

**Comments on the Kentucky Pioneer IGCC Draft  
Environmental Impact Statement**

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Mr. Roy Spears  
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Sir,

I have the following comments on the Kentucky Pioneer (KP) Integrated Gasification Combined Cycle (IGCC) Draft Environmental Impact Statement (DEIS).

There are manifest virtues to the promotion of our national understanding of advanced power generation technologies. However, significant flaws and omissions in the DEIS negates both the DOE assessment that this plant meets DOE's stated needs and the conclusion that it should be funded. The DEIS lacks critical information about the plant design that makes it impossible to assess the environmental impact of the Trapp facility.

The DEIS needs repair and a new round of public review before any Federal dollars are released.

The Federal issues of concern in this DEIS are:

- Weak argument: 'Purpose and Need for Agency Action.'
- Compromised demonstration of 'Clean Coal'
- Flawed premises: 'No Action Alternatives'
- Failure to consider other sources of power.
- Likely failure to get local permits.
- Conflict with state law.
- Intent to disregard the outcome of the research.
- Unreliable partners, private funding delays, inadequate planning & past failures.
- Disregard for social justice and environmental issues.
- Inadequate design data.

### **Weak Argument: 'Purpose and Need for Agency Action.'**

The need for agency action is not well supported by the DEIS. As well, goals described as the basis for the proposed actions may have already been met without investment of Federal dollars.

The need for a successful demonstration of a largely coal fired IGCC facility using Federal funds, as stated in the DEIS section 2.2, is already satisfied by available information. Global Energy is building an MSW fired IGCC plant identical to Trapp, but for the fuel cell, in Lima Ohio without Federal monies.<sup>1</sup> The National Coal Council has said 'The technology has been successfully demonstrated at commercial scale in the U.S. and worldwide.'<sup>2</sup> Existing facilities include Wabash River,

1 RA Bailey, Sr VP Global Energy, Panel Discussion, Oct 9, 2001 [www.gasification.org/98GTC/GTC01030.pdf](http://www.gasification.org/98GTC/GTC01030.pdf)

2 Appendix I:

Tampa Electric's Polk Plant, the Netherland's Buggenum, plants in Germany, Scotland, Singapore & South Africa and Spain's Puertollano plant. Global Energy already has several commercial IGCC projects under development based on using BGL Gasification Technology to gasify solid hydrocarbons for power production (Appendix E, Introduction, paragraph 2). The National Coal Council reported in May 2001: 'Based on the success of the BGL process at the Schwarze Pumpe GmbH plant in Germany, Global Energy is building two plants in the U.S. The 400-MW Kentucky Pioneer Project and the 540-MW Lima Energy Project will both use BGL gasification of coal and municipal solid waste to produce electric power.'<sup>3</sup>

The fuel cell demonstration at Trapp is more about MSW than Clean Coal. When presenting their Trapp proposal at a national coal conference, the company providing the fuel cell technology to Kentucky Pioneer Energy(KPE) said: 'Fuel cell systems operating on coal have been studied extensively in past years.'<sup>4</sup>(p.3) Later in the paper they go on to say of the Trapp facility: 'The project will feature Advanced Fuel Technology briquettes made of Kentucky coal and Municipal Solid Waste (MSW) as fuel in the gasification process...' (p.5). These facts indicate that the purpose of the demonstration is not the already well researched coal powered fuel cell but, in fact, the MSW powered fuel cell where coal is being removed from the feedstock to favor MSW. This fails to satisfy the expressed goal of DEIS section 2.2 for: '...technologies that will help alleviate pollution problems from coal utilization.' Alleviating coal pollution problems by not using coal is not what DOE & CCT are about.

The national interest in MSW as a non-competitive alternative to other fuels for energy production is at cross-purposes to the CCT effort at Trapp. The Office of Integrated Analysis and Forecasting of the Energy Information Administration reported in April of 1997: 'MSW-produced power is viewed [primarily] as a byproduct of a community's waste disposal activities and only secondarily as a competitive alternative to other fuels for energy production.'<sup>5</sup> The waste at Trapp is not a byproduct of that community's waste disposal activities, and the MSW is competing with local coal.

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[www.nationalcoalcouncil.org/Documents/May2001report-revised.pdf](http://www.nationalcoalcouncil.org/Documents/May2001report-revised.pdf) P. 32

3 Appendix I:

[www.nationalcoalcouncil.org/Documents/May2001report-revised.pdf](http://www.nationalcoalcouncil.org/Documents/May2001report-revised.pdf) P. 28

4 Appendix C. Steinfeld Ghezal-Ayagh, Sanderson, & Abens: IGFC Demonstration Test. FuelCell Energy Inc, 25<sup>th</sup> International Technical Conference on Coal Utilization and Fuel Systems, March 6<sup>th</sup>, Clearwater FL.

5 DOE/EIA-M069(97) Model Documentation Renewable Fuels Model of the National Energy Modeling System, URL: [tonto.eia.doe.gov/FTP/ROOT/modeldoc/m06997.pdf](http://tonto.eia.doe.gov/FTP/ROOT/modeldoc/m06997.pdf)

At what point does the presence of coal become token? Please make a specific answer to that question as it is the sole basis for DOE CCT's investing in the Trapp facility. KPE has said that they intend to use only 20% coal in the feedstock in the long run, 50% or less initially. 'Operation will commence on 100% coal with slowly increasing levels of RDF throughout the demonstration. This method will allow the development of a database of plant performance at various levels of RDF feed.'<sup>6</sup> Using Clean Coal monies for research on MSW/RDF diverts those dollars from their intended purpose.

