Investor Group on Climate Change

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Optimising Australia's Specialist Investment Vehicles for the Net Zero Journey

IGCC & Mandala Partners

December 2025

IGCC and Mandala acknowledge the Traditional Custodians of Country throughout Australia and their continuing connections to land, sea and community.

We pay our respects to their Elders past and present.

About the Investor Group on Climate Change

IGCC is the leading network for Australian and New Zealand investors to understand and respond to the risks and opportunities of climate change.

IGCC's members include Australia's largest superannuation and retail funds, specialist investors and advisory groups.

Their beneficiaries include more than 14.8 million Australians, and millions more in New Zealand.

IGCC members have more than $35 trillion in global AUM, and almost $5 trillion in local AUM.

About Mandala Partners

Mandala is an economics research and advisory firm. Mandala specialises in combining cutting-edge data and advanced analytical techniques to generate new insights and fresh perspectives on the challenges facing businesses and governments.

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This report is jointly issued by Investor Group on Climate Change (IGCC) and Mandala Partners.

Views and opinions expressed in this document are prepared in good faith and based on Mandala's and IGCC's knowledge and understanding of its area of business, markets and technology. Opinions expressed herein are subject to change without notice.

Note: All dollar figures are Australian dollars unless indicated otherwise.

Title cover image courtesy of Paul Carpenter

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Executive Summary (1 of 2)

AUSTRALIA'S PUBLIC CAPITAL SYSTEM WAS DESIGNED FOR STABILITY, NOT THE SPEED AND SCALE OF TODAY'S TRANSITION

Five specialist investment vehicles (**SIVs**), **CEFC**, **ARENA**, **NRFC**, **NAIF**, and **EFA**, manage more than **$60 billion** in public capital to advance Australia's **net zero** and **Future Made in Australia** priorities

Established over **three decades**, these vehicles have had clear policy purposes and were structured to operate **deliberately, independently**, and **outside political cycles**

As **global industrial-policy competition accelerates**, Australia will require a more responsive public-capital model to deploy funds faster and more flexibly

THE STRUCTURES THAT ONCE ENSURED STABILITY NOW CREATE DUPLICATION, DELAY, AND INEFFICIENCY ACROSS THE SYSTEM

Structural differences across SIVs, combined with **varying mandates** and **governance settings**, have led to **overlaps and complexity** in how public capital is deployed

Most SIV mandates require them **to target near-commercial rates of return**, which steers them towards **similar investment spaces as private capital**

There is an opportunity for SIVs to deepen their internal capability to **structure complex future deals, expand sector reach** and **crowd in private capital**, maximising the impact of public funds

REFORM IS ESSENTIAL TO ALIGN AUSTRALIA'S PUBLIC CAPITAL SYSTEM WITH AN INTEGRATED CLIMATE AND INDUSTRIAL POLICY AGENDA

Reform can enable faster, more coordinated investment decisions, and more effective use of public capital to **deliver long-term economic and climate benefits**

In the **near term**, SIVs can achieve **quick wins** by continuing to improve coordination (e.g. via investor council), strengthening workforce capability, and streamlining engagement processes within existing mandates

A **phased evolution**, from **operational improvements**, to **investment mandate reform**, and ultimately a unified 'Australia Fund' would align every dollar of public capital with national priorities

Note: The five SIVs focused on throughout this report are the Clean Energy Finance Corporation (CEFC), Australian Renewable Energy Agency (ARENA), National Reconstruction Fund Corporation (NRFC), Northern Australia Infrastructure Facility (NAIF), and Export Finance Australia (EFA).

Executive Summary (2 of 2)

Reform of Australia's public capital system requires an evolution from independent SIVs to a coordinated, capital-led network focused on strategic national priorities. The pathway involves near-term operational improvements, medium-term coordination, and a long-term unified fund model.

EVOLUTION 1

Improve existing funding vehicles incrementally through operational changes. Implement quick wins focused on knowledge sharing, streamlining the application process, and improving internal capability.

Near term - **Improved ways of working**

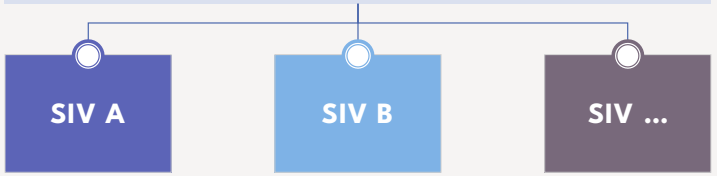
Operational changes to increase inter-SIV coordination and make investments more impactful

EVOLUTION 2

Establish a coordinating body to align SIV strategic priorities and guide capital deployment. Support SIVs to specialise within the capital stack through defined financial instruments and targeted capability development.

Medium term – **Coordinated priority setting, SIVs become capital-led**

COORDINATING BODY
that sets investment priorities for the various SIVs



EVOLUTION 3

Shift toward a unified fund model that eliminates institutional overlap and creates clearer opportunities for private co-investment. SIVs become capital-led portfolios within a larger public capital deployment entity.

Long term – **Unified fund to drive strategic national priorities**

UNIFIED FUND
that allocates resources to portfolios, sets performance targets, and supports in mobilising private capital

1. Australia's public capital system is substantial but was built for a different era of stability rather than today's pace of transition

Meeting Australia's 2030 and 2035 emissions targets, and 2050 net zero commitment will require significant capital, construction resources, and technology deployment

Australia's path to net zero is defined by legislated **progressive emissions targets** and **five decarbonisation priorities**. These targets and priorities operate on overlapping timelines over the next 25 years, with the **electricity transition as the key priority** in the short term for Australia to meet its existing commitments. Industrial decarbonisation and carbon management solutions scale progressively through to 2050.

Legislated goals and key activities

NEAR TERM		MEDIUM TERM		LONG TERM	
2025	2030	2035	2040	2045	2050

43% emissions reduction (below 2005 levels)

- Building 40 GW of new renewable capacity
- Expanding consumer energy resources and grid scale systems
- Phasing out coal power stations

62-70% emissions reduction (below 2005 levels)

- Fuelling hard-to-abate sectors with alternatives
- Switching industrial heat processes to electricity
- Rolling out heat pumps across new buildings
- Electrifying modes of transport

Net Zero Greenhouse Gas Emissions

- Accelerating nature-based carbon sequestration
- Using geological processes to drawdown carbon
- Developing engineered solutions that allow for carbon usage

Australian Government's five decarbonisation priorities

Key priority window:

Clean electricity across the economy	Increase renewable energy generation, underpinned by new transmission and storage
Lowering emissions through **electrification** and efficiency	Roll out New Vehicle Efficiency Standard, support consumers to switch to EVs and improve energy efficiency
Expanding **clean fuel** use	Clean up heavy industries and transport sectors with low carbon liquid fuels and green hydrogen
Accelerating **new technologies**	Invest in innovation through Future Made in Australia
Net carbon removals increased	Promote carbon storage and robust ACCUs scheme

Source: CSIRO (2025) *Forging ahead to 2050*; DCCEEW (2025) *Net Zero*; Climate Change Authority (2024) 2024 *Issues Paper: Targets, Pathways and Progress*; Parliament of Australia (2022) *Climate Change Bill 2022*; DCCEEW (2025) *A 40 GW target to boost Australia's energy system*

Australia has established an extensive network of specialist investment vehicles which are involved in accelerating investment across clean energy and other sectors

Australia operates 8 specialist investment vehicles (SIVs) that take Government direction through legislative mandates or policy statements. The 5 SIVs shown below were identified by the Net Zero Economy Authority in their submission to the Economic Reform Roundtable as most relevant for potential reform, given their active role in funding net zero projects and **significant overlap** in investment mandates.

Clean Energy Finance Corporation (CEFC)

- **Mandate**: Facilitate increased flows of finance into clean energy sector
- **Focus**: Renewable energy, energy efficiency, low-emission technologies, grid infrastructure

Northern Australia Infrastructure Facility (NAIF)

- **Mandate**: Provide financial assistance for Northern Australia economic infrastructure development
- **Focus**: Critical minerals, renewable energy, transport, agriculture, social infrastructure

Australian Renewable Energy Agency (ARENA)

- **Mandate**: Increase renewable energy supply and support net zero targets
- **Focus**: Renewable energy R&D, energy efficiency, electrification technologies

Export Finance Australia (EFA)

- **Mandate**: Support Australian export trade and overseas infrastructure development, with potential scope to support domestic priorities*
- **Focus**: Australian exports globally, Indo-Pacific infrastructure projects with Australian benefits, no domestic projects

National Reconstruction Fund Corporation (NRFC)

- **Mandate**: Diversify and transform Australia's industry and economy
- **Focus**: Seven priority areas including renewables & low emission technology, transport, and resources

SIVs without a specific focus on net zero ambitions

Regional Investment Corporation

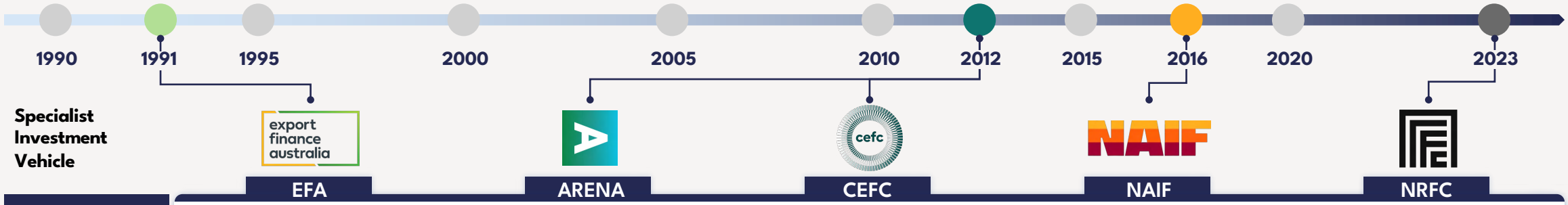
Housing Australia

Australian Infrastructure Financing Facility for the Pacific

Note: A cross-cutting measure of FMIA proposes that the Government can direct EFA to invest in domestic projects in the national interest where existing funds and programs do not provide support.

Source: NZEA (2025) *Submission to the Economic Reform* Roundtable; DCCEEW (2023) *Clean Energy Finance Corporation Investment Mandate Direction 2023*; DCCEEW (2024) *Australian Renewable Energy Agency Act 2011 - Compilation No.* 7; Bowen (2022) *Statement of Expectations*; DISR (2023) *National Reconstruction Fund Corporation Act 2023*; DISR (2023) *National Reconstruction Fund Corporation (Investment Mandate) Direction 2023*; DITRDCSA (2023) *Northern Australia Infrastructure Facility Act 2016 – Compilation No. 3*; Birmingham (2021) *Statement of Expectations*

SIVs have been created over the last three decades with mandates reflecting the policy priorities of their time



Specialist Investment Vehicle	EFA	ARENA	CEFC	NAIF	NRFC
Driver for establishment	Created to **fill gaps** where viable **export ventures lacked** private **funding** despite national economic value	Formed from the 2011 Clean Energy Future package to **accelerate renewables** by consolidating agencies and supporting innovation	Created under the 2011 Clean Energy Future package as a **'green bank' to catalyse clean energy investment**	Established to unlock opportunities and **close infrastructure gaps in northern Australia**, which is close to key Asian markets	Created post-pandemic to **strengthen sovereign capability** and **supply chain resilience** after global disruptions
Original policy objectives	▪ Facilitate export trade and overseas infrastructure projects ▪ Encourage private capital to reduce reliance on government funding	▪ Boost competitiveness and supply of renewable tech ▪ Support national emissions reduction targets	▪ Overcome financing barriers to clean energy ▪ Support emissions reduction targets	▪ Provide concessional finance for transformative projects ▪ Support public and social development tailored to the region	▪ Channel commercial finance into seven priority future sectors ▪ Support diversification through manufacturing and value-adding projects

Each vehicle reflects the political and economic context of its creation - from clean-energy acceleration (2011) to regional development and industrial resilience (2020s)

Alongside the energy transition, these SIVs also support funding the Future Made in Australia agenda

Future Made in Australia National Interest Framework

Future Made in Australia (FMIA) is a **$22.7 billion commitment** to secure Australia's place in the net zero economy and **encourage private sector investment**. The National Interest Framework has two streams:

