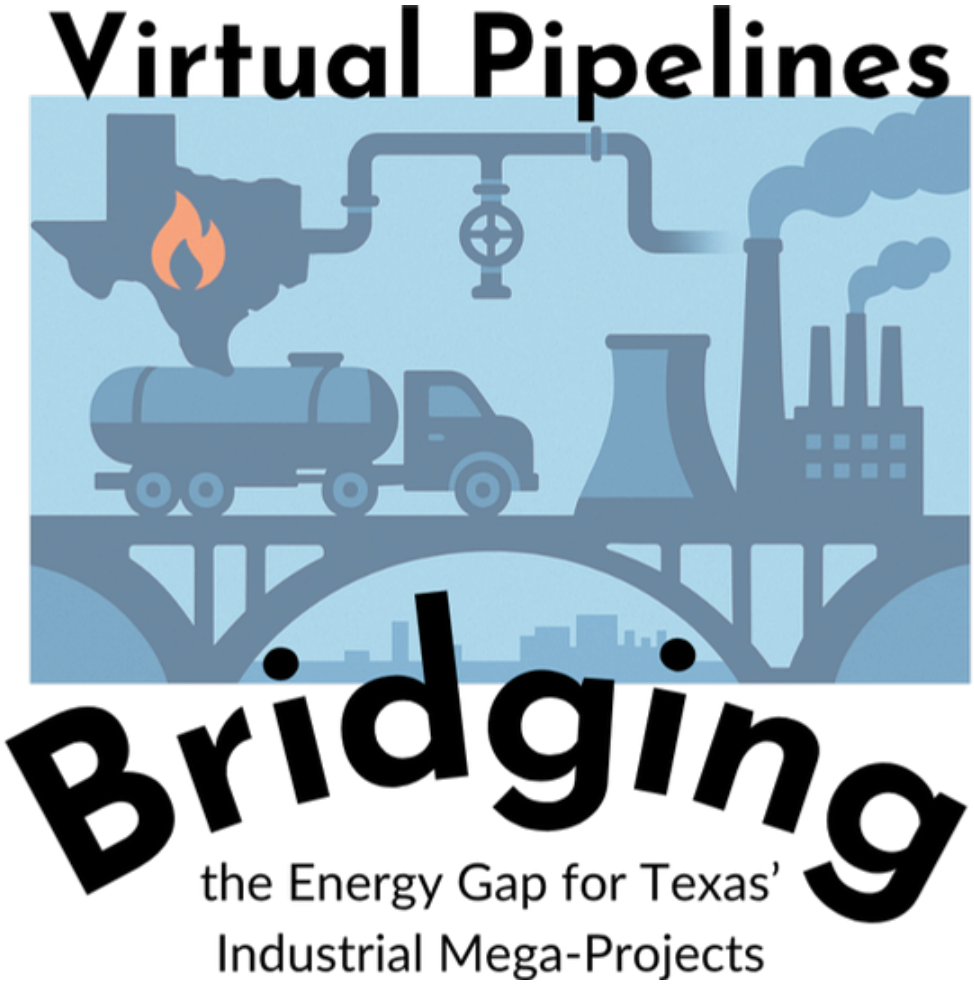

Virtual Pipelines: Bridging the Energy Gap for Texas's Industrial Mega-Projects

Texas is experiencing a surge of new high-tech and industrial projects from advanced manufacturing facilities to aerospace launch sites, all with **massive power needs**. However, a common challenge in the tech and power industries is that we have the gas to power and support these sites in the U.S., but no consistent way to deliver it to them, reliably and quickly. In a CNBC report on August 7, 2025, it was stated that the United States has plenty of low-cost natural gas reserves, but "the challenge is the infrastructure" needed to transport it. Building new pipelines or grid capacity can take years, when these projects need power **now**. Below is a look at the situation and how **LNG trucking and flexible gas distribution** – essentially a *"virtual pipeline"*, can provide a fast, effective solution.

