TRANSFORMERS MAGAZINE'S
INDUSTRY NAVIGATOR

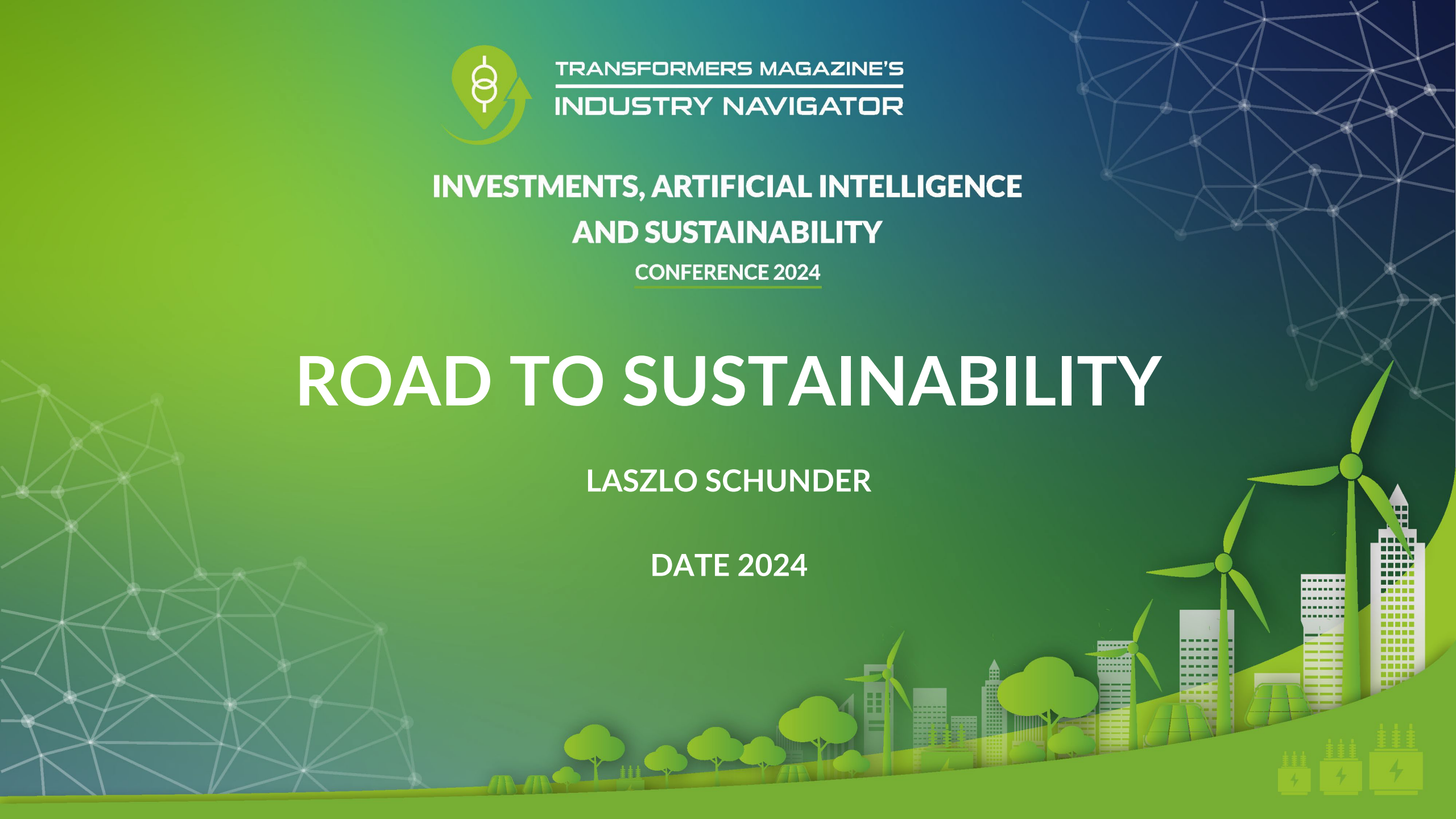
INVESTMENTS, ARTIFICIAL INTELLIGENCE AND SUSTAINABILITY

CONFERENCE 2024

ROAD TO SUSTAINABILITY

LASZLO SCHUNDER

DATE 2024



Commitment to sustainability

JAN PRINS

Chief Executive Officer at Ganz

GANZ

“Joining T&D Europe is an honor for Ganz and enables us to contribute to the challenges of the changing times in the field of electricity and energy and help to achieve the climate goals set for 2050. Today, Ganz is an iconic name in the T&D business worldwide and a company that, while respecting its heritage, places great emphasis on R&D activities and bringing new and innovative solutions to the energy market.”

