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To P.H. Lui,  
Environmental Protection Department,  
Infrastructure Planning Group,  
3/f West Wing,  
88 Victoria Road  
Kennedy Town  
Hong Kong

17 April 2012

Dear P.H.

This responds to your letter of 19 March, as emailed to me on 20 March, as received by me on 22 March in an envelope date stamped 20 March, suggesting it was not drafted (and certainly not dispatched) until after my radio debate with Elvis Au of 19<sup>th</sup> March (Kwok Talk with Liz Case from 2pm to 3pm) when I asked why I had received no response from EPD to my emails of 13 January and 7 February, despite follow-up reminders.

It seems it required a public radio debate to prompt your response to my emails.

\*

You end your letter saying 'we trust the above information and our previous correspondences and discussions have addressed the issues you raised.' Well, they have not. I have further – mostly re-iterated - comments, concerns and questions in response to yours.

My abiding concern is that the Environmental Protection Department is failing to address legitimate concerns raised as to the adequacy of its decision making process in relation to the proposed incinerator.

\*

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Here are my specific comments, concerns and questions:

A. Landfill Exhaustion:

- a. Thank you for confirming that the proposed IWMF will not obviate landfill extension (as now also confirmed by your submission to the Legco Environment Panel submitted on 20 March, the same day of posting your response to me.)
- b. Given that EPD has now applied for significant landfill extension, please:
  - i. Confirm that, assuming the existing landfill sites are extended as now recommended by EPD, they will not be exhausted until 2030 earliest.
  - ii. Explain why you believe there is still immediate urgency in building the proposed IWMF in light of the extended life of the landfill as now recommended by EPD.

B. Mass-Burn Incineration as 'best available technology' for IWMF Phase 1:

- a. You say that this technology is 'well proven' and that 'it is therefore regarded as the best technology available'. That a technology is well-proven does not mean that it is the best available. A pony and trap are well-proven means of transport. There are many alternatives (cars, trains and planes) which are superior for bulk transportation. Alternative technologies such as plasma gasification which you insist are not well-proven for MSW treatment are now accepted as such by cities in Europe and the Americas as well as Asia. By 2020, when you plan to bring the IWMF onstream, plasma gas facilities will be operating at capacities of up to 1,000tpd MSW around the globe. Mass Burn Incineration will look pre-historic as these other cities reap the benefits of higher waste to energy conversion combined with minimal toxic emissions to air and no output waste to landfill.
- b. You say that MBI technology is well proven in terms of 'cost-effectiveness'. In your submission to Legco's Environment Panel, the EPD estimates annual running costs for the IWMF Phase 1 at HK\$353 million. You have been advised repeatedly that other technologies such as plasma gas can operate at a profit when



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processing as little as 300 tpd of MSW. MBI is therefore clearly an inferior technology in terms of cost-effectiveness.

- c. You also do not deny that MBI proposed for IWMF Phase 1 will result in significant volumes of ash (at least 10% in volume on your own estimates) needing to go to landfill after treatment for toxicity. You have been advised repeatedly that other technologies such as plasma gas will produce NO output needing to go to landfill. MBI is therefore clearly an inferior technology in terms of landfill exhaustion and overall environmental performance.
- d. You have been told repeatedly that plasma gas suppliers are able to provide equivalent capacity at less capital cost, running at a profit using a smaller geographic footprint. (You asked for proof of this in your letter and it is provided below – proof which you could have easily obtained for yourself by contacting the plasma gas suppliers in question.) You therefore have no basis for claiming that the proposed MBI technology is the ‘best available’.

**C. Selection of technology – Plasma Gasification:**

- a. You refer to ‘our technology consultant’ as having ‘close contacts with various technology providers including Phoenix Solutions Corporation, PyroGenesis Inc, Westinghouse Plasma Corporation, etc.’ You then state that your consultant ‘considers it is not appropriate to release the exchange information [sic] between them and any technology provider to a third party.’
  - i. It is good to know that such information exchange exists and, should this issue end up being debated in court proceedings, it will be discoverable as relevant to the question of technology selection. I therefore suggest you re-discuss with your consultant and put it on notice that it will be required to make full disclosure of that information exchange at that stage, and invite it to re-consider generally its current position.
  - ii. Please also advise whether EPD has already been provided with full details of this information exchange and, if not, explain why not?
- b. You state that your consultant’s technology review was accepted by ACE as concluding plasma gas technology is ‘not suitable for IWMF Phase 1’. You have received repeated submissions pointing out



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ways in which that technology review and the ensuing analysis of plasma gas technology prepared by the same consultant for the EIA is defective. There seems little point in going over the arguments with you here once more except to point out that saying – as you do – that ‘ACE did not object to the proposed employment of moving grate incineration technology’ is highly (and it seems deliberately) misleading. At the meeting of the ACE subcommittee of 5 December 2011, members of ACE expressed great interest in plasma gas technology but concluded by saying that it was not for them to challenge the recommendations of your consultant. In other words, ACE did not challenge or endorse this recommendation in any meaningful way but simply acceded to it.

