Great East Energy

Unconventional (Tight) Gas Exploration and Production

Ticker: GASE (OTC BB)

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Great East Energy (OTC BB ticker “GASE”) is an independent oil and gas exploration & production company focused on bringing North American capital, know-how and technology to unconventional plays in Middle Europe.

- International leadership team with extensive experience in tight gas, coal-bed methane (CBM) and shale gas in Middle Europe, Canada and USA.
- Identify early entry exploration opportunities by winning greenfield licenses and acquiring underperforming existing operators that have room to grow aiming at expansion of GASE’s area from 420 sq. km. to 2 000 sq. km.
- Thorough seismic and technical interpretation to uncover undervalued opportunities of tight, convention and coal beds gas production.
- Focus on rapid production and conversion of resource to reserves.
- Target significant growth opportunities with IRRs exceeding 30+%. 
Middle Europe’s Ukraine: a major emerging market

- Large pool of cheap, highly-skilled workers
  - Population of 46 million and the fourth highest number of university graduates in Europe each year
  - GDP per capital only $6,700

- Industrial production drives economy
  - Ukraine is one of the top 10 steel producers in the world
  - Strong technological industries: aerospace, shipbuilding, armaments

- Major agricultural potential in years ahead as global food demand soars
  - Ukraine already a top 10 wheat and corn exporter
  - Agriculture output could be improved 3X using modern farming techniques

- Coming to Europe
  - Global political leaders are committed to bringing the country into the EU
  - Government, with the IMF, has reformed the country’s pension system, tax code and energy sector

- Favorable investor treatment
  - Corporate tax rate reduced from 21% in 2012 to 16% in 2014
  - Royal Dutch Shell and others entering the market with major investments

Source: IMF, State Statistical Service
Ukraine’s extremely attractive natural gas sector

One of the world’s biggest energy consumers
Energy intensity in selected countries, KBOE oil/$ GDP, 2011

Pricing much higher than North America
Domestic price of gas for industrial customers, $/mcf

Gas is the key fuel source
Energy balance in Ukraine, 2011

Domestic gas production desperately needed
Ukrainian gas consumption in 2012 = 55 bcm

Source: Enerdata, NERC, USDE
Great East Energy’s Flagship Asset: Estimated 47 BCF (~US$400 Million)

Gas production asset with high prospects

GASE is an unconventional (tight) gas exploration and production company in the Dnieper-Donets Basin of Ukraine in Middle Europe, with the following advantages:

- Current production
- Fully operated, gas processing and delivery infrastructure from well to consumers
- Exploration and development license covering 421 sq km is already in place thru 2018:
- Seven well-located dome structures: two domes at the exploiting stage and five domes at the initial drilling stage
- CBM production out of areas around several coal mines within the license
- Easy underlay gas extraction due to favourable non-deep underthrust formation
- Net back or cash flow to GASE estimated at US$8+/MCF
- Adding value through a vertically structured business
- Approximate 8-month well payback on initial investment
- Strong potential for reserve growth
GASE’s Asset is Surrounded by Large Producing and Prospective Blocks

- GASE is surrounded by large producing oil & gas fields located in Myratovskoj Zone: Plast, Cub-Gas, Geo Alliance.
- The region has potentially significant gas reserves of unconventional (tight) gas and conventional gas on deeper horizons. Shell is committed to spending $400m+ to develop its adjacent asset.
- There are large and medium industrial enterprises, which provide a high level of gas consumption via existing pipeline infrastructure.
Geological Overview of GASE’s Block

- GASE’s asset is located on the northern border of the folded zone of Donbass in the southeastern part of the Dnepr-Donets basin.

- Seven large dome anticline structures have been identified in the licensed area, as follows: Northern Tomashevskoye (“NT”), Southern Tomashevskoye (“ST”), Toshkievskaya (“T”), Lysychanskaya (“L”), Vovcheyarska (“V”), Zolotarivska (“Z”), Petrograd-Donetsk (“PD”).

- The middle carbon contains 6 sand reservoirs in the Bashkir Horizon; these were assessed during the exploration of NT and ST.

- The license area is limited by the fracture and folded surfaces of Donbass folded zone. The main inversion of the basin and subsequent folding occurred during Gertsinskaya and Alpine stages.

- Northwestern spread of the structures and fractures in the region determines the direction of the structural trap of the NT and ST domes. The trap area is not less than 8.9 sq km (2,200 acres).

