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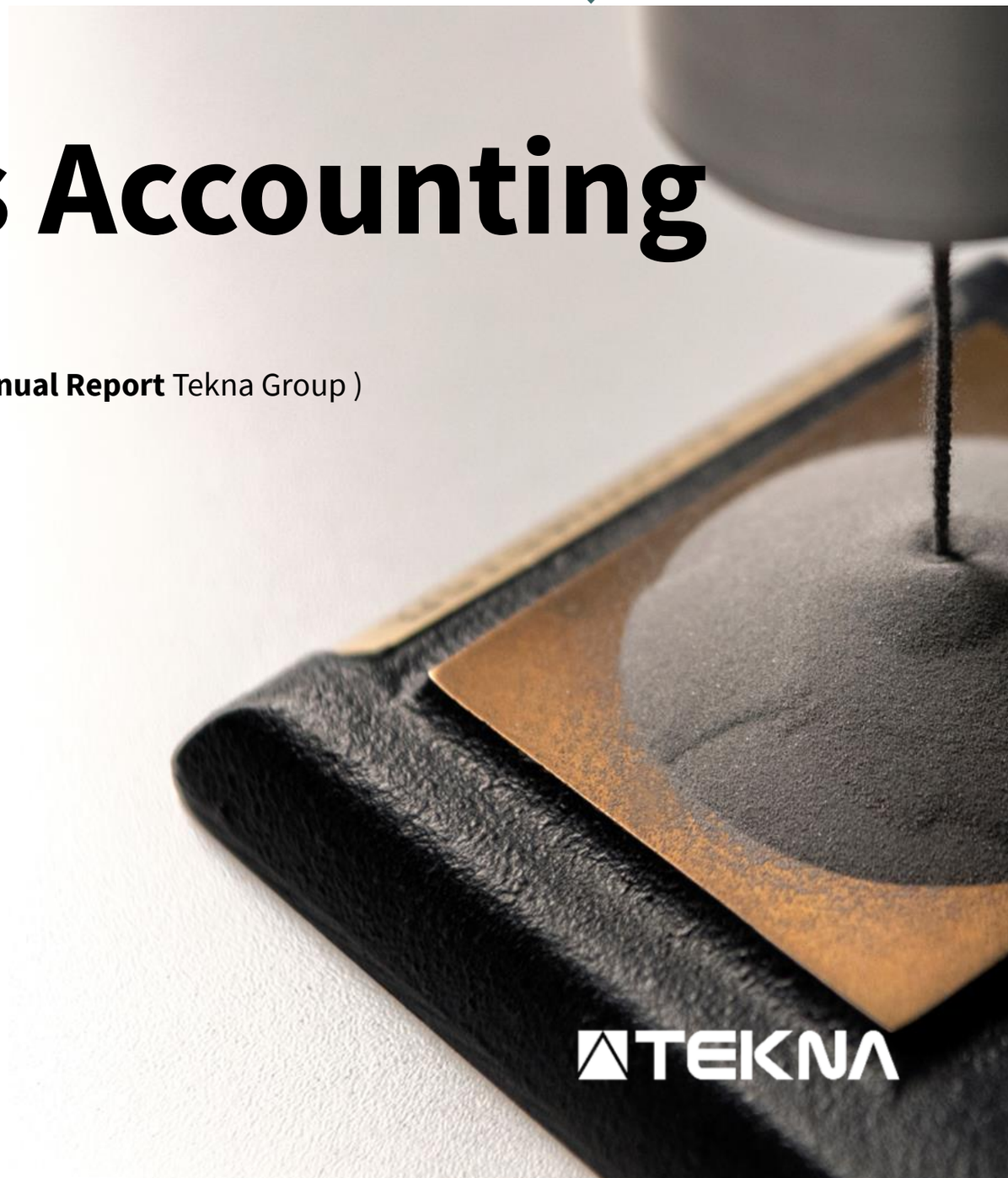
Tekna Holding ASA

2023

January 1—December 31

Emissions Accounting Report (part of **Annual Report** Tekna Group)

(Carbon and non-GHG)



Tekna's climate footprint at a glance

Energy Intensity per kg metal powder produced

Performance vs baseline FY19

Direct electricity of plasma systems within Tekna | Ti64 and AlSiMg | in kWh per kg

Our capacity improvement program increases the productivity of the plasma atomization systems, ie higher output for the same energy.

Renewable energy share

72 % ▲ vs 66% **(+6 pp)** in 2021 (Location based).

Scope 1

589 tCO2e ▶ vs 577 **(+2%)** in 2021. Tekna has added a third facility in Canada in 2022 increasing natural gas consumption for heating compared to baseline 2021.

