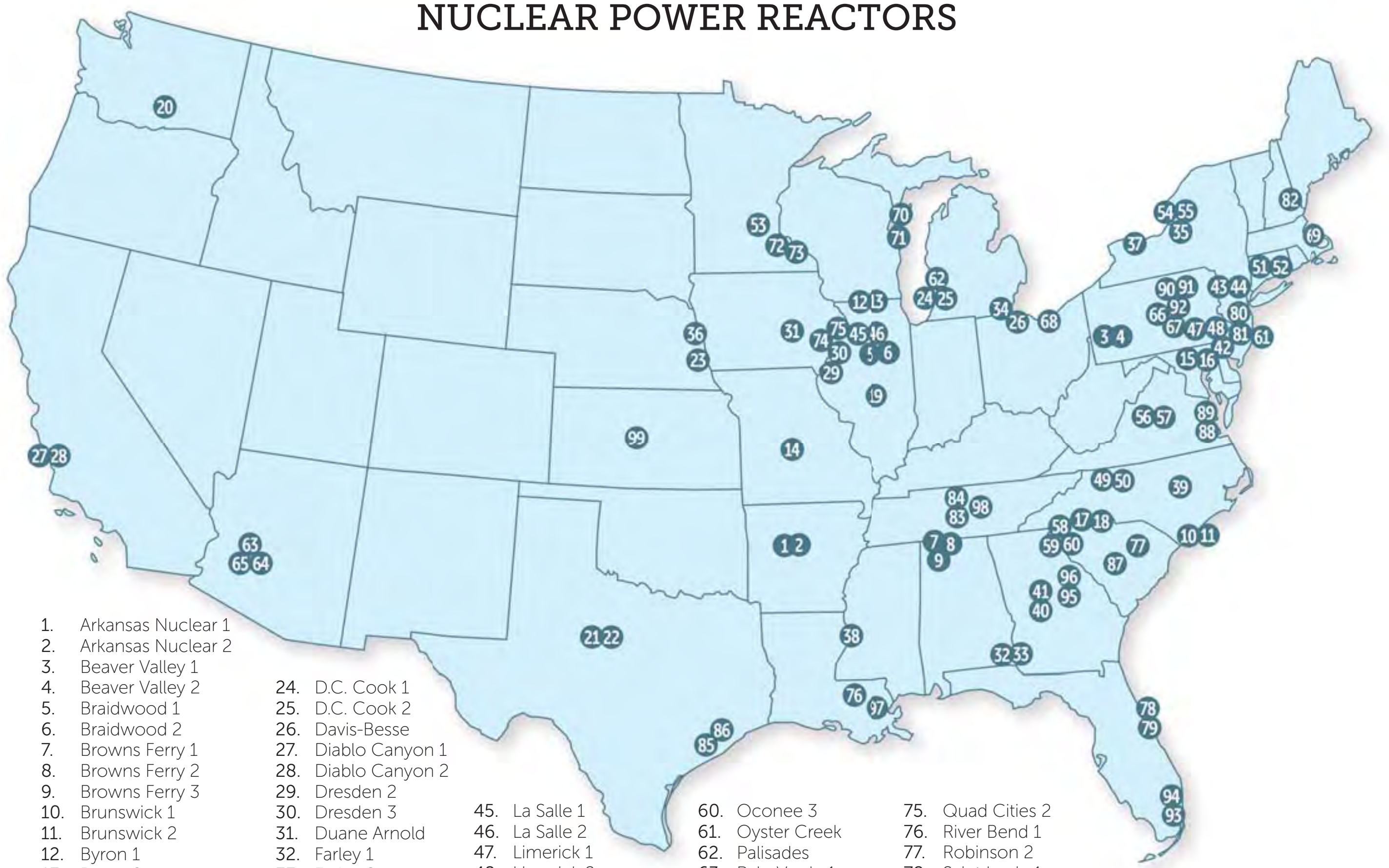
NUCLEAR DECOMMISSIONING TRUSTS
NDT

2014 SURVEY OF TRUST SPONSORS

NISA INVESTMENT ADVISORS, L.L.C.®

U.S. OPERATING COMMERCIAL NUCLEAR POWER REACTORS



1. Arkansas Nuclear 1
2. Arkansas Nuclear 2
3. Beaver Valley 1
4. Beaver Valley 2
5. Braidwood 1
6. Braidwood 2
7. Browns Ferry 1
8. Browns Ferry 2
9. Browns Ferry 3
10. Brunswick 1
11. Brunswick 2
12. Byron 1
13. Byron 2
14. Callaway
15. Calvert Cliffs 1
16. Calvert Cliffs 2
17. Catawba 1
18. Catawba 2
19. Clinton
20. Columbia Generating Station
21. Comanche Peak 1
22. Comanche Peak 2
23. Cooper
24. D.C. Cook 1
25. D.C. Cook 2
26. Davis-Besse
27. Diablo Canyon 1
28. Diablo Canyon 2
29. Dresden 2
30. Dresden 3
31. Duane Arnold
32. Farley 1
33. Farley 2
34. Fermi 2
35. FitzPatrick
36. Fort Calhoun
37. Ginna
38. Grand Gulf 1
39. Harris 1
40. Hatch 1
41. Hatch 2
42. Hope Creek 1
43. Indian Point 2
44. Indian Point 3
45. La Salle 1
46. La Salle 2
47. Limerick 1
48. Limerick 2
49. McGuire 1
50. McGuire 2
51. Millstone 2
52. Millstone 3
53. Monticello
54. Nine Mile Point 1
55. Nine Mile Point 2
56. North Anna 1
57. North Anna 2
58. Oconee 1
59. Oconee 2
60. Oconee 3
61. Oyster Creek
62. Palisades
63. Palo Verde 1
64. Palo Verde 2
65. Palo Verde 3
66. Peach Bottom 2
67. Peach Bottom 3
68. Perry 1
69. Pilgrim 1
70. Point Beach 1
71. Point Beach 2
72. Prairie Island 1
73. Prairie Island 2
74. Quad Cities 1
75. Quad Cities 2
76. River Bend 1
77. Robinson 2
78. Saint Lucie 1
79. Saint Lucie 2
80. Salem 1
81. Salem 2
82. Seabrook 1
83. Sequoyah 1
84. Sequoyah 2
85. South Texas 1
86. South Texas 2
87. Summer
88. Surry 1
89. Surry 2
90. Susquehanna 1
91. Susquehanna 2
92. Three Mile Island 1
93. Turkey Point 3
94. Turkey Point 4
95. Vogtle 1
96. Vogtle 2
97. Waterford 3
98. Watts Bar 1
99. Wolf Creek 1

