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Dear David

RE: Submission on the Draft Thermal Energy from Waste Regulation 2021

The Australian Sustainable Business Group (ASBG) welcomes the opportunity to comment on the *Draft Protection of the Environment Operations (General) Amendment (Thermal Energy from Waste) Regulation 2021* (EfW Reg).

The Australian Sustainable Business Group (ASBG) is a leading environment and energy business representative body that specializes in providing the latest information, including changes to environmental legislation, regulations and policy that may impact industry, business and other organisations. We operate in NSW and Queensland and have over 100 members comprising of Australia's largest manufacturing companies and other related businesses.

The key issues with the EfW Reg includes:

- The broadness of the range of capture and intent
- Clarification of Thermal Treatment
- Banning replacement of LPG and natural gas with waste derived fuels
- Errors in the legal framework
- Areas requiring clarification

1 EfW FRAMEWORK OVERVIEW

The EfW Reg. represents the legal end of the *NSW Energy from Waste Infrastructure Plan 2041* and other policy positions relating to Energy from Waste (EfW). Together these documents are referred to as the NSW EfW framework in this submission. The structure of NSW EfW framework appears more about dealing with the difficult planning issues and publically perceived image of waste incineration that the science of many different EfW processes and demonstrated performances, largely overseas of such facilities. In its form the EfW Reg. and the overall EfW framework will significantly limit waste incineration and, due to its lack of finesse, many alternative processes and badly needed recycling systems.

The medium term end result is that Greater Sydney will likely fill its non-putrescible landfills faster than the 2028 deadline. A longer term result will be virtually stopping many alternative, new and innovative waste management processes which can beneficially reuse or recycle waste streams. Lack of landfill space has already become acute with the difficulty NSW faces following the recent floods and the large quantities of waste which were generated. Large volumes of combustible waste were generated from the floods and, if reasonably sorted, could generate fuels for a fledgling EfW industry. However, the EfW Reg.

is more interested in public perception, using a regulatory structure which strongly discourages EfW facility development.

In brief the EfW Reg. tries to do too much in one short regulation resulting in a very blunt regulation with unforeseen consequences for NSW to site and develop EfW process as a meaningful way to save landfill space. It lumps most EfW processes and activities under a one-type-fits-all approach, limiting most to very specific locations, only separating certain types out for general location, both with server limits. ASBG considers the EfW needs to be more surgical, separating out different waste management processes such as mechanical, chemical, Advanced Recycling, thermal, incineration (combustion of simply sorted waste) and many other new and existing processes, instead of capturing under one classification. ASBG also considers many of the captured types of waste management systems should sit outside the EfW Reg. altogether.

While the EfW framework may have too much momentum to change course ASBG considers it needs to treat specific EfW processes differently:

- RDF and PEF manufacture – specifically outside the EfW Reg.
- Use of RDF and PEF and other waste derived fuels as fuel[1]
- Chemical processing, which includes Advanced Recycling (see section 3)
- Thermal process which burn specific waste derived fuel:
  - Type 1: High quality fuels, where the quality and variation of the fuel is low and the risk of precursor contaminants for pollutants of concern and variability is low
  - Type 2: Medium quality fuels, as above but with and increased moderate risk, largely specific RDFs, where variability is medium
  - Type 3: Low quality fuels, which are likely to contain precursors for certain pollutants such as halogenated hydrocarbons above certain concentrations and variability is high
- Waste incineration which uses mixed and variable wastes which likely contain contaminants of concern.

The above points are discussed in the submission reflecting an example of an alternative way to regulated processed captured under the EfW Reg.

2 BROADNESS OF CAPTURE

Under the EfW Regulation there are three definitions which result in the broadness of capture:

1. ***energy recovery*** means the recovery of energy, either as heat or as a fuel.

