



**ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF RETIREMENT**

**2021 STRATEGIC PLANNING WORKSHOP
Wednesday, September 8, 2021
8:30 A.M.**

Pursuant to Executive Order N-29-20, certain provisions of the Brown Act are suspended due to a State of Emergency in response to the COVID-19 pandemic. Consistent with the Executive Order, this meeting will be conducted by video/teleconference only. None of the locations from which the Board members will participate will be open to the public.

Members of the public who wish to observe and/or participate in the meeting may do so via the Zoom app or via telephone. Members of the public who wish to provide comment during the meeting may do so by “raising your hand” in the Zoom app, or if joining by telephone, by pressing * 9 on your telephone keypad.

OCERS Zoom Video/Teleconference information	
<p>Join Zoom Meeting https://ocers.zoom.us/j/98996692973</p> <p>Meeting ID: 989 9669 2973 Passcode: 982960</p> <p>Go to https://www.zoom.us/download to download Zoom app before meeting Go to https://zoom.us to connect online using any browser.</p>	<p>Join by Telephone (Audio Only) Dial by your location</p> <ul style="list-style-type: none"> +1 669 900 6833 US (San Jose) +1 346 248 7799 US (Houston) +1 253 215 8782 US (Tacoma) +1 312 626 6799 US (Chicago) +1 929 436 2866 US (New York) +1 301 715 8592 US (Washington DC) <p>Meeting ID: 989 9669 2973 Passcode: 982960</p>
<p>A Zoom Meeting Participant Guide is available on OCERS website Board & Committee meetings page</p>	

Agenda

- | | |
|---|--------------------|
| <p>1. WELCOME & INTRODUCTORY COMMENTS
 Steve Delaney, CEO, OCERS</p> | 8:30 – 8:45 |
| <p>2. HEARING FROM OUR STAKEHOLDERS
 Michelle Aguirre, Chief Financial Officer, County of Orange;
 Sam Penrod, Human Resources and Risk Manager, City of San Juan Capistrano; and
 David Main, President, Association of County Law Enforcement Managers</p> | 8:45 – 9:30 |

For more than a decade we have started each workshop by first hearing from our stakeholders.



3. LESSONS LEARNED FROM A PENSION CRISIS	9:30 – 10:30
Gregg Rademacher, CEO, San Diego City Employees Retirement System	
BREAK	10:30 – 10:45
4. LIQUIDITY ANALYSIS	10:45 – 11:30
Shanta Chary, Director of Investments, OCERS and Michael Buchenholz, CFA, FSA, Executive Director, J.P. Morgan Asset Management	
5. PORTFOLIO LEVERAGE AND CAPITAL EFFICIENCY	11:30 – 12:30
Frank Benham, CFA, CAIA, Managing Principal/Director of Research, Meketa and Jason Josephiac, CFA, CAIA, Senior Vice President/Research Consultant, Meketa	
ADJOURNMENT	12:30



**ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF RETIREMENT**

**2021 STRATEGIC PLANNING WORKSHOP
Thursday, September 9, 2021
8:30 A.M.**

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OCERS Zoom Video/Teleconference information	
<p>Join Zoom Meeting https://ocers.zoom.us/j/99168046699 Meeting ID: 991 6804 6699 Passcode: 186066</p> <p>Go to https://www.zoom.us/download to download Zoom app before meeting Go to https://zoom.us to connect online using any browser.</p>	<p>Join by Telephone (Audio Only) Dial by your location</p> <ul style="list-style-type: none"> +1 669 900 6833 US (San Jose) +1 346 248 7799 US (Houston) +1 253 215 8782 US (Tacoma) +1 929 436 2866 US (New York) +1 301 715 8592 US (Washington DC) +1 312 626 6799 US (Chicago) <p>Meeting ID: 991 6804 6699 Passcode: 186066</p>
<p>A Zoom Meeting Participant Guide is available on OCERS website Board & Committee meetings page</p>	

Agenda

- | | |
|-------------------------------------|----------------------|
| 1. WELCOME AND INTRODUCTIONS | 8:30 – 8:45 |
| Molly Murphy, CFA, CIO, OCERS | |
| 2. THE ENERGY BIG PICTURE | 8:45 – 10:00 |
| Nic DiLoretta, Aksia | |
| BREAK | 10:00 – 10:15 |



3. VISION 2030

Steve Delaney, CEO, OCERS and Neil Sahota, United Nations Artificial Intelligence (AI) Advisor

10:15 – 11:45

4. 2022 BUSINESS PLAN AND BUDGET

Brenda Shott, Assistant CEO, Finance and Internal Operations

11:45– 12:30

5. CLOSING REMARKS

Shawn Dewane, Trustee, OCERS
Steve Delaney, CEO, OCERS

12:30

Lessons Learned from a Pension Crisis

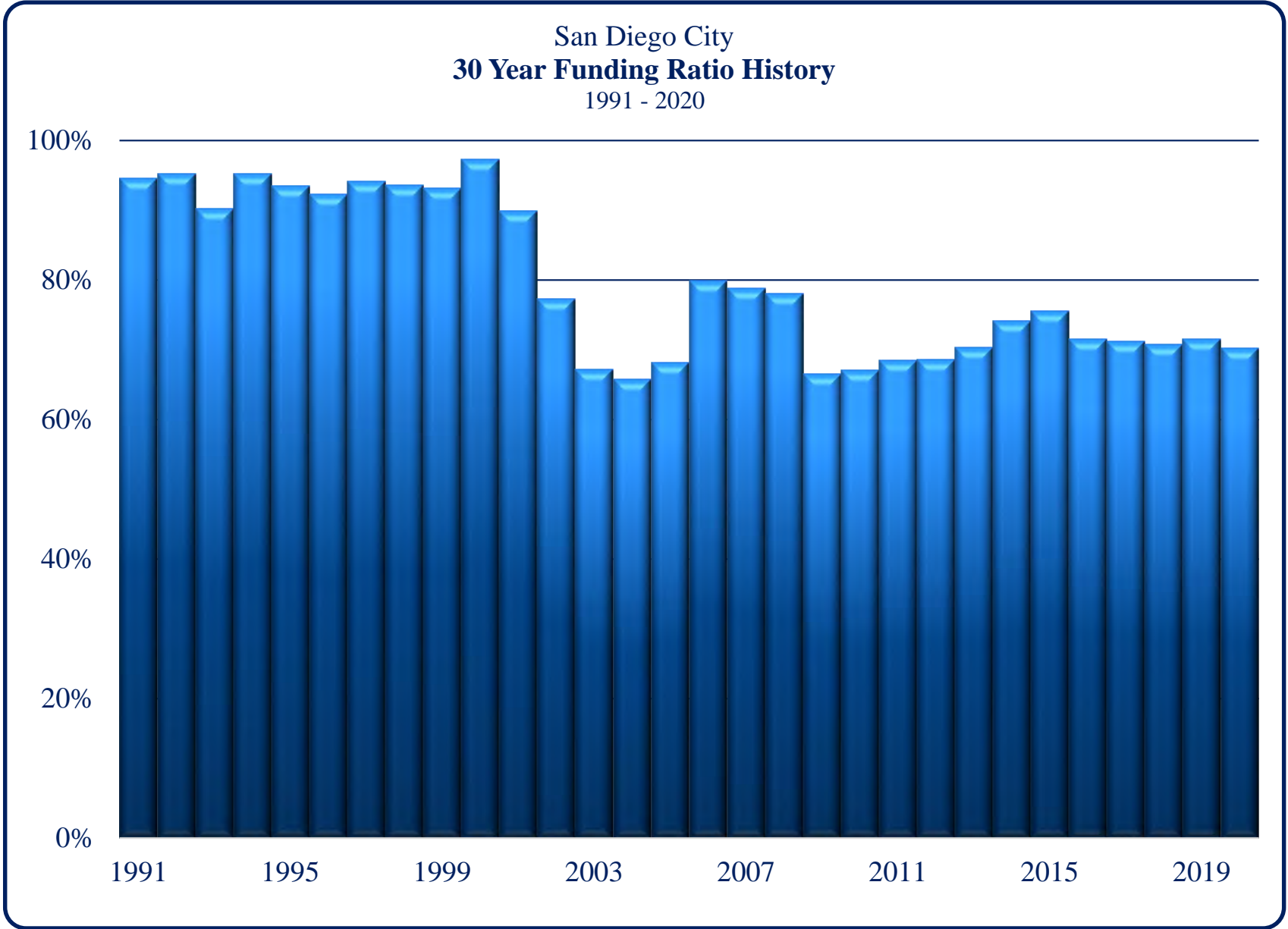
*A special presentation for the
Orange County Employees'
Retirement System*

September 8, 2021

Gregg Rademacher
Chief Executive Officer
San Diego City Employees Retirement System

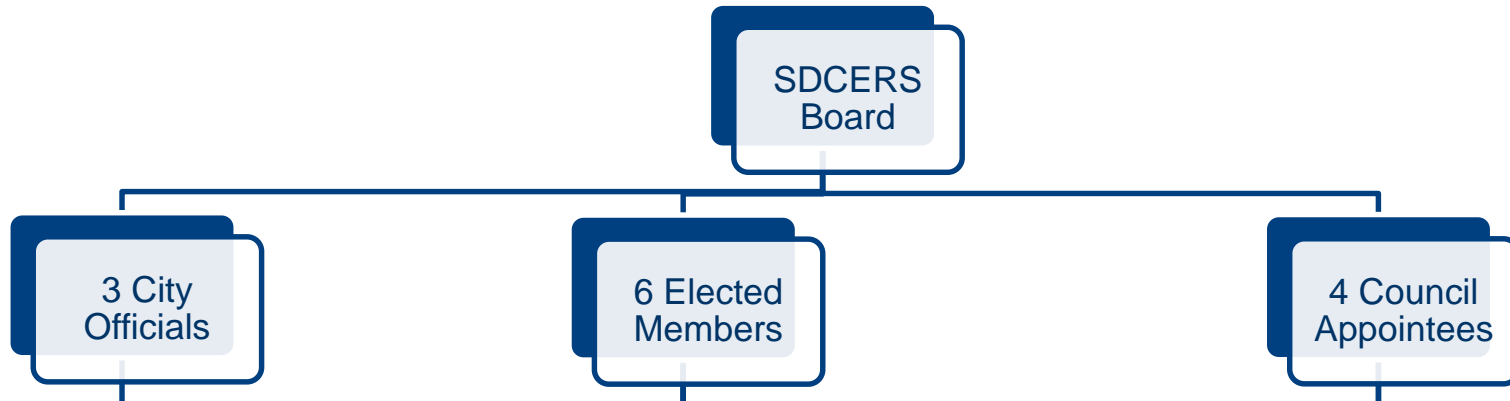


San Diego City
30 Year Funding Ratio History
1991 - 2020





SDCERS Board Pre - 2005

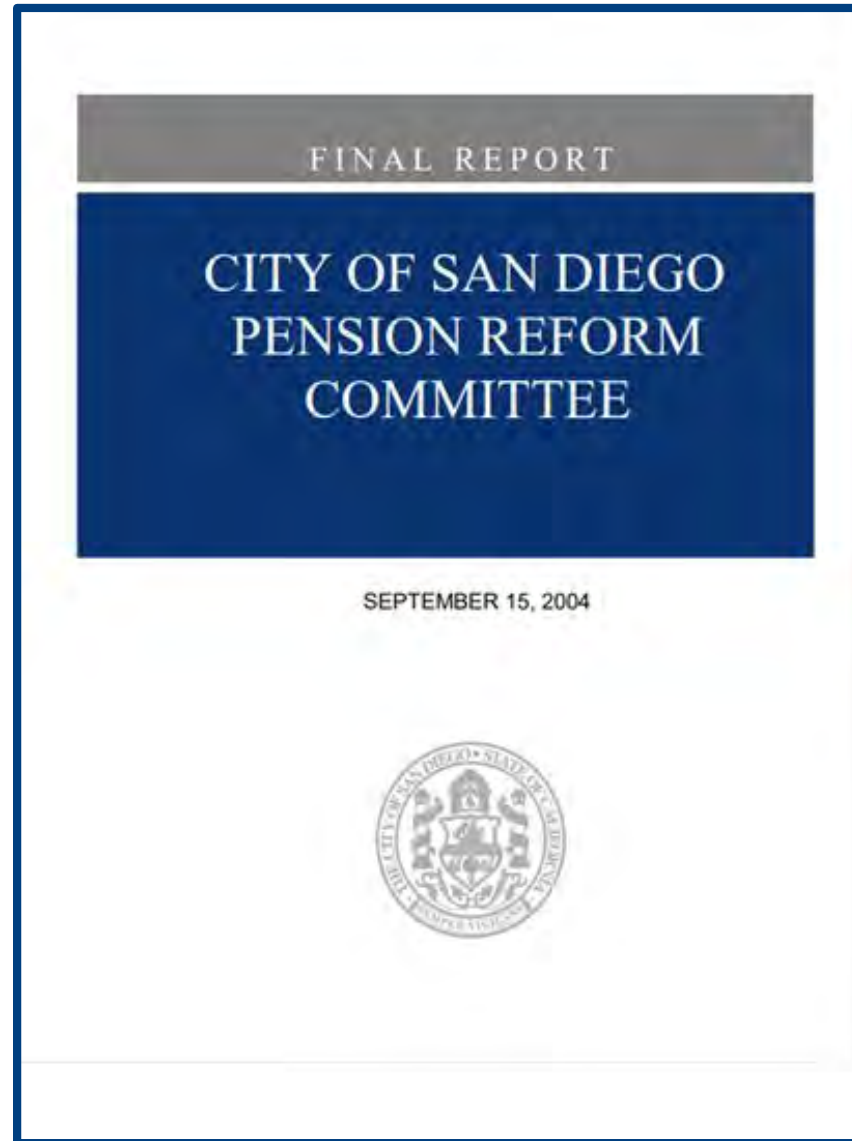


Blue Ribbon Committee





Year of City's Retirement Payment	Payment Amount Recommended by the Actuary	Actual Amount Paid by the City
1997	\$40.2 million	\$31.0 million
1998	\$42.5 million	\$34.5 million
1998	\$47.5 million	\$38.7 million
1999	\$56.5 million	\$43.4 million
2000	\$66.3 million	\$49.7 million
2001	\$91.9 million	\$58.6 million
2002	\$140.2 million	\$69.0 million
2003	\$181.3 million	\$122.1 million



Consequences



The Fallout



New Governance

- 2004 Ballot Propositions
 - Prop G – Change Board Structure
 - Prop H – Shorten Amortization Periods

- 2005 Pension Reform
 - Close DROP
 - Close Annual Supplemental Benefit
 - Close Purchase (Air Time) Service Credit
 - Reduce Retiree Health Amount

- 2006 Ballot Proposition
 - Prop B – Voter Approval for Benefit Increases

New Governance

- 2009 Pension Reform
 - Lower General Plan Retirement Factors
 - Lower Police Plan Retirement Factor

- 2011 Pension Reform
 - Lower Fire and Lifeguard Plan Retirement Factors

- 2012 Ballot Proposition
 - Prop B – City Plan Closure for New Non-Police Employees



Proposition B: The Promise

- **Close Most City DB Plans to New Hires**
 - General, Fire, Lifeguard Employees and Elected Officials
- **Defined Contribution Plan for New Hires**
 - General Employee and City each Contribute 9.2%
 - Safety Employee and City each Contribute 11%
 - Ballot Disclosure Estimated DC Cost \$13 Million more than DB
- **Police Plan Changes**
 - Police: 1 to 3 AFC, Lower Maximum Benefit from 90% to 80%
- **Salary Freeze**
 - All City Employees for Five Years
 - Ballot Disclosure Estimated \$1 Billion Savings over 30 Years

Proposition B: The Path Forward

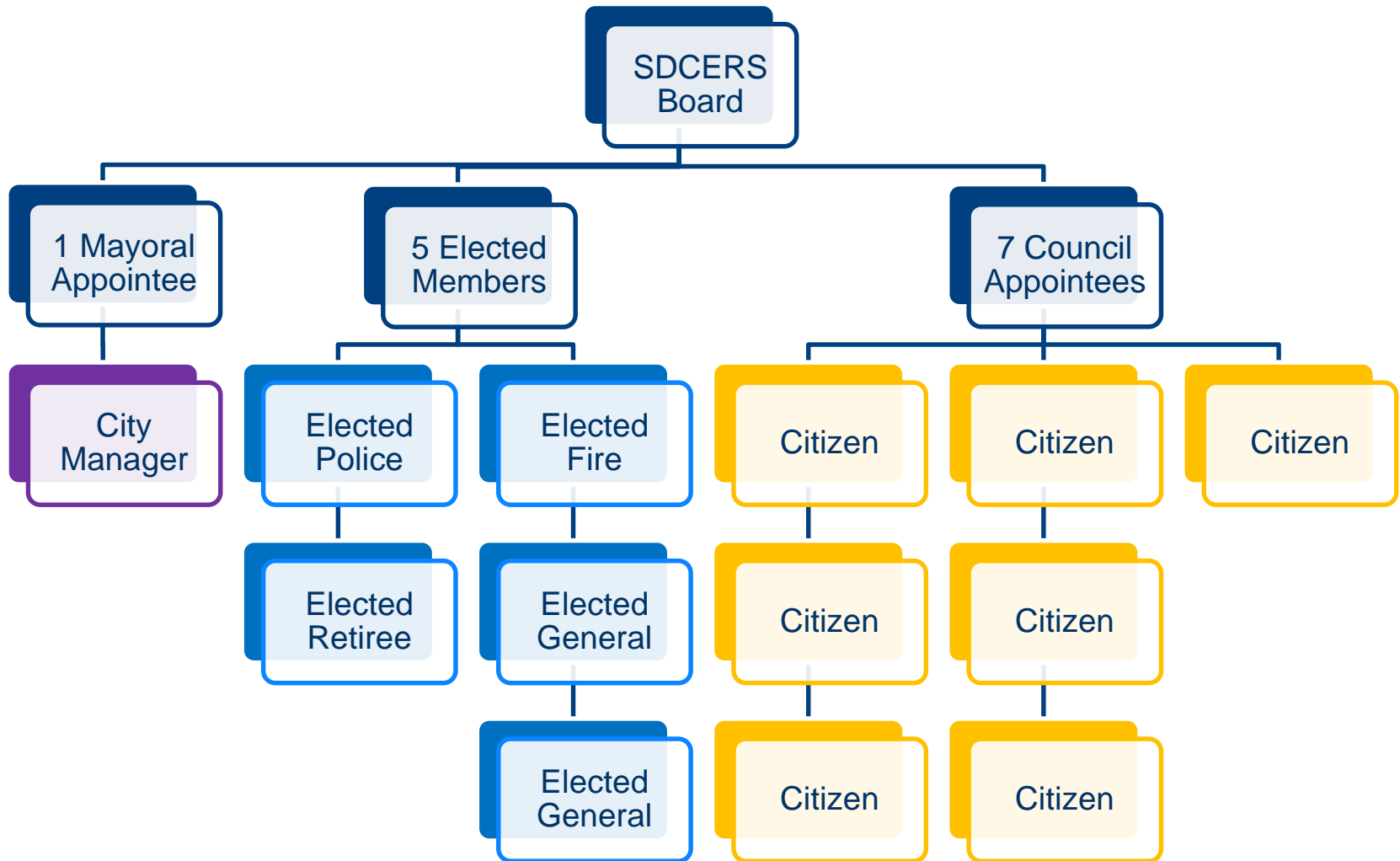
- Superior Court “Quo Warranto” Ruling
- Re-Opening the City Plan
 - New Employees
 - Prop B Employees in City Service
 - Prop B Employees who left City Service

Rebuilding SDCERS

- Board Structure
- Committee Structure
- Meeting Schedule
- Operational Governance
- Plan Funding
- Core Values
- Stakeholder Relationships

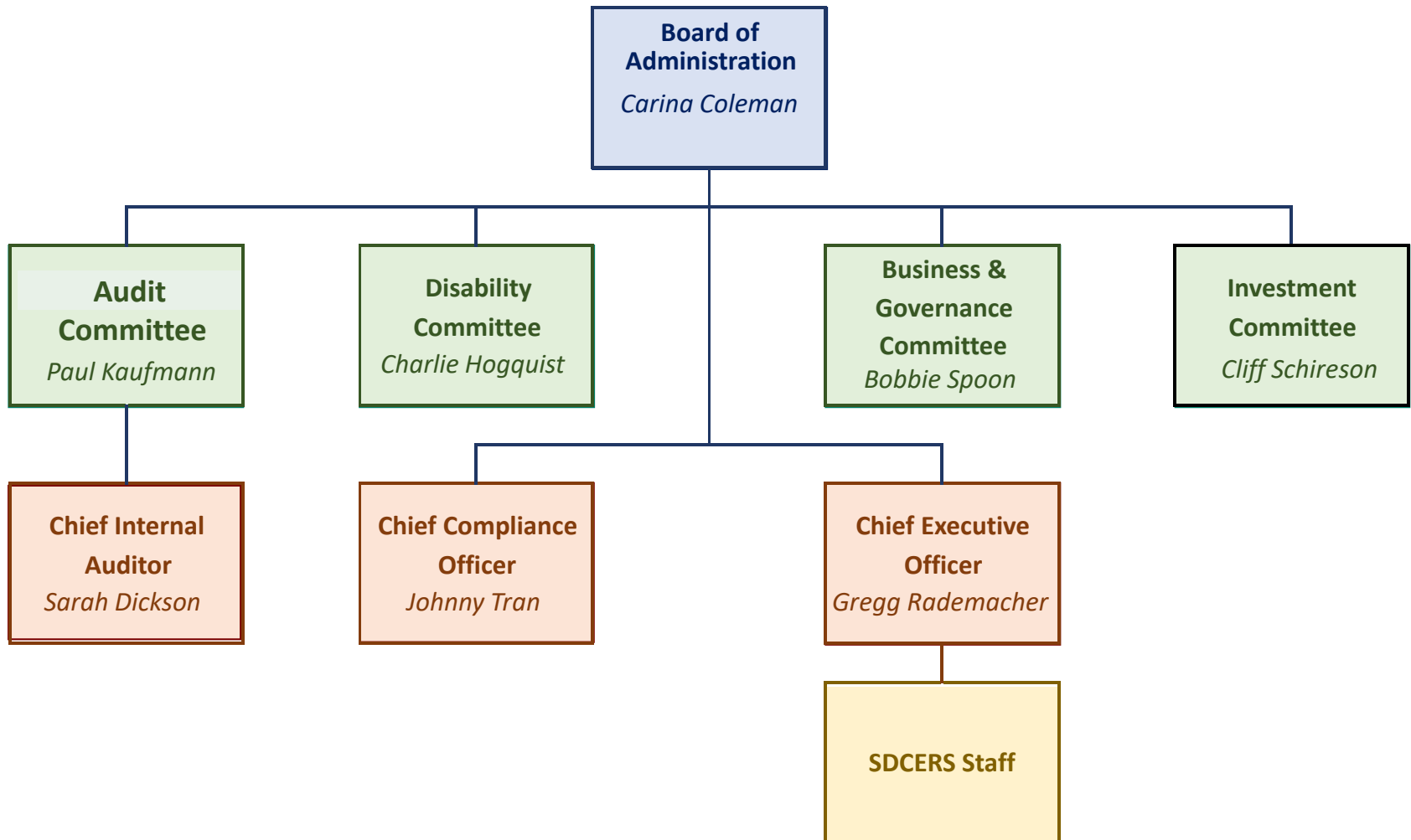


SDCERS Board Post 2005





Committee Structure



Meeting Schedule

SDCERS BOARD AND COMMITTEE MEETING SCHEDULE

JANUARY 2022						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

FEBRUARY 2022						
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

MARCH 2022						
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20	21	22	23	24	25	26
27	28	29	30	31		

APRIL 2022						
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MAY 2022						
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE 2022						
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19	20	21	22	23	24	25
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JULY 2022						
S	M	T	W	T	F	S
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

AUGUST 2022						
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SEPTEMBER 2022						
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11	12	13	14	15	16	17
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25	26	27	28	29	30	

OCTOBER 2022						
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER 2022						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER 2022						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

	Board Meeting
	Committee Meeting
	Audit Committee Meeting
	Holiday

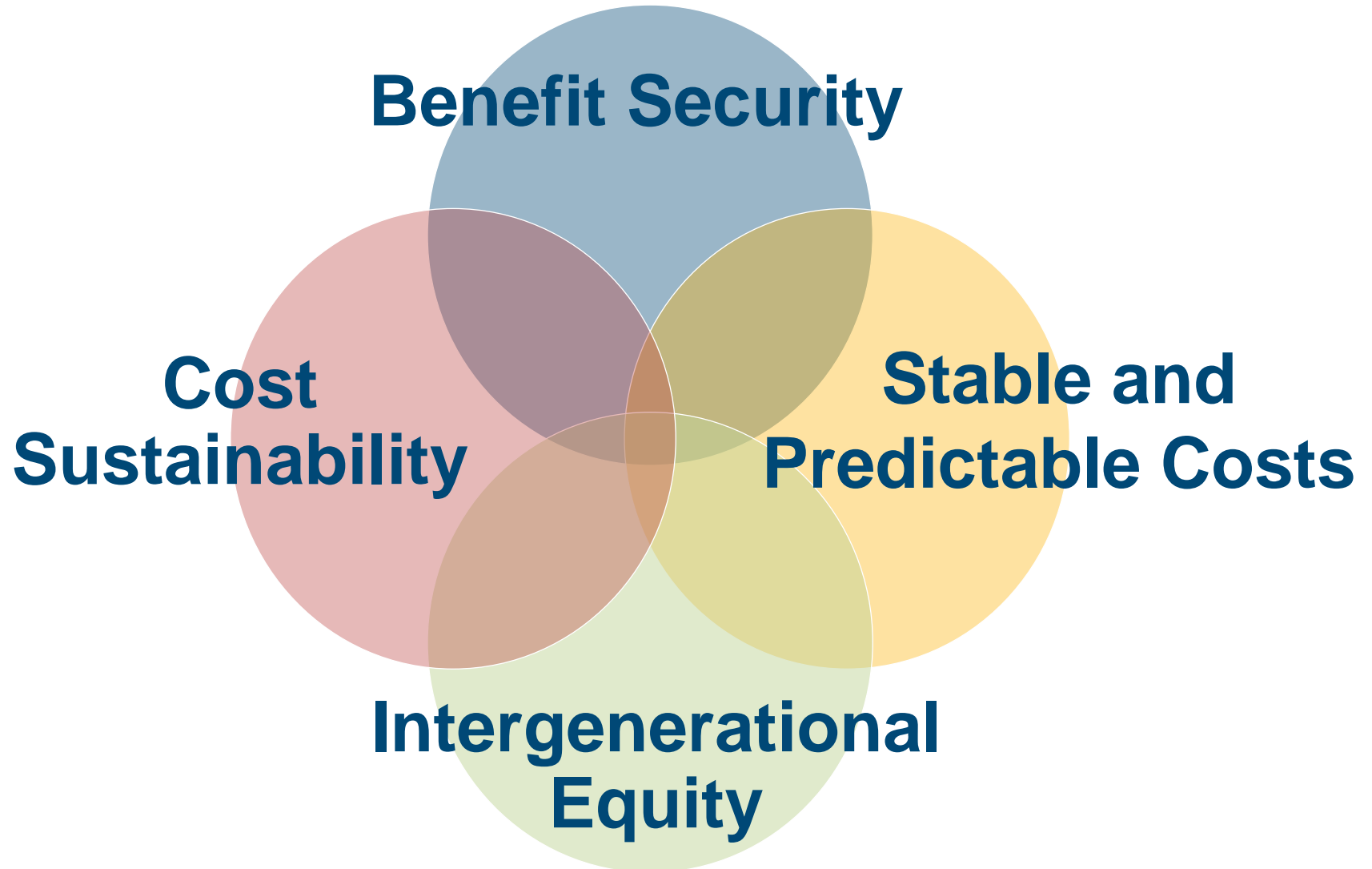
Operational Governance



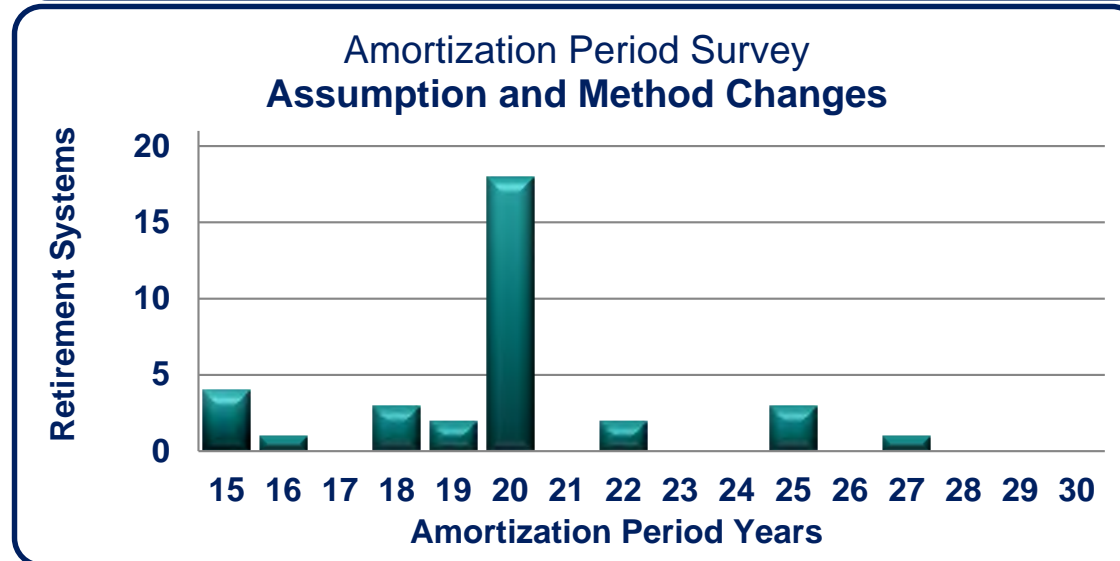
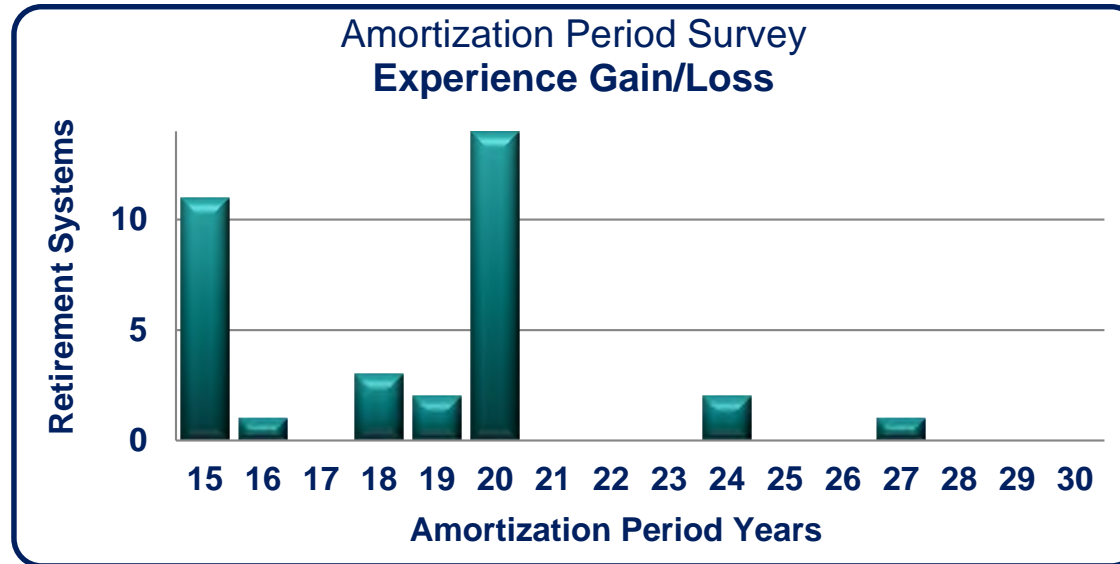
**380
Pages
of
Good
Governance**

www.sdcers.com/Resources/Governing Documents

Plan Funding



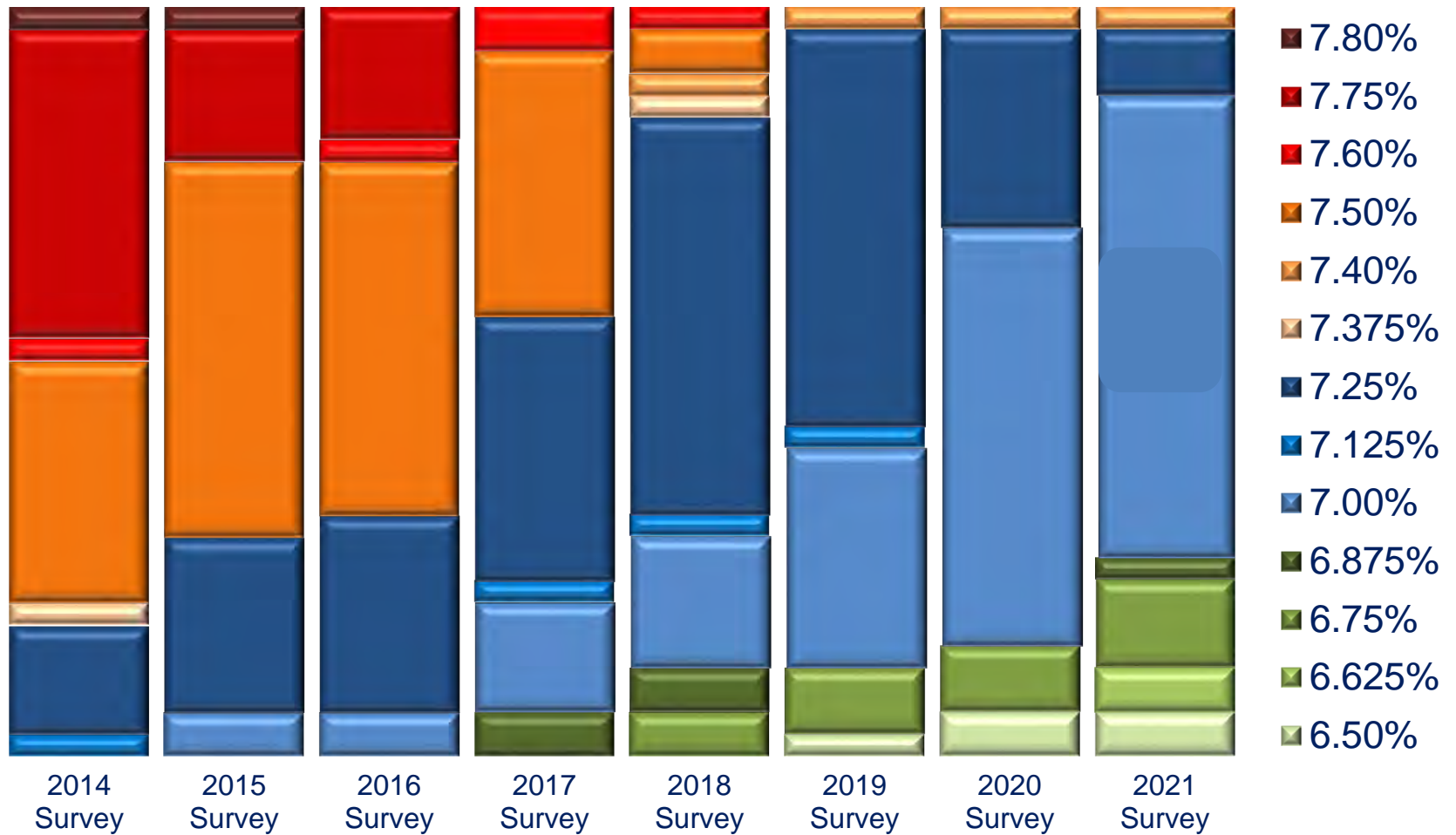
California Amortization Survey





California Investment Earnings Assumption Survey

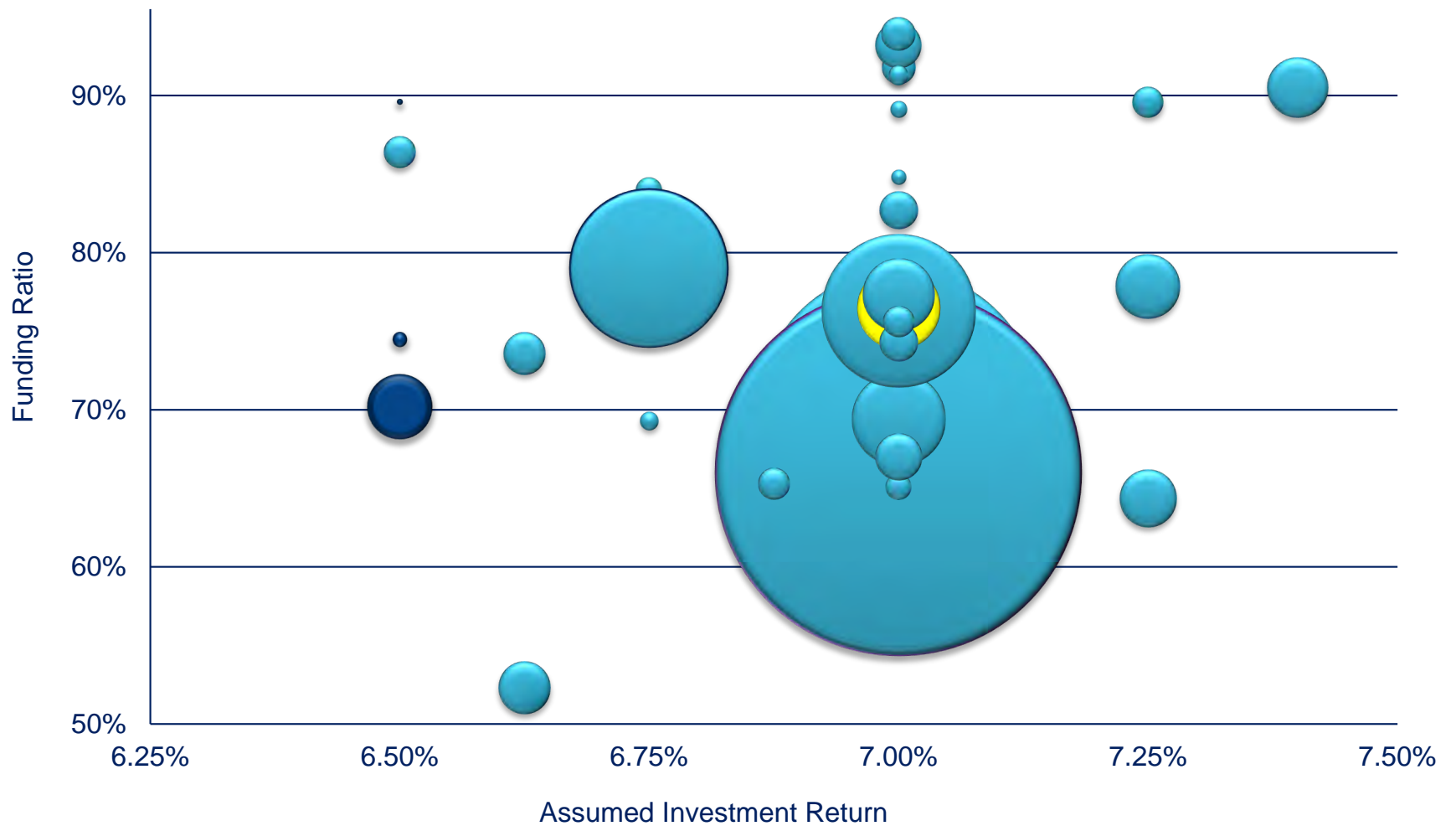
Investment Earnings Assumption
California State, County and City Retirement Systems