- The U.S. Nuclear Regulatory Commission (NRC) is reviewing five combined license applications from three companies and consortia for nine new units.
- Five new nuclear power plant reactors are currently under construction.
- There are currently 99 operating nuclear power plant reactors licensed to operate in 30 states by 31 companies. Investor-owned Utilities (IOUs) represent approximately 79% of operating megawatt capacity.
- The NRC approved two license extensions since the 2012 survey (three including Callaway, which was approved in March 2015); 18 others are currently under review and six additional submissions are expected.
- There have been five individual unit shutdowns since the last survey.
- Currently, 34 power reactors are undergoing decommissioning or have completed a significant portion of decommissioning.

CONTENTS

NISA Investment Advisors, L.L.C. (NISA) is pleased to present the 14th edition of the biennial Survey of Nuclear Decommissioning Trust (NDT) Sponsors. This report is published as a resource for and service to the NDT community. It is intended to provide insight into investment activities and trends within the NDT industry. Information contained herein has many potential uses and a variety of audiences, including trust sponsors, federal and state regulatory bodies, trust custodians, and investment managers.

Information as of December 31, 2014 was requested from Investor-owned Utilities and several Public Power Authorities (PPAs).

Surveys were sent to owners/operators of nuclear plants. Twenty six sponsors completed surveys, representing 93% of total Investor-owned Utility (IOU) megawatt capacity and 83% of total megawatt capacity.

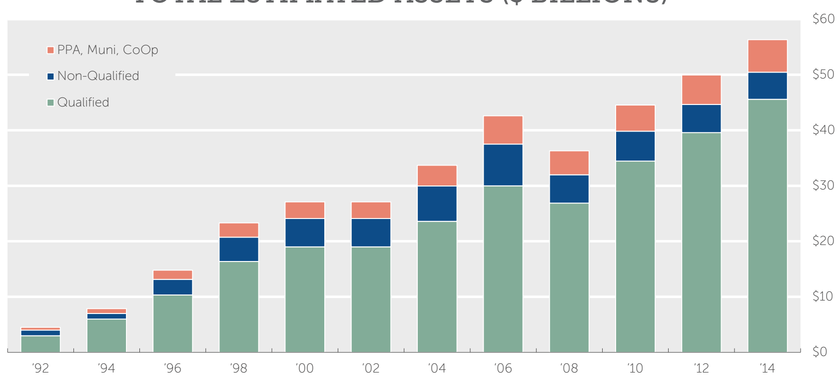
Unless otherwise noted, averages are calculated based on the number of responses.

NUCLEAR DECOMMISSIONING TRUSTS

Estimated Assets

The total estimated market value of NDT assets grew to over $56 billion, an increase of 13% from the prior survey. Assets held by Investor-owned Utilities grew to over $50 billion and assets held by Public Power Authorities, Municipalities, and Cooperatives grew to almost $6 billion from the prior survey. Qualified Trust assets increased by approximately 15% for the second consecutive survey, while Non-qualified Trust assets decreased again and are back to levels seen in the late 1990s. The dichotomy in asset changes was due to variations in asset allocation within each trust type, expenditures associated with various plant shutdowns, and contributions.

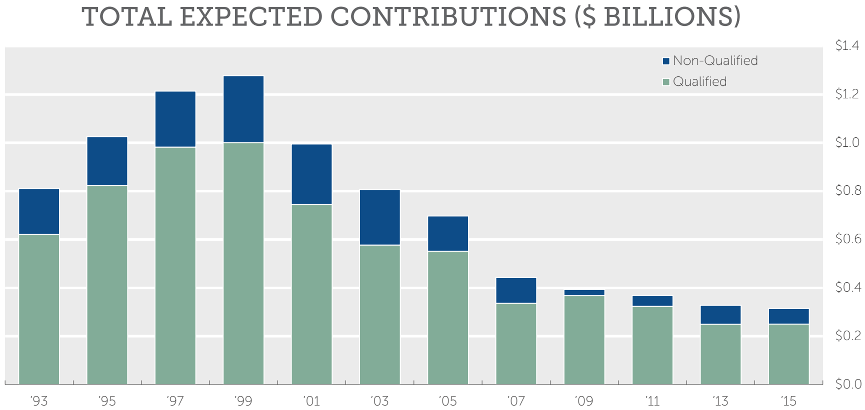
TOTAL ESTIMATED ASSETS ($ BILLIONS)



Expected Contributions

Total expected contributions remained relatively consistent from the prior survey. Despite the majority of sponsors still making contributions, a small number of sponsors now account for over 50% of total NDT contributions. Projected 2015 contributions are $314 million, with $250 million expected to be allocated to Qualified Trusts and $64 million expected to be allocated to Non-qualified Trusts. No Public Power respondents indicated projected contributions, although NRC filing data show a handful of sponsors are planning contributions over the next several years. Lower inflation assumptions and longer investment horizons resulting from license extensions may be the basis for historically low annual contributions.

