

GAS TURBINE AUXILLARY SYSTEMS

Where Integrity and Performance Meet



ENERGYLINK
INTERNATIONAL


CONNECTING YOU TO A BETTER WAY

YOUR TRUSTED PARTNER

Being a Partner of Choice is the foundation EnergyLink International has been built upon. For today's leading organizations, we are a preferred partner for gas turbine auxiliary systems because we put you first. We know our valued clients' reputation is supported by our reputation. An earned reputation for delivering quality, performance and value. This is a trust that is never taken for granted and is why we continuously go above and beyond to deliver more – providing a dependable and seamless experience that is synonymous with the EnergyLink International name.

Our extensive line of Gas Turbine Auxiliary Systems include:

- Exhaust Silencing Systems
- Intake Silencing Systems
- Inlet Filter Houses
- Bypass Stack Systems
- Anti-Icing / Inlet Heating Systems
- Inlet Cooling Systems
- Auxiliary Skids
- Exhaust Diffusers / Plenums



“At EnergyLink, our main advantage is that our team has been there right from the beginning. Working closely with OEMs at the design phase, giving us an intimate knowledge of gas turbine systems so we can develop products that seamlessly and effectively work together to produce the best results.”

Harry Wong – President and CEO

A RESPECTED LEADER

EnergyLink International's intimate knowledge of gas turbines combined with leading-edge technology and intricate designs have made us an authority in gas turbine auxiliary systems. Our team has worked extensively with leading OEMs to develop systems that drive efficiencies, optimize performance and reduce air and noise emissions. The result is the highest caliber in gas turbine auxiliary systems that are specifically designed to operate under the most extreme environments, ensuring longevity throughout the system's life cycle.

- Our team has over 100 years' combined experience and have equipped auxiliary systems for +1200 gas turbines
- Our Anti-icing protection system prevents the formation of frost or ice accretion on the turbine inlet system
- Our Inlet Heating system promotes uniform mixing because of the large number of nozzles across the filter inlet at low velocities
- Design of prefabricated fully integrated skids with our single-source design and manufacturing capabilities
- Advanced systems designed for ultra-low pressure drop
- Bypass systems ensure minimal cycling during system trips to reduce wear and tear on the gas turbine
- Our diffusers are specifically designed to cope with strong gas turbine exhaust gas swirl characteristics, high gas velocities, and high temperatures
- Exhaust silencing system's acoustic emissions are reduced with proven baffle designs to withstand the harsh cycling environment
- Inlet filter houses provide critical turbine protection for longer turbine life
- Inlet cooling systems provide the most cost-effective way to improve gas turbine performance during peak demand and hotter weather conditions
- Intake silencing system's sound absorption (baffles) effortlessly provide silencing of high-low frequency noise caused by the gas turbine



“Value is a key component with the designs of any of our products. Reviewing every aspect so we can drive greater efficiencies and longevity – passing real value on to our customers.”

Denise LeClaire – Senior Director,
Business Development



“Trust drives our overall operations. Whether it is the trust OEMs have placed with our team members in developing advanced solutions or the trust our customers place in us to go further. It is that trust we never take for granted.”

Jeff Wirt – Director, Catalyst Systems

MARKET EXPERTISE

Today’s operations are facing added pressures to reduce air and noise emissions while remaining productive and efficient. For EnergyLink International, passion drives our environmental solutions to not only meet but exceed the most stringent local and international regulatory standards.

Our team of leading professionals have provided value-added solutions for a variety of clients, including:

- OEMs
- EPCs
- Power Plant Developers / Owners
- Utilities
- Institutions
- Governments

REGULATORY COMPLIANCE


One significant advantage EnergyLink International brings to the table is global regulatory expertise, developed by over several decades of our team’s world-leading noise and air emissions control expertise. As environmental stewards, our team of highly skilled professionals have significantly invested their time and resources into fully understanding the complexities around air and noise emissions which has further assisted in developing the most advanced solutions for overall operations. These solutions are specifically designed to not only meet but exceed the most stringent regulations. By working collaboratively right from the beginning, we can verify all environmental requirements are met during planning and design. This ensures quality systems that meet your specific needs while avoiding costly mistakes and oversights that can send you back to the drawing board.

