TEXZON UTILITIES

Data Center Energy Solutions

COMPETENCY PAPER

- FIBER OPTICS& WIRELESS TECHNOLOGY
- DATA TRANSFER
- UTILITY & SUBSTATION TRANSFORMERS
- COMBINED HEAT & POWER (CHP)
- NATURAL GAS PROCUREMENT
- INDUSTRIAL GRADE PV SOLAR POWER
- CONCENTRATED SOLAR POWER
- BATTERY ENERGY STORAGE SYSTEMS (BESS)
- KOHLER BACK-UP POWER GENERATORS
- BEHIND THE METER WIND TURBINES
- EFFICIENT DATA CENTER LIGHTING
- ONSITE GEOTHERMAL ENERGY STORAGE

IN ASSOCIATION WITH OUR VALUED NETWORK PARTNERS

OUR PRODUCTS & SERVICES

- Biodigesters, RNG, Manure, Wastewater Solutions
- Wastewater Treatment
- Hydrogen Production and Fuel Cell Systems
- Agricultural, Commercial and Municipal Solar Power
- Design Engineering
- Project Engineering
- Smart Ag, Commercial, Industrial Construction
- Geothermal Power and Storage
- CHP – Combined Heat and Power
- Beverage Grade CO2 Production
- Behind the Meter Wind Turbine Power
- Microgrid and Control Systems
- BESS Systems (Battery Energy Storage Systems)
- Broadband Internet and Wireless Communication
- EV Charging Infrastructure
- Kohler Backup Energy Generation
- Municipal and Development Sustainability Plans
- Efficient Lighting, Controls, and Power Shaving
- Consultation and Energy Audit Services
- Technical Asset Management, O & M
- Financial Products and In-House Grant Writing

EMPOWERING OUR PEOPLE TO POWERFULLY SERVE OUR CLIENTS

How Fiber Optic Cables Improve Data Center Speed and Latency

Texzon Utilities transforms your physical data center to a modern operating model

Infrastructure is everywhere and the data center is evolving. Digital Leaders need to evolve their vision and their data centers – leveraging hybrid cloud-based platforms, as-a-service offerings, digital ecosystems, and partners to ensure positive business outcomes and secure their business for the future – or face uncertainty in the future.

Predictions and strategic planning assumptions

- By 2025, 40% of newly procured premises-based compute and storage will be consumed as a service, up from less than 10% in 2021.
- By 2025, 70% of organizations will implement structured infrastructure automation to deliver flexibility and efficiency, up from 20% in 2021.

Fiber optic cables are a critical component of the modern data center, providing faster speeds and lower latency which is essential for businesses and organizations to stay competitive and meet the high-speed data transfer needs of their customers.

While data center speeds have been in a period of constant growth with 10G, 25G and 40G bandwidth now giving away to 100G, digital demands are requiring cabling that meets reliability, security, scalability, and energy efficiency requirements.

For the data center operator, a time to sit back and rest on your laurels simply does not exist Danny Korakas, Texzon's Sr. Partner stated: "Just when you thought you could take a moment to catch your breath, you find that your network just might not be quite fast enough to support the new public cloud initiative or enable the company to begin to handle the inrush of packets that is the Internet of Things (IoT)."

IEEE Issues New Standards for Higher Speeds, Smoother Transfers

In January 2023, the IEEE Standards Association issued new specifications for higher ethernet, smoother data transfer, and increased range.

Digital connectivity is fundamental to modern life, and Ethernet networking technology is a major enabler of that connectivity. Ethernet is a continuously evolving set of standards-based networking protocols that enable manufacturers and providers of a wide variety of devices to focus on developing new products and services that address market opportunities, without having to devote time, attention, and resources to solving connectivity challenges. Texzon can help your team and stakeholders solve these challenges.

Data centers operators should pay close attention to the highlights of the IEEE Standards Association announcement which includes:

- IEEE 802.3ck addresses the need for data transfer at 100 Gb/s per electrical lane, to help reduce costs for developers and users in high-performance computing and data-intensive applications.
- IEEE 802.3db specifies the use of 100 Gb/s wavelengths over multimode fiber for server attachment and machine learning clusters. It will enable users to take advantage of the massive base of multimode fiber in enterprise data centers.
- IEEE 802.3cs defines Super-PON and will enable operators to dramatically reduce the time and cost needed to extend the reach of their networks.

The continuing development of new Ethernet technical standards over nearly four decades, while maintaining backward compatibility with existing devices, has led to Ethernet's growing use in diverse applications including local area networks, metropolitan area networks, wide area networks, telecommunications infrastructure, automotive systems, and operational technology (OT) settings.

