

PORT SOLUTIONS FOR EFFICIENT, EFFECTIVE AND SUSTAINABLE MULTIMODALITY



MultiRELOAD

Port and Terminal GHG Calculation Guidance

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www.multireload.eu

Port and Terminal GHG Calculation Guidance

- Why?
 - Awareness and education
 - New reporting requirements
 - ISO 14083, GHG protocol updates etc.
 - CSRD & CountEmissions EU, Renewable Energy Directive, Fuel.EU Maritime, Refuel Aviation, EU ETS expansion etc.,
 - CORSIA, IMO...
 - All require calculation and reporting of GHG emissions
 - Harmonization of approach
 - More reporting to support decarbonization
 - Support the MultiRELOAD project evaluation

User Survey: Summary...

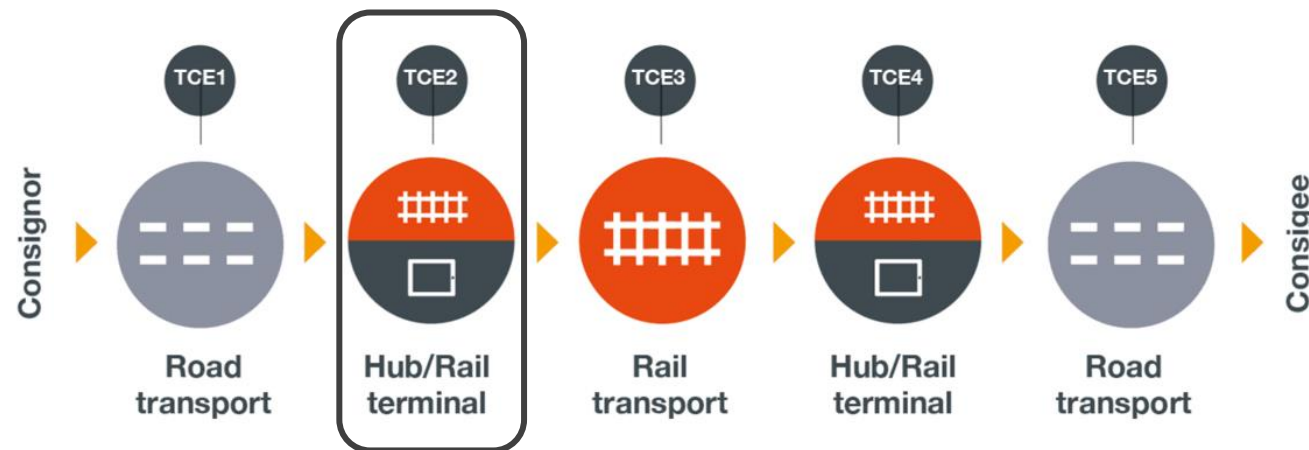
- Total carbon footprint
 - For own purposes
 - Using own spreadsheet
 - Following GHG Protocol
- Requirement for guidance and calculation tool(s)

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Approach to Reporting & Associated Guidance

- Distinguish 2 cases:
 - Reporting within the Transport Chain – to those who pay you to move the goods
 - Follows ISO 14083
 - Total organizational footprint (GHG Inventory)
 - Follows Greenhouse Gas Protocol
 - ISO 14083 data & calculation can inform part of the inventory



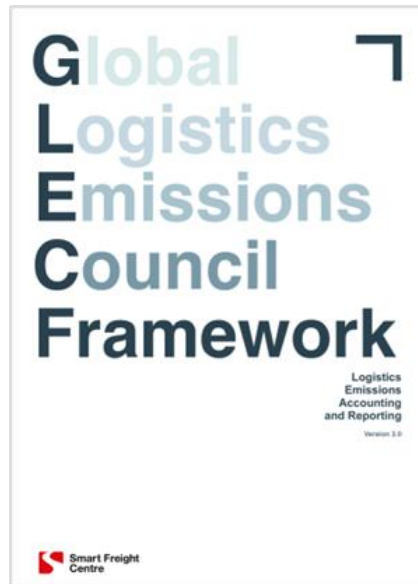
Reporting Matrix

	Port Authority	Terminal Operator
GHG Inventory	Yes	Yes
Transport chain GHG reporting	Only if a terminal operator Then at individual terminal level	Yes

