DECEMBER 2025

Transition plan towards electric fleets

Structured steps for coordinated action

ZEPA Zero Emission Port Alliance

This document provides an overview of key steps and supporting analyses required for the transition to electric container handling equipment

About this document

This document aims to support the entire port ecosystem, including terminal operators, port authorities, OEMs, and grid operators, in navigating the sequence of decisions and actions required to transition to **battery electric container handling equipment (BE-CHE).** By offering a **structured transition checklist**, it provides visibility into the **main steps, supporting analyses and cross-stakeholder coordination** needed to move from diesel-based fleets to electric alternatives**.** The checklist has been designed to **support improved coordination, planning and alignment** between stakeholders, and **reduce implementation hurdles.**

About ZEPA

The Zero Emissions Port Alliance (**ZEPA**) was formed expressly to **accelerate port decarbonisation**. Container terminals are our focus because the electrification of container-handling equipment is one of the most immediately addressable source of port emission. ZEPA aims to **accelerate take-up of battery-electric container handling equipment** (BE-CHE) among terminal operators by making BE-CHE **affordable and accessible by 2030**.

The Secretariat is hosted by **Systemiq** and is responsible for managing ZEPA's day-to-day operations and coordinating member activities, including research and analysis, project management, and industry engagement.

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How to use this document

This document aims to be **a practical tool towards electrification of battery electric container handling equipment** (BE-CHE) by laying out the main steps in that transition

Terminal operators | OEMs | Grid operator | Port authority | Regulator

Stakeholders can use this document at various stages of the fleet electrification process:

- **In the planning phase**, it helps **identify and prioritize critical decisions**, ensure timely **coordination with other stakeholders, map interdependencies** across dimensions (e.g., charging strategy and grid connection), and ensures **prerequisites are in place** before advancing.
- **In the execution phase**, the checklist can be revisited at **key decision gates,** such as procurement, grid applications, site works, and commissioning, to cross-check dependencies and avoid missteps.

Importantly, the process is iterative: the checklist should be revisited whenever elements of the plan change, enabling stakeholders to maintain a robust, coordinated, and up-to-date plan.

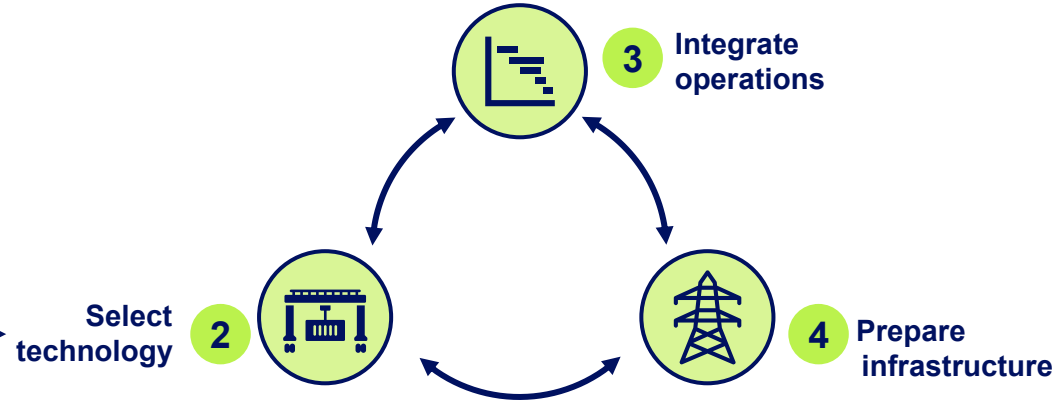
Note: This checklist aims to provide a comprehensive overview to support fleet electrification. However, given the variability in terminal-specific conditions, including infrastructure, operational models, and local constraints, actual steps and priorities may differ. Users are encouraged to adapt the checklist to their context.

The Transition Plan covers 7 interdependent steps towards electrifying container handling equipment

Direction

1 Define strategy
Establish the ambition and scope of the electrification effort. Create supporting governance and processes, at global and terminal level.

System setup



Iteratively, **Select the technology** to ensure equipment is operationally fit, safe, and future-proof, defining vehicle specs and collaborating with Original Equipment Manufacturer (OEM's); **Integrate operations** to embed charging and system needs into workflows; and **Prepare infrastructure** to support full fleet electrification (e.g., managing grid connections, energy supply and backup systems).

