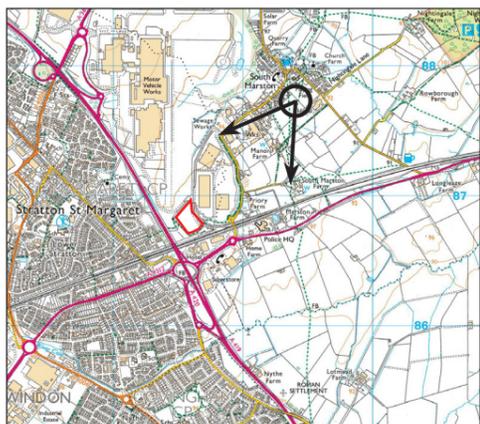




Existing view



Photomontage View



Camera make and model: Canon EOS 5D with a fixed 50mm lens.  
 Date & time of photography : 03.02.16 @ 12:29  
 OS reference : 419433, 187730  
 Viewpoint height : 95m  
 Distance to Site : 1.2km  
 Recommended Viewing distance : 30cm  
 Angle of view : 75°  
 Camera height set at 1.5m  
 Document dimensions (420mm x 297mm)



**VIEWPOINT 7**

**DRAFT**

**Keypoint, Swindon**

Client: Rolton Kilbride  
 DRWG No: **K0170\_29** Sheet No: **1 of 1** REV:  
 Drawn by: CS Approved by: RP  
 Date: 05/02/2016





ROLTON KILBRIDE  
POWERING THE FUTURE™

# Proposed Energy Centre Keypoint Swindon



- Founded 1980, Engineering Consultancy of the Year 2015/16
- Built environment expertise - clean energy and low carbon



- Infrastructure developers - renewable energy and logistics
- Winner of major awards - Environment Award, Castle Bromwich

Rail Terminal



MINISTRY OF DEFENCE

# What are we proposing

## Keypoint Swindon Energy Centre

- A **decentralised, off-grid energy recovery facility**, renewable power and heat from Refuse Derived Fuel (RDF) using very modern, clean-tech Advanced Thermal Treatment

## What are we proposing

- Opportunity to supply **lower cost energy to Swindon** - large local energy users & potentially low cost heat to homes
- Power and heat could be supplied via a **Community Interest Company** run by local people, to reinvest profits into the local community

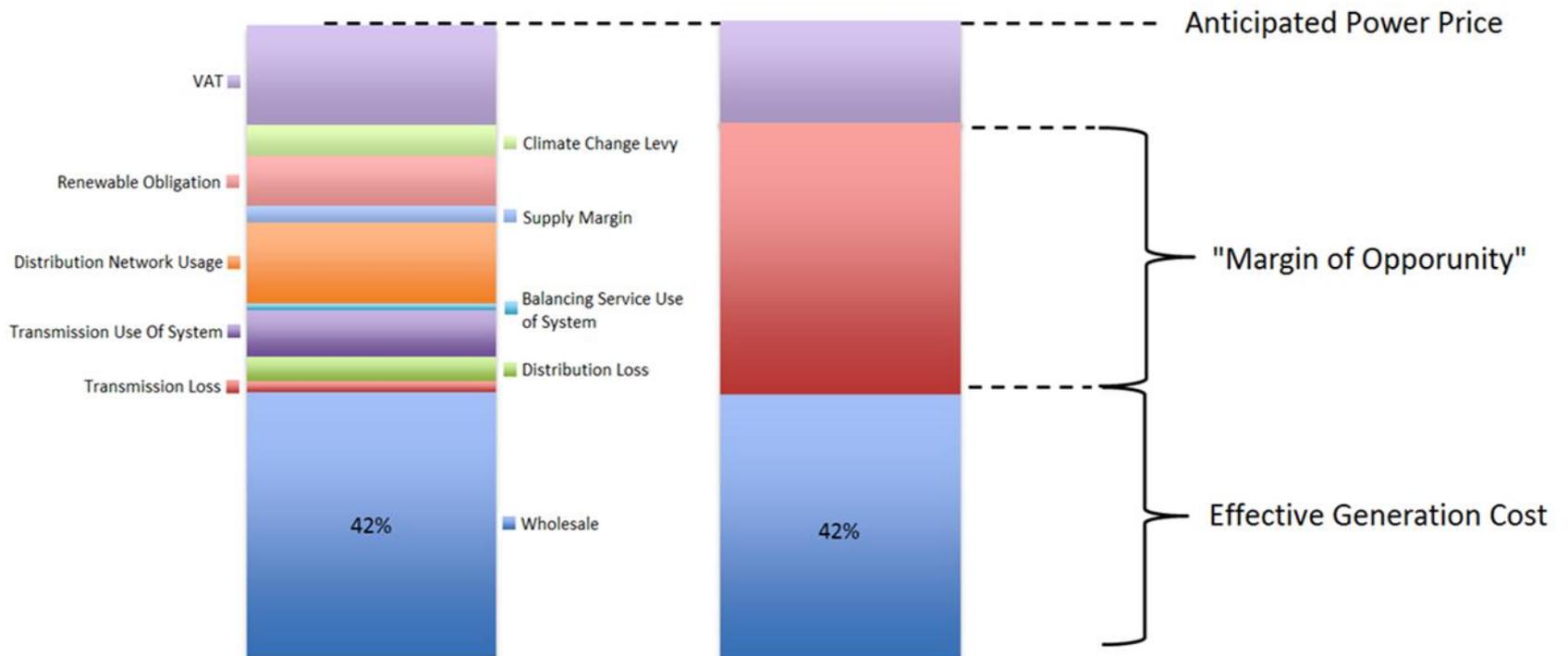
## Benefits

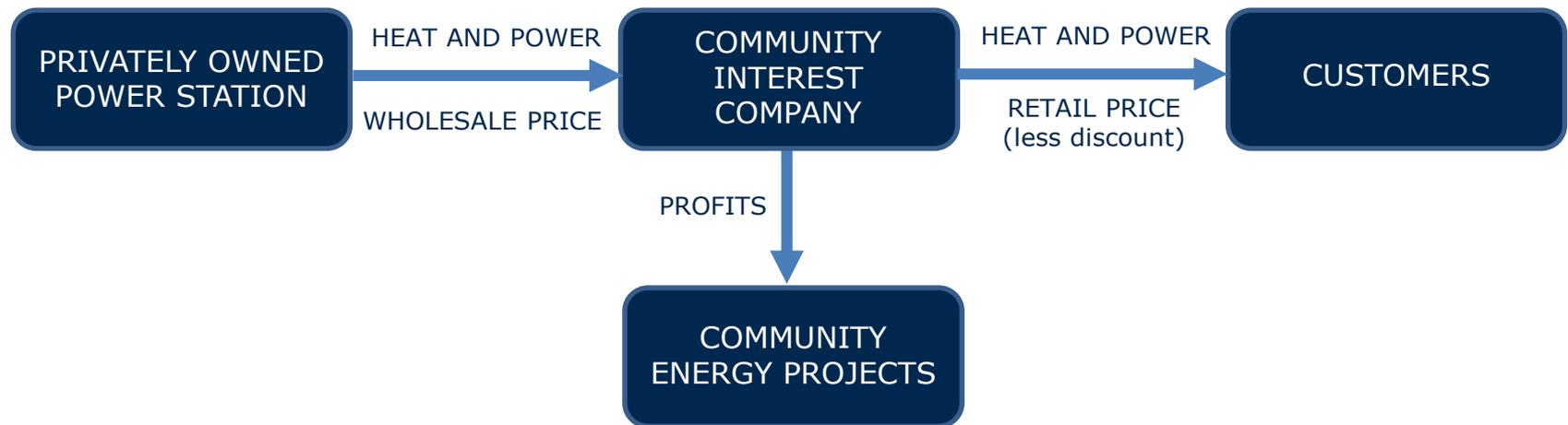
- **Reliable and economical alternative** to the UK's 'Big Six'
- **Renewable energy and heat for local businesses** – low cost, secure energy keeps Swindon attractive to big business - growth of local economy and jobs

