Australian Banking Association

Financed Emissions Estimation Guidance for Residential Mortgages

Data Sources and Approach in the Australian Context

Version 1

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Australian Banking Association

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Preamble

About this Document

- The aim of the Australian Banking Association's (**ABA**) series of financed emissions guidance documents is to drive greater alignment and comparability across the published financed emissions of Australian banks and, in turn, provide greater clarity and transparency for third parties.[1]
- The specific scope of this guidance document is residential mortgages. The ABA is seeking to develop similar guidance for other portfolio areas.
- This guidance document is based on the calculation formula provided in the Partnership for Carbon Accounting Financials (**PCAF**)[2] Standard: Financed Emissions, The Global GHG Accounting and Reporting Standards Part A, 2nd Edition, Chapter 5.5: Mortgages (hereafter, the **PCAF Standard**) as a starting point.[3]
- This guidance document is based on the data sources available at time of development. The ABA has recommended that the Australian Government, as a strategic priority in the lead-up to the introduction of mandatory climate-related financial disclosures, look to improve the quality and range of publicly available climate-related data.
- The ability of banks to perform calculations under different datasets will depend in part on their information recorded in their own systems. This document provides alternative approaches where data sources have limitations. In either circumstance, this guidance recommends that banks clearly disclose their approach.
- This guidance document is not intended to mandate particular approaches, nor is it intended to close off avenues for banks to individually improve the quality and/or accuracy of their financed emissions calculations.

Future Paths for Development

- As data sources improve over time and as global standards (such as PCAF) develop and mature, the ABA and member banks will revisit the document with the aim of increasing the accuracy of financed emissions calculations.
- The long-term aim of Australian banks to continue to improve the industry's position on the PCAF data hierarchy. The ABA and members will continue to progress work on developing collaborative solutions.

[1] Many of our members operate a global footprint and/or are headquartered in countries outside Australia and therefore we acknowledge that these member banks are required to align with the legal and regulatory requirements and mandates of their head office. This means that their climate activities will align with their head office policies, processes and practices which may differ to the guidance contained in this document.

[2] The Partnership for Carbon Accounting Financials (PCAF) is "…a global partnership of financial institutions that work together to develop and implement a harmonized approach to assess and disclose the greenhouse gas (GHG) emissions associated with their loans and investments." Many but not all of ABA members are affiliated to PCAF and alignment with the approach outlined in this document does not imply or require formal membership of PCAF.

[3] Textual quotes from the PCAF Standard in this document, and associated pinpoint references refer to that Standard. The ABA will review subsequent versions of the PCAF standard as they are released and will use this opportunity to update textual quotes and pinpoint references.

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Decision Matrix

Overview and Formula

- *The emissions of buildings are calculated as the product of a building's energy consumption and specific emission factors for each source of energy consumed. The total energy use of the building includes the energy consumed by the building's occupant. The equation below is the result*. (PCAF, 96)

$$Financed\ emissions = \sum_{b,e} \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Energy\ consumption_{b,e} \times Emission\ factor_e$$

$$(with\ b = building\ and\ e = energy\ source\ )$$

Asset Class Scope

- Prior to applying the above formula, in-scope loans must be identified, for which there are two options:
    - **Purpose/Use of Proceeds** is the recommended data source for identifying asset class scope.
    - **Underlying security** is recommended for use in cases where data limitations do not permit the use of loan purpose codes.
- Irrespective of which data source is used, it is recommended that banks exclude the following from the asset class, should data permit: Home equity loans (HELs) or Home Equity Lines of Credit (HELOCs); Construction loans, Offset or redraw facilities; Guarantor securities; Overdraft and lines of credit; Vacant land; Reverse mortgages.

Emissions Scope Covered

- This Guidance documents considers and recommends the following inclusions and exclusions of emissions scope.
- Scope 1 and 2:
    - Emissions from electricity and natural gas, as recommended minimum inclusions.
    - Emissions from LPG, as a discretionary inclusion.
    - Emissions from other sources (such as solar, wood waste and diesel) are not recommended for inclusion.
- Scope 3:
    - This document does not provide guidance for embodied emissions, noting that global standards remain under development.

- Emissions attributable to electricity[4] and natural gas[5] related Scope 3 are recommended as a discretionary inclusion.

