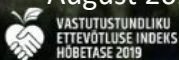


Choices for Estonian Manufacturing Industry in Green Transition

Ahti Asmann
Viru Keemia Grupp

August 2023



VKG at a glance

What is VKG?

- Unconventional oil & gas producer
- Core product is heavy fuel oil used in marine transportation (sulphur content 0.65%)
- Largest privately owned industrial producer in Estonia
- Responsible Business Index: Bronze level 2022

VKG in numbers (2022)

- Oil products 583kt
- Power, heat, steam 854 GWh
- Assets 985m €
- Turnover 390m €
- Taxes 62m €
- FTE 1 620
- Debt-free

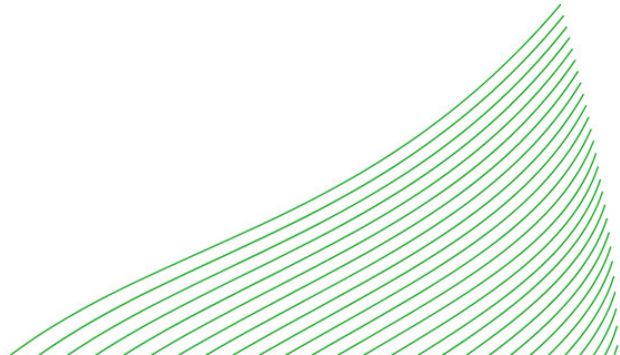




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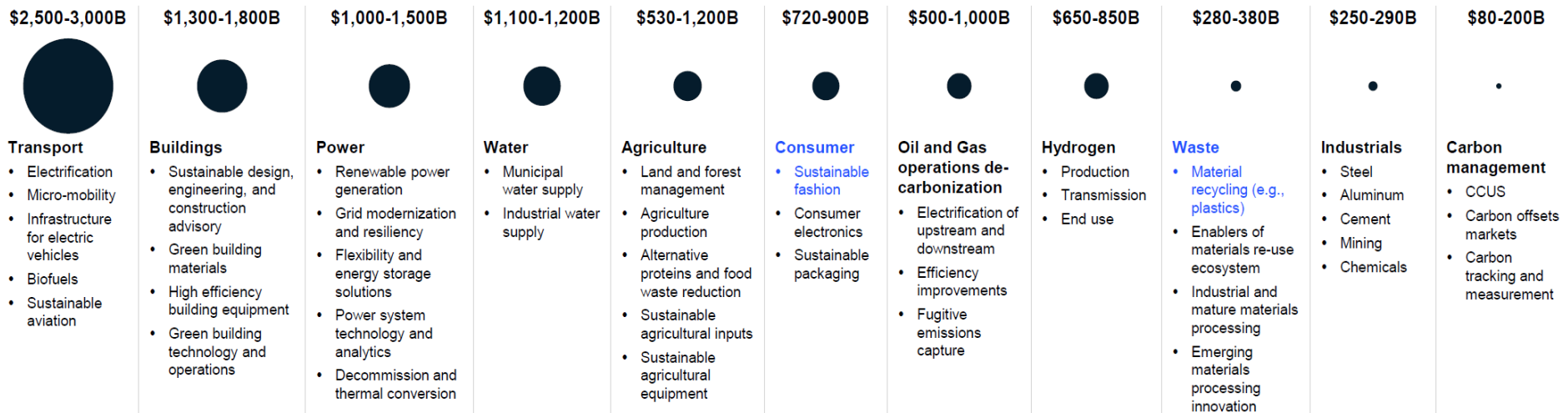


Where is the World investing?

Investable themes – addressable market size in 2030, including venture, PE, and infra capital (\$B)¹

Preliminary, Not Exhaustive

Deep dives next



Allikas: Sustainability Investing analysis, 2022

- What is actually sustainable?
- When is the right time?
- What are (if any) Estonias competitive advantages?
- What definitely does not make sense? Not to do list.



