FINDINGS IN VARNA REGION

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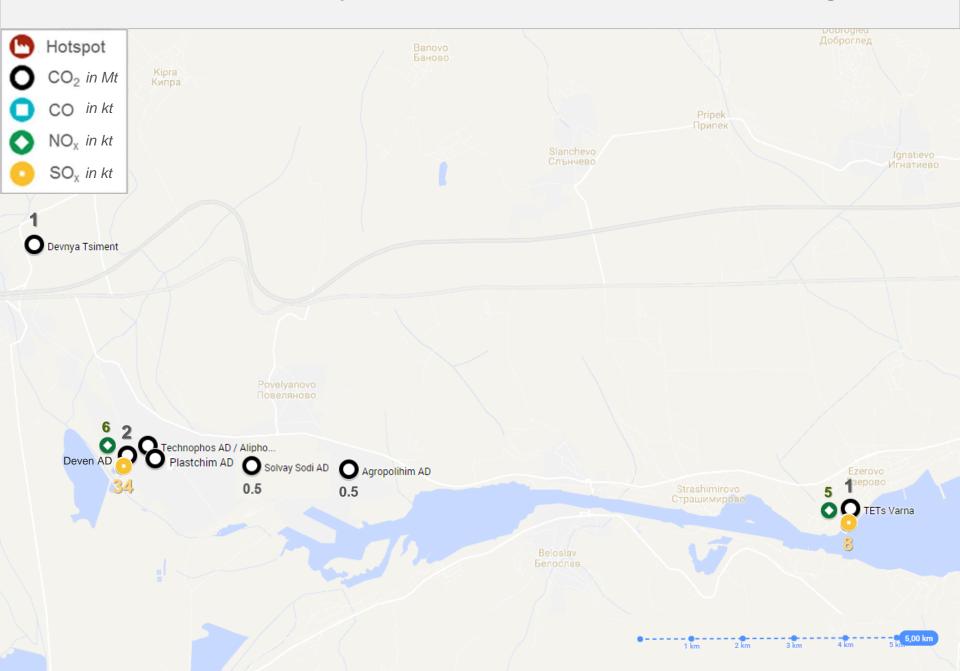


THE LOCAL SITUATION IN VARNA REGION

- 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 CO₂ 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



MOST PROMISING OPTIONS FOR GIE EXCHANGE IN VARNA

- Mineralization of CO₂ from ammonia production or cement plants, producing aggregates
 - Cheap availability of CO₂
 - Availability of CaO waste new waste incineration plant forthcoming
- Using by-product H₂ from the planned chlorine plant as feedstock for the manufacturing of ammonia
 - Pure stream of H₂ little impurities
 - Around 10% of the H₂ 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_x and SO_x re-use can still make sense in the near-term, but opportunities for reuse 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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