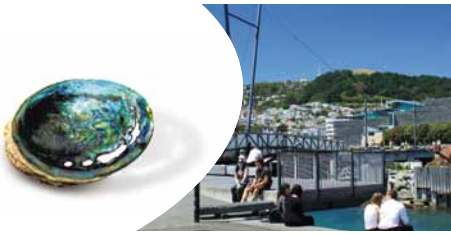
Local Government
New Zealand
te pūtahi matakōkiri



Submission to the Ministry for the Environment on the Emissions Trading Scheme Review 2011

From Local Government New Zealand
6 April 2011

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INTRODUCTION

1. *Local Government New Zealand* (LGNZ) thanks the Emissions Trading Scheme Review Panel for the opportunity to make this submission in relation to the Emissions Trading Scheme (ETS) Review 2011.

2. LGNZ makes this submission on behalf of the National Council, representing the interests of all local authorities of New Zealand.

   It is the only organisation that can speak on behalf of local government in New Zealand. This submission was prepared following consultation with local authorities. Where possible their various comments and views have been synthesised into this submission.

   In addition, some councils will also choose to make individual submissions. The LGNZ submission in no way derogates from these individual submissions.

3. LGNZ prepared this submission following:
   - an analysis of the ETS Review 2011
   - analysis of all feedback from councils.

4. This final submission was endorsed by Eugene Bowen, Chief Executive, LGNZ.

5. LGNZ would be pleased to meet with the ETS Review Panel for further discussion on points raised in this submission.

RECOMMENDATIONS

6. LGNZ makes the following recommendations:

   - A threshold should be identified for exemption from the ETS obligations for landfill gas or Government funding, similar to the free allocation of units to other sectors, should be made available to off-set unintended outcomes of the ETS in small or isolated communities.

   - A central government lead investigation into viable alternatives to landfills should be undertaken.

   - The exemption from ETS obligations for the clearance of tree weed species should be maintained for two more Kyoto commitment periods (or the equivalent of two commitment periods given the uncertain future of the Kyoto agreement).

LGNZ POLICY PRINCIPLES

7. In developing a view on the ETS Review we have drawn on the following high level principles that have been endorsed by the National Council of LGNZ. We would like the ETS Review Panel to take these into account when reading this submission.

   - **Local autonomy and decision-making:** communities should be free to make the decisions directly affecting them, and councils should have autonomy to respond to community needs.

- **Accountability to local communities:** councils should be accountable to communities, and not to Government, for the decisions they make on the behalf of communities.

- **Local difference = local solutions:** avoid one-size-fits-all solutions, which are over-engineered to meet all circumstances and create unnecessary costs for many councils. Local diversity reflects differing local needs and priorities.

- **Equity:** regulatory requirements should be applied fairly and equitably across communities and regions. All councils face common costs and have their costs increased by Government, and government funding should apply, to some extent, to all councils. Systemic, not targeted funding solutions.

- **Reduced compliance costs:** legislation and regulation should be designed to minimize cost and compliance effort for councils, consistent with local autonomy and accountability. More recognition needs to be given by Government to the cumulative impacts of regulation on the role, functions and funding of local government.

- **Cost-sharing for national benefit:** where local activities produce benefits at the national level, these benefits should be recognised through contributions of national revenues.

COMMENTS

8. LGNZ considers climate change is an important issue facing New Zealand communities. We acknowledge the need for New Zealand to decrease/offset emissions to reduce the impacts of climate change and to meet international obligations. We have consistently stated however that an understanding of the full impacts of any solutions on key sectors, communities and households is essential. The inclusion of landfill gas emissions in the ETS has largely failed to take into account the true cost of ETS obligations and the potential for perverse outcomes, particularly for small or isolated communities.

9. While the Ministry for Environment (MfE) waste technical advisory group on the ETS acknowledged the *"special circumstances of remote communities"* in discussion on coverage of the ETS[1], no further work has been undertaken to identify a participation threshold below which a local authority might be exempt from ETS obligations.