TOTAL EXPECTED CONTRIBUTIONS ($ BILLIONS)



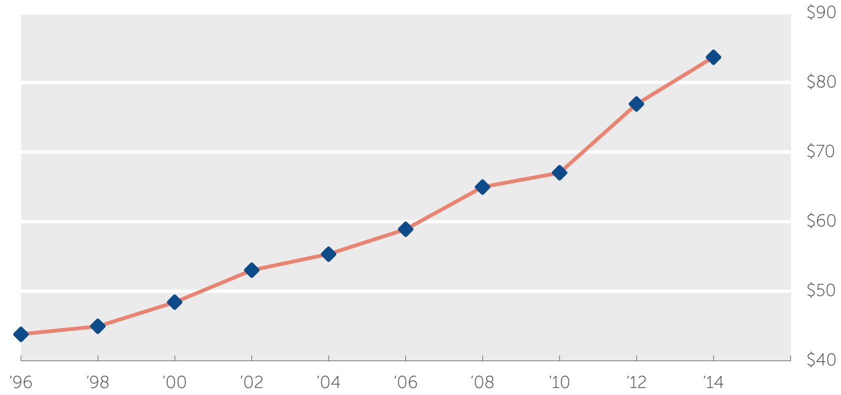
Approximately 55% of respondents indicated continued contributions to Qualified Trusts and approximately 20% of respondents indicated continued contributions to Non-qualified Trusts.

Estimated Decommissioning Costs

The total IOU and non-IOU 2014 estimated decommissioning costs were $84 billion based on survey responses. The 2014 decommissioning estimate increased 8.7% since the 2012 survey and has almost doubled since the 1996 survey. The annualized cost escalation rate for the 18-year period from 1996 to 2014 was approximately 3.6%. By way of comparison, the Consumer Price Index (CPI) annualized increase was 2.2% over the same time frame.

The estimated costs shown represent the greater of NRC-filing or site-specific costs provided by respondents. Based on specific survey responses, NRC costs were, on average, 70% of site-specific costs compared to 75% in the prior survey.

TOTAL ESTIMATED DECOMMISSIONING COSTS ($ BILLIONS)



NRC Filing Data

As a reasonableness check, selected cost and asset data from publicly available decommissioning financial assurance filings as of December 31, 2014 were compared to survey data. As stated above, NRC costs were, on average, 70% of site-specific costs. Survey and NRC differences appear to result primarily from costs and assets attributable to non-radiological decommissioning and site-specific cost estimates. Furthermore, according to the NRC filings, there is a high ratio of assets to megawatt capacity for a number of the PPAs, Co-ops, and Municipals which were not included in the survey results. The data in the table below were estimated based on NRC filings.

OPERATIONAL	NRC	
	Cost	Assets
Investor-owned Utilities	$46.5B	$45.3B*
Non-investor-owned Utilities	$12.3B	$8.8B
TOTAL	**$58.9B**	**$54.1B**

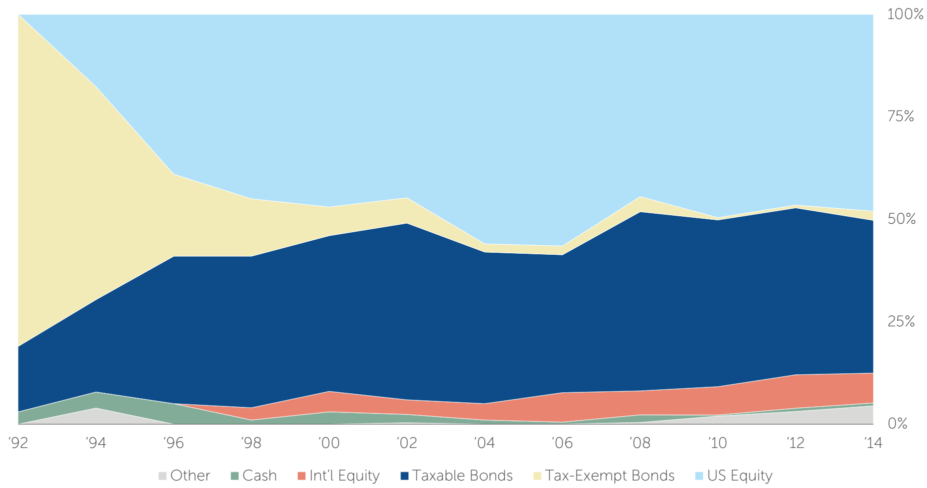
*After-tax

QUALIFIED NDT

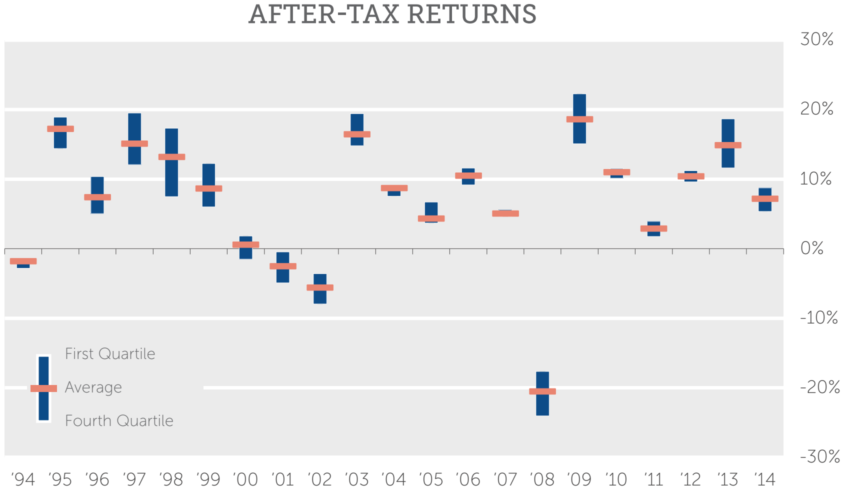
Historical Asset Allocation

Despite several significant equity market moves and periods of high volatility over the past 14 years, asset allocations have remained fairly constant. The average Qualified Trust equity allocation remained at 55% in 2014. There is continued interest in the “other” category, (primarily hedge funds, private equity, commodities), which for the first time since 1994 hit 4% of total assets. About 30% of sponsors indicated a target allocation to alternative asset strategies; the average target allocation of those sponsors is 15%. Taxable fixed income allocations dropped below 40% for the first time since 2006.

