



The impact of TransCanada's Energy East Project on GHG emissions

Jotham Peters
Navius Research, Inc.
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Overview

Objective: To provide insight into how TransCanada's proposed Energy East project would affect global GHG emissions:

This presentation will:

- Introduce key dynamics around pipelines and GHG emissions;
- Describe the results from a model to simulate the impact of pipelines on GHG emissions;
- Compare results to other estimates;
- Conclude with key findings.

Dynamics Between Pipelines and GHGs

Small GHG Impact

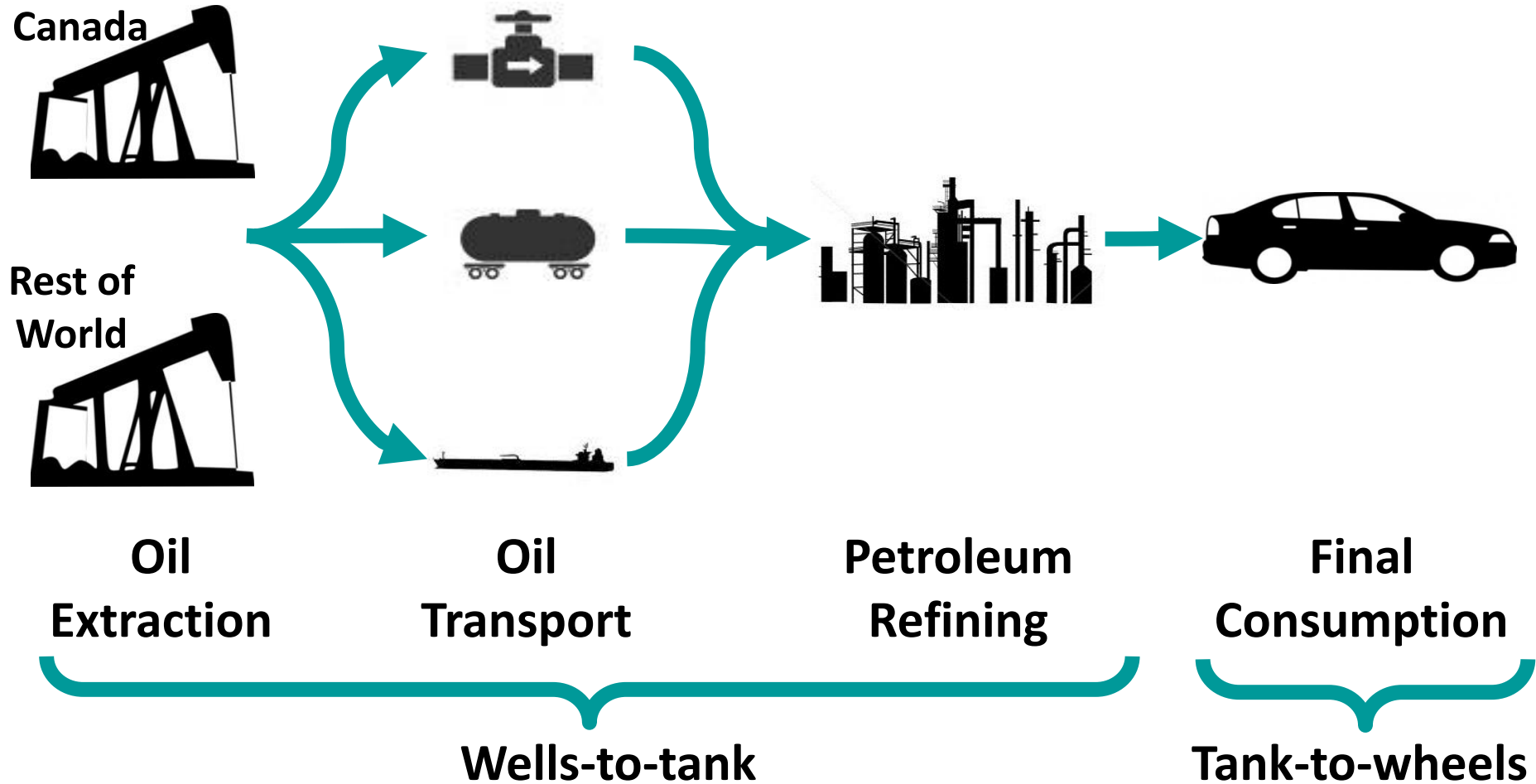
Large GHG Impact



- Any increase in oil sands production is met with a decline in supply from another resource.
- Pipeline transport can be easily substituted with rail transport.

