

**June 2019**

**Upcoming July Events:**

- Jul 1 - Canada Day
- Jul 4 - US Independence Day
- Jul 7 - Chocolate Day
- Jul 10 - Global Energy Independence Day
- Jul 18 - Nelson Mandela Day
- Jul 24 - Thermal Engineer Day
- JUL 27 - Buffalo Soldier Day

**COMING IN August 2019:**

**Wellness Month**

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**The Future of Energy**

**By Natalie Bright - Amarillo Club**

Media Relations Specialist with Xcel Energy, Wes Reeves, talked to Desk and Derrick Amarillo Club members in May. Wes has more than 25 years experience in news and media relations. He continually strives to bridge gaps in understanding between business and energy customers. Those who attended enjoyed a very informative and lively discussion.

Electricity generation utilizes the same basic technology from years past but expectations by customers have changed. Electricity is now a luxury. We have useful smart thermostat technology which can be managed from home or office, verbal communication capabilities, and two-way communication options. Xcel has recently partnered with the Google Assistant App allowing customers to pay their energy bill online through Google Pay. Advanced meters can communicate back to the company.

A question was raised regarding the threat of terrorism attacks on our electric grid. Wes noted that electromagnetic pulse is studied extensively. We do not rely on a single grid in this country. There are many back-up options, redundancy, and numerous manual control systems. They do have various ways of stopping something from escalating.

Currently the generation mix for our area in 2018 was from 21% wind, 30% coal, with the remainder from natural gas which continues to grow every year. They use a low sulfur coal at the Harrington Station along with recycled wastewater from the city of Amarillo which produces steam to turn the generation turbines. This innovation was contracted between city officials and company execs in the 1950s. As long as everyone keeps washing dishes and flushing toilets, the service areas will have power. The coal ash is recycled and resold for road base. The Nichols Plant runs on natural gas.

Wes talked to us about wind energy and how that adds to the grid, and how that resource will play a major role in the future.



From the Editor,

The 68th Annual Convention and Educational registration packets are out! Are you planning on attending? The Central Region has been busy pulling together an educational, entertaining and friendship building event. Be sure to register before August 1st and save \$25.00.

In this edition of the Insight you will find the list of the nominees for the 2020 ADDC officers. Throughout this newsletter you will find each of their goals should they be elected to office. Take time to read about each of them. I have included each of their email addresses, along with their goals. I urge you to reach out them and get to know them better. Ask them questions, and bring those answers back to your meetings. Once your club knows them better, you can make an informed decision in September.

As you read June's Insight, you might notice a Help

Wanted section on page 27. **(HINT, HINT - check out page 27)** The Insight needs you. In coming months the Insight is going to take on a different feel, taking it more toward the format of the old DDJ, the current newsletter format. To do this we need your HELP. **(page 27)** We need submissions from you.

We are most excited about our new Classified section. Is your club having a fund raiser? Are you holding a special event? You may have noticed a few more of these items in this issue. Do you know of any job opportunities in your area? Share them here. These be at no charge to members, non-members will be subjected to the standard advertising fee structure listed below. Contact one of the committee members listed on - you guessed it - **PAGE 27**.

Until next month,

Maggi Franks

# ASSOCIATION OF DESK AND DERRICK CLUBS

## ADVERTISING PACKAGES

PACKAGE A	PACKAGE B	PACKAGE C	PACKAGE D	PACKAGE E
Full Page - Advertising Space in ADDC Insight Publication	Half Page - Advertising Space in ADDC Insight Publication	Third of Page - Advertising Space in ADDC Insight Publication	Quarter Page - Advertising Space in ADDC Insight Publication	Bus, Card - Advertising Space in ADDC Insight Publication
Monthly - \$ 50 Quarterly - \$ 200 Semi-annual - \$ 300 Annually - \$ 500	Monthly - \$ 40 Quarterly - \$ 150 Semi-annual - \$ 250 Annually - \$ 400	Monthly - \$ 30 Quarterly - \$ 100 Semi-annual - \$ 200 Annually - \$ 300	Monthly - \$ 20 Quarterly - \$ 75 Semi-annual - \$ 150 Annually - \$ 200	Monthly - \$ 10 Quarterly - \$ 50 Semi-annual - \$ 75 Annually - \$ 100 Logo on Website \$ 100
Logo on Website \$ 100	Logo on Website \$ 100	Logo on Website \$ 100	Logo on Website \$ 100	
\$500	\$400	\$300	\$200	\$100





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June 2019

Here we are at the halfway mark for the year; it does not seem possible that six months have gone by. My time as your president thus far has been very educational as well as extremely rewarding. I cannot say that it has not been challenging at times but certainly well worth it. Challenges are what make us grow.

I hope everyone has seen the 2019 Convention registration packet. It has gone out and will be posted on the website soon. Please make your plans to attend this Convention and Educational Conference. You will have many field trips and seminars to choose from. Also, the certification class offered will be Marketing which will be presented by our very own Barbara Pappas, a member of the Wichita Falls club.

The public relations committee is hard at work looking for candidates for the Distinguished Service Award (DSA) and the Special Achievement Award (SAA). The DSA is presented to individuals in recognition of outstanding service to the energy and allied industries, or to the Association. The SAA may be awarded to a club, a member or a committee within the Association for contributions to the ADDC in the form of special projects, workshops or seminars. More information can be found on the member page of the ADDC website under the forms section. The deadline for nominations is July 1, 2019. Please remember, no one can be recognized if no one is nominated.

I am so looking forward to convention in Kansas City and cannot wait to see you there. The Central Region has been working so hard to make a wonderful experience for us all. Thank you to all for your hard work!

--Sometimes in the waves of change we find our true direction.-Unknown

*Terry Ligon*

## Deal to close Minnesota coal plants includes ‘historic’ efficiency push

***The agreement between Xcel Energy and clean energy advocates also includes building 3,000 megawatts of solar.***

As Xcel Energy prepares a filing to close its last coal units in Minnesota, a lesser-known provision of the settlement announced last month commits the utility to energy savings equivalent to another power plant.

The [agreement](#) with clean energy organizations and a labor union signed in early May requires Xcel to close the last two coal plants it operates in Minnesota, the Allen S. King facility in Stillwater and Sherburne County Generating Station (Sherco) Unit 3. In addition, the utility committed to building 3,000 megawatts of solar energy.

Fresh Energy, which publishes the Energy News Network, is one of the parties to the agreement.

Clean energy organizations, in return, will support the utility’s acquisition of a natural gas plant in Mankato and at least some cost recovery on the coal facilities. The points reached in the agreement will be incorporated into the utility’s integrated resource plan that will be presented July 1 to the Public Utilities Commission.

The efficiency goal — to be delivered next year as part of Xcel’s integrated resource plan — calls for reducing demand by as much as 830 megawatts, said Mike Bull, director of policy and external affairs for the Center for Energy and Environment.



*The Sherburne County Generating Station near Becker, Minnesota.*

“It’s really historic in what Xcel’s agreed to do with efficiency in its resource planning,” he said. “It has never been done in Minnesota, and I don’t know of any place in the country where it’s being done on this scale, either.”

Trading a natural gas plant for more solar and efficiency investments created a bargain acceptable to most clean energy organizations, which routinely question the wisdom of any further investments in fossil fuel infrastructure as the impacts of climate change are increasingly felt.

While advisory in nature, the agreement is expected to have some influence as regulators begin analyzing Xcel’s resource plan.

But a handful of critics in the clean energy field argue the Mankato Energy Center, a natural gas plant that Xcel [agreed to purchase last year](#), is too expensive and may become a stranded asset and that the agreement was unnecessary.

Deciding whether to close coal plants “is the commission’s job to do,” said John Farrell, director of the Energy Democracy Initiative at the Institute for Local Self-Reliance. The commission would likely have concluded on its own a shift to wind and solar will be less costly than continuing coal plants beyond 2030.

If energy efficiency is the least expensive option, Farrell says, then the commission should require Xcel to do more of it. Efficiency is “probably the cheapest thing Xcel can do to provide energy supply,” he said. “The commission should be requiring utilities to maximize efficiency before allowing any rate-based investment such as a natural gas plant.”

Annie Levenson-Falk, executive director of Citizens Utility Board of Minnesota, believes the agreement could eventually hurt ratepayers. Separating the Mankato plant’s purchase from the other energy sources could lead to higher bills for customers, she said.

“Xcel has been achieving a lot of energy efficiency so I don’t doubt the potential is there,” she said. “But we need to look at the full picture. Maybe the Mankato plant is a good use of customers’ funds but we’re skeptical because you can’t answer that question without the full resource picture.”

To supporters such as Bull, however, the sheer volume of the efficiency initiative, along with the solar investment, makes the deal worthwhile. The amount of electricity saved would be equal to the output “of a significant power plant,” he said. “That’s bigger than the Allen S. King Plant [Xcel] is retiring in 2028.”

