YOUNG BROTHERS

2024

CLEAN ENERGY PLAN

YOUNG BROTHERS

CONTENTS

BY THE NUMBERS

380+ EMPLOYEES

21+ BUILDINGS & FACILITIES

211 SHORESIDE VEHICLES & MACHINES

9 BARGES

11 TUGS
including (4) EPA Tier 4 Kāpena-class tugs

1,250 VOYAGES
per year between the Hawaiian Islands

12 WEEKLY SAILINGS
between the ports of Nāwiliwili, Honolulu, Kaumālapa'u, Kaunakakai, Kahului, Kawaihae and Hilo

For over 120 years, Young Brothers has been a reliable and consistent presence in Hawai'i, committed to serving our local communities and the environment through implementation of our three Pillars: customers, 'ohana (family), and stability in everything we undertake. In the wake of climate change impacts and the State of Hawai'i's formal commitment to 100% Clean Energy by 2045, our Clean Energy Plan highlights Young Brothers' ongoing commitment and pledge to align with the State's vision for sustainability, whereby Young Brothers will not only support, but lead the charge towards a cleaner and more sustainable future for Hawai'i.

The following pages outline Young Brothers' blueprint for the future that melds the wisdom of traditional Hawai'i practices with the potential of emerging technology. Young Brothers is committed to preserving Hawai'i's beauty and vitality for generations. This plan is more than a document; it is a celebration of Hawai'i's past, a promise to its present, and a commitment to its future.

YOUNG BROTHERS

OUR COMMITMENT

YOUNG BROTHERS

A MESSAGE FROM OUR PRESIDENT

Aloha kākou,

I am excited to introduce Young Brothers' Clean Energy Plan outlining our ambitious and aspirational roadmap towards achieving 100% Clean Energy use by the year 2045. This is a pivotal moment in Young Brothers' history, and one that reflects our commitment to sustainability, environmental responsibility, and the brightest possible future within our shared communities.

As we collectively grapple with the profound challenges of climate change and dwindling natural resources, it is imperative for businesses like ours to step up and lead the way in driving sustainable change. We have proudly embraced this challenge with open arms, and today, we are already on our way to creating a more sustainable future.

Our aspiration to achieving 100% Clean Energy by 2045 is not just an ambitious goal; it's a testament to our dedication to creating a more sustainable and resilient future. It is a promise to our planet, our communities, and to future generations that we will do our best in curbing climate change while conserving the precious resources that sustain us all.

Undertaking this new Vision is not without its challenges, but our proven dedication, innovation, and ingenuity are our greatest assets. Together, we will pave the way for a cleaner, greener, and more sustainable future. As a company, we are united in our purpose, driven by a shared vision, and fueled by the values that have defined us.

It is our teams' hard work, unwavering commitment, and tireless dedication that will hopefully make this Vision a reality. I am confident that with our collective effort, we will not only meet our goal of 100% Clean Energy but make a tangible difference we can be proud of for generations.

I encourage you all to delve into our roadmap, strategies, and milestones for executing this Vision. It is a testament to our collective intelligence and capacity to make a significant difference.

Let us keep in mind that we are not just a company; we are a force for positive change. We are setting an example for our industry, our peers, and the world—proving that a better and more sustainable future is not just a dream, but an achievable reality.

Thank you for your dedication, hard work, and unyielding commitment to this Vision.

Jay Ana

President, Young Brothers

INTRODUCTION TO THE PLAN

A unified aspiration to clean energy

Amidst Hawai'i's tropic waves and lush landscapes, a story of resilience and adaptation has unfolded over the centuries. The history of Hawai'i is deeply intertwined with sustainable practices already, shaped by the islands' unique ecosystems and the reverence its people have for the land and sea. Today, the effects and urgency for responding to the ongoing climate crisis is becoming ever more present. Hawai'i's communities are at a crossroads, merging centuries of ancestral wisdom, while harnessing the potential of new and emerging technologies to navigate the rapidly evolving circumstances.

Young Brothers has long recognized the urgency of the climate crisis. Already, proactive investments have been made, weaving sustainability into the fabric of Young Brothers' operations. These efforts reflect dedication to Young Brothers' strategic plan and its three pillars: customers, 'ohana (family), and stability. Young Brothers believes that sustainability is not an isolated pursuit but an intrinsic part of creating a resilient and prosperous future for the communities served.

Today, we find ourselves at a pivotal moment in history. The impacts of climate change are no longer abstract theories but tangible realities within our state. Rising sea levels, higher frequency of severe weather events, increasing wildfires, and shifting ecosystems are stark reminders of the responsibility to the community and ecosystems. Young Brothers has formalized its commitment to sustainability, by aligning itself with the State's 100% Renewable Energy initiative, through implementation of specific projects and programs.

The following outlines Young Brothers' Clean Energy Plan, a blueprint for the future that melds the wisdom of traditional Hawai'i practices with the potential of emerging technology. Young Brothers is committed to preserving Hawai'i's beauty and vitality for generations. This plan is more than a document; it is a celebration of Hawai'i's past, a promise to its present, and a commitment to its future.

Buildings And Facilities
Goal 1: Enable on-site Renewable Energy generation and energy storage infrastructure
Goal 2: Develop sustainable design guidelines for new construction and major renovations

Shoreside Vehicles And Machinery
Goal 1: Zero Emission Shoreside Fleet Upgrades
Goal 2: Zero Emission Shoreside Machinery Upgrades
Goal 3: Promote Employee EV Commutes

Marine Vessels
Goal 1: Maritime Shore Power Infrastructure
Goal 2: Vessel Engine Upgrades
Goal 3: Biofuel and Biodiesel Usage

Key definitions

Clean Energy: The generation or use of energy that produces minimal to zero greenhouse gas emissions.

Renewable Energy: The generation or use of energy from sources that can be replenished naturally, such as through sunlight or biofuels produced from renewable feedstocks. The renewable energies described herein are considered as forms of clean or cleaner energy due to their reduced to zero GHG emissions.

MISSION AND VISION

Our company-wide mission and vision

At the heart of our Clean Energy Plan lies a powerful vision that illuminates our path and guides our strategic direction. This vision serves as our north star, a beacon to which all our operational goals converge.

To ensure our alignment with our broader business direction, we delve into Young Brothers' overarching Mission and Vision and the three Pillars that define us: Customers, 'Ohana, and Stability.

Our Mission

We are Hawai'i's marine highway connecting our island communities by providing inter-island marine transportation of freight of all kinds.

Our Vision

To be Hawai'i's trusted inter-island freight company.

Clean Energy Plan vision

Young Brothers' Vision for sustainability has been crafted by key stakeholders within our organization. This Clean Energy Plan Vision serves as our promise and is built on the following values:

To be a committed leader, inspiring and influencing stewardship of our island communities by providing environmentally responsible inter-island freight services while moving Hawai'i toward a sustainable and resilient future.

SUSTAINABILITY

Sustainability is at the core of who we are, driving our Clean Energy initiatives and unwavering commitment to future generations and the well-being of Hawai'i. It guides our efforts to enhance Hawai'i's livability and environmental responsibility.

COMMUNITY RELATIONSHIPS

We prioritize strong relationships with our communities, including government stakeholders, actively promoting environmental sustainability and engagement with the communities we serve.

INDEPENDENCE

Our commitment to independence ensures our longevity and resilience, enabling us to tackle challenges like climate change and resource shortages while minimizing our environmental impact.

FORWARD THINKING LEADERS

We are dedicated to being forward-thinking leaders, fostering innovation and green shipping and cargo handling practices, all while remaining firmly rooted in sustainability.

STEWARDSHIP

Stewardship is central to our Mission, a guiding principle that drives us to preserve the environment and support our communities, all while reducing our carbon footprint and passionately advocating for positive change.

The Plan Development Process outlines the key steps that have been undertaken to date and set the foundation of Young Brother's trajectory towards a clean energy future.

Together, these four parts lay the groundwork for our Clean Energy Plan, combining research, policy awareness, funding strategies, and stakeholder collaboration to pave the way for a sustainable future in line with the company's mission and vision.

Areas of examination include:

1. In-depth analysis of industry leaders' sustainability practices and exploration of strategic opportunities.
2. Navigation of the complex regulatory landscape, and in particular compliance requirements with recent legislation and Hawai'i's Clean Energy goals.
3. Understanding of grant and funding opportunities and spent time detailing strategies for securing resources.
4. Continued stakeholder engagement – vital throughout the process and demonstrating the invaluable input of stakeholders in shaping the plan.

