MONASH DATA BOOTCAMP

Project 2 Proposal
Group 6

Title: Australian electricity generation; by state and territory, by fuel type, and physical units.

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Project Scope & Rationale

A secure supply of adequate, clean, reliable energy at an affordable price is vital for Australia's economic growth and prosperity. Fortunately, Australia is well endowed with an abundance of both fossil and renewable fuels. Our energy resources power our homes, cars and industry, and are a key contributor to Australia's economic prosperity.

To date Australia's energy needs have been largely met by fossil fuels. At present renewable energy sources account for only modest proportions of Australia's primary energy consumption (around 5 per cent) and electricity generation (7 per cent), although their use has been increasing strongly in recent years.

Data on Australia's energy generation is publicly available through the Australian Government's energy website, the statistics cover all electricity generation in Australia, including by power plants and by businesses and households for their own use.

The scope of this project is to create a user-friendly interactive dashboard for users to explore Australia's energy generation by year, by category and by fuel type.

Data Source: https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2019-20-and-2020

Dashboard Plan

A sketch of the plan for the dashboard can be found at the end of this proposal.

The interactive dashboard will contain three dropdown lists where users can filter the data by energy category, with is either renewable, or non-renewable, or both. The user will then be able to further filter the data by fuel type, i.e., brown coal, black coal, solar or wind etc. And finally, the user will be able to further filter the data by year (financial), from 1989-90 up to 2019-20.

Data for total energy generation, reported in GWH, will be displayed in a bar chart, with the year(s) on the x axis and the total energy generation (GWH) on the y axis, as shown in the sketch below. A doughnut chart will display the data by fuel type, and the total energy generation will be displayed numerically.

Users will be able to explore the total energy generation by state by using a clickable map. The state data will be displayed in a summary text box, and a line chart.

Dashboard Inspiration

Below are two images and accompanying webpage links to dashboard examples which will provide inspiration to our project.
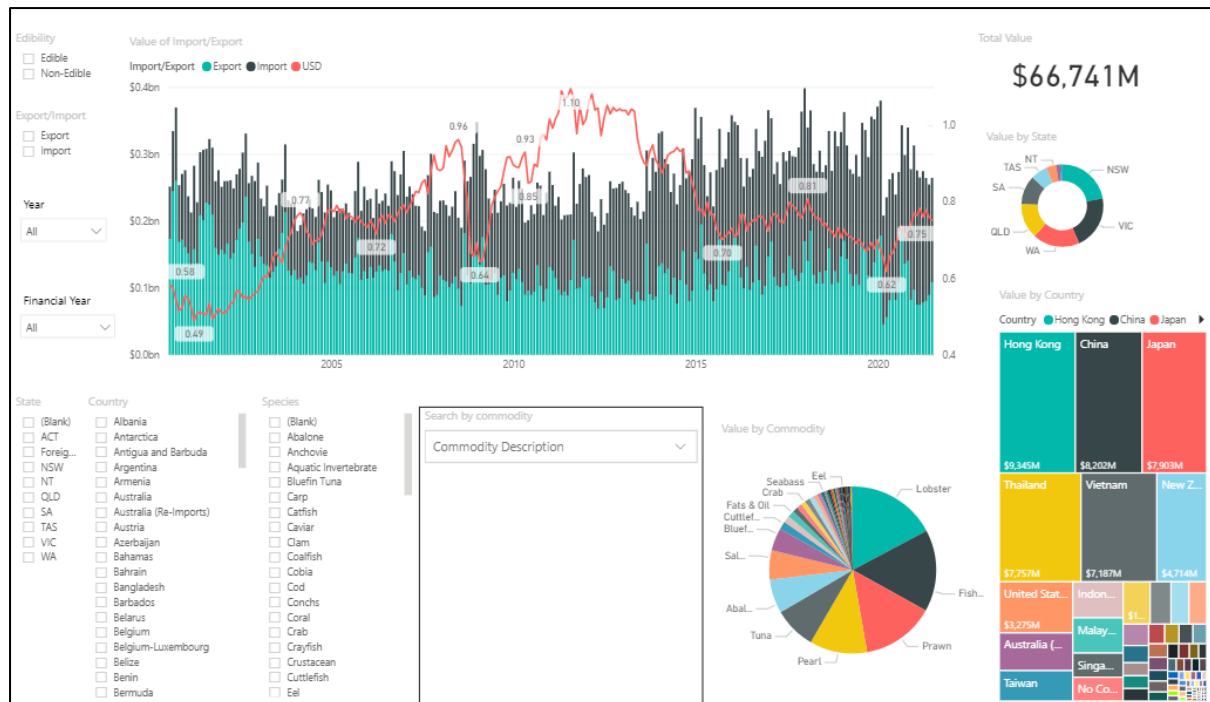
Renewable Energy Dashboard