Carbon footprint

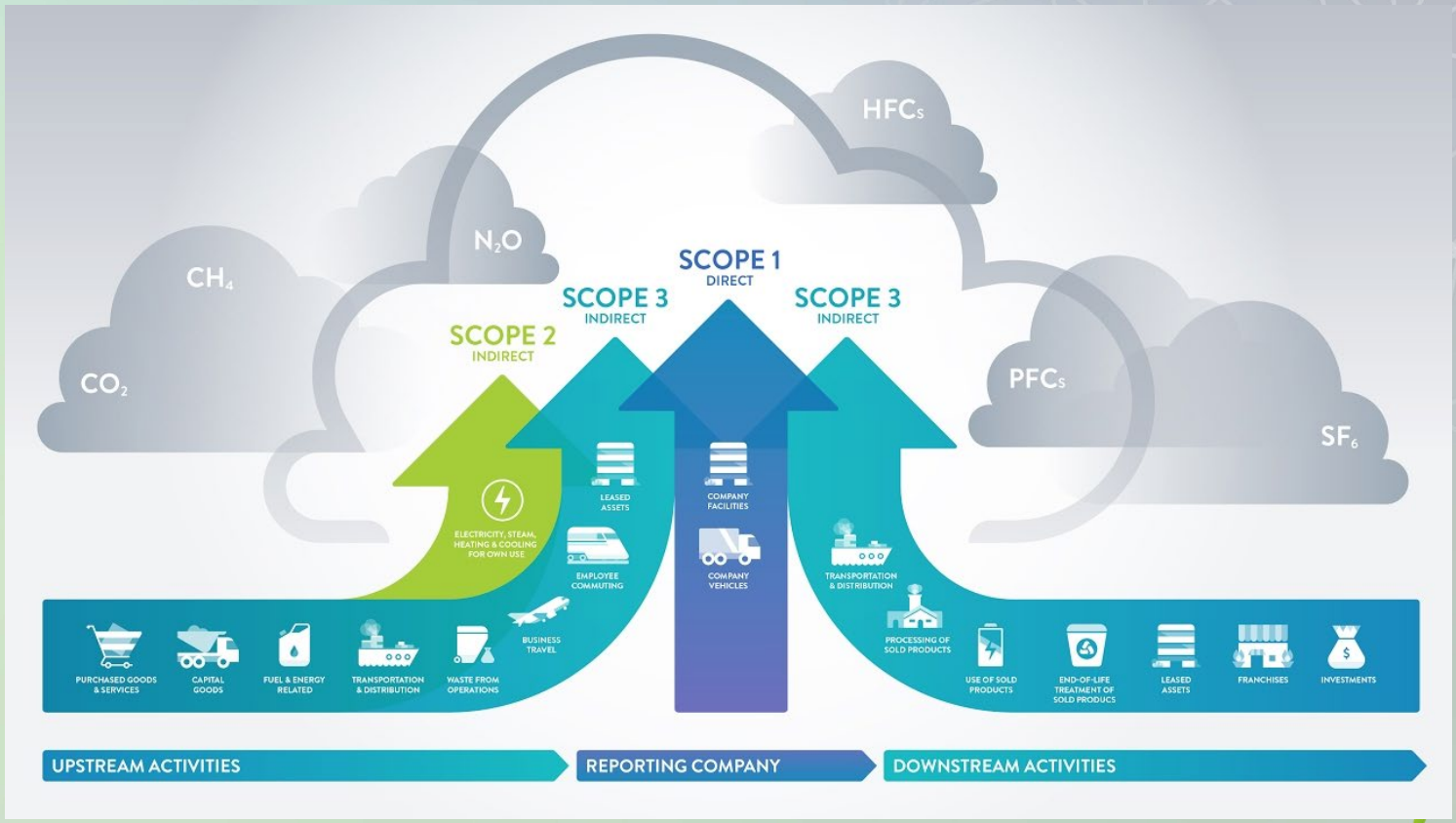
Some topics, but ...

EU target > net 0 emission (2050)!!