Execution projects

Iteratively, workforce training shapes the implementation of fleet electrification, and implementation poses requirements on training & transition programs

6 Train the workforce for change through structured communication, role adaptation, and overall training courses.

7 Implement systems, delivering infrastructure, equipment, and systems integration.

5 Structure financing
Structure ownership models and funding strategies based on Total Cost of Ownership (TCO) analysis to make the transition economically viable and bankable.

Note: The next slide showcases all specific steps drafted in the Transition Plan

Direction

1 Define strategy

1.1 Set (internal) **intermediate decarbonisation targets** and define the **full fleet electrification target date**

1.2 Define **terminal specific transition**

1.3 Establish **internal governance structure** for fleet electrification process

1.4 Engage in **cross-value chain learning** and knowledge-sharing

System setup

2 Select technology

2.1 Determine **future equipment needs**

2.2 Establish **technical dialogues with OEMs**[1]

2.3 Define **procurement requirements** for electrified equipment

2.4 Select **preferred equipment models, software and OEMs**, based on procurement requirements

2.5 Decide if **pilot trials** are required before full-scale procurement

3 Integrate operations

3.1 **Select charging strategy per vehicle** (depot, rotational, battery swapping, opportunity or hybrid)

3.2 Assess **impacts of charging on terminal operations and scheduling**, and **integrate this in the TOS & EMS**[2]

3.3 Determine and optimize **number, location and configuration of chargers**

3.4 Assess **data and software integration** needs to move towards centralized data management system

3.5 **Update operational, safety and emergency protocols** for container handling equipment & associated infra

3.6 Determine **spare parts and maintenance strategy** for equipment and charging infrastructure

4 Prepare infrastructure

4.1 Confirm **future grid readiness and capacity** at terminal, port, and regional levels

4.2 Select and **secure low-carbon electricity supply**

4.3 Select and secure resilient and flexible **backup power** (e.g., Battery Energy Storage Systems)

4.4 Evaluate and plan to **mitigate impacts on local power grids and energy supply**

4.5 Obtain **permits**, finalise **engineering design**, and set **construction milestones**

Execution projects

6 Train the workforce

6.1 **Map evolving tasks and skills needs** across operations, maintenance, safety, and scheduling for mixed diesel–electric and full-electric fleets. Additionally, **budget for (re)skilling needs**

6.2 **Design trainings for workforce and select appropriate delivery method** (e.g., OEM-led trainings, in-house trainings, third party trainings)

6.3 **Develop & deliver training plan** for workforce

7 Implement systems

7.1 Select and contract **Engineering, Procurement and Construction (EPC) partner(s)**

7.2 **Conduct pilot phase**, if needed

7.3 Deploy **centralized data management** and carbon accounting system

5 Structure financing

5.1 Develop **internal project finance model**

5.2 Engage with **subsidy and concessional finance** providers

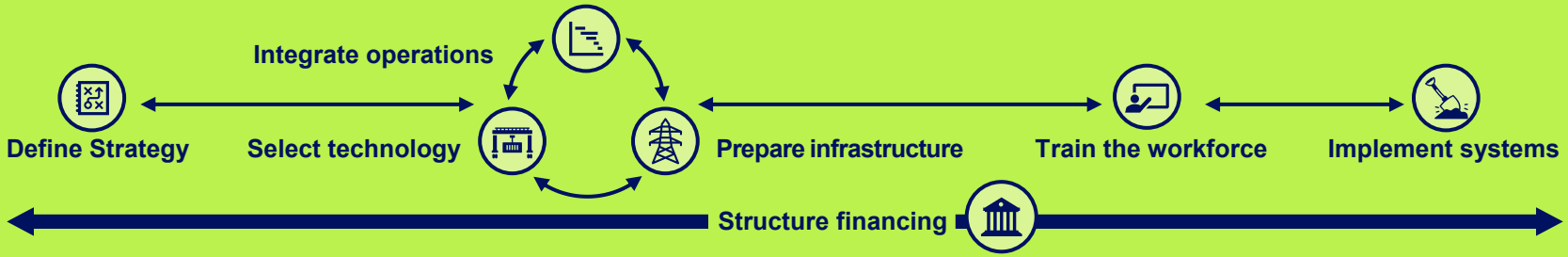
5.3 Select optimal **procurement and ownership model** for BE-CHE