YOUNG BROTHERS

PLAN DEVELOPMENT

PLAN DEVELOPMENT PROCESS

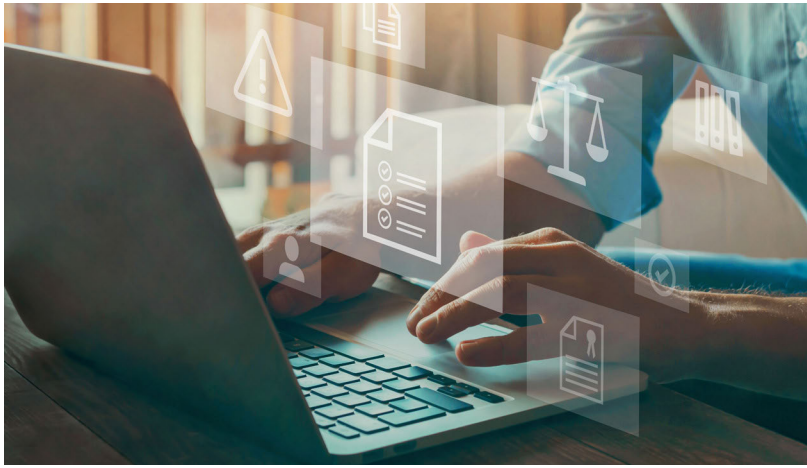
Our sustainability plan unfolds in a systematic process, each element crucial in shaping the company's trajectory towards a clean energy future. Each step is necessary to fully comprehend the baseline conditions and where we can make strides towards the Vision.

We recognize the dynamic nature of today's regulatory landscape, where policies and responsibilities evolve swiftly. Consequently, we maintain constant vigilance and scrutiny of emerging policies and obligations, ensuring our strategies remain adaptable to future developments.

Applicable regulations include:

- Electric Vehicle Charging Infrastructure
- Energy Data Collection
- Energy Usage Reporting
- Renewable Portfolio Standards
- Zero-Emissions Transportation

ALIGNMENT WITH KEY POLICIES



Our dive into policy has revealed a complex web of energy and sustainability-focused regulatory requirements that have the potential to impact our operations significantly. The anchoring initiative across all policies is the State's plan to be operating with 100% Renewable Energy by 2045[1].

As we embrace our commitment to sustainability, we recognize the importance of comprehending the intricate regulatory framework we work within. The following analysis has been completed to outline the intent of numerous plans/policies/ regulations within the State of Hawai'i relative to YB's Clean Energy Plan.

Methodology

The documents reviewed were categorized as one of the following:

A Plan

A document that is written by an authority, that outlines the authority's internal operational commitments. For example, a municipality has committed to providing employees with gym membership discounts. (Not applicable to YB's scope of work.)

An Expectation

A document that is intended to demonstrate industry leadership, with commitments that YB could potentially draw inspiration from. For example, the state of Hawai'i has a goal to transition to 70% Clean Energy by 2030. (A commitment that is in line with the scope of work, that YB has the opportunity to align with.)

A Regulation

A formal requirement that is mandated by an authority. For example, City and County of Honolulu require per City Ordinance 22-17 in 2022, buildings 25,000sq ft or larger must benchmark and report their energy and water usage to the City annually. (A requirement that YB is required to adhere to, that will be addressed in the Clean Energy Plan.)

[1]The timeline above is subject to cost and budget considerations.

The following roadmaps provide a deep dive into the operations that are at the core of Young Brothers, and how we plan to address the clean energy transition within each of these operations. The following pages go into specific goals for each operation, describing the benefits, and providing measurable targets and milestones.

Any timelines described herein are opinionated estimates that are made on the basis of information currently available. Since YB has no control over market conditions or the advancement of technology by manufacturers or others, YB does not guarantee that any targets will be completed by the timelines presented herein.

Buildings and Facilities

Fleet Vehicles and Shoreside Machinery

Marine Vessels

YOUNG BROTHERS

ROADMAPS

Buildings and Facilities

OVERVIEW & BACKGROUND

Young Brothers' headquarters is located on Piers 19, 39 and 40 in Honolulu Harbor. We have additional facilities at Pier 21 in Honolulu Harbor, Pier 2 and 4 in Hilo Harbor and Kawaihae on Hawai'i, Nāwiliwili Harbor on Kaua'i, Kaunakakai Harbor on Moloka'i and Kaumālapa'u Harbor on Lāna'i. Our energy usage on the neighbor islands is negligible.

WHY BUILDINGS AND FACILITIES

Setting clear goals for our buildings and facilities is paramount as we transition to renewable energy for a variety of reasons:

- **Environmental Impact**
- **Reduced Carbon Footprint**
- **Energy Efficiency**
- **Future-Proofing**
- **Resilience and Risk Mitigation**

GOAL #1 | ENABLE ON-SITE RENEWABLE ENERGY GENERATION AND ENERGY STORAGE INFRASTRUCTURE

Description

Implementing Goal 1, emphasizing on-site Renewable Energy generation and energy storage for Young Brothers, brings transformative benefits. The use of solar photovoltaic (PV) systems taps into Hawai'i's abundant sunlight, offering a sustainable energy source with minimal impact on buildings or electric infrastructure. This approach allows Young Brothers to harness solar energy economically without major renovations. The incorporation of solar brings significant electricity cost reductions, and surplus energy can be stored using on-site battery systems, ensuring a consistent power supply.

With Hawai'i heavily reliant on fuel-oil generation, Young Brothers can contribute to reducing fossil-energy sources and increasing renewable energy on the grid. This move enhances energy supply control, decreasing dependence on external grids and safeguarding against disruptions. Recent battery technology advancements enable tailored energy storage solutions, enhancing facility-level resiliency during grid outages or emergencies. Focusing on PV and battery storage aligns with Young Brothers' sustainability goals, optimizing energy resiliency and cost management. Achieving this goal not only reduces energy expenses but also reinforces Young Brothers' commitment to environmental stewardship, energy self-reliance, and operational resilience.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Evaluate available rooftop and canopy PV space and assess its potential for energy generation, along with identifying grade-level areas suitable for on-site battery storage. Confirm building and facilities inventory and dimensions and assess condition. Coordinate and partner with the owners of the buildings and facilities.

Estimated Emissions Reductions: Negligible for this preliminary effort.

Medium-term (5-10 years)

Launch pilot project(s) to install on-site Renewable Energy PV systems and resilient on-site battery storage systems.

Estimated Emissions Reductions: 1-2% of YB's overall emissions from baseline.

Long-term (10+ years)

Implement on-site Renewable Energy PV systems and resilient on-site battery storage systems at all facilities owned or operated by Young Brothers.

Estimated Emissions Reductions: 4% of YB's overall emissions from baseline.

GOAL #1 | BENEFITS

Emissions Reductions: By embracing on-site PV and battery energy storage systems, Young Brothers gains greater control over its carbon footprint and energy consumption.

Reduced Reliance on External Entities: Implementation of this goal will reduce Young Brothers' reliance on external entities to meet its sustainability objectives.

Energy Resiliency: On-site generation and storage enhance Young Brothers' energy resiliency, allowing it to better manage potential grid disruptions.

Capital Management Advantages: This approach provides significant cost management advantages, allowing Young Brothers to manage energy costs efficiently.

GOAL #1 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Hire PV Consultant

Engage a professional PV consultant with expertise in commercial installations to perform a detailed PV analysis for Young Brothers' facilities. This includes evaluating the available rooftop space, orientation, shading, and the potential for energy generation.

Select Battery Technology Expert

Identify an expert or consultant specializing in battery storage technology who can evaluate sizing and suitable grade-level areas for on-site battery storage systems.

PV Evaluation

The initial PV evaluation, typically conducted by a specialized consultant, can be completed within approximately six to eight weeks, depending on the level of detail required for the analysis.

Define Pilot Project Criteria

Collaborate with the solar and battery storage consultants to establish specific criteria for designing and evaluating the pilot project(s). Consider factors such as energy consumption, facility suitability, financial viability, and potential environmental impact.

Select Pilot Project

Based on the established criteria, choose a facility within Young Brothers' portfolio that aligns with the pilot project's goals. Ensure that the selected facility offers valuable insights and serves as a demonstrative example for future installations.

Prepare a Conceptual Cost Estimate

Through either an in-house cost estimator or specialized consultant, Young Brothers will complete a conceptual cost estimate at the outset of the project and will periodically update it throughout the project as strategic decisions are made, and/or to inform decisions at hand. Conducting a comprehensive cost analysis is a fundamental and critical step to ensure effective project planning and management, and doing it as close to the project start as possible will allow for greater accuracy. The purpose of this cost analysis is to provide a clear and accurate estimate of the financial resources required to initiate, execute, and complete the project. This analysis is an essential component of the project planning phase and serves as the foundation for prudent financial management throughout the project lifecycle.