Abundant Gas vs. Infrastructure Subterfuge

- **Plentiful Supply, Limited Delivery:** Texas and the U.S. overall enjoy an abundance of natural gas at low cost. However, getting that gas from where it's produced to where it's needed is a bottleneck. Energy C-suites claim that while we have ample gas, "anything we're trying to build [infrastructure] today is very difficult due to permitting and time constraints" (*Brian Fowkes - CTO, Virtual Pipeline Ventures*). In other words, **supply isn't the issue – delivery is**.
- **Stranded Energy Potential:** This disconnect leads to scenarios where gas is flared or underutilized at the production site, even as new industrial facilities a few hundred miles away face energy shortages. As one

industry expert bluntly summarized on CNBC, we have *plenty* of natural gas but **"no way to transport it"** under current infrastructure limitations. Bridging this gap is critical for powering new developments.

Mega-Project Power Demands Are Huge

- **High-Tech Manufacturing in Houston:** A global electronics manufacturer's new campus in Houston (for AI server production) will require an enormous power supply to run advanced equipment and possible data center operations. While details aren't yet public, similar AI hardware centers planned elsewhere target up to 100 megawatts of capacity (reuters.com), which is enough to power ~80,000 homes. Even if the Houston facility starts smaller, we're talking on the order of tens of MW, for multiple sites on the same property. Ensuring such power is available without delay is a major concern for project planners.
- **Remote Aerospace Launch Site:** In an even more extreme case, a major launch complex in a remote coastal area has plans to launch no less than 1 time per month, requiring 1,000,000 gallons of LNG. = 82.6 M standard cubic feet (SCF) of natural gas, per month, to support its testing and operations. This facility would need tens of millions of cubic feet of gas daily, yet it's far from pipeline networks. The site initially trucked in LNG for testing and explored reactivating an old pipeline, highlighting how urgent and challenging fuel transport can be in such cases. The key point here is that these marquee projects cannot wait 2–5 years for new pipelines or grid upgrades; they need power as soon as facilities are ready.

Virtual Pipelines via LNG Trucking & Distribution

"An LNG transport can deliver liquefied natural gas to industrial sites, acting much like a pipeline to supply fuel for on-site power generation. This "virtual pipeline" approach is already used to reach mines, oilfields, support peak demand, and other operations far from gas pipelines. By transporting fuel by road, companies can tap into abundant natural gas reserves even when permanent pipeline connections are not available. An added benefit to having a virtual pipeline is that it takes the burden of midstream contracts off the operator's desk and keeps flare down while providing a much more opportunistic environment for operating CEOs." (Brian Fowkes)

- **How It Works: Liquefied Natural Gas (LNG) trucks** effectively create a mobile pipeline. Natural gas is cooled into liquid form (condensing its volume 600:1) and transported in insulated trailers (think big thermos). At the destination, LNG is re-gasified and fed into generators or industrial systems for power and heat. This setup includes on-site distribution infrastructure; portable storage tanks, vaporizers, piping, and hoses, to integrate with the facility's energy system. The result is a flexible fuel supply that can be deployed wherever needed.
- **Proven in Practice:** This isn't theory; LNG "virtual pipelines" are already proven. Texas alone, LNG transports supply gas to remote drilling sites, data centers, and even greenhouses beyond the reach of pipeline and grid networks. One Houston-based LNG provider initially served oilfield fracking operations and expanded to deliver gas to mines out of reach of pipelines and power grids. Since then, "virtual pipelines" have begun serving industrial customers who lack midstream pipeline access, because, as Brian Fowkes, CTO of Virtual Pipeline Ventures, has said, *"So many large-scale projects don't have access to pipelined natural gas. Every project manager in that situation is a potential customer for us."* In short: "Wherever a factory or facility needs energy but pipelines lag, VP Ventures can fill the gap."
- **Scale and Planning:** A well-organized LNG delivery operation can also scale to meet high volumes. Dedicated fleets and scheduling can guarantee a steady flow of LNG transports to match consumption. Yes, supplying a huge 250 MW site entirely by trucks is a logistical challenge, but it's the better candidate as a bridging solution. More commonly, a virtual pipeline might support a 5–50 MW generator farm for an interim period, for example. It can also supplement a limited pipeline or grid connection (for peak loads or redundancy). The key advantage is speed: deploying an LNG supply chain can be done in weeks or months, whereas constructing a new pipeline or substation usually takes years.