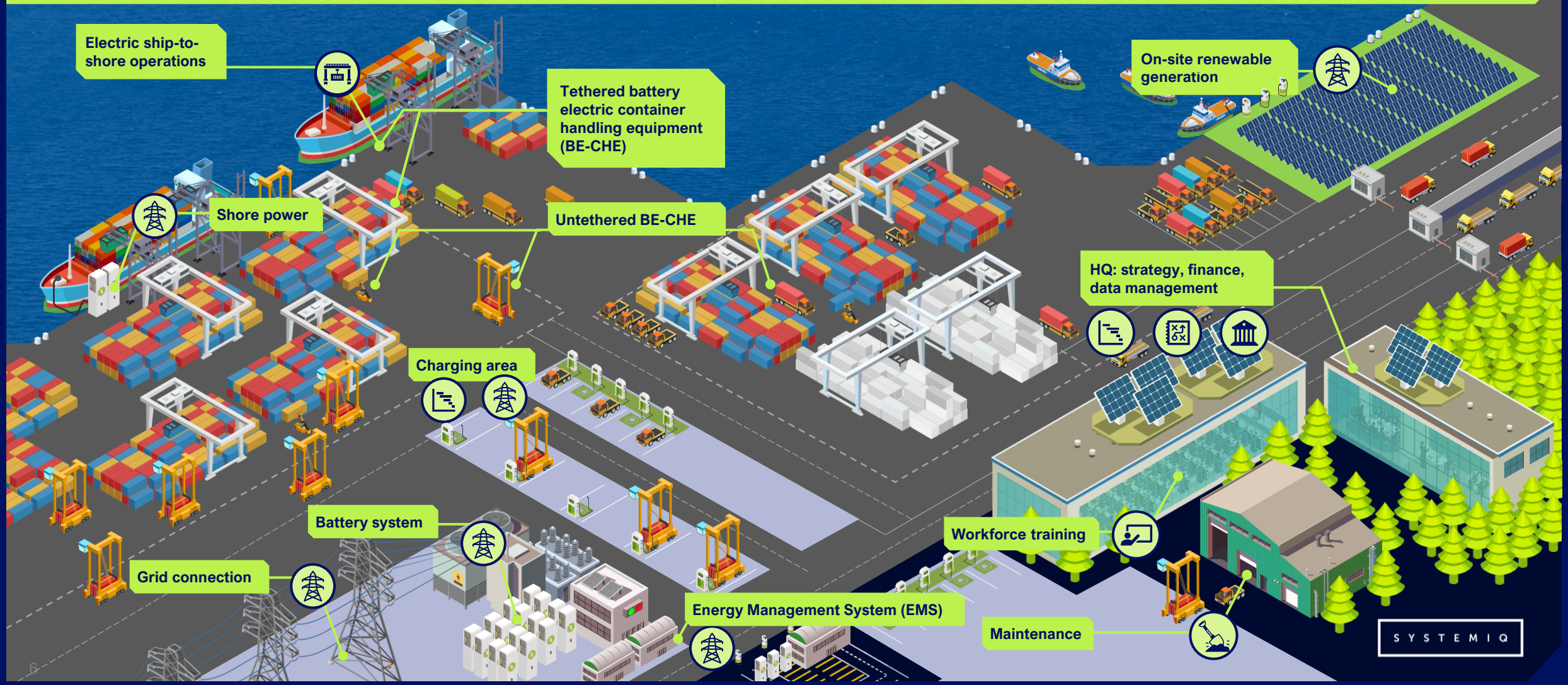
5.4 Select optimal **procurement and ownership model for charging and power** infrastructure

5.5 **Structure and secure financing package** for electrified CHE fleet and infrastructure

Note: **[1]** OEM = Original Equipment Manufacturer ; **[2]** TOS = Terminal Operating System, EMS = Energy Management System

The Transition Plan covers 7 steps crucial for electrifying container handling equipment





Deep-dive into the 7 key steps for port electrification

1. Strategy
2. Technology selection
3. Operations integration
4. Infrastructure readiness
5. Financing
6. Workforce training
7. Implementation