Ganz TVF Ltd total CCF emission
2022: 3316 tCO_2 – 50 produced PT
2023: 3076 tCO_2 – 47 produced PT

- ISO 14067:2018
- Scope 1&2

- 1st big step on the road



* https://www.esganalytics.io/insights/what-are-scope-1-2-and-3-carbon-emissions

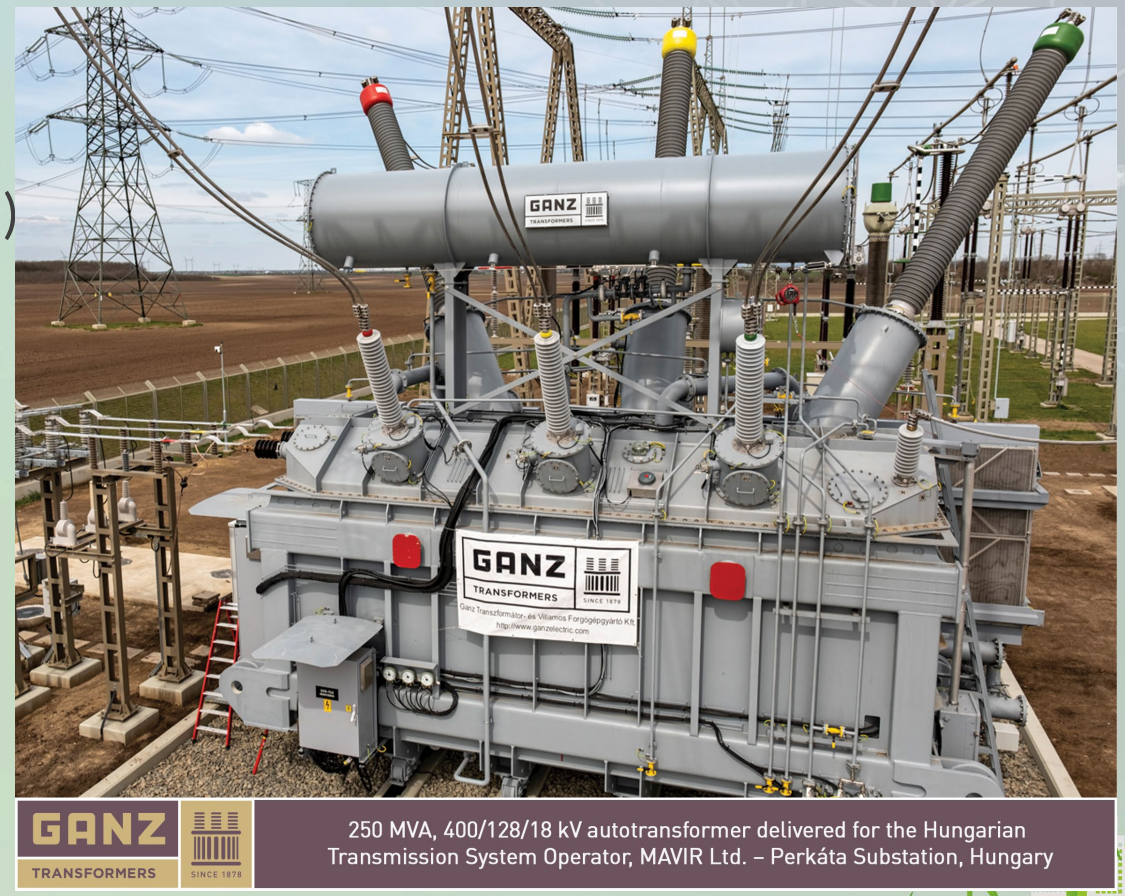
Carbon footprint – 250 MVA project

Examination aspects:

1) Design:
- Designed as per client losses requirement (Model 1)
- Designed as per ECO design (Model 2)

2) Energy mix:
- HU - local
- SWE – renewables-based energy mix
- PL – coal-based energy mix

3) Emissions during operation:
- considered load factor 35%
- lifetime 30 years
- operation 8450 hours/year



Design

Is there a difference between the two models?

Comparsion 250MVA			
		as per client losses requirement	as per ECO design
Iron core	t	73,3	63,6
Copper	t	29,9	31
Iron structure	t	47,9	38,6
Oil	t	50,6	51,2
Insulation	t	9,806	9,103
PEI	%	99,77	99,812
NLL	kW	57,5	70
LL	kW	640	740

Results & Conclusion

We assumed the same conditions (gate-to-gate-method):

- Raw materials,
- Transport distances,
- Energy used during production & test bay,
- Etc.

