HERCCULES
full CCUS chain demonstration

Funded by the European Union

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CCUS ZEN

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Tallinn, Estonia. 13/06/2024

CCS Developments in the Baltic States

Jānis Volberts / Bellona Europa

Bellona Europa - Focus Areas

- **Carbon Accounting**
  - Carbon Dioxide Removal
  - Climate Impact of Circularity
  - Green Claims
- **Energy Systems**
  - Hydrogen Production
  - Electrification (grids)
- **Industry**
  - Carbon Capture & Storage
  - Hydrogen Use
  - Circularity
  - CO2 Infrastructure
- **Cities & Transport**
  - Construction
  - Waste Incinerators
  - Fuels
- **Sustainable Finance**
  - Private/Public Funding
  - Public Procurement
  - Competitiveness
  - Greenwashing

Over three decades of work on CCS!

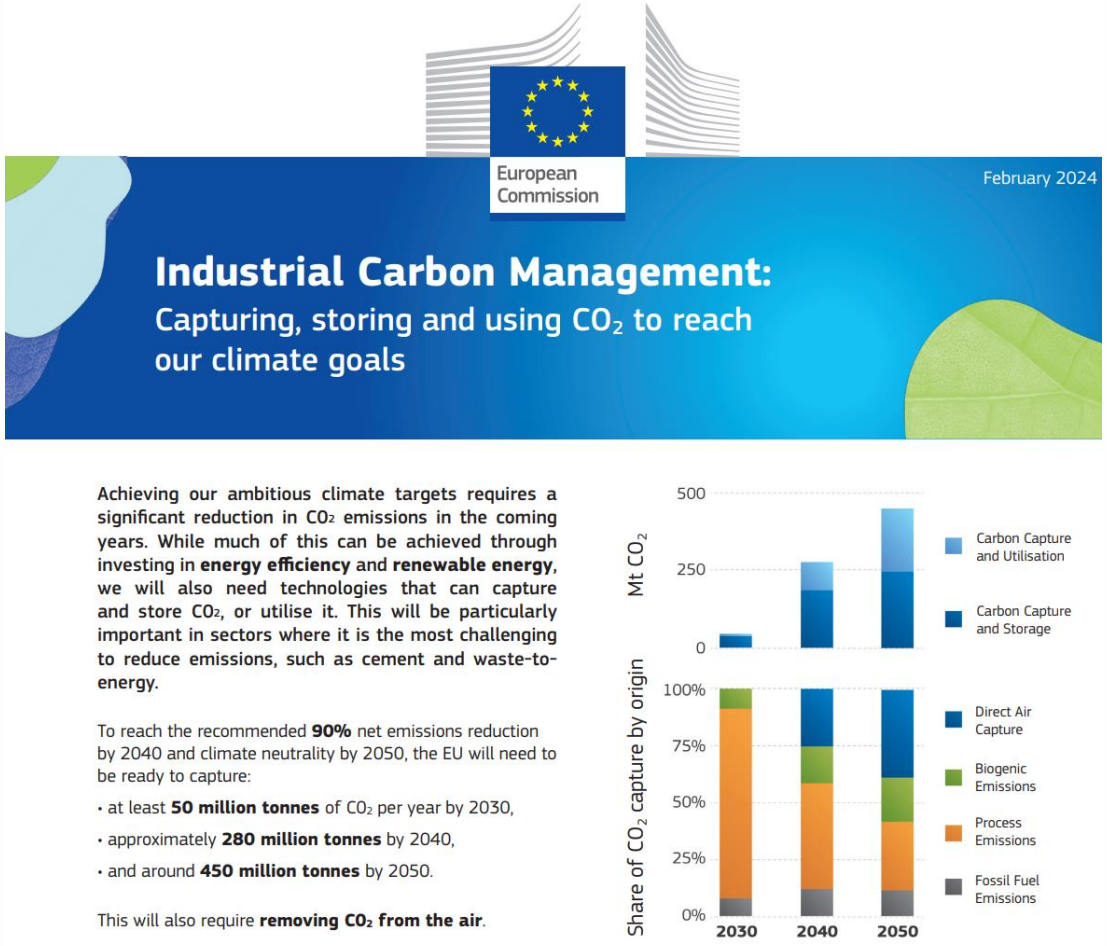
Content - CCS Developments in the Baltic States

