”Current in the peat industry in Finland”

Baltic Peat Producers’ Forum

Bellevue Park Hotel

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Bioenergy Association of Finland /
Growing Media Finland

The Bioenergy Association of Finland (BAF) & Growing Media Finland (GMF)

Services for our 250 member companies and organizations on

Advocacy

- Wood fuels
- Biofuels and biogas
- Carbon dioxide removal (CCU&CCUS)
- Peat and growing media (→ GMF)

Events & seminars

Internal & external communications

Vision of the Association:

- Excellent conditions for development of sustainable and even carbon-negative biomass-based products.
- High added value from biomass and exports
- Support to energy self-sufficiency, security and employment
- Integral part of a circular bioeconomy; products are mainly derived from sidestreams of industry and forest management, while attention is paid for biodiversity in forests and fields

Growing Media Finland (GMF) –
under the umbrella of the Bioenergy Association

Established in 2018 with the members

- Neova Group (Kekkilä – BVB etc.)
- Biolan Group
- The Central Union of Agricultural Producers and Forest Owners (MTK)
- 5 other organizations

In close cooperation with
Finnish Glasshouse Growers' Association

Peat products and markets – lively ”development” in Finland

- The trend from ”burning to growing” in peat use is irreversible despite of slight slowing down or even growing temporarily (?) due to shortage of fuel supplies caused by the war in Ukraine since late February 2022
- Energy peat dominated by 90% of all the volume since the energy crises of 1970’s
- Peat for other puposes like bedding and growing media benefitted a lot from energy peat production especially in northern and eastern parts of the country
- The consumption of energy peat has collapsed fast, although dark peat will still be needed for security of supply in many district heating and CHP-plants till 2030’s
- There should be ”a fair transition” from energy peat to other products on the existing peat extraction sites
- Just abandoning the sites and loosing the labor force and machinery in too short time span would be a great loss both environmentally and economically
- Steep decline would also hamper the wise use principles of Finnish National Strategy for Peatlands

Emission Trading Scheme is a major driver in Europe

- The increase of CO2-price by 500% in ETS in just one year made energy peat use uneconomical for most of the heat and power plants
- However, skyrocketing electricity prices caused demand for energy peat already during summer
- Towards winter increasing need for heating & CHP fuels will induce more and more pressure on energy peat availability
- Also peat for bedding and growing media is in high demand

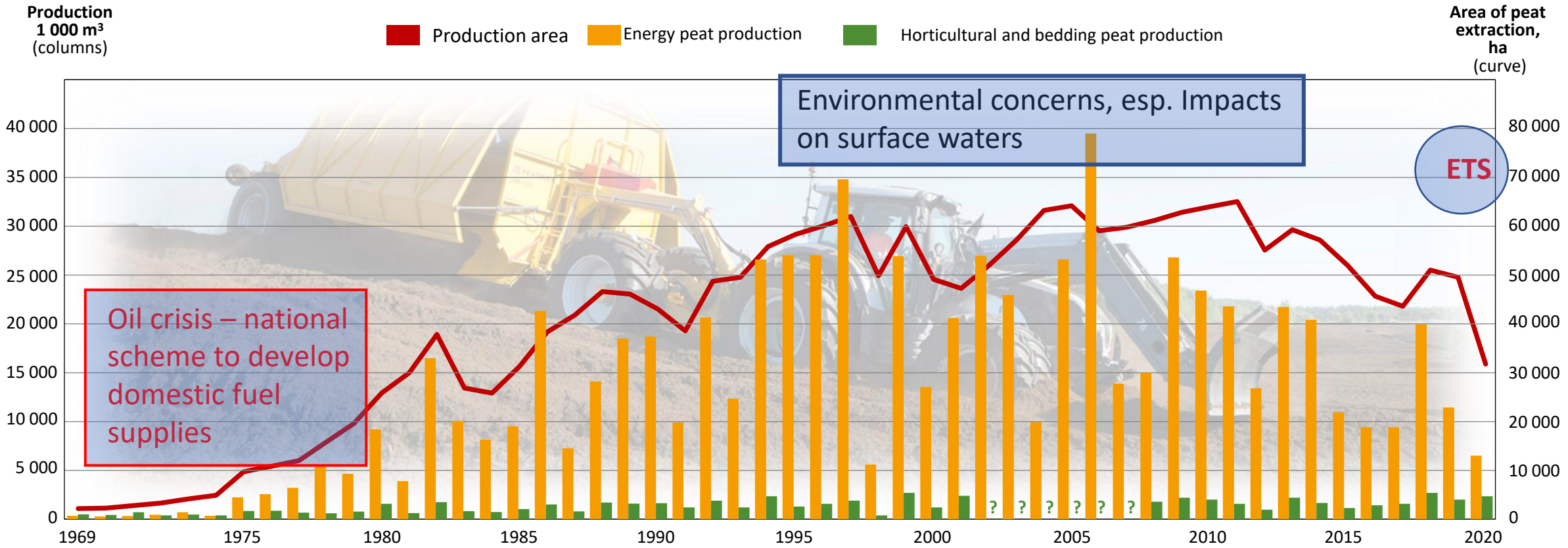
ETS price development during the past 12 years (€/tnCO_2)