## Benefits

- Significantly **reducing waste sent to landfill**, lower carbon footprint
- Potential for **lower cost heat to homes**
- Potential for **significant profits to return to Swindon & surrounding villages**
- Creation of up to **18 technical and managerial jobs, plus additional warehousing jobs**

## Margin of opportunity between retail and wholesale price for power



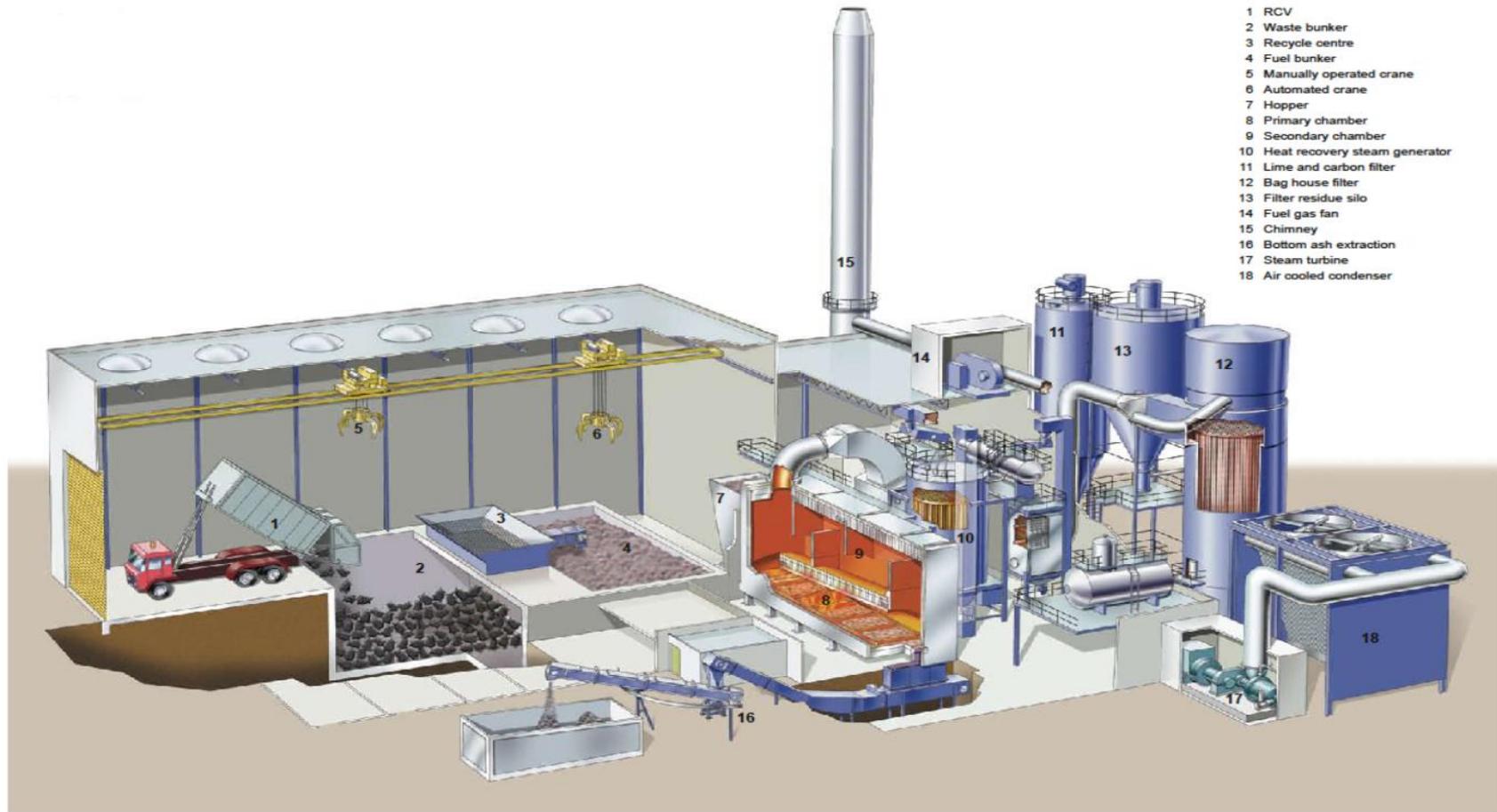




## Proven technology

- Generating 14.5 MWe (sufficient to power equivalent of 26,000 homes), heat: 1.5MWth
- Technology: Advanced Thermal Treatment

***No incineration – baking not burning***



## Sarpsborg, Norway



## Sarpsborg, Norway



ASSESS

PLAN

DEVELOP

NEGOTIATE

IMPLEMENT

DELIVER

## Sarpsborg, Norway



ASSESS

PLAN

DEVELOP

NEGOTIATE

IMPLEMENT

DELIVER

## Environmental factors

- **Full Environmental Impact Assessment** – part of planning process
- Emissions – modern clean-tech facility = **super low, highly regulated and controlled** – significantly exceeding all environmental requirements (European Standards)
- Designed to **Best Available Technique** as part of IPPC permit
- **Overseen by the Environment Agency** throughout operational life
- Approx. 35 deliveries/day (with supplier routing agreements in place to set routes and avoid peak traffic – no vehicles in local villages)
- **Reduction of waste going to landfill**



ASSESS

PLAN

DEVELOP

NEGOTIATE

IMPLEMENT

DELIVER

## Current actions and next steps...

- **Updating stakeholders** and gathering feedback
- **Specialist reports** to be shared with stakeholders
- Studies re. **feasibility of infrastructure** underway
- Planned **public information events** – 3-8pm, in South Marston and Stratton St Margaret early March 2016

## **APPENDIX 8**

# **QUESTIONNAIRE**

# Keypoint Swindon Energy Public Exhibition



- Roltan Kilbride is undertaking public consultation in respect of the above development, prior to the preparation and submission of an application for planning permission.
- The consultation process seeks the views of interested parties on the proposals to assist in the preparation of the planning application.
- After looking at the Site Context Plan, Layout Plan and Display Boards and talking to our team, you can use this form to let us have your views.

1. Have you found the event informative in answering your questions about the project?

Yes  No

2. Are you concerned about climate change?

Yes  No

3. Do you support the Government's policy to have renewable energy targets?

Yes  No

4. Do you support the idea of producing energy using non recyclable waste that would otherwise go to landfill?

Yes  No

5. On a scale of 1 to 5, how supportive are you of the proposals for the Renewable Energy Centre on the site?

Least Supportive	1	2	3	4	5	Most Supportive

Please expand on your reasons for the grading below.

.....

.....

.....

.....

6. Are there any additional facts about the site and local area that we should be aware of in further developing our proposals?

.....

.....

7. Please use this space for any other comments or suggestions you may wish to make.

.....

.....