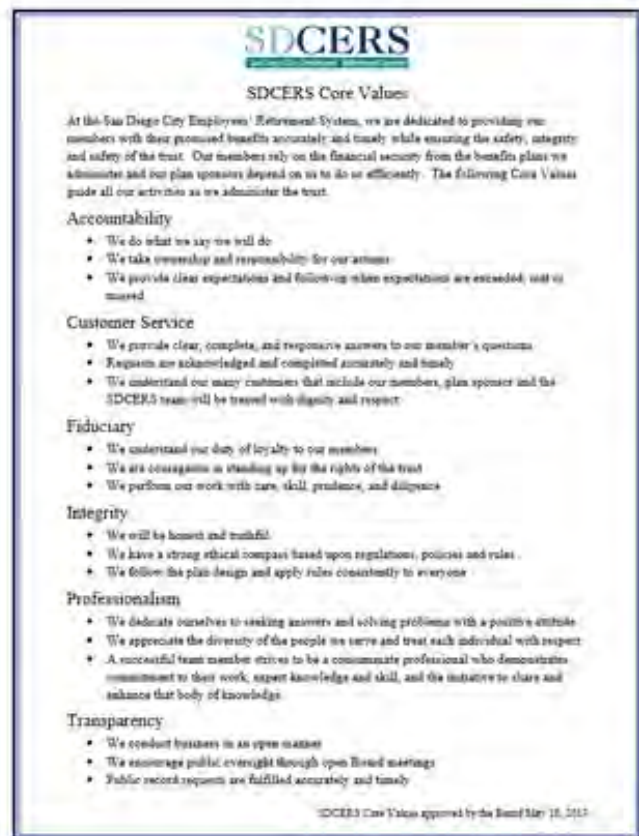


California UAL Survey

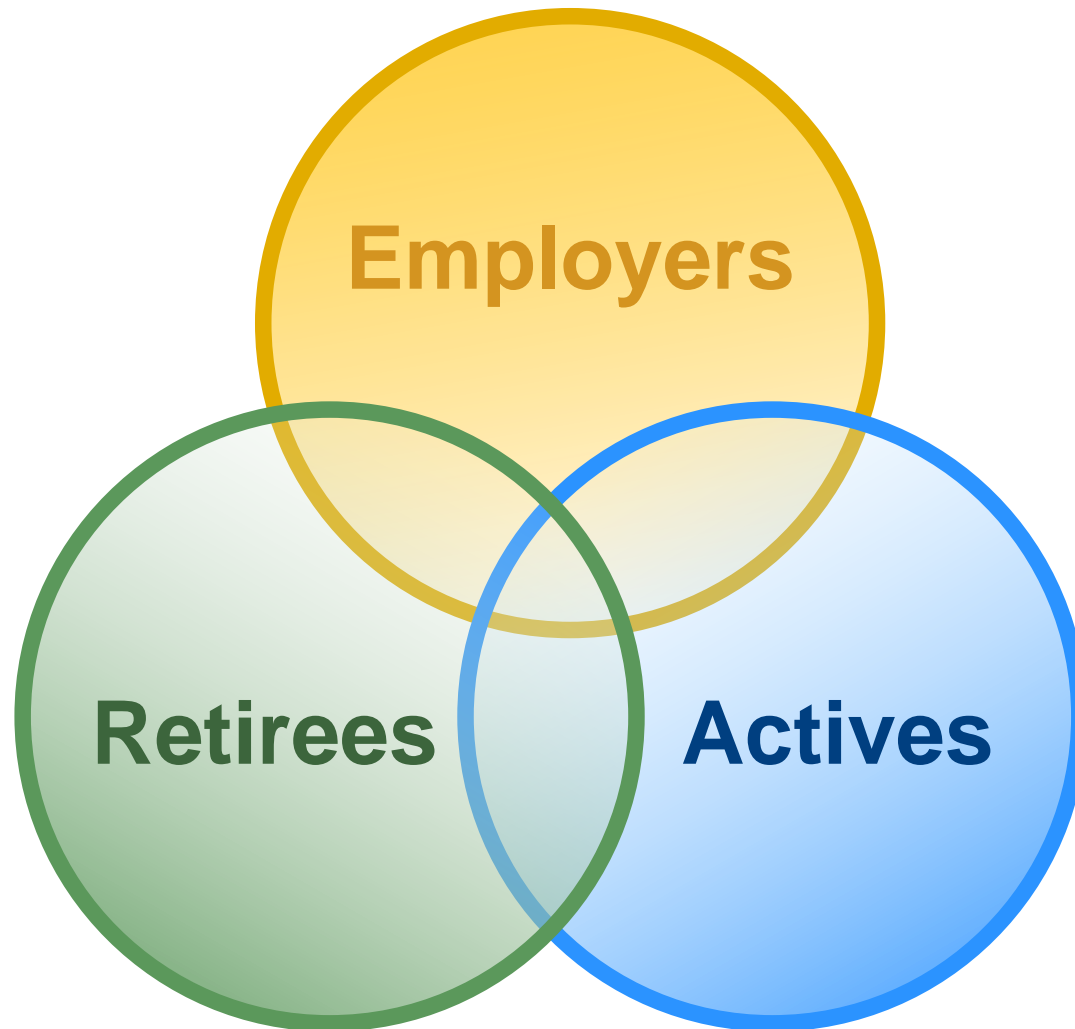
Unfunded Actuarial Liability Survey
California State, County, and City Retirement Systems



Core Values



Stakeholders



Lessons Learned

- Duty to Members is Always First
- Funding Policy is Reserved for the Board
- Establish Board and Plan Sponsor Roles
- Listen to Your Experts
- Governance Transparency
- Keep Mission and Values Alive





Liquidity Analysis

Presented By

Shanta Chary

Table of Contents

- Background 3
- OCERS - Asset Allocation Policy 4
- OCERS' Investment Policy Statement & Liquidity 5
- Levels of Liquidity 6
- Actuarial Projections – Net Cash Flows 7
- Net Contributions & Investment Income 8
- Key Observations 9
- Future Strategy 10

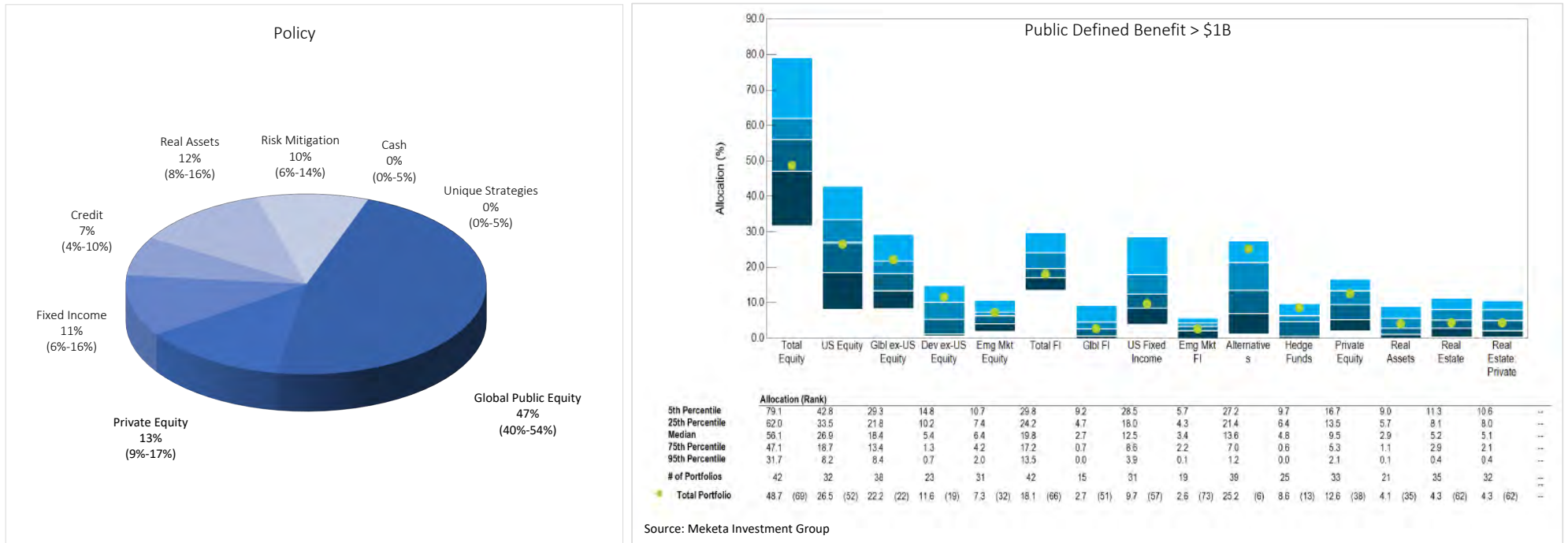


*"We provide secure retirement and disability benefits
with the highest standards of excellence."*  2

Background

- J.P. Morgan conducted a Liquidity Analysis on OCERS' portfolio in 2019 with 2018 data.
- OCERS was expected to have negative cash contributions starting 2022.
- Relative to the peer group, OCERS' liquidity was expected to remain strong and there was sufficient liquidity to support illiquid/private investments through 2030 and beyond.
- J.P. Morgan has now updated the Liquidity Analysis with data from 2020.

OCERS - Asset Allocation Policy



- OCERS has adopted a well balanced portfolio, allowing the fund to take advantage of market opportunities by taking reasonable risk while participating in long-term trends.



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OCERS' Investment Policy Statement & Liquidity

Investment Policy Statement

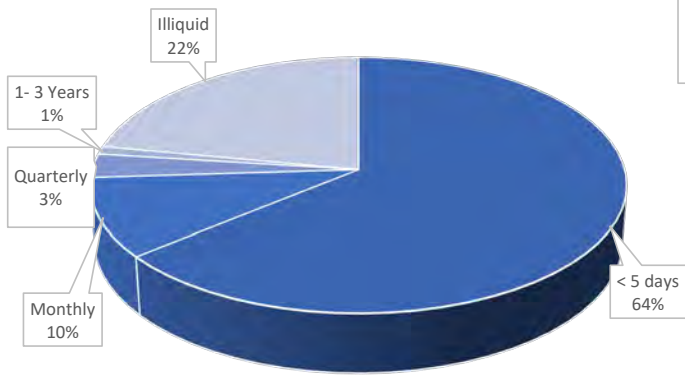
- The Committee has adopted a strategic asset allocation plan based upon the fund's projected actuarial liabilities and liquidity needs, the Committee's risk tolerances and the risk/return expectations for various asset classes. This asset allocation plan seeks to optimize long-term returns for the level of risk that the Committee considers appropriate.
- Sufficient liquidity must be maintained to pay benefits and expenses. Investment income and contributions are expected to exceed projected benefit payments and expenses on an annual basis for the foreseeable future, making it possible to invest a reasonable portion of the portfolio in illiquid investments. The **liquidity** horizon shall be reviewed each time asset allocations and expected return projections are revised.

Risk Management

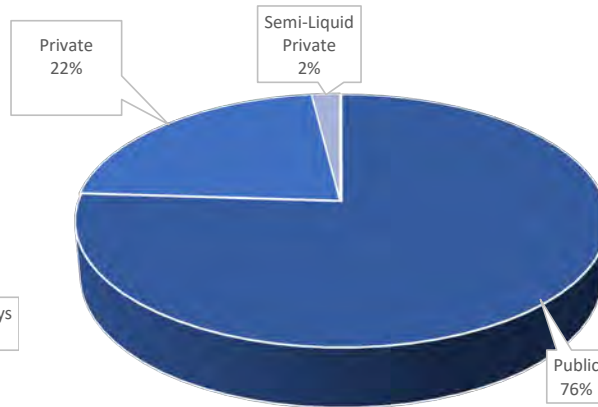
- OCERS' investment objective is to be a long-term risk seeker and still have sufficient liquidity to pay benefits.

Levels of Liquidity

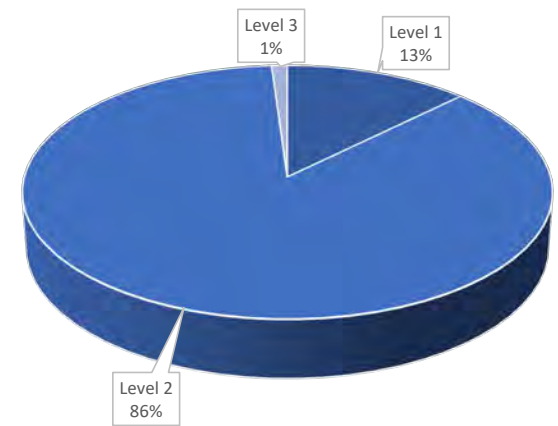
Liquidity



Public/Private

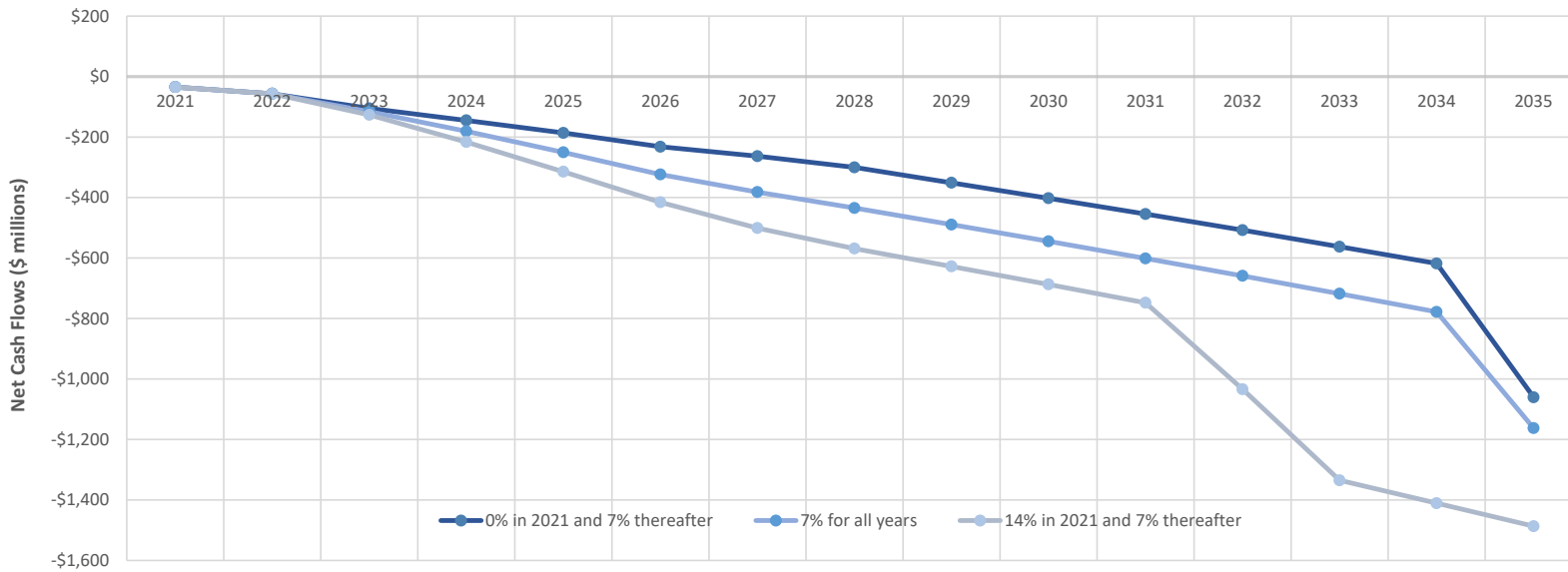


GASB 72 Leveling



- Liquidity is integral to the asset allocation process.
- A number of measures are utilized to evaluate and monitor liquidity of the Fund.

Actuarial Projections – Net Cash Flows



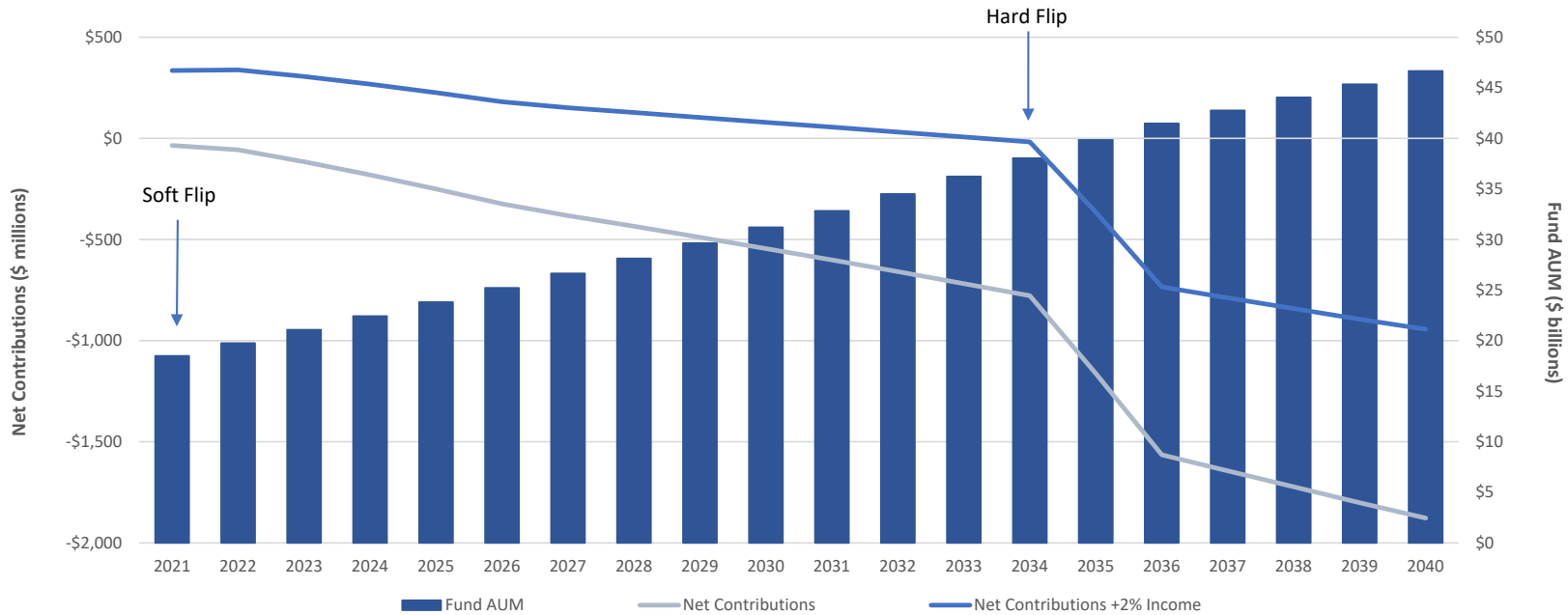
Source: Segal Consulting

- Given the double-digit returns in the last two years, OCERS will start experiencing negative net contributions starting 2021 in all the three scenarios.
- While the absolute value of negative cash flow will continue to grow over the years, the total fund will correspondingly experience growth as well.
- As a percent of the total fund, the negative net contributions are in the range of 0.2% to 3.7% over the measurement period.



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Net Contributions & Investment Income



- Over the last five-year period, interest income on OCERS’ portfolio has averaged 1.5% on an annual basis.
- Due to changes in the asset allocation, increasing private equity and seasoning of the portfolio, the investment Team believes the long-term investment income is expected to be in the range of 2%.



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Key Observations

- OCERS' funded ratio at 80.7% (measured on a market value basis) is generally healthy.
- UAAL (unfunded actuarial accrued liability) after having peaked in the last decade is on a downward trajectory.
- In 2011, the ratio of retired members and beneficiaries to actives was 0.62, in 2020 it is 0.90.
- Once the UAAL is paid-off, contributions will only be the normal cost, placing greater pressure on OCERS to closely manage liquidity.

Future Strategy

- OCERS' Investment Committee and team has the flexibility to remain dynamic, allowing for the program to focus on strategies with a higher income component even as OCERS continues to experience negative cash flow.
- While OCERS is expected to become cash flow negative in 2021, we have another decade or so before significant changes to the asset allocation will need to be made.

Orange County Employees Retirement System

Liquidity Analysis | August, 2021

Calendar Year 2020 Pension Plan Overview

	OCERS	
Accounting	Total Pension Liability (TPL \$mm)	23,010
	Fiduciary Net Position (FNP \$mm)	18,797
	Net Pension Liability (NPL \$mm)	4,213
	GASB 67 Funded Ratio (%)	81.7%
	Discount Rate (%)	7.00%
Funding	Actuarial Value of Assets (AVA \$mm)	17,525
	Accrued Liabilities (AL \$mm)	22,905
	Unfunded Actuarial Accrued Liability (UAAL \$mm)	5,380
	Actuarial Funded Ratio (%)	76.5%
	Payroll (\$mm)	1,963
	Actuarially Determined Employer Contribution (ADEC \$mm)	638
	Expected Return on Assets (%)	7.00%
Demographics	Active Count	21,559
	Inactive Count	26,237
	Total Count	47,796
	Active/Inactive Ratio	0.82x

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Peer Group Details

Display Name	Full Name	Fiscal Year	Assets (\$mm)
OCERS	Orange County ERS	12/31	18,797
ACERA	Alameda County ERS	12/31	8,445
Colorado PERA	Colorado State	12/31	17,880
CCCERA	Contra Costa County	12/31	10,070
IMRF	Illinois Municipal	12/31	50,572
OP&F*	Ohio Police & Fire	12/31	16,411
Penn SERS	Pennsylvania State ERS	12/31	35,028
TMRS	Texas Municipal	12/31	34,283

* OP&F's most recent actuarial valuation report has not been published and so certain funding metrics have been projected. Due to the smoothed nature of many of these metrics, we fully expect that the actual figures once published will not differ meaningfully and no conclusions from the analysis would be invalidated

- The primary criteria for peer group selection was having a calendar year fiscal year, followed by asset size
- Less than 25% of plans have a calendar year fiscal year, limiting the availability of comparable peers
- Throughout the pages references are made to "All Plans" which encompasses a broader peer group of 107 plans

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Peer Group Details – California Plans

Display Name	Full Name	Fiscal Year	Assets (\$mm)
CalPERS	California PERF	6/30	392,453
CCCERA	Contra Costa County	12/31	10,070
LACERA	LA County ERS	6/30	58,510
SDCERA	San Diego County	6/30	12,909
SFERS	San Francisco City & County	6/30	26,620
ACERA	Alameda County ERS	12/31	8,445
KCERA	Kern County ERS	6/30	4,439
OCERS	Orange County ERS	12/31	18,797
SCERS	Sacramento County ERS	6/30	9,979
LAFPP	Los Angeles Fire and Police	6/30	21,397
CalSTRS	California Teachers	6/30	246,984
LACERS	Los Angeles ERS	6/30	14,932

- We also show a California peer set for certain metrics that are not fiscal-year dependent

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Summary of OCERS versus Peer Distribution

		OCERS	Peer Group Median	Percentile (Peer Group)	Percentile (All Plans)
Plan Overview	UAAL (\$mm)	5,380	4,653	63%	51%
	Actuarial Funded Ratio (%)	76.5%	76.3%	63%	65%
	Net Pension Liability (\$mm)	4,213	3,204	63%	49%
	GASB 67 Funded Ratio (%)	81.7%	80.5%	63%	77%
	Expected Return on Assets (%)	7.00%	7.00%	44%	33%
	Market Value of Assets (\$mm)	18,797	18,339	63%	64%
Demographics	Payroll (\$mm)	1,963	2,737	38%	42%
	Normal Cost (% payroll)	26.9%	15.8%	88%	97%
	Total Count	47,796	83,765	38%	32%
	Active / Inactive (x)	0.8x	0.8x	50%	30%
	Asset Volatility Ratio (x)	9.6x	6.8x	88%	94%
	Liability Volatility Ratio (x)	11.7x	8.9x	100%	90%
Returns	10yr Actual Return (%)	7.5%	8.7%	25%	16%
	10yr Annualized Volatility (%)	6.1%	7.1%	25%	9%
	10yr Excess Return (%)	0.3%	1.2%	25%	22%
Cashflow	FY20 Net Cashflow (%)	0.4%	-0.4%	75%	65%
	Net Inv Income (% of assets)	0.7%	1.1%	25%	12%
	Benefits (% assets)	-5.4%	-5.8%	63%	87%
	10yr % of ADEC Paid (%)	108.3%	98.2%	100%	93%
Allocation	Fixed Income (%)	14.0%	25.5%	13%	4%
	Public Equity (%)	47.0%	45.1%	63%	56%
	Alternatives (%)	39.0%	27.2%	100%	81%
	Liquid Assets (%)	78.0%	78.1%	50%	50%

Excess Return: actual compound return minus compound expected return on assets over same period

% of ADEC Paid: sum of actual contributions divided by actuarial required contributions over the same period

Asset Volatility Ratio: ratio of the market value of assets to covered payroll - measures the plan's sensitivity to investment shocks

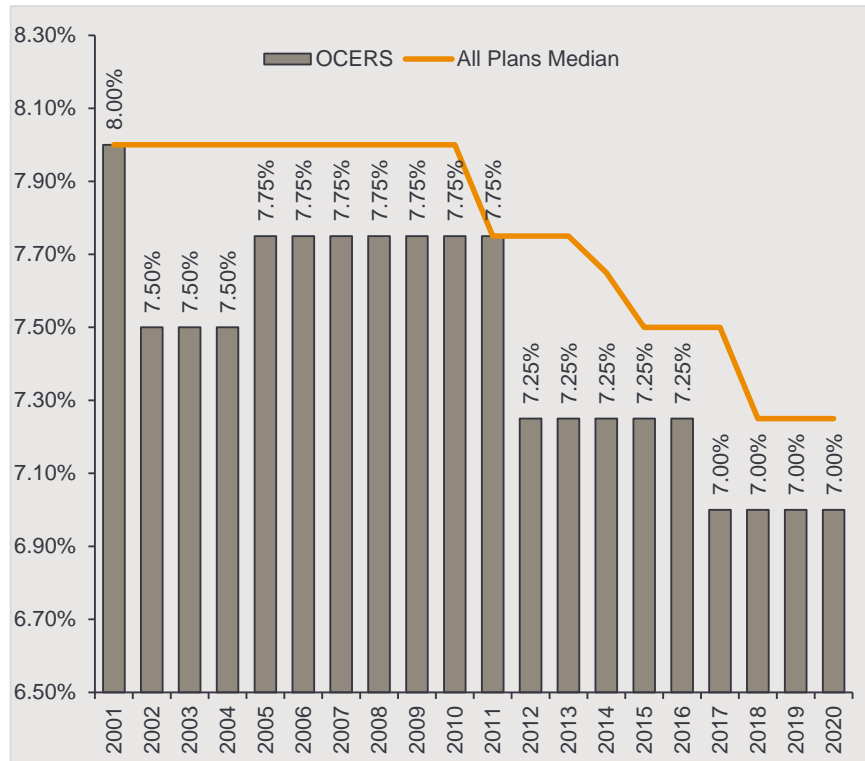
Liability Volatility Ratio: ratio of the actuarial accrued liability (AAL) to covered payroll - measures the plan's sensitivity to investment shocks

* Heat map colors indicate the percentile of each target's metric. Dark blue / (white) indicates a high / (low) percentile rather than an indication of a good or bad value.

