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*Anthropogenic Resources*

**IRMAR**

Integrated Resource  
Management and Recovery



# MFA-based resource management: The cases of Aluminum and Palladium in Austria

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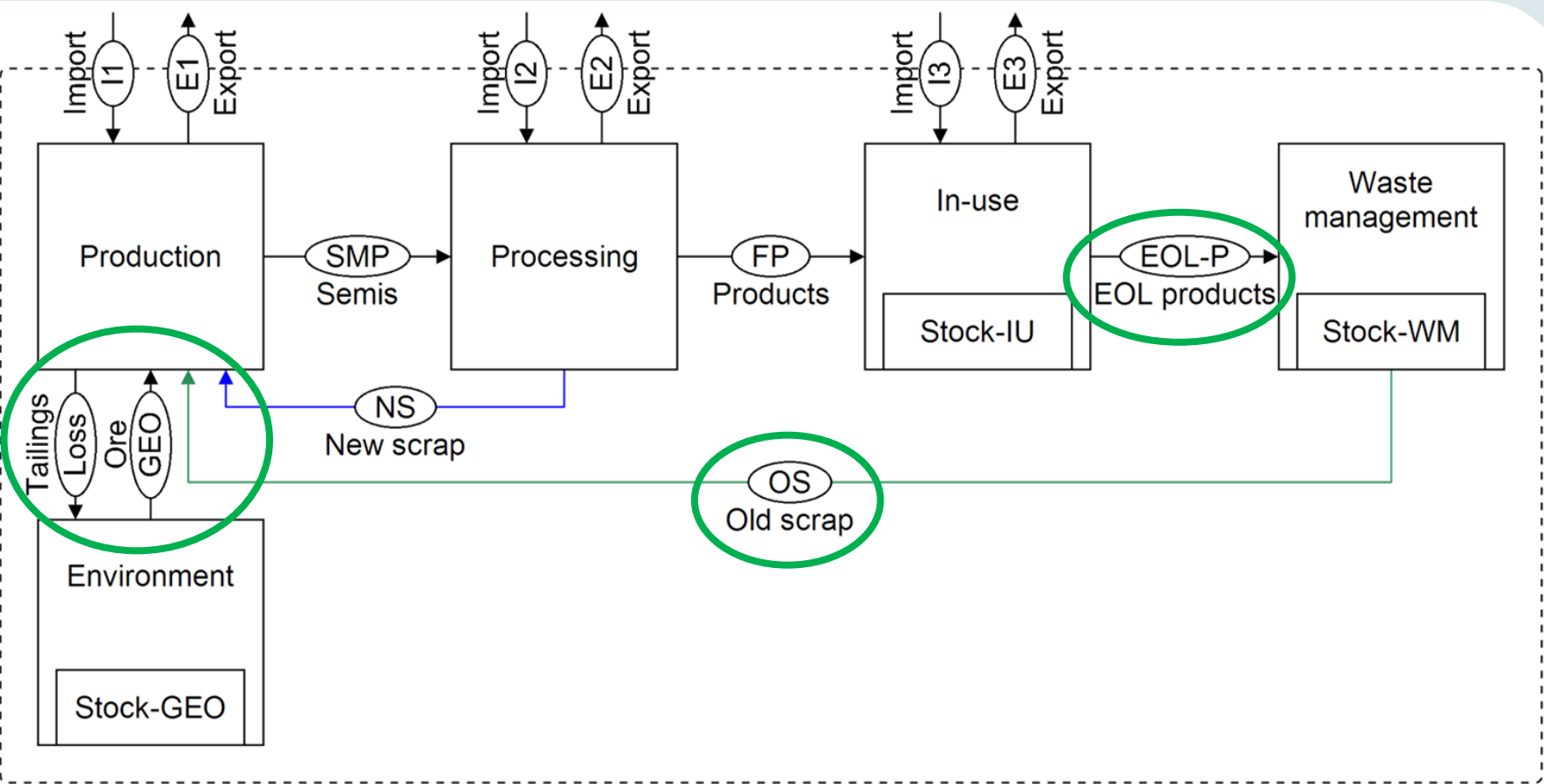
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- I. National material flow models & resource efficiency evaluation**
  
