



BESS Performance Warranty Structures

An asset developer's view on warranties

- **Designed for Dynamic Dispatch**
Built to rapidly enter/exit markets and capture short-lived price opportunities
- **Operational Agility**
Can switch between energy arbitrage, frequency response, and reserve provision within minutes
- **Rapid Ramp Capability**
Sub-second response time enables immediate adaptation to grid or market signals
- **Adaptive Lifetime Profile**
Usage patterns evolve continuously with regulation, trading strategy, and system needs
- **Market-Responsive by Design**
Value maximization depends on flexibility, unlike solar/wind where production follows a fixed natural resource curve



BESS Asset Dynamics

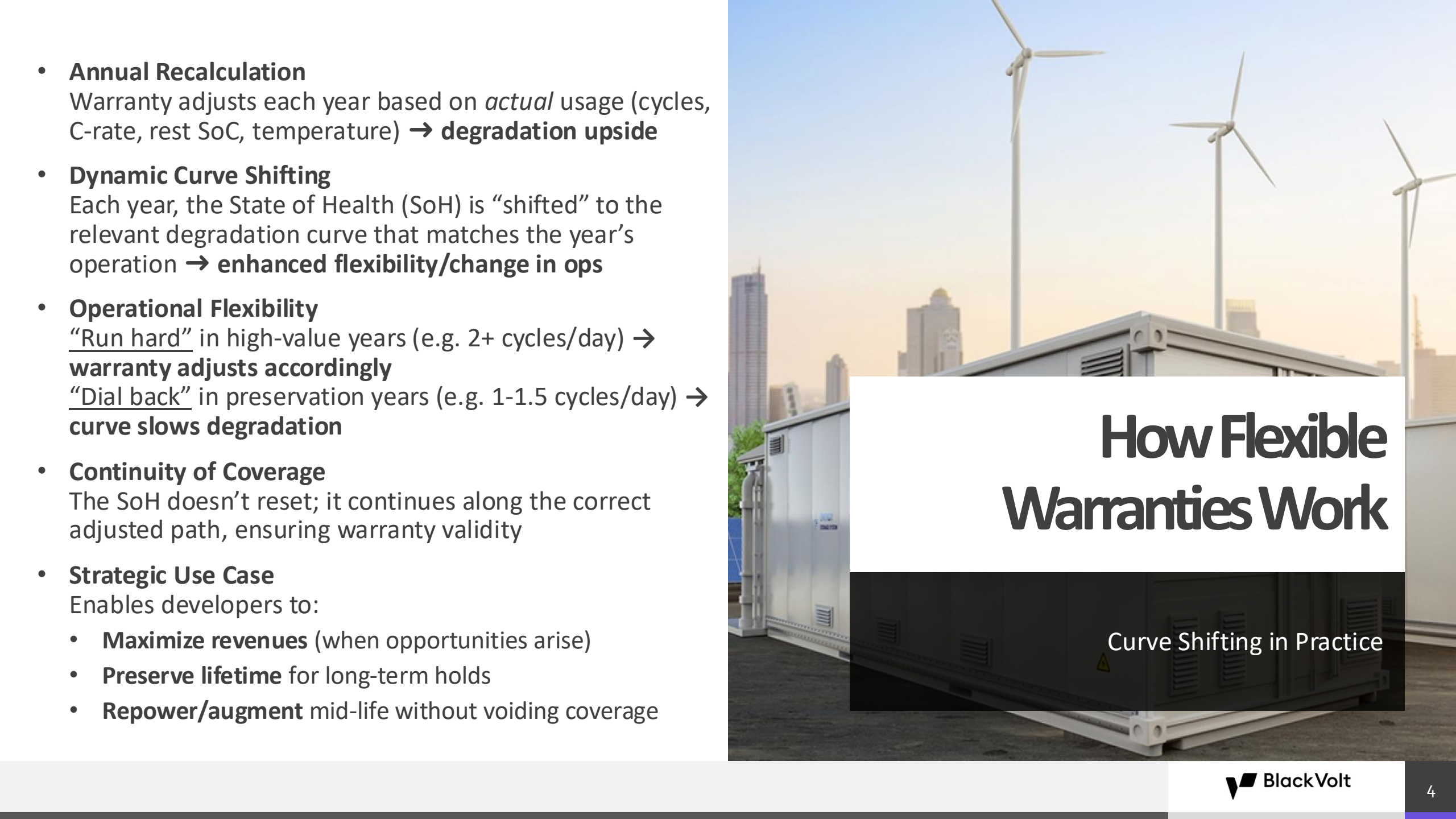
Flexible warranty structures necessary to align with asset operating profile