Link: https://www.gsma.com/mobilefordevelopment/renewable-energy-dashboard/
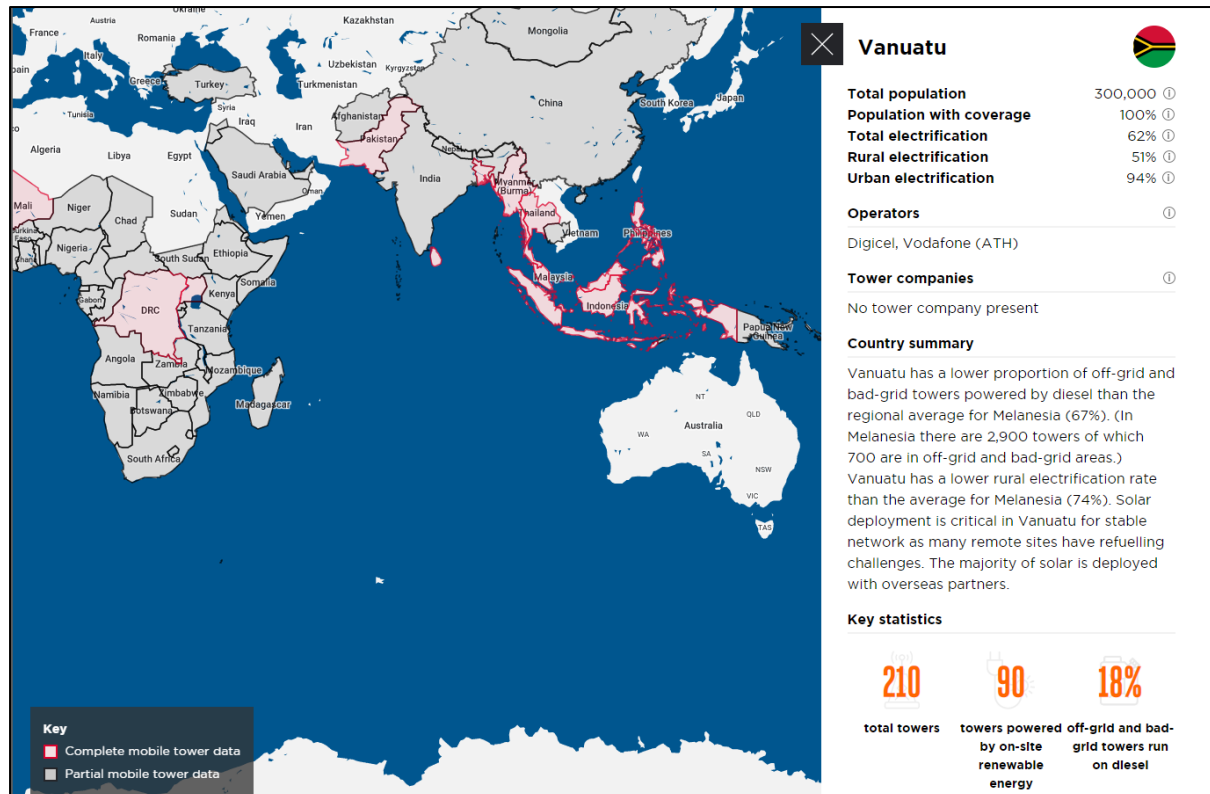
Australian Fisheries Research and Development Cooperation (FRDC) - Seafood trade dashboard.

Link: https://www.frdc.com.au/seafood-import-and-export-species-includes-exchange-rate

Project Roles
- Data Cleaning, stack (years) using Pandas, and upload SQL into the database
- Setting up Flask
- Visualisations
  - Clickable dropdown boxes:
    - Category
    - Fuel type
    - Year
  - Total energy generation (text box)
  - Energy generation by year (bar chart)
  - Energy generation by fuel type (doughnut chart)
  - Energy generation by state (clickable map)
    - Energy generation of state by fuel type (line chart)
    - Summary statistics of energy generation by state
- Presentation

GitHub Repository
https://github.com/Nat-Manahan/Project-2