The impact of Xcel’s efficiency initiative will far outpace the state’s requirement that utilities reduce their annual retail sales by 1.5% through energy efficiency programs. ***(continued on page 6)***



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June 13, 2019

To: ADDC Club Presidents, ADDC Board  
From: 2019 ADDC Nominating Committee  
Re: Nominations for 2020 ADDC Officers

The ADDC Nominating Committee is pleased to announce the following candidates for 2020 ADDC Officers. All nominations were received by the June 7th deadline.

- President-Elect            Evelyn Green, San Antonio Club, Southeast Region
- Treasurer                Maggi Franks, Westbank Club, Southeast Region
- Philana Thompson, Farmington Club, West Region
- Secretary                Casi Nichols, Enid Club, Central Region

The Slate of Candidates will be officially presented and voted on at the 2019 Convention in Kansas City, Missouri.

The Candidates' qualification and goals are included in this mailing to the Club Presidents and will also be located on the ADDC website; Members Sign-In, 30<sup>th</sup> Mailing.

The Presentation of Candidates and Candidates' Caucus will be held during the 2019 ADDC Convention Business Session on Friday, September 27, 2019.

Sincerely,

*Linda Rodgers*

Linda Rodgers  
2019 Nominating Committee Chair

**Note from the editor:**  
**Pictures of the candidates and each of their goals are posted throughout the Insight.**

*(continued from page 4)*

Utilities in the past simply reduced their sales forecasts in their resource planning by 1.5% to reflect expected compliance with the state's goal, Bull said, and then ran their resource plan modeling to select the balance of resources needed to meet expected customer demand.

Xcel plans to move well beyond that minimal compliance approach by using a new methodology in their computer modeling that allows the model to select energy efficiency in the same way it selects supply-side resources like wind, solar, and natural gas, he said. This modeling approach selected significantly more energy efficiency than the 1.5% annual goal, approaching nearly twice as much efficiency in some years.

"This new methodology revolutionizes energy efficiency in resource planning," he said. "Xcel is the first utility in Minnesota to treat efficiency as a real resource."

Other clean energy supporters generally like what the agreement does. "We think it's a really big deal," said Jessica Tritsch, senior campaign representative for the Sierra Club's Beyond Coal to Clean Energy Campaign "We know Minnesotans are calling for 100% clean and equitable energy. Maximizing energy efficiency is the foundation to build that future."

Once in opposition to the Mankato Energy Center acquisition, the Sierra Club saw the agreement as a "big first step in our energy future," she said. "It retires the remaining coal plants by 2030 and replaces the capacity with solar."

Efficiency measures will lead to less need for fossil fuel plants and pipelines in Minnesota, Tritsch said. The benefits of efficiency investments should go first to low-income

customers, she added, because they would benefit much more than other income groups.

Xcel's proposal to replace Sherco with a natural gas plant will continue to be scrutinized by the organization, she said.

Still, the Sierra Club is not a fan of other aspects of Xcel's integrated resource plan. A preview of the plan "was disappointing" because it lacked investment in distributed generation and community solar, Tristch said.

The Minnesota and North Dakota chapter of the Laborers' International Union of North America (LIUNA) supported the agreement. Kevin Pranis, the union's marketing manager, said the agreement should help trade union members who work on energy efficiency projects.

Some union members who work in maintenance will be impacted by plant closures, he said. The agreement commits Xcel to selecting solar sites where that will have the greatest impact in construction jobs and apprentice opportunities, Prancis noted.

The union supports a transition to clean energy but the jobs that come as a result of moving to wind and solar have been a "mixed" experience for workers, he said. The agreement, he hopes, will help maintain some high-paying jobs in the energy industry.

WRITTEN BY [Frank Jossi](#)  
PHOTO BY [Tony Webster](#)

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Energy News Network



## **Evelyn Green** **Candidate for 2020 ADDC President Elect**

As the President-Elect for 2020, my goal is to continue to work hard to increase membership and assist all Members and the Board, wherever needed.

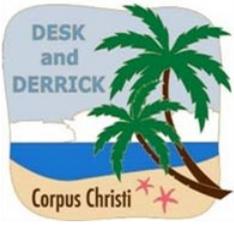
Without increasing our membership, our organization cannot survive. No one person can grow our membership alone - this is a job for all members.

Sharing my passion for Desk and Derrick is also a goal. Passion for what you believe in, energizes those around you. Energizing brings excitement in the possibilities of our organization and what it brings to each member, a vital part of Desk and Derrick.

It has been rewarding to have the opportunities to learn, grow and become the person I am today, much of which I owe to Desk and Derrick.

Email: [evelyn@gbcminerals.com](mailto:evelyn@gbcminerals.com)





# Club Tour of Texas A&M University Corpus Christi HRI



Our Desk and Derrick Club of Corpus Christi had a wonderful tour of the Texas A&M University Corpus Christi **Harte Research Institute** (HRI). David Yoskowitz, Endowed Chair for Socioeconomics, and Joe Fox HRI Chair for Marine Resource Development, along with Mark Besonen (not pictured) Associate Research Scientist, and Melissa Rohal (not pictured), Postdoctoral Research Assistant, welcomed our members. They saturated us with the background of the growth the Institute had since its creation in 2001. It was extremely informative and exciting to hear how much of an impact their research touches our community.

Topics covered ranged from Oyster reef impacts from hurricanes and cultivation, shark tagging and tracking, snapper monitoring, land coastal erosion and impacts, recovering from disasters, evasive species in local waterways, wetlands research and more!



The HRI's new vision is stated in the following paragraph from their 2018 Annual Report; "In the Gulf of Mexico, habitat loss is greater than anywhere else in the nation, the hypoxic zone reoccurs annually, pollution is unrelenting, and overfishing remains problematic. Factoring in climate change and a burgeoning coastal population, Gulf sustainability becomes increasingly complex and difficult to secure. This plan will allow HRI to narrow in our priority research areas, outcomes we intend to achieve in those areas, and targeted actions we will take to get there."

The HRI is instrumental in leading the Gulf of Mexico Alliance (GOMA) Wildlife and Fisheries Team. GOMA is a regional ocean partnership of federal agencies, academic organizations, businesses, and other non-profits working to enhance the environmental and economic health of the Gulf of Mexico. The tour was only a couple of hours which passed by so quickly that it left us wishing we had planned for a full day. We hope you can join us next time!



Desk and Derrick Club of Corpus Christi



## Explosions trigger calls for closing aging PA refinery

Mike Lee, E&E News reporter  
Energywire: Monday, June 24, 2019



Flames and smoke emerged from the Philadelphia Energy Solutions refinery Friday in Philadelphia. Matt Rourke/Associated Press

Explosions that tore through a Philadelphia refinery on Friday could further cloud the future of one of the nation's oldest oil processing plants.

The Philadelphia Energy Solutions refinery has struggled financially for years, and it was already facing a series of challenges in the near future. The explosion Friday — the second fire at the site in less than two weeks — is likely to ramp up pressure from politicians and neighborhood activists who have been complaining about air pollution and historic soil and water contamination at the site.

"We really think the refinery should have to stop operating," said Jo Cordon Hill, an organizer with the neighborhood environmental group Philly Thrive, which was formed to block any expansion of the refinery.

The refining complex is Philadelphia's biggest source of air pollution, according to a **report** from the University of Pennsylvania's Kleinman Center for Energy Policy.

The 1,300-acre site is contaminated with lead, gasoline, benzene, toluene and other pollutants. And it's saddled with outdated technology that prevents it from refining cheaper grades of oil, the report said.

"On top of this, the facility falls short on reliability, operating with a lot of costly down time," the report said.

There have been oil operations at the Schuylkill River tract since 1866, when oil was used mostly to produce kerosene for home lighting. The complex, which consists of two refineries, was eventually acquired by Sun Oil Co., later renamed Sunoco LP, an old-name Pennsylvania company that was founded in 1886.

With a combined capacity of about 350,000 barrels a day, the plant is the biggest oil refiner on the East Coast.

In 1975, eight firefighters died while battling a fire at the refinery, the *Philadelphia Inquirer* reported in 2015.

By the early 2000s, the refining business was struggling, and Sunoco was looking to shut down its refineries and concentrate on its pipeline business.

The Philadelphia complex found a lifeline in the Carlyle Group, a venture capital company, which formed Philadelphia Energy Solutions, a partnership that bought the operation in 2012. Meanwhile, Sunoco merged its pipeline operations with Energy Transfer Partners LP, the Dallas-based oil and gas transportation company.

Philadelphia Energy Solutions went bankrupt in 2018. The company blamed the federal government's renewable fuels standard for some of its trouble. Reuters reported, though, that the company's owners had contributed to its demise by withdrawing \$590 million over the years in fees and other payments.

The Kleinman report warned that the company is still burdened with debt and could face another round of bankruptcy in 2022 when its loans mature.

The refinery is also threatened by an ongoing drop in demand for gasoline and other fuels.

While the explosion is likely to cause a short-term price increase for gasoline in New York and other East Coast markets, there's plenty of refining capacity to serve those areas, even if Philadelphia Energy Solutions were to shut down for a significant amount of time, Wood Mackenzie analysts John Coleman and Marc Amons said in an interview Friday.

