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Memo

To:	Members of the Investment Committee California Public Employees' Retirement System
From:	StepStone Group
Date:	December 14, 2015
Subject:	2015 Annual Infrastructure Program Review

In our role as the Board's Infrastructure Consultant, StepStone Group conducted an annual review of the Infrastructure Program ("the Program") for the year ending June 30, 2015. Our review covered program performance, implementation, Investment Policy ("Policy"), organization, and CalPERS Investment Beliefs. In StepStone's view, the Program's investment activity during the year has been consistent with the objectives and guidelines set forth in the Policy, and with CalPERS Investment Beliefs.[1]

Background

CalPERS Infrastructure Program was initiated in 2007. At CalPERS, "the role of infrastructure is to have ownership risk in essential infrastructure assets and provide predictable returns with moderate long-term inflation protection. Infrastructure also acts as an economic diversifier to equity risk."[2] CalPERS have a 1% target allocation to the asset class, with an interim range of 0% to 2%. As of June 30, 2015, the Program was 0.7% invested across nine manager relationships, eight commingled funds, two direct investments, and three separate accounts.

As we noted in our letter to the Board for the August Investment Committee, market conditions for core infrastructure have been competitive. Competition is particularly high in the markets that are a focus for CalPERS program, including the US, UK, and Australia. While StepStone expects these competitive conditions to continue over the medium term, the fundamentals of the asset class remain attractive for investment, and we see opportunities for investment created by a combination of shorter-term dislocations and longer-term growth trends across infrastructure sectors.

Infrastructure Market Overview

Demand for infrastructure investments from institutional investors remained strong during 2015. This demand was primarily a result of expansionary monetary policies in most markets, which has kept interest rates at very low levels and caused investors to seek alternatives to traditional sources of investment income. This demand continued to drive a high valuation environment for the infrastructure asset class, particularly in mature markets with a wide range of opportunities, such as Western Europe, the Nordic region and Australia.

Global economic growth continued to exhibit divergence in the second quarter. According to the IMF, global growth is projected at 3.3 percent in 2015, marginally lower than in 2014, with a gradual pickup in advanced economies and a slowdown in emerging market and developing economies. Growth in advanced economies is projected to increase from 1.8 percent in 2014 to 2.1 percent in 2015. During the second quarter, accommodative central bank policies, lower fuel prices, and improving confidence and labor market conditions helped to accelerate economic activity in advanced economies. Conversely, growth in emerging market and developing economies is projected to slow from 4.6 percent in 2014 to 4.2 percent in 2015. The slowdown reflects several

[1] As StepStone term as Board's infrastructure consultant began in March 2015, portions of our review are limited to activity occurring since then.
[2] CalPERS 2013 ALM Workshop.

factors, including lower commodity prices and tighter external financial conditions, structural bottlenecks, rebalancing in China and economic distress related to geopolitical factors.

Infrastructure investment in the US and Canada has been concentrated in the energy sector. The continued development of North American shale gas and crude oil supplies requires significant capital investment in midstream infrastructure to bring growing supplies to market. At the same time, changes in regional supply and demand dynamics, such as the unprecedented production growth from new supply sources in the Marcellus, Utica and the Bakken shale formations and growing demand in the Gulf Coast region from petrochemical facilities, LNG export terminals and natural gas exports into Mexico, are dramatically altering traditional flows across the United States and impacting the value of transmission assets.

While public-private partnership ("P3") activity in the US remains at a relatively nascent stage compared to other countries, the primary drivers are present, such as fiscal constraints on public-sector funding for infrastructure and the opportunity for risk sharing in infrastructure development and operations. A number of states are entertaining legislation to allow private investment in infrastructure. And, the Obama administration announced a clean-energy investment program in June that includes US$4 billion in commitments from the private sector, including more than US$1 billion from institutional investors.

