

# NEWS



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Franz Bartels | President & CEO

## Our Cover Story: China Tackles Air Pollution

Reports on air pollution in metropolitan areas in China have become a recurring theme. According to World Bank estimates, China is home to 16 of the 20 most-polluted cities in the world. In September 2013, China’s State Council released an Action Plan for Air Pollution Prevention and Control (Action Plan) setting a road-map for the next five years. The objective is to improve air quality and reduce the air pollution episodes, especially in three key regions: Beijing-Tianjin-Hebei area, Yangtze River and Pearl River Delta.

### China’s Air Pollutant Index

Since August 2008, China’s State Environment Protection Agency (SEPA) is responsible for the daily measuring and publication of pollution levels in 86 of its major cities. The air quality is reported as “Air Pollutant Index” (API), based on the level of five atmospheric pollutants: sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>) and suspended particulates (PM10 and PM2.5). PM stands for particulate matters and is the term for solid or liquid particles found in the air. PM2.5/PM10 include particles with a diameter of 2.5 and 10 micrometers or less, respectively. They are likely responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract.



SEPA publishes the real-time air quality index on [www.aqicn.org/map/](http://www.aqicn.org/map/)

SEPA describes levels of air pollution and health impacts as shown in the spreadsheet bottom right of this page, thereby following the US Environmental Protection Agency graduation. The map above speaks for itself.

### Tackling Air Pollution with a New Action Plan

On September 12, 2013 China’s State Council released its Action Plan for Air Pollution Prevention and Control. The Plan proposes to improve the overall air quality across the nation through five years, reduce heavy pollution by a large margin and make obvious improvement of air quality in Beijing-Tianjin-Hebei Province, the Yangtze River Delta and the Pearl River Delta. To achieve the set objectives, the Action Plan defines ten measures:

1. Enhancement of overall treatment and reduction of discharges of multiple pollutants. Efforts will be made to rectify small coal-firing boilers and accelerate construction of desulphurization, denitration and dust removal projects in the key sectors. Furthermore, steps will be taken to eliminate old vehicles and promote public transport.
2. Promotion of industry upgrades and restructuring, keeping a firm grip on

3. Speed up the development of circular economy and foster the environmental industry.
4. Acceleration of energy restructuring – increase the supply of clean energy.
5. Enforcement of energy-saving and environmental protection in market entrance requirements.
6. Application of market-oriented instruments and environmental economic policies.

7. Improvement of the legal framework, implementation and enforcement.
8. Establishment of regional collaboration mechanisms and making an overall arrangement for regional environmental treatment.
9. Establishment of monitoring, alerting and emergency response systems for air pollution episodes.
10. Definition of responsibilities and engage with government, private sector and the public for environmental protection.

Air Pollution Level (API)	Health Implications
Good (0 – 50)	No health implications.
Moderate (51 – 100)	Slight irritations may occur.
Unhealthy (101 – 200)	Irritations may occur; individuals with breathing or heart problems should reduce outdoor exercise.
Very unhealthy (201 – 300)	Healthy people will be noticeably affected. People with breathing or heart problems will experience reduced endurance in activities. These individuals and elders should remain indoors and restrict activities.
Hazardous (300+)	Healthy people will experience reduced endurance in activities. There may be strong irritations and symptoms and may trigger other illnesses. Elders and the sick should remain indoors and avoid exercise. Healthy individuals should avoid outdoor activities.

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Along with the described measures, the Cabinet also announced subsidies and tax changes to support the implementation.

the roads, cleaner diesel fuel for vehicles provided and cleaning technologies at coal-burning power plants introduced.

