

UNION PACIFIC

2023 Green Bond Allocation and Impact Report

Our Approach: Building A Sustainable Future 2030

Building a Sustainable Future 2030 is Union Pacific's comprehensive sustainability strategy. Our commitment to combat climate change is underscored by our science-based target to reduce absolute Scope 1 and 2 greenhouse gas (GHG) emissions and GHG emissions on a well-to-wheel basis from locomotive operations 26% by 2030 from a 2018 baseline year. In addition, we have formally committed with the Science Based Target Initiative (SBTi) to revise our near-term emissions reduction target to support a 1.5°C climate ambition, as well as set and validate a net-zero emissions target.

More than ever, Union Pacific believes taking thoughtful, deliberate steps toward a net-zero economy can help protect our planet for future generations. Rail transportation is crucial to our nation's economic health and offers significant environmental benefits compared to alternative modes of transportation:

- Railroads are the most fuel-efficient way to move freight over land.
- Freight railroads account for just 0.5% of total U.S. GHG emissions and just 1.7% of transportation-related GHG emissions.
- One train can replace hundreds of trucks, reducing highway congestion and GHG emissions.
- Moving freight by train instead of truck reduces GHG emissions by up to 75%, on average.

Source: Association of American Railroads Sustainability Fact Sheet June 2023

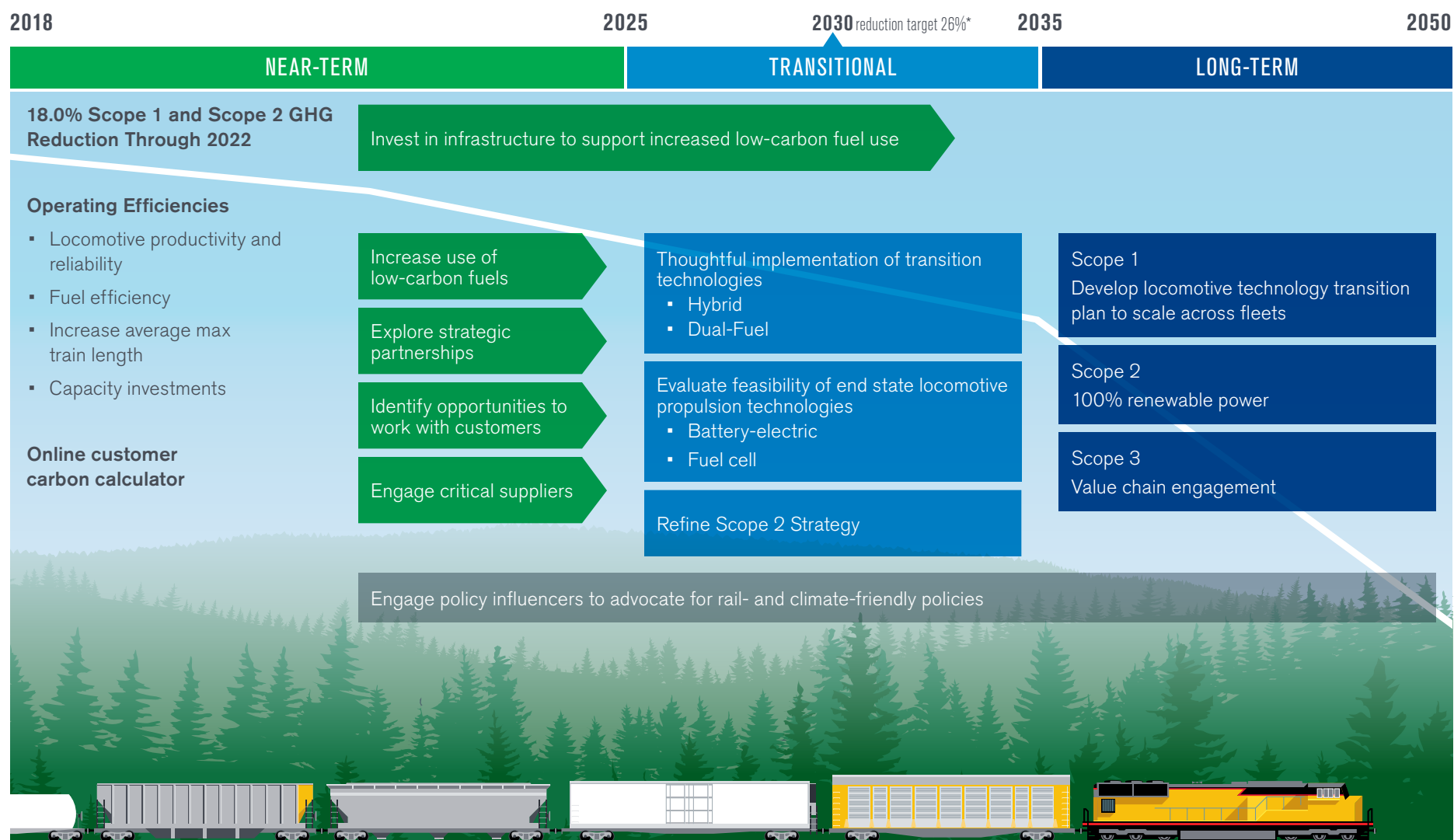
100% Allocated
(\$590.8 Million)
41% disbursed
post-bond issuance

