

An aerial photograph of Glasgow, Scotland, showing a mix of historic red-brick buildings, green spaces, and modern infrastructure under a blue sky with scattered clouds. The image is partially obscured by a white diagonal shape on the left and a dark blue diagonal shape on the right.

ASBS SUSTAINABILITY CHALLENGE

Creating an effective measuring, reporting and verification system for Glasgow public works

Presented By

Melzie Ghendrih

Sara Horne

Semhar Habtegergish

Siwei Ma

26th January 2023



“
**Wee Rab Makes
Glasgow**



M

**MOTT
MACDONALD**

M

Introduction

Building a Net-Zero
economy

Improving society
through social outcomes
and excellence

Prioritising sustainable
transport across the city

Involving private sector
investment to public
projects

Monitoring Public Sector Projects

1

WHAT TYPES OF PROJECTS?

- Public works that work towards Glasgow's net zero emission target.
- Includes renewable energy generations and carbon capture systems.

2

IMPORTANCE OF MONITORING THEM

- Ensures longer lifespan
- Prevents complete failures of infrastructures.
- Ensures the infrastructures are working effectively.

3

TIME FRAME

- Depends on the projects.
- Should be done at a reasonable time interval to ensure the quality and performance of the projects.



Monitoring renewable energy projects:

Wind turbines

CONDITION MONITORING SYSTEMS(CMS)

- Ensures stable, long service life of wind turbines.
- Skilled engineers to ensure precise monitoring
- Time frame of the check up should be around 2-3 times a year.



Monitoring Carbon Capture and Storage System(CCS)



- A monitoring plan is required before the establishment of a CO2 storage site.
- Provides early warning of any unexpected escapes of CO2.
- Minimises risks to the environment.

Measuring the effectiveness of public projects

1

A REDUCTION?

Has the construction of these projects made an improvement on CO2 emissions?

2

HOUSEHOLDS SWITCHING MAIN ENERGY USAGE?

The city council could carry out a survey on how many households have actually switched their main use of energy.

3

TIME FRAME?

- Effectiveness should be monitored annually.
- Provides the city council with a long term trend.



Financing the projects

It is highly crucial to involve in both the public sector and the private sector for the investment of public mitigation projects.

BENEFITS OF PRIVATE INVESTMENT FOR FIRMS

- 1** Huge benefits for firms — £9 return for £1 worth of investment.
- 2** Reputation enhancement— attracting wider range of customers.
- 3** Long-term growth and profitability— increased efficiency and productivity



Sustainability Survey

Monitoring methods

Online Surveys
vs
Postal Surveys

Ensuring equality

- Phone Helpline
- Respondent Burden:
Incentives

Effectively Reporting Data



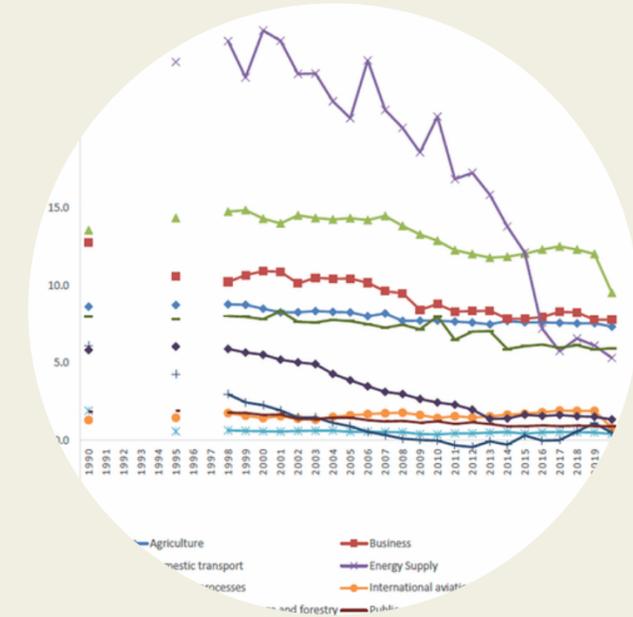
Glasgow's GHG emissions

Removals by source and sink should be understood before reporting.



UNFCCC Requirements

Reporting of GHG emissions should meet UNFCCC requirements to ensure validity.



Trends

GHG emissions trends should be tracked and policies set to direct toward national aims.

Effectively Reporting Data

REPORTING

- Reported to stakeholders and shareholders through a GHG inventory report.

REQUIREMENTS

- Require activity data, emission factor, and data from continuous emission monitoring systems.

TIMEFRAME

- Frequent collection throughout the year and reported annually to both stakeholders and shareholders.

Effectively Reporting Data

01

Glasgow City Council can take a similar approach to the National GHG Inventory Model

02

Existing IPCC spreadsheets can be used as a guideline and refined to Glasgow's specific needs.

03

The Sustainability Survey, can be used to report the impact of developments to the Holyrood parliament.

