



Fires on Ro-Ro/PCTC Vessels

Capt. Martti Simojoki – IUMI - Alandia
7th December 2023



Who?

- 21 Years at Sea 16,5 Years on PCTC/LCTC Vessels
- Worked on Shore Organisation
- Executive MBA, Shipping and Logistics (Copenhagen Business School)
- Subject matter expert in EV fires/Roro & Ropax fires



Myths or Facts?

- "EV fires are more frequent"
- "EV fires are more intense"
- "EV fires cannot be extinguished"
- "EV fires are not controlled by fixed systems"
- "Jet-flames will increase the fire spread from EV"
- "You risk electrocution when fighting EV fires"
- "EV pose a higher re-ignition potential"
- "EV fires have more toxic smoke"
- "EV can cause gas explosions"



Which Year?



Marine Insurance Shaping the Industry

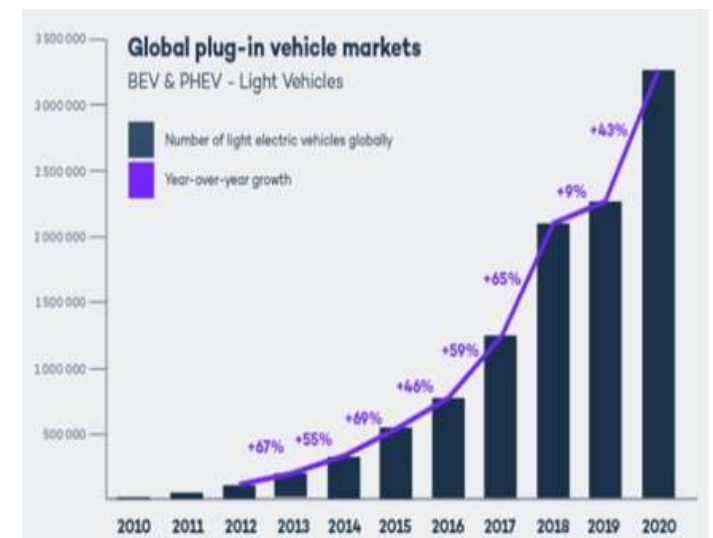
- WWL AFV - 2015
- BREDND 2.0 – 2017
- ALBERO - 2018
- E-Tox – 2019
- LASH FIRE - 2019
- Brend 2.0 – 2020
- Safe & Sustainable FF - 2020
- E-Tox 2 – 2021
- ELBAS - 2021
- ACEA (EV in enclosed sp.) – 2022
- COFFEE – 2024 TBC



Funded by
the European Union

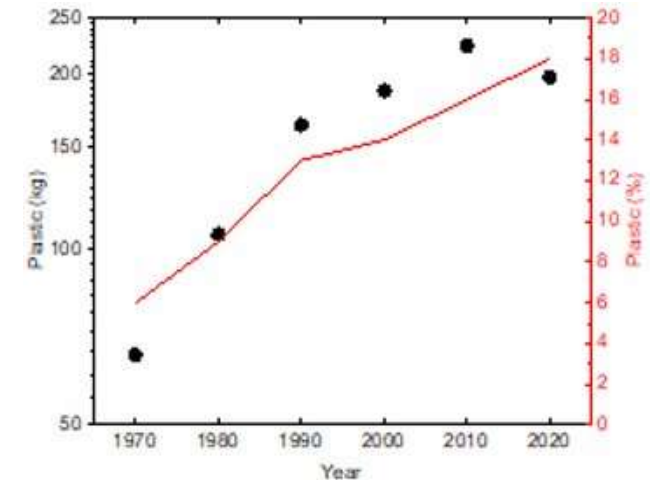
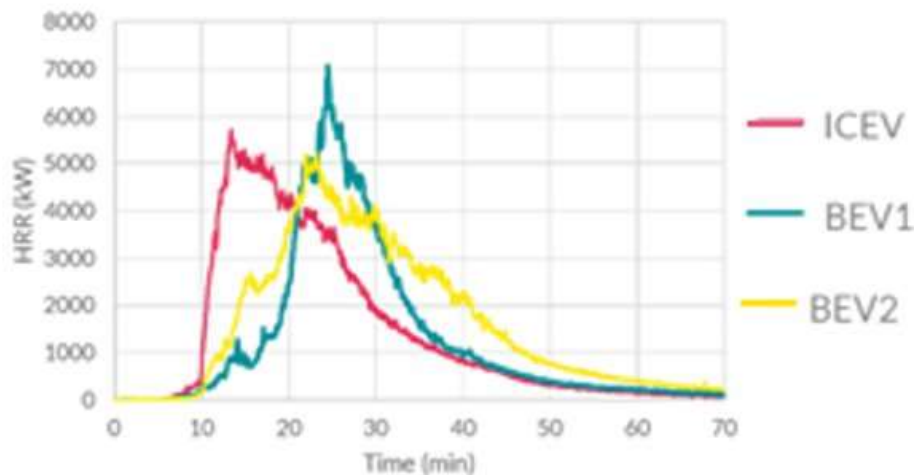
Carriage of Electric Vehicles

- Since 2011 there have been no documented fires on factory new EVs
- Current factory new ocean carriage volume of Evs >10% of total cargo and growing (approx. 20 MCEU / 2 million EVs)
- Evs are inherently better built with top quality electrical components



