



Legco
Hon Chairman and Members
Public Accounts Committee
Attention all Hon members

22nd January 2016

Dear Hon Members,

I refer to the recent Director of Audit Value for Money report on the Environmental Protection Department.

Please find herewith information on the Hoddesdon UK Anaerobic Digestion plant as shown in the attachment '**OWTFHoddesdon-vs-HKG**'. The UK plant at full operation will be 181 tonnes per day versus OWTF 1 @ 200 tonnes per day (assuming the EPD can find enough feedstock)

I refer you to Pages 2 and 3 of the above attachment, article by Lai See 'Digesting the Price' and letter to editor 'Concerns over new organic waste plant' by Emily Lam.

Further, on page 3 of said attachment, I refer to the reply from Mr Elvis WK AU of EPD, 'Unfair to compare one-stage UK example with Hong Kong waste plant' Friday, 28 March, 2014, 3:54am Comment Letters and specifically to the text comments in the two paragraphs highlighted in red.

Paragraph 1 Elvis Au Quote:

As regards the issue of cost raised in Lai See, the scale, scope, type and site conditions for the food waste treatment plant in Hertfordshire, UK, are **very different from those of OWTF phase 1**. The Hertfordshire plant is only **a single-stage process using anaerobic digestion to produce electricity only**. **OWTF phase 1 is a two-staged process using anaerobic digestion and composting to produce electricity and good quality compost and is designed to operate every day throughout the year.**

In rebuttal of this statement by Mr AU, please refer to Page 1 and 2 of the attachment, an article from Waste Management World regarding the Hoddesdon project:

<http://waste-management-world.com/a/imtech-wins-14-5m-contract-for-3mw-food-waste-to-biogas-ad-plant-in-herts>

It will also produce 18,000 tpa of renewable fertiliser material, displacing requirements for non-renewable alternatives.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292473/426765_EA_QP_Anaerobic_Digestate_web.pdf

The process includes

- **depackaging of waste materials,**
- **sanitisation in compliance with the ABP regulations,**
- **biogas cleanup prior to CHP utilisation,**
- **across-plant odour control, and**
- **an innovative biological wastewater treatment plant, enabling the recycling of process water.**

Hence it would appear the only major effective difference between the two plants is that the HKG plant has an educational facility for reasons best known to HK Government, that the UK plant can handle 181 tonnes per day versus 200 tpd in Hong Kong. Both plants produce electricity and like amounts of compost, and of course, THE PROJECT PRICE.

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Paragraph 2 Elvis Au Quote:

The Hertfordshire plant is located in an industrial area of **approximately six hectares**.
OWTF Phase 1 has to fit into a very compact site of about 2.2 hectares and

2) meet very challenging engineering conditions and stringent environmental standards.

3) The cost figure for the Hertfordshire plant refers to the construction cost only, excluding, for example, the costs of design, contract administration and supervision, and technology supply. The project estimate for OWTF phase 1 accounts for the total project cost of the design, construction and commissioning.

Please see page 4 of the attachment: **Old power station site area Hoddesdon UK**

The site area and roadways of the old dismantled power plant are indeed 6 hectares. However, the Hoddesdon new A-D plant along with its redesign (see attachment page 5 Consented Scheme / Amended Scheme layout) requires a far smaller area than the former power station. Indeed, Tamar Energy, the Hoddesdon plant operators and owners rented only the required area necessary to build the plant efficiently:

In fact just 1.1178 hectares was leased by Tamar Energy

<http://www.petchey.co.uk/rattys-lane-hoddesdon-hertfordshire>

Rattys Lane, Hoddesdon, Hertfordshire, EN11 0RF The Hoddesdon property comprises a **2.76 acre (1.1178 hectares) site** let to Tamar Energy Ltd on a long lease expiring in 2040. The site is currently under development and on completion will comprise a new Anaerobic Digestion Plant which will provide energy from household waste. Hoddesdon is situated within Hertfordshire approximately 22 miles to the North of the M25. The site benefits from excellent road communications linking to the M1/M11/M25 & A10. The main access point to the site is directly from Ratty's Lane. (Note: 1 acre = 4840 sq yards / 0.405 hectares)

Whereas the HK OWTF 1 plant according to Elvis AU uses DOUBLE that UK plant area at 2.2 hectares in Hong Kong.

2) **“meet very challenging engineering conditions and stringent environmental standards”**

In this regard, referring to the articles shown in Page 1 and 2 of the attachment, in fact the UK project is far more challenging, engineering wise and overall :

The ex-power station site is exceptionally complex, with numerous challenges, including a flood plain location, ecological considerations, high pressure gas main through the centre of the site, adjacent 400kVa high voltage overhead power lines, in ground power lines and an adjacent historic asbestos landfill.

