

Highlights from the Texas Industrial Energy Efficiency Program Highlights Bulletin Volume 3, Number 2, February 2022

In this issue:

1. Upcoming TIEEP Events
2. Program Highlights: Another Busy Spring!
3. From the Casebook: Leaping Over Barriers

Greetings, from the Texas Industrial Energy Efficiency Program!

In our Highlights Bulletin this time last year, I wrote about the world being in transition, in many different areas – social, political, economic; and of course, the pandemic. Some things have changed since then: There is new leadership in Washington; the economy has improved – and now supply chain problems and surging inflation have become major concerns; the energy transition is picking up speed; and the pandemic seems to be abating, despite the emergence of new variants.

How does all of this affect TIEEP? Our programming, guided by the Advisory Council, aims to address the issues of the hour, as reflected in our upcoming events listed above. Our Water Forum (March 3) focuses on the growing issue of the *The Water/Energy Nexus*, which affects energy production and demand, and also the most basic necessity of life – water. The TIEEN Webinar on April 13, *Improve Your Bottom Line and Resiliency, and Meet ESG Goals, With New Federal Resources*, focuses the effect of new programs out of Washington, including the trillion dollar Infrastructure Bill, which can have a huge impact on industrial energy efficiency, as well as resiliency, profitability, and environmental impact. And our Energy Forum on May 5 returns to the urgent topic of *Decarbonizing the Process Industries*. We are delighted to return to an in-person format for the Water & Energy Forums, with an online option, too.

Upcoming TIEEP Events

Thursday, March 3, 2022, 4:00-6:0 pm:
TIEEP Water Forum, *The Water/Energy Nexus*, co-hosted by STS-AIChE. The Bougainvilleas, 12126 Westheimer Rd, Houston, TX 77077. Hybrid event. Register [here](#). Additional details [here](#).

Wednesday April 13, 2022, 2:00-3:30 pm:
TIEEN Webinar, *Improve Your Bottom Line and Resiliency, and Meet ESG Goals, With New Federal Resources*. Register [here](#). Additional details in “Another Busy Spring,” below.

Thursday, May 5, 2022, 4:00-6:00 pm:
TIEEP Spring Energy Forum, *Decarbonizing the Process Industries III*. Check the [TIEEP website](#) for updates.

Another Busy Spring!

As discussed in the previous section, we have outreach events in each of the next three months. You'll find additional information below. Some details are still pending, so please visit our website for updates.

Water Forum, Thursday, March 3, 2022, 4:00-6:00 pm

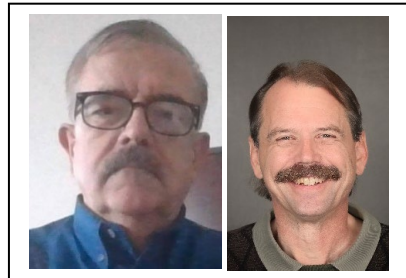
Theme: *The Water/Energy Nexus*, co-hosted by STS-AIChE.

Venue: The Bougainvilleas, 12126 Westheimer Rd, Houston, TX 77077. Hybrid event.

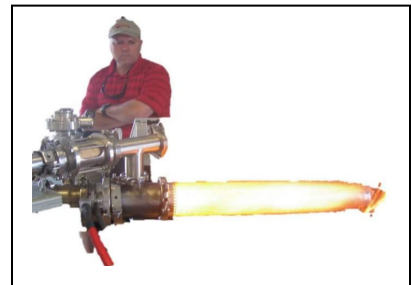
Water and energy are inextricably interconnected. We need water, in greater or lesser amounts, in all types of energy production and energy conversion processes, and we need energy to manage our water resources. Our Water Forum presenters this year bring us a number of innovations that provide new twists to the water-energy connection.



Mark Rangel, EVP – Commercial Business Development and Preconstruction, Speir Commercial and Industrial.
Floating Solar Panels.



Chris Kapp & Kenneth P. Mortensen, SPX Cooling Technologies, Inc. *Water Conservation Technologies in Evaporative Cooling.*



Todd Foret, Founder and CEO, Foret Plasma Labs. *From Wastewater to 5,400°F Steam Plasma - Your electric splitting, cracking & heating decarbonization solution.*

Register [here](#). Additional details [here](#).

The Water Forum will be followed by the **Social Hour (6:00-7:00 pm)**, and the **STS-AIChE March Dinner Meeting** at 7:00 pm, with guest speaker The Honorable Jason Isaac, Director of Life:Powered, a project of the Texas Public Policy Foundation to raise America's energy IQ. Water Forum participants are invited to stay for the AIChE dinner meeting and presentation. A separate registration and payment is required, [here](#). **PDH certificates** will be available for both the Water Forum and the STS-AIChE monthly meeting.

AICHe's Meeting Sponsors:



TIEEN Webinar: *Improve Your Bottom Line and Resiliency, and Meet ESG Goals, With New Federal Resources.*

Are your utility bills too high? Can your company survive the next winter storm? Are you challenged by ESG requirements (Environmental, Social & Governance)? The answer to all these problems may lie in new resources from the Federal Government. Billions of dollars in new funding for industry is coming from the trillion dollar Infrastructure Investment and Jobs Act (IIJA) – popularly called the Infrastructure Bill – and from other sources. This webinar will provide an introduction to the how government funding works and how it can help you, and then dig deeper into the specifics of the new funding opportunities, with presenters from government, industry and publicly-supported industrial energy-efficiency organizations.