The Wabash IGCC facility in Terre Haute, operating since 1996, has demonstrated most of the retrofit, repowering, coal, sulfur and NOx related features of Trapp with a similar gasifier from KPE's parent, Global Energy. BG/L facilities are in place in Europe, Singapore and elsewhere. They already offer a wealth of technical, environmental and financial data. A 1988/2000 NETL report, entitled 'British Gas/Lurgi Gasifier IGCC Base Cases', reports the Cost of Energy for IGCC BG/L facilities on pages 25-40<sup>7</sup>.

Kentucky already has the lowest energy prices in the nation. From a Federal point of view, siting this plant anywhere else makes more sense in terms of meeting needs. If, (as described in the DEIS page S-3, 'Purpose and Need for Agency Action' paragraph 2), the goal is to 'significantly reduce electric power costs...', it may be most effective to look at sites for this facility where electricity rates are higher.

While Kentucky has the lowest energy costs in the nation, there are many other providers seeking to offer base and peaking capacity in the EKPC market area, to wit: the EKPC Mason County Spurlock Plant proposal introduced above (and many others). Neglecting to consider these other energy sources and providers is a serious omission in the Section 2 of the DEIS, Purpose and Need for Agency Action.

EKPC has proven in the past to seriously miscalculate their power needs. That is how the Trapp site was originally prepared and then mothballed for 20 years. EKPC is adding base capacity outside of this initiative (the Spurlock facility in Mason County), as are others. EKPC's pursuit of the Mason County Spurlock facility (Appendix D) appears to, for the near run, address their '1998 Power Requirements Study', cited as the energy demand component of the 'Need for Agency Action.'

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6 P.2 Advanced Electric Power Generation Program Update 2000. May 17<sup>th</sup>, 2001 URL: [www.lanl.gov/projects/cctc/factsheets/updates/documents/a\\_dvelecigcc\\_2000\\_all.pdf](http://www.lanl.gov/projects/cctc/factsheets/updates/documents/a_dvelecigcc_2000_all.pdf)

7 [www.netl.doe.gov/coalpower/gasification/system/bgl3x\\_20.pdf](http://www.netl.doe.gov/coalpower/gasification/system/bgl3x_20.pdf)

All the power plant interest in the Commonwealth bodes well for access to capacity in the long run. The base energy demand cited by DOE as justification for Trapp has not been well established, and would not compare well to most other sites where electricity rates were higher.

The case for spending Clean Coal dollars and the need for agency action has not been well made. The fact that the Lima facility is being built without Federal dollars undercuts the argument that the American power industry needs Federal funds to assess the potential of BG/L IGCC systems. There is an abundance of financial information already available. Little regarding coal powered IGCC systems will be learned at Trapp. Trapp is really about MSW, not CCT. Scarce tax dollars should not be spent, as the goals of the Clean Coal program described in the DEIS are already reasonably well met without Federal support, and are not well addressed by the Trapp proposal. Coal pollution abatement by not using coal defeats CCT goals.

### **Compromised Demonstration of 'Clean Coal'**

Throughout the Introduction and Background section of the DEIS, the Federal goal is defined. The basis for funding, and the declared purpose stated there is demonstrating clean coal technology.

The summary page S-3's synopsis bundles the MSW derived fuel into the project goals. The inclusion of MSW & it's derivatives are not documented as a goal in the body of the DEIS, however. The entire background section details the chronology of the CCT program and DOE's interest in demonstration facilities. Nowhere is there mention of MSW or RDF fuels.

As presented in the DEIS, there is no Federal mandate for DOE's CCT program to demonstrate a waste-to-energy facility using clean coal monies. It seems disingenuous to label it a coal demonstration when so little coal is involved and in fact coal tonnage is being displaced by MSW. That is entirely contrary to the stated goals.

As designed, this facility is not going to demonstrate 'clean coal'; it is going to demonstrate a waste-to-energy technology. KPE has declared their long-term intention of using only 20% coal in the feedstock, with the rest being derived from distant sources of Munciple Solid Waste (MSW). DOE should justify how Clean Coal monies should be spent on MSW issues that remove coal from the feedstock.

I wrote the following to researchers at the University of Kentucky Center for Applied Energy Research: 'The questions that I have involve the phase states of the constituents as they transport through the gasifier, the gas cleaner, the sulfur recovery process and the turbine combustion. I am specifically trying to follow the transport and chemistry of metals and their oxides, the

fate of chlorinated compounds in the feedstock, and the technology applied to clean the synthesized hydrocarbons.' Dr Burt Davis <[davis@noah.caer.uky.edu](mailto:davis@noah.caer.uky.edu)> replied on Tue Jan 8 17:02:18 2002: 'I assume that you are referring to the facility that has been proposed by Global. If that is the case I have a general understanding of what is proposed. Many of the issue[s] that you raise are very complex and would in many cases be specific to the specific facility.' The results of the research cannot be directly applied other BG/L IGCC facilities that do not use MSW. The constituency of the feedstock, the combustion chemistry, the gas cleaning processes, and the resultant exhaust gases and slag will all vary significantly from facilities that just use coal. The value of Trapp as a research facility for Clean Coal is questionable.

