



# Report and recommendations of the Environmental Protection Authority



## Tyre Resource Recovery Facility

Elan Energy Matrix Pty Ltd

Report 1601

July 2017

## Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
08/07/2016	Level of assessment set	
09/11/2016	EPA approved Environmental Scoping Document	18
14/02/2017	EPA accepted Public Environmental Review (PER) document	14
20/02/2017	PER document released for public review	1
21/03/2017	Public review period for PER document closed	4
19/04/2017	EPA accepted Proponent Response to Submissions	4
09/06/2017	EPA received final information for assessment	7
15/06/2017	EPA completed its assessment	1
26/07/2017	EPA report provided to the Minister for Environment	6
31/07/2017	EPA report published	3 days
14/08/2017	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the project and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority met its timeline objective to complete its assessment and provide a report to the Minister.



Dr Tom Hatton  
Chairman

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On 1 July 2017 the Office of the Environmental Protection Authority (OEPA), Department of Environment Regulation (DER) and Department of Water amalgamated to become the Department of Water and Environmental Regulation (DWER).

## Summary

This report provides the Minister for Environment with the outcomes of the Environmental Protection Authority's (EPA's) environmental impact assessment of the proposal by Elan Energy Matrix Pty Ltd (Elan) to develop and operate a Tyre Resource Recovery Facility (TRRF).

### Proposal

The proponent, Elan, proposes to develop and operate a TRRF at Lot 60, 9 Fargo Way Welshpool, approximately 12 kilometres south-east of Perth within a 'General Industry' zone in the City of Canning.

The proposal would involve processing end-of-life tyres sourced from the proponent's existing tyre storage and shredding operations. Shredded tyres would be processed through a thermal conversion unit (pyrolysis) to produce char, steel wire, oil and process gas.

### Background and context

The proponent referred the proposal to the EPA on 8 July 2016. On 19 September 2016, the EPA decided to assess the proposal at level of Public Environmental Review (PER). The environmental scoping document was approved on 9 November 2016 and on 20 February 2017, the PER document was released for public review for four weeks. One agency submission and two public submissions were received.

### Public submissions

Key issues raised in the submissions included:

- uncertainty about reliability of the proposed technology and gas production;
- risk of fire hazards; and
- concerns about the impact on human health.

The proponent has addressed the issues raised in its Response to Submissions document (Strategen, 2017b).

### Key environmental factors and relevant principles

The EPA identified the following key environmental factor (see Section 4) during the course of its assessment:

1. **Air Quality** – proposal would generate air emissions and may impact on sensitive receptors.

In identifying the key environmental factor, the EPA had regard to the object and principles set out in section 4A of the *Environmental Protection Act 1986*.

The EPA considered that the principle of waste minimisation is particularly relevant to this assessment (see Section 4).

## **Assessment**

The EPA notes that the proponent has conservatively modelled the predicted emissions from the proposed Tyre Resource Recovery Facility, and that the ground level concentrations (GLCs) for emissions are predicted to meet the relevant air quality standards.

Consideration of predicted emissions in combination with background data was also undertaken to cumulatively assess air quality impacts on sensitive receptors in the neighbouring industrial and residential zones.

In assessing the proposal against its objective for the key environmental factor of Air Quality, the EPA has concluded that the proposal is environmentally acceptable.

## **Conclusion and recommendations**

In summary, the EPA has assessed the environmental impacts of the proposal based on the level of confidence in the modelling predictions, the pollution control equipment, and the proposed monitoring and mitigation, and concluded that the proposal is environmentally acceptable.

The EPA recommends that the Minister notes:

1. The proposal assessed is for the construction and operation of a TRRF at Lot 60, 9 Fargo Way Welshpool.
2. The key environmental factor identified by the EPA in the course of its assessment is Air Quality, and is set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 5.

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# 1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on outcomes of the EPA's environmental impact assessment (EIA) of the proposal by Elan Energy Matrix Pty Ltd (Elan) to develop and operate a Tyre Resource Recovery Facility (TRRF).

The EPA has prepared this report in accordance with section 44 of the *Environmental Protection Act 1986* (EP Act), which requires that the EPA prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 8 July 2016. On 19 September 2016 the EPA decided to assess the proposal and set the level of assessment at Public Environmental Review (PER), with a four week public review period. The EPA approved the Environmental Scoping Document (ESD) for the proposal on 9 November 2016. The PER document was released for public review from 20 February 2017 to 21 March 2017.

## 1.1. EPA procedures

The EPA introduced a new suite of EIA procedures on 13 December 2016. The EPA approved the ESD and PER document and accepted the proponent's response to submissions under the 2012 Administrative Procedures.

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016*, to the extent that it was appropriate and practicable. The EPA consulted the proponent on the application of the current procedures to its assessment of the proposal.

