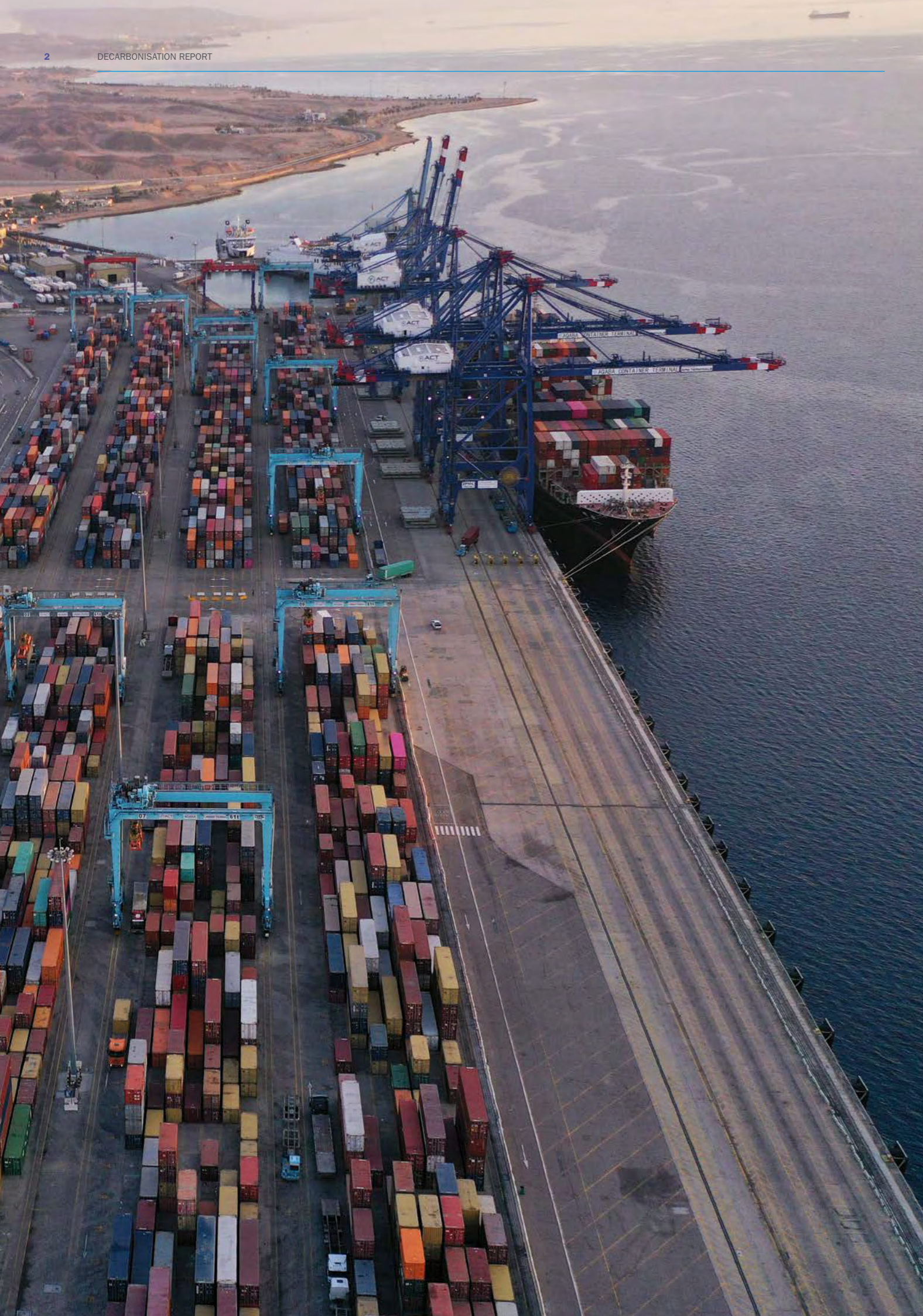




# Decarbonisation Report

The Road to Net-Zero





## Introduction

The report charts ACT's ambitious long-term strategy to mitigate its carbon footprint on the environment, and outlines the road map to achieving its targets.

With climate change so high on the global, regional and local agendas, ACT has a finite window of opportunity to fundamentally rethink its future, with decarbonisation being a central pillar to that transformation. ACT cannot afford to postpone taking a strong position here, since - over time - regulations may force changes and carbon taxes may be imposed. Decarbonisation is now a top priority for many of ACT's customers, partners, competitors and suppliers.

ACT's vision and agenda go well beyond simply procuring individual market solutions and plugging into existing operations. Instead, the business is committing to a full host of decarbonising strategies to transform Aqaba's terminal operations over the next 20 years. These steps are in line with the broader APMT and Maersk targets and existing commitments.





ACT is capable of becoming carbon-neutral by 2040. Its decarbonisation roadmap to reach this target is fiercely ambitious and the commitments are strong. ACT is well-positioned to reducing most of its emissions in this decade thanks to the decarbonisation levers: electrification of equipment, energy optimisation and use of onsite renewables. Where solutions are not yet available, ACT will work with the authorities and other key players, e.g., energy providers or suppliers, to innovate and develop ways to make the final reductions. In order to implement all decarbonisation levers, ACT has estimated a high level CAPEX investment plan in excess of 125 mUSD for the duration up to 2040.

ACT is part of the APM Terminals (APMT) family of 75+ similar container terminals around the world. ACT draws directly on APMT best practices and innovations in all aspects of its operations and is doing so on its decarbonisation journey as well. The presented vision is not merely a futuristic concept, but rather it is an ongoing and successful journey for APMT globally. A key example is our Green Gothenburg Gateway in Sweden, where emissions are currently 90% reduced vs. baseline emissions, thanks to measures already implemented and the conversion to renewable fuels.

The implications of working towards this vision are vast. These ambitions will affect port-wide operations and offerings; the financial top and bottom lines and it is ultimately a matter of competitiveness and relevance for Aqaba Container Terminal.

ACT is mindful that the Jordanian Government and Aqaba Development Corporation (ADC) have plans in the same direction, and ACT looks forward to cooperating with ADC and relevant authorities to implement the ACT decarbonisation roadmap.

The purpose of this report is to share ACT's ambitions and solicit feedback and explore opportunities for collaboration with authorities, stakeholders, customers and partners around:

-  ACT's purpose and need to decarbonise
-  ACT's decarbonisation commitment and targets
-  ACT's roadmap and timeline to net zero
-  ACT's main decarbonisation levers

<sup>1</sup> "APM Terminals Partners with Siemens for Energy Optimisation and Emission Reduction at Terminals - APM Terminals." Accessed March 28, 2022. <https://www.apmterminals.com/en/news/news-releases/2021/210923-apm-terminals-partners-with-siemens-for-energy-optimisation>.

