

# Quarterly greenhouse gas emissions

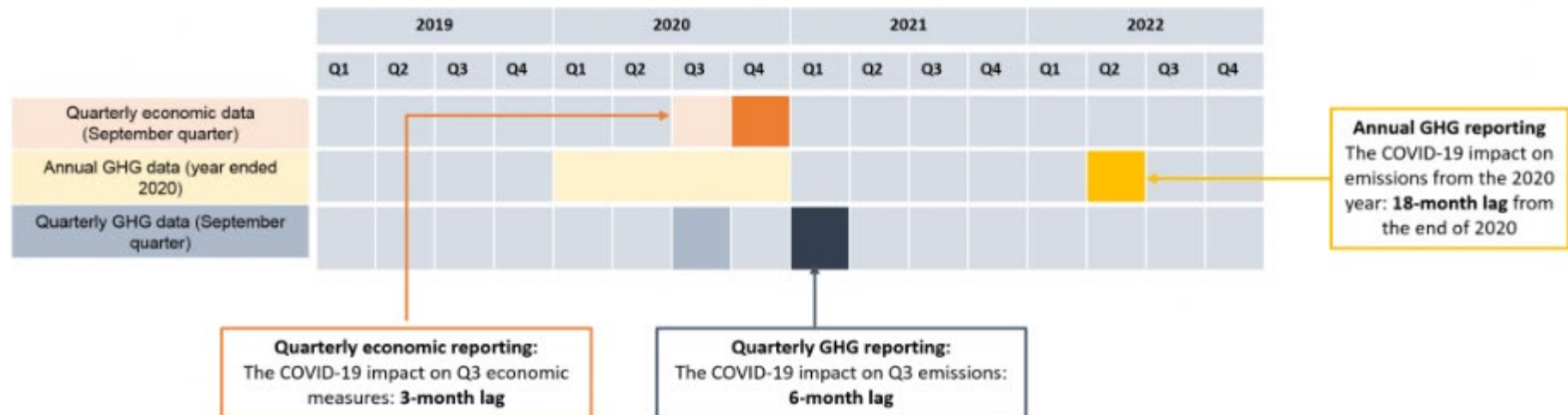
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# The need for quarterly emissions statistics

- COVID-19 highlighted the need for timely information
- Emissions data subject to significant lags, but addressing climate change becoming increasingly important
- First official insights available 14 months before it would otherwise be reported

Understanding the importance of timely reporting of the impact of COVID-19 in the September 2020 quarter on economy and emissions data



