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*"... one of the unintended consequences of this rule will be to force DG developers ... to avoid interconnection, which is always a tougher sale."*

*- Ritchie Priddy,  
DERI*

*Providing Business, Regulatory and Technology Information for the DER Industry.*

## PROPOSED TEXAS RULE PRESENTS OBSTACLES FOR DISTRIBUTED GENERATION

A proposed permitting rule by the Texas Natural Resources Conservation Commission (TNRCC) could present additional obstacles to distributed generation in Texas, and could be adopted in other states. The permitting rule, entitled "Standard Permit for Small Generating Units", will force strict emissions standards to be met for generating units (up to 10 megawatts) installed anywhere in Texas, regardless of attainment status.

Among other things, the rule will force all interconnected electric generating projects up to 10 megawatts to emit no more than 9 parts per million (ppm) of Nitrous Oxide for units installed prior to January, 2003. That number would drop to 5 ppm in 2004, and settle at 3 ppm in 2005. CO emissions would also be limited.

The net effect of this rule would be to eliminate virtually all internal combustion engines for power generation units up to 10 MW that are grid interconnected. "I think one of the unintended consequences of this rule will be to force DG developers who want to install the cheapest, most effective equipment to avoid interconnection, which is always a tougher sale," Ritchie Priddy, Manager of the Distributed Energy Resources Initiative at the Center for Energy Studies,



**Under the proposed Texas Rule, power generation projects using waste gas would be prohibited.**

Photo Courtesy of Global Power, LLC

said. By going stand-alone, he stated, some of the primary benefits of distributed energy resources will not be realized. "The benefits of interconnection are multiple, including grid enhancement. But, what some vendors are going to find is that all of a sudden many peak-shaving projects will not be allowed under this rule, unless they go with very

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## LSU CLEAN AIR PROJECT NEAR REALITY

Bids for a state-of-the-art Clean Air electric generation facility to be located on the LSU campus were opened Wednesday, October 11th.

Three vendors submitted bids to build the 10-13 megawatt facility. When completed the cogeneration plant will be one of the cleanest fossil fuel plants in the United States, with Nitros Oxide (NoX) emissions not exceeding 15 parts per million (ppm) and Carbon Mon-

oxide (CO) emissions not exceeding 20 ppm.

Two vendors, Sempra Enegy Services and Johnson Controls, made presentations to the university October 31st. The Sempra presentation included a \$22 million project that features a 13 megawatt Alstom turbine that would use controls to meet the emissions standards. Johnson

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## TNRCC RULE (CON'T)

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expensive equipment that would make many projects uneconomic." Many peak-shaving projects are interconnected.

By forcing these very tight emissions standards throughout the state, Priddy said that many projects that are currently being planned would have to be abandoned. "For instance, diesel units that could be used by utilities for peaking periods will not be allowed, even if they are used less than 100 hours per year." While no one is for pollution, he said, there is no reason to apply this rule in areas that will never reach non-attainment. Other provisions of the rule include: re-certification every two years, or every 15,000 hours of operation; extensive on-site record-keeping; pre-approval of projects; size limited to 10 MW at any one site; and pipeline quality natural gas must be used for any natural gas project.

Two of the most contentious issues have to do with the apparent open door the rule has toward existing projects, and the ability to apply this rule toward all combustion units. "The PUC says that existing standards, state implementation plans, or future standards would be applicable to existing projects," Priddy said. "And, considering the polluter is the combustion unit, not the generator, there is no guarantee that the TNRCC won't come back and apply this rule to all combustion units."

"A lot of stakeholders are concerned, Priddy said, because Texas is often seen as the leader in opening the market for distributed energy. What happens there will likely be adopted by other states. I do not think the intent is to kill IC engines. But, if adopted in its current form, this rule could have the effect of discouraging DG there. There are not many alternatives except renewables and large combined cycle combustion turbines. Both are impractical for most projects."