Texzon Utilities offers a complete range of liquid-filled and dry-type utility scale transformers for data center application as well as services and replacement components. From transformers for primary power supply for utility grids and switchgears to secondary units in substations, Texzon can help your business increase the reliability and improve the operations of data centers while reducing life cycle cost and environmental impact.

Envirotran hardened data center substation transformer

Eaton's Cooper Power series Envirotran Hardened Data Center (HDC) three-phase substation transformer provides superior performance and surge protection even in stressful electrical environments. Designed and built around superior efficiency and reliability, substation HDC Transformers can be utilized in both indoor and outdoor applications, stepping down a wide variety of distribution system voltages while meeting an extensive array of complex data center needs including relaying protection, advanced monitoring and VFI fault protection.

BASE RATING
300 kVA to 12,000 kVA

PRIMARY VOLTAGE
2400-46,000 V (Delta or Wye connected)

PRIMARY VOLTAGE
2400-46,000 V (Delta or Wye connected)

Core features

- Not reliant on a RC snubber circuit for transient surge protection
- Readily biodegradable and non-toxic FR3 fluid provides sustainable, highly efficient performance at a low cost
- Provides overload capability above nameplate without significant loss of life
- Higher BIL and more optimum resonant frequency prevent damage from potentially harmful switching overvoltage

The Benefits of Energy-Efficient Transformers in Data Center Electrical Networks

Transformers are vital components in data centers as they facilitate the efficient transmission of electrical power. In recent times, there has been a significant advancement in transformer technology with a focus on energy efficiency. Energy-efficient transformers have emerged as a game-changer, helping data centers optimize their energy consumption and enhance overall efficiency.

Data centers are power-hungry facilities that consume substantial amounts of electricity. According to estimates, data centers globally account for approximately 1% of global electricity usage, a substantial carbon footprint. With the rising demand for data storage and processing, it becomes crucial to look for ways to reduce energy consumption and minimize environmental impact. Energy-efficient transformers play a vital role in accomplishing these goals.

The Benefits of Energy-Efficient Transformers in Data Centers:

- Reduced Energy Consumption: Energy-efficient transformers significantly reduce power losses during transmission, resulting in reduced energy consumption. This leads to lower electricity bills and contributes to overall cost savings for data center operators.
- Environmental Friendliness: Using energy-efficient transformers helps reduce greenhouse gas emissions due to decreased energy usage. Data centers can contribute towards a greener future by adopting these transformers.
- Enhanced Reliability: Energy-efficient transformers are designed to operate at higher efficiency levels, resulting in less heat generation and improved reliability. This reduces the risk of transformer failures, leading to improved uptime and reduced downtime for data centers.
- Improved Power Quality: Energy-efficient transformers offer better regulation and voltage stability, ensuring a stable power supply to critical data center equipment. This helps prevent voltage drops and spikes, protecting sensitive IT infrastructure from potential damage.
- Longer Lifespan: Energy-efficient transformers are built to withstand higher operational demands, resulting in longer lifespans compared to traditional transformers. This reduces maintenance costs and enhances the overall lifespan of data center infrastructure.

Key Takeaways for Data Center Operators

Integrating energy-efficient transformers can have a significant impact on a data center's efficiency and sustainability. Here are the key takeaways for data center operators:

- Energy-efficient transformers help reduce energy consumption, leading to lower electricity bills and cost savings.
- Adopting energy-efficient transformers contributes to environmental sustainability by reducing carbon footprint and greenhouse gas emissions.
- Improved reliability and uptime are achieved through the use of energy-efficient transformers, minimizing the risk of equipment failures and downtime.
- Protection of critical data center equipment from voltage fluctuations ensures uninterrupted operations and safeguards data integrity.
- Incorporating energy-efficient transformers extends the lifespan of transformers and reduces maintenance costs.

In conclusion, energy-efficient transformers have a profound impact on data center efficiency by minimizing energy consumption, reducing environmental impact, and enhancing the reliability of critical IT infrastructure. Data center operators and managers should consider integrating these transformers into their facilities to optimize energy usage and maximize overall efficiency. By embracing energy-efficient technology, data centers can pave the way for a greener and more sustainable future.

Custom Tailored Cooling for Your Data Center Cooling Needs

Industry experts agree that data center cooling can represent 30-55% of the total cost of running a data center. If cooling is ineffective or improperly set up, companies may end up spending more on powering and cooling their data centers than on primary equipment.

COMBINED HEAT & POWER (CHP)

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- By 2025, 70% of organizations will implement structured infrastructure automation to deliver flexibility and efficiency, up from 20% in 2021."
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Speed to Market

- Natural Gas Fuel Efficient Engines are much faster to deploy energy infrastructure than grid-tied electrical power systems which can take up to 3 years to complete for high energy demand such as data centers.
- CHP Engines can be utilized as a resiliency or back-up system if grid-tied at a later time.
- Units are delivered pre-packaged for fast and efficient installation.

