IO Flows Data Visualization Tool

2024 GCAM Annual Meeting

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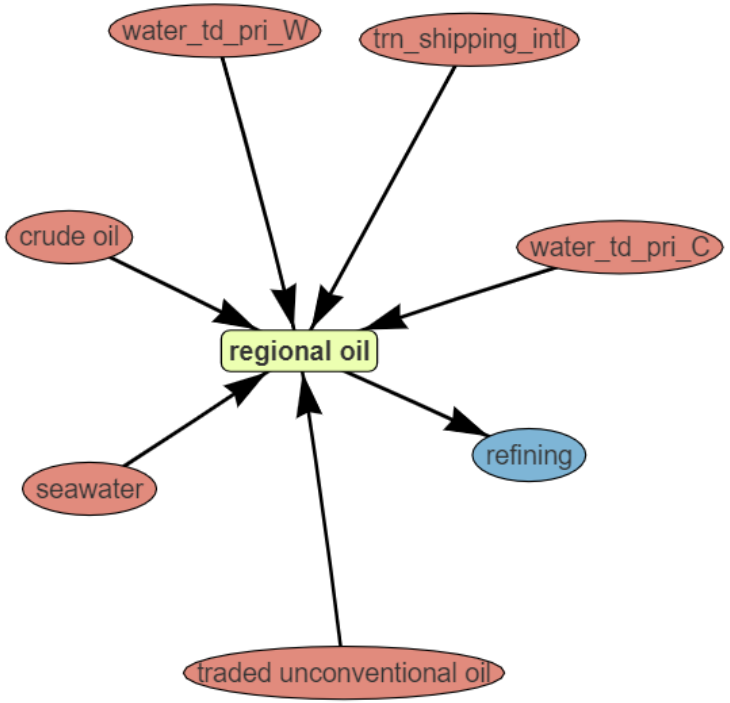
Motivation

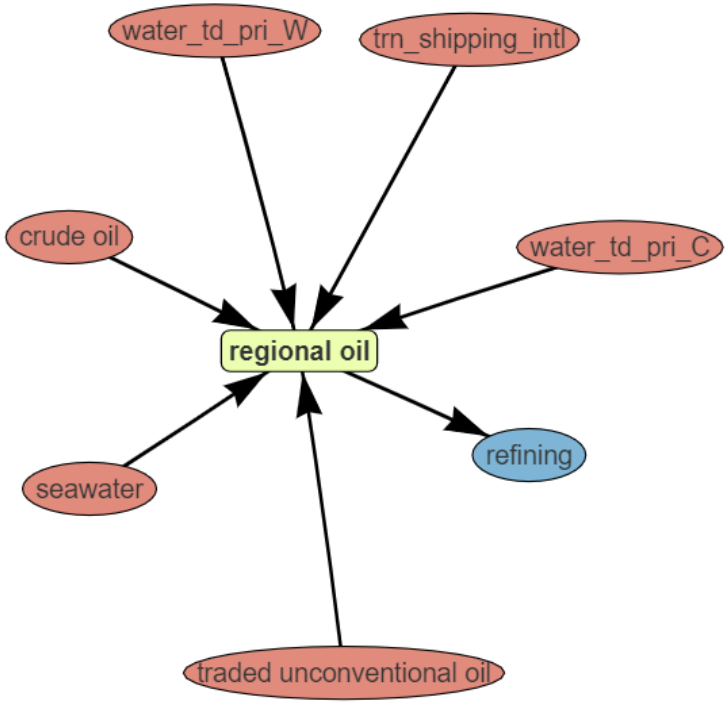
- GCAM is complex: numerous linkages between economic sectors can be difficult to remember, especially for new or less frequent users.
- The IO (Input-Output) Flows visualization tool is designed to provide insight into sectoral data from the GCAM model.
- The tool uses a network structure to visualize the relationships between sectors in the GCAM framework.
- This structure allows users to gain a better understanding of how sectors compete for resources in the global economy.