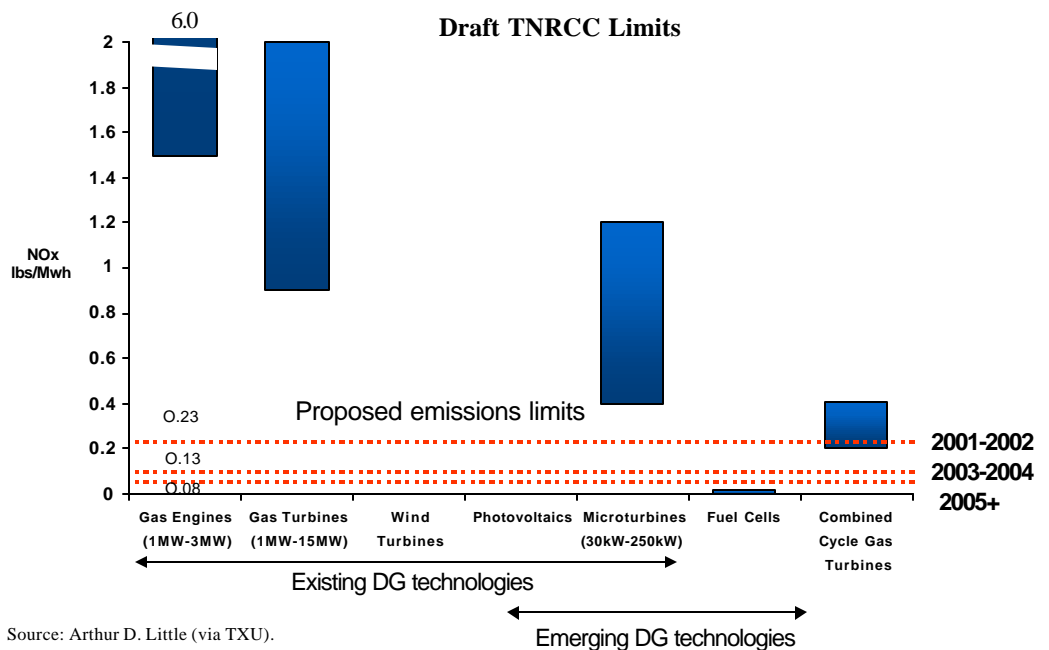
Additionally, there are projects under development in Texas that can take waste gas in production areas and produce power. The Texas Railroad Commission estimates that in 1998 alone some 41 bcf of waste gas was vented or flared. "If someone could tap into some of that gas and produce power they could provide a tremendous risk management service for many utilities using very cheap fuel. However, such projects would not be allowed under this rule."

Texas has been seen by many as a DG-friendly state, Priddy said. "Developing the DG market has been a long, tough battle, and is no where near over."

The rule will be released for public comment sometime in mid-November. Anyone interested in further information can find a draft of the rule on the DERI website ([www.deri.lsu.edu](http://www.deri.lsu.edu)).

*"Developing the DG market has been a long tough battle that is no where near over."*

*- Ritchie Priddy, DERI*



## LSU TURBINE (CON'T)

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Controls, Shaw Group, Alliance Power and General Electric, presented a \$27.5 million 10 megawatt turbine fitted with the Catalytica XONON combustor. If selected, LSU will host the first commercial application for the XONON combustor which would enable the generation project to be the largest, cleanest fossil-fuel plant in the world to date.

Construction is scheduled to begin next spring. The plant will provide electricity and steam for the campus and the university is expected to enjoy significant energy savings over the life of the project.

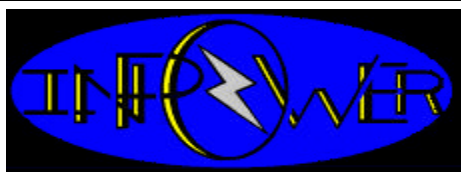
The turbine will be equipped with non-invasive instrumentation that will allow LSU

engineering departments to conduct research that will provide significant funding opportunities for the university, as well as help position the university to become a leading energy research institution.