The Transition is not the same as the destination

Legacy



Transition



Destination



ENERGY SCARCITY
AND PRICES

LOW

VERY HIGH

LOW

INVESTMENT

MODERATE

VERY HIGH

LOW

VOLATILITY

LOW

VERY HIGH

HIGH

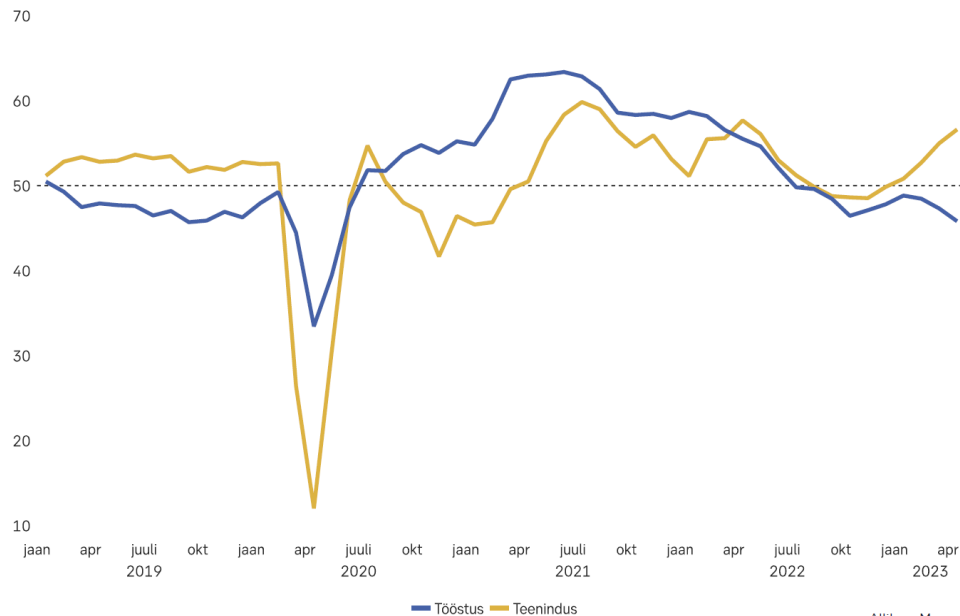
We are here

Europe

Strong service, recession in industry

Tugev teenindus, tagasi tõmbuv tööstus

Euroala ostujuhtide kindlustunde indeks



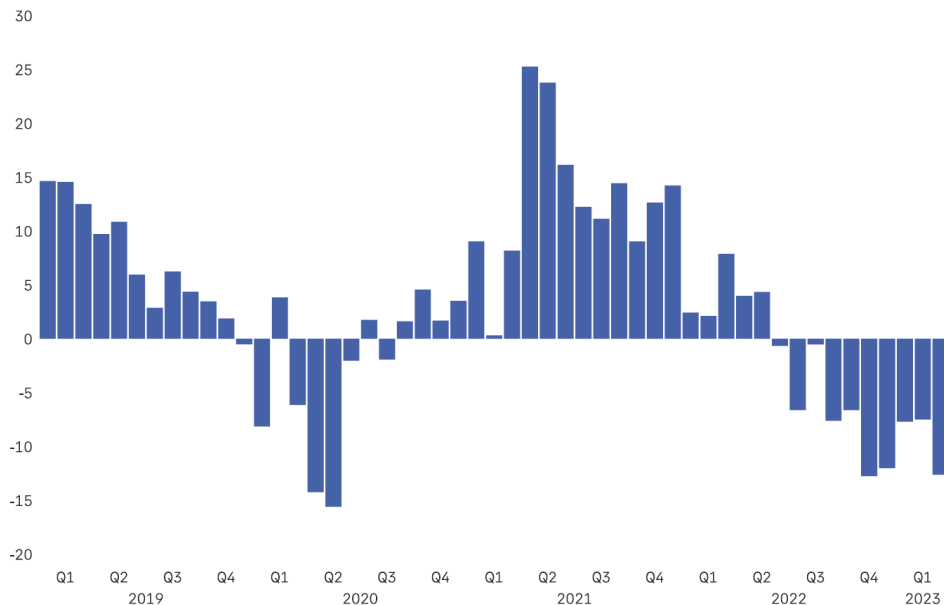
Allikas: Macrobond

Estonia

Economys engine not working properly

Majanduse mootor puterdab

Tööstustoodangu mahuindeksi muutus eelmise aasta sama ajaga võrreldes, %



Allikas: Statistikaamet

Manufacturing Industry

- Production of goods continues. We need goods.
- Production of goods requires raw material. We can obtain it from nature and/or circular economy.
- Raw material gives half of the gain, manufacturing industry another half.

VKG DNA

- We value natural demand, supply and free competition.