"Our view would be, there's enough supply to meet the demand if you were to lose production," Coleman said.

The explosion Friday happened in a propane tank at an alkylation unit, which processes regular gasoline into higher grades. No serious injuries were reported, although four workers were treated at the scene.

The fire continued to burn Saturday, and the refinery's output was curtailed, company spokeswoman

Cherice Corley said in an email. Corley didn't respond to an email seeking comment about PES's finances or environmental issues.

So far, city and state environmental regulators say they haven't detected any signs of airborne contamination.

The incident will be investigated by the U.S. Chemical Safety Board, the Occupational Safety and Health Administration, the Philadelphia fire marshal's office and other organizations, according to the city website.

But activists had already been picketing outside the refinery after the June 10 fire. CordonHill said Philly Thrive and other groups believe they may have some leverage over the plant's future, since its five-year emissions permit under Title V of the Clean Air Act is set to expire this summer.

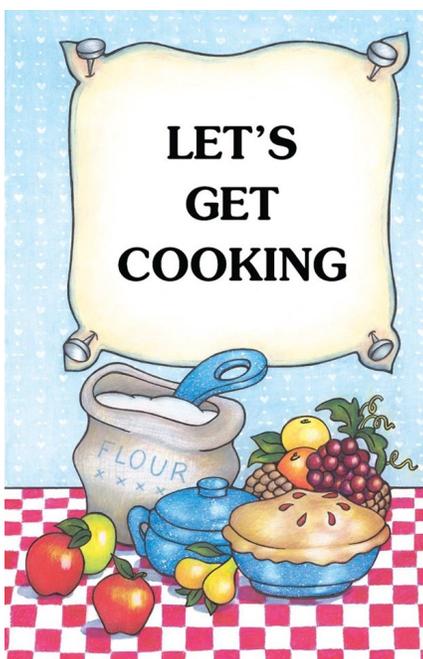
A Philadelphia City Council member called for the plant to be closed until its safety can be assured, according to local television station NBC 10.

Mayor Jim Kenney said, "My initial reaction was, 'Damn, this is bad,'" the station reported.

The permit's expiration won't immediately lead to a shutdown, but the renewal process could allow local residents and local politicians a chance to sound off about the problems at the refinery, said David Masur, executive director of PennEnvironment.

"I think the local community, front-line groups, the environmental justice groups — they get understandably more ramped up, as they should," he said. "I think they go ... 'Look, how many of these things do we have to take where communities and families are put at risk?'"

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### WVDDC Cookbook Fundraiser!!!

\$10 each and we will ship for an extra \$1 per book.

All proceeds benefit the

**WVDDC Scholarship Program.**

To purchase your copy please contact Kathy Tawney at :

**ktawney@EnerVest.net**

A coupon form for Morris Press Cookbooks. The form has a black and white checkered border. At the top is the logo for "MORRIS PRESS COOKBOOKS" featuring a stylized book and a leaf. Below the logo is the title "Cookbook Coupon". The form contains several fields for ordering information: "Price Per Book \$ \_\_\_\_\_", "Number of Books \_\_\_\_\_", "Total \$ \_\_\_\_\_", "Sold by \_\_\_\_\_", "Purchased By:" followed by "Name \_\_\_\_\_", "Address \_\_\_\_\_", "City \_\_\_\_\_", "State \_\_\_\_\_ Zip \_\_\_\_\_", "Phone (\_\_\_\_\_) \_\_\_\_\_", and "Email \_\_\_\_\_".



FRIDAY, OCTOBER 4, 2019 | 9:00 AM - 1:30 PM  
ELM FORK SHOOTING SPORTS | 10751 LUNA ROAD | DALLAS, TX 75220

### ABOUT THE EVENT

- ❖ Open to **ALL**
- ❖ First-come, first-serve basis
- ❖ Lunch
- ❖ \$750 per four-man team (includes cart and event shirt) or \$200 per individual (team TBD)
- ❖ Shooters provide ammo, eye and ear protection
- ❖ **Proceeds benefit college scholarships in energy related fields of study**

### SCHEDULE OF EVENTS

- ❖ *Registration: 8:00 am – 8:45 am*
  - ❖ *Shoot: 9:00 - 12:00 pm*
  - ❖ *Lunch: 12:00 pm - 1:00 pm*
  - ❖ *Ceremony: 1:00 - 1:30 pm*
- Awards, gun raffles, and door prizes.

### SPONSORSHIP OPPORTUNITIES

- ❖ \$5,000 – Title Sponsor (3 teams)
- ❖ \$2,500 – 1<sup>st</sup> Shirt Sponsor : **EC ENERGY**
- ❖ \$2,500 – 2<sup>nd</sup> Shirt Sponsor (1 team)
- ❖ \$2,500 – Cart Sponsor (1 team)
- ❖ \$2,500 – Cap Sponsor: **HEADINGTON OIL**
- ❖ \$1,500 – Beverage Sponsor
- ❖ \$300 – Station Sponsor
- ❖ \$200 – Door Prize Sponsor
- ❖ \$\$ - Gun Sponsor

### EVENT CONTACT

*Polly Marek*  
*pollymarek1977@gmail.com*

### EMAIL FORMS TO

*lonestarclub@lonestardandd.org*

### OR BY MAIL

*Lone Star Desk & Derrick Club of Dallas*  
*P.O. Box 600416*  
*Dallas, TX 75360-0416*



Lone Star Desk and Derrick Club of Dallas is a member of The Association of Desk and Derrick Clubs and is a non-profit, 501(c)(6) educational organization. Majority of proceeds from clay shoot benefit college scholarships.  
Tax ID #35-2511125





## SPONSORSHIP OPPORTUNITIES

FRIDAY, OCTOBER 4, 2019 | 9:00 AM - 1:30 PM  
ELM FORK SHOOTING SPORTS | 10751 LUNA ROAD | DALLAS, TX 75220

### LONE STAR TITLE CLAY SHOOT SPONSOR - \$5,000

Your company will have the naming rights to the event, posted on the LSD&D registration website, sponsor board, recognition on pavilion signage and all event signage, includes 3 teams.

### SHIRT SPONSOR – \$2,500

Your company logo and name on the event shirt, pavilion signage and Sponsor Board, posted on the LSD&D website and all event signage. **Sponsor #1: EC ENERGY** 2nd sponsor open for split \$2,500 level.

### CAP SPONSOR – HEADINGTON OIL

### CART SPONSOR –\$2,500

Your company will be prominently recognized the day of the event, posted on the LSD&D website, on every rental cart and on pavilion and all event signage, includes 1 team.

### BEVERAGE SPONSOR -\$1,500

Your company will receive sign recognition at the event, posted on the LSD&D website.

### STATION SPONSOR \$300/station

Your company will receive sign recognition at the event, posted on the LSD&D website & set-up privileges for assigned station.

### DOOR PRIZE SPONSORS \$200

Your company will receive sign recognition at the event, posted on the LSD&D website.

### GUN SPONSORS - \$\$

Your company will receive sign recognition at the event, Pavilion Signage, LSD&D website and all event signage.



Lone Star Desk and Derrick Club of Dallas is a member of The Association of Desk and Derrick Clubs and is a non-profit, 501 (c)(6) educational organization. Majority of proceeds from clay shoot go towards college scholarships.

Tax ID #35-2511125



# REGISTRATION/SPONSORSHIP & DONATION FORM

FRIDAY, OCTOBER 4, 2019 | 9:00 AM - 1:30 PM  
ELM FORK SHOOTING SPORTS | 10751 LUNA ROAD | DALLAS, TX 75220

## TEAM REGISTRATION/ENTRY FEE PAYMENT

Company and Team Name \_\_\_\_\_ Phone \_\_\_\_\_

Player 1 \_\_\_\_\_ Shirt Size \_\_\_\_\_ Email \_\_\_\_\_

Player 2 \_\_\_\_\_ Shirt Size \_\_\_\_\_ Email \_\_\_\_\_

Player 3 \_\_\_\_\_ Shirt Size \_\_\_\_\_ Email \_\_\_\_\_

Player 4 \_\_\_\_\_ Shirt Size \_\_\_\_\_ Email \_\_\_\_\_

## GIFT OR SPONSORSHIP/DONATION INFORMATION

Name of Business/Individual \_\_\_\_\_

Mailing Address \_\_\_\_\_

Email Address \_\_\_\_\_

Donated Item/Sponsorship Level \_\_\_\_\_

Value of Donated Item \$ \_\_\_\_\_ One-time Donation of \$ \_\_\_\_\_

## CREDIT CARD INFORMATION - Please Circle One

MASTER CARD

VISA

AMERICAN EXPRESS

Name on Card \_\_\_\_\_

Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_

Card Validation Code (*front or back of card*) \_\_\_\_\_ Amount Charged \$ \_\_\_\_\_

## BILLING INFORMATION

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Majority of proceeds from clay shoot go towards college scholarships for students in energy related fields of study.

Lone Star Desk and Derrick Club of Dallas is a member of The Association of Desk and Derrick Clubs  
and is a non-profit, 501 (c)(6) educational organization.