- Restrictions on other transport options.
- Higher GHG intensity for oil sands relative to other global resources.
- Impact on consumption of refined products.

Approach: The OILTRANS Model



Approach: Method

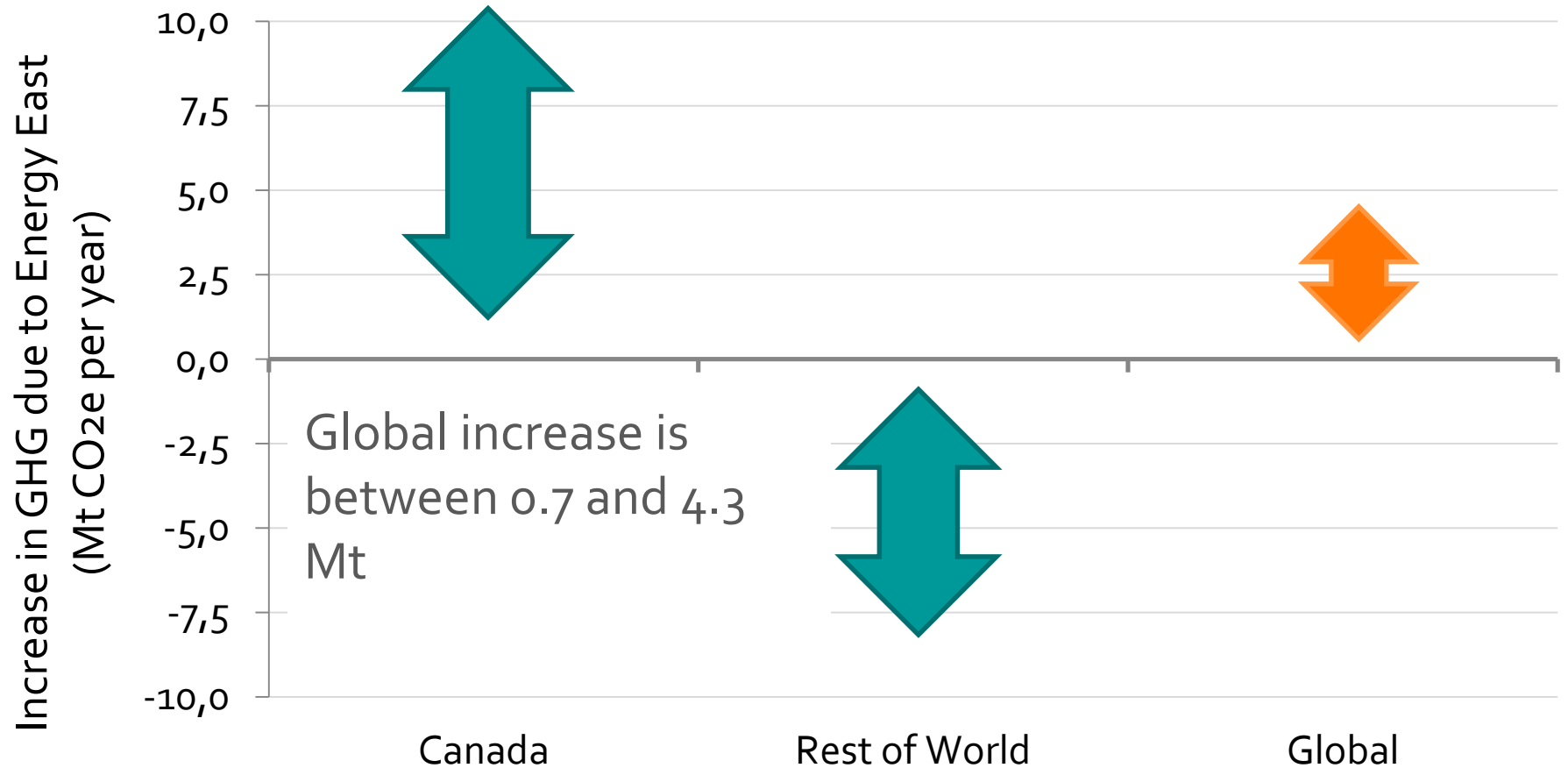
Simulated global oil market from 2015 - 2035 under different “scenarios”:

- Whether other pipelines from Western Canada are approved;
- How responsive consumers of refined petroleum products are to prices;

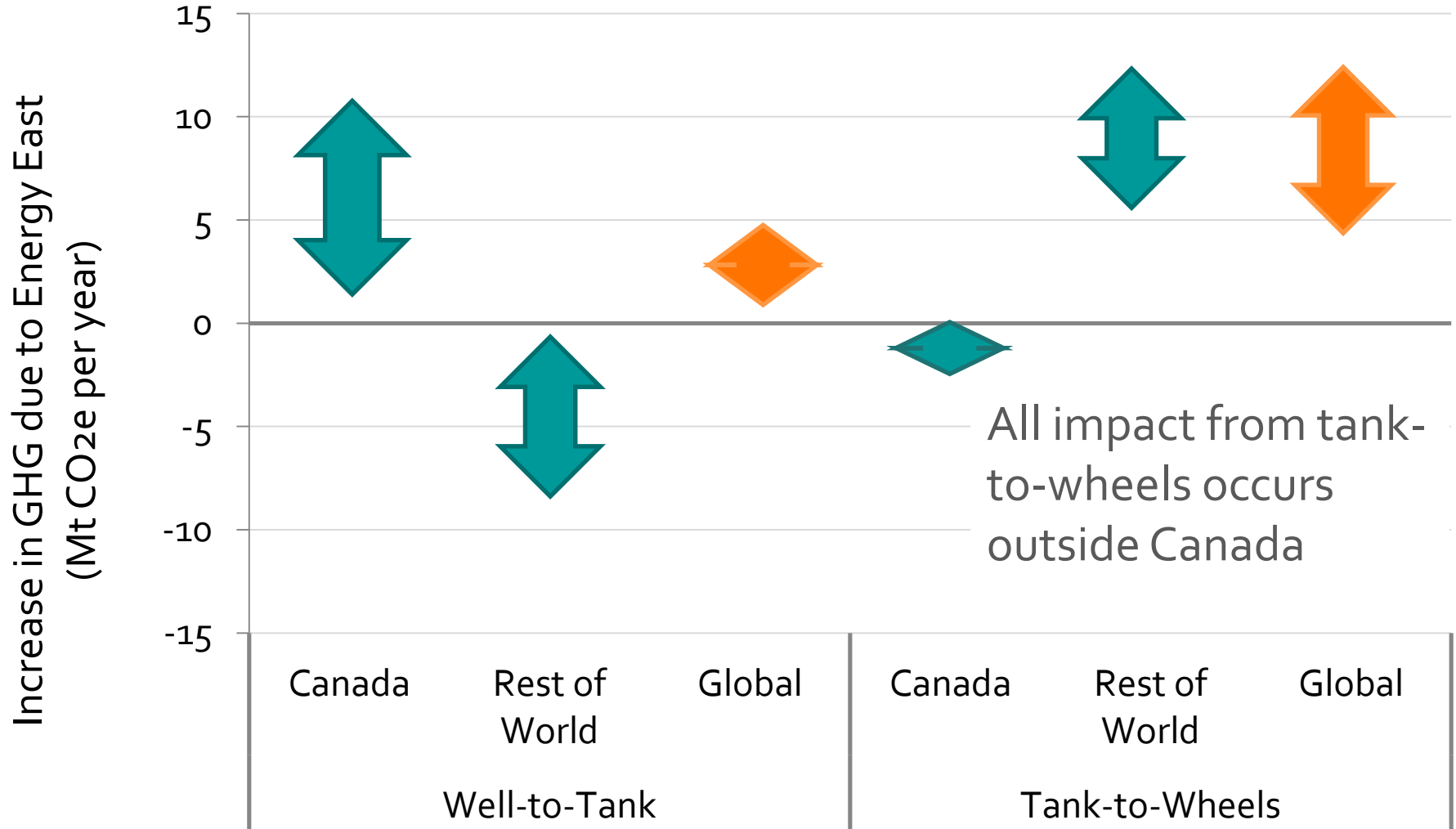
Each scenario simulated with and without Energy East pipeline.