8. Please tick the following relevant group:

Gender: Male  Female

Age: Under 18  18-35  36-55

56-70  Over 70  Prefer not to say

Your location to the site: Within 5 minutes walk  5-10 minutes walk

A car journey  Prefer not to say

## **APPENDIX 9**

### **KEYPOINT SWINDON ENERGY.CO.UK WEB PAGES/ FREQUENTLY ASKED QUESTIONS**



# Contact Us

Name\*

Email\*

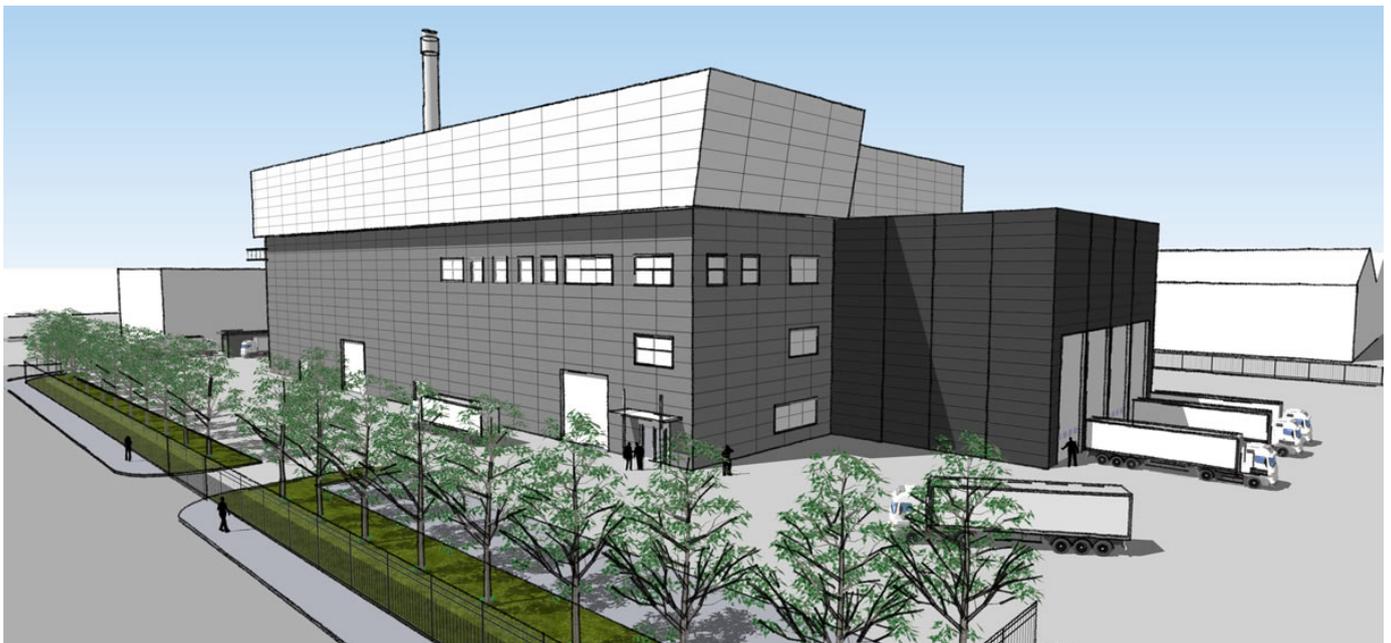
Telephone

Address

Query\*

Send Message...

\* Required field



**t: 01869 715090 (tel:01869 715090)**

**e: [info@keypointswindonenergy.co.uk](mailto:info@keypointswindonenergy.co.uk) (mailto:info@keypointswindonenergy.co.uk)**

**[Site Map \(/sitemap/\)](#) | [Privacy & Cookies \(/privacy/\)](#)**

©2016 Keypoint Swindon Energy.



---

## Local Benefits

- The centre will offer energy security for local organisations at a competitive rate. The centre has potential to benefit the local economy, helping businesses in the area to be more competitive
- The centre will offer a sustainable and predictable energy source, using the latest innovative technology to future-proof energy supply
- There are significant green benefits for the local community, with effective use of resources and a lowering of the carbon footprint
- Whilst the project is still in early stages it is predicted that around 20 jobs will be created, with an emphasis on local skills
- The project will fit in with government policy to provide sustainable, renewable energy production close to use, moving away from the 'Big 6' energy providers

[Site Map \(/sitemap/\)](#) | [Privacy & Cookies \(/privacy/\)](#)

©2016 Keypoint Swindon Energy.



---

The centre will take non-recyclable waste from the region, and bake it at high temperatures using Advanced Thermal Treatment.

The absence of Oxygen from the process means the fuel is baked, rather than burnt, and the level of the emissions are therefore significantly reduced. This is one of the cleanest ways to produce energy.

When built, the Energy Centre will produce energy that will be able to provide local businesses with low cost, low carbon heat and electricity. This creates a joined up process where non-recyclable waste is used as a resource to generate local energy. Currently, such waste is sent to landfill, mass burn incinerators, or to other European countries such as Holland - at significant cost - where it is processed and the energy sold back to the UK.

The Energy Centre will generate 14.5 megawatts per hour of electricity on a continual basis subject to scheduled maintenance shutdown. Local commercial energy users would be offered a sustainable and predictable supply of power at a competitive rate.

Emissions would be continually monitored, tested and actively managed. The technology involved is tightly regulated, licensed by the Environment Agency through the life of the project, and subject to a number of European and UK standards.

The site will also include additional warehousing, which will be an extra source of jobs for the area. Keypoint has been identified as an ideal location, as it is within an existing industrial site and close to local businesses. Proposals for delivery of material will be organised to minimise the movement of vehicles as much as possible, to reduce the impact on traffic in the local area.

**[Site Map \(/sitemap/\)](#) | [Privacy & Cookies \(/privacy/\)](#)**

©2016 Keypoint Swindon Energy.

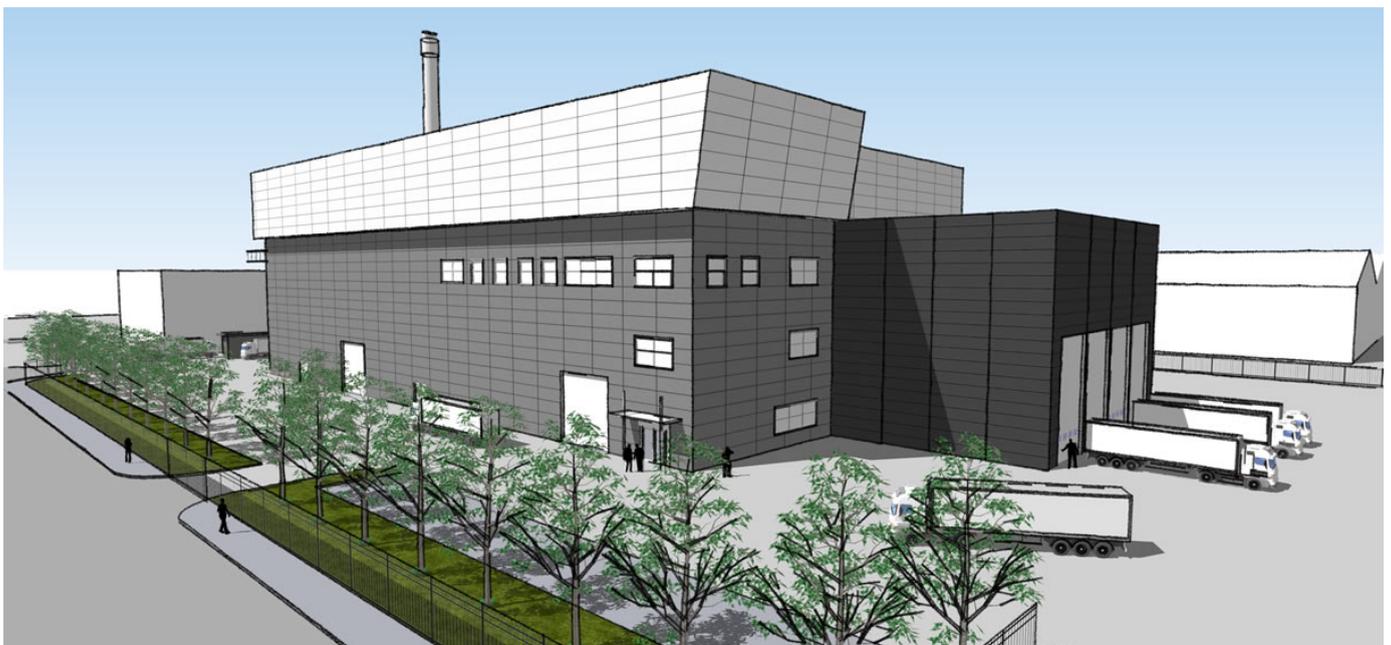


Welcome to Keypoint Swindon Energy. We hope to create a decentralised, off-grid Energy Centre at Keypoint Swindon. This has the potential to offer local businesses lower cost energy, providing a secure, predictable and sustainable energy source.

The Energy Centre will use proven cutting-edge Advanced Thermal Treatment technology currently deployed in Norway, to produce renewable energy. Waste that can't currently be recycled is converted into cheap, clean energy which can provide power and heat at a lower cost for local commercial energy users.