Estimating Building Emissions

- Energy Consumption:
  - Emissions factors based on the Australian Energy Regulator Statistics are preferred for use where a bank has knowledge of household size or the ability to proxy such (see below).
  - Where this is not the case, it is recommended that banks use estimates of *Residential – fuels consumed* sourced from the Australian Energy Statistics. These energy statistics are sectoral totals presented by state. To convert to per dwelling estimates of fuel related energy consumption, the estimated dwelling stock per state is sourced from the Australian Bureau of Statistics (ABS) or other industry sources.
- Household Size:
  - Banks should use internal data on household size where available. This can be supplemented by ABS data for household size where actual data is unknown or unavailable.
- Emissions Factors:
  - Banks should take the National Energy and Emissions Measurement Determination as the relevant emissions factor.

Attribution of Emissions

- Attribution numerator: Outstanding amount. It is preferred to align to best fit data to PCAF Standard definition of "Outstanding amount" being the balance owed to the borrower on the reporting data. If another metric (such as total committed exposure) is used this should be disclosed.
- Attribution denominator: Property Value at Origination. It is preferred to align to the PCAF Standard preference for origination of loan. Where loan origination data is not available, a bank may take valuation as at a customer-led credit event.

[4] Electricity related indirect emissions from the extraction, production and transport of fuel burned at generation and the indirect emissions attributable to the electricity lost in delivery in the Transmission and Distribution (T&D) network.
[5] Natural gas related indirect emissions attributable to the extraction, production, and transport of those fuels.

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Reference Discussion

Portfolio Boundaries and Valuation

Overview: To calculate financed emissions across their residential mortgage portfolio, banks will first need to identify the relevant portion of their portfolio.

Area	Significance and Purpose	Discussion	Guidance and Recommendations
Asset Class Scope	Setting an agreed Asset Class Scope allows agreement on the in-scope activities of residential property. The starting point was to leverage PCAF and, where relevant, provide Australian specific interpretation. The PCAF Standard provides (95): *This asset class includes on-balance sheet loans for specific consumer purposes—namely the purchase and refinance of residential property, including individual homes and multifamily housing with a small number of units. This definition implies that the property is used only for residential purposes and not for commercial activities.* *Home equity loans (HELs) and home equity lines of credit (HELOCs) are not required under this methodology given that these products are generally consumer loans for general consumer purposes, i.e., with*	There are two options open for estimating asset class scope: • **Underlying security:** Under this approach, the interpretation is on-balance sheet loans where the underlying security of the loan is against a residential property. • **Purpose/Use of Proceeds:** Under this approach, the interpretation is on-balance sheet loans where the specific purpose of the loan was for the purchase/refinance of a residential property. The purpose/use of proceeds is commonly identifiable using the loan purpose type/code. This aligns with the PCAF principle of "known use of proceeds", and the principle that emissions from funds used for other purposes should be accounted for against their actual purpose. Where data allows, vacant land and residential construction will be excluded.	It is recommended that banks use **Purpose/Use of Proceeds** to identify the asset class scope. For clarity, identification of loan purpose codes should not be confined to the residential mortgages portfolio but include appropriately coded loans in other portfolios where data allows. In cases where data limitations do not permit the use of loan codes, it is recommended that banks use **Underlying Security**. Where this approach is used, it is recommended that banks consider the impact of the emissions of the use of proceeds secured against the residential property. For example, if a business secured a loan against a residential property the emissions of the business activity should be accounted for under business loans. **In both cases**, it is recommended that the following be excluded: • HELS or HELOCs • Construction loans/vacant land

