OXFORD ECONOMICS
AUSTRALIA

# AEMO COST OF CAPITAL SURVEY 2023

## Prepared for AEMO's Forecasting Reference Group

28-06-2023

# Project Background

## Background and Purpose

- Oxford Economics Australia was commissioned to conduct a market survey to assess the reasonableness of cost of capital estimates provided by Synergies Economic Consulting in December 2022.
- Additionally, we were asked to investigate the impact macroeconomic factors, policy, jurisdiction and asset types have on the cost of capital.

## Approach

- Oxford Economics Australia consulted with energy market participants covering Asset Owners/Developers, Investors/Lenders, Network Service Providers and Independent & Government Bodies.
- Oxford Economics reached out to **67** market participants. A total of **19 participants** (28% engagement rate) were involved in either survey or interview, covering **25 asset** types.
- The consultation period was conducted over a 3 week window (19th May- 6th June):
    - Questionnaire Survey (1 week)
    - Follow up interview (2 weeks)

**Fig 1. Survey Participant Distribution**

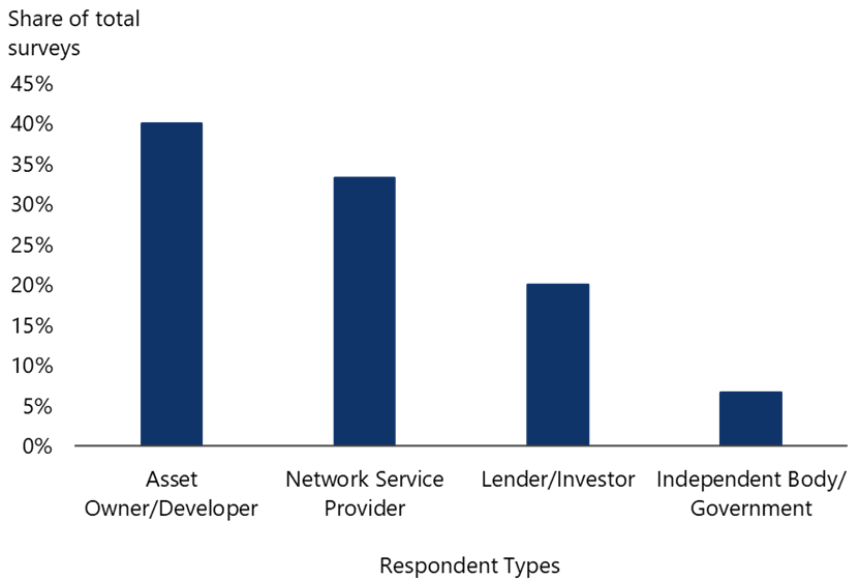
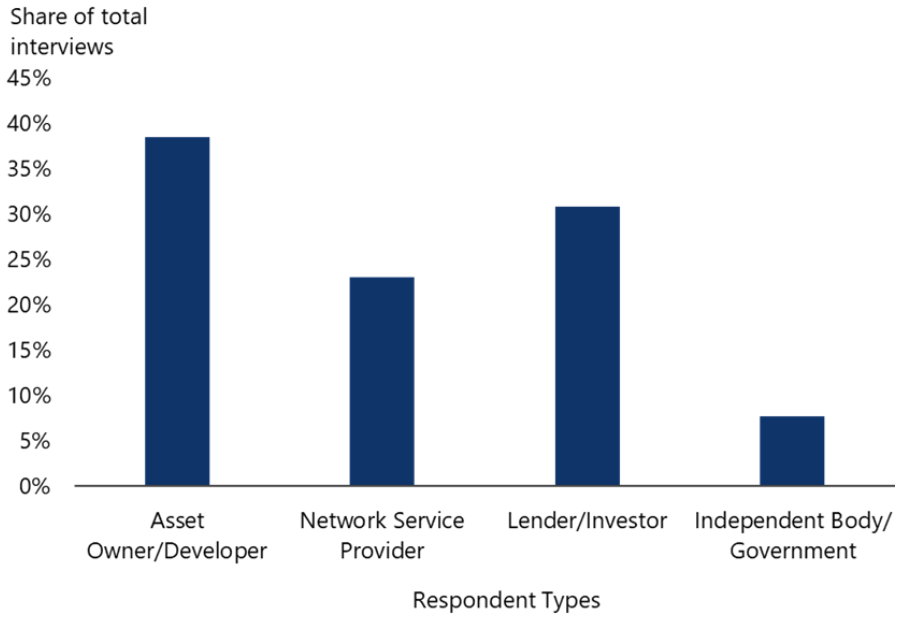



