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## Cost and Metal Savings through a Second-Life for Electric Vehicle Batteries

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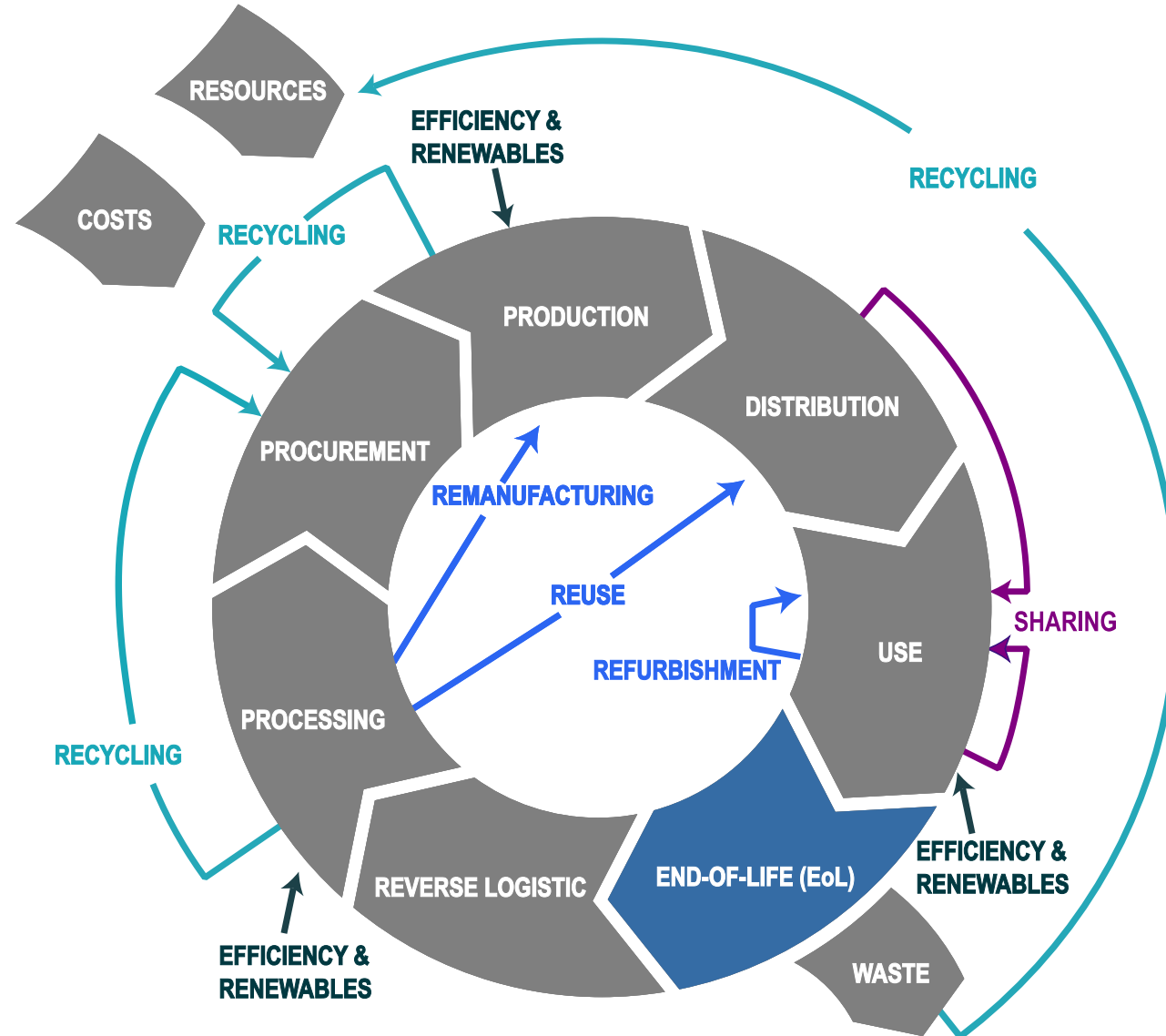
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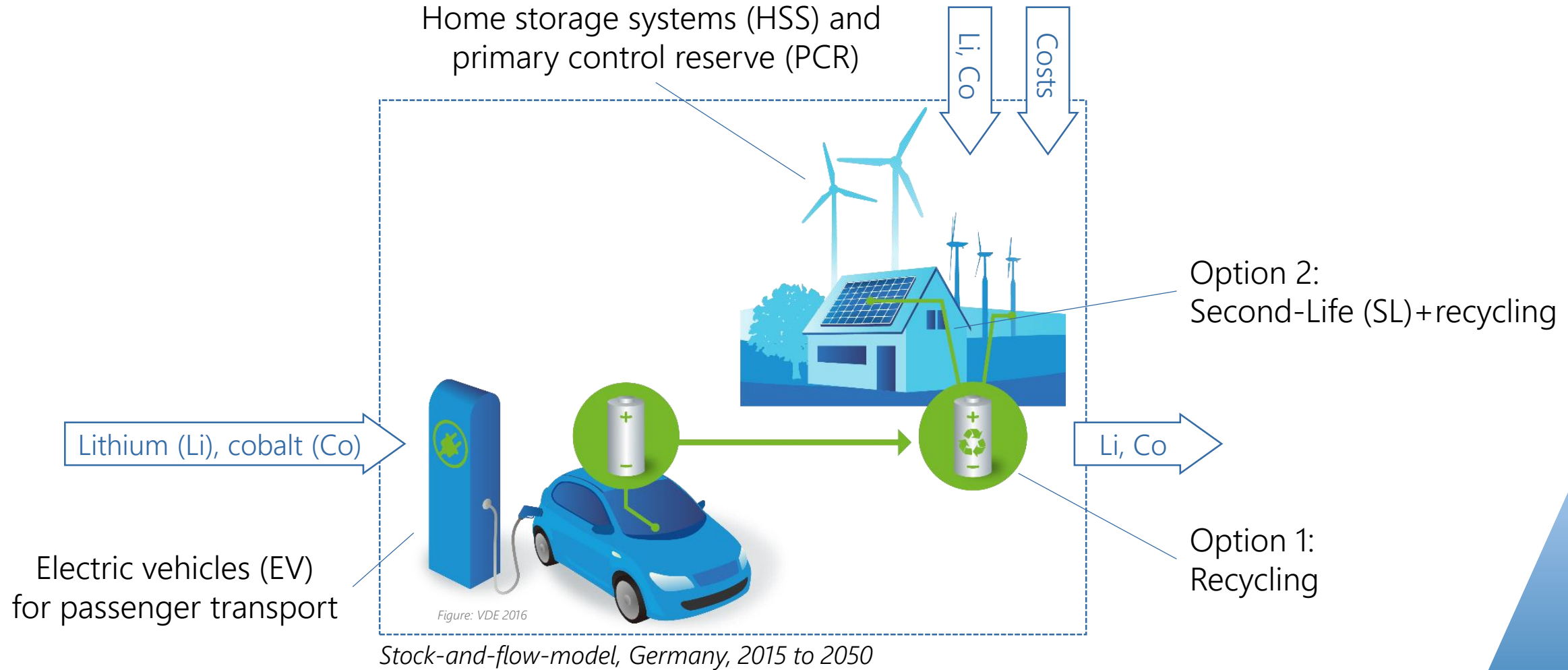
1. Motivation

