Intel Sustainability Impact Analysis – 2024

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Objective: Evaluate Intel's 2024 device repurposing program to optimize energy savings, CO_2 reductions, and overall environmental impact.

Key Metrics

Metric	Value
Total devices repurposed	601,740
Average device age	4.8 years
Average energy savings per device	~25 kWh/year
Total CO_2 emissions saved	~64,000 tons
Energy savings equivalent	~24 U.S. households powered for a year
CO_2 savings equivalent	~1,472 cars removed from the road for a year

Insights

- **Device Type Impact:** Laptops dominate repurposed devices (408,064 units), contributing the largest total energy savings and CO_2 reductions. Desktops contribute meaningfully in energy savings in regions like Asia.
- **Device Age:** Older devices (6+ years) deliver higher CO_2 reductions due to avoided new device manufacturing. Mid-age devices (4–6 years) provide significant benefits; newer devices (<3 years) provide smaller but still meaningful impact.
- **Regional Differences:** High-carbon-intensity regions (Asia) see greater CO_2 reductions per kWh saved. North America contributes substantially due to device volume.
- **Repurposing Efficiency:** Repurposing older, high-impact devices in high-carbon regions maximizes environmental benefit.

Recommendations

1. **Prioritize mid-age and older laptops**, particularly in high-carbon regions, to maximize energy and CO_2 savings.
2. **Strategically repurpose desktops** in regions where energy savings are disproportionately high (e.g., Asia).
3. **Consider cost-effectiveness metrics** to balance sustainability with operational efficiency.

4. **Scale repurposing efforts strategically** to maximize environmental impact while extending device lifespans.

Conclusion

Intel's 2024 device repurposing program achieved significant energy and CO_2 reductions. Focusing on device type, age, and regional carbon intensity allows Intel to optimize its sustainability strategy, delivering the largest environmental impact per device and per region.