Green Financing Framework

Union Pacific has endeavored to be part of the climate solution by proactively seizing opportunities to meet our sustainability goals. Under our Green Financing Framework, Union Pacific Corporation issued a \$600 million green bond in September 2022 to support projects with environmental benefits. We have disbursed 100% of the net proceeds of \$590.8 million to eligible projects. This report outlines the use of proceeds and highlights the environmental benefits of these investments.

Climate Actions and Opportunities

We consider past actions and future opportunities as part of our pragmatic approach to enhancing efficiency and investing for the future



*SBTi has approved our short-term target to reduce absolute Scope 1 and 2 GHG emissions and GHG emissions on a well-to-wheel basis from locomotive operations 26% by 2030.

Green Bond Allocation



Clean Transportation: **\$564.5 MM**

- New Rolling Stock, Vehicles & Equipment (**\$78.1 million**)
- Upgrades to Existing Rolling Stock (**\$265.5 million**)
- Contributions to Modal Shift and Expanding Network Capacity (**\$220.9 million**)



Energy Efficiency: **\$6.4 MM**



Renewable Energy: **\$19.9 MM**

Environmental Impact



Total annual GHG emissions reduced / avoided:
393k metric tons of CO2e¹



Total annual reduction in diesel fuel consumption:
6.8 million gallons

Green Bond Allocations Help Reduce Our GHG Emissions

Locomotive Modernizations and Emissions Upgrades

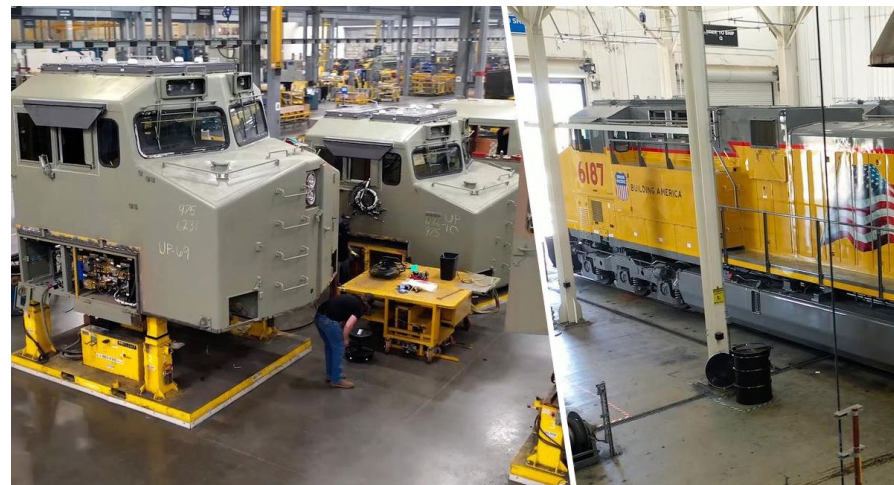
\$246.7 MM DISBURSED

45,587 ANNUAL CO₂E METRIC TON REDUCTION²

4.4 MILLION ANNUAL GALLONS OF DIESEL REDUCTION

Locomotive operations represent our greatest source of GHG emissions. Emissions from locomotives comprised 94.1% of our 2022 Scope 1 and Scope 2 GHG emissions. Accordingly, most of our focus in reducing our carbon footprint is on our locomotive operations. Our Locomotive Modernization Program completely replaces the electrical control system in our high horsepower fleet, allowing for software updates and functionality required to reduce road failures and variability. In addition, modernizations include a complete rebuild of engines and redesign of the fuel distribution system, resulting in more efficient fuel consumption and reduced emissions. The modernizations also support the circular economy, with components comprising more than half the locomotive's weight being reused.

Additional investments in our low horsepower fleet include our first hybrid diesel-electric locomotives and the installation of emissions upgrade kits that reduce idling fuel consumption. In addition to decreasing fuel consumption and associated GHG emissions, these investments improve locomotive reliability and therefore decrease the size of our active fleet.