AVERAGE TRUST ALLOCATIONS



AFTER-TAX RETURNS

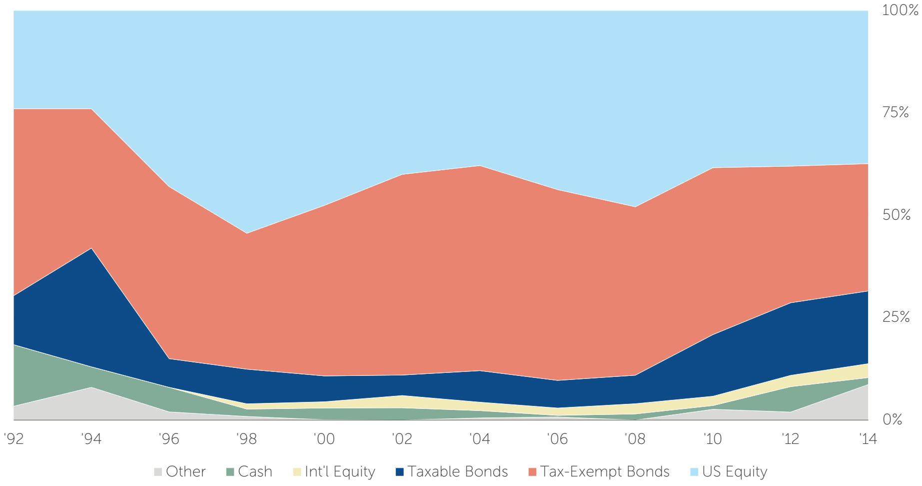


Historical After-tax Returns

The average Qualified Trust after-tax total return for the two-year period since the last survey was 23.1%. The pre-tax total return of the S&P 500 Index and Barclays Aggregate over the same period were 50.4% and 3.8%, respectively. Based on the information in the graph on the left, the average annual Qualified Trust after-tax return for the 21-year period was 6.7%. The average trust return has been positive for 11 out of the past 12 years and 17 of the past 21 years.

NON-QUALIFIED NDT

AVERAGE TRUST ALLOCATIONS



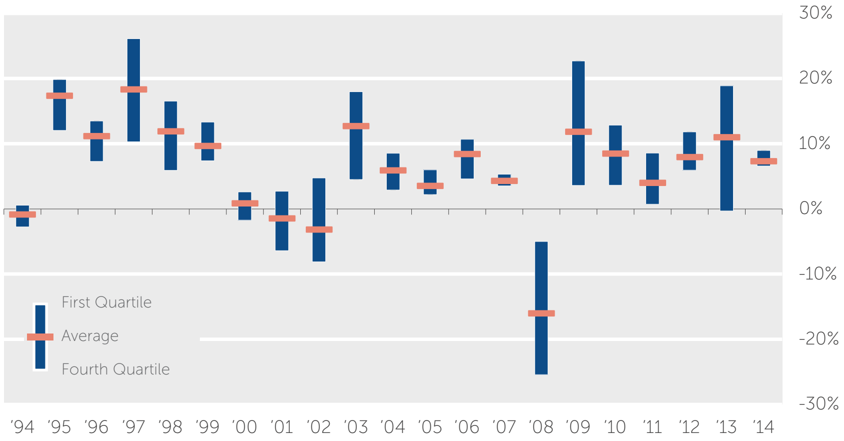
Historical Asset Allocation

For the first time in survey history, Non-qualified Trusts represent less than 10% of total NDT assets. Of the survey respondents, 17 reported having Non-qualified Trusts, although only a few sponsors hold more than one half of all Non-qualified Trust assets. Several Non-qualified Trusts have 100% allocations to a specific asset class. The majority of asset classes saw a small decline in allocation since the 2012 survey, while the "other" category increased substantially as one sponsor shifted the majority of its Non-qualified assets to this category.

Historical After-tax Returns

The average Non-qualified Trust after-tax total return for the two-year period since the last survey was 19.1%. The pre-tax total return of the Barclays Full Municipal Bond Index over the same period was 6.3%. The average annualized after-tax return for the 21-year period was 6.3%, which compares favorably with the after-tax return assumptions for the same period.

AFTER-TAX RETURNS



TOTAL NDT

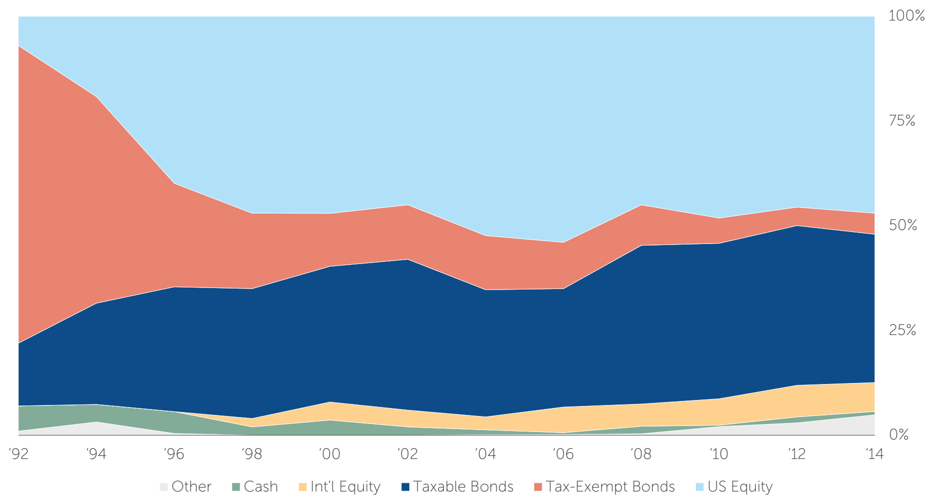
Historical Asset Allocation

The graph below shows average actual allocations to major asset classes since 1992. The average taxable fixed income allocation decreased from the last survey, with the beneficiary being the “other” category.

The overall actual allocations for equity, fixed income, and “other” are very close to target allocations.

Approximately one third of respondents indicated an allocation to alternative asset strategies resulting in the 5% allocation to the “other” asset class. For those who indicated an allocation to alternatives, the average target allocation was 17%, with the maximum target at 33% and the minimum at 5%.