EXHAUST SILENCING SYSTEMS

Agencies governing industrial noise compliance have developed increased regulations for power plant performance. As such, operations require advanced solutions that not only perform for today but also well into the future. EnergyLink International's leading-edge gas turbine exhaust systems meet the most stringent of noise regulations, high cyclic loading and severe thermal stresses for all sizes of GT's. With the delicate balance of performance, longevity, cost-effectiveness and turbine efficiency, our in-house acoustical engineers will do an in-depth analysis and provide the best solution to suit your bottom line. Sophisticated solutions that ensure maximum noise control while operating under extreme conditions so you are well-equipped to produce a safer and quieter environment for your overall operations and surrounding community neighbors.

EnergyLink Advantage

- Exhaust systems for simple cycle and combined cycle
- Our team has over 100 years' combined experience and have equipped auxiliary systems for +1200 gas turbines
- We can develop retrofit designs for existing exhaust systems with proven short-term payback periods for operators
- Acoustic emissions reduced due to better and more durable baffle design and an insulated hot gas path considering casing radiated noise
- Low fabrication cost
- Designs for any turbine model
- OEM approved designs
- Octave band guarantees
- Satisfy most stringent acoustic requirements including low frequency noise
- Design, build and install lined or unlined stacks or ducts
- Highly engineered and tested
- In-duct flow and noise measurements
- Exhaust system integrity analysis
- Low frequency and vibration analysis
- Scale model for flow simulation



“No matter the situation, EnergyLink International works closely with our valued customers to resolve issues through our demonstrated expertise and the delivery of advanced systems that produce optimum results.”

Aaron Atherton – Project Manager

INLET COOLING SYSTEMS

GT output depends on ambient air temperature—the higher the temperature, the lower the density, and the harder it is to move air mass through the GT. Inlet Cooling systems also enhance compressor performance and enable more fuel to be ignited without increasing the firing temperature. EnergyLink International's leading-edge designs ensure reliable quality performance and the highest standard in deliverables for your operations.

EnergyLink Advantage

- Most cost-effective way to improve gas turbine performance during peak demand and hotter weather conditions
- Lowered firing temperature when compressing fuel, reduces wear and tear during ignition
- Lower fabrication costs that deliver maximum results

INTAKE SILENCING SYSTEMS

EnergyLink International's intake silencing solutions are specifically designed to achieve optimal results. Through our intimate knowledge of GT systems and sophisticated technological advancements, we are proven leaders in balancing low pressure drop with noise mitigation, all while maintaining optimal performance levels and filtration of the overall system.

EnergyLink Advantage

- Sound absorption (baffles) effortlessly provide silencing of high-low frequency noise caused by the gas turbine
- High noise attenuation
- Tough built baffle system
- Guaranteed performance
- Minimal pressure loss
- In-house CFD & FEA tested




INLET FILTER HOUSES

EnergyLink International's static or pulse-jet air filtration systems are custom designed and engineered to provide maximum protection for your gas turbine. Our system protects the turbine from harmful environmental particulates that can damage the internal components and reduce turbine life. Our filter houses are optimized to provide this protection with low pressure drop which means better system performance.

EnergyLink Advantage

- Provides critical turbine protection for longer turbine life
- Designed with low pressure drop
- Easy integration of inlet cooling coils
- Simple and easy to maintain
- Prevents degradation
- Acts as a defense against small particles that can clog vital components of the turbine gas path
- Custom designed for each site's unique environment
- Can be bundled with inlet heating, chilling or anti-icing system for minimal system pressure drop
- Bundle with EnergyLink' proven intake silencer for a complete air intake system
- Innovative noise mitigation solutions
- Available for all makes and sizes of gas turbines
- Designs available for heavy particulate environments
- Hi-efficiency filter packs
- Access to removable filters that can be inspected and serviced in-situ
- Self-cleaning, low maintenance pulse system and particulate removal system
- Vertically or horizontally mounted filter designs



“We know the important role each of our systems has on the productivity and longevity of your overall operations. That is why we go above and beyond in the design, manufacturing and testing to ensure the best solutions possible.”