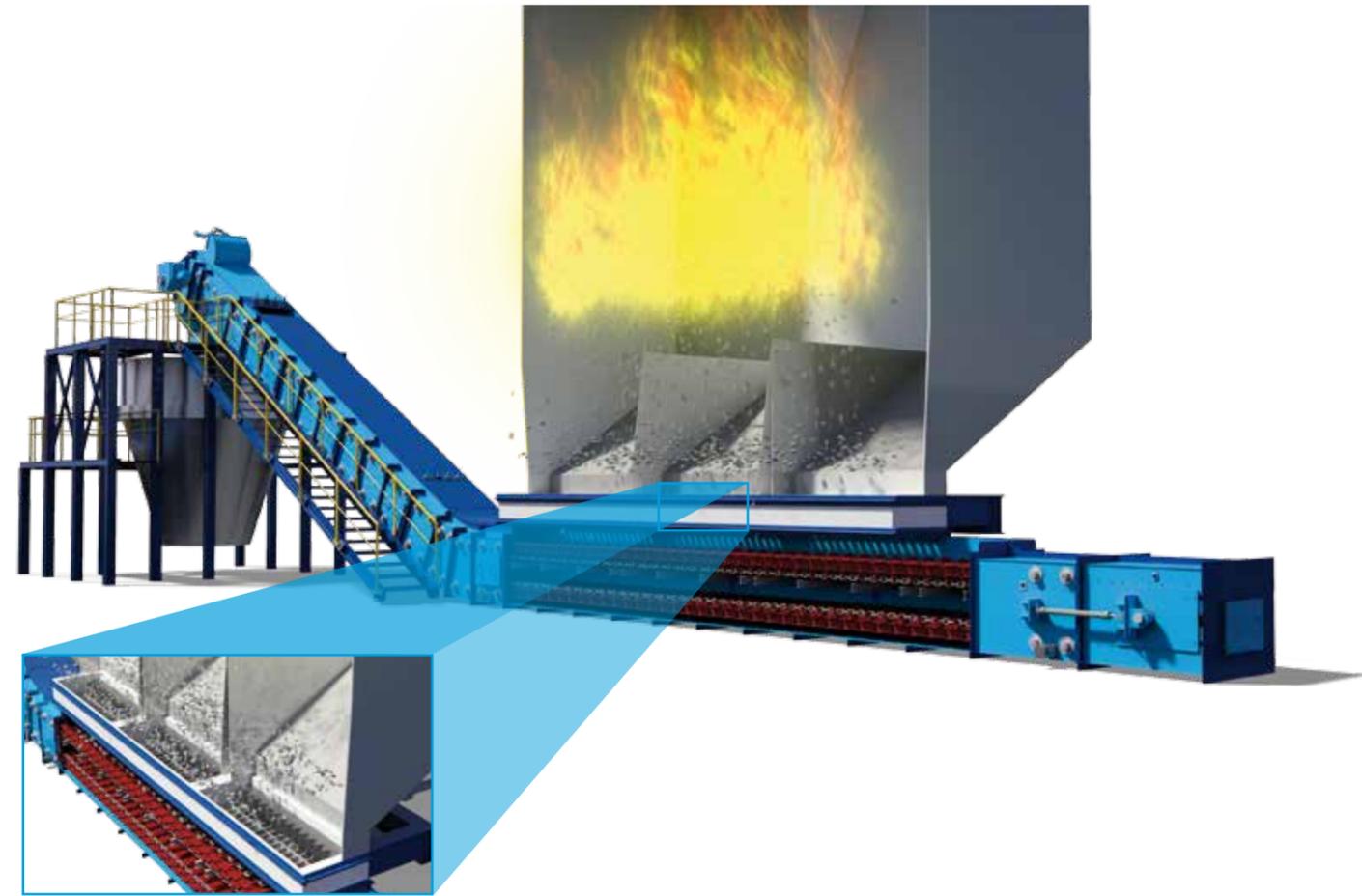
Beijing has unveiled a plan to invest US\$ 122.7 billion to battle pollution over the next three years, starting with a reduction in PM 2.5 emissions. Millions of old high-emission vehicles shall be removed from

With a comprehensive range of products for air pollution control, whether for new construction or retrofits, Clyde Bergemann can support these efforts excellently.

Numerous references in China attest to the knowledge and experience of the group in this area.

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## One of Europe's Most Efficient Coal-Fired Power Stations is Equipped with Clyde Bergemann's Bottom Ash Handling System

At the end of 2013, one of the most efficient coal-fired power plants in Europe went into regular long-term service. Clyde Bergemann was commissioned to build the bottom ash handling system, a state-of-the-art solution comprising a dry bottom ash conveyor, crusher, silo, and truck loading system.

When it comes to a secure, affordable energy supply, today's more efficient coal-fired power stations are indispensable. Since both energy consumption and supply – such as solar or wind power – vary, there must be power plants that can be counted upon. The key is to use the latest technology, which ensures that the power plants are environmentally friendly and operationally efficient.

Within this context, Clyde Bergemann GmbH from Wesel was commissioned with the further processing and temporary storage of such a new plant's bottom ash which is generated during the combustion process.

The associated power plant can supply around 1.6 million average households with electricity. Regardless of whether the wind blows or the sun shines.

### The dry bottom ash system is decided upon

When choosing the dry bottom ash conveying system, it was initially a question of deciding on one of the two conventional systems – wet or dry. With wet bottom ash conveying, the ash which is generated during combustion is collected in a water bath and then removed. Dry bottom ash systems convey the ash with the assistance of a special steel plate conveyor. Environmental friendliness and efficiency were ultimately the criteria which influenced the decision in favor of the dry bottom ash system. In addition to completely avoiding the use of water, the system uses less fuel in the combustion process due to the feedback of heat energy. This leads to improved boiler efficiency and the possibility of selling the ash produced.

In a strong competitive environment, Clyde Bergemann's technical solution was ultimately decided upon. The system basically consists of six parts: the combustion chamber hoppers with hydraulic driven slider jaw crushers, the DRYCON™ steel plate conveyor, the roller crushers, a chain trough conveyor, the bottom ash silo and the loading system.

### From the boiler to the DRYCON™

A heat-resistant fabric compensator which absorbs the axial and lateral expansion of the boiler is attached to the combustion chamber. The collection hoppers below it catch the hot bottom ash. Each leg of the dry bottom ash hopper is equipped with a grating and a hydraulic driven crusher combination at the outlet. Oversized particles lying on the grating automatically activate the hydraulic jaw crusher elements so that all the bottom ash falls through the grating. Jaw crushers are also used to stop bottom ash flow into the DRYCON™ if needed.

The inside of the hoppers, including the gratings, are also monitored by a camera system. The operator can therefore activate the crusher manually if necessary.

In addition, the jaw crusher slides can separate and seal off the boiler from the DRYCON™ steel plate conveyor. With a volume of 150 m<sup>3</sup>, the dry bottom ash hoppers can be used as short-term storage for up to eight continuous hours of boiler operation. An access door on the side of the dry bottom ash hopper permits free access to the combustion chamber for maintenance and repairs.

