**Capacity estimation of prospective for CO₂ geological storage offshore and onshore structures in the Baltic Region**

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**ABSTRACT**

Baltic countries are located at the Baltic sedimentary basin which is 700x500 km vertical-sedimentary structure. Differential movements of the geological units formed numerous local structures. Prospective for CO₂ geological storage (CGS) Cambrian structural traps, represented by sandstones with good reservoir properties, occur mostly in Latvia. Latvian structures are located in the North-Western part of the Baltic depression. According to published data CO₂ storage capacity of the 16 targeted onshore structures in the range of 24 Mt, accounting together more than 400 Mt. Storage capacity of Latvian offshore structures has not been estimated until now. This study focused on the onshore Dobele structures and E7 and E17 offshore structures (Fig.7) from the Cambrian Domina formation. These structures, estimated CO₂ storage capacity for gas storage by old exploration data, were sampled in five boreholes for a detailed study.

**GEOLOGICAL BACKGROUND**

Porosity and permeability versus depth. Comparison of the measured values and analyzed samples in IFPen laboratory. Recorded data in IFPen lab: Kn 24 and Kn 27. By analysis of the measured data, values of permeability and porosity vary from 5% to 25% in off-shore E7 structure and 15% to 25% in on-shore E7. Estimated values range from 15% to 27% in off-shore E17 structure and 20% to 28% in on-shore E17. CO₂ storage capacity for all structures was estimated using different approaches: efficient factor for each facility with full range of reservoir values (min, max, average). This approach was based on results of numerical simulation of CO₂ injection in Estonian-Ukrainian offshore structure in the southern North Sea [7] and numerical simulation of CO₂ injection in the Harenso Structure onshore of Denmark [6].

**OBJECTS OF STUDY**

- **Offshore Structure E7**
- **Offshore Structure E17**
- **Onshore Structure South Kandava**
- **Onshore Structure Dobele**

**CONCLUSIONS & FUTURE PLANS**

The "Optimistic" values for CO₂ storage capacity of the offshore structures were estimated at 189 Mt (min, max, average) and at 12 Mt (min, max, average) for the onshore Dobele structure, respectively. The potential of CO₂ storage capacity offshore E7 structure was estimated at 82 Mt (min, max, average) and at 62 Mt (min, max, average) for the onshore Kandava structure. Based on these estimations, recommendations from EU Geocapacity project report were used. They are based on results of the Monte Carlo simulations. Therefore, the range of the efficiency factors varies from 2.5 to 4.5.

**REFERENCES**