	Net Zero Transformation	Economic Resilience and Security
Goals	▪ Enable large-scale decarbonisation across all economic sectors through targeted investment ▪ Create secure, future-focused jobs while building competitive advantage in net zero markets	▪ Strengthen Australia's capacity to produce and supply critical goods domestically ▪ Protect national interests by reducing exposure to global supply chain disruptions
Priority Industries	▪ Renewable hydrogen ▪ Green metals ▪ Low carbon liquid fuels	▪ Critical minerals processing ▪ Clean energy manufacturing

Government entities' role in the Future Made in Australia agenda

SIV

Government entity	FMIA Allocations ($M)	Allocation focus
Australian Taxation Office	$6.9B	Administering the various tax incentives
ARENA	$5.9B	Innovation Fund, Hydrogen Headstart, Solar Sunshot
Dept. of Industry, Science and Resources	$4.0B	Managing the Critical Mineral Tax Incentive and other FMIA programs
Clean Energy Regulator	$3.4B	Guarantee of Origin Scheme and Hydrogen Production Tax Incentive
Geoscience Australia	$0.8B	Mapping resource endowments and observation satellite program
EFA	$0.5B	National Interest Account and PsiQuantum investment
Other	$0.5B	Operational costs across various entities
Total*	$21.8B	

Note: Figures derived from review of 2024/25 budget paper line items allocated to FMIA. For line items where multiple entities share responsibility, allocations were split evenly. The $21.8B total does not align exactly with the $22.7B commitment due to potential missing line items and the estimated nature of these calculations. The $5.9B allocation to ARENA is included in the allocations on the following page. Government entities in 'Other' include the Department of Finance, Department of Infrastructure, Transport, Regional Development, Communications and the Arts, Department of Climate Change, Energy, the Environment and Water, Australian Securities and Investments Commission, Australian Prudential Regulation Authority, Department of Employment and Workplace Relations and Department of Foreign Affairs and Trade. Source: Department of Climate Change, Energy, the Environment and Water (2025) *Clean Energy Industry Exports and Future Made in Australia;* Department of the Treasury (2024) *Budget 2024 - 2025: Budget Paper No. 2: Budget Measures*; Mandala Analysis

SIVs have been allocated over $60B in funds with around half deployed so far

Australia's specialist investment vehicles are well-funded to serve distinct but complementary roles in the country's net zero transformation.

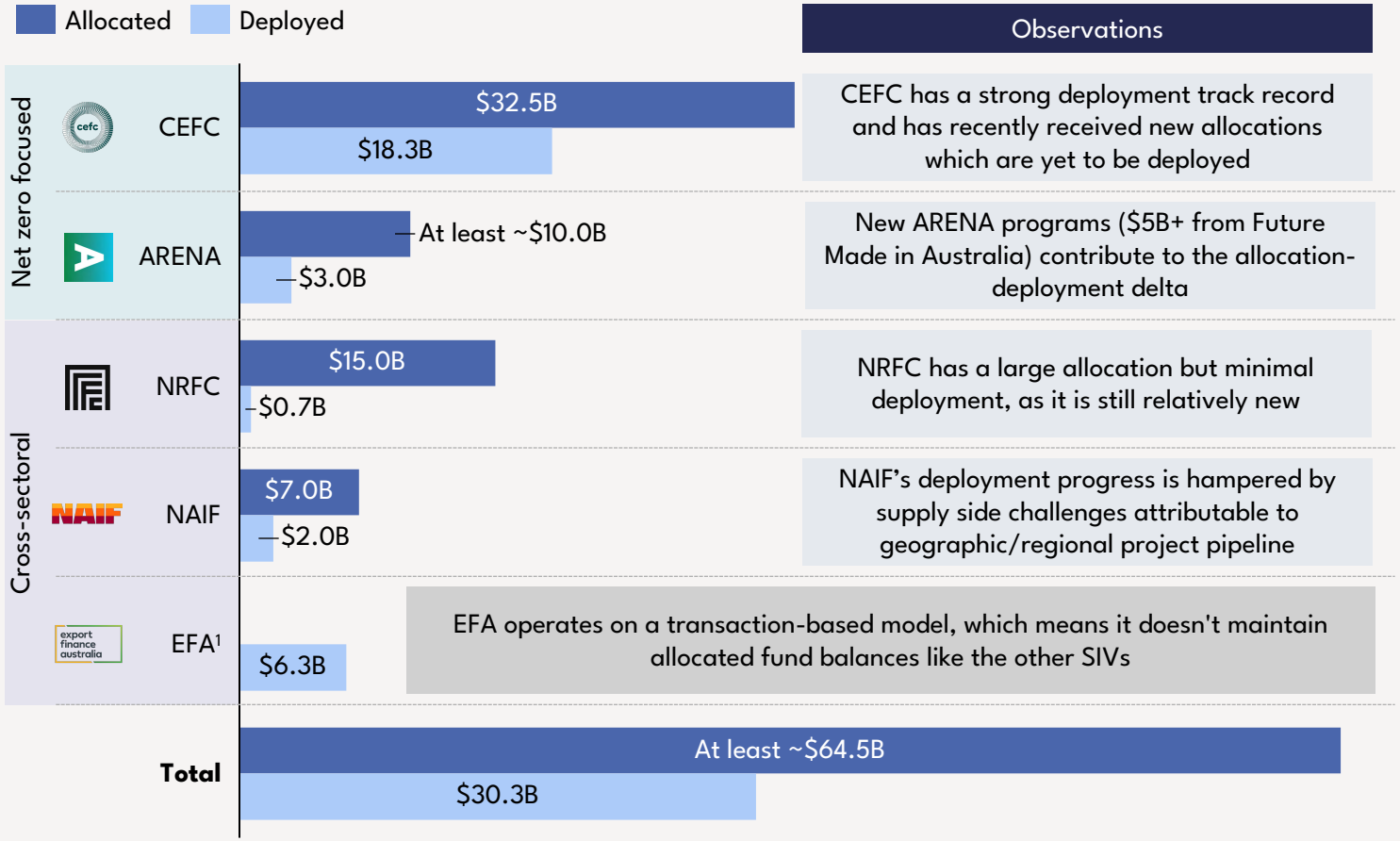
CEFC and ARENA are exclusively focused on net zero and energy transition, whereas EFA, NAIF and NRFC have more diversified investment strategies across various key sectors:

- NAIF exclusively serves northern Australia (NT, northern QLD and WA) through infrastructure financing across resources, agriculture, energy, and social infrastructure projects
- NRFC works across priority areas valuable to the Australian economy, including renewable energy, medical science, and defence technologies
- EFA operates uniquely as Australia's export credit agency, financing overseas infrastructure development internationally, which can include energy projects

While capital allocations across the SIVs are substantial, not all funds have yet been deployed. This reflects a range of factors, including the differing stages of establishment and maturity among the entities, with some, like the NRFC, still in their early phases of operation. These dynamics mean that deployment levels naturally vary as newer funds set up governance and pipelines, while more mature ones continue to scale existing programs. Supporting both newer and established SIVs to accelerate deployment over time will be key to meeting Australia's transition investment needs.

Funds allocated to SIVs vs deployed amounts

$B, total as of Sep 2025



Note: 1. EFA value represents all transaction value from FY14 to FY25 (including non-energy) for the commercial account only. EFA's operations are also international in scope, rather than domestic infrastructure projects.
Source: DCCEEW (2025) *CEFC given extra support to help renewable energy transition;* CEFC (2025) *Annual Report 2024-2025*; ARENA (2025) *ARENA at a Glance*; ARENA (2025) *ARENA General Funding Strategy*; NRF (n.d.) *Our investments*; NAIF (2025) *Boosting Critical Minerals Supply in Northern Australia*; EFA (n.d.) *Our transaction register*; Mandala analysis

SIVs' historical deployment rates suggests they may not spend allocated capital by 2035, jeopardising emissions targets

Based on historical spending patterns, SIVs will deploy ~90% of their allocated capital by 2035, leaving $7.6B unspent.

Australia's new 2035 emissions target requires doubling the decarbonisation rate, demanding a commensurate acceleration in capital deployment and investment across the entire economy. The Government's recent funding commitments under the Net Zero Plan and Future Made in Australia agenda reflect this urgency. With Australia's strong commitment to global climate leadership, SIVs will likely receive further allocations over the next decade.

However, given the pace of deployment to date, there is a risk that a growing share of public capital may take time to translate into on-the-ground investment at a moment when climate action is most pressing. Accelerating deployment will depend on understanding and addressing the operational and market factors currently shaping how SIVs deploy their funds.

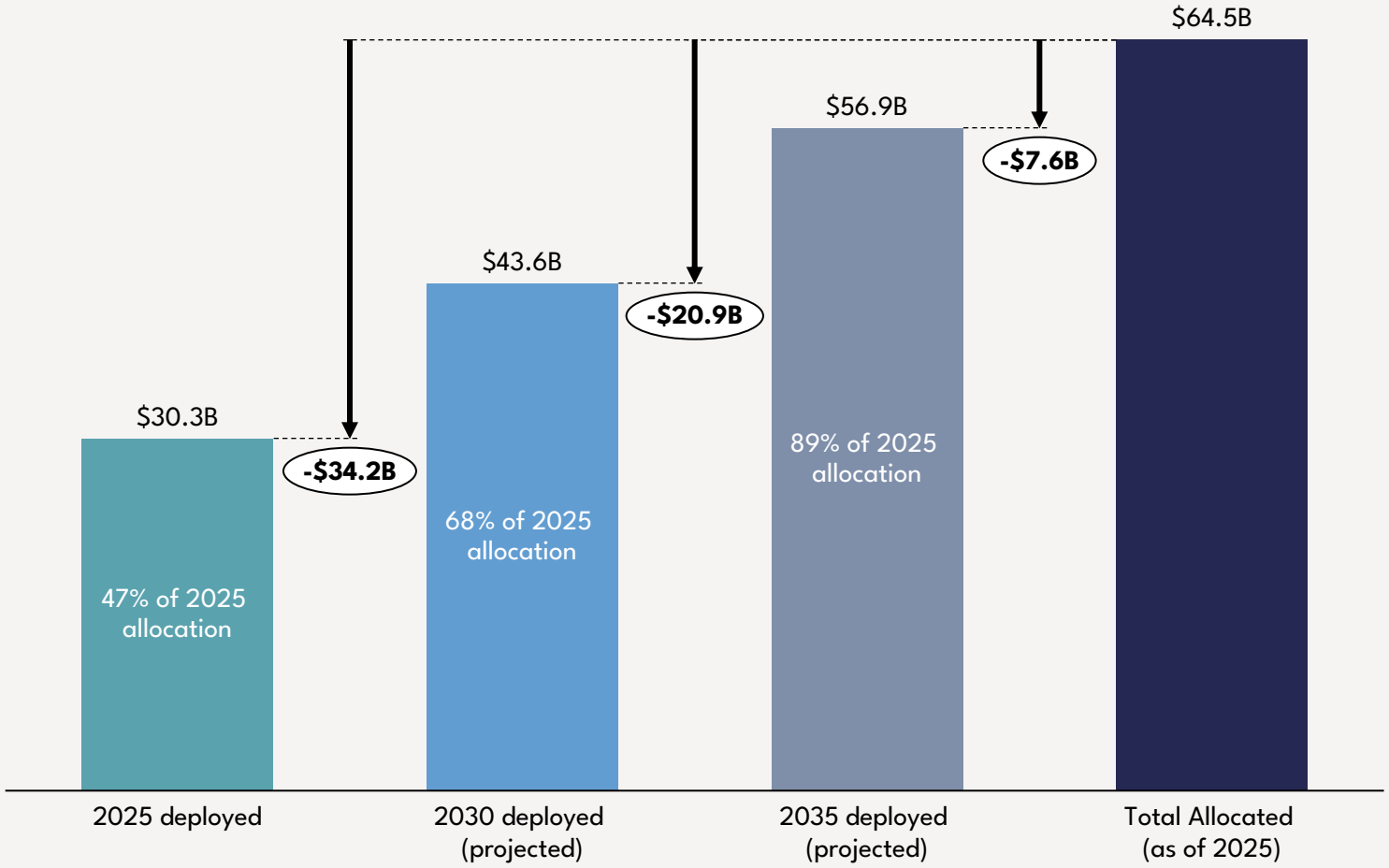
Deployment barriers that require addressing:

- Supply-side issues with the pipeline of investable **projects**
- Challenges among the funding **pathways** that crowd-in private capital
- Weak alignment between strategic national transition **priorities** and the deployment of public capital

The following section will explore barriers within the funding 'pathways'

Projected cumulative deployment of capital by SIVs based on historical deployment rates

Nominal $B, as of Sep 2025

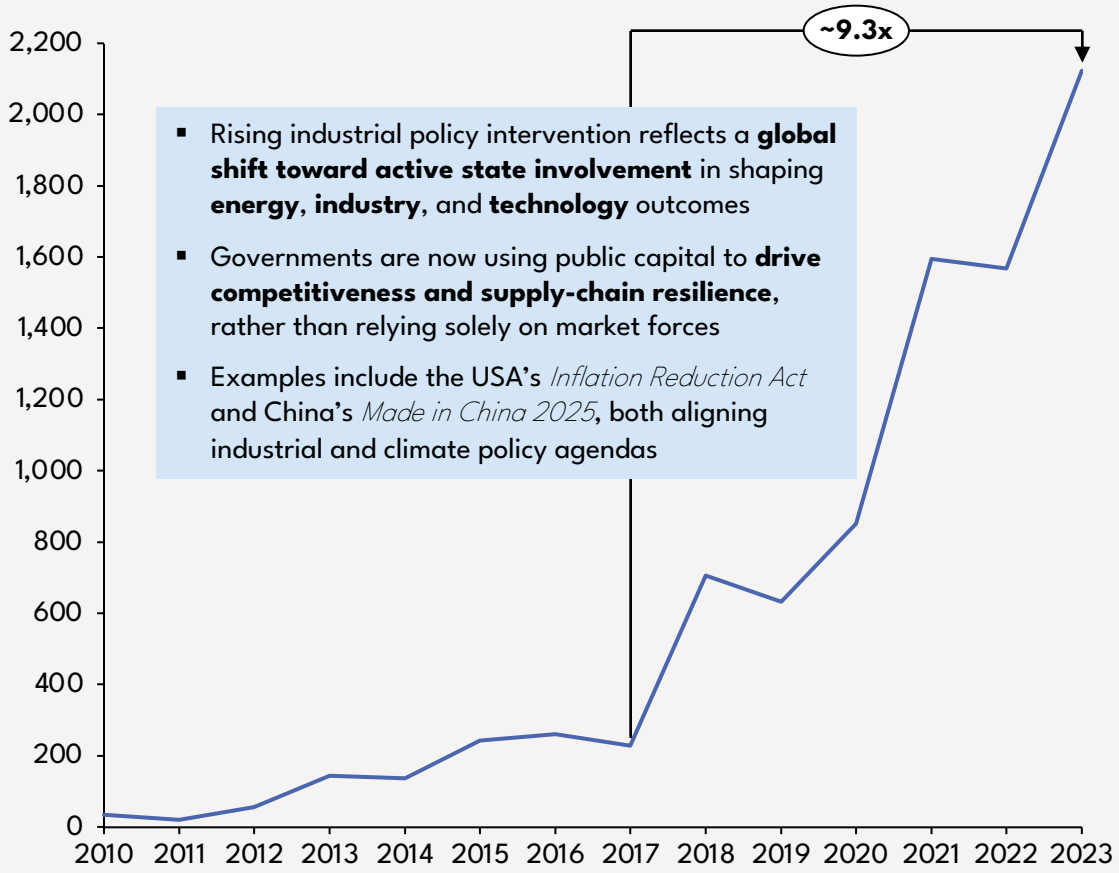


Note: This chart includes all the lifetime allocations and deployments by SIVs, with Export Finance Australia tracking funding flows as transactions supported and signed within each financial year from 2014. The cumulate deployment rate of $2.67B p.a. across the 5 SIVs is calculated by finding the historical average deployment rate for each SIV.
Source: DCCEEW (2025) *CEFC given extra support to help renewable energy transition;* CEFC (2025) *Annual Report 2024-2025*; ARENA (2025) *ARENA at a Glance*; ARENA (2025) *ARENA General Funding Strategy*; NRF (n.d.) *Our investments*; NAIF (2025) *Boosting Critical Minerals Supply in Northern Australia*; EFA (n.d.) *Our transaction register*; Mandala analysis

Originally designed to be slow, deliberate and separated from the policy cycle, Australia's SIVs now face a world where energy, industry, and global competitiveness are inseparable

Trend of new industrial policy measures

Number of new industrial policy measures made globally 2010-23



- Rising industrial policy intervention reflects a **global shift toward active state involvement** in shaping **energy**, **industry**, and **technology** outcomes
- Governments are now using public capital to **drive competitiveness and supply-chain resilience**, rather than relying solely on market forces
- Examples include the USA's *Inflation Reduction Act* and China's *Made in China 2025*, both aligning industrial and climate policy agendas

Source: Ohnsorge, et al. for World Bank Blogs (2024) *The renaissance of industrial policy: Known knowns, known unknowns, and unknown unknowns*

Changes to SIVs' roles in the current policy context

Theme	**Original design intent**	**Current context needs**
Governance	Designed to be independent of short-term politics	Requires alignment with national industrial and climate strategy
Operating culture	Emphasised stability, prudence, and insulation	Demands agility, coordination, and responsiveness across sectors
Institutional role	Treated as extraordinary assets - buffers to smooth the cycle	Positioning as ordinary levers of government policy driving transformation
Capital deployment philosophy	Focused on risk mitigation and crowding-in finance	Shift toward systemic change across energy, industry, and supply chains

Historically, SIVs were designed for a time when public investments needed to be cautious, deliberate, and insulated from the policy cycle. Today, this approach is outdated, their **design must evolve to reflect the demands of the clean energy transition** and new global industrial dynamics

Source: Mandala analysis

The growing need for adaptation and climate resilience calls for SIVs to back broader national climate priorities

The increasing frequency and intensity of extreme weather events have already led to loss of life, increased disaster recovery expenses, higher insurance premiums and asset repricing. As climate impacts worsen, the costs of repair, recovery and lost productivity will continue to rise, making coordinated investment in adaptation essential to protect Australia's economy and communities.

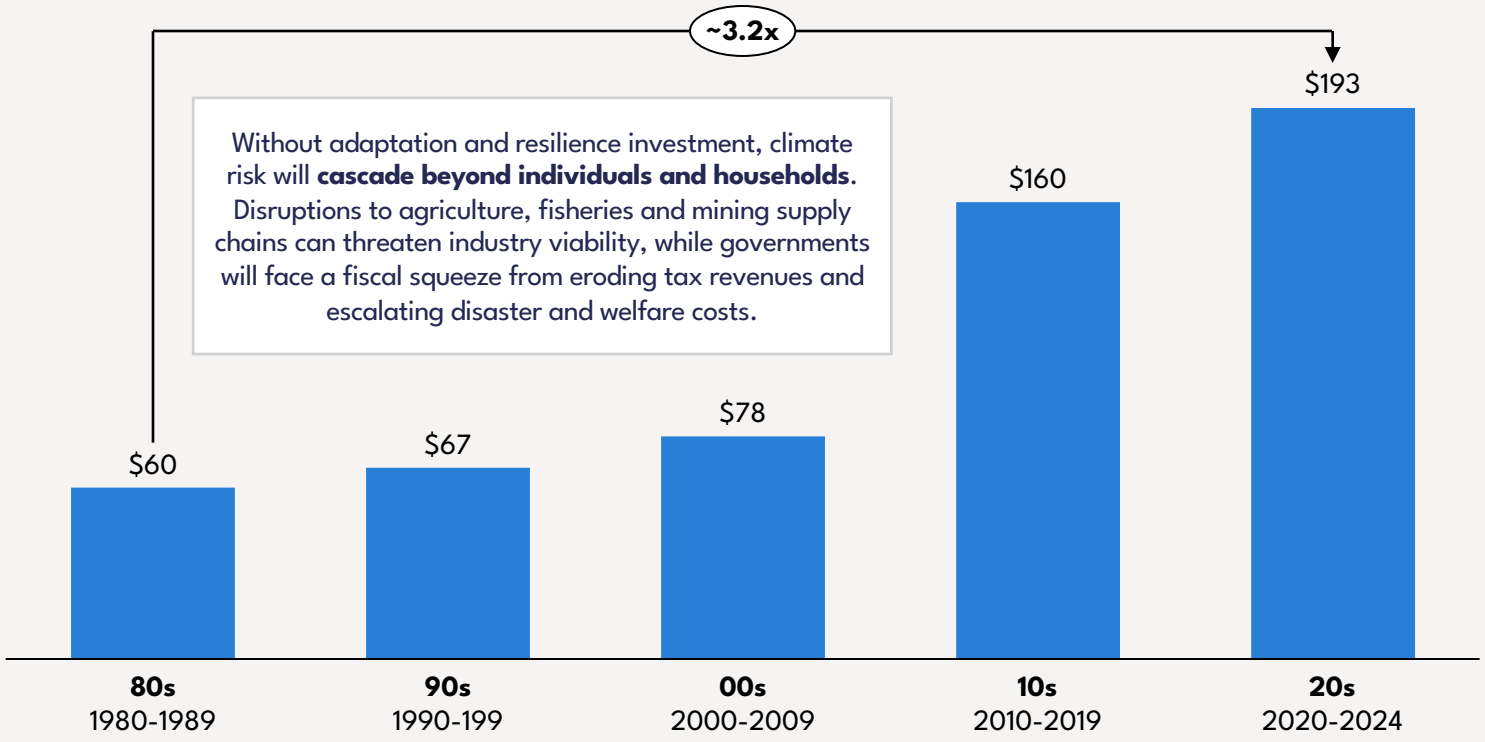
Transitioning to a climate-resilient economy will require substantial capital from both public and private sources. SIVs are ideally positioned to catalyse this investment because many critical adaptation projects face market barriers that prevent adequate private sector financing:

- **Many resilience investments are pre-commercial**, such as climate-resilient materials, infrastructure hardening technologies, and monitoring solutions
- **Large-scale system upgrades** across water, energy, transmission, ports, and regional communities require patient, concessional capital that delivers systemic benefits beyond individual project returns
- **Shared adaptation benefits** unlock opportunities for blended finance to scale climate adaptation resilience

Source: IGCC (2024) *Activating Private Investment in Adaptation*

Average annual cost per person from extreme Australian weather events

US$ inflation adjusted economic loss per person



The escalating costs of climate impacts, from infrastructure damage to systemic disruptions, are **making adaptation and resilience a national priority**. Government funding alone is insufficient for the scale of resilience required, making SIVs **key to unlocking private co-investment in adaptation**.

