Anchored in sustainability: A system dynamics model for ship recycling in the Port of Newcastle

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THE UNIVERSITY OF SYDNEY

Context: The current ship recycling industry

Concentrated in South Asia

- Lack of regulations and low labour costs

Attempts to regulate the industry:

- Basel Convention (2004)
- Hong Kong Convention (2009)
- EU Ship Recycling Regulation (2013)

Anticipated influx of EOL ships:

- IMO environmental regulations for ships
- Surplus as supply chains regain pre-pandemic tempo

Requirements for sustainable ship recycling

Economic	• Profitable
Environmental	• Reduced pollution • Better handling of toxic and hazardous substances
Social	• Safer working conditions

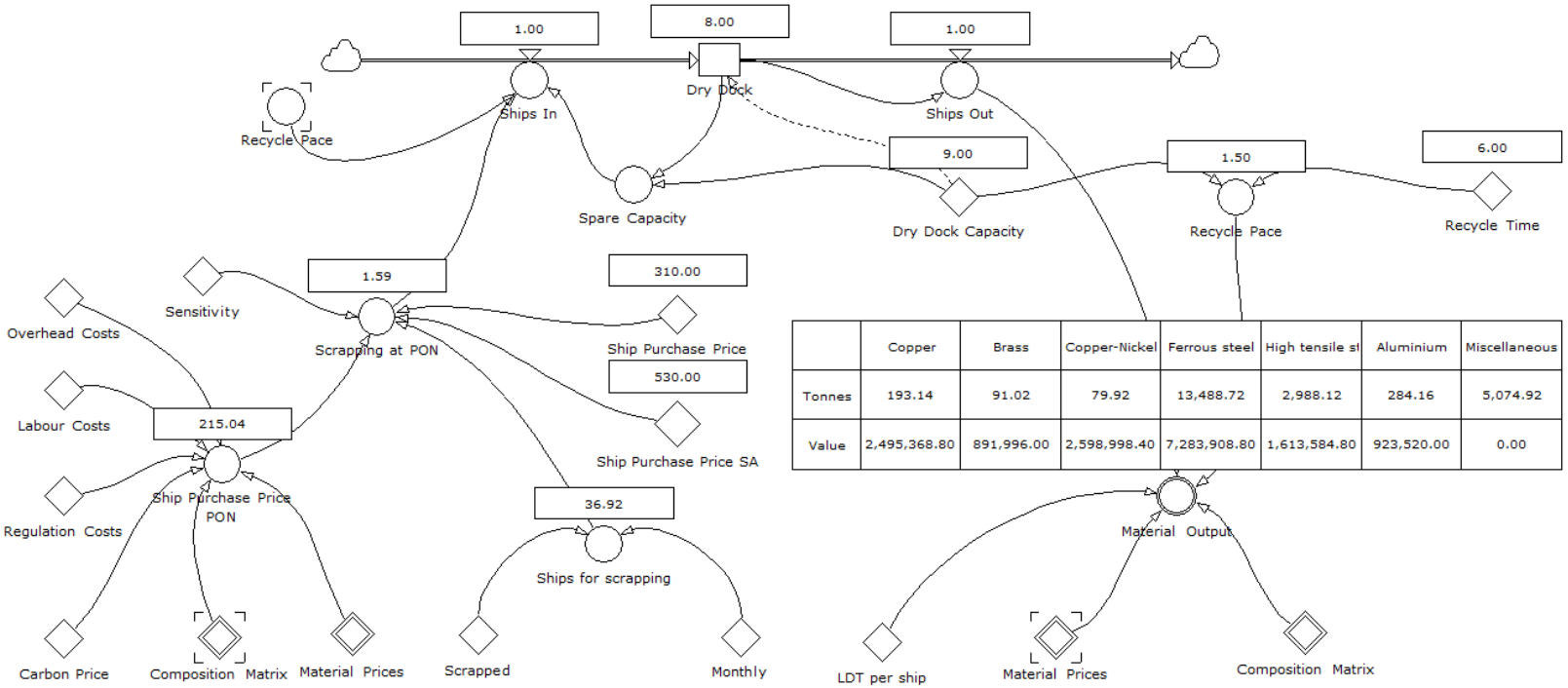
Port of Newcastle

- ‘World’s largest coal port’ - contributes $1.5b to Australian economy
- 98-year lease to The Infrastructure Fund & China Merchants since 2014
- Two main coal markets (Japan and Korea) have pledged net zero by 2050
- By 2030, PON is targeting 50% revenue from non-coal sources (currently 18%)
- ~50% of PON land is vacant
- Sustainability-linked loans with NAB