- c. You say you ‘could not find any evidence or information indicating that 2,500 tpd MSW were treated by plasma gasification technology at the GM plant in Ohio’. That must be because you chose not to ask Solena Group, who referenced this plant in their critique of the EIA. Their response to this question reads as follows:

*THE GM PLANT WAS IN PART DESIGNED BY OUR FOUNDER, WHO WAS AT THAT TIME A CONSULTANT TO THE OLD WESTINGHOUSE CORP. THE GM PLANT HAS THE CAPABILITY OF PROCESSING 100 TONS PER HOUR OR 2400 TONS PER DAY OPERATING 8000 HOURS PER YEAR. IT DID NOT PROCESS MSW. IT WAS BUILT TO PROCESS A BROAD HETEROGENOUS MIX OF SCRAP METAL, WHICH METAL WHEN MELTED WAS Poured INTO FORMS TO CREATE ENGINE BLOCKS. IT DID PRODUCE SYNGAS, BUT GM MANAGEMENT DECIDED NOT TO CAPTURE IT FOR POWER PRODUCTION. THE PLANT HAS A PERMIT TO FLARE THE SYNGAS. THIS MIX OF SCRAP IS PROBABLY AS COMPLICATED PER TON OF WASTE AS MSW, BUT HAS LESS ORGANIC MATTER THAN MSW. THIS PLANT PROVES THAT ALL THE PLASMA GASIFICATION COMPONENTS ARE COMMERCIALY VIABLE AND A PROVEN SYSTEM. IT IS ESSENTIALLY THE SAME SYSTEM WE USE NOW, BUT WE CAPTURE THE SYNGAS AND PRODUCE POWER AND FUELS. BY THE WAY, SASOL HAS MORE THAN 80 GASIFICATION REACTORS AS LARGE OR LARGER IN OPERATION USING NATURAL GAS AS A FEEDSTOCK TO PRODUCE THE*



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*SYNGAS THAT IS CONVERTED IN A FISCHER TROPSCH  
UNIT INTO JET FUEL..*

- d. You say you 'could not find any credible information or evidence supporting that for large scale MSW treatment, plasma gasification plants are of generally lower construction and operating costs than the moving grate incineration plants.' Well, that is precisely what the Solena submission stated, and that is also what you have been told by Tom Vincent on behalf of Westinghouse Plasma's Alter NRG (in February 2011 and then again last month) when he presented you personally (with Mr Andrew Lau in attendance) with this same information in a meeting at your offices. I myself relayed this same information from a third supplier, APP/Tetronics in November 2011 (the email to which Echo Leung's email of 5 December responded but without replying to this particular point). I rechecked this with APP earlier this month who confirmed it to be so. You can yourself verify with these same suppliers the same information – or do you prefer to rely on the assertions of your technology consultant in relation to this project (at the same time ignoring the assertions of that same technology consultant in relation to plasma gas technology – see further below under 'AECOM')?
- e. Solena have now fortified what was stated in their submission as follows:

OF COURSE IT IS NOT POSSIBLE TO PROVIDE CAPITAL AND OPERATING COSTS WHEN THE BASIC DATA WE NEED FOR OUR MODELS WAS NOT PROVIDED BY THE HK GOVERNMENT. IF THEY WOULD LIKE SUCH A MODEL, WE WOULD BE HAPPY TO PROVIDE IT UNDER A CONTRACT TO THE CITY AS LONG AS THEY PROVIDE ALL THE DATA WE NEED. KEEP IN PERSPECTIVE THAT A GASIFIER FACILITY OF COMPARABLE SIZE THAT WOULD PROCESS THE SAME VOLUME OF WASTE WOULD PROBABLY COST LESS THAN US\$1 BILLION, BUT NOT HK\$15 BILLION. OF COURSE, WE WOULD NOT NEED TO SPEND THE FUNDS NECESSARY TO CREATE ARTIFICIAL ISLANDS THAT WERE PROPOSED FOR THE HK INCINERATOR. IN FACT, IT MAY MAKE MORE SENSE TO BUILD TWO OR



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THREE GASIFIERS ON EXISTING LANDFILL LAND. THOSE LANDFILLS COULD BE MINED FOR FEEDSTOCK IF THERE WAS A DECLINE IN THE MSW VOLUME PRODUCED ON A DAILY BASIS.