Due to its space-saving, horizontal arrangement, the isolation/jaw crusher combination is ideal not only for new constructions but also for conversions and modernizations with limited space at the boiler outlet. The system can be designed both as a simple slider variant with just a shutoff function or with an additional crusher.

### DRYCON™ – a system

### with many advantages

The real core of the system is the patented DRYCON™ steel plate conveyor. It is used to automatically convey and cool the bottom ash.

The DRYCON™ has a frequency-regulated electric drive. The transport chains are connected to the plate conveyor elements via connecting pins which are driven by an electric drive motor. The DRYCON™ technology makes it possible to easily transport the bottom ash to the silo with just one conveyor belt, over a distance of 51 m at an incline of 35°. Inclines of 45° have already been realised in other projects. Other commercially available systems have to resort to a second conveyor for inclines of 35°. That not only increases the cost of purchase but also has a negative effect on follow-on costs, for example for commissioning and spare part provision.

The DRYCON's™ conveying speed can be

seamlessly regulated from 0.01 to 0.1 m/s. The ideal conveying speed is determined by the quantity and temperature of the ash on the conveyor. There is practically no wear to the conveyor due to the lack of relative movement between the bottom ash and the DRYCON™ plate conveyor during transport.

The plate conveyor is designed so that it can still be operated under the difficult conditions which prevail – extreme temperatures and strongly fluctuating quantities of bottom ash. Due to impact beams below the plate conveyor and special damping mechanisms, the DRYCON™ unit copes with large quantities of slag suddenly landing from a height of 30 meters without suffering any lasting deformation.

A fine grain recirculation system integrated into the conveyor ensures that the fine material at the bottom of the DRYCON™ plate conveyor is conveyed back up to the top of the conveyor. This fine material is then



transferred to the head of the conveyor together with the freshly accumulated bottom ash. The tension of the two steel chains is kept constant by an automatic hydraulic tensioning device. The system is equipped with end switches and scales to monitor the take-up path during operation. Sensors for remote monitoring of the chain tension and the oil temperature are also provided.

Quantity-controlled cooling air which travels along the steel plate conveyor in the counter-flow direction due to the negative pressure present in the furnace is used to cool the hot bottom ash. The air aides in the post-combustion of the red-hot ash, the remaining unburned carbon is reduced and additional thermal energy is released.

## Coal Plant Upgrades to Clyde Bergemann SMART Controls™ for Boiler Efficiency

A Midwest coal plant in the U.S. has decided to switch to Clyde Bergemann Power Group Americas (CBAM) equipment as part of an upgrade of its sootblowers and control system.

The plant has a Hitachi boiler, approximately 7 years old, currently supplied with a CBPG competitor's boiler cleaning equipment. Plant personnel experienced several problems with the competitor's system and sought a solution with Clyde Bergemann to address the areas that were historically problematic.

CBAM's Boiler Efficiency Product Division worked closely with the customer to develop a plan to replace and upgrade the existing control system to a more effective

Air heated up by the hot ash goes into the combustion chamber and additional thermal energy to the steam generation process. Two roller crushers are fitted below the DRYCON™ conveyor head, one of which is in standby mode. They crush bottom ash to below 40 mm. The crushed ash is transported to the silo system arranged at right angles via a chain trough conveyor.

The DRYCON™ technology usually makes the use of a second conveyor unnecessary because the system can transport material directly to the silo with an incline of up to 45°, as already described. A second conveyor did have to be deployed in this case due to the placement of the silo system at 90° to the DRYCON's™ conveying direction.

boiler cleaning solution, SMART Controls™ with SMART Clean™.

SMART Controls™ is an open architecture, centralized management system designed to control existing cleaning devices. The SMART Controls™ platform offers greater operator control over boiler cleaning, providing immediate visual indication of sootblower status, and reducing maintenance costs by quickly identifying issues.

SMART Clean™ is designed to intelligently respond to the real-time heat transfer in the boiler and target areas that are fouling. This eliminates initiating unnecessary cleaning events in areas that are already clean, thereby reducing tube erosion. Conversely, the system targets areas that are

### Storage and loading

The subsequent bottom ash silo has a storage volume of 900 m<sup>3</sup>. This capacity is sufficient for around 12 days at an ash production rate of approximately 3 t/h. The silo unloading system, consisting of two redundantly designed discharge conveyors, weighing equipment, ash-moistening screw conveyors and truck loading equipment, is located below the silo. The ash is moistened under controlled conditions and loaded into open trucks without producing dust at a loading rate of approximately 40 t/h.

The system, which was originally designed to convey 16 t/h, now conveys up to 25 tons of bottom ash slag per hour. In 2014 the plant is expected to operate around 7,000 hours at full capacity. For the Clyde Bergemann DRYCON™ system, this means conveyance of up to 175,000 tons of bottom ash annually.

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fouled, by managing when to clean, where to clean, and how intensely to clean. This system provides cost savings and improved reliability by allowing plants to burn a variety of fuels, improves boiler efficiency, reduces steam consumption, and eliminates outages due to fouling issues.

Clyde Bergemann's solution will resolve control system performance and reliability issues the plant is experiencing.

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## Clyde Bergemann Presents on Third Annual Asian Sub-Bituminous Coal (SBC) Users' Group Conference

In October 2013 electric power professionals from across Asia gathered at one of the region's premier events in Malaysia to discuss the safe, efficient and economic use of sub-bituminous coals by electric power generating plants. More than 100 individuals from plants burning sub-bituminous coals as well as members from coal suppliers and companies supplying equipment or services for these industries attended the event.