# Why does ACT need to decarbonise?

The effects of climate change are unfolding at an alarming rate, threatening the planet and global population. United Nations has issued a 'code red' warning for humanity, following unprecedented levels and frequency of natural disasters around the world. The fight against climate change is a global effort, for individuals, governments and businesses alike.

With the shipping sector responsible for 2-3% global CO2 emissions<sup>2</sup>, and as a global player in the terminal industry, APMT is aware of its enabling role to decarbonise its operations. It looks to partners with which to collaborate and intensify efforts towards achieving carbon neutrality.

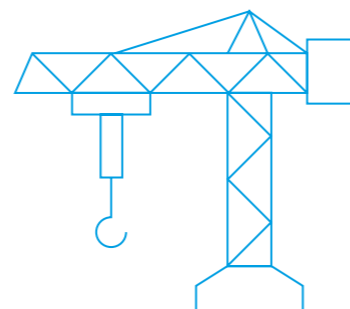
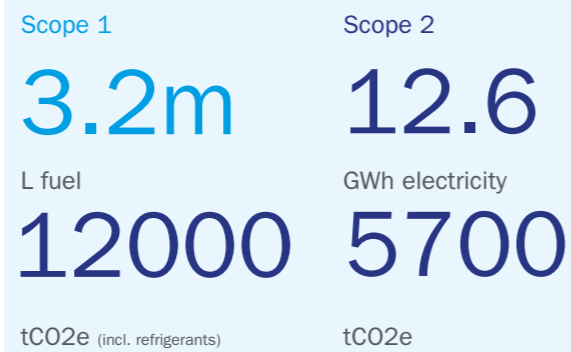
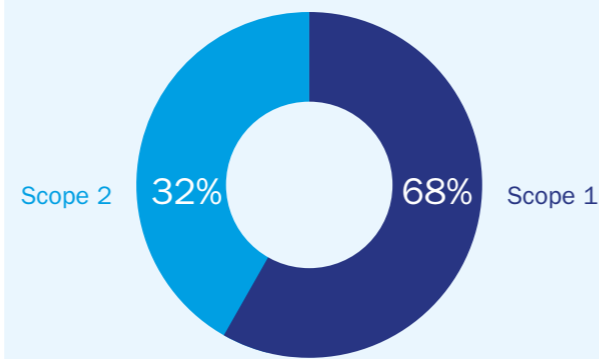
Commercially, decarbonization will be an increasingly important buying criteria for customers in the future. It is likely that ocean side and landside customers of container terminals in the future will demand carbon neutrality (or a roadmap towards it) in order to use its facilities. By being ahead of the curve in the Middle East on decarbonization, ACT can substantially improve its competitiveness versus its regional competitors.

In particular, ACT follows in the steps of APM Terminals, as it transitions to a decarbonised future. Thankfully, actions such as those of ACT and its partners are not happening in isolation, and collaboration is being seen across the sector, with shared platforms, joint momentum and aggressive decarbonisation targets being set, with the firm focus of net-zero across the entire value chain by 2040 at the latest.

Momentum is building across the market with customers, competitors and port authorities setting ever clearer and more ambitious short-term CO2 targets. However, fast and decisive industry-wide action is needed, which is why ACT is taking a leading role in investing in solutions to dramatically reduce its footprint. Initiatives including green energy sourcing, electrification or hybridisation of its equipment, are just some examples.

**ACT EMITS ~18K TCO2<sup>3</sup> ANNUALLY, DRIVEN BY FUEL AND ELECTRICITY**

**ACT Annual Scope 1 and 2 emissions**  
Emissions tCO2e, 2020



<sup>2</sup> "How the Shipping Sector is Decarbonising - World Ocean Initiative." Accessed March 17, 2022. <https://ocean.economist.com/innovation/articles/how-the-shipping-sector-is-decarbonising>.

<sup>3</sup> All TCO2 units stated in this report are metric tons.



“ The transition towards a low-carbon economy in Jordan requires broad collective action across all emitting industries in the country. At ACT, we are committed to doing our part and lead the way in the transportation and logistics sector towards a carbon-neutral future for Jordan. ACT is uniquely positioned to doing so by drawing directly on its mother companies' (Maersk and APM Terminal) innovations and best practices within decarbonization. With that, ACT has developed a concrete roadmap towards decarbonizing its operations by 2040 which we look forward to implementing in cooperation with our customers and partners in Jordan. ”



**Soren Kofoed Jensen**  
Managing Director  
Aqaba Container  
Terminal

## TARGETS

APMT

**70%**

reduction in absolute (total) emissions has been set as an interim milestone for the period 2020-2030.

APMT

**Net-zero**

by 2040

# Decarbonisation targets at ACT

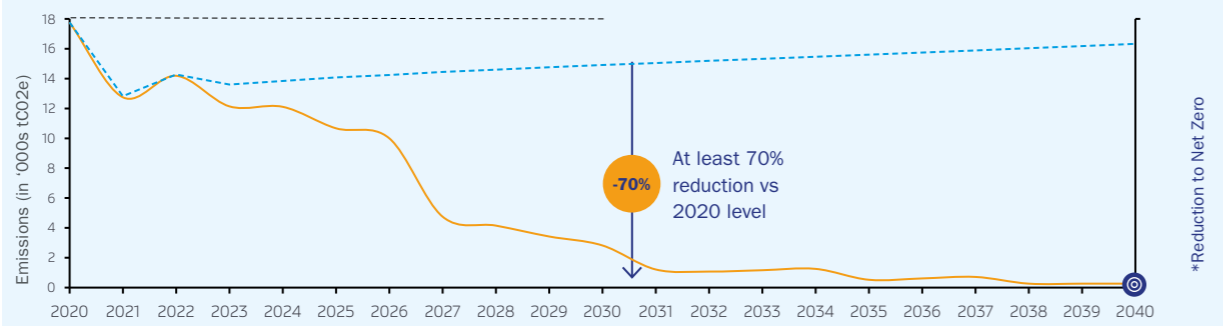
ACT can commit to industry-leading reductions in greenhouse gas emissions of at least 70% by 2030 and net zero by 2040, while delivering faster than the Paris pathway and Jordan's national target.

