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NEPC's 2014 Defined Benefit Plan Trends Survey

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Biographies

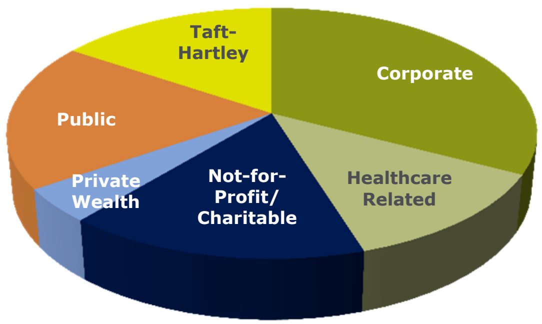
- **Bradley S. Smith, CFA, CEBS**
  Partner
  – Twenty-seven years' investment experience
  – Previous affiliations: Hewitt EnnisKnupp; Bolton Partners Investment Consulting Group
  – BA, Hampden-Sydney College

- **Kelly A. Regan**
  Consultant
  – Eleven years' investment experience
  – Previous affiliations: Investors Bank & Trust
  – MSF, Brandeis University; BA, Boston University

About NEPC

- **Established in 1986 in Boston, MA**
- **232 employees in 7 regional offices**
- **Employee-owned with 33 partners**
- **100% of revenue generated from investment consulting**
- **330 institutional clients**
- **$861 billion assets under advisement**
- **Boutique practice groups within NEPC deliver expertise by client type**
- **Proactive asset allocation advice and innovative investment solutions**
  - Clients have collectively outperformed national averages* in 24 out of 28 years, with lower levels of risk

Client Type
(By number of clients)



Plan Type
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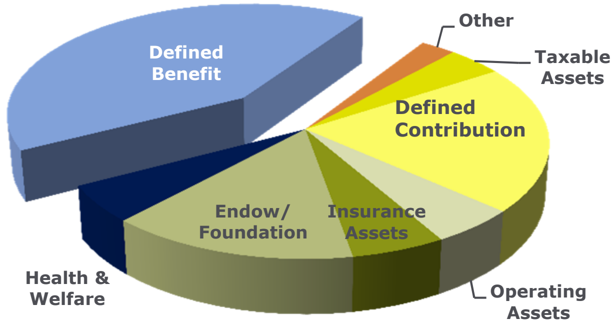

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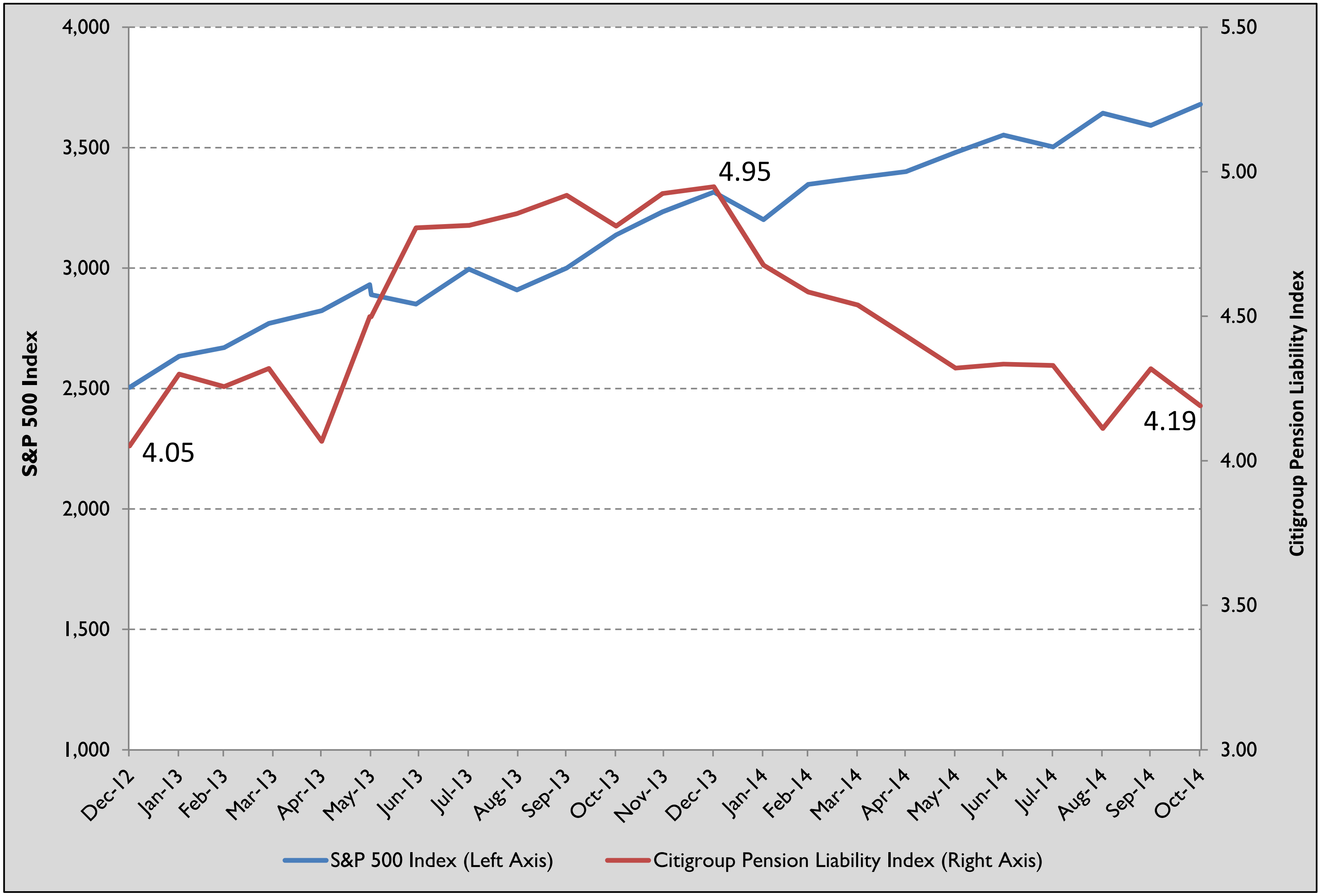
*The national average is represented by the median fund in the $1.9 trillion InvestorForce Universe (or the ICC Universe through 2011). Past performance is no guarantee of future results.

NEPC's Defined Benefit Plan Capabilities

Consideration	NEPC
Pension Experience	• 278 DB plans with $572 billion in assets • 35 DB Healthcare plans with $17 billion in assets
Liability Experience	• Four actuaries on staff • 66 asset liability studies completed over the past three years • Ability to model liabilities and expense
Funded Status Monitoring	• Customized monthly and quarterly reports • Funded status attribution
Glide Path Management	• Tied to goals and objectives
Implementation	• Traditional and non-traditional solutions • Capital efficient / derivative solutions
Outsourced Solution	• Discretionary management
Consultant Team Strength	• Plan sponsor experience

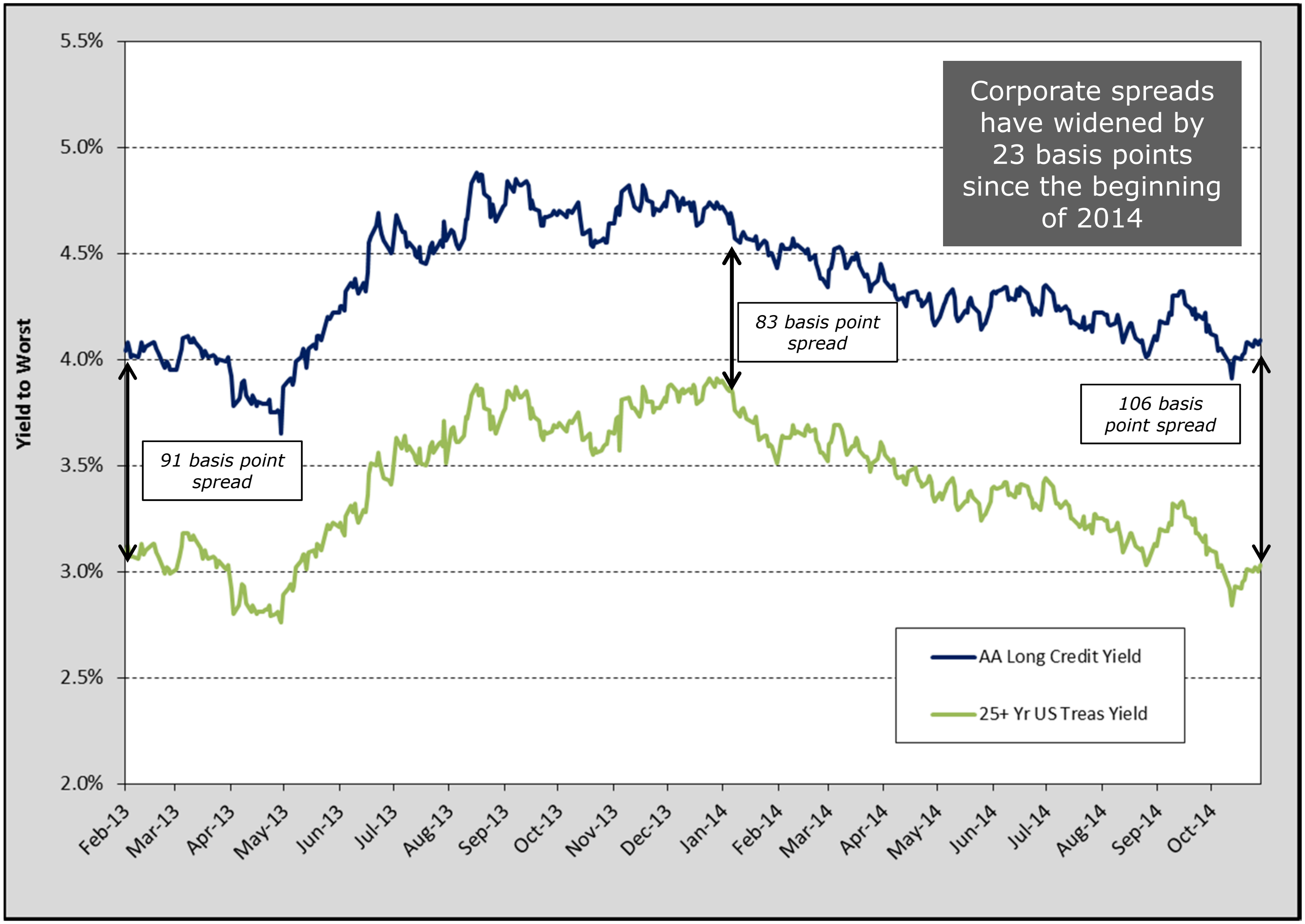
Market Review

Equity Market vs. Discount Rate



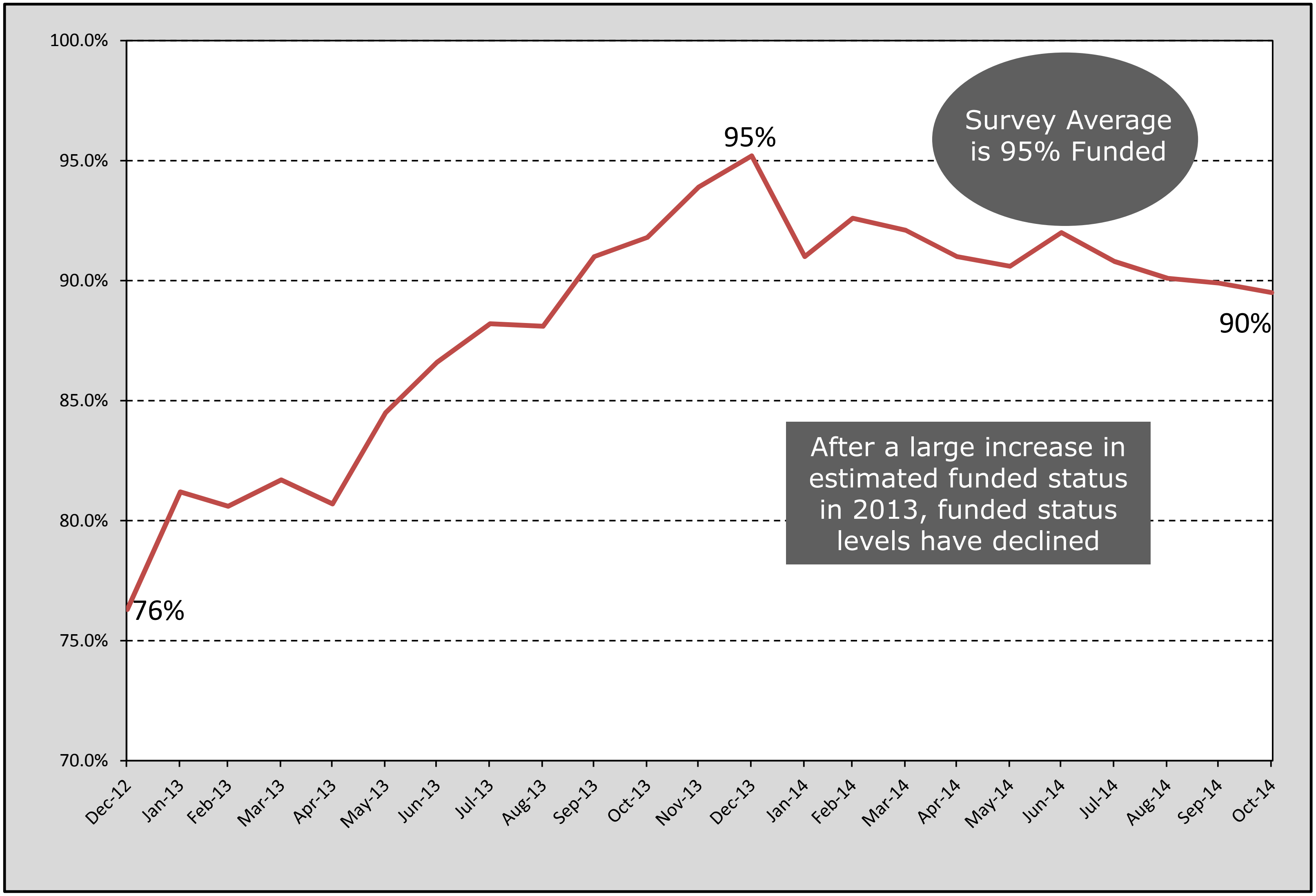
Source: www.soa.org, based on a duration of 19 years; Bloomberg - October 2014