Conference sessions included – amongst others – discussions involving generation technology selection, environmental and emission controls and combustion system optimization. About the latter, Manfred Frach, Sales Director Clyde Bergemann Europe, gave an impressive presentation entitled "Improving efficiency and availability of fossil-fired power plants by continuous process monitoring and optimization."

### Combustion System Optimization: Typical Challenges and Approach

Frach started by describing the well-known challenges for operators of coal-fired power plants, like the impact on fouling by varying fuel quality and mix, load variability or different mill configurations. The audience of industry professionals agreed with his stated results of a global, inflexible and fixed cleaning strategy. This is, on the one hand, reduced heat transfer, clinker growth, increase of boiler off gas temperature, reduction of steam production and steam temperature, overload of intercoolers and a reduction of boiler efficiency in case of too little cleaning. Conversely, if cleaned too frequently, there may be consequences of increased erosion risk and sootblowing costs, avoidable steam consumption and wear on the soot blowing system.

Based on a practical example he then presented Clyde Bergemann's solution for intelligent boiler cleaning, called "SMART Clean™." With the help of SMART Clean™, cleaning performance can be adjusted to

the current deposit situation, delivering automatic, demand-driven and real-time optimized and integrated cleaning functionality. A combined application of diagnostics and analysis is the enabler. The diagnostics come from various sensor systems, which continuously and directly measure important process parameters. These data are passed on to the analysis center where various software modules evaluate and interpret the data. Once the analysis is complete, the results are transformed into the necessary cleaning actions incorporating three key factors:

WHERE in the boiler is the deposit located?  
HOW intensive has the cleaning to be?  
WHEN is the best point in time to initiate cleaning?

Initially seen as recommendations, these are passed to the decision level, which has the authority to approve them as cleaning actions. By doing this final check and selection respectively, the preservation of boiler efficiency and availability as well as other factors relevant to the process are taken into account. As this is a closed loop system, the sensors also report back how successful the cleaning has been.



### Traceable Success in a 900 MW Power Plant

The presented practical example was a 900MW lignite-fired steam generator. Clyde Bergemann had the task to optimize the boiler process of the plant, one of the most modern plants in the world with 43% efficiency.

In the furnace area, SMART Clean™ was used to recognize the accumulation of deposits on the evaporator surfaces and on the heat exchanger bundles and then execute targeted boiler cleaning based on this information.

In the convection section, boiler cleaning was optimized using a software module for thermodynamic modeling, "SMART Clean TDM." Mass and heat flows are calculated online across the entire steam generation process. By calculating the effectiveness of the individual heating surfaces, reduced heat absorption can be recognized and the demand-oriented cleaning initiated.

The results are measurable: the superheater spray rates were reduced by 7.8 kg/s, the sootblowing steam in the convective area by 1.2 kg/s and the flue gas temperature after the economizer by 3.1 °C.

The presentation was received with great interest and subsequently discussed in depth. It became clear that combustion system optimization is a topic affecting operators globally.

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## Paper Mill Sees Quick Return on Investment with Clyde Bergemann Boiler Technology

One of the world's leading pulp and paper manufacturers contracted with Clyde Bergemann Power Group Americas for a key boiler efficiency project in 2013. This customer has more than 10 recovery boilers at its facilities around the globe, including a pulp mill in Europe that has been producing paper for more than 130 years.

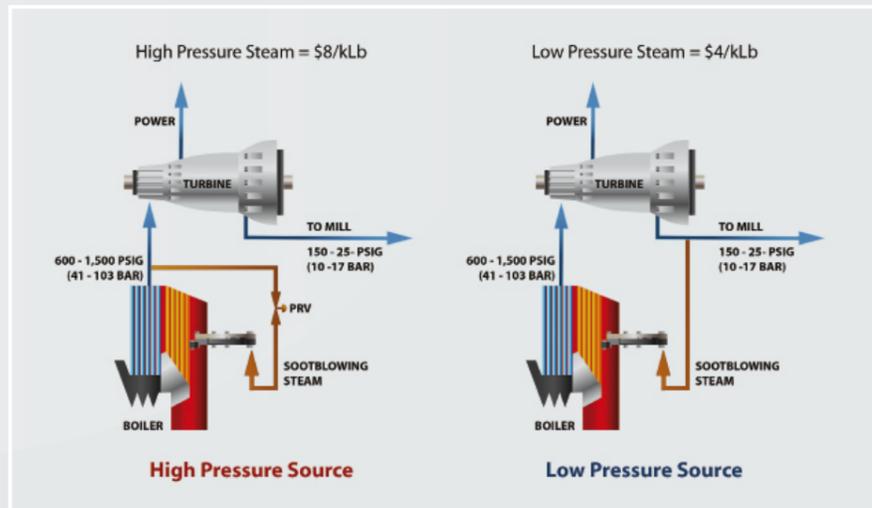
The company turned to Clyde Bergemann's pulp and paper boiler efficiency competency center in Atlanta, Georgia, USA (CBAM) to supply its SMART Clean™ technology for a steam- and cost-saving conversion project. With the implementation of Clyde Bergemann's proven SMART Clean™ system, the first phase of the project was a success.