Left, a main cab for a Union Pacific modernized locomotive on the floor of Wabtec's Fort Worth, Texas, plant. Right, a modernized locomotive receives finishing touches.

Fast Facts

- One train can carry the freight of hundreds of trucks, which reduces highway congestion.
- Freight railroads are 3 to 4 times more fuel efficient than trucks, on average.
- Moving freight by train instead of truck reduced GHG emissions by up to 75%.
- Railroads account for around 40% of long-distance freight volume but only 2% of US transport-related GHG emissions.

[*AAR Freight Railroads and Climate Change, pg 2*](#)

Train Length Initiatives

\$119.8 MM DISBURSED

Network fluidity is critical to moving freight efficiently. Fluid operations reduce train dwell and allow trains to travel at optimal speeds with fewer starts and stops, improving our fuel consumption rate. In addition, longer train lengths improve locomotive productivity measured in gross ton miles per horsepower day, which typically results in fewer locomotives needed to handle our freight. These reduced locomotive requirements allow us to retire or store our least-efficient units, improving our average fuel efficiency. Better fuel efficiency reduces fuel consumption, which also reduces GHG emissions. This green bond funded a multi-phase strategy to increase train length on our 875-mile Golden State route between El Paso and Kansas City. This corridor is critical in connecting Southern California to the Midwest and is a primary lane for our intermodal service product, further strengthening our business development opportunities to shift freight from trucks to rail.

Capacity Expansion of Intermodal Facilities

\$101.1 MM DISBURSED

303,125 ANNUAL CO₂E METRIC TON REDUCTION³

Union Pacific's intermodal product includes 31 ramps across our 23-state network. Ramp capacity is critical to meet demand and increase market share in the increasingly competitive trucking market. In addition to producing fewer emissions, railroads also help reduce the huge economic costs of highway congestion. A single freight train can replace several hundred trucks, freeing up space on the highway for other motorists and decreasing traffic. Converting from truck to rail typically results in an immediate reduction in our customers' Scope 3 GHG emissions, which we believe will enable us to become a bigger part of our customers' value chains. Intermodal ramp expansion projects funded by this green bond include investments in crucial markets such as Chicago, Southern California, and the Twin Cities.