2. ***Thermal treatment'*** *is broadly defined - means 'the processing of waste by burning, incineration, thermal oxidation, gasification, pyrolysis, plasma or another thermal treatment process'. But does not include:*
   a) autoclaving
   b) biological processes, including anaerobic digestion and composting
   c) thermal processes where there is no change in the chemical composition of the waste
   d) incineration of waste for destruction or disposal
   e) thermal treatment of biosolids
   f) thermal treatment of contaminated soil,
   g) thermal treatment of scrap metal,
   h) the use of waste-derived fuel by a vehicle,

[1] Waste derived fuels in this submission means fuels as defined under the EfW Reg where eligible fuels are exempt.

i) the thermal treatment of waste plastic to produce plastic products, or inputs for plastic products, where at least 75% of the weight of the waste plastic thermally treated in a 12-month period is converted into plastic products or inputs for plastic products.

***3. Fuels*:** Fuels do not include *Eligible waste fuels* as listed in Part 3 of the NSW Energy from Waste Policy Statement and defined in Part 1 of the Eligible Waste Fuels Guidelines as for s128A of the EfW they are not considered a waste. So eligible fuels include:

- Biomass from agriculture
- Forestry and sawmilling residues
- Uncontaminated wood waste
- Recovered waste oil – derived from used oils
- Organic residues from virgin paper pulp activities
- Landfill gas and biogas
- Tyres only when burnt in an approved cement kiln
- Eligible waste fuels that also fall under the definition of a standard fuel as defined in the Protection of the Environment Operations (Clean Air) Regulation 2010 including:
- coal or coal-derived fuel, other than any tar or tar residues, or
- liquid or gaseous petroleum-derived fuel, or
- wood or wood-derived fuel, or
- bagasse.

In the past ASBG members reported the EPA applied the EfW Policy very broadly, by interpreting the meaning of '*other thermal treatment processes'* as *any waste process which operates at above ambient temperatures*. It can be expected that other definitions are likely to be treated in a similar broad manner, which is not considered the intent of the EfW Reg. As a consequence, using these three definitions and EPA potential interpretation, the following process could be captured under section *128B EfW Regulation – Prohibition on energy recovery from thermal treatment of waste:*

- **Refuse Derived Fuel** (RDF) & **Process Engineered Fuels** (PEF) – The manufacture of RDF or PEF which is not thermal treatment of plastics. (see mechanical processing of waste)
  Fuel test: RDF and PEF are fuels by their definition
  Thermal test: Virtually all processes undertaken (see Mechanical Processing) will occur above ambient temperatures, with parts of the process going well above ambient temperatures.
  Change in composition: Small changes in chemical composition will occur in waste due to chemical actions such as oxidation of metals (rusting ferrous items) and organics which are not biological. High energy mechanical processing can alter chemical composition of the waste. Wood and paper undergoes browning reactions during grinding operations.
- **Any process using any amount of waste derived fuel:**
  Fuel test: Any fuel generated from waste even if a fraction of the fuel is waste derived.
  Thermal test: Any process where ambient temperatures are exceeded – virtually all will be captured.
  Change in composition: Small changes in chemical composition will occur in waste due to chemical actions such as oxidation of metals and organics, which are not biological. High energy mechanical processing can alter chemical composition of the waste. The inclusion of the thermal treatment of scrap metal suggests the mechanical shredding processes are considered thermal in nature requiring its inclusion as an exempt thermal process.
- **Gaseous, liquid and solid hydrocarbons generated from a process that uses waste hydrocarbons:** involve a change in the composition of the waste using a *thermal process* including:
  - Waste oil processing where waste oils, waxes, and plastics are cracked or catalytically converted into non-oil fractions hydrocarbon potentially breaching the exemption of oil to oil processes – and considered a fuel.
    Fuel test: Any product is to be used as a fuel or made into a fuel or potential fuel

Thermal test: Waste oil processing will involve some form of heating of the materials above ambient temperatures and probably to above 200°C for catalytic processes and higher > 600°C for cracking.
Change in composition: Most of the feedstock will undergo composition change

- Petroleum refining where waste hydrocarbons are accepted – e.g. using waste oils or oils from Advanced Recycling to be cracked and via other processes into gasoline, diesel, LPG and other hydrocarbons. Most of the product could be considered a waste derived fuel as per the waste definition (d) POEO Act Dictionary
  Fuel test: Petroleum refining using some waste hydrocarbon inputs generates fuels as well as other non-fuel products. Some material is used for process heating.
  Thermal test: Cracking, distillation and many other processes use thermal processes hundreds of degrees above ambient. Most processes will have temperatures above ambient.
  Change in composition: Generally, a significant portion is chemically changed.