AVERAGE TRUST ALLOCATIONS



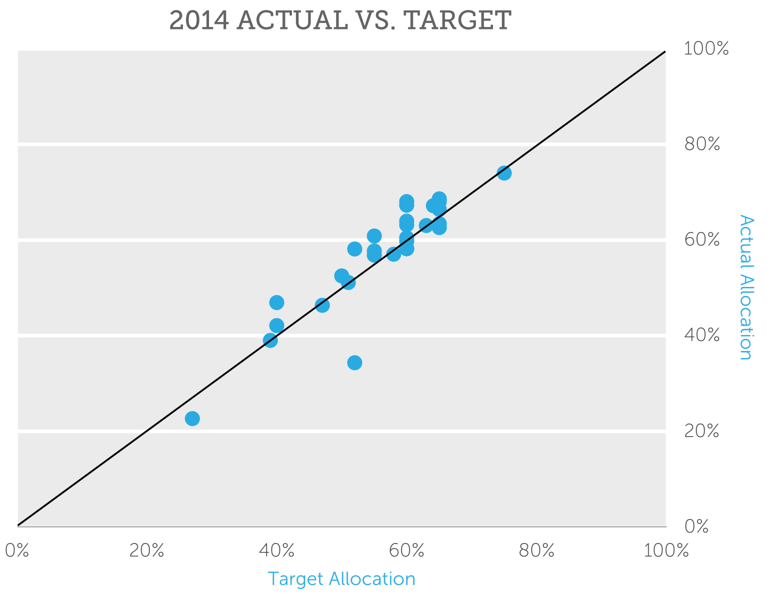
High yield, emerging market equity, and REITs are the most frequently mentioned asset classes being considered for future allocations.

ASSET ALLOCATIONS

Equity Allocations

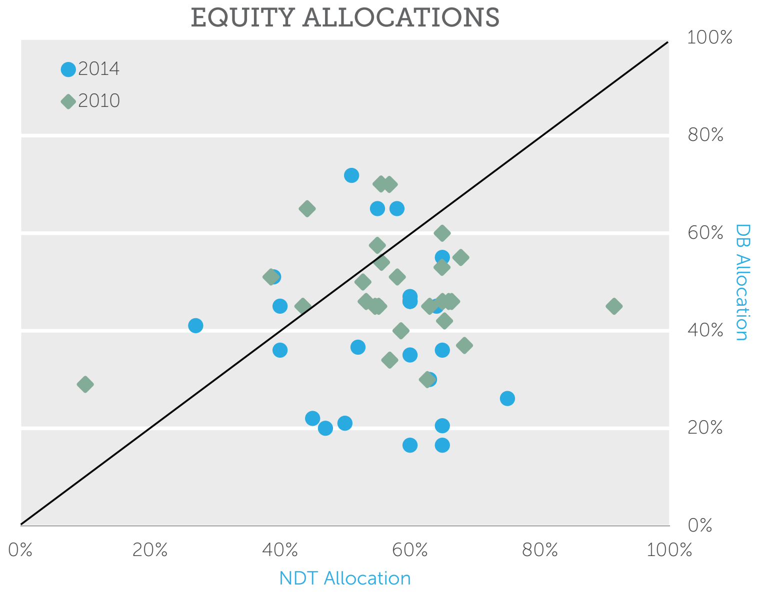
The chart on the right shows each sponsor's target equity allocation relative to its actual allocation as of December 31, 2014. Observations below the diagonal reflect equity allocations which are below their targets, while those above the diagonal reflect allocations above their targets.

For the 2014 survey, the average actual equity allocation was essentially equal to the average target equity allocation. Based on survey responses, the average overweight was +3% and the average underweight was -3%. One standard deviation around the mean was under 5%.



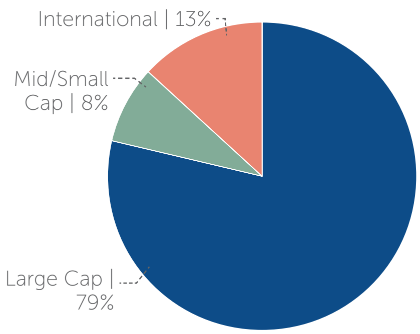
NDT vs. Defined Benefit

The chart on the right shows the relationship of each sponsor's NDT equity allocation relative to its Defined Benefit (DB) equity allocation. Observations above the diagonal indicate a larger equity allocation in the DB plan than in the NDT. Survey responses indicated that the average NDT had a much larger allocation to the US Equity asset class than did the average DB plan. Over the past four years, DB equity assets have seen a dramatic shift from over 50% to just under 40%. The overwhelming majority of DB Fixed Income assets were in longer duration strategies while no sponsors indicated an allocation to long duration fixed income strategies in their NDTs.