SMART Clean™ is designed to intelligently respond to the real-time heat transfer in the boiler and target areas that are fouling while simultaneously adjusting the sootblower cleaning flow based on how tenacious the deposit is. The SMART Clean™ system provides costs savings and improved reliability by allowing plants to consume less high-value steam while improving boiler efficiency and eliminating outages due to fouling issues. Performance test results at the paper mill proved that the project steam savings

goal was exceeded by 70% resulting in 2.4 t/hr reduction in steam consumption (performance guarantee was 1.86 t/hr). There were several "firsts" in this project. Assisted by Clyde Bergemann Poland, this was the CBAM Boiler Efficiency Product Division's first European turnkey project for a SMART Clean™ system including all hardware, flow meter, and valve installations. This is also the first cleaning optimization project that is to be followed by a low pressure steam conversion.

CBPG delivered outstanding results that accelerated the customer's estimated project payback from 12 months to 7 months. This demonstrated success highlights the impressive potential for additional cost-saving boiler efficiency opportunities at this plant and other pulp and paper mills globally.

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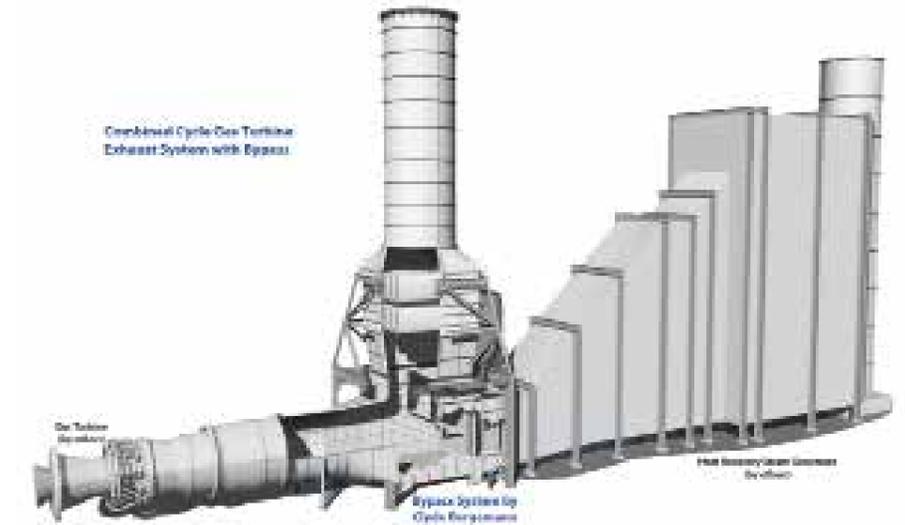
## Boosting Gas-Fired Plant Efficiency by Repowering

How can 50 percent more energy be produced with no increase in the amount of fuel burned? This can be achieved when a simple-cycle gas-fired power plant is converted to combined-cycle operation.

Conversion to combined-cycle gas turbine (CCGT) power generation – also referred to as repowering – involves the extraction of energy contained in combustion exhaust that normally would be lost to the atmosphere.

Waste heat is captured and processed to generate additional electricity from the resulting mechanical energy. Overall plant efficiency can dramatically increase through the use of combined-cycle technology: a CCGT can achieve thermal efficiency of around 60%, as compared with a simple-cycle system which typically is limited to about 40% thermal efficiency.

In a typical repowering project, the existing simple-cycle gas turbine exhaust stack is replaced with a Clyde Bergemann GT Exhaust Bypass Diverter System. This consists primarily of an airflow diffuser, diverter damper, guillotine damper, sound attenuating equip-



ment, and exhaust stack, as well as expansion joints and related ancillary components. The bypass system, installed upstream of a new Heat Recovery Steam Generator (HRSG), still allows for simple-cycle operation and continued electricity generation in the event of a steam turbine / generator failure. The plant benefits from enhanced

operational flexibility in addition to the increased cost-saving efficiency when operating in combined-cycle mode.

For each repowering assignment, Clyde Bergemann custom engineers and fabricates a quality solution that correctly addresses the project's specific requirements.

Furthermore, being mindful of the economic considerations of the customer's business, Clyde Bergemann executes the bypass system installation in a way that is strategically planned to minimize plant downtime.

Clyde Bergemann has been repowering plants successfully around the world since 2000, as well as supplying new combined-cycle exhaust systems of all sizes for decades, commonly with repeat customers. This includes over 35,000 MW of gas-fired power installed globally, from as few as a single unit up to 40 units, including the world's largest combined-cycle conversion project.

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## Clyde Bergemann Power Group Americas Receives Order For New Electrostatic Precipitator for Recovery Boiler in Nova Scotia, Canada

Clyde Bergemann Power Group Americas continues to advance its position as the global leader in innovative particulate matter control solutions for Power, Industrial and Pulp & Paper markets with a new contract for Air Pollution Control equipment supplied on a turnkey basis to the Northern Pulp paper mill in Nova Scotia Canada.

The scope of the project includes engineering, design, supply and installation of a black liquor mixing system and a new recovery ESP system including ESP, ductwork, foundation and structural steel.

The system for this project includes Clyde Bergemann's proven technology and design, including Rigitrode discharge electrodes, Modulok collecting plates and switch mode power supplies.

The electrode is fabricated from tubing with uniformly spaced corona studs welded along the length of the electrode to optimize the voltage/current relationship

required for each application. Assembled into the precipitator as a rigid structural matrix, the system has sufficient stiffness to resist displacement due to electrical forces and lateral forces resulting from over-full hoppers.