## 2. The proposal

### 2.1. Proposal summary

The proponent, Elan, proposes to develop and operate a TRRF at Lot 60, 9 Fargo Way Welshpool, approximately 12 kilometres south-east of Perth within a 'General Industry' zone in the City of Canning (Figure 1).

The proposal would involve processing end-of-life tyres sourced from the proponent's existing tyre storage and shredding operations. Shredded tyres would be processed using an indirect heated thermal conversion unit (pyrolysis) to produce char, steel wire, oil and process gas. This process involves thermal decomposition in the absence of oxygen at temperatures of approximately 550 to 650 degrees Celsius. Char produced from the thermal process will be upgraded to produce carbon black. The carbon black, oil and steel wire will be sold, while the process gas will be combusted in a thermal oxidiser. Exhaust gases from the thermal conversion unit and thermal oxidiser will be discharged to the atmosphere via a 15 metre (m) stack. The process flow of the proposed plant is shown in Figure 2.

The key characteristics of the proposal are summarised in Tables 1 and 2 below. A detailed description of the proposal is provided in Section 2 of the PER document (Strategen 2017a).

**Table 1: Summary of the Proposal**

<b>Proposal Title</b>	Tyre Resource Recovery Facility
<b>Short Description</b>	The proposal involves construction and operation of a Tyre Resource Recovery Facility at Lot 60, 9 Fargo Way Welshpool, approximately 12 kilometres south-east of Perth in the City of Canning. The proposal includes processing of shredded tyres using a thermal conversion unit to produce char, steel wire, oil and gas.

**Table 2: Location and proposed extent of physical and operational elements**

<b>Element</b>	<b>Location</b>	<b>Authorised Extent</b>
<b><i>Physical elements</i></b>		
Tyre Resource Recovery Facility	Lot 60, 9 Fargo Way Welshpool (Figure 1)	Up to 0.46 hectares on cleared land, within existing buildings.
<b><i>Operational elements</i></b>		
End-of-life tyres processed	Lot 60, 9 Fargo Way Welshpool (Figure 1)	Up to 60 tonnes per day.



## 2.2. Context

The site for the proposal contains paved and hard panned lots, with an existing warehouse occupying part of the site. It is located in an industrial zone and the nearest residential sensitive receptors are 600 m east of the proposal. The proposal would contribute to existing emissions from other neighbouring industrial operations and traffic.

### ***Strategic advice on waste to energy technologies***

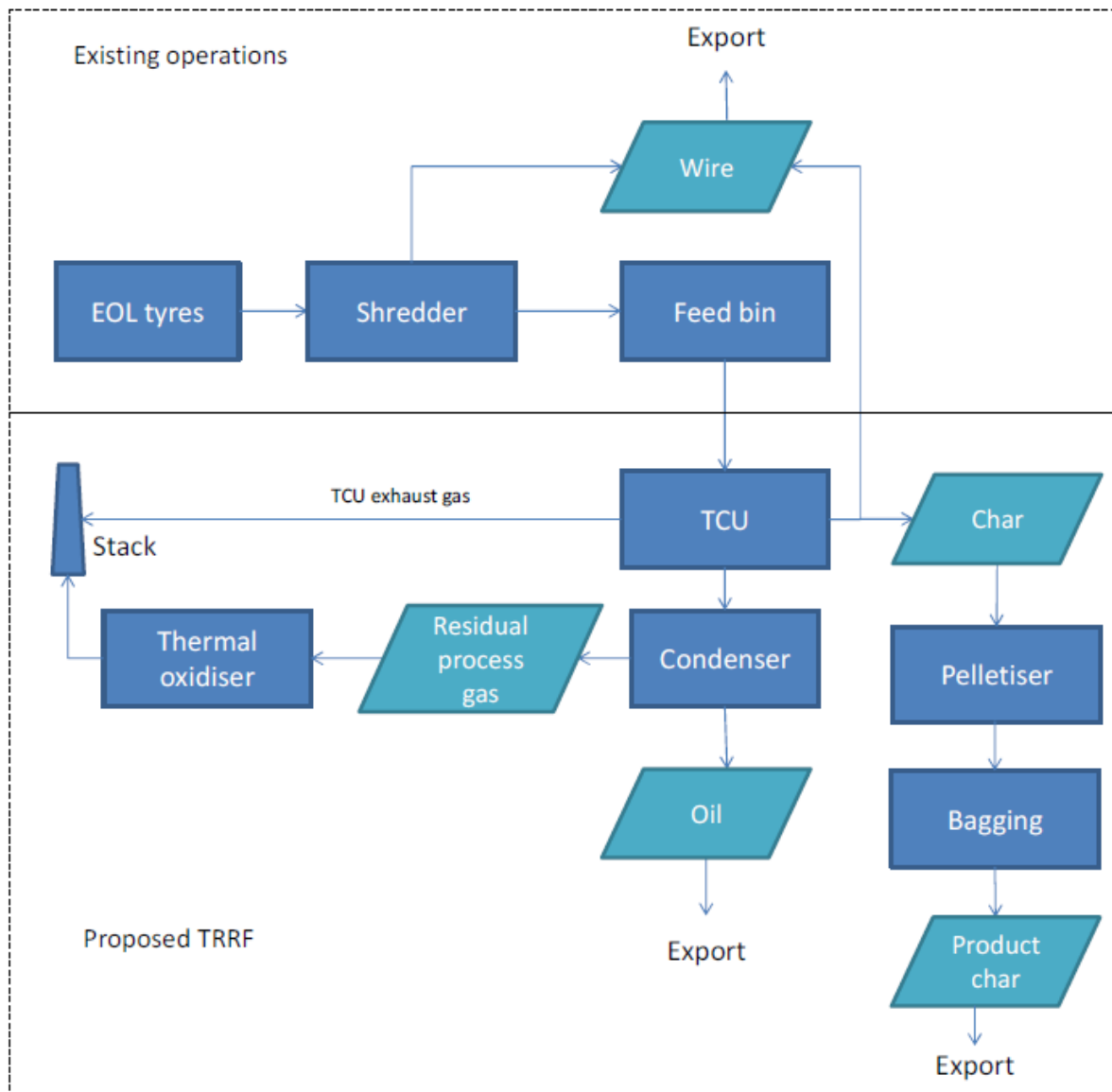
The proposal would be using pyrolysis to process end-of-life tyres, a process typically used in waste to energy facilities. While the proposed facility would not generate electricity, oil and process gas would be produced. However, the EPA notes that the proponent does not intend to refine the oil or process gas into a fuel. Instead, the oil will be sold to Australian and international markets and the process gas will be combusted.