The difference is attributed to the approval of the Energy East pipeline

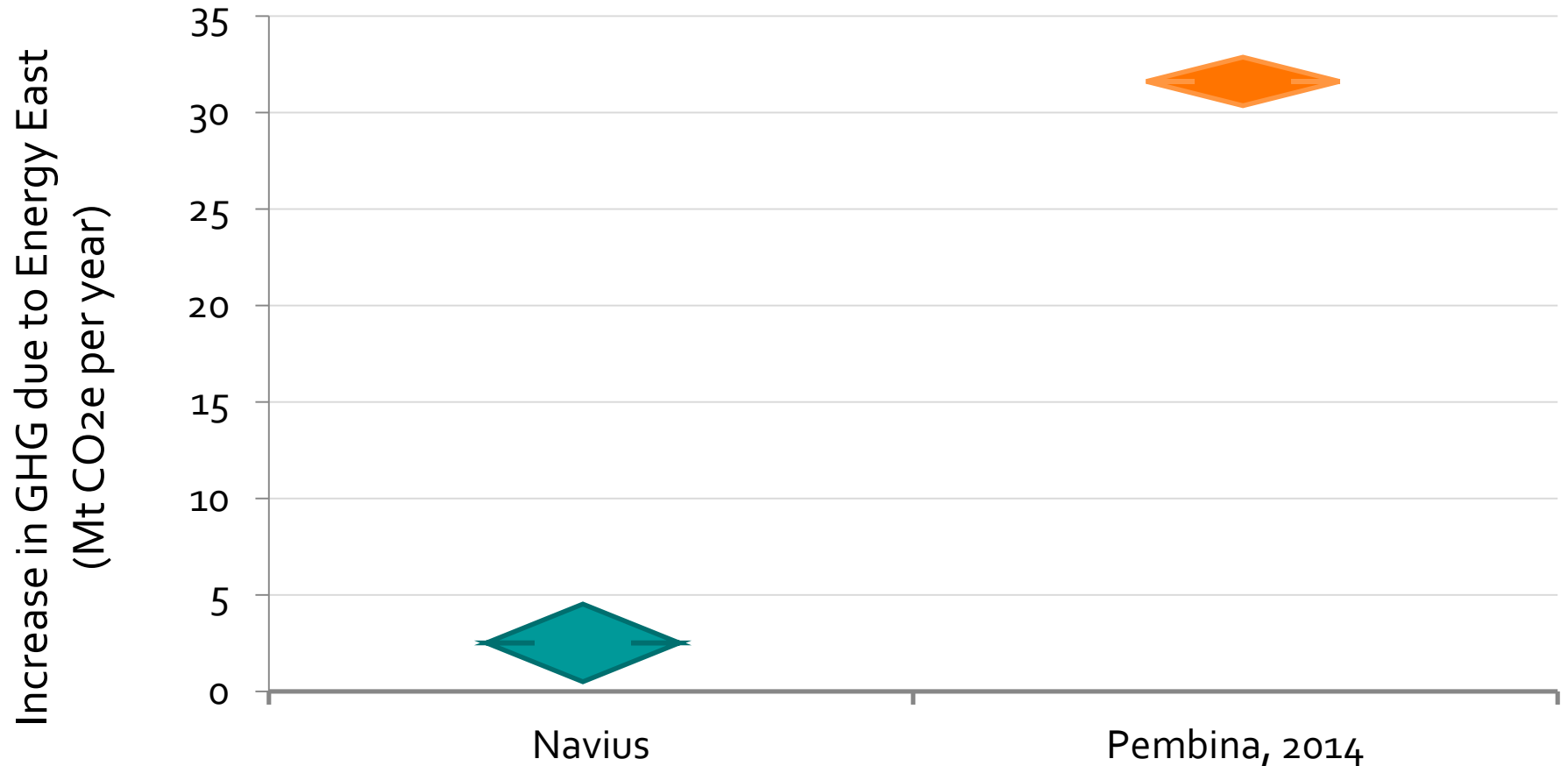
GHG Impact from Well-to-Tank



GHG Impact from Tank-to-Wheels



Comparison to Other Research (Well-to-Tank)



