February *2025*

*Power BI Cycling Performance Outline*

Objective: To understand cycling performance by analyzing certain data and inter-relationships through visualizations.

Approach: Research cycling performance metrics to understand what they mean, how they are calculated and the relationships between them.

Goal: Create two customized dashboards: Power & Calories, Torque & Cadence to tell a story.

Skills and Tools Employed:

|  |  |  |  |
| --- | --- | --- | --- |
| Data Skills | Data Tools | | |
| Excel | Power Query | Power BI & DAX |
| Transformation | ✓ | ✓ |  |
| Automation |  | ✓ |  |
| Visualization |  |  | ✓ |

The Story:

1. I am outperforming during each training session relative to rolling average power.
2. Humans are very inefficient at converting calories into power (the transfer of energy to the bike). Even the most metabolically-fit cyclists do not achieve “peak” efficiency of 25%, so an average efficiency of 17.6% is strong performance (~70% of “peak” efficiency). Much (>=75%) of the conversion process results in heat loss.
3. I am generating power with less force by increasing cadence, thereby relying more on my cardiovascular system than leg muscles. This would allow me to cycle for longer without muscle fatigue, a marker of endurance.