



## **Economic Assessment 2014**

Statewide Waste  
and Resource Recovery  
Infrastructure Plan  
Victoria 2015–44

## Statewide Waste and Resource Recovery Infrastructure Plan

The Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) provides Victoria with the long term vision and roadmap to guide future planning for waste and resource recovery infrastructure to achieve an integrated system that:

- › effectively manages the expected mix and volumes of waste
- › reflects the principles of environmental justice to ensure that impacts on the community, environment and public health are not disproportionately felt across communities
- › supports a viable resource recovery industry
- › reduces the amount of valuable materials going to landfill.

The *Environment Protection Act 1970* requires SV to undertake a strategic economic assessment of the options for waste and resource recovery and an analysis of the transport impacts arising from the movement of waste and materials.

SV has analysed the high level economic assessment and transport impacts of the SWRRIP. The initial findings will be used to inform more comprehensive research along with regional considerations that will be identified through developing the Regional Waste and Resource Recovery Implementation Plans (RWRRIPs). SV will incorporate the findings of this research into the SWRRIP as part of the SWRRIP/RWRRIP alignment process.

<sup>1</sup> Refer to the SWRRIP for a full glossary of infrastructure terminology.

**TABLE 1**  
**SWRRIP SCENARIO**

Infrastructure Category	Tonnes Diverted Per Annum			
	Yrs 1–10	Yrs 11–20	Yrs 21–30	Total by Yr 30
Materials Recovery Facilities – Commercial & Industrial Pre-sort (Nil refuse derived fuel) <sup>1</sup>	100,000	130,000	–	230,000
Materials Recovery Facilities – Commercial & Industrial Pre-sort (With refuse derived fuel)	100,000	130,000	200,000	430,000
Organics – Municipal Solid Waste In Vessel Composting (Aerobic)	100,000	90,000	30,000	220,000
Organics – Commercial & Industrial Anaerobic Digestion	–	80,000	100,000	180,000
Advanced Thermal Treatment – Energy recovery	–	100,000	100,000	200,000
Advanced Thermal Treatment – Pyrolysis/gasification	–	–	100,000	100,000
Improved efficiency of Materials Recovery Facilities and Resource Recovery Centres/Transfer Stations	75,000	40,000	25,000	140,000
<b>Total</b>	<b>375,000</b>	<b>570,000</b>	<b>555,000</b>	<b>1,500,000</b>

## Sustainability Victoria's approach to assessing infrastructure investment

If current trends in waste generation and recovery are maintained, Victoria will be generating around 20 million tonnes of waste each year by 2043. Of that amount, 15 million tonnes will be recovered and 5 million tonnes will be landfilled.

The SWRRIP aims to maximise resource recovery opportunities. It conservatively estimates that, with an increase in Victoria's resource recovery rate facilitated by the new statewide waste and resource recovery framework, an additional 1.5 million tonnes of waste could be recovered each year by 2043. To achieve this, a new mix of additional infrastructure that better realises the value of recovered resources, and that operates more efficiently, will be required.

Sustainability Victoria projects that a total investment of between \$3.6 billion and \$5 billion (in 2014 dollars) could be needed over the next 30 years to manage Victoria's waste and further optimise the recovery of valuable resources under the new waste and resource recovery framework.

Industry and local councils will ultimately determine what infrastructure they will invest in by considering factors such as market drivers, commodity values and community needs. For the purpose of this economic assessment, Sustainability Victoria developed one possible scenario to estimate the scale of investment that may occur under the SWRRIP and the broader statewide waste and resource recovery framework (the 'SWRRIP Scenario'). This scenario is described in Table 1 and was formed from the knowledge and expertise of waste and resource recovery professionals from Sustainability Victoria and its Environment Portfolio partners. Importantly, this scenario does not represent a preference by Sustainability Victoria for any particular kind of infrastructure or a preference for the location of any future infrastructure. Similarly, it does not indicate a commitment by the Victorian Government to fund the infrastructure or associated changes.

Table 2 provides an overview of the SWRRIP Scenario which supports the estimates in Table 1.