Our investments in Chicago included essential capacity improvements in our Global 2 and Global 4 terminals and allowed us to launch the Falcon premium intermodal service, a best-in-class Mexico-US-Canada service with a seamless rail connection in Chicago. At the Inland Empire in California and the Twin Cities, we repurposed existing railyards to create pop-up intermodal facilities, creating incremental intermodal capacity without requiring new construction. In all, this green bond funding created the capacity for 181,300 annual container lifts, which could remove up to 90,650 long-haul trucks from the highways.



Intermodal train on the Golden State route near El Paso, Texas.



Inland Empire Intermodal Terminal (IEIT), Colton, California.

Refrigerated Boxcar Acquisitions and Upgrades

\$74.2 MM DISBURSED

7,763 ANNUAL CO2E METRIC TON REDUCTION⁴

0.8 MILLION ANNUAL GALLONS OF DIESEL REDUCTION

Refrigerated boxcars are equipped with refrigeration units to keep temperature-sensitive products safe during transit. The efficiency of the refrigeration unit is impacted by a variety of factors including fuel consumption, insulation, car construction, air flow, and seals. The new refrigerated boxcars funded in part by this green bond include improved foam insulation of side walls, enhanced interior air flow, a design that minimizes thermal barriers, and a floor with increased life expectancy. During the design phase, a prototype used in perishable service demonstrated a 15-25% reduction in fuel consumption. Similarly, green bond proceeds funded refrigeration unit replacements on parts of our older fleet, which generate similar fuel consumption savings.



Energy Management Solutions

\$11.7 MM DISBURSED

16,032 ANNUAL CO2E METRIC TON REDUCTION⁵

1.6 MILLION ANNUAL GALLONS OF DIESEL REDUCTION

Our energy management solutions on locomotives function similarly to cruise control systems on a vehicle, automatically controlling a locomotive's throttle and dynamic braking systems to optimize fuel usage and thereby minimize GHG emissions. Proceeds were used to install new energy management systems on existing locomotives.

Battery-Electric Locomotives and Associated Infrastructure

\$5.6 MM DISBURSED

In January 2022, we announced plans to purchase battery-electric locomotives for testing in yard operations. The purchases and required upgrades to yard infrastructure are expected to approach \$100 million, which would represent the largest investment in battery-electric technology by a U.S. Class I railroad to date. Battery-electric locomotives are expected to have superior tractive effort and allow us to reduce our active fleet. We anticipate such locomotives will be piloted in rail yards in California and Nebraska, where they can be tested for performance in warm and cold weather.

Due to supply chain challenges and the complexity associated with design specifications, we now expect delivery of our first units to begin in late 2024 or early 2025. Despite these delays, we've begun installing charging systems, electrical distribution infrastructure, yard charging tracks, and shop chargers at rail facilities in West Colton, CA and North Platte, NE, two critical terminals on our rail network. Incorporating battery-electric locomotives into service can help decarbonize our footprint.

Zero Direct Emissions Vehicles and Associated Infrastructure

\$5.4 MM DISBURSED

In 2019, Union Pacific evaluated available light- and medium-duty electric vehicles (EV) and began incorporating EVs into our vehicle fleet. Despite the auto industry's supply constraints since then, we've continued to order EVs from manufacturers, while strategically building out our charging infrastructure systemwide. Our EV fleet includes the Ford Mustang Mach-E, Ford Lightning, and Chevrolet Bolts. Proceeds from this green bond funded the purchase of new electric vehicles as well as the construction of charging stations across the Union Pacific network.



LED Lighting Installation

\$6.4 MM DISBURSED

1,553 ANNUAL CO2E METRIC TON REDUCTION⁶

As a 24-7-365 operation, lighting is critical to the safety of our operations at yards, terminals, and other facilities across our network. Proceeds from this green bond funded energy-efficient LED lighting installations at locations in California, Utah, and Louisiana.

