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Technical Assistance for Assessment of Turkey's Potential on Transition to Circular Economy

EuropeAid/140562/IH/SER/TR

Contribution of Industrial Emissions Directive (IED) to Circular Economy

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Activity 1.2.1. Circular Economy Training
12th May 2022 - Antalya, Türkiye

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT,
URBANIZATION AND CLIMATE CHANGE

Environment and Climate Action
Sector Operational Programme

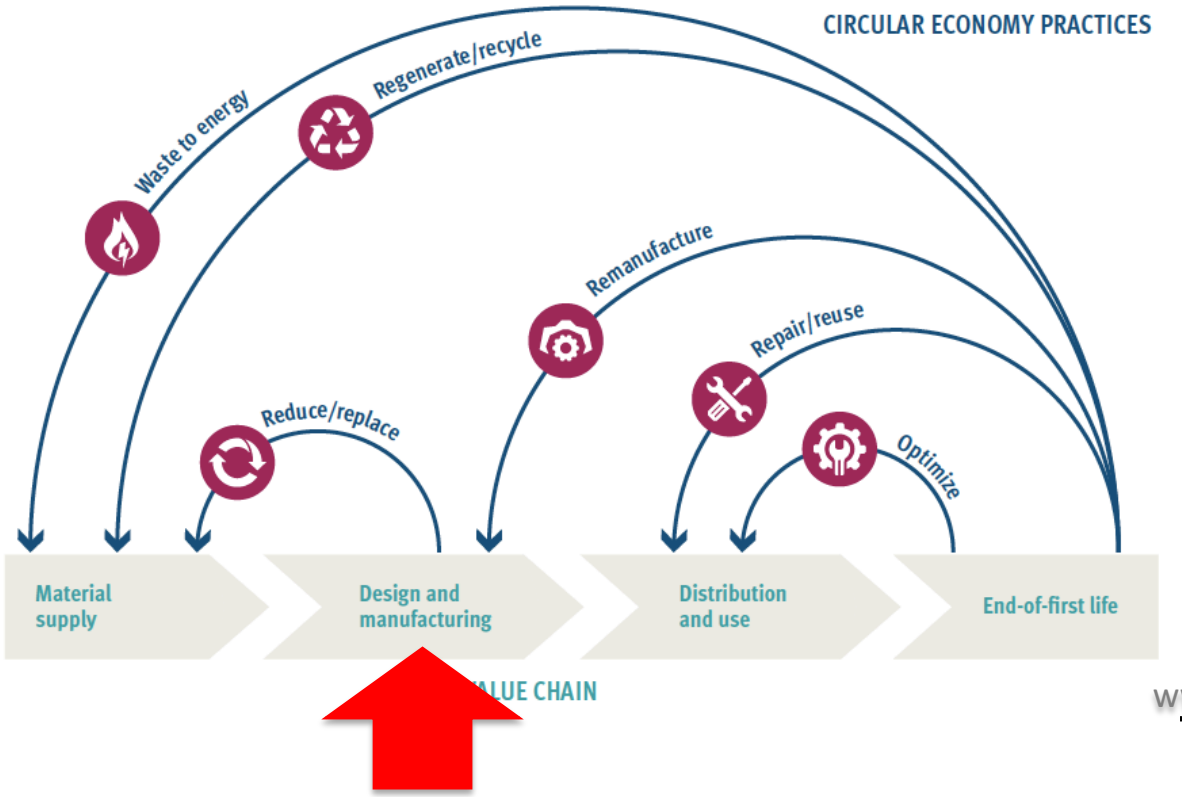
deep
Circular Economy Action Plan

DAI

Circular Economy

- **Products, parts and materials used several times!**
- Principles:
  - Products are designed to last
  - The value of products, parts and materials is maintained for as long as possible
  - Waste generation is minimized
  - Renewable energy is used along value chains, as much as possible
  - Waste is reused.