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# FUSION

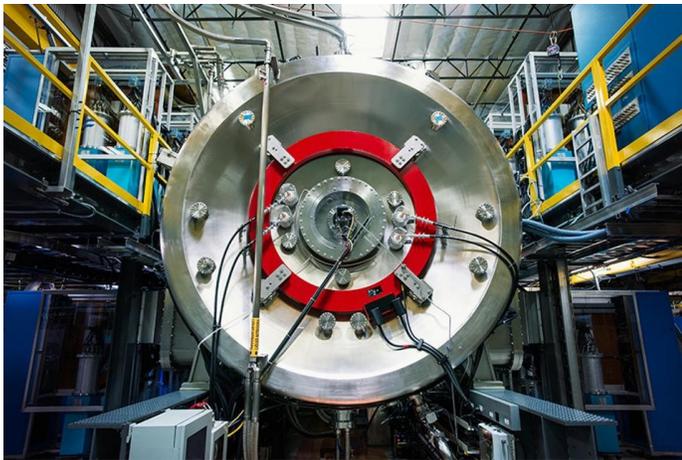
Christopher Helman—Forbes Energy  
May 21, 2019

Walking with Michl Binderbauer into his 2-acre laboratory feels a bit like taking a factory tour with Willy Wonka. In one corner Binderbauer, chief executive of TAE Technologies, shows off a new machine that blasts cancer tumors with a neutron beam. Engineers huddle in a control room. Beyond their window: Norman.



That's the name of TAE's 100-foot-long prototype nuclear fusion reactor, a magnificent assemblage of stainless steel vessels, electromagnets and particle accelerator tubes. Once every eight minutes Norman emits a clang, as it transforms 100 million watts of electricity into a cloud of 30 million degree Celsius plasma that it blasts with beams of protons (the simplest form of hydrogen). They smash together with enough force to fuse into helium—releasing copious amounts of energy in the process. "It's a function of violence," says Binderbauer, 50, with a smile.

TAE, known until last year as Tri Alpha Energy, has raised \$600 million, most recently at a valuation of more than \$2 billion. Investors include the late Paul Allen's Vulcan Capital, the Rockefeller family's Venrock, and Big Sky Capital, family money of billionaire stock trader Charles Schwab. They're betting that TAE will be able to tame fusion into a source of electricity.



Plasma Balls: TAE has run more than 12,000 experimental shots through Norman, its \$100 million particle collider.  
TIM PANNELL FOR FORBES

Fission, which powers several hundred nuclear plants, is the splitting of uranium atoms into medium-size atoms to release energy. Fusion, which makes the stars glow, goes the other way, combining small atoms into larger ones to release energy. Fission carries the risk of a meltdown and creates radioactive waste that has to be set aside for 10,000 years. Fusion promises to be meltdown-proof and waste-free.

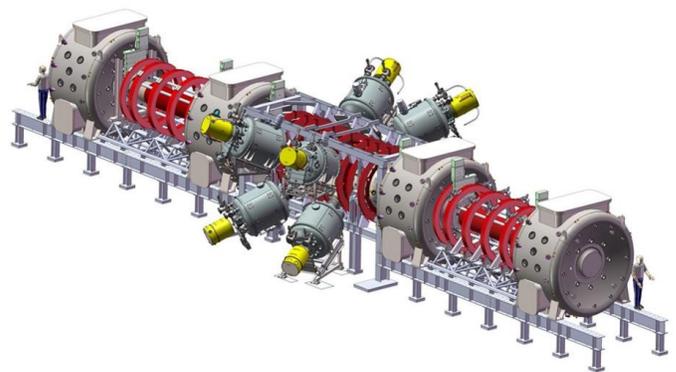
"With fission it's a chain reaction—once you're in, it's a like a pact with the devil; it's hard to get out," says Binderbauer, an effusive talker who runs TAE from a eucalyptus-lined industrial park southeast of Los Angeles. "With fusion you don't have that. It's tricky to get started and even trickier to keep going."

Tricky—or impossible. Binderbauer likens the process of controlling a ball of plasma to holding a spinning ball of liquid Jell-O in place with rubber bands: "We struggle with a millionth of a second, and the stuff oozes away." Thirty million degrees, moreover, is too cool; TAE aims for 2 billion degrees, eventually.

Russian physicists began working on fusion in the 1950s. They thought a commercial reactor might be ready in 15 years. That's been the forecast [ever since](#). In a corner of the laboratory, Binderbauer keeps a gallery of past fusion prototypes, none of which produced more electricity than it consumed.

But the believers keep coming. "Right now, nuclear technology is one of our best scalable, base-load, zero-carbon power sources," Bill Gates says in a statement. "But it comes with a number of -challenges."

Gates is [putting money](#) into a Massachusetts Institute of Technology fusion spinoff called Commonwealth Fusion Systems, which hopes to have an energy-positive reactor by 2025. Digital billionaires Peter Thiel and Jeff Bezos are backing yet [other](#) fusion schemes. They're all competing with a multinational project in France that is using \$20 billion of taxpayer money.



The 100-foot-long fusion machine dubbed Norman was built in 2017.  
COURTESY TAE TECHNOLOGIES

"I understood the limitations of renewables," says Charles Schwab's son Michael, who invested \$50,000 in Tri Alpha in 2002 when he was 25 and has participated in every funding round since. "This could solve our energy problems."

What makes fusion safer than fission? The reactor is under vacuum, explains David Hill, director of a [fusion test reactor at General Atomics](#) in San Diego. "Any leaks are inward, and a leak would put the fire out." Besides, he says, there's nothing to melt down. "If you turned all the plasma into a solid" and piled it up, the amount "is less than a

(Continued from page 13.)

grain of salt.”

Tri Alpha Energy got its start with [Norman Rostoker](#) (1925–2014), a Canadian who taught at the University of California, Irvine, and in 1988 won the Maxwell Prize for plasma physics. He and Glenn Seaborg, the Nobelist discoverer of plutonium, saw the technical limitations of the consensus approach to fusion energy, which smashes heavy isotopes of hydrogen together, fusing them into helium while magnetically confined in a donut-shaped vessel called a tokamak. Much of the energy emitted from that reaction comes as high-speed neutrons, which over time corrode the reactor vessel.

Rostoker, with Austrian-born Binderbauer as a post doctoral student, worked on an alternative plasma-chamber reaction that involves shooting beams of protons (elemental hydrogen) at an isotope of boron. This chemistry produces few neutrons; instead, it spits out positively charged alpha particles that might be able to generate electricity without the steam turbines now seen in nuclear plants. In 1997 they created a stir when Seaborg helped them publicize their breakthroughs in the journal *Science*. But landing government grants to pursue their work was difficult. Too many plasma experts had devoted their careers to the tokamak.

Enter Hollywood. Rostoker met actor Harry Hamlin, the son of a rocket scientist, who, despite being named the [sexiest man alive](#) by *People* magazine in 1987, rubbed elbows with plasma physicists at cocktail parties. Hamlin co-founded Tri Alpha. Then moon-walker Buzz Aldrin signed on. Google cofounder Sergey Brin has taken a tour and has lent his [artificial intelligence brain trust](#) to help crunch data. Jeffrey Immelt, the deposed boss of General Electric, is the latest star on the [board](#).

Celebrity brings in dollars, and TAE drinks up a lot of them. The building and equipment in Foothill Ranch, California, cost \$150 million (or \$250 million including Norman) and need another \$50 million a year to keep humming. Now Binderbauer wants \$200 million or so to build the first hydrogen-boron prototype, the last stepping-stone in plasma research before a commercial fusion reactor, operating at much higher temperatures.

Binderbauer fantasizes about the economics. Solar cells can be made at a cost of a dollar per watt of peak-time generation capacity. Maybe TAE could get the price of building a fusion generator down to \$1.50 per watt, at which point its electricity would be cheaper than solar because it doesn't go off at night.

But it's going to be a long wait before venture capitalists see a TAE power plant. To amuse them in the meantime, Binderbauer has set up a subsidiary that produces particle accelerators for use in cancer treatment. (The idea is to shoot neutrons at tumors that have taken up boron molecules, causing a pinpoint of intense heat to kill the tumor.) Last year TAE raised \$40 million to build the first device, which will soon be shipped off to China. GE is big in medical equipment, and Immelt's connections will help. TAE is going to need connections, dollars and luck to achieve ignition. Two billion degrees? "It sobers you up," Binderbauer says.

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*Correction: the original version of this story gave incorrect values for Norman's electricity requirements and operating temperature. The machine uses more than 100 million watts per experiment and achieves a plasma temperature of 30 million degrees Celsius. Harry Hamlin is the co-founder of Tri Alpha Energy, but was never chairman.*

## Casi Nichols

### Candidate for 2020 ADDC Secretary



My goals for the 2020 ADDC Secretary will be to provide adequate accounts of meetings to be utilized for precedence and records. I hope to continue my input and be a resource as the board continues its work in streamlining and reviving the Association. I look forward to continuing the current progress.