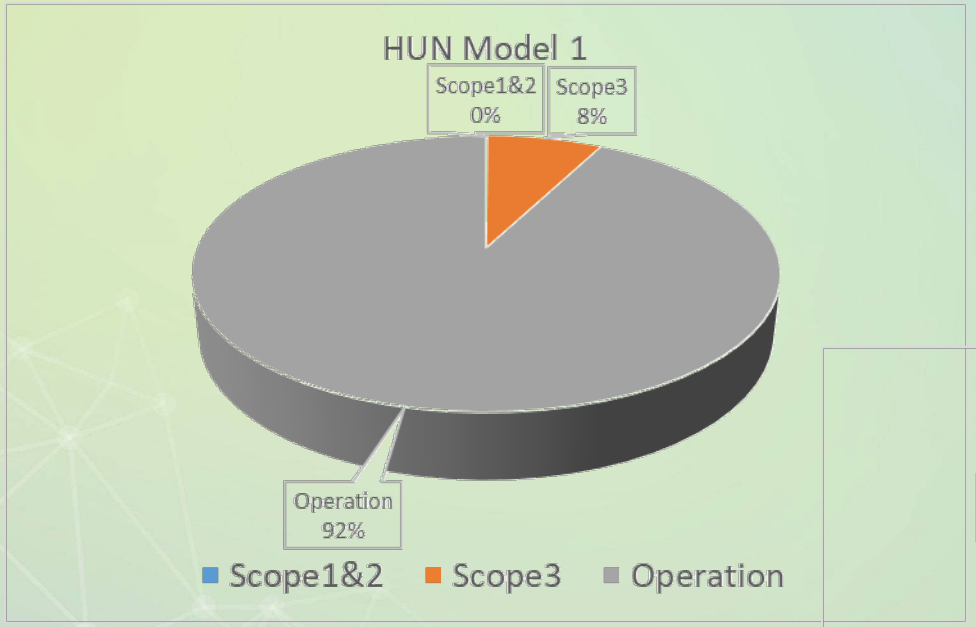
		as per client losses requirement	as per ECO design
Scope1	tCO_2	1,04%	1,09%
Scope2	tCO_2	0,29%	0,31%
Scope3	tCO_2	98,66%	98,60%

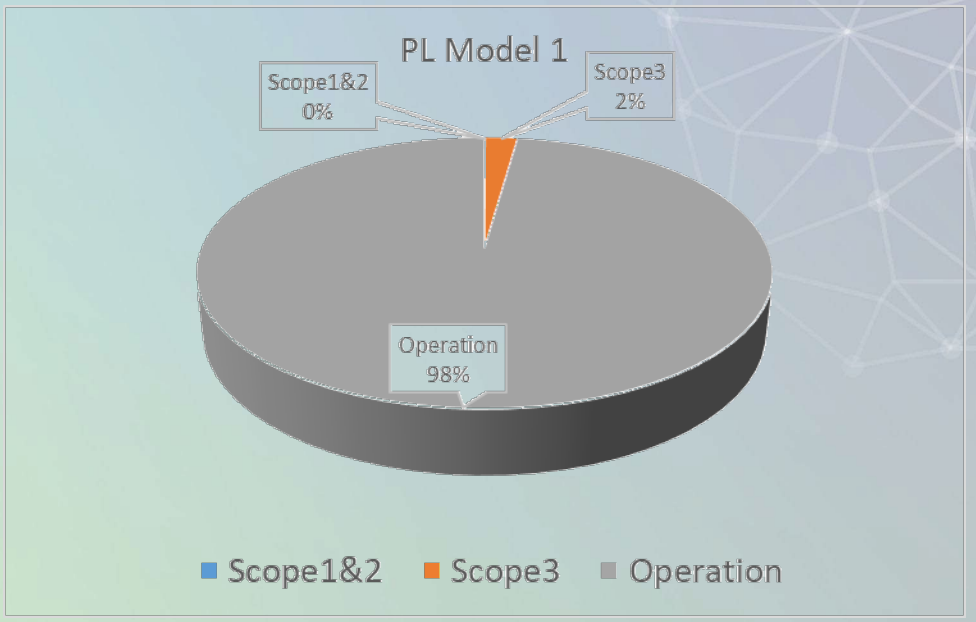
Conclusion:

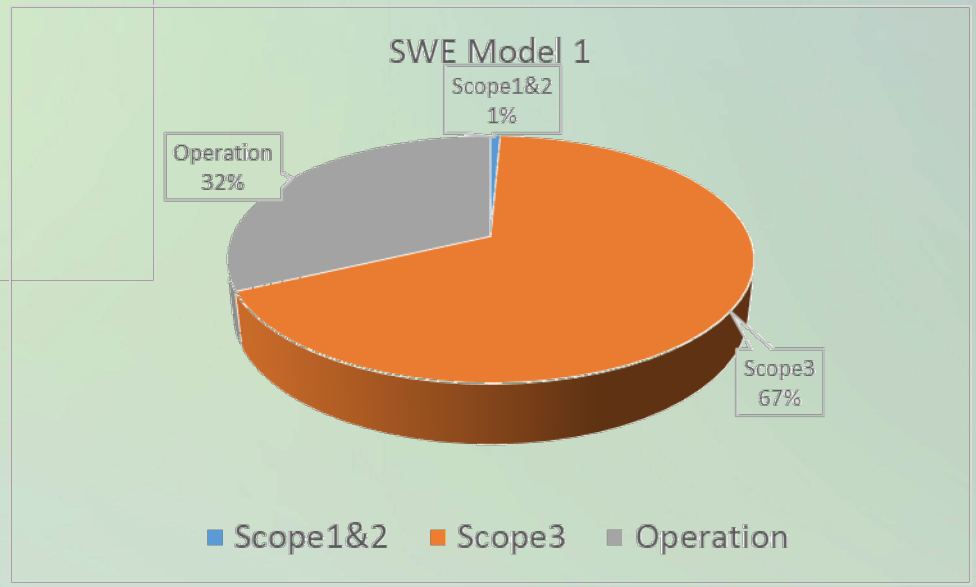
It is not possible to significantly reduce CO_2 during manufacturing.

...Maybe during operation?