Courtesy of Clarke Energy

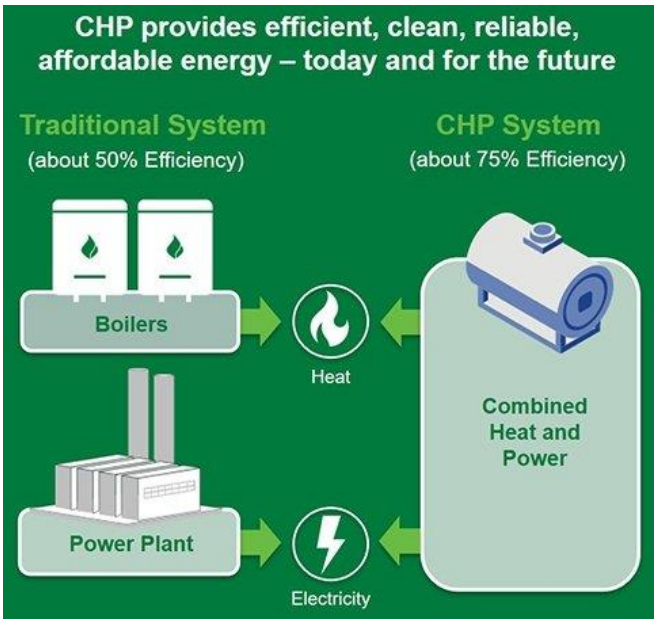
COMBINED HEAT AND POWER (CHP), also known as cogeneration, is:

The concurrent production of electricity or mechanical power and useful thermal energy (heating and/or cooling) from a single source of energy.

A type of distributed generation, which, unlike central station generation, is located at or near the point of consumption.

A suite of technologies that can use a variety of fuels to generate electricity or power at the point of use, allowing the heat that would normally be lost in the power generation process to be recovered to provide needed heating and/or cooling.

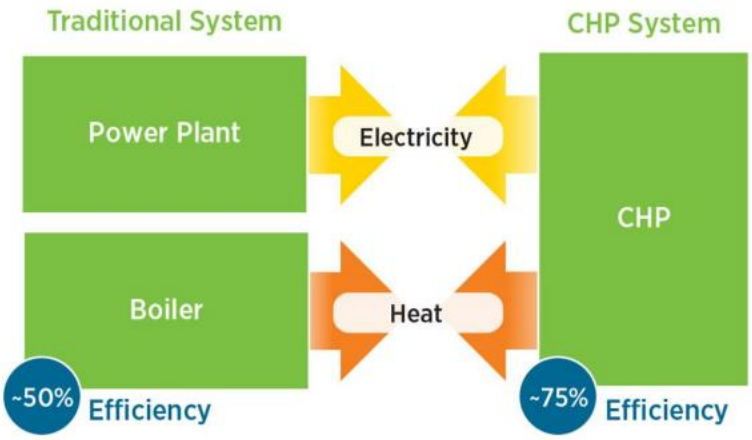
CHP technology can be deployed quickly, cost-effectively, and with few geographic limitations. CHP can use a variety of fuels, both fossil- and renewable-based. It has been employed for many years, mostly in industrial, large commercial, and institutional applications. CHP may not be widely recognized outside industrial, commercial, institutional, and utility circles, but it has quietly been providing highly efficient electricity and process heat to some of the most vital industries, largest employers, urban centers, and campuses in the United States. It is reasonable to expect CHP applications to operate at 65%–75% efficiency, a large improvement over the national average of about 50% for these services when separately provided.



CHP applications can operate at about 75% efficiency, a significant improvement over the national average of about 50% for these services when provided separate

Courtesy of Clarke Energy

While CHP has been in use in the United States for more than 100 years, it remains an underutilized resource today. CHP currently represents approximately 8% of U.S. generating capacity4 , compared to over 30% in many other western countries. Its use in the U.S. has been limited, particularly in recent years, by a host of market and non-market barriers. Nevertheless, the outlook for increased CHP use is bright as policymakers at the federal and state level are recognizing the potential benefits and the role that this technology could play in providing clean, reliable, cost-effective energy services to industry and businesses. There are several emerging market drivers contributing to current combined heat and power growth, including:



Courtesy of Clarke Energy

- **Lower Operating Costs:** Compared to conventional power generation techniques, CHP systems can save money through increased energy efficiency. Higher operating efficiencies enable CHP systems to consume up to 40% less fuel while generating the same amount of power and useful thermal energy as separate heat and power systems. With stable and low-cost natural gas supply forecasts stemming from the development of shale gas production, the economics of CHP have been improving.
- **Environmental Regulations:** Recent environmental regulations have created opportunities for combined heat and power to help meet compliance goals.
- **Resiliency:** In the event of a man-made or natural disaster that causes a grid outage, CHP systems can be configured to be more resilient and reliable than traditional backup generators. During recent storm events such as Hurricane Sandy, CHP systems enabled a number of critical infrastructure facilities to continue their operations when the electric grid went down. Texzon Utilities in association with Clarke Energy will provide guidance and engineering on how CHP can enhance the resiliency of critical facilities, and the best way to size such systems.