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# SOLARIS TRANSLOADING FACILITY KINGFISHER, OK MAY FIELD TRIP

By Lynn Combs - Enid Club



Three members of the Desk and Derrick Club of Enid headed south to Kingfisher to tour the Solaris Transloading Facility. President Shelly McCool, Tammy Watkins, and Lynn Combs arrived at 10:00 am and were greeted by Tom Hansen, Operations Manager, and Robert Goodrich, VP of Operations. Landon Anders popped in briefly to introduce himself.

We sat in their conference room as Tom and Robert started off showing us the initial blueprints of the facility. Solaris Transloading is located on 300 acres just south of Kingfisher. They have 24 fulltime employees, with no turn-over, and is open 24-7. The facility helps oil and gas operators and service companies reduce logistics costs by virtue of its high-volume capacity frac sand storage and proximity to well sites.



Robert Goodrich

This state-of-the-art facility was a dream of Robert and Landon, both originally from Utah. Due to the high demand of quality frac sand in Central Oklahoma, they picked up their families to move here to build on their dream. They partnered with Solaris and soon the dream became a reality. They worked closely with Union Pacific Railroad to place their location near the main line track to make it easier for train transportation.



This facility is a multi-use facility. Not only for transloading frac sand, but it is a storage area for oil and gas fraction reducers and wind turbine equipment. The land is leased from the Commissioners of the Land Office for a 30-year initial term. There are two 9,000-foot unit-train loop of tracks with approximately 25,000 feet of “ladder” sidetracks all owned by the company. Tammy asked, “who monitors the tracks for safety?” Tom said they do all their own inspections.



Inventory is tracked by weight. Train cars are tracked by the Electronic Data Indicators (EDI) located on the side of each car. Over 1.5 billion pounds has been handled in just over ten (10) months. The most common sand stored in this facility is 100 mesh and is the most popular. The vertical silo storage consists of six (6) silos with individual capacity of 5,000 tons per silo. At the time of our tour, of the 6 large silos, four were storing 100 mesh and two had 40/70 mesh. The “Northern White Sand” 100 mesh is favored because of the “crush rating”. This sand comes from mines located in Wisconsin and Minnesota and is transported via rail to the facility. There are a couple of frac sand mines located in Mill Creek and Roff, Oklahoma, with comparable quality to the northern mines, and some other regional mines near Fay and Seiling with substantially lower qualities.

We tried to wear them out with all our questions, but they held strong. We could tell they love what they are doing and were happy to answer.

Tom loaded us up in his pickup and took us on the path as an incoming truck would take. Trucks stop at a Kioske to gain entrance and instruction as to which bin to enter. Whether the truck in picking up or unloading sand, the trucker is directed into the bay and it is all computerized at that point by one man. This facility can easily handle more than 4,200 out bound trucks and 2,700 in bound trucks in one month. If a truck is coming in to pick up sand only, they can have a turnaround time of five (5) minutes, start to finish. (Other facilities best times are significantly longer). And, we all know – time is money.



(continued from page 15) We were able to go inside the building to see the under-ground pit where sand is dumped. There were two large conveyor belts which brings the sand up to dump into the silos. Trucks can also pull up to train cars and take on sand by using a mobile conveyor and can be done within 10 minutes.



The company also has Mobile Proppant Silos which can be transferred on a Flipper Trailer to well site locations and filled on site. These come in a six-pack configuration and help reduce highway truck traffic and save space on a well pad site.

We finished our driving tour by going near the Union Pacific tracks. In order for the cars to come off of the main train line to enter the yard, the conductor has his own remote (similar to a garage door opener) to switch the tracks instead of doing it by hand.



Tom Hansen

We presented Tom with a Certificate of Appreciation and thanked him for his time.

We finished this fantastic field trip with lunch at Eischen's in Okarche.





***DATE: SATURDAY, AUGUST 3, 2019***

***DOORS OPEN: 5:30 P.M.  
GAMES BEGIN: 6:30 P.M.***

***Food served before games begin  
Menu: Spaghetti Dinner, salad, bread, dessert soft  
drinks, tea, coffee***

***PLACE: IMMACULATA K.C. HALL  
566 AVENUE D - MARRERO, LA.***

***PRICE: \$20.00 ADVANCE PURCHASE ONLY***

***All proceeds benefit the Desk and Derrick Club of the  
Westbank Scholarship Fund***

# US report finds sky is the limit for geothermal energy beneath us

US Dept. of Energy project estimates geothermal's untapped potential.

**SCOTT K. JOHNSON** - 6/11/2019, 2:04 PM



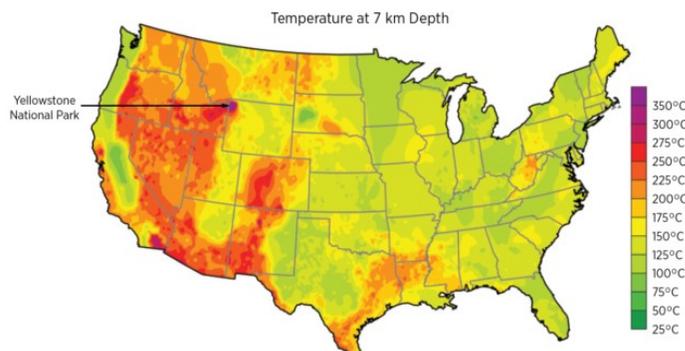
**Enlarge / Sonoma Power Plant at The Geysers in California.**

With all attention focused on the plummeting prices and soaring popularity of solar and wind, geothermal energy is probably under-appreciated. Sure, you might think, it's great where you can get it—in, say, Iceland or the Geysers area of California—but those are exceptions, right? Not entirely. Geothermal power sources come in many forms, and they're typically much more subtle than steam shooting out of the ground. In reality, geothermal energy could be a big player in our future mix.

That is made clear by the US Department of Energy's recently released ["GeoVision" report](#). The report follows similar evaluations of wind, solar, and hydropower energy and leans on information from national labs and other science agencies. It summarizes what we know about the physical resources in the US and also examines the factors

that have been limiting geothermal's deployment. Overall, the report shows that we could do a whole lot more with geothermal energy—both for generating electricity and for heating and cooling—than we currently do.

Heat and power



**The highest temperatures are found out West, but these aren't the only places where geothermal techniques can be applied.**

*DOE*

There are opportunities to more than double the amount of electricity generated at conventional types of hydrothermal sites, where wells can easily tap into hot water underground. That's economical on the current grid. But the biggest growth potential, according to the report, is in so-called "enhanced geothermal systems." These involve areas where the temperatures are hot but the bedrock lacks enough fractures and pathways for hot water to circulate freely—or simply lacks the water entirely.

The technology used in natural gas fracking—injecting pressurized fluid underground to form fractures in the rock that released trapped gas into horizontally drilled wells—could be adapted to generate electricity in sites like these. Creating fractures and/or injecting water to get heated by these rocks eventually results in a similar geothermal plant setup, but it takes a lot more engineering than just jamming a straw into a source that's already sending hot water to the surface.

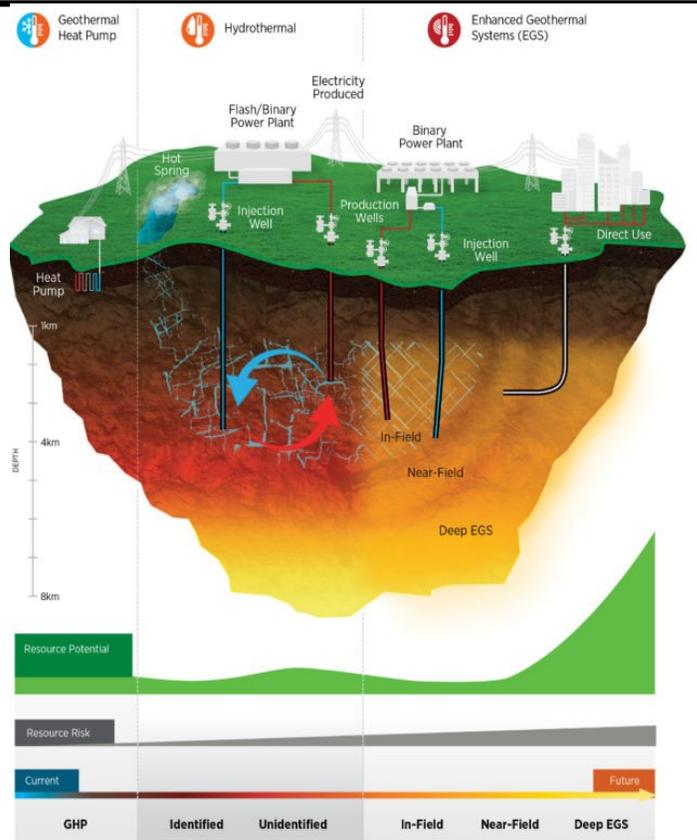
Advancing enhanced geothermal techniques alone could produce 45 gigawatts of electricity by 2050. Add in the more conventional plants, and you're at 60 gigawatts—26

times more than current geothermal generation. And in a scenario where natural gas prices go up, making geothermal even more competitive, we could double that to 120 gigawatts. That would be fully 16 percent of the total projected 2050 generation in the US.