10. Work undertaken by LGNZ to prepare this submission suggests the potential for inequitable distribution of the costs of this legislation are greater than at first thought. Given the complexity of the issue and the time available to prepare this submission, however, we can only propose that the Review Panel undertakes further work before finalising recommendations. We would be happy to assist further with this.

[1] Recommendations for methodologies for ETS landfill gas emission reporting. Ministry for Environment ,2010.

Landfill Emissions - Unintended outcomes

11. In previous submissions to the Climate Change (Waste) Regulations 2010, local authorities have expressed concern about the potential for unintended outcomes due to obligations to pay for green house gas emissions from landfills.

    In summary the potential for unintended outcomes include:

    - an increase in illegal dumping and associated risk to the environment due to increasing landfill costs. This includes farm pits and disposal of green waste on river beds. In New Zealand, 75 per cent of plant pests and 50 per cent of freshwater weeds are garden escapes[2]. A paper prepared for Cabinet Economic Growth and Infrastructure Committee[3] (2010) cites the cost of managing existing pests in New Zealand as $36.9 million for regional councils and $407 million for the private sector, a total of $443.9 million
    - early closure of landfills servicing low population, geographically isolated communities. Ongoing management of closed landfills is a cost to these communities however. Management costs are additional to the cost of transporting residual waste to alternative landfills and disposal fees at these landfills
    - impacts on community support for waste initiatives as solid waste becomes someone else's problem ie disposed of in another district or region and hence invisible
    - shifts from waste minimisation initiatives to pay for emission units in order to avoid increases in the delivery of waste services and subsequent risks of illegal dumping.

12. Councils work hard on educating local communities on appropriate reduction and disposal of waste. This includes kerb-side collections for waste and recycling and involvement in other initiatives such as composting. Together with improved landfill management systems and the installation and operation of landfill gas recovery technology, this has contributed to a reduction in landfill greenhouse gas emissions from 2.1 million tonnes carbon dioxide equivalent in 1990 to 1.3 in 2008.[4]

Cost implications

13. Existing landfill operators include local authorities, particularly in low populous areas. Discussions with local authorities on ETS obligations suggest that many of the smaller landfills will close when existing consents expire. Alternatives for residual waste disposal will have to be found.

14. In July 2009, the cost of the provision of waste services increased with the introduction of the Waste Minimisation Act (2009) levy of $10.00 per tonne of waste disposed of at landfill and in 2013/14, obligations under the ETS will see a further increase. There is no way of generalising the increase in cost to users of landfills from ETS obligations however.

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[2] http://www.doc.govt.nz/getting-involved/volunteer-join-or-start-a-project/know-your-weeds-and-animal-pests/weeds/garden-escapes/

[3] MAF *Managing Pests in New Zealand: Discussion Paper and Legislative Changes.* http://www.biosecurity.govt.nz/biosec/pol/biosecurity-act-review

[4] http://www.mfe.govt.nz/issues/climate/greenhouse-gas-emissions/project-greenhouse-gas-emmissions-from-waste.html

Emissions from landfills are influenced by gas collection systems and the composition of the residual waste stream. This in turn is influenced by the incentives and infrastructure for waste diversion, competition from other landfills and the management policies and priorities of the landfill owner.

15. Furthermore, the ETS is linked to the international markets to ensure liquidity and alignment of the price of units to international prices. Exposure to the international market introduces a degree of uncertainty in the cost of emission units that local authorities find difficult to make provision for in the long term planning process required under the Local Government Act**.**

16. Local authorities are accountable to their communities. In a budget constrained environment it is possible that some existing waste services such as kerb-side collections and composting will be reduced to off-set the cost of ETS obligations.

17. From previous experience with increasing the cost of waste disposal local authorities know that this comes with an increase in illegal dumping incidents. The cost to local authorities of illegal dumping includes administration, investigation (often in remote locations), protective clothing, transport, staff time, surveillance and site clean-up. If fines are not paid a collection agency becomes involved and receives 20 percent of the total fine. As examples of the cost of illegal dumping, Christchurch City Council reported that they spend $800,000 a year, Whangerei District Council estimates costs in the order of $50,000 - 70,000 and Queenstown Lakes District $20,000 per annum.

Who will pay?

