This document is intended for limited circulation and is provided to the recipient on a confidential basis and the recipient expressly acknowledges and agrees that they will hold this information, this document, and all related documents and disclosures in the strictest confidence. This document is not intended for public use or distribution, and dissemination, publication, distribution, disclosure, copying or use of the information, documents, or disclosures contained herein is expressly prohibited.

This document is not an offer to sell securities nor should it be deemed to imply an offer of securities. Any securities offering can only be made to qualified persons (as defined under applicable law) and when such person receives a confidential Private Placement Memorandum (“Placement Memorandum”), which contains important information (including investment objective, policies, risk factors, fees, tax implications and relevant qualifications), and only in those jurisdictions where permitted by law. In the case of any inconsistency between the descriptions or terms in this document and the Placement Memorandum, the Placement Memorandum shall control. The interests described herein shall not be offered or sold in any jurisdiction in which such offer, solicitation or sale would be unlawful under the requirements of the laws of such jurisdiction have been satisfied. While all the information prepared in this document is believed to be accurate, Vortus Investments and its affiliates (“Vortus”) make no representation or warranty as to the completeness or accuracy of the information in this document and accepts no responsibility. This document may contain forward-looking statements and projections that are based on our current beliefs and assumptions and on information currently available that we believe to be reasonable. All statements that are not historical facts are forward-looking statements, including any statements that relate to future market conditions, results, operations, strategies or other future conditions or developments and any statements regarding objectives, opportunities, positioning or prospects. Forward-looking statements are necessarily based upon speculation, expectations, estimates and assumptions that are inherently unreliable and subject to significant business, economic and competitive uncertainties and contingencies, and prospective investors may not put undue reliance on any of these statements. Forward-looking statements are not a promise or guaranty about future events.

An investment in Vortus funds is speculative and involves a high degree of risk. Opportunities for withdrawal and transferability of interests are restricted, so investors may not have access to capital when it is needed. There is no secondary market for the interests, and none is expected to develop. The portfolio, which is under the management and discretionary authority of Vortus, is primarily concentrated in growth equity, and this lack of diversification may result in higher risk. An investor should not make an investment unless it is prepared to lose all or a substantial portion of its investment. The fees and expenses charged in connection with this investment may be higher than the fees and expenses of other investment alternatives and may offset profits. Nothing presented herein is intended to constitute investment advice, and no investment decision should be made based on any information provided herein. Important risks are further discussed later in this document. Please see slide titles “Risk Factors Summary”.

Past performance does not guarantee future results. Portfolio characteristics and other information are provided as of the dates set forth herein. Current or future characteristics and other information may vary significantly from those provided herein and the firm undertakes no obligation to notify the recipient of any such variances. The terms of investment products listed herein are subject to change. This document contains forward-looking statements and projections that are based on our current beliefs and assumptions and on information currently available that we believe to be reasonable, however, such statements necessarily involve risks, uncertainties and assumptions, and prospective investors may not put undue reliance on any of these statements. Due to various risks and uncertainties, actual events or results or the actual performance may differ materially from those reflected or contemplated in any such forward-looking statements.

Portfolio company information presented herein is for informational purposes only and not intended to be a guarantee of certain investment results. There is no guarantee that Vortus will be able to source similar investments and achieve comparable performance in the future. Portfolio company performance data is not necessarily indicative of overall fund performance. Portfolio level performance may not factor in certain fund level expenses such as management fees, carried interest, audit fees and other expenses that will reduce overall performance of a fund.

The firm does not represent that the information herein is accurate, true or complete, makes no warranty, express or implied, regarding the information herein and shall not be liable for any losses, damages, costs or expenses relating to its adequacy, accuracy, truth, completeness or use.