“The ex-power station site is exceptionally complex, with numerous challenges, including a flood plain location, ecological considerations, high pressure gas main through the centre of the site, adjacent 400kVa high voltage overhead power lines, in ground power lines and an adjacent historic asbestos landfill,” explained Tony Wilson, director of construction and operations at Tamar Energy.

The facility will include equipment to depackage waste materials, sanitisation systems that meet Animal By-Product regulations, equipment to clean the biogas prior to use by the gas engine generators, odour control equipment and a biological wastewater treatment plant that will enable the recycling of process water.

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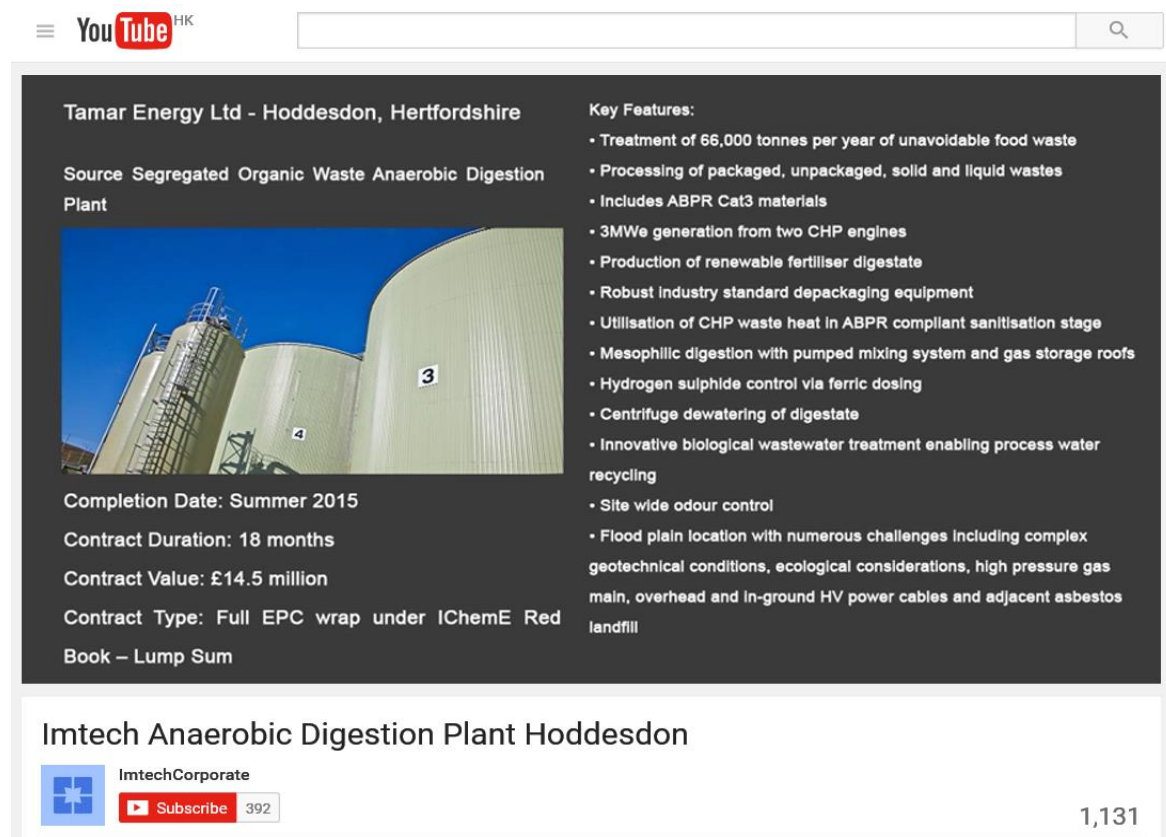
This is frankly, prima facie, a blatant lie or blatant failure to evaluate the UK project in depth with intent to mislead Legco.

First, I would ask that you watch this video realization of the Hoddesdon project:

<https://www.youtube.com/watch?v=7unmy6iQw8E>

<http://www.tamar-energy.com/our-business/site-locations/location/hoddesdon>

and on the opening frames you will see this:



Tamar Energy Ltd - Hoddesdon, Hertfordshire

Source Segregated Organic Waste Anaerobic Digestion Plant

Key Features:

- Treatment of 66,000 tonnes per year of unavoidable food waste
- Processing of packaged, unpackaged, solid and liquid wastes
- Includes ABPR Cat3 materials
- 3MWe generation from two CHP engines
- Production of renewable fertiliser digestate
- Robust industry standard depackaging equipment
- Utilisation of CHP waste heat in ABPR compliant sanitisation stage
- Mesophilic digestion with pumped mixing system and gas storage roofs
- Hydrogen sulphide control via ferric dosing
- Centrifuge dewatering of digestate
- Innovative biological wastewater treatment enabling process water recycling
- Site wide odour control
- Flood plain location with numerous challenges including complex geotechnical conditions, ecological considerations, high pressure gas main, overhead and in-ground HV power cables and adjacent asbestos landfill