Faster Deployment Equals Big Advantage

- **Bypass Grid Delays:** Large power users often face long waits for utility grid connections, sometimes years in queue for new transmission or substation upgrades. Increasingly, companies are seeking to install on-site generation and bypass these delays. For instance, data center developers and project managers have approached pipeline operators to obtain direct gas service for private generators, thereby avoiding the long queues required to connect to the grid. VP Ventures transports can deliver LNG anywhere, not just along a pipeline route. A portable LNG-fed power plant can be up and running concurrently with facility construction, rather than waiting for the grid to be ready. This routine procedure can keep project timelines on track.
- **Rapid & Modular:** An LNG trucking solution can grow in phases and adapt to project needs, every step of the way. It can for example, start with a few truckloads per week for initial operations; scale up to dozens per day as production ramps. The flexibility of adding trucks, storage tanks, and generator units means power supplies can closely follow the project's schedule and expansion, providing as-needed energy infrastructure.
- **Emergency and Peak Support:** Beyond initial deployment, LNG deliveries offer ongoing flexibility. They can provide emergency fuel supply during pipeline outages or winter freezes. They're also useful for "peak shaving", which is the process of delivering extra gas on days of highest demand (or during grid stress events) to run backup generators. This kind of capability is invaluable for mission-critical sites.

Effective Delivery and Quick Deployment: A Solution for Industrial Centers and Others

- **Powering Growth in Houston's Tech Hub:** With Houston rapidly becoming a hub for advanced manufacturing (AI servers, electronics assembly, etc.), energy infrastructure must keep pace. The globe was educated on this via the U.S. national news. LNG trucking offers a solid solution to power these power-hungry investments without waiting for new pipelines or grid expansions. It's an effective delivery model: fuel from Texas gas fields can be liquefied and trucked to the Houston site daily, ensuring continuous operation of turbines or generators. For the facility developers, this means faster ramp-up and the confidence that power is secured, which is a strong message that should resonate deeply with any company eyeing Houston's growth.
- **Supporting Space Industry Expansion:** Likewise, LNG transport can solve the problem of fueling rockets and power plants in remote areas. And let's face it, Texas is full of remote areas, which is why the incoming growth has placed it on an international map. Rather than slowing these projects down or delaying them until a pipeline is built, they can bring in the fuel by road. This approach essentially turns Texas's plentiful gas into a mobile resource, moving it to exactly where innovation is happening. For an aerospace project on the clock, the challenge isn't power generation; it's fuel logistics at scale. Rocket launches can consume 400,000 to 1.2M gallons of LNG per month, depending on testing schedules and launch windows. The critical bottleneck is storage: no supplier can deliver that volume on-demand for a single launch event, so fuel must be trucked in gradually and stored on-site. At 1M gallons, equaling roughly 100 truckloads, a steady flow of 3-4 deliveries per day makes this entirely feasible, but only with adequate storage infrastructure in place.
- **Scalable and Reliable:** The insurmountable value of a "virtual pipeline" natural gas solution is its scalability and reliability. Need more gas? Add more trucks to the route or increase on-site storage as a buffer. Over time, if a permanent pipeline connection is still needed, the LNG deliveries can be scaled down or redirected elsewhere. In the meantime, the company's operations have had uninterrupted power and likely at a lower cost than interim diesel or purchasing peak electricity from the grid. It's a strategy that converts the region's energy resources into usable power for large industrial projects.

Turning a Challenge into an Opportunity

The conversation sparked on CNBC last fall about “plenty of gas but no way to transport it” exposes a major infrastructure gap, but one that companies like Virtual Pipeline Ventures can solve. By leading the way in LNG trucking and rapid-deploy distribution, we position ourselves as problem-solvers for Texas’s booming projects; anywhere in the U.S. The message to send to these massive projects’ C-suites and project managers is clear: whether it’s a large data center, a plant, a rig, or a spacecraft test facility, we can deliver the energy to power or fuel it efficiently and quickly. Incorporating virtual pipelines, specifically with Texas’s growth, should never be limited by pipeline maps. With a virtual pipeline, natural gas can go wherever it’s needed, fueling the next wave of success for our entire economy.