Prepare a Conceptual Schedule for a Pilot PV and Energy Storage Pilot Project

Following this evaluation, the timeline for a pilot PV and energy storage project can vary based on project type and scale. Smaller-scale projects, such as behind-the-meter installations with smaller battery storage systems, can often be accomplished turnkey in 6-12 months. However, larger projects that feed significant excess power onto the grid may trigger additional utility grid studies, necessitating additional time for coordination and approvals.

Engaging Hawaiian Electric and Other Relevant Utility Entities

To allow seamless integration with the existing power grid. Tailoring the timeline to the specific project's complexity and scale is essential to ensure its successful and timely implementation.

Inventory Buildings

Confirm building and facility inventory and verify building dimensions and condition.

GOAL #1 | MILESTONES AND IMPLEMENTATION

MEDIUM-TERM (5-10 Years)

Develop Request for Proposals (RFP)

Prepare a comprehensive RFP document that outlines the project's scope, objectives, technical requirements, and evaluation criteria. Include specifications for PV brand and battery type based on the consultant's recommendations.

Bid Out Pilot Project

Solicit proposals from qualified PV and battery storage contractors for competitive bidding. Evaluate proposals based on technical expertise, pricing, and adherence to project requirements.

Award Pilot Project Contract

Select the contractor that best meets the project's criteria and award the contract. Ensure the chosen contractor has a proven track record in PV and battery installations.

LONG TERM (10+ Years)

Monitor Pilot Project

Continuously monitor and assess the performance of the pilot project, including energy generation, storage, and cost savings. Use the pilot as a learning experience to identify areas for improvement and adjustments.

Identify Secondary Projects

Based on the success and lessons learned from the pilot project, identify additional facilities within Young Brothers' portfolio suitable for PV and battery installations. Prioritize facilities based on energy consumption, sustainability goals, and other relevant factors. Consider grouping projects to maximize volume discounts.

Develop a Facility Prioritization Plan

Create a prioritized plan for implementing PV and battery storage systems across all facilities. Consider factors such as energy demand, environmental impact, feasibility, and alignment with Young Brothers' overall sustainability objectives.

Prepare RFPs for Secondary Projects

Develop tailored RFPs for each secondary project, specifying PV brand, battery type, and other technical requirements based on the success of the pilot project.

Bid Out Secondary Projects

Repeat the competitive bidding process for secondary projects, ensuring that selected contractors meet the established criteria.

Execute Secondary Projects

Award contracts and proceed with the installation of PV and battery storage systems at additional facilities.

GOAL #2 | DEVELOP SUSTAINABLE DESIGN GUIDELINES FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS

Description

The successful implementation of the goal to develop Sustainable Design Guidelines for new construction and significant renovations carries a multitude of positive outcomes and advantages. These guidelines will serve as a comprehensive framework that directs the sustainable transformation of future building projects and significant renovations within Young Brothers' portfolio.

Developing and implementing sustainable design guidelines are a strategic investment in Young Brothers' future. They promote environmental responsibility, cost-efficiency, resilience, and innovation while contributing to the organization's overarching sustainability objectives. This goal positions Young Brothers as a leader in sustainable building practices with far-reaching positive impacts on its operations, stakeholders, and the environment.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Draft a set of actions to be considered for inclusion in future Sustainable Design Guideline documentation specific to new construction and major renovation and/or modernization of existing facilities being added to the Young Brothers portfolio of buildings. Confirm building and facilities inventory and dimensions and assess condition.

Publish major renovation and/or modernization guidelines to allow for utilization on terminal re-design projects, with subsequent updates every five years to adapt to evolving sustainability trends and product advancements.

Estimated Emissions Reductions:
This goal would contribute to Scope 3 emission reductions, which are not currently tracked. These emissions reductions would be realized if YB begins accounting for Scope 3 emissions.

Medium-term (5-10 years)

Publish new construction guidelines with subsequent updates every five years, with incremental updates sooner — should there be major reason to do so — to adapt to evolving sustainability trends and product advancements.

Estimated Emissions Reductions:
This goal would contribute to Scope 3 emission reductions, which are not currently tracked. These reductions would be realized if YB begins accounting for Scope 3 emissions.

Long-term (10+ years)

Identify opportunities for new construction projects as existing buildings reach the end of their useful lifecycle. Internally publish Guidelines Updates in 2045, building upon previous releases to increase focus on load reduction, mechanical/electrical/plumbing system efficiency, and on-site Renewable Energy generation. The target for 2045 is to achieve Net Zero Energy/Carbon facilities powered entirely by on-site Renewable Energy.

Estimated Emissions Reductions:
No emissions reduction based off current YB baseline; however, reductions would be realized if YB begins accounting for Scope 3 emissions.

GOAL #2 | BENEFITS

Alignment with Portfolio Goals: These guidelines will seamlessly align with the overarching reduction goals for Young Brothers' entire building portfolio, covering both new constructions and renovation opportunities.

Emission Reduction: Approximately 30% of the United States' municipal greenhouse gas emissions come from buildings and facilities. By addressing energy consumption in Goal 1 and materials in Goal 2, Young Brothers would be holistically addressing the environmental impacts of their buildings. The successful implementation of these guidelines is paramount, as it will lead to reductions in operational carbon emissions in the coming years. It will be helpful for YB to begin tracking Scope 3 emissions from buildings to realize these emission savings. Furthermore, when guidelines are implemented, and new buildings are constructed, there are benefits that impact other goals within this plan. For example, a new facility could have better traffic control, and reduce the existing idling time of vehicles at the current ports.

Commitment to Sustainability: Implementing these guidelines reinforces Young Brothers' commitment to sustainability across its building portfolio, demonstrating environmental responsibility in the face of climate change.

GOAL #2 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Draft Preliminary Actions

The Young Brothers facilities group will initiate the process by identifying a team responsible for drafting a set of preliminary actions. These actions will be the foundation for future Sustainability Design Guidelines. The team will assess existing building practices and identify initial sustainability actions that can be integrated into future projects. These actions may relate to energy efficiency, water conservation, materials selection, and indoor environmental quality, among others.

Task Force Formation

Young Brothers will assemble a cross-functional task force comprised of representatives from various operational groups, including project management, facilities management, and Operations teams. The formation of this task force ensures diverse perspectives and expertise in sustainability. The task force will collectively develop a charter outlining its goals, responsibilities, and communication protocols.

Guideline Development

With the task force in place, the collaborative process of developing Sustainability Design Guidelines can commence. The task force will engage sustainability experts and consultants to guide the development process. Together, they will establish specific sustainability requirements, performance metrics, and best practices tailored to Young Brothers' building projects. The guidelines will encompass comprehensive sustainability considerations to guide new construction and major renovations.

Conduct A Detailed Cost Estimate

Through either an in-house cost estimator or specialized consultant, Young Brothers will complete a detailed cost estimate at the outset of the project and will periodically update it throughout the project as strategic decisions are made, and/or to inform decisions at hand. Conducting a comprehensive cost analysis is a fundamental and critical step to ensure effective project planning and management, and doing it as close to the project start as possible will allow for greater accuracy. The purpose of this cost analysis is to provide a clear and accurate estimation of the financial resources required to initiate, execute, and complete the project. This analysis is an essential component of the project planning phase and serves as the foundation for prudent financial management throughout the project lifecycle.

Inventory Buildings

Confirm building and facility inventory and verify building dimensions and condition.

GOAL #2 | MILESTONES AND IMPLEMENTATION

MEDIUM-TERM (5-10 Years)

Publication and Initial Updates

The initial version of the Sustainability Design Guidelines will be completed and published. This document will serve as a reference for all future projects. Young Brothers commits to updating every five years to ensure the guidelines remain up-to-date and relevant. These updates will incorporate the latest sustainability trends, technological advancements, and industry best practices.

LONG TERM (10+ Years)

Lifecycle Assessment

As existing buildings within Young Brothers' portfolio approach the end of their useful lifecycle; Young Brothers will initiate a lifecycle assessment process. This assessment will evaluate the condition and sustainability performance of existing structures. Young Brothers will engage experts in building lifecycle analysis to determine the optimal time to consider replacement with more energy-efficient and sustainable alternatives.

Guidelines Updates

Young Brothers will continue to publish updated guidelines every five years, ensuring that building projects align with the latest Sustainability Design Guidelines. These updates will progressively raise the standards for sustainability, with an increased focus on load reduction, mechanical/electrical/plumbing system efficiency, and on-site Renewable Energy generation. Young Brothers will actively engage with industry experts and monitor sustainability advancements to inform these updates.

Net Zero Energy/Carbon Transition

By 2045, Young Brothers' long-term target is to achieve Net Zero Energy/Carbon status across its facilities. To achieve this, Young Brothers will initiate projects to transition existing buildings to rely entirely on on-site Renewable Energy sources. Young Brothers will collaborate with Renewable Energy experts, engineers, and project managers to plan and execute this transition. This process may involve installing additional Renewable Energy generation capacity and upgrading building systems for energy efficiency.