- Port is dependent on many other organizations for its overall impact (and ability to quantify it)
- Need to be aware of the different ‘boundaries’ for Transport Chain & GHG Inventory calculations

GHG Inventory

3 Key Calculation Elements



Methodology



Data inputs



Assurance

(verification /validation)

GHG Protocol Coverage

Designation	Content
Scope 1	Direct emissions from owned and controlled sources
Scope 2	Indirect emissions – generation emissions from purchased electricity (& district heating)
Scope 3, Category #	Indirect emissions generated within your value chain
Category 1	Purchased goods and services
Category 2	Capital goods
Category 3	Fuel- and energy-related emissions (not included in Scope 1 or Scope 2)
Category 4	Upstream transportation and distribution
Category 5	Waste generated in operation
Category 6	Business travel
Category 7	Employee commuting
Category 8	Upstream leased assets
Category 9	Downstream transportation and distribution
Category 10	Processing of sold products
Category 11	Use of sold products
Category 12	End of life treatment for sold products
Category 13	Downstream leased assets
Category 14	Franchises
Category 15	Investments

Scope 1: In your control (?)

- Emissions which occur as a result of an organization's own operations, and which originate from their own operated equipment, for example:
 - fossil fuels
 - (e.g. natural gas) burned to heat offices;
 - used to power vehicles or vessels owned and operated by the organization, whether used on- or off-site;
 - used to power handling equipment that is provided by a port as a service to tenants;
 - electricity generated by the port possibly from a mix of renewable and fossil fuel sources for use by the port itself and other businesses.
- Any other owned-and-operated equipment that results in the release of direct GHG emissions

Scope 1 Calculations

Type of Fuel	Amount of Fuel Used (?)	Emission Factor (kg CO ₂ e / unit)	Scope 1 GHG Emissions (kg CO ₂ e)
Natural Gas (for heating)	2,800 m ³	2.04	5,712
Diesel (B5 blend for transport)	3,105 litres	2.499	7,759
Gasoline (E7 blend for transport)	765.2 litres	2.149	1,644
Total			14,115

The GLEC Framework provides emission factors for common transport fuels. However, for grid connected electricity and natural gas it is better to rely on national average and supplier values.

The unit used for different fuels can vary (litres, m³, kg, MJ etc.) – make sure you use the right one when matching up to the emission factor.

- Try to keep calculation disaggregated if it helps understand different operations using the same type of fuel.

Scope 2 Calculations

Source of Electricity	Amount of Fuel Used (kWh)	Emission Factor (g CO _{2,e} / kWh)	Scope 2 GHG Emissions (kg CO _{2,e})
Grid electricity	16,800	212	3,562
Renewable electricity provided direct by landlord port	12,005	0	0
Total			3,562

Zero emission factor used by tenant assumes the landlord port is not selling green credits to the grid for all its electricity.

If grid electricity supplier is using a green tariff then the complementary calculation could be:

Source of Electricity	Amount of Fuel Used (kWh)	Emission Factor (g CO _{2,e} / kWh)	Scope 2 GHG Emissions (kg CO _{2,e})
Grid electricity	16,800	25	420
Renewable electricity provided direct by landlord port	12,005	0	0
Total			420

Scope 3: Indirect Emissions...

- Quantifying the Scope 3 emissions in a credible manner will be the main challenge, due to the combination of:
 - limited access to data
 - limited knowledge of the activities of organizations within the value chain
 - the wide range of Scope 3 categories
 - (whether those categories are a true reflection of what makes sense)