Ship recycling in the Port of Newcastle Precinct

- Approximately 50% of land is vacant
- Catalyst for industrial growth due to the creation of a supply of recycled steel
- Aligned with conditions set by the three conventions/regulations
- Employment opportunities for coal workers
- Facility on EU list

System Dynamics Model



	Copper	Brass	Copper-Nickel	Ferrous steel	High tensile st	Aluminium	Miscellaneous
Tonnes	193.14	91.02	79.92	13,488.72	2,988.12	284.16	5,074.92
Value	2,495,368.80	891,996.00	2,598,998.40	7,283,908.80	1,613,584.80	923,520.00	0.00

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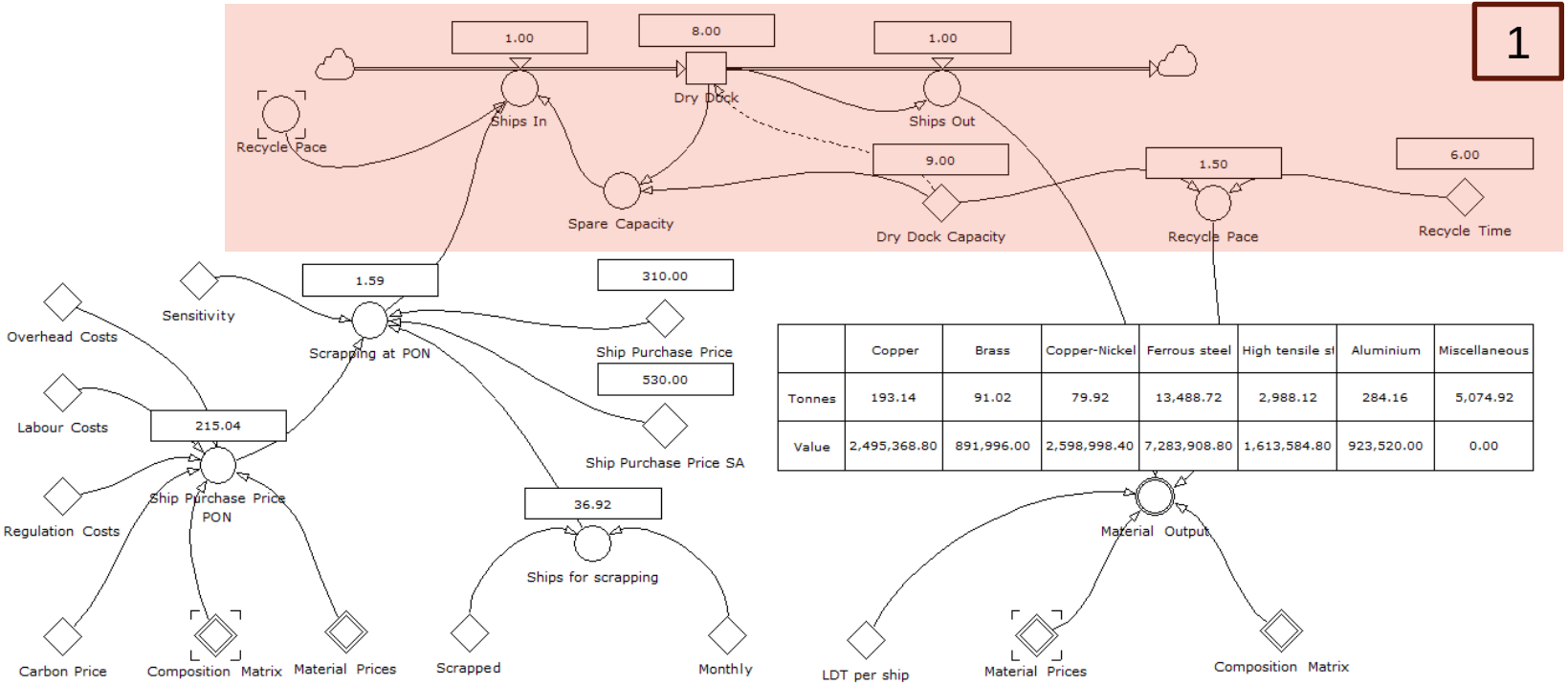