Lähde: Ember, grafiikka: Petteri Juuti / Yle

A combined heat and power plant (CHP) needs high quality fuel to produce both electricity and heat with high efficiency up to 85%. Peat is needed in most cases due to many technical and commercial reasons.

A biofuel CHP plant of Vuosaari, Helsinki in construction phase last spring. Coal may still be used in an older plant (at the background) until 1 May 2029, when it is forbidden.

Peat Production Area and Harvested Volumes in Finland 1969 - 2020



Sources: Annual reports and magazines of a former Federation of Finnish Peat Industries (TTL) and The Bioenergy Association of Finland

Peat Statistics of Finland in 2021 *(this year rough figures are estimates in brackets, current trends indicated with arrows)*

Environmental permits for peat harvesting (rounded in thousands of hectares) 53 000 ha (43000 ha) ↓
(0,5% of all peatlands)

- of which in active production 17 000 ha (24000 ha) ↑
- of which temporarily out of production 20 000 ha (8000 ha) ↓
- of which in aftercare & waiting for after-use 16 000 ha (10000 ha) ↓

Number of peat producers (selling to the market) ~70 enterprises ↓

Small peat extraction areas (<10 ha) mainly for own & local consumption (energy, bedding, soil improving) ~120 areas →

Production of energy peat (milled & sod peat) 2,6 Mm^3 ↑

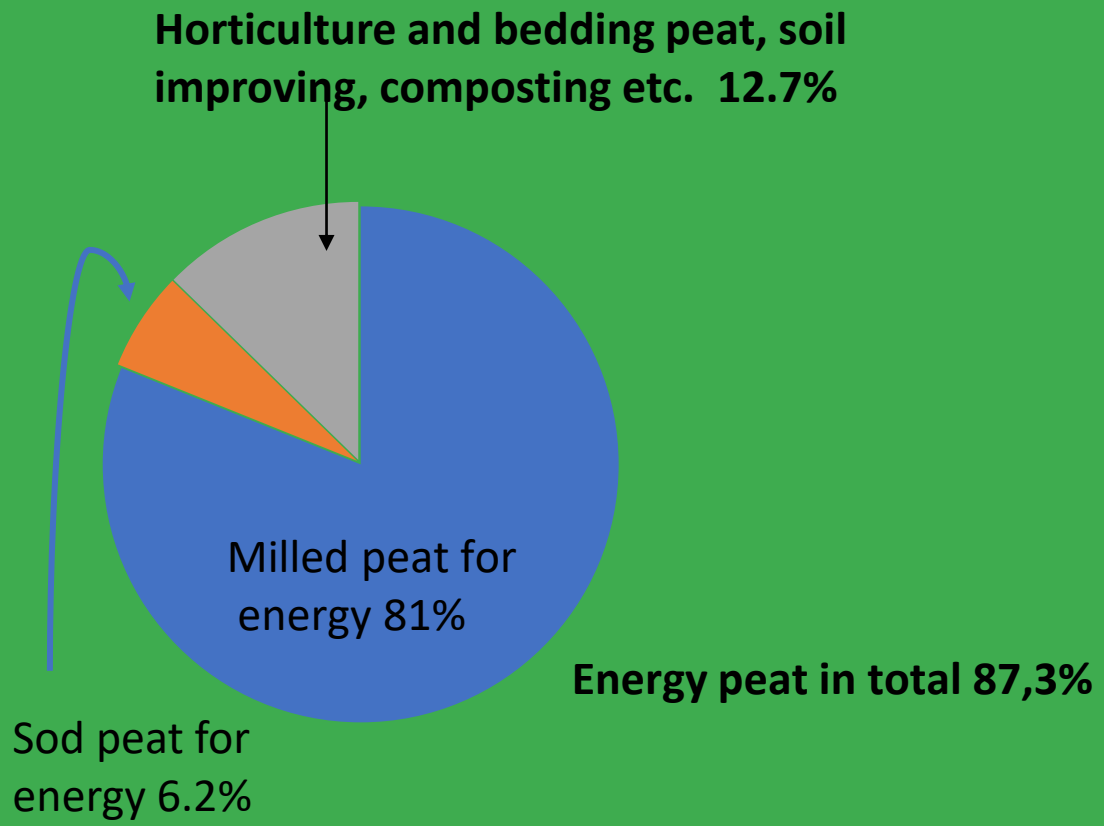
Production of horticultural, bedding and absorption peat 3,5 Mm^3 →

Peat harvesting in Finland 2008 – 2021 (Source: Statistics Finland)

Vuosi År Year	Energiaturpeen tuotanto – Energy Peat Production				Ympäristöturvetuotanto Miljö torv produktion Environmental peat production
	Jyrsinturve Frästorv Milled peat	Palaturve Stycketorv Sod peat	Yhteensä Totalt Total	Yhteensä Totalt Total	
	1 000 m^3	1 000 m^3	1 000 m^3	GWh	1 000 m^3
2008	13 950	1 050	15 000	12 066	1 800
2009	25 000	1 800	26 800	25 300	2 190
2010	21 650	1 750	23 400	20 900	2 000
2011	20 130	1 670	21 800	19 400	1 580
2012	12 544	880	13424	11 400	970
2013	20 567	1160	21727	19687	2190
2014	18 855	1560	20415	18600	1653
2015	10 125	820	10945	9740	1153
2016	8 831	580	9 411	8378	1425
2017	8 900	600	9 500	8500	1600
2018	18 313	1340	19653	21 600	2580
2019	10 427	1015	11443	12 200	2002
2020	5 718	795	6 513	6724	2352
2021	2 137	522	2659	2846	3501

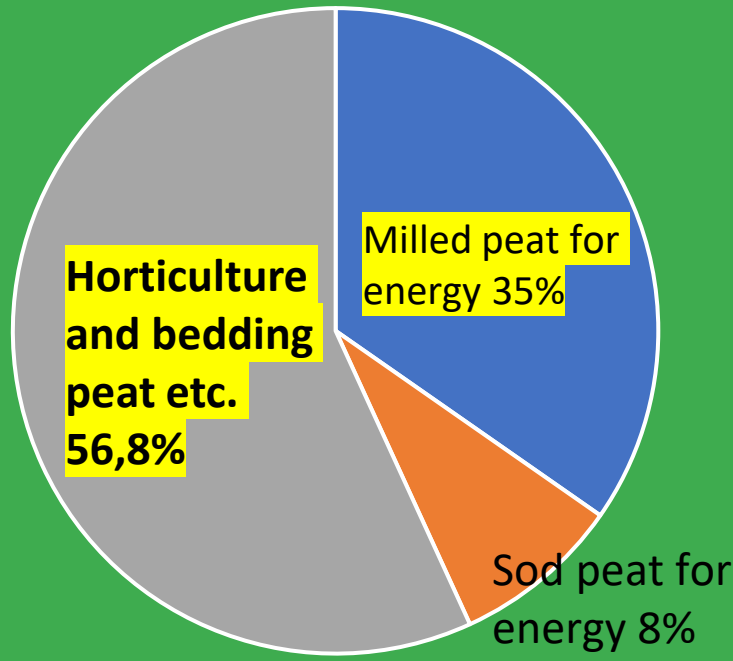
Peat products and markets – a rapid change

