

CESS Gas Turbine Experience

Head-quartered in Stromness in the Orkney Islands, Craigie Engineering Sales & Services Ltd. (CESS), was originally formed in South Africa in 1991 and has rapidly developed as one of the World's leading sourcing, valuation & marketing agents and suppliers of surplus and "advance-order" power plant and related equipment. CESS provide a prompt and effective response on inquiries for power plant and prime movers - gas & steam turbines, diesel engines, hydro turbines, etc. - along with ancillaries, such as transformers.

The Company can also provide the manpower required for project development, feasibility studies, asset and surplus equipment valuation, environmental impact assessment (EIA), engineering design, procurement, construction, commissioning and eventual de-commissioning, dismantling and removal/recycling of such facilities usually on a contract basis.

The first major success in the gas turbine market was during 1995, when CESS were successful in the sale of 2 x 40 MW LM 6000 gas turbine generator sets into Tanzania on behalf of Stewart & Stevenson.

In December 1996, CESS sold eight Solar Centaur T4000 Gas turbine gen sets (8 x 2.8 MW) from South Africa to GENR in Louisiana.

CESS were contracted by AECI Operations Services (Pty) Ltd. of South Africa to provide options for a 60 MW gas turbine cogen plant and deliver training to AECI on cogen design.

In June 1998 CESS were contracted by Sabah Shipyards to perform a market valuation report on their 5 power barges (totaling 420 MW) which they have available as a result of various cancelled IPP projects.

In July 1998 CESS were directly responsible for the sale of 4 x GE LM5000 gas turbines from Tenaga Nasional Berhad (TNB) in Malaysia.

In May 1999, CESS traveled to Afghanistan to inspect various gas turbines at the gas fields of Shebargan, near Mazar I Sharif. CESS also submitted various equipment options for installation at this and other sites within Afghanistan.

In October 1999 CESS were contracted by PT GE Finance in Indonesia to perform the valuation and marketing of two 4 MW Solar Centaur 50-5901 gas turbine generator sets. These units were then successfully sold by CESS to Petronas in Malaysia in May 2000

In November 1999, CESS were awarded a contract by Maritrans Shipping (USA) to perform a market evaluation of their two GE Frame 3 and two Ruston TD4000 gas turbine generator sets in their tankers.

In January 2000, CESS were awarded an Exclusive Brokering Contract by TrustPower Ltd in New Zealand for sourcing, valuation and purchase option negotiation on 2 x 100 MW gas turbine generators.

In September 2000, CESS were appointed by Rolls Royce Capital Ltd to prepare a Secondary Market Report on aero-derivative gas turbine generators with particular reference to historical and projected future resale values of gas turbine generator sets in the 15 - 50 MW power range.

In July 2000, CESS secured an exclusive marketing and valuation contract with **Simsekler Ship Repair** in **Turkey** for the evaluation and marketing of 2 x **Fiat TG16 (W191)** Gas turbine generators. These were subsequently sold for spare parts into **USA**.

CESS was also involved in the inspection and valuation of a **GE Frame 5** gas turbine in **Finland** for **Tampere Power**.

In October 2000 CESS were contracted by **Rubu Biladi Est** in **Saudi Arabia** to inspect, value, and provide exclusive marketing support on 2 x **Allison 501KB** gas turbine generators.

In November 2000, CESS were again commissioned by **Rolls Royce Capital Ltd** to prepare an **Market / Asset Valuation Report** on all stock aero-derivative gas turbines (**Avons, RB211's, Trents, & 501's**).

CESS was also at this time involved in the inspection and valuation of a Centrax/Allison 571 cogen plant for Heinz foods in London:

CESS was also contracted to **Contact Energy** in New Zealand to carry out an inspection and appraisal of their **Pratt & Whitney FT4 Twin-pac** units.

During February 2001, CESS were awarded a contract by **Merlin Production Inc** of Houston to prepare a detailed study of the **World's Power Barge Market**. This study was completed in March and also involved the preparation of a database listing all the World's power barges.

CESS was also contracted to **Jacobsen-Elektro A/S** in Norway to carry out the site inspection at **Hazira** in **India** of an unused **GE Frame 6B** unit

In June 2001 CESS were appointed by **Arthur Andersen** to perform inspections and market valuation report on the **Victoria 8 Power Barge (48 MW, W251 in Kenya):**

In June 2001 CESS was also appointed by **Arthur Andersen** to perform inspection and market valuation report on the **Victoria One (115 MW, W501D5 Gas Turbine power barge in Dominican Republic):**

CESS's site activities in 2002 extended in valuation & appraisal work, with detailed technical due diligence being completed on a 300 MW CCGT plant in China.