2013-2014 Market Trends: Credit Spreads



Source: NEPC - October 2014

Estimated Funded Status



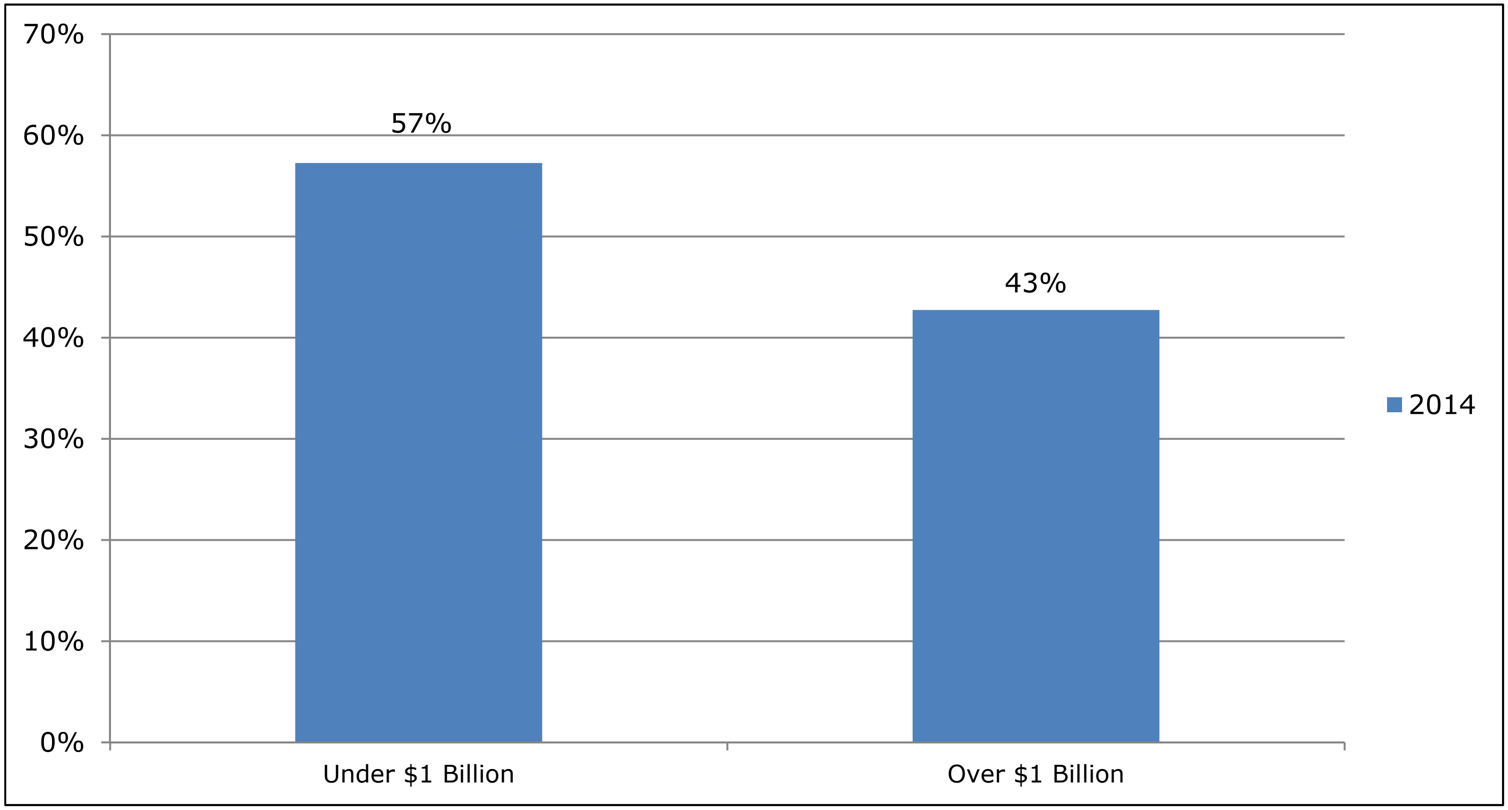
Source: BNY Mellon Institutional Score Card – October 2014

NEPC’s 2014 Survey Results

- **Estimated funded status has declined steadily in 2014 after 2013's gains**
- **There is no material change in the usage of Liability Driven Investing (LDI) strategies, however there are still concerns about implementing LDI**
- **73% of plans that utilize LDI implement through a glide path approach**
- **While a majority of plans hit a trigger on their glide path in the last 12 months, some did not take action**
- **Some plan sponsors are re-visiting and making changes to their glide paths**
- **Cost is the number one reason that plans are not considering annuitization**
- **Plan sponsors appear to be more interested in plan hibernation strategies than annuitization**

Respondent Demographics

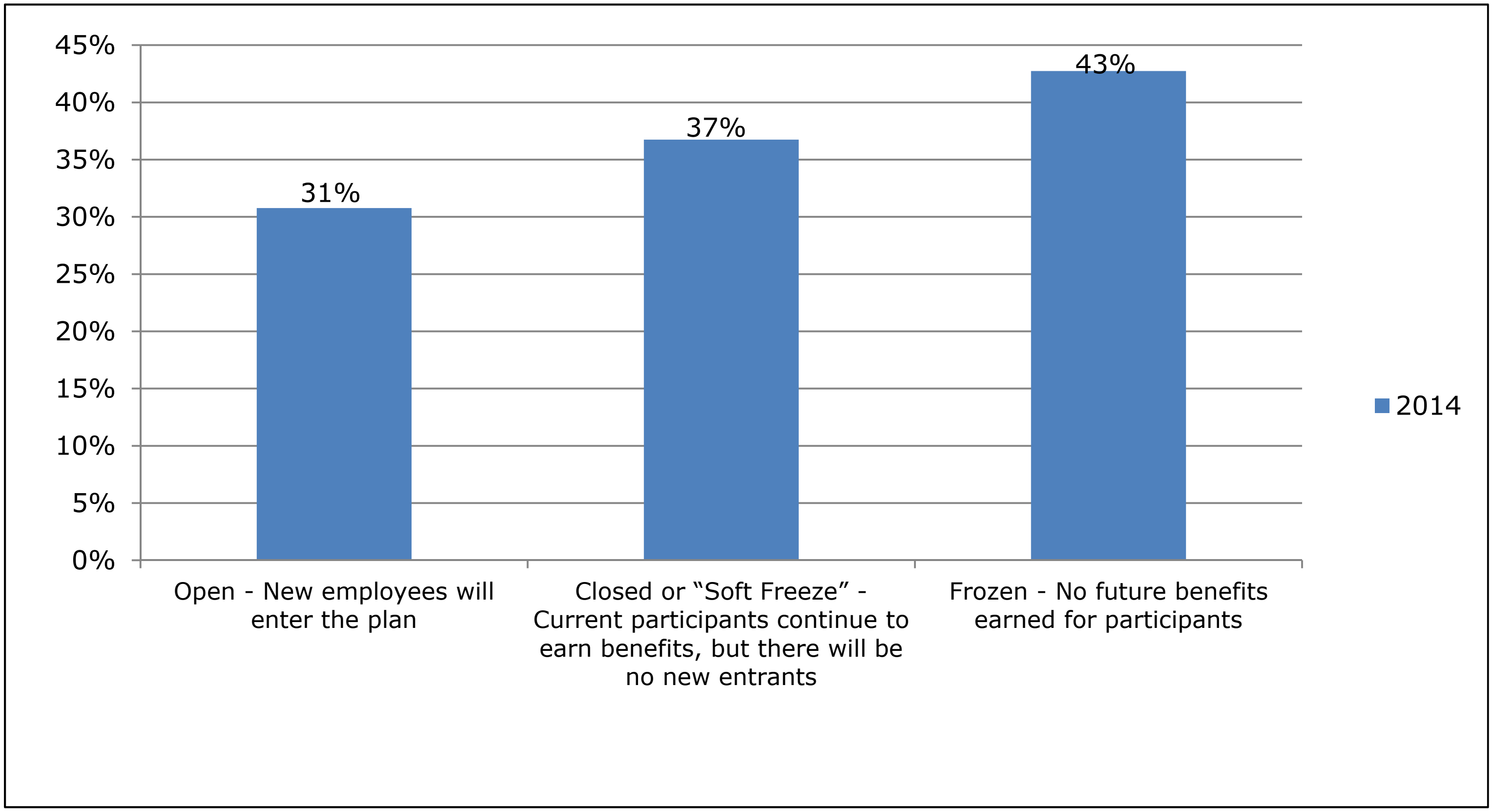
- **Robust sample size comprising 117 defined benefit plan sponsors representing over $313 billion in pension assets from a cross section of industries**



Average Plan: $2.7 billion
Median Plan: $750 million

Plan Status[1]

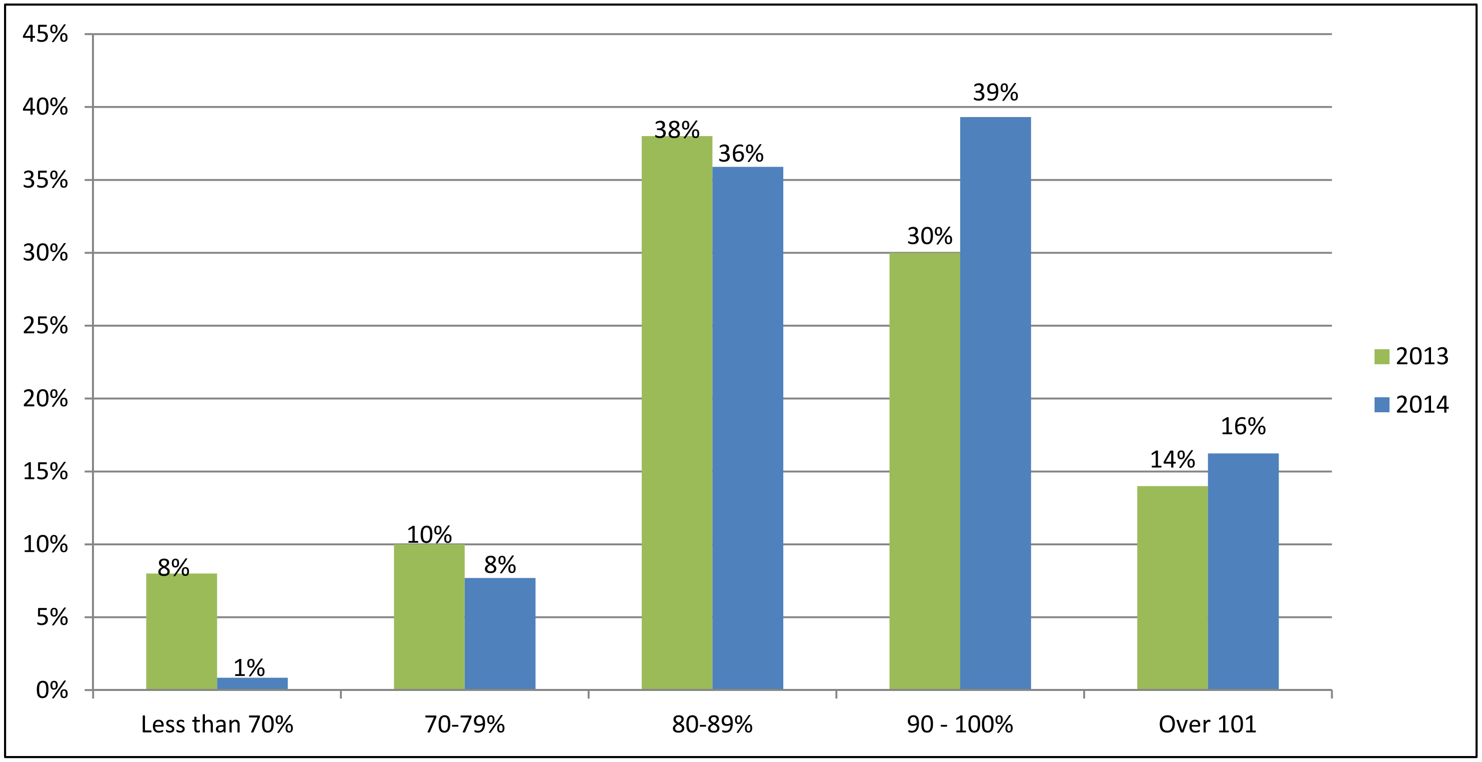
- **80% of the plans surveyed were either closed or frozen**
- **Of the plans that are open, 74% say that they expect to remain open for the foreseeable future**