Shoreside Vehicles and Machinery

OVERVIEW & BACKGROUND

Addressing shoreside vehicles and machinery in the transition to 100% renewable energy consumption is essential for environmental stewardship. It offers numerous practical benefits, from cost savings to improved public health and resilience. It is a crucial step towards a sustainable and low-carbon future.

WHY SHORESIDE VEHICLES AND MACHINERY

Transitioning to 100% renewable energy consumption in the context of fleet vehicles and shoreside machinery is of paramount importance for a variety of reasons:

- **Emissions Reduction**
- **Local Air Quality**
- **Energy Independence**
- **Resilience and Disaster Preparedness**
- **Long-Term Viability**

GOAL #1 | ZERO-EMISSION SHORESIDE VEHICLE FLEET UPGRADES

Description

Young Brothers aspires to transition its shoreside fleet to zero-emission vehicles for improved sustainability and efficiency. This involves a comprehensive Fleet and Machinery Zero-Emission Transition Plan, evaluating vehicle feasibility, identifying alternatives, and establishing a replacement schedule. The plan also addresses maintenance, operations, and training for the new vehicles. Within YB's Clean Energy Plan, "vehicles" refer to YB's fleet of sedans, pickup trucks, SUVs, vans, and golfcarts. Vehicles are used to transport people throughout port locations.

Infrastructure development is crucial, including charging stations for electric vehicles and hydrogen storage for fuel cell vehicles. The plan assesses infrastructure requirements, specifying locations, types, and maintenance strategies.

Financial aspects, estimating funds for vehicle procurement and infrastructure, are outlined to ensure effective budgeting and potential external funding. The initiative promises reduced emissions, enhanced operational efficiency, and cost management, aligning with Young Brothers' commitment to sustainability and environmental responsibility.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Develop a Fleet and Machinery Zero-Emission Transition Plan, identifying feasibility, infrastructure requirements, and costs for transitioning to zero-emission vehicles.

Estimated Emissions Reductions:
Negligible for this preliminary effort.

Medium-term (5-10 years)

Execute the Fleet and Machinery Zero-Emission Transition Plan, focusing on securing grant funding to support implementation.

Estimated Emissions Reductions:
5-10% of YB's overall emissions from baseline (included with Goal 2 reductions).

Long-term (10+ years)

Utilize insights from the Fleet and Machinery Zero-Emission Transition to establish a 2045 goal for the transition of the entire fleet to zero-emission alternatives.

Estimated Emissions Reductions:
Up to 18% of YB's overall emissions from baseline, inclusive with Goal 2 reductions. Operating 100% zero-emissions shoreside fleet and machinery would eliminate tracked emissions from the shoreside fleet and machinery.

GOAL #1 | BENEFITS

Reduction in Scope 1 Emissions: Developing a zero-emission plan contributes to a substantial decrease in scope 1 emissions, actively reducing the environmental footprint of Young Brothers' operations.

Fleet Modernization: The plan facilitates the modernization of the fleet, ensuring that Young Brothers remains competitive and technologically up to date in its industry.

Comprehensive Vehicle Assessment: A zero-emission plan allows for a comprehensive assessment of each vehicle's potential for conversion to zero-emission alternatives without compromising operational efficiency.

Capital Cost Preparation: The plan provides a structured framework for anticipating and planning for potential increased capital costs associated with procuring zero-emission vehicles, ensuring financial preparedness for the fleet transition.

Optimized Procurement: The plan informs strategic timing for vehicle purchases, aligning procurement with the plan's recommendations, thus enabling cost-effective decisions, and avoiding unnecessary delays or expenses.

Environmental Stewardship: This goal supports Young Brothers' commitment to environmental stewardship, aligning with sustainability objectives and reducing the organization's carbon footprint.

Operational Efficiency and Cost-Effectiveness: The transition to zero-emission alternatives promotes operational efficiency, cost-effectiveness, and a forward-looking approach to fleet modernization, ensuring Young Brothers' continued success and competitiveness.

GOAL #1 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Consultant Selection and Onboarding

Hiring a consultant specializing in creating zero-emission fleet transition plans will be necessary to implement this goal. Young Brothers will issue an RFP and undergo a selection process to hire a consultant to create the fleet transition plan. This consultant will ideally have experience planning for zero-emission fleet transitions within port operations — including modeling zero-emission vehicle operations, creating infrastructure deployment plans, and financial analysis for zero-emission vehicle transitions.

Feasibility Assessment

Conduct a comprehensive assessment of the existing shoreside fleet, categorizing vehicles based on their suitability for zero-emission alternatives. Evaluate factors such as operational requirements, vehicle types, and usage patterns. This may include zero-emission vehicle modeling to simulate current operations with zero-emission vehicles.

Zero-Emission Alternatives Identification

Research and identify suitable zero-emission vehicle alternatives for each category within the shoreside fleet. Consider factors like vehicle specifications, range, and fueling/charging compatibility.

Charging/Fueling Infrastructure Assessment

Determine vehicle infrastructure requirements by assessing the optimal locations for charging stations/hydrogen fueling, the types of chargers needed/amount of hydrogen needed, and overall energy needs. Coordinate with the local utility to ensure power availability for electric vehicle charging or new hydrogen fueling infrastructure.

Financial Analysis

Conduct a financial analysis to estimate the costs associated with procuring zero-emission vehicles and installing necessary infrastructure. Identify what additional funding is needed to implement the transition plan in the medium-term and long-term.

Conduct a Detailed Cost Estimate

Through either an in-house cost estimator or specialized consultant, Young Brothers will complete a detailed cost estimate at the outset of the project and will periodically update it throughout the project as strategic decisions are made, and/or to inform decisions at hand. Conducting a comprehensive cost analysis is a fundamental and critical step to ensure effective project planning and management, and doing it as close to the project start as possible will allow for greater accuracy. The purpose of this cost analysis is to provide a clear and accurate estimation of the financial resources required to initiate, execute, and complete the project. This analysis is an essential component of the project planning phase and serves as the foundation for prudent financial management throughout the project lifecycle.

Fleet And Machinery Zero-Emission Transition Plan Development

It is estimated to take 8-12 months to create a comprehensive plan for the fleet (Goal 1) and shoreside machinery (Goal 2). Modeling and/or other feasibility analysis that show YB's feasibility for zero-emission vehicles, draft transition plan, finalizing transition plan.

GOAL #1 | MILESTONES AND IMPLEMENTATION

MEDIUM-TERM (5-10 Years)

Plan Execution
Begin the implementation of the Fleet and Machinery Zero-Emission Transition Plan, focusing on the acquisition and deployment of zero-emission vehicles according to the replacement schedule outlined in the plan.

Grant Funding
Actively seek and secure grant funding opportunities to support the zero-emission vehicle initiative. Develop grant proposals and collaborate with relevant agencies and organizations to maximize financial support.

Infrastructure Installation
Initiate the installation of charging infrastructure and/or hydrogen fueling infrastructure at identified locations, ensuring that the stations are compliant with safety standards and capable of meeting the fleet's charging/fueling needs.

LONG TERM (10+ Years)

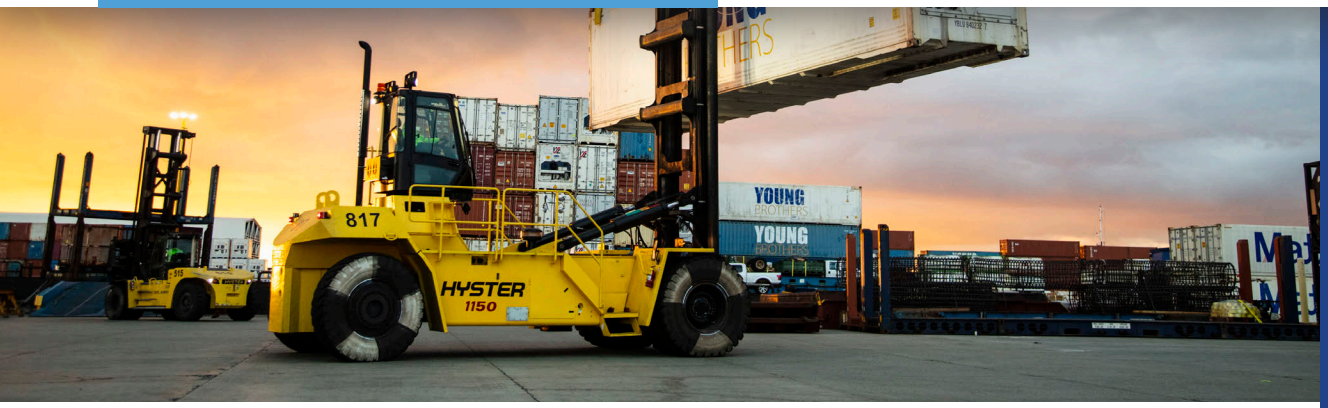
Performance Monitoring
Continuously monitor the performance of the zero-emission vehicles in the fleet, collecting data on energy consumption, maintenance costs, and emissions reductions.