IO Flows tool is available for use for free at JGCRI/io_flows

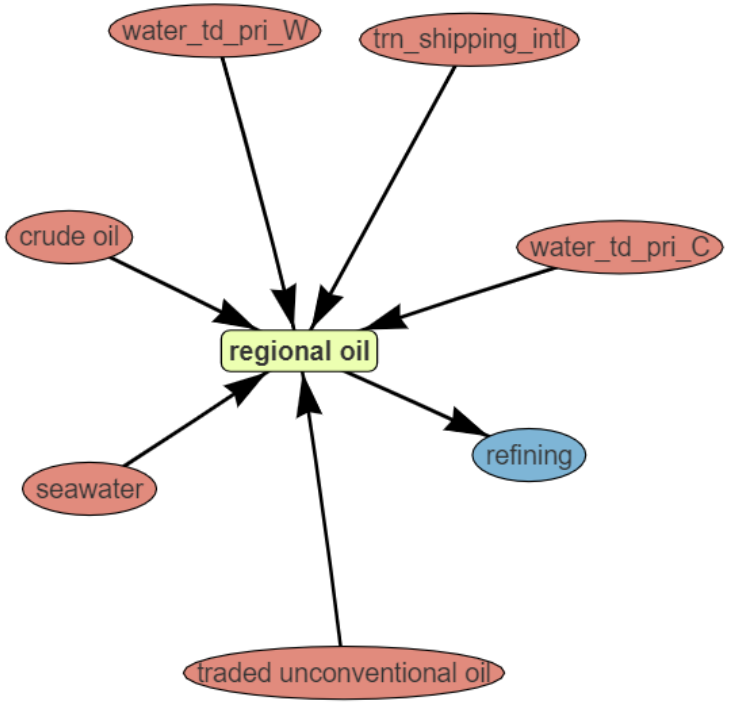
Terminology: Graph Theory

- A graph is a data structure comprised of nodes (ovals, rectangle) and edges (arrows).
- Nodes are sectors, subsectors, and technologies represented by GCAM.
- Edges represent directional relationships between nodes: the exchanges of products between sectors are represented as edges.



Data

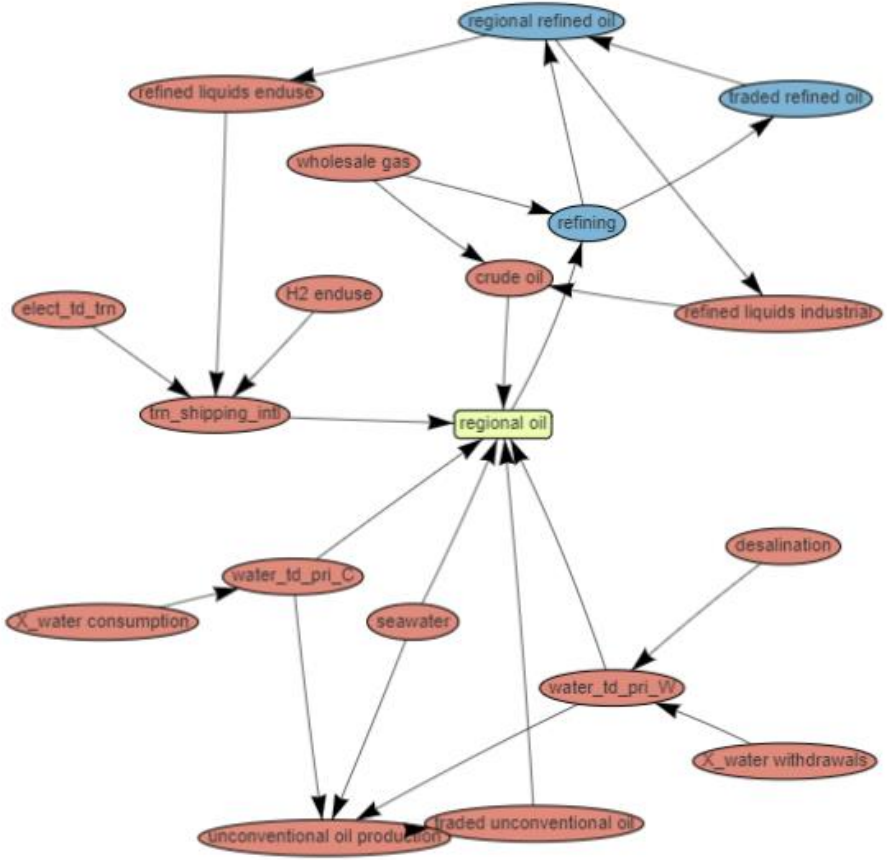
- IO Flows tool runs on data files output by the GCAM model
- Default data files are provided in the GitHub repo for GCAM core version 6.0, 7.0, and T* and allow the tool to be quick-started without running any queries
- The tool can also be used to directly query GCAM databases