- **Policy Support:** A number of federal and state policies and financial incentives have strongly encouraged the market for combined heat and power. At the federal level, currently there is a 30% investment tax credit and MACRS depreciation for CHP along with robust grants to offset costs. Texzon Utilities has incentive and federal grant writers in-house as a value-added service.
- **CHP** can be utilized in a variety of industrial facilities, agriculture, and commercial buildings with coincident power and thermal loads. The majority of existing CHP capacity in the United States is in the industrial sector and is concentrated in five major facility types: chemicals, refining, paper, food, and metals manufacturing.

Combined heat and power (CHP) is an efficient and clean approach to generating electric power and useful thermal energy from a single fuel source. Instead of purchasing electricity from the distribution grid and separately burning fuel in an on-site furnace or boiler to produce thermal energy, an industrial or commercial facility can use combined heat and power to provide both services in one, energy-efficient step. CHP is a clean energy solution that directly addresses a number of national priorities, including improving U.S. competitiveness by:

- Reducing energy operating costs
- increasing energy efficiency
- Reducing greenhouse gas emissions
- Enhancing our energy infrastructure
- Improving energy security and resiliency
- Growing" the U.S. economy

Courtesy of Clarke Energy

Why Natural Gas Engines for Data Centers?

Emissions – Lower with a path to zero carbon emissions

Natural gas, fast start 1.5-3.3MWs

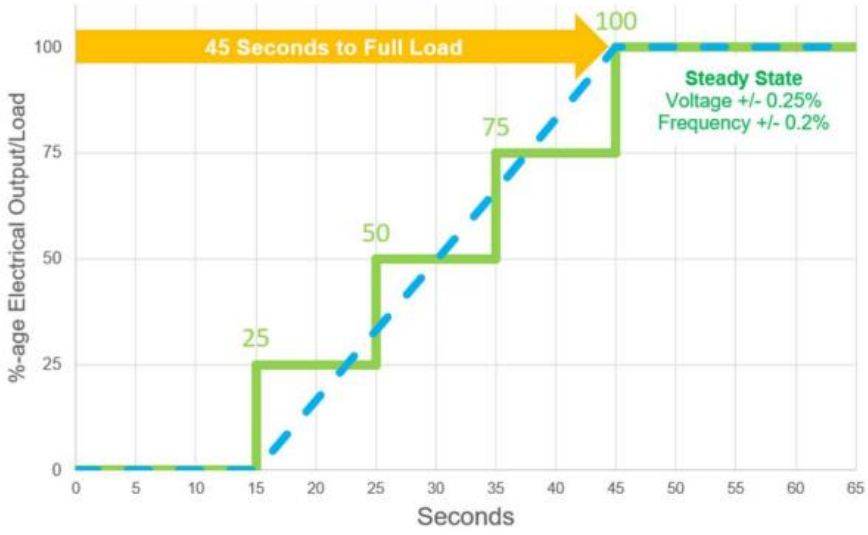
- 25% CO2 reduction compared to Tier 2 diesel engine
- 90% NOx reduction compared to Tier 2 diesel engine
- NOX a limited factor for data center campus permitting

Dual fuel – Hydrogen and natural gas

- Currently available engines
- Hydrogen blended up to a volume of 100%
- Get natural gas engine today, convert to hydrogen tomorrow

Fast Start Natural Gas
Range 1.5-3.3MWs Engine Platform

Start up steps	Seconds
Start command, delay and pre-lubrication	5
Firing to nominal speed	10
Nominal speed to full 3MW electrical load	30
Start to full 3MW block load	45

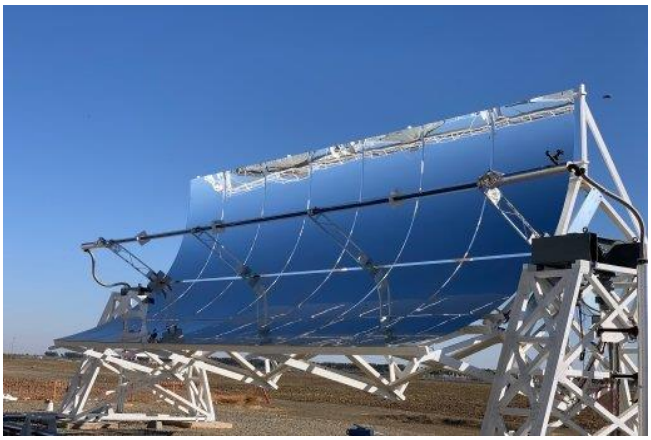


SOLAR ENERGY is the fastest growing and most affordable source of new electricity in America and overseas. As the cost of solar energy systems dropped significantly, more businesses, industry, and municipalities have taken advantage of clean energy.