Investment in Solar Facility

\$19.9 MM DISBURSED

19,034 CO2E METRIC TONS AVOIDED IN 2022⁷

In 2021, Union Pacific invested in a 124-megawatt solar generation facility covering approximately 700 acres in northeast Texas. The solar power system harvests thermal energy from the sun and converts it into clean, sustainable electrical energy. During 2022, this facility generated over 246,000 net MWh of solar energy.



Management's Assertion and Report Regarding Disbursements for Eligible Projects

Union Pacific (the "Company") is responsible for the completeness, accuracy, and validity of the Company's Eligible Projects Disbursement Report (the "Report"). Management of the Company asserts that an amount equal to or in excess of the \$590.8 million of net proceeds from the September 2022 issuance of 4.950% Notes due September 9, 2052, was disbursed during the period from September 6, 2020 to June 30, 2023 for the Eligible Green Project Categories shown in the Report below in accordance with the Eligible Green Project Criteria defined below.

ELIGIBLE PROJECT CATEGORIES AND ELIGIBLE PROJECT CRITERIA

Clean Transportation

Expenditures in technologies, products, systems or equipment pertaining to low-carbon transportation, including the following:

- **New Rolling Stock, Vehicles & Equipment**
 - Battery-electric locomotives and associated infrastructure
 - Zero direct emissions vehicles and associated infrastructure
 - Refrigerated boxcars, which include a plug-in hybrid refrigeration unit, for running on electricity instead of diesel, and numerous thermal efficient features
- **Upgrades to Existing Rolling Stock** – Improvements designed to reduce GHG emissions and increase fuel efficiency
 - Modernizations and emissions upgrades on existing locomotives
 - Energy management solutions, such as Trip Optimizer, LEADER and Auto-Engine Start/Stop
 - Refrigeration units on existing refrigerated boxcars that include plug-in hybrid models for running on electricity instead of diesel
- **Contributions to the Modal Shift and Expanding Network Capacity**
 - Replacement and expansion of intermodal facilities, including purchase of electric and hybrid cranes, designed to promote modal shift of freight to lower-carbon alternatives such as rail
 - Train length initiatives, such as new sidings and siding extensions, designed to improve operational efficiencies including dwell and corridor fluidity

Energy Efficiency

Expenditures in technologies, products, systems or equipment designed to reduce energy consumption and/or support energy conservation, including:

- Heating, ventilation, air conditioning, lighting, and electrical equipment that are Energy Star certified

Renewable Energy

Expenditures dedicated to generation and distribution of renewable energy from solar or wind sources, including:

- Acquisition, investment, development, maintenance and/or operation of onsite or offsite generating capacity

Union Pacific Eligible Projects Disbursement Report

For the Period from September 6, 2020, Through June 30, 2023

\$ Amounts in Millions

NET PROCEEDS FROM GREEN BOND ISSUANCE	
ISSUANCE DATE	SEPTEMBER 6, 2022
4.950% NOTES DUE SEPTEMBER 9, 2052	\$590.8
TOTAL NET PROCEEDS	\$590.8

PROJECT CATEGORY	TOTAL
CLEAN TRANSPORTATION	\$564.5
ENERGY EFFICIENCY	\$6.4
RENEWABLE ENERGY	\$19.9
TOTAL DISBURSEMENTS	\$590.8

Note 1 – Other Information

The Eligible Project Assertion and Disbursement Report above includes Eligible Project Categories and Eligible Project Criteria that pertain specifically to the reporting period from September 6, 2020 to June 30, 2023. The Company's Green Financing Framework dated July 2022 as posted on the Company's website provides additional information about green project criteria and categories for which proceeds from future green bonds may be used by the Company.