- Responsibility, openness, commitment, constant development.
- Right choices from the very beginning



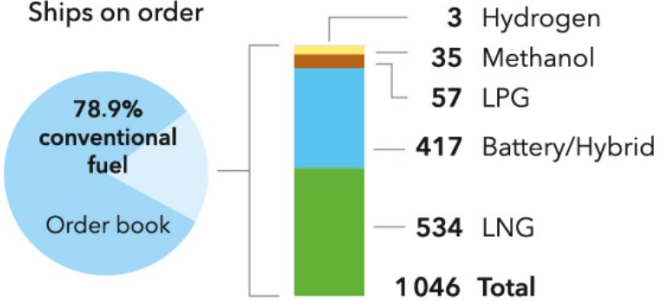
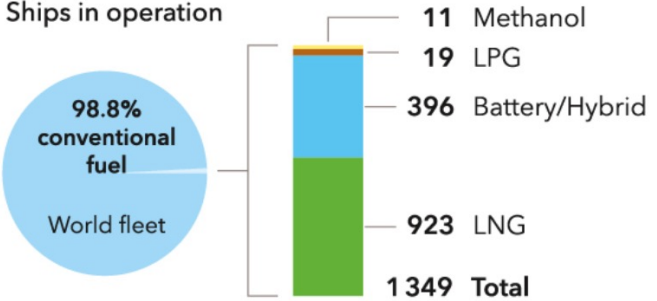
What determines the change?

Energy source		Fossil (without CCS)					Bio	Renewable ⁽³⁾		
		Fuel	HFO + scrubber	Low sulphur fuels	LNG	Methanol	LPG	HVO (Advanced biodiesel)	Ammonia	Hydrogen
High priority parameters										
•	Energy density	●	●	●	●	●	●	●	●	●
•	Technological maturity	●	●	●	●	●	●	●	●	●
•	Local emissions	●	●	●	●	●	●	●	●	●
•	GHG emissions	●	●	● ⁽²⁾	●	●	●	●	●	●
•	Energy cost	●	●	●	●	●	●	●	●	● ⁽⁴⁾
•	Capital cost	Converter	●	●	●	●	●	●	●	●
		Storage	●	●	●	●	●	●	●	●
•	Bunkering availability	●	●	●	●	●	●	●	●	●
<i>Commercial readiness⁽¹⁾</i>		●	●	●	●	●	●	●	●	● ⁽⁵⁾
Other key parameters										
•	Flammability	●	●	●	●	●	●	●	●	●
•	Toxicity	●	●	●	●	●	●	●	●	●
•	Regulations and guidelines	●	●	●	●	●	●	●	●	●
•	Global production capacity and locations	●	●	●	●	●	●	●	●	●

