ASI Standards Committee

Teleconference Minutes

7 December 2022

Before we begin...

Anti Trust Compliance

Compliance with *ASI Antitrust Policy (February 2021)* is a condition of continued participation in ASI activities. Participants should have due regard to this Policy today and in all other ASI activities. Feel free to raise concerns or questions with the Secretariat and/or Chair(s).

- https://aluminium-stewardship.org/wp-content/uploads/dlm_uploads/2017/10/ASI-Antitrust-Compliance-Policy-02-2021-.pdf

Acknowledgement of Indigenous People

ASI acknowledges Indigenous Peoples and their connections to their traditional lands where we and our Members operate. We aim to respect the cultural heritage, customs and beliefs of all Indigenous People and we pay our respects to Elders past, present and emerging.

Ways of Working

- We are a multi-stakeholder organisation.
- Dialogue is at the heart of everything we do.
- We welcome all participants and enable the full participation of all attendees
- We value diversity of backgrounds, views and opinions, which lends itself to healthy debate and improved outcomes.
- We express our views and listen to the views of others in a respectful and professional way

Agenda

	Topic	Lead	Slides	Documents Circulated/Linked	Time (mins)	Objective
Governance	1. Welcome, Introduction & Apologies	CB	4	2. ASI - SCMemberApptAlternateForm 07Dec22.doc 3. ASI - SCMemberApptProxyForm 07Dec22.doc 4. SC Disclosure of Conflicts of Interest/Duty.docx	5	
	2. Previous Meeting Minutes	CB	5-6	5. DRAFT Minutes ASI SC Teleconference 02Nov2022.pdf	5	SC decision: approve publication on website
	3. WG ToR Update	MvdM	7	13. FINAL WG ToR 19-09-2022+SBHWG.docx	5	SC update: • Inclusion of SBHWG
	4. Standards Setting Procedure v4	LB	8	14. ASI Standards Setting and Revision Procedure V4.pdf	5	SC update: • New version with regular Guidance updates
Short term (Q1 2023)	5. Guidance Revisions	CB/ LB/ KM/ VT	9-10	- DRAFT Standards Guidance 02-12-2022.zip, incorporating: 6. ASI Glossary V1.1_DRAFT.docx 7. ASI Performance Standard Guidance V3.1.docx 8. ASI Chain of Custody Standard - Guidance V2.1_DRAFT.docx 9. ASI Claims Guide V3_DRAFT.docx 10. Draft Glossary Terms for ASI Claims.docx	15	SC update: • Tracked editorial changes • Substantive changes proposed SC decision: • Timeline for SC review, Board approval and publication
	6. Guidance for Auditors re PS 5.3	CB	11-12 & 17 – 33	11. DRAFT 02-12-2022_auditor_guidance_calcs_IAI1.5basis.xlsx	30	SC decision: • Next steps on refinement, consultation and timing for incorporation into Guidance
	7. Guidance: Verification under PS 5.1	CB	13	https://aluminium-stewardship.org/asi-standards/asi-performance-standard	15	SC decision: • Guidance related to level of assurance • Terms of Reference for “data verifiers”
Mid term (2023)	8. Nature Positive WG Update	CB	14		15	SC update: recent developments & next steps
Long term (2024+)	9. Outcomes-Based Standards	LB/CB	15	12. DRAFT 02-12-2022 Outcomes-Focused Criteria in ASI Performance Standard v4.0.docx	15	SC decision: • Direction of workplan
ACTIONS	10. AOB, next meeting & close	CB	16		5	Define ACTIONS, timeframe for next meeting

1. Attendees

Attendees (https://aluminium-stewardship.org/about-asi/asi-standards-committee/):

Andy Doran (Novelis), Annemarie Goedmakers (Chimbo Foundation), Gesa Jauck (Trimet), Guilbert Ebune (Arconic), Hugo Rainey (Wildlife Conservation Society), Ioannis (John) Koufopanos (Elval), ***Kendyl Salcito (Nomogaia, CHAIR)***, Kristen King (Ardagh), Marcel Pfitzer (Mercedes-Benz Group AG), Olivier Néel (Constellium), Patrick Brading (Hydro), Sinika Lein (Otto Fuchs)

ASI Secretariat (https://aluminium-stewardship.org/about-asi/asi-team/):

Andrew Wood, Camille Le Dornat, Chris Bayliss (CB), Chinelo Etiaba, Klaudia Michalska (KM), Laura Brunello (LB), Marieke van der Mijn (MvdM), Mark Annandale, Michael Guo, Natalie Sharp, Vicky Tran (VT)

Apologies:

Alexander Leutwiler (Nespresso), Nadine Schaufelberger (Ronal AG), Nicholas Barla (IPAF), Steve Bater (EGA)

Proxies:

2. Previous Meeting (2 November) Minutes

- Feedback: Clarification on timeline for delivery of GHG method - updated
- Propose the Committee accept minutes for publication on ASI website

➢ For decision: Approved

- ACTION: Secretariat to publish to website [COMPLETE]

2. Previous Meeting (2 November) - ACTIONS

	Topic	ACTIONS
Governance	1. Welcome & Introduction	
	2. Previous Meeting Minutes	Approved; Secretariat to publish to website [COMPLETE]
	3. ASI Board update	
Short term (2022)	4. Clarification of Standards text	• Secretariat to amend FR version of PS 7.1 for clarity and alignment with EN normative language [COMPLETE] • Secretariat to amend PS 9.8 applicability language for clarity [COMPLETE] • Changes to be communicated as part of the March 2023 Guidance revision [FOR LATER ACTION]
	5. educationAI update	• Secretariat to circulate list of local specialists being trained [COMPLETE] • Secretariat to conduct analysis of local knowledge/auditor expertise gaps [INCOMPLETE]
Mid term (H1 2023)	6. Material Accounting System template	• Secretariat to ensure significant communications on publication [FOR LATER ACTION] • Include in 2023 Standards Committee discussions the possibility of combining CoC and PS into a single standard [FOR LATER ACTION]
	7. Information Management System	• Resourcing, value and quality control of non-EN language versions for Committee discussion (Secretariat to add to agenda) from Q2 2023 [FOR LATER ACTION]
	8. GHG Methodologies	• Secretariat to begin populating an expert group (at once) to formulate (or recommend endorsement of) an Entity level GHG Pathway method by Q3 2023 [UNDERWAY] • Secretariat to DRAFT guidance for auditors conducting PSv3.0 audits in the interim (for WG and SC review in December 2022) [UNDERWAY – ON TODAY'S AGENDA]
Long term (2023+)	9. Outcomes-Based Standards	• Standards Committee to work on the development of outcomes-based criteria [ONGOING] • Secretariat to outline (by December 2022 meeting) areas of focus, existing (non-ASI) metrics available and an analysis of the ease of criteria development for each [UNDERWAY – ON TODAY'S AGENDA]
ACTIONS	10. AOB, next meeting & close	• Next meeting proposed 7th December 2022 @ 1300 CET [COMPLETE]

