# Impacts of Energy Production – Environmental and Health Analysis

## Data Analyst: Maxwell Gyamfi

## Client/Sponsor:

Google Data Analytics Certificate – Module 3 Practice Project

## Purpose:

*This project analyzes the environmental and health impacts of various electricity sources using spreadsheet-based techniques. The goal is to identify which sources are most and least sustainable based on greenhouse gas emissions, water use, land use, and toxicity. Insights will support energy planning and sustainability decisions.*

SMART Questions:

* Which energy source has the highest greenhouse gas emissions per unit?
* Which energy source uses the most water per unit of electricity produced?
* Which energy source has the lowest total land use?
* Which energy source has the highest combined toxicity (carcinogenic + non-carcinogenic)?

## Scope / Major Project Activities:

| Activity | Description |
| --- | --- |
| Data Cleaning | Remove null columns, rename headers, and prepare data for analysis |
| Basic Calculations | Create a new column for combined toxicity |
| Exploratory Data Analysis | Sort, filter, and highlight key values to answer SMART questions |
| Statistical Analysis | Use formulas like MAX, MIN, SORT, and SUM to uncover trends |
| Visualization | Create bar charts and apply conditional formatting to support findings |
| Final Summary | Compile insights into a summary sheet with brief interpretations |

## This project does not include:

* Analyzing with columns that are null or have missing values
* Material-level breakdown as they’re too granular for the scope of this sustainability overview
* Location-specific data

## Deliverables:

| Deliverable | Description/ Details |
| --- | --- |
| Cleaned Dataset | Spreadsheet with renamed columns and removed nulls |
| EDA Sheet | Visualizations and formulas aligned with SMART questions |
| SMART Questions Summary | Written answers with supporting metrics and charts |
| Final Report | Summary sheet with key findings and recommendations |

## Schedule Overview / Major Milestones:

| Milestone | Expected Completion Date | Description/Details |
| --- | --- | --- |
| *Dataset Cleaned* | *6/10/2025 (Day 1)* | *Columns reviewed, nulls removed, headers renamed* |
| *EDA Completed* | *7/10/2025 (Day 2)* | *Charts and formulas applied to explore data* |
| *SMART Questions Answered* | *8/10/2025 (Day 3)* | *Each question answered with metrics and visuals* |
| *Final Report Compiled* | *9-10/10/2025 (Day 4-5)* | *Summary sheet and documentation completed* |

## \*Estimated date for completion:

October 10, 2025