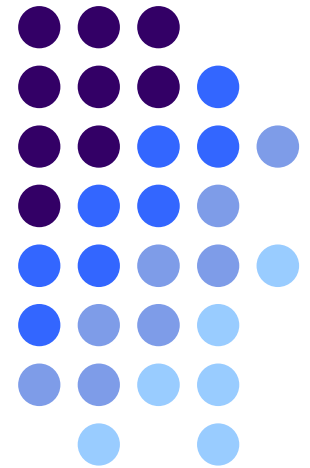
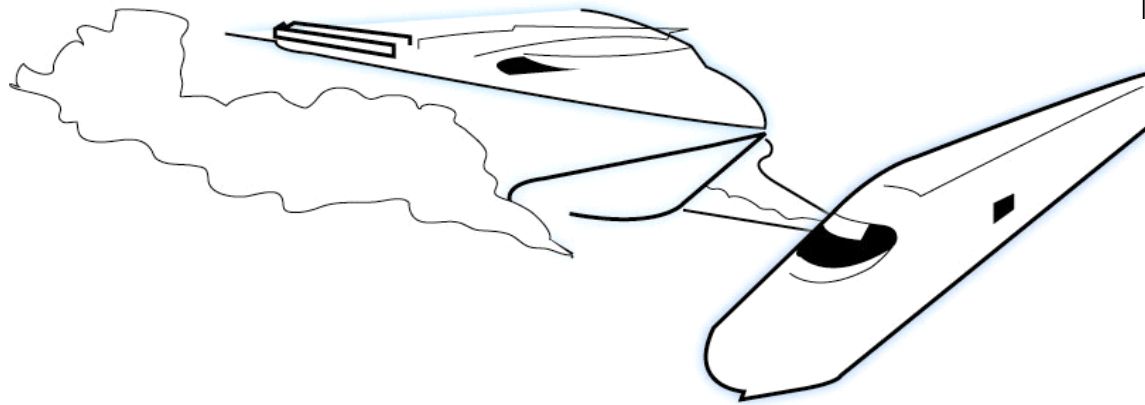


Potential Hydrogen

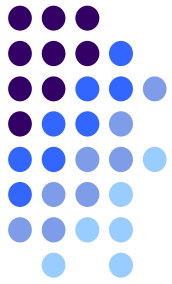
light-footprint freight

Exploring the potential for a
Hydrogen-powered Integrated Sea & Rail
Transport Network for Tasmania



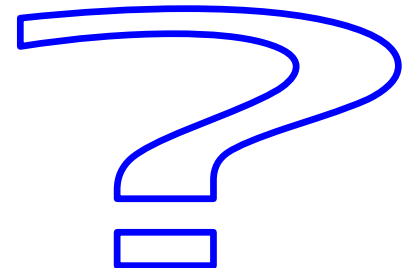
Applying Renewable Energy & Renewable Fuel
to energise Tasmania's Economy

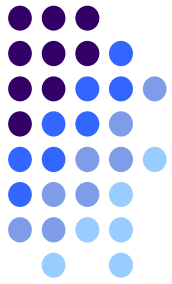
The 'pH Project'