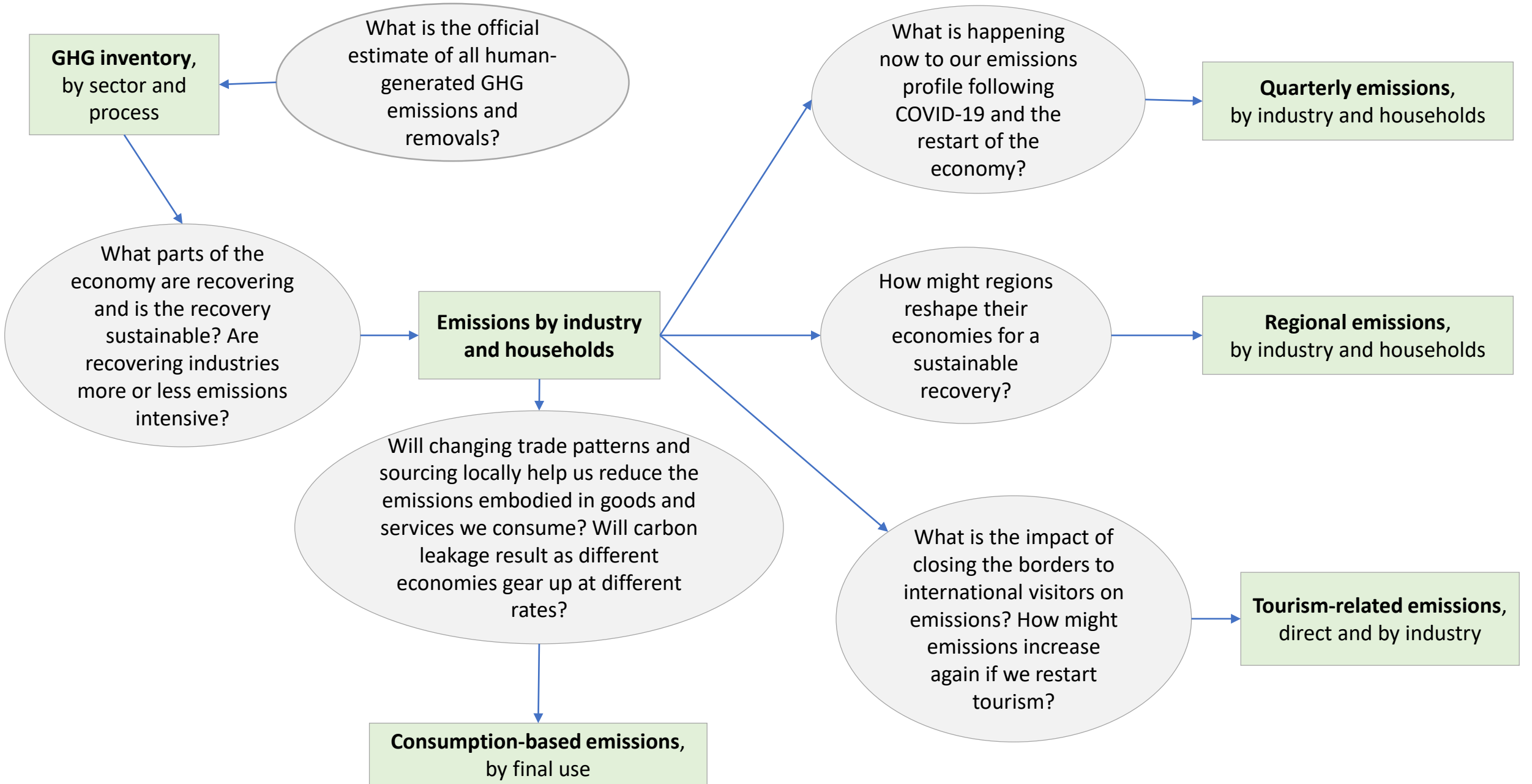
# Customer perspectives

- Supports an integrated wellbeing approach to monitoring the recovery
  - Useful way of tracking the impact of recovery spending
  - Could enable more efficient operation of the NZ ETS
  - Help monitor progress towards achieving emissions budgets
  - Provide a more timely basis for ‘fine tuning’ investments and climate change policies
- Puts emissions reporting on a similar level to GDP (timing and prominence)
- Independent credibility of NSO’s strengthens the policy evidence base
- Provides new insights and better attention on decarbonisation issues

# About quarterly GHG statistics

- Enables a focus on reducing GHG emissions to be made every quarter
- Educates users of environmental accounts and on the connection between environmental and economic development
  - Track emissions performance as composition of economy changes
  - Track emissions change in relation to GDP and other economic statistics
- Provides an early signal of changes in emissions and provisional annual estimates
- Initial results are experimental as quarterly GHGs not commonly measured internationally
- Aligned to, but not an estimate of, GHG inventory emissions
  - SEEA estimates 2-3% higher than GHG inventory
  - SEEA estimates expected to show different impact of COVID than GHG Inventory

# Understanding the transition to the low emissions economy following COVID-19



# Overview of methods and requirements

- Uses same methodological approach as quarterly GDP
  - Combines annual benchmarks (emissions levels) and quarterly indicators (for movements) in established statistical techniques
  - Imputation to obtain complete coverage
- Seasonal adjustment
- Based on residency principle for consistency with the national accounts
- Revisions expected over time

## Resources

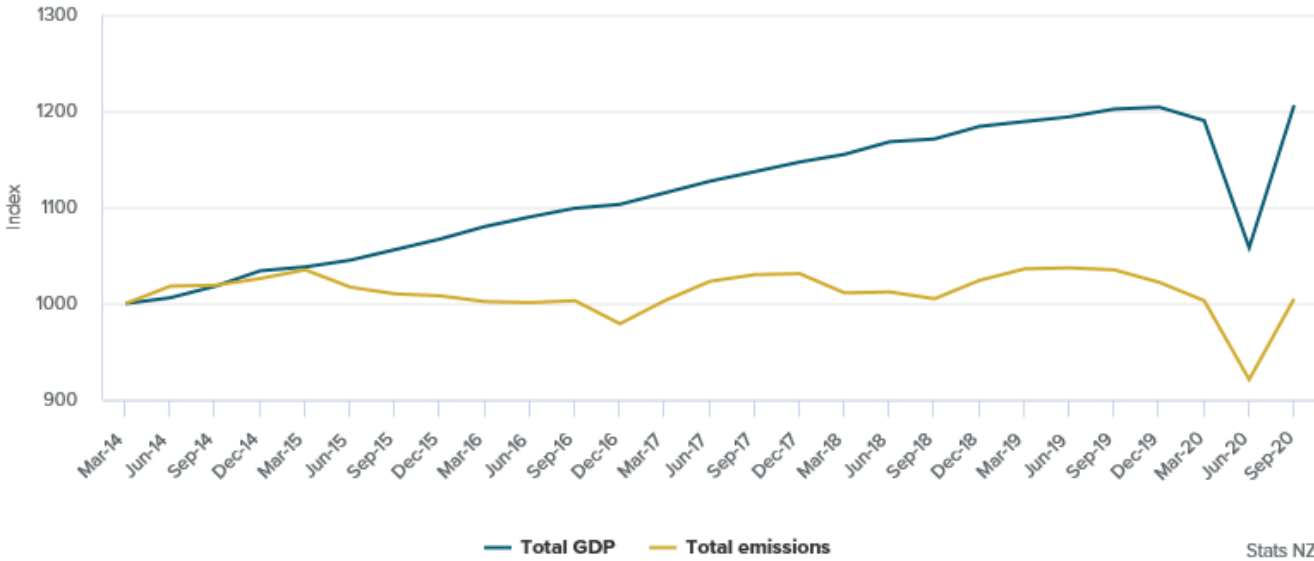
- 6 FTE, 6 months for methodological development
  - 2-3 FTE ongoing
- Programming capabilities (eg SAS)
- Access to X-13 ARIMA SEATS and national accounts macros

