Acceptance of low emission vehicles on chemical plants

From uncertainty to safe, practical and consistent site access

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Why chemical sites need to prepare now

The transition is moving from pilots into day-to-day operations

- Regulatory pressure is accelerating freight decarbonisation: CO2 standards, road charging, ETS2 for road,…
- Alternative Fuels Infrastructure Regulation (AFIR) supports the progressive rollout of truck charging and hydrogen infrastructure.
- Sites will increasingly receive vehicles with unfamiliar powertrains in normal operations.
- Unprepared sites create delays, inconsistent decisions and avoidable refusals.



Vehicle investment alone will not decarbonise chemical logistics. Sites must also be ready.

Safe acceptance is a shared responsibility

Information and requirements must move with the vehicle

CARRIER

- Shares vehicle-specific information proactively
- Briefs drivers and subcontractors
- Checks site requirements

LOADING SITE

- Defines and maintains its requirements for vehicles and drivers
- Consistent controls
- Safe loading

UNLOADING SITE

- Communicates its requirements in advance
- Unloading controls
- Safe unloading

SUBCONTRACTOR

- Follow communicated requirements
- Keep drivers informed and trained
- Keep contact with sites

PRE-ARRIVAL › **CHECK-IN** › **GATE-IN** › **LOAD / UNLOAD** › **GATE-OUT**

No party can manage the transition alone.

Different technology does not mean unacceptable risk

Understand the hazard and the vehicle's built-in protections

BATTERY ELECTRIC

High voltage • stored energy • thermal runaway • low-speed noise

HYDROGEN

High-pressure storage • leakage • ignition • detection and isolation

LNG / CNG

Cryogenic or pressurised fuel • venting • gas dispersion



Use technology-specific knowledge to support risk-based decisions, not blanket rules.



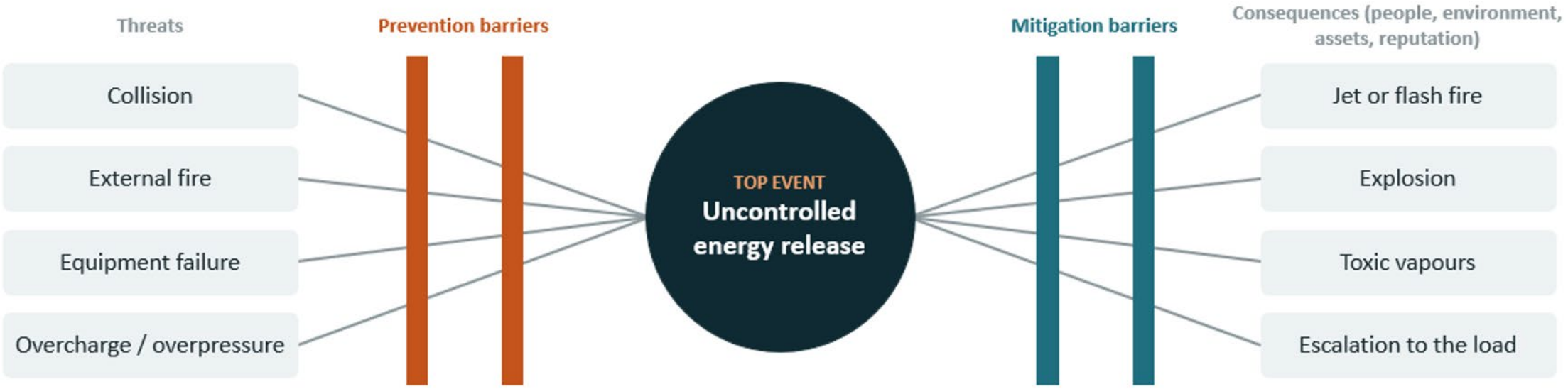






Assess the operation, not only the truck

A simple Bowtie logic: threats, loss of control, consequences and barriers



Barriers must be effective, independent and auditable. Likelihood is not scored: every credible threat counts.

Applied to each operational phase

Driving | **Parking** | **Loading / unloading** | **Refuelling / charging** | **Immobilised after incident**

Already controlled by vehicle type approval, UN regulations and ADR

→

Residual risks → site acceptance criteria, operational controls, procedures

What can happen? What protection already exists? What additional control is justified?

Six building blocks for safe site acceptance

1 Acceptance criteria

Permitted technologies, restrictions and stop conditions

2 Advance information

Site requirements communicated before dispatch

3 Vehicle identification

Powertrain, alarms and rescue information

4 Safe operations

Routes, parking, isolation and charging rules

5 Emergency readiness

Scenarios, exclusion and escalation

6 Role-based training

Gate, loading and emergency response personnel

The objective: risk is understood with effective barriers.

A predictable process from dispatch to departure

Stage checks for all vehicles, with powertrain-specific checks where needed

BEFORE ARRIVAL

ALL VEHICLES

- Powertrain accepted?
- Site rules confirmed?
- Driver briefed?
- Rescue sheet available?

GATE-IN

ALL VEHICLES

- Labeling

BEV

- Alarms, heat, smoke or battery damage?

HYDROGEN

- Leak alarm or damage?

LNG / CNG

- Fuel-system damage?
- LNG: pressure / time before venting acceptable?

LOAD / UNLOAD

ALL VEHICLES

- Vehicle secured?
- ATEX controls in place?

BEV

- No charging?
- Isolation effect on monitoring checked?

H_2 / LNG / CNG

- Ventilation adequate?
- Release risk assessed?

GATE-OUT

ALL VEHICLES

- Normal mode restored?
- Departure authorised?

BEV

- No battery alarm, heat or smoke?

H_2 / LNG / CNG

- No alarm or signs of fuel leakage?

Checks confirm that the vehicle and site safeguards match the planned operation.

What chemical companies can do now

Start before the first unfamiliar vehicle arrives

1	**Appoint a site owner**	Logistics, safety, security and emergency response
2	**Engage carriers**	Map expected technologies and vehicle data
3	**Review the site**	Gate, routes, parking, loading and ATEX areas
4	**Set interim rules**	Criteria, stop conditions and escalation route
5	**Communicate and train**	Pre-arrival information and role training
6	**Test the process**	Controlled visit or emergency exercise



Prepare • assess • communicate • test

Thank you.

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About Cefic

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Cefic is an active member of the International Council of Chemical Associations (ICCA), which representschemical manufacturers and producers all over the world and seeks to strengthen existing cooperation with global organisations such as UNEP and the OECD to improve chemicals management worldwide

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