Evaluation

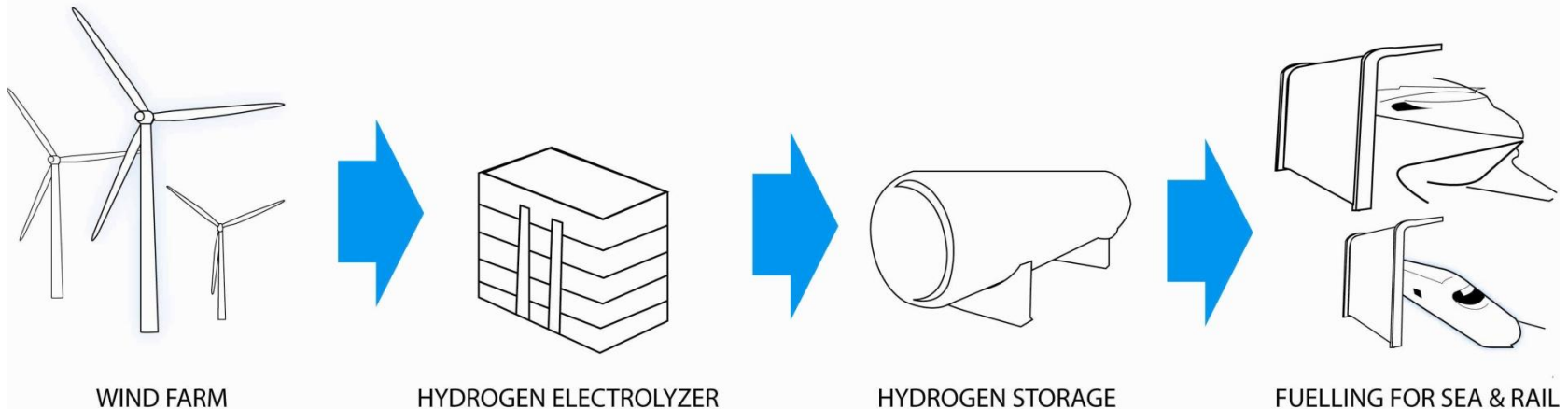
- Funding is required to evaluate the potential for a hydrogen-fuelled shipping and rail transport system as a major infrastructure development to overcome the burden of Bass Strait and Rail Transport problems; creating a new driver for Tasmania's economy
- Prospect of innovative global-leading model for carbon emission reduction in transport, and a significant reduction in Australian greenhouse emissions

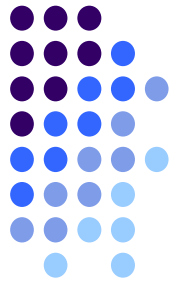




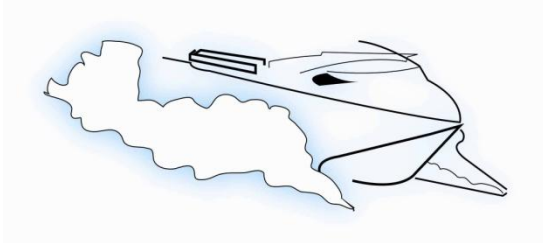
Potential Hydrogen

- Evaluating the potential of a world-leading model for renewable resource efficiency & carbon emission reduction in sea & rail transport
- Using wind-power to produce hydrogen to fuel a regenerated fast shipping & rail network for Tasmania