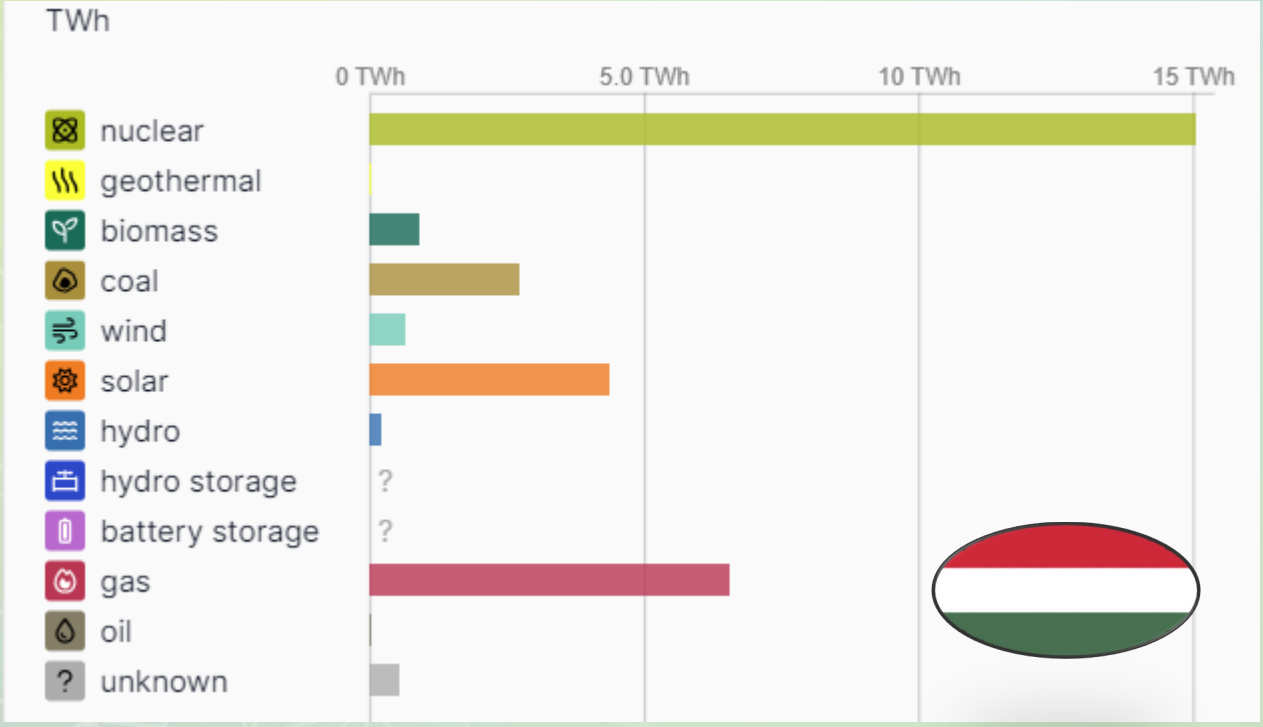
Results & Conclusion

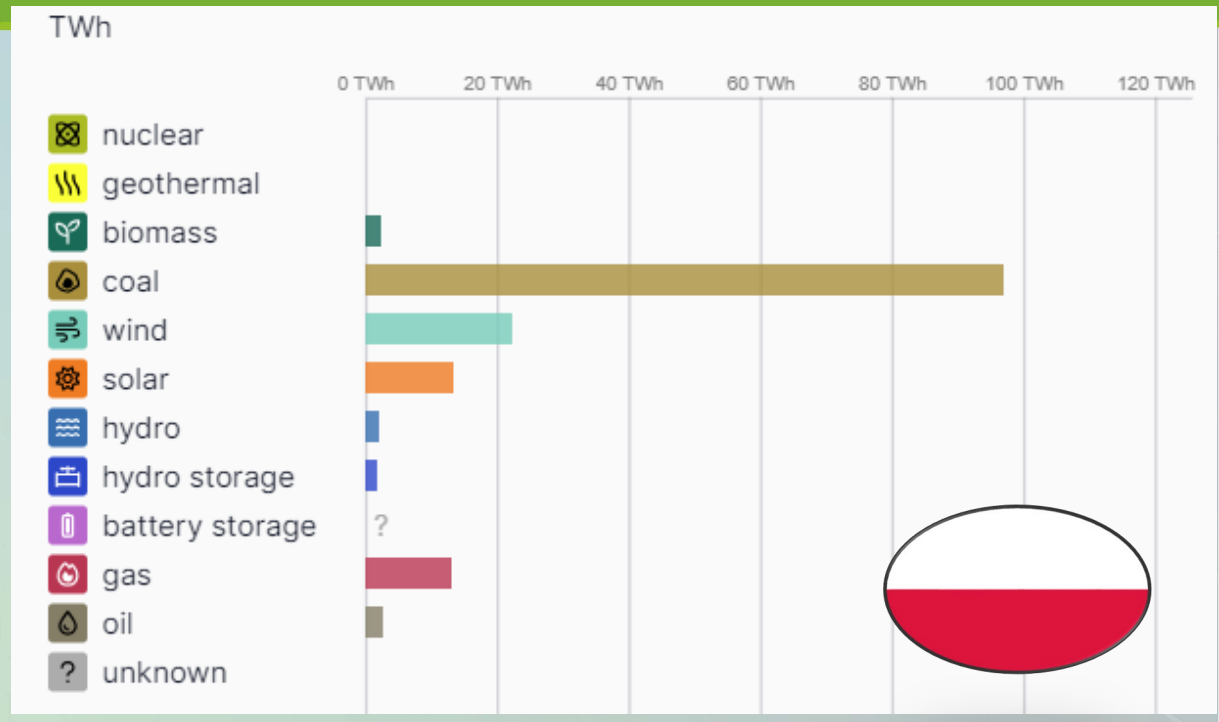


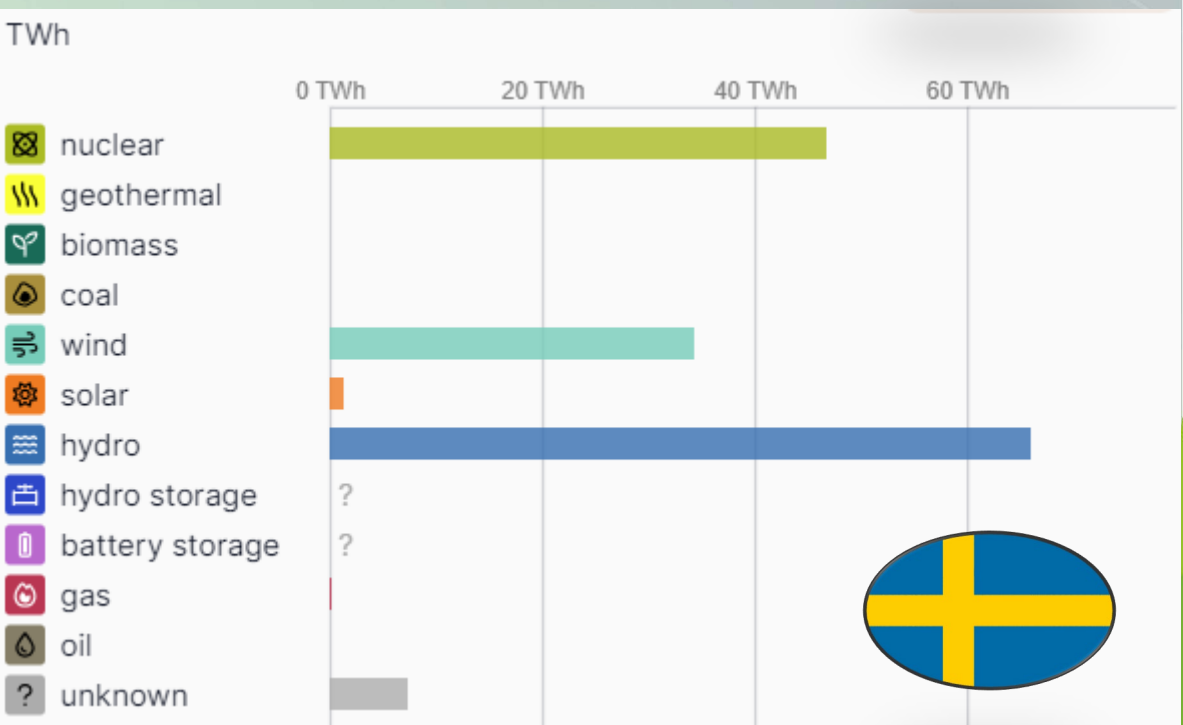




Energy mix







Conclusion:
It is very important which country the transformer will operate in.

**https://app.electricitymaps.com/zone/ - 2023. yearly data*

Emissions during 30 years of operation

Losses during operation, considered load factor 35%, lifetime 30 years, operation 8450 hours/year