# Potential of the Circular Economy for Electric Vehicle Batteries?



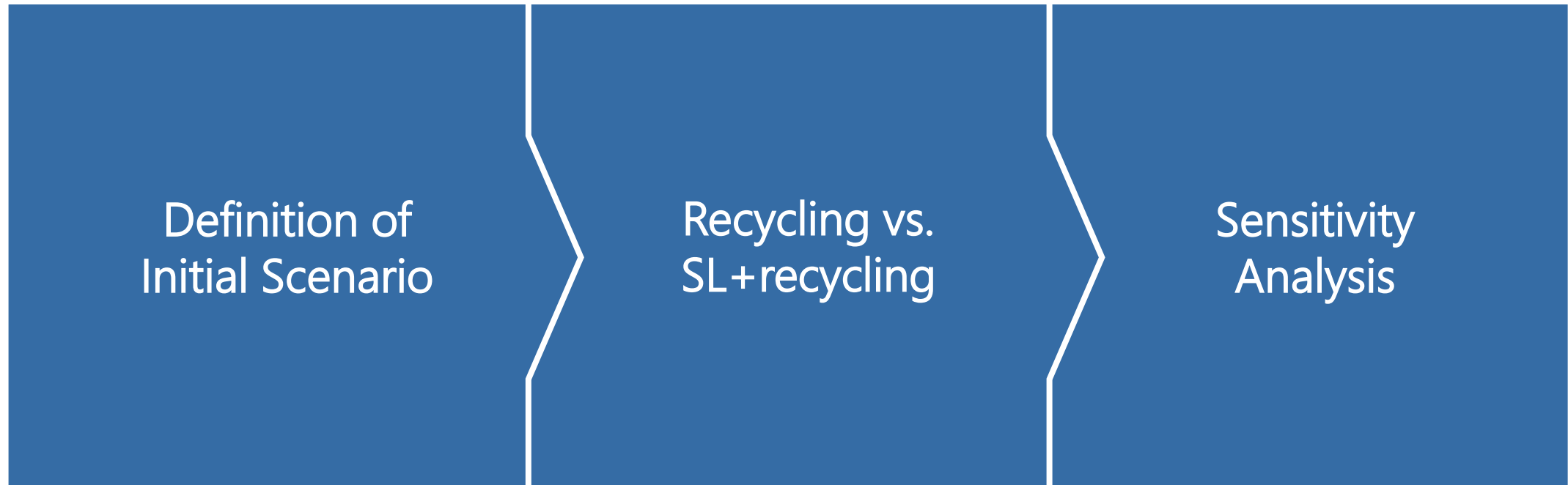
## 2. Modelling Approach

# Dynamic Material Flow Analysis



Model covers