

Sustainable Energy

- Twin Pillars (Renewable Energy and Energy Efficiency)
- Role of Technology
- Demand side technologies
 - Households
 - Industrial
 - Agriculture

More Efficient Use of Electricity

Average household uses
around 9,000 kWh, at
\$0.27 = \$2,430
55% space & water heating

Genesis Initiative

15 Households
Energy saving
devices
Remote access
Variable rate tariff
Average savings ~
14%



More Efficient Use of Electricity



Smart use in production

Agriculture:

Electricity savings

\$16,000/year

Water savings: 28% of total



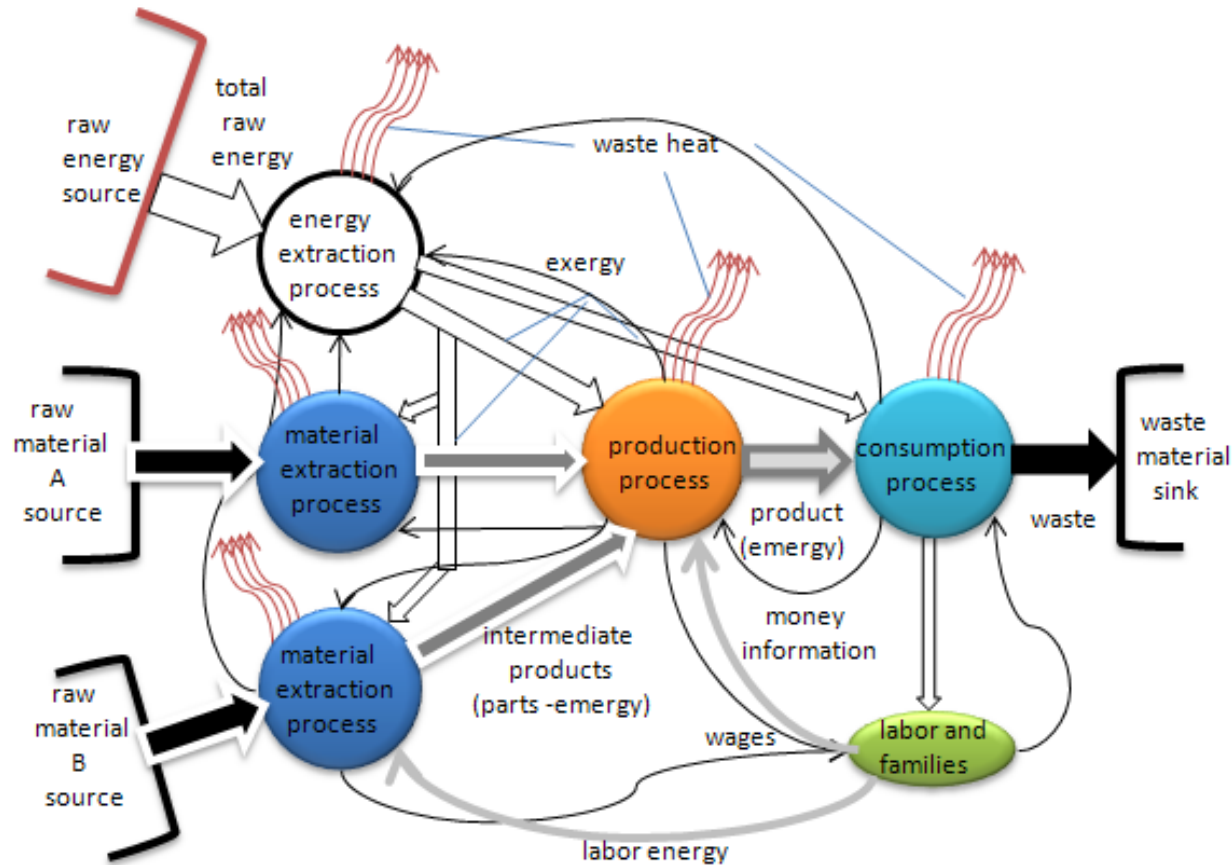
Industry:

Aluminium smelter

14% NZ electricity (541 MW)

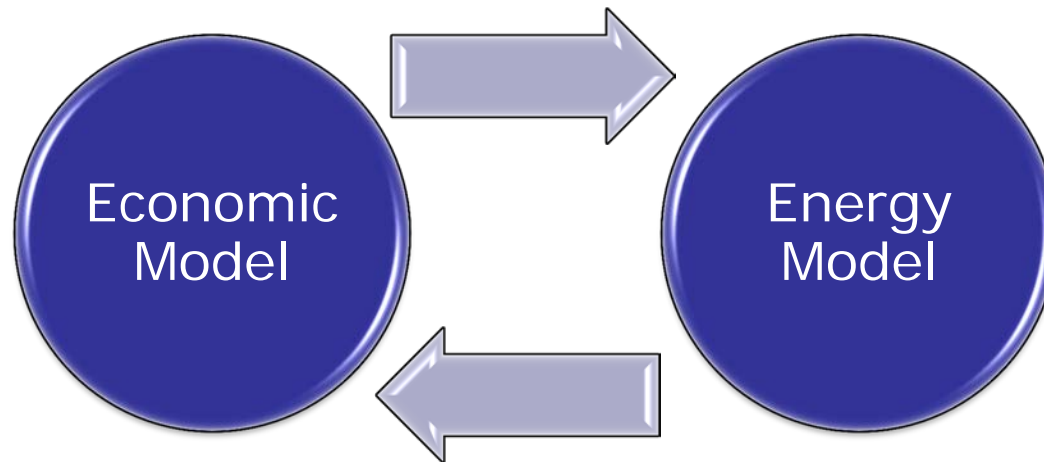
Shell Heat Exchanger

Energy-Economy- Environment



Complicated But Important Relationships

Energy-Economy Model For Tiwai Point Aluminum Smelter



- Economy Model: Computable General Equilibrium (CGE) Model :
 - Broader Economy and interaction between economic sectors
- Energy model: Optimization model
Technological details of energy Supply