[1] Respondents were able to select more than one response

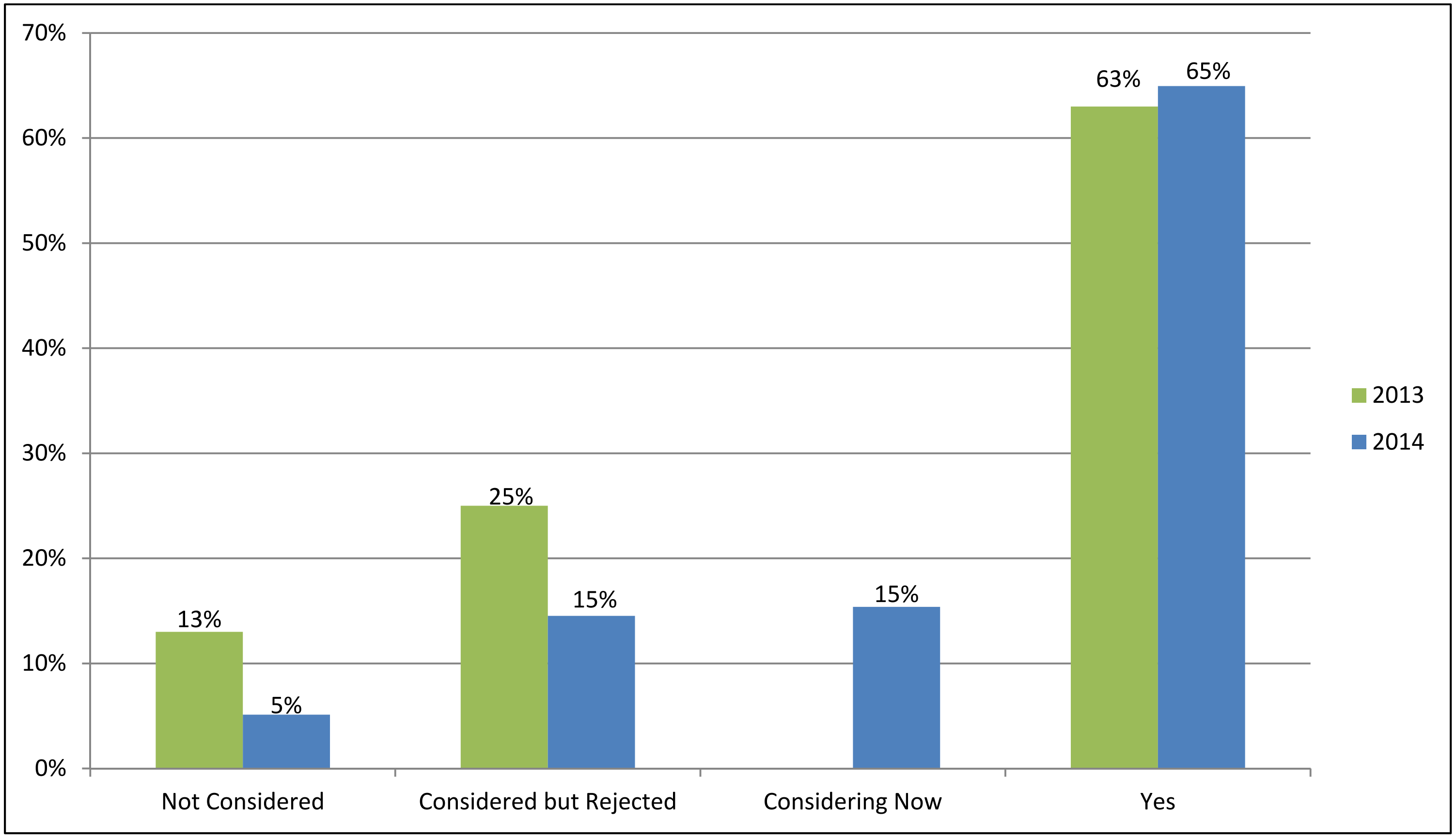
Estimated Funded Ratios

- **Estimated funded status rebounded since 2013, roughly 55% of respondents had an estimated funded status above 90% in 2014**
- **Only 9% of respondents had an estimated funded status below 80%, down from 18% in 2013**
- **There was no material difference in funded status between large and small plans**



Liability Driven Investing (LDI) Usage

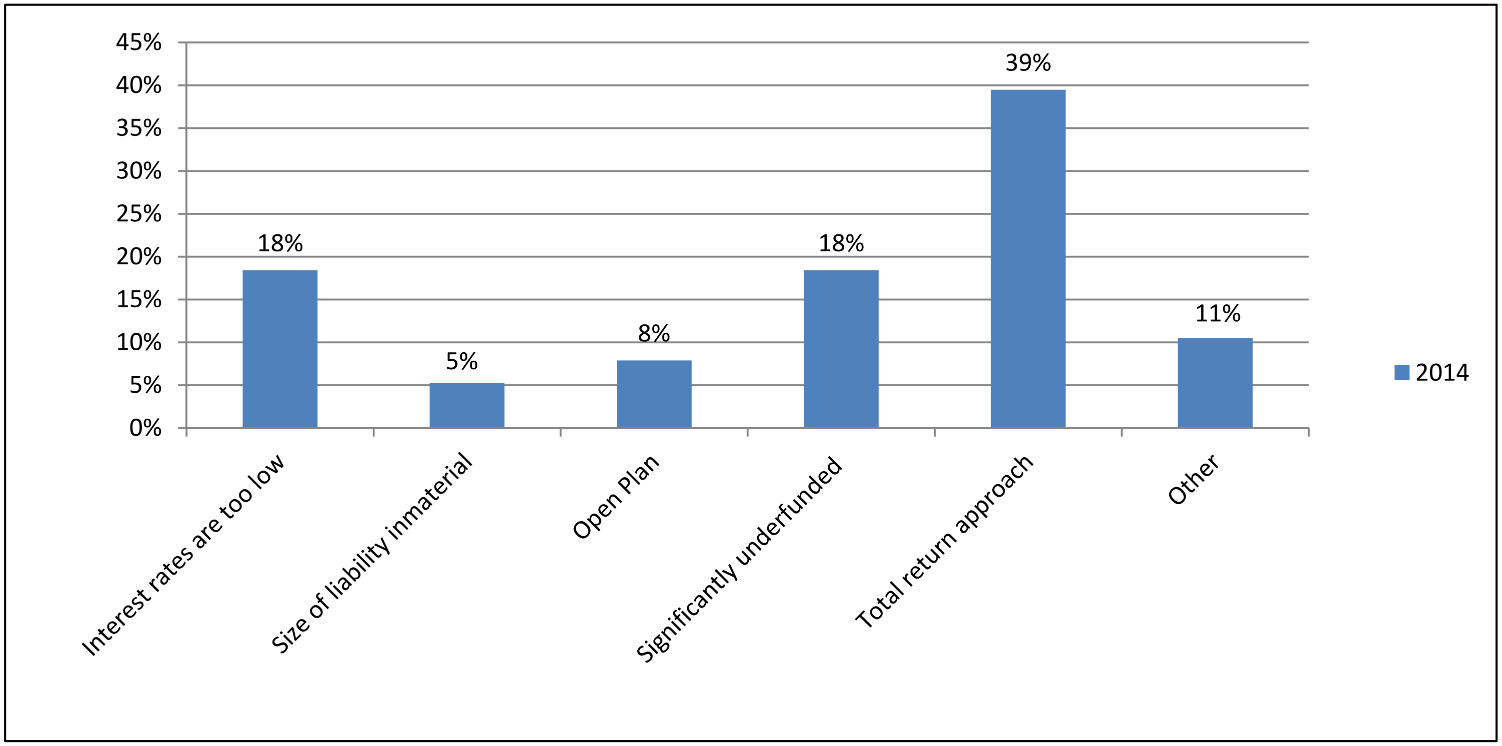
- **A majority of plans use LDI (65%) with an additional 15% considering LDI now**
- **Plan size was not an indicator**



- **Those that said they have not considered LDI or considered but rejected were asked "Why not?"**

- **A large number responded that they wanted to maintain a total return approach (39%) as 60% of those respondents had open plans**

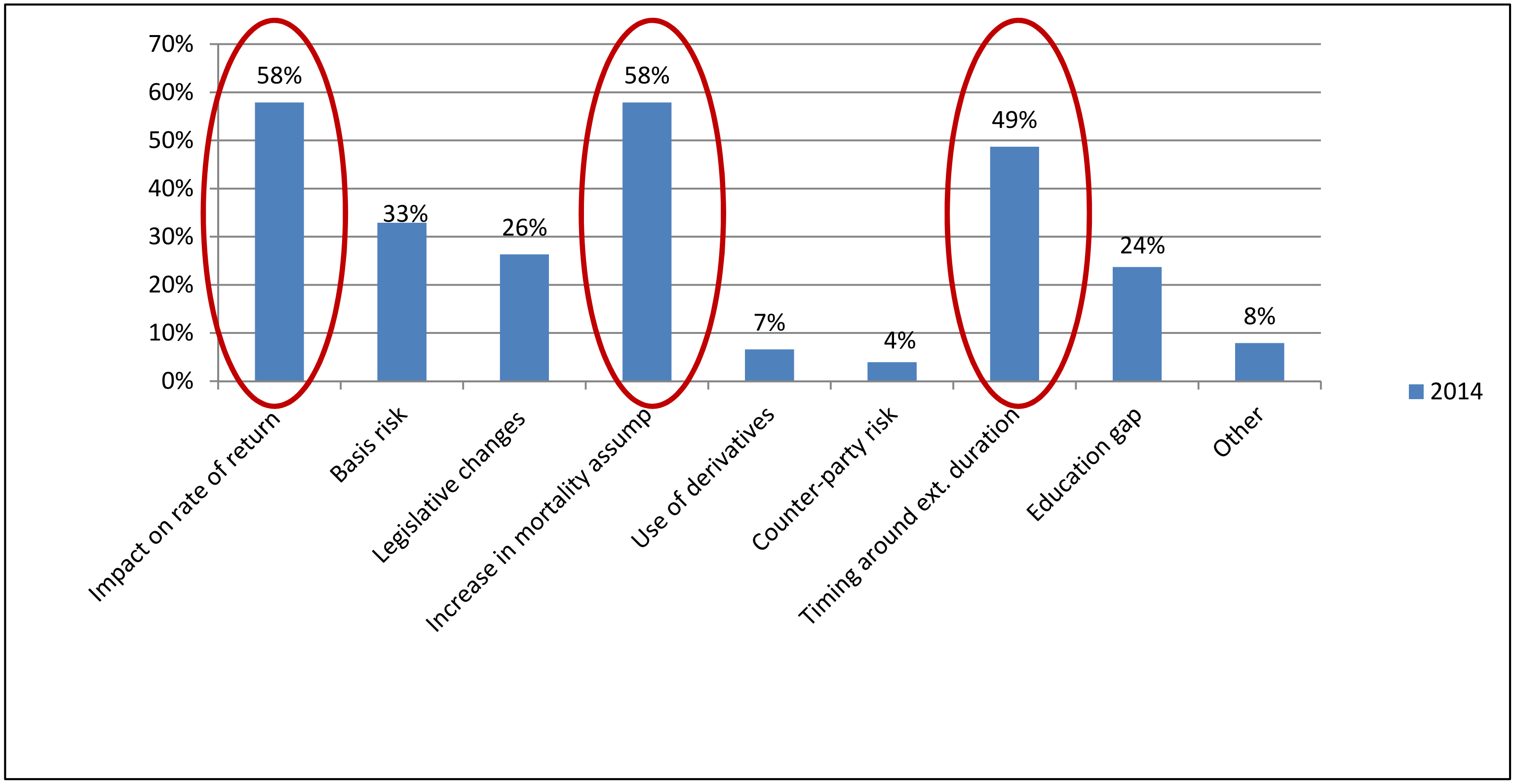
- **The low interest rate environment was not a driving factor for LDI implementation**



Concerns Around LDI[1]

- **Respondents were asked what their top three concerns/challenges were when implementing or thinking about LDI**

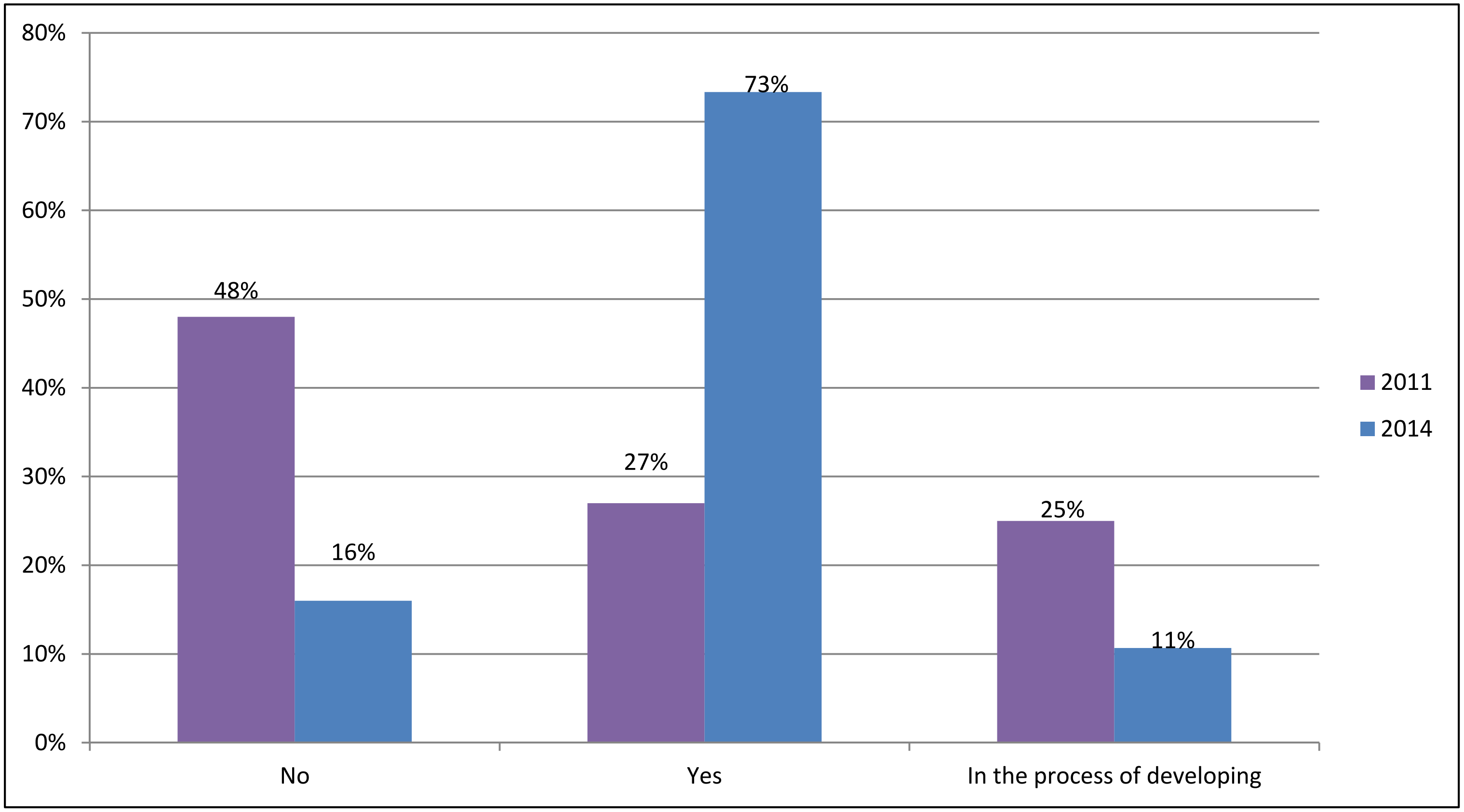
- **The majority are concerned with: impact on expected rate of return, mortality table changes and the timing of extending duration due to low interest rates**