Additionally, that electricity can be generated around the clock and can even be flexibly ramped up or down, making it an excellent pairing with intermittent forms of renewable energy like wind and solar.

On the heating (and cooling) side, there are two main areas of opportunity. Traditional ground-source heat pumps circulate fluid through loops in the ground to provide cooling in the summer and heating in the winter, and they could be much more widely adopted with minimal effort. The report estimates that installations could increase 14 times over, to 28 million homes by 2050, covering 23 percent of national residential demand. Accounting for limitations in how quickly the market could realistically change brings the number down to 19 million homes—still a massive increase.

There's even more potential for district heating systems, where a single, large geothermal installation pipes heat to



all the buildings in an area. There are only a handful of such **The many flavors of geothermal.** *DOE*

systems operating in the US today (Boise, Idaho, has [an example](#)), but the report *(Continued page 20)*

## Philana Thompson

### Candidate for 2020 ADDC Treasurer

I have an extensive accounting, environmental, regulatory, and leadership background I have served in many organizations and have been a key player in building a youth organization from 300 participants to 1000 in a two year time frame. I have handled budgets of \$180,000 to as low as \$500 and have established guidelines on budgeting, bylaws and constitution's and help the with continuous process improvements. I have worked in Excel, Quickbooks and other proprietary accounting programs. My goal is to take my skillset and continue what I started as the 2019 West RD and lead us to a stronger future.

Email: [pthompson@merrion.bz](mailto:pthompson@merrion.bz)



finds more than 17,000 locations where it would make sense, covering heating needs for 45 million homes.

#### Limited adoption

The report focuses a great deal on the barriers that have so far prevented this eye-popping potential from being realized. Some barriers are indeed technological—those enhanced geothermal systems have yet to reach maturity, for example. Some barriers are simply down to a lack of awareness that things like ground-source heat pumps are already viable options.

But the biggest barriers are financial. Geothermal power plant projects suffer from much higher capital costs (and therefore slower payback times) than other forms of renewable energy. Techniques for placing wells at traditional hydrothermal sites are surprisingly unsuccessful, with many wells failing to produce enough to go into use. With better maps and more advanced site characterization, the misses could be reduced, bringing down costs.

The report also highlights permitting on federal lands as less than smooth. Between awkward overlaps when multiple agencies are involved and backlogs in understaffed departments, it points to approvals that could be consolidated to simplify the process. Streamlining, the report says, could shorten the time it takes to complete a project and reduce the financial risk of starting one. Separately, the constant uncertainty surrounding short-term tax credits for renewable projects also does geothermal no favors.

The 2050 scenarios in the report are based on plausible improvements to these barriers combined with modeling of the economics and operation of the nation's energy grid. To make the projected numbers a reality, a set of key steps are laid out. Those include the streamlining of permitting, continuing research into the engineering of "enhanced geothermal systems," improving methods for reducing trial and error at new installations, and outreach to increase awareness of geothermal options.

The other key is maximizing the value of each project. As flexibility is increasingly valued on the grid, compensating geothermal for that value would make it more profitable. There are also a variety of possible industrial uses for heat across the range of ground temperatures—everything from warming greenhouses to aiding cement production. A broader set of applications could help grow the geothermal industry, bringing costs down with scale.

If you're a geothermal fan and an optimist, the report lays out a tantalizing amount of potential, although it lists plenty of challenges between here and there. In an intro to the report, DOE Geothermal Technologies Office Director Susan Hamm writes, "[T]his report shows us how to move the geothermal dial from what we know exists to what we envision is possible over the next 30 years. The GeoVision analysis takes us beyond a declaration of resource potential by illustrating what is real today and painting a picture of what could be real tomorrow."

Check us out at [ADDC.Org](http://ADDC.Org)

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**Liberal Desk and Derrick  
Scholarship Fundraiser  
Gun Raffle  
Taurus 9MM Luger  
\$10 for 1 ticket  
\$50 for 6 tickets  
Drawing: 12/01/2019**



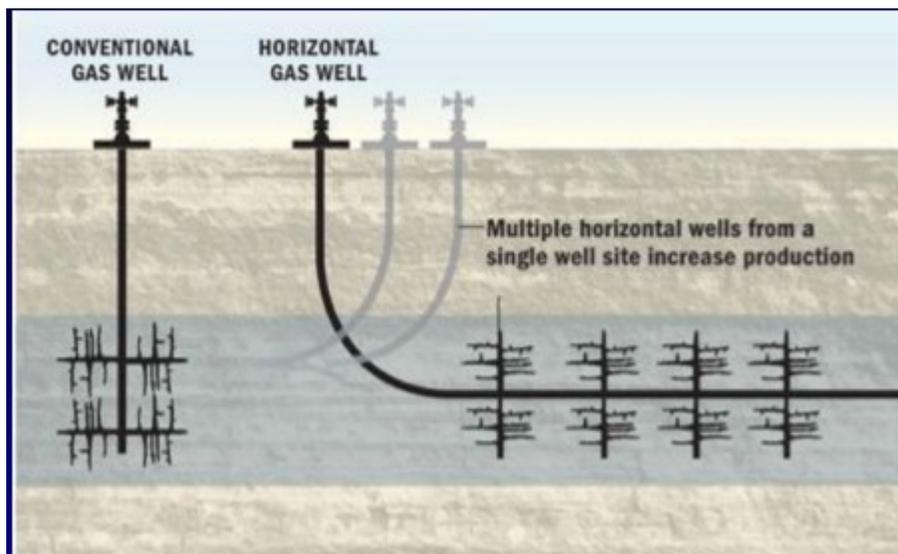
# Horizontal Well Completions: Motivation & Methods

Presented by Kelly Blackwood

Written by Donna Taylor—Dallas Club

Horizontal drilling was developed as a way to recover more oil or gas without the cost of drilling multiple wells. In 1856, a French hydraulic engineer named Henry Darcy published an equation for flow through a porous medium. Today this equation is referred to as Darcy's law. The law was formulated based on results of experiments on the flow of water through beds of sand. This is the basis of hydrogeology.

As stated above, part of the reasoning for going horizontal with drilling was to increase production. This was done by increasing the area being fractured. Conventional drilling allowed for access to the 'pay zone' being just the actual length/depth of that particular zone. The decision to go horizontal, not only allowed more access to the 'pay zone' for a single well but it also enabled multiple horizontal wells from a single well site. Using just one well site for multiple horizontal wells eliminated a portion of the drilling costs.



The problem with horizontal drilling is the ability to deliver a problem-free well capable of producing economic quantities of hydrocarbons. Drill a well two miles deep (TVD) and then drill two miles lateral (TMD). All of this has to be done under budget but can result in minimal "Spud to Sales" time.

Horizontal wells are complex and require substantial planning. Resource plays and tight formations require massive hydraulic fracture treatments. So in most cases horizontal wells increase overall project economics.

# Alberta introduces legislation to guarantee oil and gas royalties



Image: Encana

The Government of Alberta has introduced legislation that would guarantee the oil and gas royalty structure that is in place when a producer drills a well is the same ten years later.

The bill to further legitimize the current royalty system follows two formal reviews conducted by the province in recent years.

The first, in 2007, resulted in the government's New Royalty Framework in 2009.

This increased rates and was not well received by industry and its investors, especially because the new rules came into effect as the price of oil tanked from \$150 to \$40.

Free capital spending, drilling & production forecasts - 2019 Guidance with the *Daily Oil Bulletin*. Largely, the changes to the royalty regime were ultimately repealed.

"Shortly after passing legislation for the New Royalty Framework, the government began to roll back the increases with new royalty relief programs. By the time the dust had settled in 2010, most of the changes to the new royalty framework that had been recommended by the panel, including some later legislated by the government, had been dismantled in response to pressure from industry," DOB regulatory specialist Elsie Ross wrote in January 2016.

"The disastrous review ultimately cost [Ed Stelmach] his

job as premier, as his relationship with the industry had been permanently damaged. He was unable to overcome its mistrust."

Alberta's NDP government under Premier Rachel Notley conducted a second oil and gas royalty review in 2015.

The resulting Modernized Royalty Framework, which took effect in January 2017, included changes designed to drive innovation by rewarding producers that reduce drilling costs below the industry average, Ross noted.

It also enacted no changes on existing oil wells or to oil-sands projects, and was broadly well received.

Alberta Premier Jason Kenney's new legislation would restrict further reviews of the province's oil and gas revenue system.

The Royalty Guarantee Act, introduced on June 20, "would increase investor confidence" with a "guarantee that no major changes will be made to the current oil and gas royalty structure for at least 10 years."

This time frame is intended to provide sufficient time to recover most of the producible oil and gas from new and existing wells in Alberta, the government said.

