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Tasmanian freight schemes parameter review

Overview and expenditure implications

November 2008

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Indemnity statement

The Bureau of Infrastructure, Transport and Regional Economics has taken due care in preparing the analyses contained in this report. However, noting that data used for the analyses have been provided by third parties, the Commonwealth gives no warranty to the accuracy, reliability, fitness for purpose, or otherwise of the information.

Summary

The Productivity Commission (2006) made a series of findings and recommendations to improve the operation of current arrangements for subsidising containerised and bulk shipping between the mainland and Tasmania.

The former Australian Government (2007) accepted the Commission's recommendation to revise the methodology for setting and updating the remaining parameters, and review them every three years. A significant change was that TFES assistance would only be payable on a wharf-to-wharf basis, on the basis of evidence of actual wharf-to-wharf costs.

BITRE's report presents results of its review of methodology and parameter values for both the **Tasmanian Freight Equalisation Scheme** (TFES) and **Tasmanian Wheat Freight Scheme** (TWFS). BITRE employed a consultant, Sinclair Knight Merz (SKM), to assist with data and in reviewing the Schemes.

Tasmanian Freight Equalisation Scheme

Findings and expenditure implications

The growth in road freight costs since 1996 has outstripped the growth in containerised sea freight costs.

Higher road freight costs have reduced the sea freight disadvantage for many Bass Strait shippers. Under the current methodology, increasing the Road Freight Equivalent parameter as calculated would directly reduce the TFES assistance paid to most shippers.

If BITRE's updated parameters had applied to freight shipped and claimed for 2006–07, this may have resulted in an estimated 2006–07 expenditure of $71.2 million, excluding the heavy freight discount. (*This is a reduction of $19.4 million compared with an estimated $90.4 million using the current parameters (1996–07) excluding the heavy freight discount, on the same claims dataset*)[1]. This estimate:

- includes an intermodal allowance of $100 per twenty-foot equivalent unit.

- includes containerised wheat shipped and claimed in 2006–07.

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[1] Subsidy estimates are based on claims data recorded by Tasmanian Assistance Services (Centrelink) as at August 2007 for freight shipped in 2006–07 only, and do not reflect previous or subsequent adjustments to payments, or claims processed after this date.

- excludes the increased stowage factor due to data limitations. Increasing the stowage factor would increase the volume of freight classified as high density, further reducing entitlements for a large number of shippers.

- Assumes no change in shippers' claims behaviour.

Over 99 per cent of claimants would have received reduced TFES subsidy payments in 2006–07 if the updated parameters had applied.

Ten claimants account for $13.4 million (70 per cent) of the $19.4 million reduction in subsidy payments. These claimants account for approximately 60 per cent of total twenty-foot equivalent units.

Table 1   Indicative change in entitlement by claimant, 2006–07

	Claims volume	TFES Authority 1996–97 parameters	BITRE 2006–07 parameters	Difference
	TEUs	$millions	$millions	$millions
Norske Skog Boyer Mill	34 202	13.9	8.6	(5.3)
Australian Paper Pty Ltd	13 083	6.6	3.9	(2.7)
Simplot Australia Pty Ltd	13 473	10.2	8.8	(1.4)
Cadbury Schweppes Pty Ltd	7 115	5.6	4.7	(0.9)
J Boag & Son Brewing Ltd	5 204	3.8	3.2	(0.6)
McCain Foods (Aust)P/L	4 821	3.8	3.2	(0.6)
Chep Australia	2 334	1.0	0.5	(0.5)
Net Sea Freight Tasmania P/L	3 831	2.9	2.4	(0.5)
Cascade Brewery Company P/L	3 019	1.9	1.4	(0.5)
Claimant not identified	1 898	1.1	0.7	(0.4)
All other claimants	57 320	39.7	33.7	(5.9)
Total	146 300	90.4	71.1	(19.4)

Note   Subsidy estimates are based on claims data recorded by Tasmanian Assistance Services (Centrelink) as at August 2007 for freight shipped in 2006–07 only, and do not reflect subsequent adjustments or claims processed after this date. BITRE has not estimated the effect of an increased stowage factor due to data issues

Source   BITRE estimates

Key TFES parameter estimates

BITRE's parameter analysis derived a **Road Freight Equivalent for dry freight** of $507 per twenty-foot equivalent unit. *(This compares to the dry rate in the current Scheme of $281 per twenty-foot equivalent unit for 1996–97).*

The updated **Road Freight Equivalent for refrigerated freight** is $558 per twenty-foot equivalent unit. *(This compares to the refrigerated rate for 1996–97 in the current Scheme of $309 per twenty-foot equivalent unit).*

The median shipper's estimated **sea freight disadvantage** for 2006–07 was $653 per twenty-foot equivalent unit for dry freight and $631 per twenty-foot equivalent unit for refrigerated freight.

