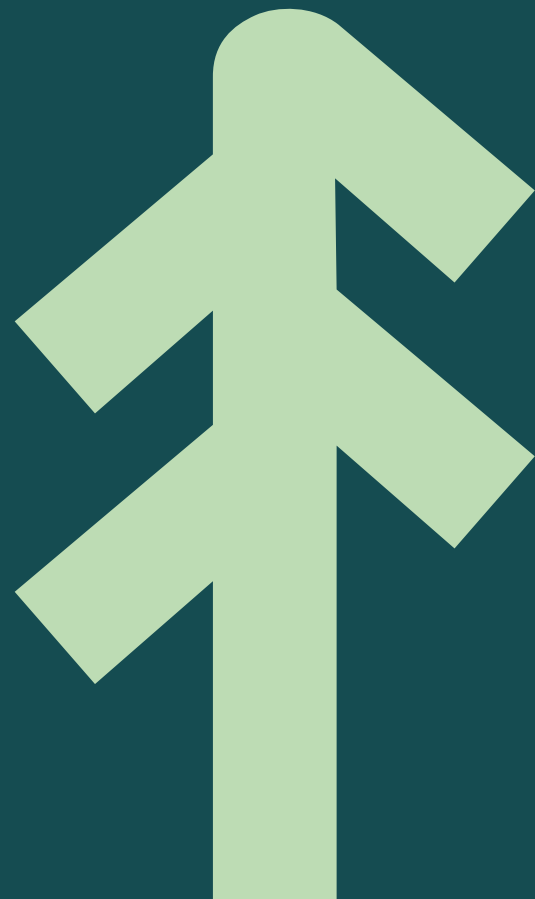




2022 - SUSTAINABILITY REPORT

# THE FUTURE IS BUILT WITH WOOD





**06**  
This is Moelven



**32**  
Climate-smart products and services



**52**  
Safeguarding natural resources



**66**  
Focus on people



**82**  
Local values

**INTRODUCTION**

Remarks from the Chief Sustainability Officer 4  
 This is Moelven 6  
 Sustainability work at Moelven 9  
 The big picture 12  
 Climate accounts 18  
 Climate-smart, sustainable value creation 20  
 Priority areas, results and objectives 22  
 Climate risk 25

**CLIMATE-SMART PRODUCTS AND SERVICES**

Climate benefits from the forest – carbon storage and bioenergy 36  
 What does it mean for me that the products I buy are certified? 37  
 Moelven ByggModul AB: The Green Construction Company 38  
 Environmental certification achieved in record time 39  
 Climate-smart design 40  
 Tools for making climate-smart choices 42  
 Transport of goods 44  
 Energy consumption in our own production 48  
 Production of bioenergy 50

