Make stuff here ... or else:

A framework for deciding what Australia must produce, repair or regenerate domestically

REPORT

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AI contributed no ideas to this report.

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Executive summary

Australia's prosperity rests on systems that appear permanent but depend on continuous, often unseen, inputs that arrive from beyond its borders. That model worked in an era of stable global trade, but recent shocks, from the Covid-19 pandemic to geopolitical disruption, have exposed a structural weakness. Australia must now shift from optimising for cost to securing continuity, and it must do so with urgency and discipline. This paper draws on public policy documents, industry case examples and published data to frame resilience as a practical national problem. This work is a follow-up to the 2025 'Make Stuff Here'—a blueprint to reinvigorate Australia's economy.[1]

This report argues that national resilience is not an abstract policy ambition but a measurable engineering problem. At its core is the concept of the Sovereignty Countdown: the time a critical system can continue operating if external supply is disrupted. Every essential function—water, energy, fuel, food logistics, communications—operates within this constraint. When the countdown expires, continuity depends on external actors, and sovereignty narrows in practical terms.

Australia currently operates within a dangerous lag. Policy has pivoted towards resilience, but physical capability hasn't yet caught up. Decades of rational, efficiency-driven decisions have hollowed out the domestic production layer—the industrial ecosystem that repairs, replenishes and sustains national systems. In its place, Australia relies heavily on storage and logistics. Those extend time but don't regenerate supply. When supply chains falter, the nation shifts from steady-state operation to drawing down finite reserves.

The report introduces a clear framework:

- Production sustains systems.
- Systems deliver essentials.

Weakness in the production layer creates cascading risk across the entire system. Case studies in water-treatment chemicals, liquid fuels and fertiliser demonstrate that vulnerabilities operate on different timelines, but all converge on the same strategic reality. Some failures emerge in days, others in months, but each reflects a countdown that can be measured, managed and extended.

The central policy recommendation is the establishment of a National Resilience Test. Governments and critical-infrastructure operators must identify key inputs, quantify consumption rates and calculate how long systems can endure without external supply. These countdowns should be benchmarked against a defined National Survival Threshold, and gaps should be treated as formal strategic vulnerabilities requiring remediation.

Closing those gaps requires a structured mix of interventions: targeted stockpiling, system redesign for substitution, and, critically, rebuilding domestic production capability where resupply timelines exceed available buffers. This doesn't require autarky, as trusted, reliable and secure partnerships will continue to be a mandatory feature of Australia's national resilience. As set out in the 2026 National Defence Strategy, strengthening self-reliance and sovereignty requires the combination of identifying which inputs must be sustained locally to preserve national continuity and the identification of key reliable international partnerships. Those must be free from coercion and available even in times of crisis.

For policymakers and the private sector, the implication is clear. Resilience carries a cost, but so does unpriced exposure. Australia can either invest deliberately in sovereign capability now or accept constrained choices later. The task ahead is practical and achievable: measure endurance, define acceptable risk, and build the industrial depth needed to ensure that continuity rests on capability, not assumptions.

Recommendations

1. Establish a National Resilience Test. The federal government, led by the Department of Home Affairs and Treasury, should build on the existing Security of Critical Infrastructure (SOCI) framework by introducing a staged national resilience testing system for critical-infrastructure operators. Home Affairs should lead the security architecture, while Treasury should assess the fiscal and economic consequences of infrastructure failure, including inflation, supply shocks and productivity loss. Rather than imposing immediate blanket mandates, the framework should begin with voluntary participation, capability uplift and sector-specific benchmarks before maturing into minimum resilience obligations for nationally significant systems. Operators should identify critical inputs, quantify consumption rates, map dependencies and calculate how long operations can continue during major supply disruption. The result would create a national 'Sovereignty Countdown': a baseline measure of Australia's operational endurance across fuel, energy, freight, telecommunications, food and industrial systems.

Because this information would reveal nationally significant vulnerabilities, the resulting data should be handled as sensitive national resilience information: protected from public release where necessary, shared across relevant federal agencies, and selectively shared with trusted partners where doing so improves coordinated resupply, contingency planning and economic-security response.

2. Define and enforce a National Survival Threshold. The national cabinet should establish minimum endurance standards for systems delivering essential services, including water, energy, fuel, communications and food logistics. Home Affairs should coordinate the national critical infrastructure framework, while

the Department of Industry, Science and Resources should lead sector-specific resilience planning across energy, resources and industrial supply chains. Treasury should model the economic and fiscal consequences of system failure and identify threshold risks to national productivity and market stability. Defence should advise on national-security implications and operational requirements during crises. Regulators, including the Australian Energy Regulator, the Australian Communications and Media Authority and other sector-specific authorities, should enforce compliance and require operators falling below minimum thresholds to implement remediation plans within defined time frames. The framework would shift resilience from aspiration to obligation and reduce the risk of essential systems operating on dangerously short buffers.

3. Identify and close sovereignty gaps. The national cabinet should task the Department of Home Affairs with leading a joint government–industry program to identify the systems with the shortest and most consequential resilience countdowns and prioritise their remediation. Treasury and the Department of Industry, Science and Resources should support the process by assessing economic impacts, supply-chain dependencies and industrial capability gaps, while Defence should advise on national security and operational risks. The federal government should coordinate and resource the effort, but infrastructure operators must implement the required technical solutions. Those solutions should focus on three levers: extending buffers through storage, enabling flexibility through substitution and restoring domestic production capability where resupply timelines exceed available buffers. The approach ensures that the national effort concentrates on vulnerabilities most likely to trigger systemic failure.

4. Rebuild the domestic production layer. The national cabinet, supported by federal and state treasurers, should establish a coordinated national industrial resilience program to restore targeted domestic capability in repair, processing, fabrication, advanced manufacturing, trusted hardware and secure software, along with the design, prototyping and certification of critical technologies. The Department of Industry, Science and Resources should lead industrial policy design and capability prioritisation, while Treasury should align financing mechanisms, investment incentives and economic risk modelling. State and territory governments should lead workforce development, land-use planning and enabling infrastructure, while private industry should deliver operational capability and industrial depth. The objective is to ensure that Australia can regenerate the critical physical and technological inputs its systems consume, reducing reliance on external supply during disruption and restoring practical sovereignty.

5. Establish a National Financing Architecture for Resilience. Treasury and the Department of Industry, Science and Resources, working through the national cabinet and the Treasurers' meeting, should lead the design of financial mechanisms that make resilience investable across critical supply chains and infrastructure systems. The National Reconstruction Fund Corporation should establish a dedicated continuity and resilience investment stream focused on strategically significant industrial capabilities, logistics networks and enabling infrastructure. Government should also work with the Australian Prudential Regulation Authority, the Australian Securities and Investments Commission, institutional investors and superannuation funds to develop security-of-supply agreements, resilience bonds and structured co-investment mechanisms that recognise continuity as a national economic and security priority rather than a narrow commercial calculation. Boards, regulators and fiduciary frameworks should increasingly treat resilience and continuity risk as core governance obligations. That approach would distribute the cost of resilience deliberately across governments, markets and institutions instead of forcing governments to absorb catastrophic system failures during crisis.

6. Implement these new tests and thresholds with a strategic communications plan. The plan would set out the objectives and explain why, in some instances, it might mean paying more in the short term to increase reliability and resilience in the long term. In this regard, the communications plan should transparently explain to the public and Australian industry why Australian sovereignty, self-reliance and national security doesn't mean autarky, self-sufficiency or independence but rather the combination of strengthening both national capability and trusted international partnerships. This means being up-front that some additional costs will be necessary and that diversification involves enhancing those partnerships that are trusted (for example, AUKUS or the Quad) while reducing dependence on those that have proven less reliable and secure (for example, those nations or companies that have carried out coercion or otherwise stopped providing goods in times of need).

1. A comfortable nation in an uncomfortable world

Australia today remains, by almost any objective measure, a stable and prosperous nation. The essential systems of modern life function so reliably that they're barely noticed: the lights turn on at the switch, clean water flows from the tap, and supermarkets remain stocked with goods from around the world. Because those outputs are so consistent, it's natural for the Australian public to assume that the underlying systems are self-sustaining and permanent.