With respect to **King Island and Flinders Island**, BITRE's analysis indicates that the **sea freight disadvantage** for Flinders Island may warrant specific consideration.

The estimated sea freight disadvantage for Flinders Island for dry freight is $1601 per twenty-foot equivalent unit to the main island of Tasmania and $1800 per twenty-foot equivalent unit to the Australian mainland.

Table 2   Key parameters: BITRE (2006–07) and TFES Review Authority (1996–97), dollars per twenty-foot equivalent unit

	BITRE estimates 2006–07		TFES Review Authority 1996–97	
	Dry	Reefer	Dry	Reefer
Median wharf-to-wharf sea freight rate	1160	1189	952	980
Road Freight Equivalent	507	558	281	309
Median sea freight disadvantage	653	631	671	671

Source   BITRE; RFE based on SKM freight rates; TFES Review Authority (1998)

Table 3   Sea freight disadvantage for King Island and Flinders Island 2007, dollars per twenty-foot equivalent unit

	To and from Tasmania	
	King Island–Devonport	Flinders Island–Bridport
Sea freight cost	950	1860
Road equivalent cost	675	259
Sea freight cost disadvantage	275	1601
	To and from the Australian mainland	
Sea freight cost	750	2317
Road equivalent cost	449	518
Sea freight cost disadvantage	301	1800

Source   SKM (2008) and BITRE

TFES methodology

The TFES operates according to Ministerial Directions using the parameters recommended by the TFES Review Authority (1998).

Shipper's raw freight bills are first adjusted to a wharf–to–wharf basis where needed by:

* removing a fixed component for local delivery costs at either end (the door-to-wharf parameter) and

* scaling non-Victorian / southern Tasmanian bills to a Victorian to northern Tasmanian basis.

The Road Freight Equivalent rate is then subtracted from this adjusted wharf-to-wharf freight bill to determine how much assistance an individual shipper may be entitled to.

This entitlement is then adjusted for factors such as the heavy freight discount (where applicable) and the Scheme's class of shipper incentive structure. After these adjustments, all claimants receive an extra $100 per twenty-foot equivalent unit to compensate for unspecified intermodal costs.

Scaling factors are used to reduce the possibility of subsidising freight movements where it is cheaper to ship by sea than a hypothetical road land bridge. Removing scaling factors would reduce complexity, but would also increase the likelihood of subsidising freight where there is no sea freight disadvantage. This is more likely in the case of Western Australia.

If scaling factors are retained, the use of three year averages would reduce the volatility of year-on-year estimates. If scaling factors are eliminated then shippers will need clear guidance as to what are considered reasonable Bass Strait freight costs.

Table 4   Wharf-to-wharf scaling factors

Route	BITRE 2006–07 wharf-to-wharf scaling factor estimate	BITRE three year average wharf-to-wharf scaling factor estimate	TFES Review Authority Advisory Opinion 1996–97
Northern Tasmania to/from			
Victoria	1.0	1.0	1.0
New South Wales	1.7	1.7	1.8
South Australia	1.5	1.5	1.5
Queensland	2.3	2.2	2.4
Western Australia	1.7	1.6	2.5
Northern Territory	2.4	3.6	6.8
Southern Tasmania to/from			
Victoria	1.3	1.2	1.3
New South Wales	1.9	2.0	1.9
South Australia	1.7	1.8	1.3
Queensland	1.8	1.9	2.2
Western Australia	2.8	2.2	2.4
Northern Territory	4.7	4.2	4.6

Notes   Three year average wharf-to-wharf scaling factors estimated using TFES claims data for 2004–05, 2005–06 and 2006–07.