DOE has acknowledged that it is normally responsible for a comprehensive review of alternative sites, and that by choosing to partner with Global Energy, the parent company of KPE, they feel relieved of that responsibility. There are several points to be addressed, however. In addition to the comments below, please consider the *Unreliable Partners* section.

Global Energy has other sites in various stages of construction using BGL based IGCC technology<sup>8</sup>. They are a CCT partner in a nearly identical IGCC plant burning coal since December 1995 in Indiana. They are putting an IGCC plant identical to Trapp in Lima Ohio.

To not consider these sites is improper-it is the same partner. The alternate sites appear to satisfy all stated goals of DOE & the CCT projects. Some may use 100% coal which makes them more valuable as CCT demonstrations sites than one that only uses 20% coal. There may well be other sites as well: DOE & the CCT program have IGCC partners as far away as Kazakhstan.

The fuel cell component of the Trapp demonstration is a fraction of 1% of the total energy production. It has already been demonstrated using sulfur-cleaned coal-based syngas. It is a modular technology that could be added to practically any current IGCC facility, and certainly to the Lima plant.

If MSW derived materials are to comprise 80% of the feedstock, sites closer to the source of the MSW need

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8 Appendix E. APPLICATION OF BGL GASIFICATION OF SOLID HYDROCARBONS FOR IGCC POWER GENERATION  
2000 Gasification Technologies Conference  
San Francisco, California  
October 8-11, 2000  
Presented by:  
GLOBAL ENERGY INC.  
Richard A. Olliver

consideration. Energy prices are higher anywhere else in America, offering a better reward for siting elsewhere.

Without a thorough site review, it is impossible to establish whether the advantages offered by EKPC at Trapp are the best deal for the DOE & the public, or if Federal money is even needed to accomplish the goals presented by the DOE & EPA.

DOE and their current partners may better achieve their mandated goal of demonstrating CCTs at a different BG/L IGCC facility. They should be compelled to make that review. More importantly, DOE may be able to avoid spending taxpayers' dollars altogether while still managing to demonstrate coal based CCTs. It is a serious omission of this DEIS to neglect that opportunity.

### **Flawed Premises: 'No Action Alternatives'**

There is good evidence provided by testimony before the PSC that the DEIS' Alternative 2 needs repair. EKPC's commitments, both present and future, are not accurately established. In the event that they are not as represented in the DEIS, the DEIS needs revision & subsequent public review.

Page S-8 describes the three alternatives analysed under this DEIS. The action described as Alternative 2 has been challenged by at least two documents. As well, personal communication with residents of the community of Trapp suggest that Alternative 2 may already be under construction, changing it's status from 'option' to fact.

On July 11, 2001, East Kentucky Power Co-Op (EKPC) amended its permit application before the Kentucky Public Service Commission (PSC) because KPE had not met its financial closing deadline of June 30, 2001. Due to the delay in KPE's financing, East Kentucky 'decided that it cannot reasonably rely on that project to satisfy its future power supply needs.' Therefore, EKPC has concluded that it should proceed to construct a 250 MW coal-fired generating unit at the Hugh L. Spurlock power station in Mason County, Kentucky<sup>9</sup>. This facility should be included as part of the DEIS Alternative 2.

The original NOI from DOE for Trapp includes the following: 'Under the no-action alternative, DOE would not provide partial funding for the design, construction, and operation of the project. In the absence of DOE funding, the Kentucky Pioneer IGCC Demonstration Project probably would not be constructed.'<sup>10</sup> Together, the two

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9 Appendix D, Minutes of the Kentucky Public Service Commission, Case # 2001-053, September 26, 2001

10 DEPARTMENT OF ENERGY Notice of Intent To Prepare an Environmental Impact Statement for the Kentucky Pioneer Integrated Gasification Combined Cycle Demonstration Project, Trapp, KY and Notice of Floodplain Involvement. 10th day of April, 2000. David Michaels, Assistant

citations above suggest that all derived components of the DEIS that address Alternative 2 need to address the 250 Mw Mason County facility, and perhaps exclude the alternative as it is now written.

There may or may not be a natural gas fired power island at Trapp already under construction. This may be construction of some peaker units, however. If it is a fact that EKPC has already committed to building the power island, then it is not an 'alternative' but instead, an extant facility and should be dropped from the alternative section of the DEIS and added to the Cumulative Impacts. The residents of Trapp maintain that some construction is already underway.

The Proposed Action section may also need review. EKPC's commitment to the KPE IGCC facility is still contingent on future agreements, and that the DOE's Cooperative Agreement with KPE may be undone in the future by disagreements between KPE & EKPC & the PSC. In September, EKPC testified before the PSC that even 'In the event that KPE is able to secure project financing, East Kentucky stated that certain provisions in the existing purchase power agreement would have to be revised and any renegotiated contract will be resubmitted to the Commission for its prior approval.'

The alternatives offered to the public in the DEIS and scoping process do not represent the real alternatives before them. A revision of the DEIS & a new round of scoping and public comment after the DEIS is repaired is needed.

### **Likely Failure to get Local Permits**

Over the last 15 years, Kentucky has bootstrapped itself into an enviable body of Solid Waste legislation. KRS 224 requires planning and management at both the state and county level for Muncipale Solid Waste (MSW) production, reduction, and disposal. This statute provides the legal foundation for local permits. It also defines MSW and Refuse Derived Fuels (RDF).