**SAFEGUARDING NATURAL RESOURCES**

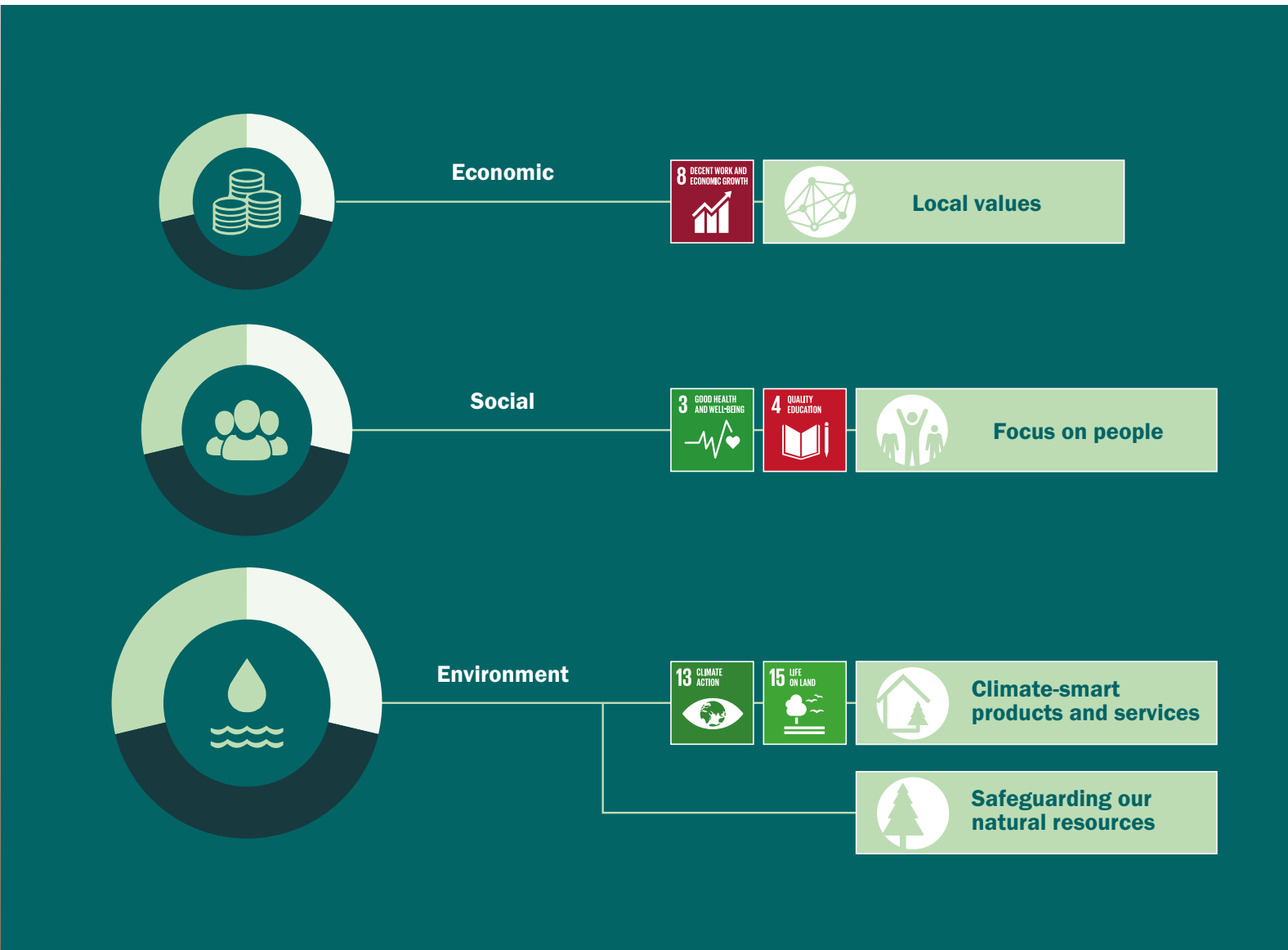
Resource-efficient design and packaging 52  
 Waste management 56  
 Resource optimisation 58  
 Moelven Profil AS: Digitalisation from research to industry 60  
 Water consumption 61  
 Sustainable materials 62

**FOCUS ON PEOPLE**

Health, safety and the environment 66  
 Safe chemical use 70  
 Diversity and equality at Moelven 74  
 Moelven Export Sales AB: A company with women at the helm 76  
 Leadership encourages active employee participation 77  
 Taking responsibility together with SOS Children's Villages 79

**LOCAL VALUES**

The local environment 82  
 Creating economic value in local communities 85  
 What could Moelven's tax contributions pay for? 86  
 A reliable partner 87  
 Key figures for the last five years 88  
 Restatements of information 92  
 Auditor's statement 94  
 Auditor's statement 95



## What does sustainable development mean to you?

**Rune F. Andersen**  
Remarks from the Chief Sustainability Officer

You might already have been asked this question in recent years. Which would not be unusual, because it is a good and relevant question to ask. People's answers tend to vary. People either give the "set answer" about development having to meet current needs without destroying the opportunities for future generations, or it ends up becoming a discussion about major, complex challenges such as global warming, eradicating poverty and protecting biodiversity, or more personal aspects such as diet, recycling and reuse or animal welfare.

One positive is that there is clearly no lack of opportunities to contribute to a sustainable future. On the other hand, it could provide grounds for uncertainty on what to prioritise and perhaps even a sense that YOUR individual efforts are irrelevant.

The climate alarm went off a long time ago, but we have not been good enough at changing our way of life in order to stop the negative developments. In its latest report from March 2023, the UN Intergovernmental Panel on Climate Change states that the planet has already become 1.1 degrees warmer and researchers believe that we may pass 1.5 degrees as early as somewhere between 2030 and 2035. This will have dramatic and irreversible consequences. The choices we make this decade will affect the planet for thousands of years to come. The report from the UN IPCC does, however, note that it is still possible to halve greenhouse gas emissions by 2030 and limit global warming in line with the goals set out in the Paris Agreement. The solutions are there but we all need to assume our share of responsibility and put the solutions into use.

