

**ONCE THROUGH STEAM GENERATORS
AND EOR HRSGs**



**Global Manufacturing
World-Class Ingenuity SINCE 1851**

160 Years of Excellence Serving the Oil and Gas Industry

NOT ONLY OTSGs:

Struthers Wells has a long history in the successful design and fabrication of heat recovery equipment for the extraction of heat from high temperature process or flue gas streams.

We have proudly supplied heat recovery equipment to many of the world's leading Chemical, Petrochemical, Petroleum and Power producers by taking advantage of the hot gases generated by process reactions during production of many chemicals and processes such as:

- *Flue Gas Cooling*
- *Sulfuric Acid*
- *Reactor Effluent*
- *Nitric Acid*
- *Incineration*
- *Ammonia*
- *Sulfur Recovery*
- *Fluid Catalytic*
- *Methanol*
- *Hydrogen*



**Struthers
Wells**
A DIVISION OF **TEI**

RECOVERING MORE OIL

Enhanced oil recovery applications using steam injection in heavy oil fields and oilsands SAGD projects impose very demanding and stringent operating conditions for Steam Generators. Our systems are based on Struthers Wells technology which was developed based on extensive field experience and laboratory-proven engineering data. The following are highlights of our EOR systems design features:

- Handles zero-hardness feedwater with high total dissolved solid contents.
- Continues operating reliably, primarily unattended, or with a minimum supervision.
- Responds to rapid and significant changes in load demand as dictated by the injection well while continues to produce consistent steam quality.
- Operates through a wide range of steam pressures at a high thermal efficiency rate.
- Easy maintenance.

SERVICE & SUPPORT

To provide start-up, commissioning, and service support for its Steam Generators, Struthers Wells is working through alliance partnerships with oil field service companies who have gained extensive experience in operation, service, and maintenance of Steam Generators in large EOR oil fields such as Bakersfield California, Venezuela and the Canadian Oilsands.

CO-GEN HRSG's for EOR

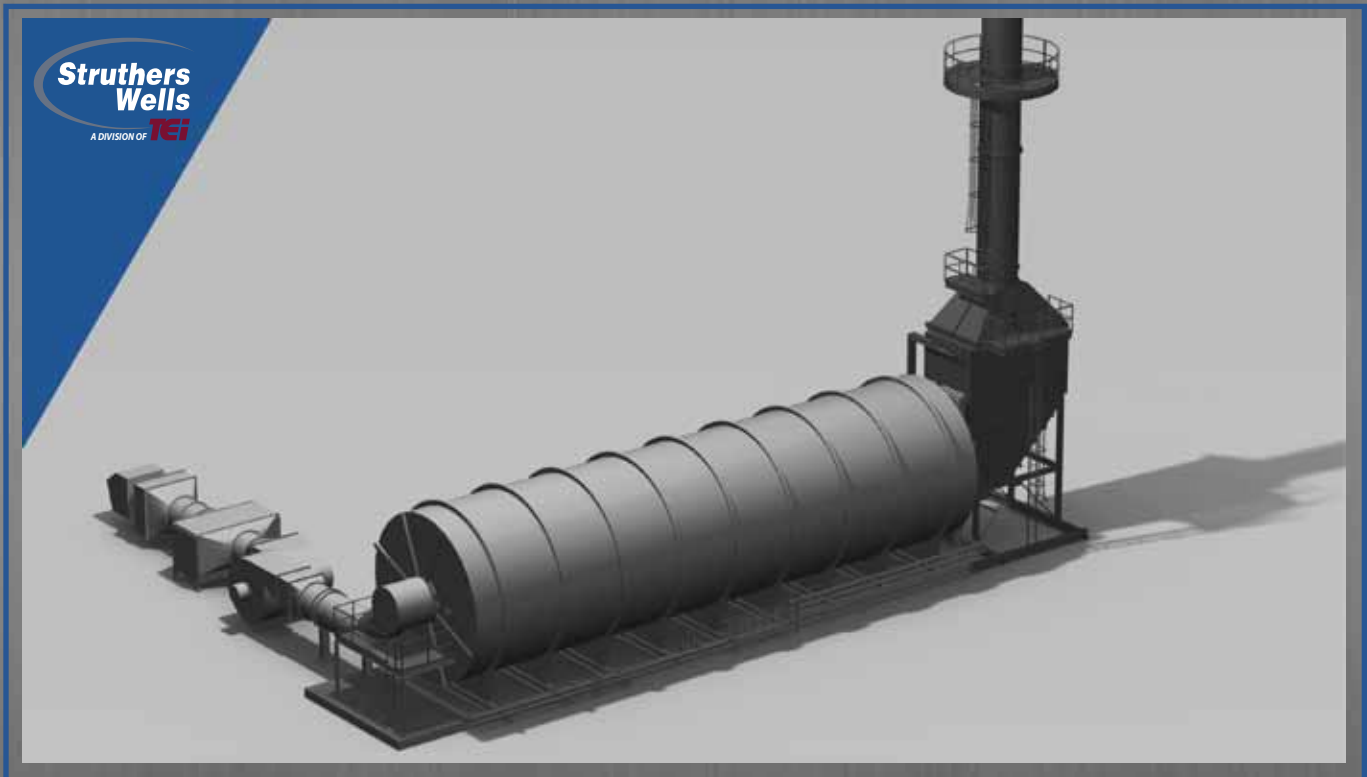
For large steam injection projects with requirements for Co-Generation HRSGs, Struthers Wells can in cooperation with its sister company Vogt Power International Inc. design and supply Co-Gen Enhanced Oil Recovery HRSG units. This technology was used in building the first large (100 ton/hr) EOR Co-Gen HRSG to include an SCR system for NOx reduction.