3. Working Groups Terms of Reference Update

- Inclusion of Standards Benchmarking and Harmonization Working Group
- All WG under a single ToR

- ACTION: Secretariat to publish to website

4. Standards Setting Procedure

- New Version (4) incorporating non-formal Guidance update processes.

- ACTION: Secretariat to publish to website

5. Guidance Revisions: Process

- In readiness for revised Guidance publication in Q1 2023, the following documents have undergone editorial and structural revision, and are in the process of being incorporated into a Wiki-style information management system (ongoing) as previously reported to the Committee:
  - ASI Glossary v1.0 > v1.1
  - ASI Performance Standard v3.0 Guidance > v3.1
  - ASI Chain of Custody Standard v2.0 Guidance > v2.1
  - ASI Claims Guide v1 > v2
- Plan was to publish all these by end March 2023;
- ASI Board need to approve all changes to such documents – meets in April 2023; propose to publish following this meeting (assuming approval), 2-4 week delay;
- In order to deliver final texts to the Board, Standards Committee should review and recommend by end February – propose mid-February Standards Committee agenda focuses on this task.
- FINAL DRAFT documents will be shared with Standards Committee in early January, and unlikely to change significantly (pending discussion on for instance the Auditor Guidance for 5.3, on today's agenda) from the versions shared for this meeting, but Committee members are encouraged to review the changes and revert with questions or comments.
- Standard Setting Process is also undergoing amendment, to formalise process going forward (to be shared at next meeting)

➢ For decision: timeline for review & publication

5. Guidance Revisions: overview

Structural, editorial and readability/comparability:

- No changes to Criteria normative language (except for FR translation as per last meeting)
- Removed redundancy and repetition throughout (previously supported by SC)
- Repeated Guidance (e.g. for public disclosure or regular review) given own sections, individual criterion Guidance focused only on divergence or addition to common approach;
- PS and CoC restructured for consistency across Criteria (previously supported by SC);
- On-product claims "rules" incorporated into Chain of Custody Guidance, with Claims Guide focused on Claim making processes;
- Under a number of criteria, the relevant learning resources (educationAl) are referenced.

Substantive:

- Claims Guide expanded and with greater detail on claims types and ability of non-Members to leverage Entity on-product claims;
- Glossary updated to incorporate new Claims Guide defined terms;
- PS 2.4 Responsible Sourcing: "A responsible sourcing Policy will apply to all products and services sourced by the Entity (e.g. material inputs such as aluminium and precursor materials, alloying elements and auxiliary products entering the Certification Scope, energy carrier inputs, infrastructure provision, services etc.";
- PS9.3 Indigenous Peoples: the IPAF developed Guidance on identifying Indigenous Peoples by region is proposed to be published as a separate, accessible and living document (pending IPAF approval and ongoing regional update), with a new introduction (but no change to the existing body text), with the Performance Standard Guidance referencing this document and linking to the latest version;
- Elements of Material Accounting System (supported by SC at last meeting) defined under Guidance for CoC Criterion 8.1.

Discussion & ACTIONS

- Standards Committee AGREED:
  - Timeline for Guidance review (early January document circulation; on agenda for late February Committee meeting decision; FINAL drafts to Board with Standards Committee recommendations early March; for Board decision on 5th April & publication thereafter)
- ACTION:
  - Secretariat to identify major substantial changes in circulated documents (January 2023), on which Standards Committee should focus attention, in addition to tracked editorial and minor changes/text moves;
- Question:
  - If the IPAF developed paper on identifying Indigenous Peoples is moved to a separate document, how can the Standards Committee retain control and ownership over future changes?
  - Secretariat proposal:
    - Include the IPAF paper as an annex to the Guidance – requires SC sign off in any future iteration
    - For decision by SC in Q1 2023 (pending IPAF recommendation)

6. Guidance for Auditors re PS 5.3

ACTION from November: Secretariat to draft Guidance for Auditors on how to evaluate Criterion 5.3 in the absence of a method.

Based on ongoing discussion in other fora and trying not to pre-empt a method and give conflicting advice or advice which might change significantly, here are some proposed principles for review (see Supporting Slides for rationale and Excel workbook for calculations):

1. Smelters above 11.0 t CO_2e/t Al (cradle to gate at casthouse) need to align with Criterion 5.2 by 2030 (this is already articulated in the Criterion…but still);
2. All Smelters should have Pathways (cradle-to-gate) that are designed to deliver emissions intensity below:
    - 4.1 t CO_2e/t Al by 2035
    - 2.2 t CO_2e/t Al by 2040
    - 1.3 t CO_2e/t Al by 2045
    - 0.5 t CO_2e/t Al by 2050
3. All other upstream processes (Mining & Refining) should have Pathways that are designed to deliver absolute contraction in the region of 2-5% per annum [SBTi says 4% so we could just say 4%] to 2030 and 5-10% thereafter;
4. Recycling and remelting processes [?including casthouse?] should have Pathways that cap emissions at [current level] to 2030 and thereafter reduce absolute emissions in the order of 3-10% [again could just say 4% for now];
5. Post-casthouse (semi-fab) processes should have Pathways for their process emissions that describe an absolute contraction of 1-2% per annum [could roll up to 4% to align with above and for simplicity?]
6. Casthouse and post-casthouse (including IU) procurement pathways (Scope 3 category 1 – carbon footprint of input aluminium and scrap) should production weight the intensity of the primary/recycled content of the metal consumed/purchased and align with primary and recycling benchmarks [primary as in "2" above, scrap to be determined – could say zero for now].