The MSW being proposed as a feedstock does not qualify under KRS 224 as an RDF, as most of the recyclables (paper & plastics) have not been recovered. See the section *Conflict with State Law* below for more discussion of MSW vs RDF in Kentucky. Further, under KRS 224 there is a 15% limit on RDF in the feedstock before the facility is a waste-to-energy plant requiring local permits.

The language voiced inside the state of Kentucky that has been used to describe the facility differs from that used in the Federal dialog by DOE's corporate partners EKPC and KPE. One wonders if the goal of this contradiction

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Secretary, Environment, Safety and Health. [FR Doc. 00-9301 Filed 4-13-00; 8:45 am]

is to avoid Kentucky law and the requisite permits from local Clark County government.

The DEIS supports the designation of Waste-to-Energy. On page 3-21, section 3.2.2.1, 'Pellet Manufacturers', it states 'Historically, the waste-to-energy industry has used RDF pellets as a means of assuring effective co-feeding at conventional power plants.' The implication is clear: using RDF is waste-to-energy.

KPE's staff are arguing that they are not burning or combusting the 2500-4000 tons/day MSW derived fuel<sup>11</sup> that comprises 50% to 80% of their plant's feedstock, and that the MSW they are using is no longer solid waste once they have removed only the glass and metals. They are leaving most recyclables in the waste stream for their BTU content, preferring to burn rather than recycle them<sup>12</sup>.

It is clear to me that they are burning the fraction of MSW that vaporizes at 3200 degrees Fahrenheit, the syngas. DOE's documents frequently refer to the integrated combustion stage that drives the turbines in IGCC facilities: "... (3) **combustion** {emphasis mine} of the clean syngas in a turbine generator to produce electricity...". As well, it is clear that the facility is a waste-to-energy plant: "The briquettes would be made from high-sulfur coal (at least 50%) and refuse (municipal solid waste)" <sup>13</sup>

Outside of Kentucky, Global has no problem describing the process as combustion. For example, in a description of the industrial process they state: '...sulfur recovery units prior to combustion in the gas turbines, resulting in exceptionally low SO2 emissions.'<sup>14</sup> Please compare this with Mike Musulin's (President of KPE) published

11 As proposed, KPE will transport as much as 4000 tons of municipal solid waste (MSW) per day from the East Coast to fuel the waste-to-energy facility in Trapp, Kentucky. This is an amount equal to approximately one half of Kentucky's own MSW production.

12 The sample provided by KPE for public inspection at the EPA EIS hearing on 12/11/01 in Trapp was a 10x50 mm compressed bolus made almost entirely of white paper. A rough guess is that particular sample was at least ¾ recyclable content.

13 DOE's Notice of Intent to Prepare an Environmental Impact Statement for the Kentucky Pioneer IGCC Demonstration Project, Trapp KY

14 Page 5, Appendix E, APPLICATION OF BGL GASIFICATION OF SOLID HYDROCARBONS FOR IGCC POWER GENERATION

2000 Gasification Technologies Conference  
San Francisco, California  
October 8-11, 2000  
Presented by:  
GLOBAL ENERGY INC.  
Richard A. Olliver

remarks where he says "It is not a combustion process."<sup>15</sup> KPE also plans to use an 80% MSW briquette after the 50% demonstration phase.<sup>16</sup>

The most obvious explanation for the strained language is that KPE needs to make these arguments in order to avoid the application of Kentucky law. If they are a Waste-to-Energy facility, then they are required to conform to the solid waste plan of Clark County Kentucky.

As of today in Clark County, the majority of the governing body, the County Attorney and the state Representative are publicly pursuing their county's right to require and enforce the permit. If KPE resorts to the courts to avoid the local permitting regulations, a significant delay is certain, and outright failure likely.

KPE has not applied for a permit from Clark County for their proposed facility. Their long standing denial of the need to get such a permit has turned public sentiment in the county against them.

Please see Appendix G, Kentucky Air Quality Permit. Further, under KRS 224, failure to get the required local permit disqualifies the state's right to permit the facility.

### **Conflict With State Law**

The following section is an excerpt from the Kentucky Resource Council's comments on the EPA's draft EIS for the Trapp site.

" The proposal to thermally treat and to combust the volatile fraction of one million tons or more per year of treated municipal solid waste falls squarely within the type of facility intended by the General Assembly to be scrutinized under the solid waste planning process.

KRS 224.40-315 mandates that:

No permit to construct or expand a municipal solid waste disposal facility shall be accepted for processing by the Cabinet unless the application contains a determination from the governing body for the solid waste management area in which the facility is or will be located concerning the consistency of the application with the area solid waste Management plan.

The scope of this statute and the requirement for a determination of consistency with the approved solid waste plan is defined by the term municipal solid waste disposal facility, which is defined in KRS 224.01-010(15)

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15 Op-Ed page, 7/23/2001, Lexington Herald-Leader, Lexington, KY

16Pers Comm: Dwight Lockwood, 12/10/01 c. 7 pm, manager of Regulatory Affairs, Global Energy Inc, Suite 2000, 312 Walnut St, Cincinnati OH 45202

to include:

Any type of waste site or facility where the final deposition of any amount of municipal solid waste occurs, whether or not mixed with or including other waste allowed under subtitle D of the Federal Resource Conservation and Recovery Act of 1976, as amended, and includes, but is not limited to, incinerators and waste-to-energy facilities that burn municipal solid waste, . . .

