

# KTI ENERGY LIMITED

Regeneration • Electricity • Transport



28 January 2011

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Dear Sir/Madam,

## Electricity Market Reform

My company is pleased to submit its representation to the Electricity Market Reform consultation. We restrict competence to comment to those embedded renewable electricity generation projects in the 50-99MWe range.

The content of this representation should be read in conjunction with our representation submitted to Defra in October 2010 on its Review of Waste Strategy.

This, and the previous representation, have been the subject of intense lobbying of Rt Hon Eric Pickles MP and Mark Prisk MP on the apparent inability of Defra to engage joined up thinking whereby strategic renewable CHP schemes are prioritised to promote economic growth.

I excuse hard copy because we intend to send this representation to both Mr Pickles and Mr Prisk in confirmation of previous lobbying on behalf of economic growth.

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## ELECTRICITY MARKET REFORM CONSULTATION DOCUMENT

Representation to ANNEX A Renewables:  
Maintaining Investor Confidence During  
the Implementation of the  
Government's New Market Mechanism

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### **Demerit of Subsidy**

The provision by Government of public subsidy to the generation of electricity from sustainable resources is a financial burden upon society which should be avoided. When Government selects which generation technology should receive subsidy, the path is open for unscrupulous organisations to abuse the system.

The Non-Fossil Fuel Obligation (NFFO) appeared to offer honest generators a level playing field to bid long term power purchase agreements (PPAs) at a price per MWh open to public scrutiny. Government failed to recognise incoming "cowboy" developers who wilfully bid a low price to guarantee award of PPAs but were unable to finance their projects because they showed no profit to prospective investors.

The successor to NFFO, namely the Renewables Obligation, found Government once again "picking winners". Banding awarded a different number of Renewable Obligation Certificates (ROCs) to different technologies founded upon no particular logic. Recent representation by KTI Energy Limited to the Review of Waste Strategy heavily criticised the Department for Environment Food & Rural Affairs (Defra) for its dysfunctional lobbying under ROO 2002 for maximum ROCs to those esoteric combustion/incineration technologies which waste Ministers deduced would enable a beneficial outcome not to electricity generation but to their waste disposal programmes.

In the preparation of this representation, KTI Energy Limited is advised the European Union has fully liberalised its electricity market. That should convey to Decc that current practice by Defra, waste officers and waste contractors to deliberately restrict the supply of fuels manufactured from household and non-household waste, viz SRF, RDF and woodchip, from respected generators genuinely developing power/CHP schemes in the national economic interest are engaging in an unlawful cartel.

This representation, consequently, seeks to persuade Decc that public subsidy to renewable power/CHP schemes fired by SRF, RDF and woodchip (the principal waste biomass fuels) is unnecessary and could be construed by the public as immoral.

### **Alternative Support Mechanism**

KTI Energy Limited supports the changes which Government proposes to the electricity market fired by coal, oil and gas. The problem with supporting nuclear electricity, with unlimited public liability which cannot be insured, is difficult to solve. But the problem with artificially supporting renewable electricity by public subsidy is the risk of awarding undeserved windfall profit to generators and on-shore/off-shore landowners.

While the ramifications of the NFFO programme were being absorbed in the early 1990s, KTI Energy Limited drew the attention of the Director General of Offer, Professor Stephen Littlechild, to the merit of the Public Utilities Regulatory Practices Act (PURPA), enacted in the United States in 1979, to offer fair financial subsidy to its emerging renewable energy industry. If a large community reported a shortfall of electricity, the state regulator could invite bids to build a conventional fossil or nuclear power station, perhaps 50MWe capacity, to transparently secure the lowest bid price, then invite the renewable energy industry (wind, biomass, waste, tidal) to build a power station of the same output with guaranteed electric revenue equal to the lowest bid.

PURPA was so successful in meeting US renewable energy targets that it had to be abandoned. The American public provided no subsidy. But small scale fossil and nuclear power stations require such high electric rate to be economic that its renewable industry secured a rate significantly higher than wind, biomass, waste and tidal projects actually require. For example, it meant waste fired projects developed by KTI Energy Inc in Maine were able to offer municipalities close to nil tip fee for household and non-household waste disposal. Nonetheless, the procedure was judged at the time to be significantly fairer than the UK Government randomly "picking winners" under NFFO.

## **Renewables Obligation (RO)**

Government again "picking winners" under RO has brought widespread confusion to Britain's waste industry. Not only is it untrue, but continuing to claim from 2002 that anaerobic digestion and gasification are advanced conversion technologies, deserving award of multiple ROCs as public subsidy, risks heaping ridicule from overseas organisations who view the respective merit of the two technologies in a different light.

There is no questioning anaerobic digestion deserves Government support to convert human waste and animal slurry to electricity. When Britain possesses more cows, sheep and pigs than people, disposal of animal slurry to rivers or landfill is clearly unacceptable. But is it really necessary to provide extravagant public subsidy in the form of multiple ROCs to encourage British farmers to install anaerobic digestors to divert this type of waste from rivers and landfill?

