



Rail Decarbonisation in the Highlands

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Scotland's Rail Decarbonisation 2035



- ▶ Electrification
- ▶ Alternative traction – transitional
- ▶ Alternative traction – permanent
- ▶ Opportunity to get bespoke rural trains suitable for commuting/tourism
- ▶ Track friendly as well as environmentally friendly
- ▶ Journey time reduction through faster acceleration and station dwells

Battery Train–Wick Thurso Feasibility 2018



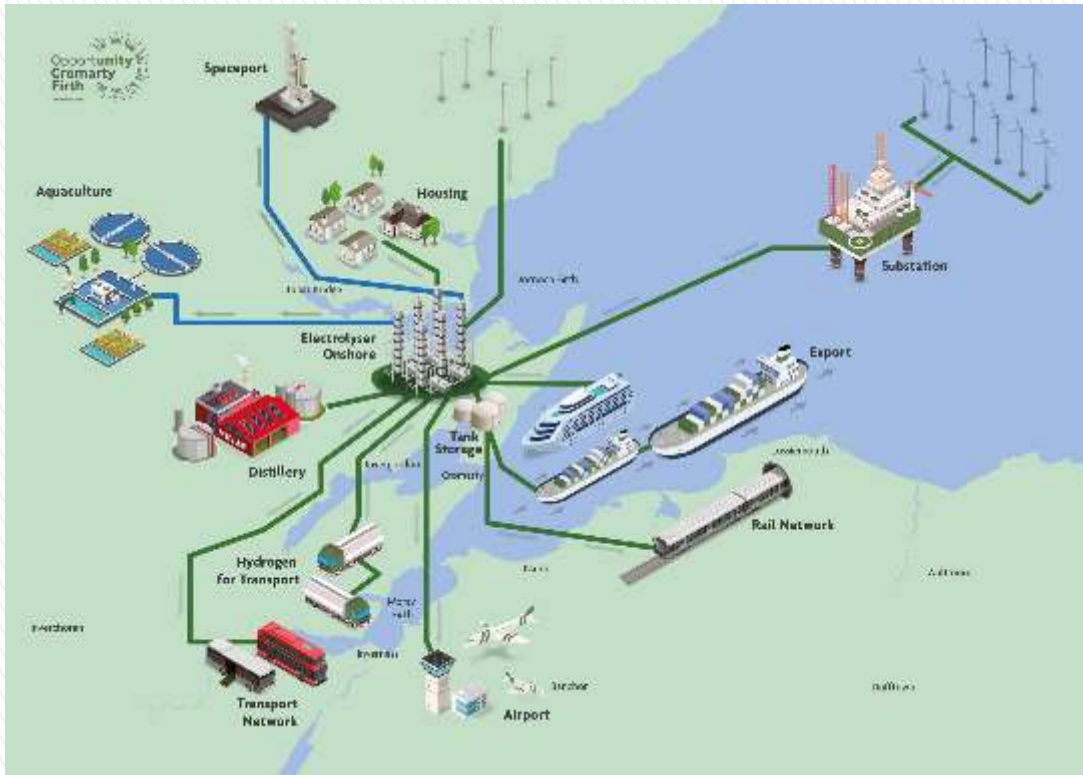
- ▶ Relatively isolated route – ideal to test new modes of operation
- ▶ Feasibility of running Battery CI230 shuttle–Vivarail supplying TFW battery/diesel
- ▶ Capacity available for additional services
- ▶ Timetabling/Infrastructure/cost
- ▶ Constrained wind energy
- ▶ Zap at station possibility
- ▶ Could switch to H2 using local expertise and supply eg. proximity to Orkney Hydrogen cluster

Hydrogen

- Hydrogen Fuel Cell– generate electricity–
- Range x2 v battery
- 3 car train typically 300kg/day
- Storage x8 diesel
- Fuelling at country end
- Non-renewable H2 not zero emission
- Supply is key...



Invergordon Freeport



- ▶ Live bid consortium inc HITRANS, Council, Global- key part is Floating Offshore Wind
- ▶ Excess of 100% renewable electricity
- ▶ Electrolyse on brownfield site to produce H2 for distilleries, gas grid, transport inc rail and bus
- ▶ Project now not contingent on freeport status