European markets remain competitive, with a significant amount of capital targeting infrastructure investment in the region. The resulting upward pricing pressure, combined with uncertain medium-term economic growth in the Eurozone, ongoing financial sector reforms, concerns surrounding bank capital adequacy, and geopolitical risks in Eastern Europe, present an uncertain outlook for investors. Notwithstanding this, activity levels are being sustained by the ongoing unbundling of integrated utilities, commitments to renewable energy targets, balance sheet deleveraging by existing asset owners, and security of energy supply priorities. There have been more infrastructure assets coming to market via government privatizations, increased use of PPPs for new assets and through corporate restructurings. Future infrastructure needs in Europe remain significant and recent estimates total approximately €1.0 trillion of capital required for the European Union's energy systems through 2020.

Investment activity in Mexico and Latin America remains strong. In Mexico, recent changes in government policy are driving significant growth in infrastructure investment opportunities. Policy initiatives include allowing foreign investment in the energy sector and a National Infrastructure Plan that contains 743 projects requiring investment of approximately US$600 billion from 2014 to 2018. StepStone is aware of several infrastructure fund managers reviewing opportunities in Mexico. Infrastructure is a political and economic priority in many other parts of Latin America, including Brazil, Chile, Peru and Columbia, each of which continues to provide a range of potential investment opportunities.

While infrastructure investment in Japan has traditionally been dominated by government-related entities and infrastructure companies with limited private participation by institutional investors, the government continues to face high debt levels. The country recently announced the privatization act for infrastructure assets. In Australia, fiscal constraints placed on the federal and state governments have increased the reliance on private sector capital in meeting the country's infrastructure deficit. Government initiatives have encouraged a number of high profile opportunities including ports, energy and airport privatizations.

Infrastructure Fundraising

Fundraising for infrastructure strategies continues to be robust with a large number of funds in market, although the aggregate amount raised by funds that closed during the second quarter was down compared to recent periods. During the second quarter, US$4.4 billion was raised by infrastructure managers. The amount represented

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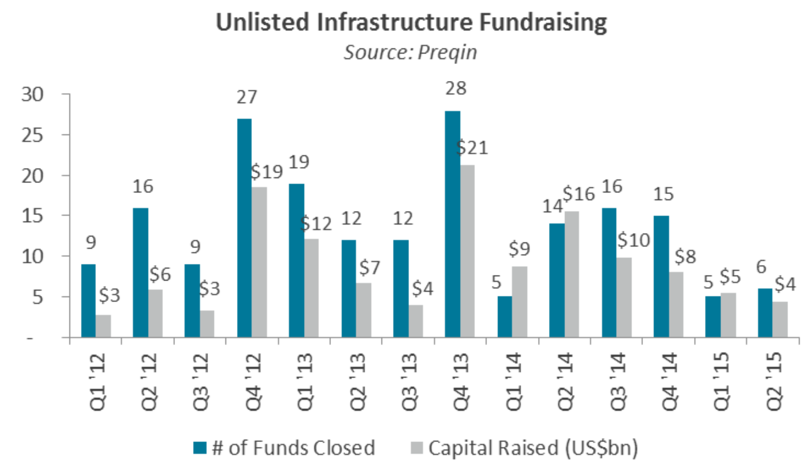
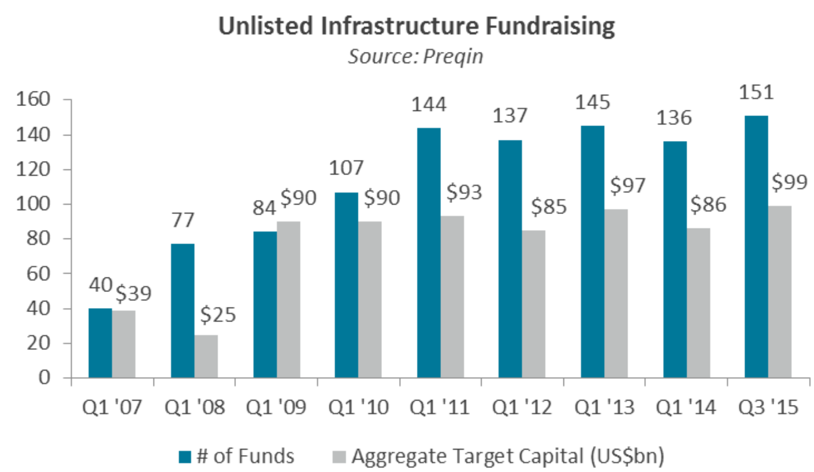
a year over year decrease of 72% compared to Q2 2014, when 14 funds held a final close raising US$15.5 billion. Despite this slow-down in the rate of new allocations and commitments to infrastructure during the first half of 2015, we expect that aggregate allocations to infrastructure will continue to increase, driven by higher penetration of medium and small institutional investment allocations and by a continuing low interest rate, low inflation environment.