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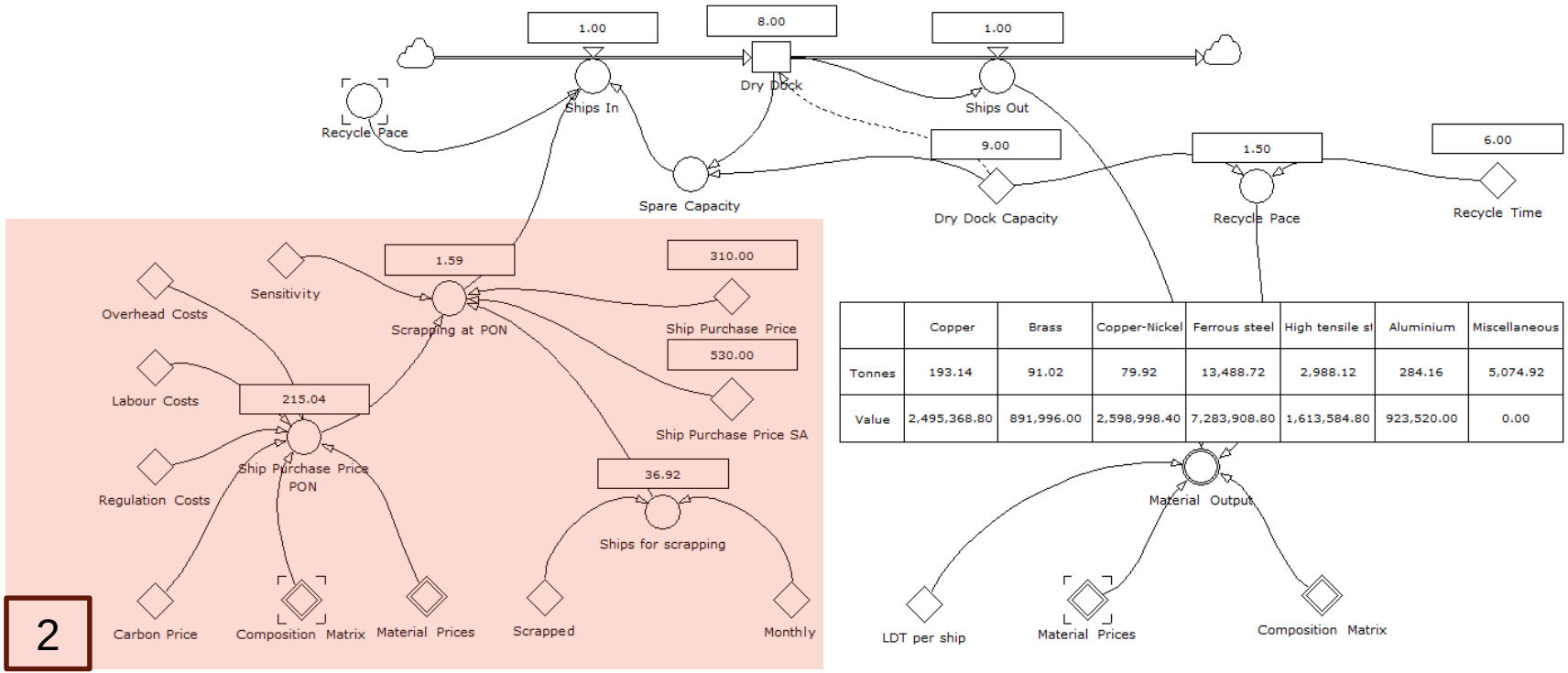