**Benefits include:**

- production of renewable electricity and heat for local use
- bringing down the cost of doing business - attracting and retaining businesses in Swindon
- offering a sustainable and predictable energy source
- helping to grow the local economy
- creating a range of jobs including technical and managerial for the local area
- fitting in with government policy to provide sustainable, renewable energy production close to use, moving away from the 'Big 6' energy providers
- helping to decarbonise the economy



Join us...

We will be holding two informal drop-in events for local residents to find out more about the proposals as well as an opportunity to meet with the experts behind the project.

- Thursday 3 March between 3pm and 8pm at **Mercure Swindon South Marston**
- Friday 11 March between 3pm and 8pm at **Meadowcroft Community Centre**

[Site Map \(/sitemap/\)](#) | [Privacy & Cookies \(/privacy/\)](#)

©2016 Keypoint Swindon Energy.



# Rolton Kilbride – development of UK gasification projects

## FREQUENTLY ASKED QUESTIONS

### INDEX

#### 1. The Applicant

- Who is Rolton Kilbride?
- What is its experience in energy generation?

#### 2. The Proposal

- What is being proposed?
- Why do we need this development?
- What is RDF or SRF?
- What can't all waste be recycled?
- What is the difference between RDF and SRF?
- Which other countries burn RDF and SRF to generate energy?
- What about climate change?
- Are there any local customers for the heat?
- How long will it take to build?
- How much energy will be generated?
- Who will operate the facility?
- How many people will it employ?

#### 3. The Site

- Where is the plant application sited?
- What was the former use of the site?
- Why has the Keypoint site been selected?
- Have any other alternative sites been considered?
- What do local planning policies say about the selected site?
- Who is responsible for granting planning permission?
- What size would it be?
- What will the facility look like?

#### 4. The Technology

- How does a gasification facility work?
- Where else is this technology used?
- What are the benefits of gasification?
- Isn't this just an incinerator?
- Could the plant explode?
- Is this technology the same as plasma gasification technology?
- How efficient is the process?
- What is the 'R1' efficiency measure which is sometimes talked about?
- What about the ash left over after gasification – is that harmful?
- What else is left as a residue from the process?



## 5. The Facility and Health

Is the facility safe?

Who monitors the facility?

What about the chimney stack?

How has the height of the chimney stack been decided?

How have the health risks of the facility been assessed?

Who will monitor the facility for safety and compliance?

What about starting up and shutting down?

What comes out of the chimney stack?

What about dioxins and furans?

Is it true that people living near such facilities have a higher chance of developing cancer?

What studies have been done into the impact of energy from waste on human health and the environment? Where can I find out more information?

What about very fine particles (nano particles)?

Will there be a visible plume?

## 6. The Environment

What impact will this facility have on the environment?

What is an Environmental Impact Assessment (EIA)?

Who does the EIA and how do you ensure it is independent?

What about the visual impact? Would the plant be visible from miles away?

How much traffic will there be? How many heavy good vehicles will be coming and going?

What measures are being taken to avoid creating traffic jams or more congestion?

What are the proposed routes to and from the facility? Can delivery vehicles take short cuts?

Has rail been considered for bringing in the RDF?

What are the delivery and collection hours proposed for the facility?

What about the other traffic on the road, such as housing developments and schools?

Does the EIA take into account proposed new developments too?

More traffic means more diesel fumes. What will be done to ensure that the air quality is not affected by the facility?

What noise can be expected?

Will it be noisy during construction?

What about odour?

Does the process extract water from or discharge water into the river Nene?

## 7. Local Community Benefits

How will the facility benefit the local community?

What jobs will be created - how will local people benefit?

What about construction employment opportunities?

## 8. Planning and Public Consultation

How long will the planning process take?

Where can I go for more information?

What if I disagree with the proposals?



## CONTENT

### 1. The Applicant

#### Who is Rolton Kilbride?

Rolton Kilbride is a privately owned developer of Renewable Energy Centres. Rolton Kilbride is also working with a set of highly specialised technology partners and advisers who have extensive experience in the field of energy generation, gasification and the use of modern environmental technology.

#### What experience has Rolton Kilbride got in energy generation?

The senior management team have successful, established track records in infrastructure and energy, having worked in this field over many years. They have significant experience in developing Energy from Waste plants, Anaerobic Digestion plants, large scale solar and wind installations.

### 2. The Proposal

#### What is being proposed?

The proposal to be submitted to Swindon Borough Council is for the construction and operation of a Renewable Energy Centre (REC). The facility will recover energy non hazardous residual waste in the form of heat and electricity. The proposal includes a gasification plant with equipment for energy recovery, the necessary associated infrastructure, an industrial warehouse to be used for storage and distribution, new vehicular access and appropriate landscaping.

#### Why do we need this development?

There is a need to generate renewable energy in the UK, and to produce electrical power and heat at the same time. A facility operating in this manner is known as a Combined Heat and Power (CHP) plant, which is widely recognised as being one of the most efficient methods of generating energy. CHP developments are being strongly encouraged by Government to increase energy efficiency in the UK.

There is also a need to deal efficiently with the residual waste that remains after recycling efforts have taken place, which is not practical to reprocess into new products. The best way to deal with this residual material is to recover energy from it, through a facility such as the one proposed in this application.

#### What is RDF or SRF?

Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF) is produced from the residual left over waste after extensive recycling has taken place. In this case, the waste comes from two sources: municipal solid waste (MSW), which comes from households and municipal facilities, and non-hazardous commercial and industrial (C&I) waste (such as packaging materials). The recycling systems used beforehand include kerbside collections for specific materials, other segregated collection systems and 'bring to' centres, mechanical separation plants and also some biological processing to reduce organic content. As a result, the national recycling rate for MSW was 44.9% in 2014 (DEFRA), which shows the levels currently being achieved in the UK.



### **What is the difference between RDF and SRF?**

There is no real difference between the terms Refuse Derived Fuel (RDF) and Solid Recovered Fuel (SRF), except that SRF has to meet specific technical criteria (such as particle size and moisture levels) in order to meet certain European quality standards. RDF is more generic in nature. Both SRF and RDF are extensively used in Europe and the UK for energy generation in industrial applications, such as cement kilns. They are also used in dedicated energy recovery facilities, such as gasification plants. RDF and SRF are both waste derived fuels.

In this application, the fuel for the facility is referred to as RDF for simplicity.

### **Why can't all waste be recycled?**

It is simply not practical or possible to do so in our modern society, although it's worth noting that the UK has made massive strides from being one of the worst recyclers in Europe in 1991 (at only 6% with virtually everything else being sent to landfill) to being amongst the best today, when like for like comparisons are made. For example, whilst the UK is at 44.9%, Germany is at 43%, the Netherlands at 52% and Denmark at 58%.

Examples of materials which cannot be recycled are plastic films like the ones that cover ready meals, some types of textiles, many laminated materials (such as certain types of crisp packets), disposable nappies, paper and card contaminated with food.

### **Which other countries burn RDF and SRF to generate energy?**

Almost all countries in the EU use RDF and SRF to generate energy. They have been active in using this fuel in combined heat and power plants to provide energy for local communities for many years prior to the UK beginning to develop such facilities.

For example, Sweden has 32 such facilities, Denmark 27, Germany 81, Switzerland 30 and Austria 13 (see [http://www.cewep.eu/information/data/studies/m\\_1459](http://www.cewep.eu/information/data/studies/m_1459)). All these countries have a strong and well-deserved reputation for environmental security and the achievement of high operating standards. The UK is now beginning to match this type of efficient facility.

### **What about climate change?**

The REC will be equipped with modern technology that maximises environmental efficiency and effective use of the RDF. This will recover energy in the form of electricity and heat (as steam or very hot water).

Over 50% of the RDF is biomass or organic material; in other words, food or plant based material and degradable carbon such as paper, cardboard, natural fibres and wood. As a result, energy generated from it is classed as renewable and carbon-neutral energy. The proportion of biomass will vary according to the where the waste has come from and the processes used to produce it.

When burnt, fossil fuels such as oil, gas and coal all release much larger quantities of carbon dioxide (CO<sub>2</sub>) than RDF. Being able to use RDF instead of these fuels is known as 'offsetting' and is recognised as being an effective way to reduce the impact on the environment through climate change.