Because the material is not a refuse derived fuel under KRS 224.01-010(23) in that it has not been subject to extensive separation of municipal solid waste including the extraction of recoverable materials for recycling the processing of the municipal solid waste stream to create the pelletized fuel does not make the material a recovered material under KRS 224.01-010(20). The proposed gasification step in the process and the cleaning of the volatile fraction of the waste for combustion does not make the facility a recovered material processing facility so as to exempt it from the definition of a municipal solid waste disposal facility or to avoid the obligation to be consistent with the local solid waste plan.

Even assuming that the partially processed waste fell within the ambit of refuse derived fuel and the 15%<sup>17</sup> limitation on RDF didn't limit the applicability of recovered material even as to RDF, the proposed facility is not a recovered material processing facility since it proposes to combust the gases created by the thermal and pressure treatment of the waste and is not storing and processing for resale or reuse.

Reuse, as that term is used by the General Assembly does not include use of wastes as a fuel with or without heat recovery. The latter concept is resource recovery and is a term distinct from reuse of solid waste. See: KRS 224.43-010 (3) which sets reuse of solid waste as a priority below reduction, and above recycling, composting, and resource recovery through mixed waste composting or incineration."

The resolution of the conflicting interpretations of KRS 224 will likely require adjudication. The Federal Government should immediately temper it's affinity for the Trapp facility and recognize that it is bankrolling a project that, at best, violates the spirit of Kentucky voters, and at worst will be killed by failing to get a local siting permit after an ugly court fight. Given the visible statutory issues, this project deserves a time-out, not Federal dollars. By funding the Trapp facility, DOE & EPA help undermine the basis for much of the recent

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17 Under Kentucky law, only 15% of the material processed by the facility creating the pellets could be credited as RDF.

solid waste planning & management in the state of Kentucky.

### **Intent to Disregard the Research Results**

The DEIS, on page 3-24, Section 3.4.2 'Proposed Actions' states at the end of the second paragraph, 'Data generated during the first-year demonstration would be used to determine if the coal and RDF pellet co-feed would continue after the first year of operation.'

KPE president Musulin has publicly rejected that premise and stated the KPE intends to operate the plant without a new round of permit reviews based on the outcome of the DOE funded research<sup>18</sup>.

In regards to the review, who will make the determination to continue the RDF/coal co-feed? The DEIS is sorely inadequate in this area. Absent of any details of the review, no estimation can be made of the quality of environmental protection afforded by the review. The details of the review need to be developed and presented to the public immediately. The state of Kentucky has already issued an Air Quality permit for five years. If the proposed action described in the DEIS to review the data is to occur, then DOE and EPA will have to be the ones to require it.

Given KPE's clear intent, it is reasonable to require DOE to contractually obligate the review, publish it's full details, seek a bond to secure the agreement, and require Occurance class insurance to assure the intended levels of safety. In the face of evidence to the contrary, the cooperation of KPE cannot be presumed, and must be contractually required. Trusting KPE to volunteer for review and abide by the results can no longer be an option. This contract should also be part of the DEIS, and deserves public comment and review.

DOE's notice of intent to prepare the EIS states clearly that the project is "designed for at least 20 years of commercial operation...", and that "Upon completion of the demonstration, the facility **could** (my emphasis) continue commercial operation."<sup>19</sup> KPE has said "Kentucky Pioneer Energy will furnish Kentucky residents with low-cost power, high-quality jobs, and a cleaner environment for years to come."<sup>20</sup>

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18 pers comm, Mike Musulin, President KPE, 12/11/01 9 pm, just after the close of the formal EPA EIS hearing "If we did that, nothing would ever get built." This comment was made to me, the Lee County Solid Waste Co-ordinator Ms. Neely Back, to Clark County resident, John Maruskin, and others.

19 DOE's Notice of Intent to Prepare an Environmental Impact Statement for the Kentucky Pioneer IGCC Demonstration Project, Trapp KY

20 Op-Ed page, 7/23/2001, Lexington Herald-Leader, Lexington, KY

One of two things can be drawn from these facts: either there should be a mandated public review and re-permit at the end of the demonstration because the outcome of the research and the safety of the waste product are uncertain, or that the outcome is certain and does not deserve Federal research monies.

In the event that DOE does fund the R&D facility, it should require, by contract and bond, a new round of public review and a new round of state permits predicated on the results of the test period. The absence of details about the how the data from the first year would be used to determine the continued use of coal/MSW/RDF is a significant omission in the DEIS.

### **Unreliable Partners, Private Funding Delays, Inadequate Planning and Uncertainties**

KPE & EKPC are having trouble already (see Appendix D, the PSC September 11<sup>th</sup> hearing). The public pronouncement by KPE that they intend to run the facility without regard to the outcome of the first year flies in the face of the text of the DEIS and challenges the notion that they are a good partner for DOE, EPA, and the public. As well, the determined effort to avoid the local permitting requirements calls into question their commitment to public partnership.

Many of the features of the KP IGCC DEIS are founded on the DOE's partnership with Global Energy, KPE & EKPC. The failure to consider other sites, the inclusion of MSW derived fuels instead of coal, and the reliance on old studies from EKPC's prior EIS's are among those features. The appropriateness of DOE's relaxed efforts is predicated on the quality of their choice of partners. There is evidence that these partners have failed to measure up and casts doubt on their ability or willingness to deliver.