This will be further helped by ACT's continuous investment in technologies, as a way to make its operations safer, greener and more efficient. ACT will also encourage further collaboration with all players in the industry, as well as regulators, NGOs, scientists and researchers, to ensure continuous use and development of solutions that will enable a successful decarbonisation journey.

## UNDERSTANDING OUR AMBITION

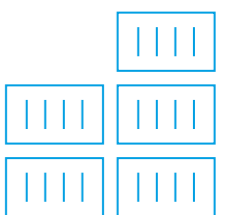
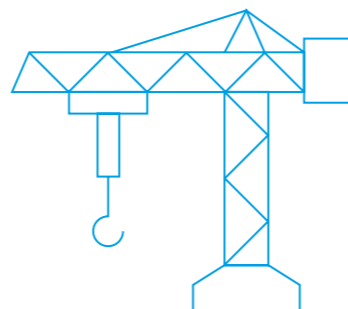
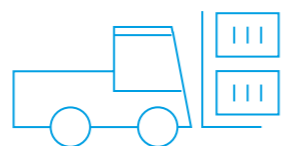
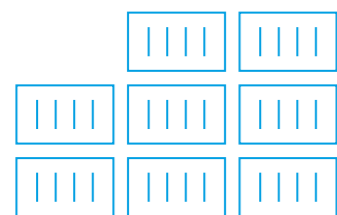
**ACT can commit to a fast pace of decarbonization and reduce emissions by at least 70% by the end of this decade and become net-zero by 2040**

### BY COMMITTING TO DECARBONIZE, ACT CAN AVOID GROWING EMISSIONS FROM BUSINESS AS USUAL AND MAKE A POSITIVE IMPACT INSTEAD



\* Notes:  
Emissions in BAU are calculated on a simplified basis, using ACT's volume growth forecast applied to baseline emissions in 2020  
Basis current availability of decarbonisation solutions, there is a remaining 1.5% of emissions forecasted, which will be reduced to net-zero by 2040

— Emissions after implementation of planned measures  
- - - BAU - Business As usual with no abatement measures



ACT will meet and exceed decarbonisation targets set at corporate, national and SBTi levels.

## APMM AND APMT GLOBAL DECARBONISATION TARGETS

APMT Globally is bringing forward its own net-zero emissions target to 2040; a whole decade ahead of its initial 2050 ambition. This is one of the most ambitious decarbonisation targets in the industry, with the International Maritime Organisation's own ambition set at 70% emission reduction by 2050. As an interim milestone, 70% reduction in absolute (total) emissions can be achieved for the period 2020-2030, representing one of the most ambitious targets set by any terminal operator in the region.

# 70%

reduction in absolute (total) emissions can be achieved for the period 2020-2030

This commitment builds on the company's existing strategy towards decarbonisation including recent investment in a suite of solutions to reduce its footprint. ACT can also commit to contributing to a broader target, set by parent company A.P. Moller – Maersk, to achieve net zero greenhouse gas emissions in 2040 across all of its entities.

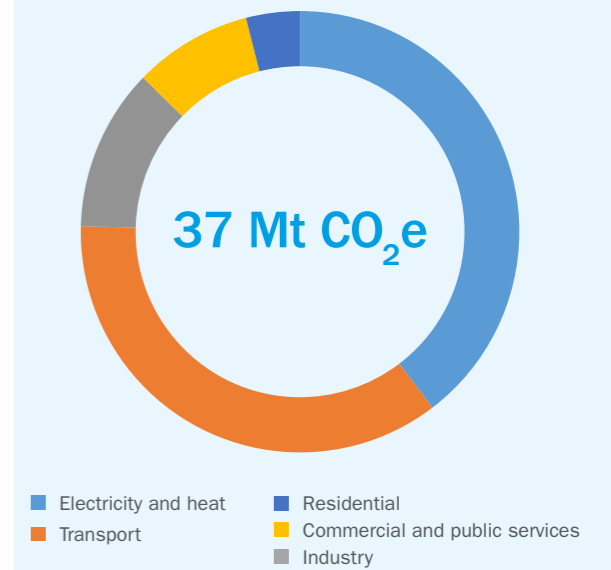
## JORDAN'S NATIONAL DECARBONISATION TARGETS

In response to the economic contraction following the pandemic, Jordan has embarked on a green growth trajectory strategy: 'build back better'.

"In Jordan, the focus is on a climate-responsive, green recovery that can create jobs and economic transformation (JET), through a focus on public/private investments and climate finance" outlines the Ministry of Planning and International Cooperation (MOPIC). On this basis, Jordan has elevated its Nationally Determined Contributions (NDCs) in 2021 by raising GHG reduction targets for 2030 vs. 2012 from 14% to 31%. The NDC action plan include transport, energy, agriculture, health and water. The transport sector is the 5th largest emitter of Jordan's GHG emissions, and so the outcomes of ACT's net zero

plan will contribute directly towards national climate change measures. ACT will also incorporate the national focus areas for energy efficiency, renewable energy and job creation.

### JORDAN GHG NET EMISSIONS BY SECTOR (2018)<sup>4</sup>



World Bank Group, country climate and development report, November 2022

## SBTi GLOBAL DECARBONISATION TARGETS

The Net Zero criteria use the Science Based Targets initiative (SBTi) pathway to limit global warming to 1.5°C. They include a societal commitment to act now and drive material impact in this decade. APM Terminals and the Maersk Group will go above and beyond the 1.5°C aligned targets and invest in building a portfolio of decarbonisation solutions.

