



Belfast City Council

Report to:	Strategic Policy & Resources Committee
Subject:	North Foreshore landfill gas powered electricity generation facility
Date:	
Reporting Officer:	Gerry Millar, Director of Property & Projects
Contact Officer:	Susan Quail, North Foreshore Project Manager

1	Relevant Background Information
1.1	In February 2008, Council approved the appointment of Renewable Power Systems Ltd as a joint venture partner for the generation of electricity from landfill gas at the North Foreshore. This led to the installation of five x 1 Megawatt generators which became operational in September 2009. Electricity is sold to NIE and exported to the local grid via a NIE sub-station sited at the North Foreshore.

2	Key Issues
2.1	Each generator requires a supply of 600 m ³ of landfill gas per hour to operate at maximum efficiency.
2.2	In September 2009, the gas field was producing in excess of 3000 m ³ of landfill gas per hour.
2.3	As anticipated, a gradual natural decline in the volume of gas has occurred and output is now in the region of 2400 m ³ per hour.
2.4	It is anticipated that the volume of landfill gas will continue to decline over the foreseeable future but at a slower rate. It is not possible to give accurate predictions of gas volumes as this depends on the composition of waste, the rate of decomposition, temperature, rainfall, seasonal weather conditions and atmospheric pressure.
2.5	On the advice of Renewable Power Systems Ltd, our Joint Venture Partner, one generator must now be removed to operate the facility at maximum efficiency

3	Resource Implications
3.1	<p>Financial</p> <ul style="list-style-type: none"> <li>• The gross accrued income to the Council from the sale of electricity, together with government incentives for the generation of 'green' electricity from landfill gas, will amount to c £3.35 million for the period September 2009 to August 2010. <li>• The net accrued income to the Council after profit sharing with our joint venture partner will be in the region of £1.5 million which is at the top end of £1.0 million to £1.5 million as estimated in 2008. An income of £1.5 million represents a 60% per annum return to Council. <li>• The joint venture procurement process evaluated the set-up and operational costs associated with this facility. This included the cost of removing one generator during the second year of operation. The cost is currently £230,340. <li>• The removal of one generator will reduce the council's plant fee cost by 20% or £269,132 per annum. The removal cost will be recovered within one year. <li>• Whilst the volume of landfill gas and hence the quantity of electricity generated will continue to decline, it is worthwhile noting that the wholesale price of electricity on the All Ireland Electricity Market has increased by roughly 30% over the past year. If this continues, the loss of income through reduced generation will be minimised
3.2	<p>Other Implications</p> <ul style="list-style-type: none"> <li>• It is clearly in the interests of the Council that the volume of gas and electricity generation be maximised. Whilst we have no control over the volume of landfill gas produced from decomposing waste, the council could initiate a process whereby diminishing volumes of landfill gas can be replaced by biogas produced by means of anaerobic digestion. <li>• In an effort to encourage private sector involvement in the generation of biogas, the Department of Enterprise Trade and Investment has introduced the draft Northern Ireland Renewable Obligation Amendment Order 2011, which comes into effect on 1 April 2011. This will significantly increase the level of government incentives for the generation of electricity from biogas. These are to be increased from 1 Renewable Obligation Certificate to 3 Renewable Obligation Certificates per megawatt hour of generation. In financial terms this represents a revised grant of roughly £140 per megawatt hour or approximately £190 per megawatt hour to include income from the sale of electricity. Using these figures a one megawatt generator could produce a gross income in the region of £1.5 million per annum. <li>• A site of approximately 1.3 acres adjoining the generating facility at the North Foreshore has been identified as the location of a possible anaerobic digestion facility. The next step in procuring this facility is to publicly invite development submissions from private operators. The appointed operator will be required to lease the site from the Council, fund, construct, and operate the facility to produce biogas for sale to Council. The Council will retain the income from the sale of electricity and Renewable Obligation Certificates. <li>• This facility will prolong the lifespan of the remaining four generators.

	<ul style="list-style-type: none"> The cost to Council of this initiative is nil. The site will generate a rental income and the Council will derive an income from the sale of electricity and Renewable Obligation Certificates.
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4	Equality and Good Relations Considerations
4.1	None.

5	Recommendations
5.1	To note the removal of one generator.
5.2	To approve a request to publicly invite development submissions from private sector operators to develop and operate an anaerobic digestion facility at the North Foreshore.

6	Documents Attached
6.1	Copy report to Development Committee seeking approval to appoint Renewable Power Supplies Ltd as a joint venture partner.
6.2	A brief description of the anaerobic digestion process. Source – Friends of the Earth.
6.3	A site location plan