November 12, 2014

Board of Trustees
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Re: Carlyle Energy Mezzanine Opportunities Fund II, L.P.

Dear Trustees:

The Carlyle Group ("Carlyle" or the "Firm") is establishing Carlyle Energy Mezzanine Opportunities Fund II, L.P. ("CEMOF II", "Fund II" or the "Fund") to make privately negotiated mezzanine investments in energy and power projects and companies based in the United States and Canada. This strategy represents a continuation of Carlyle Energy Mezzanine Opportunities Fund, L.P., a $1.38 billion fund that began investing in mid-2011. Carlyle is seeking $2.5 billion of capital commitments for Fund II (no formal hard cap has been set at this time). The General Partner and its affiliates (collectively, Carlyle) will commit a minimum of $75.0 million to the Fund. The Firm anticipates holding a first closing for the Fund in December 2014. Fund II will pursue privately negotiated investments in projects and companies that own energy assets. The Fund will seek to create a diversified portfolio of credit and structured equity investments across the energy spectrum including: upstream and midstream oil and gas (reserves & production, gathering systems, pipelines, rail & barges and storage), energy-related infrastructure (refineries and processing plants), traditional and renewable power generation (wind, solar, geothermal, biomass and coal-fired & gas-fired power plants) and natural resources (metals and mining).

The Fund expects to offer an attractive risk-return profile, as investments will be collateralized with hard assets, such as power plants, oil & gas reserves, gathering systems, refineries and pipelines. In its debt investments, the Firm will usually take a 1st lien. In addition to collateral, debt investments will often be made at a discount to par (2% to 3% discount) and are typically structured with mandatory cash flows sweeps (generally 80% to 100%) and make-whole provisions (two to three years), further providing downside protection. The Firm also requires that all companies hedge any commodity risk as a covenant in its financing packages. Hedging is typically required for up to three years. Finally, development plans and capital expenditure budgets must be approved by the Firm prior to management undertaking any action. Overall, the Fund will target a gross IRR between 15% and 18%. It's expected that 6% to 8% of the target return will be generated through current cash pay interest or dividends, and the remainder through PIK interest, accrued dividends, warrants or other customized upside structures (i.e. net profits interest, royalty interest, etc.).

The Fund expects to invest in projects or companies primarily located in the U.S. and Canada. The Fund will have the ability though to invest up to one-third of commitments outside of North America. Investments will typically range from $30 million to $500 million in size (most investments will be north of $75 million though). The average ownership period is expected to be between two and five years.

Portfolio Advisors' recommendation is based upon the following analytical factors and is made within the context of PSERS' investment guidelines.

- Detailed due diligence, including interviews with industry peers and private equity professionals. The on-site due diligence visit was performed on October 16, 2014.
- Evaluation of the composition of the investment team, how they work together, compensation structure and other factors that help determine whether a group is likely to be able to replicate past successes as currently configured.
- Evaluation of the Fund's proposed investment strategy within the context of the current investment environment.
- The strategy proposed for the Fund is appropriate for the High Yield Fixed Income component of the portfolio.

The individuals at Portfolio Advisors who were primarily involved in the due diligence process for the Fund are:

William Indelicato – Managing Director, Connecticut Office
Geoffrey Kelleman – Senior Associate, Connecticut Office

Based on the above, Portfolio Advisors recommends that PSERS commit to up to $250 million of limited partnership interests in Carlyle Energy Mezzanine Opportunities Fund II, L.P. Portfolio Advisors makes this recommendation considering the General Partner's qualifications and PSERS' overall investment guidelines.

This recommendation is given solely for the benefit of PSERS and cannot be relied upon by other investors considering an investment in the Fund, since their needs, objectives and circumstances may not be identical to those of PSERS. The scope of this recommendation is limited to the investment merits of the Fund. Portfolio Advisors does not provide legal or other non-investment-related advice.

Sincerely,

WILLIAM J. INDELICATO
MANAGING DIRECTOR

Opportunistic High Yield Allocation

Carlyle Energy Mezzanine Opportunities Fund II, L.P.

December 8, 2014

Laurann H. Stepp
Senior Portfolio Manager

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Carlyle Energy Mezzanine Opportunities Fund II, L.P.