Rigitrode discharge electrodes have successfully demonstrated excellent performance characteristics over a wide variety of applications and performance requirements.

The Modulok collecting plate was specifically developed to achieve exact plate alignment and structural integrity necessary for today's challenging applications, yet still provide excellent rapping response for dislodging the collected particulate. Extensive testing and broad application have demonstrated its superior ability to transmit rapping energy and its cleanability under all types of service and plate heights. The plate is comprised of a series of roll formed modules with interlocking edges that snap se-

curely together for a strong mechanical bond. The design requires no field assembly and prevents deformation and oil-canning which occurs when individual panels are welded together along their vertical height.

Design work for the project has already begun with implementation scheduled to start in March 2015. The project will add to CBAM's installation base for recovery boiler Electrostatic Precipitators (ESP) which is the largest in the world.

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## UK's Largest Power Station Owners Select Clyde Bergemann Biomass Ash Segregation System



Clyde Bergemann Doncaster (CBD), based in the UK, has won a Biomass Ash Segregation System Contract with Drax Power Limited, the owner and operator of Drax Power Station. The station is the UK's largest power station, responsible for meeting some 7 - 8% of the UK's electricity needs.

Drax is executing plans to transform the business from a coal-fired to a predominantly biomass-fuelled renewable power generator, and is set to become one of the single largest renewable power plants in Europe. The power station has historically burned up to 10 Mio. t (estimate) of coal per annum, but since 2003 has been burning sustainable biomass in place of some of its coal.

Over the years Drax has progressively increased the amount of biomass burned, culminating last year in the full conversion

of one of its generating units to burn solely biomass. This is the first of three that Drax plans to convert.

As part of the requirements for this conversion the fly ash produced when burning biomass needs to be handled differently, due to its distinct characteristics and chemistry. Drax also wanted to separate the biomass ash from the coal ash for commercial reasons.

Clyde Bergemann's turnkey solution proposed the installation of a new, separate biomass ash storage silo in the vicinity of the current storage bunkers to receive and store ash from existing pneumatic ash systems.

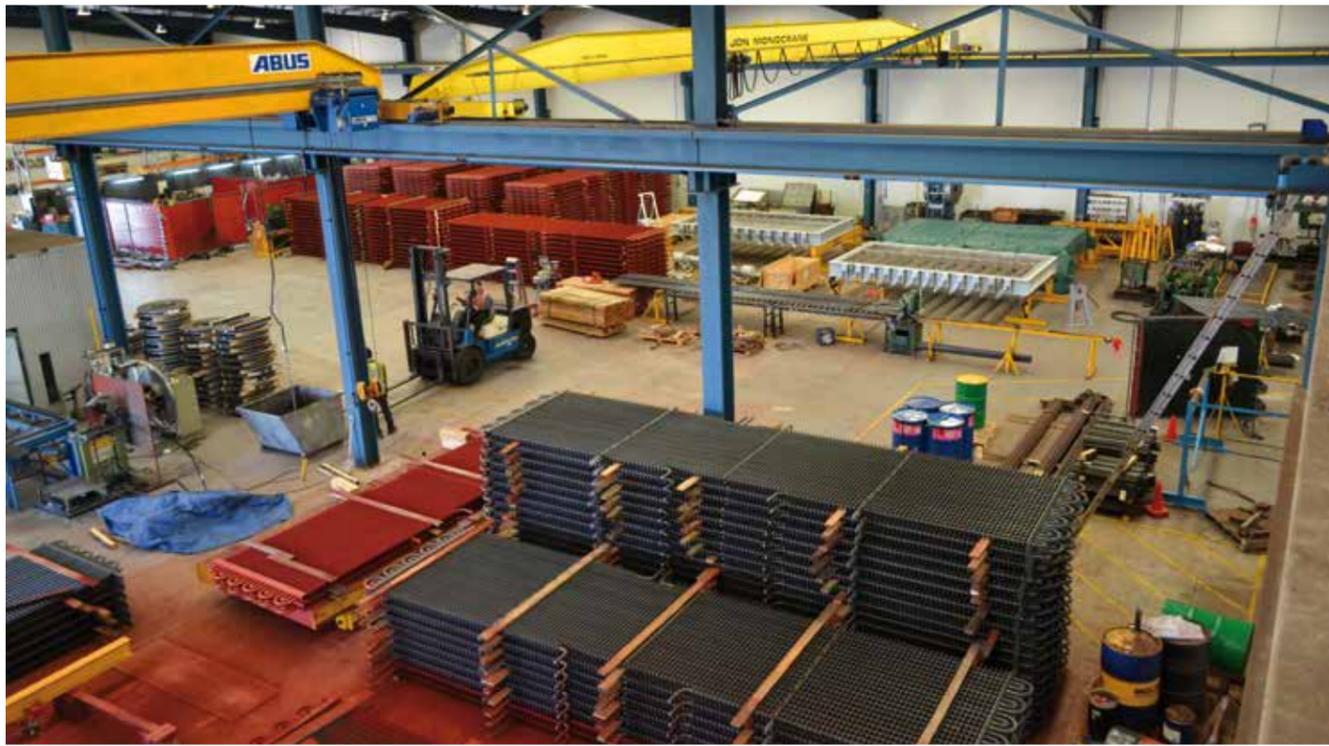
The new ash segregation system utilizes a dry, dustless unloading facility to transfer materials from the silo to tankers while also retaining the capability to discharge

onto the overland conveyor system Drax currently uses to transfer material to their present disposal area.