The proponent does not consider that the EPA and Waste Authority's section 16(e) strategic advice on '*Environmental and health performance of waste to energy technologies*' (EPA & Waste Authority, 2013) is applicable to the proposal as the waste products would not be converted into energy, such as heat, steam or syngas for generation of electricity or synthetic fuels.

While electricity will not be generated as part of the proposal, the EPA considers that some of the principles and recommendations detailed in the strategic advice are relevant, in particular to the pyrolysis component of the proposal (thermal conversion unit). The EPA notes that the thermal processing technology is proven at a commercial scale for other applications, and that demonstration scale tests were also undertaken at a test plant. The tests were operated on a continuous basis to ensure steady state conditions were achieved. The EPA also notes that the proposal includes pollution control equipment and the applications of best practice technology and equipment.



Figure 1: Proposal development envelope



**Figure 2: Process flow**

### **3. Consultation**

The EPA advertised the referral information for the proposal for public comment in July 2016 and received three submissions. One submission requested 'Assess – Assessment on Proponent Information', and two submissions requested 'Assess – Public Environmental Review'.

The proponent consulted with government agencies and key stakeholders during the preparation of the PER document. Details of the proponent's consultation are detailed in Table 8 of the proponent's PER document (Strategen, 2017a).

One agency submission and two public submissions were received during the public review period. The key issues raised relate to:

- uncertainty about reliability of the proposed technology and gas production;
- risk of fire hazards; and
- concerns about the impact on human health.

Issues raised were addressed by the proponent in the Response to Submissions document that was received by the EPA on 5 April 2017 (Strategen, 2017b). The EPA notes that the proponent has drawn on conclusions from the emissions predictions to address human health impacts and clarified issues raised in relation to the process, technology and related risks.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development. Relevant significant environmental issues identified from this process were taken into account by the EPA during its assessment of the proposal.

### **4. Key environmental factors**

In undertaking its assessment of this proposal and preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the EP Act to the extent relevant to the particular matter to be considered.

The EPA considered the following information during its assessment:

- the proponent's referral information and PER document;
- public comments received on the referral, stakeholder comments received during the preparation of proponent documentation, and public and agency comments received on the PER document;
- the proponent's response to submissions raised during the public review of the PER document;

- the EPA's own inquiries;
- the EPA's *Statement of environmental principles, factors and objectives* (EPA 2016); and
- the relevant principles, policy and guidance referred to in the assessment of the key environmental factor in section 4.1.

Having regard to the above information, the EPA identified the following key environmental factor during the course of its assessment of the proposal:

**Air Quality** – proposal would generate air emissions and may impact on sensitive receptors.

The EPA considered other environmental factors during the course of its assessment of the proposal. These factors, which were not identified as key environmental factors, are discussed in the PER document (Strategen, 2017a). Appendix 4 contains an evaluation of why these other environmental factors are not key environmental factors

Having regard to the EP Act principles, the EPA considered that the following principle is particularly relevant to its assessment of the proposal:

1. **The principle of waste minimisation** – the proposal would be recovering resources from end-of-life tyres for reuse and recycling that would otherwise be disposed of in landfill or stored at designated facilities.

Appendix 3 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factor is provided in Section 4.1. This section outlines whether or not the EPA considers that the impacts to each factor are manageable. Section 6 provides the EPA's conclusion as to whether or not the proposal as a whole is environmentally acceptable.