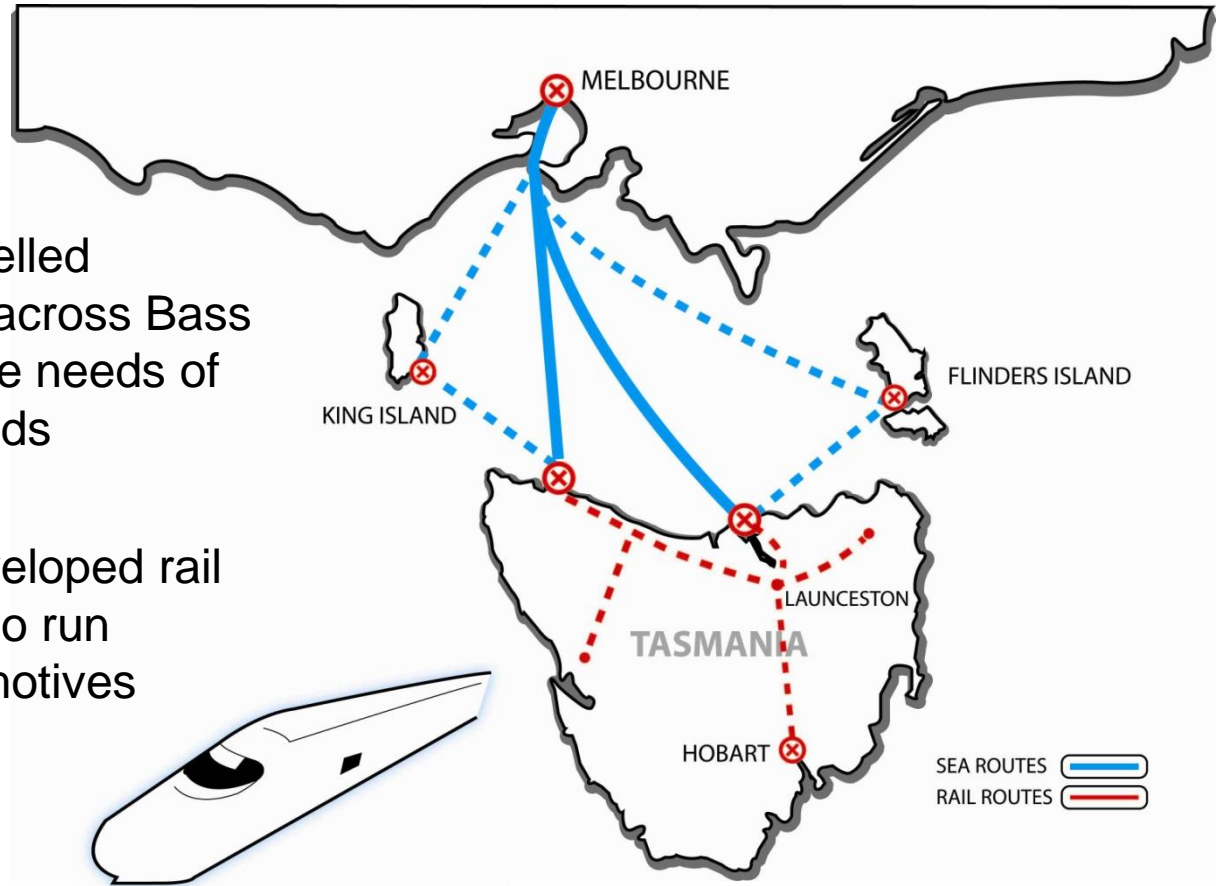


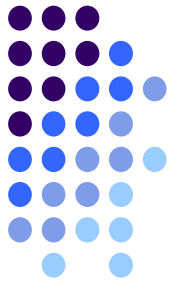


Sea and rail infrastructure



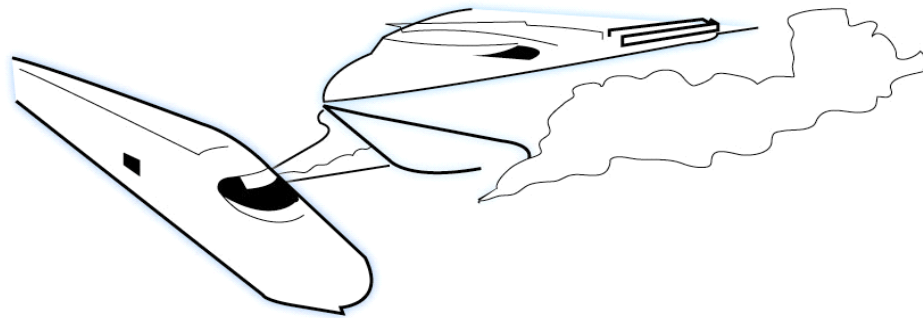
- Two large hydrogen-fuelled catamarans operating across Bass Strait, also servicing the needs of King and Flinders Islands
- Integrated with a redeveloped rail network infrastructure to run hydrogen-fuelled locomotives