CCS EU Level Regulations

Net-Zero Industry Act (NZIA) - approved

Oil and gas industry now accountable for delivering pan-European permanent storage for industrial CO2 emissions

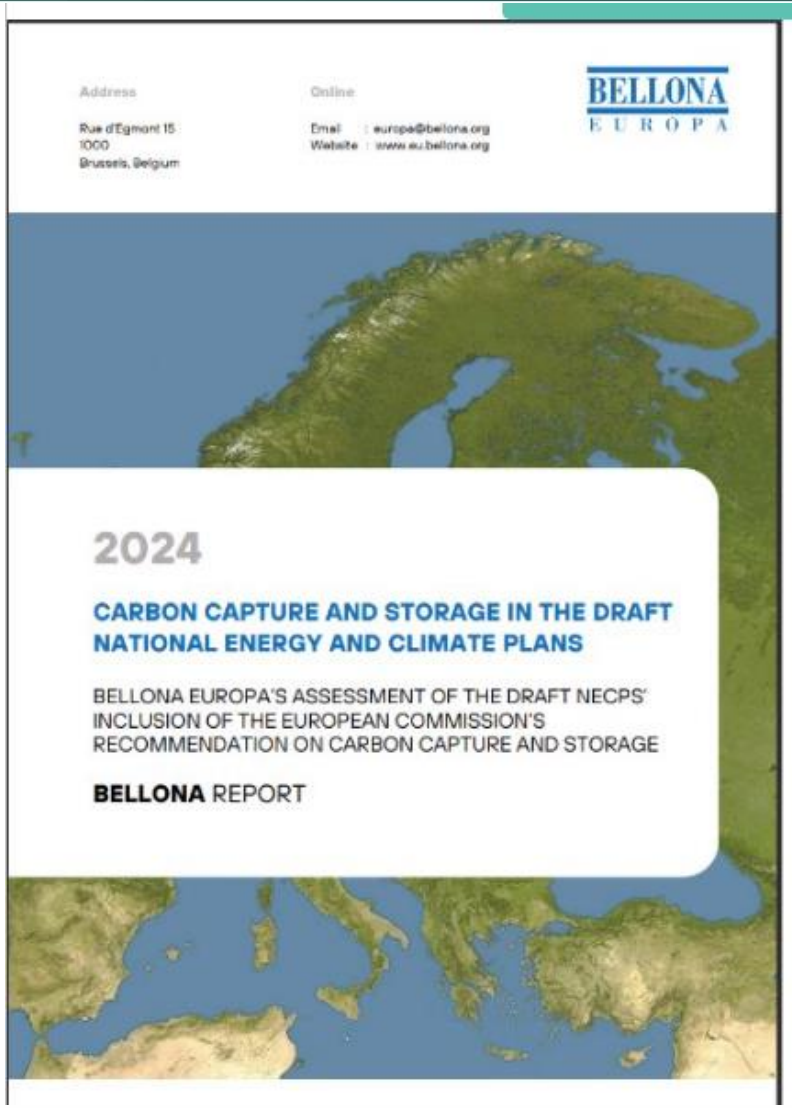
Member States need to provide transparent data on their potential to develop storage sites, as well as accelerating storage permitting



CCS National Level Regulations

- Nationally new laws but no major changes for CCS yet
- In Latvia new Energy Law. Expected new Climate Law
- Ban on permanent onshore storage in all Baltic States, despite including CCS in their long-term strategies
- High costs and low maturity associated with CCS in government plans
- Expected onshore carbon storage conceptual report procurement from the Ministry of Climate and Energy of Latvia
- Lithuania also have reported that they have further plans to support the appraisal of CO2 storage sites
- CCS in the Draft National Energy and Climate Plans (NECP) does not appear as a priority for industrial decarbisation