6. Guidance for Auditors re PS 5.3

These are ASI Secretariat developed ideas, they have not been tested with the Membership;

Proposal (with options) for SC decision:

1. Take this analysis, as developed, to the Climate Change WG for review and refinement (Jan 2023), with a request from the Standards Committee for a recommendation (by ??date??):
   - Positive: buy in from Membership; people are asking for this discussion
   - Negative: will take time; pre-empts the method discussion; likely doesn't deliver by March 2023 Guidance revision release
2. Further develop analysis (using MPP data?) with feedback from Standards Committee and select experts
   - Positive: sense check and broader expertise incorporated; quicker turn around
   - Negative: the allocation of emissions to scrap discussion not yet fully resolved; Climate Change WG and Membership may feel excluded
3. Secretariat to start again – with direction from Standards Committee
   - Positive: Standards Committee give clear direction in addition to articulating the gap
   - Negative: Takes time
4. Wait for the method discussion to conclude (2nd half 2023) before developing Guidance:
   - Positive: avoid repeating discussions and Membership (and stakeholders) feeling left out of development
   - Negative: 2023 audits against v3.0 have limited frame of reference (for implementing Entities and Auditors evaluating conformance)
5. Standards Committee adopt the Guidance as written (with editorial changes and reflecting outcomes of today's meeting discussions)
   - Positive: quick – can incorporate into March 2023 Guidance
   - Negative: likely to be discomfort from Membership around lack of consultation and seen as introducing a method by the back door
6. Other

➢ For Standards Committee decision

Discussion & ACTIONS

- Discussion:
  - Absolute contraction approach is at odds with industry expectation of a Sectoral Decarbonization Approach (SDA) for all parts of the value chain (convergence on intensity):
    - Secretariat: in which case requires a fixed boundary beyond the Entity certification scope (e.g. a stand-alone refiner will need to integrate downstream (smelting) emissions)
      - Isn't this already happening in other forums (e.g. RMI Horizon zero); is ASI involved in these discussions?
        - Secretariat: Yes (https://aluminium-stewardship.org/asi-engages-in-global-efforts-to-define-1-5-degree-aligned-ghg-emissions-reduction-pathway-methodology), but these will not necessarily deliver an Entity level pathway;
        - ASI will need to develop the Entity method, based on the delivery of RMI (and other) outcomes
        - Integration into a Science Based Targets Initiative SDA is for future action – no SBTi SDA currently under development and no capacity at SBTi to undertake this work at this time.
  - The Smelter threshold values are not clearly science-based; need testing with Climate Change WG and (company) specialists
  - The Smelter thresholds are unrealistic (at least in the 2030-2045 timeframe)
    - Secretariat: the sectoral budget is derived from whole of economy net zero pathway (IEA NZE Scenario); if action is delayed then the latter slopes are going to be steeper (see https://missionpossiblepartnership.org/action-sectors/aluminium/);
    - As for new (post 2020) coal fired under the v3.0 Performance Standard (11.0t/t threshold), not everyone will be able to meet the demands of a 1.5 degree aligned pathway and be able to conform with future iterations of the standard.
  - Auditor Guidance should focus on continuous improvement by the Entity – but without Entity level pathway method the scale of such improvement is challenging/impossible to articulate.

- ACTION:
  - Start a discussion on Entity level Pathway development, prior to delivery of other initiative (RMI etc) outcomes, within Climate Change Working Group (January 2023)
  - Auditor Guidance on hold until Pathway method becomes clearer
  - Issues for discussion by CC WG, on which SC seeks recommendations:

    1. SDA vs contraction approach across full value chain (separate slopes for primary and downstream gate to gate)
    2. Use of fixed boundaries for SDA – potential outcomes of other discussions (RMI etc)
    3. Guidance for Entities that do not cover the entire fixed boundary (inc scope 3 downstream for, for instance, stand alone refineries)
    4. Treatment of scrap (Scope 3 category 1) input to recycling processes (pre- & post-consumer) at the casthouse

7. Guidance: Verification under PS 5.1

Disclosure of GHG Emissions and Energy Use. The Entity shall:

a. Account for and publicly disclose, where Material, energy use and GHG Emissions by source on an annual basis.

b. Ensure that all publicly disclosed energy and GHG emissions data are independently verified, prior to publication.

- Members requesting clarification on the extent of verification required (in particular downstream Entities):
  - Full annual ISO-14064 verification (reasonable assurance) is onerous (e.g. site visits etc);
  - Some Guidance on levels of effort and assurance would be useful, built around sectoral materiality not just materiality to the Entity (e.g. 95% of sector emissions are in primary production; 75% in smelting processes);
  - ➢ Standards Committee decision/direction
- A number of 3rd party analysts and data providers are signalling interest in verification of the *accuracy* of Entity data:
  - May well (do) have a better understanding of the emissions, production processes and corporate/asset scopes than many Auditing firms;
  - Are less able to provide verification of conformance against (3rd party standards) criteria – measure alignment with database, rather than interrogation of Entity systems & practices
  - Have an interest in improving their own databases as they will sell intelligence and insights – e.g. value chain (scope 3) emissions
  - Likely to have better data for higher emitting Entities (upstream + rolling; eg https://emissionsanalysistool.crugroup.com/) but struggle for other supply chain activities
  - Is there Standards Committee appetite to open up the verification definition to these types of organisations?
  - If so, should ASI develop terms of reference (and possibly templated letters of assurance?) for how these organisations might provide verification that meets ASI requirements?
  - ➢ For discussion/decision

Discussion & ACTIONS

- Discussion (verification effort):
  - Larger Entities and Members are already verifying their emissions data using established approaches (e.g. GHG Protocol, CDP) and scheme accredited firms;
  - EU Corporate Sustainability Reporting Directive (CSRD) will impact "large undertakings" but also SMEs within the next 5 year, so there will be a legal obligation for many in time;
    - Limited assurance by the statutory auditor, other auditor or third-party assurance services provider
  - Is data that is verified for other reporting purposes (e.g. regulatory) in conformance or does it need further verification?
    - Secretariat: during revision it was clarified that data reported to authorities would not be seen as verified per se (i.e. the reporting process does not equate to a verification process), but it is the case that if verified data is reported to a regulator, this would count as meeting the verification expectations of PS 5. 1.
  - Level of effort for verification should be risk-based, however, and Guidance on (sectoral) materiality of emissions and effort required would be useful.