Source   BITRE analysis of the TFES database; TFES Review Authority (1998)

BITRE analysis determined that B-double trucks should be the benchmark for the **Road Freight Equivalent parameter**. A B-double carrying three containers with a 13 tonne gross mass gives a payload of 39 tonnes, the road mass payload limit for modern low tare B-doubles (SKM 2008).

Current rates for a B-double are between 10 to 11 cents/net tonne kilometre. This benchmark road freight rate for dry freight includes a provision for empty running, or under utilisation, of 30 per cent. A road freight equivalent cost for a B-double at 10.5 cents per net tonne kilometre over 420 kilometres is $44.10 per tonne.

The analysis derived a **Road Freight Equivalent for dry freight** of $507 per twenty-foot equivalent unit is the 'road limit equivalent' for an ambient temperature container with a net payload of 11.5 tonnes.

The updated **Road Freight Equivalent for refrigerated freight** of $558 per twenty-foot equivalent unit reflects a 10 per cent premium on ambient temperature freight.

Live animals are more expensive to ship on land than dry freight. This implies a higher Road Freight Equivalent for live animals, potentially reducing assistance. However, a separate Road Freight Equivalent may not be needed as available data indicates shippers of live animals are likely to have a higher sea freight disadvantage compared to dry freight even after adjusting for higher road freight costs. Live animal claims account for only four per cent of total twenty-foot equivalent units.

The current TFES applies a four class **incentive structure** to the sea freight cost disadvantage to promote cost containment. The median sea freight disadvantage is used to determine shipper class boundaries, which in turn determine how quickly assistance is reduced as disadvantage increases.

As currently applied the incentive structure based on the median sea freight disadvantage for 1996–07 does not give a balanced distribution of claims by twenty-foot equivalent unit across the four shipper classes. Shippers who account for 80 per cent of twenty-foot equivalent units (full containers) have minimal incentive to reduce freight rates.

The new parameters would result in a maximum payment of $835 per twenty-foot equivalent unit including a $100 intermodal allowance *(The current maximum payment is $855 per twenty-foot equivalent unit)*.

Table 5   Sea freight cost disadvantage and maximum assistance by shipper class, dollars

Shipper class	Proportion of disadvantage received	BITRE 2006–07			TFES Review Authority (1999)		
		From	*To*	*Maximum assistance by class[a]*	*From*	*To*	*Maximum assistance by class[a]*
Class 1	100	0	326.50	327	0	335.50	335
Class 2	75	326.51	653.00	571	335.51	671.00	587
Class 3	50	653.01	979.50	735	671.01	1006.50	755
Class 4	0	979.51 and above		735	1006.51 and above		755

a   Values rounded up. Excludes the intermodal allowance.
Source   BITRE estimates using the TFES claims database

BITRE's review of the parameters found that a **heavy freight discount** should continue to apply to the rate of assistance for a standard twenty-foot equivalent unit. This recognises that the sea freight disadvantage is less for heavy containers as they are more expensive than lighter boxes to move by road and rail, but generally have the same sea freight rate.

BITRE calculated a revised rate for the heavy freight discount of 23 per cent *(compared to 40 per cent for 1996–97 in the current Scheme)*.

BITRE's analysis determined that the heavy freight discount should apply at cargo stowage factors of 2.6 cubic metres or less to the tonne *(currently 1.1 cubic metres or less to the tonne)*. To meet road loading standards the average cargo density in the containers for a B-double carrying three twenty-foot equivalent units must be greater than 2.6 cubic metres per tonne.

BITRE's analysis confirmed that the **intermodal allowance** should be retained. Stakeholders provided evidence of costs due to the need for a sea journey of at least $50 to $86 per twenty-foot equivalent unit (costs that were not captured in wharf-to-wharf freight rates or by current TFES formulae).

BITRE suggests that intermodal costs should not be separately itemised. That is, the sea freight disadvantage should be calculated on the basis of total wharf-to-wharf costs without itemisation.