THERE IS NO WASTE CREATED, I.E., NO ASH AND NO POLLUTION OF ANY KIND. THE SLAG CAN BE USED FOR CONSTRUCTION PURPOSES SINCE IT IS CLASSIFIED AS INERT.

THERE IS A VERY LARGE VOLUME OF LITERATURE WORLD-WIDE THAT SHOWS BUILDING INCINERATION PLANTS TO BURN WASTE IS A MISTAKE BECAUSE OF THE INEFFICIENCIES OF THE BURNING PROCESS AND THE TOXIC ASH AND CHEMICALS PRODUCED WHICH ARE HARMFUL TO THE ENVIRONMENT AND TO ALL LIFE FORMS.

As to whether capital and operating costs are higher for Plasma Gas HOW CAN THEY BE HIGHER IF THE RETURN ON INVESTMENT IS OVER 20% AND THE PAYOFF OF CAPITAL COSTS IS LESS THAN FIVE YEARS? THESE PLANTS EXPORT MILLIONS OF GALLONS OF HIGH DEMAND FUELS AND EXPORT EXCESS RENEWABLE POWER TO THE GRID.

As to whether geographical footprint is greater for Plasma Gas. 20 ACRES IS WHAT WE NEED TO PRODUCE 20MW NET OF RENEWABLE POWER, OVER 30 MILLION GALLONS OF BIOFUELS, PROCESS 2000 TONS DAY, ETC. WITHOUT CREATING ANY KIND OF POLLUTION, NO TOXIC ASH (WHICH AN INCINERATOR OF THE SIZE IN HK WILL NEED TO BE DISPOSED SOMEWHERE ELSE AND SHOULD BE PART OF THAT BURNER'S FOOTPRINT).

As to whether the Plasma Gas technology is less robust with likelihood of operational problems and more down time than



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MBI. THE PLANT IS FULLY WARRANTED TO OPERATE AS DESIGNED OVER 8000 HOURS PER YEAR. THERE ESSENTIALLY IS NO DOWNTIME. THIS CAN BE ATTESTED BY VISITING THE GM FACILITY, WHICH HAS BEEN OPERATING SINCE 1987 WITHOUT PROBLEMS. IT HAS AN AVAILABILITY OF OVER 98% , WHICH NO INCINERATOR CAN MATCH.

\*

On the question of cost, geographical footprint and pre-sorting, Advanced Plasma Power commented earlier this month as follows (their answers highlighted in yellow):

*Please confirm that a plasma gas facility of equal capacity to the proposed MBI (3Ktpd) would cost no more AS OVERALL PROJECT COST WE WOULD CERTAINLY BE CHEAPER AS NO LAND FOR ASH DISPOSAL AND PLANT SIZE MUCH SMALLER.*

*and would be more robust in not requiring pre-sorting. WHY DON'T THEY FOLLOW THE REST OF THE DEVELOPED WORLDS EXAMPLE HERE ON THE 3 R'S-RECYCLING IS AN IMPORTANT REVENUE STREAM AND ITS ECO FRIENDLY-WHAT IS THEIR DRIVER FOR NOT WANTING THIS? OUR SYSTEM IS DESIGNED WITH THE LATEST PHILOSOPHY IN MIND HENCE PRESORT, IT ALSO MAKES THE PROCESS AND RESULTANT PARASITICS (IE NO MOISTURE OF GRIT) LOWER AND MORE EFFICIENT*

*Are you able to provide any confirmation of ballpark costs for current projects from which to extrapolate an estimated cost for an equivalent capacity MBI, YES WE CAN BUT NEED TO ASSESS ECONOMIES OF SCALE HERE AS THIS WILL REAP THE MAXIMUM AMOUNT THROUGH REDESIGN OF ANCILARY EQUIPMENT-WE NEED SPEC AS THE MBI BOYS HAVE HAD TO PUT US ON AN EQUAL PLAYING FIELD*