### **Are there any local customers for the heat?**



The application site is set in an industrialised location, providing considerable potential for the export of heat from the REC. This could be to commercial properties in the locality. These prospective users may also be interested in the exported power.

Constructive discussions have been held with some potential customers who could use the heat, instead of having to generate it themselves using fossil fuels, such as gas or oil.

However, at this stage, potential consumers generally view the REC as a simple utility provider, so not unreasonably, they are reluctant to commit to serious discussions for the supply of heat and power until planning consent is secured and the development is likely to proceed. As a result, these discussions have to remain commercially confidential.

#### **How long will it take to build?**

The facility will take roughly 24 months to construct, with an additional 6 months commissioning and testing at the end of that period.

#### **How much energy will be generated?**

The proposed facility is capable of generating 14.5 MW/hr of electricity and 1.5MW of heat. This may decrease as the amount of heat exported to any local user increases, depending on the temperature and quantity of heat that is required. Both the electricity and heat can benefit local consumers.

#### **Who will operate the facility?**

Rolton Kilbride will not operate the plant. Instead, the facility will be operated under contract by an experienced company with an established track record of operating similar energy generating plants using waste fuels such as RDF. Due to the number of similar facilities now operating in the EU and worldwide, there is no shortage of such companies and interest in the operating contract. The storage warehouse may be operated by the same, or a different, contractor.

#### **How many people will it employ?**

The facility will employ 20 full time operators, maintenance technicians, engineers and managers. The warehouse and storage facility could employ up to another 40 people Experience indicates that these people are most likely to be recruited and live locally to the facility. Full specialist training is provided and the potential to include apprenticeships is being explored, too.

### **3. The Site**

#### **Where is the plant application sited?**

The site is on available land at Keypoint 145, Thornhill Road, Swindon, Wiltshire SN3 4RY.

#### **What was the former use of the site?**

The site was previously part of the South Marston aerodrome, which also provided the land for the Honda plant to the north.

#### **Why has the Keypoint site been selected?**

The site at Keypoint is located in an industrial area and large enough to accommodate the proposed Renewable Energy Centre. This is in line with the Waste Core Strategy, which makes provision for locations for energy from waste facilities on non-allocated sites that are within industrial land or



allocated for employment. The Strategy also sets out that strategic waste facilities should be sited within 16 km of Swindon so that waste can be treated close to its origins, avoiding unnecessary transportation. Its position close to main roads means that that associated traffic will not need to run close to or through residential areas, while being near enough to Swindon to make it accessible. In addition, the site has been allocated in the Swindon Local Plan as an employment site – and the REC will employ up to 20 people, with another 10 through the supply chain. Finally, Keypoint is close to industrial and commercial companies with potential to become customers for the heat or energy.

#### Have any other alternative sites been considered?

Other sites were considered within the Swindon area. However, the application site is appropriately located within an industrial area, is relatively remote from residential properties. It is in an area that is not environmentally sensitive, with no statutory protected nature conservation or heritage sites within or in close proximity to the site; there is a tree preservation order on the trees, which are planned to be part of the site's landscaping scheme. Furthermore, the site is in close proximity to the strategic road network and to industrial development, which could potentially be recipients of the generated heat and/or electricity.

#### What do local planning policies say about the selected site?

The site is compliant with the Waste Core Strategy, which makes provisions for non-allocated (or new) sites for waste treatment provided they are for energy from waste, and set in industrial areas or allocated for employment. The strategy also states that strategic waste facilities should be within 16km of Swindon. Finally, the Swindon Local Plan allocates the site as a potential employment site. Keypoint fulfils all these conditions.

#### Who is responsible for granting planning permission?

Swindon Borough Council is the responsible Local Authority. Once the planning application has been submitted, the Council will consult with statutory consultees to seek their views on the proposed development. Members of the public will also have an opportunity to contact the Council to state their views. The Case Officer will consider the details of the planning application and how it complies with the policies of the statutory development plan, and other considerations including the views of the statutory consultees and members of the public. The Council will then prepare a report to inform the planning committee of the details of the application and make a recommendation as to whether the proposals should be granted planning permission or not, and state the reasons why.

#### What size would it be?

The Renewable Energy Centre main building will be approximately 88m long and 73m wide, with the highest point of the roof 24m above ground level. The Turbine Hall will measure approximately 30m long by 15m wide x 15.6m high and a Gatehouse 5m long x 3m wide x 3m high. There will be other structures and plant, which will generally be located adjacent to the main building. The flue stack will measure 52m high.

The industrial warehouse will measure around 52m long x 45m wide x 17.1m high and be accompanied by a Gatehouse measuring around 5m long x 3m wide x 3m high.

The plans ([www.keypointenergy.co.uk](http://www.keypointenergy.co.uk)) show the relative sizes. There will be other buildings on site, but these will be smaller by comparison.

The size of the buildings is set into context against other buildings in the location.



### What will the facility look like?

See the plans on the website at [www.keypointenergy.co.uk](http://www.keypointenergy.co.uk)

## 4. The Technology

### How does a gasification facility work?

Gasification describes the process by which material (RDF in this instance) is converted into a synthetic gas (and ash) by using an external heat source in a low oxygen environment. The process is similar to that used for making town gas from coal, which has been done for decades. The syngas is combusted in a high efficiency boiler and the heat generated is used to raise steam for a turbine, where electricity is generated. In addition, a proportion of the heat generated can be supplied for use in external applications, either as steam or very hot water. Heat is recirculated from the gas combustion process to heat up the incoming RDF to create more syngas so only a small amount of fossil fuel (usually natural gas) is required to kick-start the process. Gasification is classed as an Advanced Conversion Technology (ACT).

### Where else is this technology used?

Gasification technology has been used for over 100 years, and it was the basis of town gasworks using coal before being replaced by North Sea gas. The technology has also been used with various types of waste for some decades. Its application to mixed wastes, such as RDF, is more recent, although many commercial scale plants have been constructed in the last 20 years.

There are numerous working gasification plants successfully using RDF, particularly in Scandinavia and Japan. The technology proposed for this application has a successful track record of dealing with RDF.

There are a number of similar gasification plants being built in the UK at present, for example in Milton Keynes, Derby, Hull and Lenseat in Scotland.

### What are the benefits of gasification?

Gasification is a highly efficient process with very low emissions. It is a naturally low Nitrogen Oxide (NOx) process - NOx is one of the main road traffic pollutants. Gasification plants may also be more adaptable and flexible in the long term to be converted to an even higher efficiency energy conversion process, where the synthetic gas is burnt in an internal combustion engine.

### Isn't this just an incinerator?

No. Incineration purely on its own is classified as a waste disposal technology on the waste hierarchy, whereas gasification with an efficient energy recovery system is a **recovery** process, which means energy is recovered for use. In addition, waste incineration works as open combustion in an oxygen rich environment; whereas gasification creates a synthetic gas in the absence of oxygen.

When incineration plants are equipped with energy recovery equipment, the term 'energy from waste' or EfW plant is usually used; this is sometimes also applied to gasification plants with energy recovery systems.

### Could the plant explode?

No. The gasification plant works slightly below atmospheric pressure the whole time, because large fans pull air through the system constantly. There is nothing inside the plant to cause an explosion and there is no pressure to release.



### **Is this technology the same as plasma gasification technology?**

No. Plasma gasification uses a very high temperature plasma 'torch' to achieve the conversion process, whereas normal gasification technology uses recycled heat from the combustion of the gas in order to create the syngas. This is one reason why the process can be so efficient.

### **How efficient is the process?**

Gasification is a very efficient method of converting waste fuel into electricity, which can be made even more efficient by also utilising the heat generated by the facility in the local area. The more heat the facility exports, the higher the overall efficiency achieved. The efficiency of the facility will therefore increase over time, as a heat export network is developed, established and expanded.

### **What is the 'R1' efficiency measure that is sometimes talked about?**

The term 'R1 Energy Efficiency Formula', as defined by the EU Waste Framework Directive (WFD) can be used to qualify an incinerator as a 'recovery operation'; however this measure is intended to be applied to incinerators which are dedicated to municipal waste, not RDF as this facility is proposing. In the past, it has most commonly been used by plants on the continent that wish to import waste from other countries in the EU.