CESS was also contracted by **PT Indonesia Power** (previously **PLN**) and **Westmont Group** to complete site inspections and technical due diligence on 4 x **HRSG's**, duct burners and 2 x steam turbines for 2 x 70 MW CCGT plants in **Bangladesh** and **Bali**.

CESS also carried out site inspection & appraisals on 2 x **W501D5A** units in the **US** and valuation of a 6.5 MW **Solar Mars** gas turbine in **Nigeria:**

In 2002, CESS secured a contract with Rolls Royce Power Ventures for the exclusive marketing and valuation of one unused GE Frame 6FA gas turbine in UK and in May 2003 this unit was sold to Lanco Group/Aban Power in India:

During May 2003 CESS were again contracted to carry out inspection and valuation reports on the Power Barges, Victoria 5 (96MW, 2 x W251B11) and Victoria 7 (70MW CCGT) for Ernst And Young Malaysia and awarded the project management on the Victoria 8 Power Barge in Kenya:

In March 2003 CESS were contracted to Assam State Electricity board to inspect and appraise 7 x Ruston TB5000 trailer units in India.

In May 2003 CESS were asked to provide inspection and valuation of a GE Frame 9FA Rotor on behalf of Miller International (Loss Adjusters) in UK.

NOTE: The 9FA bearings were also then issued to CESS for storage and Marketing but 'black-listed' by GE will they ran out of stock and bought them for Tri Energy in Thailand in Dec 2005 !

In July 2003, CESS secured a contract with Fife Power (in Administration) for the valuation and exclusive marketing of a 124 MW, low hours, GE Frame 6FA CCGT Power Plant at Cardenden in UK. - This plant was sold to Scottish & Southern Energy plc in Feb 2004 for £ 12.3 Million.

In February 2004 CESS was also successful in the sourcing of a GE Frame 5N gas turbine in Malaysia for PDI (UAE).

In August carried out the valuation of 3 x 7 MW EGT Tornado Gas Turbine Co-Gen Plant & Ancillary Equipment at Waterston, Milford Haven, **Wales** for **Petroplus**.

CESS was also then appointed to handle the marketing of an unused 500 MW CCGT plant (2 on 1 **MHI 501F Gas Turbines**) for **UTE Paracambi Ltda** in **Brazil**.

In October 2004 CESS was asked to carry out an updated inspection and valuation on Victoria One power barge in **Dominican Republic** for a leading financial institution.

During Nov 2004, CESS have been involved in the valuation of another 5 gas turbines from cancelled projects and a zero-houred Frame 5N for **Bahrain Electricity Supply & Transmission BEST**.

In February 2005, CESS also signed an exclusive marketing Agreement on an **ABB GT35** gas turbine. CESS was also commissioned in May 2005 by **Pacifico** in Malaysia to inspect and appraise the **Victoria 8 power barge** (48 MW) in Kenya.

In June 2005, CESS the sale of two Solar Centaur units from **Turboshell** to **GENR** in Florida, and also completed the valuation and marketing of an unused **GE Frame 9E** generator rotor.

In July **CESS** were successful in sale of **East Lancs Paper Mill plant (2 on 1 CCGT Tornado units)**.

In Sept 2005 CESS secured the sale of another unused **GE Frame 6FA** gas turbine to EGSA for **Bolivia**

In Nov 2005 CESS was awarded a Valuation and exclusive marketing Agreement on 3 x **501F** gas turbines in **Tennessee**. These 3 units were acquired by Tennessee Valley Authority (TVA) in Nov 2006.

In January 2006, CESS sold two **GE Frame 9FA** bearings to **GE** in **Thailand** on behalf of **Miller International**.

In April 2006 CESS succeeded in the sale of five used **Solar Centaur** units to **GENR** in **Dubai**.

Throughout early 2006 Mike Craigie also acted as an 'Expert Witness' on behalf of GE in their case with RMS on the supply of two overhauled Rolls Royce "Avon" Gas Turbines which were shipped from Greece to Iraq.

In September CESS was contracted by China Light & Power (CLP) to carry out an appraisal of their 2 x **86 MW ABB GT13D** gas turbines in **Hong Kong**.

In February 2007, CESS carried out an inspection and appraisal of two Typhoon gas turbines in UK and will market these on behalf of the owner.