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	unknown use of proceeds as defined by the GHG Protocol. *Mortgages used to construct or renovate a house are not required at this point given that the homeowner does not directly account for construction emissions.*	A **Purpose/Use of Proceeds** approach preferable to an **Underlying Security** approach given that it aligns more closely to PCAF principles. However, there are limitations to this approach were noted, including the redraw against home loans for unknown purposes such as vehicles, boats and where emissions cannot be traced. If a bank can identify personal use of processes sources and account for these financed emissions separately, then these amounts should not be included as part of the outstanding loan amount when as part of the attribution factor when accounting for mortgages.	• Offset or redraw facilities • Guarantor securities • Overdraft and lines of credit • Reverse mortgages With respect to vacant land, it is recommended that member banks, if data allows, treat vacant land as having no emissions. If banks cannot determine whether the property is vacant land, it is recommended that banks apply a proxy of home emissions as the conversative option.
Events Triggering Valuation	The PCAF Standard provides (96): *When the property value at loan origination is not feasible to obtain, financial institutions shall use the latest property value available and fix this value for the following years of GHG accounting, i.e., the denominator remains constant.*	When calculating financed emissions, a building's annual emissions are attributed to the mortgage provider using a loan-to-value approach. Thus, the attribution is equal to the ratio of the outstanding amount at the time of GHG accounting to the property value at the time of loan origination. There is a need to outline specific events that would trigger an update to the property value used in the denominator of the financed emissions calculation in order to reach agreement on the desired intent. Agreement was reached as any of the below events:	It is recommended that origination of loan should remain the primary point for loan valuation for the purposes of financed emissions calculations. Where value at origination is not known or is no longer appropriate, it is recommended that a bank take valuation as at a customer-led credit event. The aim being to align with credit events that affect the underlying value of the home as in APRA Prudential Standard APS 112. To avoid doubt, it is recommended that banks avoid the use of dynamic revaluations.

Area	Significance and Purpose	Discussion	Guidance and Recommendations
		• PCAF requires that property value be taken at origination, recognising that this prevents banks re-valuing properties at a later point in time, and thereby artificially changing their overall financed emissions. • There may be circumstances in which value at origination is not known, typically due to data limitations in bank internal systems. In those circumstances, banks can use an alternative approach provided this is disclosed.	

Overview: Following calculation of residential mortgage portfolio boundaries, banks then need to calculate the attributed emissions for their portfolio.

Area	Significance and Purpose	Discussion	Guidance
Energy Factors	The PCAF Standard provides (96): *The emissions of buildings are calculated as the product of a building's energy consumption and specific emission factors for each source of energy consumed. The total energy use of the building includes the energy consumed by the building's occupant.* The PCAF Standard further recognises (97): *The availability of data on the energy consumption of properties is still limited in many countries; in others, it has improved considerably due to policy regulations within the built environment, such as the introduction of energy performance certificates and energy labels.*	There are two potential approaches, each based around a key data source: • Australian Energy Statistics (**AES**) • Australian Energy Regulator Statistics (**AERS**) Each provides emissions factors attributable to residential mortgages, at a high-level average. The AES offers two key ***advantages***: (1) they are updated annually, and (2) they include some additional marginal fuel sources such as LPG. The AES has the ***disadvantage*** of being averaged to a state level, thereby providing less granularity than the AERS. The AERS offer two key ***advantages***: (1) they break down to Australia's "national climate zones", meaning that more granular and meaningful comparisons can be made, and (2) they provide a breakdown by household size, providing additional granularity if banks can identify a known size or relevant proxy.	It is recommended that banks use AERS where they have knowledge of household size or the ability to proxy such (noting that there are commercial providers who could provide indicators of floorspace at a property level). Where this is not the case, it is recommended that banks use the AES. In this case, it is recommended that banks combine the AES with ABA data on household numbers to determine a state-based average emissions per household. In either case, it is recommended that banks clearly disclose which method they are using.

Area	Significance and Purpose	Discussion	Guidance
		The AERS has two key ***disadvantages***: (1) they are updated only once every three years, limiting their currency, and (2) they do not cover WA or the NT. While the AERS approach is preferred, there may be limited value in switching from an AES to AERS approach unless a household size proxy was available. This may be revised should there be upgrades to either data source.	
Emissions Factors	An emissions factor describes the rate at which an activity produces GHG emissions.	**Scope 1/2** The National Greenhouse Gas and Energy Reporting Scheme (NGERS) provides state-based electricity emissions factors. state-based Scope 2 factors can be found in the Clean Energy Regulation NGERS Measurement Determination Schedule 1 Part 6. While the same factors can be found in the National Greenhouse Accounts Factors, these will lag the NGER factors. **Scope 3** Scope 3 emissions for buildings principally derive from two sources: embodied emissions (which make up the substantial majority of Scope 3 emissions) and transmission and distribution loss.	**Scope 1/2** It is recommended that banks apply state-based Scope 1/2 emissions factors for the relevant reporting year: • **Electricity:** NGERS Measurement Determination Schedule 1 Part 6 • **Natural gas:** NGERS Measurement Determination Schedule 1 Part 2 Item 17 (Natural gas distributed in a pipeline) • **LPG:** NGERS Measurement Determination Schedule 1 Part 3 Item 44 (Liquefied petroleum gas) **Scope 3** This document does not provide guidance for embodied emissions.