**Fig 2. Interview Participant Distribution**



# Project Summary

## High Level Findings

- The stakeholder-led approach suggests that the central scenario cost of capital estimated by Synergies in December 2022 is reasonable. The survey results for non-regulated assets produce a mean estimate of 7.0% and a median estimate of 6.0%.
- The survey indicates a higher upper bound range for non-regulated assets compared to Synergies' estimates from December (8.8%). For the upper bound, the survey results imply a higher risk premium of 3.4%, taking the WACC to 10.4%.
- The survey results gave a lower bound WACC of 5.4% for non-regulated assets.
- Between the two Synergies reports (issued in Jul-21 and Dec-22) the WACC shifted significantly higher, owing primarily to an increase in the 10 year Treasury yield rate. While the short term cash rate has risen in the last 6 months, the long term rate has remained steady which may explain the similar central scenario results.
- Another important finding from the survey and interview process is that the cost of capital can vary significantly across technology types and type of project (e.g. a greenfield project without grid connection can have a materially different WACC than a brownfield project with an existing connection to the grid).

**Fig 3. Real Pre-Tax WACC Comparison**

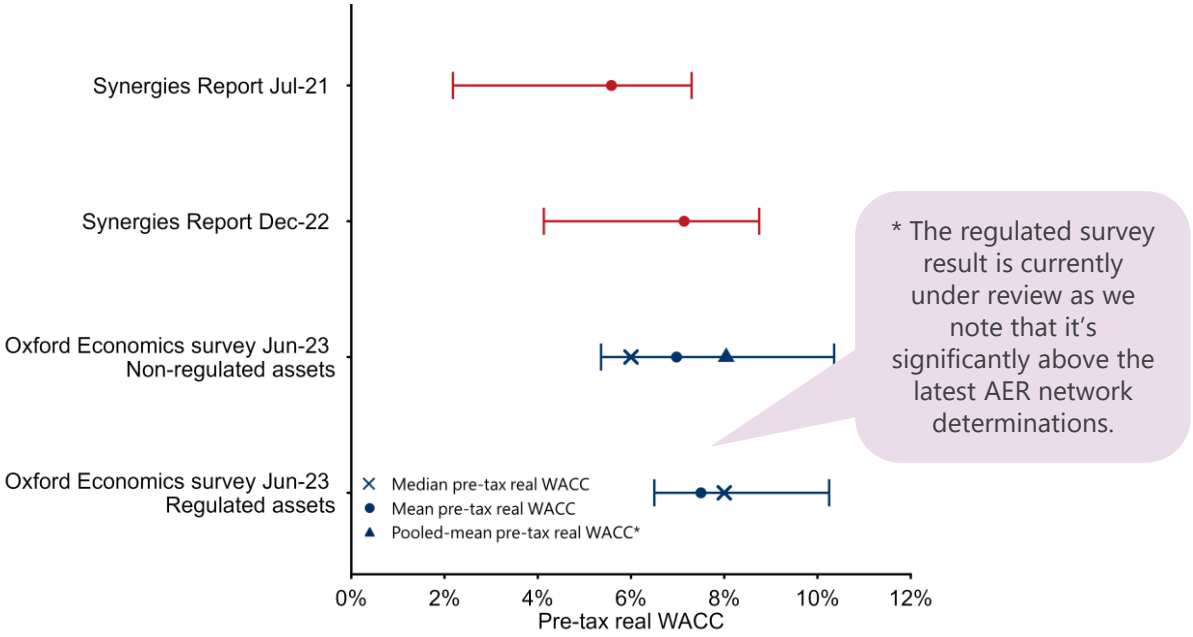
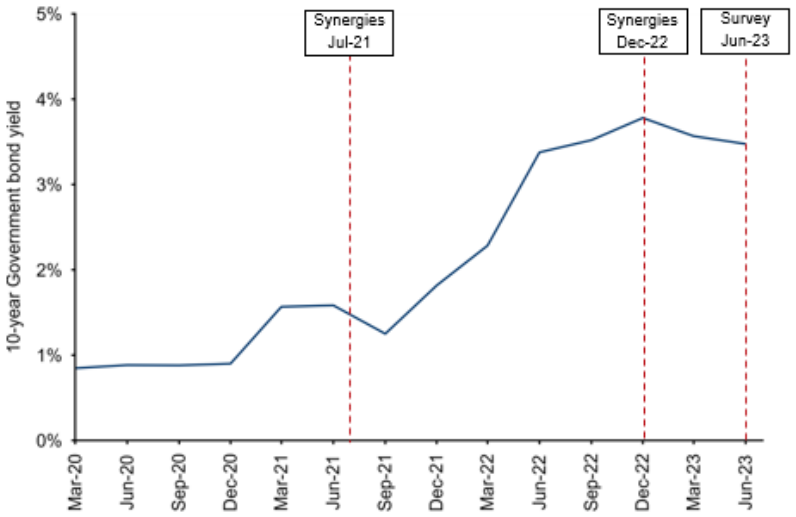