### **Changes to EPA environmental policy and guidance**

The EPA introduced a new suite of environmental guidance for EIA on 13 December 2016. This replaced EPA policy and guidance that were current at the time of referral and preparation of the PER document for the proposal.

In its assessment of the proposal, the EPA considered and gave due regard to, where relevant, its current EIA policy and guidance documents. The EPA consulted the proponent on the application of the current EIA policy and guidance documents relevant to its environmental review and the EPA's assessment of the proposal.

## 4.1. Air Quality

### EPA objective

The EPA's environmental objective for this factor is *to maintain air quality and minimise emissions so that environmental values are protected.*

### Relevant EPA principles, policy and guidance

The EPA considers that the following current environmental policy is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Air Quality* (EPA, 2016b)
- Guidance Statement 3 – *Separation Distances between Industrial and Sensitive Land Uses* (EPA, 2005)
- EPA Report 1468 – *Environmental and health performance of waste to energy technologies* (EPA, 2013)

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Air Quality* (EPA, 2016b).

In addition to the relevant current policy and guidance above, the EPA also had regard to its approach to applying best practice in proposals in former policy, Guidance Statement 55: *Implementing Best Practice in Proposals Submitted to the Environmental Impact Assessment* (EPA, 2003). This includes that:

- all relevant environmental quality standards must be met;
- common pollutants should be controlled by proponents adopting Best Practicable Measures to protect the environment;
- hazardous pollutants should be controlled to the Maximum Extent Achievable, which involves the most stringent measures available. For a small number of very hazardous and toxic pollutants, costs are not taken into account; and
- there is a responsibility for proponents not only to minimise adverse impacts, but also to consider improving the environment through rehabilitation and offsets where practicable.

### EPA assessment

The EPA has assessed the potential impacts to air quality in the content of the considerations for EIA as outlined in the Environmental Factor Guideline: *Air Quality* (EPA 2016b).

The proposal has the potential to impact on air quality from generation of emissions, including nitrogen oxides, sulfur dioxide, carbon monoxide, particulates, acid gases, metals, dioxins, polycyclic aromatic hydrocarbons, and volatile organic compounds. The proposal is located within an industrial zone, and the nearest residential sensitive receptors are approximately 600 m east of the proposal.

## ***Impacts***

During thermal decomposition of tyres in the thermal conversion unit, process gas would separate from the char and wire in the heat tube discharge chamber. The process gas from the discharge chamber is passed into a condenser and cooled, causing an oil fraction to be produced and the residual gas to separate. The residual gas fraction comprises hydrogen, carbon monoxide, methane and other light hydrocarbons, and would be combusted in the thermal oxidiser. Following combustion, the residual process gas and exhaust gases from the thermal conversion unit combustion chamber and thermal oxidiser would be discharged to the atmosphere from a single 15 m tall stack.

The proponent commissioned Sigma Theta to undertake an Air Quality Assessment (July 2016). There are three operational scenarios for the proposed facility; normal, start-up and shutdown. However, the Sigma Theta assessment considered normal operations as it was considered by the proponent to represent the majority of the potential environmental risk. Meteorological data was obtained from the Perth Airport Station.

A mass balance was developed from compositional data of end-of-life tyre materials, the proposed feed rate during operation, and the key process design parameters. Aspects of the mass balance was verified through trials at a test plant incorporating key process elements of the TRRF. Emissions data derived from the mass balance and plant trials were then used to inform the air dispersion model. The dispersion model was undertaken using the AERMOD atmospheric dispersion model. Meteorological data were obtained from the Perth Airport station.

The key emissions generated from the thermal decomposition of tyres and the results of the air dispersion model include:

- oxides of nitrogen (NO<sub>x</sub>);
- sulfur dioxide (SO<sub>2</sub>);
- carbon monoxide (CO); and
- particulates (PM<sub>10</sub>).

The model results for direct emissions showed that there were no exceedances of the air quality criteria for GLCs at the nearest sensitive receptor.

A cumulative impact assessment for the TRRF's emissions was also undertaken to account for background concentrations of pollutants, including from other neighbouring industries and traffic. Site specific ambient air quality data for the Welshpool area was not available, so the proponent examined published data from the former DER monitoring network. For each individual pollutant, the proponent selected the worst case background level from across the metropolitan area. These levels were amalgamated to represent a theoretical worst case background scenario for Welshpool. In practice, the background levels at sensitive receptors in Welshpool are likely to be less than this theoretical worst case scenario. The former DER has advised that since the background pollutant concentrations were based on the maximum or high percentile from published studies, they may be conservative.



The EPA considers that the background levels chosen for the common pollutants (NO<sub>x</sub>, SO<sub>2</sub>, CO and PM<sub>10</sub>) are reasonable worst case values. Table 3 shows the GLCs from the proposed TRRF in isolation and cumulatively.