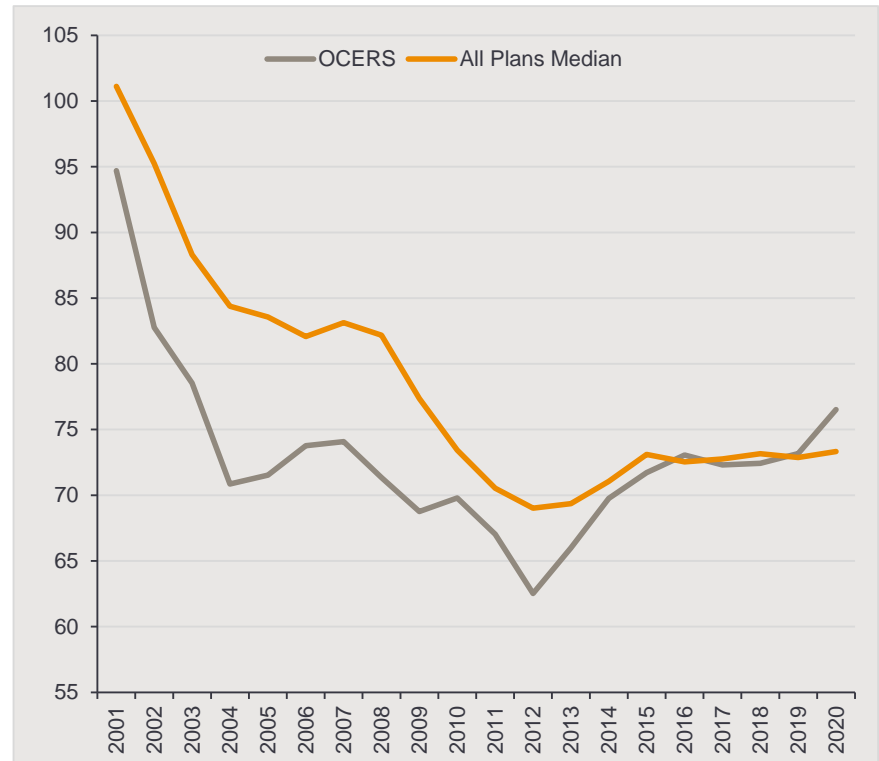
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Pension plan overview

Expected Return on Assets (%)



Actuarial Funded Status (%)

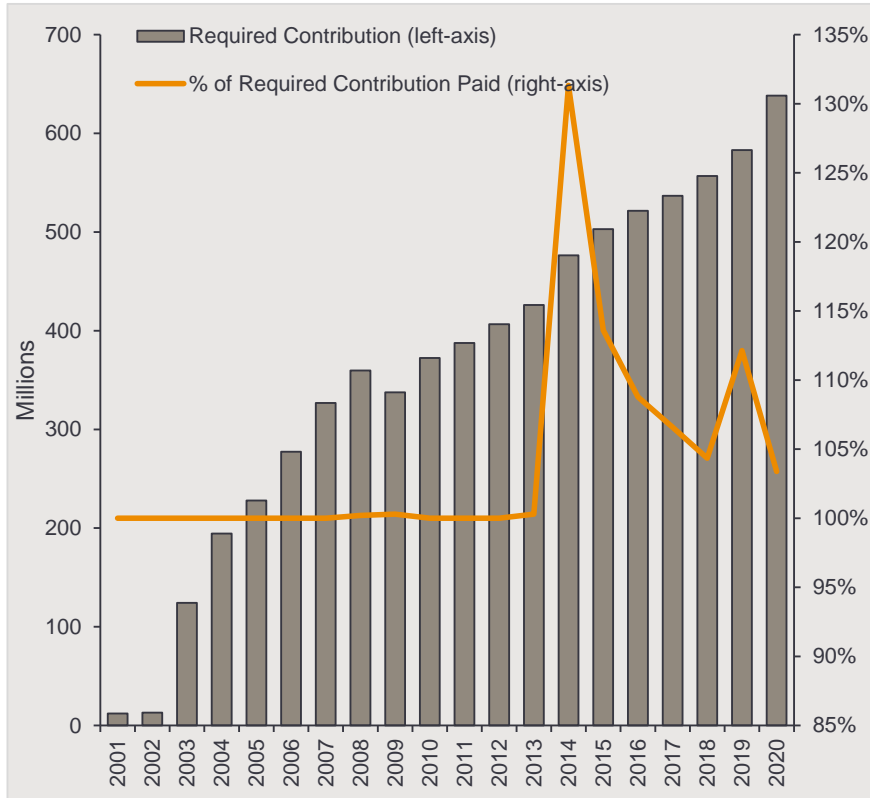


- OCERS has a 7.00% expected return assumption versus a median of 7.25% for all plans
- OCERS has been more conservative in return assumption setting than the majority of plans, consistently reducing expectations ahead of peers
- Actuarial funded status historically lagged the overall universe, but since 2012 has experienced dramatic improvement and is now above median

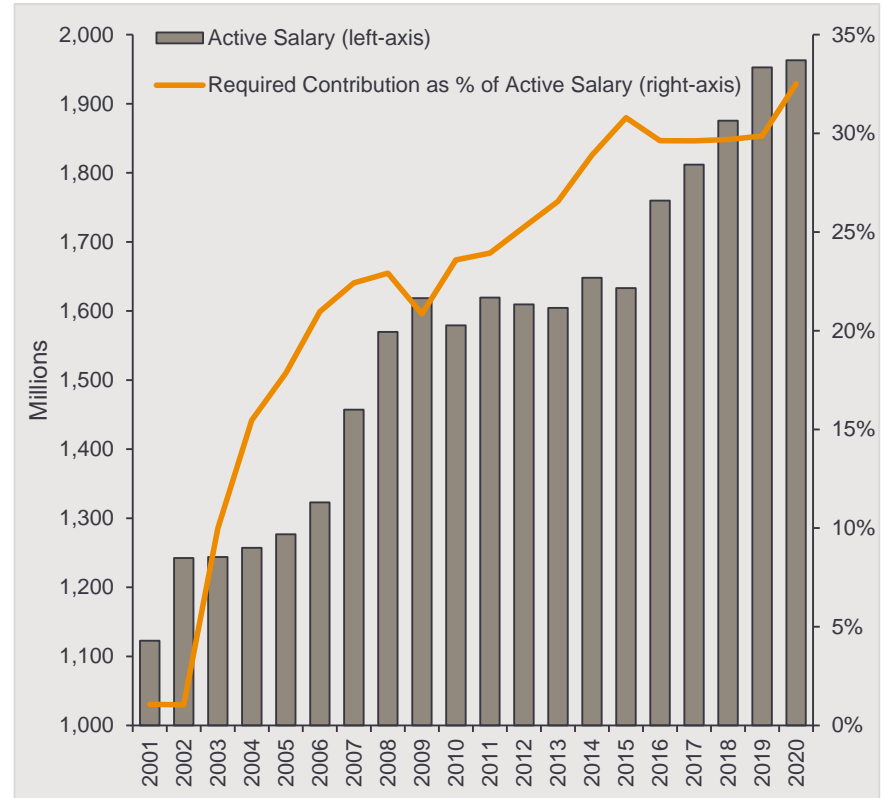
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Pension plan overview

Actual as a % of Required Contributions (%)



Total Contributions (Employee + Employer) and Active Salary

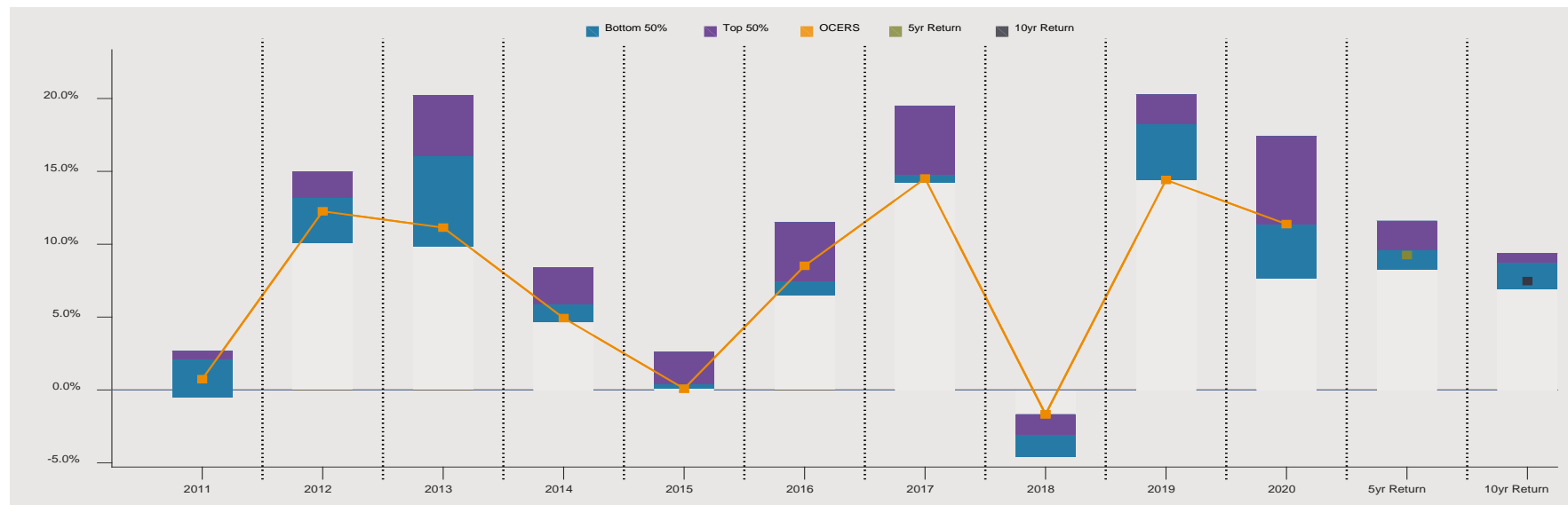


- OCERS has consistently met or exceeded the actuarial required contribution. The year 2014 includes \$149mm of proceeds from plan sponsors paying down their UAAL
- Growing active salary (payroll) provides key source of contributions and cashflow. Contributions not funded from employee salaries must be borne by employers

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



Realized Investment Returns (%)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	5yr Return	10yr Return
OCERS	0.7	12.3	11.1	4.9	0.1	8.5	14.5	-1.7	14.4	11.4	9.3	7.5
ACERA	-0.4	15.0	20.2	4.7	0.4	7.4	19.5	-4.1	18.7	12.5	10.5	9.1
Colorado PERA	1.9	12.9	15.6	5.7	1.5	7.3	18.1	-3.5	20.3	17.4	11.6	9.4
CCCERA	2.7	14.1	16.5	8.4	2.6	7.4	14.2	-2.7	14.6	9.2	8.4	8.5
IMRF	-0.5	13.5	20.0	5.8	0.2	7.8	15.7	-4.4	19.6	14.8	10.4	9.0
OP&F	2.6	14.9	16.9	6.8	0.7	11.5	14.3	-1.8	17.9	9.2	10.0	9.1
Penn SERS	2.7	12.0	13.6	6.4	0.4	6.5	15.1	-4.6	18.8	11.3	9.1	8.0
TMRS	2.4	10.1	9.9	6.0	0.3	7.4	14.3	-2.1	15.0	7.7	8.3	7.0

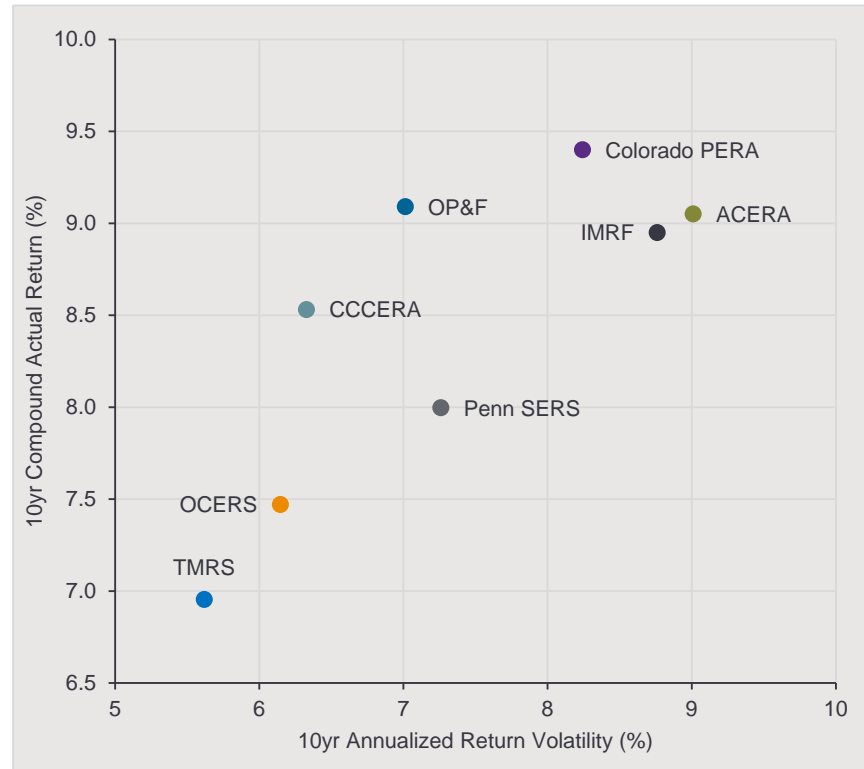
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Realized Returns, Return Volatility & Expected Return Assumptions (%)

10yr Compound Expected Return vs. Actual Return (%)



10yr Annualized Volatility vs. Actual Return (%)

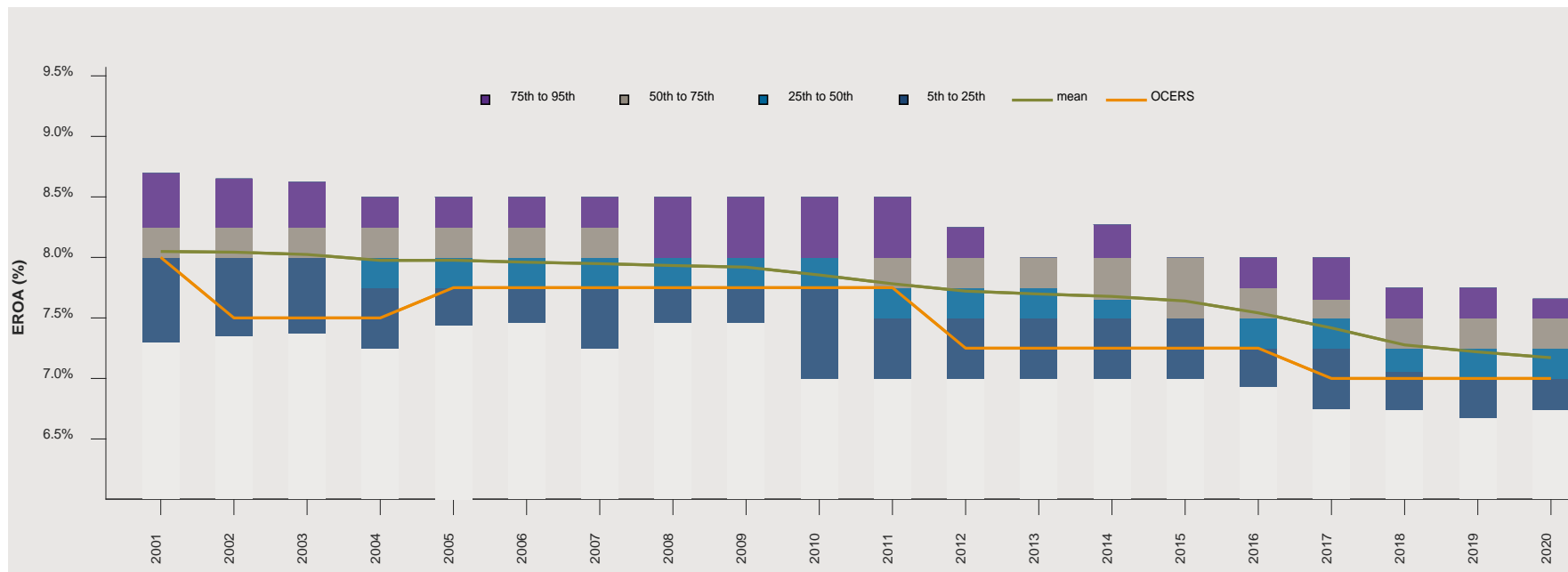


- Over the last 10 years OCERS and all peers have outperformed investment return assumptions
- OCERS has achieved lower investment returns than select peers, but has generally done so with lower volatility

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



Investment Return Assumptions (%)



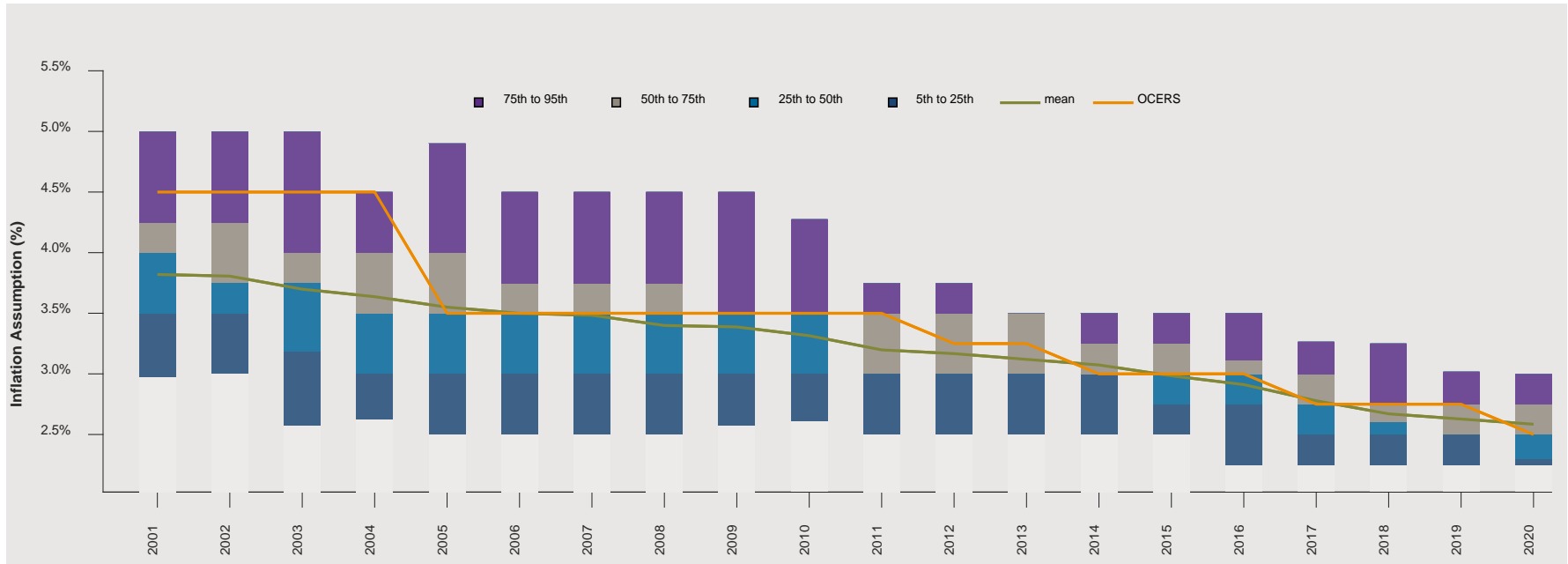
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
75th	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	7.75	7.65	7.50	7.50	7.50
50th	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	7.75	7.75	7.75	7.65	7.50	7.50	7.50	7.25	7.25	7.25
25th	8.00	8.00	8.00	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.50	7.50	7.50	7.50	7.50	7.25	7.25	7.05	7.00	7.00
Average	8.05	8.04	8.02	7.98	7.98	7.96	7.95	7.93	7.92	7.85	7.78	7.72	7.70	7.68	7.64	7.54	7.42	7.28	7.22	7.17
OCERS	8.00	7.50	7.50	7.50	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.25	7.25	7.25	7.25	7.25	7.00	7.00	7.00	7.00

- Over the last 10 years OCERS and all peers have outperformed investment return assumptions
- OCERS has achieved lower investment returns than select peers, but has generally done so with lower volatility

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



Inflation Assumptions (%)



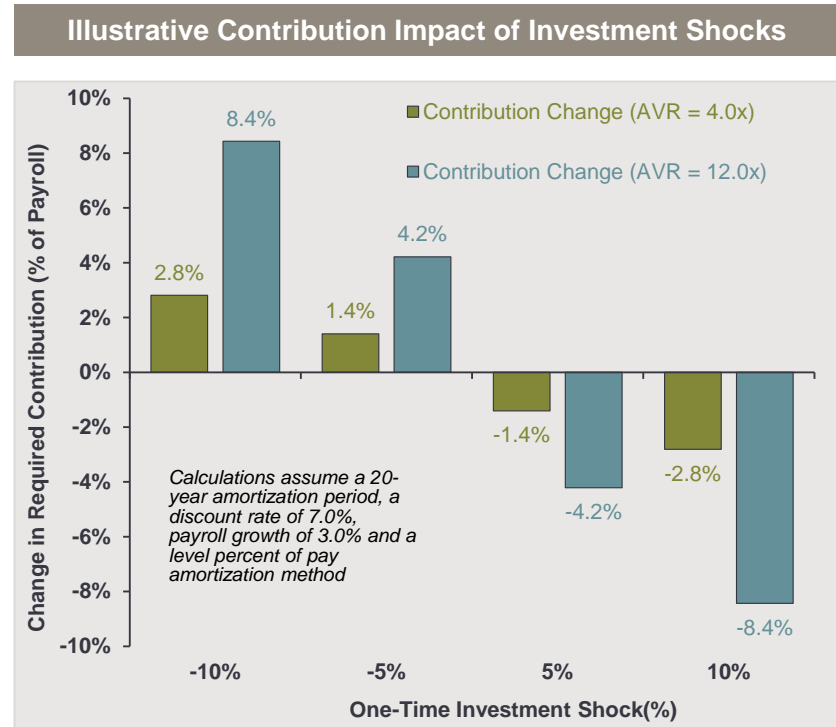
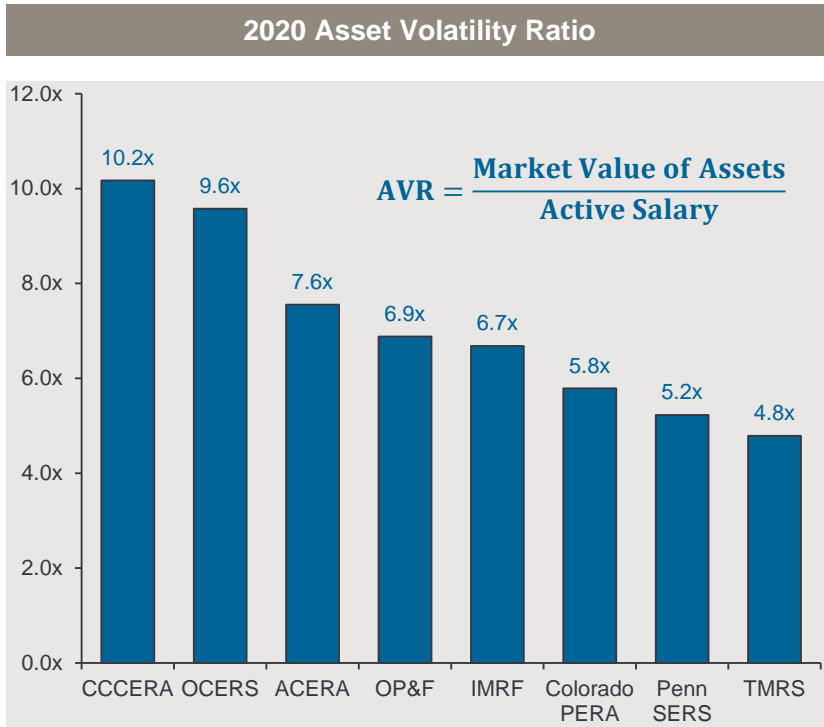
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
75th	4.25	4.25	4.00	4.00	4.00	3.75	3.75	3.75	3.50	3.50	3.50	3.50	3.50	3.25	3.25	3.11	3.00	2.75	2.75	2.75
50th	4.00	3.75	3.75	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00	3.00	2.75	2.60	2.50	2.50
25th	3.50	3.50	3.19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.75	2.75	2.50	2.50	2.50	2.30
Average	3.82	3.81	3.70	3.64	3.55	3.50	3.48	3.40	3.39	3.32	3.20	3.17	3.12	3.07	2.98	2.91	2.78	2.67	2.63	2.59
OCERS	4.50	4.50	4.50	4.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.25	3.25	3.00	3.00	3.00	2.75	2.75	2.75	2.50

- Inflation is a key actuarial input which drives assumptions for projected salary increases, cost-of-living adjustments (COLAs) and expected investment returns
- In 2020 OCERS' inflation assumption dropped below median (43rd percentile)

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



Asset Volatility Ratio (AVR)

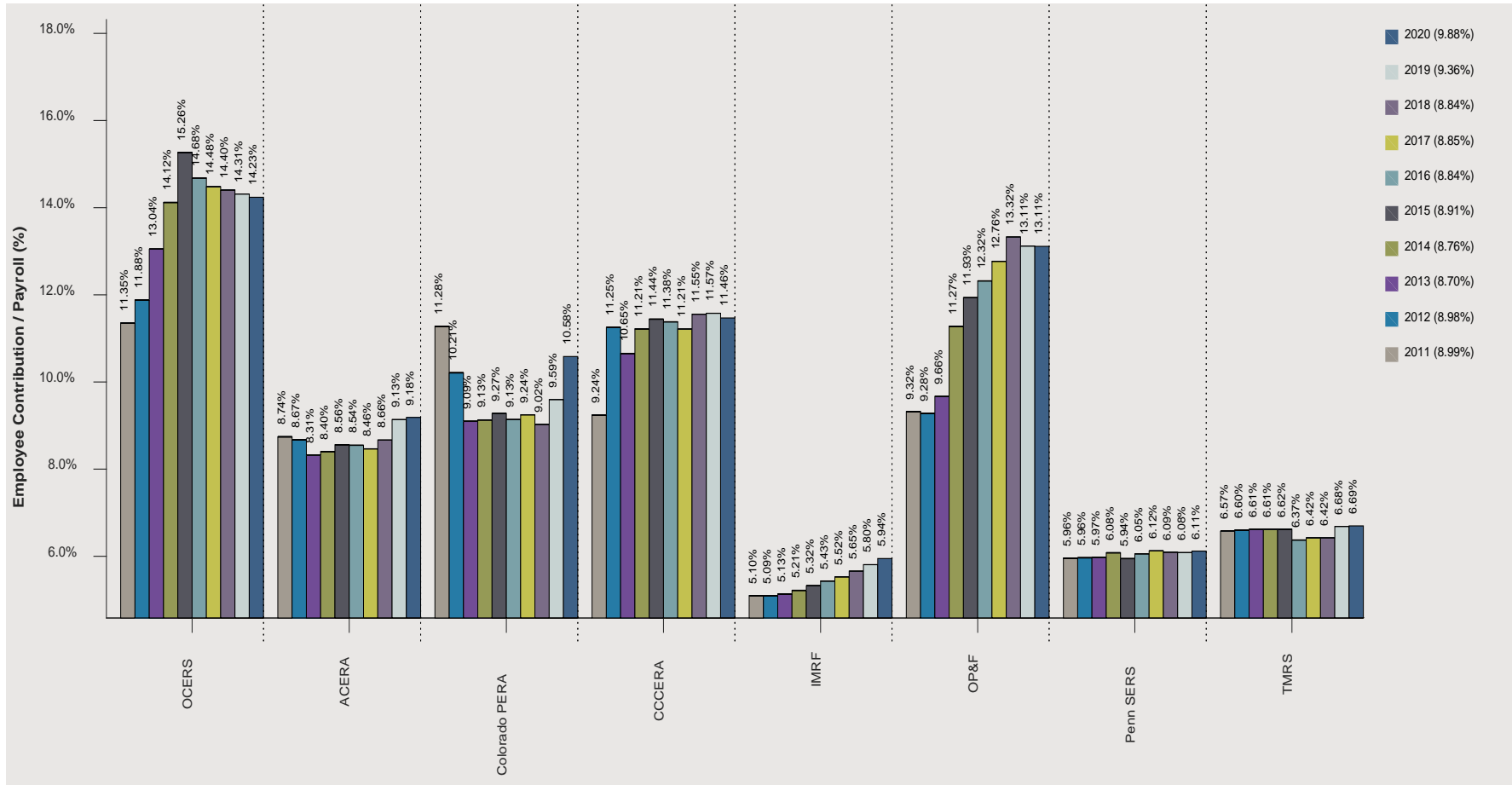


- The AVR provides an indication of the sensitivity of contribution rates to investment shocks
- For example, an AVR of 4.0x means that a 10% drop in the asset portfolio would be equivalent to 40% of covered payroll. Impacts will vary depending on actuarial assumptions
- Higher AVR levels may be indicative of a lower tolerance for investment risk

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



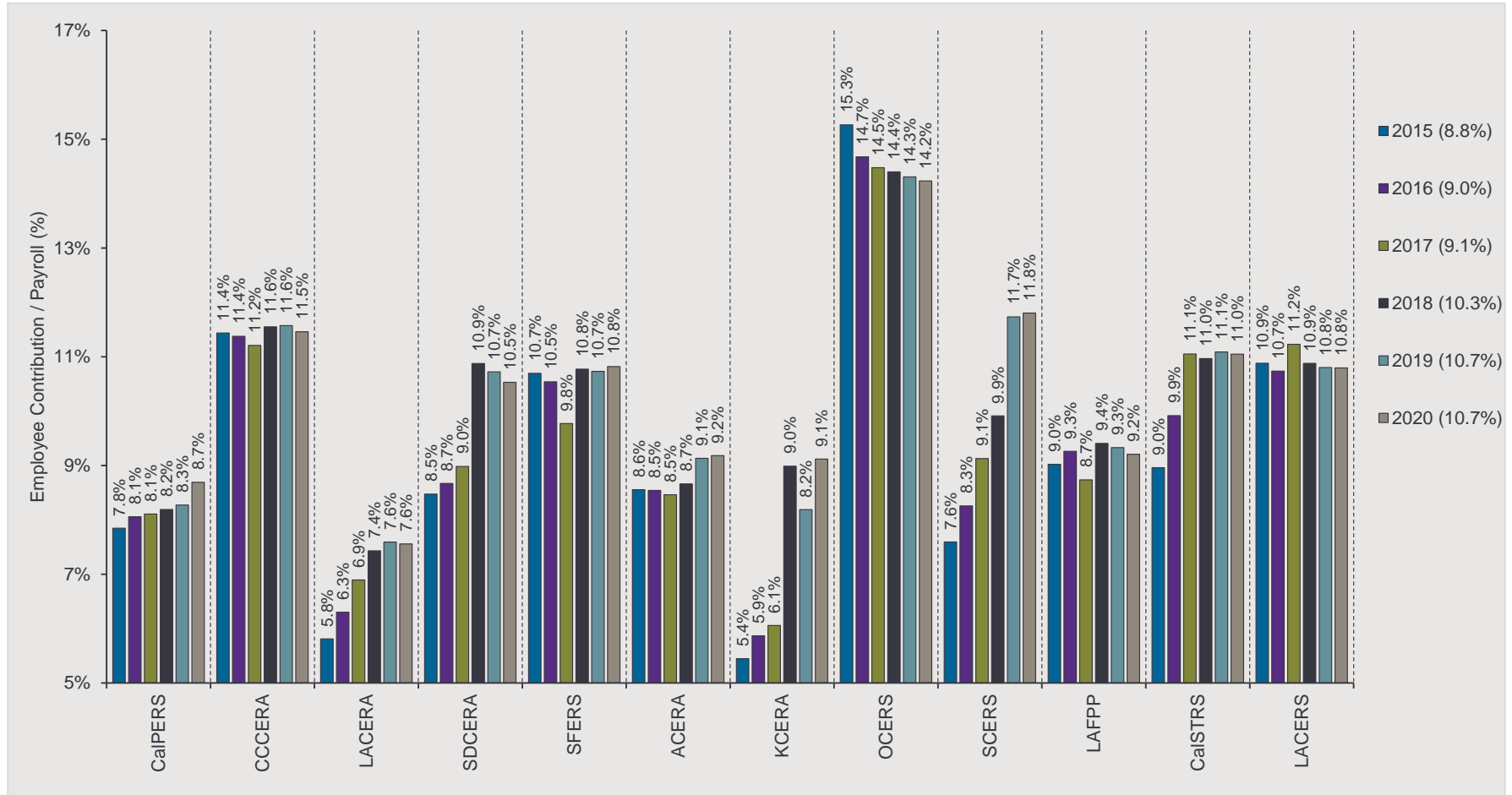
Employee Contribution / Payroll (%)



- Measures how much of employee's paychecks goes towards pension benefit on average
- Plans that aren't covered by Social Security (OCERS, OP&F, Colorado PERA) tend to have higher employee contribution burdens

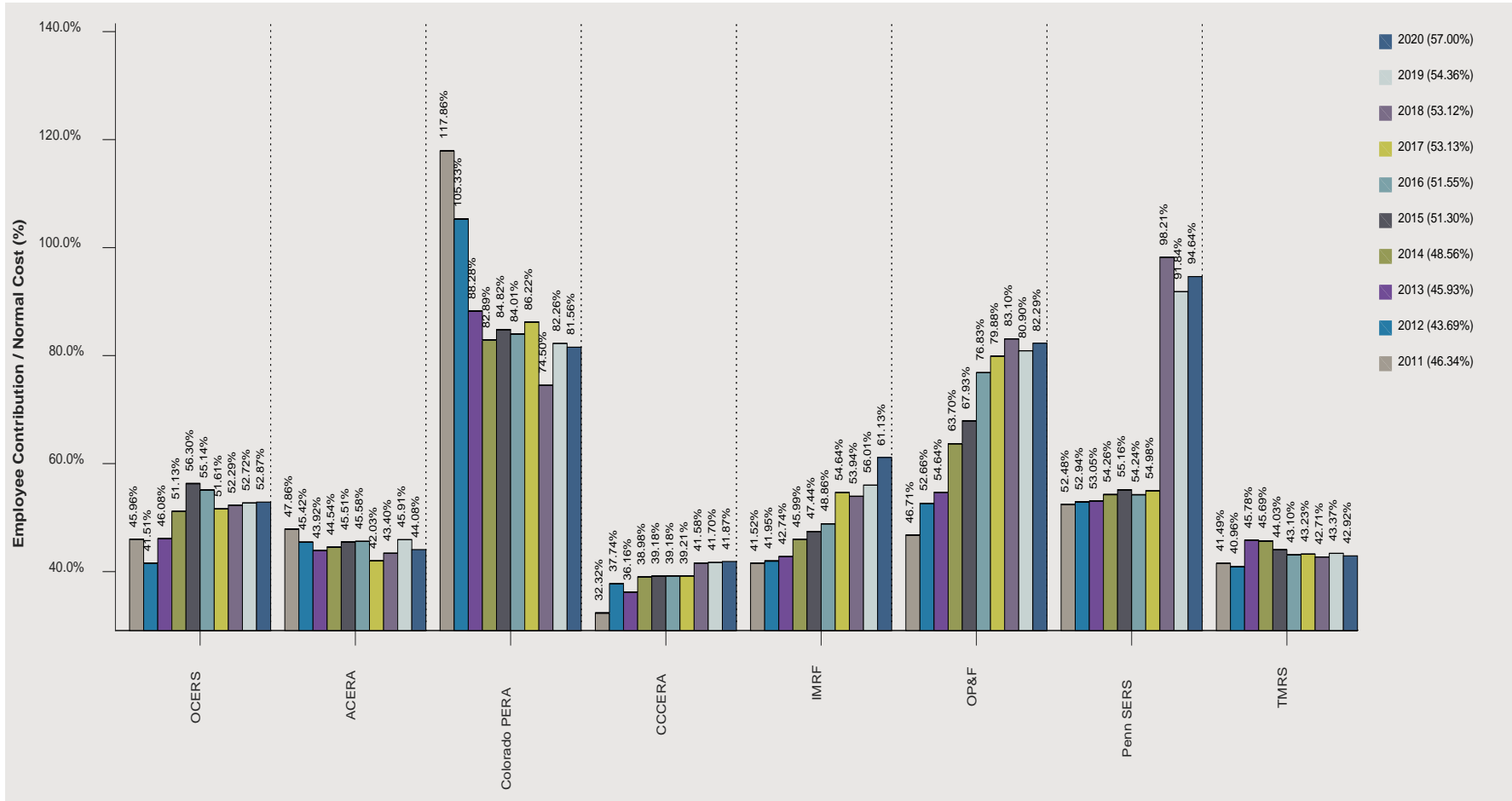
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Employee Contribution / Payroll (%) – California Plans



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

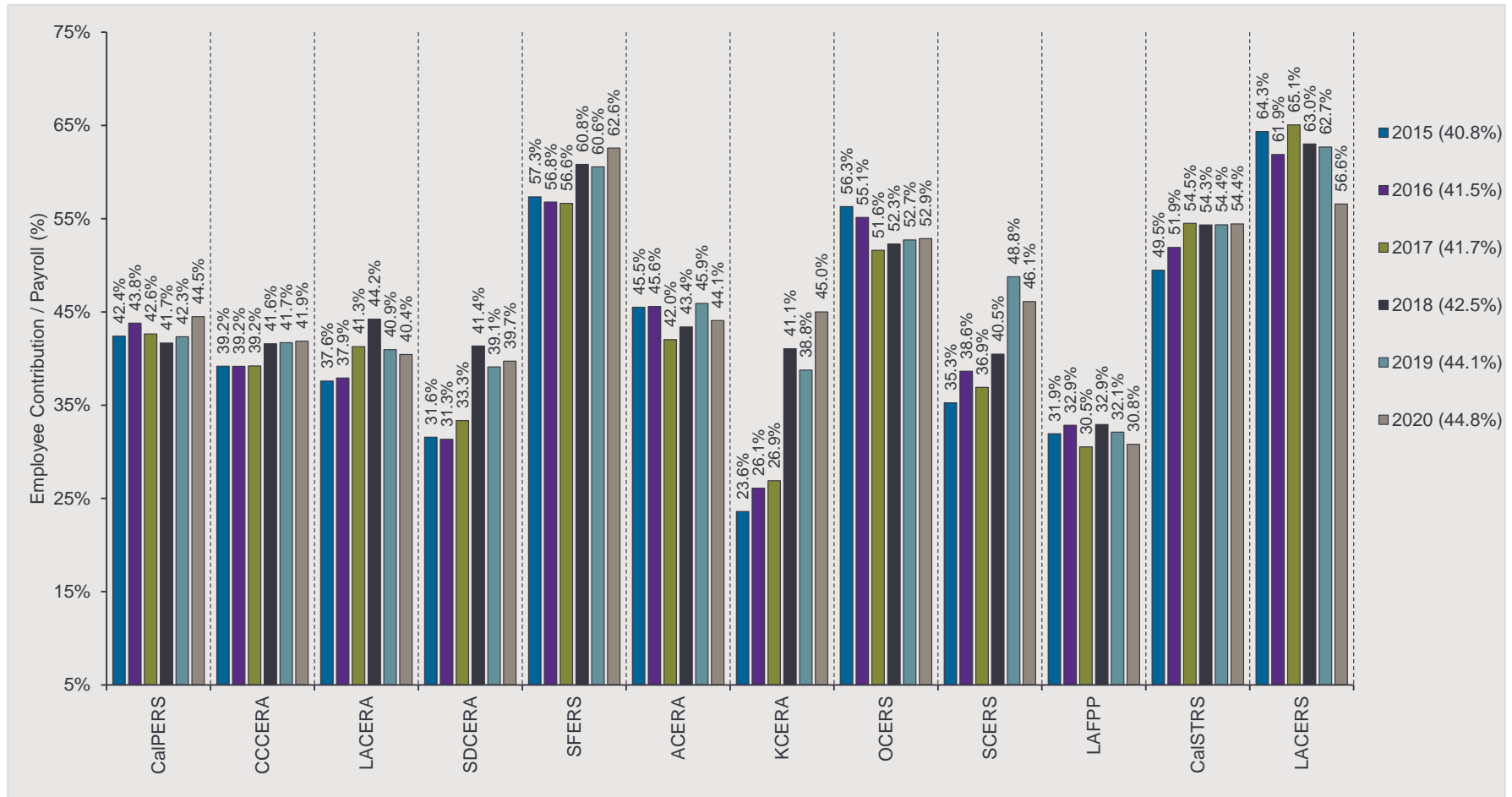
Employee Contribution / Normal Cost (%)



■ Measures the portion of new accruals that are paid for by employees. The balance is paid through employer contributions.