Source: Insurance Council of Australia (2025) *Insurance Catastrophe Resilience Report 2024-25*; Australian Climate Service (2025) *National Climate Risk Assessment Report*

2. The structures that once ensured stability now create duplication, delay, and inefficiency across the system

Bottlenecks across Australia's public capital deployment slow the flow from national priorities to funded projects, particularly in the funding pathway stage

Challenges at each stage along public capital journey

1 Identifying priorities

Identifying **priorities** that are **nationally significant** for the energy transition

Key challenges:

- Lack of unified view on primary needs of the transition
- Unclear technology roadmap
- Limited ability to influence funding pathways
- Limited preparedness to support adaptation and resilience

2 Securing funding pathways

Securing **funding pathways** that **crowd in private capital**

This report focuses on the challenges within the funding pathways stage of public capital deployment

Key challenges:

- Mandate overlap and siloed knowledge sharing
- Weak alignment with emerging strategic national priorities
- Innovation funding gaps
- Demanding engagement process
- Workforce capability gaps
- Private capital crowding out

3 Delivering projects

Delivering **investable projects** aligned with **national priorities**

Key challenges:

- Regulatory approval complexity
- Workforce capacity gaps
- Social license constraints
- Critical supply chain fragility

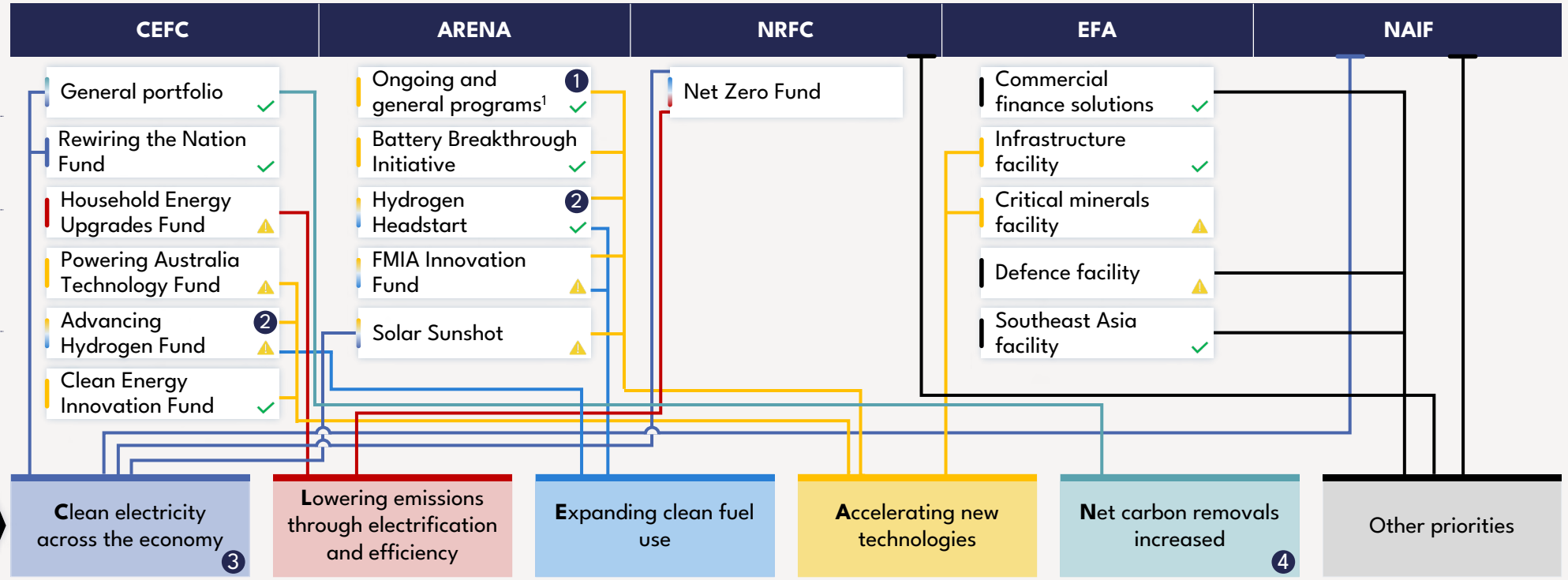
The scope of SIVs has incrementally expanded over time, creating overlap and complexity, with several operating through multiple sub-funds and schemes

Mapping of SIV sub-funds and programs across the decarbonisation priorities in Australia's Net Zero Plan

✓ Aligns with original mandate

⚠ Extends beyond original mandate

1. The **scope of some SIVs is broad**, spanning many policy objectives
2. Different **SIVs overlap in specific areas**
3. Funding is heavily **concentrated in renewable energy and infrastructure**
4. **CEFC** is the **only SIV** currently investing in **net carbon removals**



SIVs have emerged incrementally over time without coordination, creating misaligned mandates, operational overlaps, and general confusion about their roles and responsibilities. This has created a landscape where the SIVs are locked into operating in similar spaces, undermining their collective effectiveness in supporting Australian net zero goals. Recent initiatives such as the **Investor Council** begin to lay groundwork for future alignment across overlapping mandates.

Note: 1. Ongoing and general programs refer to broad-based initiatives within ARENA that support multiple technology areas and are not confined to specific sectoral objectives
Source: 2. DCCEEW (2025) *Net Zero*

By targeting commercial-grade returns, some SIV funds are drawn into the same investment space as private capital

Some SIVs are mandated to achieve return targets typically set around the 5-year government bond rate plus 2–3%, broadly mirroring the institutional benchmarks of superannuation funds and the Future Fund (~6.9%).

These targets mean SIVs sometimes compete for the same commercially viable projects as private investors, rather than focusing on areas where public capital can de-risk early-stage or unproven technologies.

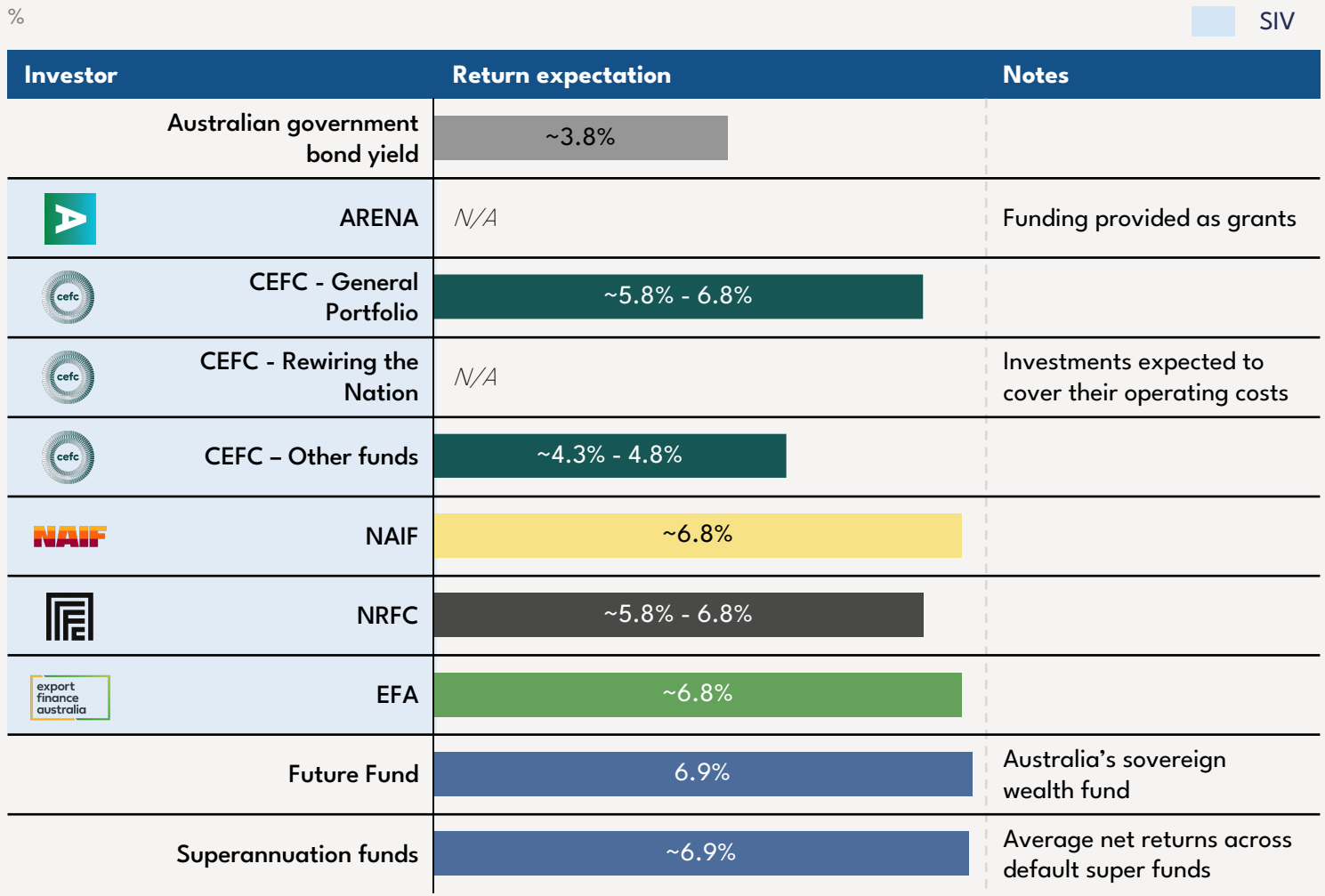
This creates a tension between achieving commercial returns and addressing market gaps where private finance will not invest without support.

In practice, return expectations encourage SIVs to prioritise familiar, low-risk sectors and structures, sometimes competing or crowding out private finance, rather than complementing it.

The challenge for government is to clarify the purpose of public capital in the transition, whether it should be primarily catalytic and de-risking, or continue to target commercial returns comparable to institutional investors.

Source: Expert interviews

Minimum expected annual return



Note: The bond yield rate represents the 12-month average from September 2024 to September 2025. The superannuation return expectation is derived by taking an upper-weighted average of all the 10-year average net returns of MySuper products.
Source: RBA (2025) *Capital Market Yields – Government Bonds – Monthly*; CEFC (2023) *Clean Energy Finance Corporation Investment Mandate Direction 2023*; NAIF (n.d.) *Investment Guidelines*; NRFC (n.d.) *Investment Guidance*; EFA (2021) *Statement of Expectations*; Future Fund (2025) *Portfolio update at 30 June 2025*; ATO (2025) *YourSuper comparison*; Mandala analysis

SIV return expectations have contributed to 80% of funding being allocated towards lower risk, commercial-ready projects

Australia's major SIVs (excl. ARENA) operate with similar risk settings and return expectations, this creates several challenges:

- Certain mid-stage, lower risk projects become attractive to multiple SIVs
- Early-stage ventures and higher-risk innovations, despite strong potential impact, can find it difficult to secure support
- Project proponents are rejected by SIVs not due to lack of merit, but because projects don't fit the narrow risk-return profile

This similarity in investment criteria is symptomatic of structural issues:

- Static, legislatively-bound mandate structures prevent the SIVs from responding to the ever-changing needs of the transition
- SIV internal governance and decision-making processes operate in isolation, with no obligation to align with one another since there is no single coordinating authority providing oversight

As a result, the collective deployment of public capital may not always optimise outcomes, sometimes overlapping with private investors, while leaving certain market gaps and innovation needs underfunded.

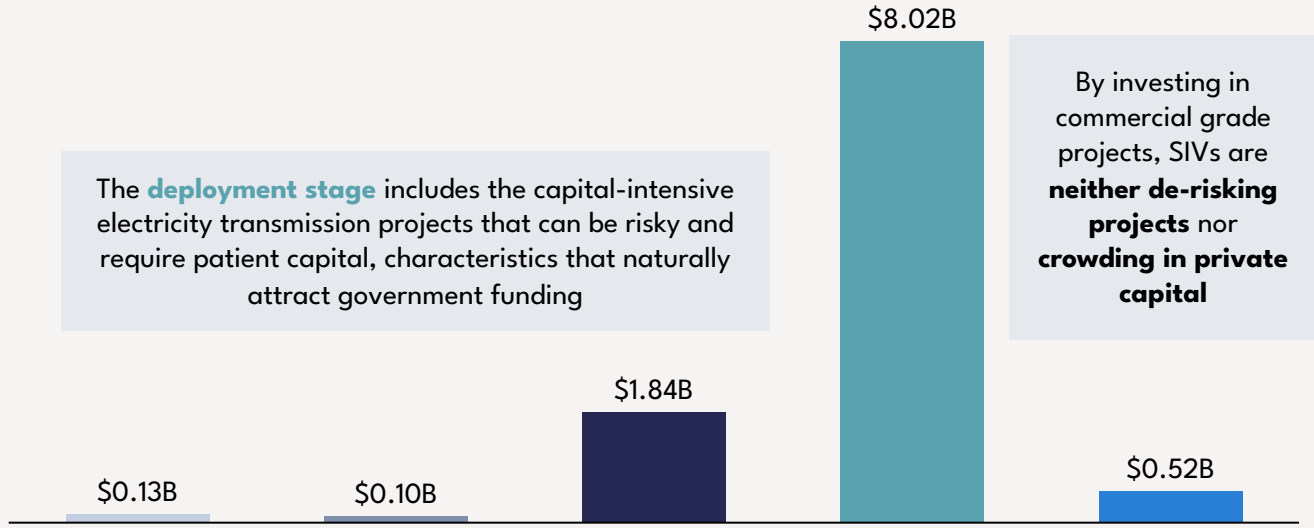
1. NZEA (2025) *Submission to the Economic Reform Roundtable*

Volume of public funding committed by SIVs by innovation stage[2,3]

$B of dollars invested in energy transition related projects between FY19 and FY24

The **deployment stage** includes the capital-intensive electricity transmission projects that can be risky and require patient capital, characteristics that naturally attract government funding

By investing in commercial grade projects, SIVs are **neither de-risking projects** nor **crowding in private capital**



ARENA's innovation chain[3]	Research	Development	Demonstration	Deployment	Market accumulation
Definition of innovation stage	Early-stage knowledge creation in research institutions	Lab-scale or pilot testing to establish technical viability	Pre-commercial scale projects proving feasibility and reducing risk	Establishing an initial market presence within its focus sector	Scaling towards a mature, dominant position in its focus sector
Investment risk level	High	High	Moderate	Low	Low
Volume of private capital	Low	Moderate	Moderate	High	High

Note: Rewiring the Nation projects represent a small share of deployment funding, with only $710M committed by the end of FY24.
2. This chart includes all commitments by SIVs from FY19 to FY24, with Export Finance Australia tracking funding flows as transactions supported and signed within each financial year; 3. The commitments have been mapped to the same innovation stages as used by ARENA in its investment plans.
Source: ARENA, CEFC, NRFC, NAIF, EFA annual reports (FY19-24); Mandala analysis

CASE STUDY: California's approach to investment in early-stage energy innovation projects

California has become a global leader in clean energy innovation through decades of targeted policy-making and coordinated public investment.