1. Strategy

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
1.1	Set (internal) **intermediate decarbonisation targets** and **define the full fleet electrification target date** (e.g. '*reduce scope 1 + 2 emissions by 50% by 2032 and fully electrify by 2040* ')	• Assess emissions baseline and model future emissions trajectory under BAU vs electrification scenarios • Define scope and ambition of target • Consider aligning with SBTi or other pledges		1.2 Define terminal specific transition 2.1 Determine future CHE equipment needs
1.2	**Define terminal specific transition**	• Map existing fleet asset age • Understand and align with regulatory roadmap and/or port-wide decarbonisation targets and concessions in all relevant geographies • Determine operational disruption risk per approach		1.1 Decarbonisation targets 2.1 Determine future CHE equipment needs 4.1 Future grid readiness
1.3	Establish **internal governance structure** for the fleet electrification project	• Define governance scope and objectives • Appoint key roles and stakeholders across all relevant teams • Set up decision-making protocols		1.1 Decarbonisation targets 1.2 Define terminal specific transition 3.2 Impact on terminal operations
1.4	Engage in **cross-value chain planning and knowledge-sharing**	• Engage in joint planning with port authorities, neighbouring terminals and local utilities • Engage OEMs early to validate technical feasibility, performance trajectories, and operational impacts of electrification options, given rapid EV technology development and varying solution maturity. • Connect with industry alliances (e.g. ZEPA) to set up cross-sector learning and knowledge sharing		1.1 Decarbonisation targets 1.3 Internal governance structure

2. Technology selection

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
2.1	Determine **future equipment needs**	• Conduct full audit of current CHE fleet (vehicle types, #, age, utilisation, emissions, maintenance, etc.) • Map terminal outlook, both for greenfield and brownfield terminals (inc. length of concessions) • Assess future needs by type, quantity and interoperability		1.2 Define terminal specific transition 3.4 Data and software integration needs
2.2	Establish **technical dialogues** with (shortlisted) **OEMs**	• Schedule initial conversations with OEMs • Request required data (e.g., motor specifications, lifetime, battery lifetime)		2.1 Determine future CHE equipment needs 2.3 Technical procurement requirements
2.3	Define **procurement requirements** for electrified equipment	*See deep-dive on next page*		
2.4	**Select preferred equipment types/models, software, and OEMs**, based on procurement requirements	• Develop Total Cost of Ownership comparisons for equipment models • Compare alignment with ZEPA voluntary standards • Ensure integration and interoperability with digital systems		2.3 Technical procurement requirements 3.2 Impact on terminal operations 3.4 Data and software integration needs
2.5	Decide if **pilot trials** are required before full-scale procurement	• Assess technology readiness of selected equipment • Evaluate risk of operational disturbance • If piloting: select region for pilot		2.2 OEM technical dialogue 2.3 Technical procurement requirements

Interested to learn more?

Read more detailed information in ZEPA's Voluntary Standards

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DEEP-DIVE

2.3 Deep dive technical procurement requirements

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO+..)	Key dependencies
Vehicle	• **Select vehicle type** *(e.g., straddle carrier, terminal tractor, RTG)* • **Choose charging inlet location** • **Ensure good ergonomics and operator interface** • **Ensure sufficient safety features are in place** (power-off switch)	• Match equipment and charging inlet location to use case and operational needs • Assess needs for ergonomics, operator interface and safety features and liaise with OEMs		
Battery	• **Determine battery type** *(LFP/NMC/LTO/Other)* • **Determine required battery capacity** (x kWh) • **Determine required C-rate** *(<1C / ~1C / > 1C)* • Integrate **battery fire and circularity considerations** into procurement requirements	• Consider battery chemistry options vs operational needs, (energy density, safety, lifecycle, costs) • Determine appropriate battery capacity and C-rate based on operations and charging strategy • Verify battery (fire) safety considerations with OEMs • Plan battery circularity strategy for end-of-life batteries, integrating strategy in procurement (e.g., take-back clauses) *See below for more information*		
Charging	• **Select charging type** *(e.g., MCS/CCS/Pantograph)* • **Determine required C-rate** *(<1C / ~1C / > 1C)* • **Determine power level** (x kW/MW) **and configuration** (e.g., *dual-port/single-port*) • **Select and implement charging and communication protocol** *(CCS2/NACS/ GB/T)*	• Determine C-rate and power level by analysing vehicle battery specs, charging windows & charging strategy • Design charger configuration based on available space, charger specs, and available grid capacity • Select and implement charging communication protocol in collaboration with charging OEM and vehicle OEM		
Systems integration	• **Ensure new vehicle and infrastructure are interoperable and can be integrated into TO operating systems** (e.g., TOS, EMS) • **Optional:** set up requirements for an **energy management system**	• Continue to ensure interoperability between vehicles, chargers and communication systems is integrated in procurement specifications • In collaboration with relevant OEMs, ensure data and communications from vehicles and infrastructure can be linked into existing and new systems (e.g., TOS, EMS)		

1.2 Define terminal specific transition

2.1 Determine future CHE equipment needs

3.1 Charging strategy

3.2 Impact on terminal operations

4.1 Future grid readiness

Note: large dependency on **charging strategy** (3.1), **operations** (3.2) and **grid readiness** (4.1)

Interested to learn more?

