



## **The climate change benefit of energy-from-waste technology**

*The vital role that the Killoch Energy Recovery Park will need to play if East Ayrshire Council is to meet its ambitious climate change targets and achieve Scottish Government waste targets.*

### **Introduction**

This paper represents feedback to the **Clean Green East Ayrshire – Climate Change Strategy** and is submitted by Barr Environmental.

East Ayrshire Council is currently consulting on its ground-breaking Climate Change Strategy. This strategy outlines an ambition for East Ayrshire to become a net zero Council by 2030, with its wider communities also becoming net zero by 2045. Its ambition is to end East Ayrshire's contribution to climate change within a generation.

### **The current situation in East Ayrshire**

The strategy states that in 2018 (the most up to date figures available) there were 469,000 tonnes of carbon dioxide emissions (or equivalent greenhouse gases<sup>1</sup>) generated from East Ayrshire. Figures for East Ayrshire Council itself are a little more up to date, with figures from 2019/20 showing that its carbon dioxide emissions amounted to 32,000 tonnes over the course of the year.

Of this figure, Council buildings accounted for 14,600 tonnes (46 per cent of the total), municipal waste accounted for 13,500 tonnes of CO<sub>2</sub> (42 per cent of the total) and transport produced 3,700 (12 per cent of the total).

To become a net zero Council by 2030, East Ayrshire now needs to double its annual carbon emissions reduction rate from 1,500 tonnes to 3,000 tonnes each year. It acknowledges this '*will not be an easy process*' and waste – currently its second biggest source of carbon dioxide emissions - has been chosen as one of four key themes that will need addressing in order for East Ayrshire to reach its ambitious climate change targets.

### **The impact of forthcoming Scottish Government policy**

As part of its Climate Change Strategy, East Ayrshire Council concedes that '*a large proportion*' of its waste-related carbon dioxide emissions are due to the landfilling of the municipal and commercial waste it collects from local homes and businesses.

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<sup>1</sup> Where carbon dioxide emissions are referred to, this refers to carbon dioxide and other greenhouse gases, such as methane, and is often referred to as carbon dioxide equivalent emissions, or 'CO<sub>2</sub>e'

Scottish Government has set out a range of policy drivers – backed by legislation - to reduce waste and boost recycling. East Ayrshire Council will need to comply with these policies, which include commitments to:

- Reduce total waste arising in Scotland by 15% against 2011 levels
- Reduce food waste by 33% against 2013 levels
- Recycle 70% of remaining waste
- Send no more than 5% of remaining waste to landfill
- Impose a complete ban on all biodegradable waste entering landfill

East Ayrshire Council acknowledges in its climate change strategy that: “*The quickest route to accommodating this change will be switching our biodegradable waste to ‘energy from waste’ plants*”.

It also states: “*We don’t currently have a local energy from waste plant capable of processing our waste, so we’re working with other local authorities and the private sector to find a cost-effective solution which complies with legislation and zero carbon targets.*”

The key questions now are clearly: how will East Ayrshire Council comply with Scottish Government legislation to reduce and ban material going to landfill - while also delivering on its climate change commitments – in a way that is truly cost effective for the local taxpayer and does not simply displace its emissions?

The scale of this challenge is both urgent and significant because in 2019, East Ayrshire Council recycled 53.2% of the waste generated in the local authority area. This left almost 26,000 tonnes of residual, non-recyclable waste that could not be recycled and was instead sent to landfill. From 2025 – less than four years from now – this significant tonnage of waste cannot go to landfill but will still need to be responsibly managed.

### **The role of energy-from-waste facilities in combatting climate change**

When compared to landfill, modern energy-from-waste facilities have a positive impact in the battle against climate change [ref: [Zero Waste Scotland: The climate change impact of burning municipal waste in Scotland, July 2021](#)]. Disposing of waste to landfill causes the emission of both carbon dioxide and methane, with methane being a greenhouse gas that is many times more powerful than carbon dioxide.

Indeed, one of the key headlines from the 2021 UN Climate Change Conference – COP26 – was the Global Methane Pledge, which aims to limit methane emissions by 30% compared with 2020 levels, recognising it as one of the most potent greenhouse gases [ref: [Global Methane Pledge](#), November 2021].