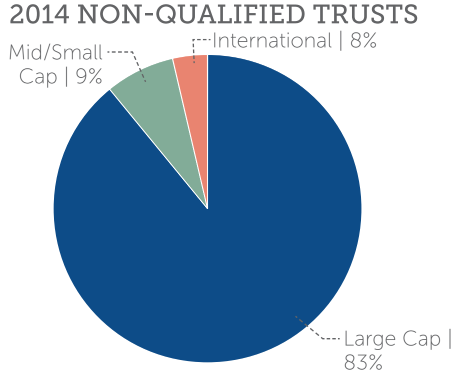


EQUITY

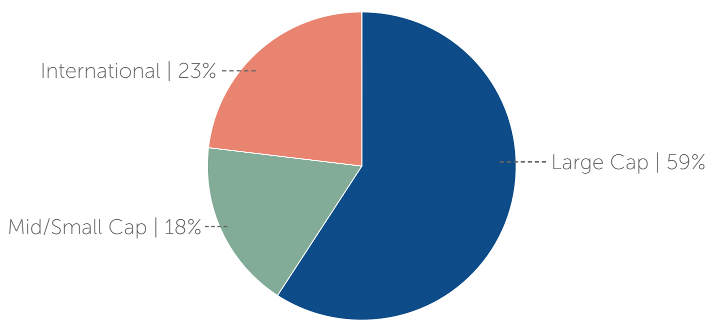
2014 QUALIFIED TRUSTS



2014 NON-QUALIFIED TRUSTS



2014 PPAs/CO-OPs



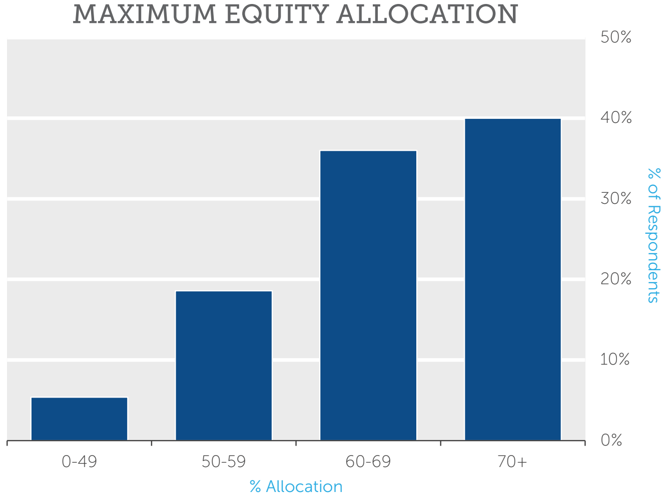
Style Allocations

The estimated total equity allocation was $24.9 billion for Qualified Trusts, $2.2 billion for Non-qualified Trusts, and $2.8 billion for Public Power Authorities, Municipalities, and Cooperatives. While the average allocation to the most frequently referenced equity styles at the total trust level has remained fairly constant since the 2006 survey, large cap styles continue to dominate equity allocations, but remain in-line with their domestic market-cap representation. International equity allocations decreased for the first time since 2008 as the MSCI All World-Ex US (USD) Index trailed domestic indices. The S&P 500, S&P 400, S&P 600, and MSCI All World-Ex US (USD) had total returns, as reported by the index providers, of 50.4%, 46.4%, 49.4%, and 5.2%, respectively, for the two-year period ending December 31, 2014.

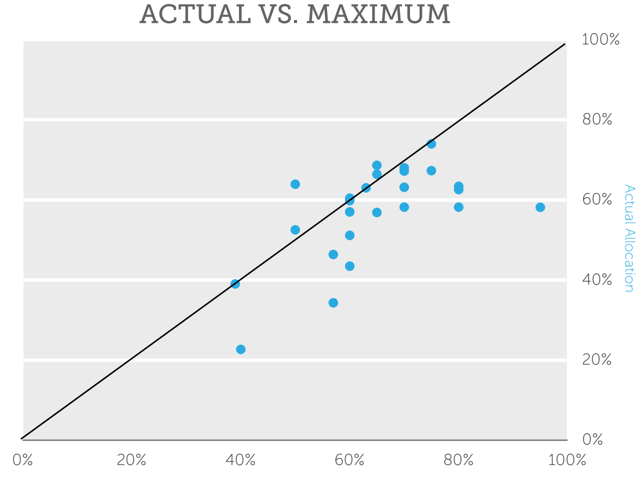
Maximum Allocations

The average maximum equity allocation rose 3% to 65% in 2014 compared to 2012, but was still down from 74% in 2008. The average actual equity allocation was approximately 10% below the average maximum allowed. Slightly fewer respondents are either above their stated maximum allocation or more than 20% below the maximum when compared to the 2012 survey.

MAXIMUM EQUITY ALLOCATION



ACTUAL VS. MAXIMUM



FIXED INCOME

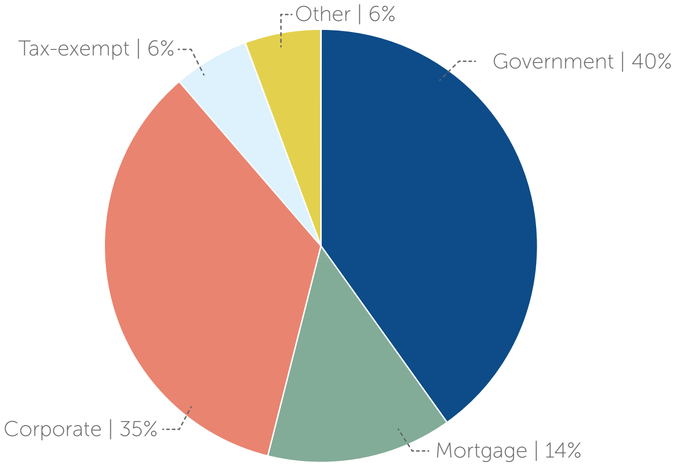
Sector Allocations

The estimated total fixed income allocation was $18.7 billion for Qualified Trusts, $1.9 billion for Non-qualified Trusts, and $2.1 billion for Public Power Authorities, Municipalities, and Cooperatives.

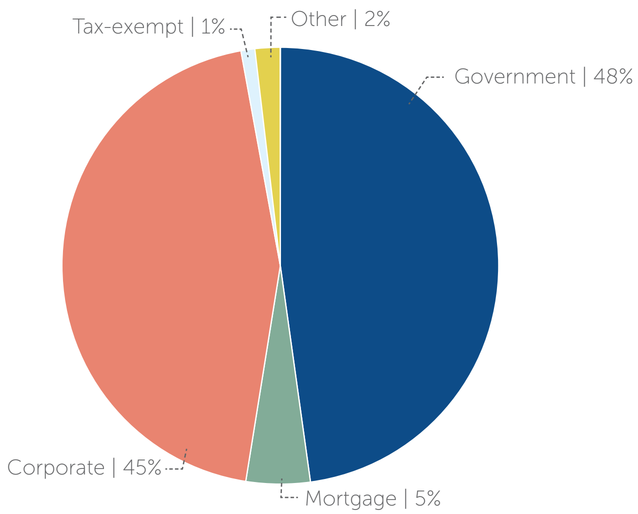
IOU Trusts shifted away from government-based investments in the previous survey and into Tax-exempts, an asset category that was historically reserved for Non-qualified Trusts. The Qualified Trust sector allocations in the chart to the right reflect the mix of fixed income allocations. The "other" category includes high yield and emerging market debt, among others.