substitution effects and time delays through Second-Life

# Procedure to Determine Saving Potential of Second-Life (SL)

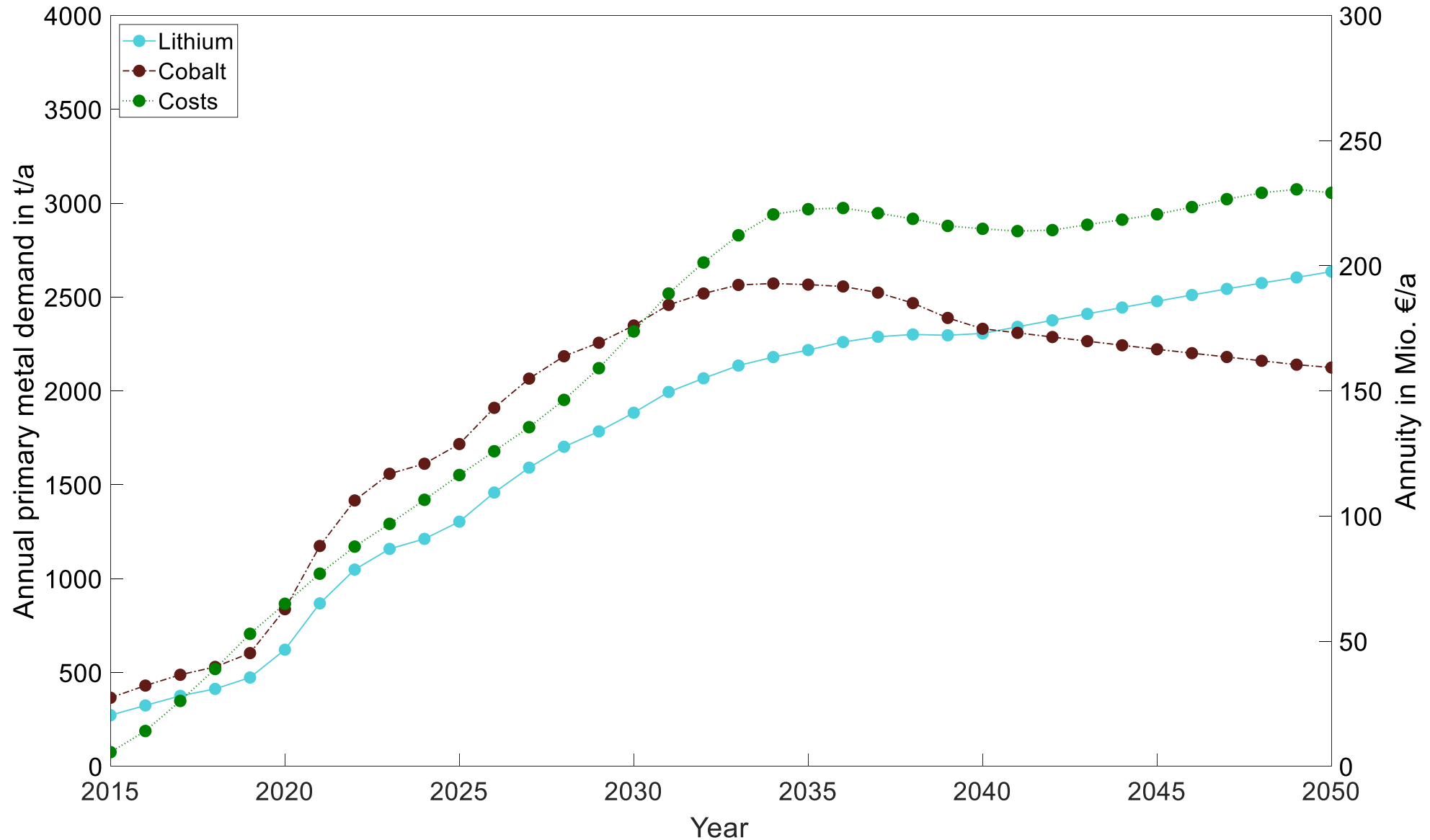