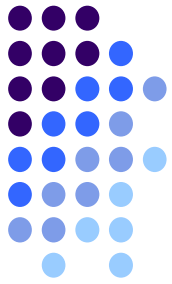




Integrated system

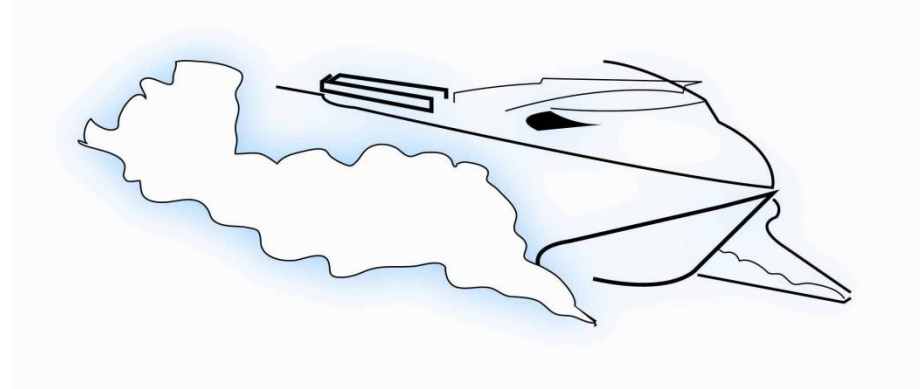
- Integrated, efficient fast-shipping & rail system that could be offered to a sole industry partner / operator
- From a one-off major infrastructure investment, establish a sustainable system, vastly improving shipping & overcoming rail crisis
- Potential to transform Tasmania's economy & reduce ongoing drain on Federal subsidies





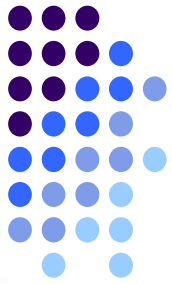
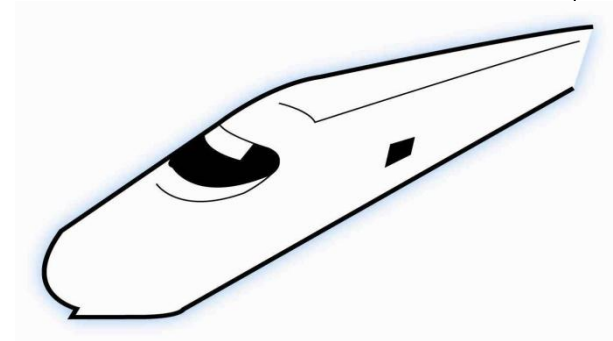
Sea freight service

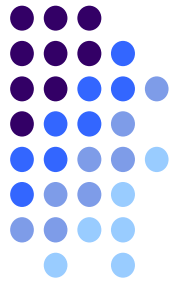
- 2 Hydrogen-fuelled large catamarans running Tasmania's Bass Strait passenger ferry and (part) freight services
- One ship operating daily out of North West port also servicing King Island's shipping needs
- One ship operating daily out of Tamar River port also servicing Flinders Island's shipping needs



Rail infrastructure

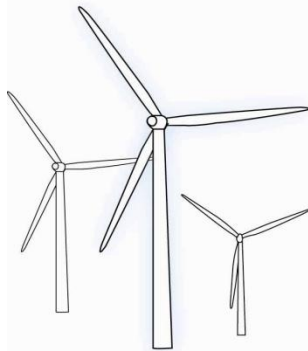
- Major infrastructure upgrade and redevelopment of antiquated Tasmanian rail network to accommodate hydrogen-fuelled locomotives
- Rail re-fuelling from ferry port hydrogen stations
- Increase rail freight to reduce freight & stress on Tasmanian highway network & road trauma
- Opportunity to consider reintroducing passenger travel to create one of the great railways of the world



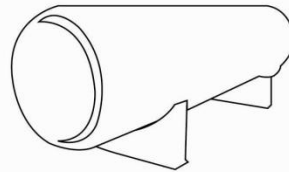


Renewable energy and fuel

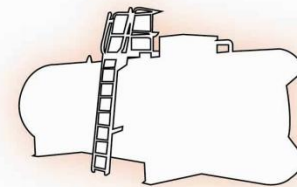
- Renewable wind-farm energy to produce renewable hydrogen fuel
- Hydrogen production plants (electrolyzers) with storage & fuelling stations at each of two ferry ports to fuel both shipping & rail
- Potential with emergent Tasmanian bio-diesel industry for fully renewable fuel source (probable 80% hydrogen and 20% bio-diesel fuel mix using Tas Uni technology)