ZEPA's Voluntary Standards to inform decisions

Battery circularity: Value add versus compliance risks

Battery fire safety: A transitioning fire risk profile

3. Operations integration (1/2)

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
3.1	Select **charging strategy** (*depot/rotational/battery swapping/opportunity charging or hybrid mix)*	• Model load profiles for different charging strategies to understand impact on grid infrastructure • Analyse TCO for different charging strategies • Evaluate operational and spatial constraints, combined with terminal layout		2.1 Determine future CHE equipment needs 2.3 Technical procurement requirements 2.4 Select equipment models 3.2 Impact on terminal operations
3.2	Assess impacts of charging on terminal operations and scheduling, and integrate this in the TOS and EMS	• Determine scheduling impacts from electrification, based on charging strategy (e.g., on breaks, shift changes) • Update TOS and EMS with changes in operations		2.1 Determine future CHE equipment needs 2.4 Select equipment models 3.1 Charging strategy
3.3	Determine and optimise **number, location and configuration of chargers**	• Evaluate spatial constraints for chargers and design charger locations (depending on terminal set-up and charging strategy) • Determine required redundancy: analyse risk of operational disruption from charger unavailability vs charger costs • Determine number of required chargers (depending on charging strategy)		2.1 Determine future CHE equipment needs 2.3 Technical procurement requirements 2.4 Select equipment models 3.1 Charging strategy 3.2 Impact on terminal operations

Interested to learn more?

Read more detailed information in ZEPA's Voluntary Standards

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3. Operations integration (2/2)

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
3.4	Assess **data and software integration** needs	• Evaluate integration needs, which may include real-time SoC tracking, load balancing, predictive maintenance and integration of BE-CHE data into TOS or central energy management and optimisation systems		**2.4** Select equipment models **3.1** Charging strategy **3.2** Impact on terminal operations
3.5	Update **operational, safety and emergency protocols** for electrified CHE and associated infra	• Identify new or changed procedures, performing a risk assessment for BE-CHE to understand mitigation measures needed • Integrate with existing protocols • Validate with local first responders and conduct emergency drills	**+ First responders**	**2.4** Select equipment models **3.1** Charging strategy **3.2** Impact on terminal operations **3.4** Data and software integration **6.3** Workforce training
3.6	Determine **spare parts and maintenance strategy** for BE-CHE and charging infrastructure *(e.g., full-service contract with OEM, in-house workshop, hybrid model)*	• Determine availability of external services • Assess availability of internal technical workforce • Compare costs over vehicle lifetime • Evaluate operational impacts of strategy		**2.4** Select equipment models **3.1** Charging strategy **5.3** Procurement/ownership BE-CHE **5.4** Procurement/ownership power infra **6.3** Training programs

Interested to learn more?

ZEPA's Voluntary Standards to inform decisions

Battery fire safety: A transitioning fire risk profile

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4. Infrastructure readiness

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
4.1	Confirm **future grid readiness** and capacity at terminal, port, and regional levels	• Model future electric loads (→ See ZEPA Load Profile Scenario Explorer) • Determine peak grid connection capacity required • Assess if current grid capacity is sufficient (external capacity, internal capacity and contracted capacity). If not: request increased capacity from grid operator • Communicate with port authority about future grid needs		**3.1** Charging strategy **3.3** Charger configuration **4.2** Electricity supply
4.2	Select and secure (**low-carbon) electricity supply** *(grid mix, green PPA, on-site renewables)*	• Determine availability and cost for each option • Evaluate emissions impact for each option	**+ Utilities**	**1.1** Decarbonisation targets **2.4** Select equipment models **3.1** Charging strategy **3.3** Charger configuration **4.1** Future grid readiness
4.3	Select and secure **resilient and flexible backup power** *(e.g., BESS, generator, hybrid, port-wide shared backup system)*	• Determine duration of backup power needed • Evaluate TCO for back-up power, including potential revenues (BESS) • Determine emissions profile of backup power • Consider safety and circularity of back-up system	**+ Utilities**	**1.1** Decarbonisation targets **3.1** Charging strategy **3.3** Charger configuration **4.1** Future grid readiness **4.2** Electricity supply
4.4	Evaluate and plan to **reduce dependency on local power grids** and **energy supply**	• Assess options for on-site renewable generation (solar, wind) • Assess options for on-site BESS or port-wide microgrid to reduce required grid connection capacity		**3.1** Charging strategy **4.1** Future grid readiness **4.2** Electricity supply
4.5	Obtain **permits**, **finalise engineering design**, and set **construction milestones**	• Secure building and electrical works permits • Complete engineering design • Align construction schedule with terminal and port operations	**+ EPC contractor**	**2.4** Select equipment models **3.3** Charger configuration **4.1** Future grid readiness **4.2** Electricity supply