Value Chain of Products – Circular Economy



Environmental Legislations Concerning Production and Products

- Industrial Emission Directive
- WEEE Directive
- Packaging Waste Directive
- Ecodesign Directive
- Energy Efficiency Directive
- Directive on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Industrial Emission Directive

- IED is the main instrument regulating the emissions from industrial establishments.
- It requires the application of be available techniques (BATs).
- Applies to large installations.
- A wide variety of industrial
- > 50000 installations in Europe
- > 1000 installations in Turkey

- Energy industries
- Metal Industries
- Mineral Industries
- Chemical Industries
- Waste Management
- Other Activities

IED Contribution to the circular economy

IED Contribution to the circular economy

Service Request 13 under Framework Contract **ENV.C.4/FRA/2015/0042**

Final report for European Commission - DG Environment

07.0201/2018/785987/SFRA/ENV.C.4

In association with ¶

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Objective

- To assess the extent of contribution of the IED to meeting circular economy objectives.
- The BAT conclusions for 17 sectors were reviewed to understand the contribution of IED sectors to the following five circular economy topics:
  - energy use
  - materials use
  - waste generation
  - use of hazardous chemicals
  - industrial symbiosis

BAT Conclusions

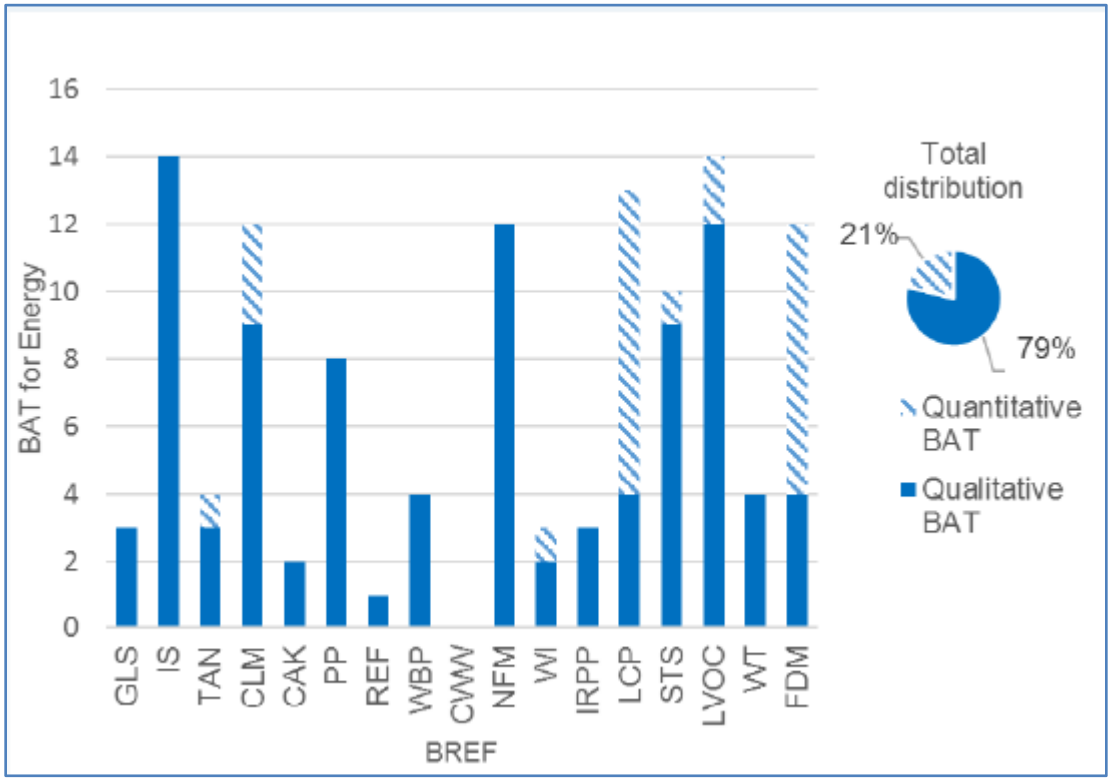
Sector	Short Name	Sector	Short Name
Production of Chlor-alkali	CAK	Non-ferrous Metals Industries	NFM
Production of Cement, Lime and Magnesium Oxide	CLM	Production of Pulp, Paper and Board	PP
Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector	CWW	Refining of Mineral Oil and Gas	REF
Food, Drink and Milk Industries	FDM	Surface Treatment Using Organic Solvents including Wood and Wood Products Preservation with Chemicals	STS
Manufacture of Glass	GLS	Tanning of Hides and Skins	TAN
Intensive Rearing of Poultry or Pigs	IRPP	Wood-based Panels Production	WBP
Iron and Steel Production	IS	Waste Incineration	WI
Large Combustion Plants	LCP	Waste Treatment	WT
Production of Large Volume Organic Chemicals	LVOC		