The impact of low oil prices

Since the analysis was complete, oil prices have declined significantly. The impacts of this change are:

- If oil prices recover by 2019, the findings may not change significantly (Energy East is not expected to begin operation until 2019).
- If oil prices do not increase, the Energy East pipeline may have little/no impact (oil sands projects would not be profitable even with a new pipeline).
- If oil prices increase “a little bit”, impacts are likely to be larger than we have suggested.

Key Findings

- Most impacts (from well-to-tank) occur in Canada;
- Emissions decline in the rest of the world, offsetting most of the increase in Canada (from wells-to-tank);
- Impact from tank-to-wheels could be important.
- Oil prices will affect the GHG emissions from pipelines.

Thank you!

Questions, comments?

Jotham Peters

604.683.1255

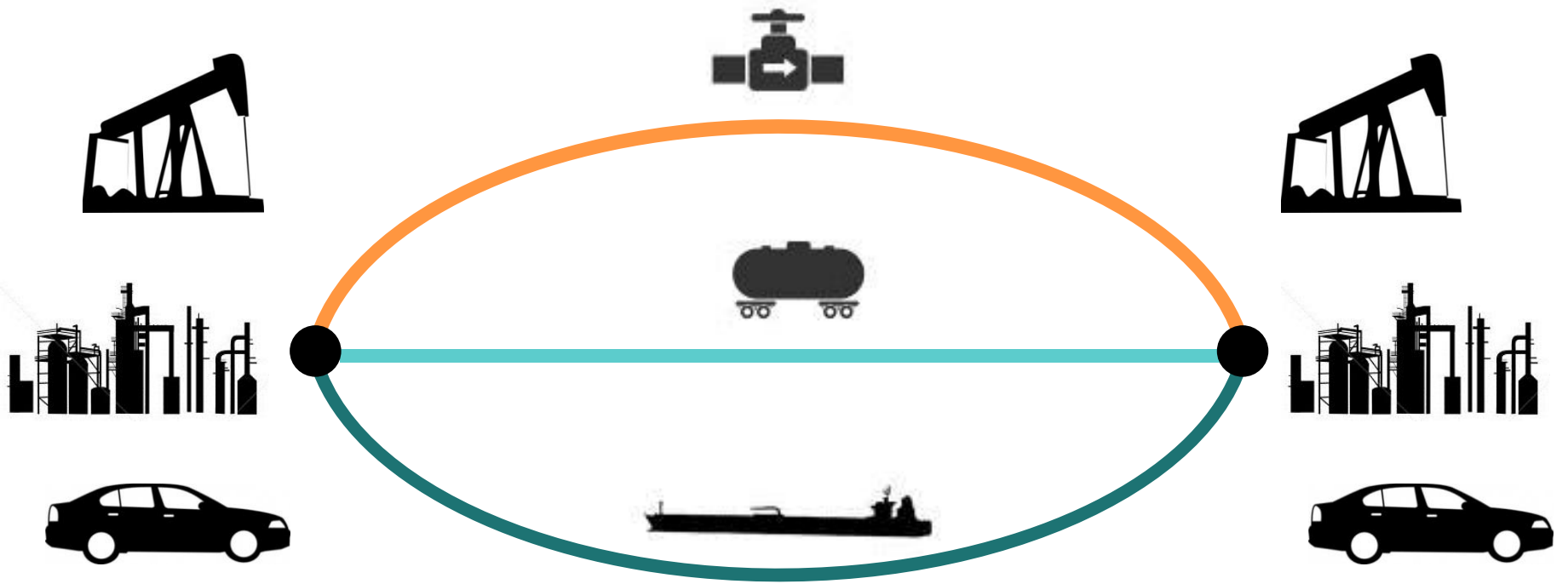
Jotham@NaviusResearch.com



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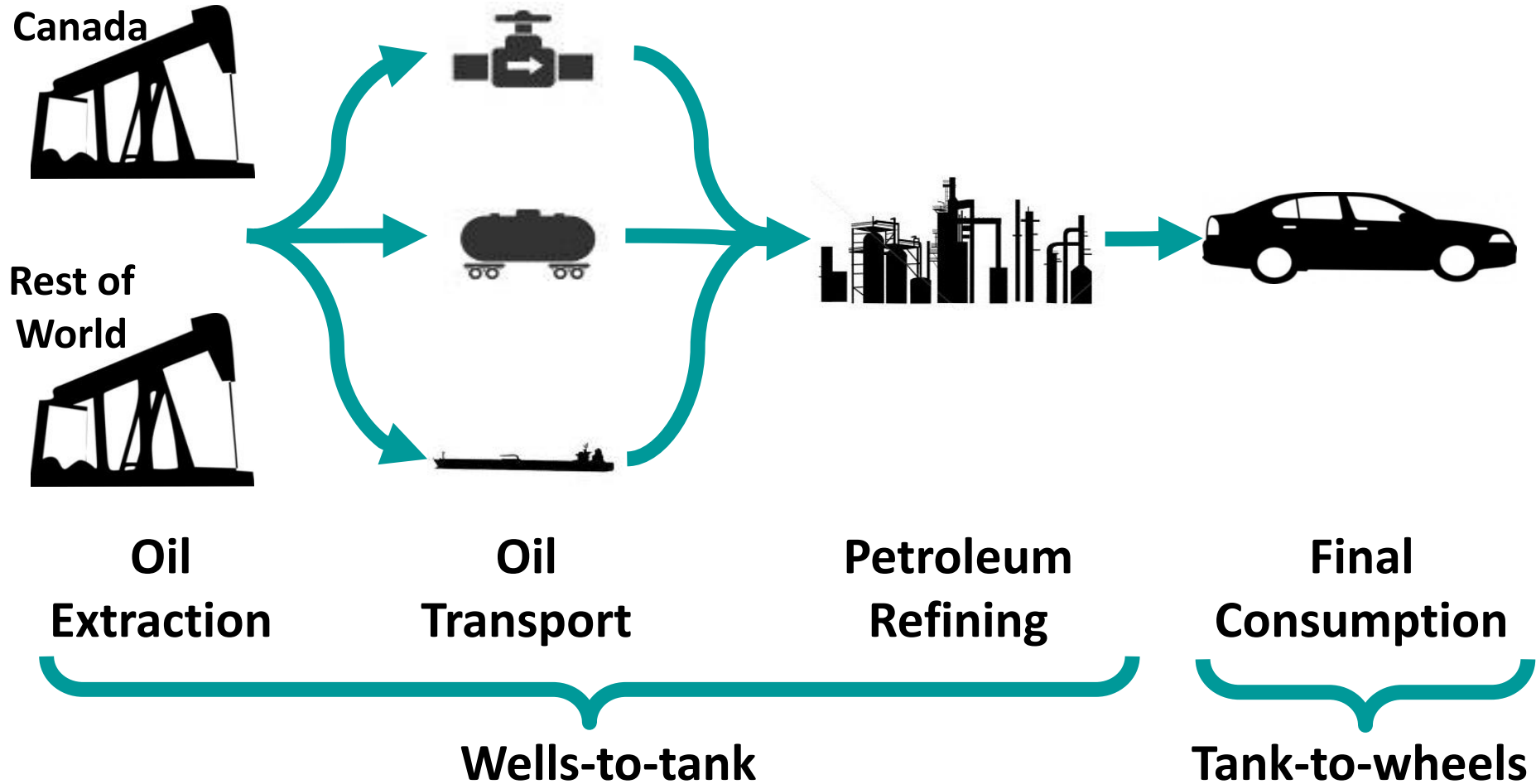
Approach: The OILTRANS Model



