



Australian Government



Carbon Farming Initiative: Methodologies and their Development

Department of Climate Change and Energy Efficiency

www.cleanenergyfuture.gov.au

Carbon farming opportunities

SEQUESTRATION

- Reforestation
- Revegetation
- Rangeland restoration
- Soil carbon
- Native forest protection

EMISSIONS REDUCTION

- Fertiliser management
- Manure management
- Reduced livestock emissions
- Landfill gas flaring
- Savanna fire management
- Feral animals

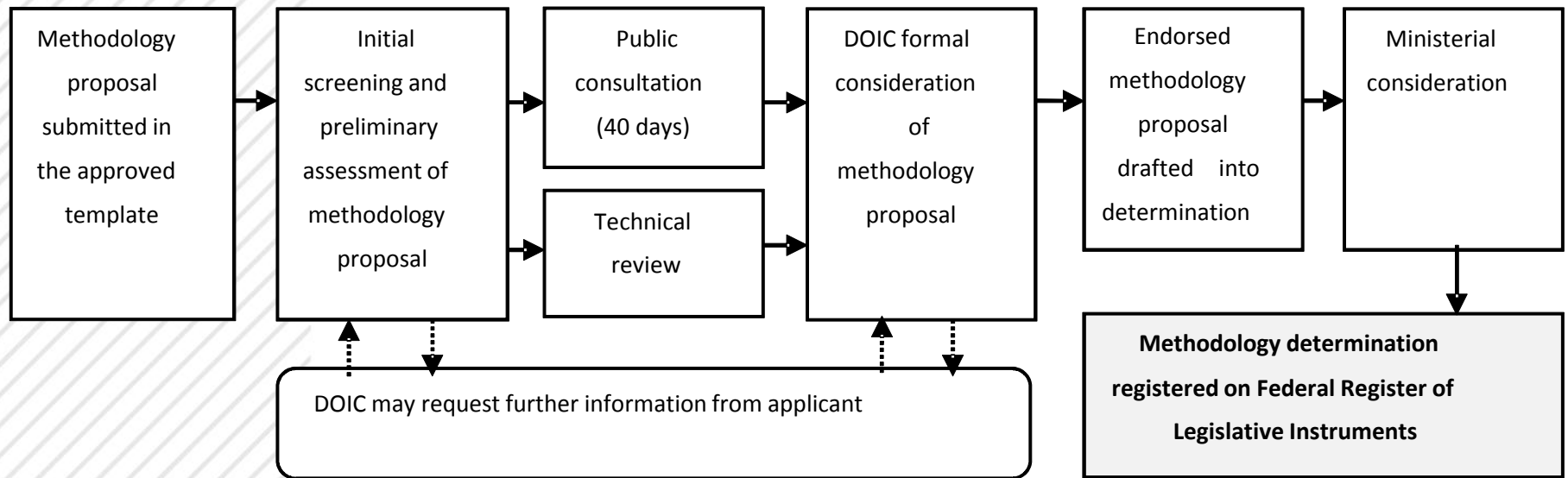


Integrity Principles

- Measurable
- Conservative
- Based on peer-reviewed science
- Internationally consistent
- Avoidance of leakage
- Permanent
- Additional

Methodology development and approval

- Domestic Offsets Integrity Committee (DOIC)
 - Independent expert committee that assesses whether potential methodologies meet the CFI requirements



Methodology development

- Methodologies can be developed and proposed by both private proponents and government agencies
- 13 methodologies have been endorsed to date
- There is a range of assistance for methodology development:
 - Carbon Farming Futures Filling the Research Gap supports research into activities that may lead to methodologies
 - CFF Developing Estimation Methodologies and the Indigenous Carbon Farming Fund support development of methodologies
 - The Department may collaborate with proponents

Key elements of methodologies

- Methodologies must contain several key elements that provide instructions on how a project is conducted and abatement is calculated:
 - Scope and eligibility
 - Baseline
 - Greenhouse gas assessment boundary and leakage
 - Calculations for abatement
 - Project monitoring and reporting requirements

Scope and Eligibility – Landfill gas capture and combustion

- Projects must involve:
 - a) installing a gas collection system (including wells, flares and/or electricity generation systems) on or after 1 July 2010; and
 - b) collecting the landfill gas generated (only the proportion from legacy waste is eligible for crediting); and
 - c) combusting the methane component of the landfill gas using flares and/or an electricity generation system to chemically convert it to carbon dioxide (CO₂).

Baselines

- Methodologies must provide a way of calculating emissions or sequestration in the absence of the project
 - Historic baselines
 - Projected baselines
 - Standardised baselines
- Baselines may be constant, ratcheted, or indexed