➤ Li, Co and cost savings for initial scenario

➤ Critical parameters on saving potential

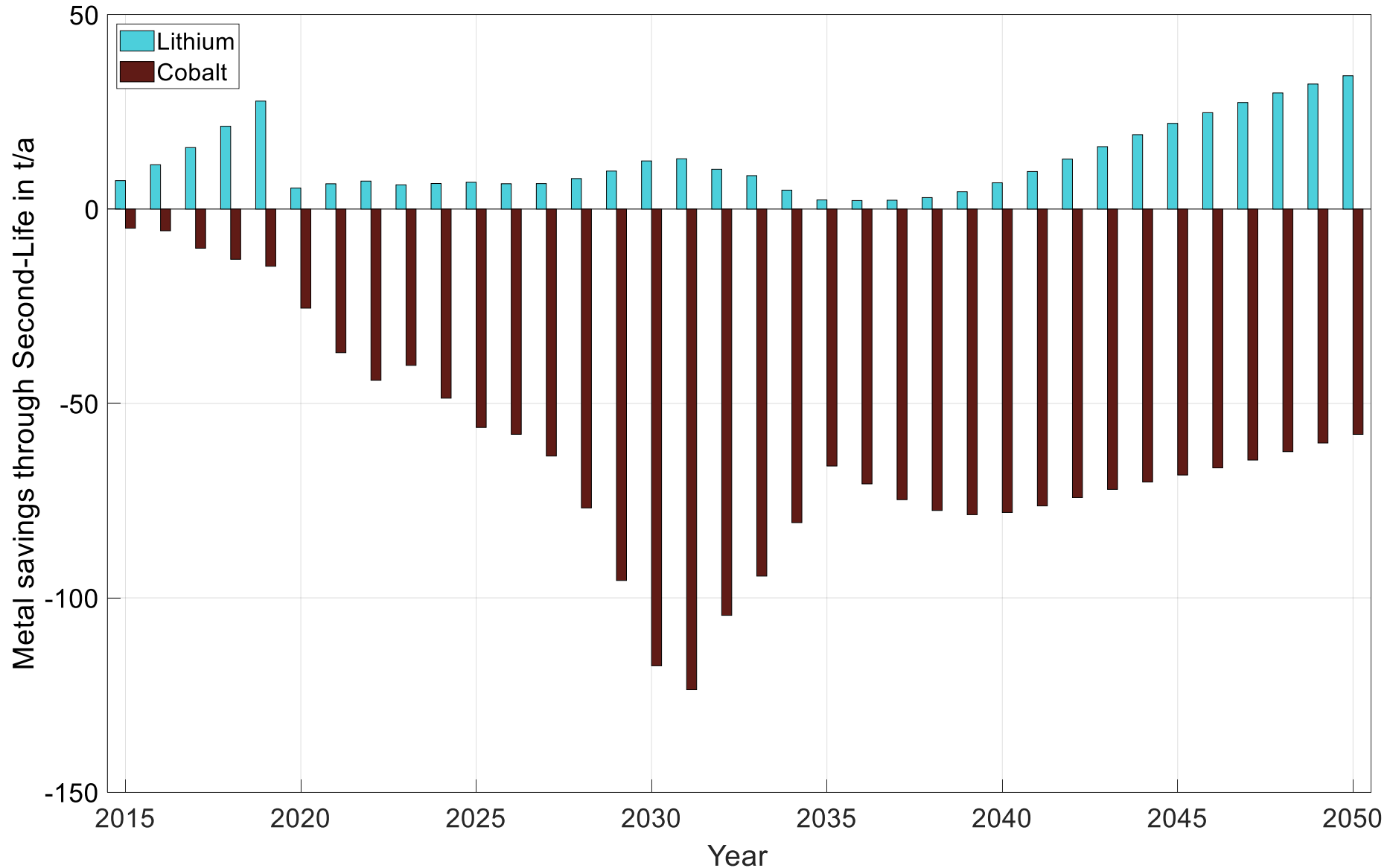
### 3. Results

## Initial Scenario: Critical Metal Demand and Costs