Investment Strategy/Fund Overview

- Pursue privately negotiated debt investments in real asset based energy exploration and production companies, and independent power projects and companies located primarily in the U.S. and Canada, with up to 1/3 of the Fund investments permitted elsewhere
- Target fund size $2.5 billion, with Carlyle commitment of at least $75 million
- Investments will generally range from $30 million to $500 million and typically have two to six year maturities and an average hold period of three years
- Investments will primarily include: (i) upstream and midstream oil and gas assets, (ii) energy-related infrastructure, servicing and processing assets, (iii) traditional and renewable power generation assets, and (iv) mining and related natural resource assets

Overview of The Carlyle Group

- Founded in 1987, and IPO occurred May 2012 with 21% now held by public investors
- One of world's largest and most diversified global alternative asset management firms
  - $203 billion in AUM
  - 1,600 employees in 40 offices globally
  - Over 1,650 active carry fund investors from 72 countries

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Carlyle Energy Mezzanine Opportunities Fund II, L.P.

CEMOF Investment Team

- The Carlyle Energy Mezzanine Opportunities Fund (CEMOF) team consists of eight employees located in Houston, and ten employees in New York City
- The CEMOF leadership team includes three former Morgan Stanley employees (Mitch Petrick, David Albert, and Rahul Culas) with a ten-year history of working together on successful commodity-hedged project financings, as well as a petroleum engineer and a geoscientist

GP "Value Add"

- Use extensive relationships, past experiences and Carlyle platform to evaluate privately negotiated investments and mitigate potential risks
- Investment framework focused on capital preservation, with criteria including: hard assets, reserves, current cash pay, proven technologies, risk mitigation structuring, experienced and proven management teams, and well regarded equity sponsorship
- Hold multidisciplinary skillsets that are not easy to replicate. Skills include: project finance, leverage finance, petroleum engineering, mechanical engineering, geosciences, commodities trading, and accounting and tax structuring, among others

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Carlyle Energy Mezzanine Opportunities Fund II, L.P.

Market Opportunity

- Industry has a large funding gap as companies often outspend free cash flow to develop reserves
- Cheap, abundant natural gas in the U.S. is prompting gas-intensive industrial development and expansions. Pennsylvania, Ohio and North Dakota are flush with production, demanding a massive build-out of energy infrastructure, including gathering systems, pipelines and rail lines. An estimated $47 billion of capital will be spent on U.S. oil and gas infrastructure projects
- Abundant opportunities arising from the rapid industrialization of Latin America, with many countries experiencing or anticipating reforms which would stimulate private investing in the energy sector

Investment Performance (as of 9.30.14)

The team from Morgan Stanley invested $2.4 billion in 19 principal energy financing transactions with yields ranging from 7% - 18%, and gross multiple on invested capital ranged from 1.16x to 1.90x with no defaults at the time of their departure from Morgan Stanley. Invested capital per deal ranged between $25 million and $644 million

- CEMOF I (2012) 20.4% net IRR, net 1.17x MOC since inception
- CEMOF II (2015) targeting a gross IRR of 15-18%, with 6-8% from current cash pay or dividends

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Carlyle Energy Mezzanine Opportunities Fund II, L.P.

History with PSERS

- This will be PSERS second CEMOF fund investment; in 2012 PSERS committed $200M
- PSERS has previously committed to the following Carlyle funds:
  - Carlyle Europe Real Estate Partners III-A, L.P.: $261.4M
  - Carlyle Realty III, L.P.: $141.0M
  - Carlyle Realty IV, L.P.: $130.0M
  - Carlyle Realty V, L.P.: $300.0M
  - Carlyle Realty VI, L.P.: $200.0M
  - Carlyle Realty VII, L.P.: $100.0M

Potential Risks

- Team Turnover

Since the team was formed in 2010 there has been 22 hires and 5 departures. Two of the departures were higher level employees: one was terminated for performance reasons, and the other was an amicable departure to move to another state. The current team adds the depth needed for Fund II

- Non-controlling interests and JV Partner risks

Mitigated by investments with equity upside, which are stringently underwritten and documented. These structured investments, often include: highly customized covenants with minimum performance milestones, asset specific guarantees and approval rights on development plans, make-whole provisions and cash sweeps

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Carlyle Energy Mezzanine Opportunities Fund II, L.P.

Board Issues

- Relationships with Portfolio Advisors: None
- Placement Agents: None
- Political Contributions in PA: None at State level, $5,000 to Mike Kelly, U.S. Congress and $5,000 to Robert Brady, U.S. Congress
- Investments in PA: CEMOF $54.2 million investment in Philadelphia Energy Solutions (the largest refinery in the Northeast) and $400 million investment in Carlyle Energy Development OpCo (Hilcorp) with properties located in Ohio and Pennsylvania

Recommendation

Staff, together with Portfolio Advisors, LLC, recommends that the Board invest $250 million plus reasonable normal investment expenses in Carlyle Energy Mezzanine Opportunities Fund II, L.P.