Scope 2

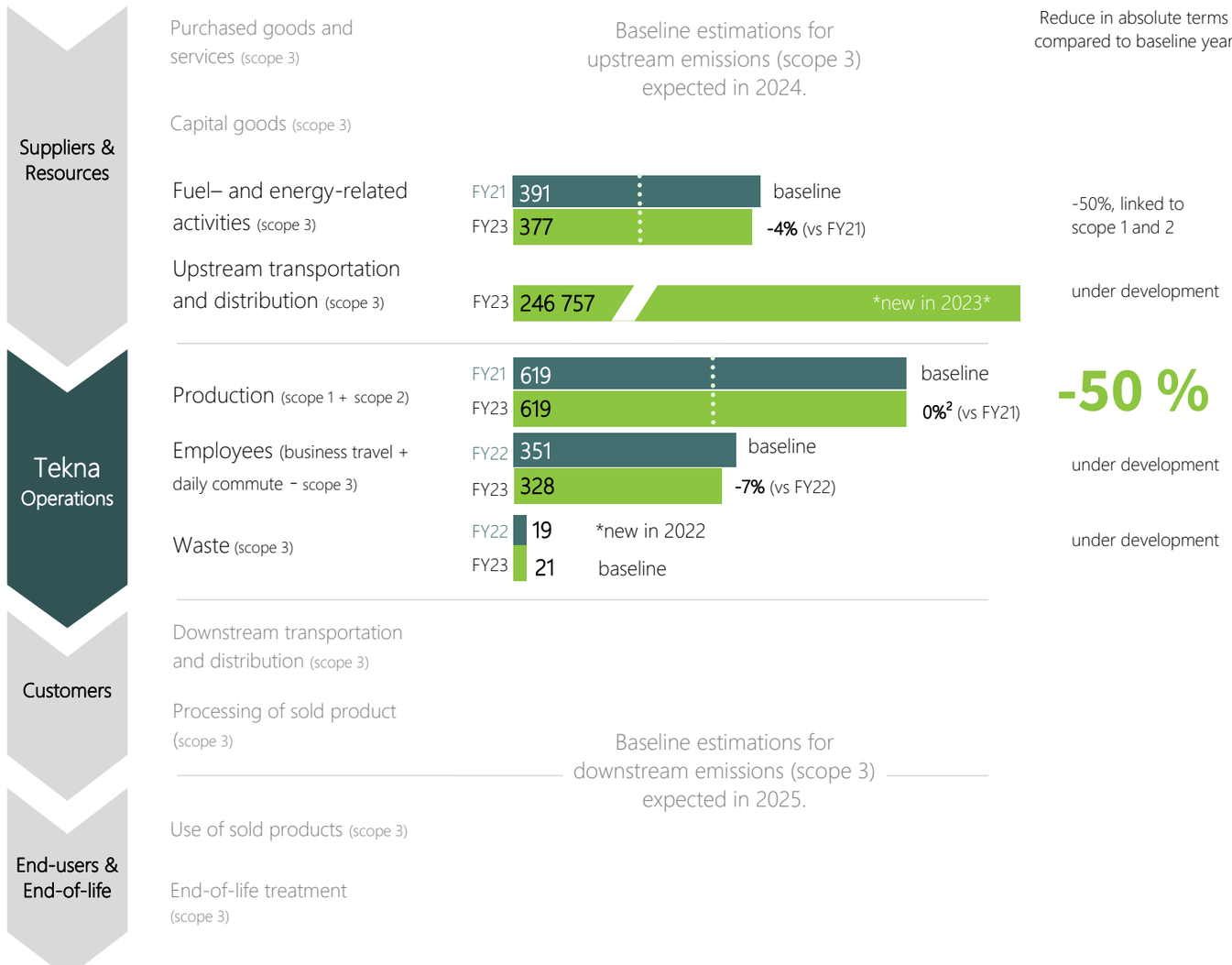
30 tCO2e ▼ vs 42 **(-29%)** in 2021. Tekna continues to improve energy efficiency in its powder production[2]. It reduced operating hours in France by 50% reducing electricity consumption.

Scope 3 (incomplete)

248k tCO2e The total emissions number will continue to increase due to broader emissions mapping in scope 3 and improved data quality. Within subcategories reduction efforts have started.

Tekna's climate footprint at different stages of the value chain

(GHG protocol[1] | in tCO2e)



Target 2030

Reduce in absolute terms compared to baseline year

-50%, linked to scope 1 and 2

under development

-50 %

under development

under development

1: Historical data should not change, but we always revise historical figures if data quality or science has improved. 2: Tekna increased its production output by 32% since 2021 (baseline), while only increasing scope 1 emissions by 2%, and even reducing scope 2 emissions by 29%.

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Introduction

This report provides an overview of the organization's greenhouse gas (GHG) emissions, which is an integrated part of the organization's climate strategy.
Carbon accounting is a fundamental tool in identifying tangible measures to reduce GHG emissions. The annual carbon accounting report enables the organization to benchmark performance indicators and evaluate progress over time.

The input data is based on consumption data from internal and external sources, which are converted into tonnes CO2-equivalents (tCO2e). The carbon footprint analysis is based on the international standard; A Corporate Accounting and Reporting Standard, developed by the Greenhouse Gas Protocol Initiative (GHG Protocol). The GHG Protocol is the most widely used and recognised international standard for measuring greenhouse gas emissions and is the basis for the ISO standard 14064-I.

This report comprises the following organisational units:	**Comment**	**Staff in 2023**
Tekna Holding ASA [THASA], Norway	holding, no staff	0
Tekna Holding Canada Inc [THC], Canada	holding, no staff	0
Tekna Plasma Systems Inc [TPS], Canada, HQ	operational headquarter, system production	133
Tekna Advanced Materials Inc [TAM], Canada	powder production	53
Tekna Microelectronics Unit [TMC], Canada	activity started end of 2021	0
Tekna Plasma Europe SAS [TPE], France	powder production, European sales office	31
Tekna Plasma Suzhou Co Ltd [TPZ], China	sales office, office move in Q1 2022	4
Tekna Plasma Korea Co Ltd [TPK], Korea	sales office, office move in Q1 2022	1
Tekna Inc [TCU], USA	no staff, activity started end of 2022	0
Only when specifically mentioned:		
Imphytek Powders SAS [Imphytek], France, JV	JV, activity started in 2020	1

Restatements

In 2022, for a leased building in Canada, Tekna (TMC) was incorrectly allocated an electricity meter. The consumption of ~75.000 kWh has been deducted from the energy consumption reported in 2022. No material impact on emissions as it concerns hydropower.

For 2022, the treatment of hazardous waste in Canada was reclassified due to new information. This has also not lead to a change in total emissions in the category.

External Assurances

Internally the Audit Committee approves the Emissions Accounting report. This report was not externally assured on its publication date; Note that the CO2 metrics in scope 1 and scope 2 were assured for our main shareholder Arendals Fossekompani ASA ("AFK"). Tekna aims to implement assurance for its next reporting period.