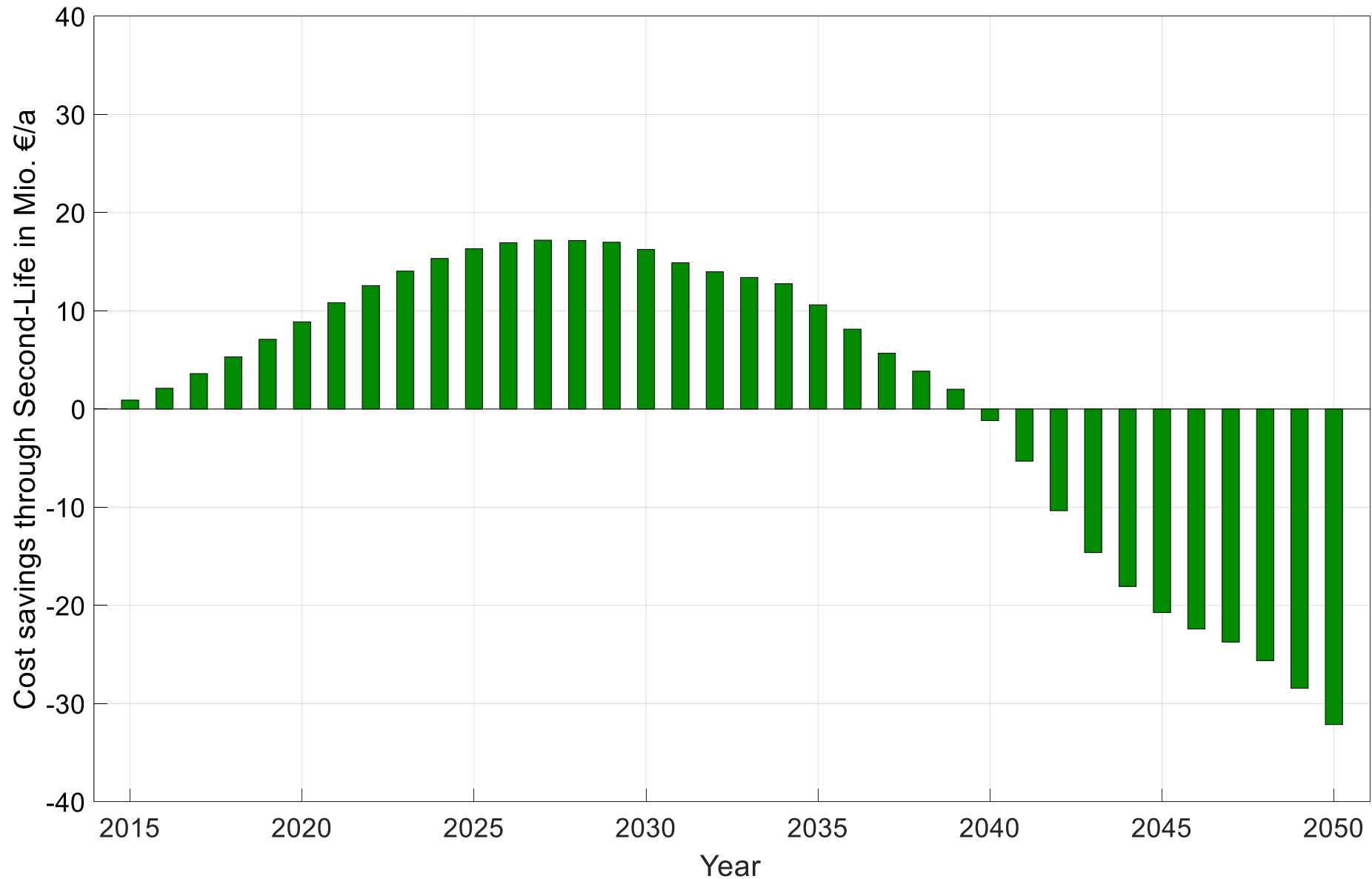
### 3. Results

## Initial Scenario: Critical Metal Savings through Second-Life



### 3. Results

## Initial Scenario: Cost Savings through