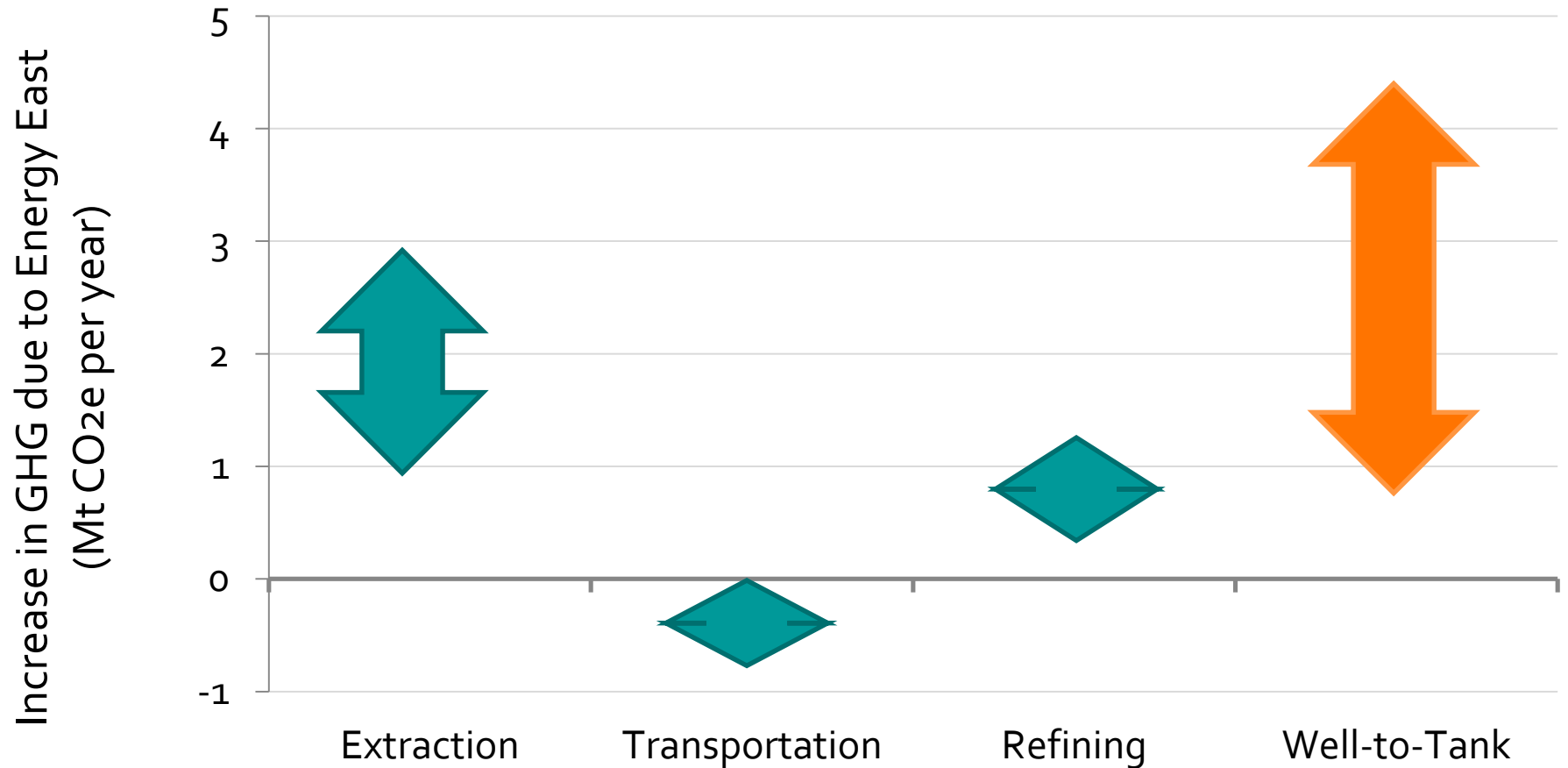
Final demand for refined petroleum products (“tank-to-wheels”) in each market is sensitive to price (i.e., consumption declines with an increase in price).