[1] Respondents were able to select more than one response

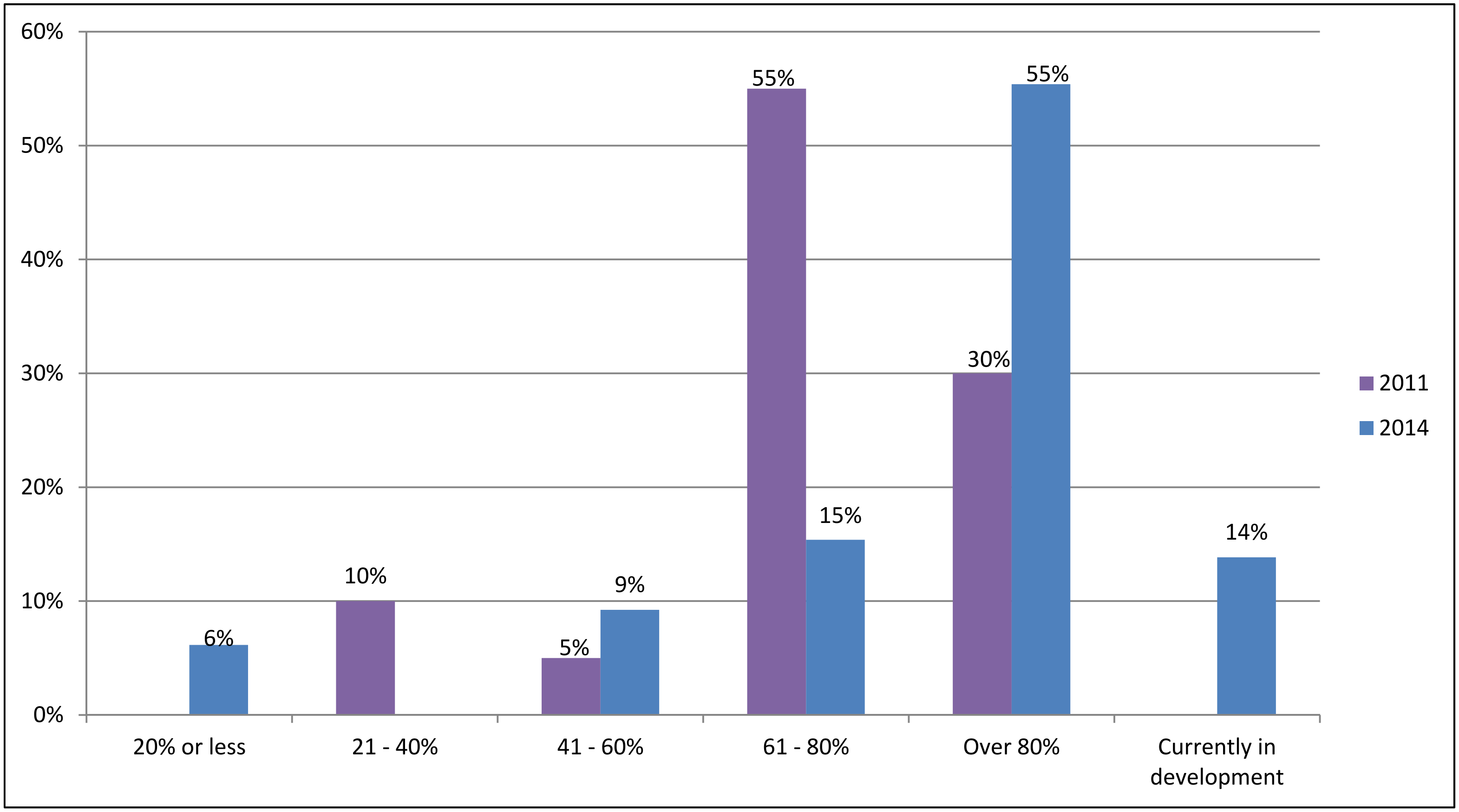
Glide Paths

- **Since NEPC began the survey in 2011, 73% of plans have developed a glide path with an additional 11% in the process of developing**
- **Almost half of the plans that don't have a glide path in place said they will re-visit when funded status reaches a predetermined level**



Hedge Ratios

- **Over ½ the plans that have a long-term hedge ratio are targeting over 80%**
- **The target hedge ratios were plan specific - plan size or funded status was not an indicator**



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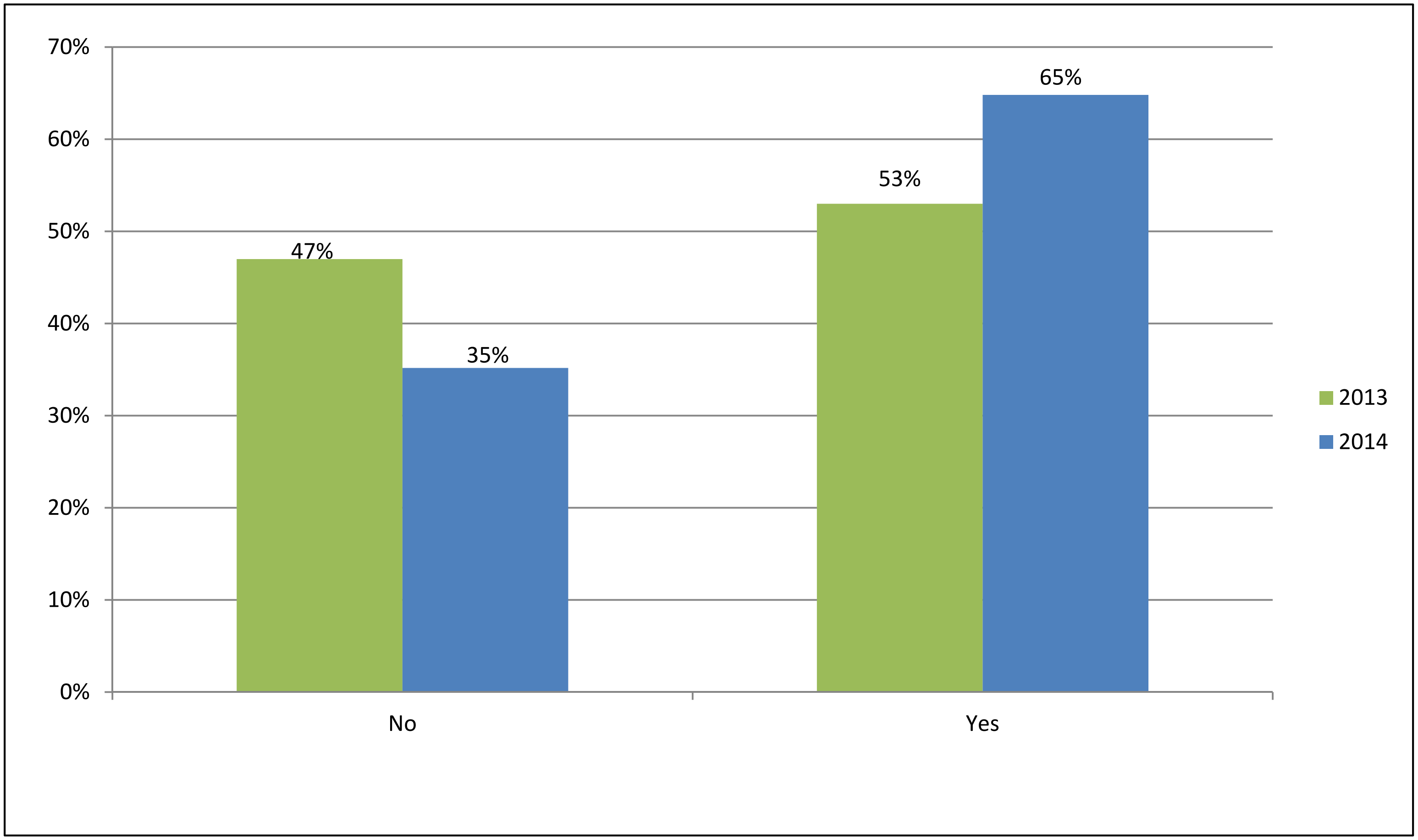
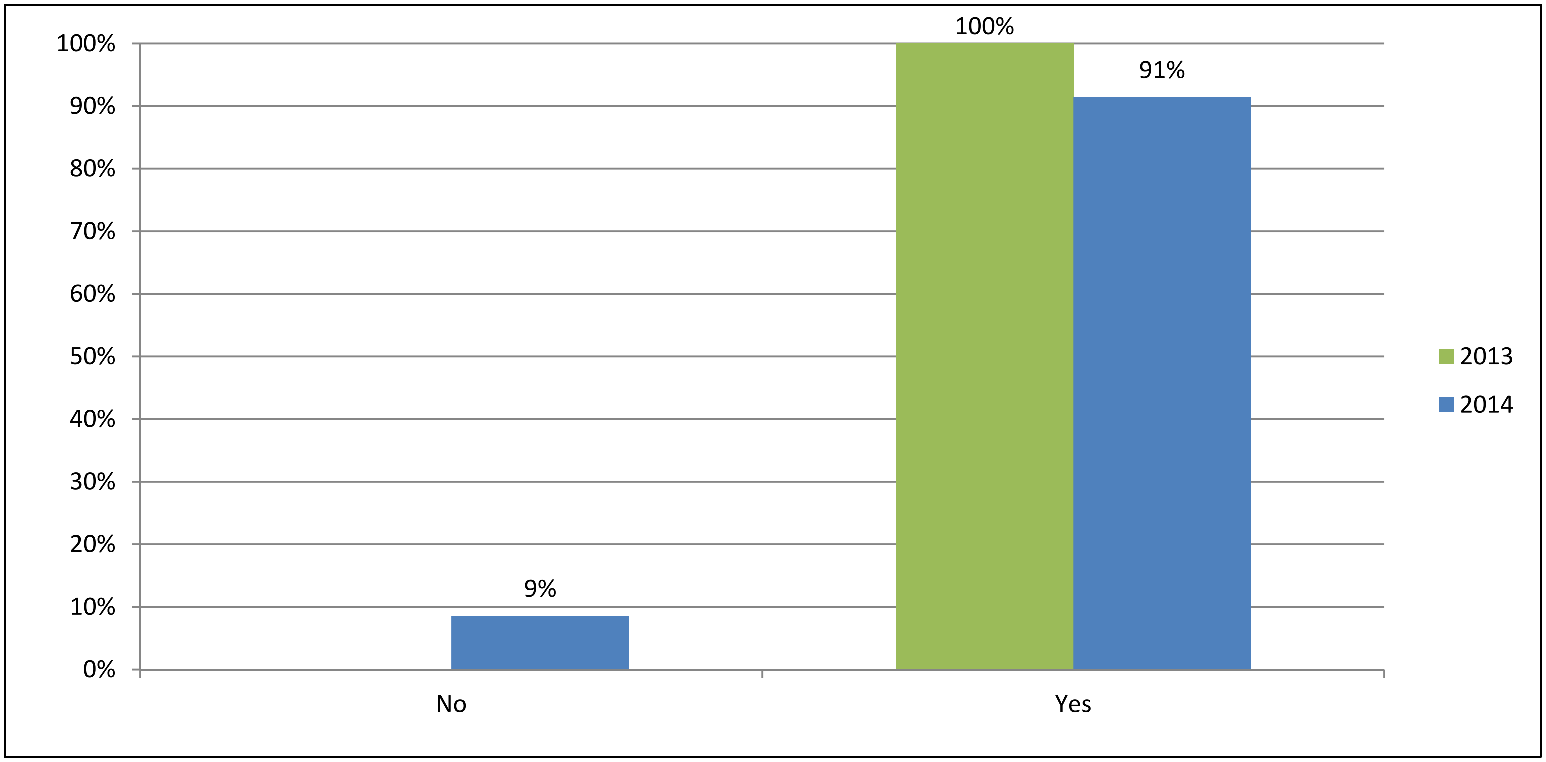
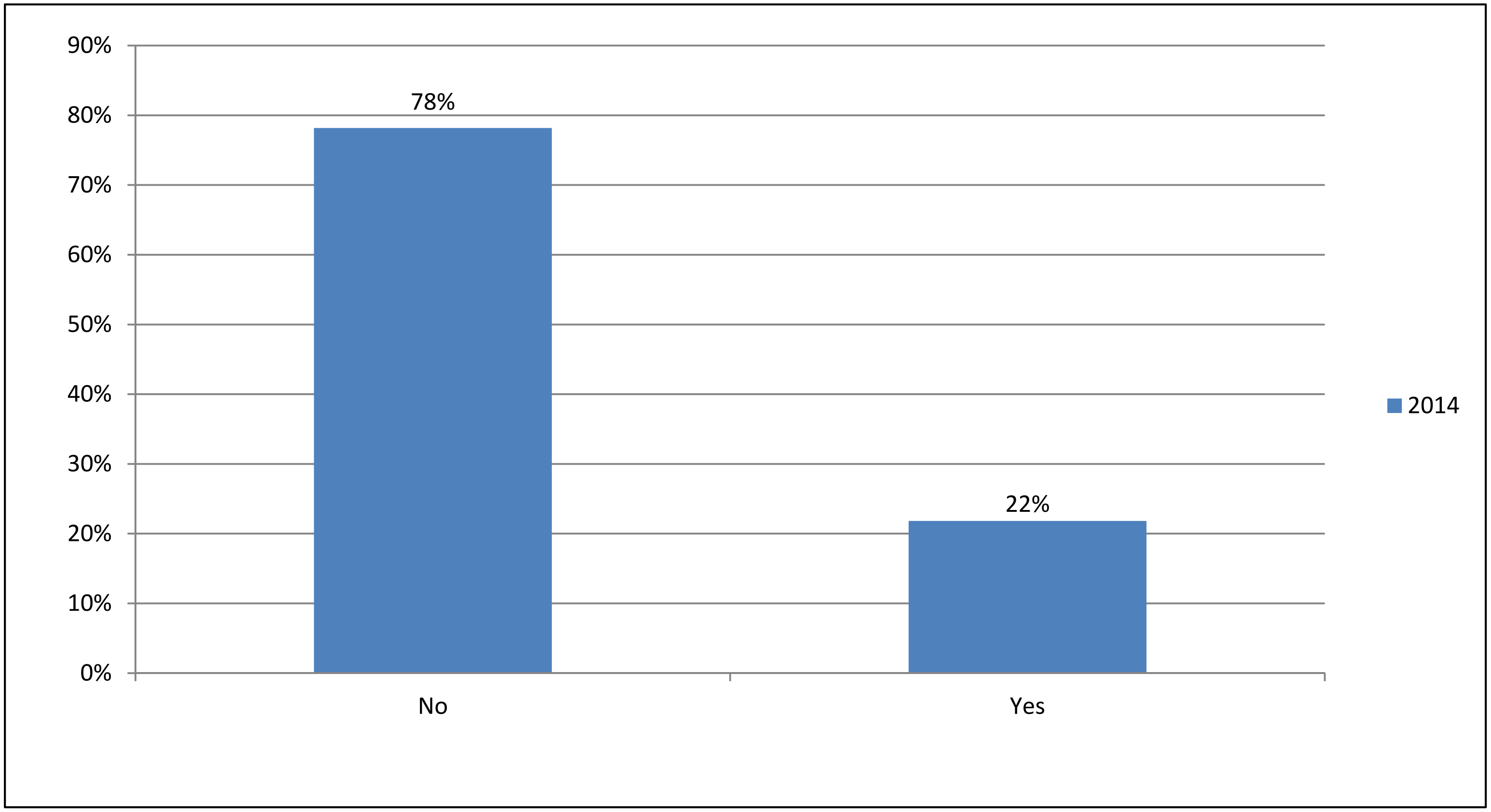
- **A majority of plans with a glide path hit a trigger in the last 12 months**