The turbine center will also serve as the technological foundation for the Distributed Energy Resources Initiative (DERI).

East Baton Rouge parish is in danger of reaching non-attainment status, which could require significant restrictions on emissions-related activities. The turbine will help support the parish's clean air efforts, and fulfill the university's responsibilities as well.

*"If selected, LSU will host the first commercial application for the XONON combustor."*



## Interview with InPower Marketing Corporation

Editor's note: I have often thought that distributed energy could be a tremendous risk management tool for utilities and customers alike. It should be clear to any project developer or vendor that it can also lead to profits. There are a lot of creative people who are involved with DER who are finding innovative ways to make it work profitably for them. That's why we are pleased to highlight one of the first companies to come up with a creative way to implement distributed energy. Tom Jens, co-founder of InPower Marketing Corporation, headquartered in Wisconsin Rapids, WI, recently spoke with me about his company.

**DERI: What is it that you do and how did you get started?**

**Tom:** The business model is to sell power at a cost advantage to traditional sources. Recent regulatory changes in the electric industry have created niche opportunities for aggressive players. InPower plans to exploit changes in utility regulations, but it does not rely on them to survive. We plan on aggregating small blocks of power from non-utility generators, using a centralized system to dispatch the power and use the risk management tools of the derivatives market to guarantee an attractive return for our customers. Over the past two years it has be-

come abundantly clear to us that in order to survive we needed an understanding of the technical, regulatory, and market aspects of distributed generation.

The idea came to us in the summer of 1998 when a college roommate of mine told me that he had just sold a block of power for \$2,500/MWh wholesale to the utility I worked for. He sold us power while a 4 MW generator was sitting idle outside of my office. Another college friend of mine and I did some investigating into idle or underutilized DG and were surprised by how much there was. We incorporated and raised some capital and on July 30, 1999 we proved the concept when we sold a block of power wholesale from an industrial facility for \$800/MWh. We found out after the fact that one of the utilities tried to stop the transaction. But, the PSC and the regulatory framework were in our favor.

**DERI: Was it profitable?**

**Tom:** Yes. We were able to generate power at a marginal cost of \$60/MWh and sell it for \$800/MWh, creating roughly \$18,000 in value for our customer in five hours. That energy sale was more profitable to the customer than its core business was during the same time period that day.

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*"InPower plans to exploit changes in utility regulations, but it does not rely on them to survive."*

*- Tom Jens, InPower Marketing*

*“The DERI focuses on three key components of DER: technologies, regulations, and markets.”*

*“The mission of the DERI is to serve as an unbiased, objective third party information resource.”*

Welcome to the first edition of the DERI Times. We hope you find it worthwhile and informative. The Distributed Energy Resources Initiative (DERI) is a new initiative of the Louisiana State University’s Center for Energy Studies designed to explore the issues and opportunities surrounding DER. Unlike most energy research programs that focus solely on technology issues, the DERI focuses on three key components of DER: technologies, regulations, and markets. Having come from industry, I have an appreciation of the obstacles facing DER stakeholders and proponents. Being successful in one or two areas does not guarantee success. Rather, it is necessary to have a good grasp on all three. As a former DER project developer, I have run into every sort of obstacle. I won a few battles, and lost a few. I know enough to know that I don’t have all the answers to the very tough task of building a DER market. I also know that the mis-information, dis-information and ignorance found throughout the energy industry serves, and likely will continue to serve, as a serious drag on market development.

The mission of the DERI is to serve as an unbiased, objective third party information resource for stakeholders. DER will not work in every situation. But, it can provide unique, innovative and often least-cost solutions to complicated issues. DERI will coordinate research, disseminate information and host educational forums on all aspects of DER. We recently completed our second DER workshop concerning market development. In that workshop speakers addressed the proposed Texas emissions rule and discussed its impact on the DER market. Without exception, those attending felt this rule will have a detrimental effect on market development. Thus, a regulatory issue may end up determining the success or failure of the DER market in Texas. Given that Texas is often cited as the most DER-friendly state others are likely to adopt similar rules.