That sense of stability is the result of a lot of hard work. It's the intended outcome of a decades-long economic consensus. It's also the product of policy settings and supply-chain assumptions documented in recent public inquiries and government strategy documents. As recently as 2021, the Productivity Commission's Inquiry into Vulnerable Supply Chains[2] formalised this view, concluding that Australian supply chains were 'generally resilient' and that risks were best managed by individual firms optimising for cost and efficiency.

In the early 21st century, when global trade was relatively frictionless and the maritime commons appeared secure, that approach made sense. By treating supply as a corporate procurement task rather than a sovereign security requirement, Australia successfully lowered costs and underpinned a generation of economic activity.

That operating environment has changed. The pandemic exposed the fragility of extended supply networks, and subsequent geopolitical disruptions showed that efficiency and contractual diversification offer only limited protection when movement through key maritime routes is disrupted. When a critical commodity can't reach the continent, contractual logic becomes secondary to the reality of access.

As we write, the Australian Government is reacting to this shift. In a short period, the national policy posture has undergone a radical escalation. From the stark warnings of the 2023 Defence Strategic Review[3] to the historic intervention of the 2024 Future Made in Australia Act,[4] the machinery of government has pivoted. Resilience and sovereign capability are now stated central priorities of national economic and security policy. The question isn't whether Australia should make everything here. In many cases, continuity will depend on a combination of domestic capability, trusted international partners and hybrid supply arrangements. The question is which capabilities Australia must be able to sustain domestically, and how.

However, a policy pivot isn't the same as a physical pivot in industrial capability. New legislation can be passed in a week. The physical bedrock of industry can't be created overnight. New refineries, smelting furnaces, chemical plants, and the skilled workforce needed to run them all take time to generate. There's a dangerous lag between the moment a nation recognises its vulnerability and the moment it has the physical means to reduce it. In many cases, this can be years, and can be compounded by the very availability constraints the new facilities are being expedited to resolve.

Australia is operating within that lag now (Figure 1). Despite the intensity of recent policy activity and the establishment of emergency taskforces to manage immediate fuel and shipping shortages, the underlying physical constraint remains.

Figure 1: The timeline of new capability

Source: Author's work

2. The evolution of sovereignty

In 2025, the initial Make Stuff Here blueprint diagnosed a stagnation of the Australian economy. It identified Australia as an outlier among advanced nations, possessing immense natural wealth and intellectual capability but lacking the economic depth to transform that wealth into high-value exports. The thesis argued that a factory does more than production; it provides the reason for workforce development and technical skills and acts as a laboratory for engineering breakthroughs. By abandoning the messy business of manufacturing, the nation began to lose its 'immune system'—the invisible industrial supply layer that allows a country to sustain and develop its own modern infrastructure.

This industrial layer is a dense ecosystem of machine shops, processing facilities, material suppliers and skilled technicians. It's the ecosystem that allows a country to repair and replenish the systems of modern life. As domestic manufacturing declined, that ecosystem degraded alongside it. Specialised workshops closed, machine tools became difficult to source, local production of industrial inputs shut down, and technical knowledge moved offshore. In this transition, Australia moved from owning the means of its own survival to being a customer for it.

This contrast can be simply understood by the comparison between a dog and a wolf. A well-kept dog lives a comfortable life, but it exists in a state of dependency; it possesses no inherent mechanism to fill its own bowl if the delivery stops. It's a 'supply hostage'. In contrast, the wolf represents sovereign capability. It possesses the tools (its own teeth and claws) and the workforce of its pack (trusted partners) to help it sustain itself. Because the wolf can hunt, it retains the most critical attribute of a sovereign actor: the power to choose how it lives.

This is what sovereignty means in practical terms. If a nation's water, power and transport function only because a foreign power provides the necessary chemicals or components, that nation has lost its power to say 'No'. It has become beholden to the permission of others to keep its society from suffering. We therefore define sovereignty as: 'The ability of a nation to maintain system operation without being forced to accept externally imposed conditions'.

To be clear: this doesn't mean isolating from the rest of the world, but needing to reduce dependency on untrusted partners and increase both national capability and trusted partnerships.

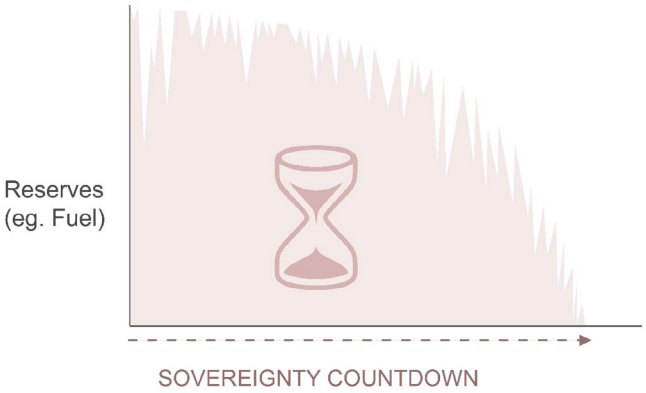
Australia didn't lose its industrial sophistication through any single failure of leadership or strategy, but through thousands of small, rational decisions. For a CEO or procurement manager, the logic was undeniable: if a component could be sourced offshore at a fraction of the domestic cost, it was a fiduciary duty to do so. This strategy was mathematically sound during a long era of global stability but relied on the assumption that supply chains were a frictionless, neutral utility.

That assumption no longer holds. Cost is a corporate measure; continuity is a sovereign measure.

A firm can optimise for cheapness. A nation can't afford to optimise for cost if doing so strips away its physical capability to endure a crisis. Australia has exchanged the hard, noisy work of workshops, foundries and processing plants for the clean efficiency of a distribution warehouse. But a warehouse, no matter how sophisticated, can't manufacture a replacement turbine shaft or refine a litre of diesel; it can only store what's already been made until it empties out.

Once that shift occurs, vulnerability stops being an abstract geopolitical concern and becomes a measurable engineering problem. The question is no longer what the market prefers in normal conditions, but which input fails first, how quickly, and what domestic capability exists to prevent loss of service. This is the 'Sovereignty Countdown' (Figure 2).

Figure 2: The Sovereignty Countdown



Source: Author's work

A critical system begins with a finite reserve. If external supply stops, that reserve declines over time. The Sovereignty Countdown is the period between interruption and the point at which continuity can no longer be sustained from reserves, substitutes and domestic capability already in hand.

3. The continuity mandate

Citizens experience a modern nation as stable and enduring. Infrastructure appears permanent: dams, bridges, hospitals and networks seem built to last. But that perception is misleading. A modern nation isn't a collection of fixed assets; it's a system in continuous operation and constant decay. Every functional component is subject to wear, fatigue and finite life. Even when idle, systems deteriorate through corrosion, ageing and environmental exposure.

What appears stable isn't permanence, but deterioration held in check through continuous maintenance, repair and replacement.

This creates a simple requirement. Critical infrastructure must be continuously restored. If regeneration keeps pace with consumption, systems remain stable. If it doesn't, failure is only a matter of time.

For much of the past three decades, that requirement was met through global supply chains. When trade functioned reliably, the origin of inputs mattered less than their cost and availability. Maintenance, replacement and resupply could be treated as procurement tasks rather than sovereign capabilities.

Supply chains are increasingly shaped by geopolitical competition, economic coercion and contested transport routes. Access to the critical inputs, components, materials and technical services can no longer be treated as neutral or guaranteed. This shift forces a change in national priorities. For an individual firm, minimising cost remains a rational objective. For a nation, continuity must take precedence. Essential systems must keep functioning under stress, not just in steady state.

The distinction is practical. A company can optimise for efficiency. A nation can't do so if it removes the capability needed to sustain critical systems during disruption. When production is externalised and domestic capability erodes, continuity becomes time-limited.

This can be understood through a simple structure. A modern nation operates across three interdependent layers: essentials, systems, and production (Figure 3).

