LCM 2025

12th INTERNATIONAL CONFERENCE ON LIFE CYCLE MANAGEMENT

Electricity and the Chain of Custody

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Key messages

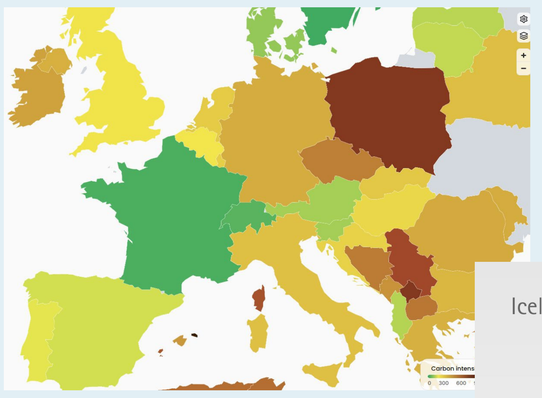
- Electricity modeling can be regarded as an example of a chain-of-custody approach.
- Decades of debate on how to model electricity offer valuable lessons for current discussions on chain-of-custody in other areas.
- Yet electricity is not like other goods – which is why a book-and-claim model is a more realistic option for electricity than for other products.

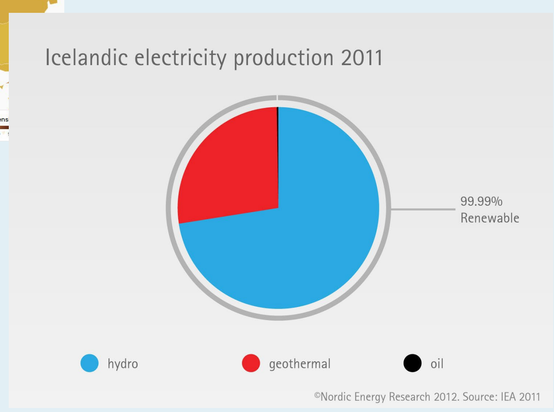
Electricity & chain-of-custody

Location-based electricity modelling
- Uses annual average grid mix
  => corresponds to rolling-average mass balance
- Stipulated by ISO 14064-1 & GHG Protocol.

Market-based electricity modelling
- Electricity & Guarantees of Origin traded separately
  => corresponds to book-and-claim
- Stipulated by ISO 14067, PEF & GHG Protocol.

Market-based with physical constraint:
- Requires physical connection
  => corresponds to mass balance with credits
- Discussed in the revision of ISO 14067 revision (more credible but lacks residual data).



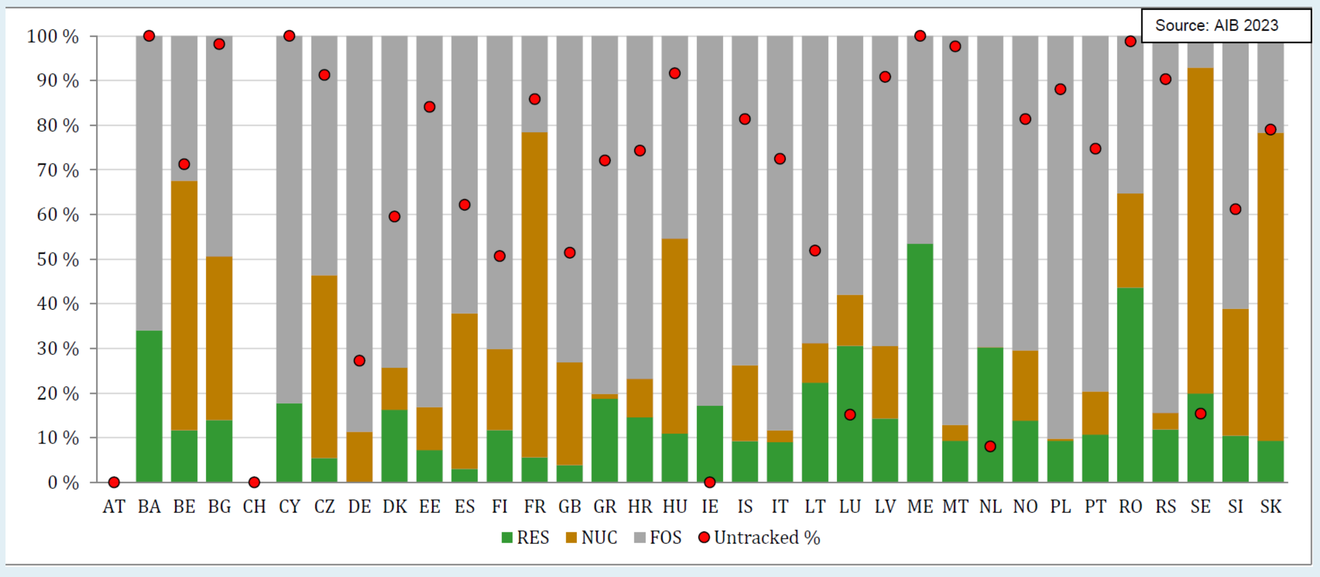


Lessons from the electricity debate

- The electricity debate shows that mass-balance with rolling averages is widely accepted, while book-and-claim remains controversial.
- In practice, book-and-claim can be perceived as greenwashing. These experiences highlight that chain-of-custody systems are only effective if they maintain credibility and trust – a key lesson for applying chain-of-custody beyond electricity.

Conclusions

Electricity demonstrates both the potential and the pitfalls of chain-of-custody. Rolling-average mass balance works in practice, while book-and-claim offers investment incentives but risks credibility without safeguards. The unique availability of residual data makes book-and-claim feasible for electricity, but such data are rare in other sectors. The key lesson is clear: chain-of-custody systems must balance practicality with credibility to build trust.



Consistent LCA standards Projects, A Swedish Life Cycle Center project, funded within Net Zero Industry, a joint initiative by Vinnova, Formas, and the Swedish Energy Agency

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