One of the things that I want to accomplish through this newsletter is to highlight what some innovative companies are doing with DER. Often, it’s the new companies with entrepreneurial attitudes that bring innovation to the marketplace. As I come across such companies I will include articles on them similar to the one on InPower Marketing Corporation found in this edition. Other topics of interest to the DER community to be addressed include hiring practices, marketing strategies, management issues, restructuring effects on market development, and market timing.

The technological foundation for the DERI will be the new Clean Air cogeneration project that will be installed on campus (see related story). We negotiated with vendors the insertion of non-invasive measurement devices that will enable LSU engineering faculty the opportunity to conduct extensive research on many aspects of the project. This will also serve as a teaching tool that will be used not only for students, but for industry professionals as well.

The DERI is an evolving entity, and will respond to industry needs. It fits nicely within the existing Center for Energy Studies. We need both moral and financial support from DER stakeholders. We are organizing a stakeholder group to support the DER Initiative. In coming editions we will highlight some of the activities and benefits of such a group. If you desire information on how you can participate or on other DER-related issues let us know. Our intent is to help foster the DER market. Visit our website for workshop materials, news items and other interesting topics relating to DER.

Ritchie Priddy, Manager, DERI

# Oilfield Applications Show Promise for DER

According to the U.S. Energy Information Agency each year about 300 Bcf of natural gas is vented or flared in the Lower 48 states. In Texas alone, approximately 41 Bcf was flared in 1998, which is enough natural gas to power a baseloaded 470 MW electric generator. This uneconomic gas, as it is often referred to, exists at many oil and gas leases, and is often “thrown” away.

In fact, the former Gas Research Institute (now Gas Technology Institute) found that some 41 percent of raw, non-associated gas and 34 of non-associated production in the United States is considered sub-pipeline quality. In order for this gas to be sold and delivered into the nation’s pipelines, it must be processed first — often a very expensive proposition.

When a producer comes across this gas, he has basically three options: process it; vent or flare it; or produce power with it.

Due to emissions concerns many states, and Canada, are starting to curb the ability of producers to vent or flare gas, leaving essentially two options.

Since fuel is the most expensive cost associated with power generation, it only makes

sense to use this very low cost gas for generation purposes. And, a few enterprising producers are waking up to the possibility of doing this and selling it back to the grid at a profit. In next month’s issue we will look at the opportunities and pitfalls associated with using DER in the oilfield.

Selected States Gas Flaring and Equivalent Power Generation

	Bcf Vented & Flared	Baseload Plant Size/Mw
Alabama	1.1	13
Alaska	6.2	71
California	1.9	22
Colorado	1.2	14
Kansas	0.6	7
Michigan	3.3	38
Mississippi	2.8	32
New Mexico	2.6	30
Texas*	41.1	469.2
Utah	19.3	220
Wyoming	140.0	1598
La.	19.5	222.6
Total	<b>239.6</b>	<b>2735.2</b>

Source: Energy Information Agency & the Texas Railroad Commission.\*

*“ . . . it only makes sense to use this very low cost gas for generation purposes.”*

## INPOWER (CON'T)

*(con't from page three)*

**DERI: So, you share the profits with the customer?**

**Tom:** Yes, we operate under a profit share to align our incentives with those of our customers. This differs from a traditional utility or power marketer whose overall profitability is dependent on offering customers as unattractive a price they can get them to accept.

**DERI: Run through an example of this with, say, a paper mill?**

**Tom:** The first thing to do is to separate the loads from the generation. Under federal regulations an entity has the legal authority to sell all net generation. A paper plant might have a total load of 50 MW, produce at steady state 25 MW, and purchase 25 MW from the local utility. Generally a mill with a profile like this will have spinning reserves with the capability to produce incremental generation by condensing or venting steam. This is considered expensive power by the plant but rela-

tive to wholesale prices during the summer it is inexpensive. In this situation the plant operators would increase their production and instead of using that increased production to offset internal consumption they would have a schedule out from their plant. Their utility meter would read the reduction and would have to be netted out using the SCADA interface to the OASIS schedule. The transmission utility accepting the schedule will generally require a meter on the output of the generator to be able to verify that the schedule is generation.