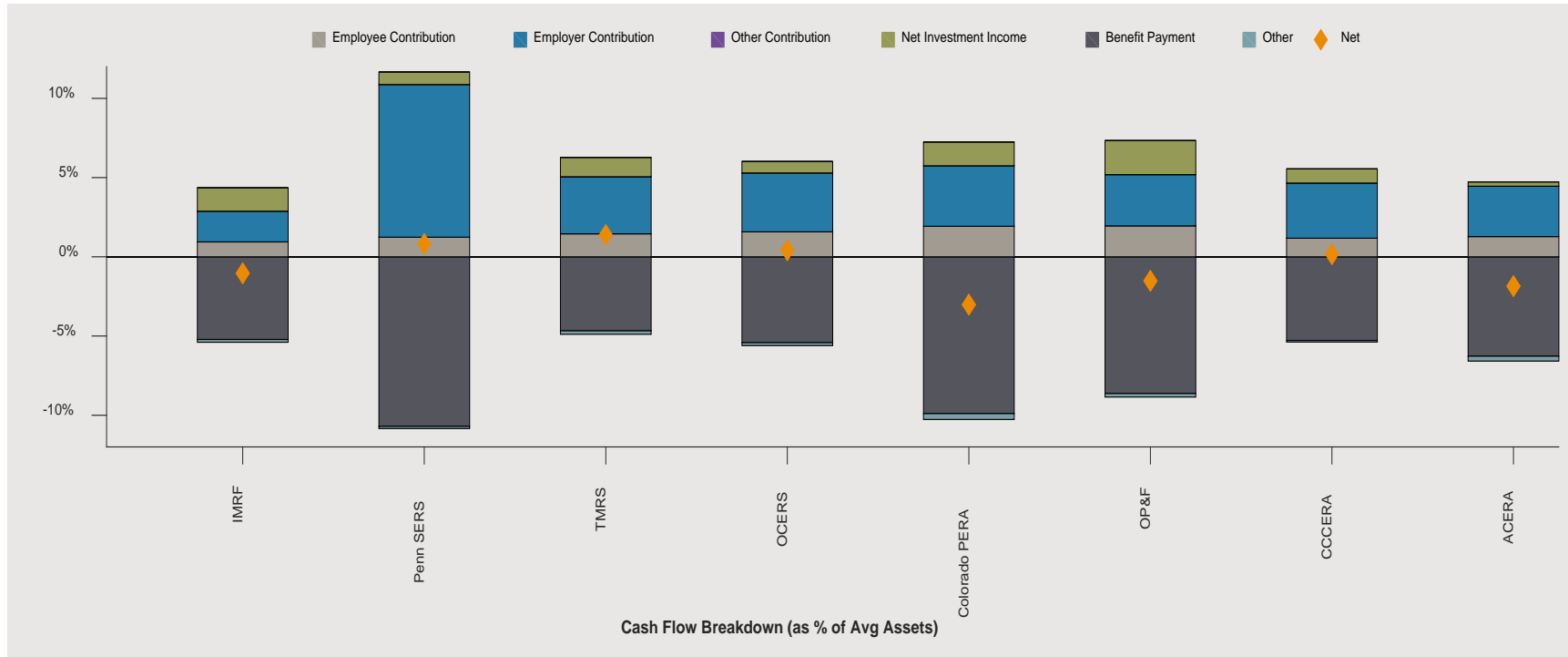
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Employee Contribution / Normal Cost (%) – California Plans



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

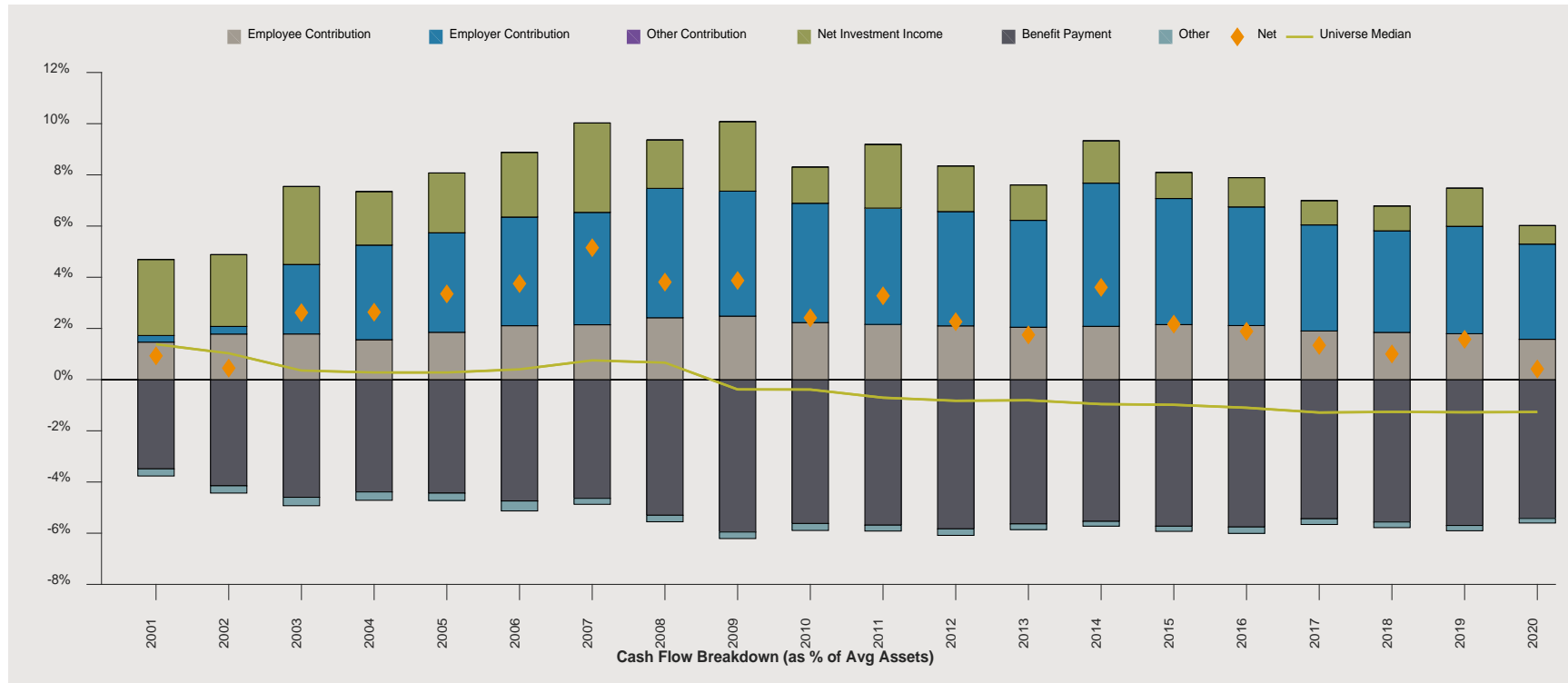
2020 Cash flow breakdown – peer comparison



Plan Name	IMRF	Penn SERS	TMRS	OCERS	Colorado PERA	OP&F	CCCERA	ACERA
Avg Assets (\$bn)	47.8	33.1	33.0	17.7	16.9	16.0	9.7	8.3
Net Cash Flow as % of Avg Assets	-1.0	0.8	1.4	0.4	-3.0	-1.5	0.2	-1.9

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Historical cash flow breakdown



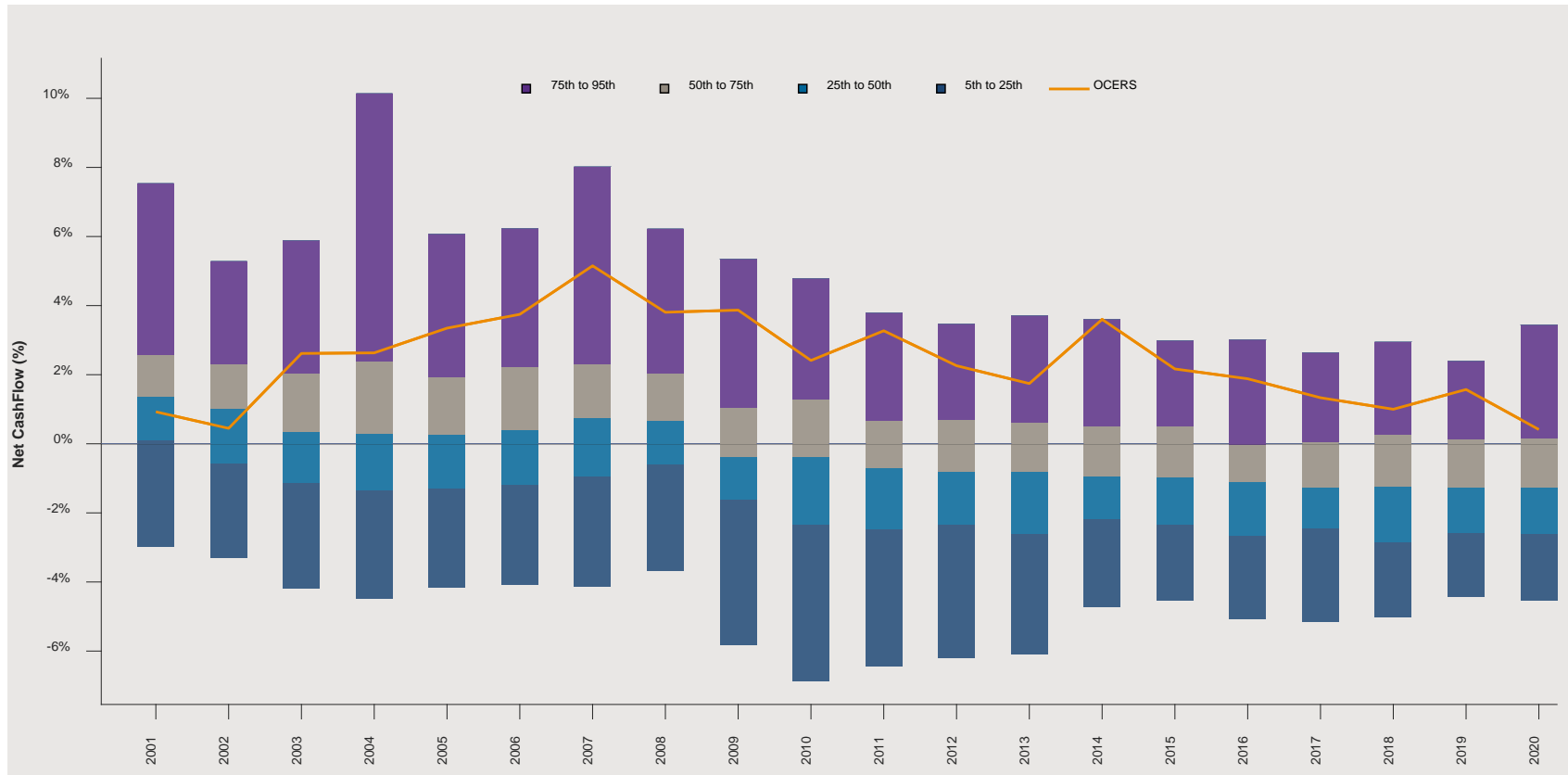
Fiscal Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Avg Assets (\$bn)	4.7	4.4	4.6	5.3	5.8	6.5	7.4	7.1	6.9	8.0	8.5	9.1	10.2	11.2	11.6	12.2	13.8	14.6	15.6	17.7
Net Cash Flow as % of Avg Assets	0.9	0.4	2.6	2.6	3.3	3.7	5.2	3.8	3.9	2.4	3.3	2.3	1.7	3.6	2.2	1.9	1.3	1.0	1.6	0.4

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



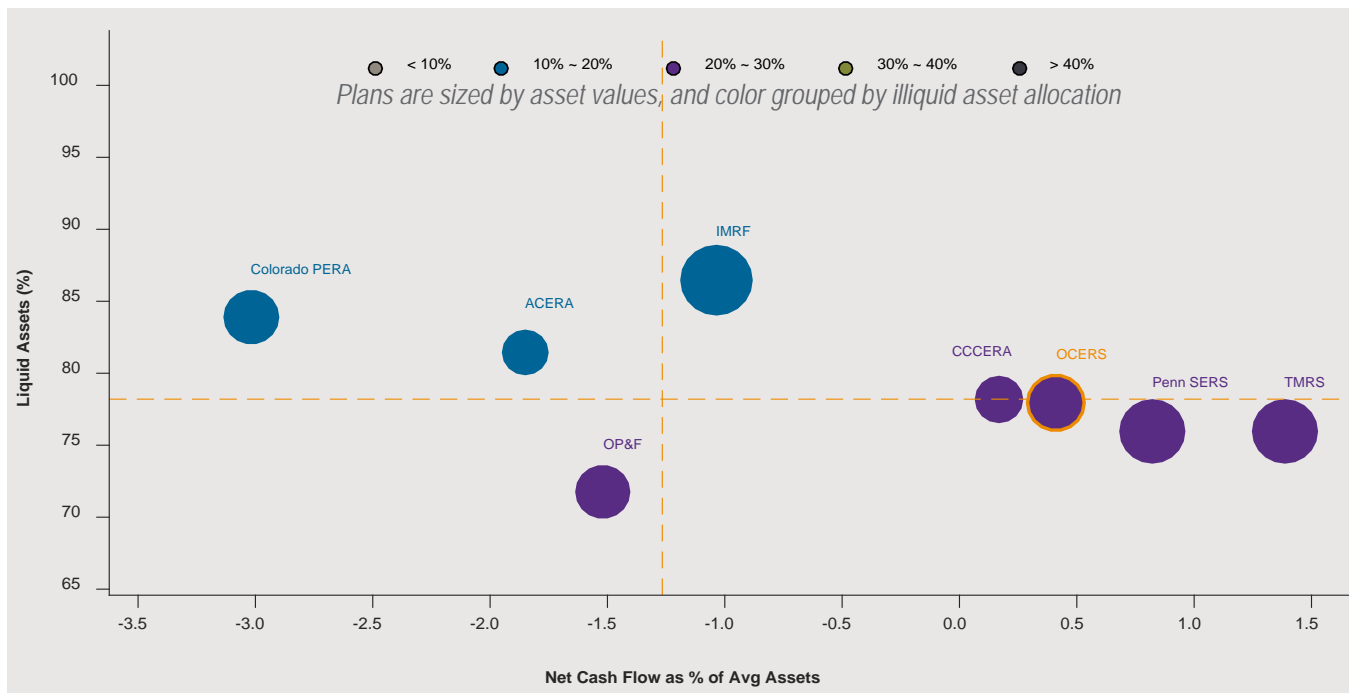
Historical Cashflow Trend

100 LARGEST PUBLIC PENSIONS: NET CASHFLOW TREND



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Liquidity Analysis – peer comparison



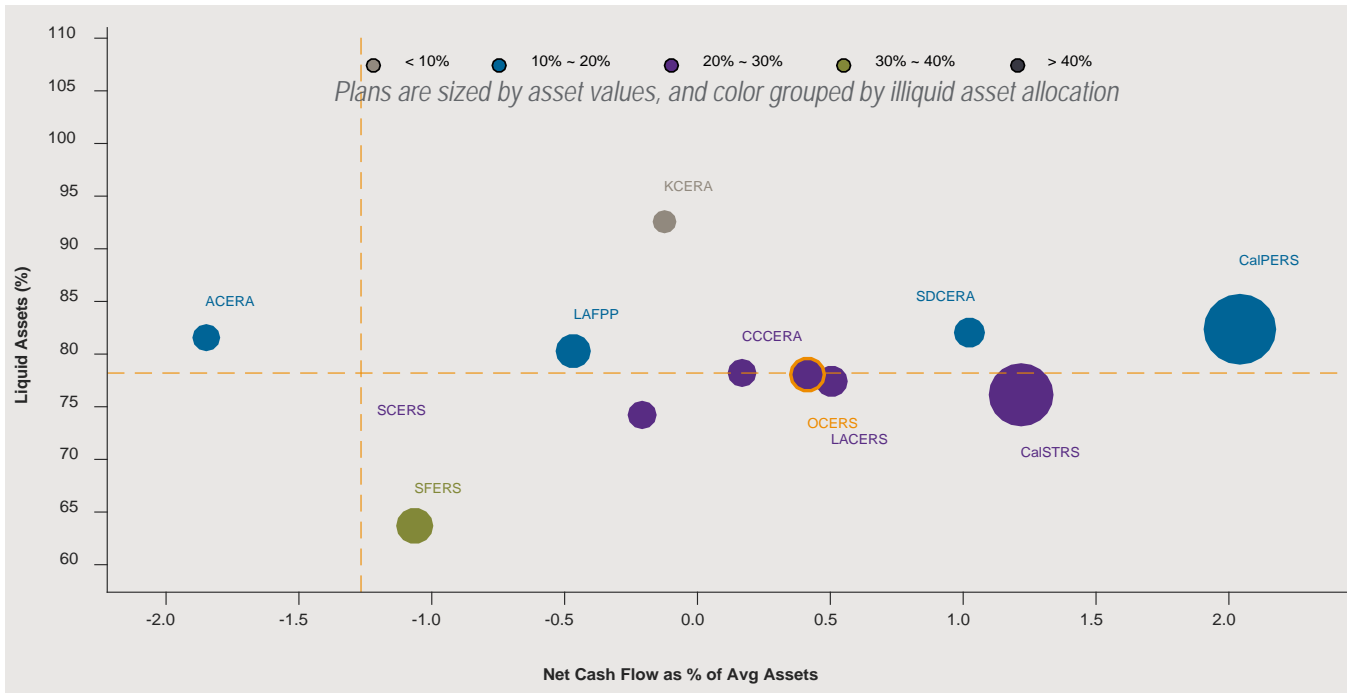
- Pension plan net cashflows are directly related to a plan’s ability to take on illiquidity in their asset portfolio
- OCERS allocates **78.0% to liquid assets**
- *Net Cash Flow as % of Avg Assets* (x-axis) measures the impact of net cash flows (benefit payments, contributions, income and other) on the plan’s assets

Plan Name	Peer Median	Universe Median	IMRF	Penn SERS	TMRS	OCERS	Colorado PERA	OP&F	CCCERA	ACERA
Avg Assets (\$bn)	17.3	13.3	47.8	33.1	33.0	17.7	16.9	16.0	9.7	8.3
Liquid Assets (%)	78.1	78.2	86.5	76.0	76.0	78.0	83.9	71.8	78.2	81.5
Net Cash Flow as % of Avg Assets	-0.4	-1.3	-1.0	0.8	1.4	0.4	-3.0	-1.5	0.2	-1.9

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.



Liquidity Analysis – California comparison

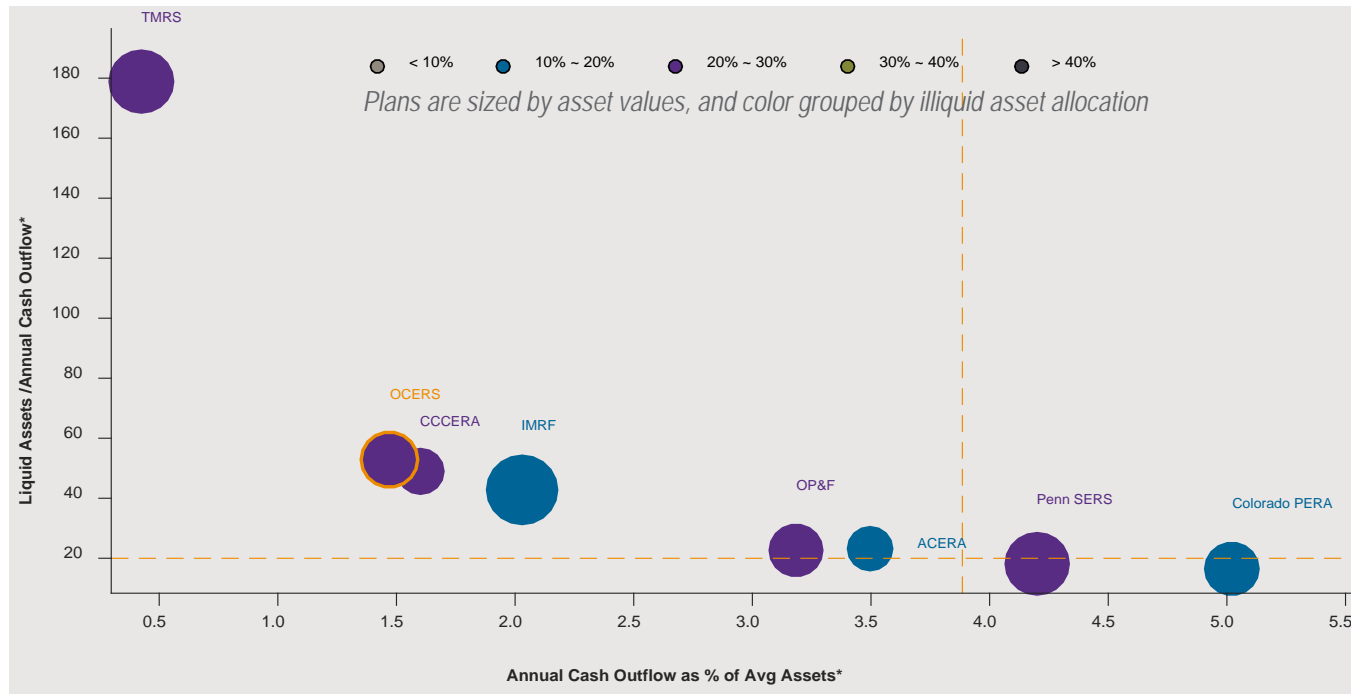


- Pension plan net cashflows are directly related to a plan’s ability to take on illiquidity in their asset portfolio
- OCERS allocates **78.0%** to **liquid assets**
- *Net Cash Flow as % of Avg Assets* (x-axis) measures the impact of net cash flows (benefit payments, contributions, income and other) on the plan’s assets

Plan Name	Peer Median	Universe Median	CalPERS	CalSTRS	SFERS	LAFPP	OCERS	LACERS	SDCERA	SCERS	CCCERA	ACERA	KCERA
Avg Assets (\$bn)	15.0	13.3	382.5	242.9	26.3	21.3	17.7	15.0	12.9	9.9	9.7	8.3	4.4
Liquid Assets (%)	78.2	78.2	82.4	76.2	63.8	80.3	78.0	77.4	82.0	74.2	78.2	81.5	92.5
Net Cash Flow as % of Avg Assets	0.2	-1.3	2.0	1.2	-1.1	-0.5	0.4	0.5	1.0	-0.2	0.2	-1.9	-0.1

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Stressed Liquid Assets Coverage: Employer Contribution Cut in Half

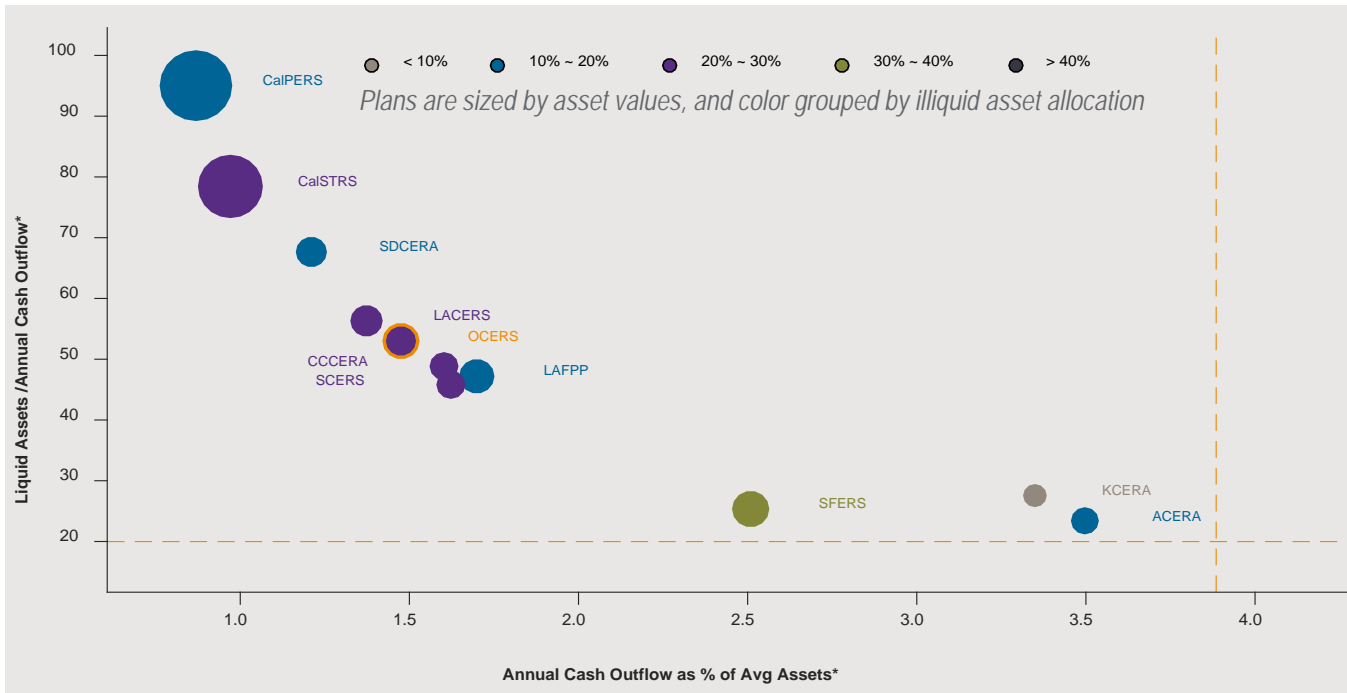


- Under stress scenario, the **employer portion of the contribution is reduced by 50%** of the current level to proxy a stressed fiscal scenario
- In this stressed scenario, **the impact of annual cash outflow on total assets for OCERS is 1.5%**, and **liquid asset coverage is 53 years**.

Plan Name	Peer Median	Universe Median	IMRF	TMRS	Penn SERS	OCERS	Colorado PERA	OP&F	CCCERA	ACERA
Plan Assets (\$bn)*	17.0	13.0	47.3	32.5	31.5	17.4	16.6	15.8	9.5	8.2
Liquid Assets/Annual Cash Outflow (%)*	33.0	20.0	42.7	178.6	18.1	52.9	16.7	22.5	48.9	23.3
Annual Cash Outflow as % of Plan Assets*	2.6	3.9	2.0	0.4	4.2	1.5	5.0	3.2	1.6	3.5

*Stress scenario applies a 50% reduction on employer contribution to net cash flow and plan assets.
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Stressed Liquid Assets Coverage – California comparison



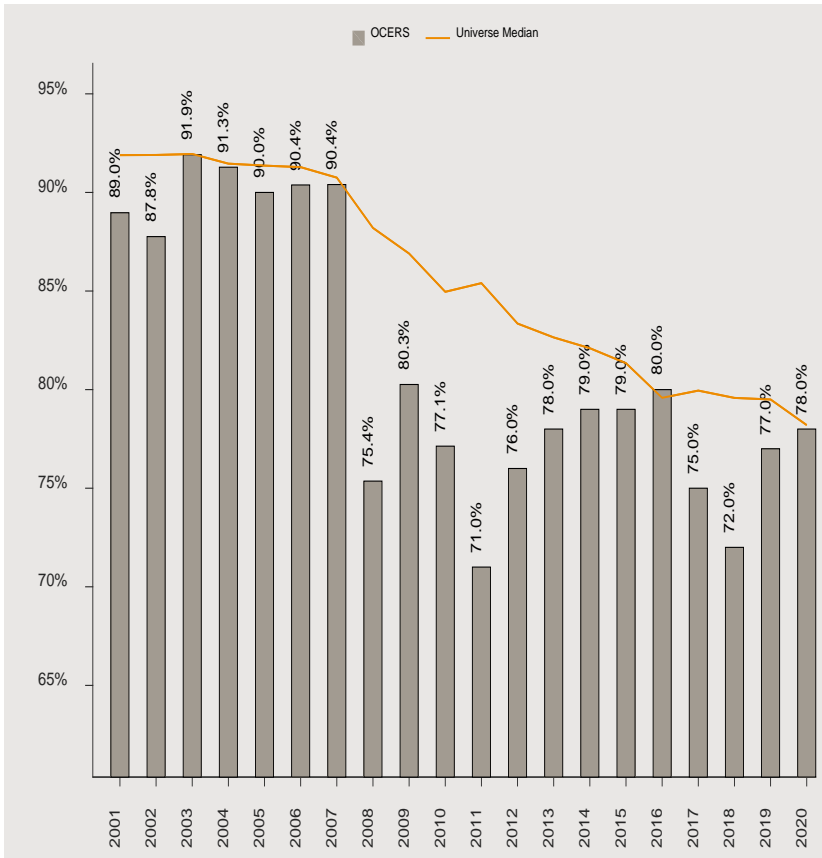
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- In this stressed scenario, **the impact of annual cash outflow on total assets for OCERS is 1.5%**, and **liquid asset coverage is 53 years**.

Plan Name	Peer Median	Universe Median	CalPERS	CalSTRS	SFERS	LAFPP	OCERS	LACERS	SDCERA	SCERS	CCCERA	ACERA	KCERA
Plan Assets (\$bn)*	14.7	13.0	371.5	237.7	26.0	21.1	17.4	14.7	12.6	9.8	9.5	8.2	4.3
Liquid Assets/Annual Cash Outflow (%)*	48.9	20.0	95.1	78.5	25.4	47.3	52.9	56.4	67.7	45.7	48.9	23.3	27.6
Annual Cash Outflow as % of Plan Assets*	1.6	3.9	0.9	1.0	2.5	1.7	1.5	1.4	1.2	1.6	1.6	3.5	3.3

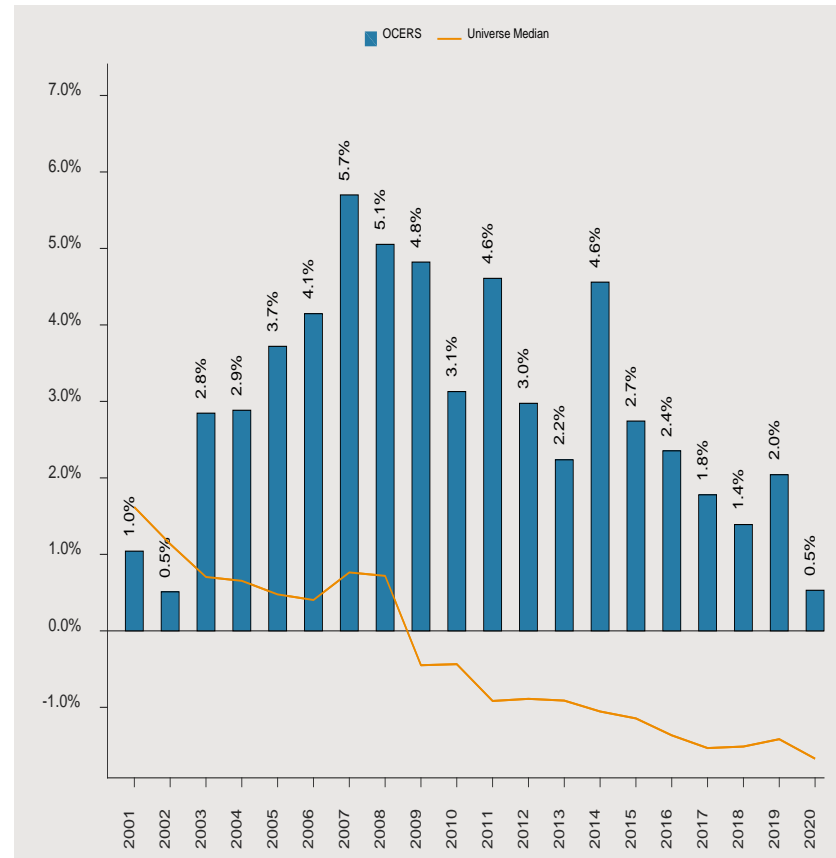
*Stress scenario applies a 50% reduction on employer contribution to net cash flow and plan assets. Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Liquidity Analysis

Historical Liquid Assets (%)



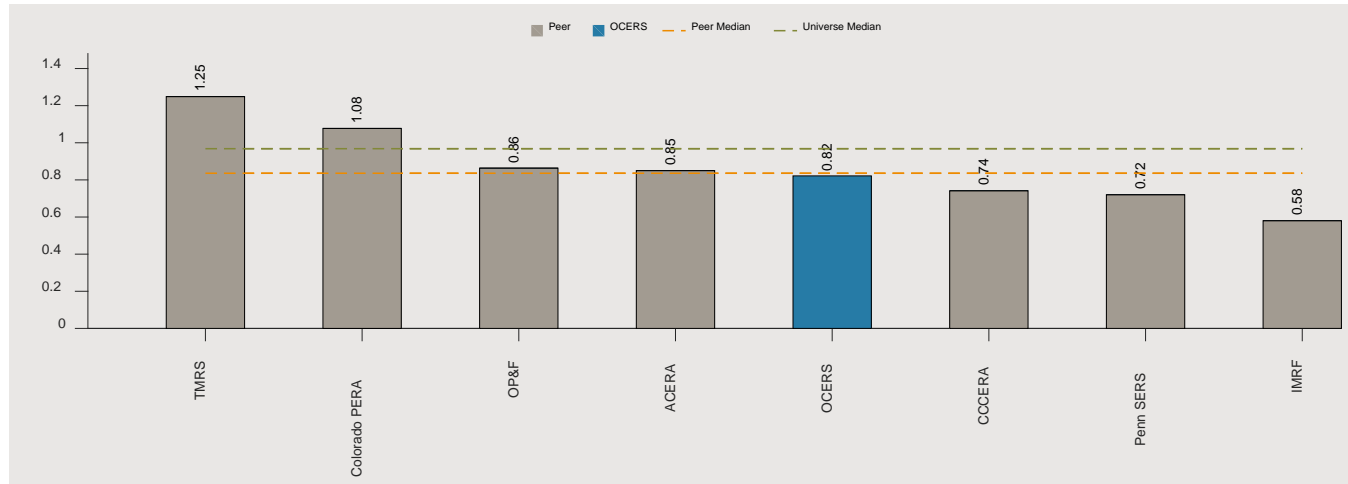
Historical Cash Flow as % of Avg Liquid Assets