Distribution of peat production (13,9 Mm3) 2015 – 2019



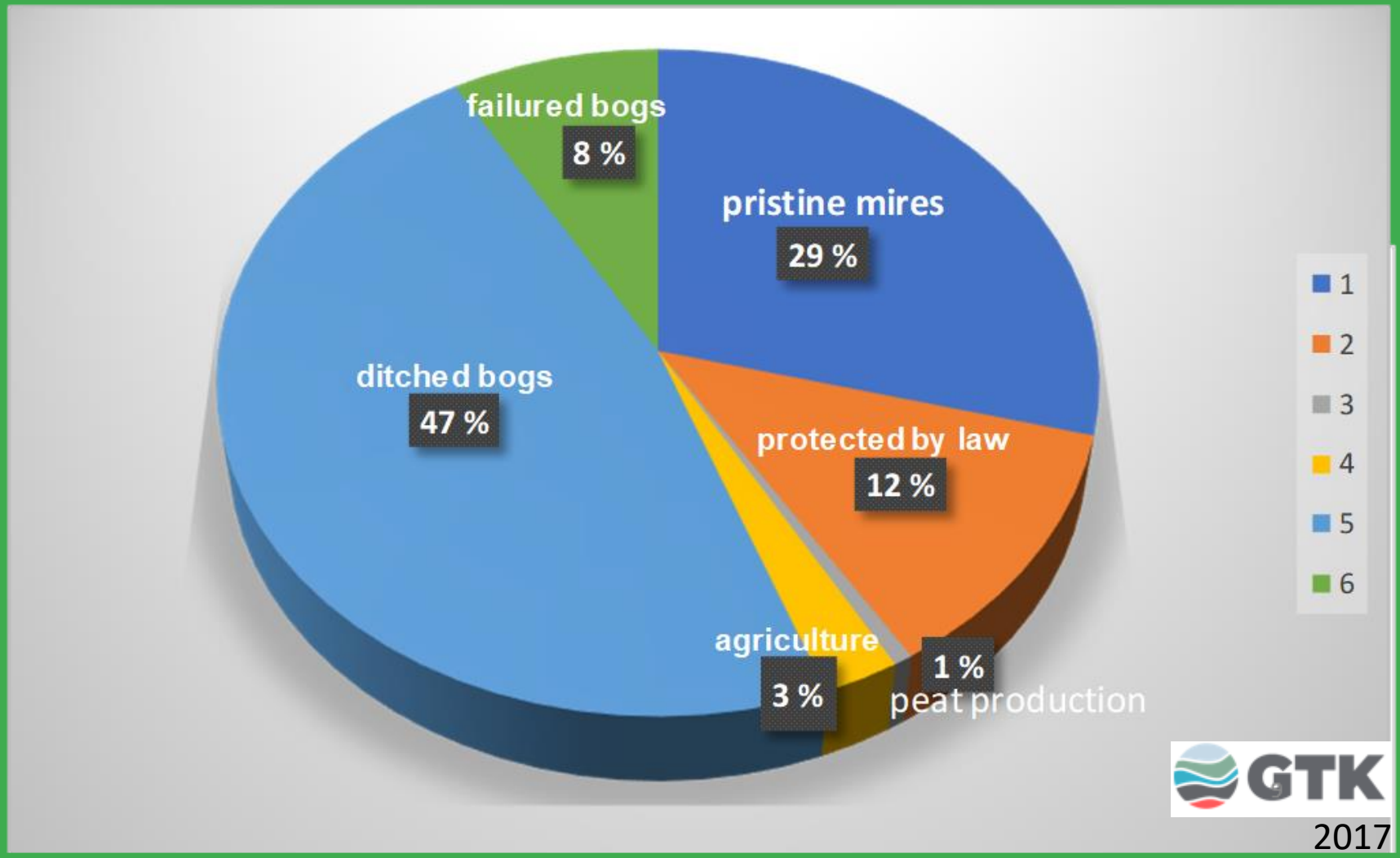