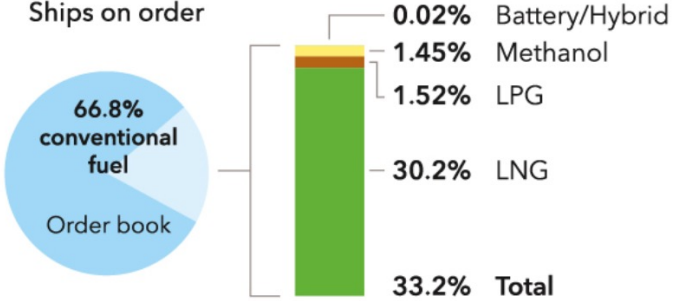
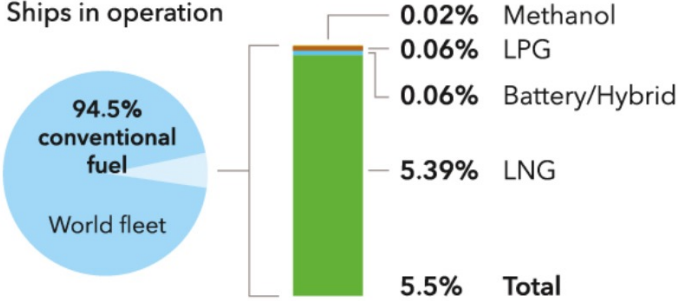
Megatrends in marine bunkering fuel market

Alternative fuel uptake in the world fleet by number of ships and gross tonnage

NUMBER OF SHIPS

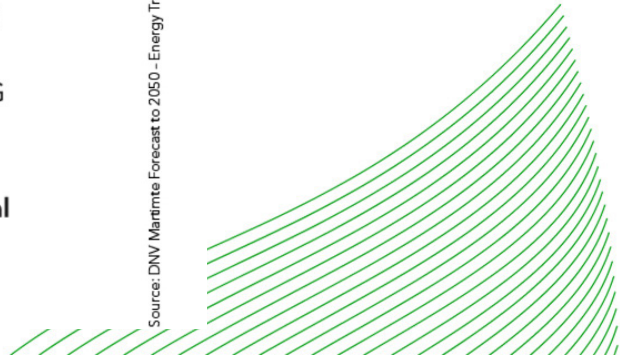


IN % OF GROSS TONNAGE




Key: Liquefied natural gas (LNG); liquefied petroleum gas (LPG)
 Sources: IHSMarkit (ihsmarkit.com) and DNV's Alternative Fuels Insights for the shipping industry - AFI platform (afi.dnv.com)