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

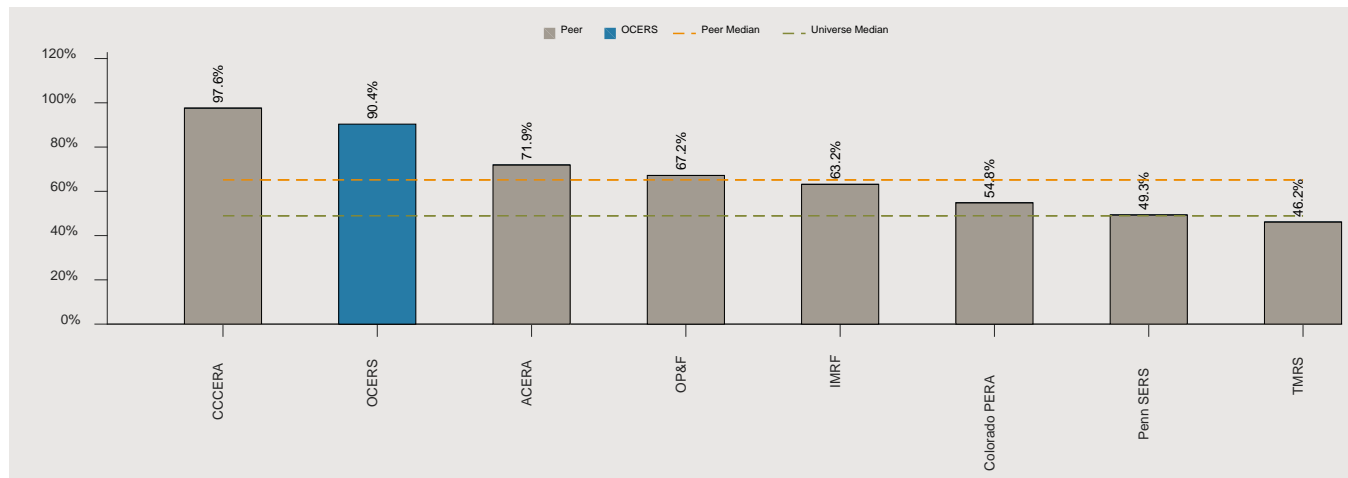
Plan Maturity as of 2020

Active/Inactive Ratio – peer comparison



*Dash line represents median figure

10% Asset Shock as % of Payroll

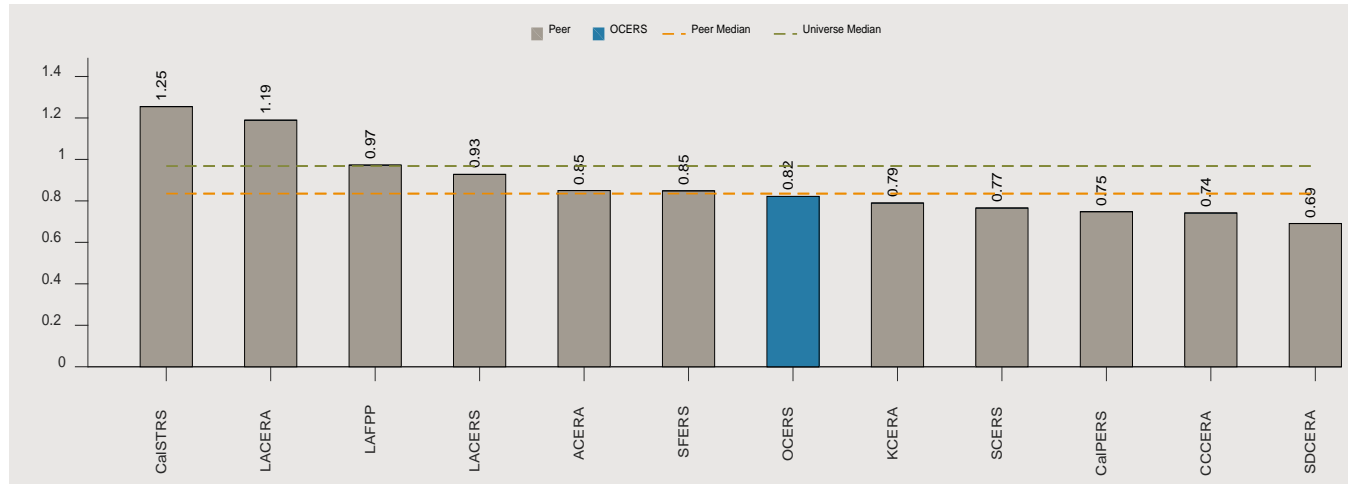


*Dash line represents median figure

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

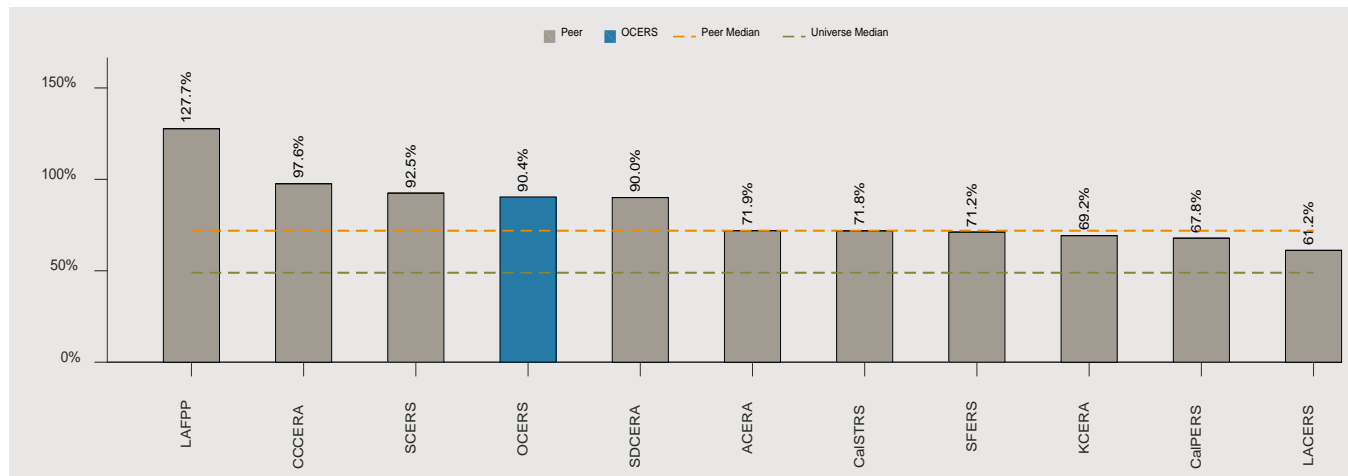
Plan Maturity as of 2020 – California Plans

Active/Inactive Ratio – peer comparison



*Dash line represents median figure

10% Asset Shock as % of Payroll

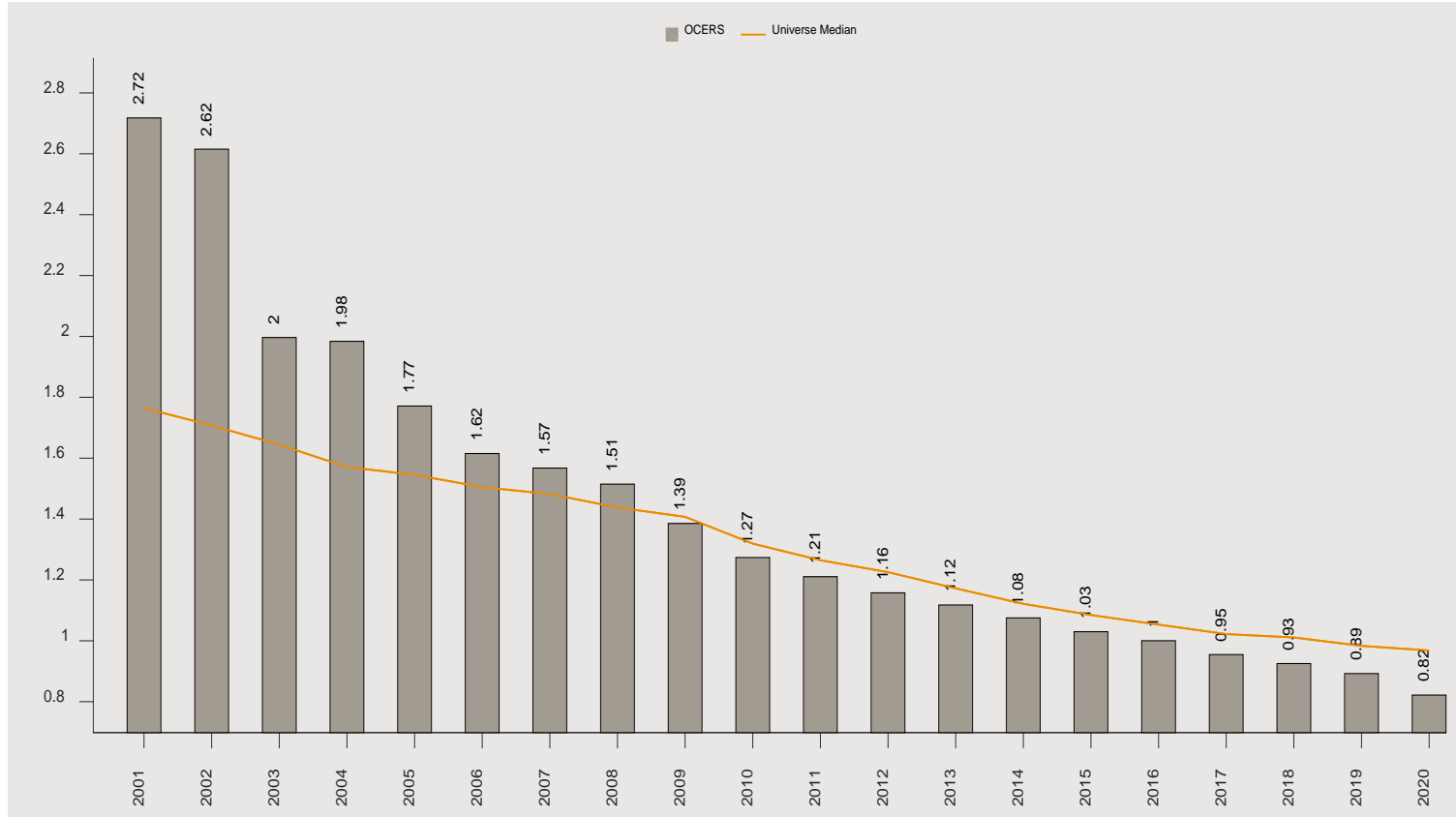


*Dash line represents median figure

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Plan Maturity

Active/Inactive Ratio



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Appendix

FY 2020 pension plans overview

	OCERS	ACERA	Colorado PERA	CCCERA	IMRF	OP&F*	Penn SERS	TMRS	
Accounting	Total Pension Liability (TPL \$mm)	23,010	10,639	27,365	10,532	51,123	23,228	52,254	35,371
	Fiduciary Net Position (FNP \$mm)	18,797	8,445	17,880	10,070	50,572	16,411	35,028	34,283
	Net Pension Liability (NPL \$mm)	4,213	2,194	9,485	461	551	6,817	17,226	1,088
	GASB 67 Funded Ratio (%)	81.7%	79.4%	65.3%	95.6%	98.9%	70.7%	67.0%	96.9%
	Discount Rate (%)	7.00%	7.00%	7.25%	7.00%	7.25%	8.00%	7.00%	4.25%
Funding	Actuarial Value of Assets (AVA \$mm)	17,525	7,984	16,039	9,662	46,017	15,874	32,703	33,609
	Accrued Liabilities (AL \$mm)	22,905	10,484	27,117	10,522	48,923	22,857	55,099	37,536
	Unfunded Actuarial Accrued Liability (UAAL \$mm)	5,380	2,500	11,078	859	2,906	6,983	22,395	3,926
	Actuarial Funded Ratio (%)	76.5%	76.2%	59.1%	91.8%	94.1%	69.5%	59.4%	89.5%
	Payroll (\$mm)	1,963	1,156	3,089	990	7,568	2,385	6,700	7,161
	Actuarially Determined Employer Contribution (ADEC \$mm)	638	310	751	336	926	518	2,164	1,192
	Expected Return on Assets (%)	7.00%	7.00%	7.25%	7.00%	7.25%	8.00%	7.00%	6.75%
Demographics	Active Count	21,559	11,322	53,643	10,107	170,637	29,701	100,962	114,497
	Inactive Count	26,237	13,320	49,790	13,629	294,075	34,396	140,190	91,686
	Total Count	47,796	24,642	103,433	23,736	464,712	64,096	241,152	206,183
	Active/Inactive Ratio	0.82x	0.85x	1.08x	0.74x	0.58x	0.86x	0.72x	1.25x

* OP&F's most recent actuarial valuation report has not been published and so certain funding metrics have been projected. Due to the smoothed nature of many of these metrics, we fully expect that the actual figures once published will not differ meaningfully and no conclusions from the analysis would be invalidated

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

FY 2020 pension plans overview – California Plans

	CalPERS	CCCERA	SDCERA	SFERS	ACERA	KCERA	OCERS	SCERS	LAFPP	CalSTRS	LACERS	
Accounting	Total Pension Liability (TPL \$mm)	401,916	10,532	17,724	32,031	10,639	7,101	23,010	12,694	23,970	343,893	22,527
	Fiduciary Net Position (FNP \$mm)	392,453	10,070	12,909	26,620	8,445	4,439	18,797	9,979	21,397	246,984	14,932
	Net Pension Liability (NPL \$mm)	9,464	461	4,815	5,411	2,194	2,662	4,213	2,714	2,573	96,909	7,595
	GASB 67 Funded Ratio (%)	97.6%	95.6%	72.8%	83.1%	79.4%	62.5%	81.7%	78.6%	89.3%	71.8%	66.3%
	Discount Rate (%)	7.15%	7.00%	7.00%	7.40%	7.00%	7.25%	7.00%	6.75%	7.00%	7.10%	7.00%
Funding	Actuarial Value of Assets (AVA \$mm)	372,778	9,662	13,716	26,696	7,984	4,509	17,525	10,230	22,107	235,377	15,630
	Accrued Liabilities (AL \$mm)	531,166	10,522	17,741	29,500	10,484	7,006	22,905	12,694	23,727	322,127	22,527
	Unfunded Actuarial Accrued Liability (UAAL \$mm)	158,388	859	4,025	2,804	2,500	2,497	5,380	2,464	1,621	86,750	6,897
	Actuarial Funded Ratio (%)	70.2%	91.8%	77.3%	90.5%	76.2%	64.4%	76.5%	80.6%	93.2%	73.1%	69.4%
	Payroll (\$mm)	56,391	990	1,431	3,703	1,156	635	1,963	1,071	1,670	33,811	2,445
	Actuarially Determined Employer Contribution (ADEC \$mm)	15,613	336	559	743	310	274	638	274	517	10,849	553
	Expected Return on Assets (%)	7.25%	7.00%	7.00%	7.40%	7.00%	7.25%	7.00%	6.75%	7.00%	7.00%	7.00%
Demographics	Active Count	878,084	10,107	18,451	34,521	11,322	9,326	21,559	12,650	13,486	448,419	27,490
	Inactive Count	1,173,998	13,629	26,706	40,677	13,320	11,810	26,237	16,523	13,866	357,353	29,630
	Total Count	2,052,082	23,736	45,157	75,198	24,642	21,136	47,796	29,173	27,352	805,772	57,120
	Active/Inactive Ratio	0.75x	0.74x	0.69x	0.85x	0.85x	0.79x	0.82x	0.77x	0.97x	1.25x	0.93x

Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

FY 2020 pension plans overview – Plan Feature

Plan Name	Plan Type	Employee Coverage	Social Security Coverage	Employer Type	Amortization			Asset Smoothing	
					Level Dollar / Percent	Open/Closed/ Fixed	Period (yrs)	Smoothing?	Period (yrs)
Orange County ERS	PERS/ERS	local employees		Multiple	Percent	Closed	13	Yes	5
Alameda County ERS	PERS/ERS	local employees	Yes	Multiple	Percent	Closed	12	Yes	5
Colorado State	PERS/ERS	state employees		Multiple	Percent	Closed	27	Yes	4
Contra Costa County	PERS/ERS	local employees	Yes	Multiple	Percent	Fixed	17	Yes	5
Illinois Municipal	PERS/ERS	state and local employees	Yes	Multiple	Percent	Closed	21	Yes	5
Ohio Police & Fire	Police/Fire/Safety	police and/or fire		Multiple	Percent	Open	28	Yes	4
Pennsylvania State ERS	PERS/ERS	state employees	Yes	Multiple	Dollar	Closed	19	Yes	5
Texas Municipal	PERS/ERS	local employees	Yes	Multiple	Percent	Open	25	Yes	10

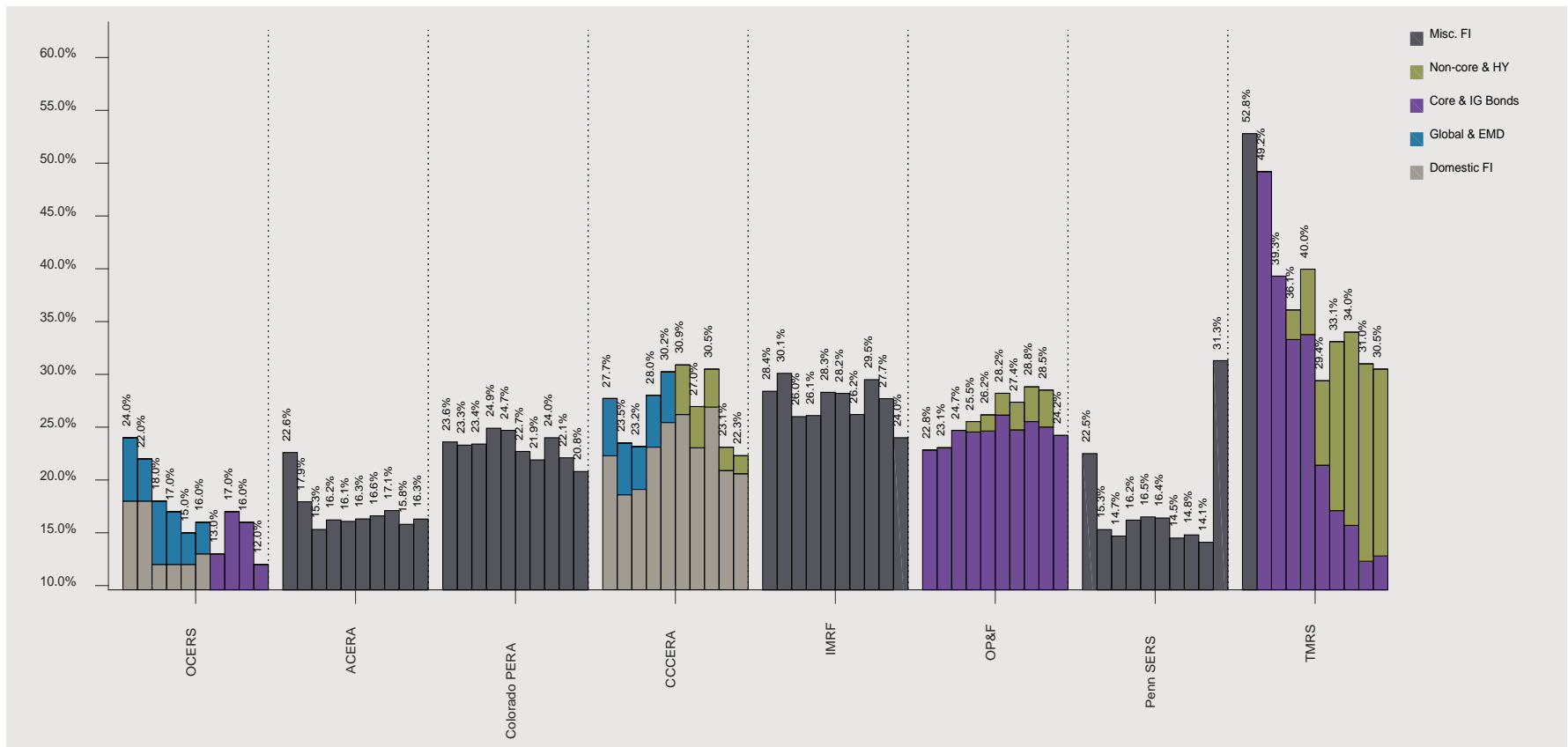
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Detailed public pension information – asset allocation

	Retirement System Asset Allocation	OCERS	ACERA	Colorado PERA	CCCERA	IMRF	OP&F	Penn SERS	TMRS
Considered Liquid	Cash	2.0	0.6	1.0	3.3	1.4	8.6	1.5	3.9
	Fixed Income	12.0	16.3	20.8	22.3	24.0	24.2	31.3	30.5
	Public Equity	47.0	57.0	58.0	40.3	61.1	38.9	43.1	32.1
	REITs	-	-	-	-	-	-	-	-
	Hedge Funds	17.0	7.6	4.1	12.3	-	-	0.1	9.5
	Commodities	-	-	-	-	-	-	-	-
	Misc. Liquid	-	-	-	-	-	-	-	-
Considered Illiquid	Private Equity	11.0	7.4	8.1	10.2	-	12.6	14.7	4.4
	Private Debt	-	-	-	-	-	2.6	1.9	-
	Real Assets	11.0	11.1	8.0	11.6	7.1	13.1	7.4	19.6
	Misc. Illiquid	-	-	-	-	6.4	-	-	-
	Other	-	-	-	-	-	-	-	-
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

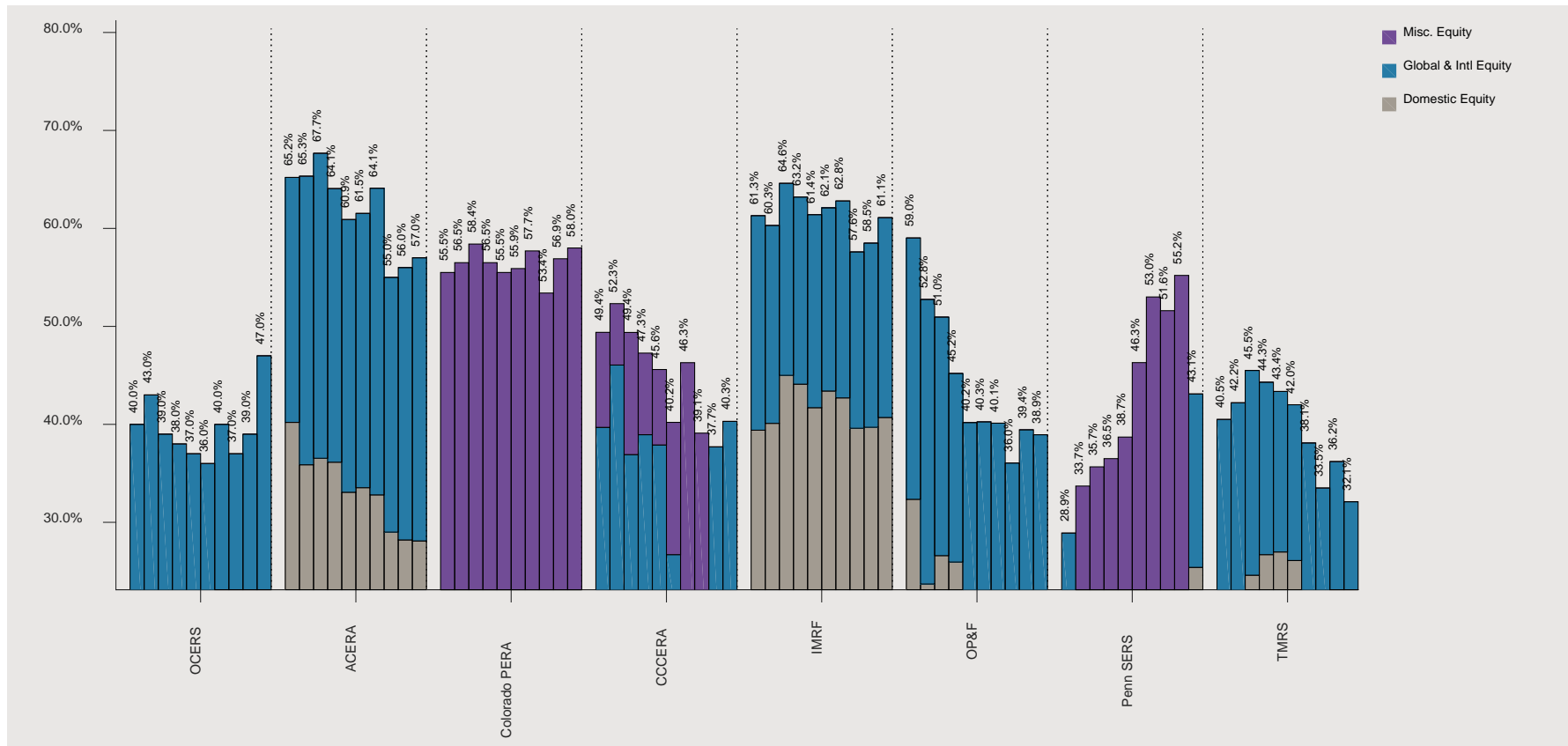
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Fixed Income Asset Allocation (FY 2011 – 2020)



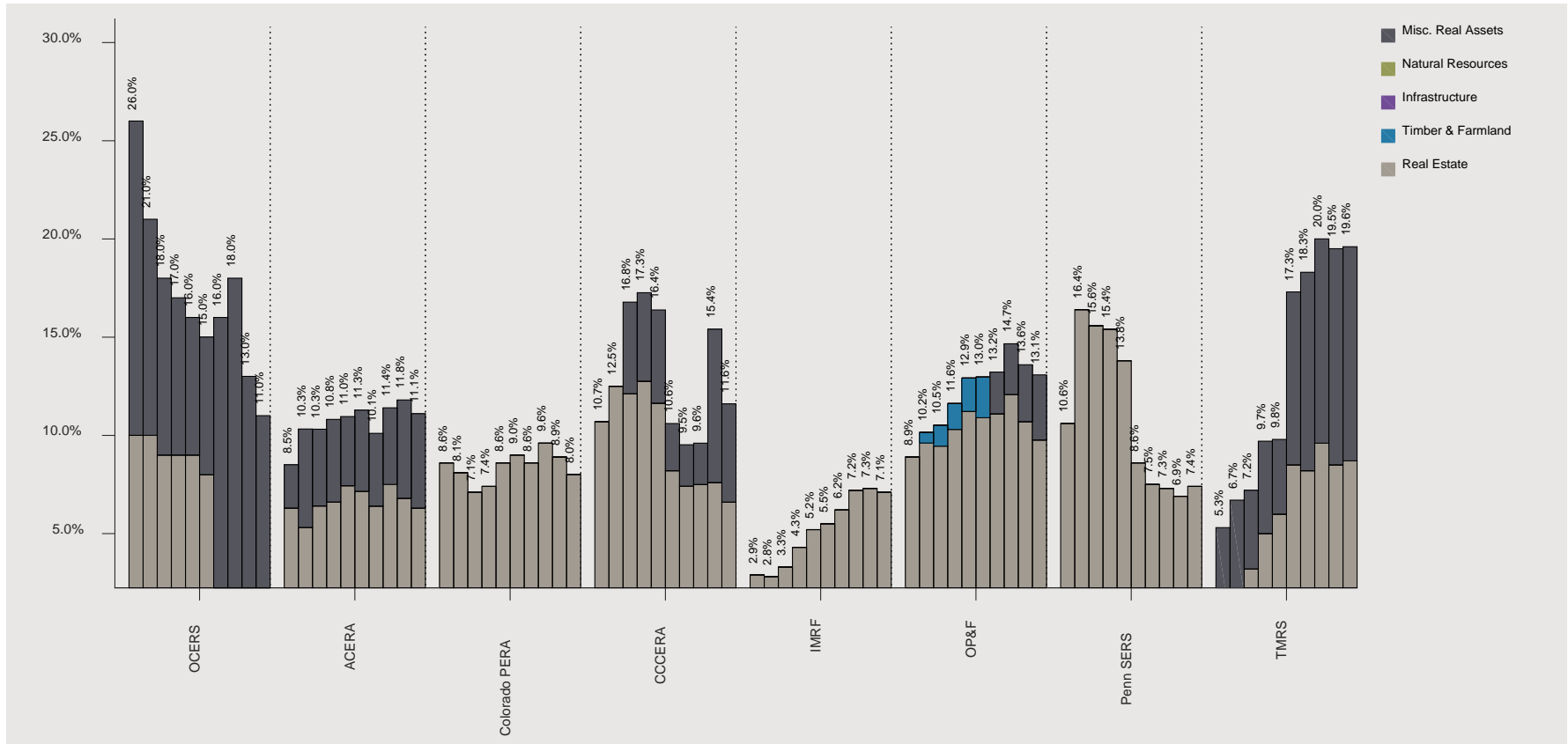
Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Equity Asset Allocation (FY 2011 – 2020)



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

Real Assets Asset Allocation (FY 2011 – 2020)



Source: J.P. Morgan Asset Management, Public pension plan data. For illustrative purposes only.

J.P. Morgan Asset Management

RISKS ASSOCIATED WITH INVESTING

Equity: The price of equity securities may rise or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. These price movements may result from factors affecting individual companies, sectors or industries selected for the portfolio or the securities market as a whole, such as changes in economic or political conditions. Equity securities are subject to "stock market risk" meaning that stock prices in general (or in particular, the prices of the types of securities in which a portfolio invests) may decline over short or extended periods of time. When the value of a portfolio's securities goes down, an investment in a fund decreases in value. There is no guarantee that the use of long and short positions will succeed in limiting the Fund's exposure to domestic stock market movements, capitalization, sector-swings or other risk factors. Investment in a portfolio involved in long and short selling may have higher portfolio turnover rates. This will likely result in additional tax consequences. Short selling involves certain risks, including additional costs associated with covering short positions and a possibility of unlimited loss on certain short sale positions.

Fixed Income: Investments in bonds and other debt securities will change in value based on changes in interest rates. If rates rise, the value of these investments generally drops. Securities with greater interest rate sensitivity and longer maturities tend to produce higher yields, but are subject to greater fluctuations in value. Usually, the changes in the value of fixed income securities will not affect cash income generated, but may affect the value of your investment. Credit risk is the risk of loss of principal or loss of a financial reward stemming from a borrower's failure to repay a loan or otherwise meet a contractual obligation. Credit risk arises whenever a borrower is expecting to use future cash flows to pay a current debt. Such default could result in losses to an investment in your portfolio.

International/Emerging Markets : International investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Also, some overseas markets may not be as politically and economically stable as the United States and other nations. Investments that are concentrated in a single country or region are subject to the additional risk associated with a smaller number of issuers. International investing bears greater risk due to social, economic, regulatory and political instability in countries in "emerging markets." This makes emerging market securities more volatile and less liquid developed market securities. Changes in exchange rates and differences in accounting and taxation policies outside the U.S. can also affect returns.

Alternatives: Investing in alternative assets involves higher risks than traditional investments and is suitable only for sophisticated investors. Alternative investments involve greater risks than traditional investments and should not be deemed a complete investment program. They are not tax efficient and an investor should consult with his/her tax advisor prior to investing. Alternative investments have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain. The value of the investment may fall as well as rise and investors may get back less than they invested.

Private Equity: Private equity securities may be illiquid, present significant risks, and may be sold or redeemed at more or less than the original amount invested. The value of investments and the income from them may fluctuate and your investment is not guaranteed.

J.P. Morgan Asset Management

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Past performance does not guarantee future results. Total returns assumes reinvestment of any income. The deduction of an advisory fee reduces an investor's return. Actual account performance will vary on individual portfolio security selection and the applicable fee schedule. Fees are available upon request.

The following is an example of the effect of compounded advisory fees over a period of time on the value of a client's portfolio: A portfolio with a beginning value of \$100 million, gaining an annual return of 10% per annum would grow to \$259 million after 10 years, assuming no fees have been paid out. Conversely, a portfolio with a beginning value of \$100 million, gaining an annual return of 10% per annum, but paying a fee of 1% per annum, would only grow to \$235 million after 10 years. The annualized returns over the 10 year time period are 10.00% (gross of fees) and 8.91% (net of fees). If the fee in the above example was 0.25% per annum, the portfolio would grow to \$253 million after 10 years and return 9.73% net of fees. The fees were calculated on a monthly basis, which shows the maximum effect of compounding.

Securities may be sold through J.P. Morgan Institutional Investments Inc., member FINRA/SIPC.

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Orange County Employees Retirement System

September 8, 2021

Portfolio Leverage and
Capital Efficiency



Orange County Employees' Retirement System

Portfolio Leverage and Capital Efficiency

Agenda

1. Introduction
2. Challenges
3. Leverage
4. Summary



Orange County Employees' Retirement System

Introduction



Orange County Employees' Retirement System

Introduction

Introduction

- Expected returns are low, valuations are high, and some investors are seeking to fill liability gaps.
- Investors have multiple options to potentially achieve their objectives:
 - Take more absolute risk (i.e., standard deviation; e.g. more equities, less bonds).
 - Take more active risk through manager selection (i.e., tracking error).
 - Further diversify sources of risk across asset classes and/or managers (i.e., correlation).
 - Utilize forms of leverage.



Orange County Employees' Retirement System

Challenges

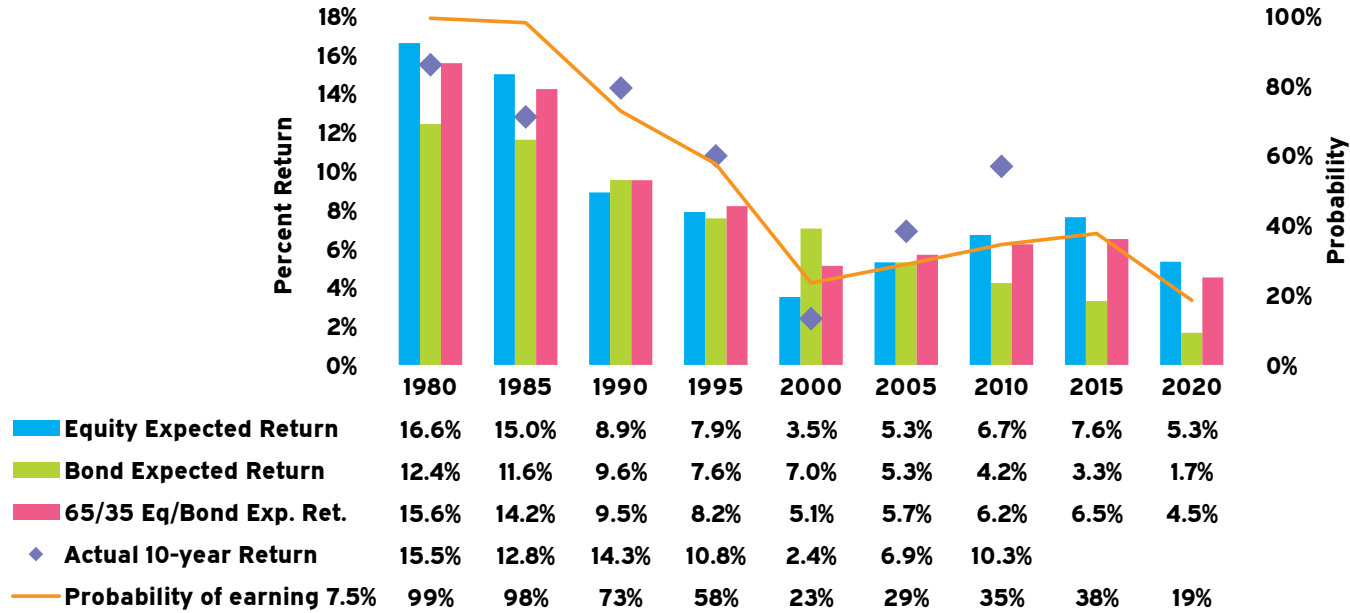


Orange County Employees' Retirement System

Challenges

Low Rates = Low Future Returns¹

- Low interest rates imply lower future returns for investors.
- With rates having declined even further, it will be more difficult than ever for institutional investors to achieve their target returns.



