



The Engineering, Science and Technology Council of Houston (ECH), and Climate Solutions for Texas, a local initiative of The Climate Solutions Community of the American Institute of Chemical Engineers, invite you to a Climate Solutions Symposium.

## Saturday, April 4, 2020, 9am-noon

University of Houston Student Center Theater, 4455 University Drive, Houston

## Paths to Texas Zero GHG Emissions: Electricity, Transportation and Industry

|               |  |   |
|---------------|--|---|
| 9:00-9:10am   | Tom Rehm, Chair<br>Climate Solutions for Texas<br>Humble TX            | Opening comments  |
| 9:10-9:30am   | Sylvia Dee, Climate Science Professor<br>Rice University               | Greenhouse gases warm us<br>Human fingerprint of global warming<br>Evidence of climate change<br>Projections: What is coming            |
| 9:30-10:00am  | Jeremy Friesen, NET Power  | A gas-fired power plant with zero emissions   |
| 10:00-10:30am | Gene Preston, PhD Electrical Engineer<br>Austin TX                     | Electrification of transportation<br>Max renewables using gas to fill in the gaps<br>Max renewables using nuclear and storage           |
| 10:30-11:00am | Pavel Tsvetkov, Nuclear Engineering<br>Professor, Texas A&M University | Nuclear energy: Zero emissions and safe   |
| 11:00-11:15am | Larry Kremer, PhD Physical Chemist,<br>Citizens Climate Lobby          | The paramount importance of a price on<br>carbon  |
| 11:15-11:25am | Symposium Gold Sponsors  | Our sponsors keep the cost of the<br>symposium down and allow students free<br>registration. Two minutes at podium per<br>Gold Sponsor. |
| 11:25am~noon  | Panel Q/A from Audience  |   |

**Registration:** <https://stsaiche.regfox.com/ech-climate-solution-community-symposium>

\$10 unless you're a student. Students may attend free by entering the student code of ECH202044.

**Sylvia Dee**, Climate Science Professor, Rice University

Sylvia is the developer of the water isotope-enabled, fast-physics atmospheric dynamical model, SPEEDY-IER, and a public platform for proxy system modeling development, PRYSM. This modeling platform allows for multi-centennial simulations of common era climate with water isotope physics, which, coupled with proxy system models for proxy records, facilitates the comparison of model output to paleoclimate data.



**Jeremy Friesen**, Director, Business & Corporate Development, NET Power

Mr. Friesen has two decades of experience in energy and commodity markets starting with work at Canada's central bank and fifteen years of experience as a senior strategist on commodity trading floors in New York and Hong Kong, where he helped set up commodity-focused initiatives within Morgan Stanley and Société Générale. Jeremy left banking in 2016 to work on clean energy project development, including a near net-zero carbon project in Canada. He also started a VC-funded technology company in San Francisco called Banyan Infrastructure, which focused on improving clean energy infrastructure financing. Jeremy, with a master's degree in economics from McGill and a career focused on commodity markets and strategy, is now focused on helping NET Power become the essential technology for a growing CO<sub>2</sub> market place and future net-zero carbon economy.



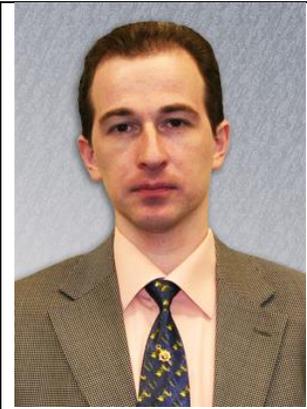
**Gene Preston**, PhD Electrical Engineer

Dr. Preston is CEO of Transmission Adequacy Consulting, which performs transmission grid interconnection studies for large wind and solar developers. Gene retired from Austin Energy in 1998 with 28 years of experience in generation, transmission, and distribution planning. Gene has been working to improve the speed and accuracy of grid reliability studies as a part of his PhD, which he received from the University of Texas in 1997. He recently chaired an IEEE task force updating the IEEE RTS (reliability test system) wind model working closely with the NREL (National Energy Renewable Laboratory). That model and program is posted on-line as open access. Gene has developed software for assessing grid reliability with wind and solar added to Texas and California grids and has written a paper with NERC (North American Electric Reliability Corporation) about how wind and solar affects ERCOT (Electric Reliability Council of Texas) reliability. Gene is currently working on a home project to power his Tesla Model 3 from sunlight.



**Pavel Tsvetkov**, Nuclear Engineering Professor, Texas A&M University

Pavel V. Tsvetkov, Ph.D., is an Associate Professor in the Department of Nuclear Engineering, Texas A&M University. Dr. Tsvetkov's research program is focused on novel energy systems meeting global growing needs in sustainable resources, particularly looking for environmentally benign sustainable energy solutions. The project portfolio since 2005 includes direct energy conversion, waste management efforts to dramatically reduce nuclear waste via irradiations in high temperature reactors and fast spectrum systems, novel reactor designs, used fuel options evaluations, and instrumentation and control efforts to develop intelligent autonomous control algorithms and novel sensors, full scope simulators for security assessments, data analysis and reconstruction for nuclear security applications, and nuclear criticality safety. Dr. Tsvetkov is a member of ANS, ASME, ASEE, Alpha Nu Sigma and Phi Kappa Phi. At A&M, he serves as the graduate program advisor for Nuclear Engineering. He published over 300 papers in peer journals, conference proceedings and reports as well as served as an editor and major contributor for 12 books on energy, environment and nuclear energy. Dr. Tsvetkov has 2 patents pending on reactor design and energy conversion.



**Larry Kremer**, PhD Physical Chemistry, Citizens Climate Lobby

Larry was born in Austin TX in 1946 and grew up in Dallas TX. Larry has 20 US patents and over 50 publications in various areas of chemistry. He obtained his BS in Chemistry at UT Austin and his PhD in Physical Chemistry from the University of Utah. He then did a post doc at Yale University. His industrial career started at BASF in Detroit and finished at Baker Hughes in Houston where he developed numerous chemical products. At BASF his first job was to reformulate cleaning products to work at lower temperature in response to the OPEC oil boycott. At Baker Hughes he developed products such as fuel additives, process additives, corrosion inhibitors for carbon capture units, and products around utilization of biomass for energy. Since retiring from Baker Hughes, he has been a volunteer mentor for startup companies in the energy sector. As a Global Energy Mentor (GEM) he attends weekly meetings at St Thomas to find and develop entrepreneur with novel ideas about energy. He is also a volunteer with Citizens Climate Lobby which promotes a fee and dividend approach to climate solutions.



**Tom Rehm**, PhD Chemical Engineering  
Founding Member, The Climate Solutions Community, AIChE  
Founding Member, Climate Solutions for Texas

Tom spent his career in the oil industry, beginning in 1972 with UOP in the Chicago area and retiring from Saudi Aramco in 2009. Tom served as Chair of the AIChE South Texas Section in 2019 and Director of the AIChE Safety and Health Division from 2017 to 2019.