Reporting Boundaries & Different Perspectives

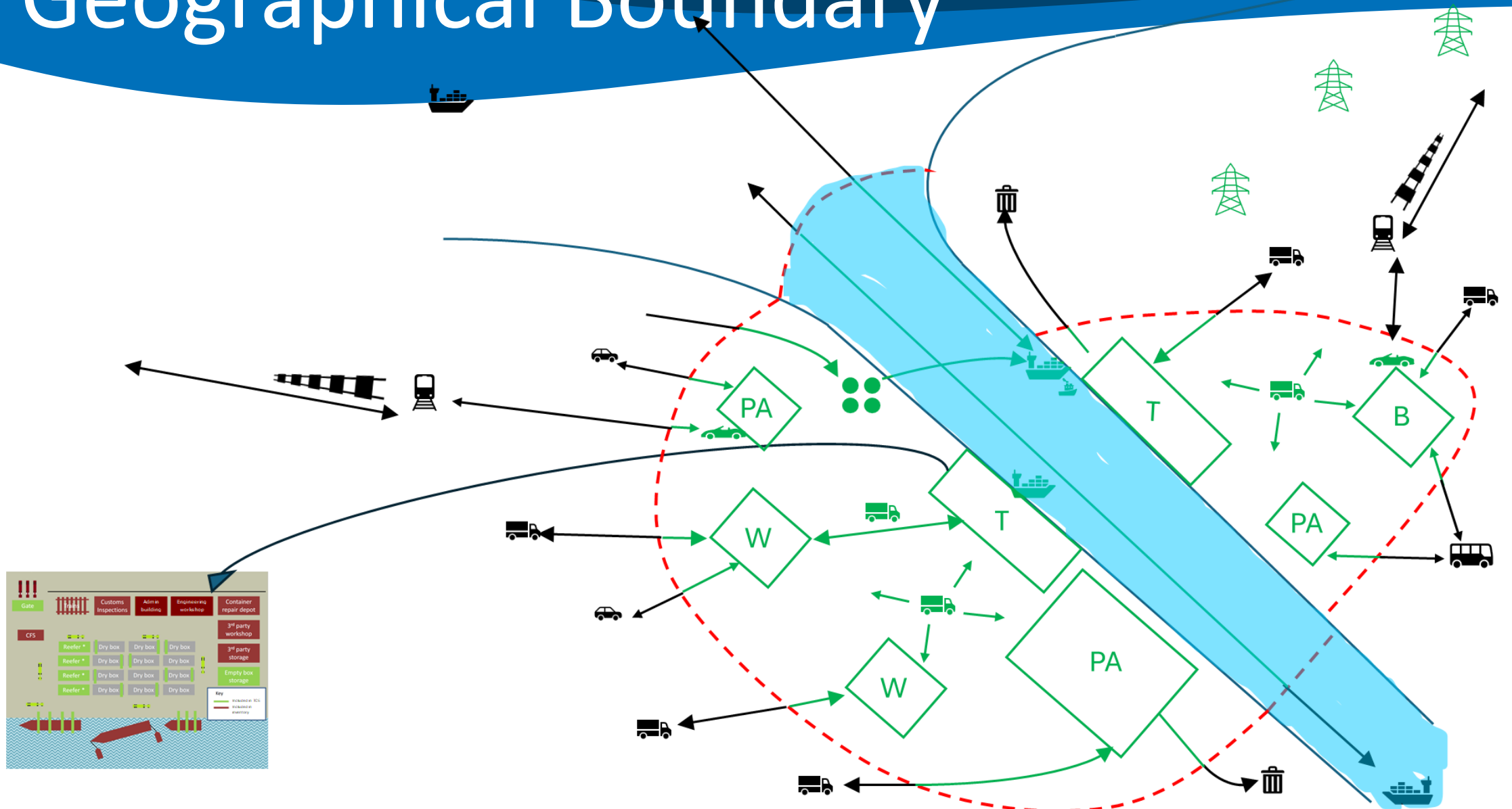
- GHG Protocol takes the perspective of an organization that wants to manage its Scope 1 emissions and those from its value chain partners (Scopes 2 and 3)
- Focus is on contractual links
- May not match what a port or terminal thinks it wants to know.

What exactly is being asked of ports?