Photovoltaic (PV) solar energy systems are expected to operate for at least 20 - 30 years. The U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) supports Texzon Utilities and our network efforts to extend the useful PV system life to 50 years. How well a system performs during its lifespan directly affects project cash flows, which largely determine the value of those systems. It also affects operation and planning activities for the electric grid.

There are many different applications that provide Texzon the ability to model the operation of PV systems before they are constructed, which helps to reduce financial and reliability risks. These models use meteorological inputs and a mathematical representation of the system to calculate the energy and rate plan that will be generated over any time interval of interest—from minutes to decades.

Texzon Utilities in accordance with the U.S. Department of Energy (DOE) Solar Energy Technologies Office offer three resources to help our clients navigate changes to the federal solar Investment Tax Credit (ITC), which was expanded in 2022 through the passage of the Inflation Reduction Act (IRA). These resources—for businesses, manufacturers, and municipalities—provide thorough overviews of the ITC, Production Tax Credit (PTC), MACRS Depreciation and Advanced Manufacturing Production Tax Credit (MPTC). They demystify the tax code with intuitive explanations and examples, answer frequently asked questions, and explain the process of claiming valued tax credits.



INDUSTRIAL SCALE SOLAR for agricultural, commercial, and industrial applications have been generating reliable, clean electricity with a stable return on investment for decades. Developing industrial-scale solar power is one of the fastest ways to reduce carbon emissions and put the United States on a path to a clean energy future.

A scalable solar power plant can utilize several solar technologies – primary photovoltaics (PV) or concentrating solar power (CSP). What distinguishes increased grid reliability and industrial-scale solar from distributed generation is both project size and the fact that the electricity is sold to wholesale utility buyers (takers), not end-use consumers.

Industrial-scale solar power provide the benefit of fixed-priced electricity during peak demand periods when electricity from fossil fuels is the most expensive.

Many industrial-scale solar designs can also include energy storage capacity which provides power resiliency.

Traditional Power Plant vs. Virtual Power Plant

As energy markets change, so do our power plants. And while traditional power plants have reigned supreme, this isn't the case anymore. The energy transition is increasing the share of renewable generation in the traditional energy market. Renewables are set to account for 95% of the increase in global power capacity by 2026. To handle this, our energy systems are having to evolve.

HOW DOES SOLAR POWER WORK?

The amount of sunlight that strikes the earth's surface in an hour and a half is enough to manage the entire world's energy consumption for a full year. Solar technologies convert sunlight into electrical energy either through photovoltaic (PV) panels or through mirrors that concentrate solar radiation. This energy can be used to generate electricity or be stored in batteries or thermal storage.

U.S. DEPARTMENT OF ENERGY RESOURCES

Photovoltaic and **concentrating solar-thermal power** technologies, electrical grid **systems integration**, and the non-hardware aspects (**soft costs**) of solar energy. You can also learn more about how to **go solar** and the **solar energy industry**. In addition, you can dive deeper into solar energy and learn more about how Texzon Utilities is driving implementation in these areas.

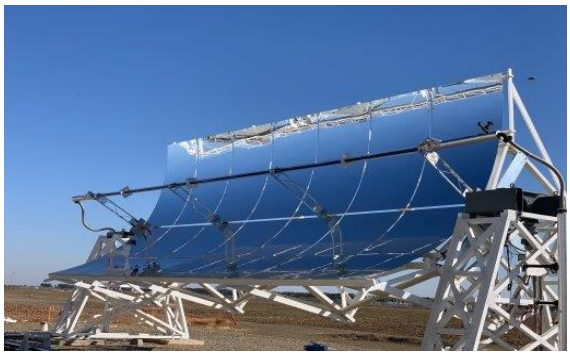
Courtesy of Orion Carports

Solar Energy 101

Solar radiation is light – also known as electromagnetic radiation – that is emitted by the sun. While every location on Earth receives some sunlight over a year, the amount of solar radiation that reaches any one spot on the Earth's surface varies. Solar technologies capture this radiation and turn it into useful forms of energy.