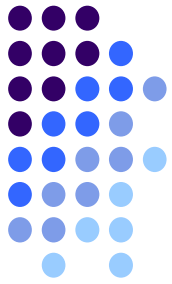
WIND ENERGY



HYDROGEN FUEL

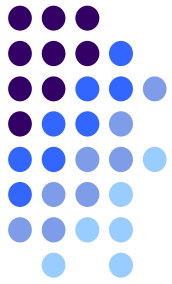


BIO DIESEL



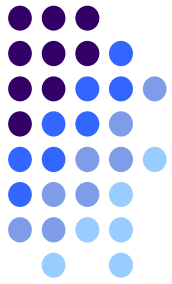
Hydrogen fuel technology

- Main focus of hydrogen fuel research and development has been the auto industry where fuel-cell costs and roll out of distribution infrastructure have been regarded as prohibitively expensive
- This proposal entails just 2 centres for hydrogen production, storage & fuelling of both sea & rail freight infrastructure



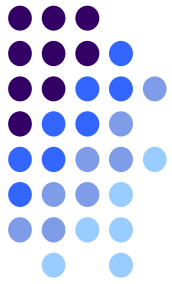
Tasmania's drain

- Tasmania is highly reliant on subsidies and a disproportionate share of Federal funding
- Much of this financial drain is due to the Bass Strait 'ditch' that separates the island state and the mainland
- Problems with shipping services, antiquated rail system and other transport hurdles have plagued and hampered economic development



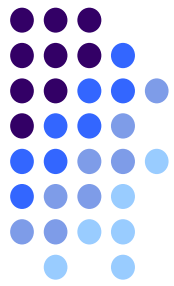
Tasmania's edge

- Tasmania has superior natural advantages for tourism and production of fresh food with potential for development into a major 'food bowl'
- Hydro Tasmania are world-leaders in renewable energy technology & production
- World-leading breakthrough at Tas Uni in 2005 through development of hydrogen fuel injection technology



Tasmania's resources

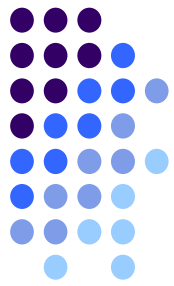
- To complement Hydro Tasmania's expertise in renewable technologies, Tasmania has latent capacity and resources through north-west engineering businesses such as Caterpillar
- Incat are world-leaders in fast-ferry design, technology and production
- Abundant water and wind resources



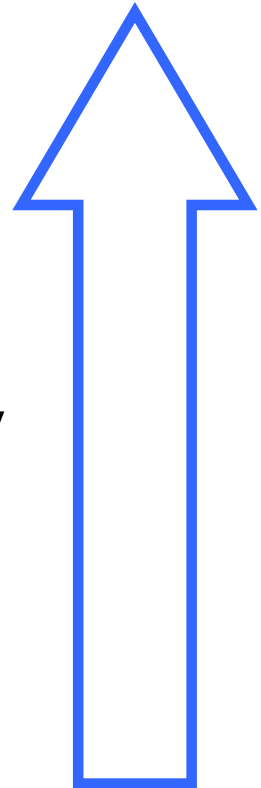
Delivering the goods

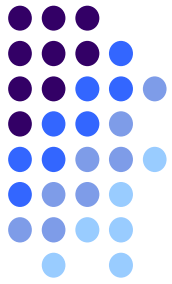
- If evaluation of the potential for hydrogen demonstrates a viable development proposition, it has the scope to energise Tasmania's economy and deliver on a range of Federal imperatives including:
 - ☑ Innovative major infrastructure project
 - ☑ Elimination of carbon emissions on a large scale
 - ☑ Major advancement in application of Renewable Resource technologies
 - ☑ Sustainable solution to Tasmania's shipping and rail problems
 - ☑ Enabling growth potential for food production, tourism and other industry
 - ☑ Creating regional jobs in renewable industry, agriculture, tourism, etc
 - ☑ Taking pressure off Tasmanian road network
 - ☑ Establishing a world-leading green transport model

Tourism growth



- Tasmania's unique assets and potential for growth in the tourism industry are compromised by several factors
- Travel experience is compromised by a road system that is overly burdened by heavy vehicle traffic and undue (and expensive) wear and tear on road infrastructure
- Although climate-change offset programs are available, entry by air travel is a highly carbon-positive mode of transport
- This integrated initiative has the potential to mitigate these issues by making sea travel a faster and more attractive experience (also including King & Flinders Islands), and by taking heavy vehicle pressure off the roads