- **Advanced Recycling** (for plastics - discussed below): A chemical process where plastics are recycled into other chemical products including, oils, process gases, naphtha, monomers, and other hydrocarbons:
  Fuel test: Any product from the process is to be used as a fuel, though 25% is permitted under the plastic's test
  Thermal test: Advanced recycling captures a broad range of new chemical processes, most of which use temperatures above 200oC, but some plants can operate just under this temperature. All will operate some part of their process above ambient temperatures.
  Change in composition: Changing a plastic into a monomer or liquid hydrocarbon represents a general change in chemical composition.
  Plastics Test: Where 75% of the product is not converted into a plastic product or plastic input. This can permit up to 25% of the weight of the plastic input to be made into fuel for either internal or external use without being captured. Requires 75% plastic to plastic conversion.
- **Plastic waste reforming:** Almost all plastic waste recycling processing systems require reshaping of the plastic after shredding, washing and other pre-treatments.
  Fuel Test: Any material generated from the process that may be used as a fuel.
  Thermal test: Most reforming is undertaken above the melting point of the plastic/s being often around 200°C. Most other processes involving separation, grinding etc, will increase the temperature above ambient.
  Change in composition: Reforming of a small fraction of the plastic inputs occurs. This is demonstrated by the plastic odours generated from heating the plastic to above its melting point. While small there will be a change in chemical composition.
  Plastic test: Where 75% of the product is not converted into a plastic product or plastic input.
- **Mechanical processes involving waste:** This can include Material Recycling Facilities, wood recycling, paper recycling, C&D recycling etc.
  Fuel test: Captured if any of the recycled products made is potentially to be used as a fuel.
  Thermal test: As there is heat made from friction in the process this will almost always exceeds ambient temperatures. Temperature increases can vary considerably from a few degrees to many tens of degrees Celsius.
  Change in composition: Shredding of cellulose will generate small areas of high temperature, these can cause browning reactions changing the chemical composition of a small portion of the material.

As a consequence of the above RDF and PEF can be captured at both the manufacture and use stages. However, ASBG considers the intent of the EfW Reg. is not to capture the manufacture of such waste derived fuels. As a consequence, the definition of Thermal treatment requires clarification to ensure the regulator and the regulated are certain on if a process is captured or not.

By far the main environmental concern of EfW processes is air emissions. However, the EfW Reg. is so blunt and instrument it will ignore process where air emissions pose minimal risk. Here are a number of examples:

- Most mechanical and some chemical process can unitise operating temperatures of up to 200°C, which is also used in Queensland's EfW Policy. Air emissions at or lower than 200°C are minimal, with perhaps odour as the main issue, which can be easily managed. A 200°C threshold avoids capturing plastic remoulding by extrusion or other means.
- ASBG contends that higher temperatures should be set according to the environmental risks associated with the process. For example, if a thermal process is fully contained, making no air emissions or the air emissions are from natural gas, then the risk of air emissions is low as any gases generated are fully contained within the system. This is typical of Advanced Recycling discussed in section 4. A step down from this is where a process gas is used for heating use in the process, here only this combustion stream should be of concern. Note plants of this type not only can remove potential precursor contaminants of concern, but also potentially remove them within the process itself before the fuel component is burnt.
- Where larger portions of the process stream are used for combustion purposes the concern should focus on the quality of the fuel being used. If an EfW process generates a synthesis gas, or liquid fuel which is burnt, then the components which may cause an air contaminant of concern should be the focus. For example, using plastic based RDF to generate steam or electricity will result in a mix of combustion products. PVC in the input streams may result in formation of undesirable contaminant such as dioxin. Hence, good quality control to minimise the PVC, and scrubbing system to minimise such risks.