Energy peat in total 87,3%

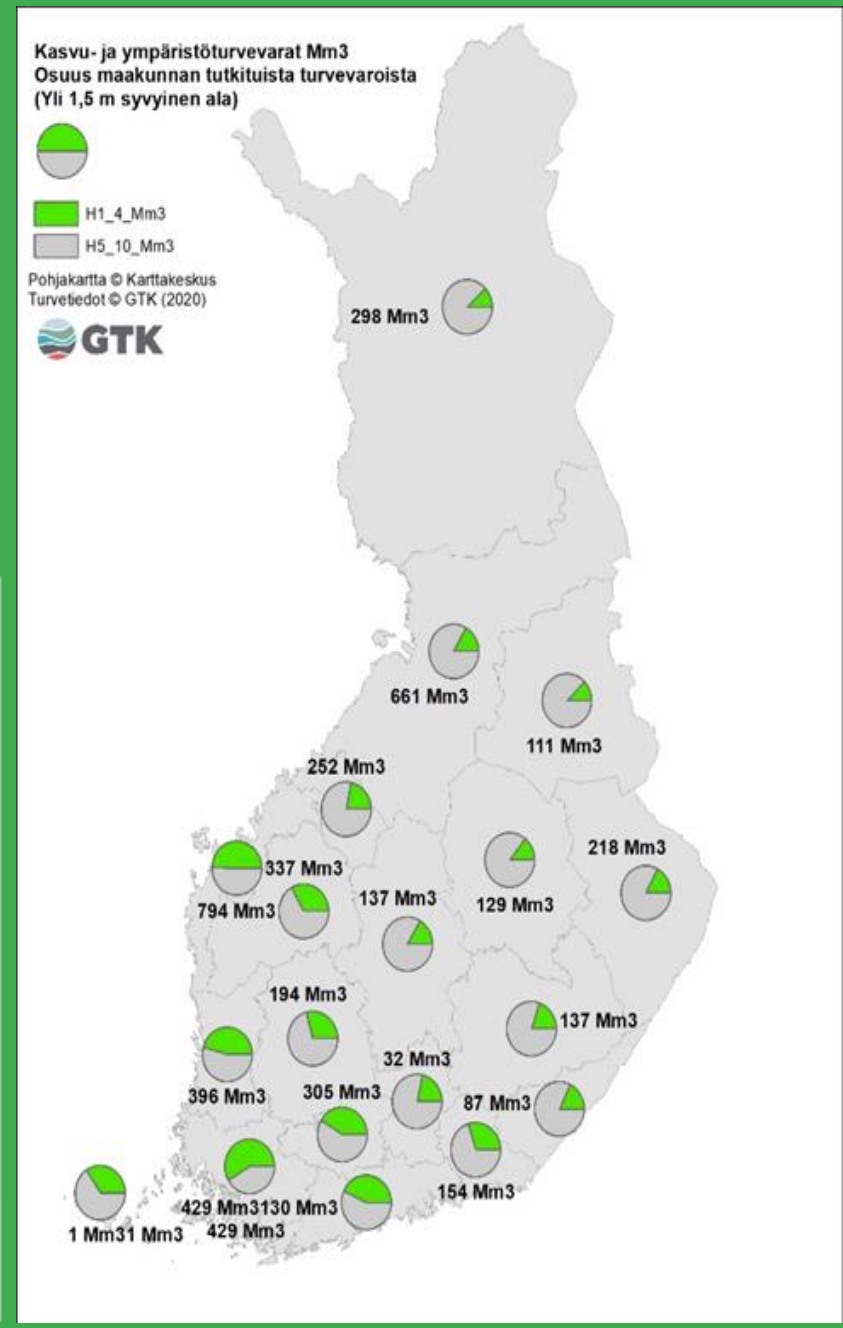
Distribution of peat production (6,1 Mm3) in 2021