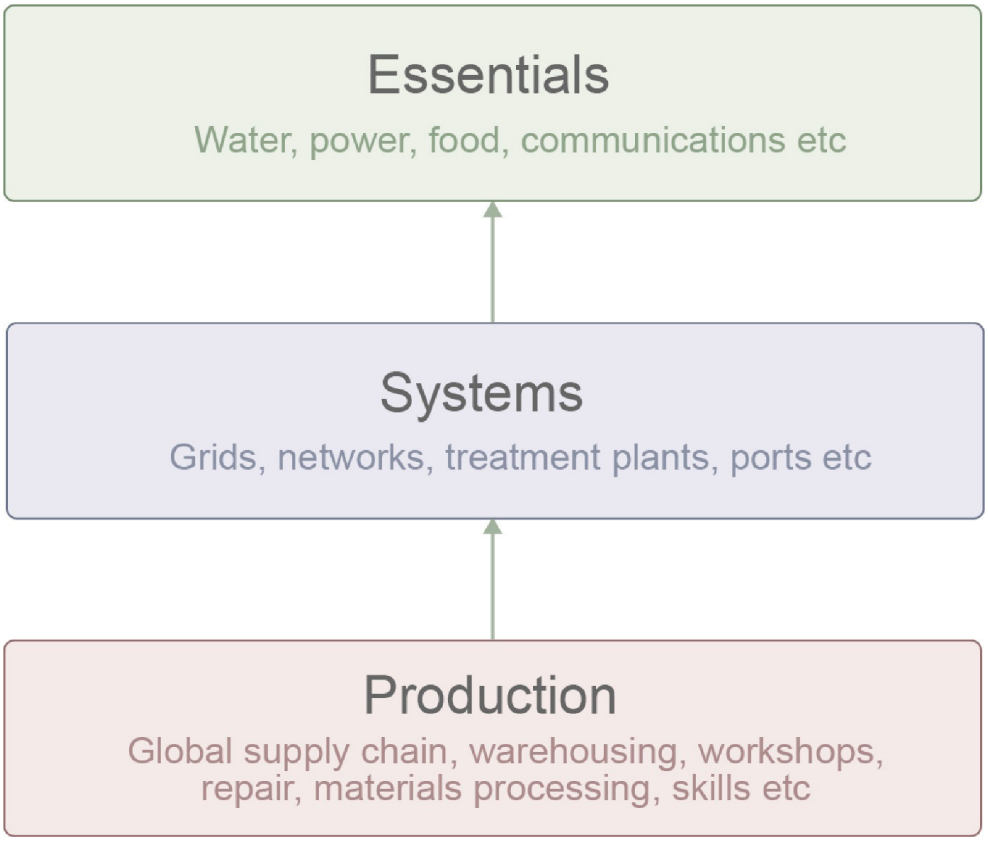
Essentials are the immediate outcomes required for daily life: clean water, energy, communications and food distribution.

Systems are the physical networks that produce and deliver those outcomes, including treatment plants, grids, transport networks and logistics chains.

Production is the underlying capability to manufacture, repair and supply the components, materials and skills that those systems consume.

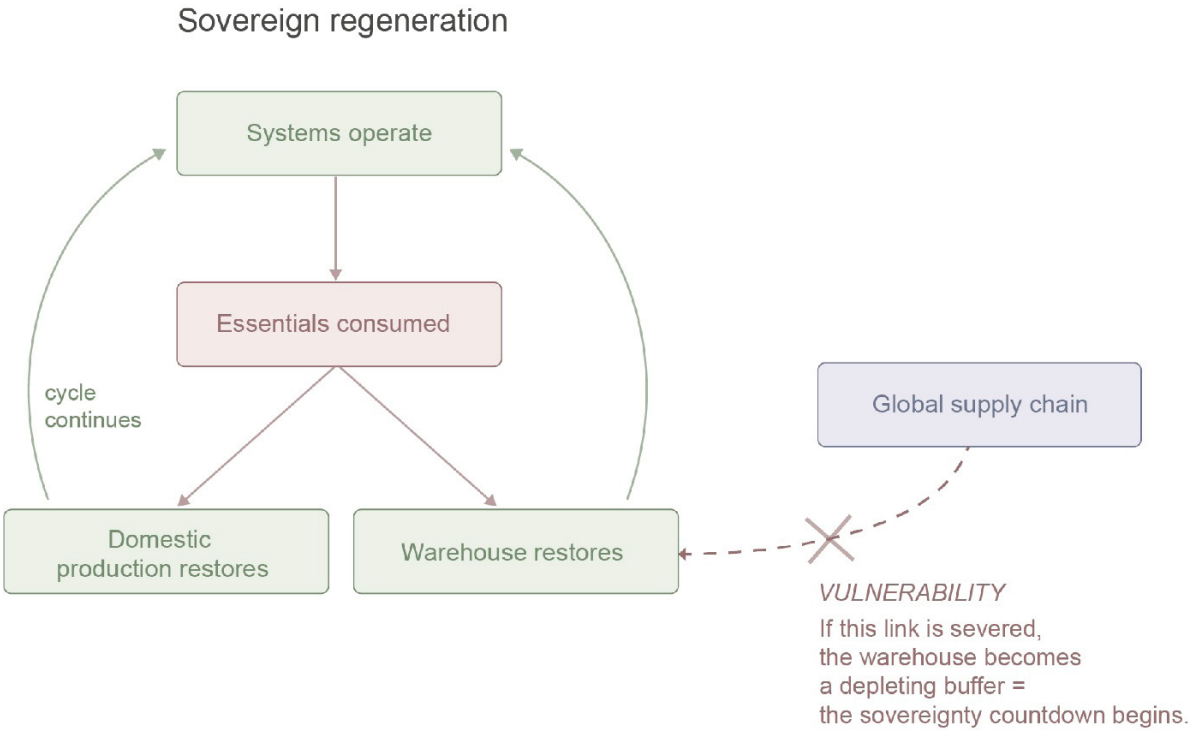
The relationship between these three layers is simple: production sustains systems; systems deliver essentials. Each is dependent on the layer below it.

Figure 3: The anatomy of a nation



Source: Author's work

Figure 4: Domestic production alleviates vulnerability



Source: Author's work

If production keeps pace with physical consumption, systems remain stable and the essentials continue to flow. If it falls behind, systems begin to degrade. If it's removed, the systems can only operate until existing buffers are exhausted. At that point, failure propagates upward, and essential services are compromised.

The difference between resilience and a fragility lies in the strength and responsiveness of the production layer. Where a nation retains the ability to repair, replace and regenerate critical inputs, it can sustain continuity under pressure. Where it doesn't, it becomes dependent on external supply to maintain normal operation.

The structural trap: running on stored time

Transport and storage are essential parts of the systems layer. They move goods and hold reserves, allowing short disruptions to be absorbed. In both of those areas, Australia has selectively strong capability.

But their limits are clear. Transport moves what already exists. Storage holds what's already been produced. Neither regenerates supply. When domestic production declines and is replaced by logistics and inventory, the system shifts from regeneration to buffering. As long as external inputs continue to arrive, this remains largely invisible. When they don't, the system begins to draw down finite reserves.

This is the structural trap. The nation is no longer sustaining itself; it's consuming stored time. Inventories shrink. Maintenance becomes constrained. Failures become harder to resolve. Transport and storage can delay these effects, but they can't reverse them. Once depletion begins, continuity becomes time bound.

This leads directly to a practical question: if external supply were interrupted (Figure 4), how long could the system continue operating before its reserves are exhausted?

Exploiting vulnerability

Dependence creates exposure. When critical systems rely on external inputs, fuel, chemicals, components, software or technical support, those dependencies can be observed and exploited.

Modern coercion rarely requires direct confrontation. It's often more effective to disrupt or constrain the flows that sustain a system. Delays, reprioritisation, regulatory pressure or restricted access can all reduce availability without overt escalation. The actors involved aren't limited to adversaries. A hostile state may act deliberately. A competitor may act in its own interests. Even a partner may prioritise domestic demand during crisis. In each case, the effect is similar: reduced access to the inputs required for continuity.

This shifts vulnerability from a logistical issue to a strategic one. When continuity depends on external supply, those who influence that supply gain leverage.

The result is constraint. Governments are no longer choosing what's optimal. They're choosing what's possible under pressure.

This is the distinction between fragility and exploitability. Fragility describes the risk of failure. Exploitability describes the ability of others to shape outcomes before failure occurs.

Sovereign capability reduces that leverage. Where a nation can sustain, repair and regenerate critical systems domestically,

external pressure loses effectiveness. Continuity no longer depends on external permission.

Dependency is more than a passive exposure to disruption. It can become a condition for coercion. A strategic actor doesn't need to create a national crisis if it can see where Australia's critical systems already rely on short buffers, narrow suppliers or predictable resupply windows. If chemical inventories, fuel reserves, spare-part dependencies or agricultural input cycles are known, pressure can be applied at the point where disruption would be most difficult to absorb and politically hardest to ignore.