Completion Date: Summer 2015
 Contract Duration: 18 months
 Contract Value: £14.5 million
 Contract Type: Full EPC wrap under IChemE Red Book – Lump Sum

Imtech Anaerobic Digestion Plant Hoddesdon

ImtechCorporate
 Subscribe 392

1,131

It shows the Hoddesdon project **turnkey price Full EPC Wrap terms under IChemE Red Book Lump Sum**, plus full project details.

A legal explanation of EPC Wrap by www.dlapiper.com:

EPC WRAP contracts (Turnkey contracts) <http://tinyurl.com/l3df7ro> DLaPiper law firm

“Engineering, procurement and construction (EPC) contracts are the most common form of contract used to undertake construction works by the private sector on large-scale and complex infrastructure projects¹. Under an EPC contract a contractor is obliged to deliver a complete facility to a developer who need only turn a key to start operating the facility, hence EPC contracts are sometimes called turnkey construction contracts. In addition to delivering a complete facility, the contractor must deliver that facility for a guaranteed price by a guaranteed date and it must perform to the specified level. Failure to comply with any requirements will usually result in the contractor incurring monetary liabilities.

Unlike a standard EPC contract, the project company cannot look only to a single contractor to satisfy all the contractual obligations (in particular, design, construction and performance). Under a split structure, there are at

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least two entities with those obligations. Therefore, a third agreement, a **wrap-around guarantee**,¹⁰ is used to deliver a single point of responsibility despite the split.

Under a wrap-around guarantee, an entity, usually either the offshore supplier or the parent company of the contracting entities, guarantees the obligations of both contractors. **This delivers a single point of responsibility to the project company and the lenders.** The contracting entities will then enter into a separate agreement to determine how, as between themselves, liability is to be apportioned. However, that agreement is not relevant for the purposes of this paper.”

IChemE Red Book:

<https://www.icheme.org/shop/books/contracts/forms-of-contract-electronic-redbook-uk5th-edition.aspx>

At page 6 of the attachment is an article from SCMP, ‘Hong Kong government can’t meet food waste target at new plant’ in which you can find highlighted relevant reported comments in red colour:

Officials say costs were underestimated as project was first of its kind
officials also explained **that they underestimated the construction costs of the first phase of the Siu Ho Wan waste treatment facility by over 200 per cent due to the lack of reference prices for similar projects.** Facing criticism for the underestimation of the project’s construction costs, assistant director of the Environmental Protection Department Elvis Au Wai-kwong explained that the project was the first of its kind in Hong Kong. As there was no price reference, the bureau decided to get a tender offer first to obtain a market price. **Au said it was difficult to correctly estimate the costs because there were no similar projects in the city and no standard prices across the world for reference.**

We comment: For senior EPD staff to state that the costs of an OWTF A-D plant were unknown (in Hong Kong) is frankly lacking veracity and credibility – there are literally thousands of like dual use electricity / compost operational and under planning AD plants in the world, the cost of local Hong Kong construction for buildings is known, the cost of the required AD and associated equipment is easily accessible to international consultants the Govt uses for these projects such as Mott McDonald and such international AD companies are skilled in EPC Wrap turnkey projects. Following this article we have listed on the attachment pages 8 – 16 readily accessible information which is self-explanatory from simple internet Google searches.

Biogas produced

http://www.epd.gov.hk/eia/register/report/eiareport/eia_2182013/Sec%204%20Hazard.pdf

Section 4.4.2.5

Biogas will be generated continuously from digesters with production rate of around 33,285 Nm³/day.(12,149,025 Nm³ per year)

Versus

Current landfill gas flared off (wasted) from NENT, WENT and SENT per annum 45.5 million Nm³

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Our Conclusion

The Hoddesdon plant price (MOD – fixed price Full EPC Wrap) Capacity 181 tonnes per day HK\$ 0.161 billion

The OWTF Phase 1 plant already tripled and probably like most other HK projects will increase again -begging to Legco Capacity 200 tonnes per day HK\$ 1.6 billion

Differences between UK (higher labour cost) and Hong Kong projects:

Hong Kong OWTF 1 has 19 tonnes per day more feedstock capacity than Hoddesdon

Hong Kong has an education centre whereas Hoddesdon does not see the need for one

Hong Kong uses twice the site area required by Hoddesdon

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Yours faithfully,

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Chairman

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