Assessments

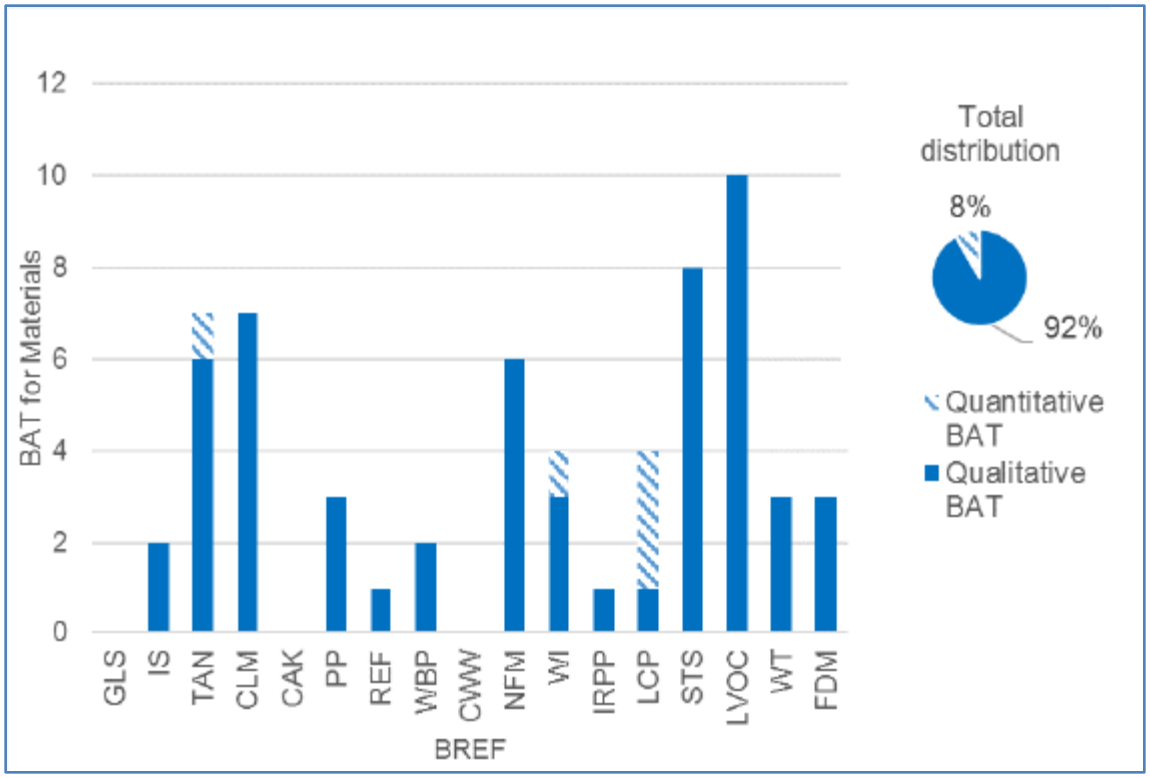
- **Qualitative**
  - when BATs only prescribing techniques were present.
- **Quantitative**
  - when BAT-Associated Environmental Performance Levels (BATAEPLs), or BAT-Associated Energy Efficiency Levels (BAT-AEELs) were present.