Ken Thompson –
Director, Manufacturing

AUXILIARY SKIDS

EnergyLink International has developed a niche when supplying integrated auxiliary process skid solutions to OEMs in the power generation and oil & gas industries. With an intimate knowledge of auxiliary equipment, our leading -edge designs and technical applications ensures the highest quality in deliverables to further enhance operations.

EnergyLink Advantage

- Efficient installation time with less field assembly since components are already incorporated on the structural base and require minimal assembly at the work site
- Cost effective – EnergyLink can design a prefabricated fully integrated skid with our single-source design and manufacturing capabilities
- Our team’s extensive portfolio of designing sophisticated auxiliary skids include:
 - Seal Air Skids
 - Refrigeration Skids
 - Ammonia Vaporization Skids
 - Tempering Air Skids

EXHAUST DIFFUSERS

Diffusers are located in one of the most volatile environments in a gas turbine power plant. The extreme heat, vibration and high velocity of the exhaust gases are the major factors to consider in how the diffuser should be designed and built to perform. EnergyLink International is a trusted supplier of diffusers that have a unique geometry to diffuse highly turbulent exhaust. Made with quality materials, our diffusers are built to last and outperform.

EnergyLink Advantage

- Increased pressure recovery for a wide range of operating conditions
- Low total cost for fabrication
- High-quality construction for reliable long-life
- Our Diffusers are specifically designed to cope with strong gas turbine exhaust gas swirl characteristics, high gas velocities, and high temperatures.
- Negligible pressure drop
- No reduction in engine efficiency
- Low cost operation & maintenance



“To be a recognized leader requires an investment in time and resources. Through that investment we have a distinct advantage in the design of our systems and creating solutions that continually position us at the forefront of technical advancements.”

Alan Monshaugen – Manager, Design Drafting



BYPASS STACK SYSTEMS

GT exhaust bypass stack systems with blanking plate designs, guillotines or with a fully actuated diverter damper provides varying designs of switching from combined to simple cycle, controlled ramp-up of the steam cycle, and gas turbine operation during steam turbine trip. Our advanced designs ensure reliable quality performance and the highest standard in deliverables for your operations.

EnergyLink Advantage

- Low cost options depending on frequency of switching
- Minimal cycling during system trips to reduce wear and tear on the gas turbine
- Reduces time to convert from simple to combined cycle
- Minimizes construction costs
- Permits multiple start-up scenarios
- Avoids purchasing costly replacement power in the event of a HRSG or steam turbine trip
- Designed for low pressure drop
- Meets EPA non-cyclonic flow requirements

“Our customers have come to expect greater value. That means looking at every aspect of our systems to ensure we deliver the highest quality at the best price possible.”

Ron Brown –
Manager, Procurement & Logistics



ANTI-ICING / INLET HEATING SYSTEMS

GT inlet heating or anti-icing systems using recovered heat from the turbine exhaust, providing even distribution of the heated air over the face of the inlet filter to prevent filter and ducting from icing with extremely low inlet and exhaust pressure drops as well as high turbine performance. Results show that our Anti-icing systems have a larger power output for gas turbine peak-performance compared to hot water heat exchangers.

EnergyLink International's inlet heating systems operate by transferring heat from hot exhaust gas to anti-icing ambient air which is injected at the entrance of the inlet system. The advantage of this heating system is that the temperature is raised sufficiently to prevent icing in the gas turbine intake system upstream of the filters.

EnergyLink Advantage

- Our Anti-icing protection system prevent the formation or ice accretion on the turbine inlet filters and ducting
- Our Inlet Heating system promotes uniform mixing because of the large number of nozzles and low velocity of mixing
- Negligible pressure drop
- No noticeable reduction in engine efficiency
- Low cost operation & maintenance
- No glycol spills and environmental damage/concerns
- Activation at any time during operation
- No additional silencing required
- Can be used for inlet heating applications
- 1" wg pressure drop reduction = 0.355% power output gain
- A 50 MW GT will yield an additional 177KW of power
- Over 4 months of use at \$0.10/KWh, revenue will increase \$50,000.00

DEMONSTRATED EXPERTISE

EnergyLink's team is a recognized leader with gas turbine technologies. The following is a comprehensive list of the extensive experience our members have with different types of gas turbines.