- II. Austrian Aluminium budget**
  - comprehensive system analysis
  
- III. Austrian Palladium budget**
  - EOL consumer products

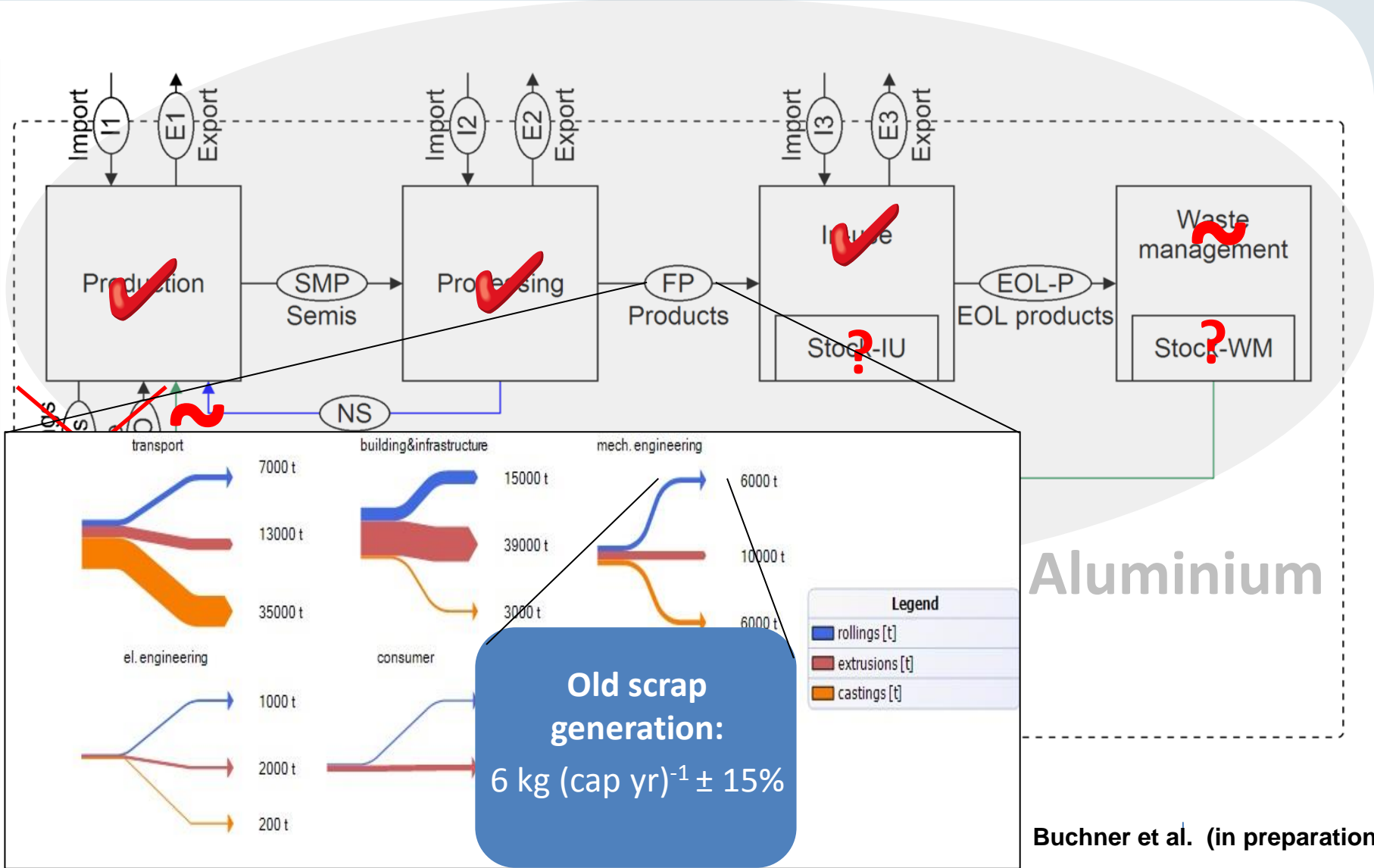


National resource budget

**Efficiency of resource use → Recycling of (old) scrap to reduce virgin extraction.**

- **End-of-life collection ratio**
- **Old scrap recovery ratio**

# Austrian AI balance (snapshot MFA for 2010)



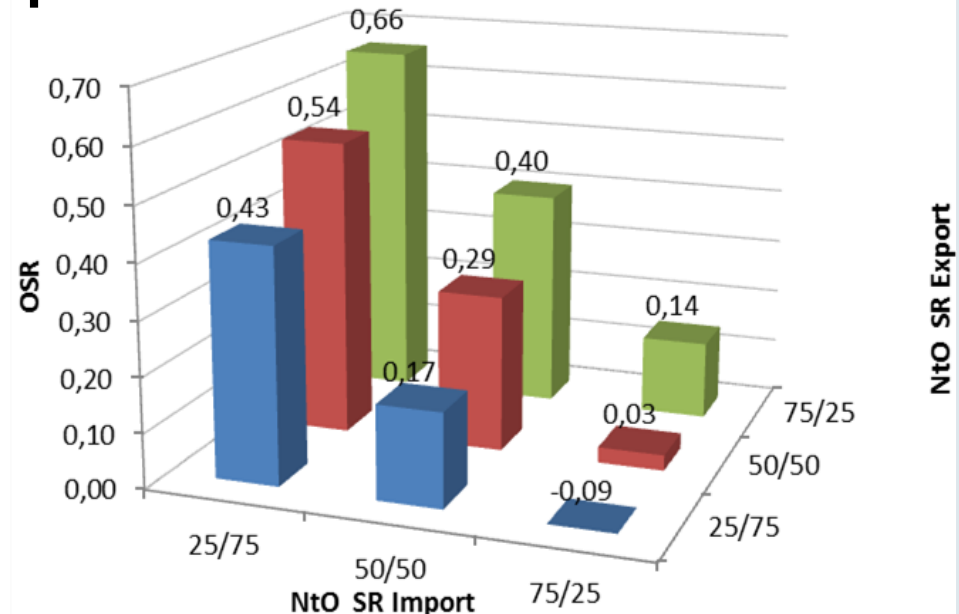
**EOL collection ratio:** 64% of Al in EOL products are directed to waste/scrap treatment