Operational Optimization
Based on the data collected, optimize fleet operations and charging/fueling schedules to maximize efficiency and minimize downtime.

Feedback Integration
Regularly update the Fleet and Machinery Zero-Emission Transition Plan based on insights gained from the ongoing transition efforts. Adapt to changes in technology and industry trends.

Strategic Expansion
Gradually expand the zero-emission fleet as existing vehicles reach the end of their useful lifecycles. Ensure that all new acquisitions align with the zero-emission transition plan.

Finalize 2045 Goal
Utilize the data and experience gained from the electrification plan to establish a clear and achievable 2045 goal for transitioning the entire shoreside fleet to zero-emission alternatives.



GOAL #2 | ZERO-EMISSION SHORESIDE MACHINERY UPGRADES

Description

Young Brothers aspires to transition shoreside machinery to zero-emission alternatives, focusing on battery electric and hydrogen fuel cell propulsion. Within YB's Clean Energy Plan, "machinery" refers to YB's inventory of equipment which is used to move shipping containers or less-than-container-load cargo. This includes Hysters and lifts of various sizes.

The goal, divided into three targets, begins with creating a comprehensive Fleet and Machinery Zero-Emission Transition Plan. This plan assesses feasibility, infrastructure needs, and costs, providing a strategic foundation. The medium-term target involves actively implementing the plan, procuring zero-emission machinery, and seeking grant funding for financial support. The ultimate goal, set for 2045, envisions 100% zero-emission machinery, showcasing Young Brothers' commitment to sustainability and positioning them as an industry leader.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Create a Fleet and Machinery Zero-Emission Transition Plan outlining feasibility, infrastructure needs, and costs for transitioning machinery to electric alternatives.

Estimated Emissions Reductions:
Negligible for this preliminary effort.

Medium-term (5-10 years)

Implement the Fleet and Machinery Zero-Emission Transition Plan and actively seek grant funding to facilitate the transition.

Estimated Emissions Reductions:
5-10% of YB's overall emissions from baseline (included with Goal 1 reductions).

Long-term (10+ years)

Utilize insights from the Fleet and Machinery Zero-Emission Transition to establish a 2045 goal for the zero-emissions upgrades of machinery.

Estimated Emissions Reductions:
Up to 18% of YB's overall emissions from baseline, inclusive with Goal 1 reductions. Operating 100% zero-emissions shoreside fleet and machinery would eliminate tracked emissions from the shoreside fleet and machinery.

GOAL #2 | BENEFITS

Reduction in Scope 1 Emissions: Transitioning machinery in Young Brothers' shoreside operations to zero-emission alternatives will contribute to a substantial reduction in Scope 1 greenhouse gas emissions. By replacing conventional, fossil fuel-powered machinery with zero-emission alternatives, emissions associated with these machines, such as carbon dioxide (CO2) and other pollutants, will be significantly reduced or eliminated. This aligns with Young Brothers' sustainability goals and helps mitigate its environmental impact.

Modernization of Shoreside Machinery: A zero-emission transition represents a modernization of shoreside machinery, replacing older, less efficient machinery with state-of-the-art zero-emission models. Modern zero-emission machinery often features improved performance, reduced maintenance requirements, and enhanced reliability. This transition to more advanced machinery contributes to operational excellence.

Operational Feasibility Assessment: Developing a zero-emission plan allows Young Brothers to comprehensively assess which machinery can be transitioned without compromising operations. Not all machinery may be suitable for zero-emission alternatives due to specific operational requirements. Still, a well-defined plan will identify the machinery that can transition seamlessly to zero-emission alternatives while maintaining operational efficiency.

Capital Cost Planning: Procuring zero-emission machinery can involve different capital costs compared to conventional counterparts. With a zero-emission transition plan, Young Brothers can anticipate and plan for any increased capital investments needed for the transition. This ensures that budgeting is accurate, and that the procurement process is well-informed and cost-effective.

Strategic Timing of Purchases: The plan informs strategic timing for machinery purchases, aligning procurement with the plan's recommendations, thus enabling cost-effective decisions, and avoiding unnecessary delays or expenses.

Environmental Leadership: By transitioning to zero-emission machinery, Young Brothers demonstrates environmental leadership and commitment to sustainability through emissions reductions. This can enhance organizational reputation, attract environmentally conscious customers, and align with industry and regulatory trends, promoting cleaner, more sustainable practices.

Reduction in Vibrations: Zero-emission machinery generates fewer vibrations than their conventional counterparts. This can lead to a more comfortable working environment for employees and contribute to improved workplace satisfaction.

Sustainability Goals Achievement: Zero-emission machinery supports Young Brothers' broader sustainability goals, helping to meet emissions reduction targets, aligning with Clean Energy initiatives, and contributing to a cleaner and more sustainable future.

GOAL #2 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Select Consultant for Zero-Emission Transition Plan

Engage specialized consulting firms with expertise in zero-emission fleet planning, machinery assessments, and infrastructure design. Ensure they have experience in the specific machinery types used by Young Brothers. This consultant will ideally have experience planning for zero-emission fleet transitions within port operations, including modeling zero-emission vehicle operations, creating infrastructure deployment plans, and financial analysis for zero-emission vehicle transitions. Evaluate proposals to select the most qualified candidate.

Assemble Cross-functional Team

Establish a project team that includes representatives with knowledge of operations, maintenance, engineering, finance, and environmental compliance. This diverse team will provide valuable insights and ensure comprehensive planning.

Preliminary Machinery Assessment

Collaborate with the selected consultant to assess machinery within Young Brothers' fleet. Identify machinery types and models feasible to be transitioned based on factors such as duty cycles, operating conditions, and availability of zero-emission alternatives.

Infrastructure Needs Analysis

Evaluate the infrastructure requirements for the identified machinery. If powered by a battery electric propulsion system, determine the optimal locations for charging stations, assess power capacity needs, and consider compatibility with existing facilities. If powered by a hydrogen fuel cell propulsion system, determine optimal locations for hydrogen storage and distribution systems, hydrogen capacity needed, power needed, and consider compatibility with existing facilities.

Cost Estimation

Work with the consultant to estimate the capital costs of procuring zero-emission machinery and installing the necessary infrastructure. Consider equipment purchase costs, infrastructure expenses, and potential grants or incentives. Complete a detailed cost estimate at the outset of the project and will periodically update it throughout the project as strategic decisions are made, and/or to inform decisions at hand.

Conducting a comprehensive cost analysis is a fundamental and critical step to ensure effective project planning and management, and doing it as close to the project start as possible will allow for greater accuracy. The purpose of this cost analysis is to provide a clear and accurate estimation of the financial resources required to initiate, execute, and complete the project. This analysis is an essential component of the project planning phase and serves as the foundation for prudent financial management throughout the project lifecycle.

Development of Fleet and Machinery Zero-Emission Transition Plan

Create a comprehensive plan for the fleet (Goal 1) and shoreside machinery (Goal 2). Modeling and/or other feasibility analysis that show YB's feasibility for zero-emission vehicles, draft transition plan, finalizing transition plan.

GOAL #2 | MILESTONES AND IMPLEMENTATION

MEDIUM-TERM (5-10 Years)

Plan Finalization

Collaborate with the consultant to finalize the Fleet and Machinery Zero-Emission Transition Plan. Ensure that the plan includes a detailed roadmap for machinery replacement, infrastructure deployment, and a comprehensive budget.

Seek Grant Funding

Identify and pursue relevant grant opportunities, incentives, or subsidies that support a transition to zero-emission machinery. To secure funding, engage with governmental agencies, industry associations, and other relevant organizations.

Procurement of Zero-Emission Machinery

Initiate the procurement process for zero-emission machinery based on the prioritized replacement schedule outlined in the plan. Collaborate with equipment suppliers, manufacturers, and dealers to ensure timely delivery and installation.

Infrastructure Deployment

Begin deploying infrastructure according to the plan's specifications. Coordinate with electricians, contractors, and original equipment manufacturers to ensure successful installation.

LONG TERM (10+ Years)

Monitor Implementation Progress

Continuously monitor the progress of zero-emission machinery. Address any challenges or deviations from the plan promptly.

Data Collection and Analysis

Gather data on zero-emission machinery's performance, efficiency, and operational impact. Analyze energy consumption, maintenance costs, and emissions reductions to assess the benefits of electrification.

Long-term Goal Formulation

Based on the data and insights collected during the implementation phase, work with the cross-functional team to formulate a clear and ambitious 2045 goal for the complete electrification of machinery. Consider factors such as technology advancements, market availability, and environmental targets.