The first unit has been running successfully on sustainable biomass since the beginning of April 2013. Each converted unit will provide enough electricity for approximately one million homes, Drax said.

"Winning this materials handling contract is excellent news; we are looking forward to building a long standing relationship with Drax and are pleased to be a part of a project that is so important to not only the U.K.'s energy security, but to Drax's ambitious plans for one of Europe's biggest renewable generators," said Steve Cragg, Managing Director Clyde Bergemann Materials Handling Ltd.

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◆ In 52 years of operating within Australia, this economizer order was the highest value order in the history of Clyde Bergemann Australia.

## Clyde Bergemann Australia Secures Largest Economizer Order in its History

Clyde Bergemann Australia (CBA) secured an order in December 2013 for upper bank and lower bank economizers from Delta Electricity for its Vales Point Power Station Units 5 and 6. The black coal-fired power station is located 140 km north of Sydney, Australia, and is one of the largest power stations in the country.

Delta Electricity operates two 660 MW black coal-fired power stations. Together the units generate more than 1,000,000 MWh of power to the national electricity grid annually and are a key strategic generator in the state of New South Wales. In 52 years of operating within Australia, this economizer order was the highest value order in the history of Clyde Bergemann Australia.

In steam boiler technology economizers are used for the preheating of feed water. The flue gas flows through the economizer at relatively low temperatures after it has lost its heat in upstream heating surfaces. The economizer uses the residual heat in the exhaust gases, which can not be utilized by the boiler any more.

The economizer inside the boiler is divided into two pieces and consists of an upper bank plain tube economizer and a steel 'H'® extended surface lower bank economizer. The Steel 'H'® economizer has a unique combination of features providing a compact, low cost design. Steel 'H'® fins are resistance welded with precise indexing over the entire length of the tube surface to ensure reliable heat transfer. CBA has designed and supplied steel 'H'® extended surface finned tube successfully for more than 50 years.

Manufacture has commenced in Sydney in May 2014 and continue until early 2016. The critical production aspects like tube bending, welding of fins and final construction of elements will all be carried out in the CBA workshops in Sydney.

The total economizer weight when complete will be an impressive 1,070,270 kg per boiler. Total thermal duty of each economizer will be 180 MW heat to water.

CBA's selection was a combination of a variety of factors including a 50 year history

working with the station, local facilities and highly skilled technical, production and quality capabilities. The production timing of the economizer is on a critical path and the first of two units to be delivered later in 2014 is the major installation item identified in the outage.

CBA General Manager Sales & Marketing, Gerard Grant commented, "By utilizing two factories close to each other in Sydney, CBA could guarantee delivery of large, complex economizers within a very limited time frame. CBA has demonstrated that despite a strong local currency there remains a place for a highly skilled manufacturer of energy recovery products in Australia. This success has ensured potential customers in markets like Japan can see for themselves the high quality output from CBA's factory Sydney that can benefit them."

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## Clyde Bergemann India Wins Best Supplier Award for Prompt Service from a Renowned Sugar Mill in India

Clyde Bergemann India (CBI) was recently awarded "Best Supplier" by Nirani Sugars Limited, one of the prominent sugar mills in southern India.

Nirani Sugars operates a 15,000 TCD (tons of crushing per day) capacity sugar mill with a 67 MW captive power generation plant. In 2009, CBI got the first Electrostatic Precipitator (ESP) order from Nirani Sugars for installing an ESP on an 85 TPH travelling grate refurbished boiler firing bagasse and

coal, which was commissioned in 2010. The ESP was designed for outlet emission of 100 mg/nm<sup>3</sup> at an efficiency rate of 98.33%.

While this ESP order was under execution, CBI won another order from Nirani to supply an ESP for a new 120 TPH travelling grate boiler, with design emission of 100 mg/nm<sup>3</sup>, which was commissioned in 2011. Both the ESPs are rendering highly satisfactory performance since commissioning with minimum maintenance.



With this award, Nirani recognized CBI for providing prompt and quality service. The award also is a testimony of the customer's full satisfaction with the performance of the robust ESPs supplied by CBI.

Since 2009, CBI has made significant inroads into the ESP market and in a short span of five years, CBI has secured 49 contracts comprising 54 ESP units.

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## SMART Collaboration Initiative Encourages Global Success

Always looking to the future, Clyde Bergemann Power Group offers a Young Talents Program to promising young professionals within the company to further expand their views and understanding of the business early in their careers through project-based initiatives.

In 2012, a Young Talents team lead by Tim Martin (Clyde Bergemann Power Group Americas) and Sumit Gupta (Clyde Bergemann India), developed a project focusing on the opportunities that they felt the group would unlock if collaboration between CBPG business units and offices across 40 countries were more directly pursued.

The team's proposal was selected for global implementation as the SMART Collaboration (SMARTCo) initiative.

The fundamental driver behind SMARTCo is CBPG's strategy to tap into an enormous reserve of employee creativity and inspiration, and help the company capitalize on shared knowledge. By doing this, not only will those individuals who have the knowledge be able to develop themselves and their own suc-

cesses more strongly, but the organization as a whole will also benefit from the ability to develop and deliver top quality products and superior customer service.