Non-qualified Trust sector allocations remained relatively consistent with previous surveys.

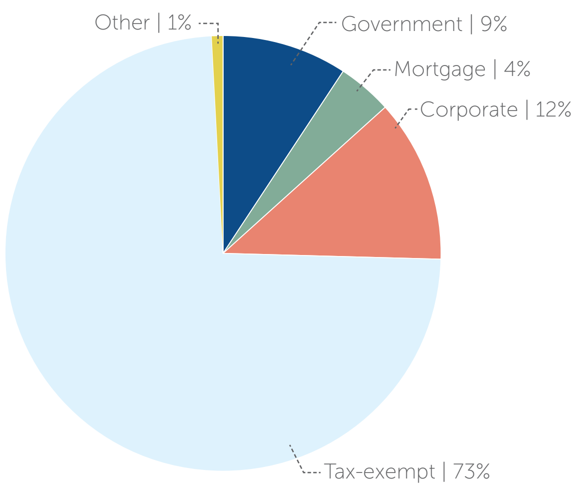
2014 QUALIFIED TRUSTS



2014 PPAs/CO-OPs



2014 NON-QUALIFIED TRUSTS



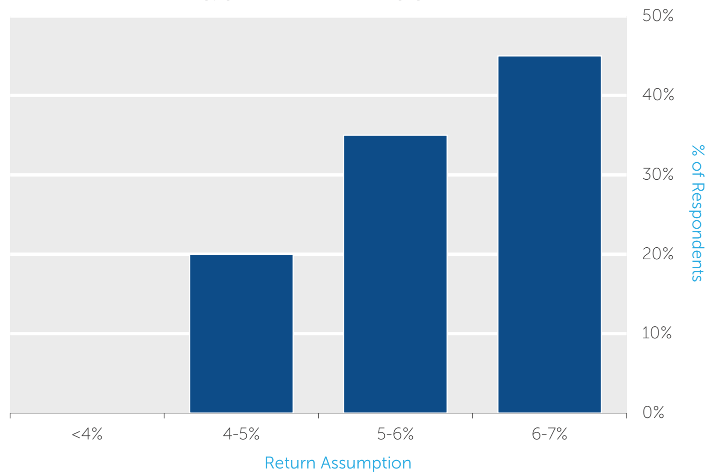
High yield was the most frequently mentioned fixed income sector under consideration in this survey with over 30% of respondents considering it, compared to under 10% in the prior survey.

ASSET RETURN ASSUMPTIONS

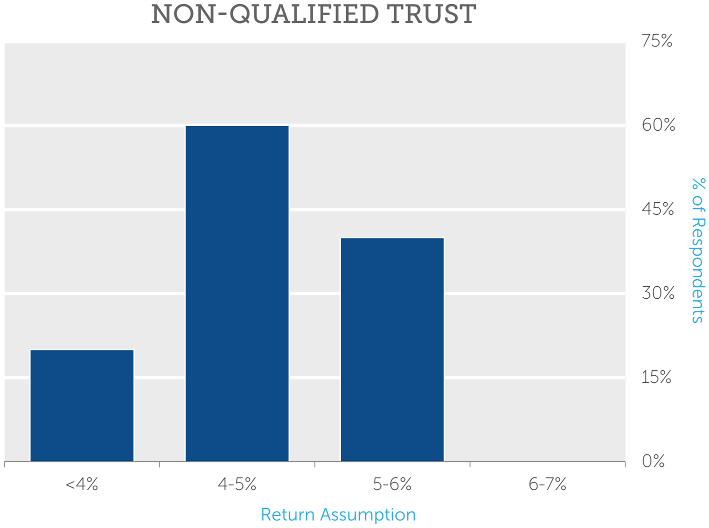
After-tax Return Assumptions: Qualified Trust

The Qualified Trust average after-tax return assumption dropped below 6% for the first time in survey history, and is 90 basis points below peak levels of the late 1990s. This is due to interest rates at historical lows and a 1% drop in the equity dividend yield over the same period. Based on each respondent's target asset allocations and expected returns for each asset class, the average after-tax return assumption was 5.8% and the median after-tax return assumption was 5.7%.

QUALIFIED TRUST



NON-QUALIFIED TRUST



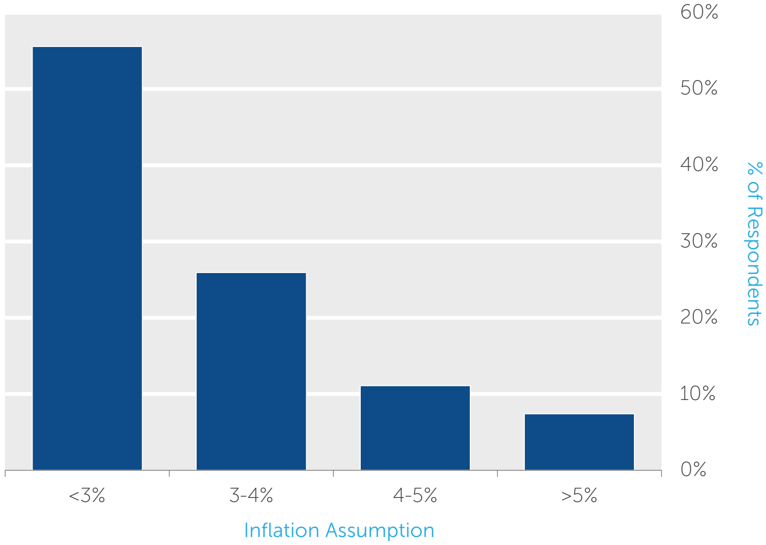
After-tax Return Assumptions: Non-qualified Trust

The Non-qualified Trust average after-tax return assumption decreased significantly from the last survey after being within a range of 5.3% to 5.5% over the previous five surveys. Based on each respondent's target asset allocations and expected returns for each asset class, the average and median after-tax return assumptions were both 4.8%. Non-qualified Trust average after-tax return expectations were about 100 basis points lower than Qualified Trust expected assumptions, resulting from higher tax rates and lower equity allocations.