SIEMENS

- SGT5-9000HL
- SGT5-8000HL
- SGT5-8000H
- SGT6-9000HL
- SGT6-6000G (W501G)
- SGT5-4000F (V94.3A)
- SGT6-4000F (V84.3A)
- SGT6-8000H
- SGT6-5000F (W501F)
- SGT6-3000E (501D5A)
- SGT5-2000E (V94.2)
- SGT6-2000E (V84.2)
- SGT-900 (W251)
- SGT-800
- SGT-750
- SGT-700
- SGT-500 (ABB GT-35)
- SGT-600 (Alstom GT-10)
- SGT-400 (Cyclone)
- SGT-300 (Tempest)
- SGT-200 (Tornado)
- SGT-100 (Typhoon)
- KG2
- SGT-A65 (Industrial Trent 60)
- SGT-A45
- SGT-A35 (Industrial RB211)
- SGT-A05 (Industrial 501-K)
- DR50G
- DR61
- DR990
- RLM1600
- Avon (Coberra)
- SGT 1000 F
- SGT 3000 F
- V64.3A
- V84.2
- V84.3
- V84.3A
- V94.2
- V94.3A

GENERAL ELECTRIC

- Frame 9HA.01 / 9HA.02
- Frame 7HA.01 / 7HA.02 / 7HA.03
- Frame 9F.05
- Frame 9F.03 / 9F.04
- Frame 7F.05
- Frame 7F.04
- Frame 9E.03 / 9E.04
- Frame 7E.03
- GT13E2
- Frame 6F.03
- Frame 6F.01
- Frame 6B.03
- Frame 5
- GT 11N1
- GT 11 N2
- GT 13E2
- GT 24
- GT 26
- GT 40
- LMS 100
- LM 1500
- LM 1600
- LM 2500
- LM 6000
- 11 N2
- 13 E2
- ABB 11 N
- ABB 11D2
- ABB 11 N2
- ABB 13 D
- ABB 13 E1
- ABB 13 E2
- ABB GT 24
- Alstrom GT 11N2
- Alstrom GT 13E2
- Alstrom GT26
- Alstrom GT 8
- Alstrom GT13E2
- Alstrom GT26B
- F9FA
- Nuovo Pignone PGT 25
- Nuovo Pignone PGT 16

Nuovo Pignone PGT 10

- TCPL LM 500
- Trent 60

GM – ALLISON GAS TURBINE

OPERATIONS

- Allison 501

ORENDA

- OT 3
- OT F 390

CENTRAX

- 4 MW

DRESSER RAND

- DR 61
- DR 990

HITACHI

- 6541
- H25

MITSUBISHI HITACHI

POWER SYSTEMS

- M 501 F
- M 701F4
- M 701 F5
- M 701 F
- M 501 J

PRATT AND WHITNEY

- FT 4C– 1 DLF
- FT 8

ROLLS ROYCE

- 501K
- 501 KB5
- 501 KB7
- 501 KC5
- 501 KC7
- Avon
- Coberra 2000
- RB211
- Trent

SOLAR TURBINES

- Titan 250
- Titan 130
- Mars 100
- Mars 90
- Taurus 70
- Taurus 60
- Centaur 50
- Centaur 40
- Saturn 20
- Mars 100 S
- Mars T14000

WESTINGHOUSE

- 251
- 251 B
- 251 B12
- 252B
- 501 A
- 501 D
- 501 D5
- 501 D5A
- 501 DA
- 501 F
- 501 FD
- 501FD2
- 501FD3
- 501G
- 701D
- 701F
- W25
- Trent Enconopac

CONNECTING YOU TO A BETTER WAY

EnergyLink International is a leading supplier of specialized and balanced solutions for air and noise emissions control, building design and construction, acoustic control engineering services, mitigation and gas turbine auxiliary systems. Backed by more than 25 years of ingenuity and a strong commitment to customer excellence we have an unwavering focus for developing leading-edge technologies, environmental advancements, superior construction and quality manufacturing through our team of dedicated professionals who ensure our customers are well positioned for both today and the future.



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