For the other pollutants, the predicted GLCs are all less than 1% of the relevant criteria with the exception of hexane (2.9%) and polycyclic aromatic hydrocarbons (PAH) (2.8%). The EPA notes that within the City of Canning there are no other emission sources of hexane reported in the National Pollutant Inventory. For PAHs, the Perth Traffic Corridor Study 2007-2008 (DEC, 2008) reported an annual average GLC of 27% of the criteria, which suggests the cumulative GLC for PAH is likely to be less than 30% of the criteria.

**Table 3: Predicted cumulative emissions of common pollutants at sensitive receptors**

Emission	Assessment criteria averaging period	Assessment criteria (µg/m <sup>3</sup> )	Direct emissions at sensitive receptors		Cumulative emissions at sensitive receptors	
			Max predicted GLC (µg/m <sup>3</sup> )	% of assessment criteria for GLC	Max predicted GLC (µg/m <sup>3</sup> )	% of assessment criteria for GLC
Nitrogen oxides (NO <sub>x</sub> )	1-hour	246	1.75	0.7%	91.7	37%
Sulfur dioxide (SO <sub>2</sub> )	1-hour	571.8	3.98	0.7%	164	29%
Carbon monoxide (CO)	8-hour	11249	0.31	0.0003%	2170	19%
PM <sub>10</sub>	24-hour	50	0.061	0.1%	29.5	60%

The former DER has advised that the modelling approach appears reasonable and is in accordance with the former Department of Environment Air Quality Modelling Guidance Notes (2006), and the technical assumptions made in the PER document are valid.

A sensitivity analysis was undertaken to consider a 10% feed rate increase and variations in the quantities of different tyres processed, including passenger tyres, truck tyres, and off-the-road tyres. The sensitivity analysis indicates that with variances in feed rate and feed composition, the TRRF would comply with air quality standards and would not significantly impact on air quality.

Odour could also be produced during the thermal treatment of tyres from the presence of sulfur species. However, processing of tyres would occur within enclosed buildings and gases would not be released to the atmosphere. The EPA expects that potential impacts of odour and dust generated by the TRRF can be mitigated through operating indoors.

### ***Monitoring and mitigation***

The proponent intends to undertake stack monitoring during commissioning for the key emissions identified. A campaign of stack emission testing would also be undertaken to validate the data used in the air quality assessment and to inform future emissions monitoring.



In the event that actual emission rates are higher than predicted, the proponent would implement contingency plans, which include undertaking an initial investigation to confirm the validity of the results and the status of the operating conditions for the tests. If there are exceedances of air quality from emission rates higher than predicted, the proponent has advised that the plant would be shut down while the process and operations review is carried out and improvements identified. The proponent would develop an appropriate action plan in consultation with the DWER (formerly DER).

The EPA notes that in designing this proposal, the proponent has demonstrated the application of the mitigation hierarchy to minimise emissions. The proponent has incorporated pollution control equipment into the design of the proposed plant. The low NO<sub>x</sub> burners, process gas condenser, thermal oxidiser design, and the 15 m tall stack will be utilised to ensure effective pollution control. Dust extraction systems will be installed on the char and carbon black handling circuits to manage the risk of fugitive emissions from equipment, and exhaust air from the extraction systems will be filtered in a baghouse before discharge to the environment.

The EPA has considered the EPA and Waste Authority's (2013) strategic advice for the pyrolysis component of the plant only (thermal conversion unit). The EPA notes that the thermal processing technology is proven at a commercial scale for other applications. The EPA also notes that the proposal includes pollution control equipment and the applications of best practice technology and equipment to ensure air emissions would not cause unacceptable environmental impacts.

### ***Other regulation***

The former DER has advised that this proposal will be a prescribed premise under Part V (Environmental Regulation) of the EP Act as described in the Environmental Protection Regulations 1987. The proponent would be required to hold a works approval prior to commencing any works on site, and to hold a licence prior to the commencement of any operations. Works approvals and licences can include conditions relating to the design and construction of facilities, the installation of pollution control equipment, the emissions criteria or limits that must be complied with, monitoring requirements, waste disposal, and regular reporting.

### **Summary**

The EPA has paid particular attention to:

- (a) relevant EPA principles, guidance and policy pertaining to Air Quality;
- (b) predicted emissions from the air dispersion model;
- (c) the former DER's advice that the model appears reasonable;
- (d) the pollution control measures and proposed monitoring; and
- (e) the sensitivity analysis undertaken on the variability in feedstock.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Air Quality, that the impacts to this factor are manageable and would no longer be significant, provided that:

- implementation of the proposal is consistent with the elements and authorised extent in Schedule 1 of the Recommended Environmental Conditions, including limiting the quantity of end-of-life tyres processed to 60 tonnes per day, consistent with the parameters for the air dispersion model (Appendix 5).

The EPA also notes that a works approval and licence is a statutory requirement under Part V of the EP Act. The EPA's view is that any requirement for emissions monitoring are best regulated through this process.