18. Acknowledging uncertainties, it is clear that the greatest impact of the ETS obligations will fall on small and hence less well resourced, local authorities. The communities these local authorities service are often geographically isolated and the option of utilising larger landfills where landfill gas is captured, is an additional cost in the provision of waste services. Additional costs include transport and an increase in disposal fee. Even with gas capture there is an obligation to estimate and pay for the net amount of actual emissions post the destruction process. There is also a risk that with the dominance of the waste sector by EnviroWaste and TransPacific, the provision of landfills will likewise be captured by a small number of providers and result in unreasonable waste disposal charges.

19. The same characteristics of isolation and small population suggest that alternatives such as river banks and farm pits are readily accessible alternatives for anyone not inclined to pay disposal fees. This will have subsequent environmental impacts.

20. While the impact of the ETS on small local authorities is self evident, preliminary results indicate that where waste volumes are in the order of 20,000 tonnes or less per annum or the remaining consenting period is up to 15 years, the installation of gas capture and destruction infrastructure is not cost effective at this time[5]. These communities will have to pay the

[5] A number of factors such as the price of emission units and/or the cost of gas destruction systems could change the outcome of cost benefit analysis in future.

obligation of 1.10 tonnes of CO2 per tonne of waste at $25 per tonne for NZ units, or $21 per tonne on the secondary market.

21. Taupo and Queenstown fall into this category. These communities will carry an additional financial burden up to $462,000 per annum from 2013 ie 20000 tonne residual waste x 1.1 x $21.00.

22. New Plymouth District Council has documented the implications of the ETS on options for disposal of residual waste as a case study for this submission (see Appendix 2). The Colson Road landfill was opened by New Plymouth District Council in 2002. Since 2006 it has operated as a regional landfill taking waste from New Plymouth, South Taranaki and Stratford District Councils. The case study documents the influence of the following factors on the cost effectiveness of capturing gas:

    - waste volume
    - waste composition
    - gas capture/ re-use including unique emissions factor
    - gas capture to generate electricity
    - further waste minimization initiatives to extend the ilfe of the landfill.

23. At 65,000 tonne per annum and 14 years left on the existing consent, the installation of a gas capture and destruction system is not cost effective for New Plymouth District Council. Obligations under the ETS will cost these communities an additional $1,501,500.

24. Detail on annual tonnage of waste to landfill and the landfill consenting period is provided in Appendix 2 for a range of local authorities. Time available to prepare this submission did not allow us to develop the complete picture.

Proposed adjustments

25. We consider an exemption from the ETS obligations or Government funding, similar to the free allocation of units to other sectors, should be made available to the local authorities with low population and/or geographic isolation (including island communities) to avoid incurring other costs such as illegal dumping and early closure of small landfills. Additional benefits of an exemption is the opportunity for local authorities and their communities to maintain control over the waste stream as required under provision in the Waste Minimisation Act (2008).

26. At its simplest, adjustments could be made until the existing landfill consents expire for communities most disadvantaged by the ETS. Consideration should also be given to permanent exemption from ETS obligations for some communities, with the option of linking to the deprivation index as per drinking water standards.

27. Longer term, consideration must be given to social and environmental impacts of the ETS and it is equally clear that for these same communities, viable alternatives to landfills do not currently exist. Any imposition that increases the cost of services will inevitably be equalled by social and environmental costs e.g. pest management. Given the fiscal constraints of

these communities we suggest central government investigate alternatives for the disposal of residual waste, small scale incineration for example[6].

28. We acknowledge further work is required to finalise possible thresholds for any proposed adjustments to ETS obligations and suggest that we work with the Review Panel to undertake more in depth analysis on this.

Tree weed exemption

29. Local authorities strongly support the exemption from obligations for landowners undertaking clearance of tree weed species eg pinus contorta. The exemptions were made available for the existing Kyoto commitment period 2008-2012. In effect this means tree weed clearance must be completed by 2012. It is important that the option of applying for an exemption is maintained for two more commitment periods (or the equivalent of two commitment periods given the uncertain future of the Kyoto agreement) before making any decisions on how the ETS may have changed landowner behaviour.