BATs covering circular economy topic areas in BREFs

Energy

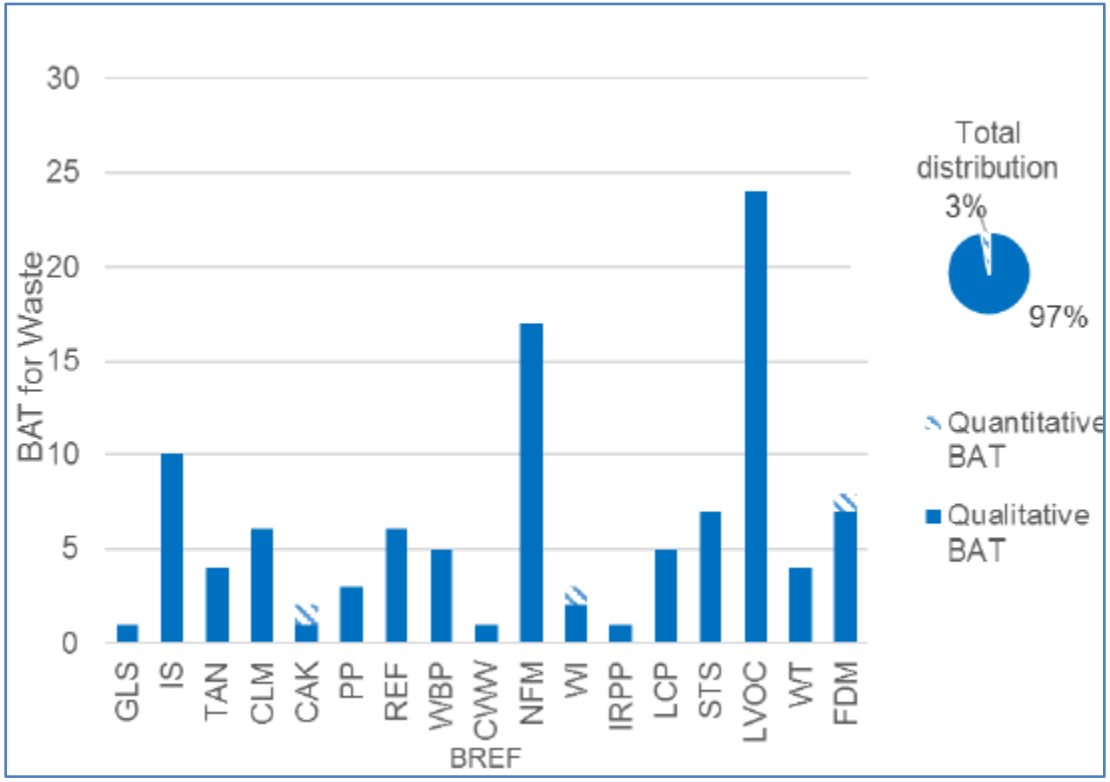


BATs covering circular economy topic areas in BREFs- Materials



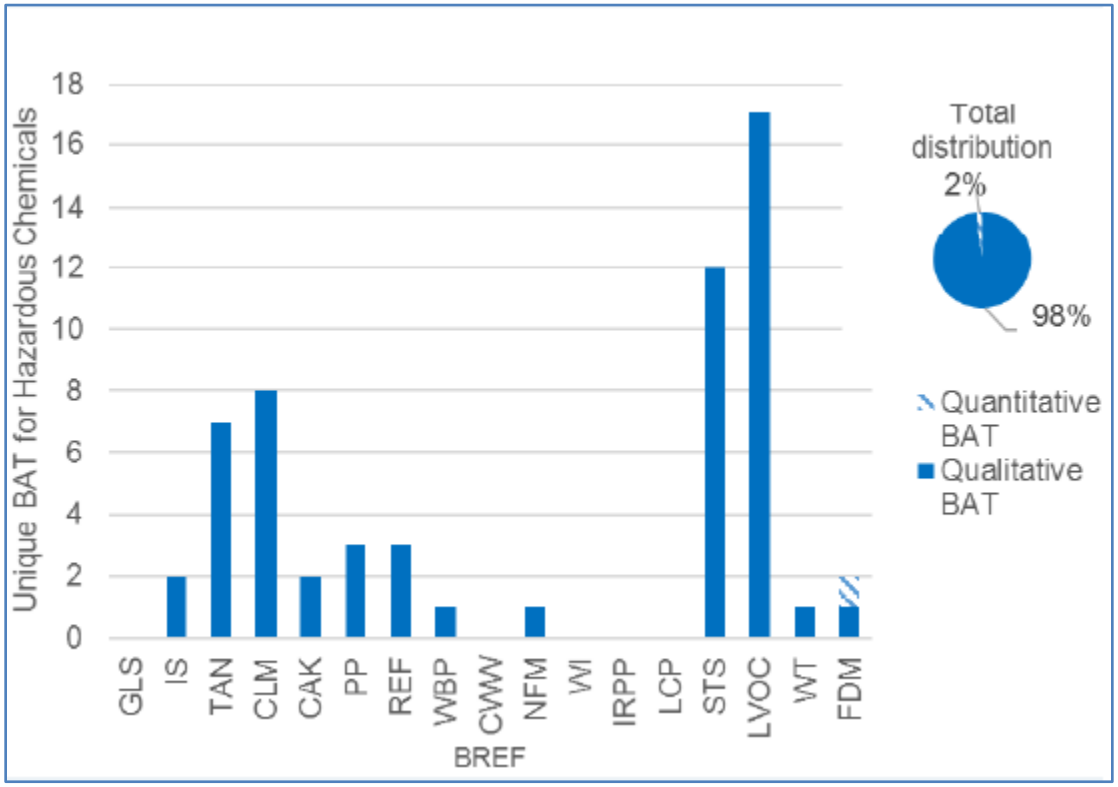
BATs covering circular economy topic areas in BREFs