The recently revised Waste Framework Directive (WFD) now specifies that incineration facilities dedicated to the processing of municipal solid waste can only be classified as R1 where its energy efficiency is equal to or above an R1 score of 0.65 or above for installations granted a permit after 31<sup>st</sup> December 2008.

The proposals to be submitted to Swindon Borough Council will not use municipal waste exclusively, but will utilise RDF which originates from a number of sources, all of which have already been subject to intensive recycling systems.

It is also important to note that R1 classification is not a requirement to obtain planning consent for a gasification facility. Even so, Rolton Kilbride is confident that the proposals can obtain R1 status during the operational phase, as the facility is designed and intended to be capable of exporting heat to local consumers.

Further information can be found at the following Environment Agency website:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/361544/LIT\\_5754.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/361544/LIT_5754.pdf)

### **What about the ash left over after gasification – is that harmful?**

No. The bottom ash from the gasification process is an inert or inactive material that remains at the end of the cycle and represents around 17% of the intake tonnage. This ash can be recycled in a variety of ways, to comply with the Environment Agency operating permit requirements. Examples of reuse include as a secondary aggregate replacement material, as a sub-base for roads and as material for temporary road construction on landfill sites. As with the rest of the process, the recycling of ash is strictly regulated and the system is audited on a regular basis.

### **What else is left as a residue from the process?**

There is a small amount of APCR (air pollution control residue), which is sometimes called fly ash. APCR is typically a mixture of ash, carbon and lime (or bicarbonate). It is classed as a hazardous waste because of its high alkaline content from the spent lime, which is used as part of the filtering and cleaning process to remove acid gases. In the past it was disposed of at a hazardous waste



landfill but nowadays it may undergo further processing such as washing or stabilisation before being sent to a non-hazardous landfill. It is a small volume of material from the process.

However, landfilling of APCR will be discontinued as new regulations come into effect. Many chemical treatment companies have anticipated this situation, with new facilities being opened which are now capable of achieving 'end of waste' status for the washed and cleaned aggregates contained in the APCR.

There is an amount of ferrous and non-ferrous metal which can be extracted from the ash or by the mechanical treatment facility (MTF) which will be on site, and sent for reprocessing by a scrap merchant.

## 5. The Facility and Health

### Is the facility safe?

Yes. The facility must adhere to the strict emission limits set out in the Industrial Emissions Directive (IED), which was published in 2010 to combine and replace seven existing EU Directives governing pollution control. Its aim is to achieve significant environmental and public health benefits by reducing emissions across the European Union Member States. If a facility cannot comply with these limits, it will be shut down by the Environment Agency.

The emission limits set in the IED are recognised to be below those considered to be harmful to human health, as they are very low and in some cases close to background levels. They were only decided upon after extensive consultation, taking into account the most up to date scientific health and environmental research.

### Who monitors the facility?

The facility must have a valid environmental permit from the Environment Agency to operate. Without it, the plant is not permitted to function. This will be the subject of a separate application and consultation process, which is yet to take place. We'll inform you when the environmental permit application is ready to be submitted.

More information can be obtained from the Environment Agency website:

<https://www.gov.uk/guidance/waste-environmental-permits>

Many environmental permits have already been issued by the Environment Agency under the IED; there are 26 energy from waste plants already operating in the UK, and many other similar facilities – you can see a list of them here:

<https://www.gov.uk/government/collections/industrial-emissions-directive-ied-environmental-permits-issued>

### What about the chimney stack?

The chimney stack will be 52m high and 2.8m wide at the base.

### How has the height of the chimney stack been decided?

The height of the chimney stack has been set after using a special computerised model (known as a stack height dispersion model). It takes into account the local background air quality levels. This



makes sure that the emissions from it are dispersed safely to comply with the strict regulations governing air quality. They are dispersed through the atmosphere at high level to avoid the remote possibility of any concentration at ground level.

### **How have the health risks of the facility been assessed?**

The current levels of pollution in the area were taken into account, together with meteorological data for the last five years, which gives information on wind direction and speed. Even allowing for the facility operating at full capacity, and assuming that it releases the maximum level of emissions allowed under the IED, the overall levels in the area would still be below permissible air quality standards.

The air quality assessment has also taken into account other activities around the site which could combine with the facility's own processes to affect the air quality, as well as other potential developments. Even combined with other industrial activities, the air quality will not be compromised as a result of the facility.

In practice, emissions from the facility will be below the IED limits, as the facility operating systems are designed with a significant safety margin. In addition, the facility is unlikely to operate at full capacity for the whole of the time, so the overall level of emissions will be lower than predicted by the computer model.

The assumptions used in the model are the 'worst case' scenario, and the results from this model are used to assess the health risks of the small amount of pollutants from the facility. This showed that the risk from the emissions from the proposal is well below the acceptable UK risk levels, so well below the already stringent safety levels.

### **Who will monitor the facility for safety and compliance?**

Before the facility can operate, it will need to apply and gain an Environmental Permit (EP) from the Environment Agency (EA), which continues to monitor and enforce the safety standards for the lifetime of the facility. This will contain strict environmental and operating conditions, and the EA will only grant the EP if it is sure that local people and the environment will not be harmed.

The EA carries out regular checks on the facility, some of them unannounced. It also has the power to shut the facility down if it believes it is not being operated correctly.

All emissions from the chimney stack will be continually monitored to ensure they comply with the emissions levels set within the IED, and all emissions data will be collected as part of the conditions of the Environmental Permit.

The system is monitored continuously. If the emission levels start to rise, it will be detected by the continuous emissions monitoring system and the facility control system will automatically make adjustments to the plant to reduce them again. In the unlikely event this does not work, the plant will automatically shut down. This safeguarding system is built into the plant, and is a compulsory feature of the control process.

### **What about starting up and shutting down?**

The plant must operate under the same strict permit rules, even when starting up and shutting down. For instance, a minimum temperature (850°C) must be maintained in some parts of the system in order to ensure that pollutants are fully destroyed, and that others are not formed. This is achieved by the use of independent oil-fired burners, which must be available at all times. If these burners are not available and on standby, then the plant is not allowed to operate.



### What comes out of the chimney stack?

The main constituents are water vapour, carbon dioxide, nitrogen and oxygen, with small trace elements of pollutants. These are well below the levels set in the IED and therefore have a negligible effect on human health, as verified by Public Health [England](#), the body in charge of public health in England. A specific air quality assessment for the Keypoint Swindon facility has been carried out as part of the Environmental Impact Assessment. The assessment concluded that the predicted emissions to air from the proposed 52m high flue stack would be insignificant in terms of their potential effects on human health and the assessed nature conservation sites. Furthermore, the emissions from the flue stack would be continuously monitored under the terms of the Environmental Permit. In the event that there is a potential breach of the IED limits, then essential actions can be undertaken or the facility shut down. The assessment must confirm that the emissions do not pose an unacceptable threat to environment or the local community. If the assessment can't do this, then the facility can not and will not be granted planning consent.

It's also important to remember that the energy from waste facility will not be the only source of air pollutants in the local area. Cars, central heating and fires, such as barbeques or woodburners, all contribute. People may worry when they hear talk of emissions of mercury or carbon monoxide. These pollutants are already present in the ambient air, although they are generally at very low concentrations that will have no adverse impact on human health. Although these compounds may be present in very small amounts in the waste gases emitted from the chimney, they will be at such low concentrations that they will not significantly increase the concentrations already present in the ambient air.

### What about dioxins and furans?

Dioxins and furans can be produced whenever something is burned, such as cigarettes, barbeques, garden bonfires, industrial furnaces or accidental fires.

The burning or gasification of residual waste in an energy from waste (EfW) plant makes only a very small contribution to existing background levels of dioxins in our environment. Data demonstrates that implementation of stringent regulations for EfW facilities in the EU have resulted in over a 99% reduction in dioxin emissions compared to emissions in 1990; see the following link for supporting information:

[http://www.esauk.org/energy\\_recovery/EfW\\_Health\\_Review\\_January\\_2012\\_FINAL.pdf](http://www.esauk.org/energy_recovery/EfW_Health_Review_January_2012_FINAL.pdf).