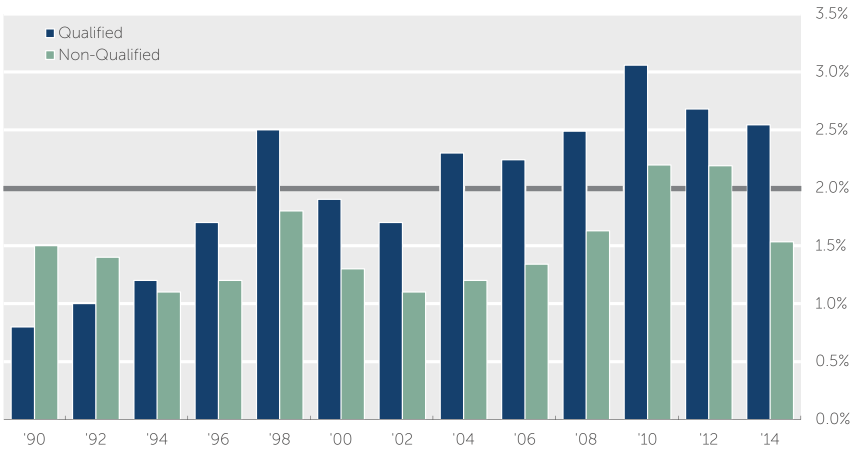
Cost Inflation Assumptions

Inflation assumptions have a prevailing influence on estimating decommissioning liabilities and determining implied after-tax real rates of return. The average composite cost inflation assumption decreased by 10 basis points from the 2012 survey, while the CPI 10-year forecast declined by 20 basis points. Estimates of cost inflation ranged from 2% to over 8%.

COST INFLATION ASSUMPTIONS



IMPLIED AFTER-TAX REAL RETURNS



Implied After-tax Real Return Assumptions

Implied after-tax real return assumptions were calculated based on each respondent's after-tax return and cost inflation assumptions. The implied after-tax return assumptions returned to levels last seen in 2008. Weighting the 2014 Qualified, Non-qualified, and Non-IOU Trusts' implied after-tax returns by their market values as shown on page 4 yields a total NDT average implied after-tax real return of 2.4%. The horizontal line at 2% represents the allowable real return assumption permitted in 10 CFR §50.75 (e) (1) (ii).

NDT MANAGEMENT

Overview

A new question was posed to survey participants this year: What do you feel are the greatest risks to decommissioning funding adequacy in the future? From among the six possible answers, each received a number of votes, while many respondents marked multiple risks. The overall percentage for each answer:

Cost increases outpacing investment returns | 69%
Spent fuel disposal | 54%
A "black swan" event | 38%
Regulatory issues | 35%
Low-level radioactive waste disposal | 23%
Other | 8%

Asset Liability Management (ALM) studies help sponsors evaluate the funded status of their decommissioning funds and to determine suitable asset allocations. Based on survey responses, ALM studies are occurring more frequently. Sixty five percent of respondents have conducted a survey in the past two years. Most respondents indicated their ALM studies are performed by outside consultants on an ad-hoc basis, and all respondents that entered a date indicated they would undertake an ALM study within the next three years. Nineteen percent of respondents said they considered dynamic asset allocation in conjunction with their ALM analyses.

The majority of respondents are not considering Alternative/Absolute Return Strategies (ARS). Of those respondents who are considering or have used ARS, Private Equity, Hedge Funds and Real Estate are the most popular asset classes. Return diversification remains a primary motivation for asset allocation policy changes.

NDT investments in securities of owner/operators of nuclear power reactors by licensees that are not "electric utilities" are prohibited by the NRC. More than 70% of responses indicated "no-nuke" restrictions based on NRC or state-level regulations, and almost 10% of respondents indicated no nuclear-ownership-based investment restrictions alone. Of respondents with a "no-nuke" constraint, one third utilize more than one method to monitor the restriction. The two most popular methods of monitoring for nuclear securities are providing a "nuke list" to managers and relying on the custodian.

Rebalancing activity remains robust across trust sponsors. More than two thirds of respondents indicated they rebalanced their asset allocation in the past two years, with the majority of those citing an internally driven decision as opposed to investment committee or regulatory driven. Furthermore, the majority of sponsors revised their overall asset allocation policy over the previous two years with diversification remaining the primary objective, similar to the prior survey. A number of respondents also cited revised risk parameters as an incentive to alter their asset allocation policy.

When viewed from either the asset or liability side, NDTs, on average, are approximately one half the size of DB plans for IOUs. Given the typical long term nature of both NDTs and DB plans, one might surmise that similar allocations may be warranted. This remains far from the case. No survey respondents indicated they have implemented asset/liability matching as part of their NDT investment policy. Furthermore, the average DB plan invests across a broader spectrum of investments and focuses on longer duration fixed income, while the average NDT remains in a more traditional asset mix. There are many potential explanations for this including taxes, regulatory restrictions, the method of viewing the liability, and separate investment committees.

Thank you to our NDT sponsors for their participation in this survey.

NISA'S NDT Team

NISA is a 100% employee-owned investment management firm based in St. Louis, Missouri. NISA has $121 billion* in assets under management for 165 clients including NDTs, defined benefit plans, defined contribution plans, and other institutional investors. NDT assets are the largest source of NISA's taxable assets under management. NISA has managed assets for NDT clients since our inception in 1994 and currently manages $11 billion* in NDT assets for 12 utilities.

NISA manages all portfolios using a team approach, which involves our senior investment professionals servicing the NDT portfolios and our investment staff providing support. The Investment Committee, which consists of Jess Yawitz, Bill Marshall, Ken Lester, Joe Murphy, David Eichhorn, and Anthony Pope, has the primary responsibility for the overall NDT investment strategy.

Please contact us if you would like additional copies of this report or more information regarding NDT management services. This survey and prior year surveys are available at www.nisa.com.

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*As of June 30, 2015
All photos courtesy of the US Nuclear Regulatory Commission.

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