These risks take different forms. Some disruptions are inadvertent: pandemics, natural disasters, commercial failures or transport interruptions that reduce supply without hostile intent. Others are structural: concentrated markets, monopoly processing, foreign-controlled inputs or dependencies that allow external actors to shape Australian choices before any formal crisis begins. A third category is contested access: maritime choke-points, export controls, sanctions, insurance constraints, cyber disruption or regulatory pressure that restricts the movement of critical goods.

Those modes differ in intent, but they converge on the same practical question: how long can Australia sustain an essential system before it must accept external conditions to keep that system operating? This is where resilience becomes inseparable from economic statecraft. Australia must be able to anticipate pressure, absorb shocks and act across multiple fronts at once. That requires knowing where dependence becomes leverage, and removing the points of leverage before they're used.

4. Defining the Sovereignty Countdown

The stability of a modern nation is often discussed in abstract terms such as growth, diplomacy or social cohesion, but the continuity of its critical systems is governed by a more concrete constraint. When the production layer, the engine of regeneration, sits outside the national boundary, those systems are no longer fully self-sustaining. Their operation becomes time-bounded.

That constraint can be expressed through the Sovereignty Countdown: the estimated period for which a critical system can continue operating after external supply is interrupted, using only the inventory, reserves, substitutes and domestic capability already available. A critical system begins with a finite reserve: fuel in tanks, chemicals on site, spare parts in storage, or service life remaining in installed equipment. If external supply is interrupted, that reserve begins to decline. The length of time between interruption and exhaustion sets the Sovereignty Countdown.

This is the period during which continuity remains possible using what's already present. Once that reserve is consumed, the system crosses from temporary stress into dependence. At that point, continued operation depends on whether supply can be restored from outside, substituted in time, or regenerated domestically.

That's why the countdown matters. It converts resilience into a measurable question of endurance.

This isn't a prediction of war or a forecast of imminent collapse. It's a practical measure of endurance: if external supply stopped tomorrow, how long could the system continue operating before stored inputs were exhausted and continuity was placed at risk?

Viewed this way, sovereignty becomes less a matter of rhetoric and more a matter of operational reality. A sovereign nation can sustain its critical systems without being forced to accept external conditions simply to keep essential functions alive.

If a country can't estimate its Sovereignty Countdown, it can't properly judge the limits of its own independence. It's operating on unmeasured time and assuming a level of security that its physical architecture might no longer support.

Finite buffers and the point of dependence

Modern infrastructure doesn't fail the moment a shipment is delayed, because critical systems carry buffers. Those may take the form of spare parts in warehouses, fuel in reserve, chemical inventories, consumable stockpiles, or the remaining service life of equipment already in operation. Such buffers are essential. They absorb routine delays, smooth short-term volatility, and allow systems to continue functioning when supply is briefly disrupted.

But buffers have strict physical limits. They extend continuity. They don't regenerate it. When active production has been replaced by storage, a nation has converted part of its industrial foundation into a finite reserve. Stockpiles may delay failure, but they can't prevent it indefinitely. Without domestic regeneration or renewed external supply, the buffer can only decline.

This is the critical transition. As long as reserves remain available, the system can continue operating, even under stress. Once those reserves are exhausted, the issue is no longer efficiency or inconvenience. It becomes dependence. Continued operation now rests on whether external actors are willing and able to restore the required flow of inputs.

At that point, strategic freedom narrows sharply. The country may still possess the infrastructure itself, but it no longer fully controls the conditions of its operation. It must either accept the terms on which supply is restored or endure the loss of critical capability. The practical meaning of the Sovereignty Countdown is therefore not the moment of total collapse, but the moment when continuity ceases to be fully under domestic control.

The engineering framework

The Sovereignty Countdown is a practical engineering measure. Every organisation responsible for critical infrastructure should be able to answer a simple question: how long could this specific system continue operating if external supply stopped?

This is the basis of the National Resilience Test. The test identifies the inputs a critical system needs to remain operational, measures how long those inputs can be sustained from domestic reserves, substitutes and production, and then assesses whether trusted-partner supply could extend that endurance under credible disruption scenarios.

Domestic capability provides the minimum period for which Australia can sustain an essential system without external supply. Trusted-partner access may extend that period, but only if it's specific, timely, reliable and available under the conditions being tested. A promised supply pathway that can't be activated during contested access, allied shortage or political pressure shouldn't be treated as equivalent to domestic capability.

The purpose of this audit is to identify the shortest and most consequential countdowns. These are sovereignty gaps: points at which the nation could quickly lose control of essential functions because a critical input, component, material or skill can't be replaced in time. Such gaps often appear in systems that rely on imported consumables, specialised components, foreign software support or scarce technical capability.

Identifying these gaps is a basic requirement of responsible stewardship. Once they're visible, the corrective actions become clearer: strategic stockpiles where appropriate, targeted domestic manufacturing and repair capability, stronger maintenance capacity, substitution pathways, and the rebuilding of critical industrial skills.

If national resilience is treated as a measurable engineering problem rather than a rhetorical one, the country can begin to extend its sovereign time and reduce the degree to which continuity depends on external permission.

5. Measuring sovereign time

If sovereignty is the ability to maintain system operation without being forced to accept externally imposed conditions, then the first task is measurement. Strategic risk that remains unmeasured can't be managed. At present, many of the organisations responsible for Australia's critical infrastructure can't state with precision how long their systems could continue functioning if external supply were interrupted. In the absence of that visibility, present operation is easily mistaken for underlying security.

The first practical requirement is therefore a National Resilience Test. Every entity responsible for a critical network should be required to identify the specific inputs its system consumes to remain operational, determine which input fails first under disruption, and calculate how long those inputs could continue to be supplied, substituted or regenerated domestically if external supply ceased. This includes not only major commodities such as fuel, but also the ordinary consumables, spare parts, technical services, and specialist materials without which complex systems stop functioning. The Sovereignty Countdown of any system is set not by the last input to fail, but by the first.

Once those countdowns are known, they must be judged against a defined national standard. A country can't protect its freedom of action if critical systems are allowed to operate on an arbitrarily short margin. Australia should therefore establish a National Survival Threshold: a minimum sovereign buffer for systems essential to water, energy, fuel, communications, food logistics, health, and other core functions. The precise duration is a matter for policy and strategy, but the principle is simple. Systems critical to national continuity shouldn't be allowed to operate close to zero.

Where a system's measured countdown falls below that threshold, a sovereignty gap exists. These are the points at which the country could most quickly lose practical control over its own continuity. Framed this way, resilience policy stops being a vague aspiration and becomes a disciplined engineering task. The question is no longer whether Australia feels resilient. It's which systems are operating on insufficient sovereign time, and what must be done to extend it.