CONCLUSION

30. LGNZ is supportive of a review of the ETS obligations for landfill emissions.

31. Preliminary cost benefit analysis undertaken by councils suggests that where the remaining landfill life is 15 years or less and the total annual tonnage to the landfill is less than 20,000 tonnes, installing gas capture system is too expensive and these communities will have to pay the obligation of 1.10 tonnes of CO2 per tonne of waste.

32. An exemption from the ETS obligations or Government funding, similar to the free allocation of units to other sectors, should be made available to the local authorities with low population and/or geographic isolation (including island communities) to avoid incurring other costs such as illegal dumping and early closure of small landfills. Additional benefits of an exemption is the opportunity for local authorities and their communities to maintain control over the waste stream as required under provision in the Waste Minimisation Act (2008).

33. At its simplest, adjustments could be made until the existing landfill consents expire for communities most disadvantaged by the ETS. Consideration should also be given to permanent exemption from ETS obligations for some communities, with the option of linking to the deprivation index as per drinking water standards.

34. Given the fiscal constraints of these communities we suggest and the potential for negative environmental outcomes, central government should investigate alternatives for the disposal of residual waste, small scale incineration for example.

35. We acknowledge further work is required to finalise possible thresholds for any proposed adjustments to ETS obligations and suggest that we work

[6] Recent experience advising the NZ Aid programme suggests that investigations on alternatives to landfill would also assist the Governments aid programme in the Pacific.

undertake further work with the Review Panel before ETS review recommendations are finalised.

36. LGNZ thanks the ETS Review Panel for the opportunity to comment on the ETS Review 2011.

APPENDIX 1

New Plymouth District Council: Implications of the ETS on Landfill Planning and Management

Purpose

The purpose of this discussion paper is to outline the process of analysis undertaken by New Plymouth District Council regarding the implications of the Emissions Trading Scheme (ETS) on the planning and management of Colson Road Landfill.

Before ETS: snapshot of Colson Road Landfill in 2010

- Landfill opened by NPDC in 2002. Designed volume approx 1.17 million m^3
- Originally calculated to hold 800,000 tonne and estimated to be "full" some time in 2016. Current resource consents expire June 2025.
- Landfill currently accepts 65,000 tonnes per year[1]
- Financial information for NPDC solid waste operations:
    - Annual operating expenditure approx $2.4 million
        - Includes $650,000 waste minimisation levy; and Colson Rd operations contract $400,000
    - Annual revenue approx $3.4 million
        - Includes Colson Rd gate charges $1.75 million; municipal and MGB - $1 million
    - Annual operation surplus of approximately $1million goes to "development fund"
- Since 2006 Colson Rd Landfill has operated as a regional landfill for NPDC, South Taranaki District Council (STDC) and Stratford District Council (SDC). An understanding between these three councils means it is most likely that all three will utilise another regional landfill post closure of Colson Rd (new regional landfill still to be scoped/designed but most likely to be about 60km from NP Transfer station)

Review of Implications of ETS on NPDC (timeline)

NPDC has been considering likely implications since 2005:

- Since 2005, study reports have been commissioned by NPDC to identify opportunities for capture and re-use of Landfill Gas (LFG). The most recent study was jointly funded by Venture Taranaki Trust

[1] Approximately 50,000 tonnes from New Plymouth District and 15,000 tonnes from South Taranaki and Stratford Districts

- Originally the favoured option was to utilise landfill gas (LFG) as a replacement for the natural gas used in the thermal drying facility at the New Plymouth Wastewater Treatment Plant
- A further study report commissioned in 2010 expanded options to allow two further alternatives (LFG to electricity via GenSet; or LFG to vehicle fuel)

Development of NPDC Financial Model after Promulgation of Regulations

With the release, in July 2010, of the draft Climate Change (Waste) Regulations 2010 and Climate change (Unique emissions Factors) Amendment Regulations 2010 NPDC was able to start financial modelling to assess the financial impact of ETS obligations, with a view to the timeline as below:

- From 1 January 2012 mandatory reporting
- From 1 January 2013 liability for ETS charges

The NPDC financial model was constructed to help understand the financial implications of ETS on the operation of the Colson Road Landfill and thus to and to allow allocation of sufficient funds in the long term the Solid Waste operating and capital expenditure budgets.