Event Date & Time: Wednesday April 13, 2022, 2:00-3:30 pm.

Venue: Online. Register [here](#).

Confirmed speakers:



Gavin Dillingham – Director
for Clean Energy Policy, HARC



Eddy Trevino – Director, State
Energy Conservation Office

More speakers to be announced shortly.

This event is presented by Texas Industrial Energy Efficiency Network (TIEEN). TIEEN is a network of publicly supported industrial energy-efficiency organizations. The goal of the network is to enhance opportunities for effective collaboration by members through structured periodic communication. TIEEN was established by the State Energy Conservation Office (SECO), and administrative support is provided through the Texas Industrial Energy Efficiency Program (TIEEP), run by UH Energy.

Spring Energy Forum, Thursday, May 5, 2022, 4:00-6:00 pm

Theme: *Decarbonizing the Process Industries III*, Cohosted by STS-AIChE.

Venue: TBA. Hybrid event.

Please check the [TIEEP website](#) for updates.

AIChE Meeting Sponsor:



From the Casebook: Leaping Over Barriers

The technology is proven, the cost is reasonable, the ROI is good. We have a great project, right? Maybe not.

It is amazing how many different things can stand in the way of success. I gave one example in an earlier newsletter (Volume 1, Number 3, July 2020), where an equipment upgrade that I proposed failed to provide the expected energy savings because the plant operators didn't know how to run it. Lack of adequate workforce training is a fairly common barrier in industry. The examples below, drawn from projects in various parts of the world, illustrate several other barriers that can hinder the implementation of promising projects.

A fairly common barrier is permits – the legal authorizations to operate equipment. These are usually intended to ensure safety and to protect the environment; but sometimes they have counterintuitive consequences. For example, a colleague identified a simple modification that would significantly improve the efficiency of a large fired heater, and reduce emissions. The initial economic screening looked very promising, but when the idea was presented to site management, it was immediately vetoed. Code requirements had changed after the fired heater was installed. The equipment was grandfathered, so it could continue to operate. However, if any modifications were made, the grandfathering would no longer apply, and the fired heater would have to be brought up to the current code requirements – a prohibitively expensive upgrade.

Regulations outside the plant boundary can also create barriers. For example, many companies are now developing renewable energy sources (e.g., solar energy farms and wind turbines) to displace electricity produced from fossil fuels. These facilities require a great deal of space, and depending on land availability, they often have to be placed a considerable distance from the plant that they serve.

A multinational company was conducting a feasibility study for a solar energy farm, and they set an aggressive schedule to implement the project. A critical requirement was the use of the existing grid to link the new power source to the existing production plant. However, the local grid regulations did not allow wheeling (i.e., transmission of third-party power through the grid). As a result, the aggressive schedule was delayed many months by negotiations between the company and the grid regulator, to enact changes to allow the project to proceed.



The next barrier is boundary definitions. Our example is from a prefeasibility study several years ago for a cogeneration project at a large chemical complex, outside the USA. The project was intended to replace several boilers, while at the same time reducing electricity imports by about 80%. There were many technical challenges, but the initial assessment was that they could all be overcome at a reasonable cost; and the project's return on investment easily satisfied the company's requirement. The engineering team endorsed the project.

The sustainability team did not. Their reason: The cogeneration project increased the amount of energy imported by the complex. Their accounting system for energy intensity was based on energy flows across the plant boundary, and it treated a Btu of fuel as equivalent to a Btu of electricity. Based on that accounting method, their conclusion was correct. However, their methodology ignored the fact that the imported electricity was produced at power plants that used fossil fuels at an efficiency of less than 40%. If they extended the boundary to include the fuel used by the power plants, it was clear that the cogeneration project would greatly reduce the overall amount of fuel fired to supply the combined heat and power requirements of the complex. However, the company's sustainability report was based on the sustainability team's methodology, and there was great reluctance either to change their reporting system or to approve a major project that would have an adverse effect on their sustainability metrics.

While the company struggled with this dilemma, a new problem appeared: supply chain. The cogeneration facility required natural gas – much more than was available from the existing supplier. As

there were no alternative suppliers in the area, this was another major barrier. The combination of these two barriers stalled the project, and it did not proceed beyond the prefeasibility study.

There are many other factors that present barriers to project implementation. If you have any examples you'd like to share, please let me know. Maybe we can discuss them in a future column.

Adapted from: *Leap Over Barriers*, Alan Rossiter, Chemical Processing, Vol. 83, No. 1, p. 12, January 2021.

In Closing...

Thank you for taking the time to read along with us. We hope you found the information useful, and that you'll join us in our upcoming events.

If you would like to ensure that you receive all program updates and notices of upcoming events, please subscribe on our [webpage](#).

If you have any questions, or difficulties with registration, or to request removal from this distribution list, please contact Li Lopez, llopez37@Central.UH.EDU or 713-743-7904.