There are far better ways to manage the processes which are captured under the EfW Reg. As air emissions are the primary concern ASBG suggests focusing on the quality of the fuel and the process used. For example:

Base the amount of regulation on the quality of waste derived fuel used[2]. Three categories are suggested:

- Fuel type 1, a clean waste derived fuel with low contaminant levels similar to other petroleum and solid fuels like coal. No additional air pollution equipment would be required as to a comparable standard fuel. Variability in fuel contaminants would be low. This would include, but not limited to hydrocarbons streams from chemical processing, bio fuels and Advanced Recycling.
- Fuel type 2, a fuel with some contaminant levels which when burnt requires additional air pollution control systems in addition to that required for standard fuels. Risk in variability in fuel contaminants would be medium. RDF and PEF that have been well source separated to reduce undesirable contaminants to low levels. This fuel class can be further split into:
    - 2a fuels where its renewable content is for example > 50%
    - 2b fuels which have a renewable content of less than the 2a fuel
- Fuel type 3: fuels generated from the residue streams of recycling plants, which are to be generally burnt in waste incinerators. These fuels may have moderate to high levels of undesirable contaminants. The air pollution control systems required are far more extensive than for the other fuel types and designed to capture toxic air pollutants.

The processes captured under the EfW Reg. can be separated into types, again focusing on air quality risk. For example:

[2] Noted the EPA Eligible Waste Fuels Guidelines contains a set of fuel contaminant levels.

- Mechanical systems: These would generally be the processed making RDF and other solid waste derived fuels: Should not be subject to the EfW Reg. capture.
- Chemical systems: where the process streams are well contained with the plant structure. Only the thermal use of fuels would be subject to consideration if it should or should not be captured under the EfW Reg.
- Thermal systems using engineered fuels: RDF and PEF are examples of the types of fuels used.
- Waste incineration: Where the main fuel used is mixed wastes from recycling residues and other approved sources

Table 1 is an example of how process type and minimum operating temperature can be used to assess if a process should or not be covered under the EfW Reg.

Table 1: Example of Process Types and Minimum Temperatures for Management as an EfW facility				
Process Type	Fuel A	Fuel B	Fuel C	Threshold Temp. +l
Mechanical	N/A	N/A	N/A	>200°C
Chemical	Exempt	Covered	Covered	>350°C to capture catalytic combustion^
Thermal	Exempt	Covered	Covered	>450°C
Incineration	N/A	Covered	Covered	>450°C

+ The threshold temperature refers to the process stream where is energy extraction from a waste derived fuel. If the combination of process type and the fuel used is exceeded, then such a facility would be captured under the EfW Reg.
^ The temperatures provided are rough guides and would require further research to identify appropriate levels. 200°C is based on plastic moulding max temperatures. 350°C is based on catalytic combustion temperatures, 450°C is based on direct oxidation (combustion) of fuels

R1 ASBG recommends:

- ***Definition of waste derived fuel requires a threshold percentage of waste content to prevent standard fuels with small quantities of waste derived fuel to be exempt.***
- ***Thermal treatment definition requires significant modifications in the areas of:***
    - ***<u>Minimum temperatures which trigger a 'thermal process'</u> to be linked to a list of EfW process types where different minimum temperatures can be set for different categories of EfW process types. An overall minimum temperature should be at least >200°C.***
    - ***<u>No change in chemical composition</u>: At least a 10% change as a minimum, with other higher % amounts applied to a preferred list of EfW process types where different minimum temperatures can be set for different categories of EfW process types***
    - ***<u>Thermal treatment of biosolids</u>: This should also mean that industrial plants can use dry biosolids as an RDF and escape s128B?***
    - ***<u>Thermal plastic process:</u> Refer to Recommendation 2.***

3 EfW Treatment of Advanced Recycling

Advanced Recycling[3] is a term used to describe a large number of types of process which, in general, take waste plastics, and produce a liquid hydrocarbon stream. Very few Advanced Recycling plants produce a set of monomers, the basis for polymer production. While some Advanced Recycling plants can depolymerise, to plastic monomers stage, these type of processes require a very low contamination rates and usually only accept a single type of plastic and very low levels of contamination. They are generally

[3] See CSIRO's report Advanced recycling technologies to address Australia's plastic waste. August 2021

economically unviable as it is usually more economic to shred and reform and remake plastic product directly from such clean plastic streams.