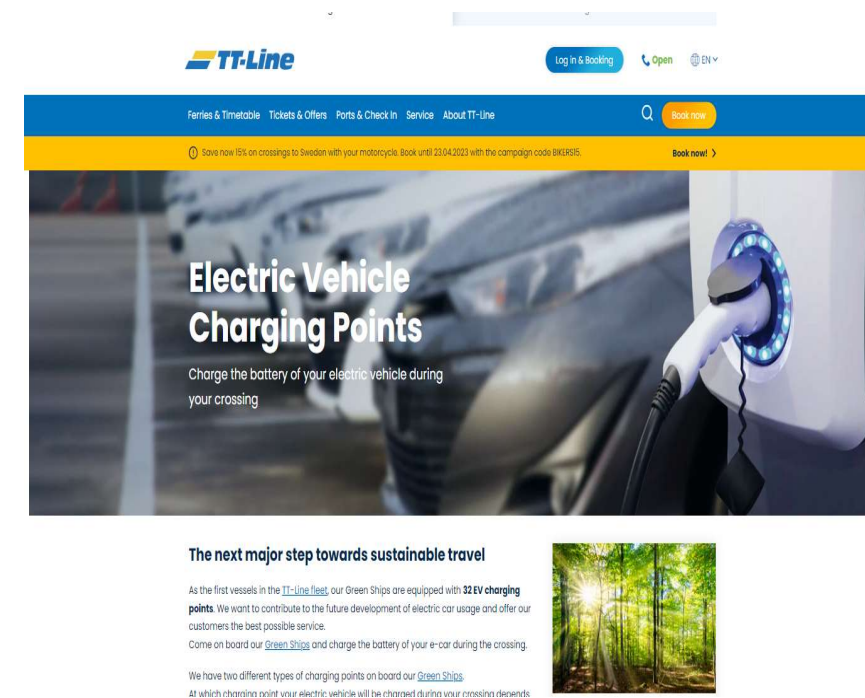
Carriage of Electric Vehicles

- **Most common cause of vehicle fires – can you guess?**
- **Fire intensity facts**
- **80% of the fire load is plastics and interior. 20% is from the drive train**



Charging Onboard (Ro-Ro/-PAX / Ferry)

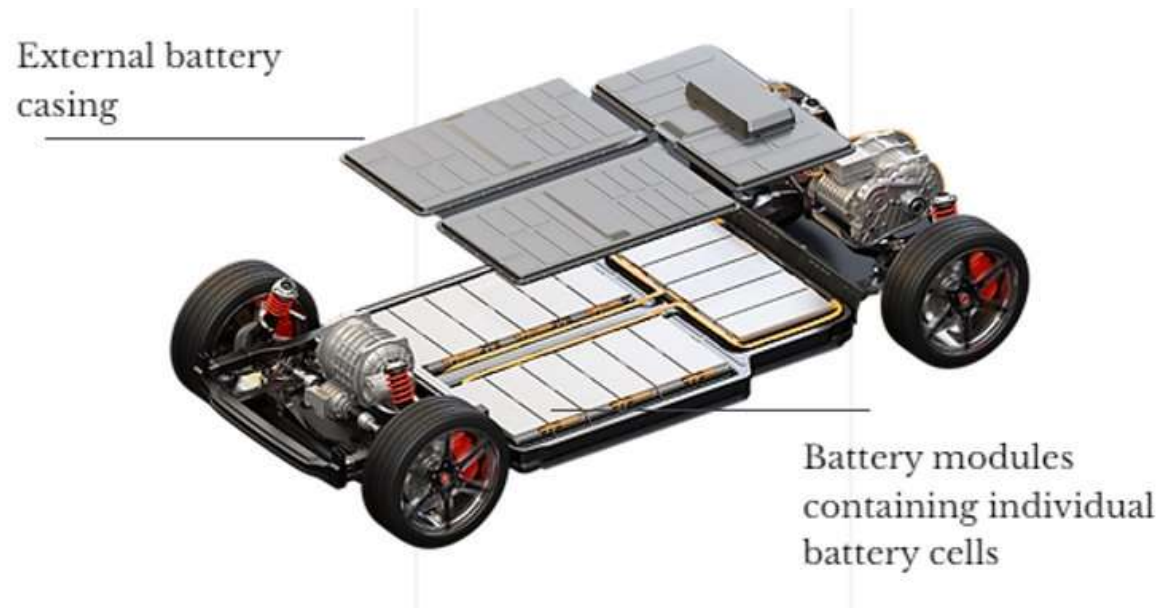
- A few carriers offer charging onboard for EVs
- BMS safety systems active when charging – otherwise passive
- Currently limited capacity – incentive mostly commercial
- Marine insurers have multiple voices on the issue!
- Over-charging
- Battery age



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Charging Onboard (Ro-Ro/-PAX / Ferry)



- **40 – 200 kWh on cars**
- **200 – 330 kWh on buses**
- **300+ kWh on excavators**
- **300 – 550 kWh on trucks**
- **1 – 3 MWh on reefers/trailers**

Fire Fighting Challenges

- Misconceptions -> putting out EV fires -> HRR -> Toxicity
- Drenchers proven effective -> early activation = Fixed First! **POWER DEPENDENT**
- Effectiveness of CO2 and water mist -> early activation = Fixed First!
- Foam based systems have had reliability issues -> early activation = Fixed First! **POWER DEPENDENT**
- Tight stowages -> blankets, other manual fire fighting not feasible
- Fire in port -> need to be addressed -> catastrophe waiting to happen!



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Myths or Facts?



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International
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Marine Insurance

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Thank You!
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