1. Basic analysis

The first phase of the financial model was set up to calculate financial obligations for the most basic compliance with ETS:

- Waste volume considerations only
- Waste volume and composition considerations

At the time the model was constructed (July 2010), the current cost of the ETS levy was $18.00/NZU and there was indication that the ETS levy would be capped at $25.00/NZU until 31 December 2012. For simplicity of presentation in this document, results of the model relating to calculation of ETS levies have been presented based on the higher figure and then with the lower figure in brackets. The model allows the ETS levy to be varied, so the sensitivity of any ETS levy value can be assessed.

Waste volume only

- Default emissions factor = 1.1
- 65,000 tonnes per annum
- Annual cost of the ETS levy equates to $1,787,500 {$1,287,000)

Waste volume and composition only

- Results of 2010 Solid Waste Analysis Protocol (SWAP) used (refer to Appendix 1)
- Calculated emissions factor = 1.098
- 65,000 tonnes per annum

- Annual cost of the ETS levy equates to $1,784,000 {$1,285,000)
- Cost of running SWAP assumed to be $50,000[2] every three years

Evaluation

While there is certainty of the cost for the "waste volume only" option, the extra cost of undertaking SWAPs might actually make the second option more expensive. There is also the possibility that any future SWAP results might change the waste composition parameters and thus affect the unique emissions factor (UEF) utilised in the financial model

The financial model allows different waste compositions to be added to assess the effects on the UEF if used. The financial model also allows the cost of running a SWAP to be altered.

The annual cost of the ETS levy appears to be approximately $1.8 million for both of the options. The extra annual cost of ETS levy equates to about $27/tonne of waste.

2 Adding in gas capture / re-use

The next component to be added to the NPDC financial model allowed calculation of the UEF allowable for a scenario of gas capture and destruction or re-use.

Calculating UEF

Information given on the Climate Change website was reviewed, including the draft regulations, the Waste TAG discussion papers and the links to the IPCC website. The spreadsheet[3] provided by the IPCC website was then modified to use as the basis for and NPDC financial model.

The IPCC calculations are based on utilising the spreadsheet to calculate the theoretical LFG yield, which is based on waste volumes and compositions. The UEF allowed is then based on the ratio of:

actual gas captured : theoretical gas yield

This means that it is not possible to know what the UEF would be until you have actually set up a system which captures gas and measures the flow rate of the captured gas.

NPDC has estimated a "best case" ratio (or gas capture efficiency) of 75% and a worst case of 20%.

Presenting both of these possibilities, and utilising the 2010 SWAP compositions and the 65,000 tonnes per annum, the model calculates the following UEFs:

- 75% efficiency – UEF = 0.2745
- 20% efficiency – UEF = 0.8784

The financial model allows "best" and "worst" case ratios to be varied. Note that the regulations stipulate a maximum ratio of 90%. NPDC is not even sure that 20% is a low enough worst case –

[2] Approximate value noted by NPDC during ETS workshops late 2010 – value needs to be substantiated
[3] IPCC Guidelines (and spreadsheet) at http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html

especially based on a small landfill which was not designed for gas capture and which therefore may not be amenable to capping off discrete areas for effective gas capture.

Resulting ETS costs

The UEFs calculated above equate to the following annual ETS costs:

- 75% efficiency – $446,000 {$321,000); or $7/tonne ($5/tonne)
- 20% efficiency - $1,427,000 {$1,027,000); or $22/tonne ($16/tonne)

Other resulting costs

The studies commissioned by NPDC since 2005 have yielded CAPEX and OPEX estimates for different scenarios to capture and re-use the LFG. The following capital project scenarios were added to the financial model:

Option	CAPEX cost	Annual Opex Cost
Install LFG collection system and flare only	$1.9 million	$200,000
Install LFG collection system and flare plus GenSet to generate electricity	$4.6 million	$360,000
Install LFG collection system and flare plus pipe LFG to NPWWTP to utilise gas in thermal drying facility	$7.5 million	$430,000