Plan Review and Adjustment

Periodically review and adjust the Fleet and Machinery Zero-Emission Transition Plan to align with changing industry trends, regulations, and technological advancements. Ensure that the plan remains a dynamic and forward-looking document.

GOAL #3 | ENCOURAGE SUSTAINABLE EMPLOYEE COMMUTES

Description

This goal aims to reduce emissions from employee commutes through the Sustainable Employee Commuting Program, part of Young Brothers' Clean Energy Plan. The program focuses on Workplace EV Charging, Hybrid/Remote Work, and Carpooling/Transit/Biking Incentives. It extends beyond YB's fleet, addressing employee commutes to reduce scope 3 emissions. The goal comprises three targets: creating the program, implementing it, and ensuring long-term sustainability. The program encourages EV adoption, teleworking, and sustainable commuting practices, contributing to a cleaner future. Funding opportunities will be actively sought during implementation to offset costs and support sustainability. The long-term objectives involve maintaining charging infrastructure, updating policies, and continually improving incentives for sustainable commuting.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Create a Sustainable Employee Commuting Program for YB employees.

Estimated Emissions Reductions:
Negligible for this preliminary effort.

Medium-term (5-10 years)

Implement the Sustainable Employee Commuting Program. This may include installing charging stations at various YB locations and creating sustainable commute incentives. YB could pursue grant funding to install charging stations and/or create employee incentives for carpooling, using transit, or biking.

Estimated Emissions Reductions:
This goal would contribute to Scope 3 emission reductions, which are not currently tracked. These emissions reductions would be realized if YB begins accounting for Scope 3 emissions.

Long-term (10+ years)

Establish, operate, and maintain charging stations for YB employee use. Continue to provide incentives for carpooling, using transit, or biking to work.

Estimated Emissions Reductions:
This goal would contribute to Scope 3 emission reductions, which are not currently tracked. These emissions reductions would be realized if YB begins accounting for Scope 3 emissions.

GOAL #3 | BENEFITS

Scope 3 Emissions Reduction: By promoting sustainable commuting options, Young Brothers can effectively reduce its Scope 3 emissions, encompassing indirect emissions from sources like employee commuting. This contributes to Young Brothers' overall sustainability and environmental goals.

Improving Local Air Quality: By encouraging YB employees to implement a more sustainable commute, YB can help reduce air pollution locally. This demonstrates YB's commitment to being a responsible corporate citizen in the Hawaiian Islands.

Increased Access to EV Charging: Implementing a workplace charging program ensures that Young Brothers employees have convenient access to EV chargers during work hours. This accessibility removes barriers for employees who own or are considering purchasing EVs, making EV adoption more practical.

Reduced Port Congestion: Encouraging employees to use shared modes of transportation or work remotely can help reduce vehicle congestion at Young Brother's ports.

Reduced Range Anxiety: One common concern among EV owners is "range anxiety," the fear of running out of battery charge during a commute. By providing workplace charging infrastructure, Young Brothers alleviates this concern for employees driving EVs, making EVs more attractive and feasible.

Future EV Adoption: Encouraging employees to use EVs for their commutes can lead to a gradual shift in transportation preferences. As more employees experience the benefits of EVs and the convenience of workplace charging, it may motivate them to consider EVs for their personal vehicles, thereby contributing to broader EV adoption in the community.

Employee Satisfaction and Attraction: Offering a variety of commuting options and hybrid/remote schedules as an employee benefit can enhance job satisfaction and make Young Brothers a more attractive employer. It demonstrates Young Brothers' commitment to sustainability, employee well-being, and forward-thinking practices, potentially attracting top talent.

Promoting Healthier Commutes: Employees who choose to bike or utilize public transit may experience positive outcomes by integrating more movement into their daily commutes.

Demonstrated Leadership: Taking proactive steps to encourage sustainable commuting positions Young Brothers as a leader in corporate sustainability. This commitment can positively influence the organization's reputation, enhance brand image, and attract eco-conscious customers and partners.

Reduced Greenhouse Gas Impact: As more employees choose EVs for their daily commutes, there is a corresponding reduction in greenhouse gas emissions and air pollutants associated with traditional gasoline-powered vehicles. This aligns with Young Brothers' environmental stewardship objectives.

Cost Savings: In some cases, offering sustainable commuting incentives may result in cost savings for employees who spend less on fuel and maintenance compared to traditional gasoline vehicles. This can be an attractive financial incentive to potential employees.

Community Engagement: Promoting sustainable commuting contributes to a broader community effort to reduce emissions and embrace sustainable transportation options.

GOAL #3 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Hire Contractor to develop a Sustainable Employee Commute Program:

- Initiate the process by selecting a qualified contractor specializing in workplace EV charging program development and internal employee engagement. This contractor will play a crucial role in creating and implementing the program.

Development of the Sustainable Employee Commutes Program:

- Collaborate with the selected contractor to assess employee interest in sustainable commuting.
- EV Workplace Charging
- Determine the number of charging stations needed based on employee demand.
- Identify ideal locations for charger installations, considering accessibility and convenience for employees.
- Develop a payment system for employees to charge their vehicles, including subscription models, pay-per-use options, or employer-sponsored charging.
- Plan the phasing of charger installations to ensure a gradual and efficient rollout.
- Quantify the number of employees who currently work hybrid or remote schedules compared to the number of employees who want to work hybrid or remote schedules.
- Determine employee preferences for hybrid and remote work.
- Understand existing procedures for hybrid and remote work and formulate a recommended hybrid/remote work policy.
- Quantify the number of employees who commute via carpool, public transport, or biking.
- Define how the Sustainable Employee Commutes Program's success will be monitored and evaluated.

GOAL #3 | MILESTONES AND IMPLEMENTATION

MEDIUM-TERM (5-10 Years)

Finalizing and Adoption of Workplace Charging Program

- Collaborate with Young Brothers leadership and relevant departments, such as Human Resources and Facilities, to finalize the workplace charging program.
- Ensure alignment with Young Brothers' broader sustainability and carbon reduction goals.

Installation of Workplace Chargers

- Implement the first phase of workplace charger installations according to the program's specifications.
- Monitor the program's performance, usage rates, and employee feedback.
- Based on the gathered data and insights, progress to the next phase of charger installation when appropriate, expanding the charging infrastructure.

Adoption of Hybrid/Remote Work Policy

- Collaborate with Young Brothers leadership and relevant departments, such as Human Resources, to finalize and adopt the updated hybrid/remote work policy.

Adoption of Carpool/Transit/Biking Incentive

- Collaborate with Young Brothers leadership and relevant departments, such as Human Resources, to finalize and adopt the carpool/transit/biking incentive.

LONG TERM (10+ Years)

Operate and Maintain Charging Infrastructure

- Ensure the efficient operation of workplace charging stations, promptly addressing technical issues.
- Establish a maintenance schedule to keep chargers in optimal working condition.
- Monitor the growth in employee EV adoption and adjust charger installation plans accordingly.

Update Hybrid/Remote Work Policy as Needed

- Review the hybrid/remote work policy regularly to make updates as needed.

Continually Integrate New Incentives for Encouraging Carpool/Transit/Biking

- Review the carpool/transit/biking incentives and update to include new and preferred incentives.
- Determine preferred incentives for e.g., carpooling, taking public transportation. Explore if encouraging bicycle transportation is a preferred option.

Pursue Grant Funding

- Continuously explore opportunities to secure grant funding to support the Sustainable Employee Commutes Program.
- Leverage grant opportunities to expand the charging infrastructure and promote sustainable commutes among employees.

Marine Vessels

OVERVIEW & BACKGROUND

Young Brothers operates a diverse fleet of interisland tugboats and barges in Hawai'i. The recent $80 million investment replaced aging vessels with EPA Tier 4 compliant engines, showcasing a commitment to environmental stewardship. However, older vessels pose a challenge as they reach the end of their service lives. Some piers, notably in Honolulu, have 480-volt shore power connections to reduce environmental impact during layovers. Assessing the availability of such infrastructure across all islands is ongoing. YB is also in the early stages of a trial bio-diesel program, experimenting with 30% biofuel. The scalability of bio-diesel initiatives and the feasibility of fleet-wide implementation are uncertain. While these efforts help reduce environmental impact, the long-term goal is to utilize zero-emission vessels. Although not currently available, YB monitors advancements in zero-emission shipping technology for future adoption.