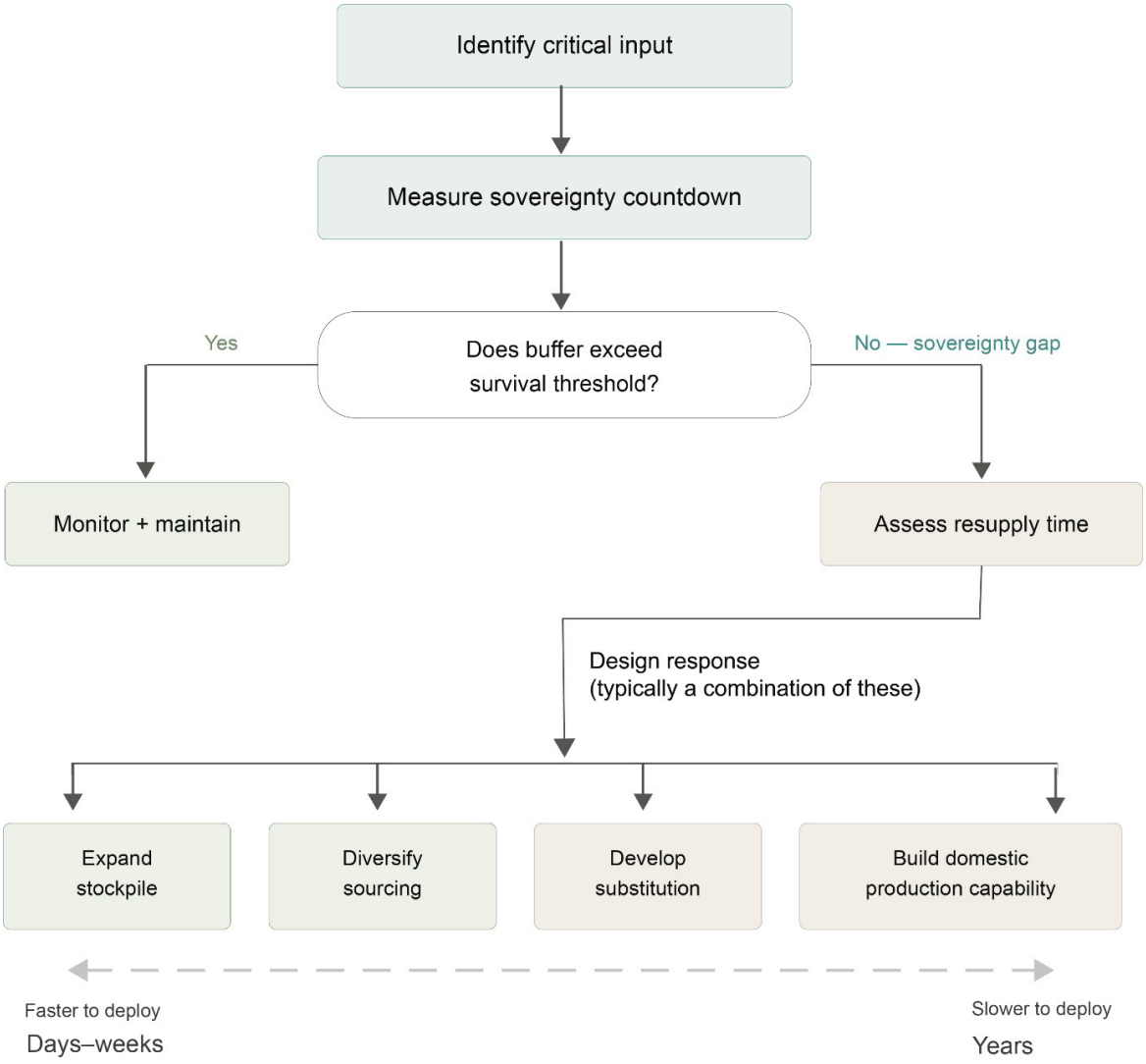
Closing the sovereignty gap

A sovereignty gap can't be closed through logistics alone. Storage and transport are necessary, but they don't regenerate supply. A warehouse can hold inventory and a network can move it, but neither can produce new stock once reserves are exhausted. Without replenishment, a system built only on inventory enters a simple process of depletion. Stockpiles buy time. They don't restore continuity.

Closing the gap requires a production layer: the domestic capability to manufacture, process and restore the inputs that critical systems consume. This industrial depth, including workshops, machining, repair facilities and the engineering services required to operate them, allows a nation not merely to delay failure, but to sustain continuity under pressure. It marks the difference between consuming stored time and extending it.

This doesn't require total self-sufficiency or purely domestic supply. The question isn't whether every input should be made onshore, but which inputs are so critical that Australia must retain domestic capability to sustain them. Policy should be guided not by general industrial ambition, but by a continuity test: where the time

Figure 5: The decision logic



Source: Author's work

required to restore supply during disruption exceeds the domestic buffer available, a sovereignty gap exists.

That test provides the practical decision rule (Figure 5). If the realistic resupply time for a critical input under disruption conditions is shorter than the existing domestic buffer, strategic stockpiling may be sufficient. If the resupply time exceeds the buffer, or if the disruption is prolonged, domestic production or repair capability becomes necessary. The distinction matters because it prevents the framework from collapsing into an unrealistic demand for onshore production of everything, while still identifying the cases in which sovereign production capability is necessary to close the gap.

This logic prioritises three categories:

1. Essential consumables: inputs with short countdowns and limited storage, such as water-treatment chemicals, where interruption quickly leads to loss of service.
2. System enablers: inputs such as liquid fuels that allow transport, logistics and emergency response to continue.
3. Critical components: specialised parts required to keep infrastructure in service; they may be needed infrequently, but without them an essential system can remain stranded.

In each case, the objective is to retain enough domestic capability to prevent a short disruption from becoming systemic failure. Rebuilding the production layer isn't an ideological commitment to manufacturing. It's a structured program of risk reduction. It shifts the national task from asking what Australia would like to make to identifying what it must be able to sustain.

Case studies in continuity

The practical value of the Sovereignty Countdown is clearest when it's applied to specific inputs. Not all dependencies fail on the same timescale. Some create risk within days, others within weeks, and others only at the cadence of a planting season. The following three examples, drawn from publicly visible supply dependencies, illustrate that range and show why continuity planning must begin with the most immediate physical constraints.

Drinking water

Australia's water utilities are technically advanced and generally well operated. The core infrastructure of the system, including dams, pipes, pumping stations and treatment plants, is domestic, durable and largely under national control. The vulnerability lies elsewhere. It sits in the narrow range of chemical inputs required to make raw water safe for continuous consumption.

Drinking-water treatment routinely depends on chlorine for disinfection and on coagulants such as alum and ferric chloride for filtration. Australia retains some domestic production capability, including facilities such as IXOM's Botany plant and Coogee's regional operations,[5] but the supply chain remains narrow. Public inquiries and industry reviews have noted that parts of the chain have become highly concentrated and carry limited redundancy.

For major metropolitan utilities, onsite chemical buffers are often measured in weeks rather than months. Where inventories sit in the range of 14 to 21 days, disruption quickly becomes a public-health risk. International resupply is possible, but it's operationally demanding and vulnerable to delay. This gives drinking water one of the shortest and least forgiving countdowns in the national system. The lesson is simple. A country may own its dams and treatment plants but still lose practical control of potable water if it can't sustain the chemical inputs that make the system function.

Liquid fuel

Liquid fuel operates on a different scale, but the logic is the same. Diesel and related fuels aren't merely transport commodities. They're enabling inputs for freight, emergency services, agriculture, mining, backup power and much of the machinery that keeps national systems operating. When fuel continuity is threatened, the effects propagate rapidly across multiple sectors at once.

Australia currently manages much of this exposure through storage, imports and distribution, rather than regeneration. The Minimum Stockholding Obligation provides a reserve model, but storage is still a finite buffer.[6] Australia remains heavily dependent on imported refined fuel, much of which moves through contested maritime routes and is exposed to both physical disruption and commercial reprioritisation. Once the tanks begin to empty, the countdown is no longer theoretical.

National diesel coverage is often discussed in terms of weeks rather than strategic depth. In a period of severe disruption, such as a sustained interruption to major shipping routes, those stocks amount to limited sovereign time. Emergency reserve release may buy additional days, but it doesn't solve the underlying problem. Without sufficient domestic refining or substitution capacity, the nation faces a hard constraint. At that point, continuity policy shifts from normal economic operation to triage: preserving fuel for emergency services, water logistics, electricity support and essential freight while other activity is curtailed. Fuel therefore illustrates a countdown that isn't the shortest but may be among the most systemically consequential.

Urea and fertiliser

Urea reveals a different kind of dependency. Unlike water-treatment chemicals or diesel, its interruption doesn't necessarily produce immediate visible failure. The effect is delayed, but no less real. Urea is a critical nitrogen input for broadacre agriculture, and Australia remains heavily dependent on imported supply.

Following the closure of major domestic facilities such as Gibson Island,[7] much of this capability has moved offshore. The resulting vulnerability operates on an agricultural rather than an urban timescale. If supply is interrupted during the critical period for winter crop planting, the consequence isn't immediate system failure. It appears months later as reduced yield, a failed harvest or a major shortfall in domestic food production.

This is what makes the urea case important. The countdown is longer, but it's still a countdown. A supply interruption in March might not be fully felt until October, but by then the strategic failure has already occurred. In this sense, agriculture shows that sovereign continuity is not only about what fails first, but also about what fails too late to recover. Restoring domestic nitrogen capability would materially reduce that risk. Large-scale projects such as Perdaman may help rebuild that foundation.[8] Over time, new domestic ammonia and urea pathways, including those linked to Australian gas, renewable power and water, could further reduce the degree to which the planting season depends on imported product.

