

Options for reducing the environmental impact of plastic shopping bags
Cost Benefit Analysis
Explanatory Note

Background

On 1 July 2005, the Environment Protection and Heritage Council (EPHC) requested an analysis of possible costs and benefits of a range of voluntary and regulatory options for reducing the impact of plastic shopping bags on the environment. The Allen Consulting Group (ACG) was commissioned to prepare this analysis.

EPHC considered the ACG analysis at its meeting on 23 June 2006, and agreed it should be released for public information to inform debate on the use and management of plastic bags.

The EPHC is releasing this analysis for information purposes only and has made no decision to introduce any of the options described, either in the form depicted or otherwise.

Some of the information in this analysis may be included in a draft regulatory impact assessment which evaluates the options for potential action on single-use lightweight plastic shopping bags should governments proceed with firm proposals to regulate these products.

About the Reports

The analysis consists of two reports by the ACG which provide a cost/benefit analysis of a range of conceivable plastic bag options.

In the first report *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches* (May 2006), ACG were asked to prepare an analysis of nine policy options (scenarios) for the post-2008 period:

1. Elimination of plastic shopping bags from 1 January 2009
2. No further government action
3. Extension of the *Australian Retailers Association Code of Practice for the Management of Plastic Carry Bags* beyond 2005
4. Industry agreement to impose a gradually escalated charge, supported by co-regulatory measures
5. Industry agreement to phase out plastic bags, followed by government regulation to restrict their supply from 1 January 2009
6. A stand-alone ban on plastic bags, with a start date other than 1 January 2009 (the difference between this option and option one is the commencement date)
7. An advance disposal fee imposed from 1 January 2009
8. A mandatory charge consumers for plastic bags, with revenue retained by the retailer from 1 January 2009
9. A government imposed levy (or tax) on plastic bags

The Monash Multi-Regional Forecasting (MMRF)-Green computable general equilibrium model of the Australian economy was used to calculate economic costs and benefits from each of these approaches, using the 'no further government action' scenario (Scenario 2) as a baseline. In addition, ACG developed a model for estimating environmental costs and benefits from the nominated approaches, based on a valuation of an environmental benefit of one dollar per bag eliminated from the litter stream.

The ACG analysis does not estimate the social benefits which may arise each option (e.g. attempting to place a dollar value on the community desire for action), although it does provide estimates of how much such unquantified benefits would need to be in order for options to reach a 'break even' point.

The 'no further government action' baseline projected a 'return to normal' scenario following the expiry of the *ARA Code of Practice for the Management of Plastic Carry Bags*, which expired in December 2005. The 'return to normal' scenario assumed that retailers which participated in the 2003-05 voluntary retailer code of practice would cease any further bag reduction activities required by the code, and that consumers would slowly return to pre-code of practice habits. These are estimated as savings for retailers of \$21 million per year, and growth in plastic bag consumption at 2.5 per cent per year. As all other options are compared against this baseline, retailers are assumed to lose these savings. The cost comparisons should be seen in this context.

The second (supplementary) report, *The ANRA Proposal on Plastic Bag Management: Supplementary economic analysis to the EPHC Report* (June 2006), was prepared by the ACG following the release of a new proposal from the Australian National Retailers Association (ANRA). This report was commissioned by the Australian Government Department of the Environment and Heritage.

The supplementary report considered two broad options:

1. The ANRA proposal as presented (see www.ephc.gov.au)
2. The ANRA proposal, with the inclusion of targets for future increases in plastic bag reduction.

The analysis presented in this report compares costs and benefits against use a baseline which projects continuation of efforts under the voluntary code – costs and benefits projected in the analysis are additional to this baseline. However, Appendix A of the report uses the same 'no further government action' baseline as used in the initial report.

To allow meaningful comparison between the estimates in the two reports, the estimates provided in Appendix A of the supplementary report should be used. The attached summary table shows the relative costs and benefits of variations on the ANRA proposal.

The attached table summarises key cost benefit information of all options considered.

Disclaimer:

The reports are released without prejudice. The EPHC and the jurisdictions which make up EPHC have yet to endorse the findings of the reports.