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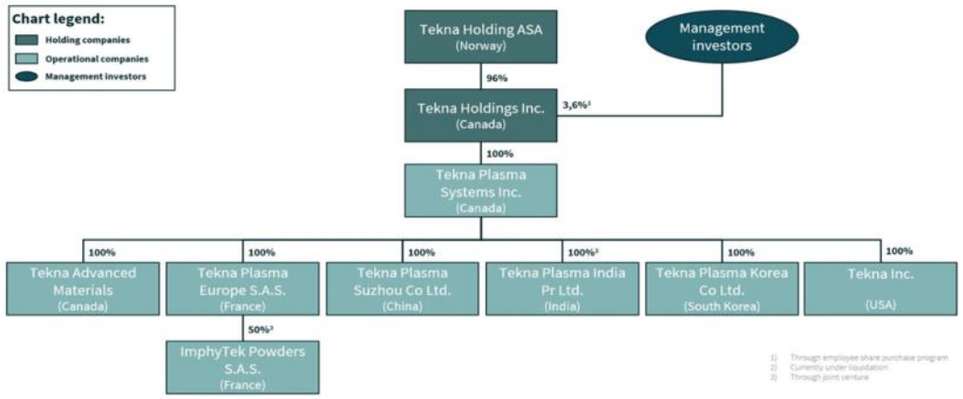
Non GHG air emissions

Tekna's standard process does not produce a significant amount of any of the common air pollutants, which includes NOx, SOx, volatile organic compounds (VOCs), hazardous air pollutants (HAPs), particulate matter (PM10), and persistent organic pollutants (POPs). We do not consider Non GHG air emissions to be a material topic for Tekna, but will report when we do emit air pollutants. As part of a nonstandard system test for a client, argon and air were combined in a research plasma system and produced an estimated 250g/h of NOx, for a total of 3750g.

Organization chart per 31.12.2023



Decarbonization

Scope 1 emissions have been stable since baseline year 2021. The source of emissions is the natural gas heating system in the Canadian facilities. We are looking to solidify the decision for the best alternative with lower emissions, which we plan to budget for before 2030.

Scope 2 emissions are down by 29%. We are approaching scope 2 in the two obvious ways, ie a) by moving consumption to renewable energy sources, and b) reducing consumption. The renewable energy share (a) is up by 6 percentage points since 2021 baseline (2023: 72%).

In reduction (b) we are focusing on increasing the productivity of our powder production. Compared to 2019 we have reduced by 24% the kWh required to produce 1 kg of powder (2023: 12.4 kWh/kg).

By the partial emissions information we have gathered for scope 3 up to 2023, it is clear that this is where the most significant emissions are. Tekna has yet to communicate reduction targets for the scope 3 categories. Nonetheless, as you can read in the Carbon Emission section of this report, we have started taking actions to reduce those emissions.

Replacing single-use packaging

Additive manufacturing ("AM") materials are typically transported in single-use packaging, with aluminum powder being shipped in 5kg plastic drums and titanium powder in metallic bottles of 2.5kg each. Unfortunately, once they have been used, the single-use packaging are left with small quantities of residual metal powder making them not easily reusable nor recyclable.

As the volumes of AM materials are increasing, the business case for returning the powder to Tekna for reconditioning will become stronger.

In order to reduce single-use packaging, Tekna has developed a Universal and Reusable CONTAINER for Additive Materials together with industry partners (see image). One container replaces 25 single-use plastic drums or 80 metallic bottles.

The key benefits of this solution:

- Enabling resource efficiency, circularity and GHG reduction: the sturdy containers can be reused "indefinitely" and will be used to deliver pristine powder to the customer and the customer can return degraded material back to Tekna
- Eliminating the use of single-use packaging and disposal activities

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- Allowing for safer handling both during transportation and at the point of use. This means 1) reducing the risk of exposure to powder, 2) since the container has wheels, eliminating the risk of drops and lifting related injuries, and 3) based on the plug-and-play nature of the container solution, increasing user-friendliness and reducing the risk of handling mistakes
- Increasing efficiency as more material is loaded to the machine per packaging unit

The container is ready to be put into operation. Given Tekna's projected volumes, the company will avoid ~1 Million tCO2e over the next 5-years in the category Purchased goods & services (upstream) and the category Use of sold products (downstream as single-use waste)

Reducing logistics emissions

In 2023, we completed the assessment of the category Upstream transportation and distribution and with 246.7k tCO2e it is substantially higher than any of our other categories. Initial meetings have taken place with the logistics team to identify which part we can influence and reduction opportunities worth pursuing.

High level thoughts:

- Reduce air transport in favor of boat or train
- Divert transport to carriers with a "green" fleet
- Consolidate shipments
- Improve packaging to reduce shipping "air"

Carbon Emissions

Scope 1 and scope 2

Scope 1 includes all direct emission sources. This includes all use of fossil fuels for stationary combustion or transportation, in owned and, depending on the consolidation approach selected, leased, or rented assets.

Scope 2 includes indirect emissions related to purchased energy; electricity and heating/cooling where the organisation has operational control.

Baseline 2021 was chosen as it was the first year we collected data of our worldwide emissions instead of just Canada.

At Tekna, natural gas is only used for heating the buildings in Canada and Korea.

At the end of 2021 and throughout 2023 Tekna has added Additive Manufacturing production equipment in Canada increasing electricity consumption. It reduced operating hours in TPE by 50% reducing electricity consumption in France.

Leased building emissions are included in scope 1 and 2. Lease car consumption is included in Scope 3 business travel.

Although we are working on replacing the refrigerants we consider the consumption non material for this report (~20lbs in TPS).

Actions taken in 2023:

- Optimization of temperature in the offices.
- Firming up decarbonization plan

Scope 1 and scope 2	status	baseline	2030 commitment	2050 ambition
Scope 1	included worldwide per entity	2021	-50% vs baseline	carbon neutral[1]
Scope 2	included worldwide per entity	2021	-50% vs baseline	

1 Carbon neutrality is achieved by reducing our carbon footprint to zero through a combination of efficiency measures in-house and supporting external emission reduction projects.