Louisiana State Government RS 30:2153(2)-(5) defines:

> **"Advanced recycling"** means a manufacturing process for the conversion of post-use polymers and recovered feedstocks into basic hydrocarbon raw materials, feedstocks, chemicals, and other products like waxes and lubricants through processes that include pyrolysis, gasification, depolymerization, catalytic cracking, reforming, hydrogenation, solvolysis, and other similar technologies…

This captures many hundreds of different processes, many of which are suited to specific plastic waste streams, with some capturing a broader set. Requiring that 75% of the plastic waste entering the process to be made into plastic would severely restrict Advanced Recycling being set up in NSW. Consequently, ASBG does not understand the logic behind mandating plastic to plastic conversion. As can be seen by the Louisiana definition, Advanced Recycling makes plastic in to basic hydrocarbon raw materials, not into the plastic it accepts. To do this requires further downstream processing. In the USA, the hydrocarbon products can be used to replace crude oil in oil refineries or replace products from oil refining. A significance portion of the end use of the hydrocarbon stream can be made into non-fuel based products which includes inputs for basic plastic manufacture. These other products include monomers, feed for petrochemical industry, lubricating oils, bitumen etc. If NSW is serious in following its own Plastics Plan for NSW, it should be supporting Advanced recycling not limiting it to the specific product type; plastic.

The US EPA's National Recycling Strategy, states it would consider expanding the Strategy *beyond mechanical recycling to include advanced/chemical recycling*. Since 2017, ten USA states have passed Advanced Recycling-related legislation: Florida, Wisconsin, Georgia, Iowa, Tennessee, Texas, Ohio, Illinois Pennsylvania and Louisiana which removes Advanced Recycling from being a waste facility at all and supports its development. Like many petroleum refineries and petrochemical plants, the process streams in Advanced Recycling plants are all very well contained, subject to strict design, process, safety and environmental standards. Apart from combustion gases for process heating (which may not come from the feed stock), virtually all process streams are fully contained. In addition, Advanced Recycling plants usually clean up any synthesized fuels, purifying them before they are combusted, to achieve the necessary product quality and to manage air emissions.

If the purpose of requiring plastic to plastic recycling for 75% of the plastic is to limit greenhouse gases (GHG) then the EfW Reg. would do this by preventing a significant pertion of the plastic stream from being recycled. As a consequence, not having enough Advanced Recycling, the EfW Reg. combined with the plastic waste export ban, the plastics in the waste stream will be either:

- Landfilled. Using up very limited landfill space, or
- Converted into an RDF or PEF: where it would be burnt anyway. Note, plastic has a high energy density and an attractive solid fuel.

ASBG can only assume the requirement for a 75% conversion of plastic in to plastic out is to avoid making plastics into a fuel source. Again trying to manage GHG within the EfW Reg. However, this position is entirely contradictory within the EfW Reg as well opposing NSW Waste Strategies. If these are the alternative for plastic waste, why place the plastic to plastic condition on Advanced Recycling? There is even an argument here not to restrict plastics to non-fuel hydrocarbons, as the alternative is the plastic will be preferably (over landfilling) be made into RDF and burnt directly or burnt in a mixed waste stream. If Advanced Recycling is limited to one or two plants in NSW, then much of NSW's plastic will be burnt anyway as RDF or waste incinerator feed or be landfilled.

As the *NSW Waste Strategy & Sustainable Materials Strategy – A Guide to Infrastructure Needs* indicates Greater Sydney will run out of non-putrescible landfill by 2028, landfill should not be an option. In fact, landfill siting is an even more difficult to site than waste incineration siting from a planning perspective. The Guide says of plastic waste the BAU is:

- 760,000 tonnes of plastic from MSW and C&I sources entered the waste management system
- 80,000 tonnes was recycled into new plastic products (although a significant proportion was recycled overseas)
- 62,000 tonnes was recovered as a refuse-derived fuel
- Over 424,000 tonnes of potentially recyclable plastics was disposed.