**TABLE 2**  
**SWRRIP SCENARIO EXPLAINED**

Years 1–10
<p>In the first decade of implementation, the SWRRIP and seven Regional Waste and Resource Recovery Implementation Plans (RWRRIPs) will facilitate the planning and implementation of an integrated statewide waste and resource recovery system which will deliver increased aggregation and consolidation of valuable resources for reprocessing and re-entry into the economy. This could potentially lead to:</p>
<ul style="list-style-type: none"> <li>› an additional 100,000 tonnes annually by year 10 from in-vessel composting of organic Municipal Solid Waste (MSW). A move towards in-vessel composting will be driven by:               <ul style="list-style-type: none"> <li>– stronger procurement processes through the RWRRIPs</li> <li>– stronger regulatory framework for organic waste processing</li> <li>– implementation of the Victorian Organics Waste and Resource Recovery Strategy and the Victorian Market Development Strategy for Recovered Resources (currently being developed by Sustainability Victoria).</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>› an additional 200,000 tonnes by year 10 from Commercial and Industrial (C&amp;I) pre-sort Materials Recovery Facilities (MRFs). This will be generated by new C&amp;I sorting facilities at landfills or dedicated sites in metropolitan and regional centres.</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 75,000 tonnes by year 10 from efficiency improvements at existing MRFs and transfer stations. This will be driven by:               <ul style="list-style-type: none"> <li>– the closure of financially unviable facilities and/or landfills exempt from licensing, complemented by new and/or expanded transfer stations with resource recovery centres</li> <li>– enhanced capacity at MRFs to respond to opportunities arising from the consolidation and aggregation of materials and to improve the recovery efficiency of packaging and newsprint collected at kerbside; enhanced capacity at transfer stations and resource recovery centres regarding consolidation and aggregation of materials.</li> </ul> </li> </ul>
Years 11–20
<p>In the second decade of implementation, increased aggregation and consolidation of valuable resources for reprocessing could potentially lead to:</p>
<ul style="list-style-type: none"> <li>› an additional 260,000 tonnes by year 20 from C&amp;I pre-sort MRFs, which will be driven by further new C&amp;I sorting facilities at landfills or dedicated sites in metropolitan and regional/rural centres</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 170,000 tonnes by year 20 from organics, achieved by transitioning from aerobic in-vessel to anaerobic composting systems and additional new capacity is added</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 100,000 tonnes by year 20 from residual waste treatment through advanced waste treatment technologies</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 75,000 tonnes by year 20 from efficiency improvements at existing MRFs and transfer stations. This will be achieved through enhanced capacity at MRFs to respond to opportunities to realise the value of packaging and newsprint collected at kerbside; enhanced capacity at transfer stations and resource recovery centres regarding consolidation and aggregation of materials.</li> </ul>
Years 21–30
<p>In the third decade of implementation, increased aggregation and consolidation of valuable resources for reprocessing could potentially lead to:</p>
<ul style="list-style-type: none"> <li>› an additional 200,000 tonnes by year 30 from C&amp;I pre-sort MRFs, which will be driven by further new C&amp;I sorting facilities at landfills or dedicated sites in metropolitan and regional/rural centres</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 130,000 tonnes by year 30 from organics, as the majority of aerobic in-vessel systems are moved to anaerobic systems and additional new capacity is added</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 200,000 tonnes by year 30 from residual waste treatment through advanced waste treatment technologies</li> </ul>
<ul style="list-style-type: none"> <li>› an additional 25,000 tonnes by year 30 from efficiency improvements at existing MRFs and transfer stations. This will be achieved through enhanced capacity at MRFs to respond to opportunities to realise the value of packaging and newsprint collected at kerbside; enhanced capacity at transfer stations and resource recovery centres regarding consolidation and aggregation of materials.</li> </ul>

## High level estimates of investment and employment

Sustainability Victoria engaged a consultant to conduct a high level assessment of potential investment and employment impacts that may result from the SWRRIP. This was done by comparing the SWRRIP Scenario to a base case which was drawn from modelled population and waste generation trends. From this comparison, an estimate was made of the potential additional investment or employment that could be required under the SWRRIP relative to what is likely to occur in the absence of the SWRRIP.

### Indicative investment created under SWRRIP Scenario

Sustainability Victoria researched the costs of capital expenditure required to build or upgrade each of the items of infrastructure included in the SWRRIP Scenario. These costs were then used to develop an indicative estimate of the investment in infrastructure that could be required in order to achieve the SWRRIP Scenario.

It was found that an estimated additional capital investment of between \$556 million and \$809 million (in 2014 dollars) could be needed over the next 30 years to create the new resource recovery infrastructure to achieve the SWRRIP Scenario of an additional annual recovery of 1.5 million tonnes of valuable materials. This investment is over and above the investment required to maintain business as usual in consideration of projections of current trends in waste generation and recovery. It should also be noted that this increased recovery prolongs the life of landfills, therefore reducing business as usual costs.

The range in the estimated capital investment reflects the uncertainty about the size and overall capacity of the facilities being built. Again, this reflects that it is industry and local councils who will ultimately determine what infrastructure they will invest in by considering factors such as market drivers, commodity values and community needs. The SWRRIP's strategic directions will guide these decisions to ensure outcomes are maximised for local communities and Victoria.

### Indicative employment created under SWRRIP Scenario

The 2010 National Waste Report<sup>2</sup> provided a basis for estimating employment likely to result from the SWRRIP Scenario. By using this report, it was determined that the implementation of the SWRRIP Scenario could potentially create an additional 831 jobs by the end of the SWRRIP's 30-year lifespan.

2 Australian Government, 2010

## Future full economic assessment

Following the public release of the SWRRIP, the waste and resource recovery groups (WRRGs) will prepare RWRRIPs. The RWRRIPs will contain descriptions of existing and required waste and resource recovery infrastructure in the region. These will include details of the type, general location and other requirements of new waste and resource recovery infrastructure and the timeframe in which that new infrastructure is needed. Sustainability Victoria will use this more detailed information to inform a full economic assessment of waste and resource recovery options in Victoria. The findings of that assessment will be incorporated into the next iteration of the SWRRIP which is likely to be published in late 2016 or early 2017.