NECPs Analysis



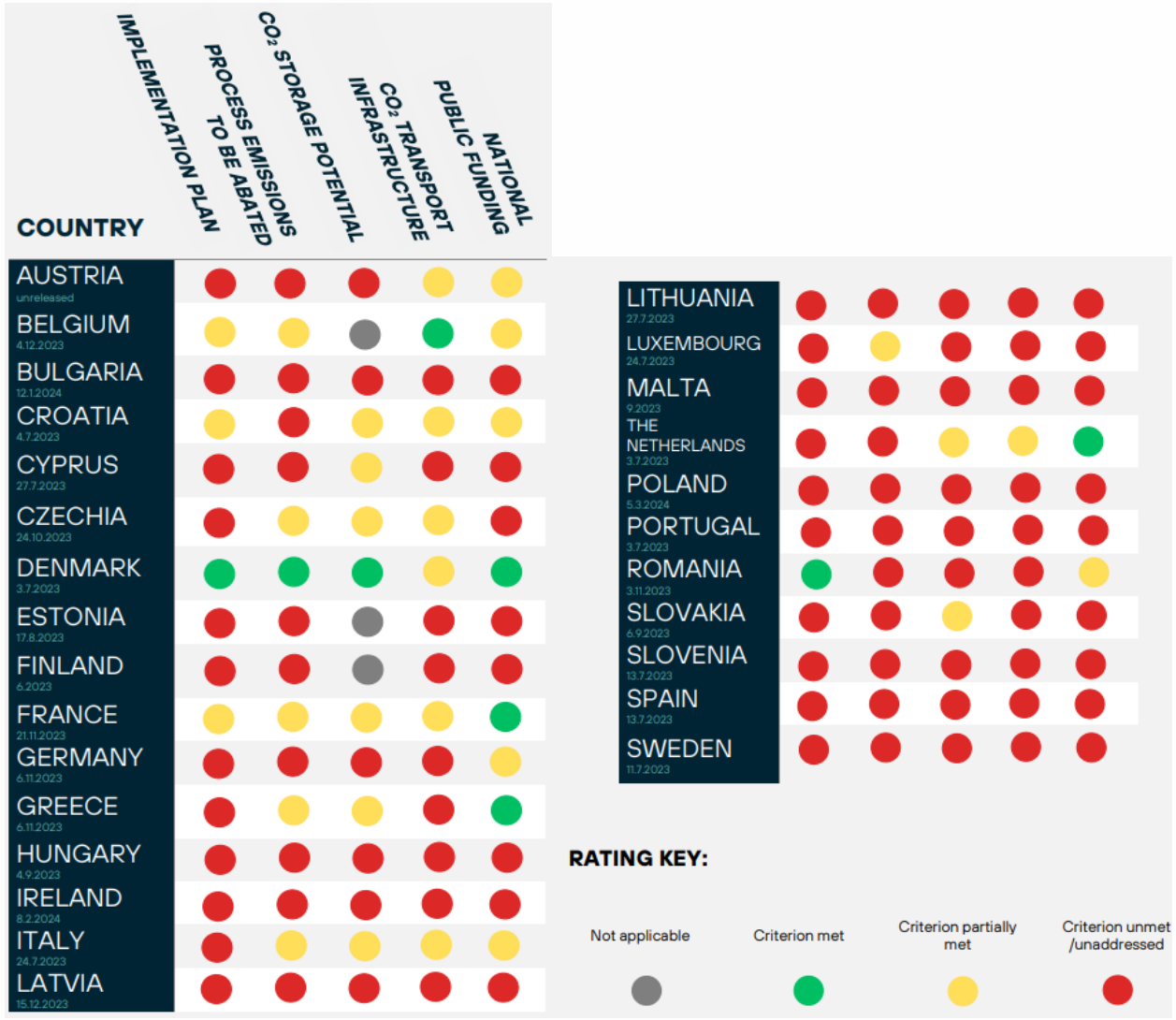
BELLONA EUROPA

We analysed whether and to what extent CCS was addressed in the NECPs based on:

1	IMPLEMENTATION PLAN	Concrete implementation ● plan or establishment of stand-alone projects or other measures to facilitate ● deployment for CCS in harder-to-abate industries such as cement, steel, chemicals and waste incineration.
2	PROCESS EMISSIONS TO BE ABATED	Reports on ● or plans to report ● on the annual aggregated projection of inherent process emissions that will have to be abated through CO_2 capture and storage.
3	CO_2 STORAGE POTENTIAL	Reports on ● or plans to report on ● the geological CO_2 storage capacity that can be made operationally available annually.
4	CO_2 TRANSPORT INFRASTRUCTURE	Reports on ● or plans to report on ● planned CO_2 transport infrastructure.
5	NATIONAL PUBLIC FUNDING	The availability of ● or plans to make available ● national public funding to support CO_2 capture, transport, and storage.
6	OTHER	Mention of any other measures to support the deployment of CCS.

21/27

NECPs Analysis



Main Takeaways:

- Overall low ambition for CCS deployment
- Acknowledgement doesn't necessarily translate into action/support

THE BIGGEST EMITTERS IN ESTONIA

EU ETS covered emissions of greenhouse gases in 2021

INSTALLATIONS WITH EMISSIONS (Mt CO_2eq)

- **above 250 000** tonnes of CO_2eq

  Sectors:
  - Heat and power
  - Oil refining

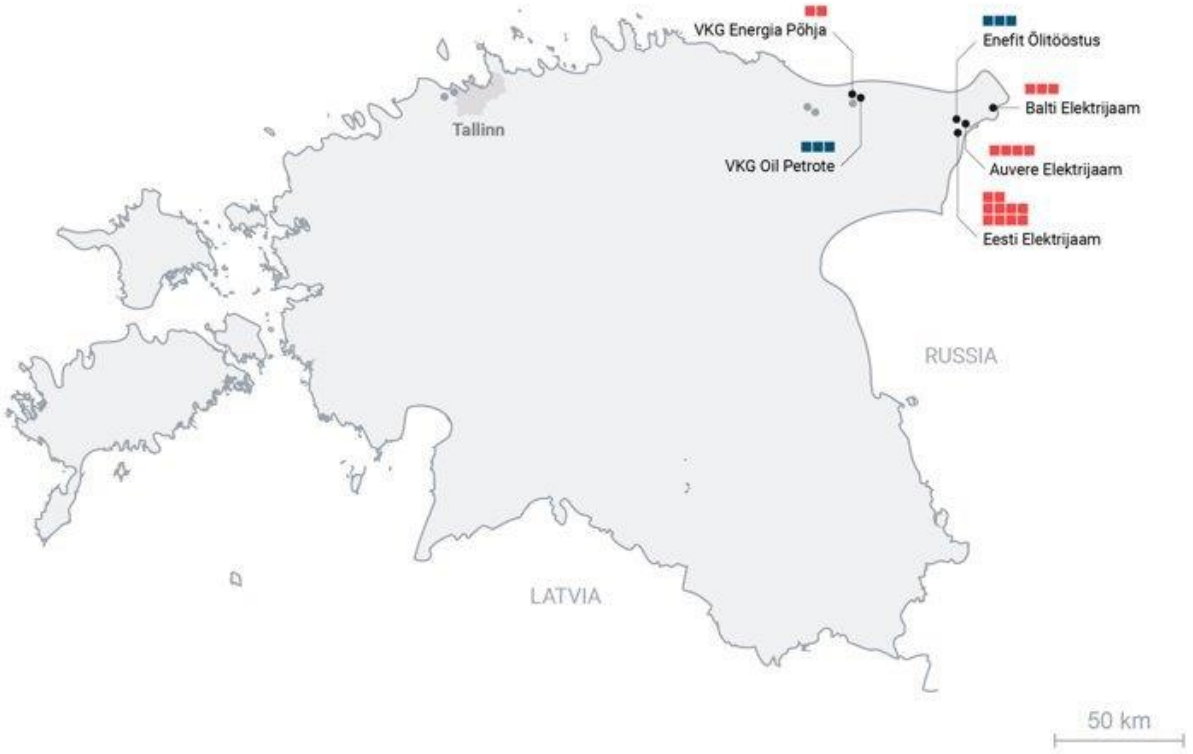
- 40 000–250 000 tonnes of CO_2eq

  Sectors:
  Heat and power, Oil refining

HOW TO READ MINI CHARTS

250 000 t CO_2eq = ■

1 000 000 t CO_2eq = ■■■■



6.9
Mt CO_2eq
of total emissions
covered by EU ETS

Data source: EU ETS (2021), infographics by Fakta o klimatu

THE BIGGEST EMITTERS IN LATVIA

EU ETS covered emissions of greenhouse gases in 2021

INSTALLATIONS WITH EMISSIONS (Mt CO_2eq)