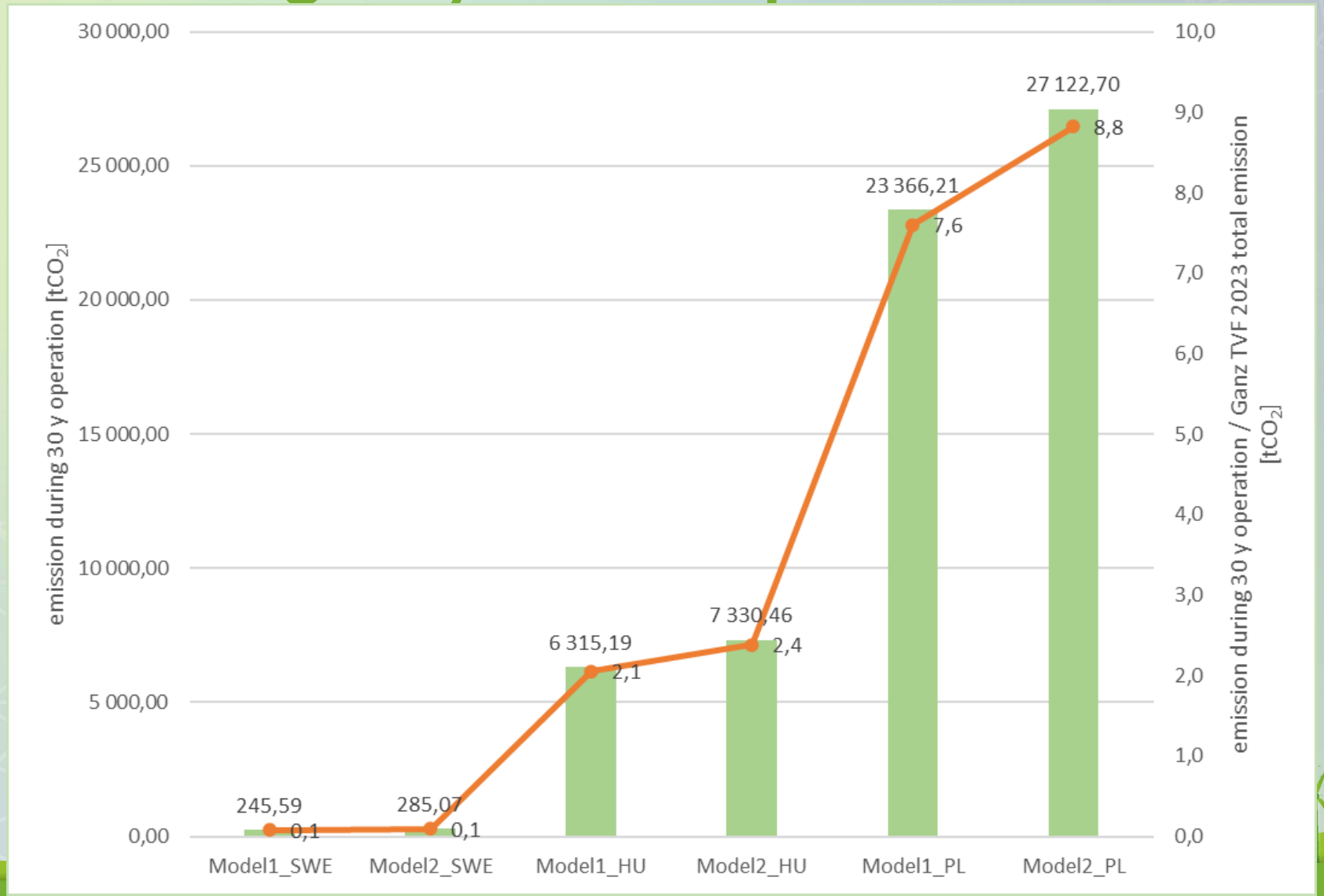
Hungary – GHG emission intensity of electricity generation: 180 gCO_2/kWh

Sweden – GHG emission intensity of electricity generation: 7 gCO_2/kWh

Poland – GHG emission intensity of electricity generation: 666 gCO_2/kWh

*https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emission-intensity-of-1?activeAccordion=309c5ef9-de09-4759-bc02-802370dfa366

Emissions during 30 years of operation



Results

Ganz examined the emissions of CCF Scope 1 & 2, in which we have already achieved results

Ganz selected a model PT and analyzed the product's carbon footprint (ISO 14067:2018)

Ganz looked at the CO_2 reduction options

- Design – built two different models
- Energy mix – different location, different emission factors
- Emission during operation – the operation is the most important CO_2 emitter (except SWE)

Advancement opportunities

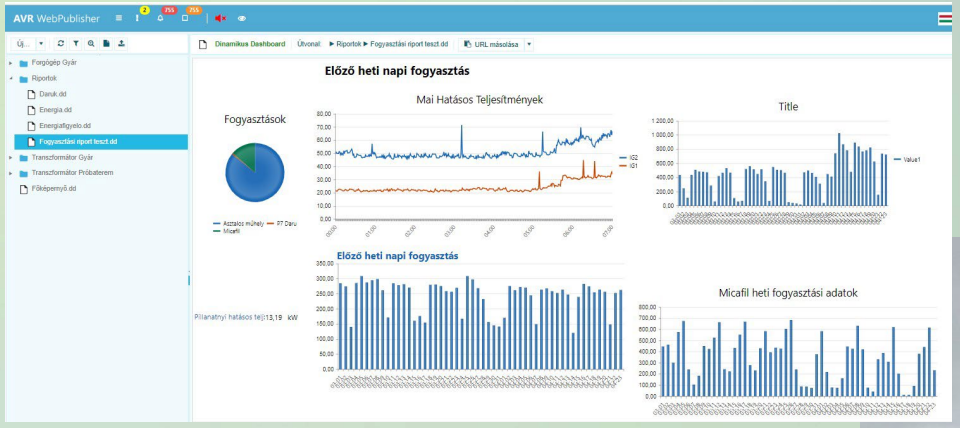
Ganz will improve our CCF calculation Scope 3.

Electrification & Gas consumption reduction
Gas boiler > electrical boiler in this summer

Insulation of buildings

Energy monitoring system

Etc.



Thank you for your kind attention!