➢ ACTION:

  - Secretariat to develop a draft matrix of materiality (emissions as a share of sector-wide) against verification effort required by the Entity (Q1 2023).
  - Secretariat to ensure Guidance is clear that verified data even if verified for other purposes (e.g. reporting to authorities) meets the expectations of Criterion 5.1.

- Discussion (pool of verifiers):
  - Given CSRD requirements for larger companies and the fact that data houses will not have the required data for smaller enterprises, nor be in a position to provide limited (or reasonable) assurance, there is unlikely to be a need to allow verification by these kinds of service providers.
  - While data quality at a given scope is likely to be ok, the Entity disclosed data undergoing verification may not be at the same scope, thus making the verifiers database redundant to some extent.

➢ ACTION:

  - Secretariat to continue discussions with data providers on access to databases and insights, but not to develop Guidance or tools to enable these organisations to shortcut verification (which requires limited assurance by a third-party assurance services provider)

8. Nature Positive WG Update

- ACTIONS and OUTCOMES of WG call on 6th December:
  - Notes from one WG shared with all (ongoing)
  - Share outcomes of Auditor calls with WGs (ongoing)
  - Explore shared Auditor/Entity calls separate from Auditor to Auditor calls (by 28 Feb 2023)
  - Organise January 2023 knowledge-sharing session for WG (and invited others):
  - Outcomes of COP15;
  - TNFD Framework and LEAP.
  - Discussion on value and utility of TNFD engagement and potential alignment/inclusion on WG agenda (Q1 2023 and beyond)
  - Criterion by Criterion review of Entity Guidance needs on WG agenda (Q2 2023)

9. Outcomes-Based Standards

- ACTION from November: Secretariat to outline areas of focus, existing (non-ASI) metrics available and an analysis of the ease of criteria development for each;
- Secretariat have started to pull this information together as a very early draft (see document in meeting pack);
- Ran out of time to develop further since our last meeting, so limited material for SC to review;
- Thus at this stage the question for the committee is:
  - Is this the kind of thing you were looking for?
  - Other columns to include?
  - Do you have further suggestions of data with which to populate fields?
- Proposed to develop further before next meeting prior to Working Groups review and input.

- ACTION:
  - Secretariat to include reference to EU Best Available Techniques reference documents (BREFs)
  - Stay abreast of (and incorporate into discussions) developments on revisions to the EU Industrial Emissions Directive, including the potential incorporation of water quality criteria.

10. AOB

- NomoGaia and Sheffield Hallam University have released a report on automotive supply chains and links to forced labour in the Xinjiang Uyghur Autonomous Region:
    - Report
    - Supply chain mapping tool
    - NYTimes coverage
- Several ASI Members and Entities (P&T and IU) are identified by the report as having links to forced labour in the region

- ACTION
    - Standards Committee members to review the report by next meeting (January 2023);
    - Secretariat to share the report with (non-SC) ASI Members who are referenced in it;
    - Next meeting agenda (January 2023) to include time for an overview of the report findings by Kendyl Salcito, questions from the Committee, and considerations for upcoming Guidance and/or Criteria updates; the ASI assurance process; and development of training, webinars and other supporting material.

10. AOB, Next Meeting & Close

- Next meeting week commencing 23 January 2023
- ACTIONS:
  - SC members to inform Secretariat of preferred schedule and location for face-to-face meeting in 2023 and hosting opportunities;
  - Secretariat to explore 2023 face-to-face Standards Committee (possibly in conjunction with other event)
- Chairs and Secretariat thanks to all participants and close of meeting

ACTIONS

	Topic	ACTIONS
Governance	1. Welcome, Introduction & Apologies	
	2. Previous Meeting Minutes	Approved; Secretariat to publish to website [COMPLETE]
	3. WG ToR Update	Secretariat to publish to website
	4. Standards Setting Procedure v4	Secretariat to publish to website
Short term (Q1 2023)	5. Guidance Revisions	• Secretariat to circulate FINAL DRAFT documents (Glossary v1.1, PS Guidance v3.1, CoC Guidance v2.1, Claims Guide v1.1) to Committee for review in early January 2023 • Secretariat to highlight key changes for Standards Committee focus, in addition to tracked editorial and minor changes/text moves.
	6. Guidance for Auditors re PS 5.3	Secretariat to initiate Climate Change Working Group discussions on Entity level Pathway method development in January 2023.
	7. Guidance: Verification under PS 5.1	• Secretariat to develop a draft matrix of materiality against verification effort required by the Entity (Q1 2023). • Secretariat to ensure Guidance is clear that verified data even if verified for other purposes (e.g. reporting to authorities) meets the expectations of Criterion 5.1 (January 2023) • Secretariat to continue discussions with data providers on access to databases and insights, but not to develop Guidance or tools to enable these organisations to shortcut verification
Mid term (2023)	8. Nature Positive WG Update	
Long term (2024+)	9. Outcomes-Based Standards	• Secretariat to include reference to EU Best Available Techniques reference documents (BREFs) • Stay abreast of (and incorporate into discussions) developments on revisions to the EU Industrial Emissions Directive, including the potential incorporation of water quality criteria.
ACTIONS	10. AOB, next meeting & close	• Standards Committee members to review XUAR report by next meeting (January 2023); • Secretariat to share the report with (non-SC) ASI Members; • Next meeting agenda (January 2023) to include time for an overview of the report findings; • SC members to inform Secretariat of preferred schedule and location for 2023 face-to-face meeting • Secretariat to explore 2023 face-to-face Standards Committee

Supporting slides: DRAFT GHG Method assumptions/data/calculations informing PS5.3 Auditor Guidance