- **above 250 000** tonnes of CO_2eq

  Sectors:
  - Heat and power
  - Cement and lime

- 40 000–250 000 tonnes of CO_2eq

  Sectors:
  Heat and power

HOW TO READ MINI CHARTS

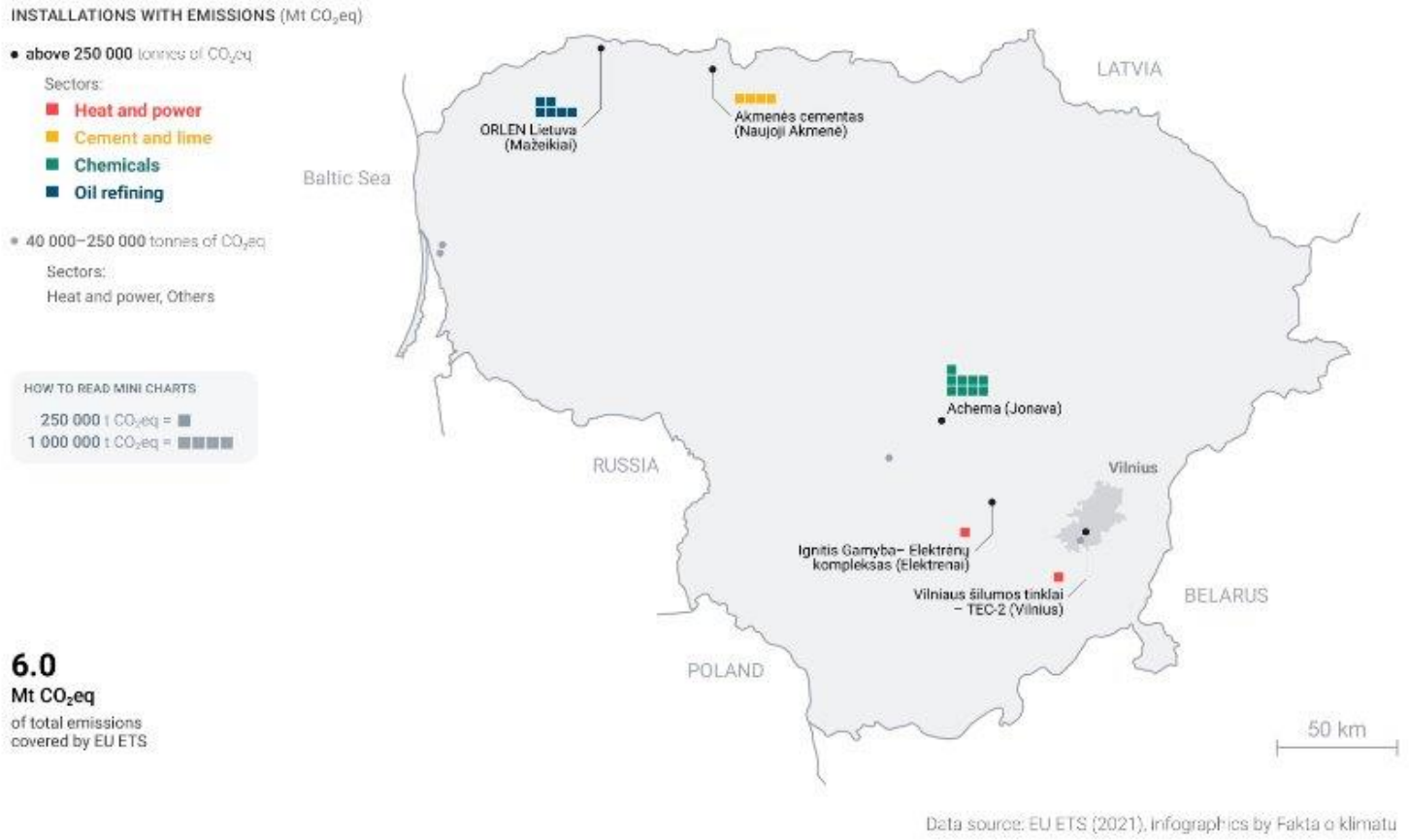
250 000 t CO_2eq =
1 000 000 t CO_2eq =

2.1
Mt CO_2eq
of total emissions
covered by EU ETS

Data source: EU ETS (2021), infographics by Fakta o klimatu

THE BIGGEST EMITTERS IN LITHUANIA

EU ETS covered emissions of greenhouse gases in 2021

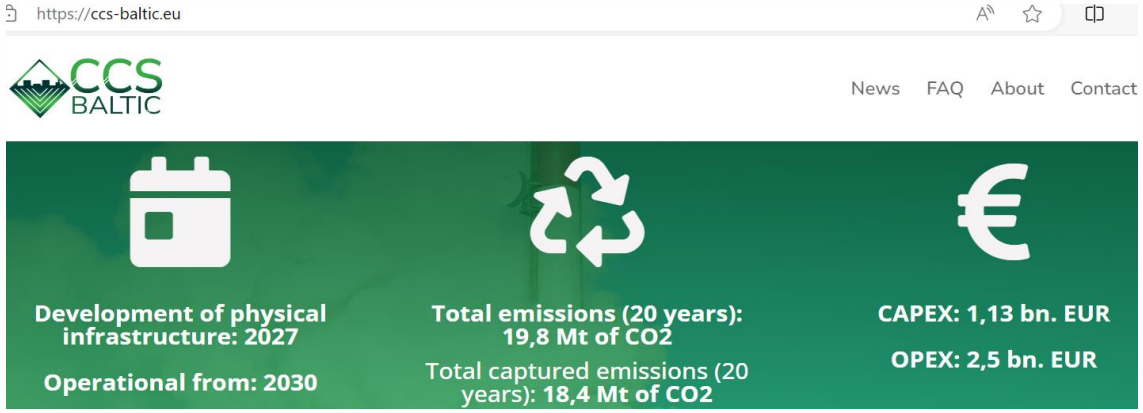


Data source: EU ETS (2021), infographics by Fakta o klimatu

Development in Industries

BALTIC CCS CONSORTIUM

- Officialy granted PCI (Projects of Common Interest) status by European Commission – December 2023
- At the moment CEF (Connecting Europe Facility) application is being prepared for pre-FEED and FEED studies funding



SCHWENK Latvija SIA

Akmenės cementas AB

KN Energies AB

Mitsui O.S.K. Lines, Ltd.
Larvik Shipping AS

Industries Developments

- Carbon capture feasibility study at Schwenk Latvia by Capsol Technologies https://newsweb.oslobors.no/message/608312

- Pilotprojects also in German Schwenk cement production facilities https://www.schwenk.de/forschungsprojekt-catch4climate-grosse-fortschritte-beim-bau-der-co2-abscheide-anlage-in-mergelstetten/

Non Governmental Activities

- Baltic Carbon Forum – 3rd – 4th October 2024

- BASRECSS Joint statement to Baltic States government:
  - to take urgent action to enable CCUS deployment to achieve emission reduction targets, while maintaining their industrial base
  - Call to provide support for CO2 underground storage appraisal and pilot projects in Latvia, Lithuania, South-West Estonia and the Baltic Sea, as geological conditions potentially allow the storage
  - Call to set up a national and regional CCS working group that would facilitate development of industrial transformation plans, aligning infrastructure development actions, processes and a funding strategy
  - Develop national plans with conditions under which responsible ministries would propose amendments to current regulations, lifting bans for industrial geological CO2 storage in respective territories + develop international legal framework

- HELCOM and Helsinki Convention on permission to store CO2 under the Baltic Sea bed - legal interpretations differ

- Ports2Decarb project running successfully

CCUS ZEN

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full CCUS chain demonstration

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THANKS FOR YOUR ATTENTION