Energy peat in total 43%

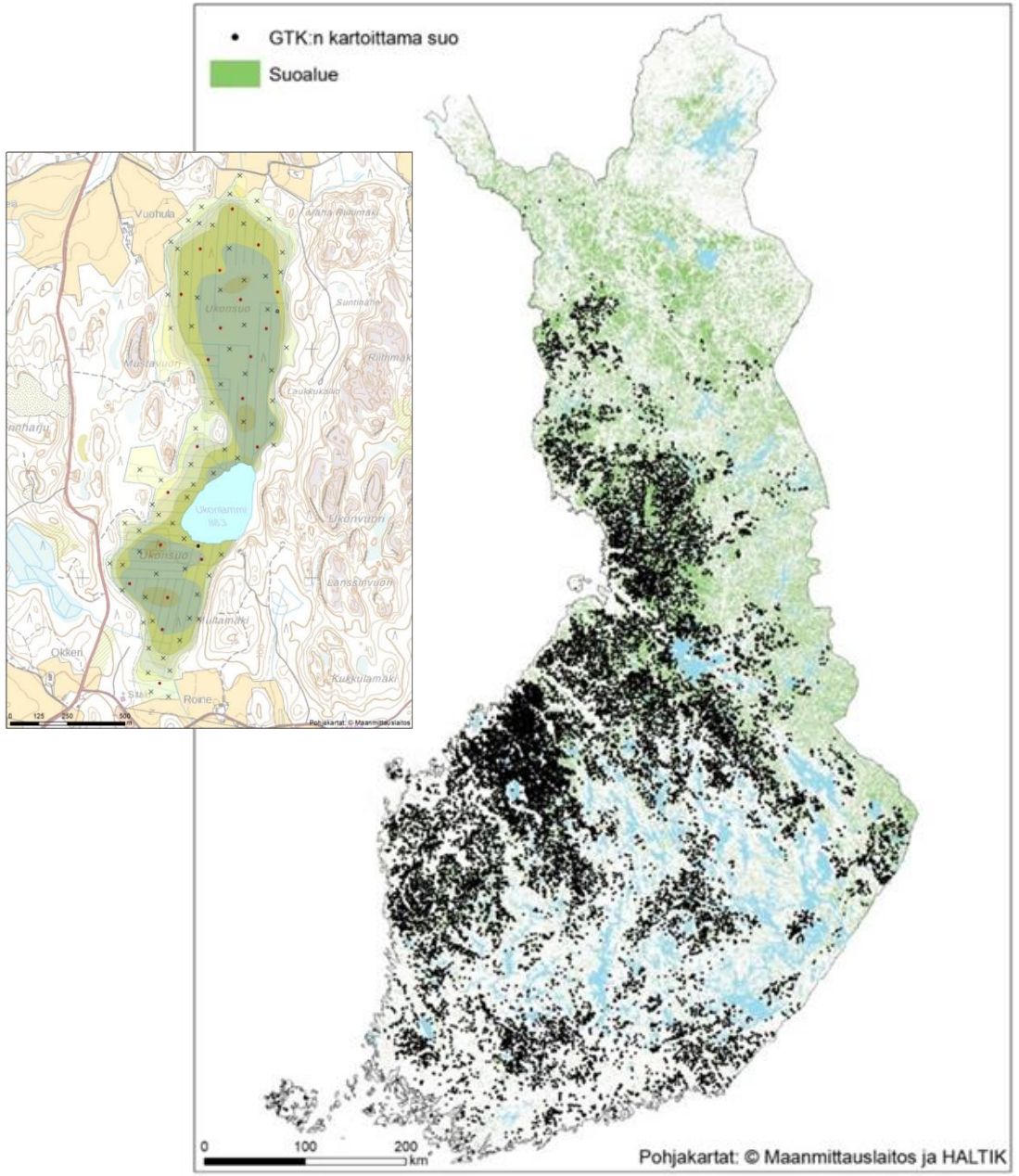
In Finland peatlands cover roughly 1/3 of the land area 9,06 Mha