This means that neither incineration nor gasification is now no longer a significant source of emissions to air of dioxins and furans, contributing only 2.5% of UK emissions. More significant sources include accidental fires and open burning of waste, the iron and steel manufacturing industry, and crematoria.

According to the UK Institution of Mechanical Engineers *"The dioxin emission limit value required by IED from an EfW plant is a concentration in the chimney of 0.1 ng/m<sup>3</sup> (one billionth of a gram per cubic metre at ambient temperature and pressure). This is an equivalent concentration to one third of a sugar lump dissolved evenly in Loch Ness"*.

### Is it true that people living near such facilities have a higher chance of developing cancer?

There is no scientific peer reviewed evidence to support this claim. No study into the health of communities living near EfW facilities has been able to demonstrate a conclusive link between emissions from an EfW facility and adverse effects on public health. A 2004 UK Government report which considered 23 reputable studies and 4 review papers into the patterns of disease around EfW



facilities concluded that the risk of cancer caused by living near an EfW facility is so remote that it is too low to measure; see the following report for more information:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69391/pb9052a-health-report-040325.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69391/pb9052a-health-report-040325.pdf)

### What studies have been done into the impact of energy from waste on human health and the environment? Where can I find out more information?

A number of scientific reports have been produced in recent years looking into the health effects of modern energy from waste facilities. Some good examples of non-biased studies are:

AEA's Review of research into health effects of Energy from Waste facilities undertaken on behalf of the Environmental Services Association concludes that:

*"While there is always some uncertainty in the findings of health studies, it is concluded that well-designed EfW facilities as currently operated in the UK are most unlikely to have any significant or detectable effects on cancer incidence, the incidence of adverse birth outcomes (including infant mortality), or the incidence of respiratory disease."*

[http://www.esauk.org/energy\\_recovery/EfW\\_Health\\_Review\\_January\\_2012\\_FINAL.pdf](http://www.esauk.org/energy_recovery/EfW_Health_Review_January_2012_FINAL.pdf)

The Health Protection Agency (the forerunner to Public Health England) review of research undertaken to examine the suggested links between emissions from municipal waste incinerators and effects on health concludes that:

*"While it is not possible to rule out adverse health effects from modern, well-regulated municipal waste incinerators with complete certainty, any potential damage to the health of those living close-by is likely to be very small, if detectable. This view is based on detailed assessments of the effects of air pollutants on health and on the fact that modern and well managed municipal waste incinerators make only a very small contribution to local concentrations of air pollutants. The Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment has reviewed recent data and has concluded that there is no need to change its previous advice, namely that any potential risk of cancer due to residency near to municipal waste incinerators is exceedingly low and probably not measurable by the most modern techniques. Since any possible health effects are likely to be very small, if detectable, studies of public health around modern, well managed municipal waste Incinerators are not recommended."*

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/384592/The\\_impact\\_on\\_health\\_emissions\\_to\\_air\\_from\\_municipal\\_waste\\_incinerators.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384592/The_impact_on_health_emissions_to_air_from_municipal_waste_incinerators.pdf)

A study published by scientists from King's College London, Imperial College and the National Physical Laboratory found a minuscule contribution to airborne levels of trace metals and particulate matter from EfW plant. Dr Mark Bloomfield commented on the study as follows:

*"At four of the six sites around which the study was based, no contribution could be detected. At two of the six sites, metal ratios consistent with municipal waste incinerator emissions were detected 0.2% and 0.1% of the time. The contribution from the incinerator was no more than about 0.5% of ambient levels, and generally much lower than this. While this was entirely to be expected, it is useful to have confirmation using UK data that uses up to date techniques. The fact that the analysis technique was able to detect a slight contribution (which may have been due to the waste incinerator*



ROLTON KILBRIDE  
POWERING THE FUTURE™

*emissions) is reassuring. If there had been a more significant contribution, this technique would have been able to pick it up.”*

[http://ac.els-cdn.com/S1352231015300753/1-s2.0-S1352231015300753-main.pdf?\\_tid=c06af516-2eb3-11e5-bb36-00000aab0f6b&acdnat=1437378706\\_c24ab50baf10556cc9e188aec9a4bd5e](http://ac.els-cdn.com/S1352231015300753/1-s2.0-S1352231015300753-main.pdf?_tid=c06af516-2eb3-11e5-bb36-00000aab0f6b&acdnat=1437378706_c24ab50baf10556cc9e188aec9a4bd5e)

Defra has also produced document entitled “Energy from waste – A guide to the debate”, which aims to provide a starting point for discussions about the role energy from waste might have in managing waste:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/284612/pb14130-energy-waste-201402.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284612/pb14130-energy-waste-201402.pdf)

### **What about very fine particles (nano particles)?**

The emissions limit for particles covers particles of all sizes, including ‘nano-particles’, and the emissions of particles from the stack will be continuously monitored. The air quality assessment takes a worst-case approach, assuming the entire particulate emission first to be PM10 (particles with a diameter of less than 10 microns – so including nano-particles), then also assuming the entire particulate emission to be PM2.5 (particles with a diameter of less than 2.5 microns– also including nano-particles), which are generally considered to be the most dangerous particles. In both cases, emissions from the plant will increase local concentrations by less than 1% of the legal limits, an amount deemed “insignificant” by the Environment Agency.

In contrast, 50-60% of ambient air particles and 90% of road vehicle emissions are in the PM2.5 range; nearly all the particles emitted from diesel engines, for example, are less than 1 micron in size.

### **Will there be a visible plume?**

Sometimes a plume may be visible from the stack. However, it is not smoke – it is condensed water vapour. However, for the vast majority of the time nothing at all will be seen, as the condensed water is not visible except on very cold days.

## **6. The Environment**

### **What impact will this facility have on the environment?**

The facility will not be granted planning consent unless it can be demonstrated that it will not have a significant impact to the environment. It is the responsibility of the applicant for any facility to demonstrate this to the satisfaction of the Local Planning Authority, which consults a number of other organisations (such as the Environment Agency) to ask for their opinion on the application.

The accepted method for an applicant to illustrate the effects of any facility is to perform an Environmental Impact Assessment.

### **What is an Environmental Impact Assessment (EIA)?**

An Environmental Impact Assessment (EIA) is the process that assesses the potential effects on the environment of a proposed development or project. If the likely effects are unacceptable, measures in design or other mitigation can be put in place to reduce or avoid those effects. If this is not possible, then the development will not be allowed to proceed.



The potential environmental effects are systematically studied and include visual impact, traffic, air quality, noise, dust, odour, the effect on human health and flood risk to the site (amongst others).

### **Who does the EIA and how do you ensure it is independent?**

The EIA is prepared by professional technical specialists, who are subject to the professional and ethical standards of their relevant industry body. The EIA is then peer reviewed by other environmental advisors who are a corporate member of IEMA (The Institute of Environmental Management and Assessment).

The findings of the EIA are reviewed by the relevant technical specialists within the Local Planning Authority and also subject to comment by the statutory consultees (i.e. Natural England, Historic England, Highways England, etc.). It is also open to public scrutiny.

### **What about the visual impact? Would the plant be visible from miles away?**

The visual impact of the proposed facility is being evaluated as part of the Environmental Impact Assessment, and it will accompany the planning application when this is submitted. Part of the assessment process is intended to gauge and minimise the overall visual impact, by adapting the design of the building to the surroundings.

Further information will be released as it becomes available.

### **How much traffic will there be? How many heavy good vehicles will be coming and going?**

It is anticipated that RDF will be delivered to the site via a combination of residual waste collection vehicles (RCVs) which will typically be 18 to 22 tonnes (gross weight) or articulated bulk haulage vehicles from nearby RDF transfer stations. The REC is expected to generate up to 90 heavy goods vehicle (HGVs) movements per day, which is the equivalent of 38 deliveries per day to site. In addition there would be about 7 deliveries and collections of processing materials and residues per day. There would also be car journeys associated with approximately 20 staff working in a three-shift pattern. The industrial warehouse would also generate some traffic movements with 9 HGV movements per day and 34 other vehicle movements, such as vans or cars.