This leaves 194,000 tpa, which is assumed to be so contaminated it is only suitable for EfW waste incineration, currently going to landfill. It then estimates that there will be a 47,000 tpa capacity deficit by 2030. To support innovation, the NSW Government is providing $5m in grants. This grant package includes supporting new plastics processing infrastructure which would include Advanced Recycling, but this is undermined by the EfW Reg.

A better approach is to permit Advanced Recycling plants to produce basic hydrocarbon materials which would be used as feed stock for further refining or processing either on site or off site. A consequence, can be used as a high quality fuel, lubricating oil or another plastic, which is a far better GHG and air pollution risk outcome than burning the plastic as a portion of mixed feed. If NSW or rather Australia wishes to manufacture the same amount of plastic, it consumes then this requirement should be placed on the downstream processes rather than the front end EfW process which the EfW Reg. uses. If there is still concern over the GHG outcomes of Advanced Recycling, then an acceptable percentage could be set for the hydrocarbon products to be made into non-fuel products. Such products would include inputs for conversion back into plastics or made into lubricating oils or other non-fuel hydrocarbon based or derived products. Table 2 below shows the products made from crude oil in the USA:

Table 2: Petroleum Products Consumed in the USA 2020[4]

Product	Annual US Consumption bbl/d	%	Type
Finished motor gasoline	8.034	44.34%	
Distillate fuel oil (diesel fuel and heating oil)	3.776	20.84%	
Hydrocarbon gas liquids (HGLs)	3.197	17.64%	
Kerosene-type jet fuel	1.078	5.95%	
Still gas	0.611	3.37%	
Asphalt and road oil	0.342	1.89%	non-fuel
Petrochemical feedstocks	0.286	1.58%	non-fuel
Petroleum coke	0.26	1.43%	
Residual fuel oil	0.217	1.20%	
Miscellaneous products and other liquids	0.152	0.84%	non-fuel
Lubricants	0.1	0.55%	non-fuel
Special napthas	0.045	0.25%	non-fuel

[4] Source US Energy Information Administration: Oil and Petroleum Products Explained

Table 2: Petroleum Products Consumed in the USA 2020 cont.			
Aviation gasoline	0.011	0.06%	
Kerosene	0.008	0.04%	
Waxes	0.004	0.02%	non-fuel
Total petroleum products	**18.12**	100.00%	
Total non-fuel products		**5.13%**	

As shown in Table 2, 5.13% of crude oil is made into non-fuel products (it is assumed Australia has a similar set of products from refining crude oil as does the USA). This table provides the likely reasonable non-fuel products if an Advanced Recycling plants hydrocarbon products were processed at an oil refinery. Note the special napthas[5] and a portion of petrochemical feedstock can be used as a feed to make plastic products. Most plastics are not made from such products, but from purified streams from natural gas, with ethylene as the main example. As flammable gases are more difficult to handle than liquid hydrocarbons, Advanced Recycling processes usually generate liquid products. On this basis a maximum level of Advanced Recycling. Using the hydrocarbon products from Advanced Recycling will replace fossil fuels, reducing Australian oil imports. The Government should be encouraging the development of Advanced Recycling, to the point where it can generate product streams of adequate economies of scale that can be used for non-fuel products. ASBG considers a reasonable product mix would start with a doubling (10%) of what oil refineries achieve in non-fuel product.

R2 ASBG Recommends the EfW Regulation:

- ***Specifically, not cover Advanced Recycling, addressing new plants under Schedule 1 POEO Act: 8 Chemical Production - Petrochemical Production***
- ***If it must be included, change the section on plastic waste in Thermal Treatment to:***

  i) the thermal treatment of waste plastic to produce hydrocarbon products, where at least 10% of the weight of the waste plastic thermally treated in a 12-month period is converted into non-fuel products or inputs for non-fuel products.