GTK peat database

- Over 18 100 unique mires; ca. 1,8 million coring points
- Over 9,7 million unique data rows
- Over 236 million unique data entries
- 2,3 million hectares of investigated peatlands (during 1975-2021)
- Over 19 000 sample points with laboratory analyses
- Public access, some detailed & tailored information payable
- Peat resource accounting: **www.gtk.fi/turvevarat**
- Publications, reports: GTK Hakku Service, hakku.gtk.fi



Land ownership reflects to post-peat harvesting land use

Almost two thirds of the land area is privately owned

→ active trading of forest & peatland properties

About half of the peat production sites are owned by the producers and the other half leased from private landowners, communities and state; also peat companies are active traders after production

Leasing contracts usually include tentative after-use assessment agreed with the landowner i.e. a forecast for one generation ahead but that is subject to change during the peat production life cycle in an area

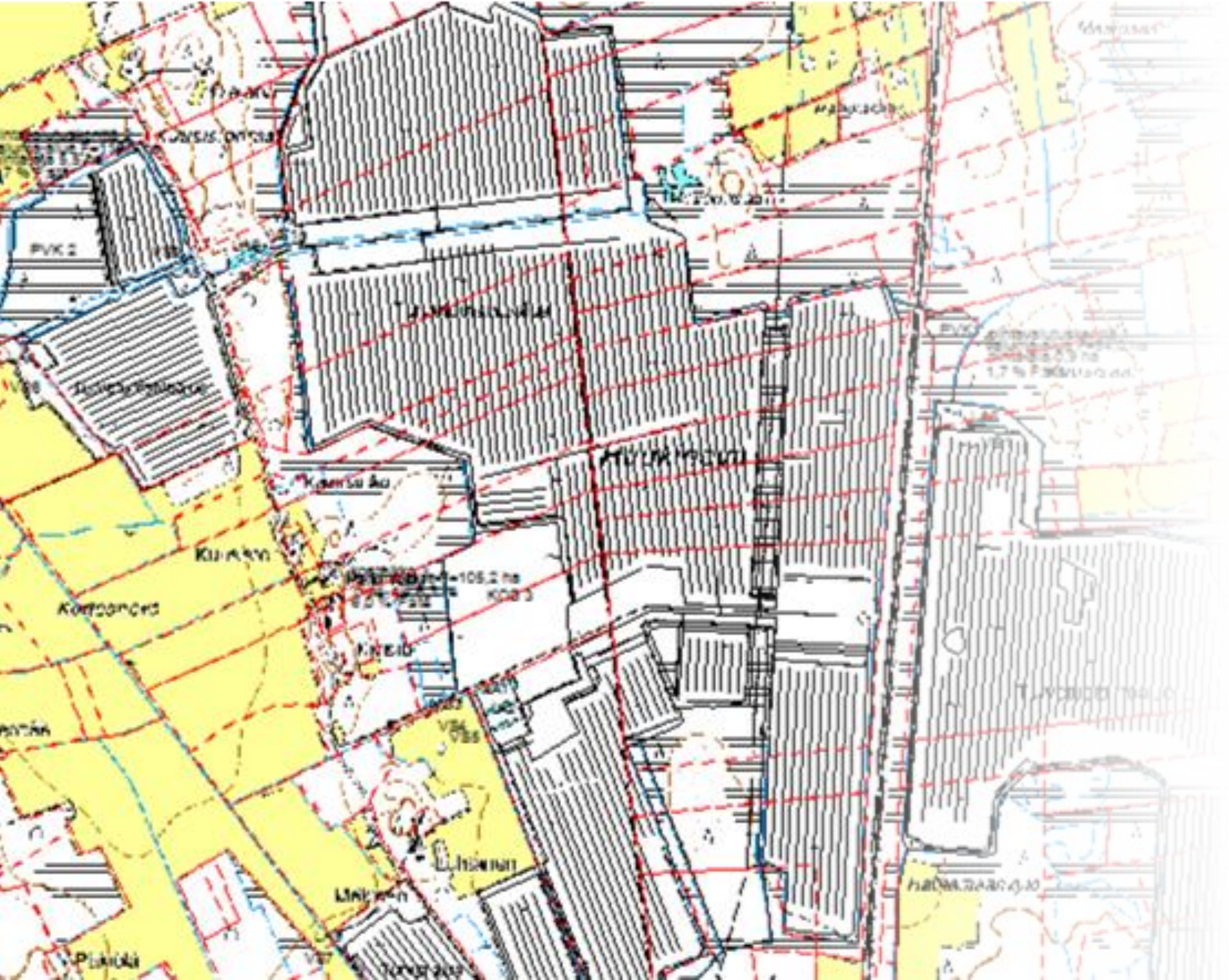
Final decisions on after-use will be agreed towards the end of production life cycle. All the operations are carried out accordingly during so called after-care period following an updated environmental permit