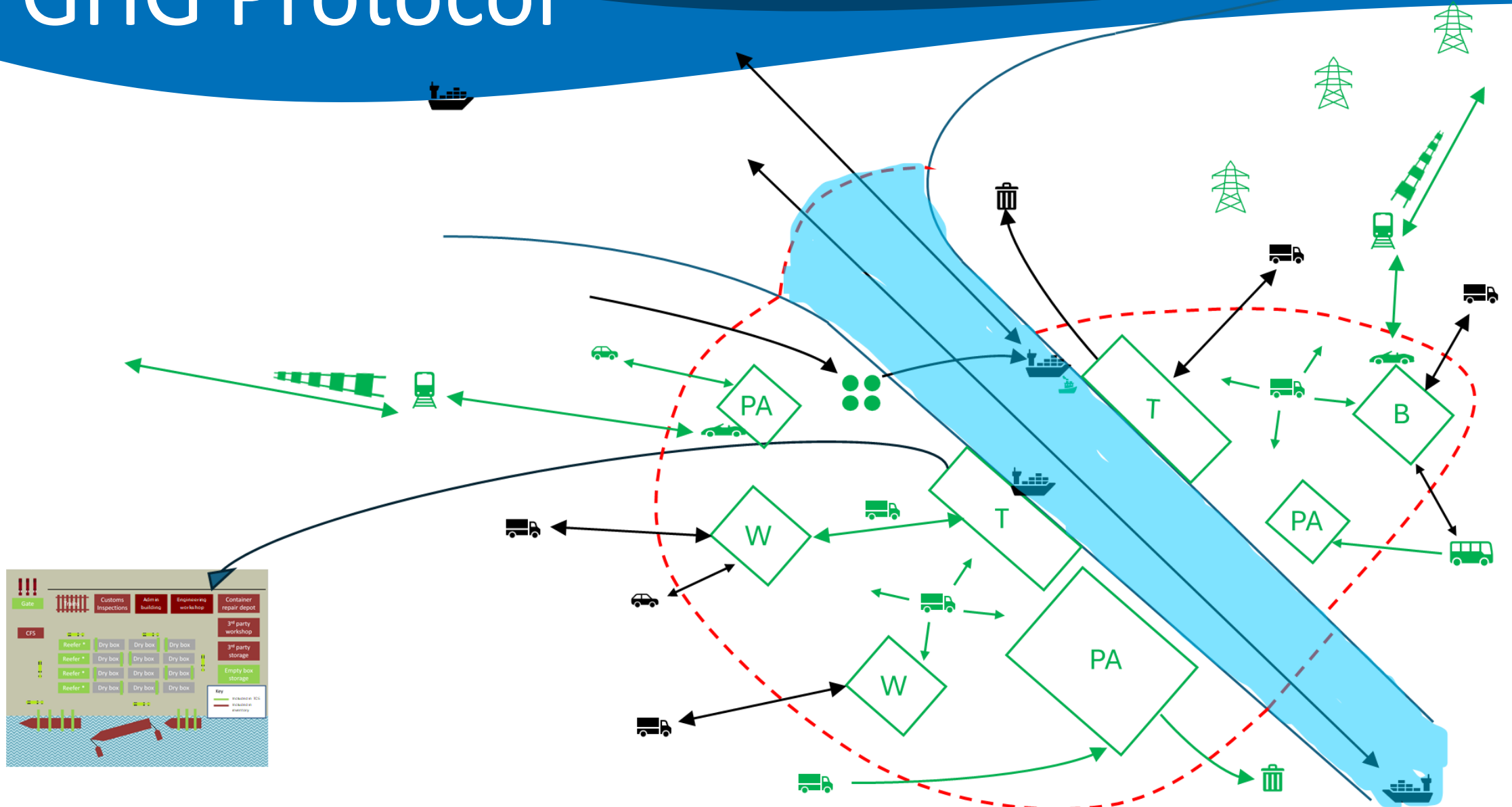
- Corporate value chain (using Scopes)?
- Geographic boundary (where Scopes wouldn't necessarily be relevant)?
- Comprehensive = Strategic influence?
 - Broadest boundary that probably combines both the above (Scopes probably relevant, but not sufficient)