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Scope 3

Scope 3 includes indirect emissions resulting from value chain activities. The scope 3 emissions are a result of the company's upstream and downstream activities, which are not controlled by the company, i.e. they are indirect.

For scope 3 the baseline year is chosen based on when we have worldwide data available for a category.

The scope 3 emissions compared to 2022 increased due to broader emissions mapping in scope 3 and improved data quality.

This report is incomplete in scope 3. Multiple categories up-and downstream have still to be assessed. Only categories which we can substantiate with data have been included.

The Greenhouse Gas Protocol considers 15 categories in scope 3 emissions. The table below includes an overview of the categories. Categories 8, 13, 14 and 15 are not relevant for Tekna.

Scope 3 Upstream

Fuel and energy related activities Not Included in Scope 1 or Scope 2 [3]

This category includes emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in scope 1 or scope 2.

Includes exactly the same consumption data as reported in scope 1 and 2.

Upstream Transport and Distribution [4]

All transportation paid by the company, inbound and outbound, as well as if the customer is billed for the transport and in addition also inbound transportation not paid by the company (upstream).

This category was calculated based on transaction reports received from transportation and distribution companies Tekna has contracted in the past year. Most reports directly provided the estimated CO2 emissions. The reports from two service providers only included departure and arrival location and cargo mass. Therefore those emissions were calculated via cemasys by using the tkm unit (cargo mass * distance in km). The distances were estimated based on information provid-

Scope 3 categories in GHG protocol:	status	baseline	2030 commitment	2050 ambition
1: Purchased Goods and Services	In progress, to be completed in 2024			
2: Capital Goods	In progress, to be completed in 2024			
3: Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	Included upstream emissions of scope 1 and 2 consolidated per country	2021	50% (as scope 1 and 2)	carbon neutral
4: Upstream Transportation and Distribution	included consolidated worldwide	2023 *new*	TBC	
5: Waste Generated in Operations	included for Canada and France	2023	TBC	
6: Business Travel	included consolidated worldwide	2022	TBC	
7: Employee Commuting	included consolidated worldwide	2022	TBC	
8: Upstream Leased Assets	not relevant for Tekna			
9: Downstream Transportation and Distribution	Planned for 2024			
10: Processing of Sold Products	planned for 2024			
11: Use of Sold Products	planned for 2024			
12: End-of-Life Treatment of Sold Products	planned for 2024			
13: Downstream Leased Assets	not relevant for Tekna			
14: Franchises	not relevant for Tekna			
15: Investments	not relevant for Tekna			

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ed. Inbound transportation not paid by Tekna is not yet included.

Actions taken in 2023:

- Global data collection and consolidation to establish the baseline of emissions
- Scheduled first meeting with logistics team to start creating a reduction plan

Scope 3 @Tekna

Waste Generated in Operations [5]

Includes emissions from third-party disposal and treatment of waste generated in the reporting company's owned or controlled operations in the reporting year. This category includes emissions from disposal of both solid waste and wastewater.

In 2022, we estimated how waste from Canada was treated after pick-up. In 2023, we have obtained clear data with significant shifts in volumes and emissions. We have therefore made 2023 the baseline for waste.

The increase in hazardous waste is due to new Health and Safety measures (single-use protective equipment) and R&D. The rest waste or municipal waste category for Canada or France does not exist in CEMASys as of yet. We have used the closest description to it, in essence "Residual waste, landfill". The emissions are expected to be in the same range.

Composition of hazardous waste: (flammable) metallic powder, rags, acids, coolants and non-chlorine solvents and single-use protective equipment from the nano sector and the detail of how it is being processed was obtained and corrected for 2022 and 2023.

Manufacturing sites only, waste from sales offices is not included.

Waste collected during the annual Sherbrooke industrial park cleaning included in Canada.

Actions taken in 2023:

- Paper handtowels are now collected separately and disposed of via compost
- Residual waste bins have been removed from individual offices to encourage central collection points to improve correct separation.
- Improved communication of what to recycle where.
- Annual spring cleaning of the industrial park in Sherbrooke (CA) by employees. The waste collected is included in scope 3 of Tekna, even though this was not a direct emission by Tekna.

Business Travel [6]

Transportation of employees for business-related activities in vehicles owned or operated by third parties, such as aircraft, trains, buses, and passenger cars.

An increase of 6% was measured. Increased business development activity in Asia is driving this increase.

Employees were requested to complete a form per business trip, including km travelled by car (incl taxi) and train, flights (using ICAO Carbon Emissions Calculator) and hotel nights. We created this form by using the ICAO tool and recommendations from Microsoft Sustainability Calculator.

Actions taken in 2023:

- Decision to relocate Business development manager for Asia Pacific to Japan.

Employee Commute [7]

Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company).

A reduction of 13% was measured. The use of electrical and hybrid cars has increased amongst our employees. Tekna has offered its employees the possibility to charge for free at its Canadian facilities since 2020.

Employees were requested to complete a form detailing how many days per week they are in the office on average and what their commute is like on average. Adjustments were made upon indication of employees around "significantly greener summer commutes" and carpooling. We obtained 151 answers out of 221 (68%), which we considered a sufficient bases to extrapolate to 100%. We created this form based on the recommendations of the Greenhouse Gas Protocol and Cemasys categories.