Why Flexible Warranties Matter for BESS



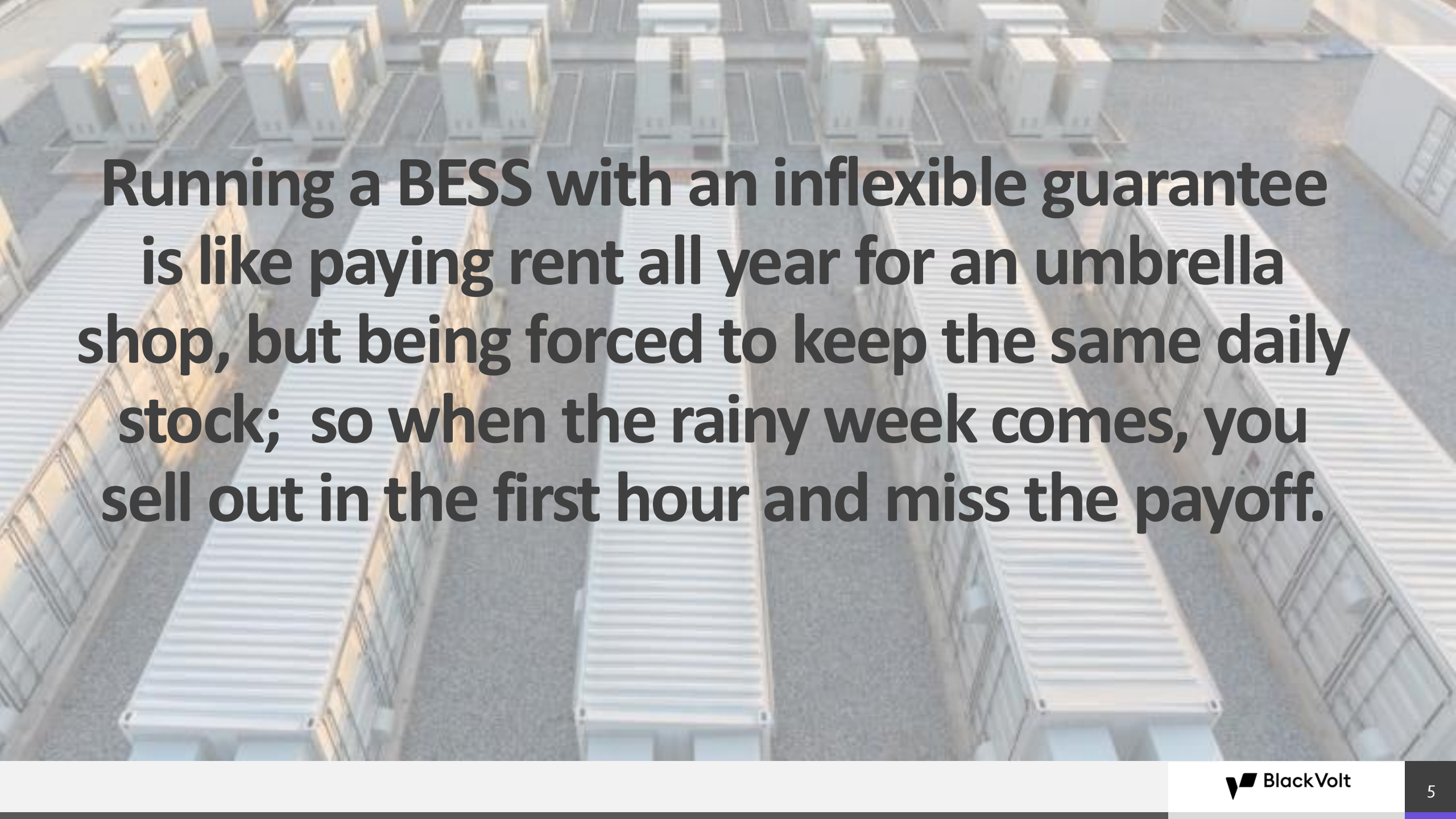
- **Maximize Market Revenues**
Flexibility allows operators to monetize evolving market opportunities without breaching warranty
- **Adapt to Regulatory Change**
Provides operational freedom to comply with future market rules, system needs, or grid codes
- **Enable Bankability & Financing**
Clear, adaptable warranty terms give lenders confidence in long-term asset performance
- **Protect Cashflows & Returns**
Coverage aligned with real-world use prevents unexpected degradation risks from eroding IRR
- **Support Repowering & Extensions**
Warranties structured to accommodate augmentation or component swaps extend asset life and value
- **Align Developer & Investor Interests**
Reduces risk of disputes with OEMs and ensures stable long-term performance for equity and debt providers
- **Future-Proof the Asset**
Anticipates “unknowns” in technology evolution, trading strategies, and market design

- **Annual Recalculation**
Warranty adjusts each year based on *actual* usage (cycles, C-rate, rest SoC, temperature) → **degradation upside**
- **Dynamic Curve Shifting**
Each year, the State of Health (SoH) is “shifted” to the relevant degradation curve that matches the year’s operation → **enhanced flexibility/change in ops**
- **Operational Flexibility**
“Run hard” in high-value years (e.g. 2+ cycles/day) → **warranty adjusts accordingly**
“Dial back” in preservation years (e.g. 1-1.5 cycles/day) → **curve slows degradation**
- **Continuity of Coverage**
The SoH doesn’t reset; it continues along the correct adjusted path, ensuring warranty validity
- **Strategic Use Case**
Enables developers to:
 - **Maximize revenues** (when opportunities arise)
 - **Preserve lifetime** for long-term holds
 - **Repower/augment** mid-life without voiding coverage



How Flexible Warranties Work

Curve Shifting in Practice



Running a BESS with an inflexible guarantee is like paying rent all year for an umbrella shop, but being forced to keep the same daily stock; so when the rainy week comes, you sell out in the first hour and miss the payoff.



BlackVolt
Energy
GmbH



- **Blackvolt Energy:** An Austrian developer of utility-scale battery storage, backed by global real assets investment firm Clarence Capital Partners. We combine deep renewable energy expertise with global investment strength to deliver across the full value chain—from land acquisition and development to financing, construction, and operation of stand-alone BESS in Austria.
- **Energy projects with a regional focus:** Together, we are driving the transition to a cleaner, more sustainable energy future by developing cutting-edge storage solutions that strengthen Austria's grid and facilitate increased renewables penetration
- **Commitment:** Dedicated to developing a 1 GW+ portfolio of stand-alone battery storage in Austria over the next 2-3 years