Aluminium Stewardship Initiative

DRAFT Smelter Electricity Assumptions

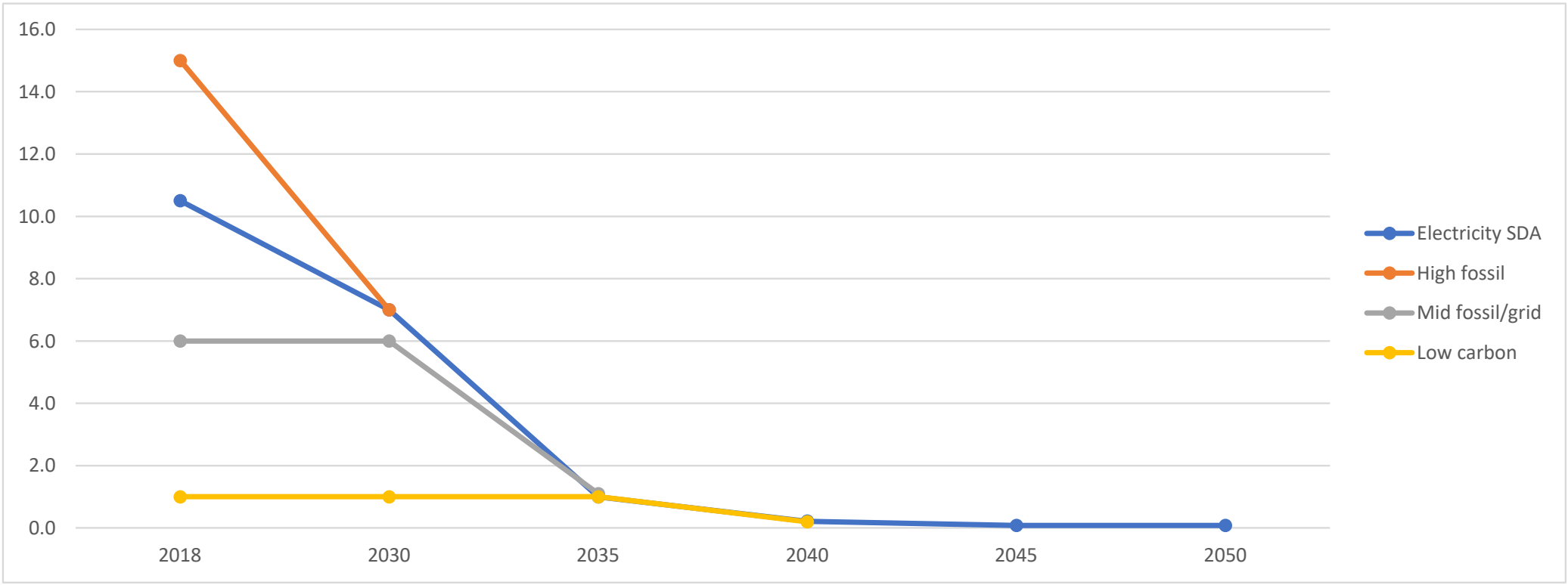
1. c.60% of the sector's emissions are in smelter electricity generation (in 2018);
2. Primary aluminium variability is overwhelmingly driven by smelter electricity source;
3. It is challenging for "low emission electricity" consuming smelters to realise long term absolute electricity emissions % reduction and the step change in electricity required by high emitters lends itself to a sectoral decarbonisation approach (SDA) of convergence on a long-term emissions intensity, rather than an absolute contraction (annual percentage change);
4. Primary will not necessarily see significant growth (compared to other parts of the value chain), so any intensity reduction is predominantly driven by change (or replacement of) existing production;
5. Thus one can use a sectoral pathway (IAI/MPP) to define interim thresholds to which higher emitters must fall in a given period;
6. Here I use IAI data but can run further analyses using MPP if we want to develop further;

DRAFT Smelter Electricity Thresholds

7. See Excel Workbook tab “ASI_overview”
8. Threshold values (for smelting electricity ONLY):
   - 2030: 7.0 t CO_2e/t Al
     - reasonably well aligned with ASI Performance Standard 5.2 (c. 7-8 t/t)
   - 2035: 1.0 t CO_2e/t Al
   - 2040: 0.2 t CO_2e/t Al
   - 2045: 0.1 t CO_2e/t Al
   - 2050: 0.1 t CO_2e/t Al

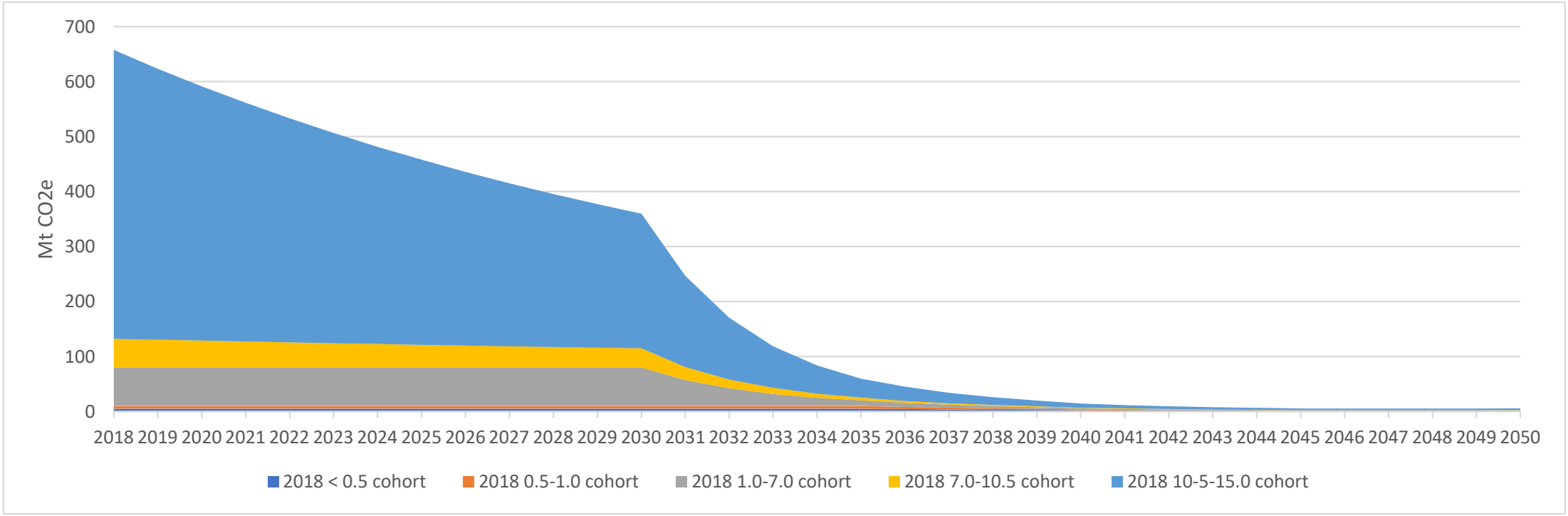
DRAFT Smelter Electricity SDA

9. Slopes for a set of archetypal smelters:



DRAFT Smelter Electricity Sectoral Absolute

10. See Excel Workbook tab “ASI_Smelter LX”
11. Applied (roughly using CRU data) total smelter electricity emissions reduction (split by broad power mix baseline emissions) would look like this:



DRAFT Other Primary Emissions Assumptions

12. Other emissions in the primary value chain (mining, refining, other smelting) make up a further 33% of total sectoral emissions;
13. There is much lower variability in these categories than electricity (declining quality of bx etc not considered in this analysis);
14. This reflects a range of processes and any Entity-level pathway needs to be as applicable to mining as to refining as to an integrated Entity or set of Entities;
15. Production changes over time as for smelter electricity;
16. Thus a time-variable absolute contraction is the simplest approach (applies to all shapes of primary entity but is less sensitive to variability (but there is much less variability than electricity);

DRAFT Other Primary Absolute Contraction Rates

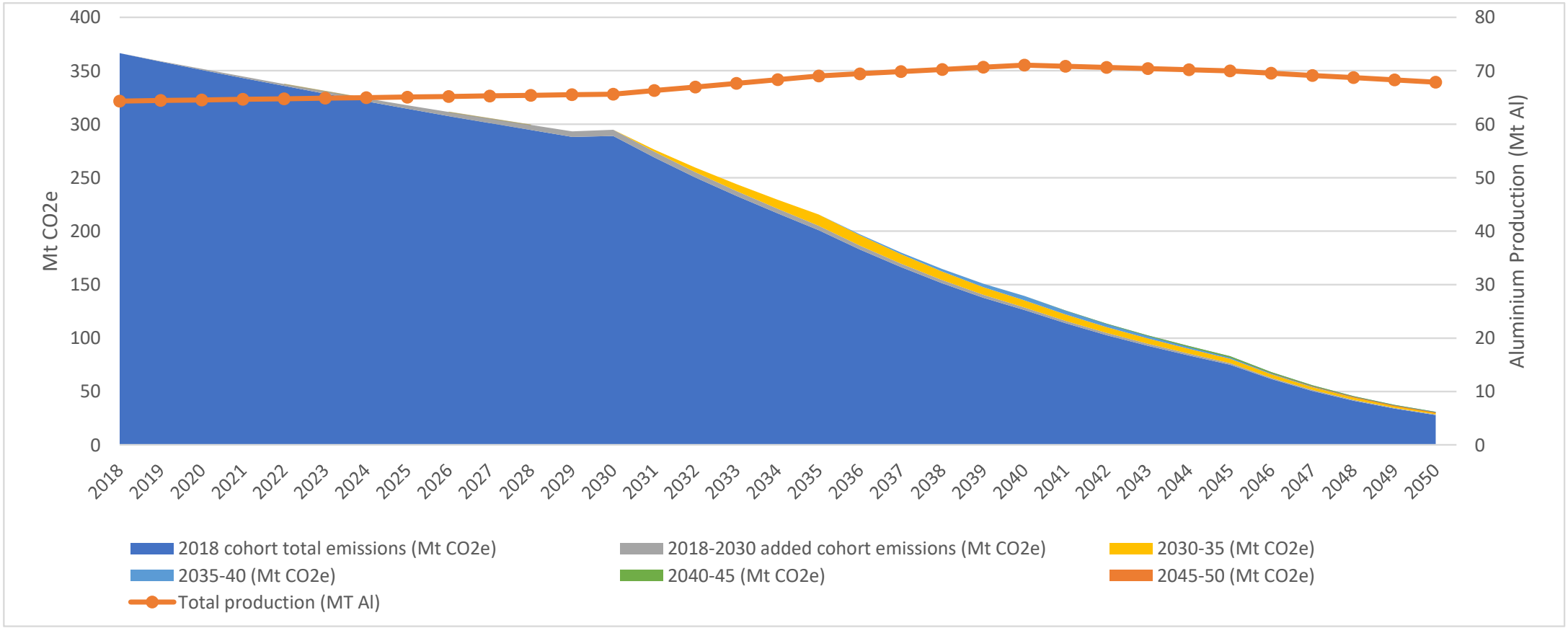
17. From global pathway data, annual (non-linear) contraction for existing (and subsequent) cohort and benchmark for new production is:

- 2018-2030: 2.0% and 4.5 t CO_2e/t Al
- 2030-2035: 6.0% and 3.1 t CO_2e/t Al
- 2035-2040: 8.5% and 2.0 t CO_2e/t Al
- 2040-2045: 10% and 1.2 t CO_2e/t Al
- 2045-2050: 18.5% and 0.4 t CO_2e/t Al

18. (Note global, whole of economy 1.5 degree linear absolute contraction is 4.2%)