Actions taken in 2023:

- Establishment of an employee carpooling platform (reduction at source posters)

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Key figures

GHG Emissions

	Unit	2019	2020	2021	2022	2023	▲ to base year
Summary							
Total Scope 1	tCO2e	453,4	474,1	576,6	585,1	589,0	2%
Total Scope 2	tCO2e	4,1	3,5	41,7	33,7	29,6	-29%
Total Scope 3	tCO2e	-	135,7	434,3	755,4	247 482,0	n/a
Total	**tCO2e**	**457,5**	**613,3**	**1 052,7**	**1 374,2**	**248 100,5**	n/a

	Category	Unit	2019	2020	2021	2022	2023	▲ to base year
Scope 1								
	Stationary combustion							
	Natural gas	tCO2e	453,4	474,1	576,6	585,1	589,0	
	Stationary combustion Total	**tCO2e**	**453,4**	**474,1**	**576,6**	**585,1**	**589,0**	2%
	Scope 1 Total	**tCO2e**	**453,4**	**474,1**	**576,6**	**585,1**	**589,0**	2%
Scope 2								
	Electricity location-based							
	Electricity France	tCO2e	-	-	32,1	26,6	22,7	
	Electricity China	tCO2e	-	-	5,0	1,9	1,5	
	Electricity Korea	tCO2e	-	-	0,6	0,5	0,4	
	Electricity location-based Total	**tCO2e**	**-**	**-**	**37,6**	**29,0**	**24,7**	-34%
	Electricity general							
	Hydropower, Quebec	tCO2e	4,1	3,5	4,1	4,7	4,9	
	Electricity general Total	**tCO2e**	**4,1**	**3,5**	**4,1**	**4,7**	**4,9**	20%
	Scope 2 Total	**tCO2e**	**4,1**	**3,5**	**41,7**	**33,7**	**29,6**	-29%

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Key figures (continued)

GHG Emissions

	Category	Unit	2019	2020	2021	2022	2023	
Scope 3								
	Fuel-and-energy-related activities							
	Natural gas (WTT)	tCO2e	-	-	98,0	98,9	96,5	
	Electricity Canada (upstream)	tCO2e	-	135,7	284,2	277,2	269,5	
	Electricity France (upstream)	tCO2e	-	-	7,1	8,3	10,3	
	Electricity China (upstream)	tCO2e	-	-	1,6	0,5	0,3	
	Electricity Korea (upstream)	tCO2e	-	-	0,2	0,1	0,1	
	Fuel-and-energy-related activities	**tCO2e**	**-**	**135,7**	**391,2**	**385,1**	**376,8**	-4%
	Upstream transportation and distribution							
	Sea Cargo Avg load	tCO2e	-	-	-	-	-	
	Truck avg.	tCO2e	-	-	-	-	36,1	
	Air freight avg. (WTT)	tCO2e	-	-	-	-	67 541,1	
	Rail freight	tCO2e	-	-	-	-	3,2	
	Sea ship avg. (WTT)	tCO2e	-	-	-	-	179 169,0	
	Transportation	tCO2e	-	-	-	-	7,6	
	SCOPE3_UPSTREAM_TRANSPORT.	**tCO2e**	**-**	**-**	**-**	**-**	**246 757,0**	n/a
	Waste							
	Hazardous waste, recycled	tCO2e	-	-	-	-	1,3	
	Hazardous waste, re-used	tCO2e	-	-	-	-	-	
	Hazardous waste, treated	tCO2e	-	-	-	1,0	0,1	
	Hazardous waste, landfill	tCO2e	-	-	0,3	0,2	0,4	
	Residual waste, landfill	tCO2e	-	-	2,5	14,4	16,3	
	Cardboard waste, recycled	tCO2e	-	-	-	0,3	0,3	
	Paper waste, recycled	tCO2e	-	-	0,1	0,1	0,1	
	EE waste, recycled	tCO2e	-	-	-	-	-	
	Plastic waste, recycled	tCO2e	-	-	-	-	-	
	Metal waste, recycled	tCO2e	-	-	-	0,1	0,2	
	Wood waste, recycled	tCO2e	-	-	0,1	0,2	0,4	
	Mineral oil waste, incinerated	tCO2e	-	-	-	2,5	1,5	
	Organic waste, composting	tCO2e	-	-	-	-	-	
	Sorted waste, recycled	tCO2e	-	-	-	0,2	0,2	
	Waste Total	**tCO2e**	**-**	**-**	**2,9**	**19,1**	**20,7**	n/a

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Key figures (continued)

GHG Emissions

	Category	Unit	2019	2020	2021	2022	2023	
Scope 3 (continued)								
	Business travel							
	Hotel nights, world	tCO2e	-	-	6,2	42,1	40,6	
	Train International	tCO2e	-	-	-	0,1	0,1	
	Mileage all. avg. car	tCO2e	-	-	11,3	21,4	16,1	
	Flights	tCO2e	-	-	22,8	51,7	64,9	
	Mileage all. el car EU27	tCO2e	-	-	-	-	0,2	
	SCOPE3_BUSINESS_TRAVEL Total	**tCO2e**	**-**	**-**	**40,3**	**115,4**	**121,8**	6%
	Employee commuting							
	Car, petrol (avg.)	tCO2e	-	-	-	170,3	138,6	
	Motorbike, small	tCO2e	-	-	-	-	0,2	
	Car, petrol (medium)	tCO2e	-	-	-	56,2	51,9	
	Car, Hybrid Electric Vehicle (HEV)	tCO2e	-	-	-	-	3,0	
	Electric car EU27	tCO2e	-	-	-	6,5	9,1	
	Bus local avg.	tCO2e	-	-	-	2,8	2,7	
	SCOPE3_EMPLOYEE_COMMUTIN(	**tCO2e**	**-**	**-**	**-**	**235,8**	**205,6**	-13%
	Scope 3 Total	**tCO2e**	**-**	**135,7**	**434,3**	**755,4**	**247 482,0**	
	Total (Scope 1 + 2)	**tCO2e**	**457,5**	**477,6**	**618,4**	**618,8**	**618,6**	**2 790,8**
	Total (Scope 1 + 2 + 3)	**tCO2e**	**457,5**	**613,3**	**1 052,7**	**1 374,2**	**248 100,5**	
Percentage change			%	34.1%	71.6%	30.5%	17954.2%	
Annual Market-Based GHG Emissions								
	Electricity Total (Scope 2) with Ma	**tCO2e**	**-**	**-**	**40,6**	**27,4**	**56,3**	
	Scope 2 Total with Market-based	**tCO2e**	**4,1**	**3,5**	**44,7**	**32,1**	**61,3**	
	Scope 1+2+3 Total with Market-b	**tCO2e**	**457,5**	**613,3**	**1 055,6**	**1 372,6**	**248 132,2**	
	Percentage change		**100%**	**34.1%**	**72.1%**	**30%**	**17977.1%**	