Forestry is still the most desirable form of after-use → measures taken during the last years of peat production are aimed to secure good start for tree seedlings

Or a landowner would rather prefer a wetland perhaps for hunting or recreational needs → different measures to ensure the desired development towards wetland ecosystem

Or another landowner would go for agriculture, cultivation of crops or fodder or grazing land …

In most cases post-harvesting land-use is a combination of different uses, a hybrid



Land use is determined by solely by landowners' current and near future priorities

Peat producers are in charge of submitting an **after-care plan** towards the desired **after-use** dictated by the landowners (who leased out their lands for peat harvesting)

There are challenges between different landowners of the same area to agree with the after-use sometimes, e.g. in a case shown left with tens of different owners in one area

(dotted red lines = borders of separate real estates)

PEAT PRODUCTION IS A TEMPORARY LAND USE CHANGE LASTING ABOUT 20-30 YEARS

- The peat bogs in peat production in Finland are low in nutrients and thus have lower soil emissions than more nutrient-rich bogs. In a larger scale, afforestation is the fastest way to create a new carbon sink for the peat bogs released from peat production.
- **Now, in the future, when peat areas are being released from production prematurely, any thicker layer of peat left to them will no longer favor afforestation, but in these cases re-wetting of the areas may become more and more possible.**
- When the thickness of the residual peat is < 50 cm, afforestation is still successful, but areas with residual peat > 50 cm start to be challenging for wood production. Mineral soil contact is too deep for tree roots, and at least without tillage (shaping the land), germination is often not successful in such areas.
- In total, there have been about 100,000 hectares under peat production in Finland. About half of this areas has been moved to next land uses.

Estonia: The most common forms of next land-use are wetland creation or restoration (~70%) and afforestation (~30%).

Sweden: The most common forms of next land-use are afforestation (~75%) and wetland creation or restoration (~25%).

The next land-use selected for the closed Neova Group peat production areas in Finland:
- Forests
- Cultivation fields
- Wetlands

~ 45%

~ 35%

~ 20%

Main take-ways

- Rapid change of peat industry from one major ”bulk” product (milled energy peat) to other products
- One bigger player (Neova Group) and a lot of smaller ones
- Aspirations to produce higher value from peat
- Land use & constitutional rights to protect private ownership of properties
- Peat and peatlands still considered as a valuable national natural resource
- The demand for peat and living biomass from wetlands are steadily growing
- The war in Ukraine has shown the importance of security of supply in many aspects, and again the important role of peat

An example: a production area of 50 ha can produce growing media for up to 150 million forest tree seedlings
OR bedding material for 25 average organic dairy farms to catch valuable nutrients for recirculation and to improve animal health in a natural way (without using antibiotics)

Thank you for your attention!

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