Photovoltaics Basics

There are two main types of solar energy technologies—photovoltaics (PV) and concentrating solar-thermal power (CSP). You're likely most familiar with PV, which is utilized in solar panels. When the sun shines onto a solar panel, energy from the sunlight is absorbed by the PV cells in the panel. This energy creates electrical charges that move in response to an internal electrical field in the cell, causing electricity to flow.



Courtesy of Q3 Power - Texzon

Concentrating Solar-Thermal Power Basics

Concentrating solar-thermal power (CSP) systems use mirrors to reflect and concentrate sunlight onto receivers that collect solar energy and convert it to heat, which can then be used to produce electricity or stored for later use. It is used primarily

BESS BASICS: BATTERY ENERGY STORAGE SYSTEMS FOR PV-SOLAR, CHP & WIND TURBINES

Energy storage systems capture surplus energy during times of high production/low demand and store it for use during times of low production/high demand. While not a new technology, energy storage is rapidly gaining traction as a way to provide a stable and consistent supply of renewable energy to the grid.

The energy storage system of most interest to solar PV producers is the battery energy storage system, or BESS. While only 2–3% of energy storage systems in the U.S. are BESS (most are still hydro pumps), there is an increasing move to integrate BESS with renewables.

WHAT IS A BESS AND WHAT ARE ITS KEY CHARACTERISTICS?

Largely, BESS systems use lithium-ion batteries to store electricity. They can be used either as stand-alone or coupled with renewable energy sources.

Main characteristics used by the industry, and which vary with different BESS chemistries are:

- Rated Power Capacity
- Rated Energy Capacity
- Depth of Discharge (DOD)
- Storage Duration
- Cycle Life
- State of Charge (SOC)
- Round-Trip Efficiency
- System Life
- Safety Monitoring and Control

WHAT ARE THE MAJOR PARTS OF A BESS?

A typical BESS includes:

- Battery modules – connected in series and parallel for required capacity.
- Storage enclosure with thermal management.
- Power conversion system (PCS) – All the clusters from the battery system are connected to a common DC bus and further DC bus extended to PCS.
- Battery management system (BMS), which continuously monitors the voltage, temperature, fire warning and state of charge (SOC) of the battery. It regulates the charging and discharging power depending on input signal.
- Energy management system (EMS) – The control logic is executed at EMS. It will provide input signal to PCS for charge/discharge depending on control logic requirement.

A BESS is an energy source, and like any energy source that feeds the grid, it must be managed and controlled. At Texzon Utilities, we provide SCADA and EMS solutions for monitoring and controlling BESS per site requirements.

BESS systems are gaining traction for both technical and commercial reasons. Technically, they provide immense benefits to the grid:

- Use in emergency response systems or for storm outages
- Frequency regulation
- Grid stability
- Reduction of grid congestion
- Ramp rate control
- Energy arbitrage
- Peak and delivery charge shaving
- Black start – quick energy or stabilizing energy to get the grid started at a good response rate

What's most exciting is the use of BESS in helping the world transition to renewable energy.

Renewables are intermittent in nature—production goes up when the sun is shining, and the wind is blowing but goes down when the day is overcast, or the winds die down. On the current grid, on-demand gas power is still needed to fill in the gaps. As more renewables come online and begin contributing to the grid in order to meet increasing energy demand, energy storage technologies, including BESS, can help ensure a stable, steady supply of energy.

Being able to store excess energy is also a financial benefit to renewable energy producers. Instead of having to curtail production, at the request of the grid or utility, that curtailment can be stored. When production later goes down, that stored energy is available for sale to fill in the gaps.

Another reason for the rise in BESS systems is the affordability of lithium-ion batteries. The prices for this technology are going down and are expected to go even lower. This is moving the needle away from older existing energy storage systems and towards BESS.

INDUSTRIAL BACKUP POWER GENERATORS

The costs of a power outage to a business can be substantial, including losses in product, revenue, productivity, and customers. With increasing severe weather events and disasters triggering greater numbers of costly power outages, there is a growing interest in generators for reliable backup power. Industries and businesses are either considering installing backup generators or—in the case of facilities such as hospitals and airports that are required to and already have backup power—are considering redundant backup systems for added resilience against grid outages. For decision makers to make informed choices, it is important to understand the cost and reliability associated with various backup system configurations.

Grid-connected generators can create positive economic value and have significantly lower failure rates than backup-only generators. The more regularly a generator is used, the more likely it is to be well-maintained and functioning properly. At the same time, backup generators are not designed for continuous operation, and both diesel and natural gas generators have relatively high operating costs compared to typical grid prices. This makes backup generators best suited for services in which the generator only runs for a limited number of hours. Regions with coincident peak charges, along with regions that have curtailable tariffs and/or emergency standby participation, are well suited to be served by backup generators and can generate significant revenues for backup system operators.