Interested to learn more?

Read more detailed information in ZEPA's Load Profile Scenario Explorer

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5. Financing

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
5.1	Develop **internal project finance model**	• Determine cost inputs for diesel vs electric CHE • Model CAPEX and OPEX for the specific terminal • Conduct sensitivity analyses to key variables (e.g., power price, battery price) • Evaluate emissions trajectory vs internal carbon pricing		**2.4** Select equipment models **5.3** Procurement/ownership BE-CHE **5.4** Procurement/ownership power infra **5.5** Financing package
5.2	Engage with **subsidy and concessional finance** providers	• Map applicable subsidies and concessional loans • Conduct eligibility assessment • Draft applications for selected instruments		**1.1** Decarbonisation targets **5.1** Project finance model **5.5** Financing package
5.3	Select optimal **procurement and ownership model for BE-CHE** (*e.g., CAPEX, leasing, service-based)*	• Evaluate TCO under different options • Assess impact on balance sheet and cash flow • Determine financing cost and availability per model • Determine impact on terminal autonomy	**+ Financial institutions**	**2.4** Select equipment models **4.5** Permits, design, construction plan **5.1** Project finance model **5.2** Subsidies/concessional finance
5.4	Select optimal **procurement and ownership model for charging and power infrastructure** *(e.g., terminal-funded, port authority-funded, third party as-a-service)*	• Determine financing cost and availability per model • Evaluate TCO under different options • Assess impact on balance sheet and cash flow • Determine impact on terminal autonomy	**+ infrastructure investors / service providers**	**2.4** Select equipment models **4.5** Permits, design, construction plan **5.1** Project finance model **5.2** Subsidies/concessional finance
5.5	**Structure and secure financing package** for BE-CHE fleet and infrastructure	• Assess balance sheet and cash flow • Structure financing package (debt/lease/cash investment) • Secure financing package	**+ Financial institutions**	**5.3** Procurement/ownership BE-CHE **5.4** Procurement/ownership power infra **5.1** Project finance model **5.2** Subsidies/concessional finance

6. Workforce training

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
6.1	**Map evolving tasks and skills needs** across operations, maintenance, safety, and scheduling for mixed diesel–electric and full-electric fleets. Additionally, **budget for (re)skilling needs**	• Engage workforce and unions early • Identify key organisational and behavioural shifts • Based on this, map training needs for different roles affected by electrification (e.g., operator/ technician/ supervisor/ emergency responder) for key topics (e.g., battery fire, safety and charging strategy) • Invest early in workforce (re)skilling: create structured (re)skilling paths for impacted roles, focusing on those with the biggest changes, such as maintenance	+ Unions	2.4 Select equipment models 3.2 Impact on terminal operations

6.2	**Design trainings for workforce** and **select appropriate delivery method** *(e.g., OEM-led trainings, in-house trainings, third party trainings)*	• Include workforce and unions in the design of (re)skilling programmes to ensure training relevance, engagement, and optimal outcomes for each role.
		• Partner with OEMs and training providers to assess standard training availability and costs, and (where needed) co-design tailored learning modules and certification programs.
		• Additionally, OEMs themselves could:
		  • Standardise components, interfaces, and documentation to simplify training and maintenance and reduce skill fragmentation across fleets
		  • Provide training packages for terminal teams
		  • Develop clear technical documentation and open access to diagnostics and maintenance data
		• Overall, develop a communication and engagement strategy, including feedback mechanisms
			+ Unions	2.4 Select equipment models
				3.2 Impact on terminal operations
				3.5 Safety & emergency protocols

6.3	Deliver **training programs for** workforce	• Deliver curriculum with OEM, port authority and union input • Promote inclusive reskilling programs, ensuring access for existing workers and new entrants • Share best practices and certification standards to harmonise training across ports	+ Unions	2.4 Select equipment models 3.2 Impact on terminal operations 3.5 Safety & emergency protocols 3.6 Spare parts & maintenance strategy

Interested to learn more?