**Old scrap recovery ratio:** 83% of Al are recovered as old scrap in waste management

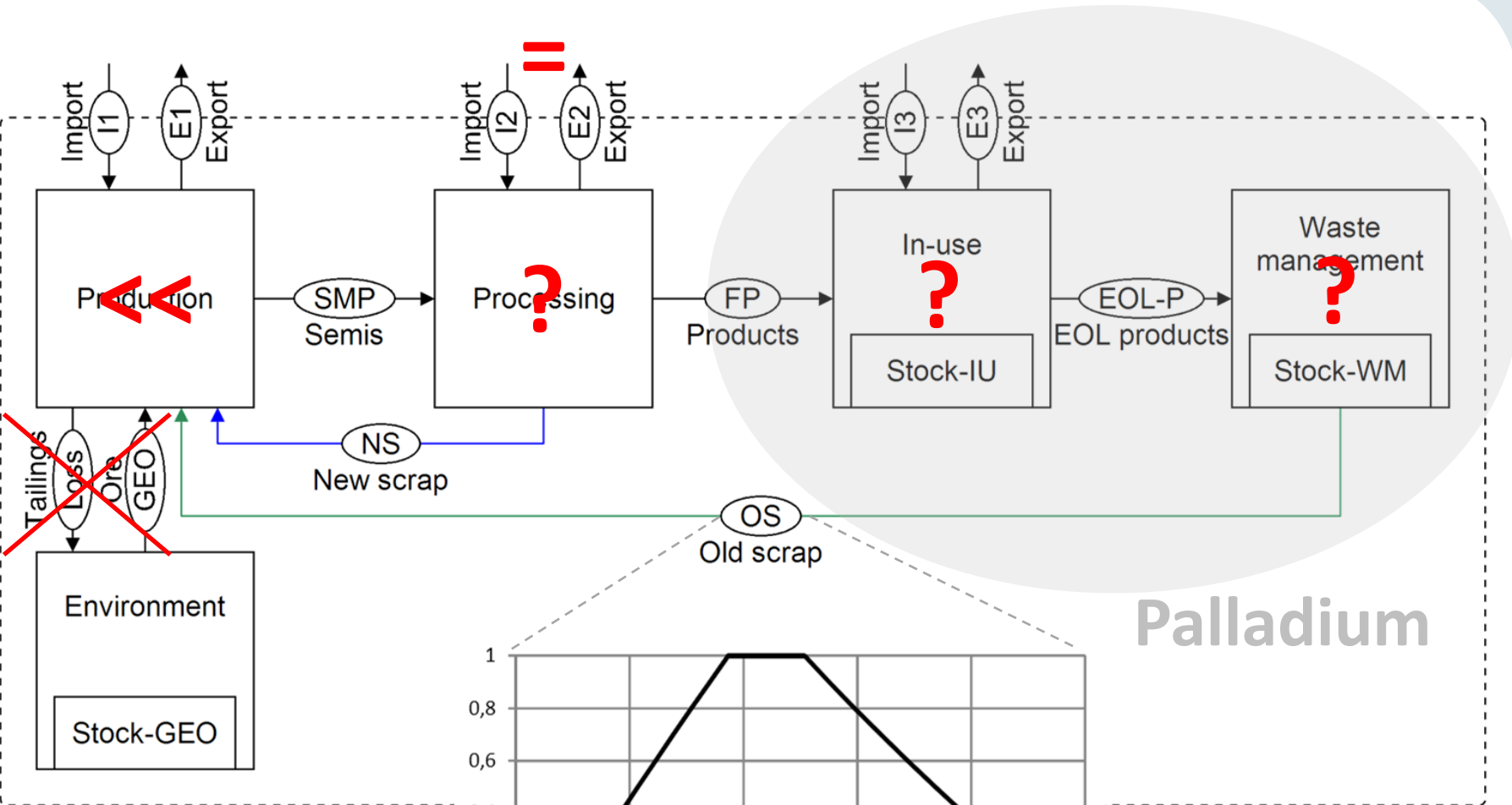
**Old scrap ratio (OSR) in sec. prod:**

= old scrap/total scrap use

= ??????

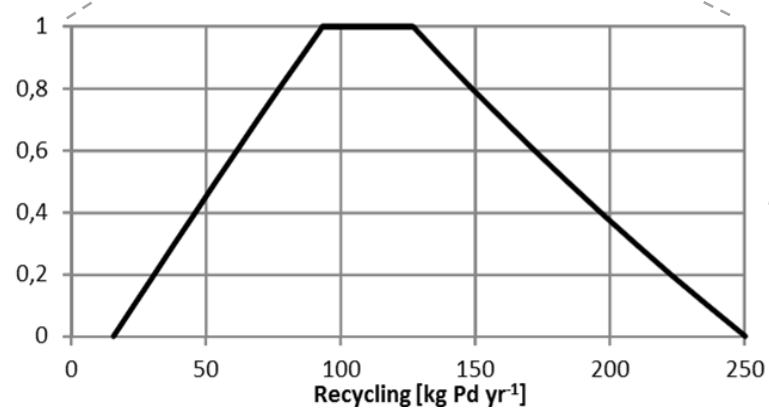


# Austrian Pd balance (snapshot MFA for 2011)



Palladium

National resource budget



**EOL collection ratio:** 20% to 100% of Pd in EOL products are directed to waste/scrap treatment;  
**most likely value from 35% to 40%**

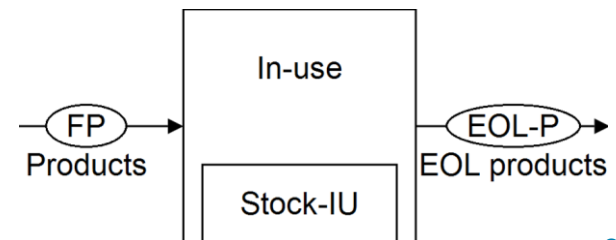
**Old scrap recovery ratio:** 15% to 91% of Pd are recovered as old scrap in waste management;  
**most likely value from 58% to 78%**

**Old scrap ratio (OSR) in sec. prod:**  
**= ??????**

- **MFA as a basis to assess resource efficiency**
  - Austrian AI balance
    - Secondary production in Austria → cross-checking (and reconciliation) of data possible
    - high volume scrap trade → old/new scrap fractions in secondary production unknown
  - Austrian Pd balance
    - In general, poor data situation → plausibility checks difficult
    - No (significant) secondary production in Austria
    - High share of Pd exported in EOL vehicles

→ **Country-level balances do not suffice to assess national resource efficiency**

→ **Dynamic models to investigate resource stocks & EOL product flows**





# Questions...?

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