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Key figures

Energy

	Category	Unit	2019	2020	2021	2022	2023
Scope 1							
	Stationary combustion						
	Natural gas	MWh	2 466,1	2 578,4	3 125,9	3 182,6	2 882,1
	Stationary combustion Total	**MWh**	**2 466,1**	**2 578,4**	**3 125,9**	**3 182,6**	**2 882,1**
	Scope 1 Total	**MWh**	**2 466,1**	**2 578,4**	**3 125,9**	**3 182,6**	**2 882,1**
Scope 2							
	Electricity						
	Electricity France	MWh	-	-	593,6	521,3	434,8
	Electricity China	MWh	-	-	8,0	3,0	2,5
	Electricity Korea	MWh	-	-	1,1	1,1	1,0
	Electricity Total	**MWh**	**-**	**-**	**602,7**	**525,4**	**438,3**
	Electricity general						
	Hydropower, Quebec	MWh	6 822,8	5 798,8	6 832,6	7 800,1	8 242,9
	Electricity general Total	**MWh**	**6 822,8**	**5 798,8**	**6 832,6**	**7 800,1**	**8 242,9**
	Scope 2 Total	**MWh**	**6 822,8**	**5 798,8**	**7 435,4**	**8 325,5**	**8 681,2**
	Total (Scope 1 + 2 + 3)	**MWh**	**9 289,0**	**8 377,2**	**10 561,2**	**11 508,1**	**11 563,2**
		GJ	**33 440,3**	**30 158,1**	**38 020,4**	**41 429,3**	**41 627,6**
Percentage change			%	-9.8%	26.1%	9%	0.5%
Scope 1 renewable energy		**MWh**	-	-	-	-	-
Scope 1 renewable energy share		**%**	0%	0%	0%	0%	0%
Scope 2 renewable energy (Location-based)		**MWh**	6 822,8	5 798,8	6 964,5	7 932,2	8 348,0
Scope 2 renewable energy share (Location-based)		**%**	100%	100%	93.7%	95.3%	96.2%
Total renewable energy (Location-based)		**MWh**	**6 822,8**	**5 798,8**	**6 964,5**	**7 932,2**	**8 348,0**
Total renewable energy share (Location-based)		**%**	**73.5%**	**69.2%**	**65.9%**	**68.9%**	**72.2%**
Scope 2 renewable energy (Market-based)		**MWh**	6 822,8	5 798,8	6 832,6	7 800,1	8 242,9
Scope 2 renewable energy share (Market-based)		**%**	100%	100%	91.9%	93.7%	95%
Total renewable energy (Market-based)		**MWh**	**6 822,8**	**5 798,8**	**6 832,6**	**7 800,1**	**8 242,9**
Total renewable energy share (Market-based)		**%**	**73.5%**	**69.2%**	**64.7%**	**67.8%**	**71.3%**

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Key figures

Energy consumption

	Category	Unit	2019	2020	2021	2022	2023
Scope 1							
	Stationary combustion						
	Natural gas	m3	-	-	283 396	288 018	286 774
	Natural gas	tCO2e	453	474	-	-	-
Scope 2							
	Electricity						
	Electricity France	kWh	-	-	593 646	521 288	434 822
	Electricity China	kWh	-	-	7 950	3 034	2 470
	Electricity Korea	kWh	-	-	1 132	1 111	981
	Electricity general						
	Hydropower, Quebec	kWh	6 822 817	5 798 792	6 832 642	7 800 094	8 242 881
Scope 3							
	Fuel-and-energy-related activities						
	Natural gas (WTT)	m3	-	-	283 396	288 018	286 774
	Electricity Canada (upstream)	kWh	-	5 798 792	6 832 642	7 874 674	8 242 881
	Electricity France (upstream)	kWh	-	-	593 646	521 288	434 822
	Electricity China (upstream)	kWh	-	-	7 950	3 034	2 470
	Electricity Korea (upstream)	kWh	-	-	1 132	1 111	981
	Upstream transportation and distribution						
	Sea Cargo Avg load	tkm	-	-	-	-	-
	Truck avg.	tkm	-	-	-	-	82
	Truck avg.	tCO2e	-	-	-	-	36
	Air freight avg. (WTT)	tkm	-	-	-	-	294 168
	Air freight avg. (WTT)	tCO2e	-	-	-	-	67 451
	Rail freight	tCO2e	-	-	-	-	3
	Sea ship avg. (WTT)	tkm	-	-	-	-	16 113
	Sea ship avg. (WTT)	tCO2e	-	-	-	-	179 169
	Transportation	tCO2e	-	-	-	-	8

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Key figures (continued)