¹ Expected return assumptions for 1) Bonds equals the yield of the ten-year Treasury plus 100 bps, and 2) Equities equals the dividend yield plus the earnings yield of the S&P 500 index (using the inflation-adjusted trailing 10-year earnings). Probability calculation is for the subsequent ten years. Reflects yields and valuations as of June 30, 2020.

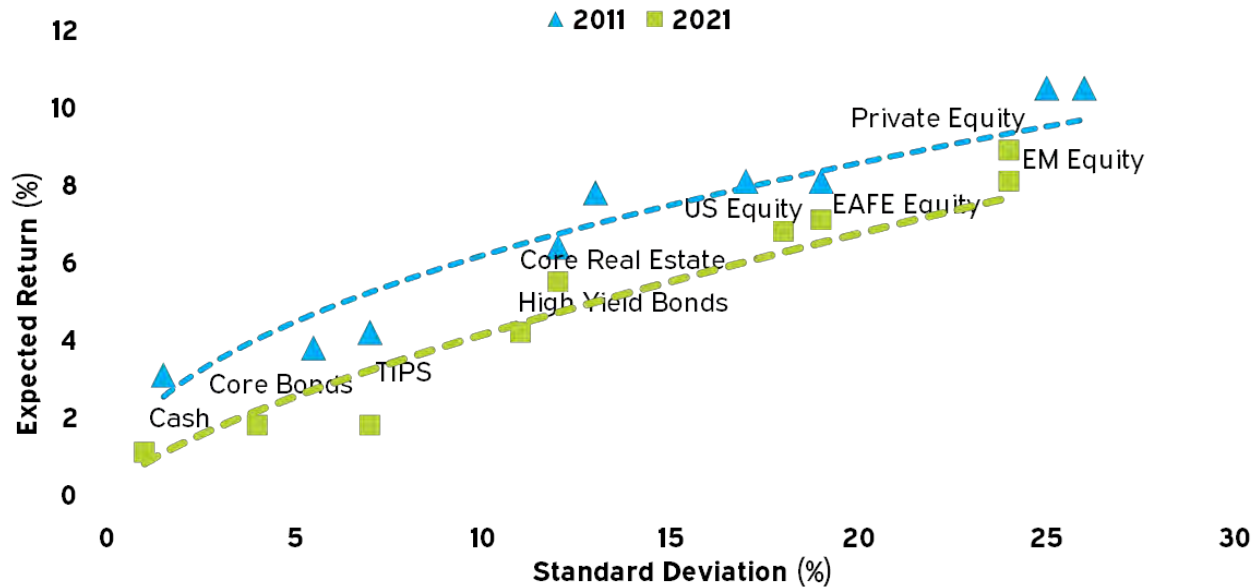


Orange County Employees' Retirement System

Challenges

The Big Picture: Less Return for the Same Risk

- A positive relationship exists between long-term return expectations and the level of risk accepted; however, this relationship is not static.
- Achieving similar levels of past returns will require taking greater risks.



¹ Expected return and standard deviation are based upon Meketa Investment Group's 2011 and 2021 Capital Markets Expectations



Orange County Employees' Retirement System

Leverage



Orange County Employees' Retirement System

Leverage

What Are the Different Types of Leverage?

- Leverage can be often found in a portfolio in three ways:
 - Explicit, Implicit, Embedded.
 - Explicit leverage is the only form where an investor can lose more than the original amount invested.
 - The degree of leverage can vary across the three types.

Portfolio Level (Explicit)	Manager/Fund Level (Implicit)	Security Level (Embedded)
Buy investments using borrowed funds.	Common practice in hedge funds, private equity, and real estate investments. Hence leverage is embedded in many of these vehicles by the GPs.	Most corporations finance their operations with debt as well as with shareholder equity.
Buy investments using derivatives, putting down only a portion of the value as collateral ("margin").	Buy investments using borrowed funds, including from short sales.	Most investments in shares of <i>public equities</i> thus have embedded leverage.
Exposures exceed asset pool's capital.	Buy investments using derivatives.	Managers can choose to invest in more or less leveraged companies.
Can incur losses that exceed total invested capital.	Investors cannot lose more than amount they invested.	



Orange County Employees' Retirement System

Leverage

Leverage Multiples and Percentages

- In finance, we often talk about leverage in terms of leverage multiples or percentages.
- The best way to think about it is in terms of the money you start off with and how much you borrowed.
- For instance, if you start off with \$100 and haven't borrowed anything yet, you are 1x levered or 0% levered.
- If you decide to borrow \$50, you have \$150 to work with, and you are now 1.5x or 33.3% levered.

Money You Own	Money Borrowed	Total Invested	Leverage %	Leverage Multiple
\$100	\$0	\$100	0	1x
\$100	\$50	\$150	33.3	1.5x
\$100	\$100	\$200	50	2x



Orange County Employees' Retirement System

Leverage

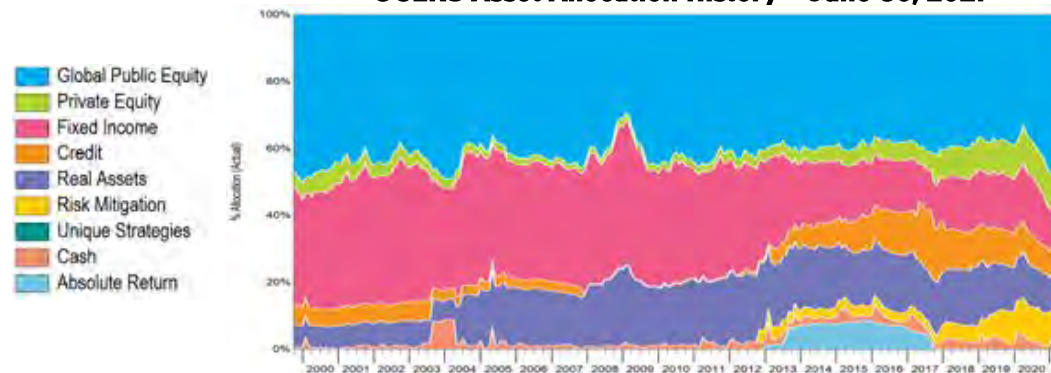
Who Uses Leverage?

- Some leverage is probably already in your portfolio:
 - Most public companies have debt on their balance sheet.
 - Most private equity funds use leverage to purchase companies.
 - Most real estate funds use leverage to purchase properties.
 - Risk parity funds, hedge funds, and portable alpha strategies use leverage.
 - Manager overlay strategies (e.g., equitizing cash to bring beta up to one) may act like leverage.
- Some prominent investors use leverage explicitly:
 - Wisconsin (SWIB)
 - Texas Teachers (TRS)
 - Indiana (PRS)
 - Pennsylvania (PSERS)
 - Harvard (HMC)
 - Yale University
- These plans cap explicit leverage at 20%, and usually keep it around 10% or less.

Where does OCERS have Leverage?

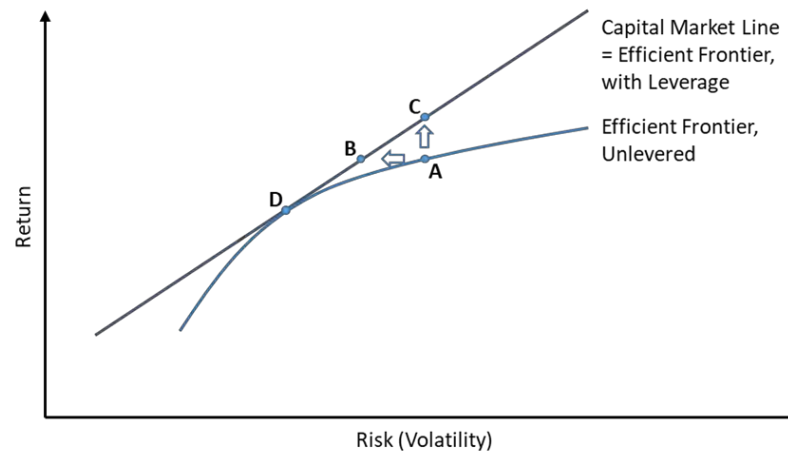
- Generally the only form of leverage where an investor can lose more than the original invested capital is system level/explicit leverage. With other forms of leverage, an investor can lose more money and lose it faster, depending on the amount of leverage utilized by the manager and the underlying securities, but not more than the original investment.
- System Level (Explicit): none
- Manager/Fund Level (Implicit):
 - Higher: private equity, private credit, real assets, risk mitigation, unique strategies, absolute return, credit
 - Lower: fixed income, global public equity
- Security Level (Embedded): global public equity

OCERS Asset Allocation History – June 30, 2021



What Are the Potential Benefits of Leverage?

- Leverage magnifies gains and can make a portfolio more efficient (i.e., produce a better risk-return profile), if assumptions are realized.



- If A is an unlevered portfolio on the efficient frontier, using leverage could achieve B (same return, lower risk) or C (higher return, same risk).
- Compared to A, both B and C have a much greater share of their portfolios in assets such as bonds, which have a lower volatility and lower correlation to equities.
- If unlevered, these bond-heavy portfolios' returns would be too low (D), but adding leverage – borrowing to buy assets with expected return greater than cash – magnifies their returns, as well as their risks.



Orange County Employees' Retirement System

Leverage

What Are the Concerns of Using Leverage?

- Leveraged portfolios can decrease in value, even for extended periods of time.
 - Leverage magnifies losses and volatility.
- Leverage always poses a *risk* because the economic exposure exceeds the capital assets to cover the exposure.
- It becomes a *problem* when either periodic financing payments cannot be met or the amount of equity relative to the debt declines to a level unacceptable to the financier.
 - Borrowing costs may exceed the return generated by the investment.
 - A broker may require additional margin if a derivatives contract declines, and will sell the contract and force the investor to realize losses if that margin is not provided.
 - A loan's covenant may require a maximum debt-to-equity ratio. If exceeded, the loan may be called early, or may not be renewed.
- In times of market shocks or fluctuations in rates, the effects on the leveraged investment can be magnified.
 - If there is a small increase in borrowing rate from an already low point, the investor experiences a major impact on their borrowing cost.
 - Managing the potential mismatch in borrowing cost is essential in safely managing a levered portfolio.
 - During a liquidity shock, debt providers tend to pull back and require more margin on investments.



Orange County Employees' Retirement System

Leverage

What Are the Concerns of Using Leverage? (continued)

- Leverage introduces risks that are not easily measured via traditional metrics.
 - These include illiquidity, mark-to-market, counter-party, headline, and model risks.
 - Because leverage magnifies volatility, a high degree of pain tolerance may be required to avoid unwinding the program at an inopportune time.
- Managing a portfolio with explicit leverage is complex and requires dedicated resources and/or additional monitoring costs.
 - Using a turn-key approach (e.g., portable “alpha”) mitigates this concern, but it is more expensive.
 - Leverage has to be disclosed in financial reports, making for an extra accounting consideration.
- Even if a plan is tax-exempt, leverage can still expose investors to UBTI (Unrelated Business Taxable Income) taxation in certain cases.
- Leverage can expose investors to headline/peer risk, as explicit portfolio-level leverage is not used by most pension plans.
- Portfolio-level leverage can be difficult to implement effectively. If the use of leverage were simple and always worked, it is likely that a larger number of investors would use it. However, it does not always result in the intended goals.



Orange County Employees' Retirement System

Summary



Orange County Employees' Retirement System

Summary

Summary

- The environment calls for continuous research on how to meet future expected returns while managing risks.
- Leverage can be found in virtually all portfolios in various forms.
- Explicit leverage is a tool some institutions use in portfolio construction, asset allocation and risk mitigation.
- Explicit leverage exposes an institution to multiple risks, which may be mitigated through close partnerships with external parties and thorough margin/collateral management.

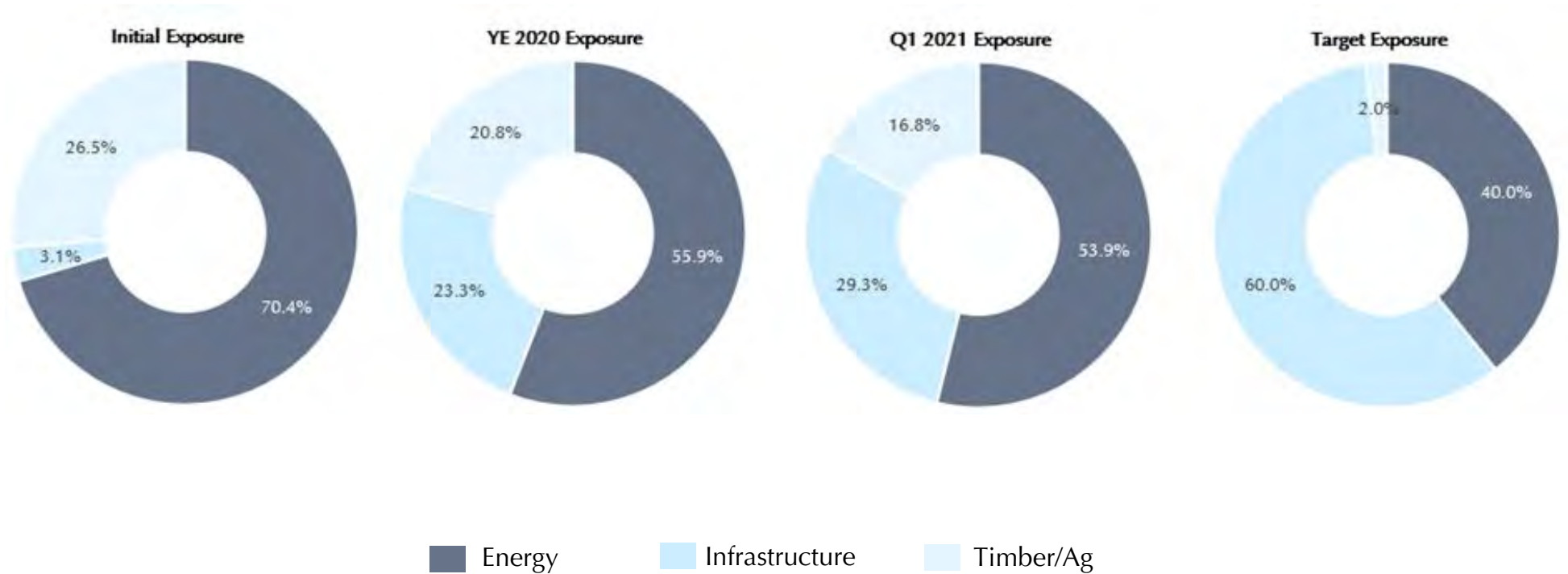
The Energy Big Picture

Orange County Employees Retirement System

September 2021



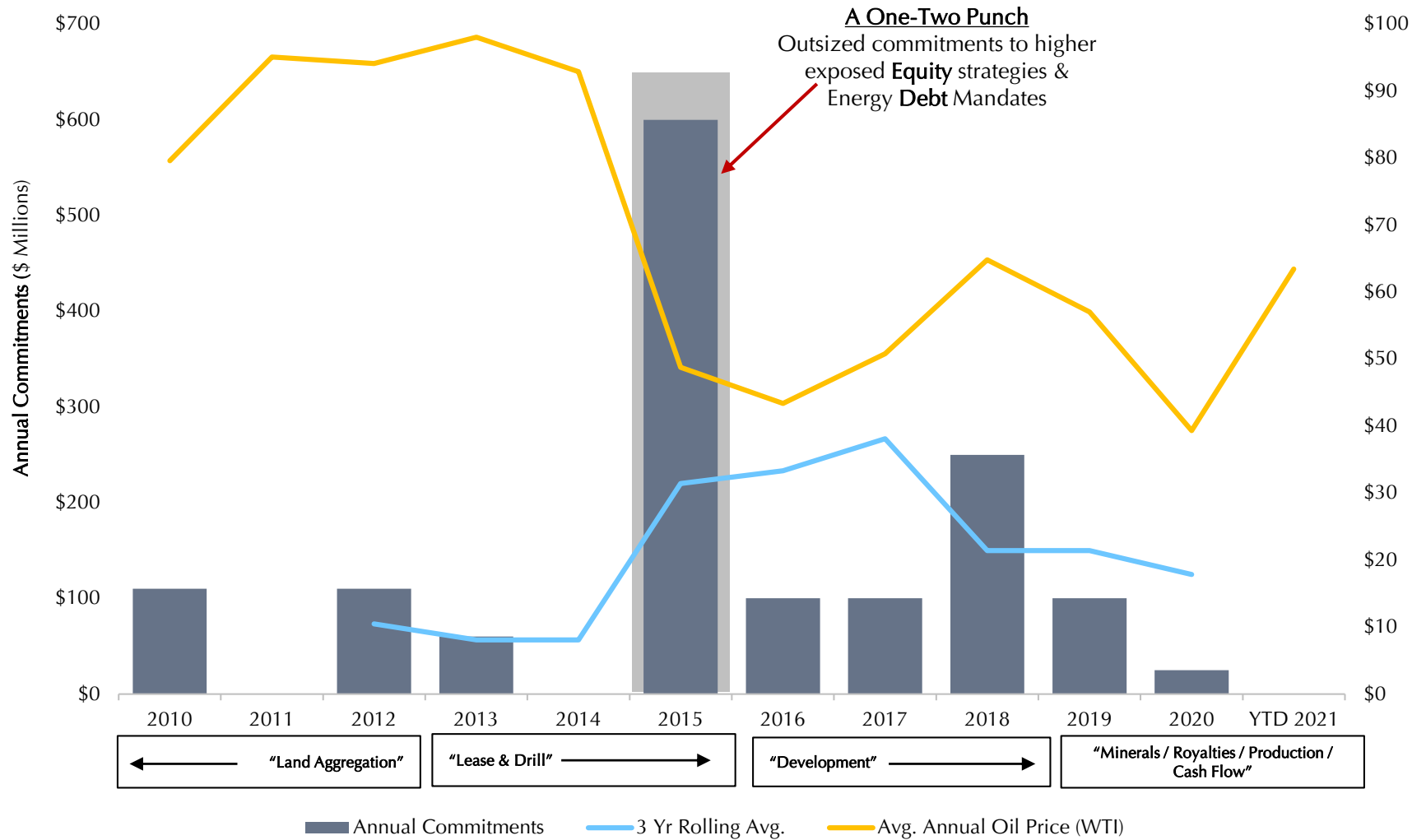
OCERS Energy Portfolio – At A Glance



¹ Initial Exposure is March 31, 2018. Current Based on fair market provided by OCERS, as of March 31, 2021
energy Credit strategies are included in Energy. Subject to refinement based on discussion with OCERS around goals and objectives

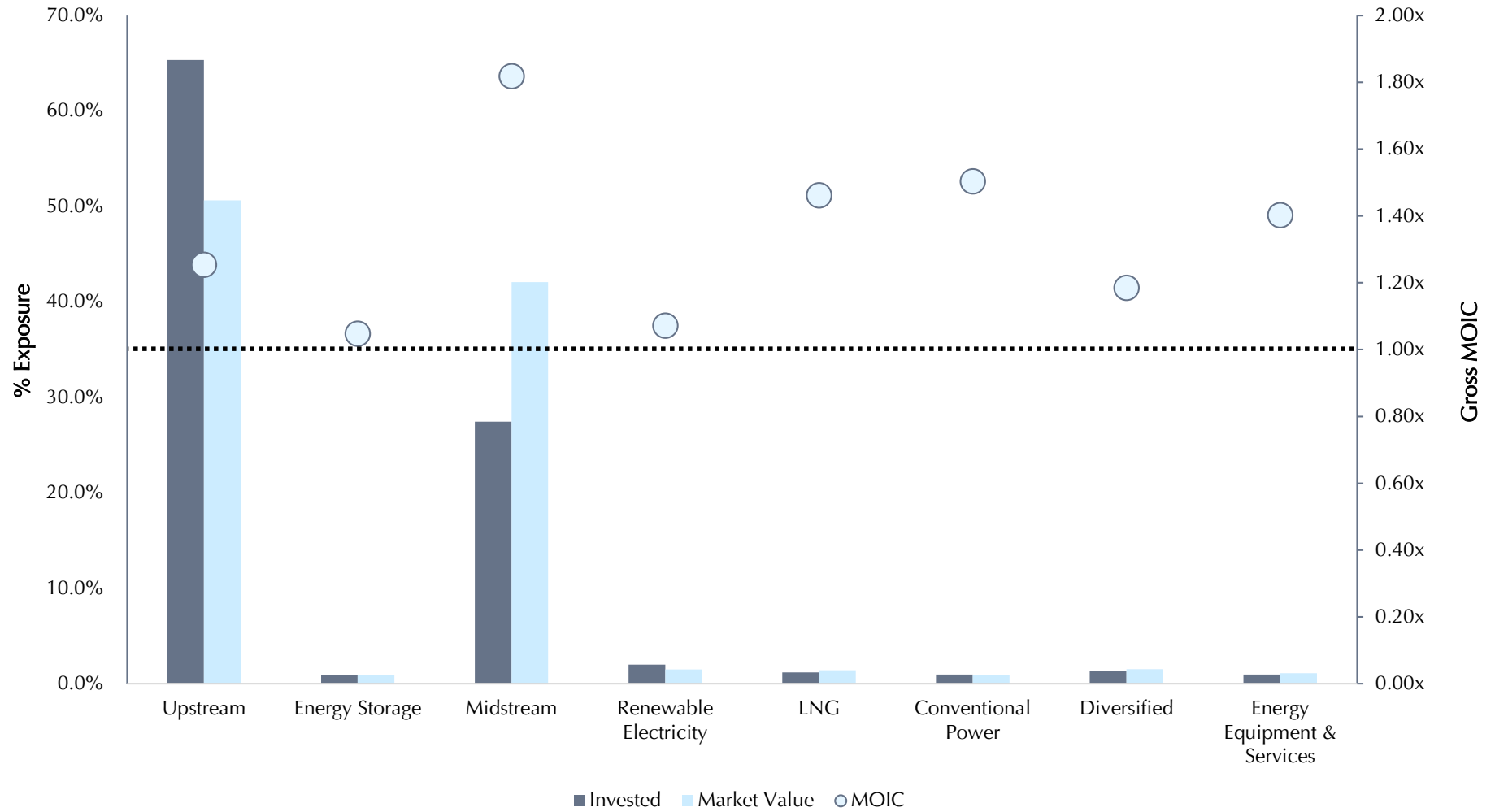


OCERS Energy Portfolio Evolution



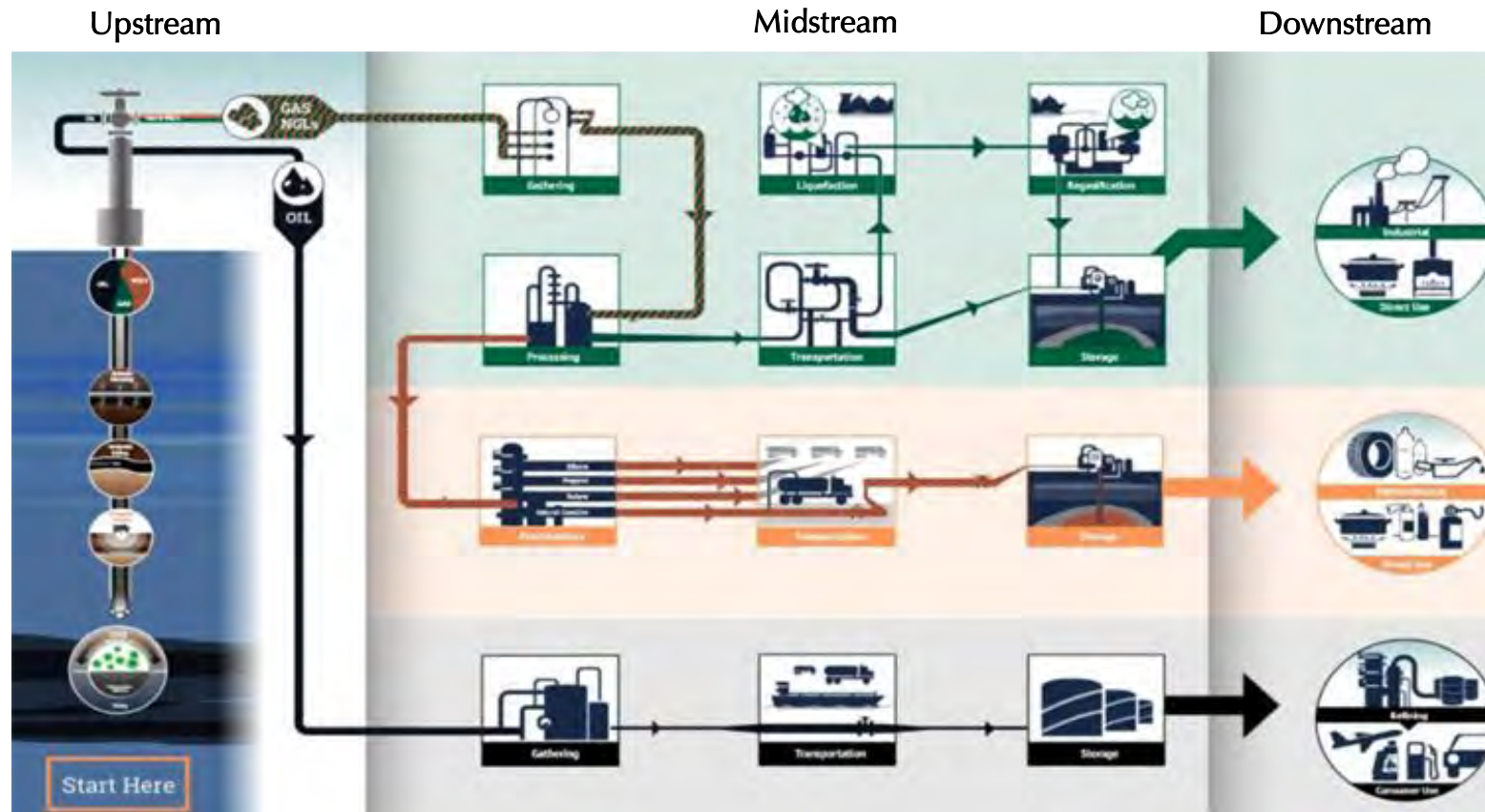
Oil Price per EIA. YTD as of July 2021.

OCERS Energy Exposure



Industry Overview & Update

Oil & Gas Value Chain



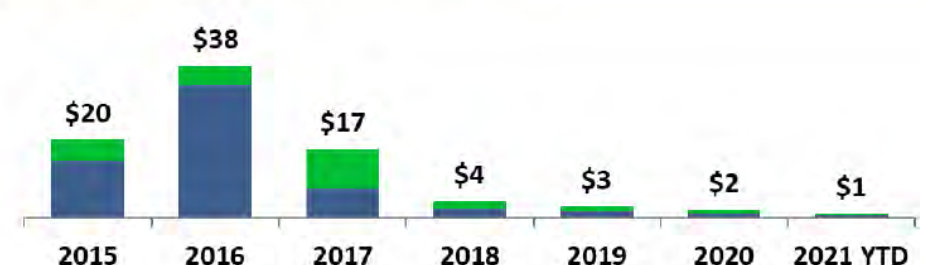
1 ExxonMobil, Jefferies, IEA estimates

Oil & Gas Today – Capital

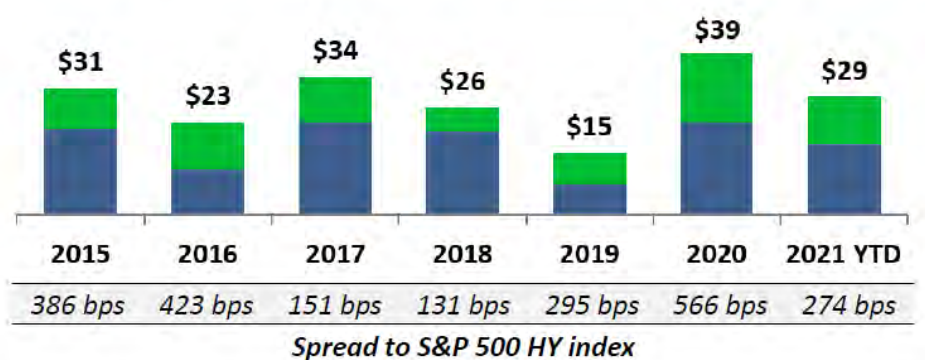
Leveraged loan issuance has declined dramatically (\$bn)



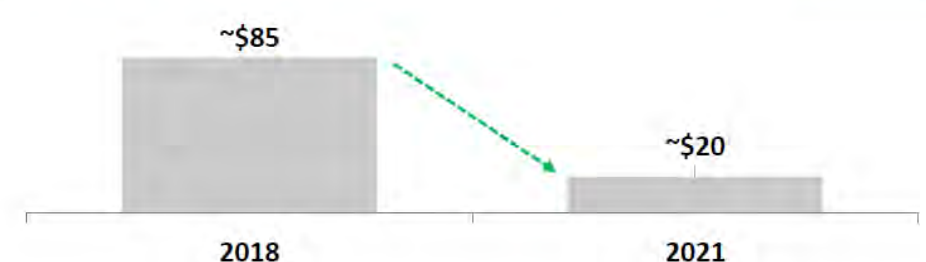
Public equity markets remain shut-in (\$bn)



HY market open for existing issuers (\$bn)

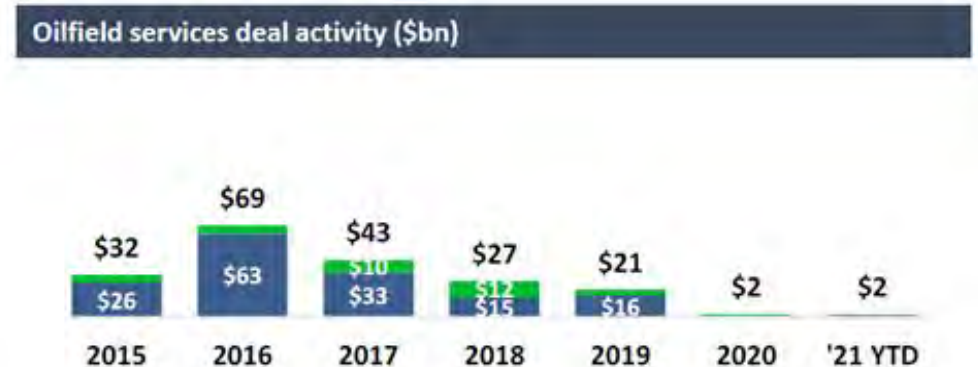


Available private equity capital has materially declined (\$bn)