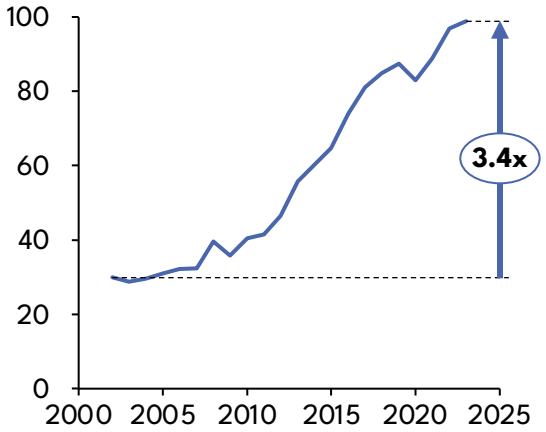
The California Energy Commission's Electric Program Investment Charge (EPIC) program deploys over **US$200 million annually to address the "valley of death"** facing clean energy technologies. It does this through four key initiatives:

- The CalSEED initiative, which provides seed grants for early-stage clean energy startups
- The CalTestBed offers an opportunity for proponents to test prototypes at world-class facilities
- The BRIDGE (Bringing Rapid Innovation Development to Green Energy) grant provides follow-on funding to companies with promising technologies
- The RAMP grant (Realizing Accelerated Manufacturing and Production) supports companies transition from prototypes to low-scale initial production

Over the last two decades, California has **more than tripled its renewable energy generation**

California's renewable energy generation

TWh (2002 – 2023)



Source: California Energy Commission (n.d.) *Estimated Annual Clean Energy*; California Energy Commission (n.d.) *Energy Research and Development*

Strong financial and technical capability will be key for SIVs to scale impact and attract private capital in years to come

While SIVs comprise staff with varied professional experience, the coming years will require the deployment of larger volumes of capital into increasingly complex projects, including those involving higher levels of risk. Building capability in several targeted areas will support this objective:

Financial expertise

As project complexity and scale grow, SIVs may benefit from deepening their commercial and financial capabilities, particularly in structuring sophisticated transactions, pricing and managing risk, and leveraging public investment to attract private capital.

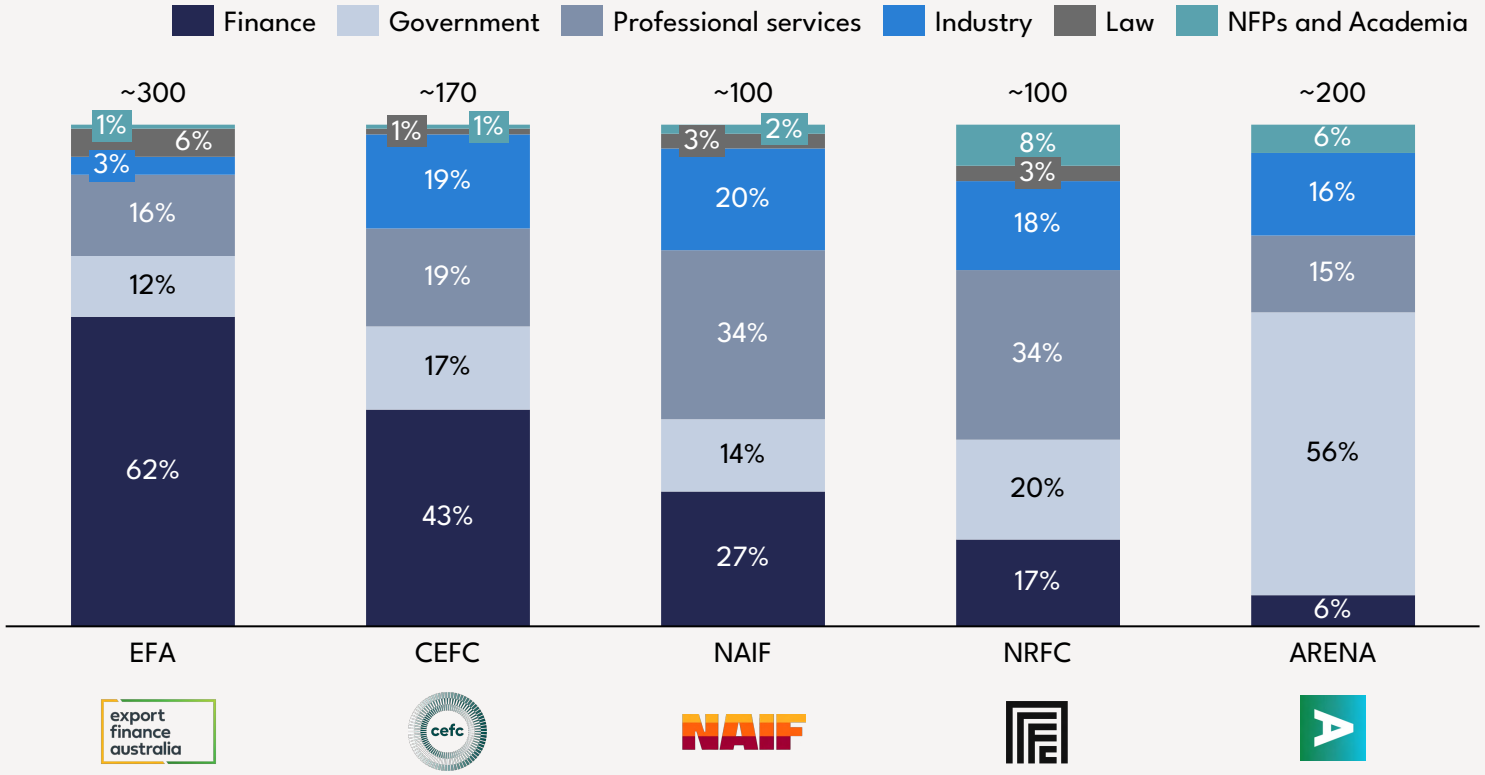
Technical and sectoral knowledge

Increased representation from academia and industry could enhance SIVs' understanding of emerging technologies and detailed sector-specific opportunities. This would support more informed investment decisions, stronger alignment with national transition priorities, and improved identification of high-potential innovations.

Source: Mandala stakeholder interviews

Professional backgrounds of SIV employees

% of SIV employees based on their most recent previous sector of employment in 2025, sample size of staff



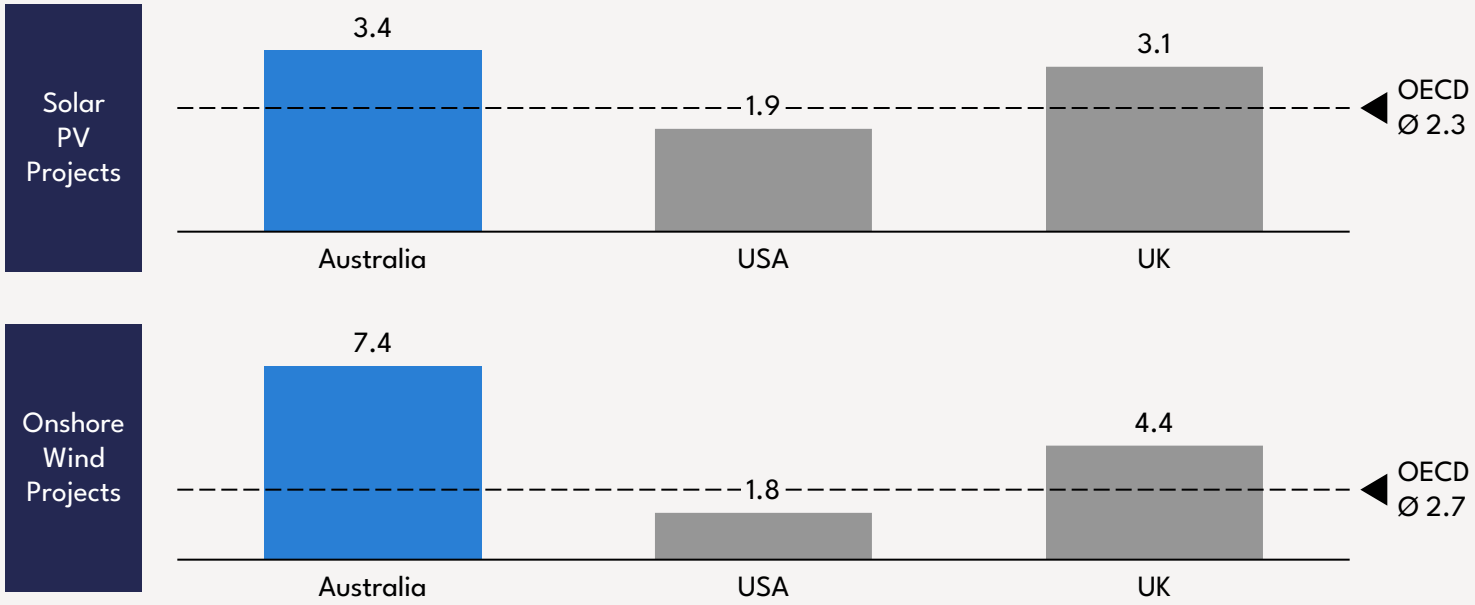
Workforce composition across SIVs reflects their differing focus areas. CEFC and EFA's roles in complex financial structuring and deal-making drive a higher share of finance expertise, while NAIF and NRFC's focus on infrastructure and industry development draws more heavily on government, professional services, and sector specialists.

Note: Sectors of employment include finance (banking, investment management), government (agencies, regulators, state-owned enterprises), professional services (consulting, accounting, engineering), industry (energy, manufacturing, technology), law (legal practice), and NFPs and Academia (non-profits, research institutions, universities).
Source: Revelio Labs; Mandala analysis

Australia's infrastructure commissioning times trail global peers, with complex financing and SIV engagement processes adding additional delay and cost for transition projects

Mean project commissioning times by country for solar PV and wind onshore technology

Commissioning time in years for projects developed between 2020 - 2022



Commissioning time spans from permitting to when a renewable energy project becomes operational, **including the period needed to organise and structure financing**. This is primarily driven by a mix of **supply side challenges and permitting hurdles.** Complex and lengthy SIV engagement process **can add further delay and cost.**

SIV engagement barriers

Participants highlighted that SIV engagement and approval processes can add additional time and uncertainty, particularly for early-stage or smaller firms:

1. **Heavy resource requirements for some SIV applications**[1], which are not tailored to business size, particularly disadvantaging early-stage businesses
2. **Long application approval times,** typically 6-12 months, double typical private sector timeframes
3. **Limited communication and transparency** during the application process, including long periods with no communication
4. **Limited feedback** provided following rejection

Whether it's $10 million or $100 million, the same lengthy process applies regardless of deal size… Getting money can be slower compared to private markets.

Successful SIV grant program recipient, discussing the hurdles of accessing public funding

We need faster responses or at least clarity on where the outcome is headed.