Baseline – Landfill gas capture and combustion

Quantity of methane destroyed under baseline conditions– A_{reg}

Calculate A_{reg} using Equation 12

$$A_{reg} = Y \sum_{h=1}^n Q_{com,h} \times B_P$$

A_{reg} = emissions captured under baseline conditions

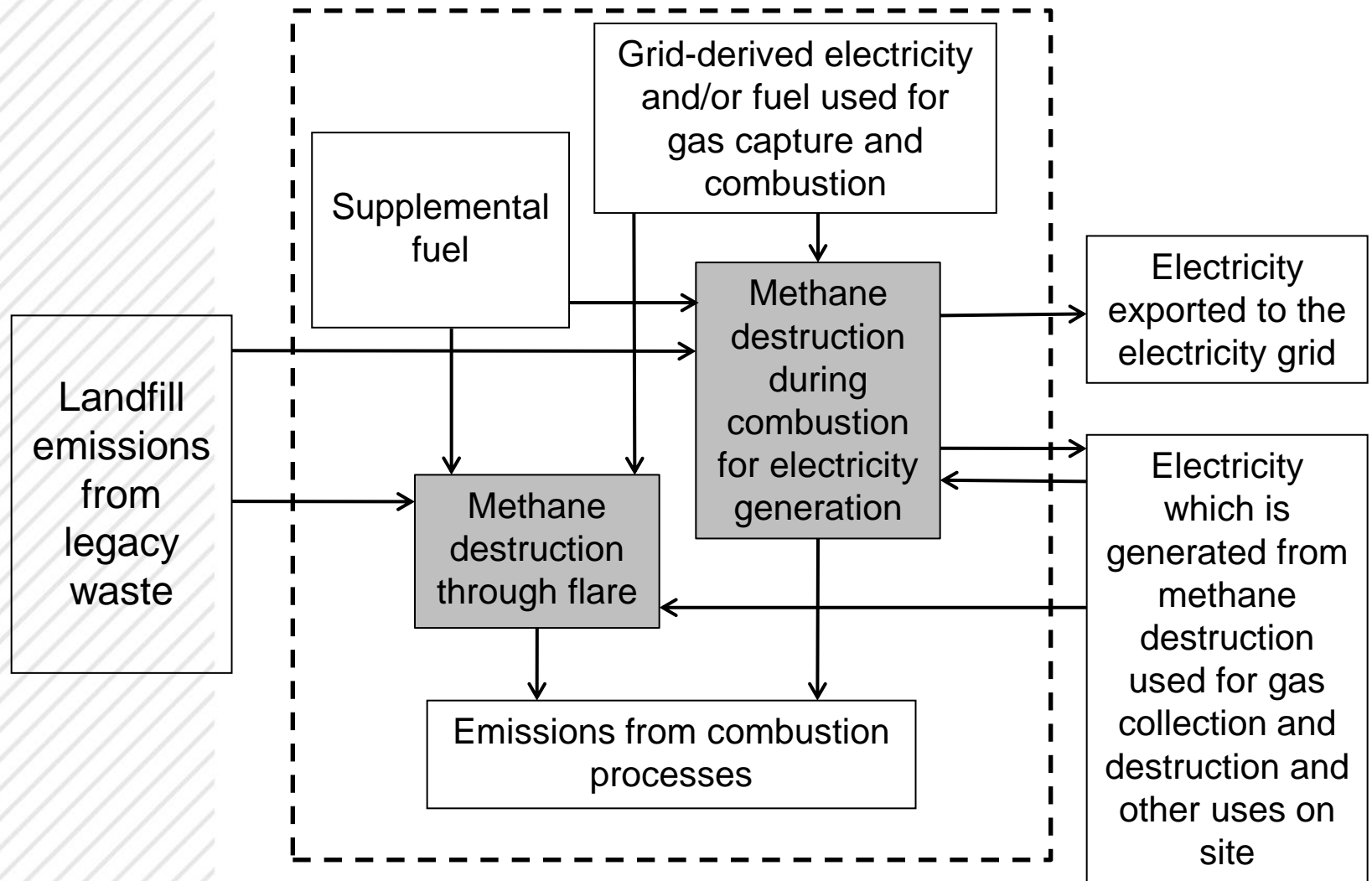
$Q_{com,h}$ = volume of methane generated from legacy waste destroyed by a combustion device

B_p = proportion of methane captured under baseline conditions

Standard factors

Y = converts volume of methane to tonnes CO_2 -e

Greenhouse Gas Assessment Boundary - Landfill gas capture and combustion



Calculation of abatement – Landfill gas capture and combustion

Net greenhouse gas abatement – A

Equation 1

$$A = (A_p - Y_p)$$

A_p = quantity of greenhouse gas emissions avoided due to project

Y_p = emissions from fuel and electricity use

Calculation of abatement – Landfill gas capture and combustion

$$A_p = \left(Y \sum_{h=1}^n Q_{com,h} - A_{reg} \right) \times (1 - OF) - E_{com}$$

$Q_{com,h}$ = volume of methane generated from legacy waste destroyed by a combustion device

A_{reg} = emissions under baseline conditions

E_{com} = emissions released during the combustion process

Standard factors

Y = converts volume of methane to tonnes CO₂-e

OF = methane oxidation factor (0.10)

Monitoring and Reporting Requirements

– Landfill gas capture and combustion

- Measurements taken with equipment complying with accuracy and transmitter requirements (Pressure: $\pm 0.25\%$; Differential Pressure: $< \pm 0.25\%$; Temperature: $< \pm 0.50\%$)
- Requirements relating to inspection, cleaning and calibration of monitoring instruments
- Records include: landfill licences; Landfill Environment Management Plans; maintenance records; logs of operations of system, including shut-downs, start-ups and process adjustments; NATA certificates from stack testing laboratories; evidence of fuel use (including invoices and receipts)
- Reports must include: proportion of methane required to be captured and destroyed to meet regulatory requirements, total fuel and electricity used by project, destruction efficiencies of combustion devices

Questions?

More Information

- Online: www.cleanenergyfuture.gov.au
- Email: CFI@climatechange.gov.au