**Fig 4. Australian 10-Year Govt. Bond**



# Key Insights

## 1. Asset Specific Risk Factors

- Survey results indicate the cost of capital varies by asset type.
  - **Battery and storage** had higher revenue risk than wind and solar renewable generation projects resulting in a higher cost of capital required for investment.
  - Regulatory risk was the key risk identified for **Networks** for their regulated asset base. They are relatively insulated from other forms of risk.
  - Revenue risk and physical curtailment were the main risk seen for both **Wind and Solar**. In the case of Wind, participants can mitigate risk through diversification across locations. For Solar project, concentration risk and subsequent negative prices or physical curtailment was consistent concerns.
  - The **Portfolio category** represents a number of assets including fossil fuel and storage solutions not captured in other categories. Sample size was too small and results too varied to provide further information on this category.
- Merchant risk was identified as the most commonly selected and severe risk across survey participants.
- Construction risk was raised in surveys and in a number of interviews. Developers are concerned about skills supply and cost escalation of key asset components.
- Other risks covers all other risks noted by respondents such as new technology and regulatory risk

**Fig 5. Pre-Tax Real WACC by asset type**

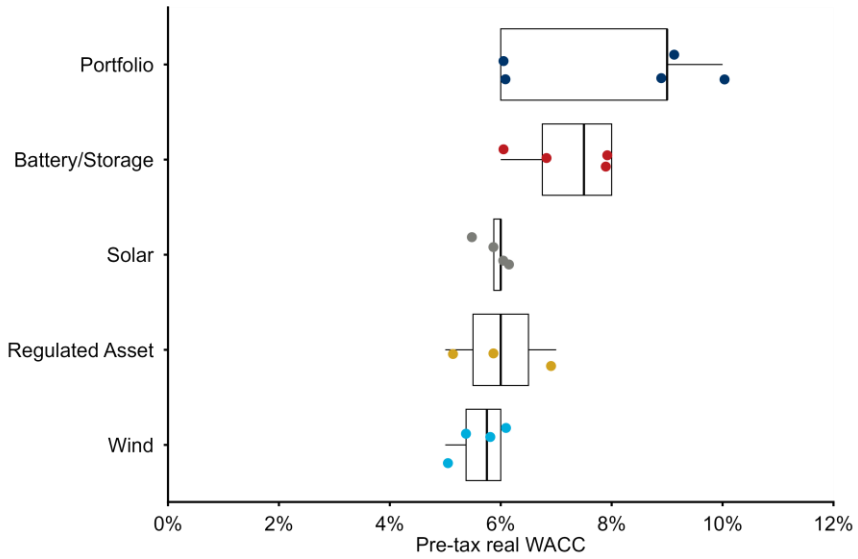
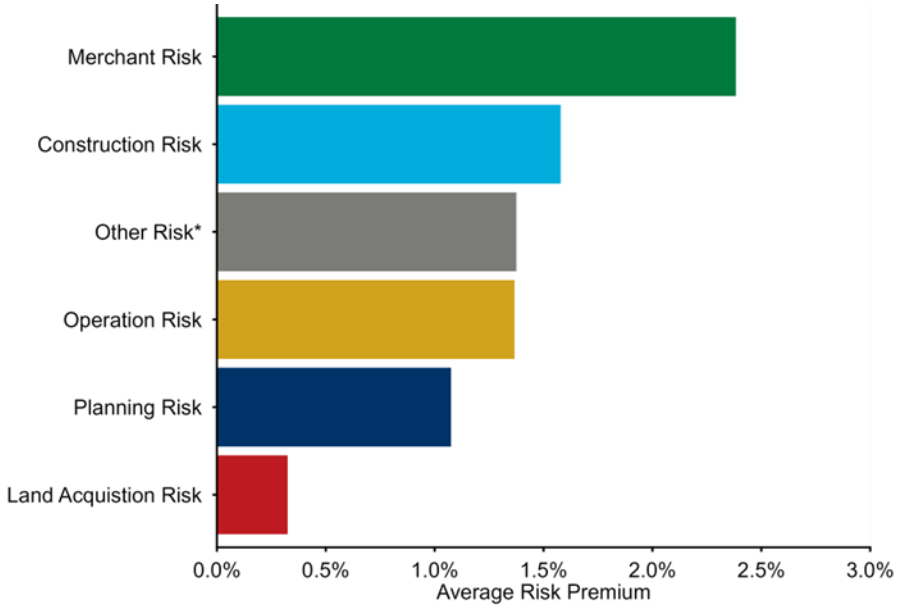