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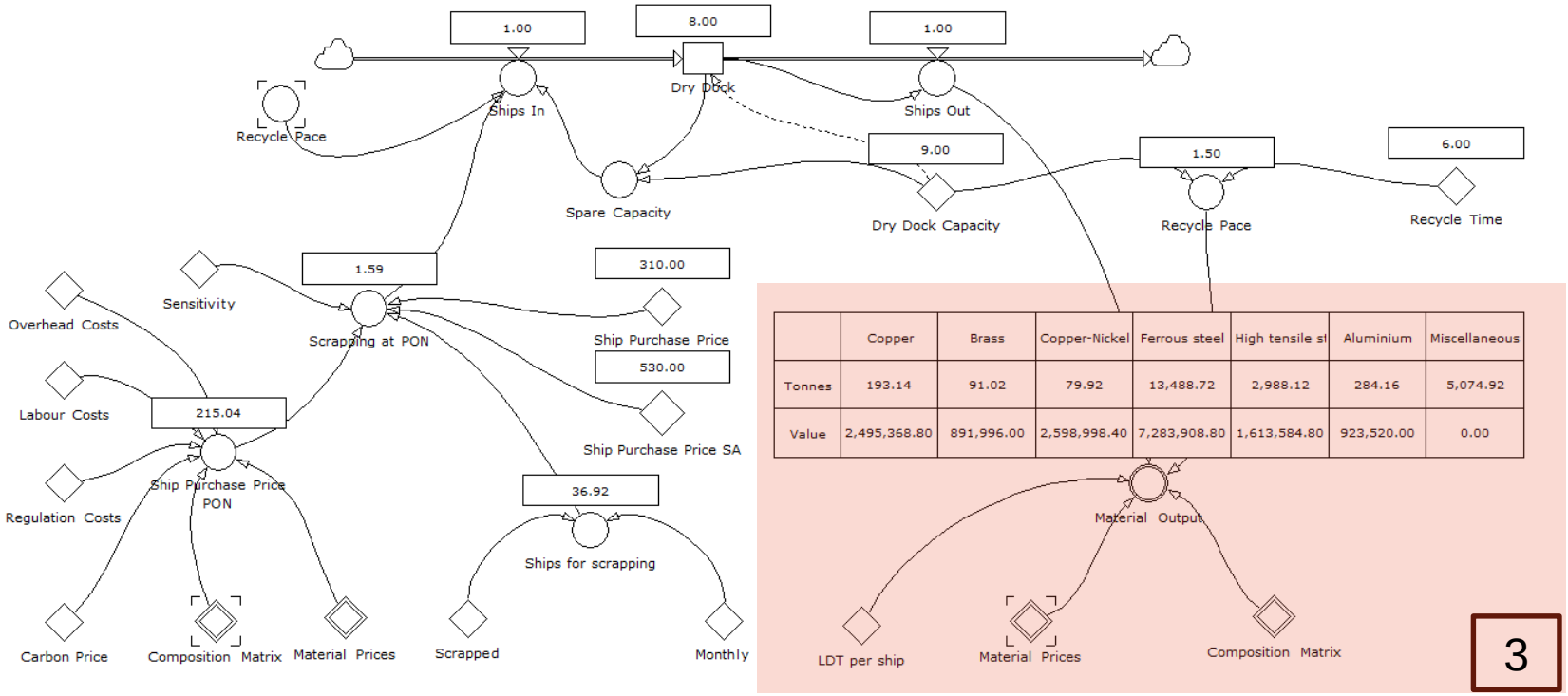

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Policy Implications

- Financial incentives and subsidies for upfront capital costs
- PON accepted on EU recycling list
- Wider green steel industry
- Domestic industry to make use of the steel
    - Infrastructure projects
    - Ship building industry

Thanks for listening!

Any questions?

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