At the beginning of the third quarter, Preqin observed 151 funds in market targeting aggregate capital commitments of US$99 billion. The largest funds in market include: Alinda Infrastructure Fund III, targeting US$5.0 billion; Morgan Stanley Infrastructure Partners II, targeting US$4.0 billion; ArcLight Energy Partners Fund VI, targeting US$4.0 billion; Ardian Infrastructure Generation IV, targeting €2.5 billion; and The UK Technologies Media Telecommunications and Infrastructures Fund, targeting €2.5 billion to focus on investments in large-scale communications projects in the UK and disruptive European start-ups in the TMT industry.



In the fourth quarter of 2015, two of the largest infrastructure funds ever raised was announced, indicating that fundraising for the asset class is rebounding. Global Infrastructure Partners, an independent infrastructure manager is seeking to raise up to US$15 billion for fund, while Brookfield is targeting US$10 billion for its third infrastructure fund.



Investment Performance

For the one-year period ending June 30, 2015, the Program returned net 13.2%, which compares to the Policy Index return of 3.9%, representing an excess return of 9.3%.[3] Over the trailing three and five-year periods, the Program returned 13.7% and 17.8%, respectively. Returns for each of these periods exceeded the Policy Index by 8.7% and 11.7%, respectively.

June 30, 2015	One Year	Three Year	Five Year
Infrastructure Program Returns[1]	13.2%	13.7%	17.8%
Policy Index (CPI+400 BPS)	3.9%	5.0%	6.1%
Excess Return	9.3%	8.7%	11.7%

[3] The Policy Index is Consumer Inflation Index ("CPI") + 400 basis points, lagged one quarter.

Consistent with performance during prior periods, the Program's Defensive Plus investments demonstrated the strongest performance for the one-year period. Portfolio risk was generally consistent with the prior period. For fiscal year 2015, defensive risk investments represented 33% of the portfolio, up from 30% during the prior period. Strong performance continued to be driven by the Program's direct investments and commingled fund investments. Since the performance of more recent commitments to Defensive-risk custom accounts and commingled funds is not yet meaningful, we expect performance to moderate over time. Further, as infrastructure is a long-term, private market investment strategy, one year results will be less meaningful than performance over longer periods.

Investment Activity

CalPERS' commitment pacing for the period increased over the prior year, despite the market challenges discussed above. During the one-year period ending June 30, 2015, the Program made US$1.5 billion in commitments to two commingled funds and two separate accounts, which resulted in an increase in NAV by US$400 million. In August 2014, CalPERS committed US$300 million to North Haven Infrastructure Fund II, managed by Morgan Stanley, and US$250 million to UBS International Infrastructure Fund II. CalPERS invested an additional US$250 million in a separate account managed by UBS. In May 2015, CalPERS committed A$1 billion (US$764 million) to separate account managed by Queensland Investment Corporation ("QIC") to focus on infrastructure investment opportunities in the Asia-Pacific region. The ability to negotiate non-discretionary separate accounts has continued to provide access to experienced and resourced managers, while retaining the ability to have control over asset selection, and negotiate favorable governance provisions, terms, and economics that realize cost savings for CalPERS. Subsequent to the reporting period, Program Staff has reviewed multiple investment opportunities presented by their separate account managers.

