cargo Handling Equipment (CHE), comprised of Yard Tractors, Forklifts, Reach Stackers, Top Handlers and Rail Moving Carts. Sweepers, buses, generators and other diesel equipment is prioritized next. Finally, heavy and light duty service and pickup trucks must be replaced.

Zero-emission equipment requires supportive infrastructure, such as charging stations and/or on-site hydrogen fuel. Designing, permitting, and constructing this infrastructure could take up to three years, and it must be in place before equipment is deployed. Because the Port of Long Beach remains the landowner and executes many of the permits, LBCT must coordinate with the Port and the City of Long Beach on infrastructure development.

LBCT Facilities also must reduce energy usage to meet the zero emissions goal. LBCT will evaluate ways of reducing energy consumption from terminal buildings and equipment while assessing the feasibility of on-site power generation. These types of assessments will need to be integrated into day-to-day operations and long-range planning initiatives.



PRIORITY ACTION 2

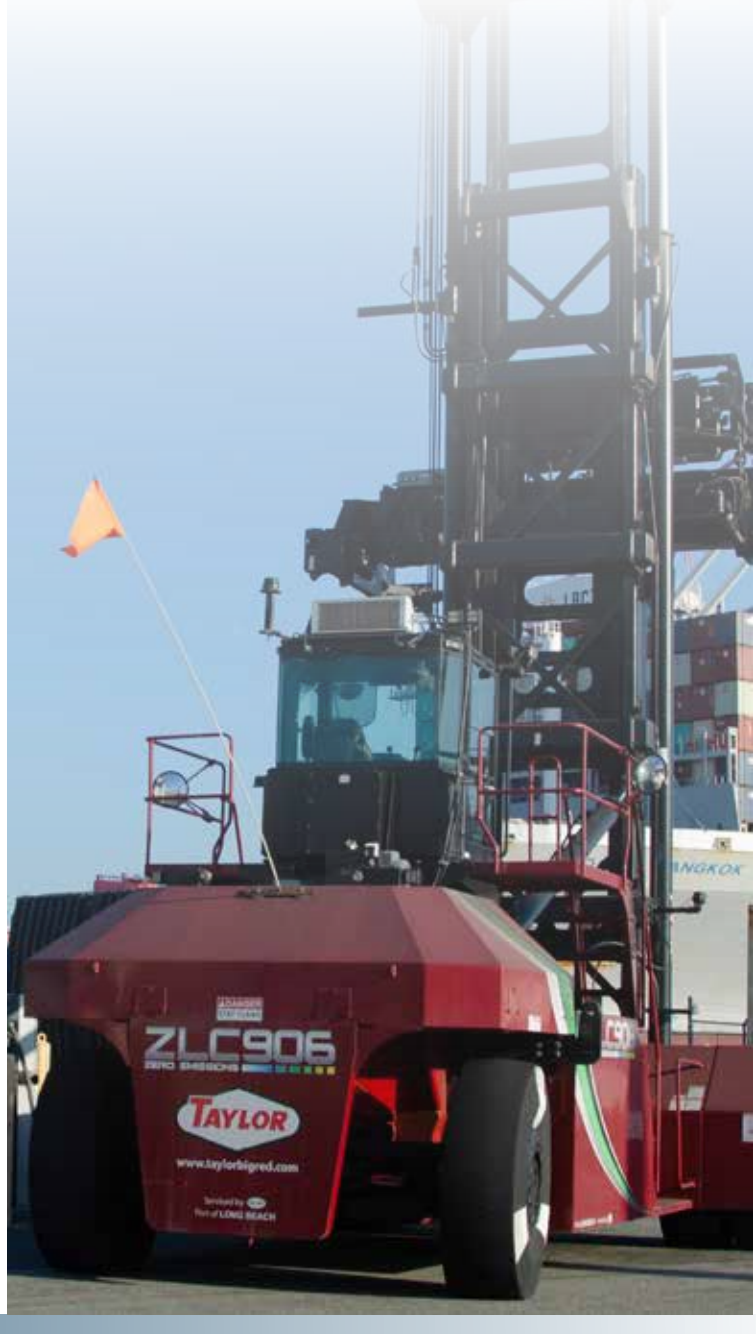
# EQUIPMENT, FACILITIES & INFRASTRUCTURE

## LBCT WILL:

- Develop a 5 to 7 year equipment plan to replace fossil-fueled equipment and vehicles. This timeframe meets the 2030 Net Zero goal, spreads capital expenses over multiple years, maximizes grant funding opportunities, and allows time for zero-emission technology to mature where needed
- Develop engineering design drawings, construction schedules, and cost estimates for required infrastructure
- Conduct annual technology feasibility assessments to determine the state of zero-emission technologies, identifying opportunities to accelerate procurement timelines and/or challenges to meeting the 2030 goal
- Pursue all available port, state and federal agency funding for CHE and non-CHE
- Volunteer to participate in technology demonstrations for emerging zero-emission equipment, particularly equipment in the early prototype phase, such as sweepers, top handlers, and generators
- Require third-party vendors (vehicle/equipment providers) to develop 5 to 7 year plans for transitioning to zero emissions for all equipment/vehicles that operate at LBCT
- Add 6 additional solar installations and buy out the power purchase agreement on the existing solar installations
- Explore new on-site power generation projects to reduce dependence on the grid and Scope 2 emissions
- Conduct an energy audit every three years to identify ways of reducing the load from buildings and equipment