And as recently as June 2021, Zero Waste Scotland stated as part of its report: *The climate change impacts of burning municipal waste in Scotland*, that: “On average, sending one tonne of municipal waste to EfW in Scotland in 2018 emitted 246 kgCO<sub>2</sub>e/t, which is 27% less than sending it to landfill.” [ref: *The Climate change impacts of burning municipal waste in Scotland, Technical Report, Zero Waste Scotland, June 2021*]

It is clear that diverting non-recyclable waste from landfill and managing it more sustainably within an energy-from-waste facility therefore generates significant greenhouse gas savings compared to landfill. In addition, a significant amount of the energy used by our homes and businesses still comes from the use of fossil fuels, such as natural gas or coal. The electricity generated by energy-from-waste facilities has many advantages over the use of fossil fuel sources, including but not limited to lower levels of carbon emissions.

Displacing this fossil fuel-based electricity from the transmission network by using waste as fuel therefore creates further carbon savings.

The Killoch facility will also have the potential to act as a source of electricity and heat at a local level. The Council's Community Renewable Energy (CoRE) project provides a platform for the development of renewable energy generation within the local area and specifically targets former mining sites for this purpose, which could include the Killoch site. The CoRE project also has a focus on developments that can deliver continuous energy and highlights "heat from waste" as an example of this [ref: [East Ayrshire Council's Community Renewable Energy Project](#)]. The Killoch Energy Recovery Park could act as a significant central generation hub of 24/7 heat and power to be used in future developments within the wider site, therefore satisfying the CoRE project SMART Energy workstream.

### **The contribution that Killoch Energy Recovery Park will make**

With an application for planning consent currently being considered by East Ayrshire Council, proposals for the Killoch Energy Recovery Park represent the only legitimate opportunity for East Ayrshire to fully realise its climate change ambitions.

As the Council itself recognises, it simply will not be able to deliver a cost-effective, sustainable waste management solution without reliance on energy-from-waste.

To be a fully legitimate, cost effective and climate-friendly solution this facility needs to be within East Ayrshire. The alternative to treatment at a local energy-from-waste facility would be for East Ayrshire Council to either transport its waste further afield, to an energy-from-waste facility elsewhere in Scotland, or send it to landfill in England, both of which will significantly increase costs to the Council.

In the case of the English landfill solution, East Ayrshire will simply be transferring its existing waste-related greenhouse gas emissions to another location – which will simply displace and continue its contribution to the global issue of climate change.

Transporting of this waste further afield also leads to a larger carbon footprint, due to increased road traffic emissions, as well as putting a greater volume of HGV traffic on the road.

There are also additional risks associated with these solutions. Other energy-from-waste facilities may not have capacity to accept all of the waste, which would mean the volume of waste would have to be split between multiple facilities, again entailing additional cost and more carbon-emitting HGV journeys. In a scenario where the Killoch Energy Recovery Park isn't developed, these are all real and urgent issues that East Ayrshire Council will need to address.

### **Conclusion**

The Climate Change chapter that is included within the application's *Environmental Impact Assessment Report* finds that the Killoch Energy Recovery Park has the potential to offer net savings of 18,000 tonnes of carbon dioxide emissions each year that it operates once the waste heat is being utilised - largely as a result of diverting waste from landfill - but also due to the energy it produces displacing fossil-fuel based energy across the transmission network (also known as the national grid) [ref: [Killoch Energy Recovery Park, Environmental Impact Assessment Report, Chapter 13, May 2021](#)].

This marked reduction in carbon dioxide emissions has the capacity, in and of itself, to deliver a significant reduction in East Ayrshire's waste-related carbon emissions that will go a long way towards reducing its waste-related contribution to climate change. It also delivers this in a way that represents the most cost-effective solution in terms of public expenditure.

East Ayrshire Council has a relatively short amount of time to make important decisions about the future of its waste management and how it will go about reducing its contribution to climate change. The energy-from-waste industry - and specifically the proposals that have been put forward for the Killoch Energy Recovery Park – offer a simple, deliverable and cost-effective solution to both of these challenges.