Read more detailed information in ZEPA's Workforce Reskilling deep-dive

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7. Implementation

Involved parties Grid operator · Regulator · Port Authority · OEMs

	Key steps	Underlying actions & analyses	Involved parties (TO +..)	Key dependencies
7.1	Select and contract **EPC partner(s)**	• Define scope of work and planning • Compare various EPC partners and select preferred ones • Ensure integration with OEM equipment	**+ EPC firms**	**2.4** Select equipment models **5.3** Procurement/ownership BE-CHE **5.4** Procurement/ownership power infra **3.4** Data and software integration **4.5** Permits, design, construction plan
7.4	Optional: **conduct pilot phase**	• Select pilot scope (vehicle, terminal (zone), period) • Define and monitor performance and reliability KPIs, safety incidents, operator feedback • Conduct lessons-learned review and update roll-out plan	OEMs	**2.4** Select equipment models **2.5** Pilot trials **1.4** Scope and timeline per terminal **3.4** Data and software integration
7.5	Deploy centralized **data management** and **carbon accounting system**	• Integrate new vehicle and infrastructure data and communication with TOS, EMS and other relevant systems • Track key KPIs (inc. energy use, battery SOC, idle time, emissions)	OEMs	**2.4** Select equipment models **3.4** Data and software integration

DEEP-DIVE

Most existing port risks are unlikely to significantly change as the terminal transitions to battery electric equipment

	Diesel		Battery electric
	Description of risks	**% of claims costs at ports and terminals[1]**	**Expected change when transitioning from diesel to electric equipment**
Port infrastructure and assets	**Damage to cargo, facilities or equipment** – incl. cranes, port structures, quays, buildings, and other assets	33%	BE systems introduce a **different** set of risks, altering the overall risk profile
Extreme weather events	**Losses from extreme weather events** – such as flooding, storms, wildfires	13%	**Could increase** due to batteries' sensitivity to flooding and temperature, depending on mitigation.
Fire	**Fires involving hazardous or flammable goods** – leading to destruction of cargo and infrastructure	11%	**Risk is different**, frequency is lower and impact could be higher, mitigation options available
Vehicle	**Vehicle operation mistakes** – accidents that can cause serious injuries and damage to vehicles/ other port assets	10%	**Different** incident types may occur due to operational shifts required for charging
Slips, trips and falls	**Individual workplace accidents** – incidents resulting in injuries, sometimes with life-changing consequences	7%	**No change**
Reefer cargoes	**Cargo spoilage from temperature deviations** – caused by equipment faults or operational/ comms mistakes	4%	**No change**
Environmental incident	**Environmental contamination –** spills or release of pollutants due to damaged cargo, process failures, or equipment malfunction.	3%	**Lower** as in an electrified scenario shore power is used whilst ship is berthed, leading to smaller chance of diesel spills.
Energy supply	**Energy dependency risk –** not being able to fulfill operations due to energy shortage (i.e., diesel availability)	**NA**	**Higher** as more vulnerable to grid disruptions and energy price volatility
Workforce and legal compliance	Includes **reliance on labour stability** and potential **compliance risks** under new net-zero policies	**NA**	EVs may **improve workforce stability** (as operators experience benefits of electric vehicles) and **improve net-zero compliance**

Note: [1] Fraud and theft (4%) and ship related incidents (4%) not included in overview as these play a small role and will not change during the shift to battery electric vehicles.
Source: TT Club (2025), 2025 Mediterranean Port & Logistics Conf.

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Acknowledgements

The Zero Emissions Port Alliance (ZEPA) is a cross-value-chain port alliance set up by its members to tackle BE-CHE adoption challenges together. ZEPA has multiple members for the 2025 Work Programme, whose activities span the container handling sector.

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This report has been developed by Systemiq and constitutes a collective view of participating organizations in the Zero Emission Port Alliance. ZEPA members have supported and validated the analyses, and have agreed to endorse the findings as presented in this report.

SYSTEMIQ

We would like to thank other expert collaborators for providing valuable contributions to this report.

ZEPA Zero Emission Port Alliance

For further information

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