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INDEPENDENT ACCOUNTANT'S REPORT

To the Board of Directors of Union Pacific Corporation • Omaha, NE 68179

We have examined management of Union Pacific Corporation's (the "Corporation") assertion that an amount equal to or in excess of the \$590.8 million of net proceeds from the September 2022 issuance of 4.950% Notes due September 9, 2052, was disbursed during the period from September 6, 2020 to June 30, 2023 for the Eligible Green Project Categories (the "subject matter") is presented in accordance with the Eligible Green Project Criteria (the "Criteria") (collectively, "management's assertion"). The Corporation's management is responsible for its assertion. Our responsibility is to express an opinion on if the subject matter is in accordance with the Criteria based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the examination to obtain reasonable assurance that the subject matter is presented in accordance with the Criteria, in all material respects. An examination involves performing procedures to obtain evidence about the subject matter. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risks of material misstatement of the subject matter, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements related to the engagement.

Our examination was not conducted for the purpose of evaluating (i) the completeness of the amount disbursed for Eligible Green Projects set forth in Management's Assertion Report during the period beginning September 6, 2022 or in the 24 months preceding that date, (ii) the environmental benefits of the Eligible Green Project, or (iii) conformance of the eligible green projects with any third-party published standards, principles, or frameworks, such as the Green Bond Principles, published by the International Capital Market Association. Accordingly, we do not express an opinion or any other form of assurance other than on the subject matter included in the accompanying Management's Assertion Report.

The information included on pages 1 through 8 and page 12 is presented by management and is not part of management's assertion. The information has not been subjected to the procedures applied in the examination engagement, and accordingly, we make no comment as to its completeness and accuracy and do not express an opinion or provide any form of assurance on such information.

In our opinion, management's assertion that an amount equal to or in excess of the \$590.8 million of net proceeds from the September 2022 issuance of 4.950% Notes due September 9, 2052, was disbursed during the period from September 6, 2020 to June 30, 2023, for Eligible Green Project Categories, is presented in accordance with the Criteria, in all material respects.

September 5, 2023

Footnotes

¹ Represents the total quantifiable impact of the projects included in this report and may not fully represent the total impact. Please see the project summaries and respective footnotes for further detail.

² The impact for locomotive modernizations was calculated using a tool designed by Union Pacific to estimate the potential greenhouse gas (GHG) emission associated with freight by rail transportation of modernized locomotives compared to standard high-horsepower locomotives. The data, results and/or other information generated by this calculator, as well as the underlying methodology and mathematical assumptions which govern operational performance, have not been independently verified. The impact for locomotive emissions upgrades was calculated from the emissions factor data in 2022 EPA Emission Factors, Tables 2, 5, 11 (www.epa.gov/climateleadership/ghg-emission-factors-hub) using the gallons of diesel avoided.

³ This impact was calculated using a tool designed by Union Pacific to estimate the potential greenhouse gas (GHG) emission associated with freight by rail transportation vs combination trucking during a calendar year. The data, results and/or other information generated by this calculator, as well as the underlying methodology and mathematical assumptions which govern operational performance, have not been independently verified.

⁴ This impact was calculated using a tool designed by Union Pacific to estimate the potential greenhouse gas (GHG) emission associated with freight by rail transportation of new and upgraded refrigerated units compared to standard units. The data, results and/or other information generated by this calculator, as well as the underlying methodology and mathematical assumptions which govern operational performance, have not been independently verified.

⁵ This impact was calculated from the emissions factor data in 2022 EPA Emission Factors, Tables 2, 5, 11 (www.epa.gov/climateleadership/ghg-emission-factors-hub) using the gallons of diesel avoided.

⁶ This impact was calculated using a tool designed by Union Pacific to estimate the potential greenhouse gas (GHG) emission associated with LED lighting retrofits. The data, results and/or other information generated by this calculator, as well as the underlying methodology and mathematical assumptions which govern operational performance, have not been independently verified.

⁷ Per the EPA Greenhouse Gas Equivalencies Calculator (www.epa.gov/energy/greenhouse-gas-equivalencies-calculator) and based on Union Pacific's portion of financing for the total solar facility.