The bottom two options could also result in a revenue stream – which was factored into the financial model. The revenue factors haven't been included here as they are dependent on the volume and quality of the gas collected as well as the price which could be obtained by NPDC for electricity generated, or the price which could be saved by NPDC for not using natural gas in the thermal drying facility. The financial model allows CAPEX costs, OPEX costs, and revenue figures (such as electricity prices etc) to be varied to assess the sensitivity

The range of uncertainty increases because it is no longer appropriate to review the analysis on the basis of one year as the situation has become a "project" with the capital expenditure in year 1 and then operating expenditure and maybe operating revenue in subsequent years.

Analysis of Options Until 2016

Initially, it was calculated that the Colson Rd landfill would run only until 2016 and so it was quickly evident that capital expenditure to install gas capture and re-use was not economically feasible due to the high capital cost and limited time to recoup these costs. There was also the high degree of uncertainty regarding likely gas capture efficiency from an existing landfill.

Refer to the excerpts below from the NPDC financial model to compare the financial implications of 1/ No Capital Expenditure and 2/ Installation of a GenSet. Both of these scenarios are based on the Colson Road Landfill closing in 2016

1/ Excerpt from Financial Model - No Capital Expenditure – Project Analysis at end of 2016:

		Comments
Sub Total - "**current**" operation of landfill	*$2,418,100*	*Includes all current (as at 2010) solid waste operations costs (including waste minimisation levy)*
Sub Total - "**enhanced**" operation of landfill	*$1,787,500*	*ETS charges*
TOTAL ANNUAL EXPENDITURE	*$4,205,600*	
Sub Total - **"current"** operation of landfill	*($3,442,600)*	*Includes all current (as at 2010) solid waste revenue*
Sub Total - **"enhanced"** operation of landfill	*$0*	*Any revenue from re-use of LFG*
TOTAL ANNUAL REVENUE	*($3,442,600)*	
TOTAL ANNUAL SOLID WASTE	***$763,000***	***DEFICIT***
Cumulative Total Since 2012	**$2,027,500**	

2a/ Excerpt from Financial Model – Install GenSet (**20%** capture efficiency) - – Project Analysis at end of 2016 - $4.6million CAPEX in 2012

		Comments
Sub Total - **"current"** operation of landfill	*$2,418,100*	*Includes all current (as at 2010) solid waste operations costs (including waste minimisation levy)*
Sub Total - **"enhanced"** operation of landfill	*$1,594,776*	*ETS charges ($1.4 million), extra operating expenses related to GenSet*
TOTAL ANNUAL EXPENDITURE	*$4,012,876*	
Sub Total - **"current"** operation of landfill	*($3,442,600)*	*Includes all current (as at 2010) solid waste revenue*
Sub Total - **"enhanced"** operation of landfill	*($119,703)*	*Any revenue from re-use of LFG*
TOTAL ANNUAL REVENUE	*($3,562,303)*	
TOTAL ANNUAL SOLID WASTE	***$450,573***	***DEFICIT***
Cumulative Total Since 2012	**$5,421,062**	

2b/ Excerpt from Financial Model – Install GenSet (**75%** capture efficiency)– Project Analysis at end of 2016 - $4.6million CAPEX in 2012

		Comments
Sub Total - **"current"** operation of Solid Wastes	*$2,418,100*	*Includes all current (as at 2010) solid waste operations costs (including waste minimisation Levy)*
Sub Total - **"enhanced"** operation of Solid Wastes	*$611,651*	*ETS charges ($0.45 million), extra operating expenses related to GenSet*
TOTAL ANNUAL EXPENDITURE	*$3,029,751*	
Sub Total - **"current"** operation of Solid Wastes	*($3,442,600)*	*Includes all current (as at 2010) solid waste revenue*
Sub Total - **"enhanced"** operation of Solid Wastes	*($448,886)*	*Any revenue from re-use of LFG*
TOTAL ANNUAL REVENUE	*($3,891,486)*	
TOTAL ANNUAL SOLID WASTE	***($861,735)***	***SURPLUS***
Cumulative Total Since 2012	**$272,711**	

Evaluation

As discussed at the beginning of the document, the current (2010) operating surplus for solid waste operations is approximately $1 million per year, which goes to a landfill development fund.

