

California State Teachers' Retirement
System (CalSTRS) Pays High Cost for
Holding on to Fossil Fuel Stocks:
A Corporate Knights Analysis

About Corporate Knights

Mission: *to provide information that empowers people to harness markets for a better world*

- Toronto-based B-Corporation with a media and research division, which includes the award-winning sustainable business magazine *Corporate Knights*.
- The research division produces corporate ratings, rankings, research reports and financial product ratings based on corporate sustainability performance.
- Over a decade of experience performing corporate sustainability ratings: [*Global 100 Most Sustainable Corporations in the World, and Sustainable Stock Exchanges Ranking*](#)

Methodology

- Based on quarterly data retrieval of CalSTRS's equity portfolio, as disclosed in security filings (security names, identifiers, number of shares and market value) provided by S&P Capital IQ over 40 quarters from June 30 2009 to June 30 2019.
- Plotted three scenarios using public data:
 - 1) CalSTRS fossil fuel free portfolio that excludes all stocks in the GICS Sector = Energy, as well as other stocks generating 50%* or more revenue from fossil fuel ("Fossil-free 50% and above").
 - 2) CalSTRS fossil fuel free portfolio that excludes all stocks in the GICS Sector = Energy, as well as other stocks generating 10%* or more revenue from fossil fuel ("Fossil-free 10% and above").
 - 3) CalSTRS equity portfolio as disclosed in security filings – with no exclusions
- The performance comparison period ran for 40 quarters from July 1, 2009 to June 30, 2019. Returns were compounded daily and portfolios were re-balanced each quarter according to public filings accounting for fund inflows and outflows.

** Exclusion thresholds were determined according to % revenues earned from extracting, refining, burning or transporting thermal coal, oil or gas. The value of excluded fossil fuel stocks was re-invested in the fund's remaining stocks, proportionate to their market value in the portfolio. See Appendix A for the criteria by which companies were qualified.*

Results

Based on analysis of public security filings (representing 45% of total equities exposure) over the past 10 years, CalSTRS would have generated an estimated additional \$5.5 billion in value had the fund divested its (10% threshold) fossil fuel stocks* in favour of the rest of the portfolio.



* Defined as those in the GICS Sector = Energy and those with >10% fossil fuel revenue exposure

Results *(continued)*

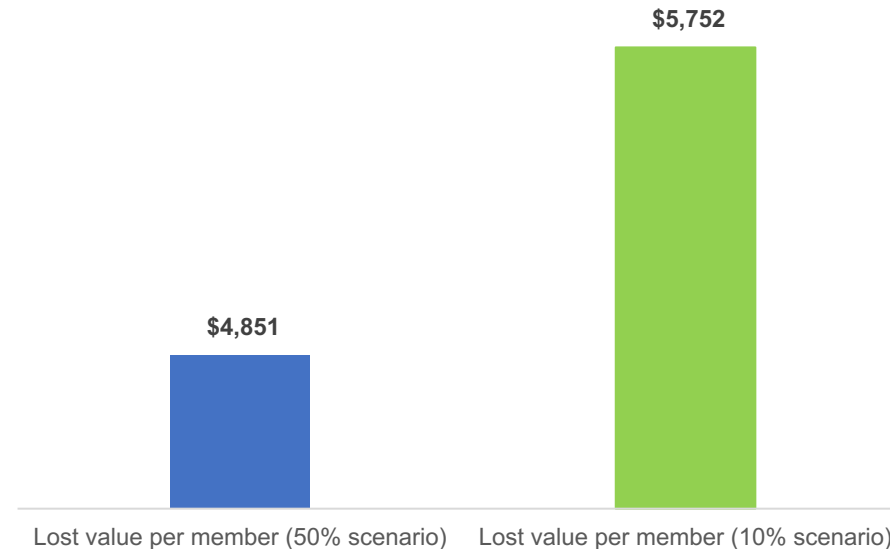
Based on analysis of public security filings (representing 45% of total equities exposure) over the past 10 years, CalSTRS would have generated an estimated additional \$4.6 billion in value had the fund divested its (50% threshold) fossil fuel stocks* in favour of the rest of the portfolio.