"Frequent royalty reviews have had a significant negative impact on the energy industry and our province's ability to compete with other energy jurisdictions. Alberta has competitive royalty rates and investors need certainty when making long-term decisions that the rates will not change on a whim. This legislation would provide the guarantee that stability isn't just something we talk about in Alberta, it is the law," said energy minister Sonya Savage.

The Royalty Guarantee Act still has to be passed in Edmonton.

It was endorsed on Friday by Mark Scholz, CEO of the Canadian Association of Oilwell Drilling Contractors, whose members are increasingly seeking opportunities in the United States.

"With an attractive investment environment, the Permian Basin in Texas has recovered far faster than Alberta since the downturn in 2014," he said.

"Policies that increase investor certainty, like a royalty guarantee, will go a long way in helping Alberta compete again, and ultimately speed up recovery in the Western Canadian Sedimentary Basin."

Reprinted with permission of the author Deborah Jaremko, JWN Energy, [jwnenergy.com](http://jwnenergy.com)

# New York state is going to need 23 GW more solar power

pv magazine USA did the math on the new wind and solar capacity that will be needed to supply power to 20 million people under New York's new 70% by 2030 mandate. In addition to 6 GW of distributed solar and the 2 GW that has already been awarded in large scale bids, the state is going to need around 15 GW more utility scale solar.

JUNE 20, 2019 JOHN WEAVER



Image: Daroga Power

The New York Senate, and as of last night/early this morning, the House have voted to move the state's electricity generation to 70% renewables by 2030 and 100% carbon free by 2040.

Now, the United States has two future renewable monsters on the coasts – California and New York – who between them have about 60 million people, almost a fifth of the population of the country. New York's electricity demand would make it around the 25th largest nation on earth. Meaning it's going to take a lot of work to get to 70% renewables in the next decade.

Roughly, New York's retail electricity sales was 148 TWh in 2018, per the EIA. For the purpose of this analysis we're going to grow that value by 1% compounding annually as we're suggesting electric vehicles and general electrification outpace efficiency gains.

Meaning we'll have to cover 70% of 167 TWh –

about 117 TWh – with, “solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, (or) fuel cells which do not utilize a fossil fuel resource in the process of generating electricity” (pdf of Senate legislation).

Currently, the state gets about 60% of its electricity from CO2 free sources – including about 29 TWh worth of hydroelectric, wind and solar power. As well, the state has contracted or legislated further renewable electricity generation. There is 9 GW of offshore wind, 6 GW of DG solar, and 7.1 TWh a year of already contracted large scale wind+solar in 2017 and 2018.

When summed up, these sources will generate about 84 TWh of the 117 TWh that we project will be needed in 2030. Leaving the need to build out capacity that can generate another 33 TWh of renewable electricity.

As an editorial decision, we project that of the future electricity, 80% of it will come from solar, and 20% from wind mirroring the large scale bids going on in the state currently. Meaning that the state will need 26 TWh of future solar and 7 TWh of future wind. Using capacity factors of 20% for the utility scale solar, and 26% for the onshore wind it turns out that we'll need about 15 GW of utility scale solar and 2.6 GW of wind – in addition to what the state has already solicited through large-scale auctions, and the 6 GW of distributed solar required under the new law, which puts us over 23 GW of future solar power capacity.

There are many factors that can affect these numbers. For instance, will the state overbuild in order to limit the amount of storage and backup gas needed? Will electrification grow demand greater? Will offshore wind grow faster? Will the state ever build the powerline down from Quebec to get that sweet sweet hydroelectric power? As a smart person once said, “it's difficult to make predictions, especially about the future” – but what we can predict is that there will be *a lot* of new solar power capacity built in the state of New York during the 2020s.

*Edits were done to this article after 10 AM due to technical issues as we published the article. Please pardon our technical issues.*

# Why U.S. Cities Aren't Using More Electric Buses

Linda Poon, June 27, 2019, The Atlantic – CityLab



A fleet of electric buses in Santiago, Chile. Outside China, only a few cities have adopted the new technology. Rodrigo Garrido/Reuters

## Two reports from the World Resource Institute look at the biggest barriers to electrifying the global bus fleet—and how cities can overcome them.

There were about 425,000 electric buses in service in the world's cities last year. Almost all—99 percent of them—were in China. The booming industrial city of Shenzhen, in particular, is one of only a few cities to have fully electrified its fleet. The rest of the globe, meanwhile, is racing to catch up, and falling further behind.

It's not the lack of ambition that's stopping them: With the goal of curbing carbon emissions in mind, municipal leaders all over have pledged to partially, if not fully, replace their city's fleet with e-buses over the next decades. A number of cities, from large metropolises like Mexico City to more modest ones like Philadelphia, have started pilot tests.

What prevents cities from adopting electric buses en masse is a mix of technological, financial, and institutional challenges, according to a pair of reports from the World Resource Institute looking at efforts in 16 cities at various stages of adopting e-buses. That first report focuses on three major types of barriers, while the second highlights how to overcome them.

The cities studied range from Addis Ababa in Ethiopia—where there's been “no substantial planning” around electric buses—to cities like

Philadelphia and Campinas, Brazil, which, respectively, are running a pilot test and expanding its number of e-buses, to successful cases in Shenzhen and the nearby Zhengzhou. They vary geographically, with some in developed nations like Chile and Spain, and other in emerging countries like India.

“Understanding that electric vehicles are about more than just vehicles is one of the hardest barriers.”

The biggest takeaway is the cities that want to hop aboard the e-bus revolution need to completely rewire their thinking about electricity and vehicles.

“Understanding that electric vehicles are about more than just vehicles is one of the hardest barriers for people to cross over, in both the energy and transportation sectors,” says Camron Gorguinpour, one of the lead authors of the twin reports. “It's hard on people who have gone through their whole careers thinking that vehicles and electrical systems are [separate] to now internalize that these things are one in the same.”

That means when cities consider adopting electric buses, they need to understand the power grid upgrades and charging infrastructure required, and challenges associated with that. Failure to do so is the most common mistake, according to Gorguinpour. Many cities just set up their charging stations thinking that things would “work themselves out.”

That's why he says one of the most overlooked stories from Shenzhen's experience is the city's long process in setting up the charging infrastructure to support more than 16,000 electric buses. Each bus has a range of about 124 miles on a single charge of 252 kilowatt hours (KWh). In total, the fleet can eat more than 4,000 megawatt-hours (MWh). For comparison's sake, 1 MWh is enough to power about 300 homes for an hour. “That's an insane amount of power required, not to mention real estate,” he says. “And the process to identify what land is available, then to work with the utilities—even just figuring out the optimal location—is a hugely important task, and incredibly challenging.”

That's what Philadelphia discovered when it decided to expand its existing fleet of e-buses with newer models—ones that featured bigger batteries. The city failed to recognize in the early planning process that it would be prohibitively expensive to acquire land in its busy downtown area for charging stations along the bus routes. So they decided to install all the charging infrastructure in the bus depots.

“They made that decision without realizing that [it would cost] \$1.5 million to upgrade the electrical system in that one location to install a substation that can power 20 vehicles,” Gorguinpour says. “These things can get out of control real fast.”

That gets into the financial barriers. Cities across the globe often cited higher expenses as the primary challenge to procuring a fleet. While cities that adopt e-buses do end up saving money over the longer term in things like fuel (not to mention the harder-to-quantify value of cleaner air and fewer greenhouse emissions), the upfront costs represent significant challenges. In the case studies, the price of a new e-bus ranged between \$300,000 and \$900,000 per bus, with the report noting that the prices vary dramatically depending on the manufacturer, specifications, and the location of the transit agency. In the U.S., an electric bus averages around \$750,000, while a conventional diesel bus is around \$435,000.

When cities decide to implement electric buses, Gorguinpour says the cities too focus too much on those upfront costs and not enough on the “life cycle cost.” That could mean delaying the adoption process altogether or funding small pilot tests—sometimes with just a handful of buses—without a larger plan to scale up. “We encourage cities to do whatever they can afford,” he says. “But if you’re going to get five electric buses in your city, you should work with a group of stakeholders to come up with a strategy, to say, ‘How am I going to learn enough from these five buses to construct a plan to get me to 500 or to thousands of buses?’”

Or, in the case of Belo Horizonte in Brazil, to get operators on board with full adoption. The city and its bus operators are locked into a long-term contract that provides no requirements or incentives for operators to replace its diesel-bus stock. After the city ran a pilot program without any involvement from the operators—in hopes of showcasing the

technology—the report notes that “to date, no operators have expressed interest in investing in what is seen as an expensive and risky endeavor.”

That cautionary tale illustrates the importance of bringing all potential stakeholders together before making any decisions—something that WRI’s second report, which offers a roadmap to adopting electric buses, strongly emphasizes. That includes not only transit officials, but also utility companies, bus operators, and organizations that can help the city finance such a costly endeavor. That includes multinational and national development banks, which Gorguinpour call the “obvious places to start.” In some cases—as in Chile’s capital city of Santiago, which has the largest e-bus fleet outside of China—it’s utility companies, not transit agencies, that have stepped up to finance the projects.