Cautionary Information

DISCLAIMER

The information and opinions contained in this Report are provided as of the date of this Report, include statements and information that are forward looking as defined by federal securities laws, and are subject to change without notice. None of Union Pacific, its subsidiaries or any of its affiliates assume any responsibility or obligation to update or revise such statements, regardless of whether those statements are affected by the results of new information, future events or otherwise. However, we reserve the right to issue additional or updated reports in the future in our sole discretion. If we make any such update, no inference should be drawn that we will make additional updates with respect thereto or with respect to any other matters set forth in this Report. This Report represents current Union Pacific policy, intent and allocations under the Union Pacific Green Financing Framework (“Green Framework”), including aspirations or expectations related to environmental actions, benefits, and opportunities and, is subject to change and is not intended to, nor can it be relied on, to create legal relations, rights or obligations. This Report is intended to provide non-exhaustive, general information. This Report may contain or incorporate by reference public information not separately reviewed, approved or endorsed by Union Pacific and accordingly, no representation, warranty or undertaking, express or implied, is made and no responsibility or liability is accepted by Union Pacific as to the fairness, accuracy, reasonableness or completeness of such information. No representation is made as to the suitability of any financing to fulfill environmental and sustainability criteria required by prospective investors. Each prospective investor should determine for itself the relevance of the information contained or referred to in this Report or the relevant documentation for such financing regarding the use of proceeds and its purchase should be based upon such investigation as it deems necessary. Union Pacific has set out its intended policy and actions in its Green Framework in respect of use of proceeds, project evaluation and selection, management of proceeds and reporting, in connection with Union Pacific Green Financings. However, nothing in this Report is intended to modify or add to any covenant or other contractual obligation undertaken by Union Pacific in any Green Financing that may be issued in accordance with the Green Framework, or any other financing. This Report does not create any legally enforceable obligations against Union Pacific; any such legally enforceable obligations relating to any Green Financings are limited to those expressly set forth in the documentation governing such Green Financing. Therefore, unless expressly set forth in the a Green Financing, it will not be an event of default or breach of contractual obligations under the terms and conditions of any such Green Financing if Union Pacific modifies its Green Framework or future Reports, in whole or in part, whether by failing to fund or complete projects under the Green Framework or by failing to ensure that proceeds do not contribute directly or indirectly to the financing of the excluded activities as specified in this Report, or by failing (due to a lack of reliable information and/or data or otherwise) to provide investors with reports on uses of proceeds and environmental impacts as anticipated by the Green Framework, or otherwise.

In addition, it should be noted that the expected benefits of the projects as described in this Report may not be achieved. Factors including, but not limited to, market, political and economic conditions, changes in Union Pacific policy, strategy, or management, changes in government policy (whether with continuity of the government or on a change in the composition of the government), changes in laws, rules or regulations, the lack of available eligible projects being initiated, failure to complete or implement projects or other challenges, could limit the ability to achieve some or all of the expected benefits of these initiatives, including the allocation of funding and completion of eligible green projects.

This Report does not constitute a recommendation regarding any securities of Union Pacific, and is not intended to be, and should not be, construed as providing legal, financial or any other type of advice. This Report is not, does not contain, and may not be intended or interpreted as, an offer to sell or a solicitation of any offer to buy any securities issued by Union Pacific; it is provided for information purposes only. In particular, neither this document nor any other related material may be distributed or published in any jurisdiction in which it is unlawful to do so, except under circumstances that will result in compliance with any applicable laws and regulations. Persons into whose possession such documents may come must inform themselves about, and observe, any applicable restrictions on distribution. Any decision to purchase should be made solely on the basis of the information contained in any offering document provided in connection with the respective offering. Prospective investors are required to make their own independent investment decisions. Materiality, as used in this Framework, is different than the definition used in the context of filings with the Securities and Exchange Commission (“SEC”). Issues deemed material for purposes of this Report may not be considered material for SEC reporting purposes.