Prominent climate tech investor on delays associated with SIV application processes

Note: 1. For example, CEFC does not have formal application process in order to access funding.
Source: Gumber et al. (2023) *A global analysis of renewable energy project commissioning timelines*; Mandala stakeholder interviews

Without addressing these challenges, Australia will fall short of its emissions targets and experience adverse economic consequences

Australia faces a critical economic choice on climate action. As part of developing the 2035 emissions target, Treasury modelling reveals that delaying emissions reduction efforts until the 2040s would cost the economy at least $1.2 trillion by 2050 compared to an orderly transition pathway.

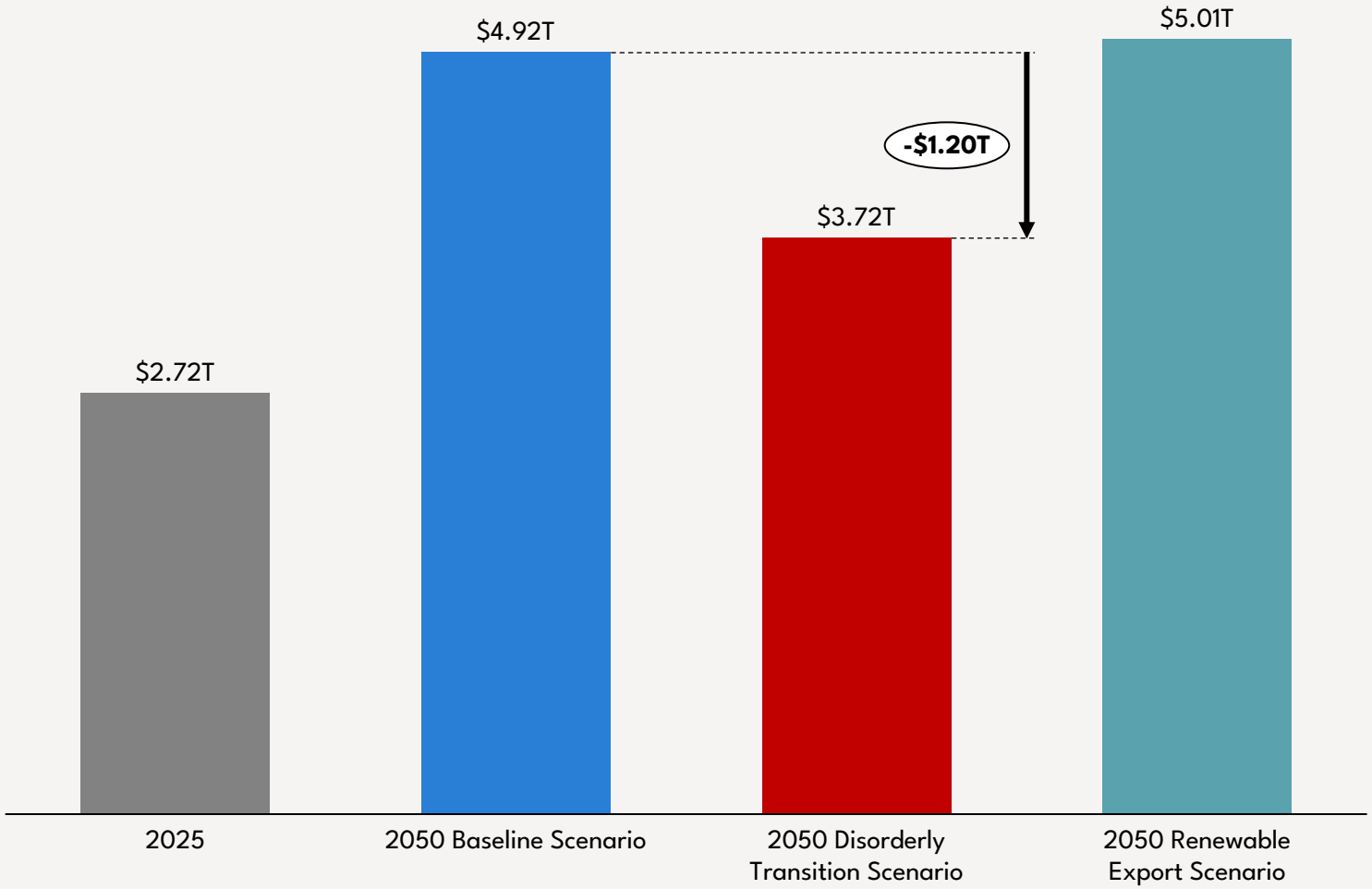
The Treasury analysis examines three scenarios:

- **Baseline Scenario**: An orderly transition combining existing policies with new measures to achieve 65% emissions reduction by 2035, delivering a $4.92 trillion economy by 2050.
- **Disorderly Transition**: Delayed climate action until the 2040s with no 2035 target, resulting in a $3.72 trillion economy – $1.2 trillion smaller than the baseline.
- **Renewable Export Scenario**: An ambitious clean energy export strategy that captures global market opportunities, achieving a $5.01 trillion economy by 2050.

Without coordinated public and private capital investment in vital green transition projects, Australia risks drifting toward the disorderly scenario. This would result in significant economic costs, including reduced growth, lower investment, missed export opportunities, and higher energy prices as the economy faces a more chaotic and uncertain transition path.

Projected real GDP of Australia

$T, under three scenarios

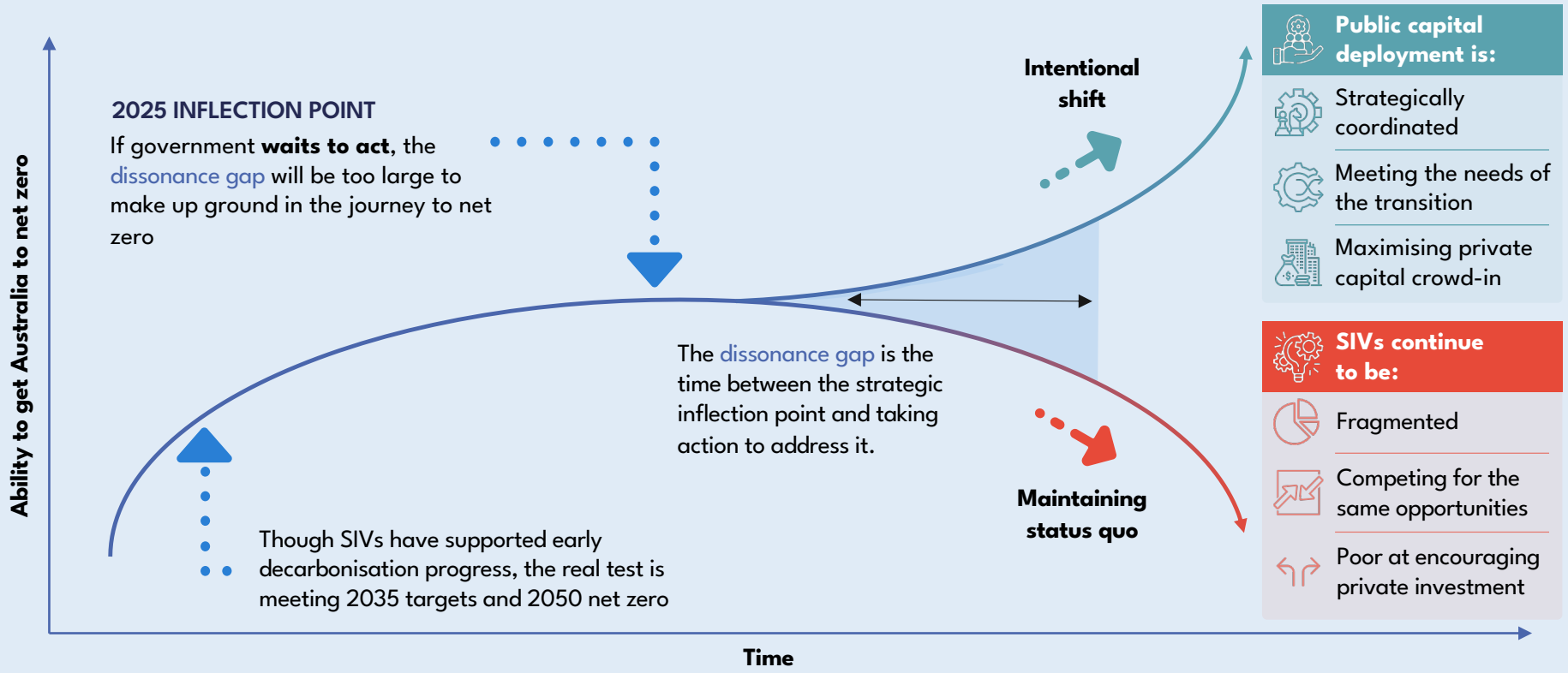


Source: Treasury (2024) *Australia's Net Zero Transformation: Treasury Modelling and Analysis*

These challenges have brought the public capital ecosystem to an inflection point, creating an opportunity for Australia to shift gears and reform how public capital is deployed

The critical window for reform

An intentional shift in how public capital is deployed will require iterative refinement, with the **public capital landscape evolving** through each phase. These evolutions will take time and require significant structural change. Reluctance to be bold and shift away from the status quo can existentially hurt an entity. In Australia's public capital deployment scenario, it could **spell a failure to reach net zero.**



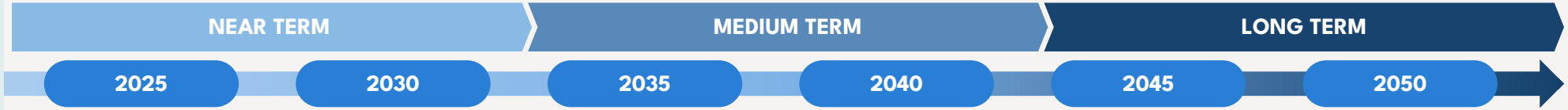
Examples of missed inflection points

- After Fukushima, Japan missed its inflection point as limited climate investment drove a fossil fuel rebound. Policy vacillation between zero-nuclear and reactor restarts allowed coal and gas to fill the gap, pushing fossil fuels to 94% and undermining emissions commitments.
- Intel missed its strategic inflection point by sticking with its old business model, while competitors like NVIDIA adopted the 'fabless' outsourced chip manufacturing model and was able to capture the fast-growing data-centre and AI markets.

Notes: This figure adapts Andrew Grove's inflection curve concept to the Australian public capital landscape
Source: Derived from Andrew Grove's (1988), *Only the Paranoid Survive: How to Exploit the Crisis Points that Challenge Every Company*; IEA (2021), Ohta & Barrett *Politics of Energy policy in Japan* (2023)

To achieve the emissions targets and industrial policy objectives over the next 25 years, Australia needs to address key challenges across three different time horizons

The challenges facing SIVs and the broader public capital deployment landscape require solutions of varying complexity, resources, and political support



NEAR TERM

These challenges require **quick wins** that don't require significant changes to support 2030 emissions targets

- **Limited coordination** across the siloed operations of the SIVs
- **Increasing need for specialised workforce** within the SIVs to prepare for future deployment responsibilities
- **Lengthy engagement processes** that place heavy administrative and documentation burdens on proponents

MEDIUM TERM

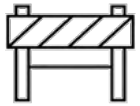
These challenges require **structural changes** to the vehicles that deploy public capital to support the projects vital for 2035 goals

- **Uneven innovation stage coverage** with gaps in funding across the innovation lifecycle
- **Mandated commercial return expectations** that lead to public capital competing with private investors in already bankable areas
- **Overlap in priority areas** as multiple SIVs target similar sectors and projects, blurring distinct roles

LONG TERM

Systemic transformation necessary to address the barriers preventing effective deployment of capital to support strategic national priorities

- **Weak alignment between transition needs and investment decisions** with insufficient alignment between deployed funds and Australia's decarbonisation priorities
- **Limited institutional flexibility to evolving national priorities** with rigid institutional structures and mandates that cannot adapt quickly to shifting technological, economic, and policy landscapes



Beyond the institutional challenges facing SIVs themselves, **policy and regulatory barriers that prevent private capital from co-investing alongside public funds** should be reassessed to unlock the private investment necessary to bridge the financing gap required to achieve net zero by 2050

3. Reform is essential to align Australia's public capital system with an integrated climate and industrial policy agenda

The SIVs should undergo an evolution from independent deployers, to an integrated network of capital-led funding vehicles focused on areas of strategic national significance

EVOLUTION 1

Improve existing funding vehicles incrementally through operational changes. Implement quick wins focused on knowledge sharing, streamlining the application process, and improving internal capability.