There is a possibility for loss as well as the potential for profit when investing in the funds described herein.
Overview

#### Vortus

**Asset-Focused • Lower Mid-Market • Onshore U.S. • Operated E&P**
- ~$1 billion under management
- $50 - $100 million equity per deal
- Headquartered in Fort Worth, Texas; Founded by Jeffrey W. Miller and Brian C. Crumley
- **Target 3x** gross returns with downside protection from specialist investment approach

#### Asset Focused

**Identified asset, partnership, execution**
- **Identification of assets and upside potential at underwriting**
  - Investing in high quality assets alongside management teams with history in basin
  - Consistent, proactive approach to creating privately negotiated, off-market transactions
- **Incumbent management teams’ preferred partner**
  - Vortus’ E&P expertise and network help secure transactions and advantaged buy-in valuations
- **Visible path to maximize value**
  - Value creation plan agreed in collaboration with management pre-investment

#### Proven Team

**Broad team skill set of technical and financial expertise**
- **Extensive team network** enhances deal flow, asset understanding and industry best practices
- **Repeatable** investment strategy through the cycle
- **70+ years** of global energy industry expertise: technical, operational and financial

---

1Includes Vortus-managed co-investment

---

**Identified Asset - Optimize - Exit**
Debt Capital Markets Have Tightened

- Access to financing has tightened driven by regulatory change
  - Traditional reserves based lending (RBL) replaced by cash flow-based lending
  - Total leverage now includes senior debt plus other interest bearing debt including mezzanine financing
- Priority of accessing lowest cost capital increases equity’s role in capitalizing industry growth

Credit facilities have been cut to smaller US E&P

Equity to fund larger portion of development capital

Source: LEA, Bloomberg, Company Data
Characteristics of a Vortus Deal

Vortus

Discounted implied buy-in
- Limit capital competition by partnering with management teams – mitigates “bid-ask” spread
- Inefficiencies on pricing at lower end of the market

Cost competitive assets
- Lowest quartile finding and development costs
- Underwrite to strip pricing

Growth capital for development
- Hands on approach to changing character of the asset
- Prove future development potential
- Production growth

Aligned partnership
- Partnership approach
- Management teams retain meaningful stake alongside Vortus
- Management in position to gain substantially from Vortus development plan

Management teams with track records of success
- Established track record in basin
- Ability to diligence extensively
- Potential to augment management through Vortus network

Control
- Deal structure
- Cash flow
- Governance
- Exit

Avoid
- Offshore
- Non-operated
- Binary geologic risk
- International
- Oil field services

Management teams with track records of success
- Establishment track record in basin
- Ability to diligence extensively
- Potential to augment management through Vortus network

1. Limit capital competition by partnering with management teams – mitigates “bid-ask” spread.
2. Inefficiencies on pricing at lower end of the market.

2.1 Lowest quartile finding and development costs.
2.2 Underwrite to strip pricing.

3. Hands on approach to changing character of the asset.
4. Prove future development potential.
5. Production growth.

6. Partnership approach.
7. Management teams retain meaningful stake alongside Vortus.
8. Management in position to gain substantially from Vortus development plan.

9. Established track record in basin.
10. Ability to diligence extensively.
11. Potential to augment management through Vortus network.

12. Deal structure.
13. Cash flow.
15. Exit.
# Pre-investment process & value creation

<table>
<thead>
<tr>
<th>Pre-investment process</th>
<th>Value creation process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Asset &amp; management identification</td>
<td><strong>Asset identification</strong></td>
</tr>
<tr>
<td><strong>2</strong> Extensive due diligence</td>
<td><strong>Optimization, execution &amp; exit</strong></td>
</tr>
<tr>
<td><strong>3</strong> 12+ month business &amp; execution plan (w/ management)</td>
<td>➢ Demonstrate type curve economics</td>
</tr>
<tr>
<td><strong>4</strong> Deal structuring</td>
<td>➢ Optimize and expand production</td>
</tr>
<tr>
<td><strong>5</strong> Entry</td>
<td>➢ Increase inventory and grow developed acreage</td>
</tr>
<tr>
<td></td>
<td>➢ Implement optimized completion techniques</td>
</tr>
<tr>
<td></td>
<td>➢ Cost efficiency</td>
</tr>
</tbody>
</table>

**Resource extension / Full development** |

**Legacy**

- Assets optimized through enhanced well economics & expansion of undeveloped inventory

- Infill drilling and additional production growth
Vortus Portfolio

Current and Previous Investments

- Foreland Operating, LLC (Permian Basin)
- SNC (East Texas & North Louisiana)
- NPES (Williston Basin)
- Crimson (South Texas)
- Canyon Creek Energy (Arkoma Basin)
- ROXO Energy (Permian Basin)
- Yukon Minerals (Arkoma Basin - Minerals)
- Foreland II (Permian Basin)

Vortus is actively looking for new investment opportunities across the U.S.
Why Vortus?