## Available data

- CO2-e by industry:
  - Agriculture, forestry, fishing
  - Mining
  - Manufacturing
  - Electricity, gas, water, and waste services
  - Construction
  - Services excluding transport, postal, and warehousing
  - Transport, postal, and warehousing
- CO2-e by households
- March 2014-September 2020
- Actual series – for provisional (SEEA) benchmarks
- Seasonally adjusted series – headline series

# Results

Indexes of total gross domestic product and emissions, seasonally adjusted, March 2014–September 2020 quarters

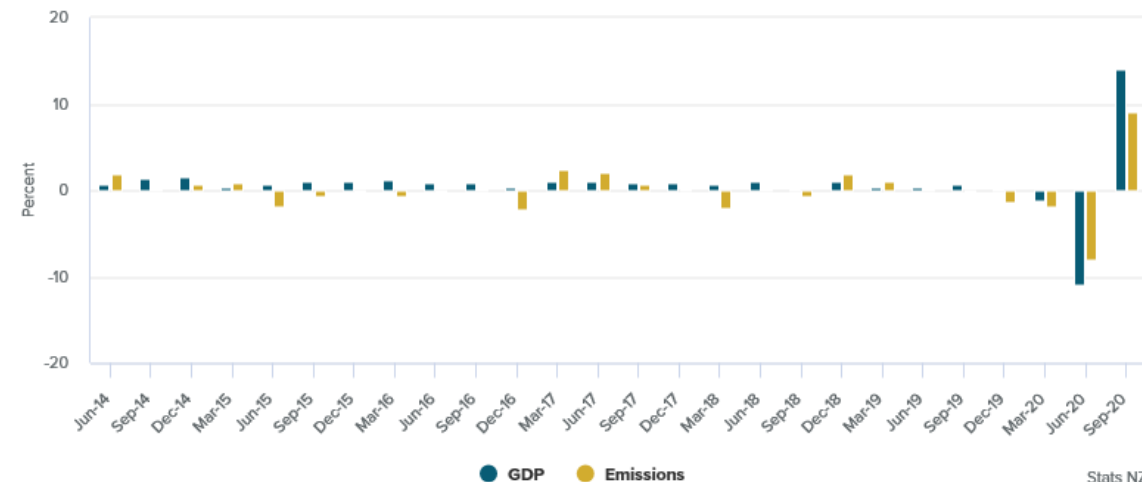


- Emissions drop and rebound mirrored impact of COVID on GDP
  - June quarter: -8% emissions, -11% GDP
  - September quarter: 9% emissions, 14% GDP

... but GDP growth was impacted more than GHGs

- June quarter: emissions intensive industries still operating
- September quarter: economic rebound of low emissions intensive industries