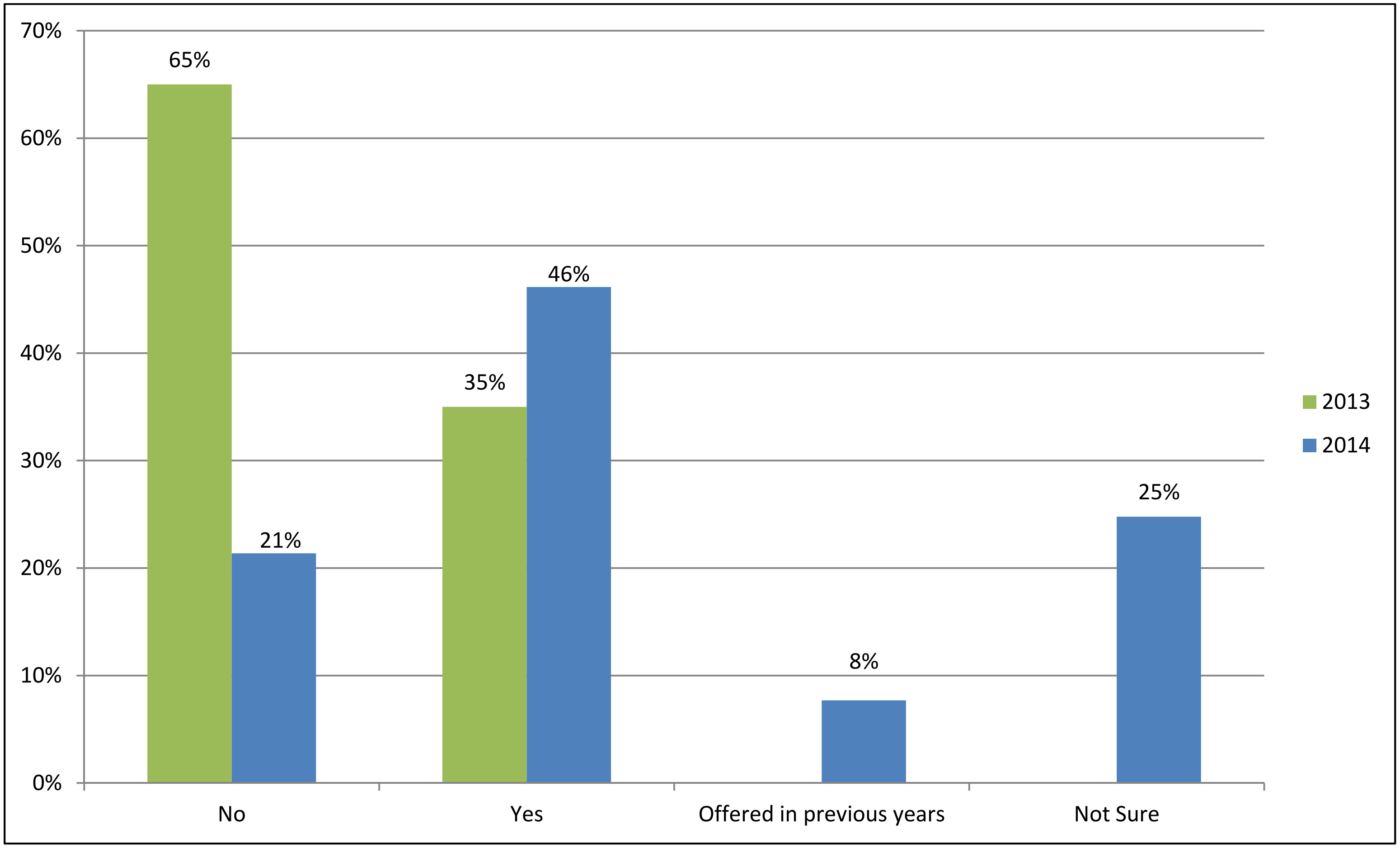
- **A majority of plan sponsors took action when the triggers were hit**
- **80% of the respondents said a change in funded status was the main reason**
- **However, some plan sponsors delayed action due to the low interest rate environment and future mortality table changes**



- **Respondents were asked if they made any changes to their glide path due to market expectations or legislative issues**
- **Almost a quarter of respondents have made changes demonstrating that glide paths still need ongoing review**

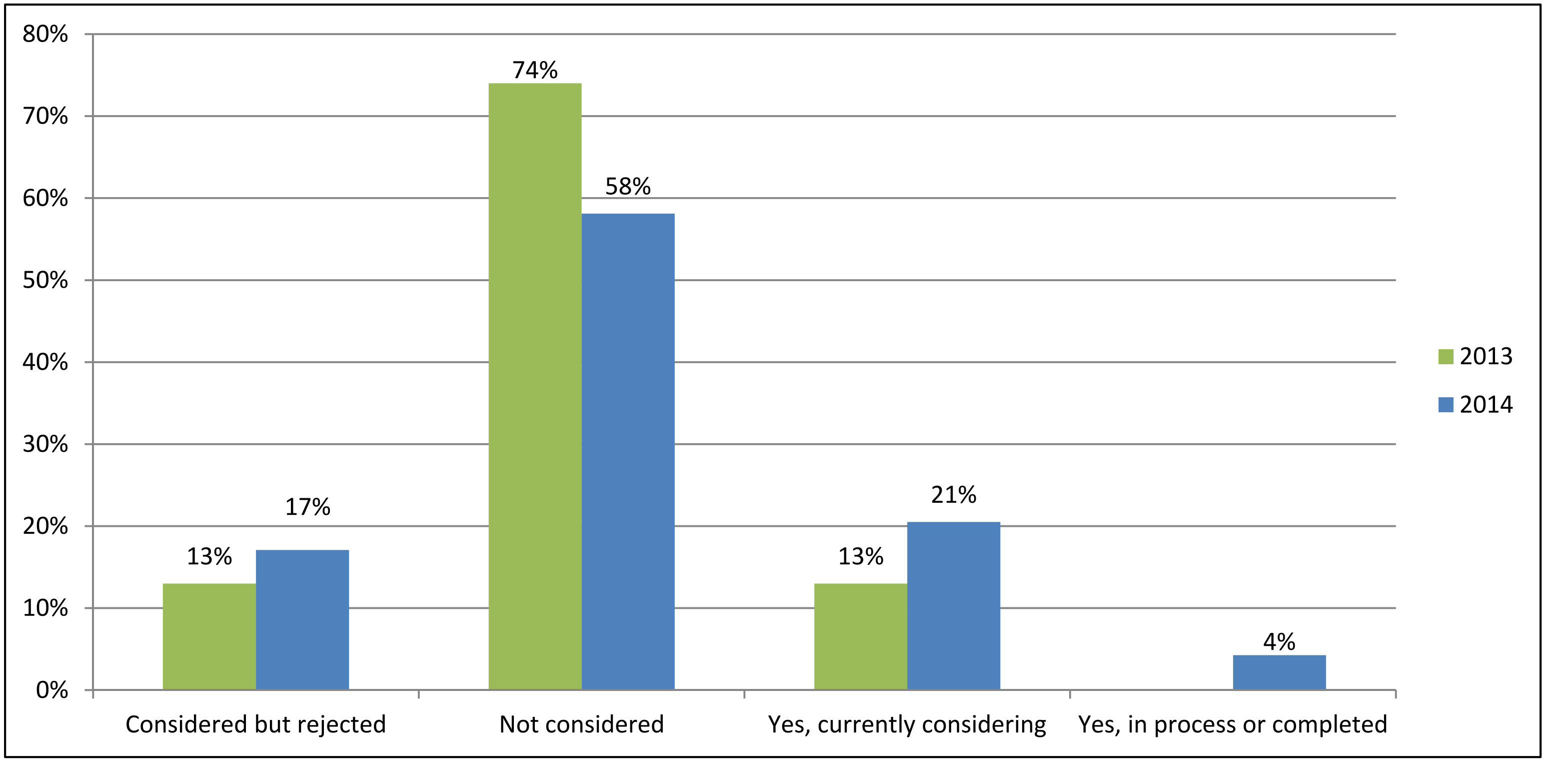


- **When asked if lump sums would be offered this year, almost half of respondents said yes they will offer or have already offered**



Majority of Plans are *NOT* Considering Annuity Purchases

- **Only 25% of plans are considering or completing an annuity purchase**
- **Of those plans considering or completing: 93% utilize LDI and 70% have a funded status above 90% (Plan size was not an indicator)**
- **The majority of plans state cost as the number one reason for not considering an annuity purchase**



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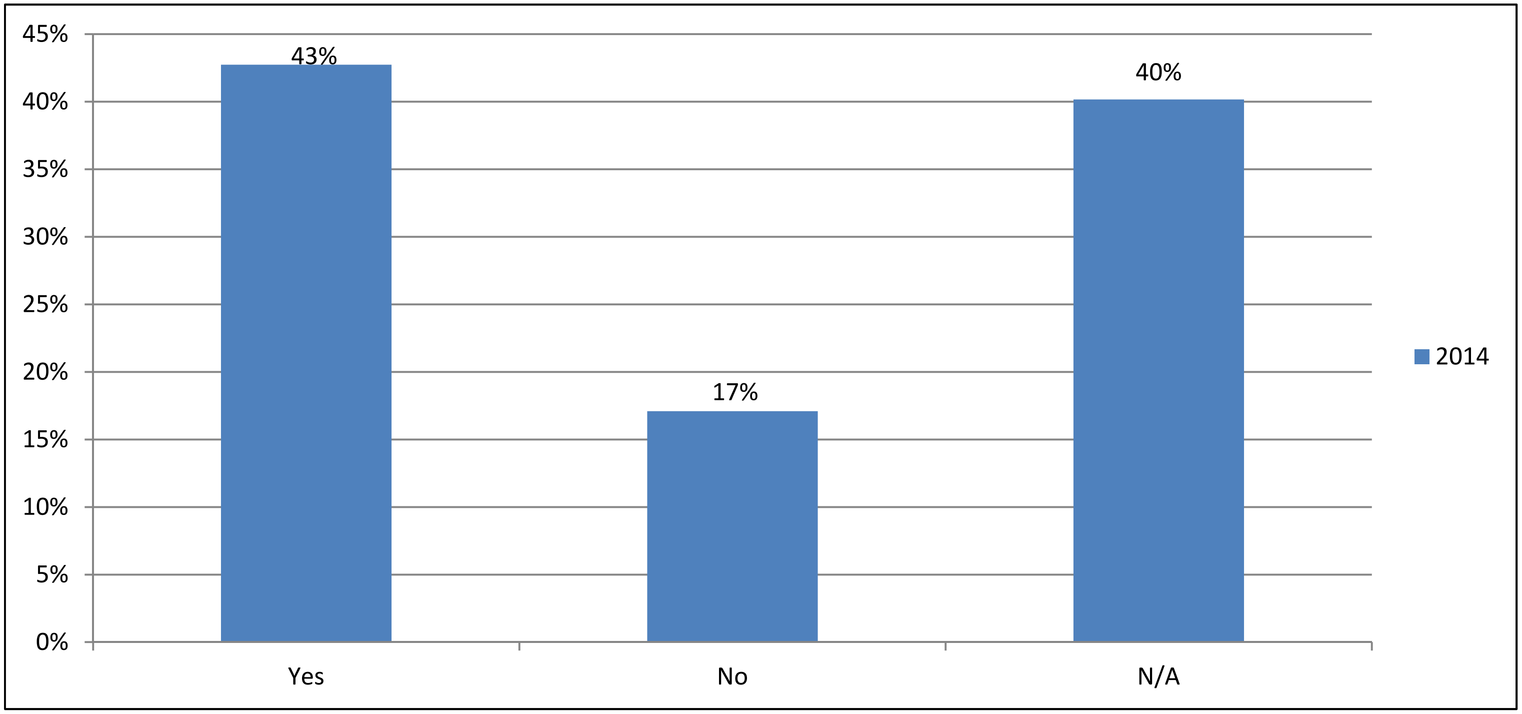
Plan Hibernation Strategy[1]

- **Almost half of the respondents said they would consider a Plan Hibernation strategy as an alternative to annuitization**
- **Of those respondents that are interested in a Plan Hibernation strategy, 90% had a closed or frozen plan**
- **There was also a large number that responded "not applicable" concluding that more education around these strategies may be needed**



[1] A low tracking error plan hibernation strategy has the ability to reduce funded status volatility to 1-4%

Managing Risk at Glide Path End State

What is Goal For Frozen Plan?