1 Credit Suisse, RBC Capital Markets, Quantum Energy Partners

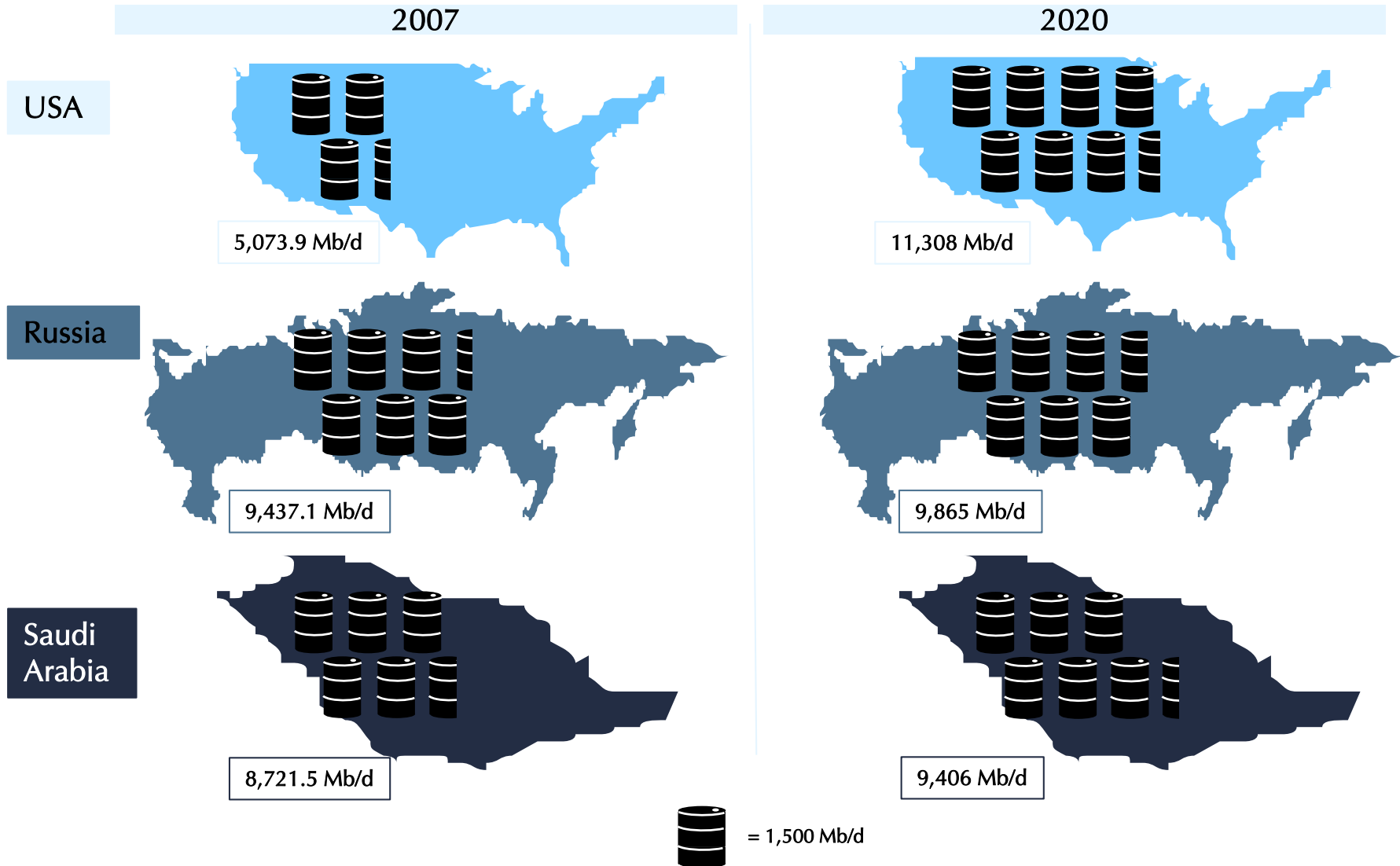
Oil & Gas Today – Transaction Activity



1 Enverus M&A Database, as of April 30, 2021. Quantum Energy Partners

Oil & Gas Today – The Big 3

Oil Production



1 U.S. Energy Information Administration

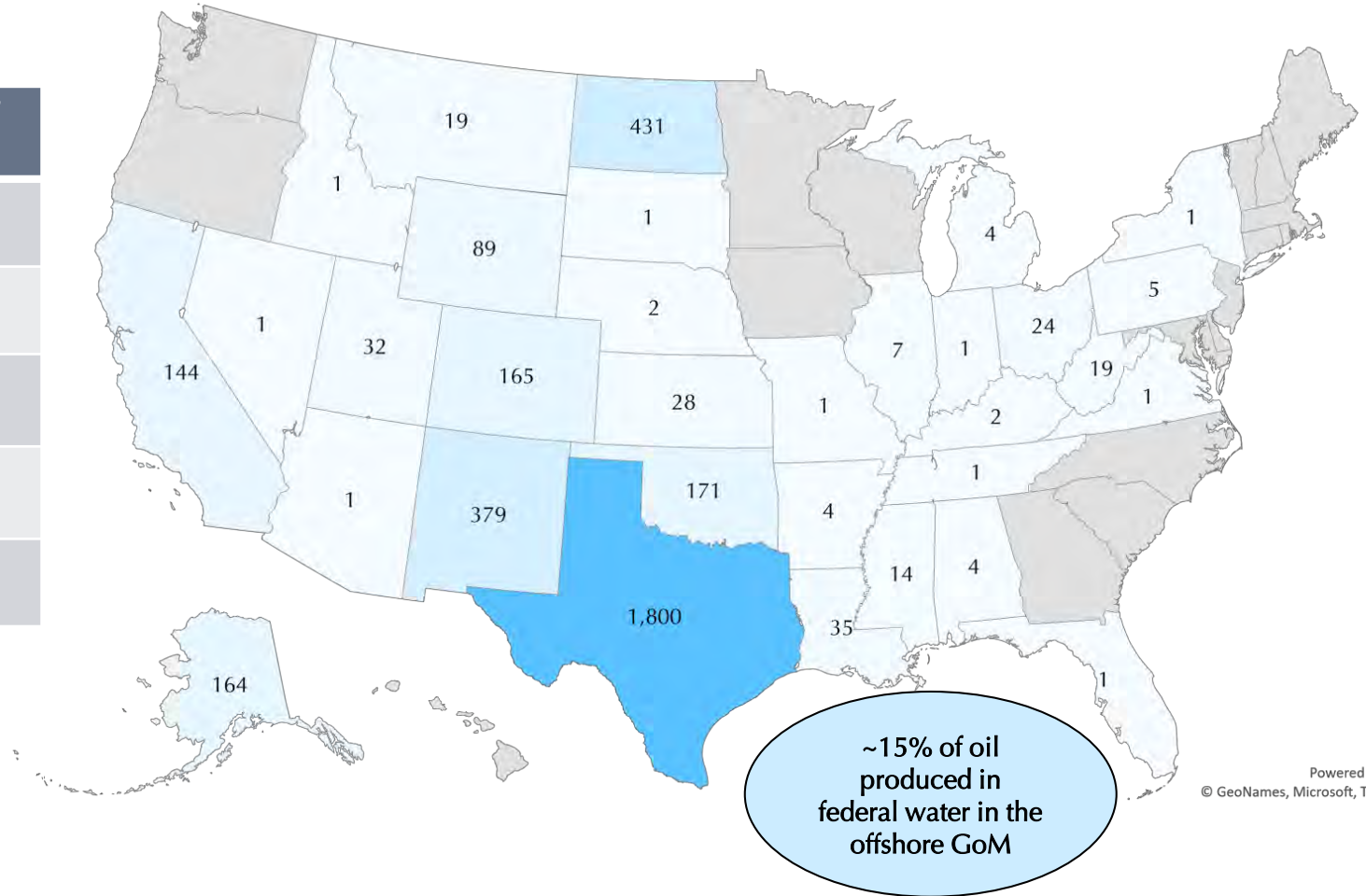
Oil & Gas Today



U.S. Oil Production

Barrels (MM) 1 1800

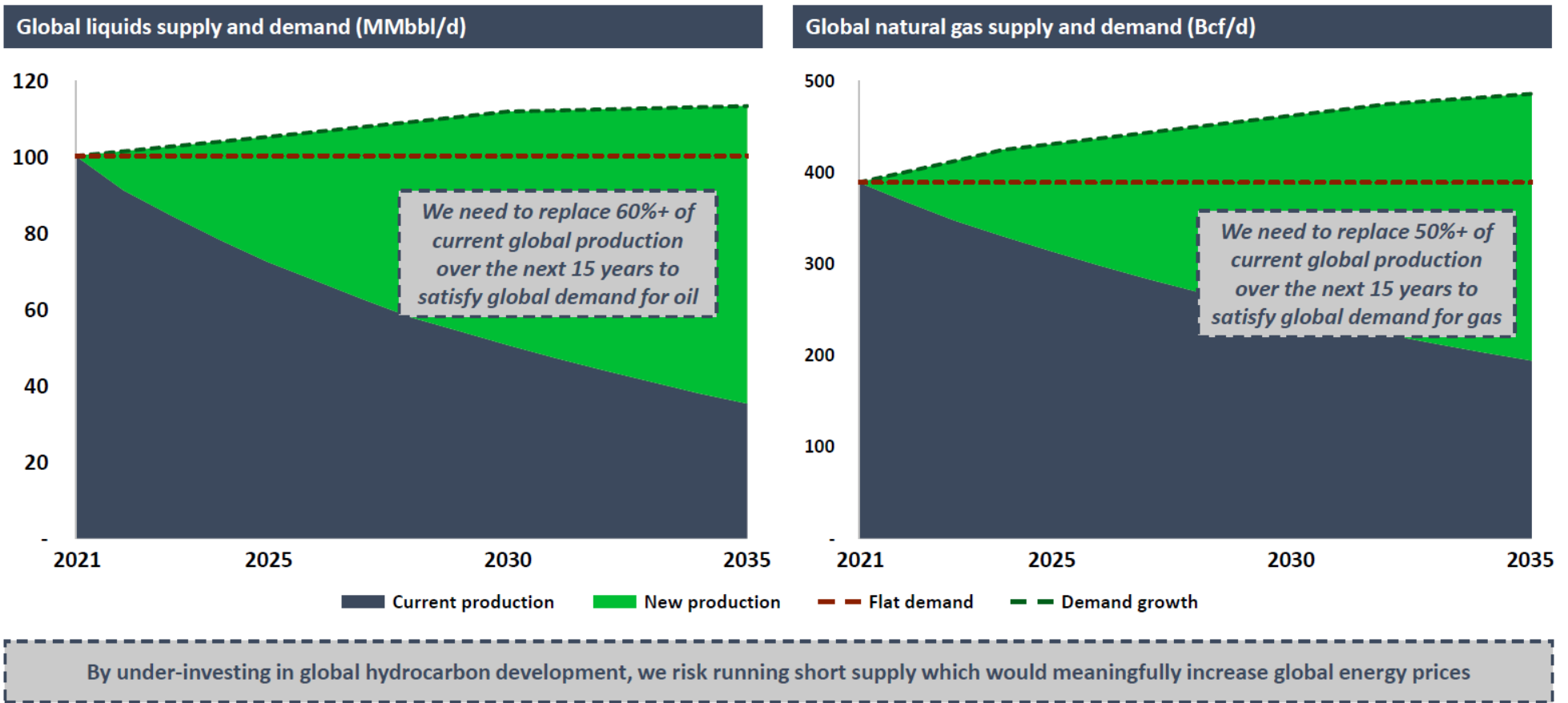
State	% Share of Production
Texas	43.0%
Offshore	14.6%
North Dakota	10.4%
New Mexico	9.2%
Oklahoma	4.1%



Powered by Bing
© GeoNames, Microsoft, TomTom

1 U.S. Energy Information Administration

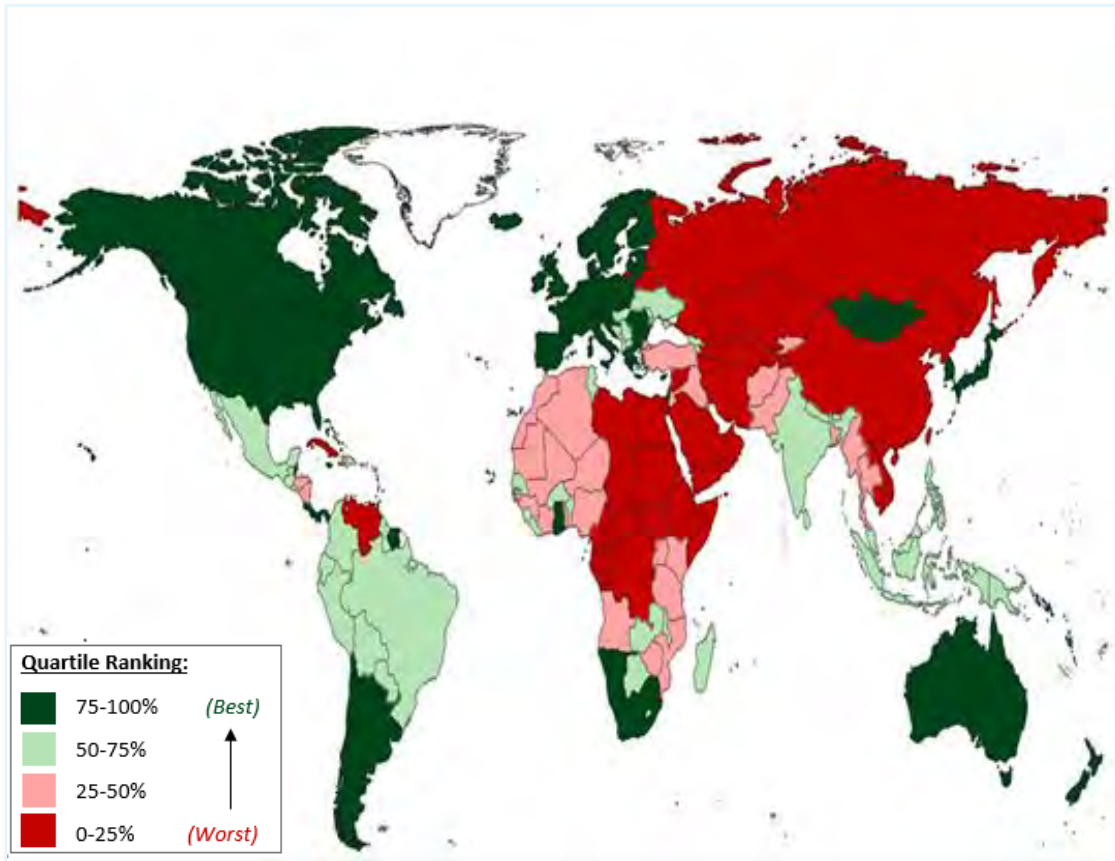
Oil & Gas Road Ahead



1 ExxonMobil, Jefferies, IEA estimates. Quantum Energy Partners

Oil & Gas Road Ahead

Freedom House's Global Freedom Score ranking, by quartile

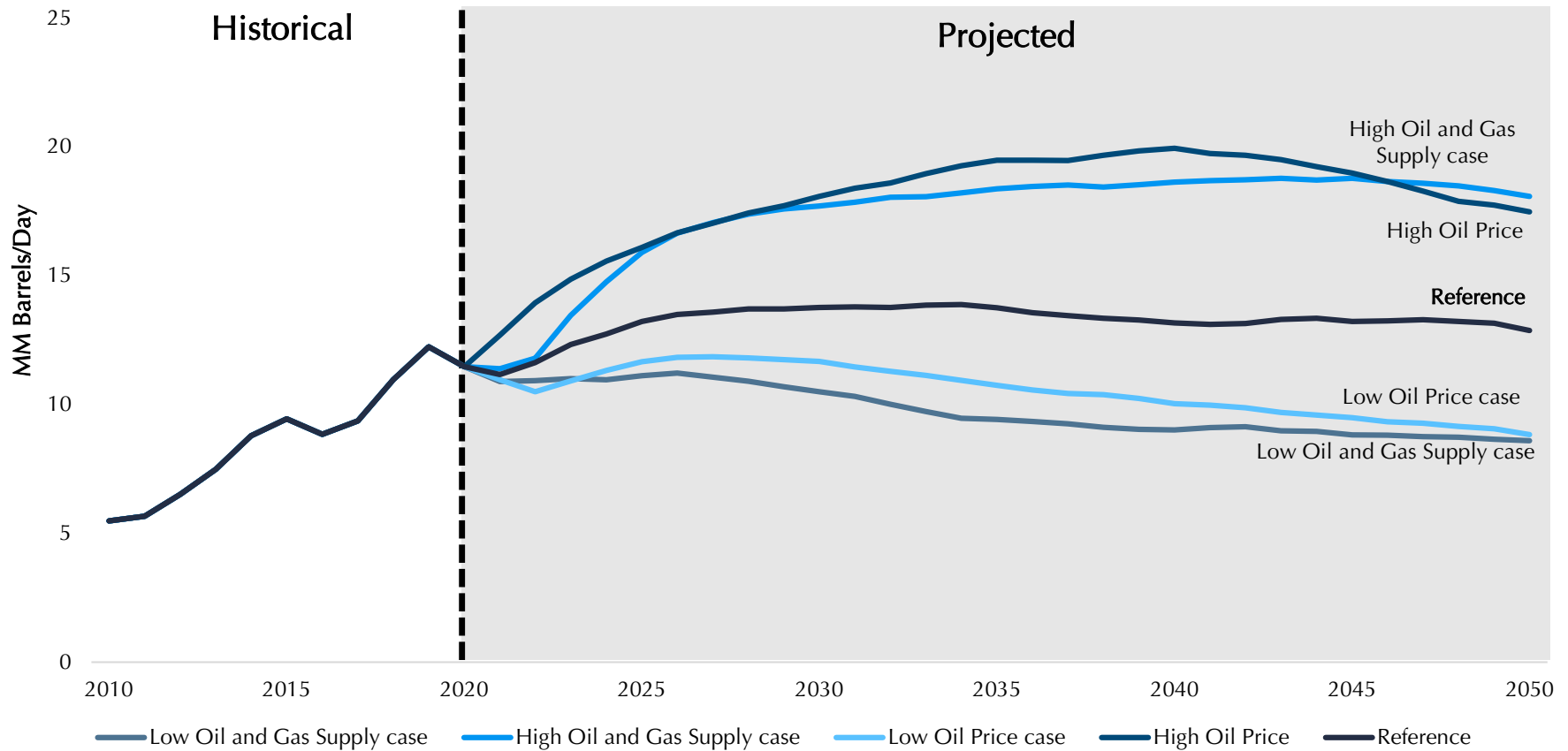


Country	Pre-COVID Production			% of Global Production	Freedom Score Quartile
	Liquids (MMbbl/d)	Natural Gas (Bcf/d)	Equivalent (MMboe/d)		
USA	17	90	32	21%	75-100%
Russia	12	66	23	14%	0-25%
Saudi Arabia	12	11	14	9%	0-25%
Canada	5	16	8	5%	75-100%
Iran	3	23	7	5%	0-25%
China	4	17	7	4%	0-25%
Iraq	5	1	5	3%	25-50%
UAE	4	6	5	3%	0-25%
Qatar	2	17	5	3%	0-25%
Norway	2	11	4	2%	75-100%
Brazil	3	2	3	2%	50-75%
Kuwait	3	2	3	2%	25-50%
Nigeria	2	5	3	2%	25-50%
Algeria	1	8	3	2%	25-50%
Australia	0	14	3	2%	75-100%
Total Top 15	75	289	124	79%	
World Total	95	369	156	100%	

1 Quantum Energy Partners. Freedom House's Global Freedom Scores as of July 2021; BP Statistical Review 2021. White means no data for the country

Oil & Gas Road Ahead

U.S. Crude Oil Production
(AEO2021 Side Cases)

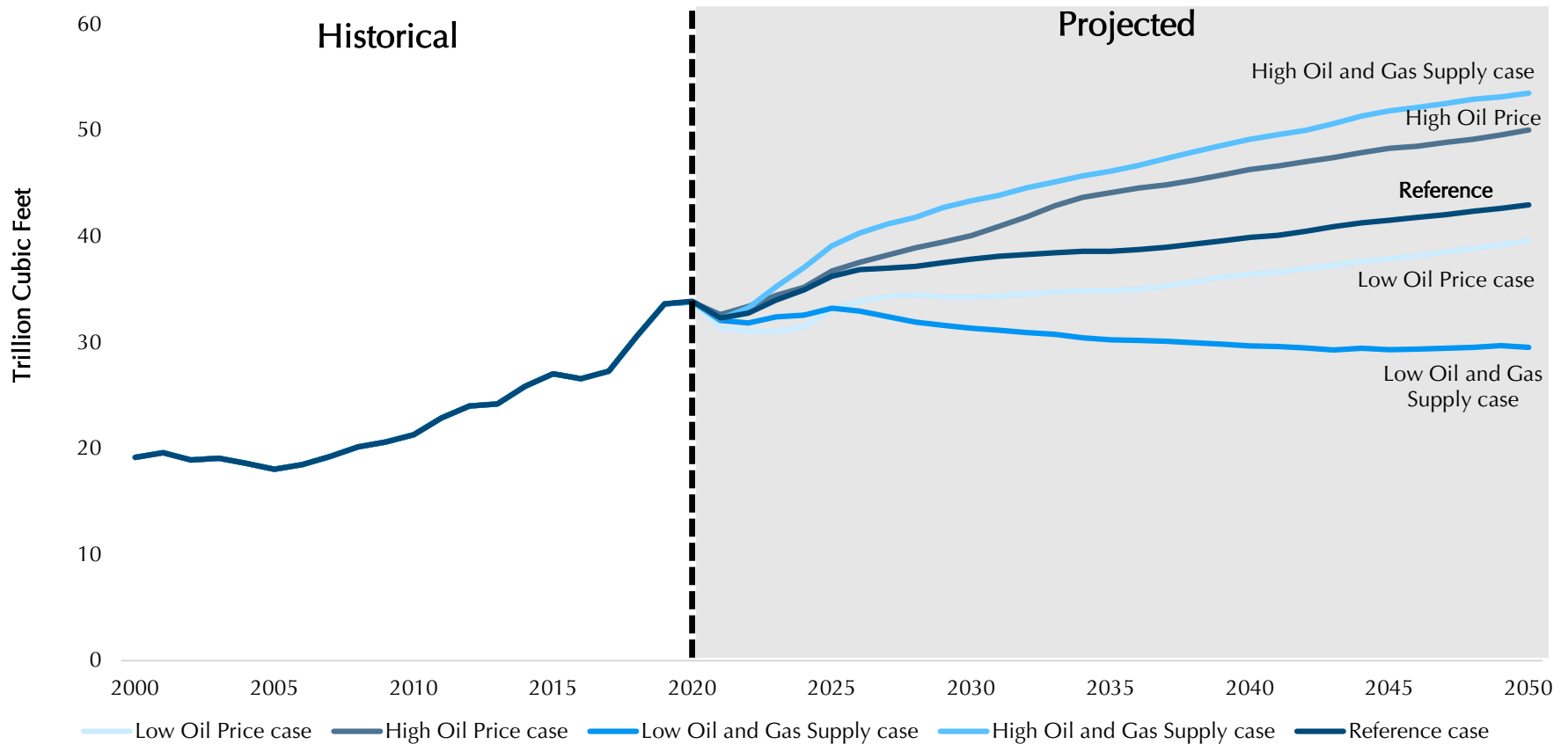


1 U.S. Energy Information Administration

	2020 dollars per barrel	2020	2021	2050	Case	Oil (billion barrels)	Natural gas (trillion cubic feet)
			\$76.03	\$173.26	High Oil and Gas Supply case	460	3,543
		\$41.19	\$46.58	\$94.97	Reference case	304	2,392
			\$29.90	\$47.56	Low Oil and Gas Supply case	171	1,326

Oil & Gas Road Ahead

U.S. Dry Natural Gas Production (AEO2021 Side Cases)



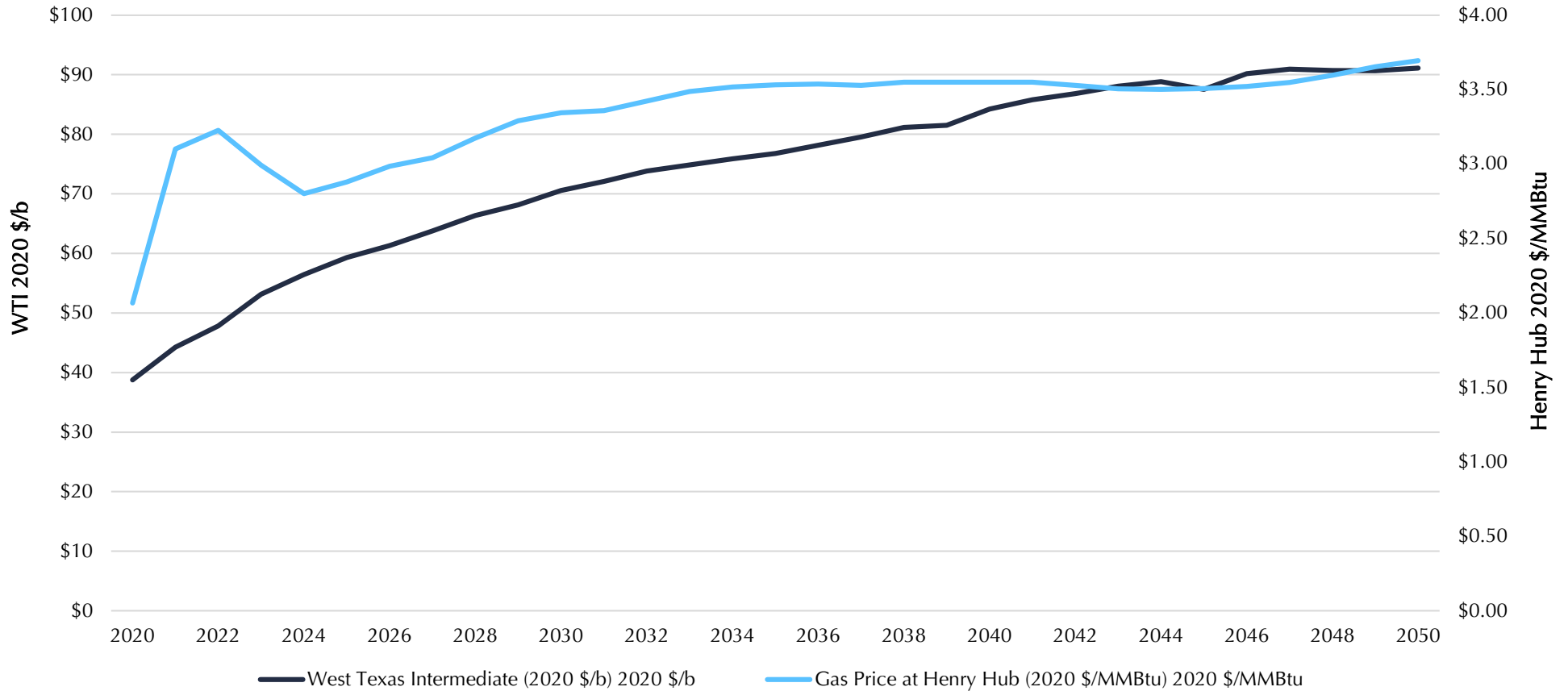
1 U.S. Energy Information Administration

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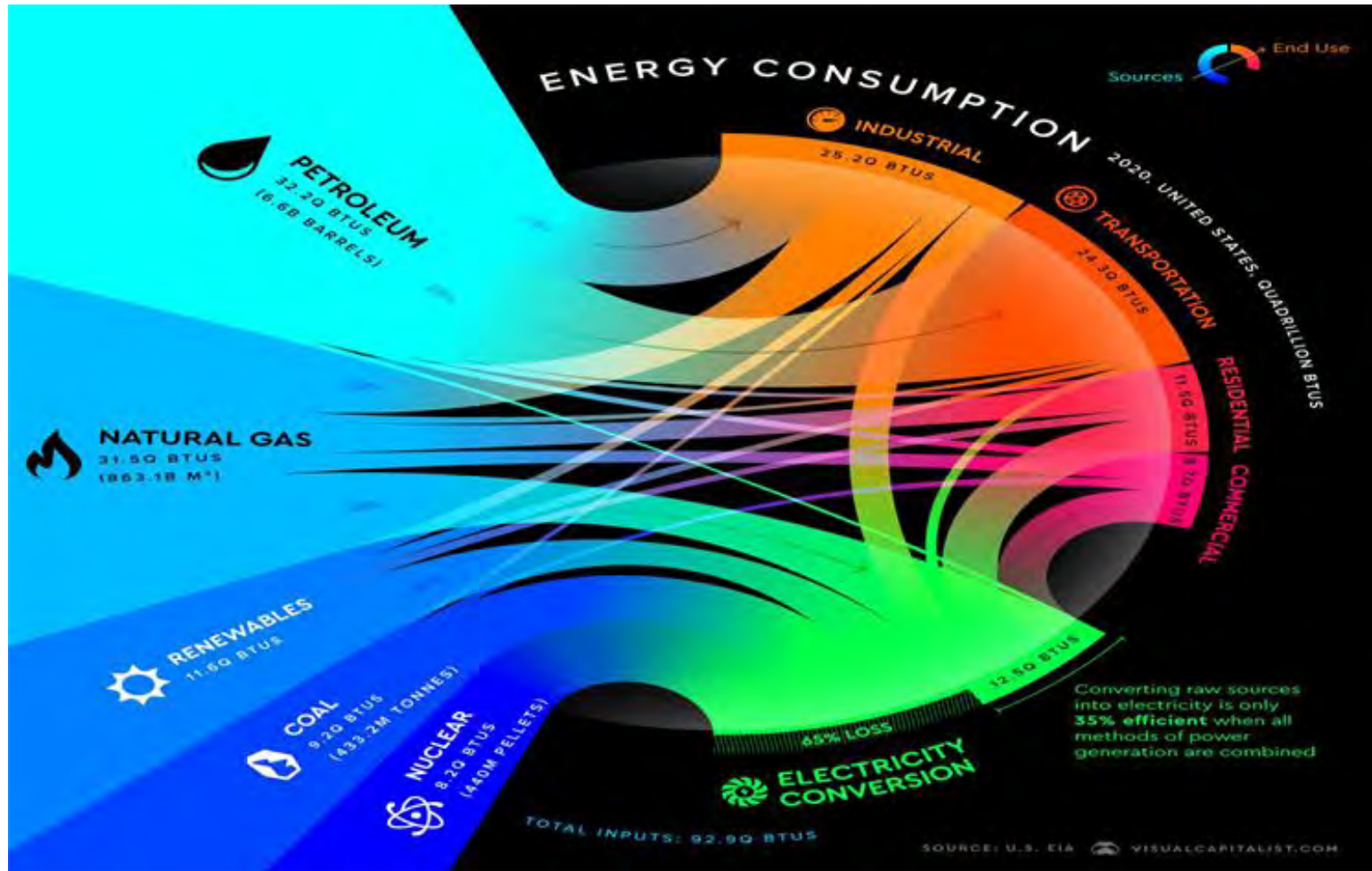
Oil & Gas Road Ahead

U.S. Oil & Gas Price Projections

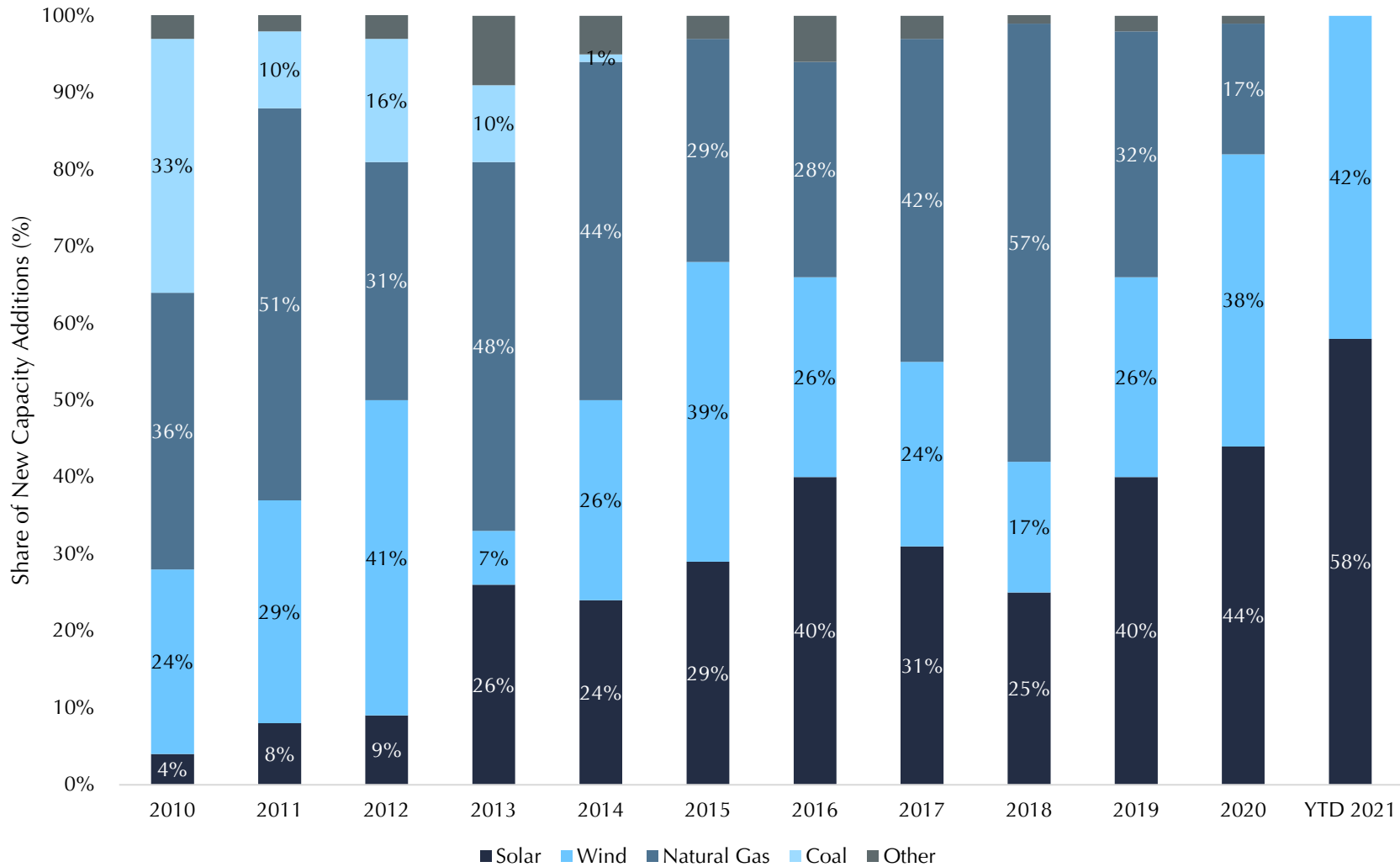


1 U.S. Energy Information Administration

U.S. Energy Consumption Today



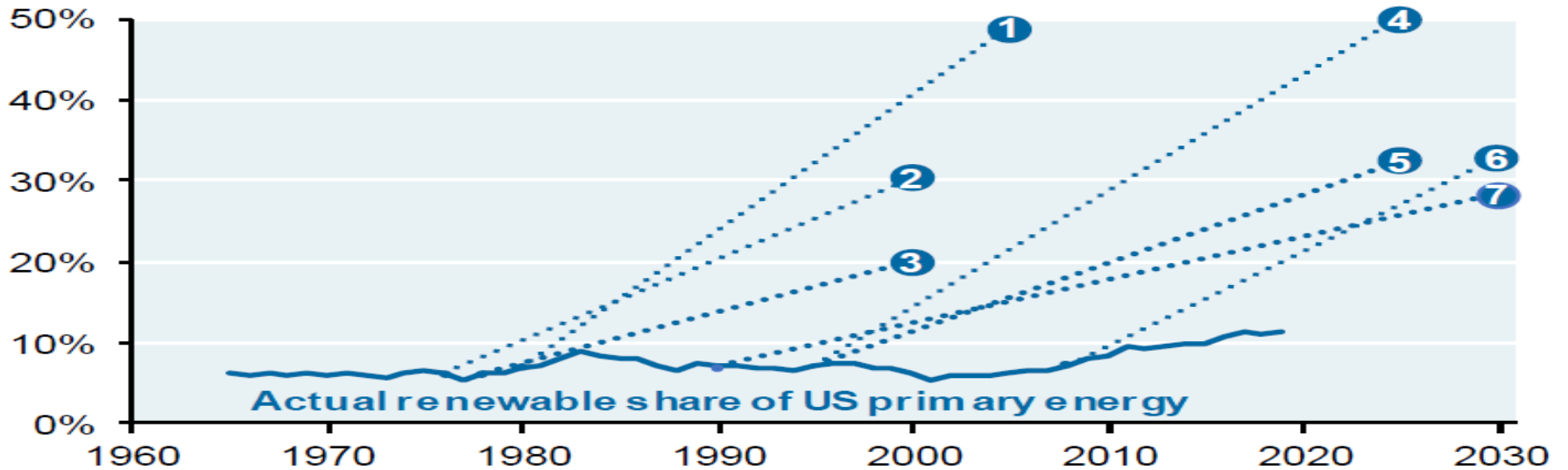
New U.S. Electricity-Generation Capacity Additions



The Transition

Renewable share of US primary energy consumption

Lines start when forecasts were made and end in year of forecast



Source: EIA, listed authors, Vaclav Smil, JPMAM. 2019. Renewables include wind, solar, hydropower, geothermal, biomass, wood and waste.