Economic & Environmental costs/benefits for plastic bag regulatory options, 2005-2016 (inclusive)
Figures calculated Allen Consulting Group

| Scenarios | Description | Costs (PV*, \$M) | Benefits (PV, \$M) | Net Impact (NPV*, \$M) | Litter reduction (millions) |
|---|---|------------------------|-----------------------|------------------------------|-----------------------------------|
| 1. Elimination of plastic bags from 2009 | Regulatory ban by government from 1 Jan 2009. | -1057.08 | 217.78 | -839.30 | 360.6 |
| 3. Extension of current Code of Practice | Majors maintain 50% reduction level, expansion to include non-participating retailers. | -646.01 | 156.34 | -489.67 | 233.2 |
| 4. Escalating charge | Co-regulation. Participating retailers apply charge, government regulations catch non-participants. (Modeling assumes scaled levy by participants of \$0.05 in 2006, \$0.15 in 2007 and \$0.25 from 2008) | -1293.08 | 266.28 | -1026.80 | 418.4 |
| 5. Industry agreement to phase out with regulation to restrict supply of plastic bags | Voluntary action by industry, followed by national government regulation from 1 Jan 2009. (Modeling assumes all retailers participate in industry agreement) | -1093.48 | 270.61 | -822.87 | 422.4 |
| 6. Stand alone ban (different start date to option 1) | Regulation by Government (introduced in year other than 2009) | See Option 1 | | | |
| 7. Advance disposal fee | Governments collect fee from retailers (modeled at \$0.05) for cost recovery; regulation sets fee and administration processes Regulatory from 1 Jan 2009. | -767.95 | 181.48 | -586.47 | 300.5 |
| 8. Retailers obliged to impose minimum charge under regulation (funds to be kept by retailers) | Retailers to impose and collect charge (modeled at \$0.25); government regulation sets minimum charge. Regulation to be imposed from 1 Jan 2009. | -1035.12 | 217.78 | -817.34 | 360.6 |
| 9. Government levy | Regulatory, at point of sale, \$0.10, from 1 Jan 2009. | -900.03 | 188.74 | -711.29 | 312.5 |

On 24 May 2006, a new proposal was received from the Australian National Retailers Association for a possible retailer code. Based on the limited information contained in the proposal, and in the time available, this proposal was subject to supplementary cost benefit analysis by the Allen Consulting Group. The following indicative costs and benefits were estimated:

| Scenarios | Description | Costs (PV, \$M) | Benefits (PV, \$M) | Net Impact (NPV, \$M) | Litter reduction (millions) |
|---|--|--------------------|-----------------------|--------------------------|-----------------------------------|
| 1a. ANRA proposal (high take-up by retailers) | <ul style="list-style-type: none"> Participating retailers maintain education & awareness activities, staff training, and supply alternatives from ARA Code 50% reduction target by the end of 2006 (based on 2002 baseline), up from actual 2005 result of 45%. Further reductions depend on availability of sustainable alternative (e.g. biodegradable). <p>‘High take-up’ assumes all retailers with turnover greater than \$5 million adhere to the code (i.e. appended to the National Packaging Covenant).</p> | -562 | 170 | -392 | 111 |
| 1b. ANRA proposal (modest take-up by retailers) | <p>As above, but with diminished take-up by retailers. ‘Modest take-up’ assumes all Group One retailers, ANRA members, and 25% of Group Two retailers.</p> | -430 | 154 | -276 | 102 |
| 2a. Variation on ANRA proposal – addition of further 10% per year reduction target (high take-up by retailers) | <p>As per ANRA proposal above (1a and 1b), but with inclusion of a 10% year on year reduction in bag use by participating retailers, running for five years (figures for the whole period 2006-2016).</p> <p>‘High take-up’ assumes all retailers with turnover greater than \$5 million adhere to the code (i.e. appended to the National Packaging Covenant).</p> | -799 | 93 | -706 | 148 |
| 2b. Variation on ANRA proposal – addition of further 10% per year reduction target (modest take-up by retailers) | <p>As above, but with diminished take-up by retailers. ‘Modest take-up’ assumes all Group One retailers, ANRA members, and 25% of Group Two retailers.</p> | -535 | 84 | -451 | 134 |

Differences are compared against a scenario of ‘no further government action’ (Scenario 2)

*NPV = Net Present Value.