The port needs to decide if it's being passive or active

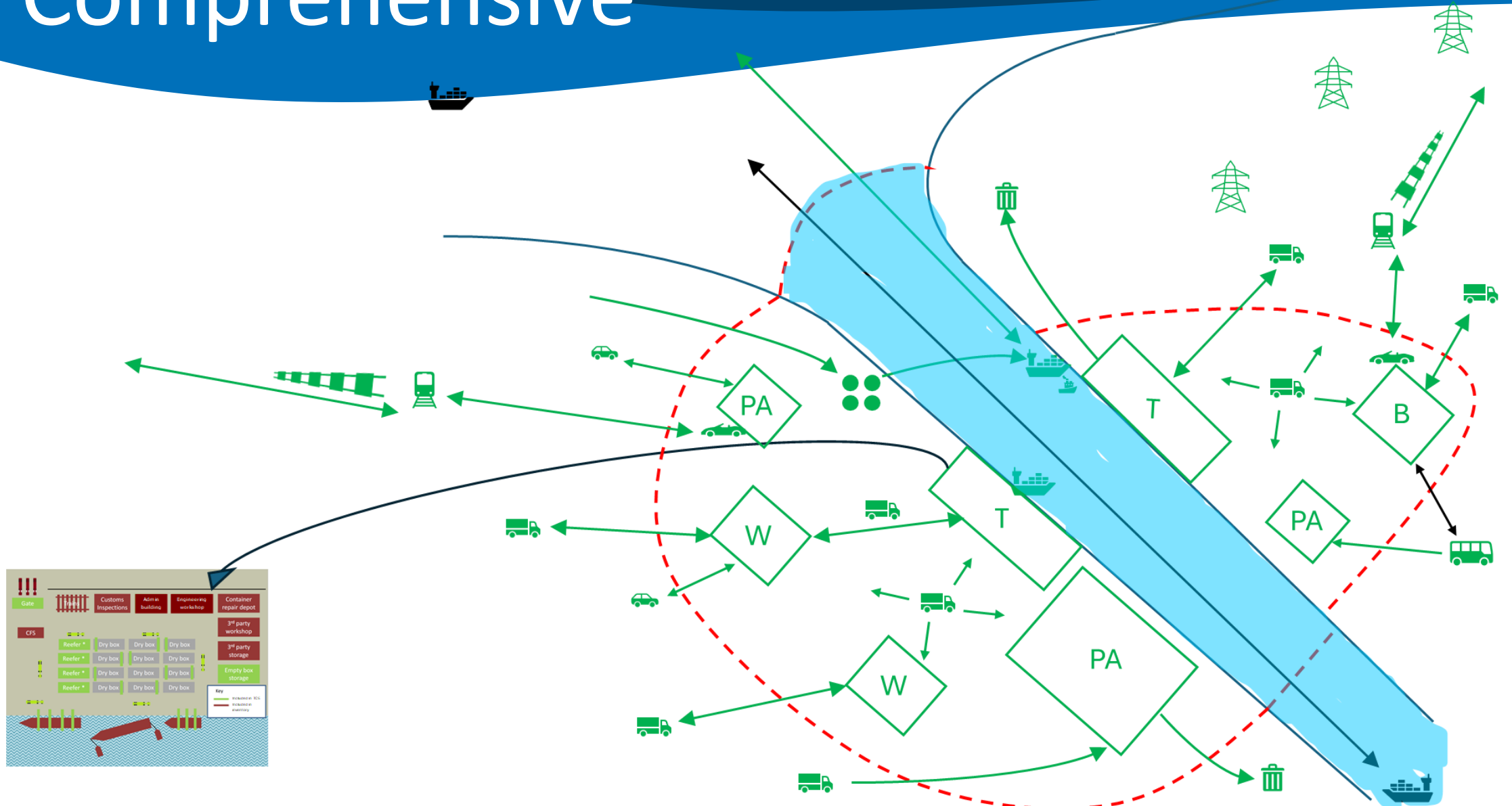
Geographical Boundary



GHG Protocol



Comprehensive





More Questions than Answers!
Looking for consensus...



MultiRELOAD

PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Thank you for your attention!

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