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LARGE MODULAR SYSTEMS

Struthers Wells large modular OTSG's have been developed to meet the needs of the in-situ Oil Fields that can accommodate these larger units both in size and capacity. Radiant, Convection and Exhaust Sections come in complete modules. Fuel Gas Train, Inlet Feedwater, Outlet Steam Sampling Station and Associated valves and instruments come skid mounted ready to set in place. Final assembly time on site is minimized and can be easily performed by a qualified field piping assembler. Struthers Wells can provide the complete installation services or just the supervisory services to get the unit installed and up and running in the least amount of time.



BUILDING ON LEGACY

Struthers Wells experienced Engineers continue to build upon the legacy of Struthers Wells technology and know-how to meet the demands of today's global heavy EOR, and in-situ Steam Assisted Gravity Drainage (SAGD) projects.

SIZES

Struthers Wells offers standard and custom designed Steam Generators ranging in size from 25 to 300+ MMBtu/hr, to meet the high production demands and operating requirements of any heavy oil field recovery project.

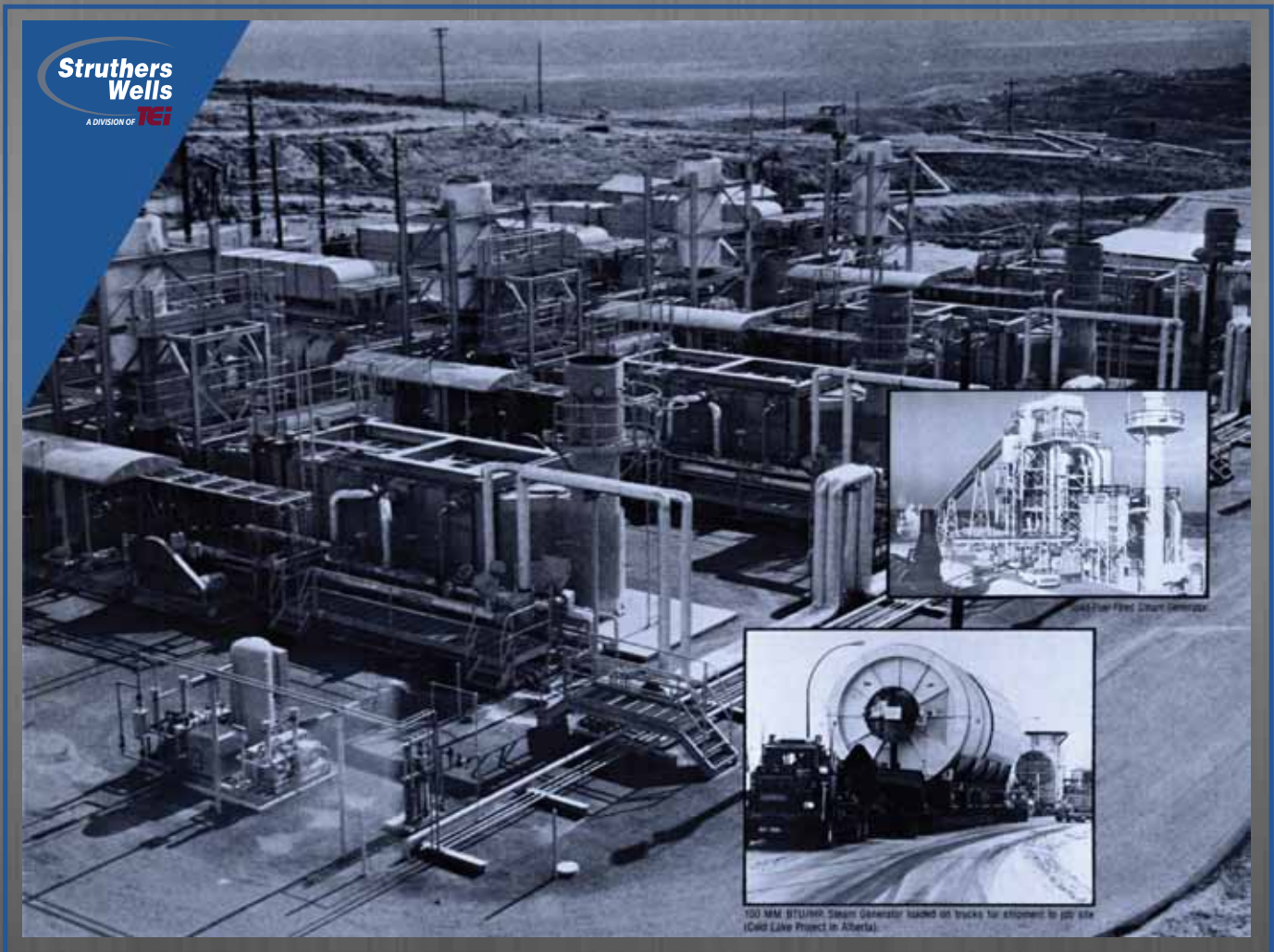


PORTABLE SYSTEMS

Our trailer-mounted Steam Generator Systems are fully self-contained and can easily be moved from one field to another. These units range in size from 5 to 40 MMBtu/hr. The extent of field work to prepare these units for operation is limited to connecting steam discharge and feed water piping.

160 Years of Excellence Serving the Oil and Gas Industry

Struthers Wells technology was the pioneer of the fired Once Through Steam Generators in 1962, specifically designed for the severe conditions associated with Enhanced Oil Recovery (EOR) applications. There are more than 1,200 Steam Generators with Struthers Wells' technology in service today throughout the world helping to enhance oil recovery in heavy crude reservoirs and oil sand deposits. The Once Through design is an original Struthers Wells concept and has been the industry standard for many decades.





Struthers Wells

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