**Asset Focused Strategy**
Consistent, proactive approach to creating privately negotiated, off-market transactions with clear path to value creation

**Team Capabilities**
Breadth and depth of technical, operational and financial energy industry expertise

**Extensive Network**
Relationships built over careers in the sector

**Strong Track Record**
Attractive and consistent returns across multiple cycles while prudently managing downside risk for investors with repeatable investment approach

**Successful Execution**
Completion of investments during multiple points of the commodity price cycle

**Less Competition**
Other energy managers focus on much larger transactions and compete with strategic buyers
Our Team

Investment Team

Jeffrey W. Miller  
CEO/Managing Partner  
31+ years of experience

Brian C. Crumley  
Managing Partner  
19+ years of experience

Brian E. Hansen  
Principal  
13+ years of experience

Garrison R. Allen  
Associate  
3 years of experience

Porter D. Pursley  
Vice President  
9+ years of experience

Intern Program

Relationship with TCU Energy Institute

Operation Professionals

Frank D. Lamsens  
CFO/CCO  
13+ years of experience

Rhonda Lutt  
Office Manager & Accounting Assistant

Back Office Support

Blue River Partners LLC  
~12 Compliance & Fund Administration professionals
Jeffrey W. Miller, CEO/Managing Partner

- Over 31 years of financial, managerial, operational and technical experience in the global upstream industry
- Upstream industry experience includes private equity, investment banking and petroleum engineering

Professional Experience

- **Mercuria Energy Group** (2008-2012)
  - *Director of Upstream and Investments in Fort Worth, Texas and Geneva, Switzerland*
  - Global responsibility of inherited and new upstream portfolio located in the Americas, Europe and Africa
    - Largely monetized through a series of divestitures, farm-ins and mergers
  - New upstream investments included a joint venture with North Plains Energy in the Bakken (USA) and a partnership with Roch S.A. for the acquisition of conventional assets in the Austral Basin (Argentina) from Chevron

- **Moncrief Oil International (MOIL)/Moncrief Minerals Partnership (MMP)** (2004-2008)
  - *President of MOIL and Managing Partner of MMP in Fort Worth, Texas*
  - MOIL owned the Moncrief family’s assets in the Former Soviet Union. These FSU assets were merged for a minority equity share of Nations Energy in 2003 and sold to Citic Group for $1.9 billion in 2006
  - MMP was founded in 2005 to purchase mineral interests and non-operated working interests in the Barnett Shale, an unconventional natural gas basin in North Texas. MMP’s operated assets sold to Fortress and the remaining assets were sold to Rimrock, a NGP portfolio company, in late 2007 for approximately $100 million

- **UBS/Dillon Read** (1993-2004)
  - *Managing Director – Investment Banking in Dallas, Texas and New York, NY*
  - Primary focus: upstream and oilfield services globally
  - Significant M&A and capital markets transaction expertise
Jeffrey W. Miller (cont’d)

- **Lehman Brothers and Chase Manhattan Bank** (1990-1993)
  > Associate – *Investment Banking and Energy Lending Division in New York, NY*

- **Exxon USA** (1985-1988)
  > *Senior Project Engineer in Houston, Texas*
  >  - Reservoir and Production Petroleum Engineer with P&L responsibilities for several onshore Gulf Coast oil and natural gas fields

- **Chevron USA** (Summer 1983 and Summer 1984)
  > *Production Engineer/Various operator roles in Denver, Colorado and West Texas*

**Education**

- **Columbia Business School** – M.B.A. in Finance
- **Texas A&M University** – B.S. in Petroleum Engineering with *Magna Cum Laude* distinction