Since beginning in our role as Infrastructure Board Consultant in March 2015, StepStone has reviewed and provided opinion letters on four transactions, including three investment proposals and one new separate account proposal. Due to competitive conditions, none of the transactions reached financial close. In addition to reviewing Staff's investment recommendations, StepStone also participated in Real Asset Investment Committee meetings and was able to observe Staff's due diligence process, use of external resources, and the deal flow provided by the Program's investment partners. Overall, we found the Program's investment process to be comprehensive and the Investment Committee discussion of potential investments to be robust and focused on achieving outcomes that are consistent with Policy and CalPERS Investment Beliefs. In particular, Staff demonstrated discipline in bidding on potential investments in very competitive conditions.

Investment Policy: Strategic Role and Objectives

Activity during the year was consistent with the Program's strategic role and objectives as outlined in the Policy. StepStone notes the following:

Policy Objective	Comment
Preserve investment capital	• 80% of the Program's NAV is invested in Defensive and Defensive Plus risk segments. • 98% of the Program's NAV is located in OECD countries (60% in the US).
Generate stable investment returns that are attractive, on a risk adjusted basis, relative to the program benchmark	• For the one year period, the Program returned net 13.2%, which compares to the Policy Index return of 3.9%, representing an excess return of 9.3%. • Returns for the three and five year periods, also exceeded the Policy Benchmark.

Policy Objective	Comment
Provide cash distributions as a prominent component of investment returns	• For the one year period, the Program's investments earned net 2.8% in income. • The Program targets investments in assets with stable income. • As the Program's investments mature, income is expected to become a more prominent component of the overall return.
Provide long-term inflation protection	• The Program targets essential infrastructure assets, which often have inflation linkage through indexation to CPI through regulation or contractual provisions.
Diversify CalPERS investments	• Defensive and Defensive Plus infrastructure investment strategies are expected to demonstrate a low correlation to other asset classes in which CalPERS invests.
Establish CalPERS reputation as a premier infrastructure investment manager and investor of choice within the investment community	• During the year, the Program invested with established infrastructure investors, including Morgan Stanley, UBS, and QIC.
Practice responsible investment to support efficient operation of assets, delivery of quality services, utilization of responsible labor and management practices and implementation of responsible environmental practices	• All transactions completed by the Program during the year were required to comply with CalPERS investment policies, including the Responsible Contractor Program ("RCP") Policy, which was updated in July 2015, and the Sustainable Investment Practice Guidelines. • In 2015, CalPERS became a founding member of the Global Real Estate Sustainability Benchmark ("GRESB") for Infrastructure and is represented on the GRESB Infrastructure Advisory Board.
Foster renewal and expansion of infrastructure assets	• The managers and partners with whom CalPERS have demonstrated an ability to increase the value of infrastructure assets, and we expect this to continue with the Program's new relationships.

Investment Policy: Key Policy Parameters

As of June 30, 2015, the Program was in compliance with the key parameters outlined in the Policy, including diversification and concentration limits by risk type and region.[4] The Program was also in compliance with the Policy leverage limits. On the overall infrastructure portfolio, leverage was 47% of the total Program, compared to a long-term strategic limit of 65%.

Organization

During the year, four positions in the Program were filled, and one position was transferred to Real Estate. In March 2015, Paul Mouchakkaa was hired as a Managing Investment Director, Real Assets, replacing Tom McDonough, who was serving as Senior Investment Officer, Real Assets, on an interim basis.

