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## **US EPA Landfill Methane Outreach Program 15<sup>th</sup> Annual Conference**

### **Our Market and its Challenges**

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By David Mauney,

Thanks Swarupa and as many of you know me from my years in the landfill gas energy industry, both as a private consultant, recently working with Sustainable Energy Solutions, and now Director of Business Development for Energy Developments, Inc. a leading Clean Energy Company that is based in Nashville TN and internationally in Australia. ([www.energydevelopments.com](http://www.energydevelopments.com))

First and foremost I cannot thank everyone enough for your participation and attendance at this 15<sup>th</sup> Annual EPA LMOP conference and your time to listen to my perspective on the current marketplace. I am here today and to offer my perspective and understanding of our market and to introduce you to the challenges we face.

### **LFGTE Our Market**

Since the beginning of the landfill gas to energy market back in the late 1970's our goal as a community of engineers, developers, owners and operators has been to learn and then share what we learn with the hopes that everyone will prosper.

How? By operating better projects, advancing research, fine tuning equipment and yes achieving profits and savings. I believe it's important to remember that this business has grown through many different challenges.

Remember we only have 30+ High BTU plants running within a total of more than 550 + operating projects in the country today. Our original goals were focused on both the financial feasibility and more importantly the capture of landfill gas to reduce odor issues, yet today we are faced with so many other regulatory and financial aspects that it's hard to see the forest for the trees.

Of course let's not forget that the majority of our business is in renewable electricity production which has grown in so many different ways across the country. It too, has had its own challenges in emissions, equipment, and legislative barriers, yet it has continued to grow and mature.

Our industry has experienced so many ups and downs that it is hard to speak to them all but I believe it is important to speak today about a few trends that we all need to be aware of.

### **The Power Market**

LFG to electricity has grown and matured into a well-established technology.

Today we have more than 13 Billion KWh of generation utilizing technologies that range from large scale turbines, through Reciprocating Engines and down to micro turbines and fuel cells, some of which provide not only renewable electrical energy

but also utilize waste heat to increase overall efficiency and take advantage of a product that was traditionally discarded (similar to landfill gas in the past)..

### **The Gas Market**

Our Direct use (Medium BTU) market is second to electricity production and has always proven itself as an attractive development option for many different types of end users. Direct LFG can be easily utilized in all types of thermal equipment, and in some cases, offers an additional benefit of reduced emissions for the end user coupled with offering additional tiers of fuel supply for added security to the customer. Pipelines for direct use projects have evolved in so many ways of which some are good and others offer significant challenges in those designs. Our longest direct use pipe line is 16” HDPE line, 34 miles from Houston, TX to Chocolate Bayou, TX

The High BTU (Renewable Natural Gas) industry has also experienced many changes from new equipment designs and technologies, improved efficiencies, and new ways to market as a renewable energy resource. It’s my opinion that High BTU LFG is a great renewable fuel due to its ability to offer a widely available fuel source that can be easily utilized in transportation, industrial /residential applications, and power generation, all while having the capability of being transported or stored in our existing natural gas distribution systems.

I know the significant challenges we are currently facing with this market segment and its recent major barriers with state requirements such as California's Energy Commission (CEC), and the pipeline market Increase in interconnect specifications for the Interstate, intrastate and LDC pipeline companies. These are all complicated by a major downturn in natural gas pricing (Thanks Shale Gas). In the past week I have heard and discussed some very significant ideas that the CEC and/or the State of California's legislature may impose a restriction or altogether ban on renewable natural gas (Biomethane). This not only impacts us in the landfill gas to energy market but other younger markets as well. In addition it may create other challenges for us. I agree it does not make sense that a state such as California that has an aggressive RPS (AB-32) rule is making attempts to control, prohibit, and limit the renewable energy resources that can be utilized by the effected utilities.

In the High BTU market, we need to definitely work together to assure an equal playing field for interconnect specifications. We have the most advanced technology running today that often includes redundant gas chromatographs, continuous controls, and redundant communications; all of which exceeds most natural gas system requirements. The Gas Technology Institute has for the past year been engaged in a large scale evaluation of High BTU landfill gas to compare

it to natural gas and preliminary results indicate we are equal to or exceed the specifications of natural gas.