Near term - **Improved ways of working**

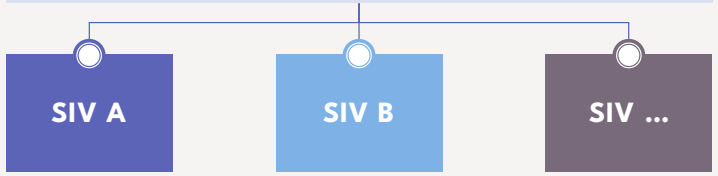
Operational changes to increase formal coordination and make investments more impactful

EVOLUTION 2

Establish a coordinating body to align SIV strategic priorities and guide capital deployment. Support SIVs to specialise within the capital stack through defined financial instruments and targeted capability development.

Medium term – **Coordinated priority setting, SIVs become capital-led**

COORDINATING BODY
that sets investment priorities for the various SIVs



EVOLUTION 3

Shift toward a unified fund model that eliminates institutional overlap and creates clearer opportunities for private co-investment. SIVs become capital-led portfolios within a larger public capital deployment entity.

Long term – **Unified fund to drive strategic national priorities**

UNIFIED FUND
that allocates resources to portfolios, sets performance targets, and supports in mobilising private capital

In the near-term, SIVs can make a range of operational improvements to address current challenges, building on the recent work of the Investor Front Door

Operational improvements achievable within existing mandates (2025 – 2027)

These recommendations can be implemented through **operational adjustments rather than legislative reforms**. While they require concerted effort and commitment from SIVs to adopt new collaborative practices, they build on existing capabilities. The changes are designed to be achievable within current mandates over the next few years.

Challenge area	Limited coordination	Increasing need for specialised workforce	Lengthy engagement processes
Actions to take	**Expand cross-SIV decision mechanisms:** Build on the Investor Council to strengthen shared decision-making practices and deepen coordination across SIVs, including more regular exchange of investment insights where beneficial	**Align workforce capabilities with investment needs:** Review and adjust workforce composition to ensure skills match the technical and commercial expertise required for investment focus	**Increase process transparency:** Use online portals that track milestones and decision explanations to give proponents better visibility of the process
	Establish secure hand-off processes: Enable smooth proponent transitions between SIVs through protected data-sharing arrangements that respect confidentiality and FOI obligations	**Create industry secondment programs:** Enable SIV professionals to gain experience in specialised finance roles through structured placements with industry partners	**Provide pre-application consultations:** Offer early-stage discussions where proponents can test concepts and receive guidance before formal submission

Recent steps to establish the **Investor Council** as part of the **Investor Front Door** already lay important foundations for these improvements, providing shared forums, clearer pathways for proponents, and early mechanisms for cross-SIV coordination.

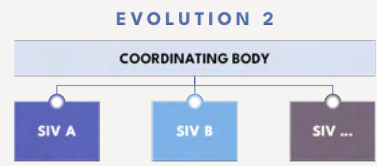
Note: Recommendations developed from Mandala expert interviews

In the medium term, adopting a 'capital-led' approach will improve coordination and strengthen internal capability

The second evolution represents structural reform of Australia's public capital system, introducing a coordinated governance model to align investment priorities across national objectives. The reform would be enabled by new legislation clarifying the role and function of SIVs.

- **Central coordination:** Establish a new independent body to set national investment priorities spanning strategic priorities like climate transition, supply chain security, adaptation and resilience. Operating at arm's length from government, the body would oversee funding allocation across SIVs and maintain independence from political direction in individual project decisions.
- **Single application gateway:** Create a common entry point for all proponents (expanding on the investor front door), allowing them to apply once and be directed to the most relevant SIV based on project maturity and capital requirements.
- **Specialised capital roles:** Position each SIV as a capital-led deployment vehicle with a distinct role along the innovation and project lifecycle (for example, early-stage equity, debt finance, or large-scale infrastructure investment).
- **Revised return expectations:** Align return settings to the policy intent and risk profile of each capital pathway and financial instrument, ensuring consistency across the public investment system.

Under this model, SIVs would retain their existing identities but operate within a coordinated, complementary capital stack.



Illustrative centralised governance model aligning mandates with priorities and specialisation[1] (2027 – 2030)

A coordinating body sets **investment priorities** and **oversees the deployment of public capital**, directing proponents to **specialised SIVs** that execute funding based on **stage and capital need.**

SIVs		cefc		NAIF	export finance australia
Capital focus	▪ R&D ▪ Early-stage tech ▪ Proof-of-concept projects	▪ Scale-up ▪ First-of-a-kind deployments ▪ Transition from pilot to commercial	▪ Established technologies ▪ Proven solutions ▪ Large-scale infrastructure		▪ Expansion to new markets ▪ Nationally significant projects

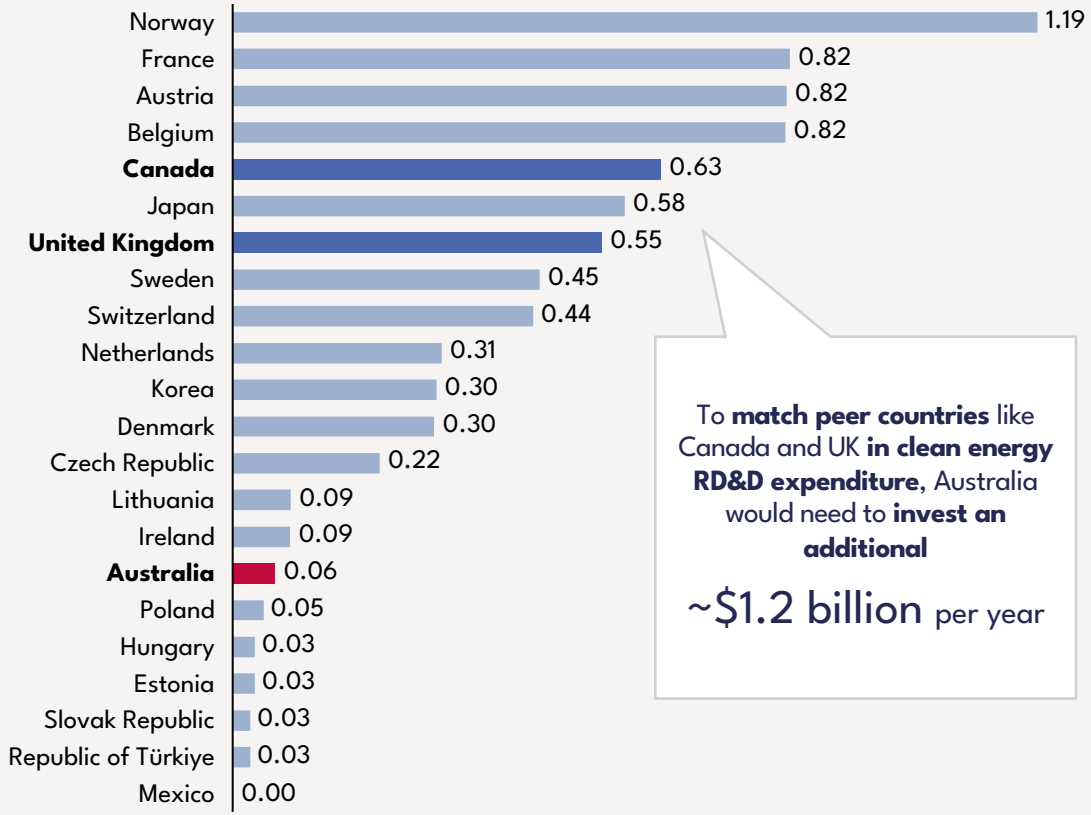
The enabling legislation that defines SIV functions is overhauled to make each vehicle **capital-led and complementary**.
This reform ensures each agency has a **distinct funding mandate** and **mechanism**, eliminating overlap and creating a coherent, **end-to-end investment system**.

Notes: 1. Illustrative overview of a potential governance arrangement, exact arrangements would be negotiated

A strong innovation pipeline requires rebalancing funding from deployment toward the early R&D and demonstration stages that drive future climate breakthroughs

Clean energy spending on research, development and deployment (RD&D)

Budget/thousand units of GDP, 2024



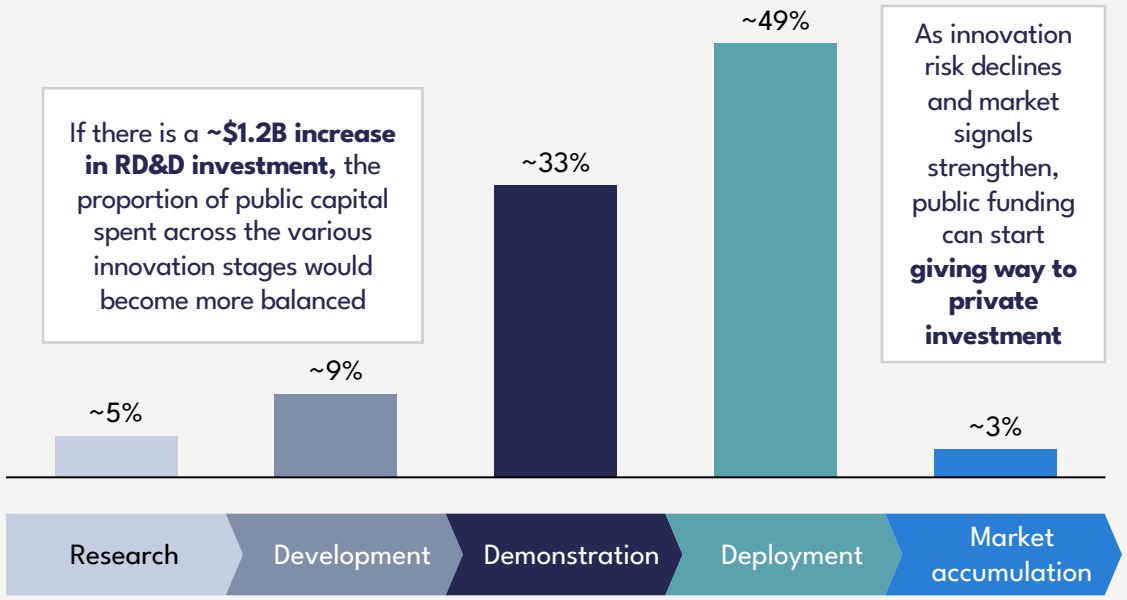
To **match peer countries** like Canada and UK **in clean energy RD&D expenditure**, Australia would need to **invest an additional**

~$1.2 billion per year

Note: Need for future investment is based on Australia's GDP of $1.7 trillion (World Bank, 2024) and scaling RD&D expenditure from 0.06 to 0.59 per thousand dollars of GDP (average of Canada and UK's RD&D intensity).
Source: IEA (2025) *Energy Technology RD&D Budgets Data Explorer*; World Bank (2025) *GDP (current US$) – Australia*; RBA (2025) *Exchange Rates – Daily - 2023 to Current*; Mandala analysis.

Illustrative distribution of public capital by innovation stage

% of total funding



International modelling suggests climate R&D is highly productive:

One study found that **every dollar invested today** can generate between **~$1.60** and **~$8** in **additional GDP** by mid-century, depending on the climate target.[1]

Note: Assuming deployment remains at historical annual rates, this ~$1.2B figure represents approximately 47% of total climate innovation spend. The proportional spend on deployment and market accumulation adjusts the proportions in public funding committed by SIVs by innovation stage on pg. 20, assuming this RD&D increase comes from what is currently allocated to the latter two stages. See appendix for detailed methodology.
Source: 1) Reis et al. (2023) *A research and development investment strategy to achieve the Paris climate agreement*

CASE STUDY: Germany's coordinated approach to strategic priority setting

Germany actively subsidises emerging technologies through a strong policy environment that forms a key pillar of its climate strategy. The government established the **Energy Research Programme (ERP) in 1977** and renews it in 5-year cycles to reflect evolving national energy and climate priorities.

The 5-year cycles enable policymakers to dynamically adjust research focus areas in response to evolving transition needs. By attaching these shifting priorities directly to funding tranches, the programme maximises public capital's impact on Germany's decarbonisation challenges in that point in time.