This plan should address:

- Replacement of fossil-fuel powered CHE and operations support vehicles with that of zero emissions equipment.
- Conversion of diesel-power motors to zero-emission motors in existing equipment
- Installation and construction of substations and charging stations related to the equipment



PRIORITY ACTION 3

# FUNDING & ADVOCACY

## Stimulate Systemwide Change in Goods Movement

**GOAL** **Support supply-chain partners in the systemwide transition to Net Zero through policy advocacy. Secure grant funds to offset LBCT's own risk as an early actor.**

**DESCRIPTION** LBCT is one player in an expansive goods-movement network. To be truly successful, LBCT needs to support policies that result in systemwide decarbonization, thereby creating a broad market for new zero-emission technologies and leveling the playing field for all supply-chain partners. Today, CHE can run five to six times that of diesel equipment. LBCT must work actively to support its partners in transforming this industry to net zero – shipping lines, trucking companies, harbor craft operators, railroads, and third-party vendors – as new regulations come into place.

The path to Net Zero is fraught with risk, hinging on technologies and operational changes not fully tested. To minimize this risk, state and federal agencies are pumping billions of dollars into incentives and subsidies to defray the high costs of zero-emission equipment. LBCT, as an early actor, is in a good position to secure these outside funding resources. Replacing the equipment and vehicles with the infrastructure is expected to cost $150 million of the total $200 million Net Zero Action Plan estimated cost. Grant funding and subsidies may ease LBCT's transition to full zero emissions as part of the readiness pathway, freeing resources for even more ambitious strategies through the resilience and regeneration pathways.

**LBCT WILL:**

- Develop a 5-year funding strategy identifying potential projects and funding sources
- Actively engage the Port of Long Beach to seek grants for which only public agencies can apply to projects on LBCT's behalf
- Advocate for grants from state and federal agencies educate regulatory agencies on the impacts of proposed new laws through meetings, terminal tours, formal comment letters, and coordination with Pacific Merchant Shipping Association (PMSA)
- Support shipping lines, trucking companies, harbor craft operators, railroads and third-party vendors in complying with and ideally exceeding zero-emission regulations through preferential access, incentives, and joint grant applications, as appropriate

PRIORITY ACTION 4

# COMMUNITY RESPONSIBILITY

## Taking an Active Role in Stewardship

**GOAL** Effectively integrate community considerations into LBCT climate actions

**DESCRIPTION** LBCT is privileged to operate in Long Beach, providing good-paying jobs and economic benefits for the local community and region. We operate with the permission of our neighbors, and we must be mindful of our impacts on those who live closest to our terminal, many of whom are among the most socially vulnerable residents in the state. LBCT's groundbreaking zero-emission redevelopment has improved the lives of our neighbors, but our journey to Net Zero would not be complete without soliciting input from the local community and actively including them in decision-making.

LBCT is working closely with the Port of Long Beach and regional, state, and federal agencies to support environmental justice. As we execute this Climate Action Plan, we must ask: Have we fully considered the impacts of this action on our neighbors, with particular attention to those who are socially vulnerable? How can we maximize the benefits of this action for our community? How can we be more inclusive in our quest for better long-term alternatives? For example, actions may incorporate educational or workforce development strategies, or carbon-offset projects such as greening spaces, community gardens or tree plantings, all of which benefit the community. This priority action may not directly lead to emission reductions, but it is critical in preserving our public license to operate. LBCT will seek renewable energy, watershed management and nature based solutions projects, providing emissions reductions while enabling active participation in the carbon and water credit marketplace. This requires significant research and investment into community outreach and demonstration projects.

**LBCT WILL:**

- Evaluate specific projects to incorporate community benefits into Net Zero projects
- Consider wind and tidal projects, other renewable electricity projects, and offsets that benefit the community directly or indirectly
- Develop a 305-acre watershed management program that yields emission benefits
- Partner with the City, County and the Port of Long Beach on programs that support the local community and ecosystems
- Explore ways to prioritize education, workforce development, and jobs for our neighbors


*In 2021, LBCT added Bonnie Nixon to the team. She has more than 3 decades of experience in community outreach, environmental planning, and corporate responsibility.*

## Our world, country, & region

are facing record breaking climate events due to high rates of air, water, and land pollution. We are already experiencing the adverse impacts, from sea-level rise, extreme heat, unstoppable fires, floods, to drought in our region. These impacts are likely to become more severe in the decades to come unless we take meaningful actions now. The goods movement sector must harness our capabilities and resources to address climate change to keep our employees and communities safe and for future generations to thrive.

*Bonnie Nixon*
*LBCT Director of Sustainability*
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# Long Beach Container Terminal

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**LBCT.com**