Taken together, these cases establish an important hierarchy of risk. It's reasonable to worry about semiconductors, advanced platforms and other high-complexity dependencies, but the Sovereignty Countdown imposes a more immediate ordering principle. A country may be able to tolerate the delayed loss of some advanced capability for a period. It can't tolerate the rapid loss of safe water, transport fuel or agricultural input at the scale required to sustain daily life. The first duty of continuity policy is therefore not to secure everything at once, but to identify the shortest and most consequential countdowns, determine which capabilities must exist domestically, and extend them before they become binding constraints.

Australia doesn't need to produce every component of a modern economy domestically to be secure. That way lies autarky. What it must restore is the specific capability to repair and produce: enough industrial depth within its borders to sustain critical systems when international supply becomes uncertain. When that capability is treated as a national-security asset rather than merely a commercial output, the nation retains the means to diagnose systemic failure and manufacture the physical remedy.

6. The rationality of national housekeeping

Resilience begins with a basic shift in judgement. For too long, Australia has treated sovereignty gaps in critical infrastructure as minor inconveniences to be managed by global markets. They're better understood for what they are: failures of national housekeeping.

In private life, the logic is obvious. We replace smoke-alarm batteries before a fire and engine oil before a seizure because the cost of prevention is trivial beside the cost of failure. Yet at the national scale, Australia operates power grids, water networks and transport systems without secure access to some of the basic inputs needed to keep them running through disruption.

The first duty of a responsible nation is therefore not heroics, but maintenance. The immediate task is practical:

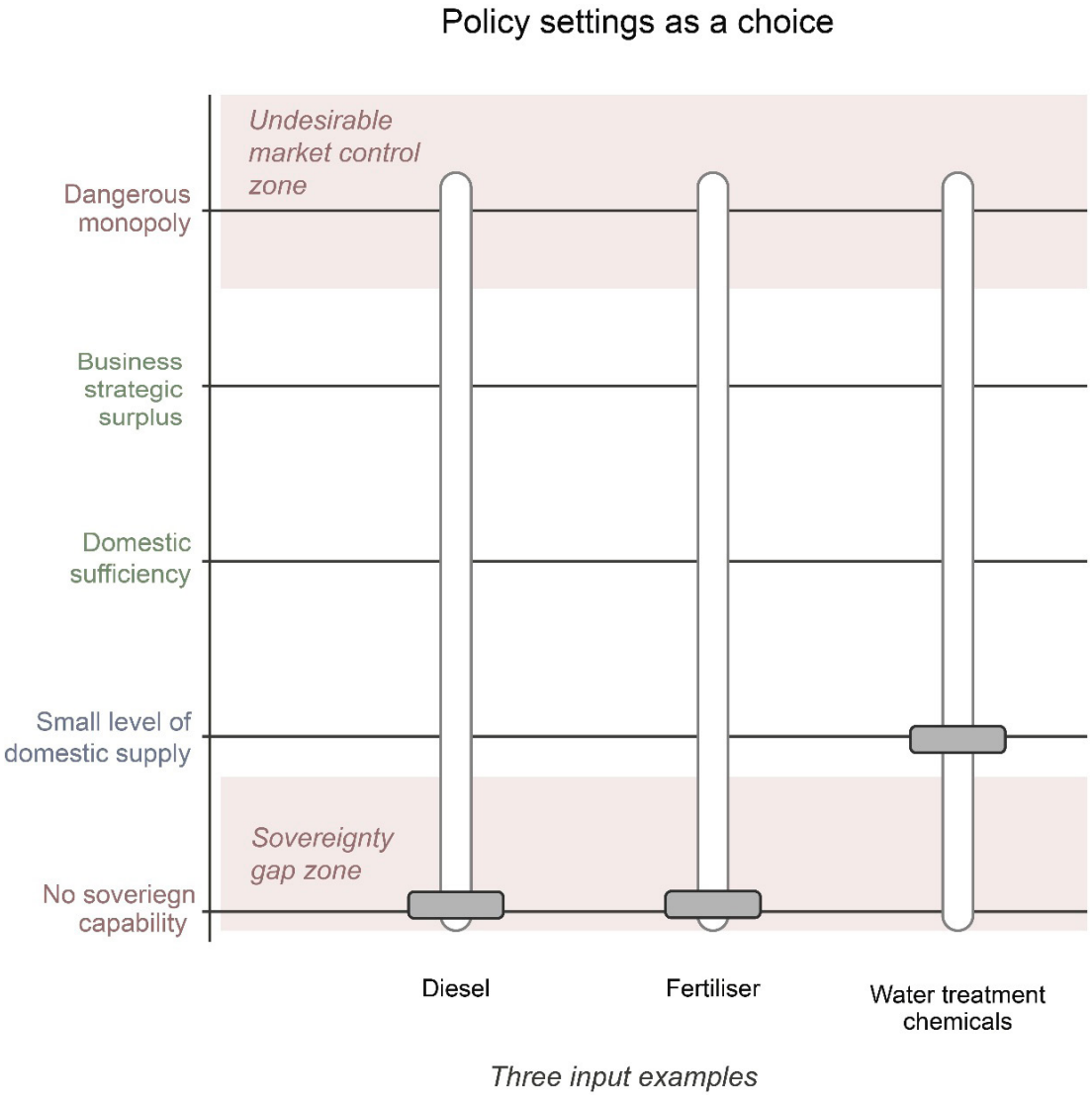
- Expand strategic reserves where countdowns are short.
- Secure critical high-wear parts that can't yet be regenerated domestically.
- Restore the basic repair capability needed to keep essential systems in service within Australia.

This work isn't glamorous. It doesn't produce headlines or export trophies. It does prevent critical systems from failing quickly under external pressure. That's the practical meaning of stewardship. A nation that can't maintain its own house can't expect to retain the power to say 'No'.

Restoring the industrial bedrock

National responsibility can't end at the warehouse. Stockpiles delay failure, but they're finite. A resilient nation also needs the active capability to repair, remake and replenish the critical inputs that its systems consume. That requires restoring Australia's industrial bedrock: the domestic production layer that can turn local resources into essential components on demand.

Figure 6: Balancing the levers



Source: Author's work

This is the practical meaning of sovereign production. It's the capacity to interrupt physical decay and sustain critical infrastructure from within the national boundary. In practice, it depends on an interconnected base of machining capacity, foundries, fabrication, and chemical and processing industries able to supply the parts, materials and consumables required for daily continuity.

For too long, those capabilities were treated as expendable in the name of efficiency. Restoring them means restoring the nation's ability to sustain itself without waiting for permission, shipping access or external rescue. That isn't nostalgia or protectionism. It's the minimum industrial foundation of a sovereign state.

One risk should be acknowledged openly. Domestic production concentrated in a single protected supplier, operating at high cost and under no competitive pressure, doesn't constitute sovereignty. It replaces one form of fragility with another. The objective is not to exchange import dependence for domestic monopoly. Where sovereign production is restored, it should be built for competitive depth: multiple suppliers where feasible, interoperable standards, audited readiness and the expectation that capability will be maintained through disciplined use rather than permanent protection. The Sovereignty Countdown framework provides that discipline. The audit tests whether capability is real and sufficient, not whether a subsidy has been allocated.

Restoring the industrial workforce

Industrial capability isn't just a matter of workshops, foundries and machine tools. Those assets are useless without skilled people able to diagnose faults, repair failures and return critical systems to service. Yet, in the pursuit of a 'clean' service economy, Australia has spent decades treating industrial trades as low-status remnants of the past. The result has been a thinning of the technical workforce on which national continuity depends.

When a pump fails, a transformer burns out or a critical component cracks, it's the welder, machinist, fitter, electrician, metallurgist and engineer who determine whether the system can be restored or left to degrade. Without that local capability, even the most expensive infrastructure moves towards failure without a reliable means of recovery.

Restoring industrial depth therefore means restoring the human engine of continuity. Australia must rebuild apprenticeship pipelines, recover specialised technical knowledge and revalue industrial work as an essential national function. The people who keep water flowing, power stable and transport moving aren't relics of an old economy. They're the practitioners of national resilience.

The leapfrog opportunity

The erosion of Australia's industrial supply layer is a serious vulnerability. It also creates a strategic opening. In many areas, Australia no longer carries the full burden of defending or modernising large legacy factory systems. Where capability has been lost, the task isn't to recreate the full industrial model of the 20th century. It's to rebuild selectively around the most effective production technologies now available, while retaining and upgrading critical legacy capabilities where they remain necessary.