WHY VESSELS

Marine vessels are crucial and complex when aiming to achieve 100% Clean Energy consumption by 2045 for a variety of reasons:

- **Environmental Impact**
- **Scope of Emissions**
- **Regulatory Compliance**
- **Technological Advancements**
- **Operational Efficiency**
- **Resilience**
- **Market and Consumer Demand**
- **Global Sustainability Goals**
- **Cost Savings**
- **Innovation and Industry Leadership**

GOAL #1 | MARITIME SHORE POWER INFRASTRUCTURE

Description

Young Brothers aims to reduce emissions and transition to 100% Renewable Energy by 2045 through their Clean Energy Plan. Short-term goals involve developing a cold ironing infrastructure plan at docks to reduce emissions during berthing. In the medium term, establishing infrastructure with shore power capability. The long-term objective is to retrofit existing vessels with shore power capability and assess feasibility and procurement of 100% zero-emission vessels. Successful implementation not only reduces emissions but also positions Young Brothers as a sustainability leader, aligning with their broader goal of 100% Renewable Energy by 2045.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Develop a cold iron infrastructure plan with stakeholders for medium or long term implementation. Research grant opportunities.

Estimated Emissions Reductions: Negligible for this preliminary effort.

Medium-term (5-10 years)

Establish 100% cold ironing infrastructure at vessel docks.

Estimated Emissions Reductions: 4-8% of YB's overall emissions from baseline.

Long-term (10+ years)

Retrofit existing vessels with shore power plug-in capability. Assessment and procurement of 100% zero-emission vessels by 2045.

Estimated Emissions Reductions: Up to 77% of YB's overall emissions from baseline (included with Goal 2 and Goal 3 Long-Term Target reductions). Operating 100% zero-emission powered vessels would eliminate the tracked emissions from the vessel fleet.

GOAL #1 | BENEFITS

Scope 1 Emissions Reduction: Shore power infrastructure virtually eliminates emissions produced during vessel idling at the dock, contributing to cleaner air, a healthier environment, and alignment with sustainability and emissions reduction objectives.

Reduced Reliance on Fossil Fuels: The infrastructure reduces Young Brothers' dependence on fossil fuels for vessel operations, positioning the organization to adapt to future energy trends and enhancing long-term sustainability and resilience.

Cost Savings: Shore power infrastructure extends the lifespan of vessel engines and reduces maintenance costs by mitigating wear and tear from prolonged idling. These cost reductions offer tangible financial benefits, making it a strategic and financially justified investment.

Alignment with Renewable Energy Transition: Pursuing Maritime Shore Power Infrastructure supports Young Brothers' broader Renewable Energy transition by addressing emissions reduction, reducing reliance on fossil fuels, and providing financial benefits.

GOAL #1 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Infrastructure Assessment

Begin by conducting a comprehensive assessment of all vessel docks and berths at Young Brothers terminals to determine their readiness for cold ironing infrastructure.

Confirm Working Condition

Confirm the working condition and usability of existing shore power plugs and berths at each terminal. Identify any plugs or berths that are damaged, inoperable, or require upgrades.

Allocate Funds

Identify the financial resources needed to repair or upgrade plugs and berths that do not meet the required standards for cold ironing infrastructure.

MEDIUM-TERM (5-10 Years)

Initiate Improvements

Initiate the necessary improvements, repairs, or upgrades to ensure that all docks and berths have 100% cold ironing infrastructure in working order.

Documentation

Document the successful establishment of cold ironing infrastructure at each berth, including verification of working plugs, and communicate this achievement internally and externally.

Marine Vessels Assessment

Compile an inventory of all existing vessels in Young Brothers' fleet, including their age, condition, and propulsion systems.

Feasibility Study

Conduct a feasibility study to determine which existing vessels can be retrofitted with shore power plug-in capability without operational impacts.

Funding Allocation

Identify and allocate the necessary funding for retrofitting vessels with shore power plug-in capability.

Prioritization Process

Determine the priority for retrofitting eligible vessels.

GOAL #1 | MILESTONES AND IMPLEMENTATION

LONG TERM (10+ Years)

Retrofitting Process

Initiate the retrofitting process for eligible vessels, ensuring that each vessel is equipped with the required shore power plug-in capability.

Operational Testing

Conduct operational tests and ensure that retrofitting does not impact the vessels' day-to-day operations.

Documentation

Document the successful retrofitting of vessels with shore power plug-in capability and communicate this achievement internally and externally.

Zero-Emission Vessel Assessment

Continuously monitor advancements in zero-emission vessel technologies and assess their feasibility for Young Brothers' operations.

Transition Plan

Develop a comprehensive transition plan outlining the phased replacement of existing vessels with 100% zero-emission vessels.

Funding Strategy

Identify long-term funding strategies to support the acquisition of zero-emission vessels, including potential grants, investments, and budget allocations.

Vessel Procurement

Begin the procurement process for zero-emission vessels in line with the established transition plan.

Operational Integration

Ensure a seamless integration of zero-emission vessels into Young Brothers' operations, including crew training and operational procedures.

Retirement of Old Vessels

Retire older vessels when they reach the end of their service life and meet the replacement criteria outlined in the transition plan.

Documentation

Document the successful replacement of existing vessels with 100% zero-emission vessels, emphasizing the reduction in emissions and the achievement of long-term sustainability goals.

GOAL #2 | VESSEL ENGINE UPGRADES

Description

The goal is to upgrade Young Brothers' maritime vessels for reduced emissions and improved sustainability. It comprises three targets: short-term retirement of aging, environmentally unfriendly vessels; medium-term retrofitting with cleaner engines for cost savings and compliance; and a long-term aspiration of 100% zero-emission vessels by 2045, showcasing environmental leadership. Overall, this strategy ensures emissions reduction, regulatory compliance, cost savings, and a sustainable future for Young Brothers' maritime operations.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Create a strategic long-term and high-level plan, to support the development of a secondary short-term plan, including a life cycle cost assessment, to retire and replace aging vessels, leaving flexibility in plan for evolving technology, economic, and market forces.

Explore eligibility and timing for grant opportunities.

Monitor evolving technology in maritime industry for low and zero-emission engines and fueling.

Review timing for major maintenance and capital outlays on aging vessels to be replaced.

Estimated Emissions Reductions: Negligible for preliminary efforts.

Medium-term (5-10 years)

Retire aging vessels with less environmentally friendly engines upon reaching the end of their service life.

Estimated Emissions Reductions: 5-10% of YB's overall emissions from baseline.

Retrofit existing vessels with the cleanest available engines.

Estimated Emissions Reductions: 10-20% of YB's overall emissions from baseline.

Long-term (10+ years)

Transition to 100% zero-emission vessels by 2045 or power vessels entirely with Renewable Energy sources if feasible.

Estimated Emissions Reductions: Up to 77% of YB's overall emissions from baseline (included with Goal 2 and Goal 3 Long-Term Target reductions). Operating 100% zero-emission powered vessels would eliminate the tracked emissions from the vessel fleet.

GOAL #2 | BENEFITS

Scope 1 Reduced Emissions: Upgrading vessel engines leads to a significant reduction in emissions, particularly greenhouse gases and pollutants harmful to the environment and public health. By lowering emissions, Young Brothers can contribute to a cleaner, healthier environment, aligning with environmental regulations and sustainability goals.

Better Fuel Economy: Modernized engines typically offer improved fuel efficiency, resulting in reduced fuel consumption. This not only translates to cost savings but also reduces Young Brothers' carbon footprint and dependence on fossil fuels. Enhanced fuel economy enhances the sustainability and economic viability of Young Brothers' maritime operations.

Reduction in Fossil Fuel Reliance: By upgrading vessel engines, Young Brothers can decrease its reliance on fossil fuels. This not only aligns with the global shift toward renewable and cleaner energy sources but also mitigates the risks associated with fluctuating fuel prices and supply disruptions. Reduced fossil fuel dependence enhances energy security.

Environmental Stewardship: Pursuing engine upgrades showcases Young Brothers' commitment to environmental stewardship and corporate responsibility. This initiative can enhance Young Brothers' reputation as an environmentally conscious organization, appealing to environmentally aware stakeholders and partners.

Compliance with Regulations: Engine upgrades can help Young Brothers remain compliant with evolving maritime emissions regulations and standards. Staying ahead of regulatory changes ensures that Young Brothers avoids potential penalties and maintains its license to operate.

Improved Operational Efficiency: Modern engines often come with advanced technology that enhances vessel performance and operational efficiency. These improvements can lead to shorter voyage times, reduced maintenance costs, and enhanced overall productivity.

Enhanced Public Relations: In a market increasingly focused on sustainability, Young Brothers can further enhance its public image by operating a fleet with upgraded, environmentally friendly engines. This can attract environmentally conscious partners while potentially opening new business opportunities.

Long-Term Cost Savings: While there may be initial investment costs associated with engine upgrades, the long-term savings from reduced fuel consumption and maintenance expenses can be substantial. This creates a compelling financial argument for pursuing this goal.