**Fig 6. Reported premiums of significant asset specific risks**

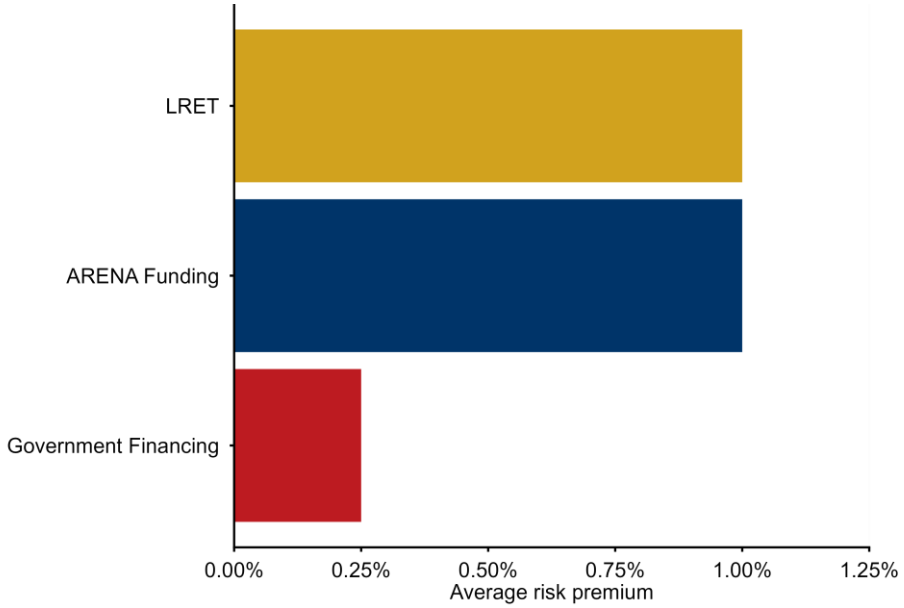


# Key Insights

## 2. Market Risk Factors

- **Connection risk** was consistently flagged as a key determinant of whether a project would go ahead or not.
- Near term **macroeconomic factors** have some bearing on the cost of capital, primarily through the risk free rate channel. However, for risk premia market participants generally tend to look through near term cycle volatility given the life of most assets is >15 years.
- The responses to policy impact were mixed.
  - **The LRET scheme** again provided some revenue certainty.
  - Some participants noted that **government financing** helped get projects with greater revenue uncertainty (such as battery projects) off the ground. In the absence of this, premia would increase by 1-2%
- Jurisdiction was not a significant consideration for most participants.

**Fig 7. Reported impact to cost of capital in the absence of policy support, by policy scheme**




* Note these premiums are based on an average of those that provided a response, rather than an average of *all* survey responses.