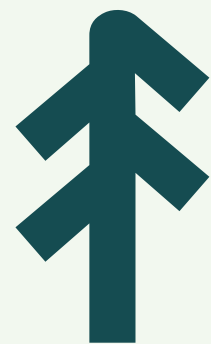
The climate crisis is the greatest challenge we face but it is still important not to forget the other 15 areas that the UN has defined in addition to the overall objective of working together to achieve the goals set out in the Paris Agreement. At Moelven, we are convinced that we can make a difference in several of these areas and the areas in which we have the greatest opportunity to have an influence have been linked to our strategic plan. There is strength in numbers when Moelven's 3,332 employees and 34 production companies all pull in the same direction. It gets even better when the entire value chain from forests to end users collaborates to find the most sustainable solutions at all levels.

In order to clarify our direction, we have established a few overall objectives for the Group based on what we believe to be of greatest importance to us and the outside world. These objectives focus on the environmental, social and economic aspects of the 17 UN Sustainable Development Goals.

The most significant individual sources of climate and environmental impact at Moelven are energy consumption, transport and waste. We also make a positive contribution by ensuring that the forest raw materials we use originate from responsible forestry and by producing goods that help store CO<sub>2</sub>. We are a large company, as an employer and as a business. This provides us with both an opportunity and a responsibility to work on social sustainability.

You can read more about our efforts to make a difference in the areas of sustainable development in which our operations have the greatest impact in this report. We hope that those of you at other parts of the value chain will also make an effort through all the big and small choices you make every day. As a forest owner, supplier, warehouse manager, project manager, consumer, etc., you have great influence and you can help make a difference by demanding sustainable solutions. Together, we are building a sustainable future from wood.





### Vision

Opportunities grow on trees – we grow with opportunities.



### We make use of our opportunities

We reach for the opportunities that surround us, just like the branches of a tree. We think out of the box and adapt to our environment, so that we can grow and remain viable under all conditions.

### Mission

We harvest raw materials from the forest and create products and solutions that the world needs.



### We deliver

Moelven is reliable, and we keep to our promises. We build trust by cooperating and communicating with everyone around us. This means that we stand steady in both calm and stormy weather.



### HR concept

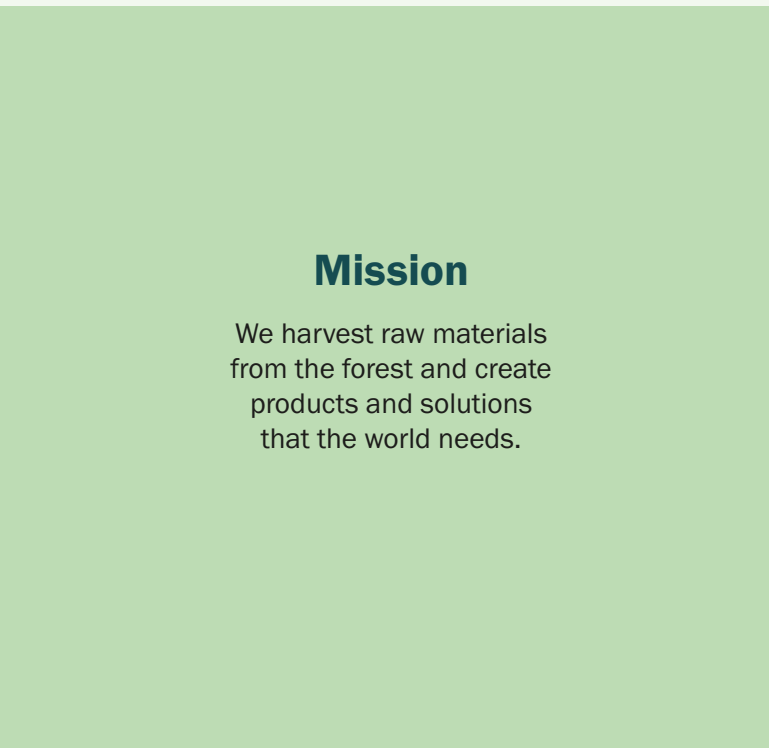
You make the difference!  
 Moelven is the result of all the smaller and larger choices we make every day. Together we create a workplace based on trust, well-being and a sense of belonging. Since 1899, Moelven has seen opportunities, developed new ideas and built better climate-smart solutions for the future. We're going to keep on doing that.

We are Moelven – you make the difference!