**Other**

- Co-Chair of Industry Advisory Board: Texas A&M Petroleum Engineering School
- Elected to the Texas A&M University Petroleum Engineering Academy of Distinguished Graduates in 2015
- Appointed to Audit Committee of Society of Petroleum Engineers (“SPE”) in 2017
- Member of the Board of Directors of MI Energy, prior TPG portfolio company and one of the leading Chinese upstream companies with assets in China, Kazakhstan and the U.S. Hong Kong ticker: 1555
Over 19 years of successful principal investment experience in the energy industry including private and public equity, debt and distressed investing across several cycles

Portfolio management responsibilities have included sourcing, evaluating, structuring, monitoring and exiting energy investments

Professional Experience

**Luther King Capital Management** (2006-2012)

*Founding Partner of LKCM Private Discipline Partners, LP (“LKCM PDP”) in Fort Worth, Texas*

- $15 billion asset management firm founded with an initial client in 1979
- LKCM PDP launched with approximately $100 million in 2006
- Long term, fundamentals-based investment discipline applied to energy private and public equity investments
- Portfolio management responsibilities included sourcing, evaluating, structuring, monitoring and exiting the partnership’s energy investments
- Energy investments in both private equity and public equity were accretive to LKCM PDP’s solid absolute and relative returns since inception

**Sirios Capital Management** (2002-2006)

*Analyst in Boston, Massachusetts*

- One of seven investment professionals at fundamentals-based, long bias hedge fund
- Primary responsibility for energy industry investments helping drive solid absolute and relative performance as assets grew from less than $1 billion to approximately $2.5 billion
- Active daily role in sourcing, evaluating, monitoring, and exiting the partnership’s energy investments enabled him to develop and maintain relationships with a broad network of senior energy company executives which was extended while at LKCM PDP
- Considerable time spent sourcing, analyzing, and structuring long and short fixed income and capital structures arbitrage related energy investments, including distressed situations in post-Enron/recession investment environment
Brian C. Crumley (cont’d)

- **Natural Gas Partners** (1998-2000)
  - *Investment Associate in Fort Worth, Texas*
    - Global leader in energy private equity with cumulative capital raised of $13 billion
    - One of just five NGP investment professionals from 1998 to 2000 in the Fort Worth, Texas offices of Richard E. Rainwater
    - Developed foundation of cautiously contrarian energy investment approach which has driven investment discipline and strategy throughout career
    - Responsibilities included sourcing, evaluating and recommending new investment opportunities, active participation in raising the $370 million NGP VI fund, and working extensively with and advising portfolio company management teams regarding annual/quarterly budgets and capital structure
    - Structured, executed, and negotiated portfolio company capital markets and M&A activity

**Education**

- **Stanford University** – M.B.A. with a certificate in the Global Management Program
- **Princeton University** – B.A. in Politics while earning a certificate from the Program in Political Economy

**Other**

- Cook Children's Health Foundation - Board of Trustees: Finance, Trusteeship, and Audit committees
- Fort Worth Country Day School – Board of Trustees
- STAR Sponsorship Program - Board of Trustees: provides educational access to underprivileged local students
Brian E. Hansen, Principal

Professional Experience

- **Pioneer Natural Resources** (2004-2014)
  - *Vice President, Subsurface & Development – Permian Asset Team*
    - Led team of 50 engineers, geologists, technicians and analysts to maximize the value of the Permian Basin assets
    - Established and implemented the long-term development strategy of Pioneer’s emerging horizontal drilling program in over six target intervals across a 600,000-acre position
    - Directed transition from a NAV-focused appraisal program to a production-growth-focused development program
  - *Reservoir Engineering Manager – Permian Field Strategy*
    - Key technical contact during a $1.7 billion joint venture with China-based Sinochem, establishing a new benchmark for a Wolfcamp-only transaction
  - *Senior Business Analyst – Executive Operations*
  - *Senior Engineer – Business Development*
  - *Reservoir and Operations Engineer – South Texas & Permian Basin*

Education

- **Southern Methodist University** – M.B.A. in Finance
- **Texas A&M University** – B.S. in Petroleum Engineering with *Cum Laude* distinction
Porter D. Pursley, Senior Associate

- Over 9 years of banking and investment experience primarily focused on the domestic onshore E&P industry
- Experience has included in depth bottom-up fundamental valuation, communicating investment recommendations and identifying key value drivers for E&P companies

