

RECOVERY AND RE-USE OF GASEOUS INDUSTRIAL EFFLUENTS (GIEs)

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ECOFYS

A Navigant Company

INTRODUCTION TO THE PROJECT

Project aims

- **Explore opportunities** for recovery and utilizations of gaseous industrial effluents in the European Union
- **Identify measures** to stimulate the circularity of gaseous industrial effluents in the chemical sector
- **Support regions** in exploring the implementation of the recovery and utilization of gaseous industrial effluents

Project activities

- Mapping of gaseous industrial effluents
- Developing Self-Assessment Tool
- Assessing recovery and utilization technologies
- Selecting hotspots for GIE exchange
- Supporting four Model Demonstrator Regions
- Interactive conference

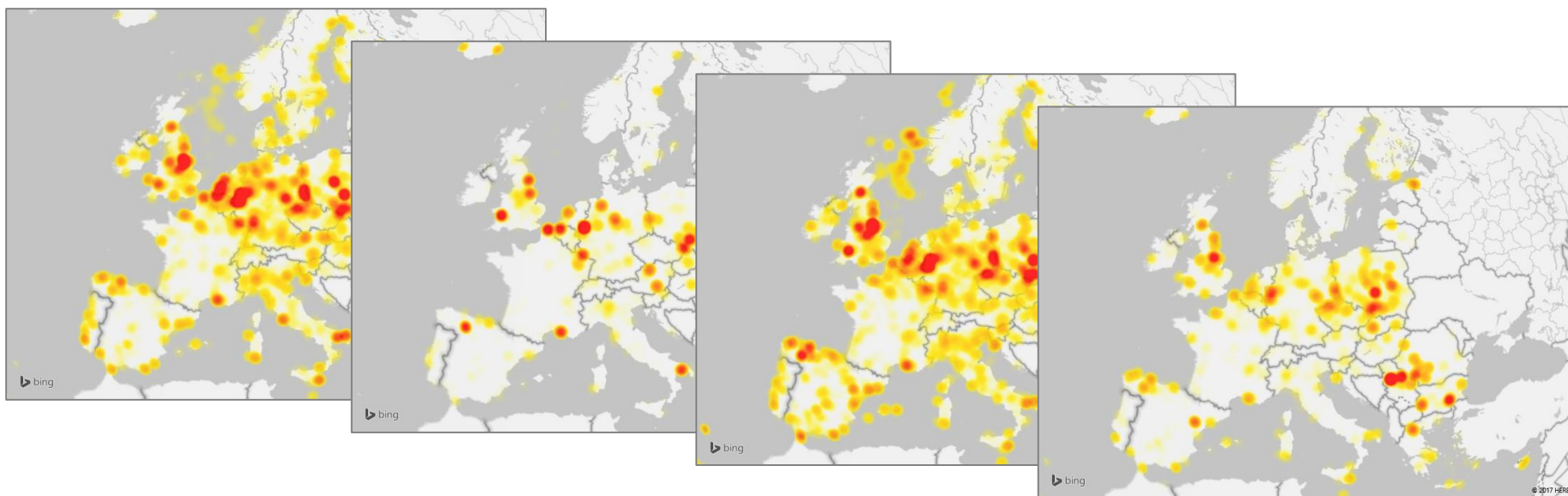
GIE EXCHANGE CAN OFFER MANY BENEFITS

Benefits

- + Can be more economical, depending on carbon price
- + Increases the material and resource efficiency of a region
- + Strengthens embedding of companies in the region
- + Meeting climate or pollution mitigation targets
- + Lower resource dependency – security of supply
- + Contribute to circular economy strategy
- + Stimulates innovation
- + Green premiums
- + Insurance against higher carbon costs

MAPPING OF GASEOUS INDUSTRIAL EFFLUENTS

- Mapping of CO₂, CO, NO_x and SO_x emissions based on the E-PRTR and LCP databases;
- Mapping of potential H₂ availability based on literature and existence of specific industries (less complete).



The mapping of gaseous industrial effluents provides insights in the geographical areas and industry sectors where GIE recovery and utilization would be most promising.

DEVELOPMENT OF SELF-ASSESSMENT TOOL

- The Self-Assessment Tool (SAT) is an online tool to assess the investment readiness of the region regarding the use of GIEs as feedstock in the chemical industry.
- Questions on 8 key factors:
 1. GIE availability
 2. GIE usage
 3. Infrastructure
 4. Access to finance
 5. Knowledge base
 6. Political support
 7. Business community
 8. Industrial symbiosis
- Evaluation
 - Spider diagram with graphical representation of score in key factors and automated assessment report

On the map below define the location you want to complete the self-assessment for.



Select the distance between the location and the sources for which you would like to see the GIE emissions.

Show results

Plant name	CO ₂ emission amount	CO ₂ emission concentration
Plant A	1.5 Mt	275.000 g/m ³	
Plant B	0.7 Mt	295.000 g/m ³	

The SAT enables region to assess the investments readiness for GIE recovery and utilization.

SELECTION OF MODEL DEMONSTRATOR REGIONS

- Ten hotspots were selected based on the availability of GIEs in the region, for which standardized briefs were developed.
- Model Demonstrator Region selection criteria:
 - All GIEs need to be represented
 - Geographical spread
 - Sufficient opportunities for GIE re-use upon first quick scan
 - Willingness from the regional government to participate

Location	Country
Chemiepark Linz	Austria
Port Of Antwerp	Belgium
Varna-Devnya	Bulgaria
Marseille-Fos	France
Chempark Krefeld-Uerdingen	Germany
InfraLeuna	Germany
Łódź	Poland
Mehedinti	Romania
Chemelot	The Netherlands
Port of Rotterdam	The Netherlands



Location	Country
Antwerp	Belgium
Varna Region	Bulgaria
Lodzkie Region	Poland
Limburg	The Netherlands

SUPPORTING THE MODEL DEMONSTRATOR REGIONS

- Lodzkie Region, Poland
 - 2-day workshop
 - Cooperation between steel industry and academics



- Varna Region, Bulgaria
 - 2-day workshop + meeting with governor
 - Ammonia plant and chlorine plant



- Province of Antwerp, Belgium
 - 1-day workshop
 - Key policy needs for investment decisions



- Province of Limburg, Netherlands
 - 1-day workshop
 - Stimulating CCU and innovation

provincie limburg





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