That matters because modern manufacturing no longer depends only on vast, vertically integrated plants operating at immense scale. Advanced production is increasingly shaped by digital design, automated fabrication, additive methods, advanced materials processing and distributed workshop networks located closer to the systems they support. Those tools don't remove the need for heavy industry, but they do change the scale, speed and geography at which industrial capability can be restored.

This matters especially for Australia. A distributed, high-technology production layer is better suited to a large continent with dispersed infrastructure, long internal supply lines and a limited industrial workforce than a simple attempt to recreate the old smokestack model. Properly applied, advanced manufacturing can reduce dependence on distant supply, shorten recovery times and allow critical parts, repairs and specialised components to be produced closer to the point of need.

The same logic applies to the technological systems embedded inside modern infrastructure. Critical systems now depend not only on pumps, valves, chemicals and fuels, but also on operational technology, firmware, sensors, secure identity systems, communications hardware and software support. A water-treatment plant might hold several weeks of chemical inventory, while the control systems and trusted components on which it depends might have no domestic replacement pathway at all. A high-technology production layer therefore requires more than advanced machines. It requires the domestic capacity to design, prototype, verify, certify and maintain trusted technologies that critical systems rely on.

Seen this way, rebuilding sovereign capability isn't just a defensive exercise or a nostalgic return to the past. It's a chance to build a more flexible, technically capable and productive industrial base than the one that was lost. The opportunity isn't simply to rebuild, but to rebuild on better terms.

The discipline of strategic choice

National renewal requires more than ambition. It requires restraint. It also requires realism about scale: in a relatively small domestic market, some capabilities will be viable only if they support export demand, allied demand, or other forms of internationally competitive scale. Once a country decides to rebuild industrial capability, the temptation is to pursue every fashionable technology, prestige project or politically attractive industry at once. That's how effort is dispersed and resilience delayed.

The test should be stricter. Every strategic investment should be judged against one practical question: does this capability strengthen Australia's ability to sustain, repair or regenerate the systems on which national continuity depends? If it does, it belongs near the centre of a resilience strategy. If it doesn't, it may

still be commercially worthwhile, but it shouldn't displace more foundational priorities.

This discipline matters especially in Australia. The first task is to close the most dangerous sovereignty gaps. The second is to restore the industrial depth, skills and production capacity needed to keep essential systems operating within the national boundary. Only then should the country selectively back advanced industries that extend long-term capability.

That approach turns industrial policy from a scatter of subsidies into a focused engineering strategy. It directs scarce capital, training effort and political attention first to the capabilities that keep the nation functioning and free.

Not every critical input should be treated in the same way. The correct policy setting depends on consequence. Some inputs can safely remain imported because disruption would be inconvenient but tolerable. Others justify only a minimum domestic foothold: enough in-country capability to cover emergency use or buy time during disruption. Others require domestic sufficiency because prolonged interruption would directly compromise continuity. A smaller number may justify deliberate surplus, in which Australia should produce beyond its own needs because the capability is both strategically valuable and commercially exportable.

The point isn't to place every industry at the highest setting. It's to choose the setting consciously. A sovereignty gap may be acceptable where the input is genuinely non-essential. It's unacceptable where loss of supply would quickly disable water, energy, fuel, transport, communications or other systems essential to national life.

This distinction also guards against a different error. The purpose of sovereign capability isn't to create protected domestic monopolies that manipulate the market while degrading quality and raising cost. That replaces one dependency with another. The task is to set policy deliberately, in line with the importance of the input, the severity of the countdown and the national consequence of failure.

7. Work, not welfare

The transition from a just-in-time economy to a sovereign continuity model is often blocked by a false premise: that rebuilding domestic capability requires permanent subsidy. That's the wrong frame. A lack of resilience is better understood as an unpriced national-security exposure. To treat continuity as an optional expense is to accept an unfunded, unhedged liability: lower visible costs in the present in exchange for predictable vulnerability during disruption. The proposals that follow are therefore offered as practical policy responses to vulnerabilities identified in public reporting and the case studies above.

To speak plainly about the fragility of national foundations is often to invite the charge of alarmism. In a culture accustomed to the seamless performance of global supply chains, the claim that vital systems operate on a finite countdown can sound radical. But the distinction is simple. There's a difference between the panic of crisis and the discipline of diagnosis. Identifying a sovereignty gap is the national equivalent of installing a smoke alarm.

A smoke alarm doesn't create a fire. It makes a manageable danger visible before the danger becomes catastrophic. The Sovereignty Countdown serves the same function at the national scale. It measures how long a critical system can continue operating if external supply is interrupted. It therefore shows where real dependence begins.

To operate a power grid, water network or transport fleet without knowing that limit isn't optimism. It's a failure of stewardship. Once the countdown is visible, vague anxiety can be replaced with specific engineering targets. A nation that knows a system has 30 days of endurance can begin the disciplined work of extending that figure to 90. That's the shift from unconscious fragility to conscious responsibility.

Finland's security-of-supply system is instructive because it shows that a developed market economy doesn't need to choose between competition and continuity.[9] Built on voluntary public–private structures, it recognises that markets alone won't always preserve the production capacity, infrastructure or readiness needed to weather severe disruption. Where that gap appears, the state uses targeted mechanisms to preserve capability without abandoning market discipline.

Australia should adopt the same governing principle. Sovereign capability isn't corporate welfare. It's paid, governed and continuously exercised national work. There's no value in pretending resilience is free, or in hiding its cost inside market rhetoric. Once continuity is recognised as a legitimate object of policy, the question is no longer whether the cost exists, but how it should be allocated. Australia has options. The cost can be distributed deliberately across procurement, public finance, institutional capital and board-level incentives so that critical capability exists before a crisis rather than being improvised during one.

Several practical levers are available (Figure 7).

Security-of-supply reservation agreements: The Australian Government should adopt Finnish-style reservation agreements for capabilities that are strategically indispensable but commercially fragile in peacetime. Just as Finland's National Emergency Supply Agency[10] reserves production at the Meri-Pori power plant for severe disruptions, Australia should use similar structures to keep domestic production lines, maintenance facilities or input processors warm. In exchange for a modest readiness payment, the government secures priority access, audited preparedness standards and defined response windows. This isn't a subsidy for idleness. It's procurement for continuity.

A continuity window inside Future Made in Australia and the National Reconstruction Fund Corporation: Australia should use the Future Made in Australia framework as the strategic filter and the National Reconstruction Fund Corporation as a financing arm. Support is justified where domestic capability is necessary for resilience and private investment won't arise on its own. The National Reconstruction Fund Corporation already has authority to provide debt, equity and guarantees on a commercial basis. The necessary reform is a continuity-focused investment window: milestone-gated finance for projects that close identified sovereignty gaps and demonstrate production readiness.

