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DATA GAPS INITIATIVE 3

Experimental Work on Physical Energy Flows Accounting

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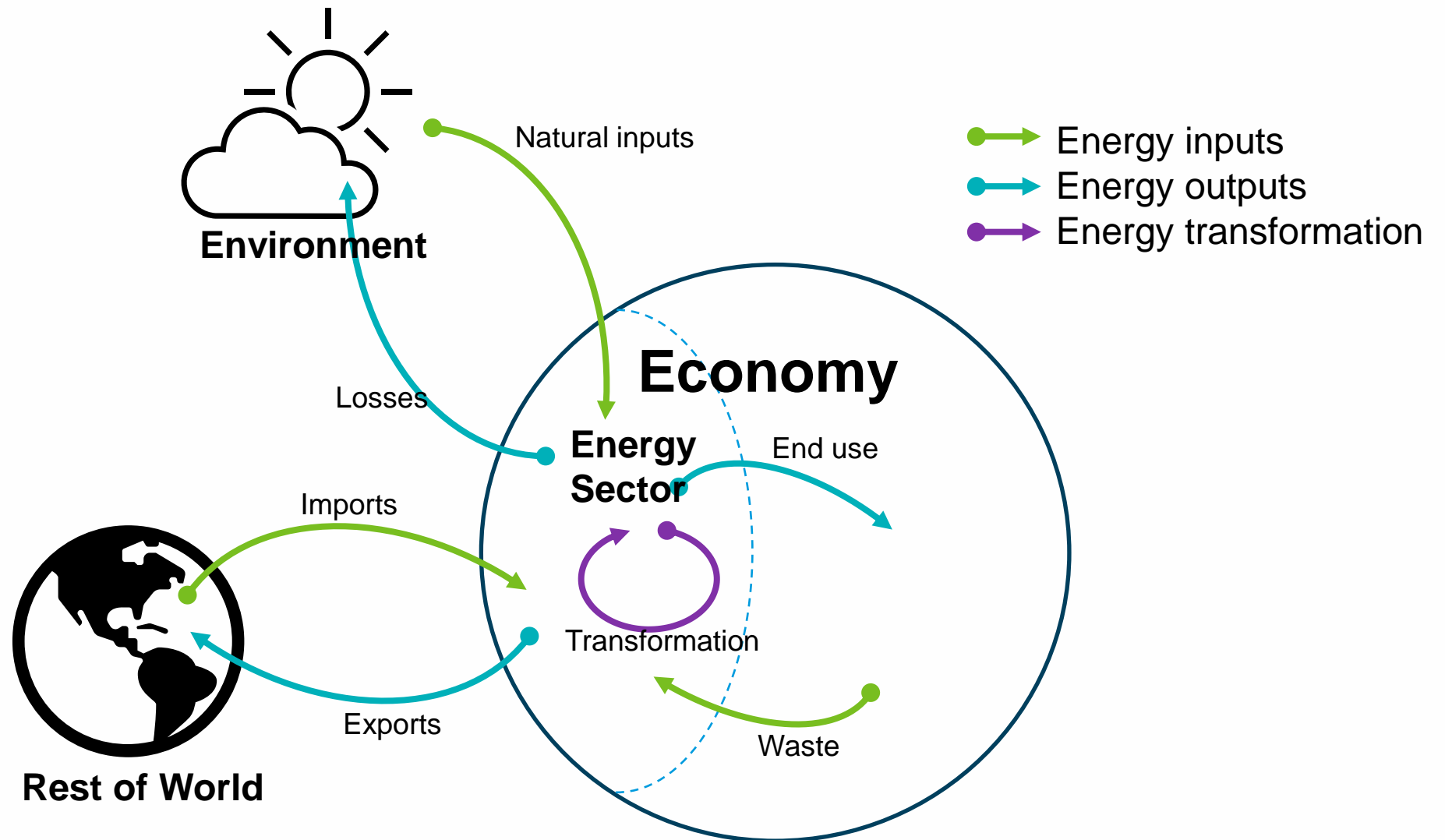
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Setting the Stage

- Started in 2023 as part of *Statistics for Environmental-Economic Decisions* (SEED) effort
- Early preview of estimates with experts in U.S. government yielded good feedback
- Planned presentation of pilot estimates at IARIW General Conference in August

Foundation



Challenges

- Data
 - **Aggregation** of national energy statistics
 - Industrial
 - Commercial
 - Transportation
 - Residential

Challenges

- Data
 - Aggregation
 - **Transformation** of energy products
 - Electricity generation
 - Petroleum refining

Challenges

- Data
 - Aggregation
 - Transformation
 - **Transportation**
 - Modes—air, water, rail, cars, trucks
 - Own-account transportation services

Challenges

- Data
 - Aggregation
 - Transformation
 - Transportation
- Methodological
 - **Residency basis** vs territory basis

Challenges

- Data
 - Aggregation
 - Transformation
 - Transportation
- Methodological
 - Residency basis
 - **Presentation** of results

Solutions

- Data
 - **Aggregation** → Proportional attribution using industry-level **economic statistics**
 - BEA Use table
 - BEA detailed fixed asset and consumer durable goods tables
 - Transportation Satellite Accounts

Solutions

- Data
 - Aggregation → Economic statistics
 - **Transformation** → Plant-level **microdata**
 - Electric generating units—EIA form 923 survey data
 - Still exploring solutions for petroleum refineries

Solutions

- Data
 - Aggregation → Economic statistics
 - Transformation → Microdata
 - **Transportation** → National **transportation statistics**
 - Energy use by mode
 - Transportation Satellite Accounts

Solutions

- Data
 - Aggregation → Economic statistics
 - Transformation → Microdata
 - Transportation → Transportation statistics
- Methodological
 - **Residency basis** → Estimate necessary adjustment using **industry specific data**
 - Air transportation: published domestic air carrier fuel cost and consumption statistics
 - Truck transportation: pilot account uses data on trade in transportation services
 - Marine transportation: pilot account estimates fuel consumption from fuel expenditures
 - Rail and pipeline transportation: residency adjustment believed to be negligible
 - Exploring better solutions for truck and marine transportation

Solutions

- Data
 - Aggregation → Economic statistics
 - Transformation → Microdata
 - Transportation → Transportation statistics
- Methodological
 - Residency basis → Industry specific data
 - **Presentation** → Focus on **user needs**
 - Physical process focus
 - Economic accounting focus
 - Extension to SIEC classification

Example Presentation (Supply Table, Physical Process Focus)

Energy Product\Industry	[Industries]					Imports	Environment	Total
Natural Inputs								
Solar Energy								
Natural Gas								
Crude Oil								
Primary Energy Products								
Electricity								
Natural Gas								
Crude Oil								
Secondary Energy Products								
Electricity								
Gasoline								
Diesel								
Lubricants								
Asphalt								

Example Presentation (Economic Accounting Focus)

Energy Product\Industry	[Industries]					Imports	Environment	Total
Solar Energy								
Natural Gas								
Crude Oil								
Electricity								
Gasoline								
Diesel								
Lubricants								
Asphalt								

Next Steps

- Energy transformation in petroleum refineries
- Residency adjustment for truck transportation
- Residency adjustment for marine transportation



Thank you!
Questions?