

Eurailspeed

Parallel Session C.4

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QR's EXPERIENCE WITH NARROW GAUGE TILT TRAINS

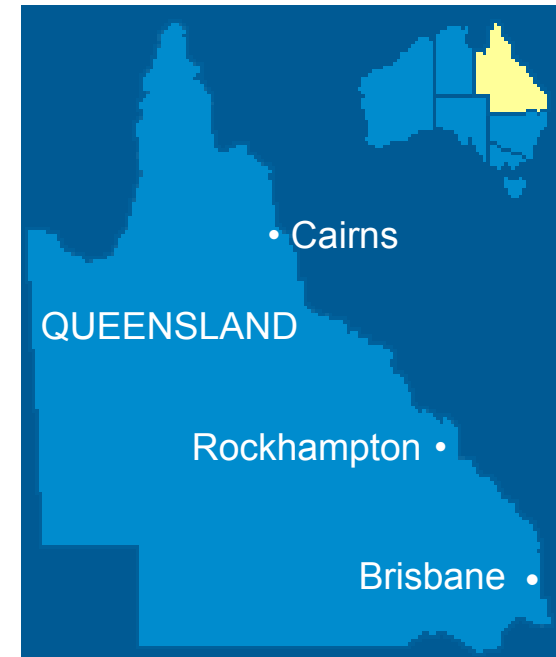
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QR's EXPERIENCE WITH NARROW GAUGE TILT TRAINS

- QR Profile
 - 9,500 km narrow gauge network in Queensland employing 13,500 staff in a vertically integrated structure
 - Operates both narrow gauge trains in Qld and standard gauge trains in other Australian states
 - Qld network, curve radii and superelevation not optimised for high speed travel – freight focus
 - Tilt trains introduced to revitalise long distance train travel



QR's PRE-TILT TRAIN SCENARIO

Mid 90's Qld Market Survey revealed

- Long distance train travel had a poor image – slow, dull, uncomfortable
- Experiential travel concept unsuccessful – one off travellers/ few repeat
- Travel time and safety ranked highest for rail compared to road travel
- European High Speed trains not an option due to low population density and large distances

QR's Tilt Train Strategy

- Improve passenger comfort and facilities
- Reduce travel times
- Increase market share and revenue
- Reduce capital costs via high rollingstock utilization
- Reduce high rollingstock maintenance costs
- Avoid major/costly infrastructure upgrade



QR TILT TRAIN INFORMATION

	Rockhampton Tilt Train (RTT)	Cairns Tilt Train (CTT)
Traction Type	25 kV 50 Hz (3 MW)	4 x 1350 kW diesel engines
Max Speed	160 km/h	160 km/h
Consist	2 x 6 car multiple unit	2 x Push/pull locos with 7 cars
Entered Service	1998	2003
Journey	Brisbane to Rockhampton	Brisbane to Cairns
Distance/Time	635 km / 7hr (previously 9.5 hr)	1680 km / 24.5hr (prev 31.5h)
Train km/year	340,000 km	255,000 km
Pass Journeys/year	330,000	70,000
On-time Arrival % (15 mins)	90%	93%
Availability	99+%	99+%
Occupancy Rate	65%	81%
R/S Reliability (delays/0.1Mkm)	2.1	1.2



QR's EXPERIENCE WITH NARROW GAUGE TILT TRAINS

- Both trains manufactured in Queensland using Hitachi 'pre-programmed' tilt technology
- Many lessons learnt from first (RTT) project
 - Transition curve design
 - Importance of track quality and alignment on ride
 - Adequate resourcing for prototype designs
- CTT procured under an innovative Alliance contract between EDI Rail and QR to share risk/reward
- Significant component/system redundancy built in due to only having 2 trains of each type and very high utilization
- Very minimal incidence of tilt nausea



SIGNIFICANT ACHIEVEMENTS – QR TILT TRAINS

- Australian rail speed record for any gauge – 210 km/h on narrow gauge track (May 1999)
- The world's fastest narrow gauge train in revenue service
- Increased market share and acceptance of train travel, including a reduction in airfares in 1 sector when the RTT was introduced
- Highly positive publicity for QR and Qld Government
- Tourism and employment benefits for Regional Qld with significant local manufacturing expertise
- Enhancement of QR workforce morale – pride in modern trains



SIGNIFICANT ACHIEVEMENTS – QR TILT TRAINS

- Experience with both in-sourcing and out-sourcing train maintenance
- Significant experience in maintenance workforce reform
- Success of the innovative Alliance contract
- Development of ‘lateral jerk’ parameter from recorded track data which correlates well with onboard ride performance
- Patented tilting pantograph system
- Successful performance of many design features verified in CTT derailment in November 2004



QR TILT TRAINS – A REAL SUCCESS STORY



QR has introduced very comfortable, popular and reliable narrow gauge tilt trains with reduced travel times and enhanced safety without costly infrastructure investment.

QUESTIONS ?