Energy consumption

	Category	Unit	2019	2020	2021	2022	2023
Scope 3 (continued)							
	Waste						
	Hazardous waste, recycled	kg	-	-	364	240	61 009
	Hazardous waste, re-used	kg	-	-	-	948	-
	Hazardous waste, treated	kg	-	-	1 636	46 441	4 337
	Hazardous waste, landfill	kg	-	-	12 976	11 457	19 866
	Residual waste, landfill	m3	-	-	22	15	-
	Residual waste, landfill	kg	-	-	-	28 620	32 738
	Cardboard waste, recycled	kg	-	-	-	13 207	13 207
	Paper waste, recycled	m3	-	-	16	18	-
	Paper waste, recycled	kg	-	-	-	-	3 208
	EE waste, recycled	m3	-	-	-	-	2
	EE waste, recycled	kg	-	-	-	2 000	-
	Plastic waste, recycled	m3	-	-	5	9	-
	Plastic waste, recycled	kg	-	-	-	-	776
	Metal waste, recycled	kg	-	-	-	6 563	7 197
	Wood waste, recycled	tonne	-	-	2	2	1
	Wood waste, recycled	kg	-	-	-	10 000	19 000
	Mineral oil waste, incinerated	liters	-	-	-	1 000	600
	Organic waste, composting	kg	-	-	-	1 139	2 254
	Sorted waste, recycled	kg	-	-	-	7 200	7 200
	Business travel						
	Hotel nights, world	nights	-	-	137	1 067	1 025
	Train International	pkm	-	-	3 035	29 886	23 829
	Mileage all. avg. car	km	-	-	67 103	125 445	96 339
	Flights	tCO2e	-	-	23	52	65
	Mileage all. el car EU27	km	-	-	-	-	3 381
	Employee commuting						
	Car, petrol (avg.)	km	-	-	-	998 903	845 838
	Motorbike, small	km	-	-	-	-	3 002
	Car, petrol (medium)	km	-	-	-	304 423	291 310
	Car, Hybrid Electric Vehicle (HEV)	km	-	-	-	-	25 615
	Electric car EU27	km	-	-	-	171 880	204 000
	Bus local avg.	pkm	-	-	-	28 790	26 904

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Methodology (CEMASYS reporting system)

The Greenhouse Gas Protocol initiative (GHG Protocol) was developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). This analysis is done according to A Corporate Accounting and Reporting Standard Revised edition, currently one of four GHG Protocol accounting standards on calculating and reporting GHG emissions. The reporting considers the following greenhouse gases, all converted into CO2-equivalents: CO2, CH4 (methane), N2O (laughing gas), SF6, HFCs, PFCs and NF3.

For corporate reporting, two distinct approaches can be used to consolidate GHG emissions: the equity share approach and the control approach. The most common consolidation approach is the control approach, which can be defined in either financial or operational terms.

The carbon inventory is divided into three main scopes of direct and indirect emissions.

Scope 1 includes all direct emission sources. This includes all use of fossil fuels for stationary combustion or transportation, in owned and, depending on the consolidation approach selected, leased, or rented assets. It also includes any process emissions, from e.g. chemical processes, industrial gases, direct methane emissions etc.

Scope 2 includes indirect emissions related to purchased energy; electricity and heating/cooling where the organisation has operational control. The electricity emission factors used in Cemasys are based on national gross electricity production mixes from the International Energy Agency's statistics (IEA Stat).

Emission factors per fuel type are based on assumptions in the IEA methodological framework. Factors for district heating/cooling are either based on actual (local) production mixes, or average IEA statistics.

In January 2015, the GHG Protocol published new guidelines for calculating emissions from electricity consumption. Primarily two methods are used to "allocate" the GHG emissions created by electricity generation to the end consumers of a given grid. These are the location-based and the market-based methods. The location-based method reflects the average emission intensity of the grids on which energy consumption occurs, while the market-based method reflects emissions from electricity that companies have purposefully chosen (or not chosen).

Organisations who report on their GHG emissions will now have to disclose both the location-based emissions from the production of electricity, and the marked-based emissions related to the potential purchase of Guarantees of Origin (GoOs) and Renewable Energy Certificates (RECs).

The purpose of this amendment in the reporting methodology is on the one hand to show the impact of energy efficiency measures, and on the other hand to display how the acquisition of GoOs or RECs affect the GHG emissions. Using both methods in the emission reporting highlights the effect of all measures regarding electricity consumption.

The location-based method: The location-based method is based on statistical emissions information and electricity output aggregated and averaged within a defined geographic boundary and during a defined time period. Within this boundary, the different energy producers utilize a mix of energy resources, where the use of fossil fuels (coal, oil, and gas) result in direct GHG -emissions. These emissions are reflected in the location -based emission factor.

The market-based method: The choice of emission factors when using this method is determined by whether the business acquires GoOs/RECs or not. When selling GoOs or RECs, the supplier certifies that the electricity is produced exclusively by renewable sources, which has an emission factor of 0 grams CO2e per kWh. However, for electricity without the GoO or REC, the emission factor is based on the remaining electricity production after all GoOs and RECs for renewable energy are sold. This is called a residual mix, which is normally substantially higher than the location-based factor. As an example, the market-based Norwegian residual mix factor is approximately 7 times higher than the location-based Nordic mix factor. The reason for this high factor is due to Norway's large export of GoOs/RECs to foreign consumers. In a

market perspective, this implies that Norwegian hydropower is largely substituted with an electricity mix including fossil fuels.

Scope 3 includes indirect emissions resulting from value chain activities. The scope 3 emissions are a result of the company's upstream and downstream activities, which are not controlled by the company, i.e. they are indirect. Examples are business travel, goods transportation, waste handling, consumption of products etc.

In general, the carbon accounting should include information that users, both internal and external to the company, need for their decision making. An important aspect of relevance is the selection of an appropriate inventory boundary which reflects the substance and economic reality of the company's business relationships.

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Sources (CEMASYS reporting system)

Department for Business, Energy & Industrial Strategy (2022). Government emission conversion factors for greenhouse gas company reporting (DEFRA)

IEA (2022). Emission Factors database, International Energy Agency (IEA), Paris.

IMO (2020). Reduction of GHG emissions from ships - Third IMO GHG Study 2014 (Final report). International Maritime Organisation, http://www.iadc.org/wp-content/uploads/2014/02/MEPC-67-6-INF3-2014-Final- Report-complete.pdf

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AIB, RE-DISS (2020). Reliable disclosure systems for Europe – Phase 2: European residual mixes.