# Decarbonisation roadmap

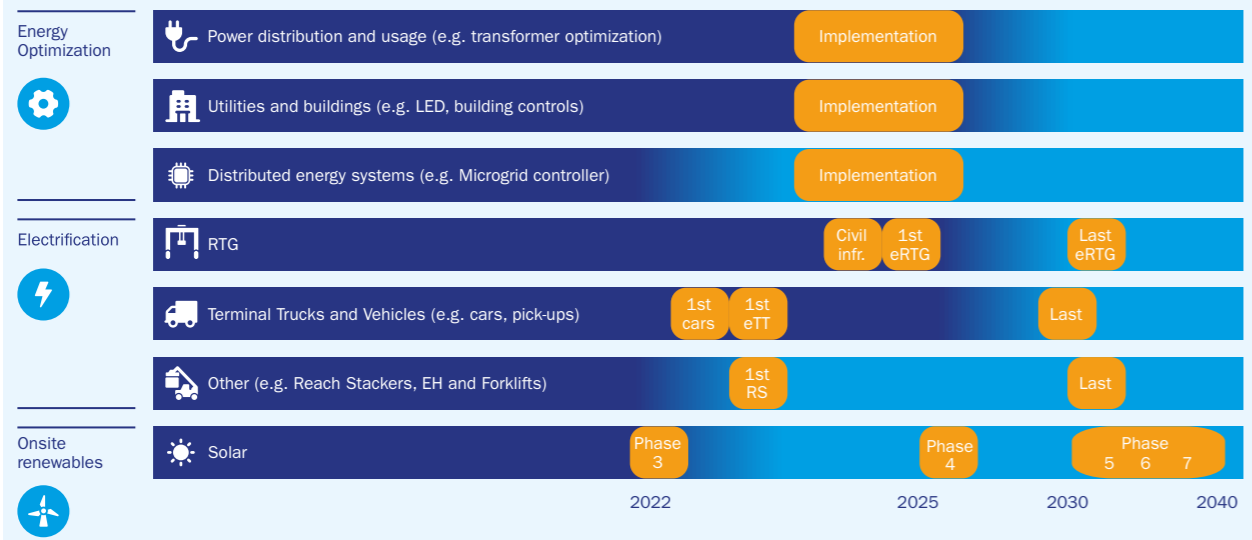
In order for ACT to reach the target neutrality year by 2040, ACT has developed a decarbonisation roadmap – i.e. an end to end decarbonisation roadmap for Aqaba Container Terminal for the next 20 years that include a wide and rich portfolio of initiatives to support the commitment.

Below outlines the decarbonisation levers and milestones that need to be met. As the roadmap is a projection at high-level, the milestones serve as an indication. The exact timeline may be subject to changes by ACT and ADC.

## THE ACT DECARBONISATION ROADMAP IS BASED ON THREE FOCUS AREAS:

- ENERGY CONSUMPTION OPTIMISATION.**  
 ACT will deploy technology and industry-leading best practices to continuously optimise the way it consumes fuel and electricity across the entire terminal and all major energy consumers.
- ELECTRIFICATION:**  
 ACT will plan and execute the electrification of (eligible) equipment and, new assets for either replacement or growth purposes will be electric.
- RENEWABLE ENERGY:**  
 ACT will seek to expand onsite renewables and will secure a local supply of clean energy; this is needed owing to network supply shortfalls.

## KEY MILESTONES FOR EACH OF THE DECARB LEVERS WILL HELP DRIVE PROGRESS TOWARDS ACT'S TRANSFORMATION TO BECOME NET-ZERO



## ACT EMISSION BASELINE

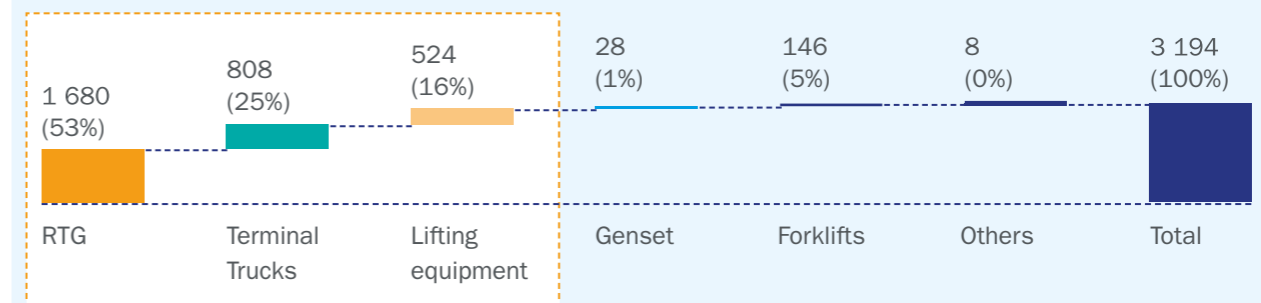
Looking at our carbon footprint, ACT will address both fuel-based emissions, as well as those from the generation of purchased electricity, and will also work with customers, suppliers and partners to involve them in this, because APMT believes this issue needs to be tackled holistically.

The majority of ACT's fuel consumption is generated by RTG (rubber tyred gantry) cranes and terminal tractors, while the company's electricity consumption is driven mainly by reefer containers and quay cranes (QC). By targeting these assets, ACT can achieve a huge reduction in energy consumption and subsequently in GHG emissions.



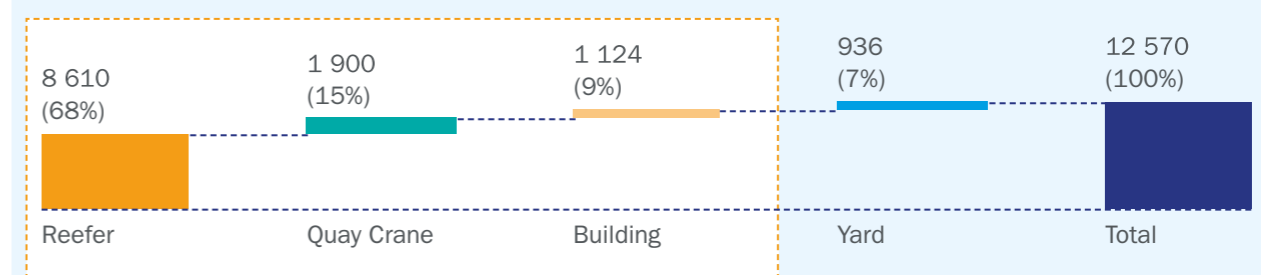
### FUEL CONSUMPTION IS LARGELY DRIVEN BY RTG CRANES, TERMINAL TRUCKS AND LIFTING EQUIPMENT

