Hi Kitty,

Thank you for agreeing to meet with Rosalind and I to discuss TIMES modelling and GAMS. Rosalind and I agreed the composition of this document would be useful to inform our discussion moving forward.

Background

My most recent work experience was in the Commercial team at ExxonMobil Australia in Melbourne. My summer projects were building two Excel-based optimization models to inform gas marketing strategy. During my time at Exxon, it was clear conversations regarding the energy transition require greater clarity and transparency in how policies and investment strategies contribute to meeting the Paris Agreements. After discussions with Rosalind, we are building a model where users may select a geography as a parameter, model the energy system of the aforementioned geography and create dashboards to display information related to outputs of the model. The purpose of the model is to help users make informed decisions in relation to climate policy and sustainable investment strategy.

Work completed to date

* Completed a comprehensive review of literature relating to energy systems, emissions, economic growth, the relationship between these three variables, climate change, the development of the Paris Agreements, carbon pricing initiatives, benefits and costs of these initiatives, existing energy modelling processes, TIMES modelling and GAMS.
* Installation of GAMS, VEDA\_FE, VEDA\_BE, Excel, Python on local device.
* Developed a webpage to display project information
* Investigated TIMES methodologies by reviewing IEA Demo TIMES models 1-12
* Began adapting TIMES demo\_12 model to take user defined inputs
* Created global and local git repositories to undertake version control and create a product to be distributed.
* Wrote scripts to set inputs and process geographies.
* Adapted Energy Balances from IEA dataset (Microsoft Access, Python, Excel) to set base year energy balances (production, consumption and conversion) for user-defined geographies.

Before progressing, I am hoping to get a better understanding of how to efficiently and effectively build an adaptable TIMES model.

Objectives from our discussion:

1. Gain a better understanding of TIMES modelling processes and all the data sources and relevant sheets related to the model
2. Validate the feasibility of my project scope
3. Gain a better understanding how to integrate Excel/VEDA\_FE/GAMS/VEDA\_BE on my local device/remote desktop
4. Access to useful resources in building TIMES models if they exist and can be distributed

Thank you again for agreeing to talk to Rosalind and I.

Kind regards,

Connor

Discussion points

* KTH Osmosis - Ambition (Python Version, Dived into it, old one left behind)
* ECA – Demand
* MBIE – Format
* Cost of using – Decarbinisationm alternatives, cost switching
* Transport, Constraints on Cars, smaller part from the puzzle.
* MBIE, Energy New Zealand, Reserves and lots of resources
* New generation plants and new costs (Geothermal Built at this cost, 550MW of gas at this cost).
* Long term investments
* Optimal solution – What is built, when, build something not at optimal level
* Hydro-peak night day
* Large times model with PSI, Shadow costs and carbon emissions.
* MBIE Fields, Energy Fuels database
* ECA
* University of Waikato –
* Proxy with some
* Global Waste – Tunnel (Radioactive, everything touches along the way)
* Security

Osmosis

Find dataset

Generations

Comprehensive Project

Send