# Key Insights

## 3. Funding Accessibility & Global Competitiveness

- Feedback from participants has been that Australia is generally seen as an attractive destination for capital inflows, owing to the regulatory and prudential frameworks in place in Australia.
- Europe and US are well established markets that are dominated by their own banks. Therefore a lot of investors, especially across Asia look to Australia for investment opportunities.
- Moreover, the ability to make substantial investments also makes Australia a favourable investment destination.
- Participants have reported that access to capital is quite competitive. A key difference in the Australian market however is that mini-term products with a refinancing clause is more common than the long-term products offered in overseas markets.
- Going forward market participants do not expect policies such as the Inflation Reduction Act (IRA) to materially impact cost of capital in Australia. They do expect, given the size of the IRA, for this to substantially increase the attractiveness of US for capital flows. While this may present upside risk to the cost of capital for Australia, this is perceived to be an unlikely outcome.

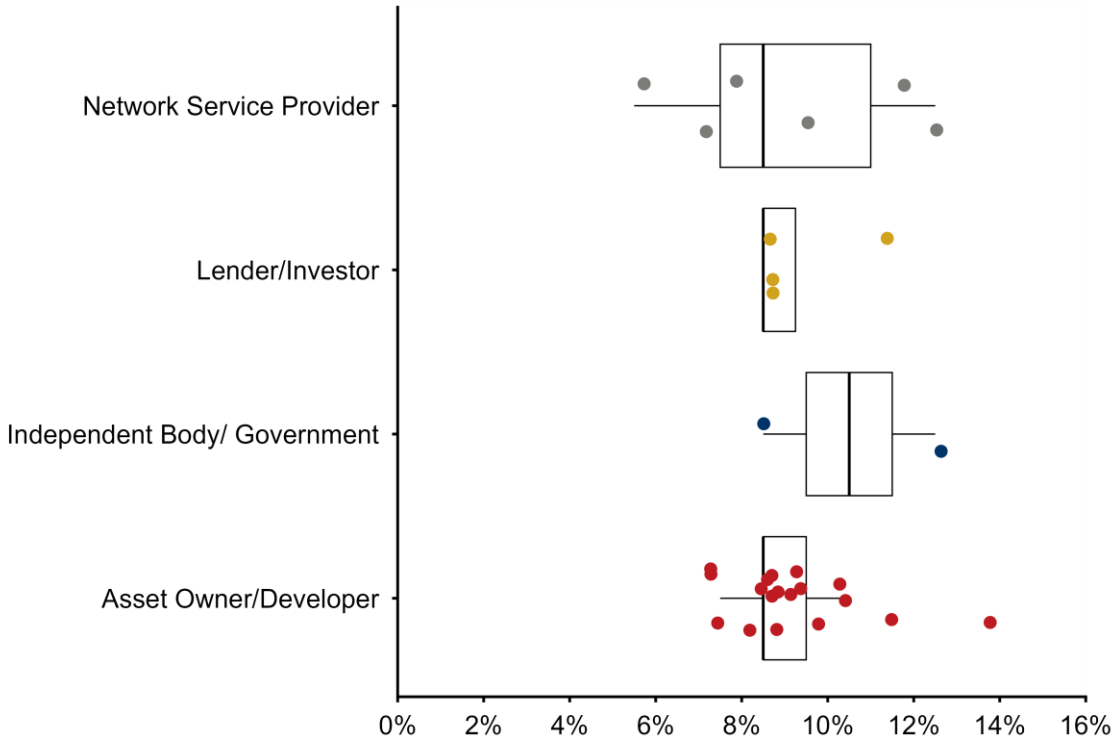
## 4. Applicability of WACC for Project Investment Decisions