ACT Annual fuel consumption  
'000s litres, 2020



### WHILE ELECTRICITY CONSUMPTION IS LARGELY DRIVEN BY REEFERS & QUAY CRANES

ACT Annual electricity consumption  
'000s kWh, 2020

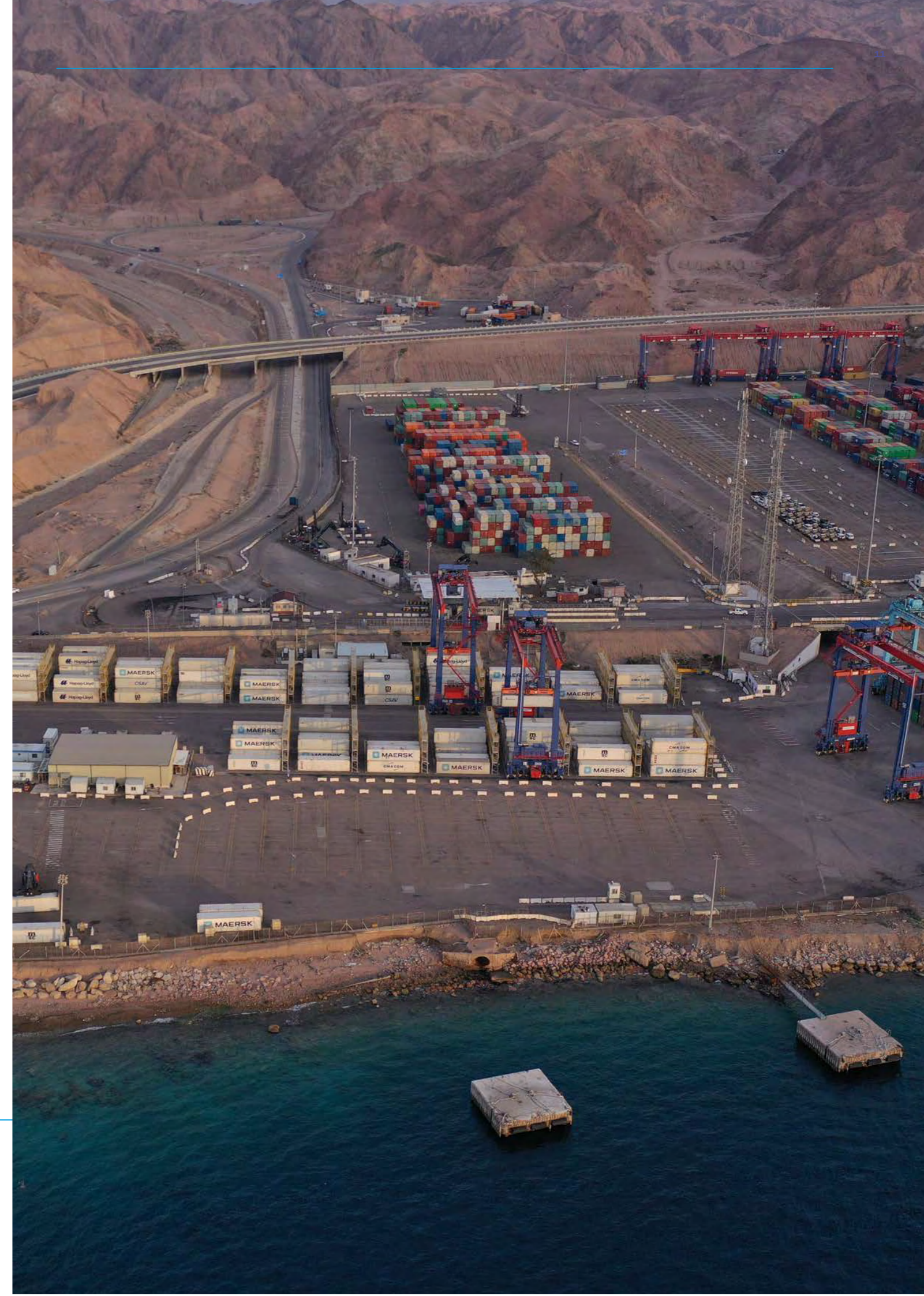
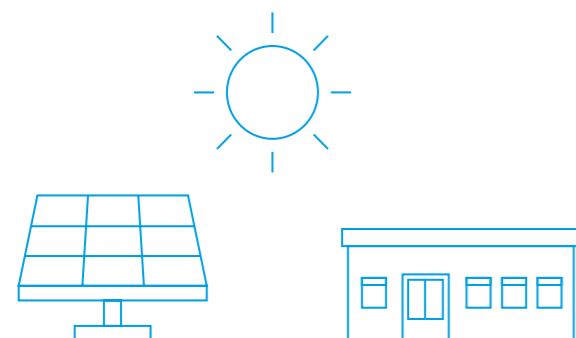
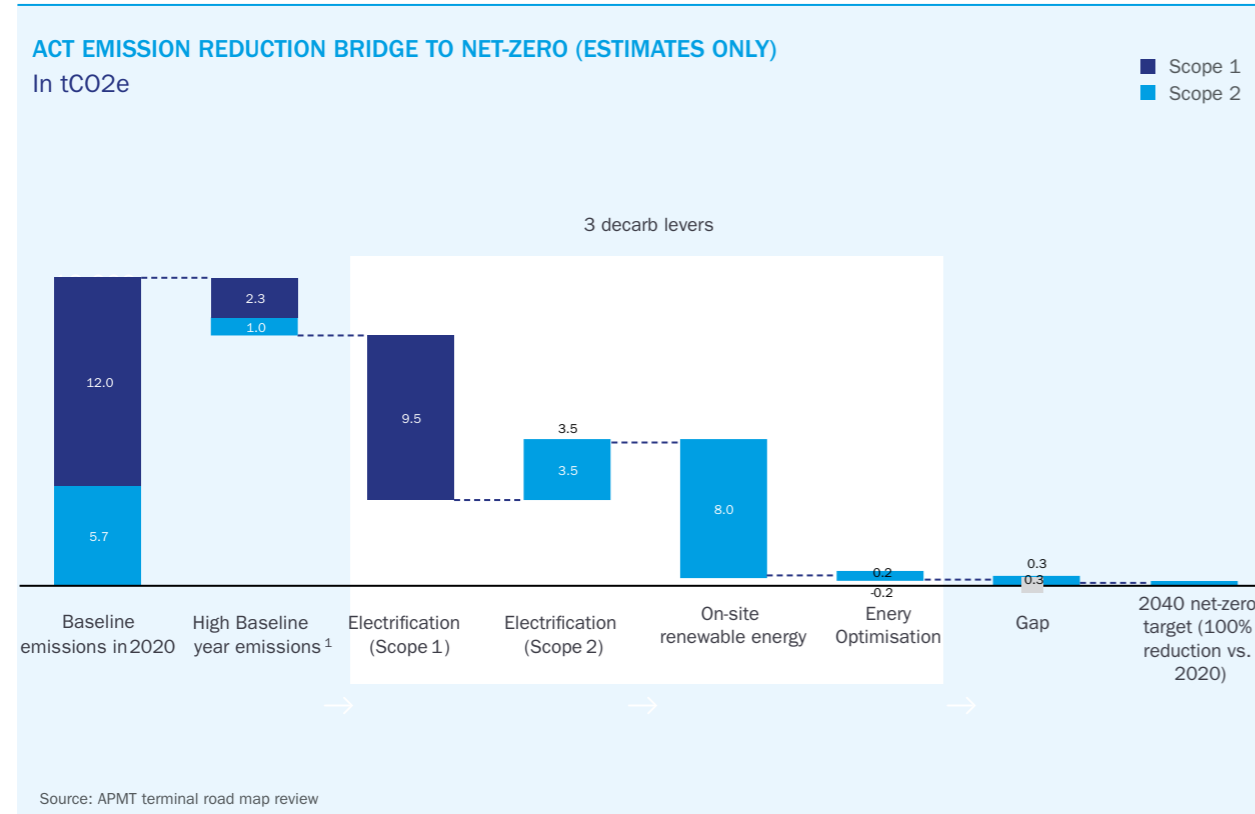