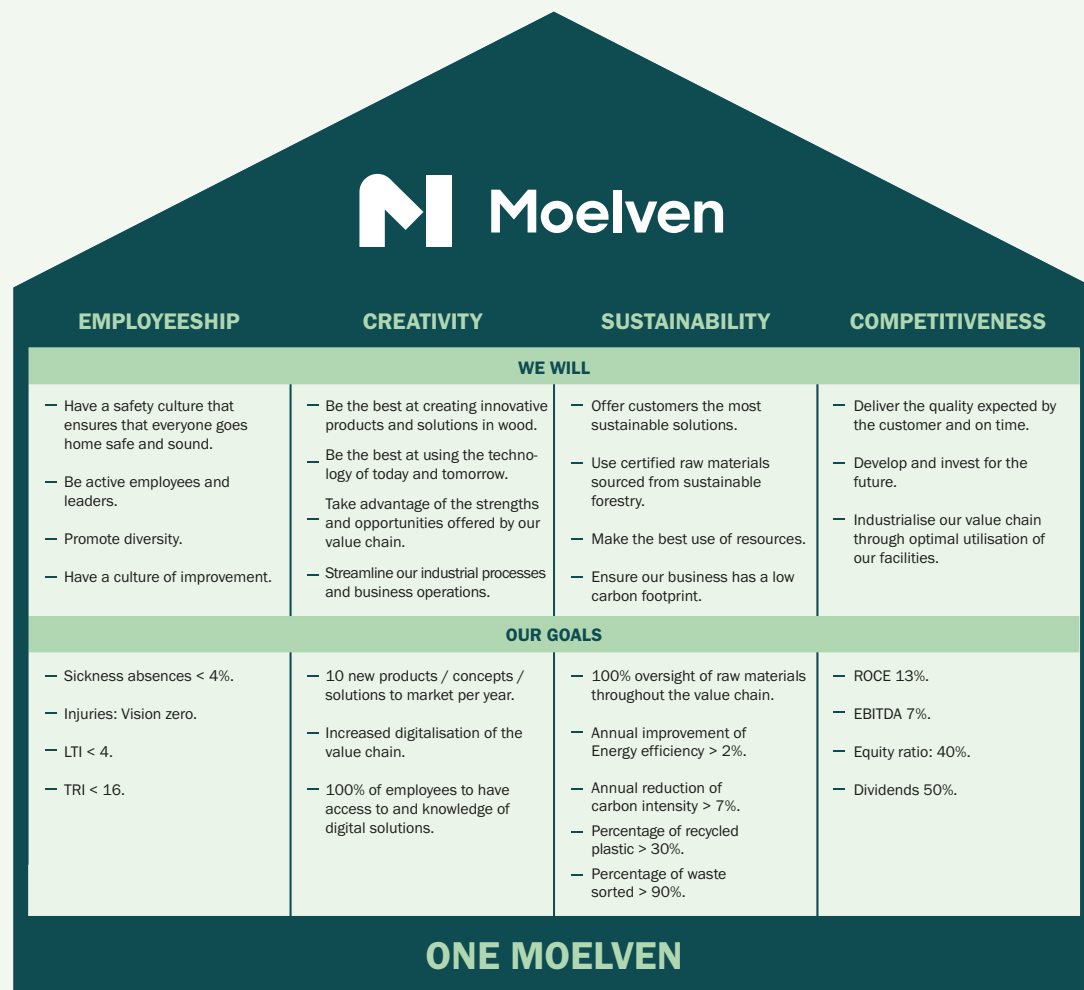


### We take responsibility

We manage the renewable resources we live off with respect and care. We all take responsibility for creating a safe workplace where we take care of people and the environment. These are our fundamental values.







## Our strategic framework

### Vision

Opportunities grow on trees  
– we grow with opportunities.

### Mission

We harvest raw materials from the forest and create products and solutions that the world needs.

### Values

We make use of our opportunities.  
We deliver.  
We take responsibility.

### HR Concept

We are Moelven  
– you make the difference!

Our strategic framework summarises our corporate strategy and is a useful tool for clarifying what we need to do and how we prioritise in order to achieve our goals.

## Sustainability work at Moelven

Moelven harvests raw materials from the forest and creates the products and solutions the world needs.

The forest and the raw materials found in the forest are at the heart of the vast majority of Moelven's activities. Wood is a natural renewable raw material, which can also be used as a carbon sink. Sawlogs from spruce and pine is refined and transformed into a number of different products, from bioenergy fuels, chip products and sawn timber for the woodworking industry to finished construction materials, load-bearing structures, complete buildings and interiors. The world needs construction materials and good methods for capturing CO<sub>2</sub> from the atmosphere. At Moelven, there is no doubt that materials made from wood form part of the solution, but this requires us to do our part of the job correctly and to ensure that we manage both the climate benefits and the other positive qualities of wood throughout the entire value chain. We have therefore made sure that sustainability is one of the pillars of our business strategy.