GOAL #2 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Assessment and Identification

Evaluate the existing fleet to identify vessels with aging, environmentally unfriendly engines that have reached or exceeded their service life. Utilize criteria such as engine age, emissions profiles, and operational efficiency to make informed decisions.

Documentation and Compliance

Ensure compliance with regulations governing the decommissioning and disposal of vessels. Document the retirement process and secure any necessary permits for vessel disposal or scrapping.

Disposal and Removal

Contract with specialized firms for the removal and environmentally responsible disposal of retired vessels. Assess potential costs associated with disposal and budget accordingly.

Engine Retrofit Assessment

Conduct a comprehensive evaluation of existing vessels that are candidates for engine retrofitting. This assessment will consider factors such as vessel age, engine condition, emissions standards, and compatibility with cleaner engine technologies.

Selection of Retrofit Technology

Engage consultants or experts specializing in maritime engine retrofitting to recommend the cleanest available engine technologies suitable for each vessel. Assess the feasibility, cost-effectiveness, and emissions reduction potential of each retrofit option.

MEDIUM-TERM (5-10 Years)

Execution of Retirements, Replacements and Retrofits

Initiate the retrofitting process for selected vessels by partnering with experienced marine engineers and retrofitting specialists. Monitor progress, costs, and emissions reductions achieved during and after the retrofit.

LONG TERM (10+ Years)

Zero-Emission Vessel Strategy

Develop a comprehensive strategy for transitioning to 100% zero-emission vessels or alternative propulsion methods by 2045. Engage maritime experts and consultants to assess the feasibility and potential challenges associated with this transition.

Technology Assessment

Continually evaluate emerging technologies and Renewable Energy sources (e.g., hydrogen, electric, wind) for maritime propulsion. Identify opportunities to integrate these technologies into new vessel acquisitions or conversions.

Procurement and Replacement

When purchasing new vessels or replacing aging ones, prioritize vessels equipped with the cleanest and most advanced emission-reduction technologies. Collaborate with shipbuilders and manufacturers that specialize in environmentally friendly vessel designs.

Monitoring and Reporting

Implement a robust monitoring and reporting system to track progress toward the long-term target. Continually assess the environmental impact, emissions reductions, and operational efficiency of the upgraded and newly acquired vessels.

GOAL #3 | BIOFUEL AND BIODIESEL USAGE

Description

The Biofuel and Biodiesel Usage goal aims to reduce emissions in Young Brothers' vessel fleet and transition to renewable energy. It involves a trial program introducing 30% locally-produced biofuel and exploring biodiesel conversion for older vessels. The medium-term plan is to adopt biofuel fleet-wide based on cost and operational factors. The long-term goal is 100% renewable energy usage by 2045, aligning with sustainability objectives. This initiative positions Young Brothers as a leader in maritime industry transition to renewable energy, contributing to a more eco-friendly future for Hawai'i.

TARGETS

Key Performance Indicators and Metrics align with the following targets:

Short-term (1-5 years)

Initiate a trial project to implement 30% biofuel usage in one or more vessels.

Estimated Emissions Reductions: Negligible for this preliminary effort.

Medium-term (5-10 years)

Based on the results of trials, consider widespread adoption if overall costs, maintenance, and operational concerns are met.

Estimated Emissions Reductions: 5% reduction of YB's overall emissions from baseline.

Long-term (10+ years)

Achieve 100% renewable (no fossil fuel) usage in vessels by 2045.

Estimated Emissions Reductions: Up to 77% of YB's overall emissions from baseline (included with Goal 2 and Goal 3 Long-Term Target reductions). Operating 100% zero-emission powered vessels would eliminate the tracked emissions from the vessel fleet.

GOAL #3 | BENEFITS

Scope 1 Reduced Emissions: One of the primary advantages is a reduction in emissions. While emissions reductions from biodiesel would not be as high as transitioning to zero-emission vessels, biodiesel offers a more cost-effective and readily available strategy to lower GHGs from vessels. According to the US EPA, biodiesel emits about 7% fewer kg of CO2 per gallon compared to diesel. By incorporating biofuels and biodiesel, Young Brothers can slightly lower greenhouse gas emissions, contributing to cleaner air and a healthier environment. This aligns with sustainability goals, reduces the organization's carbon footprint, and supports environmental stewardship.

Reduction in Fossil Fuel Reliance: Transitioning to biofuels and biodiesel reduces Young Brothers' reliance on traditional fossil fuels. This not only mitigates the risks associated with fluctuating fossil fuel prices but also enhances energy security. The organization becomes less vulnerable to disruptions in the supply chain, ensuring consistent fuel availability.

Support for Hawai'i-Based Alternative Fuel Industry: Embracing biofuels and biodiesel promotes the growth of the local alternative fuel industry in Hawai'i. By investing in and utilizing locally sourced and produced biofuels, Young Brothers contributes to economic development and job creation within the region. This approach fosters sustainability not only in terms of emissions reduction but also in supporting the local economy.

Alignment with Renewable Energy Goals: Incorporating biofuels and biodiesel into Young Brothers' operations is in line with the broader Renewable Energy goals set for the organization. It showcases a commitment to diversifying energy sources and reducing reliance on non-renewable fossil fuels, which can have long-term benefits for both environmental and financial sustainability.

Community and Stakeholder Engagement: Pursuing biofuels and biodiesel as an emissions reduction strategy demonstrates Young Brothers' commitment to environmental responsibility. This can enhance the organization's reputation and foster positive relationships with stakeholders, including customers, partners, and regulatory authorities.

GOAL #3 | MILESTONES AND IMPLEMENTATION

SHORT TERM (1-5 Years)

Feasibility Assessment
Evaluate the suitability of locally produced biofuel and identify vessels for the initial trial.

Procurement
Source the required biofuel and necessary equipment for the trial project. A separate discussion with local suppliers may be needed to determine any additional requirements. However, since biofuel is delivered in a similar manner to traditional diesel, no new infrastructure is anticipated to be necessary.

Vessel Selection
Choose vessels for the trial program, ensuring they represent various types and operations within the fleet.

Retrofitting
If needed, retrofit selected vessels to accommodate biofuel use.

Trial Implementation
Implement the trial project, closely monitoring and recording biofuel performance, emissions reduction, and any operational issues.

Data Analysis:
Analyze trial results to assess biofuel effectiveness and environmental impact.

MEDIUM-TERM (5-10 Years)

Review and Assessment
Evaluate trial outcomes, considering cost-effectiveness, maintenance requirements, and operational viability.

Cost-Benefit Analysis
Conduct a thorough cost-benefit analysis to determine the economic feasibility of biofuel adoption.

Operational Integration
Plan and execute the integration of biofuel usage into the vessel fleet, including procurement, infrastructure and distribution logistics.

Maintenance Protocols
Develop maintenance protocols specific to biofuel-powered vessels to ensure long-term reliability.

Scaling Up
Gradually expand biofuel usage across the vessel fleet while continually monitoring performance.

LONG TERM (10+ Years)

Technological Advancements
Stay abreast of advancements in biofuel and Renewable Energy technologies that can support the transition to 100% Renewable Energy.

Vessel Replacement
Strategically retire aging vessels and replace them with newer, more environmentally friendly alternatives or vessels powered by alternative fuels (e.g., hydrogen or ammonia).

Renewable Energy Integration
Explore and implement Renewable Energy sources like wind or solar power for vessels' energy needs.

Regular Reporting
Maintain transparency by regularly reporting progress toward the long-term target.

Regulatory Compliance
Ensure compliance with evolving environmental regulations and standards.

Community Engagement
Engage with the local community and stakeholders to communicate the commitment to emissions reduction and Renewable Energy adoption.

CONCLUSION

We are committed to clean energy

In pursuit of environmental sustainability and a transition to Clean Energy sources, Young Brothers has composed a Clean Energy Plan with distinct goals and targets across its diverse operations. This multifaceted approach is structured to address emissions reduction, reduced reliance on fossil fuels, and the promotion of sustainable practices.

Buildings And Facilities
Goal 1: Enable on-site Renewable Energy generation and energy storage infrastructure
Goal 2: Develop sustainable design guidelines for new construction and major renovations

Shoreside Vehicles And Machinery
Goal 1: Zero Emission Shoreside Vehicle Fleet Upgrades
Goal 2: Zero Emission Shoreside Machinery Upgrades
Goal 3: Promote Employee EV Commutes

Marine Vessels
Goal 1: Maritime Shore Power Infrastructure
Goal 2: Vessel Engine Upgrades
Goal 3: Biofuel and Biodiesel Usage

Through the diligent pursuit of these goals, Young Brothers is poised to drive meaningful change within its organization, contribute to emissions reduction efforts, and play a pivotal role in aspiring to meet the State's goal of 100% Clean Energy through fostering a more sustainable and environmentally conscious future.

For more information

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