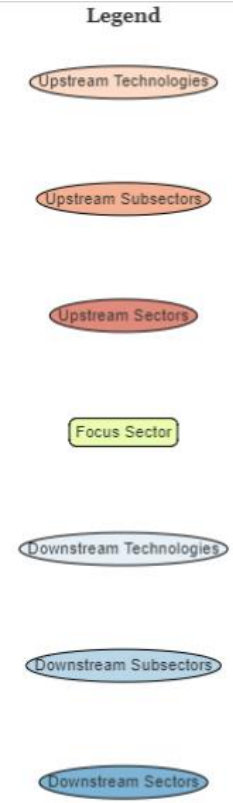
*GCAM-T is a modified version of the core GCAM model with an emphasis on transportation energy technologies, including biofuels. The data files included correspond with the version of GCAM-T used in the Model Comparison Document, published by the U.S. EPA in the July 2023 RFS Set rule (88 FR 44468). Additional documentation included here: gcamt/gcam-core: GCAM-T-2020-v1.0 (zenodo.org).

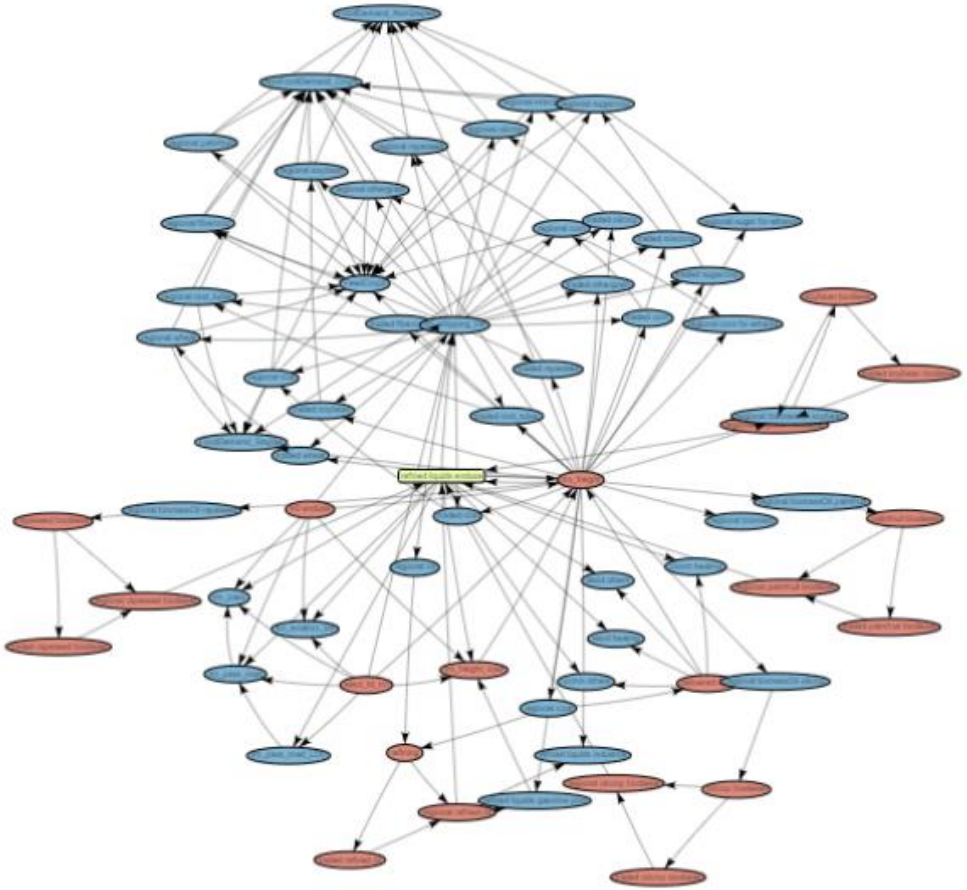
Demo

Demo: default network

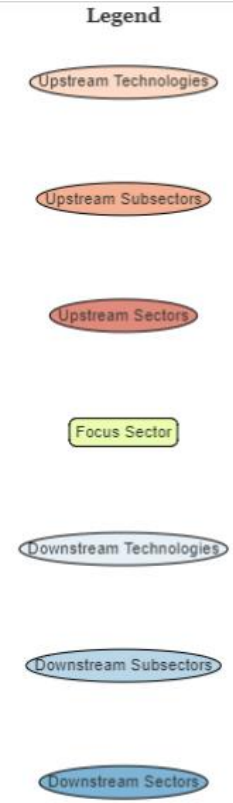


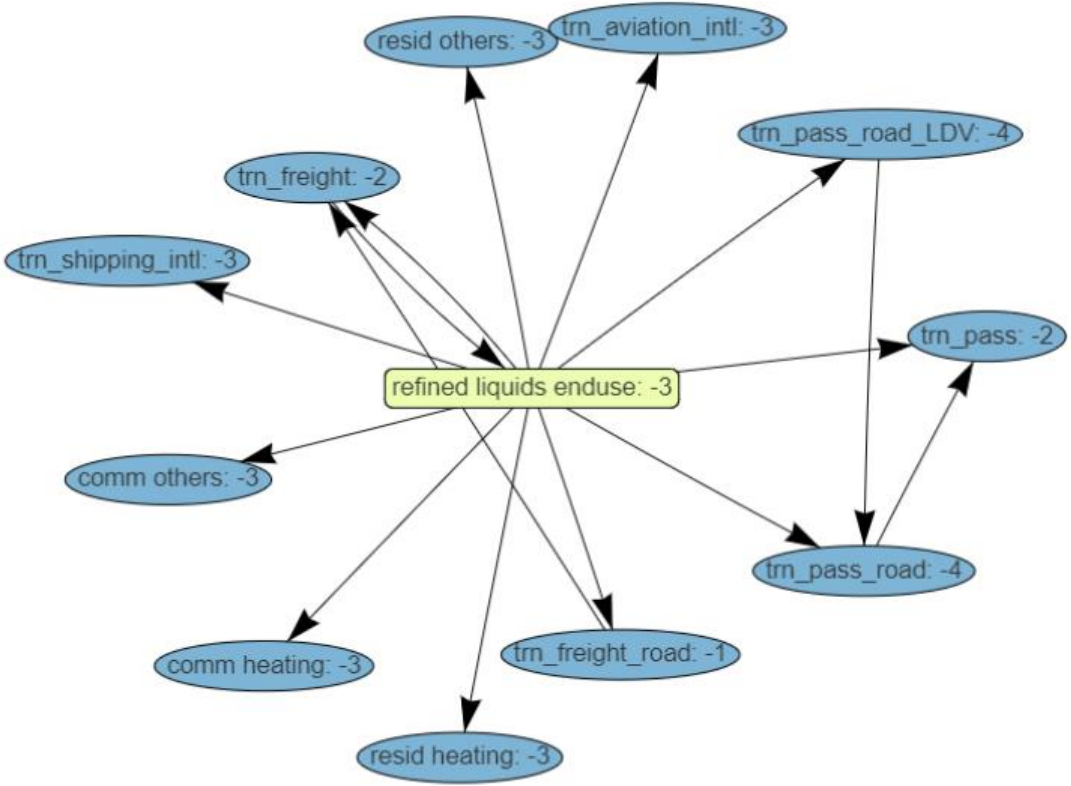
Demo: changing sector of focus



