

# FINDINGS IN VARNA REGION

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REPUBLIC OF BULGARIA  
REGIONAL ADMINISTRATION VARNA

**ECOFYS**

A Navigant Company

# THE LOCAL SITUATION IN VARNA REGION

- Varna-Devnya industrial complex situated in the Port of Varna
- Important industrial hub for Bulgarian economy
- Emitters and potential consumers of GIEs are situated close to each other
- Already some experience with GIE exchange
  - Agropolychim markets CO<sub>2</sub> to SOL for use in beverage industry
- Region is not rich in natural resources and dependent on imports



# Overview of emissions and potential consumers of industrial emission in Varna Region

- Hotspot
- CO<sub>2</sub> in Mt
- CO in kt
- NO<sub>x</sub> in kt
- SO<sub>x</sub> in kt

1  
 Devnya Tsiment

6  
Deven AD

2  
Technophos AD / Alipho...

34  
Plastchim AD

0.5  
Solvay Sodi AD

0.5  
Agropolihim AD

5  
Ezerovo

1  
TETs Varna

8



# MOST PROMISING OPTIONS FOR GIE EXCHANGE IN VARNA

- Mineralization of CO<sub>2</sub> from ammonia production or cement plants, producing aggregates
  - Cheap availability of CO<sub>2</sub>
  - Availability of CaO waste – new waste incineration plant forthcoming
- Using by-product H<sub>2</sub> from the planned chlorine plant as feedstock for the manufacturing of ammonia
  - Pure stream of H<sub>2</sub> – little impurities
  - Around 10% of the H<sub>2</sub> demand from the ammonia plant could be met with full exchange and constant capacity

# LEARNINGS

- SMEs and regional authorities often struggle with understanding the funding opportunities out there
- NO<sub>x</sub> and SO<sub>x</sub> re-use can still make sense in the near-term, but opportunities for re-use are becoming smaller due to increasingly stringent IED
- By cooperating more in a cluster set-up, significant potential can be tapped into for industrial symbiosis

# KEY RECOMMENDATIONS TO REGIONAL GOVERNMENT

- Use the position of Regional Inspectorate for Environment and Water (RIOSV) to early on identify opportunities for GIE exchange
- Address administrative capacity constraints within regional government to better support SMEs
- Include circular economy in the ongoing development of Varna's RIS3 strategy
- Stimulate the development of a sustainability vision for the Varna cluster

# REGIONAL GOVERNOR MR. PASEV SUPPORTS THE WORK THAT HAS BEEN DELIVERED AND THE REQUIRED NEXT STEPS







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