### **What measures are being taken to avoid creating traffic jams or more congestion?**

Traffic analysis showed the numbers of vehicles servicing the REC and the warehouse would not have a significant impact on the road network, and would be unlikely to increase the risk of accidents. Recognising that traffic is a serious concern for many people, the proposals have taken into account both construction and operational traffic and put forward mitigation measures, such as a Construction Traffic Management Plan. Once the facility is operational, a Travel Plan for staff and visitors will be in place to minimize the number of vehicle movements. HGV deliveries are expected to be spread evenly throughout the 12 hour period and there is unlikely to be a peak in movements. However, if necessary, deliveries may be pre-booked into the plant prior and scheduled to avoid busy times during the morning and evening.

### **What are the proposed routes to and from the facility? Can delivery vehicles take short cuts?**

Vehicles will use the public highway from A420 to Thornhill Road, and then route onto the privately owned industrial estate roads to the Keypoint site.

### **Has rail been considered for bringing in the RDF?**

This is not a practical or economically viable option, specifically when the majority of RDF is anticipated to be sourced from Swindon and the wider area. Rail was considered for the import of



residual waste materials. However, investigations identified that the rail spur to the east is at full capacity. It also concluded that the proposed REC facility would source most of its residual waste from the wider Swindon area so the use of rail links would not be a practical transport solution, as it would still involve collection vehicles on the local highway network, travelling to/from any rail terminal. Similarly, waste loading facilities need to be available from where the waste arises and since the waste may come from several different sources, this is not cost effective. Finally, the waste may arise from different places as contracts change, so building rail infrastructure is no guarantee that it can be used in the future

**What are the delivery and collection hours proposed for the facility?**

Monday to Fridays – 7am to 7pm

Saturday – 7am to 2pm

Sundays – None

**What about the other traffic on the road, such as the new housing development and schools. Does the EIA take into account these proposed new developments too?**

Other traffic on the road has been considered, so the proposals have looked at the combined impact of the proposed development along the Eastern Villages urban extension alongside the plans for the REC. The Eastern Villages development has its own conditions attached to improve traffic flow, such as upgraded road junctions. These improvements will assist both the REC as well as the Eastern Villages so that no additional interventions are required.

**Does the EIA take into account proposed new developments too?**

Yes. New developments must be considered as part of the cumulative impacts assessment. The traffic flows from any new development which has already obtained planning consent (even though it may not yet have been constructed) must be taken into account in the traffic impact assessment process, as if the development were already up and working.

**More traffic means more diesel fumes. What will be done to ensure that the air quality is not affected by the facility?**

The results of the Air Quality Assessment, based on predicted traffic generated from the proposed development and other nearby development such as the Eastern Villages, has indicated that air quality would not be significantly adversely affected as it represents only a minor increase to the overall traffic in the local area.

**What noise can be expected?**

The Noise Assessment shows that whilst some noise is to be expected, the industrial setting means that it is unlikely to impact on residential properties. The A471 dual carriageway is between the site and residential area of Stratton to the west whilst a combination of industrial buildings/rail screen the village of South Marston (to the north-east) and isolated properties on Thornhill Road, and those residential properties to the south of the A420 (south of site). North of the site is the Honda Plant and test track.

**Will it be noisy during construction?**

Noise will always be kept to a minimum but the industrial setting means that construction noise is unlikely to be heard over existing industrial processes by neighbouring communities.



### **What about odour?**

The facility is very unlikely to cause any detectable odour issues.

There will be no outside storage of material.

For the gasification plant, the RDF is unloaded within a closed reception hall, with fast acting roller shutter doors which are kept shut (except to let delivery vehicles in and out). The reception hall is maintained at a negative air pressure by use of air intake fans located within the hall itself. These fans channel the air through ductwork to the gasification chamber, where it is used to burn the synthetic gas, which has been generated as part of the process. As a result, any odours are destroyed within the gasification chamber.

### **Does the process extract water from or discharge water into waterways?**

No. The gasification process does not take water from or discharge water into any waterways, as it is a closed loop system.

## 7. Local Community Benefits

### **How will the facility benefit the local community?**

Managing waste (as RDF) locally will help to potentially reduce waste management and transport costs for the Local Authority, which will enable funds to be redirected to other services; the same factor will also potentially reduce the operating costs of local businesses, thus supporting their economic viability and potential growth.

Energy in the form of heat and/or electricity could be routed to nearby businesses, similarly reducing their operating costs and thus supporting their economic viability and potential growth.

The facility will reduce greenhouse gas emissions (when compared to fossil fuel energy generation) thus assisting in combating the effects of climate change and meeting European and national targets for renewable energy generation.

### **What jobs will be created - how will local people benefit?**

There will be employment opportunities for up to 20 people for the REC, which will need a range of skills and lead to potential apprenticeship opportunities. In general, people will be recruited from the surrounding area as it is important that the staff operating the facility live locally. There will also be indirect employment for local deliveries, maintenance and support and there will be potential employment with regards to the adjacent warehouse facility with up to 40 full time jobs.

### **What about construction phase employment opportunities?**

There will be some local jobs created during the construction of the plant, which will largely be for the foundations, structures and building works. The gasification and associated process equipment comes mostly from specialist suppliers, and is pre-fabricated or manufactured remotely. It is brought to site and assembled by specialist teams familiar with the equipment. There will also be local supply chain opportunities for many supporting trades and functions, such as catering, accommodation, transportation, plant and equipment hire, maintenance, small fabrication services and other essential site support functions such as security and safety staff and other consultants. A 'meet the



ROLTON KILBRIDE  
POWERING THE FUTURE™

buyer' event will be held by the selected construction company prior to site start, in order to maximise local employment and supply opportunities.

## 8. Planning and Public Consultation

### **How long will the planning process take?**

The statutory consultation period is for 16 weeks, which starts once the application has been submitted to Swindon Borough Council, and accepted by the planning department as being complete and containing all relevant sections and data. The application is then put out for comment to a list of statutory consultees (such as the Environment Agency), as well as being made available for comment by other consultees and members of the public (it will be available online).

### **Where can I go for more information?**

You can contact us on 01869 715090, email [info@keypointswindonenergy.co.uk](mailto:info@keypointswindonenergy.co.uk) or visit [www.keypointswindonenergy.co.uk](http://www.keypointswindonenergy.co.uk)

### **What if I disagree with the proposals?**

Once the application has been submitted you can contact will have the opportunity to make representation to Swindon Borough Council's Planning Department, or contact the applicant directly – our details are above.

**APPENDIX 10**

**COMMENTS/REQUESTS RECEIVED**

### Incoming queries and responses

<b>Enquiry</b>	<b>Date</b>	<b>Response</b>
Member of the public in touch requesting for additional information about the project	April 2016	The communications team responded with details about the project

## Website Enquiries

Submitted Date	Address	Main Points Raised
10.04.2016 16:23:21		<ul style="list-style-type: none"> <li>Requested more information following on from the public consultation event.</li> </ul>
22.03.2016 13:51:07	South Marston Park Swindon	<ul style="list-style-type: none"> <li>Local SME business which converts residual waste plastic into a hydrocarbon commodity. Wanted to discuss with Rolton Kilbride if there are any synergies with their processes.</li> </ul>
27.02.2016 23:44:17	Stratton	<ul style="list-style-type: none"> <li>Enquiry following on from the public consultation leaflet. Questions on; traffic, emissions, community benefits, ecological impacts.</li> <li>Also wanted to submit her CV for possible employment.</li> </ul>
27.02.2016 12:57:20	Stratton St Margaret	<ul style="list-style-type: none"> <li>Enquiry following on from the public consultation leaflet. Questions regarding; air quality, type of waste being processed and a map of the proposed site.</li> </ul>
27.02.2016 11:51:14	St Margaret Swindon	<ul style="list-style-type: none"> <li>Enquiry regarding; the location off the site, air quality, traffic how it will affect the local community,</li> </ul>