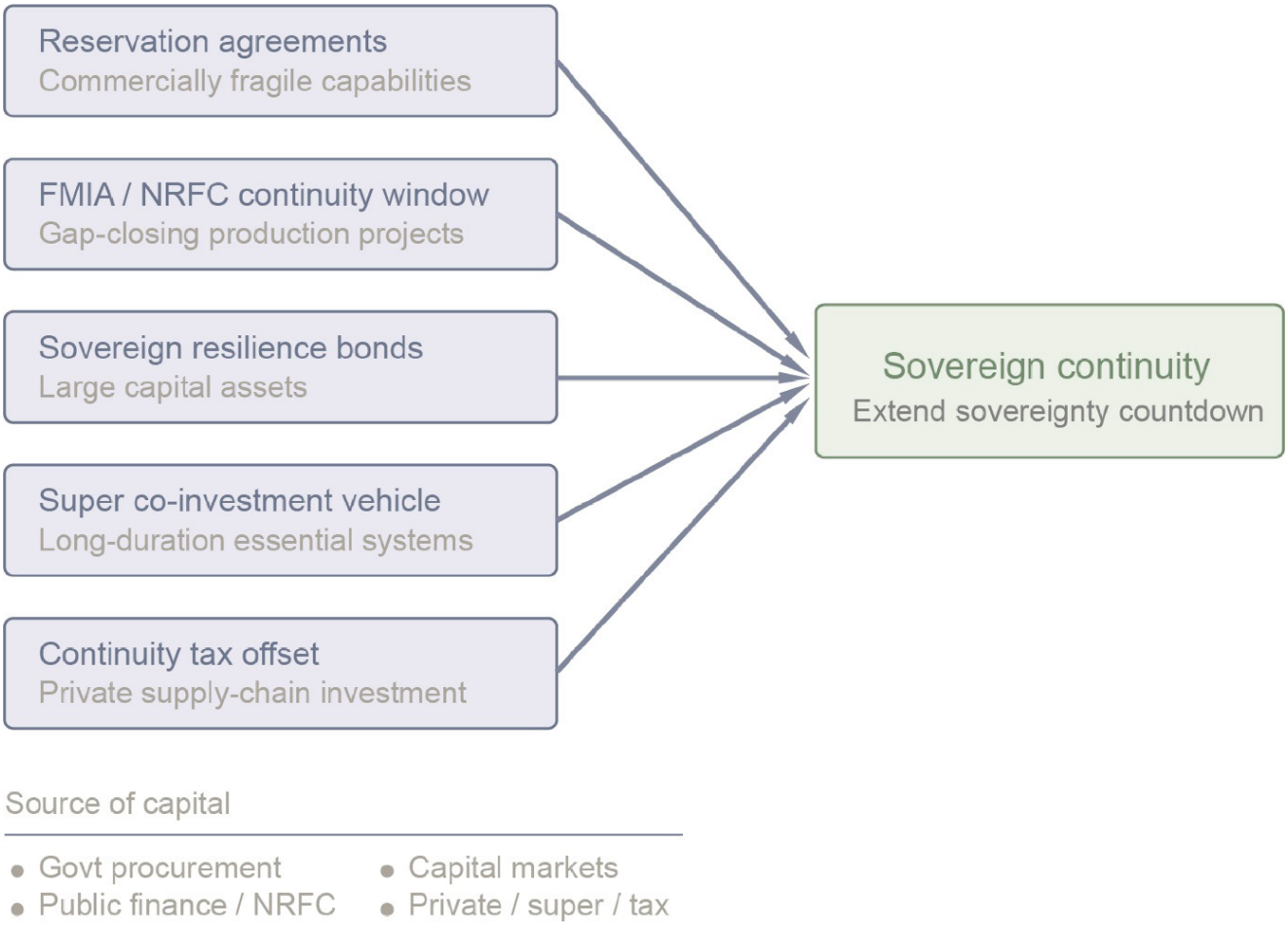
Sovereign resilience bonds: For large continuity assets such as refining, smelting and strategic logistics, Australia should develop a resilience-labelled bond program. The precedent already exists. The World Bank has issued catastrophe bonds for sovereigns such as Mexico and Jamaica,[11] transferring defined public risks to capital markets. Australia's resilience bonds should be tied to specified continuity assets and governed by transparent reporting against Sovereignty Countdown extension metrics, rather than vague claims about nation-building.

A national continuity investment vehicle for superannuation capital: Australia's superannuation system, with assets of approximately $4.5 trillion as of December 2025,[12] is a strategic asset. Rather than forcing patriotic investment, Australia should create regulated co-investment vehicles that allow super funds to invest in essential systems with long-duration cash flows: power, fuel, water and strategic storage. Systemic continuity risk is a long-horizon investment risk that fiduciaries shouldn't ignore. Properly designed, these assets can also provide a useful portfolio hedge.

A continuity tax offset: Extending the logic of the R&D Tax Incentive, a continuity-focused offset should reward firms that make auditable investments to reduce supply-chain vulnerability. This includes qualifying Australian second sources, restoring local repair capability, funding surge tooling, or carrying strategic redundancy in critical inputs. The benefit should be earned through measurable reduction in national exposure, not through self-description.

Taken together, these measures would assign the cost of resilience more rationally. Sovereign capability must appear in policy as a disciplined architecture through which government, markets and institutions pay to keep the nation's essential systems real. The question isn't whether Australia can afford such an architecture. It's whether Australia can continue to afford the exposure created by its absence.

Figure 7: The financing architecture



FMIA = Future Made in Australia; NRFC = National Reconstruction Fund Corporation
Source: Author's work

The choice for agency

The question is no longer whether Australia faces strategic exposure. The question is who is responsible for managing it. That responsibility doesn't sit in the abstract. It sits with the people who govern and operate critical systems: boards, executives, engineers, technical directors and infrastructure operators responsible for power, water, telecommunications, transport and logistics. To hold such a role is to carry an obligation beyond quarterly financial performance. It's a professional duty to protect continuity.

That duty now requires a clearer standard. Every steward of critical infrastructure should be able to answer a simple question with precision: how long could this specific system continue operating if external supply were interrupted tomorrow?

This question cuts through rhetoric because it forces visibility of the one issue that matters in real disruption: endurance. If a leader can't answer it, a serious vulnerability exists whether acknowledged or not. Requiring that visibility isn't an act of blame. Identifying structural weakness should be treated as a success. The failure lies in refusing to look for it.

For that reason, the National Resilience Test should be treated with the same seriousness as financial audits or safety compliance. An infrastructure board that doesn't know its system's Sovereignty Countdown is failing in its duty of stewardship to the public. Within a defined period, critical infrastructure operators should be required to quantify and report that countdown as part of a formal national assessment.

Where a system can't demonstrate a minimum survival threshold, the issue should no longer be treated as an abstract policy concern. It should be designated a strategic vulnerability and assigned remediation. At that point, the task becomes practical: securing substitute inputs, building reserves, restoring domestic production, contracting repair capacity, or investing in the industrial and technical capability needed to extend endurance.

This is the practical meaning of agency. A nation retains real freedom of action only when its critical systems can endure disruption without immediate external permission. Rebuilding industrial depth is therefore not a retreat from trade or cooperation. It's the basis on which both become more credible.

The task is straightforward in principle, even if demanding in execution: measure endurance honestly, report it clearly, and close the gaps where it's too short.

The national task

The national task is straightforward in principle. Australia must determine how long critical systems can operate without external supply, decide what margin of safety is acceptable, and extend that margin wherever it's too short.

The first requirement is measurement. Every system that delivers national essentials, including water, energy, fuel, food logistics and communications, must be treated as a defined, interdependent machine. For each system, the inputs required for continued operation must be identified, rates of consumption quantified, and the domestic, hybrid and trusted-partner capacity to regenerate or supply those inputs assessed. From that work comes a single measure: the Sovereignty Countdown.

Measurement alone isn't enough. The nation must also decide what margin of safety is acceptable by establishing a National Survival Threshold: the minimum sovereign buffer required to ensure that critical systems can continue operating long enough for Australia to retain strategic freedom during disruption. Defining that threshold is a matter for policy, not engineering. What matters is that it's set clearly and treated as a non-negotiable standard. Any system operating below that standard represents a sovereignty gap: a measurable, ranked vulnerability.

Once those gaps are identified, the problem stops being strategic and becomes technical. There are only three ways to close them:

Storage: Increase stockpiles to extend the operating buffer. This is the fastest intervention, but it's limited. It delays failure without removing its cause.

Substitution: Redesign systems so they can accept alternative inputs. This increases flexibility but is often constrained by legacy infrastructure.

Production: Restore domestic capability to regenerate the inputs that critical systems consume. This is the foundation of sovereign continuity. Without it, all other measures remain temporary.

To ensure this task is executed, it must be governed with the same discipline applied to financial solvency or safety compliance. The Sovereignty Countdown of each critical system should be measured, reported and reviewed as a matter of standard practice. Systems falling below the threshold should be formally designated strategic vulnerabilities and required to undergo remediation within defined time frames.

This task is finite and achievable. Within a year, Australia could establish a Year 1 baseline of operational continuity. From there, extending sovereign time becomes a structured program of engineering, procurement and industrial intervention rather than a diffuse policy aspiration.

Nothing in this framework requires self-sufficiency in all things or withdrawal from trade. Its purpose is narrower and more practical: to ensure that the systems sustaining national life don't fail on a short and unmeasured timeline. The task is simple: measure endurance, define the threshold, and intervene when the gap's too short. Australia must ensure that continuity rests on capability rather than hope.

Notes

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Acronyms and abbreviations

R&D	research and development
SOCI	security of critical infrastructure


ASPI
AUSTRALIAN
STRATEGIC
POLICY
INSTITUTE
25
YEARS
2001–2026