# Decarbonisation levers at ACT

As the pressure builds to reduce GHG emissions, ACT is ready to deploy a wide range of decarbonisation levers, including energy optimisation, electrification and (expansion of) onsite renewables in the short term. Each of these has an important contribution to get ACT's footprint to net zero (see "ACT emission reduction bridge to net zero").

In order to implement all decarbonisation levers, ACT has estimated a high level CAPEX investment plan in excess of 125 mUSD for the duration up to 2040.

Going forward, more and wider initiatives will be considered (see outlook and future prospects).



## ENERGY OPTIMISATION

Through energy consumption optimisation, ACT will continuously reduce fuel and electricity consumption across the entire terminal ecosystem. It will build on successful initiatives which have proven to be effective, as well as find additional initiatives to fully optimise its energy use.

ACT has already worked on three major areas of energy optimisation - LEDs, ACs and heater replacements, thereby successfully reducing energy consumption needs and costs, while increasing efficiency and safety across its terminal equipment.

### LED PROJECT

The LED project was part of the energy efficient projects implemented to reduce energy costs as well as ongoing efforts to reduce ACT's energy use. ACT completed the replacement of the old high-pressure sodium (HPS) light bulbs (at all high masts and lighting poles in terminal yards) with energy efficient LEDs.

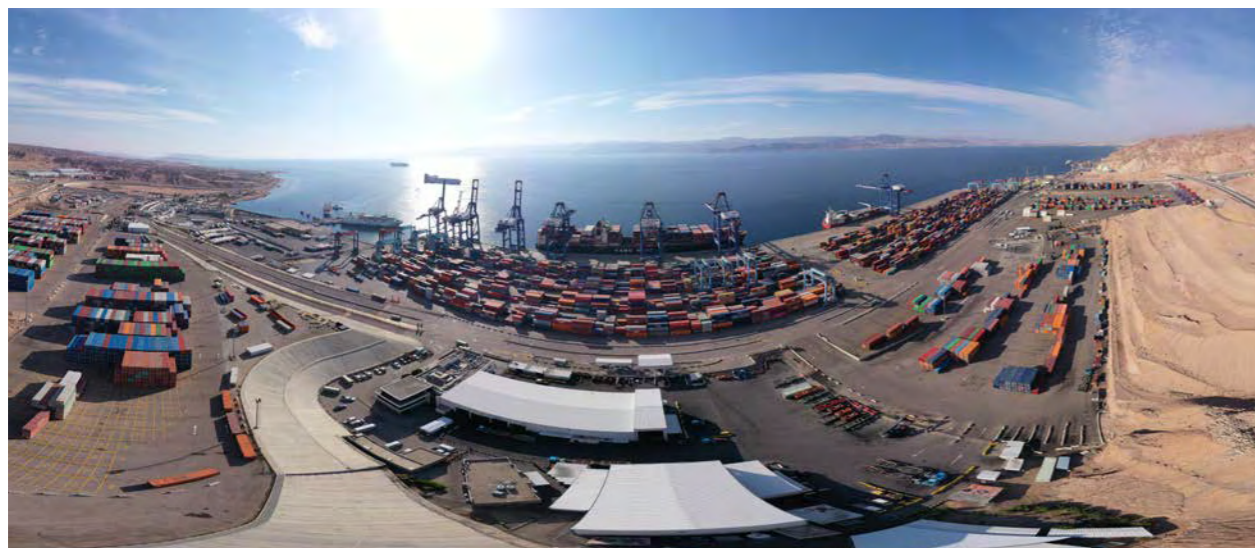
Replacement of 654 HPS light bulbs with high efficiency LED light bulbs have been done safely and with impressive results. In addition to a good reduction in energy use, maintenance costs also reduced significantly. The annual electricity consumption of lighting has been reduced by 82%, which is equivalent to around 1 million kilowatt-hour (kWh) reduction annually.



All yards had exterior lighting that was producing more than optimal light levels in most of the areas and resulting inefficient and expensive energy bills



ACT cut energy costs from lighting by 82% with replacing existing HSP (high pressure sodium) technology with LED technology



### REPLACE CENTRAL AC UNITS WITH SPLIT AC FULL INVERTER UNITS

The three old central AC units at Administration Building, with a total capacity of 96 Ton, have been replaced with 26 full inverter split AC units with a total capacity of 70 Ton, in addition to the 27%

reduction in the capacity, the new split AC units are full inverter type. All this equates to a 40-50 % saving in power consumption.



### FROM ELECTRIC TO SOLAR: ACT'S CONVERTED WATER HEATERS

Two large electrical heaters with a capacity of 80 kW used to heat water have been replaced by solar water

heaters. The yearly expected saving as a result of this switch is around 70,000 kWh.



To further build on previous successful energy optimisation initiatives, ACT is ready to embark on a further Energy Optimisation program that will look holistically at the remaining energy consumption across the terminal. For example, ACT can follow APMT in appointing an energy service company (ESCO) to provide detailed energy audits inside ACT's terminals. These will help identify and implement further Energy Optimisation Improvement Measures. Siemens, which

has been appointed by APMT, is currently working on similar Energy Optimisation Improvement initiatives in an APMT sister company at Gateway Terminals India, Mumbai, where learnings and optimisation performance will be shared with ACT. Other new initiatives for ACT to consider as part of this program are a transformer optimisation, microgrid controller and reefer optimisation – all to be verified and presented by Siemens during 2023-2024.

## ELECTRIFICATION

By increasingly electrifying all of its terminal equipment, ACT will be able to reduce its fuel footprint and associated Scope 1 emissions. With the plan to have increased solar energy in the terminal, Scope 2 emissions can be further reduced as well. Electrification of equipment combined with green electricity also reduces nitrogen oxides and other harmful gases and therefore improves air quality. Moreover there is a lower sound pollution.