The table below compares the scenarios above with the current situation

Scenario	**Annual surplus / deficit**	**Total cost to NPDC at end of 2016**	**Extra total cost over 2010 baseline**
Current (2010)	$1 million surplus	$3 million surplus	-
Scenario 1	$0.76 million deficit	$2 million deficit	$5 million
Scenario 2a	$0.45 million deficit	$5.4 million deficit	$8.4 million
Scenario 2b	$0.86 million surplus	$0.3 million deficit	$3.3 million

There is a certainty that, by the end of 2016, Scenario 1 would result in an extra $5 million expenditure over the current (this equates to three years of ETS levy).

There is a high level of uncertainty regarding Scenario 2 which involves the installation of gas capture and a GenSet to produce electricity. Depending on the assumptions about the percentage efficiency of the gas capture and re-use, the result could range from an extra $3.3 million to an extra $8.4 million over the current. It was determined that Scenario 1 was the only feasible option for such a short project due to the high uncertainty in Scenario 2

3 Further Review

Analysis of Options – extended life of landfill

Towards the end of 2010 the input parameters to the financial model were revised to better reflect the current engineering practices in the landfill, which allowed re-assessment of how many tonnes of waste could be expected to fit in the remaining volume of the landfill. The financial model was updated to allow calculation of the expected closure date of the landfill – based on using up the nominated volume of approximately (1,170,000 m^3), and allowing the compression ratio to be varied in accordance with the better results obtained recently.

Further, the option of closing the Colson Road landfill early was put into the mix as a possible political option. One of the implications of the higher compaction ratio in the landfill due to better engineering practices would mean that the total tonnage to the landfill might exceed 1 million tonnes. It is possible that this might result in the landfill moving out of a "small landfills" category, with the result that higher levels of monitoring and compliance would be needed.

With an extended life, the financial viability of a capital expenditure project to capture and re-use landfill gas is more likely to be favourable. The financial model allows the wide range of variables to be altered to give sensitivity analysis of different scenarios.

Extend the analysis to review the costs of using alternative landfills

The long term financial implications of any decisions also have to take into account the costs after Colson Rd Landfill is no longer used. The financial model was extended to a 20 year analysis which also analyses the costs once Colson Rd is no longer used. The financial model calculates the closing date of Colson Road (either because it is full or because the decision has been made to close early). After the close date, the annual costs of solid waste operations incorporate transport and gate fee costs associated with using an alternative landfill. The spreadsheet model allows gate fees and transport costs per km to be varied.

At this stage, the following parameters have been added to the financial model for NPDC to use an alternative regional landfill for the 50,000 tonnes per annum from the New Plymouth District:

- Gate fees of $100/tonne[4] = $5 million per annum
- Transports costs to an alternative landfill approx 60km from the existing New Plymouth Transfer station approximately $1 million per annum
- Residual costs for operating NPDC solid Wastes operations$1.5 million per annum (includes operation of transfer stations, kerbside collection etc)

[4] The gate fees at $100/tonne have been inflated over current likely charges to take into account the $20 - $30 per tonne for ETS levies for a new landfill

There would be reduced operating revenue for the whole of solid waste operations also, with the loss of any revenue from Colson Road Landfill.

Waste Minimisation considerations

Based on the analysis above, there is indication that the cost of solid waste operations would increase significantly if an alternative landfill was used. Therefore NPDC has been focussing on investigating projects which could reduce volume into Colson Rd and thus extend its life and defer the more expensive option of transporting waste. The Waste Minimisation Levy was also introduced as a variable in the financial model as there is indication that this might change significantly in the future.

Ongoing work

The financial model is currently being modified to add in the expenses to NPDC of alternative collection and disposal of waste streams which might be diverted from landfill. Diversion of waste streams, while extending the life of the Colson Road landfill, could incur other solid waste operating costs such as separate collection and disposal of the diverted waste streams.