Professional Experience

  - Senior E&P Research Associate - Houston, Texas
  - Primary Associate covering approximately 15 mid-cap to large-cap independent E&P companies
  - Responsible for maintaining detailed financial models, developing and cultivating key relationships with company management as well as communicating public equity investment recommendations to institutional clients
  - Developed extensive knowledge of the macro commodity environment focused on oil/gas fundamentals

- **Plains Exploration & Production Company** (Summer 2010)
  - Intern in Treasury Group while pursuing M.B.A. - Houston, Texas
  - Analyzed company and peer debt structures and assisted in the negotiation of a $1.6 billion revolving credit facility

- **Houlihan Lokey** (2006-2008)
  - Analyst - Dallas, Texas
  - Primary responsibilities included property and real estate valuation, working with clients to develop scope and valuation methodology, and leading domestic and international due diligence efforts as well as site visits

Education

- **Tulane University, Freeman School of Business** – M.B.A. in Finance with an Energy Specialization
- **The University of Alabama** – B.Sc. in Commerce and Business Administration in Accounting
Frank D. Lamsens, CFO/CCO

- Certified Public Accountant with over 13 years of diverse industry and cross-functional expertise in corporate finance and accounting
- Prior leadership roles with an industry leading private equity firm and a top tier public accounting and consulting firm

Professional Experience

- **TPG (formerly Texas Pacific Group) (2010-2014)**
  - **Controller, New Business Platforms in Fort Worth, Texas**
    - Coordinated the integration and ongoing financial and operational support of emerging alternative asset platforms. Cross-functional collaboration with Tax, Legal, Treasury, Operational Risk Control and IT
  - **Controller, Global Finance**
    - Responsible for a global partnership structure with local statutory reporting requirements in Europe, Asia and South America. Led process improvement efforts of the financial close process and the financial systems to support a new firm cost architecture and a major legal entity restructure
  - **Associate Director**
    - Managed the preparation of quarterly LP reporting for the funds, including the calculation of fund performance.

- **KPMG (2004-2010)**
  - **Manager – Assurance Services in Chicago, Illinois**
    - Directed multiple client engagements for a variety of companies, including SEC filings, financial statement audits, SOX controls and compliance reviews

Education

- **University of Notre Dame** – M.Sc. in Accountancy; Emphasis in Financial Reporting and Assurance Services
- **Texas Christian University** – B.B.A. in Finance and Accounting

Other

- Certified Public Accountant, State of Illinois
Garrison R. Allen, Associate

- Over 3 years of banking and investment experience primarily focused on the domestic onshore E&P industry
- Experience has included in-depth bottom-up fundamental valuation, communicating investment recommendations and identifying key value drivers for E&P companies

Professional Experience

  - *Senior E&P Research Associate - Houston, Texas*
    - Provided research coverage of large and SMID-cap domestic oil and gas exploration and production companies
    - Responsible for maintaining detailed financial models, developing and cultivating key relationships with company management as well as communicating public equity investment recommendations to institutional clients
    - Maintained macroeconomic supply/demand models, specifically proprietary bottom-up domestic oil and gas production by play models, to establish near and long-term oil and natural gas price forecasts

- **Luther King Capital Management** (Summer 2013)
  - *Equity Analyst Intern – Fort Worth, Texas*
    - Analyzed financial statements of various public companies and completed multiple reports on public companies across various sectors.

Education

- **The University of Texas** – BBA in Finance
An investment in the fund ("Fund") will entail substantial risks, including, but not limited to, those listed below, and a prospective investor should carefully consider the following summary of certain risk factors below and carefully consider the section of the Fund’s Confidential Private Offering Memorandum entitled “Certain Risk Factors and Potential Conflicts of Interest,” in determining whether an investment in the Fund is suitable:

Liquidity of Interests. An investment in the Fund is suitable only for certain sophisticated investors who have no need for immediate liquidity in their investment. Interests in the Fund are not freely transferable. There are no secondary markets for the interests in the Fund and none are expected to develop.

Speculative Investment and High Degree of Risk. The Fund’s investment program is speculative and entails substantial risks. Since market risks are inherent in all securities investments to varying degrees, there can be no assurance that the investment objective of the Fund will be achieved. In fact, certain investment practices described herein can, in some circumstances, potentially increase the adverse impact on the Fund’s investment portfolio. The Fund’s activities could result in substantial losses under certain circumstances.

