

ABTS COST-BENEFIT ANALYSIS (CBA)

This analysis provides an economic assessment of the financial impacts resulting from the transition from an unregulated distributed battery market to a mandatory ABTS regime over a 15-year evaluation horizon (2026–2041), utilizing a standard 7% **real discount rate**.

1. Core Model Assumptions

- **Base Case Projections:** 120,000 behind-the-meter BESS units installed annually across Australia.
- **Average Capital Cost per Installation (Unregulated):** \$11,000AUD.
- **Average Lifespan of Conventional Entry-Level System (Unregulated):** 7.5 Years under real-world cycling and thermal conditions.
- **Average Lifespan of ABTS-Incentivised Long-Life System:** 20+ Years (e.g., LTO or thermally optimized LFP).
- **NATA Type-Testing & Label Registration Compliance Cost:** \$35,000 per manufacturer product line (amortized over 5,000 units per line = \$7.00per unit cost pass-through).

2. Monetized Quantifiable Benefits (PV over 15 Years)

- **Avoided Replacement Capital Expenditure:** By shifting consumer demand away from short-lived, high-degradation chemistries, households avoid replacing failing systems at Year 7–8. Net Present Savings = \$3.42 Billion AUD
- **Mitigated Structural Fire and Emergency Interventions:** Reduced deployment of emergency fire crews due to early exclusion of highly volatile, non-contained chemistries (Class 3 TRP). Net Present Savings = \$214 Million AUD
- **Optimised Grid Arbitrage Efficiency:** Ensuring that state-subsidised batteries maintain a higher round-trip efficiency over time, preventing system losses and maximizing solar sponge efficacy. Net Present Savings = \$480 Million AUD

3. Monetized Quantifiable Costs (PV over 15 Years)

- **Manufacturer Compliance and Retesting Burden:** Total capital outlays by international and domestic providers to secure NATA-accredited validation reports. Net Cost = \$18.4 Million AUD
- **Government Administration & Enforcement:** Funding allocated to the Clean Energy Regulator to oversee compliance registries, marketplace audits, and enforcement proceedings. Net Cost = \$32.0 Million AUD

4. Net Present Value (NPV) & Benefit-Cost Ratio (BCR) Summary

$$\text{NPV} = \text{Total Benefits (PV)} - \text{Total Costs (PV)}$$

$$\text{NPV} = \$4,114,000,000 - \$50,400,000 = \$4,063,600,000 \text{ AUD}$$

$$\text{Benefit-Cost Ratio (BCR)} = \frac{\$4,114,000,000}{\$50,400,000} = \mathbf{81.6:1}$$

Conclusion: The economic returns of introducing the ABTS are profoundly positive, driven by the structural elimination of early asset failures across the Australian residential and commercial landscape.