- **What is the goal once a plan achieves full funding?**
- **What is the acceptable level of volatility in pension expense on financial statements?**
  - Very little economic benefit to growing pension surplus to 150% (sponsor can't directly access surplus)
  - If funded status falls, the sponsor may be required to make additional contributions
- **How long will the plan be maintained?**
  - Does plan sponsor view termination premium as a good use of corporate cash?
  - At some point we expect all frozen plans will terminate
- **What risk mitigation strategies are currently being considered by plan sponsors?**
  - Payment of lump sums
  - Partial annuitization
  - Plan termination
  - **Plan Hibernation (not just for bears)**

Plan Hibernation versus Annuitization

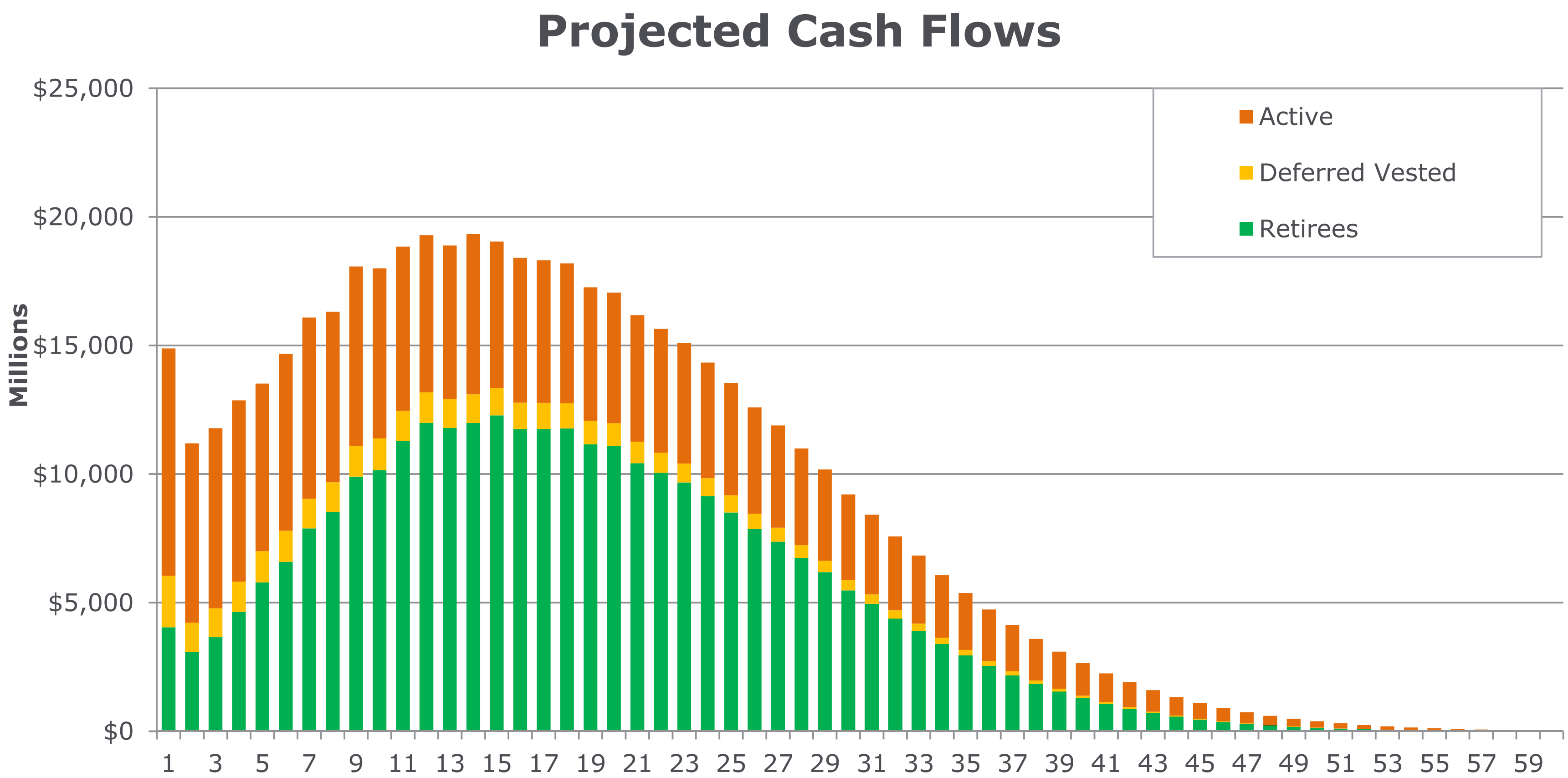
- **Annuitization removes liabilities from the balance sheet**
  - Requires payment of termination premium to insurance carrier

- **Plan hibernation is an active investment strategy that seeks to minimize surplus volatility by allocating the majority of plan assets to LDI investment solutions**

- **A well designed hibernation strategy should be able to reduce surplus volatility to between 1% and 4%**
  - Can be defined by key rate duration match or cash flow matching
  - Investment horizon is a key factor

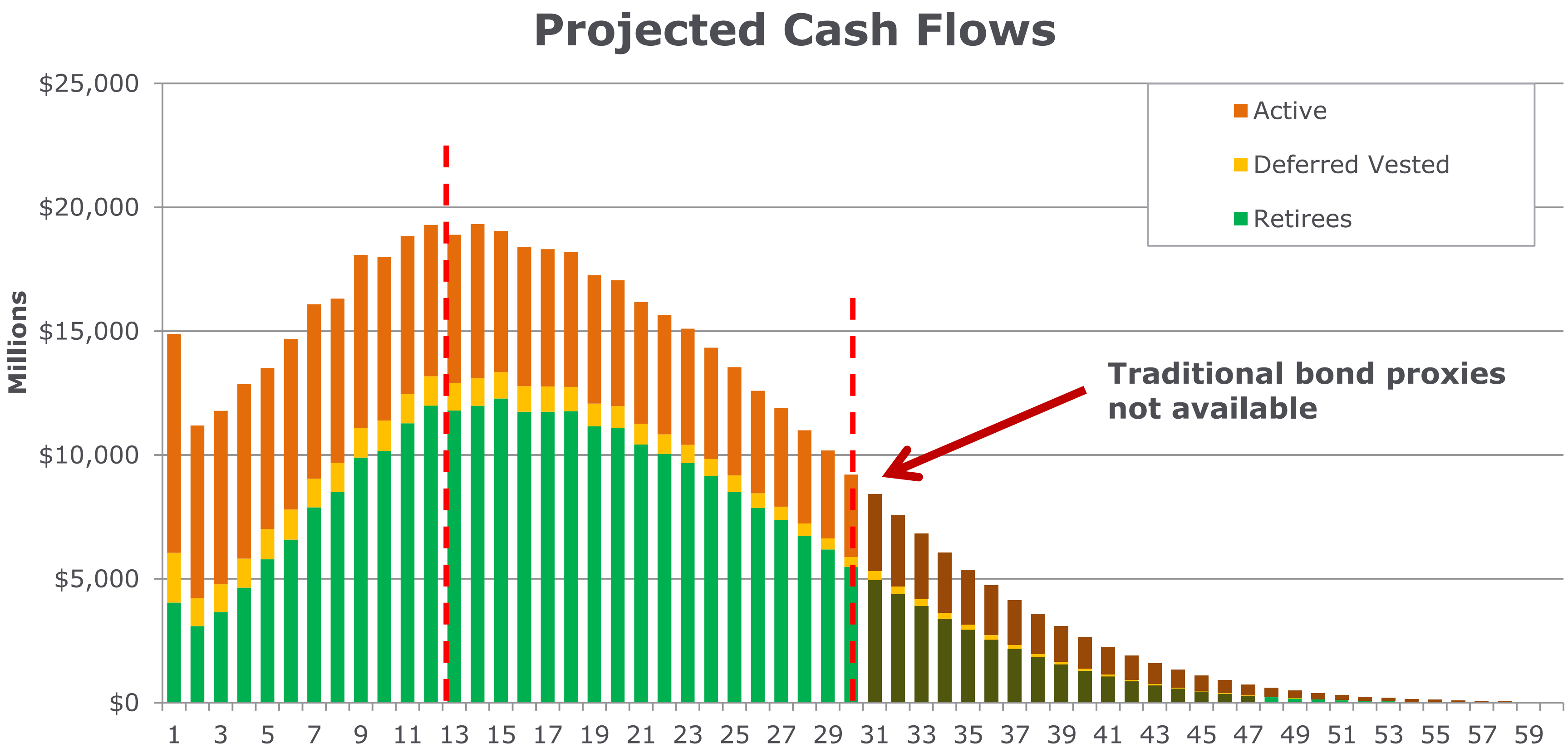
Cash Flow Hedging

- **Some plan sponsors (21%)[1] are currently evaluating merits of annuitizing some portion of the liability**
- **Need to evaluate the separate liability streams and key rate durations**
- **Liabilities that remain are typically more expensive to settle**



[1]NEPC 2014 Corporate DB Trends Survey

- **Easier to hedge credit and rate exposure for shorter-term liabilities**
- **As liabilities extend beyond 30 years, need to recognize additional basis risk associated with hedging strategy**
- **Investment horizon will impact hibernation strategy**



Time Horizon Can Impact Hibernation Strategy[1]

- **Shorter-term hibernation strategies can help prepare plans for eventual termination and reduce termination premium**
- **Longer-term hibernation strategies can leverage expected investment horizon and seek to partially offset longevity risk while reducing surplus risk**
- **Customized LDI fixed income portfolio can be developed to better match key rate liability durations**

	5 Year Hibernation	20 Year Hibernation
Cash	**5%**	**5%**
Return Seeking Assets	0%	10 – 20%
Total Return Seeking Assets	**0%**	**10 - 20%**
IG Corp Credit	40%	30%
Long Treasuries	15%	20%
Long Credit	40%	35%
Total Hedging Assets	**95%**	**85%**

Funded Status	**115%**	**115%**
Interest Rate Hedge Ratio	**100%**	**80 - 100%**

Geometric Expected Return	**5.4%**	**5.9%**
Sharpe Ratio	**0.17**	**0.23**

[1]Hypothetical asset allocation - for illustrative purposes only.