* Defined as those in the GICS Sector = Energy and those with >50% fossil fuel revenue exposure

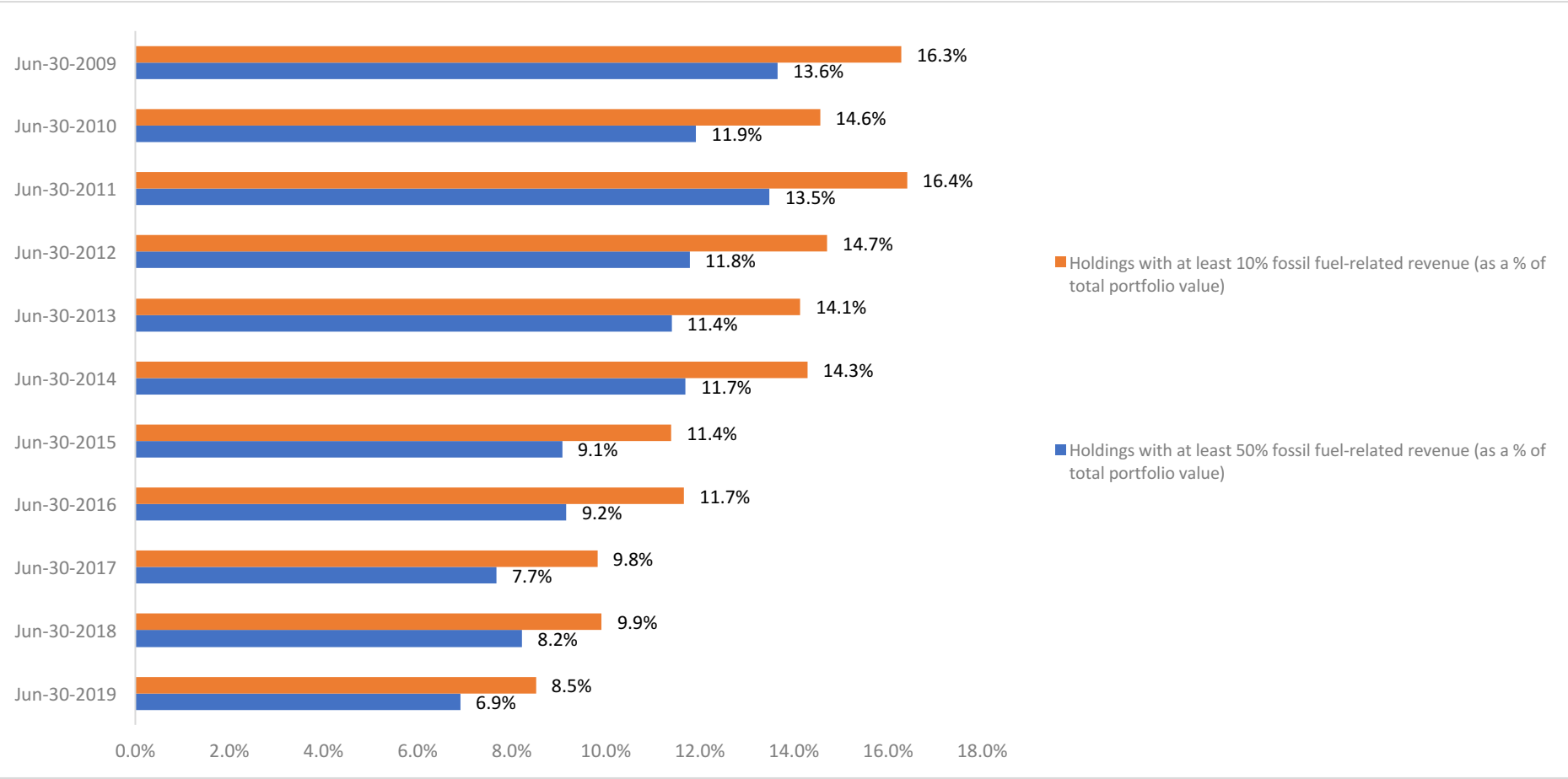
Lost value per member (for publicly disclosed equities)

- Based on analysis of public security filings (representing 45% of total equities exposure) over the past 10 years, CalSTRS would have generated an estimated additional \$5,752* in value per member had the fund divested its fossil fuel stocks (those in the GICS Sector = Energy and those with >10% fossil fuel revenue exposure) in favour of the rest of the portfolio.
- Under the fossil-free 50% scenario, this amount would be \$4,851*.