## **5. Conclusion and recommended conditions**

The EPA considers the principle of waste minimisation to be a relevant consideration in this assessment, and notes that the proposal would be recovering useful resources from end-of-life tyres for reuse and recycling that would otherwise be disposed of in landfill or stored in designated tyre storage facilities.

Having assessed the proposal against the EPA's objective for the key environmental factor of Air Quality, the EPA recognises that the proposal site is located in an industrial zone, and that the proposal could contribute to impacts on air quality. Consideration of predicted emissions cumulatively with background data was undertaken to assess air quality impacts on sensitive receptors in the neighbouring industrial and residential zones.

The EPA notes that the proponent has conservatively modelled emissions and that the existing background concentrations of pollutants assumed are conservative in its assessment of the proposal.

### ***Application of mitigation hierarchy***

Consistent with relevant policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts including:

- using pollution control equipment such as low nitrogen oxide burners in the combustion chamber and thermal oxidiser and removing the majority of sulfides through the process gas condenser;
- minimising the storage of chemicals and liquid fuels or solvents on site; and
- locating the plant within an enclosed building to reduce fugitive emissions.

## **Conclusion**

The EPA has taken the following into account in its assessment of the proposal as a whole:

- the potential impact to the air quality;
- the former DER's advice on the acceptability of the modelling predictions;
- the proposed pollution control equipment;
- the relevant EP Act principles and the EPA's objective for Air Quality; and
- the potential impacts to air quality are manageable and can be regulated under Part V of the EP Act.

Therefore, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 5.

## **6. Other advice**

### *Part V Environmental Regulation*

The EPA considers that the works approval and licensing process under Part V of the EP Act will be critical to ensuring acceptable environmental performance of the plant. To assist in this, the EPA advises that during the initial operation of the plant, more frequent testing of emissions should be required. The EPA also recommends that the results from emissions monitoring and reporting should be made publicly available through this process.

## **7. Recommendations**

That the Minister for Environment notes:

1. The proposal assessed is for the construction and operation of the TRRF at Lot 60, 9 Fargo Way Welshpool.
2. The key environmental factor identified by the EPA in the course of its assessment is Air Quality, and is set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 5.



# Appendix 1

## References

Department of Environment 2006, *Air Quality Modelling Guidance Notes*, Department of Environment, Perth, WA.

DEC 2008, *Perth Traffic Corridor Study*, Department of Environment and Conservation, Perth, WA.

EPA 2003, Guidance Statement No. 55 – *Implementing Best Practice in Proposals Submitted to the Environmental Impact Assessment Process*, EPA, Perth, WA.

EPA 2005, Guidance Statement No. 3 – *Separation Distances between Industrial and Sensitive Land Uses*, EPA, Perth, WA.

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Strategen 2017b, *Tyre Resource Recovery Facility – Response to Submissions on Public Environmental Review*, Subiaco, WA. Prepared for Elan Energy Matrix Pty Ltd.

# **Appendix 2**

## **List of submitters**

**Organisations:**

Former Department of Environment Regulation (now Department of Water and Environmental Regulation)

**Individuals:**

Private submitter 1  
Private submitter 2



# **Appendix 3**

## **Consideration of principles**

<b>EP Act Principle</b>	<b>Consideration</b>
<p><b>1. The precautionary principle</b></p> <p><i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i></p> <p><i>In application of this precautionary principle, decisions should be guided by –</i></p> <p><i>a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p><i>b) an assessment of the risk-weighted consequences of various options.</i></p>	<p>In considering this principle, the EPA notes that air quality could be significantly impacted by the proposal. Numerical modelling of pollutant emissions was therefore undertaken by the proponent to predict the ground level concentrations. The assessment of the potential impacts due to changes in air quality is provided in this report.</p> <p>The EPA notes that there is sufficient scientific evidence to evaluate the likely impacts to air quality, and assess them against relevant health criteria.</p> <p>From its assessment of this proposal the EPA has concluded that there is no threat of serious or irreversible harm.</p>
<p><b>2. The principle of intergenerational equity</b></p> <p><i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	<p>In considering this principle, the EPA notes that air quality could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.</p> <p>From its assessment of this proposal the EPA has concluded that the environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.</p>
<p><b>3. The principle of the conservation of biological diversity and ecological integrity</b></p> <p><i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	<p>In considering this principle, the EPA notes that air quality could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.</p>

	<p>The EPA notes that the proposal would be located on cleared land, within an existing building, and would not impact on biological diversity or ecological integrity.</p> <p>From its assessment of this proposal the EPA has concluded that the proposal would not compromise the biological diversity and ecological integrity of the affected areas.</p>
<p><b>4. Principles relating to improved valuation, pricing and incentive mechanisms</b></p> <p>(1) <i>Environmental factors should be included in the valuation of assets and services.</i></p> <p>(2) <i>The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i></p> <p>(3) <i>The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.</i></p> <p>(4) <i>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimize costs to develop their own solution and responses to environmental problems.</i></p>	<p>In considering this principle, the EPA notes that the proposal would address the issue of what to do with end-of-life tyres. Costs for processing tyres would be borne by tyre users, and the proponent would bear the costs of process pollution control and residual waste management.</p> <p>The EPA has had regard to this principle during the assessment of the proposal.</p>

**5. The principle of waste minimisation**

*All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*

This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factor of Air Quality.