- 1 Physicist Bent Sorensen
- 2 Amory Lovins, Rocky Mountain Institute
- 3 Carter Administration (solar only)
- 4 Clinton Presidential Advisory Panel
- 5 Intergovernmental Panel on Climate Change
- 6 Google 2030 Clean Energy Plan
- 7 National Renewable Energy Laboratory










In 2020, Mark Jacobson (Stanford) forecast 80% by 2030

1 JPM Annual Energy Paper

The Transition

Emission reduction strategy			Technology maturity?	Current adoption?	Adoption by 2050?
Carbon pricing		Price the externalities of carbon emissions through taxes			<div style="border: 2px solid green; border-radius: 50%; padding: 20px; text-align: center;"> <p>100% adoption of new carbon-focused policies and many technologies to achieve Net-Zero emissions</p> </div>
Carbon capture (CCUS)		Capture carbon from hydrocarbon emissions and store it			
Zero-carbon power		More wind, solar, nuclear and other clean energy sources like H2			
Energy efficiency and conservation		Create more energy efficient products and change lifestyles to use less energy			
Nature-based solutions		Reforestation and bioenergy production			
Agriculture		Apply modern farming techniques globally			
Material science tech		Develop low/no carbon methods for making steel, concrete, plastics			

The Transition

Technology scorecard	Solar	Onshore Wind	Offshore Wind	Battery Storage	Total-moderate
Maturity					
Regulatory economics	 Investment Tax Credit	 Production Tax Credit	 Production Tax Credit	 Case-by-case basis	
Rates of Return	3-9%	5-11%	10-15%+	8-10%	3-15%
Future drivers of cost reductions	Cheaper, more efficient solar panels	Larger, more efficient wind turbines	Larger turbines or floating technology breakthrough	Declining battery pack costs (particularly Li-On)	
Time period of economic parity	<u>Now</u>	<u>Now</u>	<u>2020-2030</u>	<u>2020-2025</u>	<u>Now - 2030</u>
Current capacity	0.8 TW	0.7 TW	<0.1 TW	<0.1 TW	1.5 TW
2050 capacity	7.7 TW	3.8 TW	0.3 TW	1.3 TW	13 TW
Capital required through 2050	<u>\$4.0 trillion</u>	<u>\$4.7 trillion</u>	<u>\$1.1 trillion</u>	<u>\$1.0 trillion</u>	<u>~\$11 trillion</u>

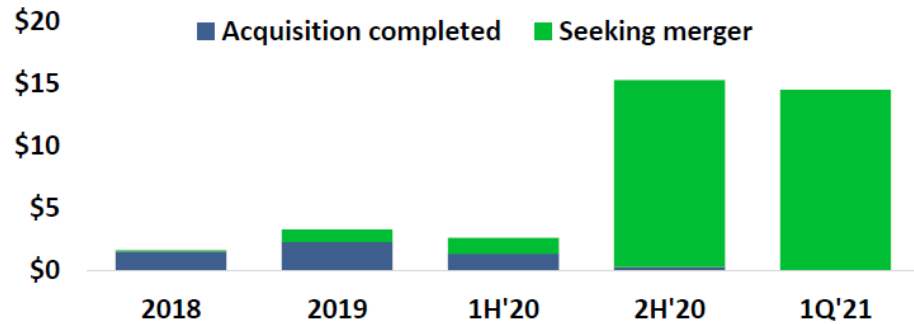
In addition to the \$11 trillion of capital required to build new renewable generation capacity, the global power grid will require \$14 trillion of incremental investment to build the transmission required to support this evolving generation mix

1 Bloomberg New Energy Finance New Energy Outlook 2020 (Reference case). Quantum Energy Partners

Transition Today – Capital Markets Activity

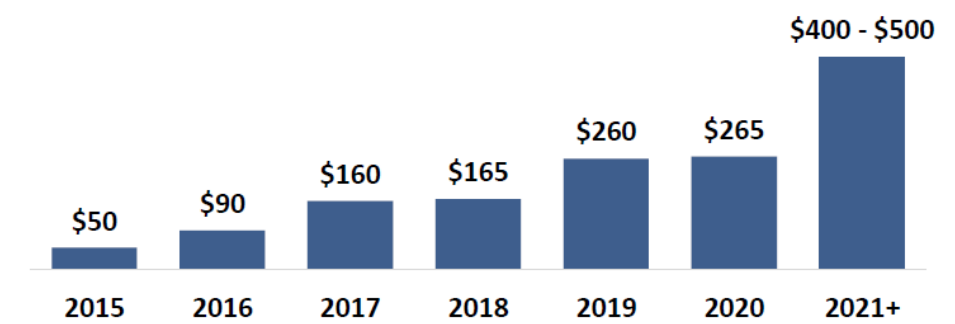
ESG-focused SPAC capital raised (\$bn)

38 (\$11.6bn in capital) ESG-focused SPACs hunting for an acquisition



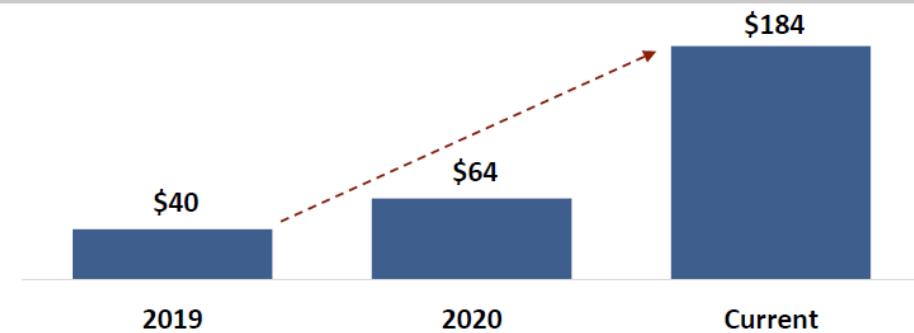
Global green bond issuances (\$bn)

Climate Bond Initiative forecasts \$400bn - \$500bn of issuances in 2021+



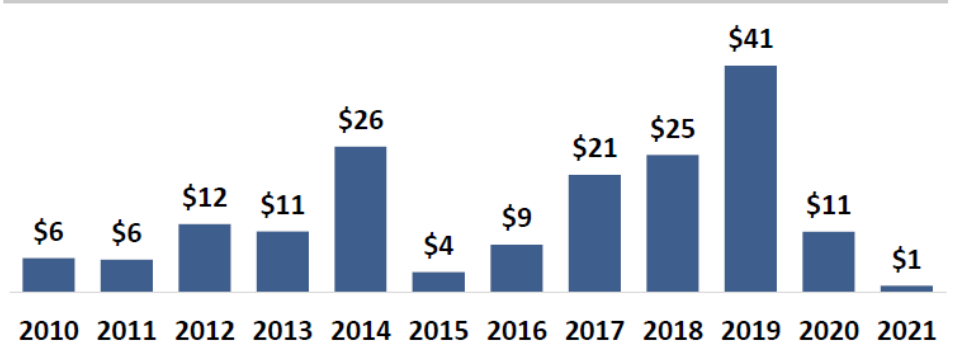
Renewable sector market cap (\$bn)

360% growth since the beginning of 2019



North America private equity ET&D-focused capital (\$bn)

Over \$170bn of private capital targeting ET&D raised since 2010

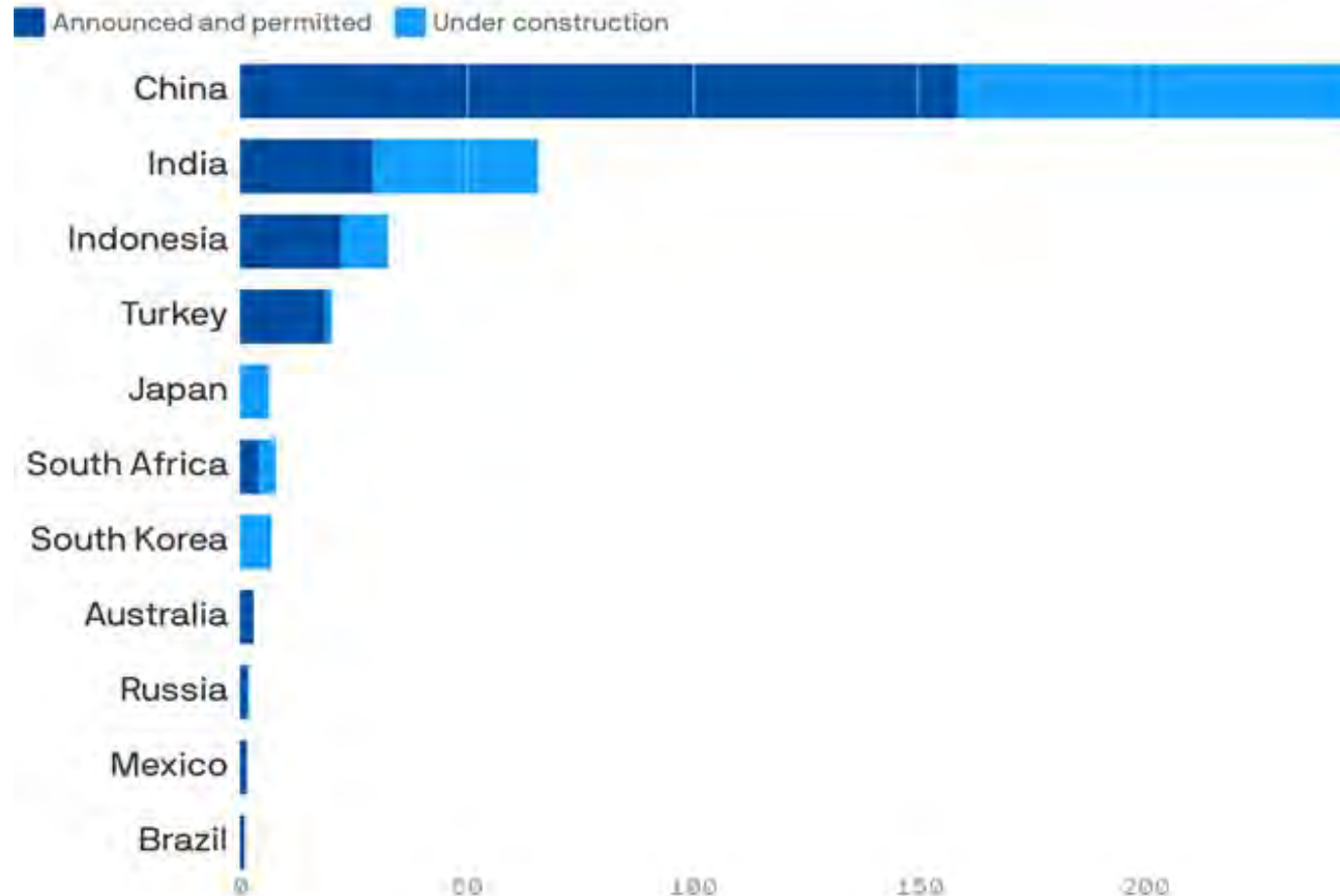


1 J.P. Morgan, Marathon Capital, Morningstar, Preqin, Quantum Energy Partners

A Transition Challenge...

Coal-fired power plant pipeline in G20 nations

In gigawatts of generating capacity



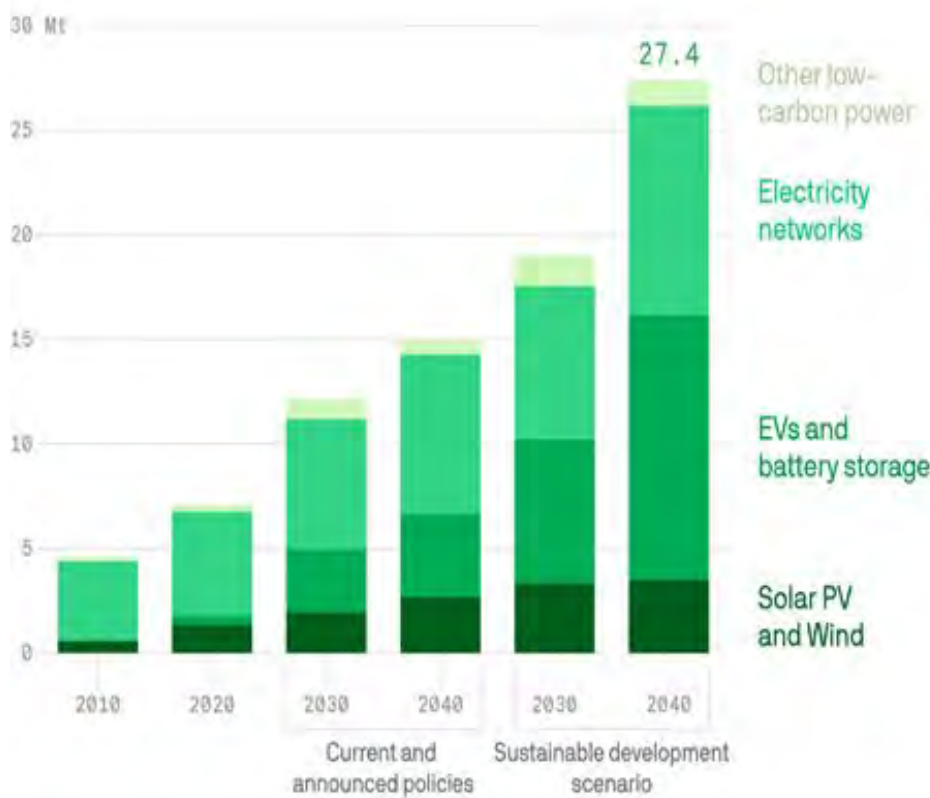
Adapted from BloombergNEF; Chart: Axios Visuals

The Mineral Side of the Equation

The average amount of minerals needed to build a new unit of power generation has increased by 50% in the last 10 years, according to an International Energy Agency report. The report also found that reaching net zero carbon emissions by 2050 would require six times more minerals to be used in 2040 than we currently use in power generation today.

Growing Mineral Demand for Clean Energy

Projected global demand by technology and scenario, In million metric tons



Top 3 producers of select resources and minerals

Countries' share of global production, 2019

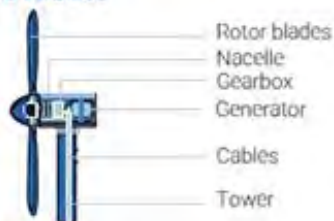


IAE; Chart: Sara Wise/Axios

The Mineral Side of the Equation

Everything that is not grown, is extracted

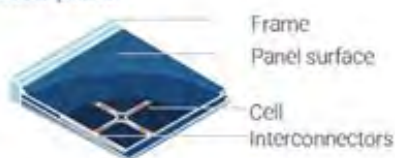
Wind turbines



Core commodity inputs

- Steel (from Iron Ore + HCC)
- Copper
- Aluminium (from Alumina / Bauxite)

Solar panels



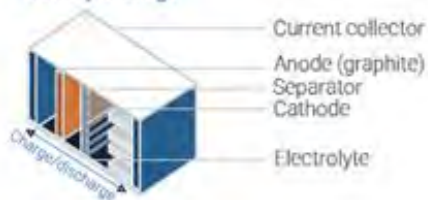
- Aluminium (from Alumina / Bauxite)
- Copper
- Silver
- Zinc
- Silicate (from Sand)

Electric vehicles



- Aluminium (from Alumina / Bauxite)
- Copper
- Lithium, Graphite, Nickel, etc.
- Steel (from Iron Ore + HCC)

Battery storage



- Lithium
- Nickel
- Copper
- Aluminium (from Alumina / Bauxite)

Copper



- Renewable power systems are 4-5x more copper intensive than conventional power
 - Offshore wind leads this requiring ~15t Cu per MW vs conventional power ~1t/MW
 - Solar requires ~5t/MW
- ~83kg of copper required per EV vs <20kg per ICE (internal combustion)
- ET related demand expected to drive 3.7x-6.7x increase in copper demand from 2020



Nickel

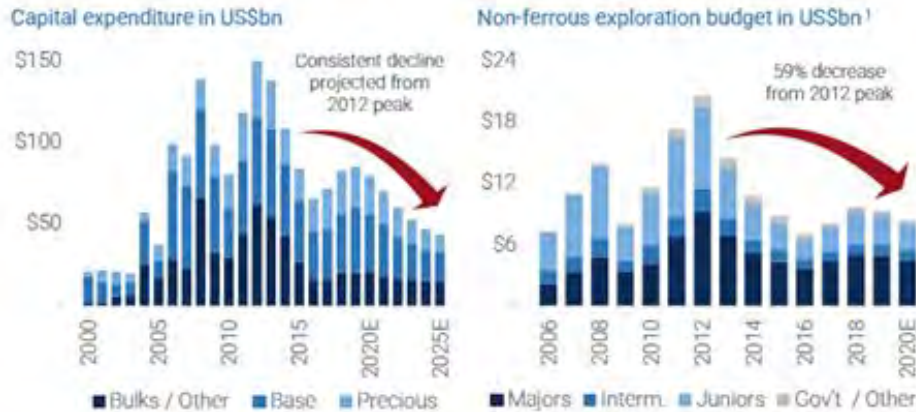


- Shift identified in developed markets to high-nickel batteries due to prioritization of energy density
 - Forecasts suggest that NMC811 (80% Ni) usages will increase 4.5x between 2020 and 2030
- ET related demand expected to drive over 20x growth in Nickel demand in base case (3°C) and over 40x in upside case (2°C) compared to 2020

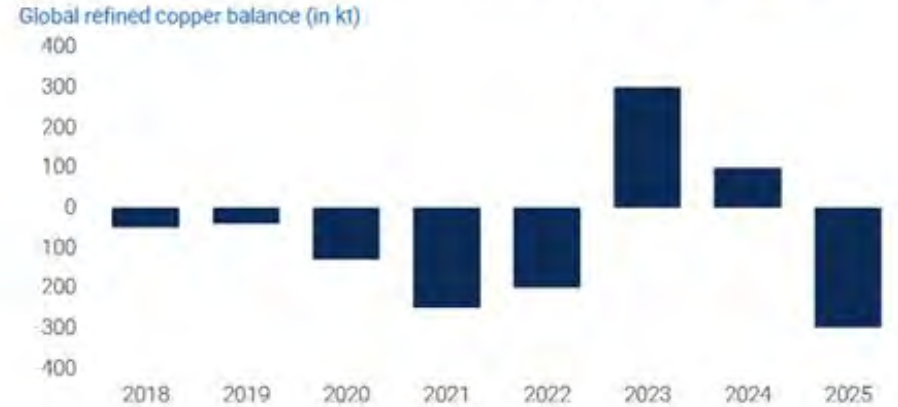


The Mineral Side of the Equation

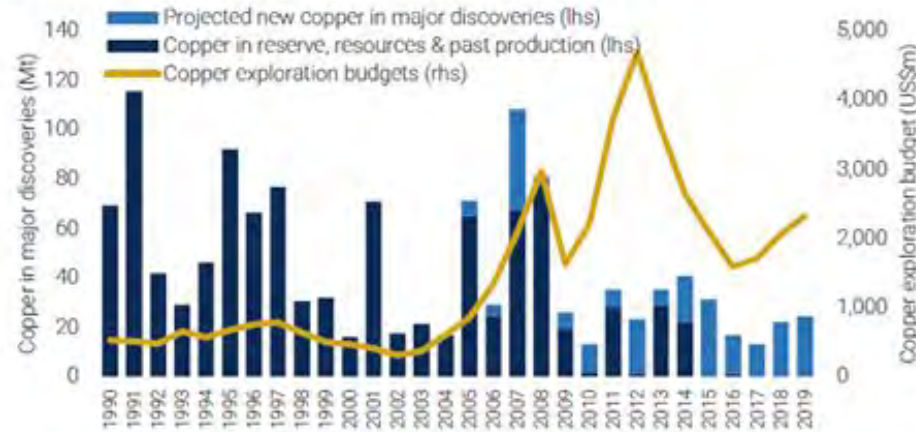
Reduction in capital expenditure and exploration spend historically



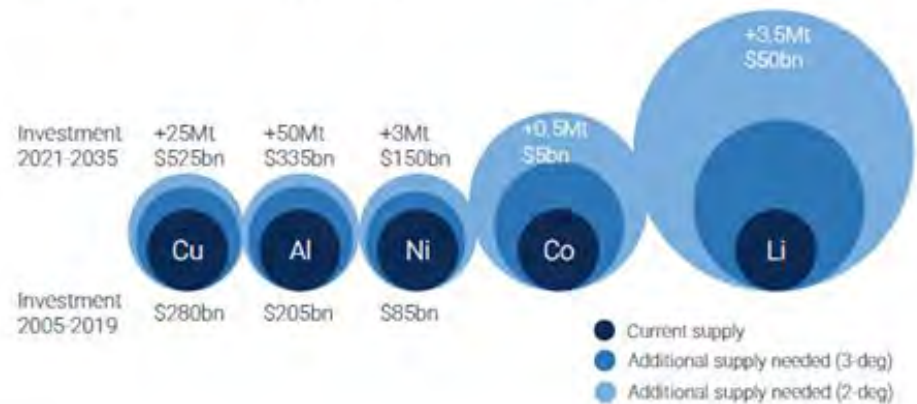
Copper market in net deficit to 2025 before "mega deficits" thereafter



Historical copper deposit discoveries have diminished



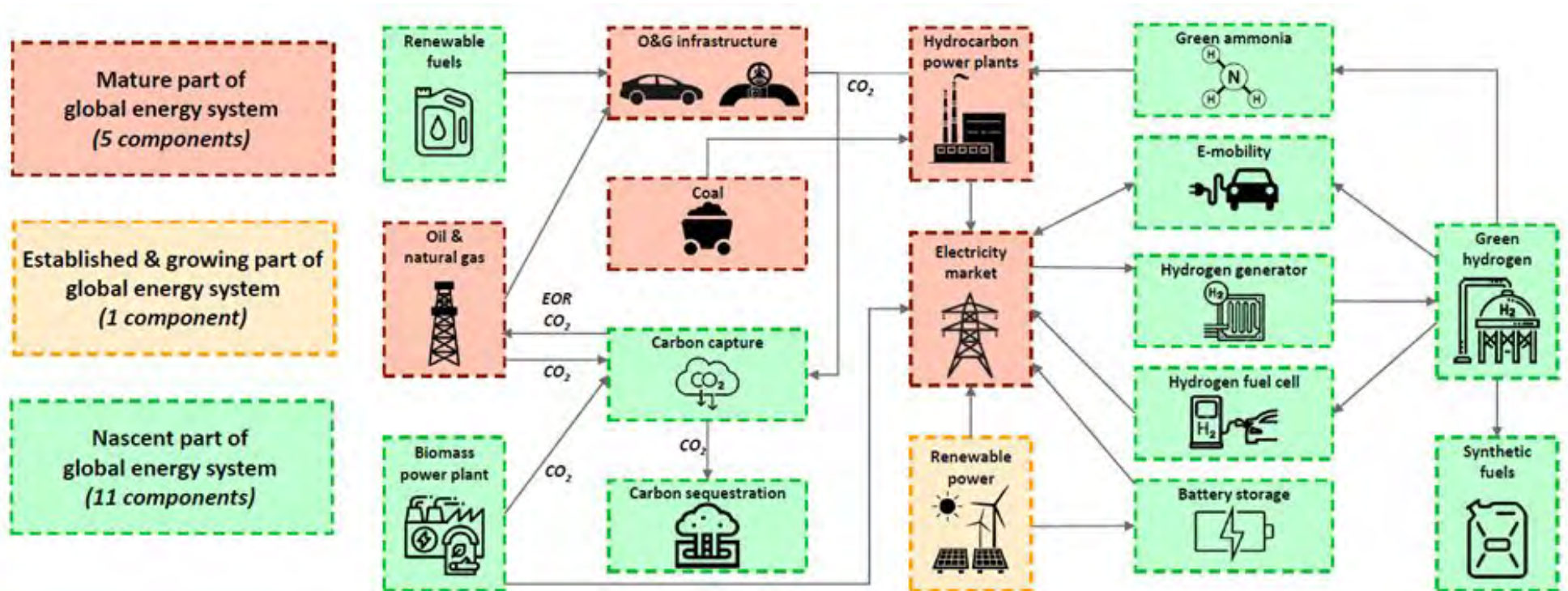
Satisfying accelerated ET needs will strain financing to breaking point



S&P Global Market Intelligence, S&P Capital IQ, Wood Mackenzie, Applan Capital Advisory LLP.
Categories based on mining revenue: \$500mm for Majors, \$50-\$500mm for Intermediaries, and <\$50mm for Juniors

What Does It All Mean?

➤ We are in the early innings of a multi-decade path towards decarbonization



What Does It All Mean?

“...the four big obstacles to faster deep decarbonization: slow penetration of EVs, required upgrades to transmission infrastructure, geologic carbon sequestration and electrification of industrial energy use...**the behavioral, political, and structural changes required for deep decarbonization are still grossly underestimated.**”

- Michael Cembalest
JP Morgan Asset Management

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Vision 2030
Strategic Planning Workshop

Thursday, September 9, 2021

by

Steve Delaney, CEO

OCERS Faces Two Large Challenges

- Alameda Recalculation - Immediate
 - 2,500 accounts to be recalculated with all ensuing documentation and management of benefit payback
- 100% Benefit Accuracy – Immediate and long term
 - Internal Audit has found OCERS is running a 6%-8% error rate in the FINAL AVERAGE SALARY (FAS) calculation
 - Core benefit reflecting base salary is generally correct, errors tend to be related to additional salary items that must be included as outlined in Memorandums of Understanding

Constraints

- Extreme plan complications
- External data access
- Deficient desk manuals
- V3 Constraints



V3 and System Constraints

Such as...

- Too many manual data entry requirements
- Insufficient work flow and imaging functionality
- Already outdated technology, limited ability to expand, modify
- External data, cannot be maintained and manipulated in V3

(See video [SANDY-A] of Member Service FAS calculation using V3)



Lessons from Other Systems – Error Rates

- Contra Costa
 - 6% error rate: Compliance Officer created
- LACERA
 - 6% error rate: Quality Assurance (QA) Division created
- Oregon PERS
 - 12-14% error rate: Enhanced training, QA review added

In all three cases it took approximately two years to reach 100% accuracy



Vision 2030

Tools/Processes Used by Those Systems

- Quality Assurance Team
 - OCERS Member Services is in initial stages of implementing
- Desk Manuals
 - OCERS LEAD Committee created two years ago
 - Project Manager hired in July
 - “Master Repository of OCERS Processes/Procedures”
- Compliance Officer
 - Often in Legal Division, a consideration in 2022/23?



Technology is Our Focus – What’s Possible?

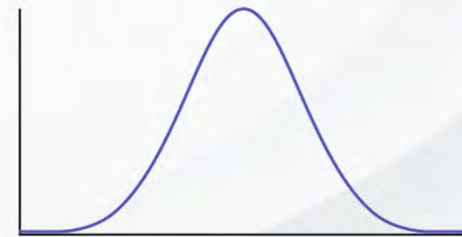
- Video – Artificial Intelligence
 - Actually, let’s listen to Neil Sahota live and in person . . .
- Video – Terminology [CLIP B and CLIP C]
 - Robotic Process Automation (RPA)
 - Machine Learning (ML) / Cognitive Automation (CA)
 - Artificial Intelligence (AI)



Technology is Our Focus

Short Term

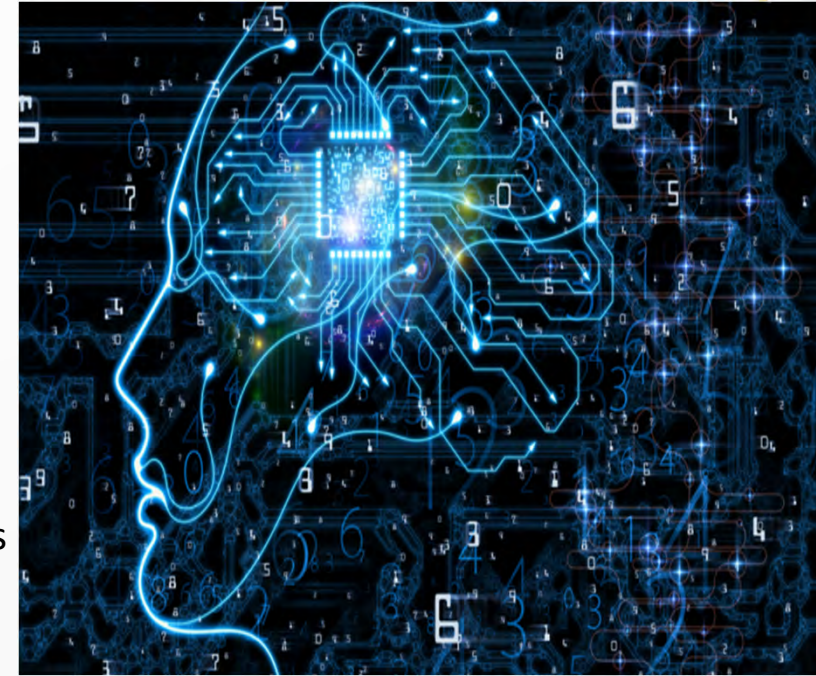
- Begin collecting needs as basis for new system
- Desk manuals (Master Repository of Processes/Procedures Project) sets stage for documented processes required to proceed with RPA/ML/AI
- Immediate need - staffing bell curve (2022 budget)



Technology is Our Focus

Long Term

- Artificial Intelligence (AI) driven data maintenance
 - Member data held in OCERS data folders
- AI driven benefit calculation
 - No need for manual rechecking of work, nor manual QA layer
 - OCERS team members focus on analytics and strategic initiatives
- OCERS “Siri” for immediate customer service questions
 - OCERS team members focus on direct customer service with our members caring for more complex higher value interactions
 - Allows AI phone assistant to serve members 24 hrs a day in natural human voice



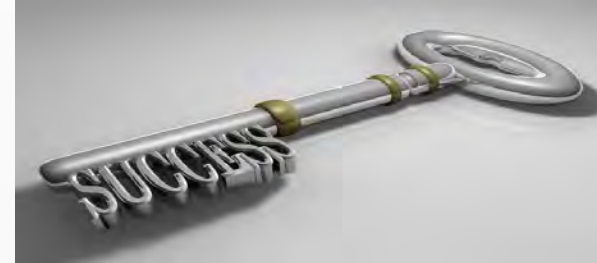
Current Actions

- Creation of Quality Assurance team in Member Services
- AI ad hoc Committee
 - early discussions of RPA/ML/AI applications
 - exploring vendor solutions
 - automation tools – UiPath (meeting already arranged)
 - implementation vendor - EY
- LEAD Committee
 - w/Project Manager
 - Craft Desk Manuals
 - Craft process rules for PAS foundation
- Reach out to Ontario Municipal Employees Ret System (OMERS) [CLIP ALLEN-D]



What Do We Need in 2022?

- Staff to assist with current Final Average Salary (FAS) calculations
- Consultant to look at both short and long term needs and possibilities, including possible BOTS project
- RFP for new Pension Administration System
 - Modular, to allow for AI additions in future years
- Project manager and tech writer continuation for Master Repository of Policies and Procedures



Vision 2030

Vision 2030 Timeline

2021

- Data Options
- Continue Outreach

2023

- Test RPA Bots

2027

- New PAS
- AI Growth Capabilities

“Dave, this conversation can serve no purpose anymore. Good bye.”

2030

- OCERS Jenny

2022

- Consultant
- PAS RFP
- Master Repository

2024

- Test RPA Bots

2028

- AI Test Process



2011



2022 BUSINESS PLAN

Executive “Offsite” Meeting
Preliminary Discussion

Objectives for Today

- Review all initiatives proposed by Executive Team
 - Cost
 - Resources
 - Schedule
- Discuss and determine for each initiative:
 - Competing Priorities
 - Perfect State
 - Should it be included in 2022 Business Plan?



Mission, Vision & Values

MISSION STATEMENT:

We provide secure retirement and disability benefits with the highest standards of excellence.

VISION STATEMENT:

To be a trusted partner providing premier pension administration, distinguished by consistent, quality member experiences and prudent financial stewardship.

VALUES:

- O**pen and Transparent
- C**ommitment to Superior Service
- E**ngaged and Dedicated Workforce
- R**eliable and Accurate
- S**ecure and Sustainable



FUND SUSTAINABILITY

GOAL: STRENGTHEN THE LONG-TERM STABILITY OF THE PENSION FUND

Business Plan Initiatives

Objective A: Mitigate the Risk of Significant Investment Loss

Executive Lead – Molly Murphy

1. Complete Investment Consultants procurement process

Objective B: Prudent Use and Security of Resources

Executive Lead – Molly Murphy

1. Custodial Bank Services RFP preparation (contract expires June, 2023)



EXCELLENT SERVICE AND SUPPORT

GOAL: ACHIEVE EXCELLENCE IN THE SERVICE AND SUPPORT WE PROVIDE TO OUR MEMBERS AND PLAN SPONSORS

Business Plan Initiatives

Objective A: Provide Accurate and Timely Benefits
Executive Lead – Suzanne Jenike

1. Create comprehensive overview of applicable Memorandum of Understandings (MOU) (\$25,000)
2. Continue to Enhance Cross Training for Member Services Team
3. Continue Evaluation of Existing Forms & Letters
4. Investigate options of enhancing the online calculator to provide disability estimates
5. Evaluate Options for New Imaging System for Member Document Repository and implement if appropriate (\$250,000)



EXCELLENT SERVICE AND SUPPORT

Objective B: Provide Education to our Members and Employers *Executive Lead – Suzanne Jenike*

1. Update website to enhance disability related FAQs and include a white board video that counsels on the disability application process.
2. Investigate options for communication OCERS news via email.
3. Continue to create videos, both in-house and white board **(\$50,000)**
4. Evaluate options for transition *At Your Service* newsletter to be electronic for active/deferred members and only send hard copies to retirees.



EXCELLENT SERVICE AND SUPPORT

Objective C: Continuously Improve Business Processes and Procedures to be Efficient and Effective
Executive Leads –Suzanne Jenike and Brenda Shott

1. Investigate options for enhanced member survey platform (\$50,000)
2. Investigate creating a triage process for disability applications allowing the independent medical examination to be foregone if allowable.
3. Identify, develop and implement V3 Data Validation and Clean Up procedures (\$10,000)
4. Issue a RFP for next generation pension administration system (\$200,000)
5. Execute a pilot project for the use of Robotic Process Automation to streamline routine task (\$350,000)
6. Complete implementation and post-implementation of new ERP/Accounting Software system (\$20,000)
7. Conduct LEAN process on the investment reporting function (\$10,000)
8. Procure and implement a new helpdesk solution for internal use (\$100,000)

GOAL: CULTIVATE A RISK-INTELLIGENT ORGANIZATION

Business Plan Initiatives

Objective A: Enhance Governance of Technology Risks
Executive Leads – Brenda Shott, Matt Eakin & Jenny Sadoski

1. Continue implementation plan for security and operational best practice controls (multi-year)
2. Continue to develop and enhance information security policies (year two)
3. Develop and enhance information technology policies (year one of two)
4. Develop executive dashboard and security strategy document to enhance communication of Information Security program
5. Implement project management tools and best practices for use throughout the organization

Objective B: Continuously Assess Technology Environment and Address Risks

Executive Leads – Brenda Shott, Matt Eakin & Jenny Sadoski

1. Replace Web Application Firewalls (**\$180,000**)
2. Continue Phased Implementation of Microsoft 365 (**\$110,000**)

Objective C: Ensure Compliance with Industry Frameworks and Best Practices

Executive Leads – Brenda Shott, Matt Eakin & Jenny Sadoski

1. Implement an Information Security Governance, Risk & Compliance system (**\$50,000**)
2. Complete a data classification study (year two) (**\$100,000**)

Objective D: Provide a Robust Business Continuity Solution
Executive Leads – Brenda Shott & Jenny Sadoski

1. Review implementation of mail services using a 3rd party vendor
(\$25,000)
2. Expand the Disaster Recovery and Business Continuity Plan and semi-annual exercise as it relates to remote data recovery



RISK MANAGEMENT

Objective E: Ensure a Safe and Secure Workplace and Public Service Facility
Executive Lead – Brenda Shott

1. Continue to investigate and evaluate long term options for OCERS headquarters.
2. Replace Roof on Existing OCERS Headquarters **(\$110,000)**



TALENT MANAGEMENT

GOAL: RECRUIT, RETAIN AND INSPIRE A HIGH-PERFORMING WORKFORCE

Business Plan Initiatives

Objective A: Recruit and Retain a Diverse High-Performing Workforce to Meet Organizational Priorities

Executive Leads – Steve Delaney and Cynthia Hockless

1. Review and rewrite where appropriate classification specifications and compensation ranges of County level team members **(\$35,000)**



TALENT MANAGEMENT

Objective B: Develop and empower every member of the team
Executive Lead – Steve Delaney

1. Design and develop a comprehensive training program based on individual needs and career goals that embeds a talent management mindset and creates succession plans across the agency (\$50,000)
2. Develop a comprehensive standardized library of business processes and procedure manuals across the organization (\$330,000)



TALENT MANAGEMENT

Objective C: Cultivate a Collaborative, Inclusive and Creative Culture
Executive Lead – Steve Delaney

1. Continue to implement DEI strategies (\$47,000)

EFFECTIVE GOVERNANCE

GOAL: IMPROVE THE EFFECTIVENESS AND EFFICIENCY OF THE BOARD AND STAFF BY CLARIFYING ROLES AND RESPONSIBILITIES, IMPROVING OVERSIGHT, CLARIFYING ACCOUNTABILITY AND IMPROVING DECISION MAKING

Business Plan Initiatives

Objective A: Employ a Governance Structure that Supports a Dynamic System
Executive Lead – Steve Delaney

- Delegated Authority with regard to Investments, and the creation of the Board’s Personnel Committee have both been positive initiatives of Board Governance implemented in recent years. Possible Board review of overall best in class governance continues to be an issue for consideration, but likely in 2023

EFFECTIVE GOVERNANCE

Objective B: Improve the Governance and Management of OCERS' Records
(multi-year)

Executive Lead – Gina Ratto

1. Implement a Records Management Program that reflects best practices and identifies appropriate retention periods for each category of OCERS records
2. Establish, include within the Records Management Program, and implement (using Microsoft 365) the default rules for automated archival and automated destruction of electronic mail, with limited exceptions from the default rules (e.g., for litigation holds)
3. Establish a process to export and save electronic mail in an alternative format (PDF preferably) for longer retention and in accordance with the retention period for underlying record category
4. Develop and adopt an Implementation Plan for the Records Management Program
5. Systematically bring each department within OCERS into compliance with the Records Management Program
6. Establish procedures to maintain and audit compliance with the Records Management Program

QUESTIONS?