- **The primary investment goal of a hibernation strategy is to protect funded status and provide an alternative to plan termination**
  - Prepares plan for eventual termination and can reduce insurance premium
- **Hibernation strategies are client specific and can vary depending upon risk tolerances and estimated investment horizon**
- **Hibernation strategies need to be dynamic and should be adjusted on an annual basis to reflect best estimate of future cash flows**
  - Duration does decay over time as benefits are paid to beneficiaries
  - The decay rate is very predictable
  - Need to update hedging strategy on an annual basis

Plan Hibernation Costs

- **The economic decision to hibernate or annuitize is typically an ongoing decision**
  - Consider costs of hibernation with expected cost of termination
  - Hibernation fees include: investment management, actuarial, custodial, consulting, legal, audit, PBGC fixed premiums
  - Termination fees include: termination premium
- **The decision to hibernate or annuitize will not always be a financial decision**
  - Some sponsors simply want plan to go away
  - Other sponsors made the promise and believe they should write the last check
- **Under a hibernation strategy, estimated termination costs will continue to fluctuate**
  - Mature plans with large benefit payments are ideal candidates for hibernation strategy
- **Hibernation strategy is a viable alternative to plan termination**
  - Natural extension of glide path strategy and represents glide path endpoint
  - Can reduce expected termination premium
- **Hibernation strategy is not risk free**
  - Plan retains longevity, actuarial and investment risks
  - Longer-term hibernation strategies should utilize return-seeking assets to better hedge mortality and actuarial basis risks

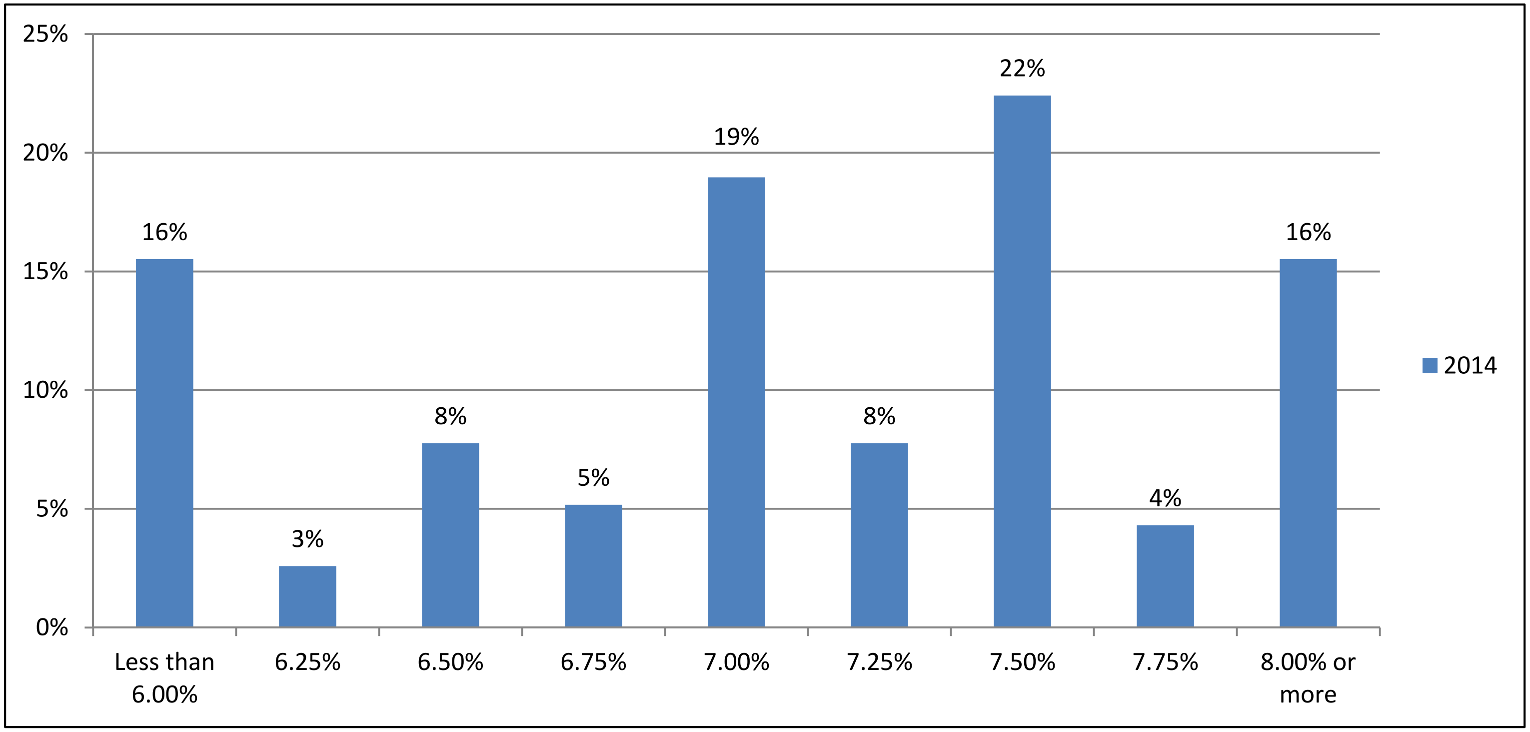
Conclusion

Conclusion

- **Funded status estimates can be volatile as we have witnessed from 2013 and 2014**
- **Plan sponsors that implemented LDI and have glide paths in place are evaluating what to do next**
- **Plans that delayed a de-risking action on their glide path may have seen a reduction in funded status**
- **Given upcoming changes to mortality tables it is important to revisit glide paths**
- **Plan termination is not for everyone and there are other options available**
- **Plan Hibernation is a viable solution for mature plans that are frozen and reaching a fully funded status**

Appendix

- **The use of "8% or More" as a return assumption continued to decline from previous years: 43% in 2011, 31% in 2012, 26% in 2013**
- **However, 42% of plans had a long-term return assumption of more than 7.5% (down from 56% in 2013) - plan size or status was not an indicator, however over 60% utilized LDI**
- **Over half of the plans with a long-term return assumption of under 7% were frozen and over 80% utilized LDI**



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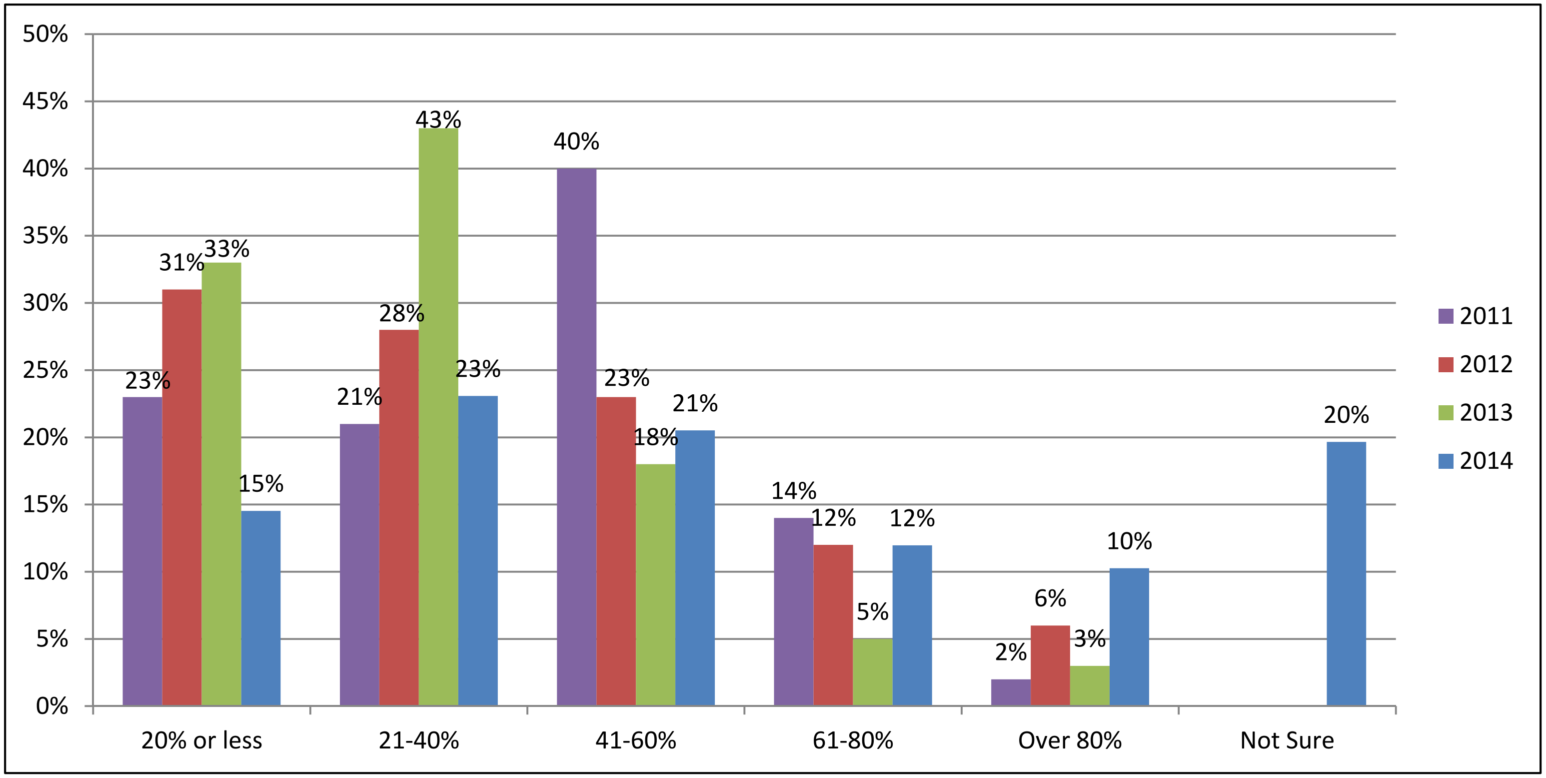

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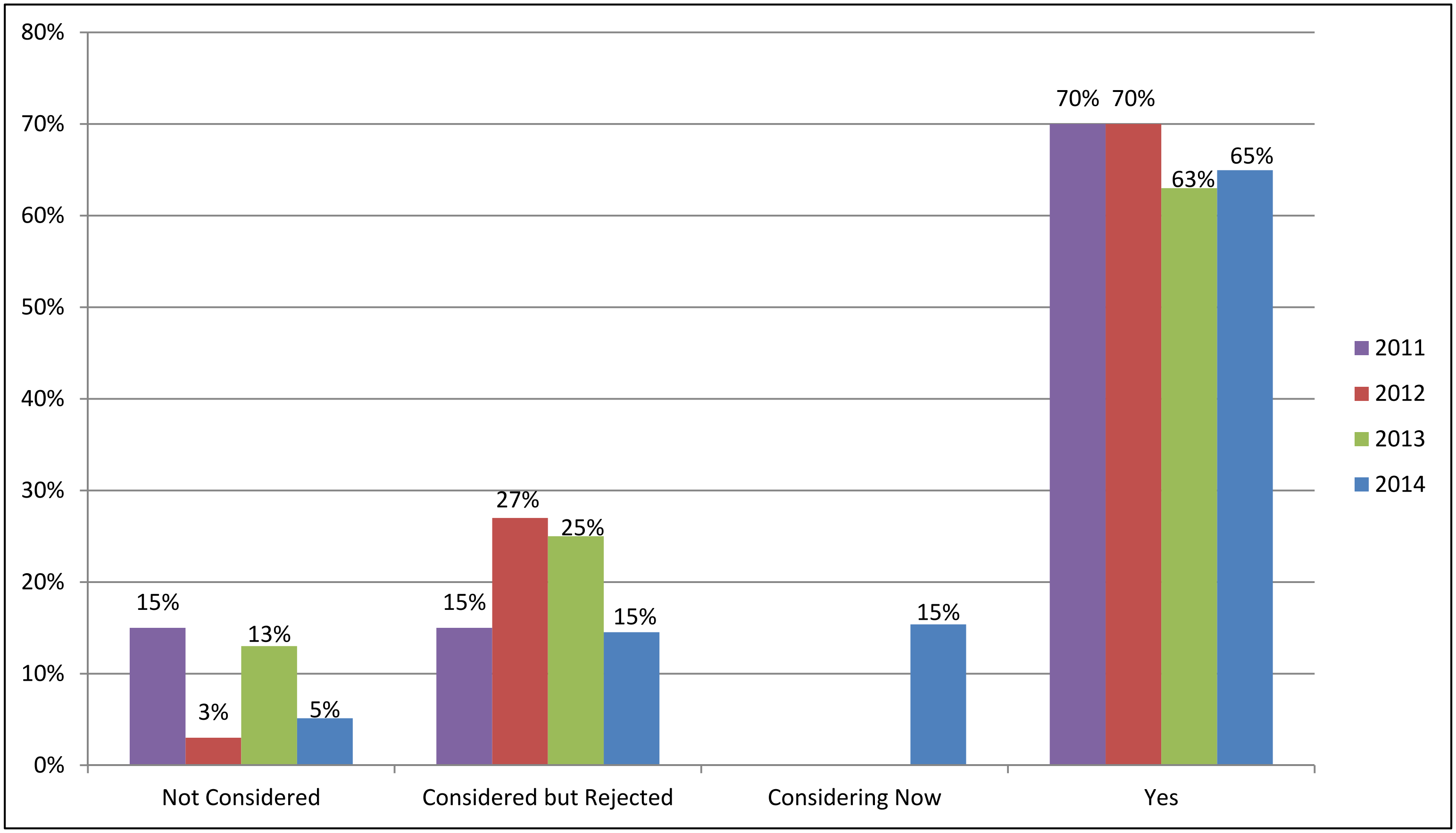
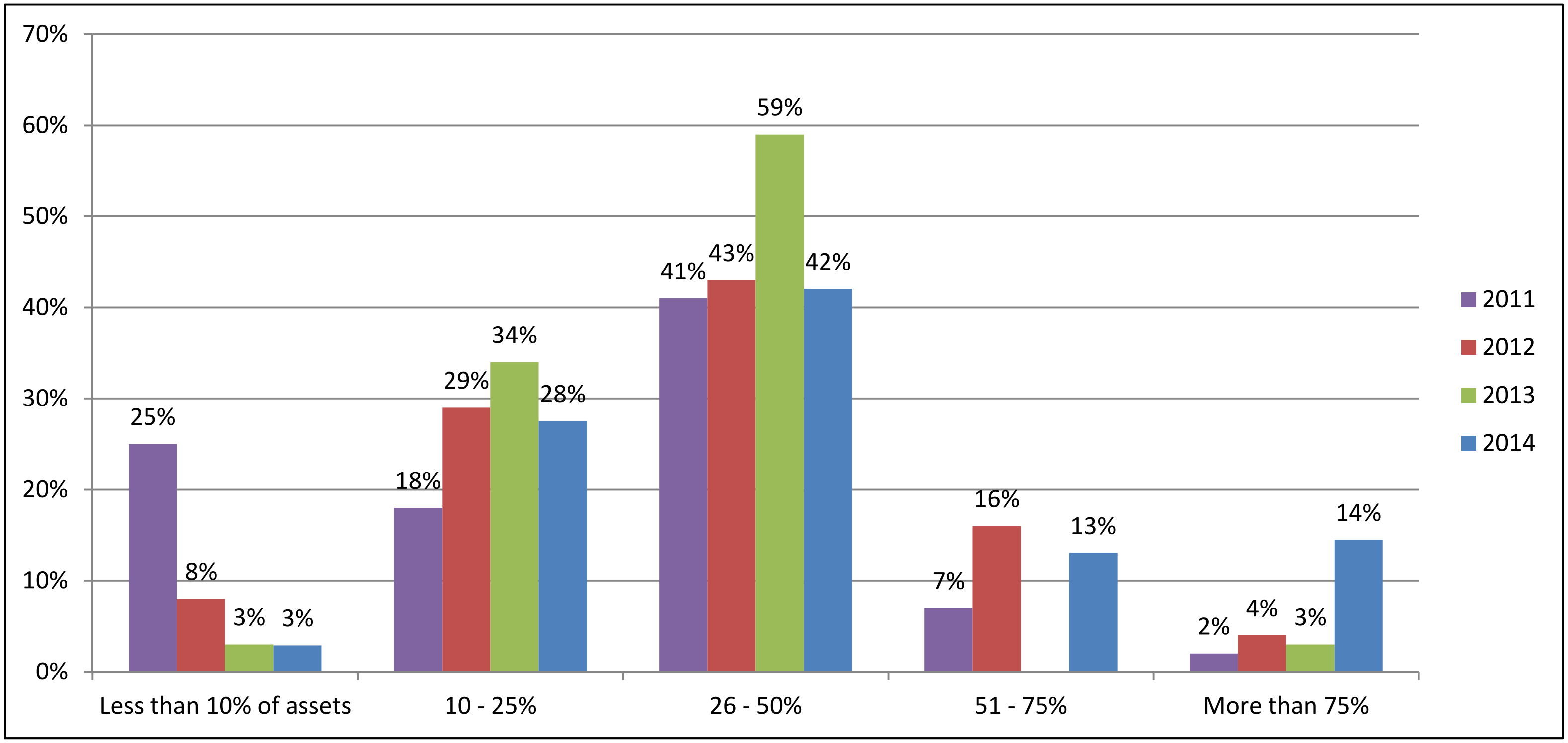