In July 2015, Mr. Mouchakkaa initiated a process to integrate the Real Asset component programs (Real Estate, Infrastructure and Forestland). The changes were driven by the belief that the respective programs have similar objectives, and that integration is consistent with the Vision 2020 objective of reducing complexity across the organization. As part of this effort, the Real Estate and Infrastructure and Forestland Investment Committees were integrated to form a single Real Asset Investment Committee. StepStone was also added to the Committee and is able to provide comments on transactions in review. Further, the Real Assets Program staff was reorganized and several individuals were assigned to new roles with the Real Assets Unit. The primary changes include (1) the division of the investment team into a distinct Portfolio Management Group, focused on existing investments, and a New Investments Team; and (2) the reassignment of responsibilities among Real Estate and Infrastructure

[4] According to Section V.F.2 of the Policy, the requirement to meet Key Policy Parameters pertaining to Risk Segments and Geography applies only when the Program NAV exceeds US$3.0 billion. As of June 30, 2015, the Program's NAV was US$2.2 billion.

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Investment Staff, such that several investment professionals now have responsibilities for investments in both of the asset classes.

As these changes are relatively new and ongoing, it is premature for us to provide an opinion to the Board on the impact and effectiveness of these changes. We will continue to monitor any changes resulting from the reorganization and update the Board as appropriate.

Investment Beliefs

Both the characteristics of the infrastructure asset class and CalPERS's approach to infrastructure investment are generally consistent with many of CalPERS' Investment Beliefs, examples of which are identified below:

	Investment Beliefs	Comment
1.	Liabilities must influence the asset structure	• The role of infrastructure at CalPERS (investing in in essential infrastructure assets and provide predictable returns with moderate long-term inflation protection) is consistent with its liability structure.
2.	A long time horizon is a responsibility and an advantage	• Infrastructure is typically long-lived, and CalPERS' seeks to implement a "buy and hold" approach.
3.	CalPERS investment decisions may reflect wider stakeholder views	• Infrastructure assets have multiple stakeholders. Effective management and strong governance can positively impact investment outcomes.
4.	Long-term value creation requires effective management of three forms of capital: financial, physical, and human	• Implementation of the Sustainable Investment Practice Guidelines. • Focus on governance, alignment and risk sharing in structuring accounts with investment partners.
5.	CalPERS must articulate its investment goals and performance measure and ensure clear accountability for their execution	• Organizational changes in Real Assets have focused on creating efficiencies and accountability across asset classes. • Building a consistent and repeatable investment process across the investment teams has been an additional focus.
6.	Strategic asset allocation is the dominant determinant of portfolio risk and return	• The strategic role of infrastructure at CalPERS is defined through the ALM process and is a guideline for the Program's investment activities.
7.	CalPERS will take risk only where we have a strong belief we will be rewarded	• The Program's investments are weighted towards lower risk (Defensive) investments, yet have consistently outperformed the Policy Benchmark.
8.	Costs matter and need to be effectively managed	• A combination of CalPERS' scale and the utilization of separate accounts to partner with experienced managers enable the Program to invest at below market fees.
9.	Risk to CalPERS is multifaceted and not fully captured through measures such as volatility or tracking error	• The infrastructure due diligence process is focused on identifying numerous risks associated with infrastructure investment, including risks associated with counterparties, regulation, public sector exposure, and others. • Investment Staff should continue to develop its monitoring procedures and capabilities to assess risk post-investment.
10.	Strong processes and teamwork and deep resources are needed to achieve CalPERS' goals and objectives	• Recent initiatives focused on Real Assets integration have also provided an opportunity for Staff to focus on streamlining and strengthening the investment process and procedures, while seeking to create efficiencies in resource allocation.

Conclusion

While StepStone only began working with the Infrastructure Program in March of this year, the investment activity we have observed thus far is consistent with Program's objective and strategic role, Policy, and CalPERS' Investment Beliefs. Despite competitive market conditions during Fiscal 2015, the Program was successful in making new commitments to high-quality managers. As mentioned, the integration of the Real Assets unit is recent and ongoing; StepStone will continue to observe the implementation of this new structure and will share our views with the Board.

StepStone welcomes the opportunity to answer any questions of the Investment Committee.

This document is intended only to provide a broad overview for discussion purposes. All information provided here is subject to change.

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