In March 2007 CESS were asked to appraise the resale value of 4 x 125 MW Fiat TG50 (Westinghouse 701D5) gas turbines from Italy for Standard Bank (RSA) and also completed a desktop study of a Pratt & Whitney FT8 and Allison 571KB7 unit.

CESS also again completed a due diligence inspection for purchase on the Westinghouse 501D5 barge-mounted gas turbine in Dominican Republic and on Victoria 5 (96 MW, Malaysia) and Victoria 8 (48 MW, Kenya) and also inspected 4 x Frame 5 gas turbines in China.

In August 2007, CESS carried out a technical Due Diligence and Appraisal on 100 MW CCGT plant in the USA for Morgan Stanley.

In November 2007, CESS were involved in the inspection, valuation and sale of 3 x Frame 5 gas turbines in China and these were subsequently bought by PT Sulzer Hickham in Indonesia.

In Dec 07, CESS was involved in testing and due diligence of a 60 MVA Brush alternator for Rolls Royce Trent 60 Hz for Industry & Energy Associates LLC in USA.

In February 08 we advised Mott Macdonald on valuation of 2 x GE Frame 9E gas turbines in UK and inspected and appraised a GE Frame 5 Gas Turbine in Saudi Arabia.

In March 08 we completed valuation on 3 x Fiat Gas Turbines in Serbia, and in April we completed technical due diligence and carried out detailed borescope inspection on GE Frame 6B CCGT for Kaltimex (Bangladesh).

CESS were also contracted to carry out inspection and valuation on 11 x 3.8 MW Trailer-mounted TB5000 gas turbines in Dubai.

In October 2008, CESS was contracted to Bank of America to carry out market appraisal on 3 x GE Frame 7FA (170 MW) units in US plus 244 MW GE steam Turbine.

In December 08 CESS was contracted to owners to inspect and appraise the 10.5 MW Arbre Biomass CCGT Power Plant. In September 2009 CESS inspected and valued 4 x W701D5 (125 MW) Gas Turbines (which have been zero-houred) for Standard Bank of South Africa.

In January 2010 we carried out summary appraisal on 13 MW CCGT Plant in UK for **PB Power**.

In March 2010 CESS was contracted to appraise and market a **GE LM1600** CHP Gas Turbine Power Plant at Heathrow for **Thames Power (EDF/Atco)**.

In May 2010 CESS arranged inspection of a 60 Hz **Solar Centaur** gas turbine with **Perenco (Cameroon)** In August 2010 CESS arranged inspection on the 4 X W701D (125MW) Gas Turbines and other plant for **Sincen Power (Malaysia)** and in September we arranged inspection of some GE Frame 9171E units, also in Europe.

In Jan 2011 CESS were again asked to undertake an e-Valuation on 3 x **Pratt & Whitney FT8** units and in April 2011 we were invited by **Contact Energy** to complete a market valuation with an idea of future values in 4 year's time.

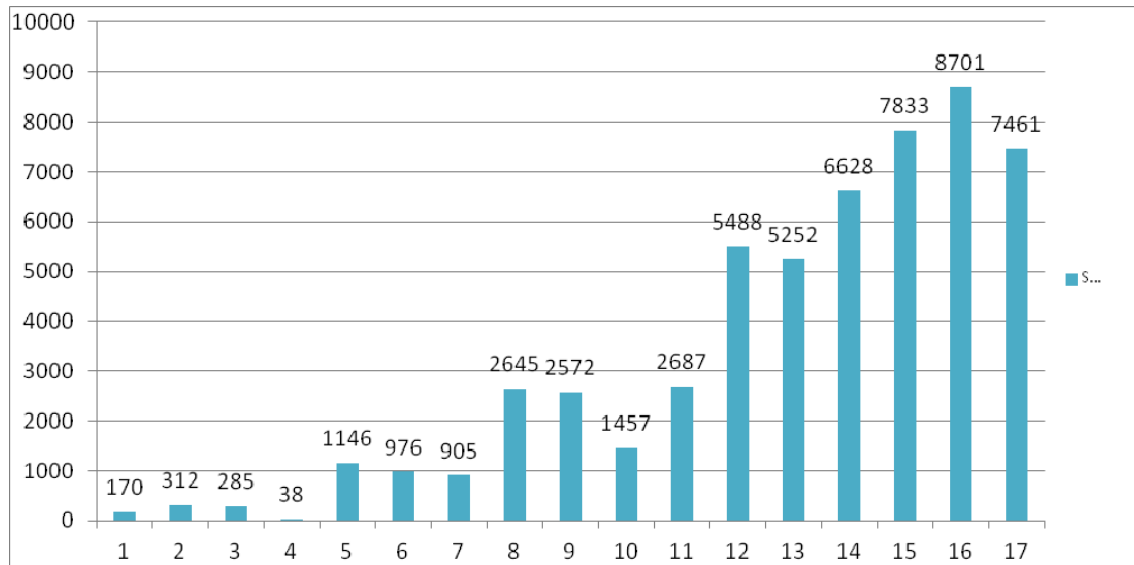
In August 2011, we inspected and appraised a **40MW GE Frame 6B** gas turbine in Scandinavia. In Sept 2011 we witnessed test run on an **ABB GT13E** unit in partial repowering application in the **Netherlands**.