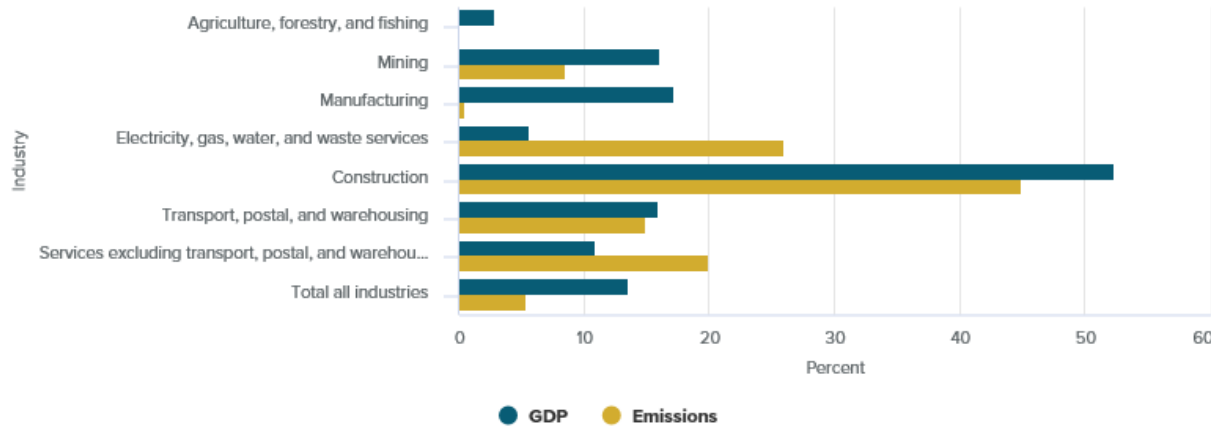
Percentage change in total gross domestic product and emissions, seasonally adjusted, June 2014–September 2020 quarters





# Results

Percentage changes in seasonally adjusted gross domestic product and emissions by industry, September 2020 quarter compared with June 2020 quarter

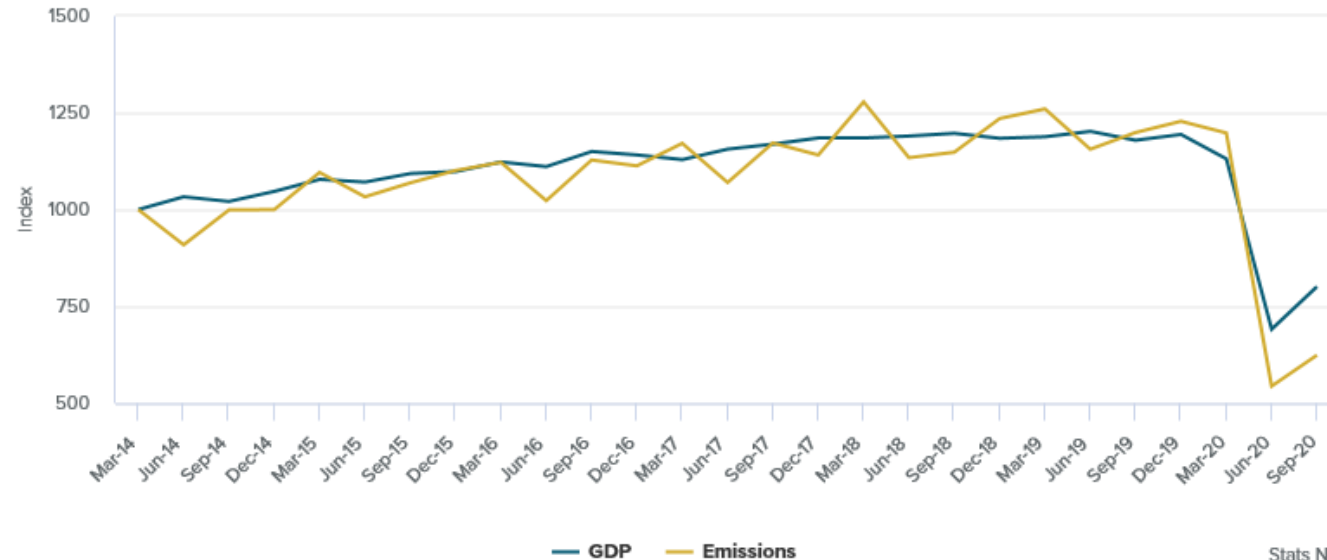


See metadata tab for notes about this graph.

- September quarter GDP and emissions impact felt across industries differently...

....but impact on ongoing border closure impacting transport, postal, and warehousing into September 2020 quarter (SEEA effect only)

Indexes of transport, postal, and warehousing industry gross domestic product and emissions, March 2014–September 2020 quarters



# Reflections: Insights and policy relevance

- QGHG has led to increased awareness of Stats NZ's SEEA program and demonstrating what SEEA can do, and providing insights others can't
  - COVID-quarters illustrated how integrated economic-environmental approaches provide new insights to explaining macro movements
  - Can provide new insights into energy statistics through the seasonal adjustment process
- NZ's emissions profile (and COVID experience) means growth effects likely not reflective of other countries
- High-level industries plus households sufficient for timely insights
- Gas breakdown of interest from users as relates to targets
- But, mis-alignment of residency approach to boundary of policy targets a limitation
- Media education will be critical for realising value

# Reflections: SEEA program enhancement

- Valuable as a means of quality testing the annual series and capacity building
- Gives SEEA more prominence, regularity, and establishment as a core statistical output
- More feasible than expected in early stages, and further global progress would enhance this more so