Well-to-Tank

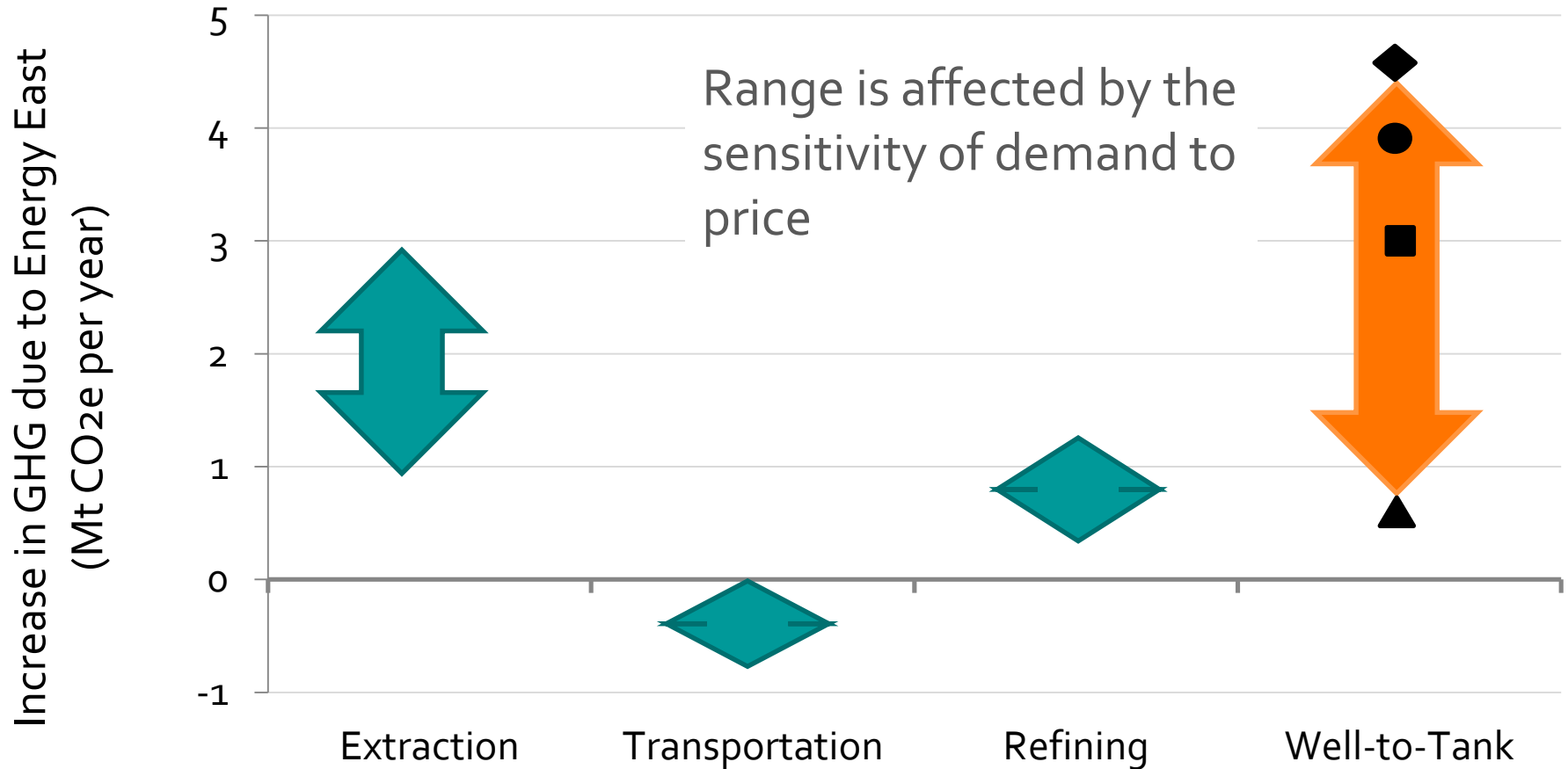
Approach: The OILTRANS Model



Global GHG from Well-to-Tank



Range in Global GHG Impact



Comparison to Other Research (Well-to-Tank)

GHG impact (from well-to-tank) is estimated at between 0.7 and 4.3 Mt CO₂e per year in 2035

- Pembina Institute (2014) estimated the impact at between 30 and 32 Mt. The key difference is that Pembina does not consider the availability of rail transport.
- National Energy Board (2016) is not fully comparable with our study. Qualitatively, the results presented here are more similar with the NEB.