The **Federal Ministry for Economic Affairs and Energy (BMWE),** sets national priorities based on the needs of Germany at the time and funds research to drive the country's energy transition.

Bundesministerium für Wirtschaft und Energie

Key priorities of the current ERP (8th cycle starting in 2023)

- Energy efficiency
- Heating and cooling
- Renewable energy
- Capitalising research
- Hydrogen

Funding is split into two buckets: furthering research, and deploying projects impacting the energy transition at scale

Research projects, for long-term outcomes

- Universities
- Laboratories
- Research centres

Commercial infrastructure projects for short-term outcomes

- Public & private sector organisations

Source: IGCC (2024) *Driving Australian Climate Innovation; Unlocking capital to support a clean industrial revolution*

A unified fund will align public capital with national priorities across the all stages of the commercialisation lifecycle

The third evolution represents the most ambitious transformation of Australia's public capital system - consolidating all national investment programs into a unified fund model structured as a corporate Commonwealth entity. The coordinating body from the previous evolution will morph into the overarching, unified fund in this final iteration.

Under this model, every federal program that invests in projects or businesses is integrated into a single overarching fund, replacing today's patchwork of independent agencies

Key features of this model:

- **Centralised capital allocation:** A top-level fund allocates resources across specialised portfolio's aligned to different stages of the innovation lifecycle.
- **Rationalised resourcing:** Consolidated shared functions (communications, HR, legal, due diligence) across funds reduces duplication and improves quality through shared expertise.
- **Portfolio-level management:** Performance and returns are managed at the portfolio level, enabling strategic investment in national-interest projects that are less commercially viable.
- **Private capital leverage:** Each portfolio is designed to crowd in private co-investment, multiplying the impact of public capital.
- **Seamless proponent pathway:** Projects can move through successive portfolios as they mature, ensuring continuous support without reapplication or fragmentation, or exit at any point if they become commercially viable

'Australia Fund': A unified structure aligning capital with national priorities (2030 – 2035)

Australia Fund

Established by enabling legislation, this fund will allocate resources to underlying asset classes under each portfolio, each with specific set targets

	R&D	Venture	Growth & Expansion	Major Projects / Core Infra.
Dimensions of each portfolio	Early-stage research and proof-of-concept development	Demonstration projects and pilot-scale deployments	Scale-up, market expansion and production growth	Large-scale infrastructure and manufacturing projects

Each portfolio aligns to a distinct stage of commercialisation — from R&D and venture to growth and large-scale project finance, with coordination/hand-off between portfolios as projects scale

Evolution of/from	ARENA	NRFC		NAIF
		Main Sequence		
	CRC	CEFC		EFA
Primary funding instruments	Grants, tax credits	Minority equity, subordinated debt	Strategic loans, targeted guarantees, senior debt	Public-private partnerships, long-tenor debt
Capability required	Research expertise, IP management	Due diligence, strong VC networks	Capital structuring, strategy, M&A and operational guidance	Project finance, PPP structuring, project management

This unified structure creates a single, strategic engine for public investment - aligning every dollar of public capital with Australia's net zero, adaptation & resilience, and Future Made in Australia priorities.

Note: CRC refers to Cooperative Research Centres, a government program administered by DISR which funds Australian scientific research. Main Sequence is CSIRO's VC investment arm. This diagram is not reflective of all existing public funding entities, each of which would need to be assessed for its role in the 'Australia Fund' separately.

Under this unified fund model, public and private capital play distinct roles, with government leading at high-risk stages and private investors taking over as firms reach commercial scale

Fund design: Role of private and public capital

Portfolio	Who leads?	Public support required	Private capital role & expected returns		Public capital role & indicative returns[1]		Why public support may be needed
R&D Early-stage research and proof-of-concept development	Public capital	High	Does not participate (non-investable)	N/A	Absorbs 100% of technical failure risk	N/A	▪ Very high technical risk ▪ No commercial revenue pathway ▪ Very high positive externalities / knowledge spillovers
Venture Demonstration projects and pilot-scale deployments			Takes equity in high-potential technologies	~20-30%	Support de-risking of technical & first-of-a-kind deployments via minority equity + concessional loans etc.	~3-10%	▪ High risk + limited track record ▪ High CAPEX intensity ▪ Bankability barriers (no lender appetite)
Growth & Expansion Scale-up, market expansion and production growth	Private capital	Low	Takes equity positions in commercially proven businesses, supports scale, prepares firms for exit (buy-out / IPO)	~10-15%	Provide very targeted concessional loans and guarantees (e.g. procurement contracts) as strategic investments	~3-5%	▪ Bankability barriers e.g. new business models ▪ Supply-chain gaps ▪ Competitiveness constraints
Major Projects / Core Infrastructure Large-scale infrastructure and manufacturing projects	*Covers critical infrastructure projects that include support via public-private partnerships*		Invests via project equity and long-tenor debt in PPP structures; stable core-infrastructure returns	~6-10%	Provides senior debt, guarantees or availability-payment support to de-risk long-tenor infrastructure	~3-5%	▪ Long-tenor risk ▪ Geopolitical/supply-chain exposure ▪ Externalities not priced by market

Public capital is most catalytic upstream (R&D and demonstration) and most targeted downstream (major projects). **Private capital** gradually becomes the lead investor as technologies mature, with government stepping back or focusing on strategic risks only.

Note: 1. The level of public support depends on the financial instrument offered, the cost of providing concessionality, the public benefit delivered, and the degree of support required to make a project bankable.

SIV reform will extend the Future Made in Australia framework, equipping Australia to meet net zero targets and build a future-ready public investment system

Reforming how SIVs operate and **unifying them** under a **single investment platform** will deliver enduring economic, institutional, and fiscal benefits **well beyond 2050**

Faster, more coordinated deployment of public investment

- **Streamlined decision-making** enabled by clear mandates and reduced duplication across the investment system
- **Seamless capital pathways** that allow projects to access the right form of support as they mature
- **Simpler processes** with standardised applications and transparent criteria that cut red tape and speed delivery

A structure that adapts to national priorities

- **Built-in flexibility** to pivot capital toward evolving national priorities — from net zero to defence, adaptation & resilience, AI, and critical minerals
- **Unified governance** that clarifies roles, prevents overlap, and maintains accountability
- **Knowledge-sharing and collaboration** that spread best practice and strengthen institutional capability across the system

Smarter, more disciplined use of public capital

- **Specialised investment expertise** to identify, price, and structure opportunities with strong national impact
- **Better risk calibration** that crowds in private finance instead of displacing it
- **Reinvested returns** from well-structured deals that multiply the impact of each public dollar over time

APPENDIX

Appendix A - Overview of sources of insights

Combined data sources

Public reports and data

Source:
Reports from government agencies, official websites for investment vehicles

Information:
- Overview of SIVs
- Australian Net Zero Plan priorities
- Transactions from SIVs
- Funding allocated to agencies
- Treasury's economic modelling

Commercial databases

Source:
Revelio Labs

Information:
- Previous sector of employment for current staff in SIVs

Consultations with SMEs and stakeholders

Source:
Discussion with key stakeholders and experts in this space *(see page 37 for detailed list of stakeholders)*

Information:
- Key barriers to securing public capital funding pathways
- Industry informed recommendations on reforming public capital

Secondary research

Source:
Literature and journal articles, public websites

Information:
- International best practice case studies
- Project commissioning times
- Investment returns by asset class

Appendix B – Method overview for key analyses

Analysis and slide	Relevant page	Method description
Breakdown of FMIA allocation by government agency	▪ 11	1. Collated line items from the 2024/25 budget papers allocated to FMIA 2. Identified agencies responsible for or benefiting from each line item 3. Allocated budget items across agencies, distributing evenly where multiple agencies were involved
SIV allocated funding vs deployed	▪ 12	Data sourced directly from SIV annual reports and public releases
Rate of deployment	▪ 13	1. Calculated the annual average deployment rate for each SIV based on historical data 2. Apply this annual average deployment rate to estimate total deployment in 2030 and 2035 for each SIV 3. Calculated the total deployment across all SIVs in 2030 and 2035
Returns from superannuation funds	▪ 19	1. Collated 10-year net returns for all MySuper products from the ATO YourSuper comparison tool 2. Where returns were reported as a range, calculated a 65% upper-weighted average of the return for that particular product 3. Calculated the average across all the products to establish a representative return for superannuation funds
Distribution of commitments across the innovation cycle	▪ 20	1. Collated proponent/project-level commitment figures for the five SIVs 2. Developed descriptions for each stage in ARENA's innovation chain framework 3. Classified each transaction into framework stages using a large language model (LLM) with web search capabilities. ○ The LLM was provided with the stage descriptions and project details, allowing it to gather context about each proponent/project to reason and inform its categorisation decisions. The LLM flagged projects/proponents where it was uncertain about classification. To validate outputs, all flagged uncertain classifications underwent human review, along with a randomly selected subset of certain classifications. 4. Analysed data by stage of innovation chain framework

Appendix B – Method overview for key analyses

Analysis and slide	Relevant page	Method description
Workforce capability	▪ 22	Determined each investment vehicle's workforce composition by examining employees' previous sector experience using Revelio Labs' workforce database
Economic modelling of the transition	▪ 24	Data sourced directly from Treasury's modelling and analysis of various transition scenarios
Required clean energy spending on RD&D to match peers	▪ 31	▪ Filtered IEA data to obtain RD&D (Research, Development and Demonstration) intensity as a percentage of GDP for various countries ▪ Averaged Canada and UK's RD&D intensity figures as a target for Australia, given they are peer countries ▪ Calculated Australia's potential clean energy RD&D spend at peer country intensity levels ▪ Calculated the average annual spend on RD&D based on data from pg. 20 ▪ The delta between potential and current average RD&D spend represents the required new investment to match peer countries

New distribution of public capital	▪ 31	▪ Calculated the annual average deployment rate from pg. 13
		▪ Calculated the new RD&D spend (~$1.2B) as a proportion of the deployment rate
		▪ Allocated the new RD&D spend using the 70/20/10 rule of thumb[1]:
		  ○ 70% to advancing key projects in demonstration stages
		  ○ 20% to new opportunities in development
		  ○ 10% to breakthrough research
		▪ Adjusted the proportional spend on deployment and market accumulation based on the innovation stage proportions from pg. 19. The RD&D increase is reallocated from these latter two stages, weighted by their current funding split, with more funds drawn from deployment than market accumulation.

1. McKinsey (2019) *The innovation commitment*; HBR (2012) *Managing Your Innovation Portfolio*

Appendix C – List of stakeholders engaged

Stakeholder	Consultation overview
A Specialist Investment Vehicle (SIV)	Discussed internal challenges and decision-making processes as a SIV operating in the current investment landscape. Explored constraints around mandated return targets, portfolio balancing between commercial and concessional investments, and how these requirements shape investment decisions in practice.
Applicant to SIV funding	Shared insights on how project proponents access SIV funding, including positive aspects and pain points in interactions with SIVs. Covered application processes, timeline expectations, due diligence requirements, and the challenges of navigating this relationship.
MD at a climate investment firm	Provided perspectives on Australia's domestic investment landscape and transition challenges, drawing on experience at a climate investment firm and government authority. Discussed SIVs' misalignment with transition needs, lack of strategic coordination across vehicles, and the need for more dynamic mandates.
Climate Energy Finance	Discussed how they track public capital deployment and how different government funding agencies and mechanisms operate. Covered data collection challenges, categorisation of funding types (grants vs loans vs equity), and analysis of deployment patterns across different vehicles.
An advisory firm doing similar work	Shared insights from their consultations with SIVs and private investors conducted as part of similar work in this space. Explored common themes emerging from their stakeholder engagement around return expectations, risk tolerance, and the gap between SIV mandates and market needs.
Australian Energy Market Commission	Discussion of energy transition priorities and key market challenges. Covered obstacles to meeting renewable energy targets including transmission and generation constraints, emerging grid pressures from new loads, and the economics of new generation and transmission infrastructure.
Mandala's energy & climate SME network	Consulted internal and external subject matter experts with extensive experience in this space to sense check research findings and stress test ideas throughout the project. Leveraged their diverse perspectives to validate analytical approach and identify potential blind spots in the research.

Investor
Group on
Climate
Change

MANDALA