Technical Assessment

GOALS

- Verify the data's credibility
- Pinpoint gaps in the data
- Ensure the confidence of current and future investors

ACTORS

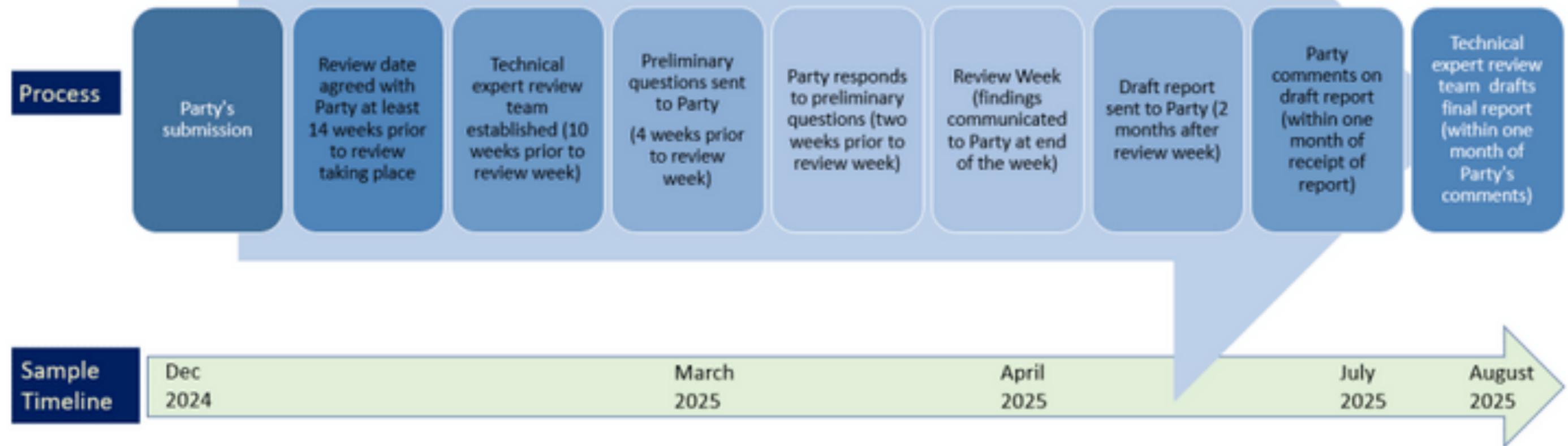
- 3rd parties - removed from MRV and projects as a whole
- Examples: consultancies, NGOs

TIMEFRAME

- Need enough time to collect data to allow a holistic view
- Could follow UNFCCC models with biennial report

Expert Review Cycle

Image credit: FAQ on the operationalization of the ETF





Including Recommendations

- Reach experts from different fields.
- Encourage wider society participation.
- Feed back into policy making
- Helps Glasgow reach its Climate Commitments

Value of Open Source Data

Source: World Bank - Starting an Open Data Initiative
<http://opendatatoolkit.worldbank.org/en/starting.html>

TRANSPARENCY

**CIVIL SOCIETY
PARTICIPATION**

INNOVATION

EFFICIENCY

Conclusion



- Improve the efficiency of public works
- Help achieve Glasgow's sustainability and Net Zero Goal.
- Improve living standards for Glasgow's inhabitants, and set a precedent for other UK cities.

1 INFRASTRUCTURE

Monitoring infrastructure:

- Skilled engineers
- Regular check-ups

2 CITIZENS

Involving Glasgow citizens:

- Surveys for measuring
- Open source data

3 FUTURE

Looking towards the future:

- direct trends toward goals
- including recommendations

References

Pengwern Associates. "Financing Options for Glasgow's Green Deal - Final Version". In: Glasgow City Council (Dec. 2022). url: <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=58985&p=0>.

Glasgow Household Survey (GHS). Sept. 2022. url: <https://www.glasgow.gov.uk/index.aspx?articleid=17712>.

Monitoring and reducing respondent burden. Nov. 2020. url: <https://analysisfunction.civilservice.gov.uk/policy-store/monitoring-and-reducing-respondent-burden-2/>

Jonathan Pearce. Monitoring: BGS Research - Carbon Capture and Storage. July 2020. url: <https://www.bgs.ac.uk/geology-projects/carbon-capture-and-storage/monitoring>

Neelam Singh, Jared Finnegan, and Kelly Levin. "MRV 101: Understanding, Measurement, reporting, and verification of climate change mitigation - Working Paper". In: Washington DC: World Resources Institute (Aug. 2016). url: <http://www.wri.org/mrv101>

The Glasgow Green Deal. Dec. 2022. url: <https://www.glasgow.gov.uk/glasgowgreendeal>

UNFCCC. "Decision 2/CP.17". In: Report of the conference of the parties on its seventeenth session, held in Durban from 28 November to 11 December 2011: Addendum - Part Two: Action taken by the Conference of the Parties at its seventeenth session. United Nations, 2012, pp. 2–54. url: <https://unfccc.int/sites/default/files/resource/docs/2011/cop17/eng/09a01.pdf>

UNFCCC. "FAQ's on the operationalization of the enhanced transparency framework". In: (Dec. 2021). url: <https://unfccc.int/documents/227799>