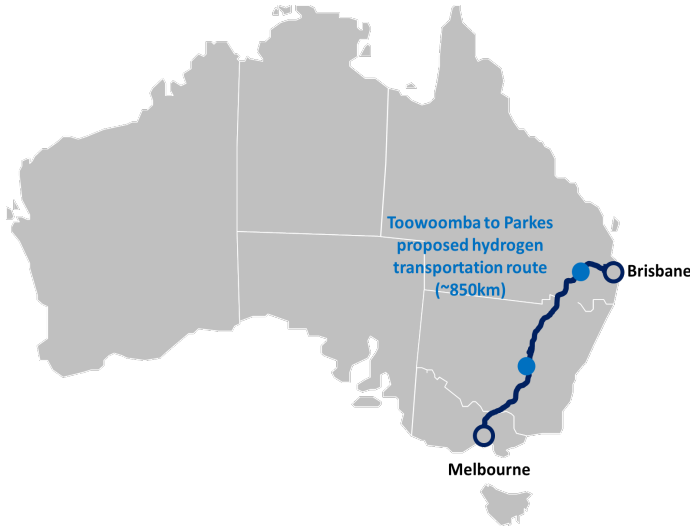


P2_037 – Transporting Hydrogen by Rail

Proponent: Queensland Transport and Logistics Council (QTLC)

Current Gate: Gate 2 – Pre-Feasibility Study



Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG) code findings:

- Hydrogen is classed as a ‘Division 2.1 Flammable gas’
- The ADG Code does not limit the quantity of hydrogen that can be transported, however details the minimum packaging requirements to transport hydrogen. Provided all the relevant provisions are observed (i.e. packaging, wagon, truck, rail and road weight limits etc), there is no upper limit on the amount that can be transported by a single train or on a truck. Limits are imposed by the Road Authority on trucks and limits could be imposed by the rail operator

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Specific considerations for infrastructure by State

QLD	NSW
<p>In QLD, under the Planning Regulation 2017, Schedule 10 includes triggers for Hazardous Chemical Facilities (HCF) as assessable development, which includes storage of 5 tonnes or more of hydrogen at a facility. A proponent for a hazardous chemical facility is required to make an application to the State Assessment and Referral Agency (SARA) in accordance with the development assessment process established under the Planning Act 2016.</p> <p>Environmentally Related Activities (ERAs) are outlined in the Environmental Protection Regulation 2019. In particular ERA 8 Chemical Storage (Part 2 of Schedule 2) identifies the threshold for hydrogen as 50 tonnes in containers of at least 10m3. Where approval for an ERA is sought as part of a development application it is made through SARA (as above). Standalone ERAs can be applied for directly to the Department of Environment and Science (DES).</p>	<p>In NSW operators of facilities or proposed facilities are required under the Work Health Safety 2017 Regulation (WHS Regulation 2017) to notify Safework NSW where 5 tonnes or more of hydrogen is present or likely to be present. The threshold quantity for the storage of hydrogen to be determined a Major Hazard Facility (MHF) is 50 tonnes (above the notifiable quantity the regulator may also determine that a facility is a MHF).</p> <p>The regular storage of road or rail transport containers that are not in transit, and contain compressed hydrogen, would be included in the consideration of notifiable quantities at a loading or unloading facility.</p> <p>Facilities that are classified as a MHF will trigger a number of requirements under the WHS Regulation 2017. These include preparing a safety case, an emergency plan, and a safety management system.</p>

Specific considerations for transport by mode of transport

Road	Rail
<p>The ADG does not permit hydrogen to be transported by road with any other incompatible material.</p> <p>Transport of hydrogen by road requires the driver to hold a dangerous goods driver licence and the vehicle to have a dangerous goods vehicle licence, where the hydrogen is in a receptacle with a capacity of more than 500L, or more than 500kg of hydrogen is in a receptacle. Licences issued in NSW allow you to drive in QLD and vice versa.</p> <p>NSW and QLD regulation prohibits the transport of dangerous goods (such as compressed hydrogen) by road through some specified tunnels, those displaying placard restrictions, and other prohibited areas.</p>	<p>The ADG provides guidance around incompatible materials. The ADG provides provisions for incompatible materials to be segregated during railway transport. Compressed hydrogen can be transported by rail with other Class 3, 4 or 5 hazardous materials if there is a segregation/separated on a train by at least one intervening load platform. Compressed hydrogen cannot be transported by road with any other Class 3, 4 or 5 hazardous materials.</p> <p>Compressed hydrogen must not be transported in the first or last wagon of a train.</p> <p>The ADG permits the double stacking of freight containers if the freight containers of dangerous goods are of the same UN number (i.e. UN 1049 compressed hydrogen). On this basis there is no restriction to the double stacking of compressed hydrogen containers, but they cannot be stacked with other dangerous goods.</p> <p>Dangerous goods licences are not required for train operators or trains</p> <p>There are no prescribed restrictions on transporting compressed hydrogen through rail tunnels. However restrictions may be placed by the rail operators on dangerous goods being transported through rail tunnels. i.e. whilst there is no widespread restriction on hydrogen travelling through tunnels, each specific tunnel may restrict hydrogen, similar to road tunnels.</p>