Waste Generation

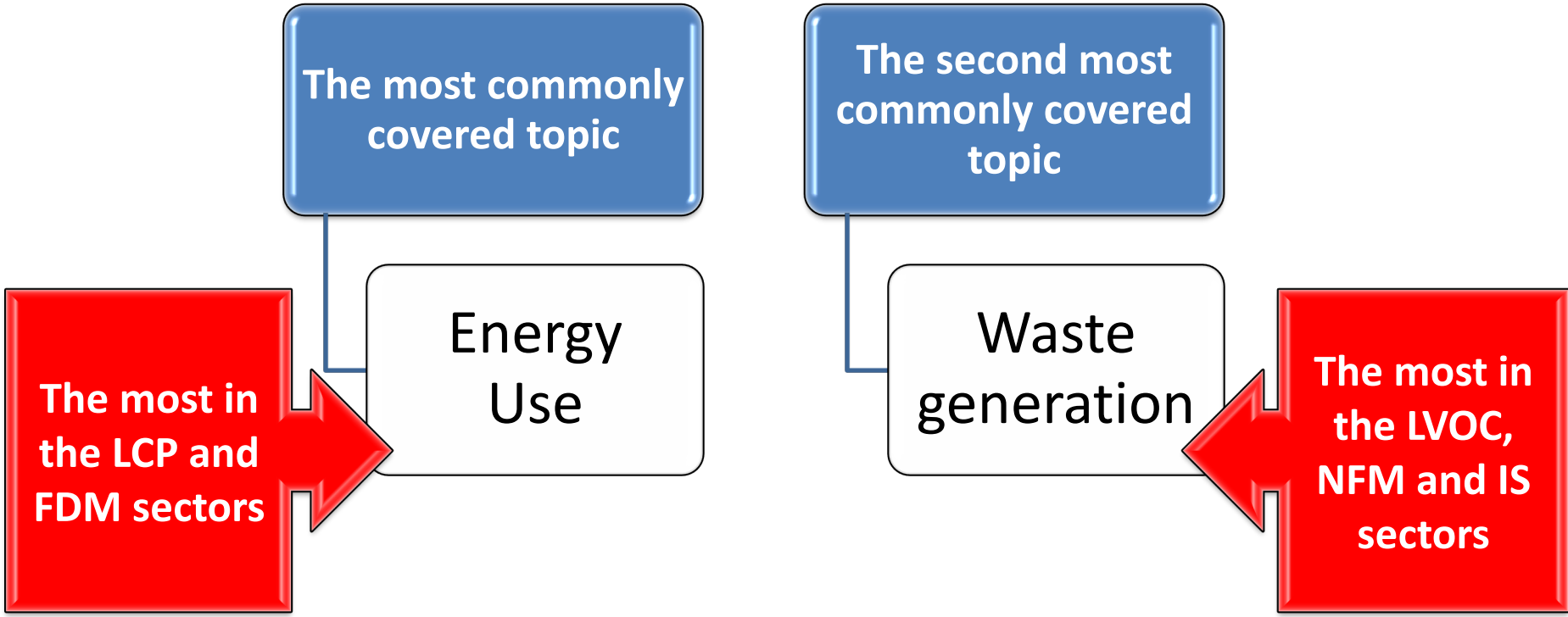


BATs covering circular economy topic areas in BREFs

Hazardous Chemicals



IED Contribution to circular economy



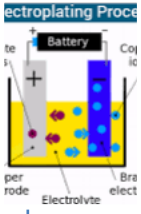
The Most Relevant Circular Economy Topics for Sectors:

Ferrous metals processing

- **waste generation**, energy use

Ceramic manufacturing

- energy use, waste generation, use of hazardous chemicals



Surface treatment of metals and plastics

- energy use, materials use

Textiles industry

- energy use, **waste generation**, materials use, **use of hazardous**

Smitheries and foundries

- Energy use, **waste generation**, materials use

Slaughterhouses and animal by-products

- **energy use**, **waste generation**

Large volume inorganic chemicals

- **energy use**, waste generation, **materials use**, use of hazardous chemicals

The estimated contribution of the IED

Energy Use

- The largest proportion of BATs on circular economy topics is on energy use.
- Nearly four-fifths of these BATs are qualitative rather than quantitative.
- Several of the most energy intensive sectors do not have any quantitative BATs set (in the case of the IS, REF, GLS, and PP).