KPE missed it's financial closing deadline of June 30<sup>th</sup>, 2001. In testimony before the Kentucky Public Service Commission, KPE's partner EKP stated "However, due to the delay in KPE's financing, East Kentucky (EKP) decided that it cannot reasonably rely on that project (Trapp) to satisfy its future power needs."<sup>21</sup>

The Trapp facility had originally been planned as a Duke Energy subsidiary (Ameren) project in southern Illinois, but that encountered siting difficulties and was canceled.<sup>22</sup>

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21 Appendix D. Commonwealth of Kentucky Public Service Commission case 2001-053, report on the hearing of 8/18/01, "Application of East Kentucky Power cooperative, Inc for a certificate of public convenience..."

22 Robert W. Gee, Assistant Secretary for Fossil Energy,

EKPC failed to send representatives to either of the December 2001 DEIS public comment meetings in Kentucky. KPE has neglected to apply for a critical permit from Clark County. They failed to apply due diligence in the review of applicable law and instead maintain that they are not operating a waste-to-energy facility, preferring a court battle over accommodating the local public.

The Federal Government should not risk public dollars on a project that, by DOE's own admission, may be poorly located, has a track record for last minute siting problems, and is anticipated to fail by it's own corporate partners. The quality of the partnership itself has become suspect in light of facts presented in these comments and appendices.

### **Disregard for Social Justice and Environmental Issues**

Unlike New York, Kentucky has addressed our solid waste disposal problems. 4000 tons a day is a lot of trash. It is nearly half of what Kentucky produces each day. If folks in Trapp Kentucky can afford proper garbage disposal, New Yorkers can too. We have 23 other power plants awaiting permits. None of them want to incinerate 4000 tons of trash a day.

KPE has not offered any incentives to Kentucky. From Kentucky's view it's a clear loss. KPE is an Ohio company. Most jobs and all the profits leave the state. KPE will act to the advantage of it's parent, Global Energy, not EKPC or the Commonwealth. Since no local permit has been sought, there has been no discussion in Clark County of a 'Host Agreement', the contract of mutual benefits imposed on permit holders. Hence, there are no local benefits to offset any undesirable impacts from the facility. The Commonwealth's air quality is more excessively burdened by the metals and other contaminants in the imported MSW/RDF than if KPE burned Kentucky coal. From the Commonwealth's point of view KPE should be demonstrating 100% Kentucky coal. Kentucky already has the lowest energy costs in the nation: there is little demonstrated need for the power generated at Trapp.<sup>23</sup> A facility would be better located nearer it's feedstocks and high rate energy markets than at the proposed Trapp site.

If the Federal Government choses to fund the Trapp facility, many public bads (as opposed to public goods) will occur: Kentucky will see an escalation of landfill costs; elimination of new business opportunities due to increased scarcity of clean air and water; significant,

U.S. Department of Energy, before the Subcommittee on Interior and Related Agencies Committee on Appropriations, on March 14, 2000.

23 <http://www.kentuckyconnect.com/heraldleader/news/121601/statedocs/16electricity-plants.htm>

yet avoidable, public health issues due to metals, carcinogens, CO, CO<sub>2</sub>, NO<sub>x</sub>, and other pollutants in the air, soil and water; abuse of the will of Kentuckians and our laws. All this for a tiny handful of jobs. All this just to demonstrate cheap energy in the state with the cheapest energy, and a solid waste disposal solution in a state that solved that problem 10 years ago.

The environmental virtues of IGCC are offset by the MSW costs: massive chronic train loads of trash, importing hazardous metals and organic compounds as garbage, failing to recycle paper and plastics from 4000 tons/day of MSW, using local landfill space for 500 tons/day of heavy metal laced waste, competition with one of Kentucky's largest cites for scarce water, and burdening the air with a wide array of degrading elements.

### **Inadequate Design Data**

Critical plant design components are missing from the DEIS. The fate of Mercury is a good example-some will be captured as particulates just after the gasifier, and some in the de-sulfurization step, but without the design data, no-one can more than guess what the capture rates are. Congress has mandated the reduction of Mercury, yet there is no visible effort or data in the DEIS to that end. The same can be said for other toxic metals.

Water use is not well documented. A typo in Figure 3.1.1-1 on page 3-14 of the DEIS shows untreated steam being piped to the turbines. The technologies for cleaning the gasification products are ambiguous, and the fate of water used to clean and cool the gases is not clear. The nature and degree of contamination of the 'aqueous effluent' is not detailed. The margin of additional risk to water quality and quantity from the transportation and use of MSW/RDF vs coal cannot be reasonably measured by information in the DEIS. The Trapp site is immediately upstream from the primary water source for the second largest city in the state.

In the absence of information like that shown below, no analysis can be made about the fate of constituents. It is bordering on travesty that DOE published a DEIS absent of the essential design information needed to make any estimate of environmental impact.

The environmental impact of an IGCC plant is a function of the thermal and chemical character of the facility. Section 3.1.2 should address the temperature profile of the pyrolytic products. Examples of the types of information missing are offered below:<sup>24</sup>

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24 P. 51 [www.nrel.gov/docs/fyosti/29952.pdf](http://www.nrel.gov/docs/fyosti/29952.pdf) and British Gas/Lurgi Gasifier IGCC Base Cases PED-IGCC-98-004 Rev June 2000. pp3-4 URL: [www.doe.gov/coalpower/gasification/system/bgl3x\\_20.pdf](http://www.doe.gov/coalpower/gasification/system/bgl3x_20.pdf)



Example flow rate and temperature regime diagram.