*plus a confirmation that these projected facilities will NOT require pre-sorting (other than shredding) by contrast to MBI WE CAN DO THIS BUT WHY ON EARTH WOULD YOU WANT TO DO IT BOTH ENVIRONMENTALLY AND ECONOMICALLY?*





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- f. Judging from what you state in para 2 of page 3 of your letter ('we would welcome waste treatment technology providers, including that of plasma gasification, to keep us posted on developments and credentials of their technologies and applications'), you think it appropriate for EPD to wait passively for relevant knowledge to be streamed to it by technology suppliers. This is at odds with the impression promoted by the earlier part of this section of your letter stating that you – via your technology consultant – have 'maintained close and continuous review/studies on information and updates about waste treatment technologies and facility developments'. It should be YOUR responsibility, as the self-titled Environment Protection Department of Hong Kong, to be pro-active in establishing the requisite information links with these technology providers, rather than relying on ME to relay your 'welcome' invitation to those same organizations – all the more so now you know about the significant proven benefits of plasma gas.

**D. Selection of technology – Green Island Cement**

- a. You state that 'only a few tonnes of MSW were actually treated by the [GIC] pilot plant each day during the time of testing'. Please explain:
- What pilot plants have been operated by whom over what period and processing how many tonnes of MSW per day in relation to the proposed IWMF Phase 1 incinerator. (Please identify in particular the location of these plants and from where the MSW treated by those plants was sourced.)
  - Why you disregard data obtained by the operation of the GIC test plant - located in Hong Kong using Hong Kong MSW – when those results demonstrate that this plant can operate with NO significant toxic emissions and NO output waste going to landfill.
- b. As I understand it, EPD advised GIC when it presented this data in 2008 that its proposal for a fully operational plant formed no part of EPD's plans for Hong Kong. Please explain why, when presented with such positive test information, EPD chose NOT to support further testing to whatever standard it considered appropriate but instead effectively slammed the lid on this innovative and home-





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grown technology (and re-iterating your previous answer that GIC's technology was unproven to the requisite volume will not suffice as an answer, because that is precisely what GIC was willing to verify based on its test data if not discouraged from doing so by EPD.)

- c. Your answer to my request for an indication of maximum tipping fees runs as follows: 'it has been government's policy that open tendering would be used for procurement services from competent service providers, if the Government is to go for private sector participation in waste treatment'.
  - i. This is, with respect, no answer to the tipping fee question. Whatever tipping fee might be established by open tender in relation to any other facilities, it is still possible for EPD to give an indication of the maximum tipping fee it is willing to pay GIC in return for GIC's proposed proprietary waste facility, by which GIC could then gauge the facility's likely economic viability. (In the same way, I expect EPD to establish from CLP upfront what CLP is willing to pay for electricity generated by the proposed IWMF – but perhaps I am over-optimistic as it seems from statements made by Mr Elvis Au last month that these negotiations have only just commenced.)
  - ii. This same answer suggests that a decision has yet to be taken to use the private sector for waste treatment. However, it has long been Government policy to employ private contractors to collect and dump waste at landfill sites. Please explain how this is any different in principle from Government relying on a private contractor to dispose of waste in a treatment facility such as that proposed by GIC?

E. AECOM's position in the project:

- a. My question to you was as follows: **Please will you clarify on what basis Aecom has been so appointed, including the terms of the tender by which Aecom bid for this appointment?**
  - i. Please provide the terms of this appointment.
  - ii. Please advise who else bid for this open tender appointment.

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iii. Please advise how this open tender appointment was advertised (dates of newspapers, gazette etc).

[If you are minded to reiterate in response that you 'conducted an open tender exercise according to Government's established practice and procedures' please bear in mind that the relevant information and documentation will be discoverable in any relevant court proceedings.]

- b. ***In relation to Mike Zebell's statement (that "We believe that this technology is not only environmentally friendly, but ready for large-scale commercialisation.")*** your response – which you say comes from your technology consultant - is quite simply and demonstrably wrong. A Google search of the internet suffices to establish that Mike Zebell made this statement as a fully authorized representative of AECOM US for a press release issued in relation to the Milwaukee plasma gas project – please see the following links as evidence:

[http://alternrg.com/press\\_release\\_94407](http://alternrg.com/press_release_94407)

<http://altpowerconstruction.com/index/webapp-stories-action?id=268>

<http://www.wisbusiness.com/printerfriendly.iml?Article=184142>

Are you really saying that AECOM now says it really didn't mean what it was saying in this press release and only made this statement because it was relying on what it had been told by AFE?