CalSTRS fossil fuel holdings as % of disclosed equities

CalSTRS publicly disclosed holdings of fossil fuel stocks show a general decline in value over the past ten years, due to general erosion in the relative value of fossil fuel stocks as compared to the rest of the market.



Fossil fuel-related industries significantly underperformed other industries

Both the Oil, Gas and Consumable Fuels industry and the Energy Equipment and Services industry¹ performed below the median % returns (258.51%) from all industry sectors in the portfolio.²

Top 10 GICS Industries by total return (01-07-2009 to 30-06-2019)	Return
Internet and Direct Marketing Retail	1237.55%
Media	596.10%
Entertainment	591.83%
Airlines	579.26%
Road and Rail	571.10%
Technology Hardware, Storage and Peripherals	517.83%
Life Sciences Tools and Services	512.85%
IT Services	506.33%
Software	490.61%
Interactive Media and Services	490.13%

Bottom 10 GICS Industries by total return (01-07-2009 to 30-06-2019)	Return
Diversified Consumer Services	74.97%
Oil, Gas and Consumable Fuels	73.22%
Marine	58.20%
Construction and Engineering	56.09%
Thriffs and Mortgage Finance	46.18%
Independent Power and Renewable Electricity Producers	44.98%
Metals and Mining	18.41%
Energy Equipment and Services	(17.21%)
Transportation Infrastructure	(37.76%)
Tobacco	(43.03%)

Large fossil fuel companies held back performance while tech, healthcare, retail and entertainment boosted performance

Stock	Stock Return	Average Weight	Differential with Fossil-free (10% and above) portfolio return of 317.57%
Apache Corporation (NYSE:APA)	-53.87%	0.16%	-371.44%
Devon Energy Corporation (NYSE:DVN)	-40.82%	0.14%	-358.39%
National Oilwell Varco, Inc. (NYSE:NOV)	-11.57%	0.13%	-329.14%
Schlumberger Limited (NYSE:SLB)	-8.62%	0.54%	-326.19%
Marathon Oil Corporation (NYSE:MRO)	-5.05%	0.11%	-322.62%
Kinder Morgan, Inc. (NYSE:KMI)	-2.44%	0.11%	-320.01%
Occidental Petroleum Corporation (NYSE:OXY)	11.08%	0.36%	-306.49%
Halliburton Company (NYSE:HAL)	26.86%	0.20%	-290.71%
Exxon Mobil Corporation (NYSE:XOM)	49.74%	2.09%	-267.83%
Baker Hughes, a GE company, LLC (NYSE:BHI)	63.91%	0.10%	-253.66%

Stock	Stock Return	Average Weight
Amazon.com, Inc. (NasdaqGS:AMZN)	2,163.48%	0.98%
Visa Inc. (NYSE:V)	1,098.54%	0.56%
UnitedHealth Group Incorporated (NYSE:UNH)	1,025.06%	0.50%
The Home Depot, Inc. (NYSE:HD)	1,019.05%	0.62%
Apple Inc. (NasdaqGS:AAPL)	1,010.49%	2.76%
Microsoft Corporation (NasdaqGS:MSFT)	618.10%	1.88%
Comcast Corporation (NasdaqGS:CMCS.A)	603.85%	0.58%
The Walt Disney Company (NYSE:DIS)	586.39%	0.64%
Facebook, Inc. (NasdaqGS:FB)	520.68%	0.63%
Alphabet Inc. (NasdaqGS:GOOG.L)	413.67%	1.65%

CalSTRS and Fossil Fuel Free CalSTRS compared

July 1 2009 – June 30 2019

Portfolio Statistics	Current portfolio	Fossil free (10%)	Fossil free (50%)	S&P 500 Index (BM)
Total Return	284.22%	317.57%	312.38%	294.16%
Standard Deviation of Return	15.30%	15.19%	15.20%	14.99%
Semi-Deviation	10.85%	10.77%	10.79%	10.59%
Sharpe Ratio	0.91	0.98	0.97	0.95
Tracking Error	0.07%	0.10%	0.09%	-
Beta	1.02	1.01	1.01	-

Appendix A

How Companies Were Qualified: Methodology

- Companies in the GICS Sector = Energy were categorized according to GICS classification by S&P.
- Percentage of revenue earned from extracting, refining, burning or transporting thermal coal, oil or gas was determined using segmented revenues from FactSet RBICS and Corporate Knights research.
- Two fossil fuel stock lists were constructed: one consisting of all stocks (with greater than \$1b FY2017 revenue) which earn more than 10% of total revenues from fossil fuel activities, and a second list with the fossil fuel revenue threshold set at 50%.
- Companies which derive more than 50% of total F2017 revenues from clean energy-related businesses were exempted from both of the fossil fuel stock lists.