I want to offer some challenges to our developers and engineers to help us all look at this dynamic market. In the last few years we have seen an increase in the interest and growth of biogas to energy. This being from municipal, industrial or agricultural waste streams to digesters. No matter how small these technologies may be, I believe we both can learn from each other. We are a maturing market with typical project sizes that overshadow typical biogas projects. I also know that some of those groups do not support landfill gas to energy; however all of us use similar if not almost equal technologies for production of energy. Is it not possible that we can technically support those groups and in turn learn from their smaller scale designs for what will be a challenging future for smaller landfill gas flows? I don't know! But it's an idea we may need to embrace.

In the Medium BTU market (direct use), an example of ever changing and not so supportive changes was recently highlighted with a particular states Public Service Commission who came very close to requiring a direct use LFG gas specification of less than 10PPM for total sulfur in direct transported gas. That is the kind of standard we do not need for direct use dedicated pipelines that typically have significantly better automation and controls than traditional natural gas distribution systems.

### **The Market Now....**

So with all this growth and new and exciting ways to utilize landfill methane, how do we see our market shaping up. Currently, coal, natural gas, and nuclear provides 89% of all our electrical demand. The remaining 11% of other fuel sources including wood, solar, wind, and biomass to name a few. This total accounts for a total 337,000 MWh/month.

So, if we look back ten years at renewables generation, we can see that (minus hydro), total renewable generation in the US has grown from 2% in 2001 (7,200 MWh/month) to 4% (13,000 MWh/month). *(Source: Preliminary net*

*generation for Total Electric Power from All Sectors for Sept 2011 from U.S. Energy Information Administration (EIA)/Electric Power Monthly December 2011 (Table ES1.A. Total Electric Power Industry Summary Statistics, 2011 and 2010)*

What about natural gas? well today we consume annually approximately 23.7 BCF of NG (2010)

### **Where do we go now!**

**Where do we go now?** I believe that my message today is one that will require all of us to develop a better level of communications and support, for our near term future. We are a fraternity of experts in many fields yet today we are seeing bids on projects that are technically and financially unfounded and do nothing but create long term failures, unmet expectations, and frankly, can give our industry a

bad name. These unfounded offers form a wave of discontent among all the seasoned developers and landfill owners. Don't get me wrong, I don't want to discourage small, young developers seeking to get a foot in the market, but what I want is to encourage all of us to support, communicate and help where possible with these problems. I also want to challenge the consultants, engineers and environmentalists to carefully look at where we are in creating such offers so we can work to develop a better and more level playing field in what we all seek, growth in the LFGTE market.

We also need to place a significant challenge on our friends at EPA LMOP, SWANA and other agencies to better utilize their tools in support, or research into what is an ever changing market place. Let's challenge them to offer better communications and support data to all areas of the landfill gas to energy market. On the regulatory side, we are giving a great deal of support and I thank so many of you who have stepped up in financial, corporate and personal support of these ever changing rules. It was nice to see recently in California that the support for the proposed changes to import of renewable natural gas brought out not only landfill developers and consultants but significant players in the natural gas trading market and industry officials from the solid waste industry. There were so many in attendance that the CEC had to open an additional hearing room to accommodate everyone.

I welcome each and every one of you today to become involved in some way with all that we face in this movement. If only to respond to an email that requires you to send a prepared message to your state representative or go beyond that and get your company's support for legislative lobby efforts. Remember we no longer have Section 1603 Federal tax grants as of December 2011 and the Section 45 Production Tax Credit (PTC) is scheduled to retire in 2013. If that's not enough we have never had any support for medium BTU direct use projects or High BTU projects even though they offer so many rewards in both emissions reductions and efficiency in design.

I understand that just by increasing communications this all sounds easy, but with the challenges in a market replete with power, depressed REC values, a carbon market that has declined significantly, a struggling economy, and natural gas pricing forecast that is not to change for some 3-5 years, we must support and focus our efforts to this great renewable energy market. I know it sounds as if I am preaching to the choir but we have to embrace challenge of better communications within our industry and I hope that the benefits of this message will motivate everyone to help and support our landfill gas to energy market.

Remember this quote “



“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change” . By Charles Darwin”

Thanks,,,

**David H. Mauney IV | Director Business Development**  
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