- Several participants noted that for renewable energy projects that a WACC estimated based on a traditional CAPM is not necessarily used as the project hurdle rate in practice.
- Some key reasons are:
    - It is hard to establish a credit rating benchmark. Every project has very different risk profiles. For this reason, some participants have noted they look at counter-party risk rather than the traditional CAPM approach to estimating WACC.
    - The risk structure also changes through the project cycle. The early stage of project development tends to require more equity financing, which raises the cost of capital and this may move towards greater debt financing once the project is operational, for example.

# Appendix

# Nominal pre-tax WACC, by respondent type

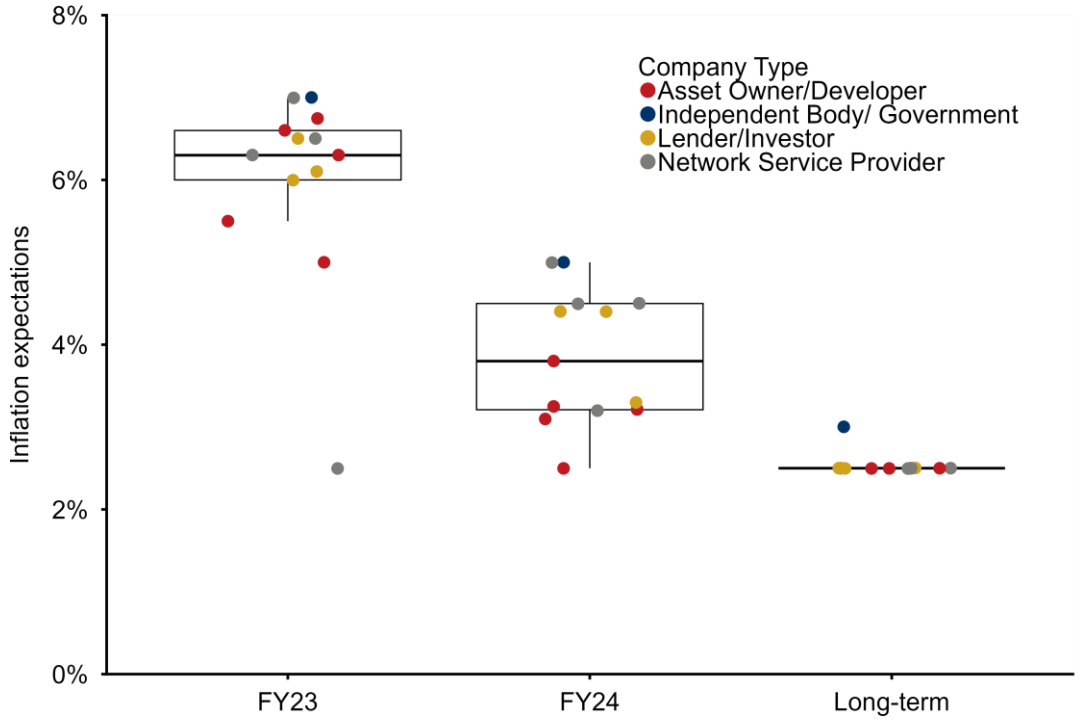
**Fig 8. Nominal pre-tax WACC by respondent type**