Second-Life





### 3. Results

# Sensitivity Analysis: Critical Parameters on Saving Potential

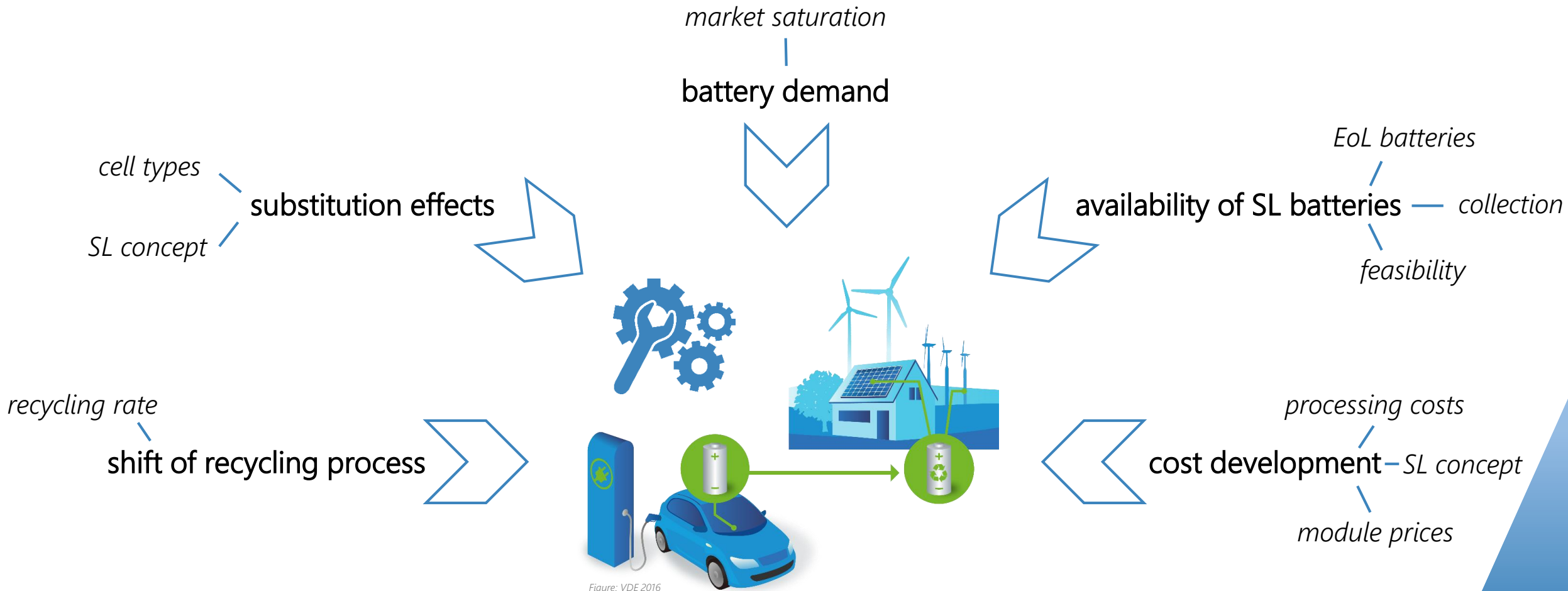
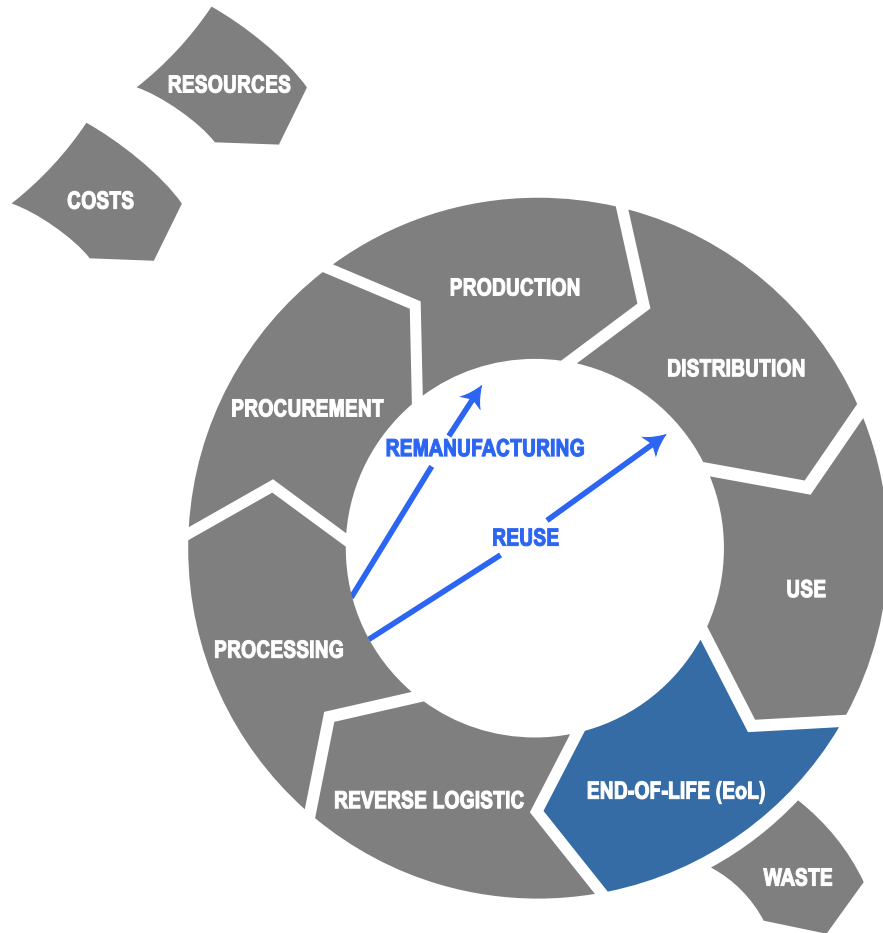