Some of the first electrical assets that ACT will purchase include electric cars in 2023, as well as looking after infrastructure needs, such as battery charging facilities. ACT's has a goal to also gradually replace combustion engine pick-up trucks with e-vehicles.

Where electric equipment is not readily available in the market, ACT is actively engaging with main equipment producers to develop and mature equipment compatible with the terminal requirements, as well as test these through smaller scale pilots. Active discussions are taking place around this in the short term for terminal trucks and reach stackers. If successful in the electrification, these would be the first vehicles of their kind in the region.

## ONSITE RENEWABLES

Onsite renewables are a critical enabler for securing carbon-free energy supply locally. ACT is one of the first terminals in the region to have successfully implemented various installations, and seeks to expand on this in the short term.




Since 2019, ACT has embarked on a renewable energy journey. As a first step, initiative was taken to install solar systems on the Administration building and parking area in two phases, with a capacity of 50 kW and 93 kW respectively. Solar panels have been designed and installed to serve as a parking shade, providing additional benefits for the employees.

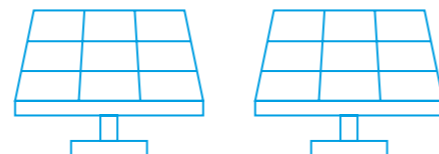
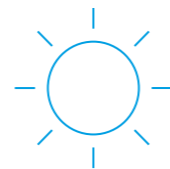
Into 2021, solar installations on four Ship-to-Shore (STS) cranes were added (one STS crane in 2019 as a pilot and three STS cranes in 2021) with a capacity of 30 kW per crane. This installation directly feeds power to the electrical systems on the STS cranes and thus reduces the amount of electrical power pulled by the crane from the grid. The solar system was installed by a local company, with the assistance of ACT's local Asset Maintenance and Project Departments, thereby positively contributing to the local economy.

In 2023, ACT completed the installations for the third phase of solar energy with a capacity of 960 kW, where the production of this phase is expected to be 1,700 megawatt-hour (MWh) annually. This is equivalent to 14% of ACT's total consumption of electricity.

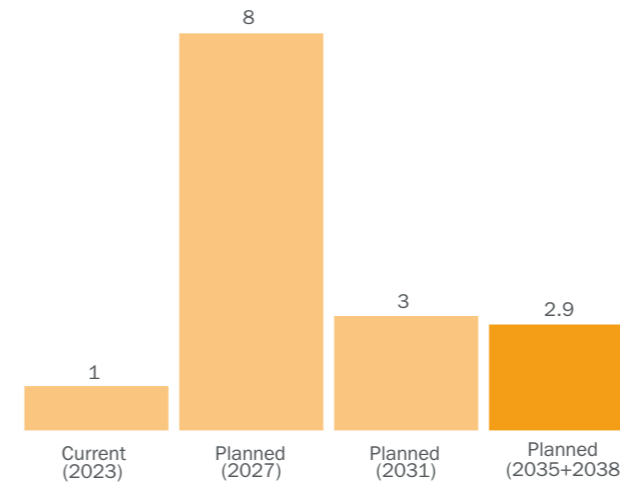
The current solar installations in ACT, including Solar Phase 3, already cover 16% of today's annual electricity demand. This is a positive start but more steps need to be taken to cover current needs. ACT's future electricity needs will further increase, as ACT will need to cater for the increasing electricity demand from both terminal growth and electrification of equipment. Without the availability of purchased green electricity in the market, there is a pressing need to secure on-site renewable energy, by expansion of the solar systems in the terminal. An additional 14 MW solar capacity is required to meet ACT's needs for the coming years.

In response to the urgent need to increase renewable energy supply to the terminal, the proposed expansion is based on the following schedule:

-  Solar capacity exemption granted in 2023
-  Design, tendering and installation 2025-2026
-  Commence production from 2027 onwards



**ACT SOLAR CAPACITY (CURRENT, PLANNED, DESIRED)**  
Capacity MW



ACT sees its role as a trusted partner, and will work with local and national governmental partners to enable further expansion. A critical step that is needed - and is currently being addressed with the authorities - is to secure the exemption of the current legislative constraint on solar power capacity. The results of such exemption could benefit both the port operator as well as Jordan.

**1.3MW** 

Planned solar capacity by end of 2023

**16%** 

of ACT annual electricity to be supplied by solar installations in 2023





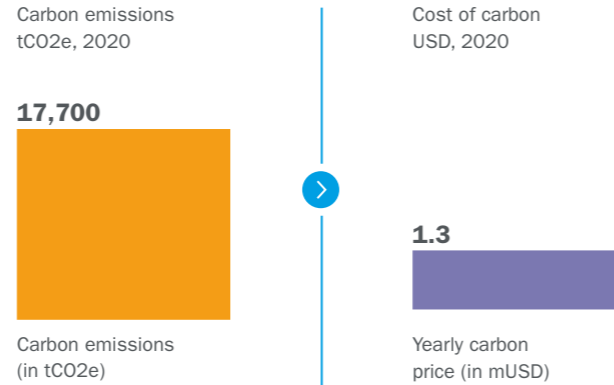
# Outlook and future prospects

By focusing on the three decarbonisation levers, ACT will have a rich toolkit to bring the decarbonisation vision to life, both in the short and long term.

Meanwhile, ACT also understands the cost of not acting to achieve our ambitions. From a carbon pricing perspective, this could amount to approximately 1.3 mUSD annually, in addition to the potential loss of customers and services for ACT.

ACT will furthermore proactively assess any risks and continue to work with all stakeholders to overcome any barriers.

## ACT COULD INCUR A YEARLY POTENTIAL COST OF CARBON TAX OF ~1.3M



• Assumed future carbon taxes of USD 75 per tCO2e could apply, based on current Maersk internal carbon price.

## COST OF NO ACTION



### High cost of carbon tax - expected to increase in the coming years

► More countries are introducing carbon taxes ranging from \$1 to \$137 per metric ton of CO2<sup>5</sup>



### Potential loss of revenue as customers demand carbon free solutions

► Customers are increasingly demanding and diverting to carbon free solutions<sup>6</sup>



### Loss of potential partnerships with key customers

► Decarbonisation can assist expand and enhance customer partnerships, while not doing so could risk the reverse impact.