*Multiple responses for a single respondent possible

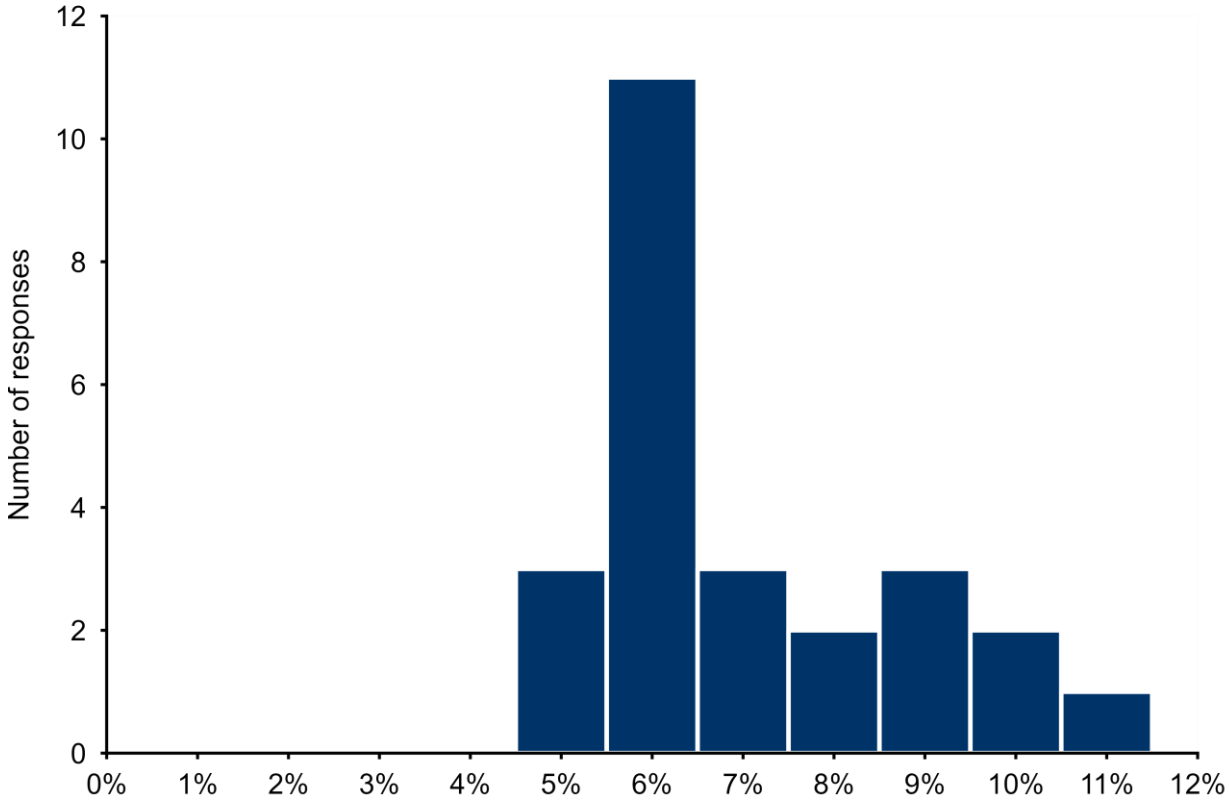
# Inflation Expectations by respondent type

**Fig. 9. Survey respondents' inflation expectations, near and long-term outlook**



# WACC Survey Response Distribution

**Fig. 10. Pre-Tax Real WACC Distribution across responses**



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