Table 6   Heavy freight parameter and intermodal allowance

	BITRE 2006–07	TFES Review Authority (1999)
Heavy freight		
- High density discount rate	23 per cent	40 per cent
- Heavy freight discount applies at stowage factors of	2.6 m³ or less per tonne	1.1 m³ or less per tonnes
Intermodal allowance	Retain	$100 per TEU

Source   BITRE; TFES Review Authority (1998)

Tasmanian Wheat Freight Scheme

Findings and expenditure implications

Spending on wheat in 2006–07 under TWFS and TFES was $2.35 million.

If BITRE's calculated subsidy rate of $11.90 per tonne—the difference between the average bulk sea rate and bulk rail rate—had applied for all wheat in 2006–07, this may have reduced total spending by $1.35 million to $1 million ($0.28 million for the TWFS and $1.07 million for the TFES).

Alternatively, setting the subsidy rate per tonne to the difference between the containerised grain rate and bulk rail rate of $20.42 for all wheat may have reduced total spending by $0.63 million to $1.72 million (i.e. reduced TFES payments for containerised wheat).

If the current TFES parameters (1996–97) were retained and EITHER:

- the TWFS rate were raised to the *average* TFES subsidy for 2006–07 of $32.16 per tonne then this may have increased total spending by $0.36 million to $2.7 million (increasing TWFS bulk wheat payments), OR

- the TWFS rate were raised to the current *maximum* TFES subsidy of $35.63 per tonne, then this may have increased total spending by $0.66 million to $3.0 million (increasing TWFS payments by $0.47 million and increasing TFES payments by $0.18 million).

These estimates must be treated with caution as wheat volumes and origins vary year to year; there is scope for processing/mixing of products (i.e. wheat can become mixed grain); and the choice of bulk or container transport is sensitive to the rates of TWFS and TFES subsidy.

TWFS methodology

The TWFS operates under separate Ministerial Directions (2006).

The current TWFS subsidises the cost of bulk shipments of wheat from the mainland to Tasmania by sea. Containerised wheat shipments are eligible for assistance through the TFES.

Current funding for the TWFS is capped at $1.05 million per annum and rates of assistance per tonne for bulk grain vary across years according to annual bulk freight volumes.

BITRE's analysis determined that the subsidy rate for both containerised and bulk wheat should be based on the difference between the average bulk sea rate and bulk rail rate—the lowest cost land freight equivalent.

The average **sea freight rate for bulk wheat** shipped to Tasmania in 2006–07 was $41.30 per tonne including loading and unloading charges. The **rail freight equivalent for bulk wheat** is estimated for 2006–07 at $29.40 per tonne.

BITRE calculated the updated subsidy rate for wheat to be $11.90 per tonne. *This compares with the maximum subsidy under the current TWFS of $20.65 per tonne (however, the maximum rate is only paid where total annual subsidy payments do not exceed the cap of $1.05 million).*

If the subsidy rate for wheat was set at the difference between the containerised sea rate—in 2006–07 this was $49.82 per tonne—and the bulk rail freight equivalent, then the subsidy would be $20.42 per tonne.

This would be significantly below the average TFES subsidy paid for containerised wheat of $32.16 per tonne in 2006–07. The *maximum* subsidy under current TFES parameters is $35.63 per tonne including intermodal allowance.

Table 7   Sea freight cost disadvantage for wheat, dollars per tonne

	Containerised sea		Bulk sea
	Compared to rail containers	*Compared to bulk rail*	*compared to bulk rail*
Sea freight rate	49.82	49.82	41.30
Rail equivalent rate	35.70	29.40	29.40
Sea cost disadvantage	14.12	20.42	11.90

Source   SKM (2008) and BITRE

If containerised wheat remained eligible under TFES, and BITRE's updated parameters (except the increase in the stowage factor) were applied, then:

- Average TFES subsidy per tonne is likely to reduce significantly.

- The *maximum* TFES subsidy including a $100 intermodal allowance would be $34.79 per tonne of containerised wheat. Increasing the stowage factor as calculated would mean claimants received 77 per cent of this maximum rate of assistance, or $29.10 per tonne.

References

SKM 2008, Report to BITRE: Historic freight rate data and review of Tasmanian Freight Equalisation Scheme and Tasmanian Wheat Freight Scheme, April.

Tasmanian Freight Equalisation Scheme (TFES) Review Authority 1998, *Advisory Opinion: Review of TFES Rates of Assistance*, June.