**Maven Environmental Challenge Report**

**Observations:**

1. **Emission Trends**:

* Emissions peaked in fiscal year 2017 at 27.4 million metric tons of CO2e.
* In fiscal year 2022, emissions hit their lowest point since 2015, totaling 20.2 million metric tons of CO2e.
* Projections for early 2030 suggest a significant drop in emissions to 3.4 million metric tons.
* Over the period from 2015 to 2030, a substantial 91.13% reduction in the emission rate is expected.
* From 2022 to 2030, the emission rate is predicted to decrease significantly by 83.1564%.

2. **Carbon Footprint by Product:**

* iPhone X has the highest Carbon Footprint of 79 kg CO2e.
* iPhone 6s recorded the highest Emissions of 38.4 million metric tons CO2e.

3. **Total Carbon Removals vs. Total Emissions:**

From 2020 to 2022, gross emissions initially stood at 66 million metric tons. However, carbon removals reduced the total emissions to 65.32 million metric tons, with carbon removals accounting for 1.06 million metric tons. Initially, there was an 8.80942% decrease in gross emissions, which shifted to a 9.96491% decrease due to carbon removals.

4. **Opportunity for Emission Reduction:**

* Between 2015 and 2022, the category 'Manufacturing (purchased goods and services)' recorded the highest emissions, totaling 15.66 million metric tons of CO2e (74.26%).
* The most significant reduction in emissions occurred in the category of "Corporate Carbon Offsets" from 2015 to 2022, with a decrease of 561,000 metric tons of CO2e.
* Categories like Third-party cloud (market-based) and Transmission and distribution loss (market-based) had zero emissions.

5. **Apple's Employees and Environmental Initiatives:**

Apple's ability to maintain or increase its workforce while reducing emissions is a positive sign.

6. **Apple's Market Capitalization and Environmental Initiatives:**

A moderate negative correlation coefficient of 0.4832 suggests that there is a relationship between Apple's market capitalization and environmental initiatives. When one variable goes up, the other tends to go down to some extent.

7. **Product's Footprint and Baseline Storage:**

There is little to no linear correlation (correlation coefficient of 0.0401) between the storage capacity (Baseline Storage) of the product and its carbon footprint. Changes in storage capacity are not strongly predictive of changes in the carbon footprint.

**Apple Should Take Following Measure**

• Apple have to work on Product life cycle emission because it contains 98.76% of total emission.

• If Apple continues at the current reduction rate, they will have successfully achieved their goal of reducing emissions by 75% compared to the 2015 baseline by the beginning of 2027.

• Apple should prioritize emission reduction initiatives in critical Scope 3 categories, including Manufacturing (Purchased Goods and Services) (74.26%), Product Use (Use of Sold Products) (18.58%), and Product Transportation (Upstream and Downstream) (5.62%). These three categories collectively contribute significantly, accounting for approximately 98.47% of the total emissions over the past 8 years.

• Apple should consider addressing the issue of business travel, as it experienced a significant decline from 2019 to 2021. However, it is worth noting that there has been a noticeable increase in business travel after 2021.

• Apple's carbon footprint for the iPhone 6s was 54 kg CO2e, and it had been increasing over the years. However, with the release of the iPhone 12, it started decreasing, and for the iPhone 15, it's at 56 kg CO2e. Apple should continue this positive trend.

• Continue to invest in carbon offset projects to neutralize emissions that cannot be eliminated. Identify and support high-impact carbon removal projects.

• Educate consumers about the environmental impact of products and encourage responsible use and recycling. Promote products with lower carbon footprints.

**Actions and Recommendations:**

1. **Continued Emission Reduction:**

* Apple should continue and accelerate efforts to reduce emissions across all scopes, focusing on high impact areas.
* The goal of reducing emissions by 75% compared to the 2015 baseline should be achieved by the beginning of 2027 if the current reduction rate is maintained.

2. **Renewable Energy:**

Invest in renewable energy sources to power corporate operations and manufacturing facilities, aiming for 100% clean energy sources.

3. **Supply Chain Optimization:**

* Collaborate with suppliers to reduce emissions from the procurement of goods and services.
* Encourage suppliers to adopt sustainable practices.

4. **Product Design:**

* Integrate sustainability into product design and manufacturing processes.
* Focus on energy efficient product manufacturing and materials with lower carbon footprints.

5. **Carbon Offsets:**

* Continue investing in carbon offset projects to neutralize emissions that cannot be eliminated.
* Identify and support high impact carbon removal projects.

6. **Employee Engagement:**

Engage employees in sustainability initiatives, promote remote work, and offer sustainable commuting options.

7. **Consumer Education:**

* Educate consumers about the environmental impact of products and encourage responsible use and recycling.
* Promote products with lower carbon footprints.

8. **Innovation:**

* Invest in research and development for innovative technologies and processes to further reduce emissions.
* Explore alternative materials and energy efficient manufacturing methods.

9. **Transparency and Reporting:**

* Maintain transparency in reporting emissions and progress towards carbon neutrality.
* Regularly update stakeholders on achievements and challenges.

10. **Collaboration:**

* Collaborate with other companies, organizations, and governments to collectively address climate change.
* Participate in industry initiatives and share best practices.

11. **Continuous Monitoring:**

* Implement a robust monitoring and reporting system to track emissions and carbon footprint reduction progress.
* Regularly assess the effectiveness of strategies and make adjustments as needed.

12. **LongTerm Sustainability:**

* Integrate sustainability into the longterm corporate strategy.
* Ensure that environmental considerations influence decisionmaking at all levels.

13. **Policy Advocacy:**

Advocate for policies and regulations that support carbon reduction efforts and promote sustainability.

BY IMPLEMENTING THESE STRATEGIES, APPLE CAN WORK TOWARDS ACHIEVING ITS GOAL OF BECOMING CARBON NEUTRAL BY 2030 AND POSITIVELY CONTRIBUTE TO ENVIRONMENTAL CONSERVATION.