4 Less Environmentally Sound Fuel

As a consequence of the EfW Plan and the EfW Reg. there will be very few waste incineration facilities that will meet the locational and achieve planning consent. Plants that could use RDF, PEF or other waste derived fuels may fair better. However, the restriction of the exception under s128C(3) again do not appear supported by science or logic:

A person is not guilty of an offence under clause 128B if the activity prohibited by the clause—
(a) is carried out to replace a less environmentally sound fuel, where:

i. the less environmentally sound fuel was thermally treated, or was lawfully able to be thermally treated, immediately before the commencement day, and
ii. the energy recovered from thermally treating the less environmentally sound fuel, including any energy generated from the energy, is mostly used to power industrial or manufacturing processes on site.

[5] Napthas are the main product formed in Qenos' proposed Advanced Recycling plant, where it feeds into their polyethylene plant. Note Qenos' plant is perhaps the only one capable of converting a portion (less than 75%) of plastic inputs back into plastic in NSW.

Note: 'Less environmentally sound fuel' is defined to mean coal, coal derived solid fuel and petroleum based liquid fuel, but not LPG, natural gas or LNG. 'Mostly used' means at least 90% of the energy generated on site in a 12-month period is used on site.

ASBG can only assume the basis for this requirement is to reduce greenhouse gas emissions (GHG). However, this position on closer inspection, this position is flawed and could lead to increases in GHG if not corrected. There are two issues with this criteria:

1. The EfW Reg. should not be a mechanism to control greenhouse gas emissions. There are Commonwealth laws that do this, so why include it under the EfW Reg?
2. Replacing LPG and natural gas with waste derived fuels can result in a significant net greenhouse gas benefit. The energy content of the waste derived fuel often includes a high proportion of renewable sources, e.g. biomass (wood, paper, cardboard, green waste, etc.) or another renewable fuel. As such renewable waste derived fuel must also be considered *environmentally sound fuel*.

Even mixtures of renewable and non-renewable waste derived fuel should also be considered *environmentally sound fuel* provided the net GHG emissions generated is lower than the fuel it replaces. Consequently, replacing such renewable waste derived fuel with the fossil fuels of LPG or natural gas is greenhouse beneficial. If non-renewable component of the greenhouse gas emissions from the waste derived fuel is lower than for LPG or natural gas, it should be permitting if greenhouse gas control is the function of section 128C(3). At least the user of waste derived fuel should, at least, be given the opportunity to demonstrate the overall net non-renewable GHG emissions are less than the LPG or natural gas fuel it is replacing.

Another explanation is that the less environmentally sound fuels produce higher air emissions. However, the position that natural gas is 'cleaner' than other fuels is a very weak if not flawed. The CAR has higher limits for NO_x from natural gas 500 mg/m^3 compared to 350 mg/m^3 for other fuels used in boilers. Also other fuels, like petrol, diesel, oil etc, do not contain significant heavy metals or other precursors.

R3 ASBG recommends the EfW:

- ***Remove section 128C(3) and the definition of less environmentally sound fuel, or***
- ***As a minimum:***
  - ***Add a new definition:***
    <u>Acceptable replacement fuel</u> means a fuel derived from waste using a thermal treatment, which are not-eligible waste fuels, which contain a renewable fuel source at a concentration where when burnt in a specific process will generate lower greenhouse gases than burning LPG, natural gas or liquefied natural gas for energy.
  - ***Section 128C(3) includes a new section:***
    (aa) is carried out using an acceptable replacement fuel, where:
    (i) the acceptable replacement fuel, immediately before the commencement day, and
    (ii) the energy recovered from thermally treating acceptable replacement fuel, including any energy generated from the energy, is mostly used to power industrial or manufacturing processes on site.

In R2 the usefulness of section 128C(3) is not apparent and a reworking of the EfW Reg. in dealing with less environmentally sound fuel is a better path.

This submission has been prepared with the input and assistance of members of ASBG's Policy Reference Group (PRG).

Should you require further details and clarification of the contents of this submission please contact me.

Yours Sincerely

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