In May 2011, a workshop will be held with NPDC councillors to discuss the complexity of the decisions to make regarding the future of solid waste operations, plus the likely follow-on affects of possible decisions.

Possible Issues

The following last issues have been raised over the course of the analysis, but have not been addressed directly in this discussion paper

- Will any assistance be available to help undertake the IPCC calculations (or approved equivalent) to make application for the UEF relating to gas capture?
- Does the effective operation of a landfill with gas capture systems become too complex for some existing landfill operators?
- Are there any significant implications in keeping landfill volume below 1 million tonne?

Appendices

Appendix 1: Overall summary from 2010 SWAP

Please contact frances.sullivan@lgnz.co.nz for information regarding this appendix

APPENDIX 2

Local Authority	Averaged tonnes waste pa	Total cost C02 equivalent emission units @ $21	Landfill consent/life	Alternative landfill	Other comments
Tokoroa District Council	6000	$138,600	2020	Hampton Downs, North Waikato	Rotorua does not accept waste from out of the district
Dunedin City Council Waikouaiti	68	$1,570.80	2016	Green Island, Dunedin	
Far North District Council Ahipara	5000	$115,500	2014	Redvale Landfill, Auckalnd or Whangerei	Waste from southern part of the district already goes out of the district – 13000 tonne
Central Otago District Council Tarras Landfill Patearoa Landfill		Both the Tarras and Patearoa landfills close next year		Victoria Flats Landfill Queenstown	
Queenstown-Lakes District Council Victoria Flats Landfill	17000	$392,700	2071 – landfill life	Green Island, Dunedin	Currently evaluating options to meet ETS obligation. Landfill volumes will increase with waste from Central Otago.
Auckland Council Great Barrier Island Claris landfill	less than 1000	$23,100	2027	Redvale Landfill ,Auckland	
Taupo District Council Broadlands Rd Landfill	19000	$438,900	2038	Tirohia Landfill, Paeroa Hampton Downs, North Waikato	Rotorua does not currently take waste from out of the district.
Grey District Council McLeans Pit Landfill	8500	$196,350	2032	Nelson	
Gisborne District Council	1000	$23,100	2026	Tirohia Landfill, Paeroa	

Waiapu Landfill					
Waitaki District Council Oamaru Landfill Palmerston Landfill	 9400 360	 $217,140 $8,316 Total $225,456	 2027 2016	Green Island, Dunedin	
Waitomo District Council	10,000	$231,000	2033	Tirohia Landfill, Paeroa Hampton Downs, North Waikato	
Tararua District Council Pongaroa Landfill Eketahuna Landfill	 48 65	 $1108.80 $1505.50 Total $2610.30	 2026 2030	Central Hawkes Bay DC	Pahiatua and Dannevirke landfills closed in November 2010. Waste now going to Central Hawkes Bay District Council. CHBDC not sufficient waste volumes for gas capture.
Central Hawkes Bay District Council	4500	$103,950	2030	Bonny Glen, Martin	Hastings does not accept waste from out of district at this time
Tasman District Council	27500	$635,250	2015 but landfill life to 2061 approx	Nelson City York Valley Landfill	Early discussions with Nelson City on shared service option
Clutha District Council Mount Cooee Landfill	10,000	$231,000	2023	Green Island, Dunedin or Invercargill	
Buller District Council Karamea Refuse Tip Maruia / Springs Junction	 105 25	 $2425 $578 Total $3003	 2034		
Westland District Council Butlers Landfill, Hokitika	 2500	 $57750	 2044	 Grey District McLeans	Transporting waste from South Westland

Haast landfill	10.8	$250 Total $58,000	2038	Landfill or Nelson	but not Haast as too expensive to transport small volumes of waste. In process of closing smaller landfills to leave only Butlers and Haast.
Ruapehu District Council	4000	$92,400	2021	Bonny Glen, Martin	
New Plymouth District Council	65,000	$1,501,500	2025	Taranaki regional landfill (c. 2016) or Bonny Glen, Martin	The decision to construct another Taranaki regional landfill post closure of Colson Rd has not yet been confirmed