FIGURE 1B

BGL IGCC - CGCU /WSWG GT

SUMMARY:

POWER	MW	EFFICIENCY	%
GAS TURBINE	272.6	HPV	45.3
STEAM TURBINE	133.4	LHV	47
MISCELLANEOUS	19.5		
AUXILIARY	11.6		
NET POWER	374.9		

STREAM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FLOW (LB/HR)	237527	178146	4228	10076	9661	9019	8841	75006	124519	445254	39011	275000	9039	712235	388806
TEMPERATURE (F)	52	52	342	22	130	161	161	684	203.6	286.4	140	176	230	288	100
PRESSURE (PSIA)	14.7	14.7	14.7	14.7	480	305	305	500	464.1	305	14.7	435	302	302	371
H (MM BTU/HR)	-281.3	-211	-1.8	-52.3	0.1	3	3.1	-413.7	3.1	-751.4	-78.5	-1808.5	3.5	-2846.1	-713.5

STREAM	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
FLOW (LB/HR)	308060	7078	15080	1101	5880	25370	13172	13172	2502	2241	261884	280756	432000	3617520	261884
TEMPERATURE (F)	116	116	144.2	70	285	70	59	161.2	67.6	550.7	59	204.2	59	813.5	813.5
PRESSURE (PSIA)	376	376	18.5	17.5	14.7	17.5	14.7	25	14.7	336	14.7	280.4	14.7	282.4	282.4
H (MM BTU/HR)	-668.1	-12.8	-37	-3.6	0.3	-73.7	-0.5	-0.2	-20.4	-3.8	-10.9	-4.4	-181.3	-512.2	-36.1

STREAM	36	36	37	38	39	26	40	41	42	43	44	45	46	47	48
FLOW (LB/HR)	261884	523600	523600	124519	120006	29364	244007	14802	137166	573256	527100	527100	4000782	4617802	71442
TEMPERATURE (F)	831	333	170.4	80	62	60	62	112.8	203.8	550.7	813.5	600	2683	1124.1	59.8
PRESSURE (PSIA)	280.4	280.4	280.4	52	91	265	91	425	380	336	282.4	276.8	238.5	15.2	375
H (MM BTU/HR)	14.6	18.9	-0.9	-0.6	-1.4	-0.2	-2.7	0	3.3	983.5	76.8	47.9	-510.8	-2215.5	-491.8

STREAM	49	77	78
FLOW (LB/HR)	6593	7000	7000
TEMPERATURE (F)	59	606.2	1066.4
PRESSURE (PSIA)	14.7	300	342
H (MM BTU/HR)	-65.8	-388.6	-371.8

Significant research is needed to characterize the effluents from a coal fired IGCC facility compromised with low ratios of coal to MSW/RDF. Kentucky will bear the risk of insufficient research.

Please find attached a (very) preliminary bibliography (Appendix A) that suggests both a paucity of peer-reviewed research specific to our case and confounding results.

The titles in that list suggest that nearly all the available literature is on MSW and Incineration technologies. The Trapp feedstock is a relatively heterogeneous coal and MSW/RDF mix, and the IGCC facility is not an incinerator, hence little of the available literature is necessarily applicable.

Largely absent from the list are independent peer reviewed assessments of ICGG produced fritted slag from mixed coal MSW/RDF feedstocks. There is little in the literature to reassure the public that BG/L IGCC facilities & frit are unfailingly environmentally benign, or that all the heavy metals in the feedstock are effectively sequestered.

The DEIS has not adequately addressed the short & long-term character of the fritted slag. There is some question as to the efficacy of metal sequestration in the

frit. MSW/RDF has a highly variable metal and energy content compared to coal. It is possible that the metal concentrations in the vitreous waste will also be more variable, making the specific character and safety of the 500 ton/day of solid effluent harder to characterize. The DEIS should detail how & by whom the frit will be assessed.

The public cannot measure the risk created by the Trapp facility without additional review and research. In the face of such uncertainty, it is reasonable to require an Occurance class insurance policy sufficient to remediate potential long term damages. Unless DOE and the EPA bind KPE & EKPC to a new round of permits to review the results of the one year demonstration, or a long term occurrence insurance policy that can cover any damages, the facility should not be funded.

### **In Conclusion**

There are significant flaws and omissions in the Trapp facility DEIS. These demand repair and a new round of public review.

While it is not the Federal Government's job to enforce Kentucky law, the Feds should not facilitate the avoidance of Kentucky law nor reward the good environmental management efforts of Kentucky by dumping New York's trash on us.

The determination that there are no significant environmental or social justice issues is not supported by the facts. Many genuine environmental questions remain about the use of MSW/RDF. It is clear that Kentucky would be better off using 100% coal at Trapp.

It is patently unfair to reward a poor state that has afforded itself a safe means of disposal of its own MSW with almost a volume half again it's own, just to lower the cost in a far more affluent state. It is an injustice to unnecessarily risk the physical and economic health of that poorer state for the sake of experimentation when there are no local benefits.