- Twelve wells have been drilled on NT and ST domes to confirm presence of gas.
Geological Studies of GASE’s Domes

Cumulative experience and available data

- Drilling results obtained on 12 core wells and additional 5 vent-wells.
- Studies were performed at NT, ST and T domes.
- Deepest wells at domes:
  - NT dome – 825 m.
  - ST dome – 1 400 m.
  - T dome – 1 300 m.
- Key available data includes:
  - Several structural maps.
  - Tests data during the wells drilling.
  - Data of the core samples analysis.
  - Well-log surveys.
- There were performed structural-thermo-atmogeochemical studies at the T and Z domes by the original method.
- Many methane degasification studies were done at coal fields.

ST and ST domes studies

- The NT and ST domes have been studied most closely. Both have a high, rounded shape (approximately 4 sq km each).
- Two most prospective gas production zones were identified, so-called zone ‘700’ at NT dome and zone ‘500’ at ST dome.
- The lithological well profile is represented by deposit of clays, sandstones, chalkstones and coal.
- Permeability of zone ‘500’ according to interpretation of logs is 0.92 mD; according to production analysis – 26 mD.
- Porosity for the sandstones lays within the limits of 3% – 19.3%, at the average 10.1%. Porosity for carbonates is measured within the range of 0.3% - 5.4%, in average 2.2%.
Marathon Oil’s Analysis of the GASE Block: Approx. US$400 Million on Site

**Overthrust reserves estimation**

- In 2006-2007, Marathon Oil of the US completed an analysis of GASE’s NT and ST blocks.
- This analysis refers only to the productive horizons limited by 150-800m of depth (above the fault).
- The resources of gas under the fault were not evaluated due to lack of information.
- Reserves estimation was based on the well log and core data, production data, reservoir maps, etc.
- The mechanism of hydrocarbon migration is a migration of gas from the coals which fully fills the occurring traps.
- Reserves of the area limited by the fractures and size of the map (total 8.9 sq. km) make up 49 BCF, 31 BCF out of which are recoverable (63%).
- As expected, there are significant resources of conventional gas under the fault.

**31 BCF of overthrust gas reserves**

Results of 2006-2007 Marathon Oil analysis, BCF

- Average 16 BCF/dome
- 31 BCF
- 78 BCF

Assume similar reserves at other domes

**Potential in ground reserves: ~US$400 million**

Marathon reserves analysis at US$3.5/MCF “in ground” value, US$m

- Domes NT & ST
  - US$110m
- Entire asset
  - US$383m
CBM Production Through Degasification Well

CBM resources and CBM production at ST dome

- 60% CBM is concentrated within the areas of explored coal mines.
- GASE’s license area covers fields of 13 operated and closed coal mines.
- There is up to 76 coal-beds (35m in total) within GASE license area, 20 of which have stable producing capacity.
- Coal rank are mostly long flame and gas flame.
- Methane content of coal varies from 0.35 to 0.45 MCF per tonne of coal up to 1400m.
- At the ST dome, methane concentration reaches 0.78 MCF per tonne of coal at 500m deep and methane is available from 75m deep.
- At the ST dome, CBM includes gas (migration) from sandstone below the coal mine level.
- Average CBM rate was 40-100 MCF per day or 65-85% of total methane emission.
- Similar CBM concentration and emissions were seen at other domes.
- Total CBM resources amount to ~600 BCF within the coal mine areas of the block.

Source: the monograph “Gas content and resource potential of methane of coal- fields of Ukraine”, Donetsk 2010

CBM delivering in process

- Available infrastructure fits for CBM processing and delivery to final consumers.
- Each of two wells produce methane at the level of 70-100 MCF per day.
- Average methane concentration is not less than 80%.

Methane production - 1D well at ST dome

CBM, MCF per day (left scale), methane concentration, % (right scale)
Production at GASE’s NT and ST Domes

- During the geological study period in 2000-2004 nine shallow wells were drilled on the NT and ST domes.
- The Company has been producing gas at NT and ST domes since 2003. Productive horizons occur at the depths of 150-800 m.
- The Company has extracted 750 MMCF of gas from A3335 and 11K wells (depths of 938m and 516m) which were producing from 2003-2013. A couple wells have been producing time-to-time.
- Other wells produce both gas and water fluids, due to implementation of poor drilling techniques by service company. Water utilization are not economically profitable along with gas production. This is why, other wells were plugged and abandoned.
- The Company has two gas processing facilities, each with capacity of 350 MMCF/month. One each on the NT and ST domes. The Company also owns a 13.5 km gas pipeline to its customers.
Existing Infrastructure and Well Locations