In Nov 2011 we again appraised the **Siemens/Westinghouse/Fiat TG 50** units for **Bright Day Pte Ltd** in **Singapore** and inspected and valued a **Solar Taurus** unit in **Malaysia** for **Malaysian Mosaics Bhd**.

In Feb 2012 we valued two **58MW Pratt & Whitney FT8 SwiftPac** units and **125MW CFB Steam turbine** plant in **Eire** for **Edenderry Power**.

In Oct 2012 CESS were instrumental in the sale of 2 x Westinghouse 701 Gas turbines from Italy to **Iris Eco Power Sdn Bhd ("Iris")**, a Malaysian power development company, for US\$31 million.

Valuation this year to date have reached 7,161MW and we are target to again exceed last year's total of 8,701MW:



Mike Craigie has also written two online articles for Energy Central:

http://www.energypulse.net/centers/article/article_display.cfm?a_id=1466

Article Viewed 5142 Times

http://www.energypulse.net/centers/article/article_display.cfm?a_id=654

Article Viewed 5519 Times

Craigie Engineering Sales & Services Ltd (CESS) have to date been instrumental in the sale of 81 gas turbines (total 2,985MW), 37 steam turbines (1,362MW), 108 diesel/gas engines (277MW), and 45 transformers (total 616 MVA).

CESS has now reached an impressive total of over 70,229MW (>\$4,241M) of valuation experience in the past 16 years and these valuations have included:

- **571 gas turbines (including Allison, Rolls Royce, GE, Solar, Pratt & Whitney, Fiat, Ruston, GEC Alstom, Westinghouse, Mitsubishi, Siemens & ABB/Alstom)**
- **239 steam turbines (including AEG, ABB, Ansaldo, Blohm & Voss, Elliott, Fuji, GE, Hitachi, Westinghouse, Siemens, Terry, Mitsubishi, Parsons, Stal, Allen, KKK, Peter Brotherhood, Daniel Adamson, AEI/EE, Worthington, Zamec, Triveni & Alstom)**
- **581 diesels (including Niigata, Pielstick, Crossley, Colt, Polar, MTU, MWM Deutz, Mirrlees, Enterprise-De Laval, Superior, MAN/B&W, Wartsila/NSD, Ruston, Cummins, Caterpillar/MAK, Rolls Royce/Ulstein/Allen)**

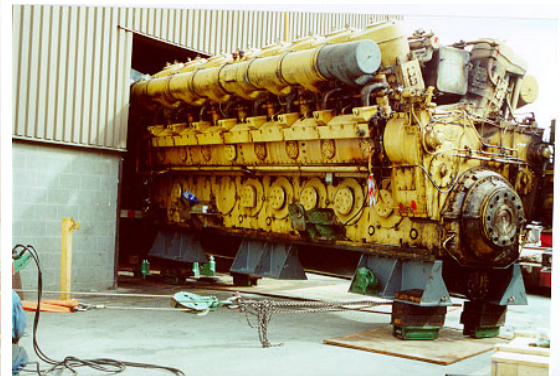
CESS Project Experience

		Valuation	Marketing	Sourcing	Sale
Gas Turbines	Number	571	306	173	81
	Capacity (MW)	31977	15517	6960	2895
Steam Turbines	Number	239	164	59	37
	Capacity (MW)	24699	13738.5	8646	1362
Diesel Engines	Number	582	308	209	108
	Capacity (MW)	2662.5	1462.4	856.4	277.4
Barges	Number	37	21	91	6
	Capacity (MW)	2123	1223	5452	354
Transformers	Number	235	145	84	45
	Capacity (MW)	8768.9	3624.4	1134.4	616.4

Major Client list:

- Tennessee Valley Authority
- JP Morgan Securities (Hong Kong)
- BASF Refinery (Belgium)
- PSEG Global Limited (London, UK)
- Scottish Hydro Electric plc (UK)
- Rolls Royce Power Ventures Ltd UK)
- BC Hydro (Canada)
- Exxon Corporation (Esso UK)
- Maritrans Tankers (USA)
- Allegheny Energy (USA)
- Contact Energy Ltd (New Zealand)
- PriceWaterhouse Coopers (Malaysia)
- BPB Paperboard (UK)
- AECI Operations Services (RSA)
- Smit International Ltd (Scotland)
- Peak Pacific Investments (China)
- Miller International Loss Adjusters (UK)
- Petroplus (Netherlands/UK)
- JP Morgan Chase (Hong Kong/UK)
- Tri Energy (Thailand)
- Tasiast Mauritanie Ltd (Mauritania)
- China Light & Power Ltd (Hong Kong)
- Carron Engineering & Const'n (UK)
- Sree Rayalaseema Alkalies (India)
- Synergy Capital (Pakistan)
- Morgan Stanley (USA)
- Hermes (Netherlands)
- Bank of America Leasing (USA)
- Nucor Corp (USA)
- Standard Bank (South Africa)
- GDF/Suez (UK)
- GE Finance (Indonesia)
- Nomura Research Institute (Japan)
- SAPPI (South Africa)
- Stewart & Stevenson Int' Inc. (USA)
- International Power (UK)
- Slough Heat & Power (UK)
- Sabah Shipyards (Malaysia)
- Jacobsens-Elektro A/S (Norway)
- Midlands Power International (UK)
- Reliance Industries (India)
- Pentex Oil & Gas (UK)
- ENSCO (Louisiana, USA)
- Trust Power Ltd (New Zealand)
- Renova AB (Sweden)
- Bahrain Electricity ST (Bahrain)
- GATX Capital / AARM (Australia)
- Ernst & Young (Malaysia & UK)
- Negriz Group (Nigeria)
- EPCOR (Canada)
- Jaguar Energy (Belize)
- Genesis Power (Sao Tome)
- Tata Chemicals (India)
- Masood John Brown (India)
- Blue Crest Capital (UK)
- Sita Limited (UK)
- Industry & Energy Assoc' LLC (USA)
- Green Frog Fuel (UK)
- Elyo Facilities (UK)
- Crown Cork (Cambodia)
- Premier Power (UK)
- Parsons Brinkerhoff Power (UK)

CESS is also available to undertake the decommissioning, dismantling and relocation of such plants and have extensive experience in this field:



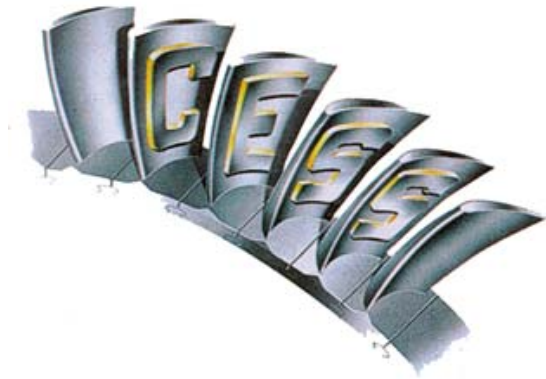
Head Office:

Energy House, 45 Hamnavoe,
Stromness, Orkney, KW16 3JQ
Scotland, UK

Tel: +44-7802 916577

e-mail: mike@cess.co.uk

Website: www.cess.co.uk



Craigie Engineering Sales & Services Ltd (CESS) is based in Stromness in the Orkney Islands, which is just off the North coast of Scotland. From these headquarters we use IT and data transfer systems to handle upwards of 200 enquiries per month for all types of power generation equipment including gas & steam turbines, diesel engines and related ancillary equipment, right through to complete process and petrochemical plants etc. The origin or final destination of these projects can be anywhere from Alaska to Zimbabwe and CESS has already processed over 19,000 separate enquiries from 203 countries. Facilities and equipment include 200 sq m of office space, the latest e-mail, Internet, file transfer software, colour scanning, imaging and printing facilities all of which guarantee a fast and professional response to enquiries from clients.

CESS also offer a “turnkey” service on surplus plant which ranges from the preliminary appraisal/evaluation and subsequent marketing, through to handling the sale, decommissioning/dismantling, preservation, packing, shipping, re-erection and commissioning.



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