1. Introduction:

The Aaryamun Law is proposed as the foundational principle of the Dark Genesis theory, describing the process by which dark matter and dark energy-the "dark substrate"-undergo a catalytic transformation into baryonic matter and observable energy via events such as the Big Bang. This law provides a bridge between the pre-baryonic universe and the observable cosmos.

2. Statement of the Law:

"The rate of conversion of dark substrate (dark matter and dark energy) into baryonic forms is proportional to the local energy density gradient and quantum vacuum fluctuations within a critical instability threshold."

3. Formalized Mathematical Expression:

Let:

- rho_d(t): density of dark substrate at time t
- rho_b(t): density of baryonic matter at time t
- DeltaE: local energy density differential
- delta_q: quantum fluctuation intensity
- kappa: proportionality constant related to spacetime topology and curvature

Then the Aaryamun Law can be expressed as:

drho_b/dt = kappa * DeltaE * delta_q * f(t)

Where f(t) is a decay function describing how conversion diminishes over time due to decreasing instability and energy gradients.

4. Interpretation:

- The transformation is not uniform throughout the universe. It occurs where quantum fluctuations destabilize the dark substrate.

- The initial Big Bang was the largest such instability, but local "micro-genesis" events may still occur in voids or vacuum-rich regions.

5. Thermodynamic Coherence:

- The law preserves total energy, transforming the configuration of energy rather than generating or destroying it.
- Entropy increases during each conversion, in line with the second law of thermodynamics.

6. Implications:

- The cosmic expansion rate is linked to rho_d(t): as it declines, the expansion slows.
- The Great Voids may be regions where delta_q is below threshold, preventing transformation.

7. Testable Prediction:

- If true, regions with anomalous CMB fluctuations or unexplained gravitational effects may correspond to conversion zones.

8. Next Steps:

- Derive field equations from a Lagrangian incorporating rho_d, delta_q, and spacetime curvature.
- Simulate early-universe dynamics under this law.
- Search cosmological data for signs of time-varying dark substrate density.