Assets and infrastructure location

- Existing processing gas plants are able to meet the gas production growth.
- Attached consumers are able to consume the planned gas production.
- Hooking up to a local main pipe-line can be simply performed.
GASE’s Production Increase Action Plan

1. Further geological research

- Digitalization of existed geological data base.
- Preparation of ground license maps based on initial information of GRGP Donetsgeologia (regional department of state geological authority).
- Implementation of the newest geological technology
- Deepening of 7K well up to 1,500 m (under the fault) aiming to obtain new geological information of potential under-fault gas recourses.
- Carrying out modern geological studies on whole license area through 2D and 3D seismic researches.
- Obtaining an initial independent reserves valuation.
- Collecting geophysical data base.
- Obtaining a final independent reserves valuation.
- Obtaining 20 year production licence.

2. Increasing production within overthrust domes and belovuthrust

- Enhancing gas productions on NT and ST domes through fracturing and stimulation on existing two wells.
- Drilling of three new shallow operated wells on NT and ST domes.
- Performing of tube hooking to a main gas pipeline aiming to diversify sales of future gas production.
- Drilling of four new “deep” operated wells on NT and ST domes with implementation of fracturing and stimulation technology to enhance initial production.
- Drilling of nine new deep exploration wells on Zolotarivska, Toshkievskaya and Petrograd-Donetsk domes with implementation of fracturing and stimulation technology to enhance production.
- Construction of gas processing facilities and supporting infrastructures to deliver gas from newly drilled wells to consumers.
- Preparation to further exploration and production deep drilling on other domes.
GEE’s Value-Added Energy Strategy

3. Realization of high-margin projects

- Improving Company’s financial performance by diversifying sales and raising sales price.
- Purchase of CNG Fuelling Station and two CNG Mobile Fuelling Station.
- Double net back by selling gas through CNG Mobile and Stationary Facilities.

4. Monetizing CBM production

- Modernizing degasification equipment to improve current CBM utilization.
- Monetizing CBM production by connecting existed vents-wells with existing delivery infrastructure.
- Significantly enhance CBM production by drilling numerous new shallow vents-wells up to 500m deep.

5. GASE’s expansion

- Acquire new licenses areas thru primary actions from the governmental authorities.
- Farm-in and/or acquire underperforming existing operators.

6. Engage professionals and best services

- Hire experienced international professionals to complement the existing management and technical teams in order to insure consistent implementation of the company’s work program in line with best and applicable North American practices and technologies.
- Formalize the relations with the international service company for technical assistance and execution of the drilling program starting.
GASE Management Team

Chairman
Michael Doron
- Accomplished corporate leader with executive-level experience in financing of private and public companies – small to mid-cap.
- Managing partner at DDR & Associates, a business development firm specializing in pre-IPO companies.
- Co-founder and partner in Evolution Capital, a private firm working in conjunction with DDR, and specializing in providing capital to publicly held companies using various debt instruments.
- Serves on the Board of Directors of MusclePharm Corp (NASDAQ – MSLP).

CEO/CFO
Timur Khromaev
- Founder and managing partner of ARTA Group, a leading investment bank in Ukraine.
- Over 15 years of managerial, financial and corporate finance experience.
- Advised OTP Bank (Hungary), UNIQA (Austria), Shell (Netherlands), Hershey (USA) and others on their M&A strategy in the region. Completed numerous M&A and corporate finance deals in oil and gas sector in the region and among others a US$1.5 billion debt restructuring for Naftogaz, Ukraine’s state gas company.

Advisory board
Dr. David Kahn
- 21 years of experience in the oil and gas industry
- Senior roles with Halliburton Energy Services, Baker Hughes and Weatherford PPG.
- Principal at Ensyn Petroleum, later sold to Ivanhoe Energy.
- Extensive experience in Ukraine and Eastern Europe in general as a principal of a number of oil and gas companies in the region.

Igor Umanskii
- Extensive experience in government, oil & gas and finance.
- Acting Minister of Finance of Ukraine (2009-2010).
- Former deputy CEO of Ukrtransnafta, the national operator for Ukraine’s extensive pipeline network.

Thomas Lanier
- Treasury Advisor
- Risk management expert.
- 15-years of experience advising Eastern European and Central Asian governments and large institutions.
- Extensive knowledge of Eastern Europe and former Soviet Union.