Figure: VDE 2016

#### 4. Conclusion

## Saving Potential available, but sensitivities and trade-offs



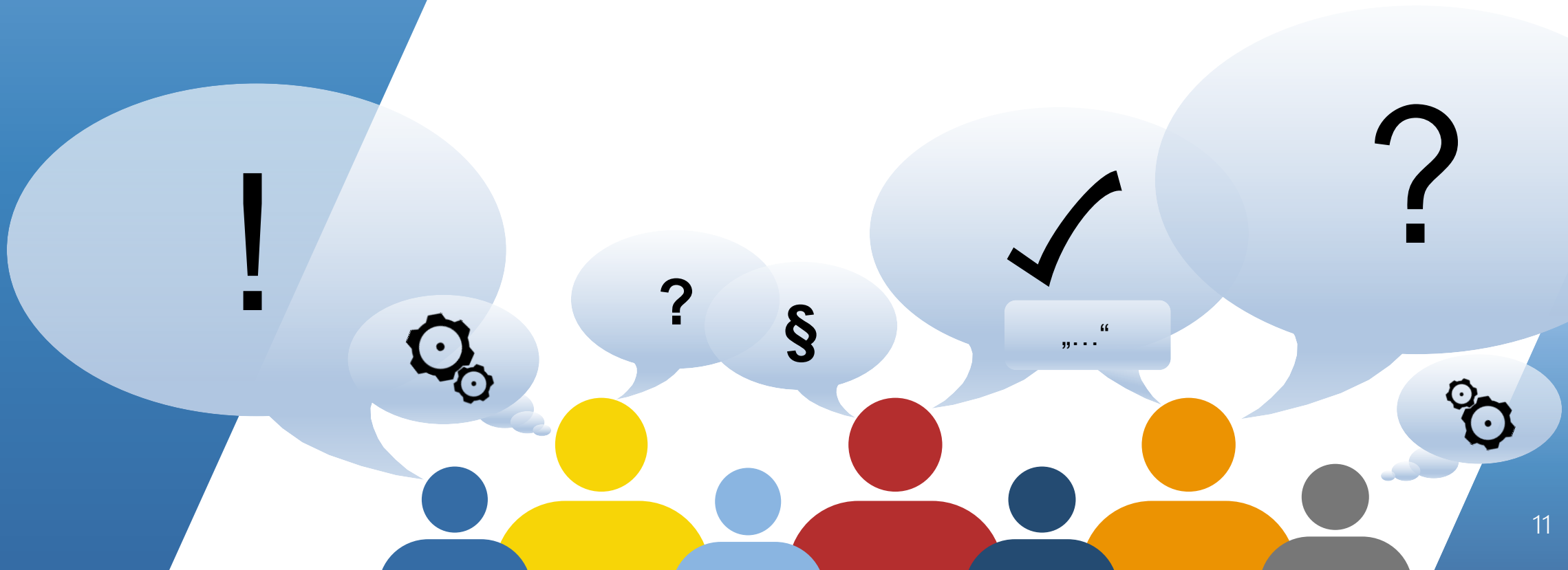
➤ Cost and metal saving potential through Second-Life available, but not under all circumstances

➤ Trade-offs between different indicators

Outlook: Impact on energy-related greenhouse gas emissions?

Thanks for your attention!  
 Questions? Discussion?

Supported by:  
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