Since SMARTCo's inception several projects have taken off worldwide. A few to note include:

- **Global Solutions for Aftermarket Services:** The goal is to share best practices among CBPG offices and offer customers worldwide best possible solutions.
- **Language Trainings:** As a global company we speak many different languages and may experience difficulty communicating with other sister companies and coworkers. This project seeks to reduce those language barriers through selection of a group wide language tool to promote collaboration and increase communication among all CBPG employees, thereby making it easier to do business with customers around the globe.

- **Global Reference List** – By giving colleagues around the world access to valuable information about successful installations, they can share this information with their customers.

The list of projects goes on to include several areas of the business and ideas promoting and fostering collaboration among employees. CBPG also introduced an IBM Connections Web 2.0 social software application "teamUP" to employees, encouraging them to be more innovative and helping them execute more quickly by using dynamic networks of co-workers, partners and customers. TeamUP provides social networking tools for CBPG to use to bring together people through online tools.

SMARTCo allows CBPG to perform complex collaborative tasks, and maximize the effectiveness of large, diverse teams. It enables CBPG to become a more agile and innovative organization with many benefits that will directly increase sales, efficiency, brand equity, market capitalization, customer satisfaction, and innovation, while also making CBPG ready for new challenges and opportunities.



**The SMARTCo core team:** (from left to right) **Daniel Young** (Engineering Manager, CB Atlanta, USA), **Caroline van der Linde** (Manager Treasury & Controlling, CBPG Germany), **Georgia Roy** (Communications Specialist, CB Atlanta, USA), **Bernd Musmann** (Sales Manager, CB Wesel, Germany), **Peipei Zhang** (Human Resource Manager, SCB, Shanghai China), **Dominick Garton** (Managing Director, CB Atlanta, USA), **Sumit Gupta** (Assistant General Manager – New Business, CBI, India), **Tim Martin** (Director of Product Management and Project Execution, CB Atlanta, USA) **Not pictured:** **Yu Jiang** (Assistant Managing Director, SCB, Shanghai China)

**i** Georgia Roy, CBAT  
georgia.roy@us.cbpg.com



## International Sales Conference of the Clyde Bergemann Power Group

Clyde Bergemann Power Group (CBPG) held its annual Sales Conference in Wesel, Germany in November 2013.

Whether it was about experience exchange, knowledge transfer or valuable networking, more than 120 key people among CBPG's sales, service and marketing teams from 28 countries around the world spent two busy days together.

Guest speaker Tom Wess, retired Director of Engineering at Seminole Electric Cooperative, Inc., Florida, USA, gave a lively presentation about the project "Bottom and Economiser Ash System Replacement." Clyde Bergemann Power Group Americas successfully converted the coal-fired 2 x 715 MW Seminole Generating Station in Palatka, Florida from a wet to a completely dry bottom ash system in 2012. Based on detailed

figures and analyzes, he drew an impressive picture of the economic and environmental benefits of the new system.

**i** Claudia Denniger, CBPG  
claudia.denniger@cbpg.com

## Clyde Bergemann Representatives Hold Annual National Sales Meeting

Clyde Bergemann Power Group Americas (CBAM) recently held their annual National Sales Meeting in Atlanta, Georgia.

More than 100 key people from CBAM's sales and marketing team and manufacturers' sales representatives from North and

South America met to share new market and product developments and customer satisfaction initiatives, and to plan for the fiscal year. The first morning, Franz Bartels, CBPG President & CEO, updated the audience on global market conditions and growth of the company. Greg Golub, CBAM President, shared updates on the Jesup, GA manufacturing facility, project news, and the Americas market conditions.



Awards were presented to several individuals for their outstanding sales achievements. The two day conference created an excellent platform for networking, as well as sharing knowledge and expertise throughout CBAM's business units and sales representatives.

**i** Stacy Gentry, CBAM  
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## Events Diary

DATE	NAME OF EVENT	COUNTRY, LOCATION
<b>June</b>		
June 3 – 5	POWER-GEN Europe	Germany, Cologne
<b>July</b>		
July 14 – 15	Reinhold APC Conference & Expo	USA, Louisville, KY
<b>August</b>		
Aug. 4 – 7	CIBO Industrial Emissions Control Conference	USA, Portland, ME
<b>September</b>		
Sep. 17 – 19	VGB Congress "Power Plants"	Germany, Hamburg
<b>October</b>		
Oct. 6 – 8	BLRBAC	USA, Atlanta, GA
Oct. 14 – 15	Kraftwerkstechnisches Kolloquium	Germany, Dresden
<b>December</b>		
Dec. 9 – 11	POWER-GEN International	USA, Orlando, FL

## Personnel

### Ralph Ludwig

Ralph Ludwig took over the position as Group Vice President & Chief Operating Officer and is responsible for the Clyde Bergemann Power Group Europe (CBEU) division. He has been with Clyde Bergemann since 1998, most recently serving in various management positions in sales and general management.



### Manfred Frach

Manfred Frach has been appointed as Vice President Sales & Marketing for CBEU. He joined Clyde Bergemann in 1992 and has held during this time various positions in engineering, project management and sales. Since 2010 he was Sales Director of Clyde Bergemann GmbH in Wesel.



### Zhang Zhengbin

Zhang Zhengbin has been appointed as Deputy General Manager and Sales Director of Clyde Bergemann Shanghai with effect from February 2014. He has been with the company since 1996 and has successfully held different positions in the Design and Sales Department.