Area	Significance and Purpose	Discussion	Guidance
		As noted above, standards for calculating embodied financed emissions remain under development at a global level. Emissions factors for transmission and distribution loss are contained in the National Greenhouse Gas Accounts.	This document makes no recommendation on inclusion of transmission and distribution loss. Where banks do make adjustments for transmission and distribution loss, it is recommended that banks use the Scope 3 emissions factor from the National Greenhouse Gas Accounts Table 1.3. Further, it is recommended that these be reported separately to Scope 1 and 2 emissions.

Included Energy Sources	The AES considers several energy sources for homes:
	• Electricity
	• Natural Gas
	• Liquid petroleum gas (LPG)
	• Solar
	• Wood waste
	• Diesel
	
	While electricity remains the principal energy source for almost all Australian households, these other energy sources may also be considered for inclusion in financed emissions calculations.
		Of the seven energy sources considered for homes by the AES:
		• ***Electricity*** and ***natural gas*** remain the principal sources of household energy and financed emissions.
		• While ***LPG*** use remains marginal across the housing stock taken as a whole, it may be more important for some banks depending on the composition of their lending portfolio.
		• ***Solar***-sourced energy does not contribute to a household's emissions profile.
		• ***Wood waste*** does not make a material contribution to a residential household's emissions profile.
			It is recommended that banks:
			• At a minimum, include the following energy sources:
			  ○ Electricity
			  ○ Natural Gas
			• Optionally include the following energy source:
			  ○ LPG
			• Not include the following energy sources:
			  ○ Solar
			  ○ Wood waste
			  ○ Diesel
			
			As the AERS does not provide emissions factors for LPG, it is recommended that

Area	Significance and Purpose	Discussion	Guidance
		• ***Diesel*** does not make a material contribution to a residential household's emissions profile. As Australia's electricity grid transitions to renewable sources, these marginal energy sources may begin to make up a larger portion of the property's overall financed emissions. The above position will be re-assessed as more data becomes available.	banks adopting the AERS approach (see "Energy Factors") undertake an additional calculation using an AES approach to account for LPG.
Household size	The energy consumption of a household will depend on its size. Banks will therefore need a proxy to interpret emissions factors to properties within its portfolio.	To determine the emissions of a household, banks need to look at a proxy such as household size, square floor, number of rooms, etc. Banks own internal datasets will usually remain the best source of data on household size. While NatHERS provides some relevant data, it currently covers new households and represents a relatively small dataset.	It is recommended that banks use their own internal customer data to determine household size. Where this is unknown or unavailable, it is recommended that banks adopt the most recent ABS data on average Australian household size as a proxy. In all cases, it is recommended that banks be transparent in their choice of proxy and the source of their data.
Number of dwellings per region	When estimating per dwelling energy consumption using AES data, banks will need to estimate the number of new of dwellings per region to pro-rate regional totals.	To determine the emissions of a household using AES statistics, banks need to look at the total number of dwellings per region. The ABS publishes quarterly updates to estimated dwelling stock for periods that align with the AES statistics.	It is recommended that banks use state-based dwelling stock metrics to determine state-based estimates of fuel consumption. In all cases, it is recommended that banks be transparent in their choice of proxy and the source of their data.

Area	Significance and Purpose	Discussion	Guidance
		Banks may use sources other than ABS but should be transparent in their choice of proxy and source of their data.	
Renewable Energy	An adjustment to emissions calculations would need to be made to account for the share of renewable energy in a household's mix, as these do not count towards financed emissions.	The AES and AER statistics already report household energy consumption net of renewables.	As the sources used to calculate emissions factors are already net of renewable energy, it is recommended that banks undertake no further adjustments.
Electric Vehicles	Electric vehicles are increasing in use in Australia. While they typically draw on household electricity during overnight charging, they do not properly fall within the boundaries of household financed emissions.	While electric vehicles draw on the household's electrical supply, they cannot be easily identified. At this point there is no clear way to distinguish electric vehicle electricity usage from the rest of the house assets.	It is recommended that banks not make any adjustments to account for electric vehicles.

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