Courtesy Kohler Power

INDUSTRIAL GENSET APPLICATIONS

Texzon Utilities offers KOHLER backup generators, simply because they're built to meet the heavy demands of agricultural production and changing weather. KOHLER continuously delivers on keeping our producers and farmers profitable.

Typical Industrial Applications Include:

- Data Centers
- Production Resiliency
- Waste and Water Management
- Healthcare
- Construction
- Manufacturing
- Food Processing
- Canning and Packaging
- Infrastructure
- Industrial Development
- Cold Storage
- Hospitality
- Gas and Oil

Courtesy of Kohler Power

The standby power generators of today are supplying a wider variety of loads than have been historically seen. Capacitive loads are defying the general assumptions of what a load application looks like and may require new or modified specifications. Larger power networks are involving more voltages throughout the installation, requiring careful consideration of how to manage not only the loads, but also the equipment between the source and loads. With careful planning and consideration of available strategies, capacitive loads and transformer inrush can be successfully managed to keep installations in power.

Behind the Meter Wind Turbine Power for Business by Texzon - EWT

DIRECTWIND range of 225kW to 1MW wind turbines are designed and built to provide the most cost-effective long-term power whether you're developing a new distributed energy site or repowering an existing one. Through a best-in-class combination of direct drive technology and advanced control features, they ensure high yields and reliable performance to maximize your return on investment. We design in-house and continually improve our product, to further enhance performance.

Proven on three continents – both on and off grid – our turbines also feature a grid-friendly output that simplifies integration into weak and micro-grids. Moreover, we offer an extensive range of configurations with tip heights from 61m to 114m to help you get the most out of your site conditions. It's no wonder our wind turbines have been meeting and exceeding our customers' expectations for more than 10 years.

As hundreds of our customers can confirm, our cost-effective yet comprehensive service support is the key to unlocking your turbine's potential. Our service contracts are all encompassing, delivering outstanding customer satisfaction and turbine availability. With our own highly skilled local service teams close to you supported by 24/7 remote monitoring via our state-of-the-art control centers, you can be sure of the fastest response times. And we are committed to continually improving the performance of installed turbines via in-house R&D.

Courtesy of EWT Wind Turbines

Customized Microgrid Design

In close collaboration with its clients and with a clear understanding of their energy requirements, EWT creates tailored microgrid systems for optimum energy generation, storage, and distribution. EWT's expertise goes beyond wind energy, ensuring precision-engineered solutions for diverse applications, including diesel generators and solar PV.

Comprehensive Integration Services

From conceptualization to implementation, EWT handles the entire integration process. This encompasses sourcing cutting-edge renewable energy technologies, deploying energy storage systems, and seamlessly integrating smart grid components for optimal performance.

Advanced Control and Monitoring

EWT's integrative approach extends beyond installation. EWT provides sophisticated control systems and monitoring platforms, allowing real-time insights into performance of the system. This ensures efficient energy management and quick response to dynamic energy needs.

- Renewable Energy Integration

EWT leverages solar, wind, hydro, and other renewable sources to create hybrid microgrids that reduce reliance on traditional power sources, cutting costs and environmental impact.

- Resilient Power Solutions

EWT's microgrids offer uninterrupted power supply, ensuring resilience against grid failures or natural disasters. System reliability is crucial for critical infrastructure, remote communities, and mission-critical facilities.

- Energy Optimization and Efficiency

Through intelligent energy management systems, EWT optimizes power usage, leading to enhanced efficiency, reduced waste, and substantial cost savings over time.

- Consultation and Maintenance Services

EWT's support does not end with installation of the system. We provide ongoing monitoring, consultancy, and maintenance, ensuring peak performance and adapting systems to evolving energy needs and technological advancements.

Courtesy of EWT Wind Turbines

EFFICIENT DATA CENTER LIGHTING

Texzon and our lighting partnership with Voss Lighting have grown to be a national supplier of lighting products and fixtures, serving a broad range of customers from business and industry, agriculture, to schools and governmental agencies.

Today our Lighting and Energy Services division leverages 100+ years of lighting expertise offering turn-key solutions that are professionally managed from design to installation. We provide a project experience that brings together lighting and lighting control professionals to ensure an outcome that exceeds customer expectations.

We manage all aspects of your lighting project, from facility audit and design to final commissioning and warranty administration. Or, if you choose to do your own installation, we are there to help with product specification and procurement.