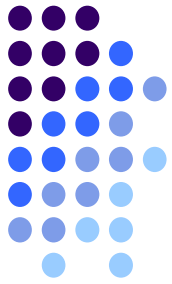


Climate change (CO₂) benefits

- Renewable fuel (from renewable energy) in shipping & rail
- *Increase in tourist sea travel

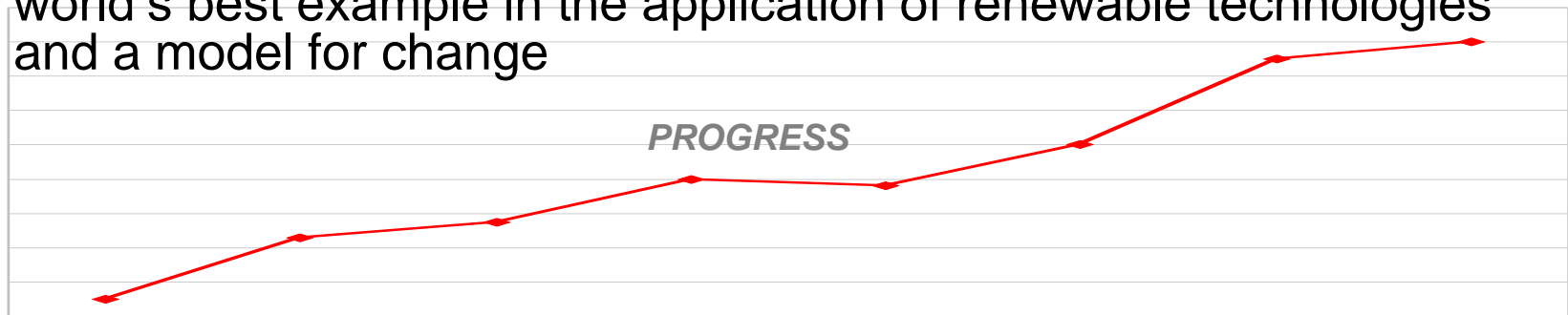
- Elimination of fossil fuels for shipping & rail
- Reduction in road freight traffic
- *Reduction in tourist air travel

* potential

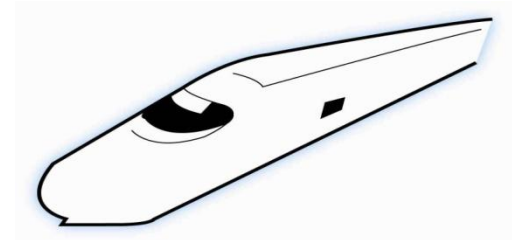
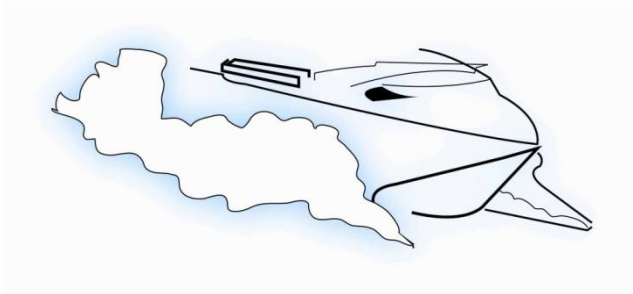
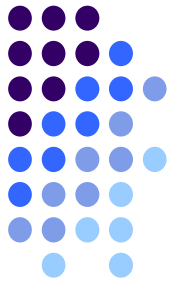


Change driver

- Replacement of fossil fuels with renewables to reduce carbon emissions and climate-change impact
- Revolutionise access and transport efficiencies for Tasmania enabling improvements and industry growth across all sectors
- Potential to drive and transform Tasmania's economy from a Federal drain to a state of prosperity
- Potential for the initiative to be used on the international stage as a world's best example in the application of renewable technologies and a model for change



Pre-feasibility funding



- Funding is sought to evaluate the potential for this far-sighted initiative

potential Hydrogen...