LDI Commitment

- **Plans reported an increase in the percentage allocated to LDI**
  - 27% of plans had more than a 50% allocation to LDI investments compared to 3% in 2013.
- **Generally larger plans reported a higher percentage allocated to LDI assets**
- **Funded status was not a key indicator**

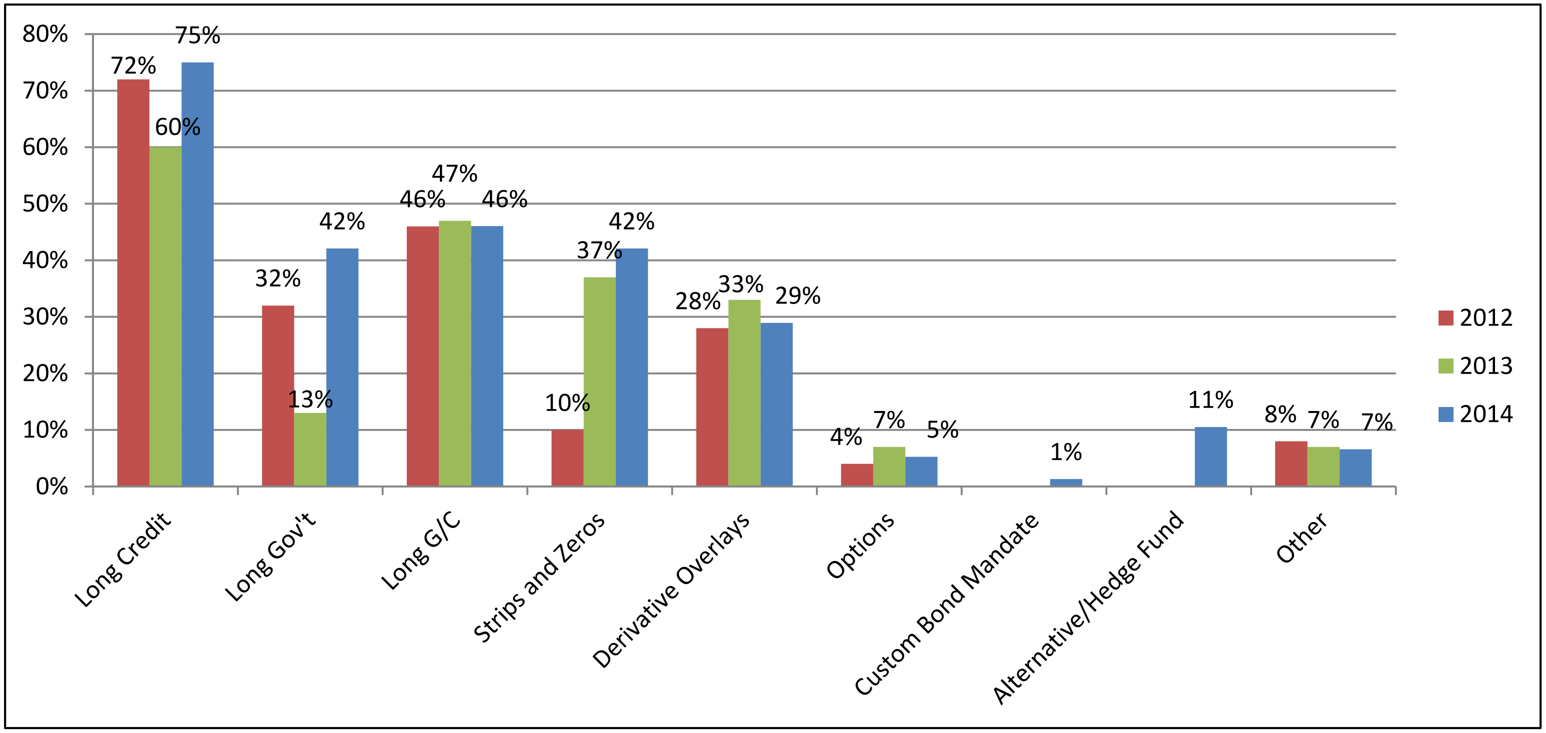


Types of LDI Investments

- **The majority of respondents continued to use Long Credit as their primary LDI investment**

- **However, there are a growing number of respondents reported using custom, alternatives and other investments such as absolute return fixed income**

- **In addition, the utilization of Treasury STRIPS also increased over the past couple years**



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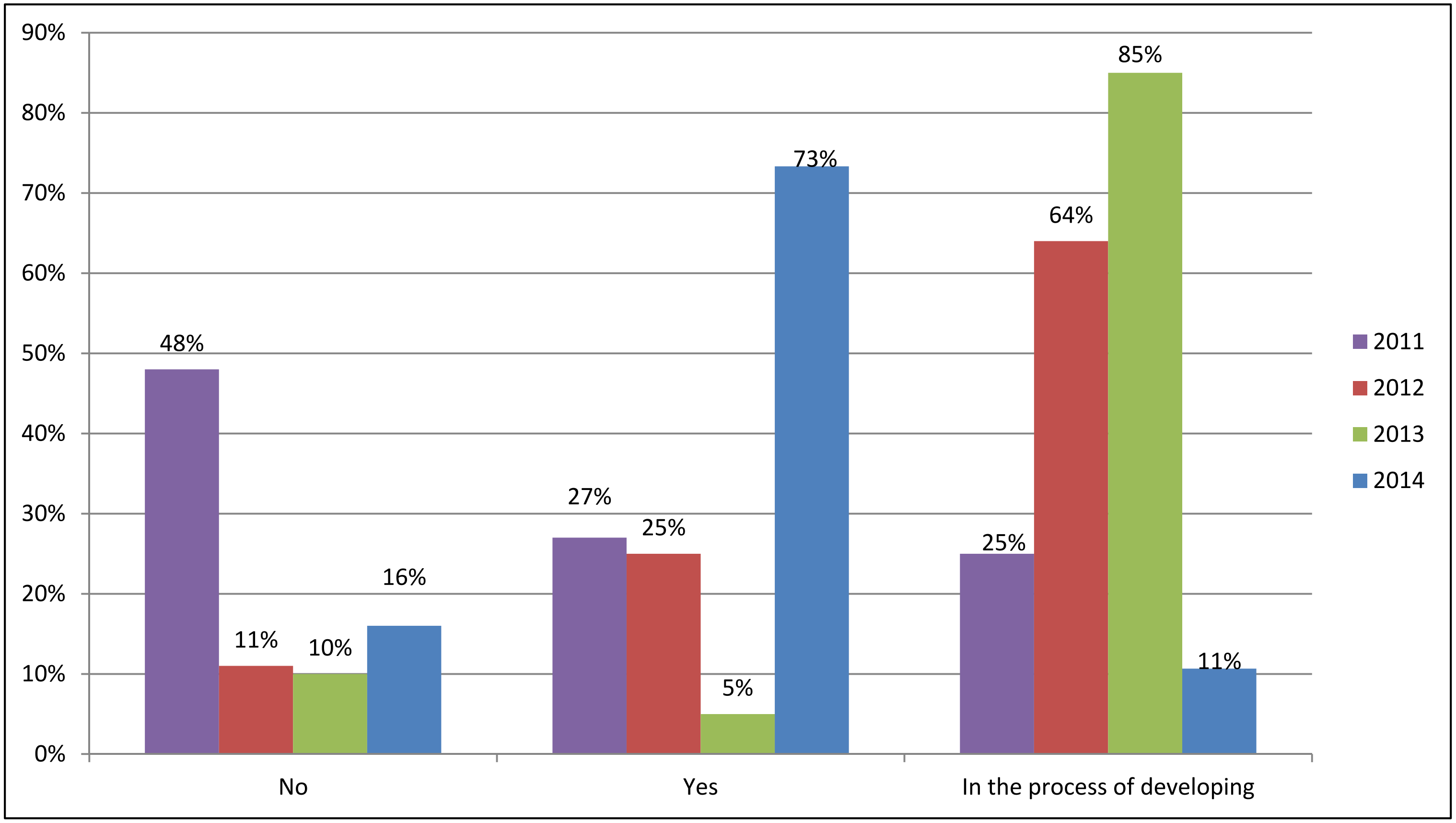

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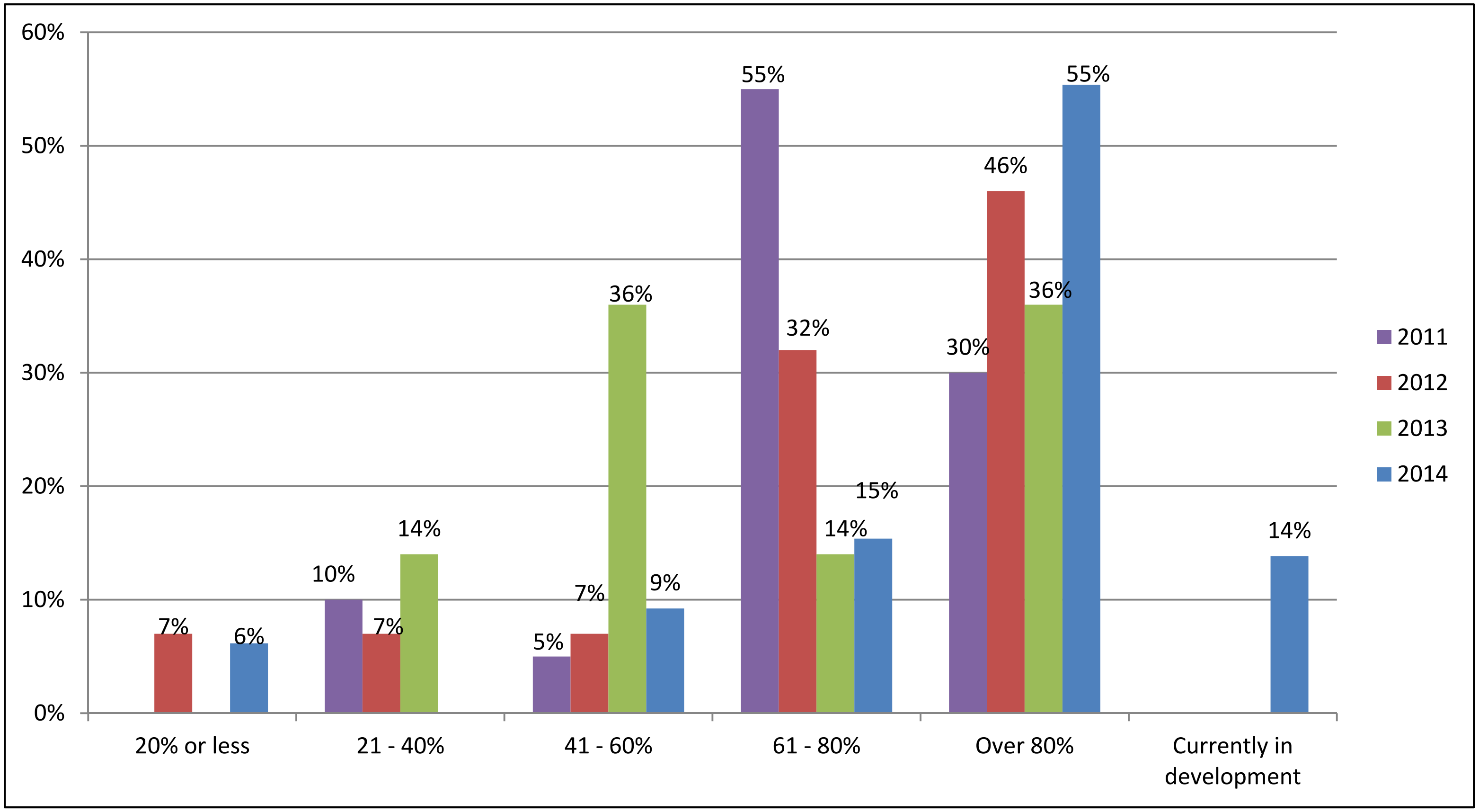

Disclosure

Disclaimer / Disclosures

- **Data used to prepare this report was obtained directly from the plans surveyed and other external sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**

- **Past performance is no guarantee of future results.**

- **Any opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**

- **All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**

- **This report contains summary information regarding the investment management approaches described herein but is not a complete description of the investment objectives, portfolio management and research that supports these approaches. This analysis does not constitute a recommendation to implement any of the aforementioned approaches.**