### Loss of competitive advantage opportunity

► Other terminal operators are also looking at decarbonising their logistics

<sup>5</sup> "Carbon taxes worldwide as of April 2021, by select country" Accessed March 28, 2022. <https://www.statista.com/statistics/483590/prices-of-implemented-carbon-pricing-instruments-worldwide-by-select-country/>

<sup>6</sup> New coalitions, such as Cargo Owners for Zero Emission Vessels (coZEV) are calling for ambitious action to accelerate maritime shipping decarbonization. The same customer decarbonisation demand is also visible within Maersk, 90 of 200 key customers currently have set SBTi targets for scope 3 emissions.

ACT decarbonisation opportunities

**ENERGY OPTIMIZATION**  
ACT will reduce its consumption of both fuel and electricity across the terminal facility

**INSTALLATION OF ON-SITE RENEWABLES**  
ACT will expand its onsite Renewable Energy Sources (RES)

**ELECTRIFICATION**  
ACT will electrify existing equipment and ensure that new equipment for growth and replacement are electrical

**Switch to Green Electricity**  
APMT globally will seek to change the type of electricity we source and utilize renewable energy sourcing solutions in those terminals where available and applicable

Broader eco system opportunities

**Local Communities**  
ACT seeks to leverage its leadership position to support decarbonisation of the broader port ecosystem

**Zero-Emission Shore Power**  
APMT globally seeks to support the decarbonisation of the broader shipping industry in collaboration with our partners and port operators e.g., through providing shore power.

ACT will currently focus on these three core areas out of the wider APMT decarbonisation options.

In the upcoming years, ACT will also assess and apply additional levers that will support it to achieve net-zero, and eventually expand its efforts and support the wider port area to decarbonise beyond the current concession agreement.

### GREEN ALTERNATIVES

Current grid electricity generated by local suppliers is often converted from fuel sources and is therefore not clean. ACT has initiated dialogues with energy providers in the region, seeking to procure green electricity as a sustainable source for its energy consumption. Currently, however, there is no green electricity (nor biofuel) available in Aqaba, nor are there plans for such provision to become available in the short to medium term. This means that, in order to secure green energy supply in the short term, there is a pressing need for increased on-site renewable energy supply in the terminal. (see "Onsite renewables"). On the long term, adding more renewable energy sources to the grid will eventually decrease the GHG emissions when generating electricity, reducing the total indirect emissions at ACT and bringing it closer to Net-Zero.

### INFRASTRUCTURE READINESS & INNOVATION





Beyond reducing ACT's direct Scope 1 and 2 emissions, there lies a future opportunity to look at servicing and decarbonising the wider shipping industry. In the intermodal area between landside logistics and ocean freight, and through these new targets, APM Terminals will be ideally positioned to offer its shipping line customers, freight forwarders, and cargo owners an unparalleled opportunity to decarbonise their logistics chains, on an end-to-end basis. Examples include ship to shore operations and other innovative solutions that will be developed in the market over time. This is an important value proposition that ACT can offer the wider port region, beyond the current concession agreement.



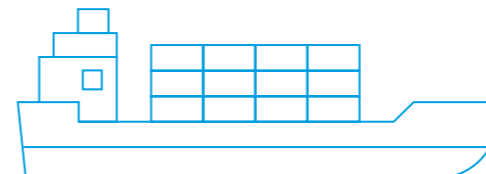
### FUTURE OPPORTUNITIES

Emission reduction will not only drive the local climate agenda, but also create jobs, new opportunities and help build better working practice





ACT sees decarbonisation as a commitment to our customers but also to society at large. Reducing carbon emissions will not only support Jordan's climate ambitions, but will also support a transition towards a greener market economy, create new job opportunities and improve a number of business practices including:

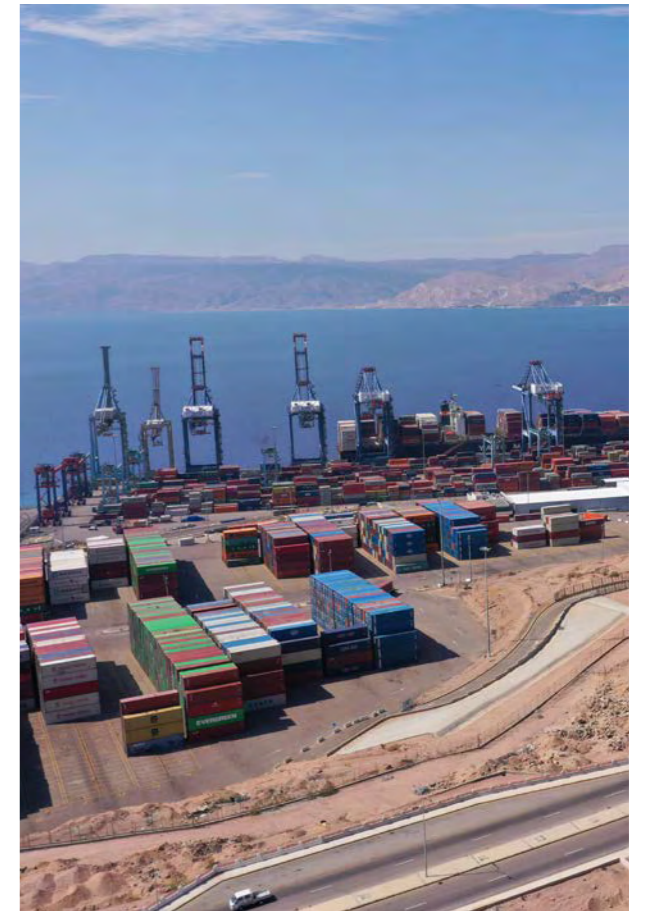
-  Employee productivity uplift through establishing a sense of "purpose"
-  Cost reductions, investment and asset optimisation through better allocation of long-term capital
-  Reduce regulatory and legal risk and earning subsidies and support
-  Maintaining and improving competitiveness.

For customers, the most important requirement is that transport solutions are competitive, reliable and offer an increasingly low environmental impact. ACT is confident that its new decarbonisation roadmap supports all of these requirements.



### LOOKING FORWARD

-  Present ACT's decarbonisation roadmap to all relevant authorities, stakeholders, customers and partners to get feedback and support to bringing it successfully to life
-  Secure exemption to expand the on-site solar production to meet ACT's growing demand for green electricity
-  Explore with ADC and relevant authorities how ACT's decarbonisation roadmap can be leveraged for inspiration towards an ambition to decarbonise the entire Port of Aqaba ecosystem as well as the establishment of "Green Corridors" to/from Jordan and beyond
-  include the needed investments in excess of 125 mUSD in the long term CAPEX investment plan for ACT






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 **Google plus:** [Aqaba Container Terminal-Act](https://plus.google.com/Aqaba-Container-Terminal-Act)