The estimated contribution of the IED

Materials use

- The chemicals sector (catalysts, fertilizers, polymers, pharmaceuticals, and dyes) is a key sector for the consumption of critical raw materials.
- IED sectors are the major consumers of food, textiles, paper and wood, energy, plastics, chemicals and metal products.
- The third largest proportion of BATs on circular economy topics is on material consumption. Across all sectors, material minimisation is the most common type of BAT, followed by materials substitution. Material elimination is less common.
- One-third of all BATs categorised as “other” are related to overall management and preparation of materials.
- Across all BATs related to materials use, 92% are narrative, i.e. with no associated quantitative performance levels.

The estimated contribution of the IED

Waste Generation

- The IED sectors are the major contributor to EU waste generation from industrial activities are second most frequent (29% of all BATs).
- Across all BATs related to waste generation 97% are narrative, i.e. no associated quantitative performance levels are set.
- Across all sectors, waste minimisation and recycling are the most common type of waste-related BAT, followed by recovered material quality and waste management.

The estimated contribution of the IED

Hazardous Chemicals Use (1/2)

1. The most important sectors that consume chemicals are FDM (largely through plastics use), STS/STM, PP and TXT.
2. BATs related to hazardous chemical use are less frequent (16% of all BATs in the IED BATCs).
3. Hazardous chemical use is only prominent in a small selection of BREFs (LVOC, STS, TAN & CLM), the remaining BREFs either have less than 3 relevant BATs, or have no mentions at all.

The estimated contribution of the IED

Hazardous chemicals use (2/2)

4. Across all BATs related to hazardous chemical use, only one BAT (FDM sector, hexane use) has a strict quantitative limit for the use of a hazardous chemical; the remaining BATs are all narrative, i.e. no BAT-AEPLs are set.
5. The majority of mentions of hazardous chemicals concerns their minimisation. From a circular economy perspective, the approach is to eliminate and substitute these chemicals, but the IED BAT conclusions very rarely take this approach.
6. There are some BATs for reducing the use of hazardous chemicals, either through BATs that state a particular process using a dangerous chemical is not BAT (CAK mercury) or using a BAT-AEPL that minimises the use of a chemical by mandating strict loss reduction measures.

The estimated contribution of the IED

Industrial symbiosis

1. BATs related to industrial symbiosis are the least frequent (7% of all BATs)
2. The sectors with the highest number of industrial symbiosis-related BATs are:
   - NFM (7 BAT)
   - IS sector (6 BAT)
   - LCP sector (3 BAT)
3. Six BREFs are with no industrial symbiosis-related BATs: REF, CWW, WI, IRPP, STS and FDM.
4. All other sectors have at least one industrial symbiosis-related BAT.

The estimated contribution of the IED- By the selected indicators

Relevant indicators in the circular economy monitoring framework	Current contribution	Potential contribution
EU self- sufficiency for raw materials	Very low	Low
Waste generation	Low	Medium
Food waste	Low	Low
Recycling rates	Low	Medium
Recycling rates for specific waste streams	Very low	Very low
Contribution of recycled materials to raw materials demand	Very low	Medium
Innovation	Very low	Medium

Findings regarding the untapped potential of the IED to contribute to the circular economy

- BREFs and BATC do explicitly target circular economy objectives and strategies.
- BATCs do not systematically include BATs on materials use, hazardous chemicals use and industrial symbiosis.
- The current BATs on topics relevant to the circular economy lack quantitative targets.
- Data collection on circular economy topics from individual operators is limited. Thus, the knowledge base on circular economy topic areas is limited.
- Circular economy objectives should be integrated in the IED to a greater degree and the contribution made should be measured.