For cities that have already started its procurement process, this second report provides guidance for various stages of the process, including the stage at which a city is ready to scale up. All in all those, the report stresses one major step: “A lot of these reports are about city officials going out and getting all the stakeholders in a room to build a comprehensive plan,” Gorguinpour says. “It’s a lot harder to do anything in large scale in a silo, because the technology is so interdependent on other things.”

Linda Poon is a staff writer at CityLab covering science and urban technology, including smart cities and climate change. She previously covered global health and development for NPR’s Goats and Soda blog.

## **Maggi Franks**

### **Candidate for 2020 ADDC Treasurer**



Having served as Treasurer before, I know what it takes to fulfill this role. Not only will I accurately keep track of the accounting, the budget, and convention funds, but I will work hand in hand with the Board of Directors to keep the Association alive and Viable. I will work with the finance committee to ensure that ADDC funds are used efficiently and in the best interest of the membership. As a seasoned member of the Board, I will work with newer Board members. respectfully listening to all questions. And offering guidance where able.

Email: [mfranks@apprailcar.com](mailto:mfranks@apprailcar.com)

# Most states legalizing marijuana have yet to grapple with energy demand

WRITTEN BY Nate Seltenrich, FairWarning, June 27, 2019

PHOTO BY

AP Photo/Richard Vogel



A mature marijuana plant begins to bloom under artificial lights at Loing Kindness Farms in Gardena, California.

## Oregon, Massachusetts and Illinois are among states taking steps to regulate energy use, according to a new report

Cannabis cultivation in the United States this year will consume 1.8 million megawatt-hours of electricity, about as much as the nation's 15,000 Starbucks stores.

And next year it'll be even more, according to [a report](#) from analytics firm New Frontier Data estimating just how much power it takes to produce the nation's cannabis crop.

Yet even as they've welcomed it into the regulatory fold, states legalizing cannabis so far have done little to limit or even track the huge amounts of energy needed to grow it indoors. Among the 11 states to permit recreational use of cannabis, only [Massachusetts](#) and now [Illinois](#), which did so this week, have included energy-efficiency standards for

indoor cultivation, a practice that requires nearly nonstop use of lights and various heating, ventilation and air conditioning systems.

One other state, Oregon, requires simply that growers [estimate](#) and then report back on their energy use. Even this small step will help regulators there and in other states to better manage an industry whose electricity demand has long been kept as hidden as its product, says report co-author Derek Smith of Resource Innovation Institute, a nonprofit organization that promotes resource conservation in the cannabis industry.

"This is critically important, and every state should consider that," Smith told FairWarning. "This industry has very little data historically because growers were concerned about sharing information about how they were using energy because they were hiding from the law."

The report's estimate of massive power demand includes only the legal stuff, both medical and recreational. Add in illicit production—some of it likely to become legal as more states authorize pot growing—and electricity use nearly triples.

Meanwhile electricity use also continues unchecked in most cannabis-legal states including California, the world's largest cannabis market and producer of the majority of the nation's crop. Its Bureau of Cannabis Control won't begin asking cultivators for data on energy use until [2022](#), and hold them to statewide standards for renewable energy starting in 2023.

"It's a marathon," says Josh Drayton of the California Cannabis Industry Association, a trade group. "But the more that these issues get brought to the table, the more involvement from energy suppliers and from the industry, the more data and research that can be put out there — that's really what's necessary to bring change."

Using data reported privately by 81 cultivators in nine states, the report's authors calculated that among the three main methods of cannabis cultivation, indoor accounts for at least 60 percent of all electricity use.

Greenhouse cultivation, which requires less lighting but still involves heating, cooling and ventilation, consumes about 37 percent of the total. Outdoor farming represents the remainder, less than 3 percent.

The authors estimate it takes 18 times more power to

grow a gram of cannabis indoors than outdoors. Yet for a variety of reasons including quality control, safety and security concerns, and nuisance issues related to odors and nighttime lighting, outdoor cannabis cultivation isn't ideal everywhere, says Beau Whitney, a senior economist with New Frontier Data.

Massachusetts is one of those places, due in part to its climate and population density. But state regulators still encourage outdoor growing through discounted license fees for the express purpose of reducing energy demand, notes Sam Milton of Climate Resources Group, a Boston-based consulting firm that has partnered with Resource Innovation Institute.

For indoor growers, Massachusetts' rules cap power use on lighting at 36 watts per square foot of plant canopy, or 50 watts per square foot for smaller operations.

In Illinois the new law signed this week by Gov. J.B. Pritzker, is even stricter, applying the limit of 36 watts per square foot to all indoor farms, regardless of size.

Both states effectively prohibit the use of any lighting technology that draws more power than efficient light-emitting diodes, or LEDs, Milton says. Though more expensive than standard high-pressure sodium lamps, LEDs last longer and can reduce electricity usage by 40 percent.

The two states also have energy-reporting requirements similar to Oregon's.

The emerging industry is already confronted with a patchwork of state-level regulations governing pesticides and other potential contaminants including metals, microbes, and solvent residues. In the case of electricity use, Milton says he believes a better alternative will be for the U.S. Department of Energy to aid the industry in developing new standards and efficiency measures.

"These facilities are so energy-intensive, and they're proliferating, and they're largely unregulated. I see that sector as something that really needs a lot of attention," he says. "Without the feds coming in and providing that overarching support, it'll have to be a state-by-state basis, which is kind of clumsy."

*This story was produced by FairWarning ([www.fairwarning.org](http://www.fairwarning.org)), a nonprofit news organization based in Southern California that focuses on public health, consumer, job safety and environmental issues.*

Countdown to:

## *ADDC Convention and Educational Conference*

September 25, 2019

7:45 am

### **HELP WANTED!**

The *INSIGHT* will be changing its layout in July of 2019. As part of this change, we are looking for writers, columnists, bloggers, and sales personnel to take on researching, collecting and writing articles for ADDC. Can you like to write new articles, a gossip column, or a society page? Can you take pictures?

Can you collect information about job openings? ADDC items for sale? Club events? We need individuals with these skills from each region.

This could be your chance to be an ACE reporter. If you feel that you have missed your calling and would like to help with the NEW & IMPROVED *ADDC INSIGHT* please contact:

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Will you be the next Woodward or Bernstein?

# **ADDC STORE**



## **Welcome Back to the ADDC Store**

**Have you always wanted an ADDC shirt, and just didn't know where to get it? How about a cap with our Logo. Or maybe just something small to put on your desk.**

**The Store is now OPEN!!!**

Three times this year we will be taking orders for a modest offering of ADDC promotional good . Orders will be placed on August 30<sup>th</sup> and November 15<sup>th</sup>, and shipped within 10-15 days. Just think you can have a new Polo Shirt by Convention or Christmas! Items are available to members only. Orders must be place by the cutoff date. No stock will be carried at ADO, so if you place a request after the order dates, your order will fall into the next quarter's order.

Check out our new items! Hoodies, Color changing Mugs, and Multi tools! Also, now choose the color of your shirts or hoodies! Great gift ideas for your club President, board of directors or members!

# ADDC STORE

## ORDER FORM

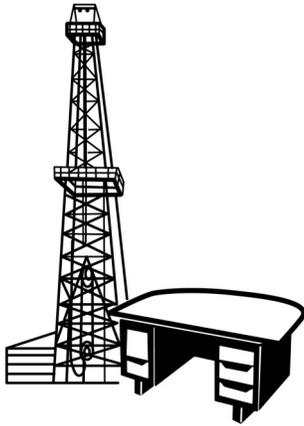


Description	Size / Color	Price	Qty.	Total
Ladies' Polo Shirt w/ ADDC oval any color	\$ 20.00			
Sizes small - 4x (4x -\$2.00 extra)				
Ladies' V-Neck Tees - Any Color w/ blue logo	\$ 11.00			
Sizes small - 4x (4x -\$2.00 extra)				
Men's Polo Shirt w/ ADDC oval any color	\$ 20.00			
Sizes small - 4x (4x -\$2.00 extra)				
Men's Crew Tees - Any Color w/ blue logo	\$ 11.00			
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Khaki ball cap w/ ADDC oval - adjustable	\$ 8.50			
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Shipping and Handling			Shipping and Handling	
Under \$25.00 - \$7.00				
Under \$100.00 - \$15.00				
Over \$100.00 - \$22.50			Total	

Orders due by June 15<sup>th</sup>, August 30<sup>th</sup>, and November 15<sup>th</sup>

Send checks made payable in US Funds to:  
 ADDC  
 C/O Maggi Franks  
 5448 Longview Dr  
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## About Our Association



### MOTTO

Greater Knowledge—Greater Service

### PURPOSE

The Association of Desk and Derrick Clubs (ADDC), an international non-profit organization, is a premier provider of energy education and professional development. ADDC's purpose shall be to promote the education and professional development of individuals employed in or affiliated with the petroleum, energy and allied industries, and to educate the general public about these industries as well as the companies and global communities the members serve.

### MISSION STATEMENT

Our mission is to enhance and foster a positive image to the global community by promoting the contribution of the petroleum, energy, and allied industries through education by using all resources available.

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