But the height of absurdity rests with waste gasification. First introduced to Britain in the 1960s from the United States as starved air incineration, the award today of multiple ROCs is a travesty. The technology is expensive, small scale, thermally inefficient and with high risk of explosion from escaping gas in an enclosed space. Claim that stack emissions are less than from direct combustion of SRF is unproven. Overseas scientific papers conclude the technology is of questionable technical merit with Britain one of few countries placing its future waste residue treatment in its hands.

In scientific fact, starved air incineration and mass burn incineration are the absolute equivalent in terms of destroying a valuable sustainable resource with least thermally efficient recovery of electricity and heat. Dti allowed itself in 2002 to be duped by Defra. Decc today should ask itself the reasonable question why reputable utility generators are not falling over themselves to install coal gasification power plants. The answer, of course, is that regular combustion is much more thermally efficient.

## **Waste Biomass Fuel (SRF)**

Significant progress was made by Decc when ROO 2009 introduced solid recovered fuel (SRF) to the electricity market place. The presumed objective was for waste contractors to manufacture this fuel from biodegradable household and non-household waste for offer to the renewable energy industry to generate and supply electricity and heat to major communities. In fact, SRF manufacture was the perfect vehicle by which PURPA legislation in 1979 was able to achieve installation of power projects serving major communities in the United States requiring no public subsidy,

Defra has persuaded the technology of SRF combustion for electricity generation to become corrupted. Significant capital investment is required to build a MBT plant producing SRF from household and non-household waste. Significant additional capital investment is required to build a starved air incinerator receiving that SRF. When the two sets of capital investments are added, the singular justification for the two separate technologies, notwithstanding the lesser cost of a mass burn incinerator, is the massive public subsidy provided by Decc. Reprehensibly, Decc provides the very public subsidy which distorts the electricity market from proven, thermally efficient SRF combustion equipment capable of serving major communities with (green) energy.

The reason why KTI Energy Inc in 1987 selected thermally efficient SRF combustion equipment for its projects in the United States, with electric rate guaranteed by PURPA, is because the technology was proven to be more thermally efficient and less polluting than mass burn incineration. Utility grade combustion equipment, of American origin, continues to work successfully today after 23 years. But Britain, for reason known only to Decc, has no successful utility grade SRF combustion equipment in operation, an incomprehensible position for a leading nation inexcusably groomed by Defra to subsidise thermally inefficient starved air incineration.

## **Renewable CHP Schemes**

Defra in January 2009, in conjunction with Decc, Wrap and Environment Agency, recommended to local authorities installation of renewable CHP schemes fired by SRF serving major communities with (green) electricity and heat. KTI Energy Limited in 2010 confirmed to Ministers in the Department for Communities & Local Government and Department for Business Innovation & Skills that the optimum major communities within which to develop such schemes are those capable within Local Development Frameworks to guarantee local economic development, employment and abate climate change. Slough Trading Estate, employing 20,000, was offered as concrete example.

Once again Defra obstructs progress by a dysfunctional procurement procedure which does not focus upon economic development, employment and abating climate change but upon waste disposal equal in intellectual stimulus to letting a street cleaning contract. The reprehensible outcome is waste disposal authorities, rigidly complying with the letter of Defra's law, persuaded by waste contractors eager for windfall profit from Decc's public subsidy, to install costly starved air incinerators which inefficiently destruct waste, are inappropriate to connect to a district heating network, and do little or nothing to promote economic development, employment and abate climate change.

The way public subsidy to starved air incineration corrupts the electricity market extends to discouragement of renewable CHP schemes which are sufficiently large scale (over 50MWe) to be able to apply to the Office of Gas & Electricity Markets to become a licensed electricity supplier. Such supplier is able to supply public and private major energy users with electricity at its retail price significantly reducing the tip fee which SRF delivered to the gate of the CHP station is required to pay. Decc, by artificial public subsidy of starved air incineration, discourages the development of renewable CHP schemes endorsed in January 2009 which distribute electricity and heat generated from SRF to promote the economic growth currently sought by Sis.

## **Waste Hierarchy**

The waste hierarchy advocated by Defra to local authorities places making compost higher than making SRF to generate electricity and heat in turn to promote local economic development, employment and abate climate change. The way Defra achieves this social, political and economic anachronism is by placing the combustion of SRF on the same intellectual plane as starved air incineration and mass burn incineration frequently called EfW (energy from waste).

On the one hand, Defra advises local authorities that renewable CHP schemes fired by SRF to serve major communities constitute best use of waste residues. On the other hand, Defra advises local authorities that best use of waste residues is conversion to compost. Until October 2010, Defra encouraged free spending by local authorities in response to the liberal distribution of waste PFI credits (another public subsidy) to treat waste by a multitude of esoteric technologies, causing massive drain upon public financial resources, none of which projects were designed with the ultimate purpose of promoting economic development, employment or abatement of climate change.

## **Summary**

Consideration by Decc of carefully orchestrated renewable energy projects serving major communities with electricity and heat, public subsidy could be reduced to nil. KTI Energy Limited urges the successor market mechanism to cease "picking winners". Instead, the mechanism should establish local or regional shortfall of generation capacity (in the manner of PURPA), then to invite skilled generators to develop equitable renewable energy solutions with least demand upon public subsidy.

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