Oil and Natural Gas Exploration and Development Risks. The Fund may invest in businesses that engage in oil and natural gas exploration and development, a speculative business involving a high degree of risk. Oil and natural gas drilling may involve unprofitable efforts, not only from dry holes, but also from wells that are productive but do not produce sufficient net revenues to return a profit after drilling, operating and other costs. Acquiring, developing and exploring for oil and natural gas involves many risks. These risks include encountering unexpected formations or pressures, premature declines of reservoirs, blow outs, equipment failures and other accidents in completing wells and otherwise, cratering, sour gas releases, uncontrollable flows of oil, natural gas or well fluids, adverse weather conditions, pollution, fires, spills and other environmental risks. In addition, in making these investments, the Fund must rely on estimates of oil and gas reserves. The process of estimating oil and gas reserves is complex, requiring significant decisions and assumptions in the evaluation of available geological, geophysical, engineering and economic data for each reservoir. As a result, these estimates are inherently imprecise.

Hedging Transactions. While the Fund and its portfolio companies may enter into hedging transactions to seek to reduce risk, such transactions may not be fully effective in mitigating the risks in all market environments or against all types of risk (including, without limitation, unidentified or unanticipated risks), thereby incurring losses to the Fund. In addition, such hedging transactions may result in a poorer overall performance for the Fund than if it had not engaged in any such hedging transactions. Moreover, it should be noted that (1) the Fund may not hedge against, or may not anticipate, certain risks and (2) the portfolio will always be exposed to certain risks that cannot be hedged, such as credit risk (relating both to particular securities and counterparties).

Volatility. The Fund’s performance may be volatile.

Leverage. The Fund may use leverage or otherwise obtain financing for its investments. Leveraging or financing a Fund’s investments magnifies gains and losses attributable to other investment policies and practices. At times, the Fund may be unable to obtain leverage, or may be unable to obtain leverage at attractive prices or favorable terms.

Competition. Certain markets in which the Fund may invest are extremely competitive for attractive investment opportunities and, as a result, the Funds might not be able to identify or successfully pursue attractive investment opportunities in such environments.

Illiquidity of Investments. An investment in the Fund is not suitable for investors who require ready liquidity in their investment. Many investments in the Fund, or the Fund’s underlying investments, may be illiquid. Such investments may not be readily marketable and may decline in value or be unable to be sold at all, even if the market value of the investments has increased. For example, the Fund’s investments may be in securities that are not readily marketable, and may not be able to sell such securities if market conditions are unfavorable. Investors should continue to assess their investment in the Fund in light of their own personal circumstances, investment goals and risk toleranceحكمات_PROXIMITY To the more complete disclosures contained in the Fund’s Confidential Private Offering Memorandum entitled “Certain Risk Factors and Potential Conflicts of Interest,” before investing in such Fund.

THIS GENERAL INVESTMENT FUND RISK DISCLOSURE IS NOT COMPLETE. THE ABOVE SUMMARY IS NOT A COMPLETE LIST OF THE RISKS AND OTHER IMPORTANT DISCLOSURES INVOLVED IN INVESTING IN THE FUNDS AND IS SUBJECT TO THE MORE COMPLETE DISCLOSURES CONTAINED IN EACH FUND’S CONFIDENTIAL PRIVATE PLACEMENT MEMORANDUM, WHICH MUST BE REVIEWED CAREFULLY.
Contact Information

Jeffrey W. Miller  
CEO / Managing Partner  
jmiller@vortus.com

Brian C. Crumley  
Managing Partner  
bcrumley@vortus.com

Brian E. Hansen  
Principal  
bhansen@vortus.com

Porter D. Pursley  
Vice President  
ppursley@vortus.com

Frank D. Lamsens  
CFO / CCO  
flamsens@vortus.com

Garrison R. Allen  
Analyst  
gallen@vortus.com

Vortus Investments  
407 Throckmorton Street, Suite 560  
Fort Worth, Texas 76102  
817.945.2400  
www.vortus.com