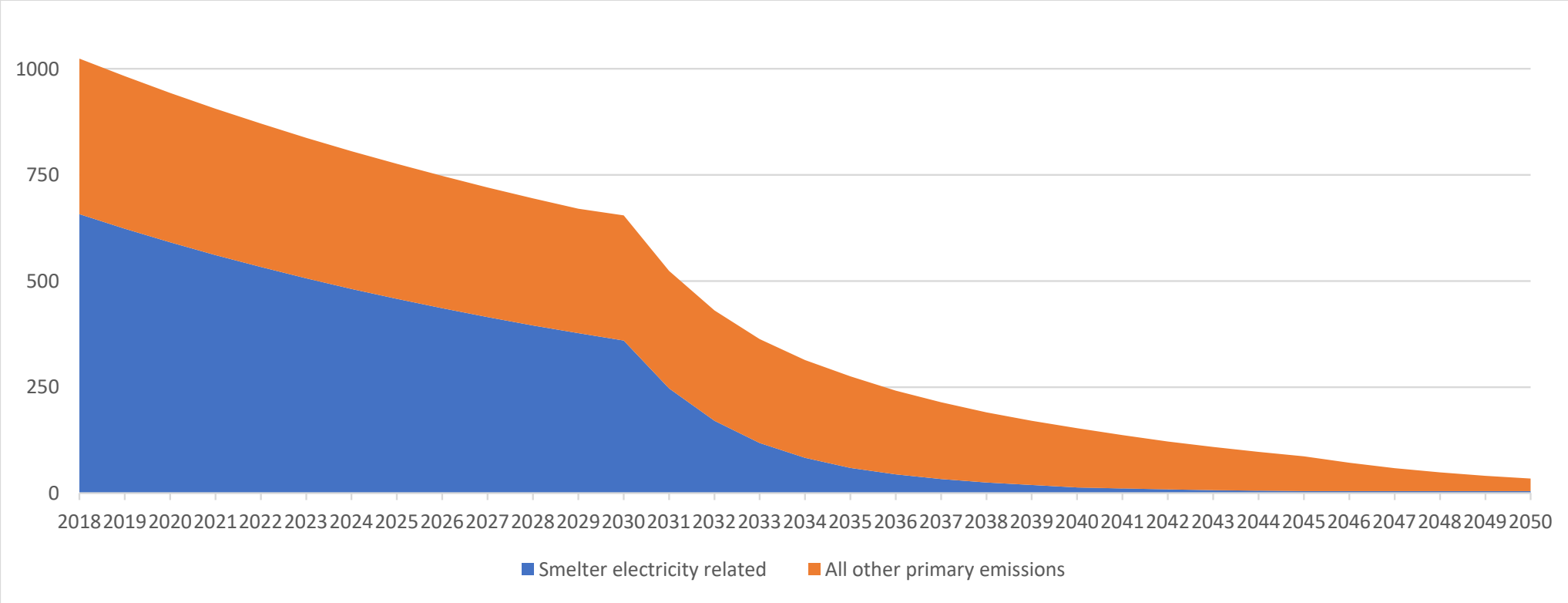
DRAFT Other Primary Emissions Sectoral Absolute

19. See Excel Workbook tab “ASI_Primary NON-LX”



DRAFT Total Primary Emissions Sectoral Absolute

20. See Excel Workbook tab “ASI_Smelter LX + Primary non-LX”
21. Combined absolute reduction:



DRAFT Integrated Smelter Electricity and Other Primary

22. Combining the Smelter Electricity and Other Primary Emissions new production thresholds, gives us possible cradle-to-gate targets measurable at the smelter casthouse (thus, scope as for existing Criterion 5.2)

- 2030: 7.0 + 4.5 = 11.5 t CO_2e/t Al (I would stick will 11.0 as per existing Criterion)
- 2035: 1.0 + 3.1 = 4.1
- 2040: 0.2 + 2.0 = 2.2
- 2045: 0.1 + 1.2 = 1.3
- 2050: 0.1 + 0.4 = 0.5

DRAFT Recycling Emissions Assumptions

23. Recycling has low variability, but much higher growth in production, thus intensity falls much faster (for some Entities more than others);
24. Recycling emissions are an order of magnitude lower than primary non electricity and 20 times lower than smelter electricity-related;
25. In the following I have only considered the process emissions of recycling (scope 1+2), not the scope 3 category 1's of scrap (or in other words assuming scrap carbon footprint = zero); this is for ease of analysis;
26. I also lumped together ALL RECYCLING, REMELTING AND INTERNAL REMELT; I don't think this is final approach, I did it for ease of calculation, proof of concept (and ease of application);
27. As for non electricity primary it puts production into temporal (5 year period) buckets and applies a variable contraction to existing production and a benchmark for new production in a given period. How this works in practice I don't know, given increased throughput of existing furnaces….but really it's to get some numbers in there;

DRAFT Recycling Absolute Contraction Rates

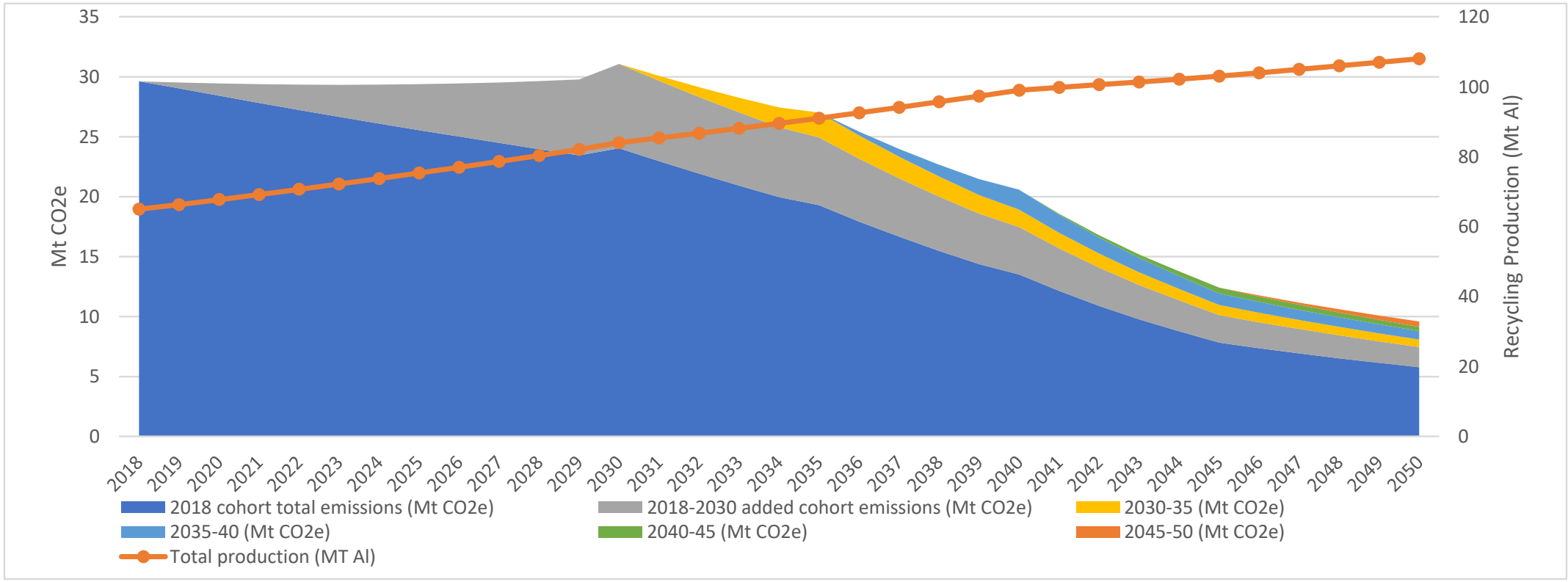
28. See Excel Workbook tab “ASI_Remelt (inc internal)”
29. From global sectoral 1.5°C pathway (IAI), annual contraction for existing cohort and benchmark for new production is:

- 2018-2030: 0% and 0.4 t CO_2e/t Al
- 2030-2035: 3.0% and 0.3 t CO_2e/t Al
- 2035-2040: 5.5% and 0.2 t CO_2e/t Al
- 2040-2045: 9.5% and 0.1 t CO_2e/t Al
- 2045-2050: 5.0% and 0.1 t CO_2e/t Al

DRAFT Recycling Sectoral Absolute

30. See Excel Workbook tab “ASI_Remelt (inc internal)”

31. Note the production number includes internal remelt (as does the emissions data)

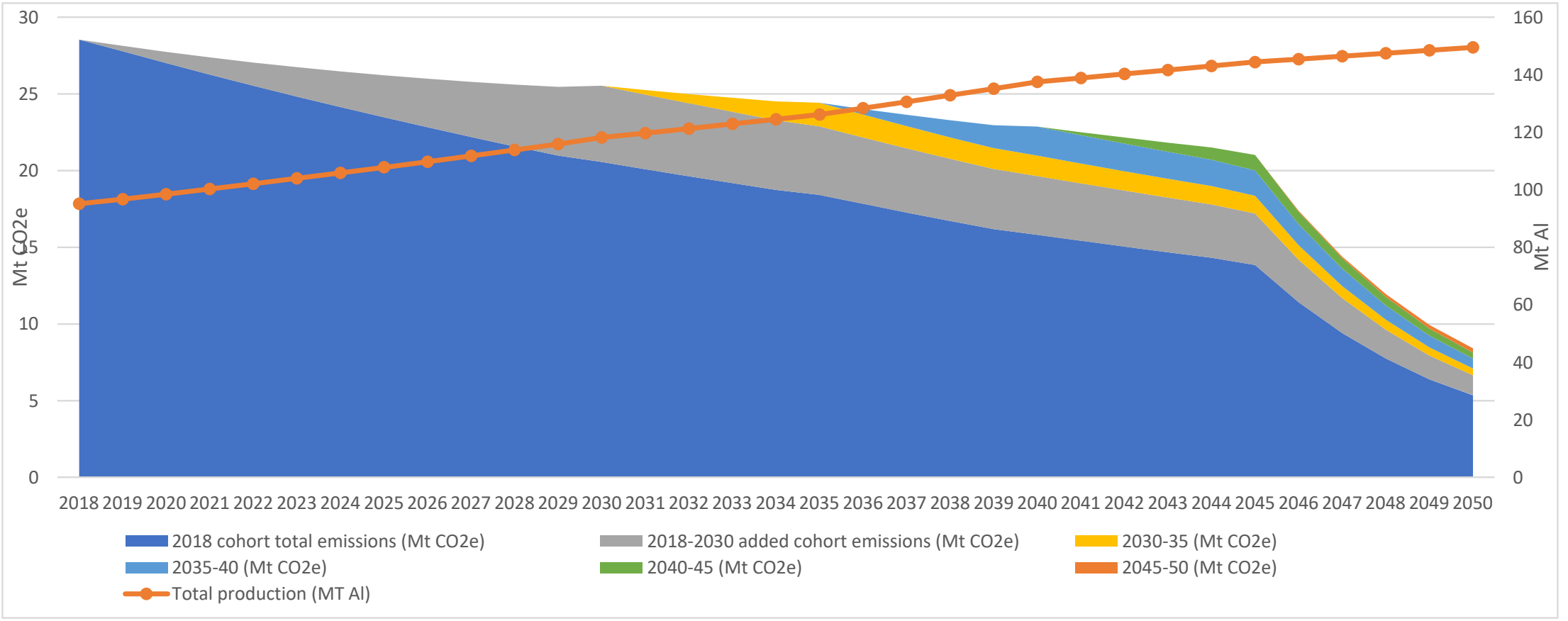


DRAFT Semi-fabrication Emissions Assumptions

32. Semis production process has similar 2018 total emissions to recycling;
33. Variability in processes makes benchmarking across space less easy – another argument for an absolute contraction;
34. The following is gate-to-gate, does not consider scope 3 emissions from primary/scrap;
35. See Excel Workbook tab "ASI_Semis (gate to gate)"
36. From global sectoral 1.5°C pathway (IAI), annual contraction for existing cohort and benchmark for new production is:
    - 2018-2030: 1.0% and 0.2 t CO_2e/t Al
    - 2030-2035: 1.0% and 0.2 t CO_2e/t Al
    - 2035-2040: 1.5% and 0.2 t CO_2e/t Al
    - 2040-2045: 1.5% and 0.1 t CO_2e/t Al
    - 2045-2050: 17.0% and 0.1 t CO_2e/t Al
37. Very late action – but reflects global pathway (and process emissions much lower than primary)

DRAFT Semifab (gate to gate) Sectoral Absolute

38. See Excel Workbook tab "ASI_Semis (gate to gate)"



DRAFT Carbon Footprint of Casthouse Inputs

39. For scope 3 category 1 entering the casthouse (and for all post-casthouse entities), proposal

    a. Primary: uses the IAI 1.5 degree (or MPP) intensity thresholds as caps for procurement in a given 5-year period (production weighted):

	2018	2030	2035	2040	2045	2050
Primary Aluminium	16.1	11.5	4.2	2.2	1.2	0.5

    b. Recycled: it depends on the outcome of ongoing discussions but would either be the production weighted recycling thresholds as in RECYCLING section above (carbon footprint of scrap = zero) or another allocated emission factor

DRAFT ASI Secretariat thoughts at this stage

- Simplicity is key;
- An SDA (convergence) for smelter electricity is appropriate given high variability in emissions and variable reduction rates per starting point;
- Given the wide range of processes but relatively low variability in all other emissions sources and given the need for simplicity, absolute contraction may be better suited;
- Such absolute contraction, however, should be (broadly) supply chain activity and temporally specific (other_primary/recycling/semis x 2018-30/5-year periods thereafter);
- In addition to contraction rates, thresholds can be defined for new production (which is also subject to ongoing contraction);
- A harmonized approach to the carbon footprint of scrap is tbd.