Appendix B: 10% Threshold

Applying the total returns results from the holdings disclosed in the U.S. SEC 13F forms and U.K. Share Register, and extrapolating into CalSTRS's total equity holdings value as disclosed in their Comprehensive Annual Financial Reports and press releases, CalSTRS would be an estimated \$14.3 billion richer (generating an estimated additional \$15,039* in value per member) had it decided to divest its stocks with fossil fuel revenue of above 10% ten years ago.



Appendix C: 50% Threshold

Applying the total returns results from the holdings disclosed in the U.S. SEC 13F forms and U.K. Share Register and extrapolating into CalSTRS's total equity holdings value as disclosed in their Comprehensive Annual Financial Reports, CalSTRS would be an estimated \$12.4 billion richer (generating an estimated additional \$13,088 in value per member*) had it decided to divest its stocks with fossil fuel revenue of above 50% ten years ago.



Appendix D: Industry Returns

GICS Industry	Total return (30-06-2009 to 30-06-2019)
Internet and Direct Marketing Retail	1237.55%
Media	596.10%
Entertainment	591.83%
Airlines	579.26%
Road and Rail	571.10%
Technology Hardware, Storage and Peripherals	517.83%
Life Sciences Tools and Services	512.85%
IT Services	506.33%
Software	490.61%
Interactive Media and Services	490.13%
Aerospace and Defense	469.13%
Consumer Finance	454.01%
Hotels, Restaurants and Leisure	451.51%
Water Utilities	425.99%
Textiles, Apparel and Luxury Goods	417.94%
Specialty Retail	414.66%
Health Care Technology	399.79%
Insurance	374.40%
Health Care Providers and Services	362.81%
Machinery	362.40%

GICS Industry	Total return (30-06-2009 to 30-06-2019)
Distributors	349.83%
Equity Real Estate Investment Trusts	345.09%
Semiconductors and Semiconductor Equipment	337.80%
Biotechnology	329.51%
Building Products	328.66%
Gas Utilities	325.02%
Trading Companies and Distributors	312.53%
Auto Components	296.37%
Chemicals	289.51%
Containers and Packaging	279.54%
Pharmaceuticals	276.63%
Multi-Utilities	273.46%
Electrical Equipment	271.83%
Household Durables	268.47%
Commercial Services and Supplies	258.51%
Beverages	258.15%
Communications Equipment	249.67%
Construction Materials	244.41%
Health Care Equipment and Supplies	238.45%
Electronic Equipment, Instruments and Components	235.89%

Appendix D *(continued)*

GICS Industry	Total return (30-06-2009 to 30-06-2019)
Automobiles	230.82%
Professional Services	216.09%
Food Products	212.63%
Food and Staples Retailing	212.50%
Household Products	200.05%
Leisure Products	199.53%
Multiline Retail	195.68%
Electric Utilities	192.48%
Industrial Conglomerates	192.00%
Paper and Forest Products	186.79%
Banks	186.68%
Capital Markets	172.89%
Air Freight and Logistics	172.81%
Personal Products	170.95%
Mortgage Real Estate Investment Trusts	167.35%
Diversified Financial Services	148.64%
Diversified Telecommunication Services	143.60%

GICS Industry	Total return (30-06-2009 to 30-06-2019)
Real Estate Management and Development	119.21%
Wireless Telecommunication Services	87.44%
Diversified Consumer Services	74.97%
Oil, Gas and Consumable Fuels	73.22%
Marine	58.20%
Construction and Engineering	56.09%
Thriffs and Mortgage Finance	46.18%
Independent Power and Renewable Electricity Producers	44.98%
Metals and Mining	18.41%
Energy Equipment and Services	(17.21%)
Transportation Infrastructure	(37.76%)
Tobacco	(43.03%)
Median industry return	258.51%