If so, this suggests that AECOM's pronouncements on the worth of mass-burn incineration technology for Hong Kong should be given similarly weighted credence.

Please note that the Milwaukee plasma gas project appears to be still on track – see <http://www.kcrg.com/news/local/Marion-Approves-Plasma-Contract-141139923.html> - and is expected to be operational from 2013, processing 195,000 tonnes per year (over 500tpd).



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**F. Disposal of Ash:**

- a. You state that 'there should be no scenario of the Government not pursuing [waste reduction] measures'. On this basis, the landfill extensions should further reduce the purported urgency of implementing the IWMF, as there should be significantly reduced flows of MSW to those landfills.
- b. You state that 'pre-treatment of the fly ash and air pollution control residue of the IWMF would take place at the IWMF site' and that 'ash from the IWMF would be disposed of at the WENT landfill'.
  - i. Assuming that the landfill extension under your proposed new strategy will only last to 2030, where will the ash/cemented blocks be taken after that? Will new landfill be created or will the cement blocks be placed in the open and exposed to the environment?
  - ii. How are you going to ensure non-leaching from the cement blocks?
  - iii. How long must the ash remain cemented before it ceases to be toxic ie. how long will it have to be kept out of the food chain so as not to represent an environmental hazard to future HK residents?
  - iv. Encapsulation of toxic ash into cement blocks on site – please provide the process diagrams and plant design for the fly ash pre-treatment facility to be built on Shek Kwu Chau, including the dock loading and unloading area, cement storage and effluent, and confirmation that this facility will be built on the artificial island, not Shek Kwu Chau island itself.

**G. Costs:**

- a. Your letter states that you are 'finalizing the cost estimates for the IWMF project [which] would be available soon.' In fact, EPD made this cost estimate public for the first time (in its briefing to the Legco Environment Panel, reference **CB(1) 1369/11-12(01) on the very same day you sent me your letter, 20 March.** You must therefore have known this cost estimate when you sent me this letter but chose not to provide it to me. Why?
- b. Please will you now provide full supporting documentation for the proposed cost estimates (HK\$11.43 billion for construction and



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HK\$353 million annual running costs, each at September 2011 prices).

- c. Please will you also provide full supporting documentation for the cost estimate of building at the alternative site of Tsang Tsui Ash Lagoons (publicly announced for the first time in a letter from Elvis Au to the South China Morning Post published on Tuesday 10 April to be 'about \$9 billion').

H. Meeting Plasma Gas Suppliers:

- a. **APP say they have been emailing you repeatedly over the last 2 months in follow-up to the proposal sent to you in February this year (as further submitted to the Legco Environment Panel last month) and have received no response from you. They are willing to come to Hong Kong to meet you this month or next. Their primary contact for this purpose is Mr Stephen Gill who is based in the UK. His contact details are:**
  - i. DDI: +44(0)1793 238546
  - ii. Mobile: +44 7557 377801
  - iii. Email [stephen.gill@app-uk.com](mailto:stephen.gill@app-uk.com)
  - iv. Website [www.advancedplasmamapower.com](http://www.advancedplasmamapower.com)
- b. Solena say they are also available to come to Hong Kong in May. Their primary contact for this purpose is Dennis Miller who is based in Washington DC, US. His contact details are:
  - i. Email [dmiller@solenafuels.com](mailto:dmiller@solenafuels.com)
  - ii. DDI +1 202 682 2405
  - iii. Website [www.solenafuels.com](http://www.solenafuels.com).
- c. Westinghouse Plasma have a representative in Hong Kong, namely Tom Vincent, whom you have met. Their US Vice President for Business Development, Mark Wright, when asked about the 950 tpd gasifier unit being built for the Tyne Tees plasma gas facility, stated in an email earlier this month: 'We are building it and should ship in about 11 months.' He said to tell you to come on over to observe the unit in construction so that you can see for yourself that this is a real project on track to start operating within the next 2 years. Mark Wright is based in Atlanta, Georgia, US. His contact details are:
  - i. Email [wrightm@westinghouse-plasma.com](mailto:wrightm@westinghouse-plasma.com)
  - ii. Mobile +1 770 696 7698



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Alternatively, you can contact them via Tom Vincent, whose details are:

Email [tomvin@netvigator.com](mailto:tomvin@netvigator.com)

Mobile 91050145

Yours sincerely,

Tom Hope