Source: DNV Maritime Forecast to 2050 - Energy Transition Outlook 2022

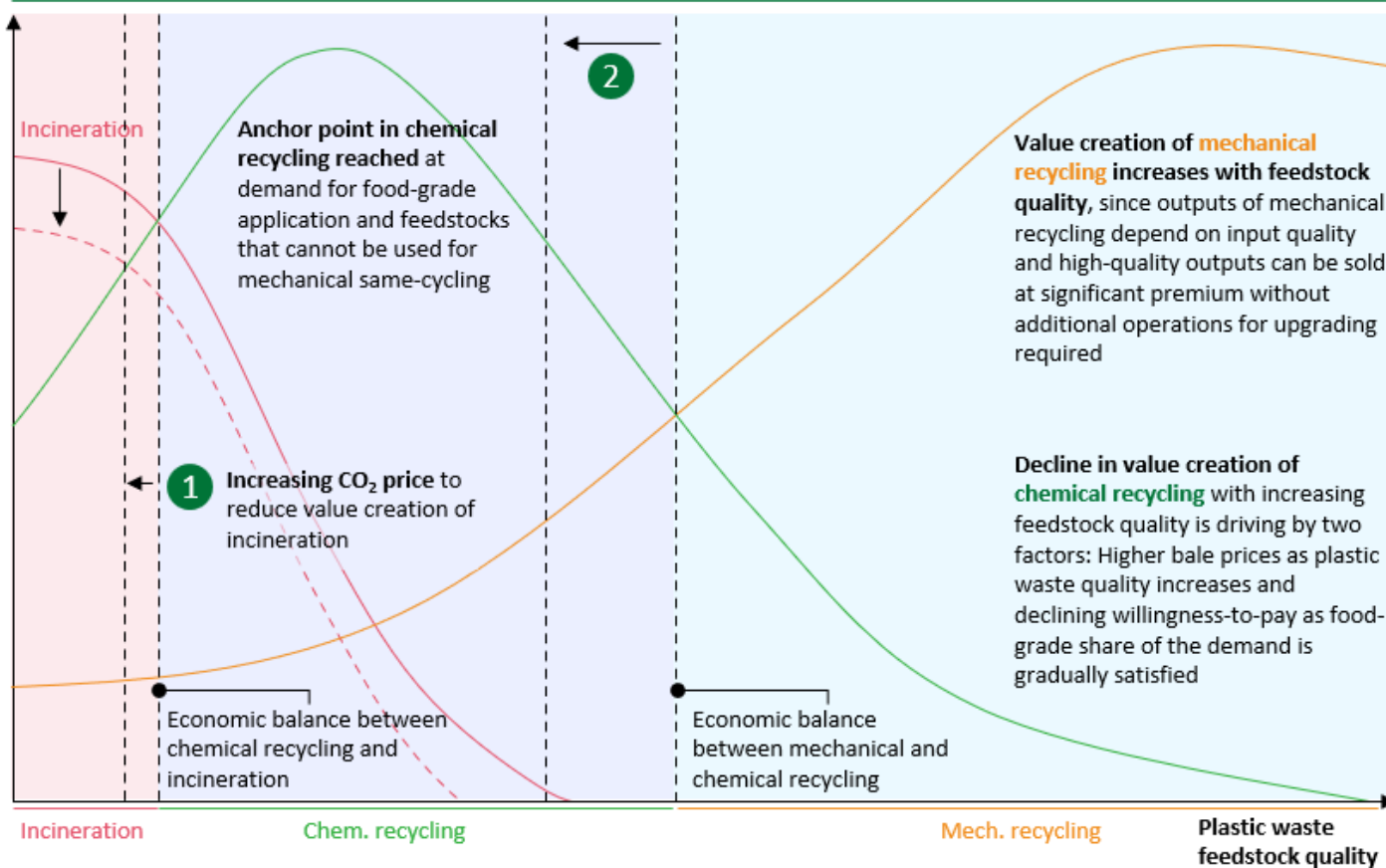


VKG new choices – criterias

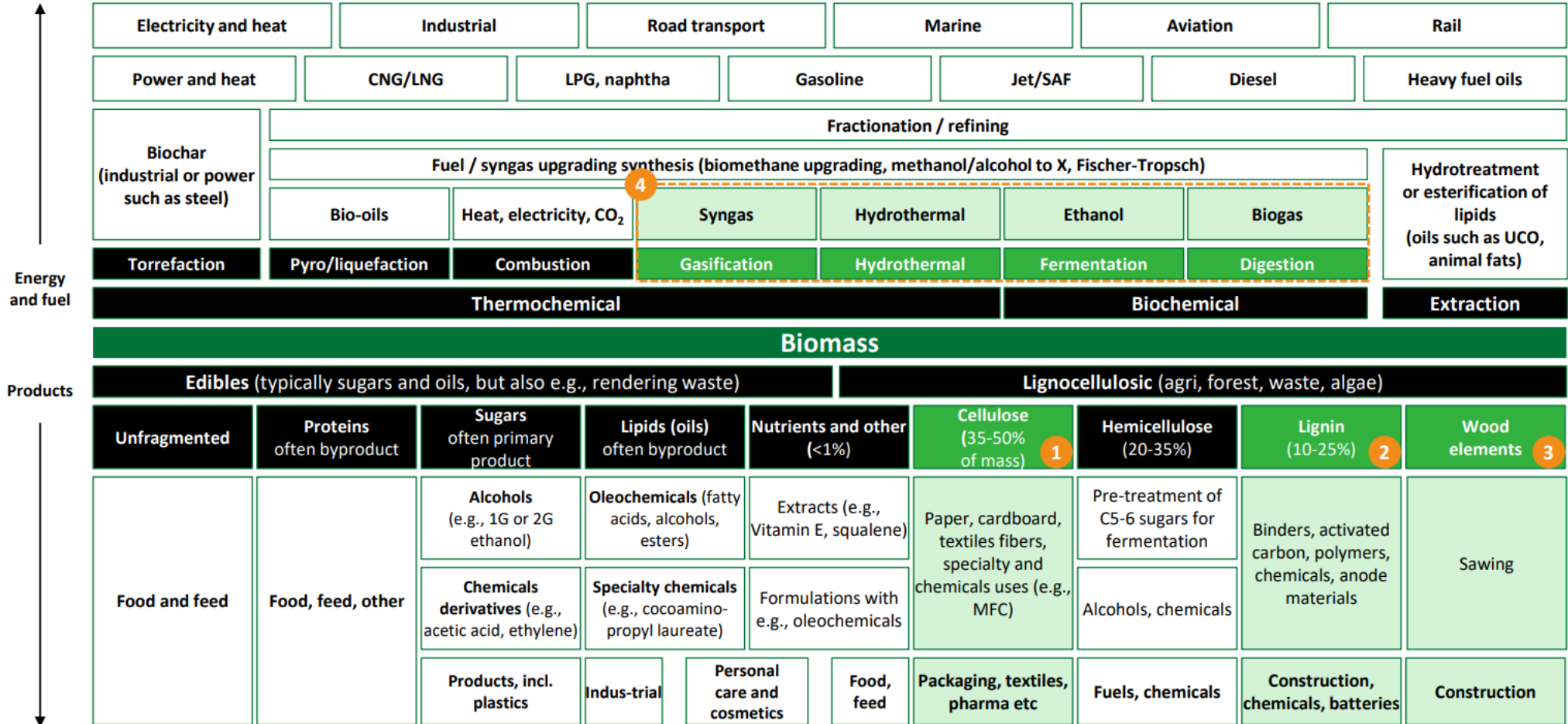
- **Constant and/or growing (real)demand**
 - Is the product needed?
 - Mission? To fulfill political target? Make life better? Make environment cleaner?
 - Is the solution reasonable (compared to alternatives)?
 - **Right value**
 - Is price-premium for „sustainable“ product justified?
 - What is the real value/price for new product? Will CO₂ market remain in EU only? Will others follow or will EU weaken to the point it has to take step back (consumer is unable to carry the cost or industry is relocating itself outside EU)?
- 

Chemical recycling of waste plastics

Value creation per output ton (Price – opex)



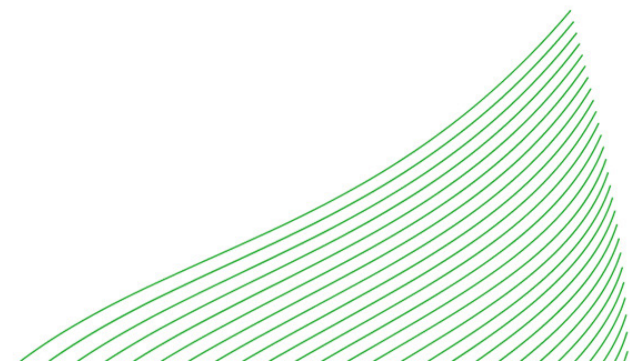
Is cellulose the best choice?



62. Lähiaastatel tuleb leppida kokku ELi **2040. aasta kasvuhoonegaaside vähendamise eesmärkides** ja lubatud kasvuhoonegaaside heite kogumahu aastatel 2030–2050. Teeme põhjaliku mõjuanalüüsi, mille alusel saame hinnata Eesti võimalusi uute sihtmärkideni jõudmiseks. **Eestis on maapiirkondi, mis sõltuvad majanduslikult põllumajandusest, turba-, metsa- ja puidutööstusest. Need piirkonnad vajavad kliimaneutraalsuse saavutamiseks ja elurikkust toetavamate meetodite poole liikumiseks õiglast üleminekut,** et vajaduse korral tagada majandustegevuse ümberstruktureerimine maapiirkondades ning töökohtade säilimine.

<https://riigikantselei.ee/el-poliitika-julgeolek-ja-riigikaitse/eesti-euroopa-liidu-poliitika/el-poliitika>

Seisukohad perioodiks 2023-2025 lk 20



Thank you!