Kentucky doesn't have a waste disposal problem, so we cannot benefit there. Our costs will inevitably rise to compensate for the demand on our landfill space for the frit and other waste from East Coast waste. Our costs for health care will inevitably rise to repair the damage from heavy metals that could be avoided. The quality and quantity of water available to the second largest city in the state is unnecessarily threatened, risking it's economic growth. Using MSW/RDF denies a long term market for Kentucky coal.

The decision to not consider other sites is not supported: partners already have IGCC facilities to demonstrate the fuel cell component. Failing to include the Lima, Ohio plant is a clear sign of the inadequacy of

the DEIS site selection effort. Electricity demand and price are higher anywhere else in the country. Trapp may be one of the worst sites available. Given the long distances from the MSW source material, sites to the north and east deserve consideration.

EKPC should have attended the December DOE/EPA hearing at Trapp. KPE has proven unreliable at acquiring funding. EKPC has interjected a PSC decision into their commitment to DOE. EKPC & KPE relations are visibly suffering. The current partners are not working well with the public or each other. DOE should not use them as the basis to deviate from a full site review.

The Federal Government should not invest in a project at such risk of foundering in a permit fight.

The Federal Government should not invest in a project that cannot acquire timely and reliable private funding.

DOE & EPA need to justify the use of research dollars on a facility that intends to ignore the research outcome.

The DOE CCT program should not divert scarce Federal funds to research that is outside the realm of Clean Coal. Using CCT monies for research on MSW/RDF diverts those dollars from their intended purpose. DOE CCT's mandate is to make coal clean to use, not to remove coal from the energy production cycle.

The Lima, Ohio Global Energy facility undercuts the basis for Federal investment. The goals of DOE & CCT can be met without Federal funding.

The Mason County Spurlock plant now seeking permit from the Kentucky PSC by EKPE addresses the base electrical needs stated in the DEIS without Federal funding.

The lack of design information in the DEIS makes it a dysfunctional document-one cannot estimate the environmental impact of the proposal from what is included in the DEIS.

There is overwhelming evidence that the DEIS needs repair. The document does not detail the environmental impacts of the Trapp facility, nor defend the need for agency action. The DEIS, as presented, is more a dogmatic tract asking for the public's faith than a fact-filled document presenting the environmental impact of the proposed facility. Please mend the document and offer it again for public review.

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## Appendix A-IGCC Frit & MSW Title Search Results

The Dialog © search terms used here are : LURGI OR BG/L  
OR IGCC OR INTEGRATED()GASIFICATION OR FRIT OR  
SLAG)(S)(MSW OR GARBAGE OR RDF OR REFUSE)

As is evident from the titles below, nearly all the available literature is on MSW and Incineration technologies. The Trapp feedstock is a relatively heterogeneous coal & MSW/RDF mix.

As DOE's partner, KPE, has repeatedly informed us, the IGCC facility is not an incinerator, and RDF mixed with coal is not MSW, hence little of the available literature is necessarily applicable.

While a case by case review seems necessary to determine whether the available publications are germane and their impact on the goals of the DEIS, what is largely absent is independent peer reviewed assessments of ICGG produced fritted slag from mixed coal MSW/RDF feedstocks. There is little in the literature to reassure the public that BG/L IGCC frit is unfailingly environmentally benign and that all the heavy metals in the feedstock are effectively sequestered there.

The first citation below is not part of the Dialog search.

### Bibliography

5. "Destruction of Toxic Organic Substances in a Slagging Gasifier Including Determination of Heavy Metals in the Slag" Distefano, R. P., Eberle, D.J. et al., Columbia University Account Number 5-20270, Final Report for U.S. EPA Office of Research and Development July 15,1983.  
=====
- 2/6/1 (Item 1 from file: 10)  
Application of refuse slag in concrete for agriculture (Cinders). 18092  
Onderzoek naar de toepassing van afvalverbrandingsslakken-beton  
1980  
AGRICOLA 70-2001/Dec (c) format only 2001 The Dialog Corporation  
=====
- 2/6/2 (Item 2 from file: 10)  
472238 739228213  
Einfluss steigender Gaben an Mullschlacke auf die Ertragsbildung und den  
Gehalt an Spurenelementen im Weizen; Influence of increasing amounts of  
refuse slag on yield of wheat and its content of trace elements  
1973  
AGRICOLA 70-2001/Dec (c) format only 2001 The Dialog Corporation  
=====
- 2/6/3 (Item 3 from file: 10)  
429320 739188394  
Die Verwertung von Mullschlacke fur landwirtschaftliche Zwwocke; Use of  
garbage slag for agricultural purposes [Fertilizing]  
1972  
AGRICOLA 70-2001/Dec (c) format only 2001 The Dialog Corporation  
=====
- 2/6/4 (Item 1 from file: 5)  
09173740 BIOSIS NO.: 199497182110  
PCDD/PCDF formation and destruction during co-firing of coal and RDF in a  
slag forming combustor.  
1994  
Biosis Previews (R) 1969-2001/DEC W4 (c) 2001 BIOSIS  
=====
- 2/6/5 (Item 2 from file: 5)  
08124468 BIOSIS NO.: 000042105091  
FIXATION OF RESIDUES FROM SPECIAL HAZARDOUS WASTE INCINERATORS FOR SHALLOW  
LAND DISPOSAL  
1992  
Biosis Previews (R) 1969-2001/DEC W4 (c) 2001 BIOSIS  
=====
- 2/6/7 (Item 2 from file: 50)