Using our multi-state branch locations, the Texzon network delivers thousands of lighting products to hundreds of state, municipalities, schools, and university facilities throughout the country. With 22 dedicated government account representatives, our local branches are there to provide product expertise, facility energy audits

All Photos Courtesy of Phillips Brand Lighting

FUTURE OF LEDS

There are many white LED lighting products available on the market, and the number continues to grow, with new generations of devices constantly emerging. While many of these products perform quite well, their energy efficiency and color qualities can vary; but standards, test procedures, and resources such as ENERGY STAR® and the DesignLights Consortium™ Qualified Products List help buyers make informed choices. LED lighting technology now offers the highest luminous efficacies (and efficiencies) of any light-source technology, and affordable pricing have resulted in significant adoption.

ONSITE GEOTHERMAL ENERGY STORAGE

How Does 30 MW Energy Storage (EarthStore Mechanical Storage H2O) Work?

Energy Storage (EarthStore™) Overview

Sage Geosystems' storage solution (called EarthStore™) in association with Texzon Utilities energy is ready to scale now at a lower cost than pumped storage hydropower (PSH) and lithium-ion batteries.

Texzon Utilities can put this energy storage virtually anywhere and it has a meaningfully smaller surface footprint.

- Can provide both short- and long-duration energy storage
- Cheaper than PSH; order of magnitude cheaper than lithium-ion batteries for long-duration applications
- Ability to pair with existing wind and solar projects to create 24/7 baseload power
- Better economics than natural-gas peaking plants
- High flexibility and scalability to meet most energy storage needs

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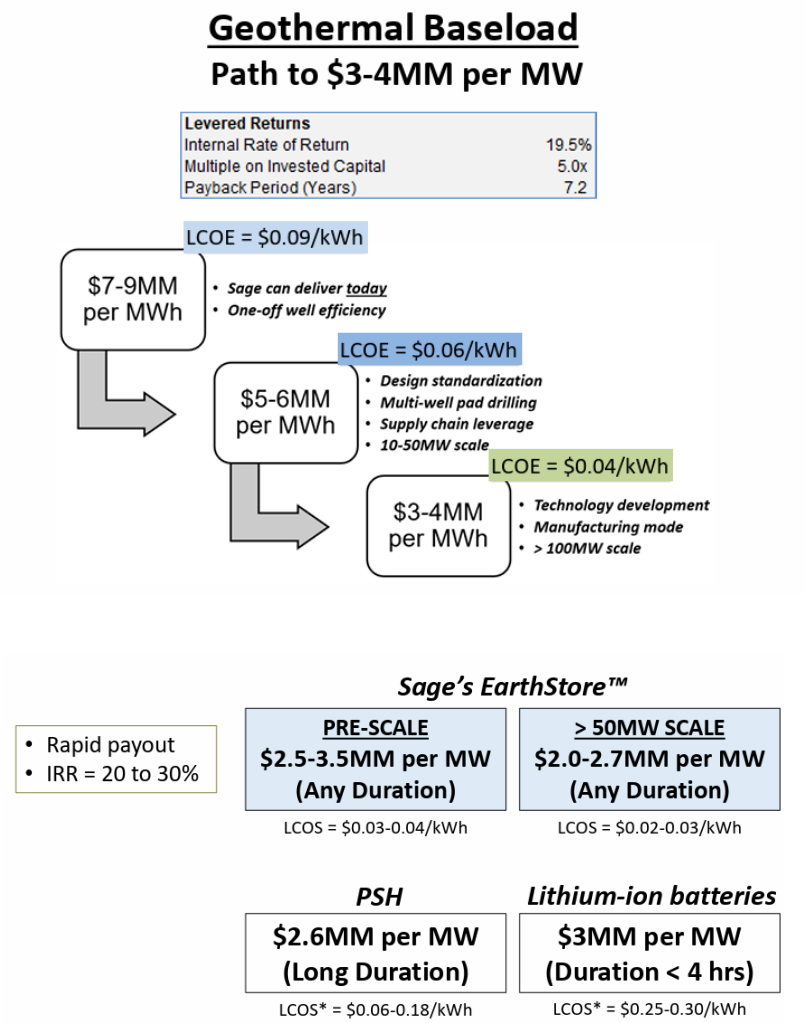
• Less expensive than PSH; order of magnitude cheaper than lithium-ion batteries for long-duration applications

• Ability to pair with existing wind and solar projects to create 24/7 baseload power

• Better economics than natural-gas peaking plants

• High flexibility and scalability to meet most energy storage needs



Courtesy of Sage Geosystems

Why Texzon Utilities for Geothermal?

Enhanced Geothermal Systems

(EGS), or human-made geothermal power, holds the potential to power more than 65 million American homes and businesses, and is the next frontier for renewable energy deployment. The DOE Geothermal Technologies Office (GTO) EGS program supports research, development, and demonstration projects that guide enhanced geothermal

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