WBCSD/WRI (2004). The greenhouse gas protocol. A corporate accounting and reporting standard (revised edition). World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 116 pp.

WBCSD/WRI (2011). Corporate value chain (Scope 3) accounting and reporting standard: Supplement to the GHG Protocol corporate accounting and reporting standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 149 pp.

WBCSD/WRI (2015). GHG protocol Scope 2 guidance: An amendment to the GHG protocol corporate standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 117 pp.

The reference list above is incomplete but contains the essential references used in CEMAsys. In addition, several local/national sources may be relevant, depending on which emission factors are used.

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Abbreviations

Legal entities per 31.12.2023

THASA	Tekna Holding ASA [THASA], Norway
THC	Tekna Holding Canada Inc [THC], Canada
TPS	Tekna Plasma Systems Inc [TPS], Canada, HQ
TAM	Tekna Advanced Materials Inc [TAM], Canada
TMC	Tekna Microelectronics Unit [TMC], Canada
TPE	Tekna Plasma Europe SAS [TPE], France
Imphytek	Imphytek Powders SAS [Imphytek], France, JV
TPZ	Tekna Plasma Suzhou Co Ltd [TPZ], China
TPK	Tekna Plasma Korea Co Ltd [TPK], Korea
TCU	Tekna Inc [TCU], USA

Technical terms

AU	Australia - the CEMAsys carbon accounting system - has a Nordic origin. It does not include many codes for the territories Tekna is in yet.
GHG	Greenhouse gases: The main greenhouse gases whose concentrations are rising are carbon dioxide, methane, nitrous oxide, hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) and ozone in the lower atmosphere.
EE waste	EE waste describes all discarded electrical and electronic devices and components.
TTW	TTW stands for Tank-to-wheel, which are the emissions from actual usage of the fossil fuels, which is the input in Scope 1 and scope 2.
WTT	WTT stands for Well-to-tank. Well-to-tank emissions for Scope 1 input (fossil fuels such as diesel, petrol, natural gas) is relating to the production of the fossil fuel and transportation to the gas station. Well-to-tank emission for Scope 2 input (electricity, district heating/cooling, etc) is relating to the production of the electricity and the transportation and distribution of the electricity until it is used in your locations (transmission losses included).

Units

tCO_2e	tCO2e stands for tonnes (t) of carbon dioxide (CO2) equivalent (e). "Tonne" is a fancy way of writing metric ton, or 2,200 pounds. "Carbon dioxide equivalent" is a standard unit for counting greenhouse gas (GHG) emissions regardless of whether they're from carbon dioxide or another gas, such as methane.
avg.	average
GJ	A gigajoule, abbreviated as GJ, is a unit of measurement of energy consumption: a gigajoule is equal to one thousand million joules.
kWh	A kilowatt-hour is a unit of energy: one kilowatt of power for one hour.
km	kilometer, a metric unit of length equal to 1000 meters.
m^3	The cubic meter is the unit of volume in the International System of Units (SI). Its symbol is m^3.
MWh	Megawatt-hour: A unit of energy, especially of electrical energy, equal to that done by one megawatt acting for one hour.
pkm	A passenger-kilometre, abbreviated as pkm, is the unit of measurement representing the transport of one passenger by a defined mode of transport (road, rail, air, sea, inland waterways etc.) over one kilometre.
tonne	A tonne is a metric unit of weight that is equal to 1000 kilograms.

About Tekna

Tekna is a global leader in the development, manufacturing and sales of advanced micron and nano powders as well as plasma process solutions.

Since we started in 1990, Tekna has developed a unique and proprietary plasma technology platform for manufacturing micro and nano sized powders for a range of industries. Our business model relies on two revenue streams, both with synergistic effects:

- Development and sale of plasma systems: We develop and sell plasma systems customized for the purpose of research and development.
- Development and sale of advanced powders: We develop and operate our own proprietary plasma processes to produce and sell spherical powders and nano powders.

Tekna is developing in major market verticals thriving on global mega trends such as Space Exploration and Space Tourism, Deglobalization and Climate Change, Digitalisation & Connectivity as well as Demography & Health Care.

Tekna is headquartered in Québec, Canada, and has additional offices in France, China, Korea, USA, and seven distributors operating globally (Europe, Asia and North America).

Note: In India and Japan, Tekna has distribution / sales representative agreements

Plasma Systems

1990

Systems | PlasmaSonic:

In the systems business we launched the PlasmaSonic Product line. This wind tunnel simulates hypersonic conditions to enable research for instance for space tourism.

We aim to sell at least 1 PlasmaSonic system in 2024.

2014

Additive Manufacturing:

Tekna produces high quality micron-sized, spherical, high-purity metal powders. Its portfolio includes titanium, aluminum, nickel, tungsten and tantalum. Currently our fastest growing segment and this global market is on track to outperform, in terms of growth, traditional machining due to improved environmental efficiency, for instance through resource efficiency and speed of availability of parts.

We guide to grow in line with the market.

Advanced Materials

advanced development stage

Microelectronics:

In close cooperation with selected customers, Tekna is in the final development stage nano nickel powders for the microelectronics industry. Nano powders below 100 nm are expected to become the new industry standard for high-end MLCC devices, and Tekna is one of only three producers that can deliver this.

We aim to secure industrial scale supply to global tier 1 customer.

future potential

Energy Storage:

Nano silicon can be used to improve performance of rechargeable batteries. Tekna has developed and patented its industrial process to produce spherical silicon nano powder. This is an important part of Tekna's IP portfolio. The company maintains active dialogue with developing partners within the energy storage space.

Currently, resource priority is given to the significant opportunities in the other segments.

Founded in 1990

Tekna Holding ASA listed in OSLO 2022

50% reduction
Commitment 2030

Headquartered in Sherbrooke, QC, Canada

222 employees

90 active patents

3 manufacturing and research centers

Global reach

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