**DERI: What is the typical equipment setup for this?**

**Tom:** Anytime we are going to do a power sell the utility will require us to install some sort of equipment. If the unit is already synchronous with the utility, like a paper mill, we have to install at least a meter. That will run anywhere from \$5,000 to \$10,000. If it

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*“ . . . we operate under a profit share to align our incentives with those of our customers.”*

*- Tom Jens, InPower Marketing*

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Technology Information  
For the DER Industry.*

  
**DERI TIMES**

## INPOWER (CON'T)

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is not synchronous we have to install some synchronous switchgear and a few other things. It could be anywhere from \$40,000 to \$60,000 per megawatt. Right now we use new equipment only for paralleling and dispatch. We are looking at some used generators that are good condition.

**DERI: There are a lot of small generators out there where this might work, but often they are just too small and/or isolated. How would you approach these generators?**

**Tom:** Small generators are handicapped by the fact that there isn't a readily available liquid market for small blocks of power. Traditionally the only players in the wholesale markets have been utilities, which deal in institutional-sized contracts. There are two MW blocks traded on the NYMEX for some utilities, however, these are usually purchased to cover line losses of the larger blocks. Therefore, if a small generator wants to enter the forward wholesale market to gain some of the value of his capacity he will have to invent an exotic over the counter option or forward contract (which will have to be discounted considerably as it has no liquidity) and then find a willing buyer. If he decides not to enter the forward markets he can always try to sell his power on the spot market. In these situations the only time he can sell odd lots spot is when the system is severely stressed. One of the value propositions that we offer is the aggregation of many small sources of power to capture the value of the capacity along with the value of the energy. Hopefully within the next month or so we'll sell the first DG 50-megawatt call option. We'll act as the dispatch and call center. We fulfill all the regulatory requirements for our customers, with the exception of emissions, and we take care of scheduling, tagging, trading, risk management, and reporting. We can absorb their maintenance and fuel contracts so essentially what they've done is out-sourced their generation to us.

**DERI: What are your future plans?**

**TOM:** We're going to bring on some more people. We have customers with facilities up here that want us to do this nationwide, and

parties located outside the MAIN have shown serious interest. Our first expansion will probably be into the southeast where there are a number of paper companies. We're going to get aggressive on our installations in the next six months. Hopefully, by June 1st of next year we'll have about 75 to 100 megawatts in the MAIN and 50 to 70 megawatts in the SERC.

**DERI: What do you think the market potential is for this?**

**Tom:** Right now a 50 MW \$200 daily call is selling between \$40 and \$45 a megawatt hour. So, if you look at the 1000 hours of summer peak that is \$40,000 to \$45,000 just for the capacity. There is also the added benefit of the value of the energy on the days when the power is called, and also on the days where the spot market is trading between the generator lambda and the strike price of the option.

**DERI: What would you say is your biggest obstacle that you've run into so far?**

**Tom:** We have run into a couple of obstacles. One is a selling obstacle. Our company is fairly young and we're bringing a new idea to a very old industry. Obviously, utilities try to put up roadblocks, but you see that in any monopolistic industry. But, we haven't really had a serious problem with any utility. The law is on our side on this. We have an umbrella tariff [IND/COMM Generators - InPower, FERC Electric Rate Schedule No. 1 (Docket No. ER00-1519-000)] with the FERC stating we have the legal authority to buy power from any industrial or commercial generator of power in the United States. One utility tried to fight our application (Motion of Jacksonville Electric Authority for leave to file late intervention & protest re Inpower Marketing Corp under ER00-1519) but the FERC denied their request. The state PSC's have also been helpful in knocking down the utility-erected roadblocks in a timely manner.

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