In considering this principle, the EPA notes that the proposal will be minimising waste by recovering resources from end-of-life tyres for reuse and recycling.

## **Appendix 4**

### **Evaluation of other environmental factors**

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
<b>WATER</b>			
Inland Waters Environmental Quality	There is potential for contamination to the environment from spills of liquid fuels. Wastewater would also be generated on site.	<p><b>Public Submission</b></p> <ul style="list-style-type: none"> <li>The submitter is concerned that there is not enough information provided about the quantity of combustible liquids and solids kept on site, and how they will be safely stored and managed.</li> </ul>	<p>Inland Waters Environmental Quality was not identified as a preliminary key environmental factor in the ESD.</p> <p>The plant will be located within a concrete bunded area. Significant quantities of chemicals, liquid fuels or solvents will not be stored and liquid hydrocarbon and chemical wastes would not be produced at the proposal site. Wastewater would be recycled within the process, neutralised through the addition of caustic and stored in a tank for disposal through a licensed liquid waste contractor.</p> <p>Having regard to:</p> <ul style="list-style-type: none"> <li>the requirement for the proponent to obtain a Dangerous Goods Licence in accordance with the <i>Dangerous Goods Safety Act 2004</i>;</li> <li>the regulatory powers for the discharge of liquid wastes under Part V of the EP Act;</li> <li>Environmental Factor Guideline: <i>Inland Waters Environmental Quality</i> (EPA 2016c); and</li> <li>the significance considerations in the <i>Statement of Principles, Factors and Objectives</i> (EPA 2016a),</li> </ul> <p>the EPA considers it is unlikely that the proposal would have a significant impact on Inland Waters</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>Environmental Quality and can be managed to meet the EPA's environmental objective.</p> <p>Accordingly, the EPA does not consider <b>Inland Waters Environmental Quality</b> to be a key environmental factor at the conclusion of its assessment.</p>
<b>AIR</b>			
Air Quality	<p>The proposed plant would generate emissions and impact on air quality. The nearest sensitive receptors are in the residential area located 600 m to the east of the proposal site. There are also industrial premises surrounding the proposal site.</p>	<p><b>Public Submissions</b></p> <ul style="list-style-type: none"> <li>• Concern is raised about the potential health impact on the surrounding areas.</li> <li>• Concern is raised about the pyrolysis gas production and safety.</li> </ul> <p><b>DWER (formerly DER)</b></p> <ul style="list-style-type: none"> <li>• The technical assumptions of the Air Quality Assessment Report are valid and no further technical information is required to support the conclusions in the PER document.</li> </ul>	<p>Air Quality was identified as a preliminary key environmental factor in the decision to assess the proposal.</p> <p>Having regard to the potential air quality impacts, the <b>EPA identified Air Quality as a key environmental factor</b> at the conclusion of its assessment, and is discussed in Section 4.1.</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
<b>PEOPLE</b>			
Social Surroundings	The proposal is located in an area zoned 'General Industry'. The nearest resident is approximately 600 metres from the proposal area.	No submissions were received for this factor.	<p>Social Surroundings was not identified as a preliminary key environmental factor in the ESD.</p> <p>The plant will be located within existing enclosed buildings, and is expected to provide significant attenuation of noise emissions from operation of the shredder and thermal conversion unit.</p> <p>A noise assessment was undertaken to determine the potential noise impacts to neighbouring industrial and residential premises. Noise levels at residential premises were predicted to be compliant with the <i>Environmental Protection (Noise) Regulations 1997</i> (Noise Regulations). There is predicted noise exceedance at both the east and west neighbouring industrial boundaries.</p> <p>The proponent will undertake noise monitoring to validate the model results and should there be exceedance, mitigation measures including acoustic insulation would be installed for noise attenuation.</p> <p>Having regard to:</p> <ul style="list-style-type: none"> <li>• the predictions from the noise assessment;</li> <li>• proposed noise attenuation measures;</li> </ul>



Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<ul style="list-style-type: none"> <li>• Environmental Factor Guideline: <i>Social Surroundings</i> (EPA 2016d);</li> <li>• regulation under the Noise Regulations; and</li> <li>• the significance considerations in the <i>Statement of Principles, Factors and Objectives</i> (EPA 2016a),</li> </ul> <p>the EPA considers it is unlikely that the proposal would have a significant impact on Social Surroundings and can be managed to meet the EPA's environmental objective.</p> <p>Accordingly, the EPA does not consider <b>Social Surroundings</b> to be a key environmental factor at the conclusion of its assessment.</p>
Human Health	The proposal would produce air emissions, which could potentially impact on human health.	<p><b>Public Submissions</b></p> <ul style="list-style-type: none"> <li>• Concern is raised about the potential health impact on the surrounding areas.</li> </ul>	<p>Human Health was not identified as a preliminary key environmental factor in the ESD.</p> <p>Having regard to:</p> <ul style="list-style-type: none"> <li>• Environmental Factor Guideline: <i>Human Health</i> (EPA 2016e);</li> <li>• the assessment of air emissions under the key environmental factor of Air Quality; and</li> <li>• the significance considerations in the <i>Statement of Principles, Factors and Objectives</i> (EPA 2016a),</li> </ul>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>the EPA considers it is unlikely that the proposal would have a significant impact on Human Health and can be managed to meet the EPA's environmental objective.</p> <p>Accordingly, the EPA does not consider <b>Human Health</b> to be a key environmental factor at the conclusion of its assessment.</p>

## **Appendix 5**

**Identified Decision-making Authorities and  
Recommended Environmental Conditions**

### Identified Decision-making Authorities

Section 44(2) of EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities, and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified for this consultation:

<b>Decision-making Authority</b>	<b>Legislation (and Approval)</b>
1. Department of Water and Environmental Regulation Director General	<i>Environmental Protection Act 1986</i> Works approval and licence
2. Department of Mines, Industry Regulation and Safety Chief Dangerous Goods Officer	<i>Dangerous Goods Safety Act 2004</i> Dangerous Goods Licence
3. City of Canning Chief Executive Officer	<i>Planning and Development Act 2005</i> Development approval

RECOMMENDED ENVIRONMENTAL CONDITIONS

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED**  
**(*Environmental Protection Act 1986*)**

TYRE RESOURCE RECOVERY FACILITY

**Proposal:** To construct and operate a Tyre Resource Recovery Facility at Lot 60, 9 Fargo Way Welshpool in WA.

**Proponent:** Elan Energy Matrix Pty Ltd  
Australian Company Number 611 714 580

**Proponent Address:** 9 Fargo Way  
Welshpool WA 6106

**Assessment Number:** 2093

**Report of the Environmental Protection Authority:** 1601

Pursuant to section 45 of the *Environmental Protection Act 1986* it has been agreed that the proposal described and documented in Table 1 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

**1 Proposal Implementation**

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 in Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

**2 Contact Details**

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

### **3 Time Limit for Proposal Implementation**

- 3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date on this Statement, and any commencement, prior to this date, must be substantial.
- 3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

### **4 Compliance Reporting**

- 4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.
- 4-2 The Compliance Assessment Plan shall indicate:
  - (1) the frequency of compliance reporting;
  - (2) the approach and timing of compliance assessments;
  - (3) the retention of compliance assessments;
  - (4) the method of reporting of potential non-compliances and corrective actions taken;
  - (5) the table of contents of Compliance Assessment Reports; and
  - (6) public availability of Compliance Assessment Reports.
- 4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.
- 4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.
- 4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.
- 4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then

annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

- (1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;
- (2) include a statement as to whether the proponent has complied with the conditions;
- (3) identify all potential non-compliances and describe corrective and preventative actions taken;
- (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and
- (5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

## **5 Public Availability of Data**

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

- (1) a secret formula or process; or
- (2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

**Table 1: Summary of the Proposal**

<b>Proposal Title</b>	Tyre Resource Recovery Facility
<b>Short Description</b>	The proposal is for the construction and operation of a Tyre Resource Recovery Facility at Lot 60, 9 Fargo Way Welshpool, approximately 12 kilometres southeast of Perth in the City of Canning. The proposal includes processing of shredded tyres using a thermal conversion unit to produce char, steel wire, oil and gas.

**Table 2: Location and authorised extent of physical and operational elements**

<b>Column 1 Element</b>	<b>Column 2 Location</b>	<b>Column 3 Authorised Extent</b>
Tyre Resource Recovery Facility	Lot 60, 9 Fargo Way Welshpool (Figure 1)	Up to 0.46 hectares on cleared land, within existing buildings.
End-of-life tyres processed	Lot 60, 9 Fargo Way Welshpool (Figure 1)	Up to 60 tonnes per day.

**Table 3: Abbreviations and Definitions**

<b>Acronym or Abbreviation</b>	<b>Definition or Term</b>
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or his delegate.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i>

**Figures (attached)**

Figure 1 Tyre Resource Recovery Facility development envelope (This map is a representation of the co-ordinates shown in Table 4 of Schedule 2.





Figure 1 – Tyre Resource Recovery Facility development envelope

## **Schedule 2**

Coordinates defining the Tyre Resource Recovery Facility Development Envelope in Figure 1 are held by the Department of Water and Environment Regulation, Document Reference Number 2017-1496809463111