IED Evaluation (All the Findings)

Works well

- BREF process governance
- Permitting
- Reduced distortion of competition
- Reducing industry emissions (especially to air)
- Cost-effectiveness
- Promotion of BAT

Works less well

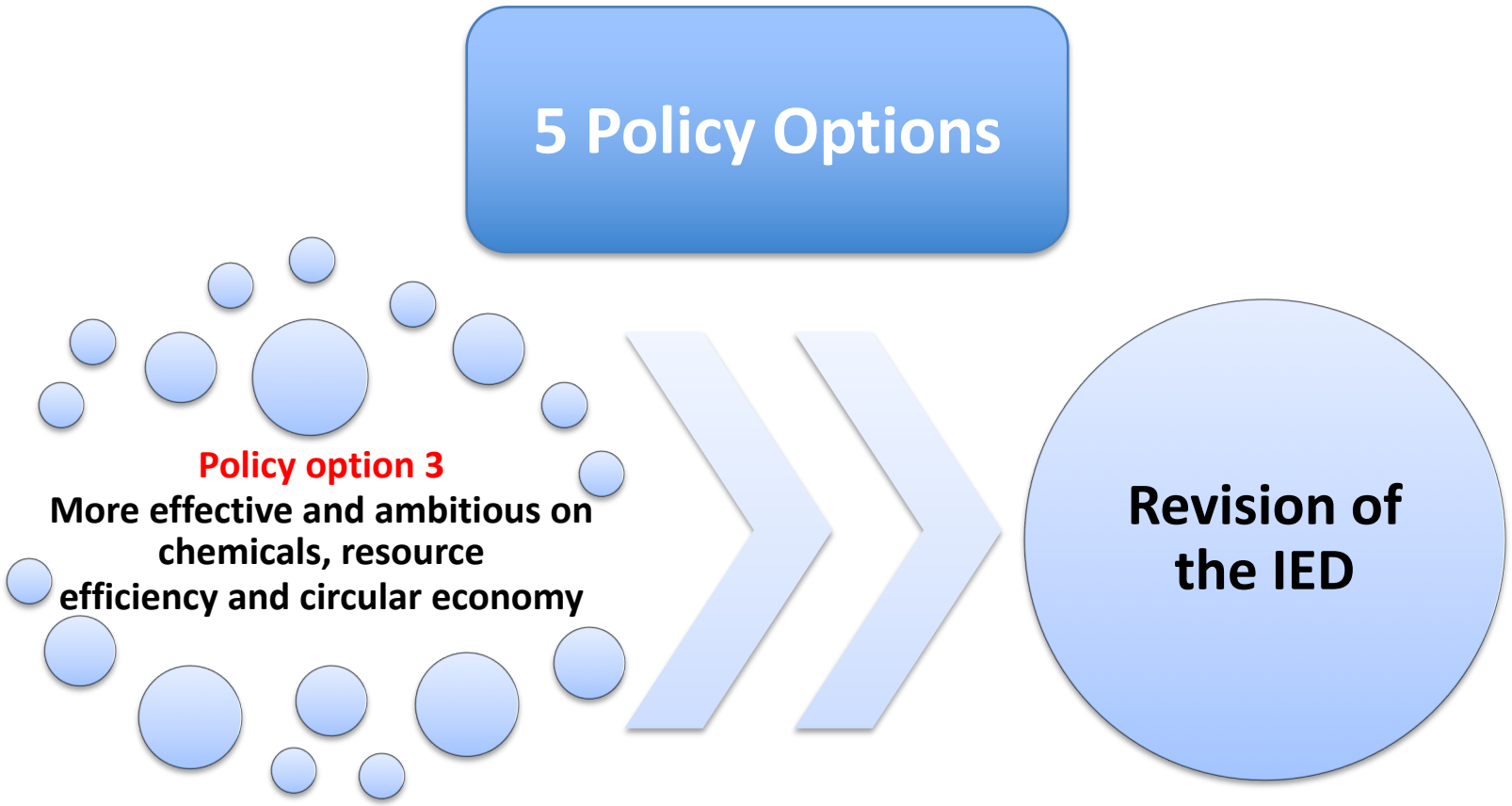
- Emerging techniques and BREF process interface with innovation
- Clarification of legal requirements
- GHG emissions/decarbonisation
- Reducing resource use/ supporting circular economy
- Implementation of BAT conclusions in permits
- Access to information
- Public participation in the permitting procedure and access to justice

Revision of the IED

OBJECTIVE

- In line with the European Green Deal agenda, to revise EU measures on pollutant emissions from (agro-)industrial installations to contribute to the EU's zero pollution ambition and make it fully consistent with the EU's decarbonisation, energy and circular economy policies.

9 Specific Objectives → **# 8: Contribute to the transition to a circular economy**


5 Policy Options
Policy option 3
More effective and ambitious on chemicals, resource efficiency and circular economy
Revision of the IED

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Thank you.

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