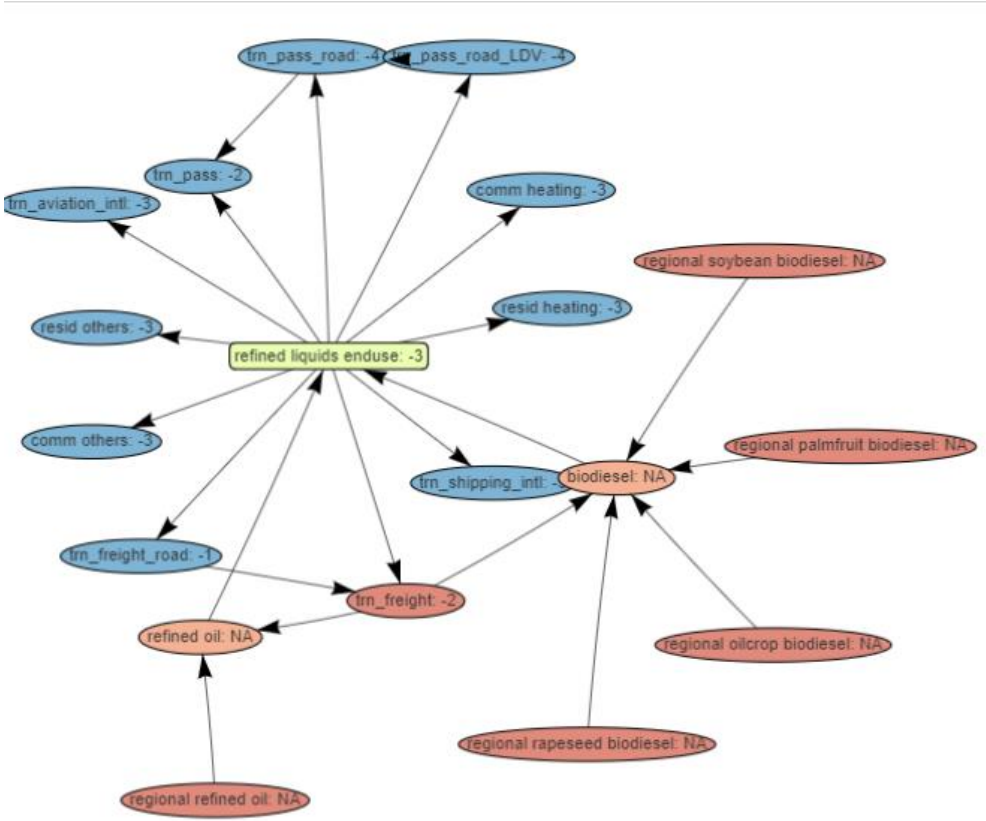


Demo: filtered network (and logit values)

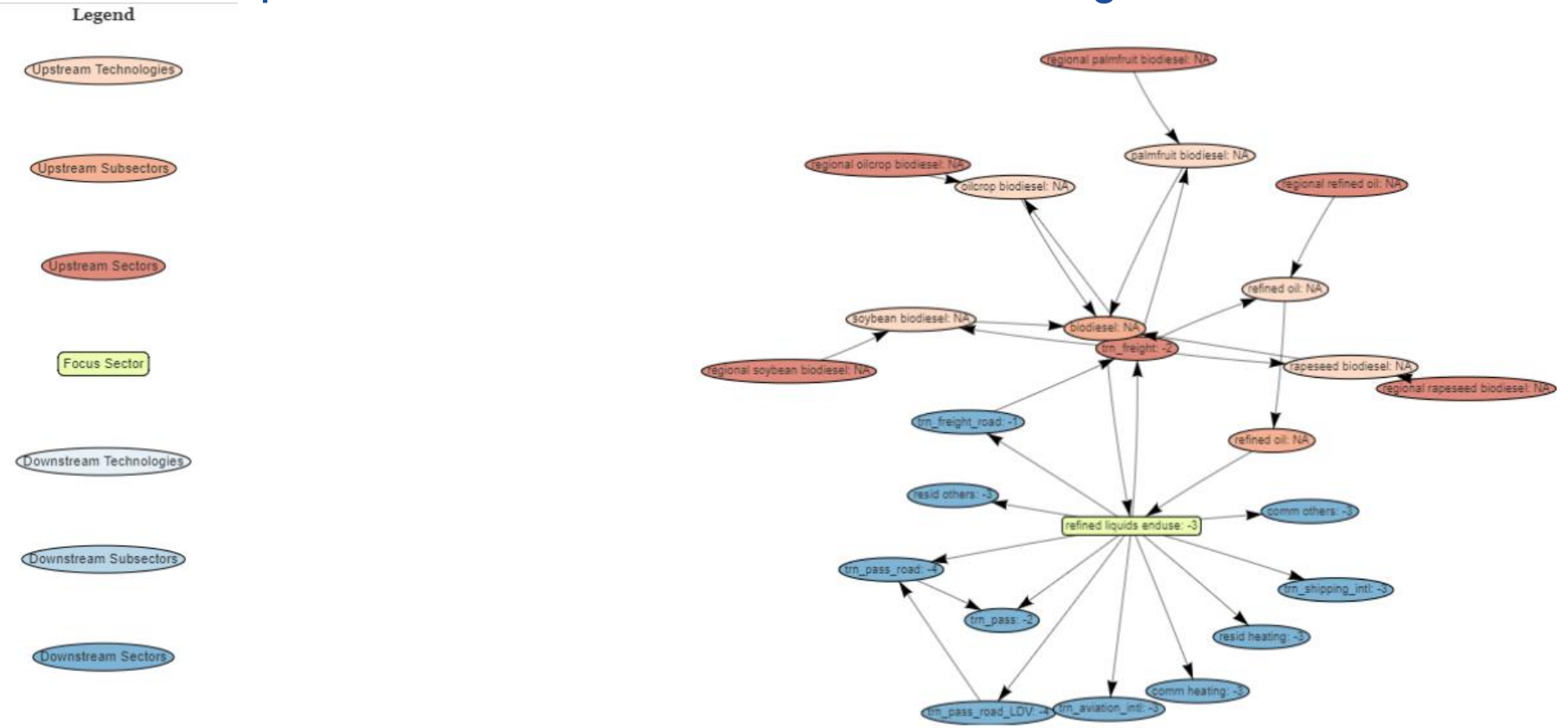




Demo: expanded sectors to show subsectors



Demo: expanded subsectors to show technologies



Thank you

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