We have split our sustainability efforts into four focus areas, which are also reflected in the main chapters of this report:

- Climate-smart products and services
- Safeguarding natural resources
- Focus on people
- Local values

In turn, these focus areas have been split into sub-topics that are also described in further detail later in this report. The following sections will provide a summary of how these topics are linked to specific measures intended to develop our existing activities so that they become even more sustainable:

### People

The people who work at Moelven are the Group's most important resource. Developments in the industry are in the direction of increased automation and mechanical processing of the products and the use of constantly more technologically advanced equipment. At Moelven we believe that the greatest potential for increased value creation is in optimising interaction between man and machine. To achieve this, we depend on the commitment, expertise and

diversity of our employees who will manage and operate the technology in a workplace where the risk of injury has been eliminated. It should be safe to work at Moelven.

### Certification and product documentation

Certification is important, both as part of our quality assurance routines and when it comes to providing our customers with enough information to make sustainable product and material choices. This is why we want to communicate openly about how we affect the outside world through our activities and we have a clear goal that our customers can be confident that Moelven products have been created using raw materials from sustainable forestry and that the climate and environmental footprint from our activities is well documented through product declarations and sustainability reporting.

### Raw material certification

The basis for the certification of Moelven's products starts in the forest with the certification of the raw materials that are harvested. PEFC and FSC<sup>1</sup> are the relevant certification schemes in this field Moelven does not own forests, but works to promote forest certification. In Sweden, where Moelven buys timber directly from the forest owner, the efforts to highlight the advantages of certification form an important part of the purchasing organisation's marketing work. We also place great emphasis on playing an active role in the development of certification standards, based on our knowledge of Scandinavian forestry.

### Supply chain

The PEFC Chain of Custody and FSC<sup>®</sup> Chain of Custody certification schemes ensure traceability of certified raw materials throughout the value chain. It must be possible to trace raw materials back to certified sources in order for Moelven to sell certified products.

### Product certification and product documentation

Product documentation requirements are constantly increasing both as a result of legislative requirements and due to increased demand from customers. In addition to adhering to



### MOELVEN SUSTAINABILITY POLICY

Moelven's sustainability work is prioritised by its significance in relation to the outside world and us at Moelven, with emphasis also having been placed on where we can make the greatest difference.

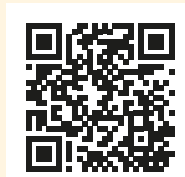
Read more about Moelven's sustainability work here.



### CERTIFICATIONS AND APPROVALS

Certifications are important for both Moelven and our customers.

Please find a comprehensive overview of certifications and approvals here.



<sup>1</sup> FSC<sup>®</sup> logo licenses at our MultiSites:  
MultiSite Moelven Virke FSC<sup>®</sup>-C113012  
MultiSite Moelven Wood FSC<sup>®</sup>-C1115128  
Vänerbränsle FSC<sup>®</sup>-C113016



legislative requirements, Moelven also places great emphasis on the products' environmental documentation. An EPD (Environmental Product Declaration) is a third-party verified document that provides transparent and comparable information about the product's environmental performance throughout the entire life cycle. Both EPDs and the underlying LCA (Life-Cycle Assessment) are always based on international standards.

**Environmental certification of buildings**

Developers decide whether finished buildings should be certified and under which certification scheme. The demand for certified buildings is steadily growing. Future users of the buildings often want certification and financing possibilities are also better for certified buildings. In order to generate value for our customers seeking to certify buildings that include Moelven products, we work to produce and document products with environmental advantages that provide customers with the best possible starting point when the finished building is being certified. The most common building certification schemes used by Moelven customers are BREEAM and the Nordic Swan Ecolabel.

**Transparency**

Sustainability is becoming increasingly important as a basis for decision-making in the business sector. Standardised, transparent and publicly available reporting is important both in order to assess individual parties' sustainability efforts, but also in order to more easily identify areas in which parties can collaborate to achieve improvements, together. Moelven is committed to ensuring transparent and honest communication with stakeholders.

**Transport**

Transport constitutes the largest individual cause of CO<sub>2</sub> emissions at Moelven, both within our own industrial activities in the form of internal transport and upstream and downstream in the value chain in the form of transport from suppliers and transport to customers. There is no doubt that the transport industry needs to be decarbonised in order for society to achieve the targeted reductions in CO<sub>2</sub> emissions, but the process takes time. Moelven's approach is to invest most resources in initiatives that yield results in the short term, while also testing fossil-free solutions with the aim of replacing traditional fossil-based transport solutions in the longer term.

**Resource optimisation**

Moelven is a resource-intensive industrial company. The timber processing part of the Group consumes around 4.5 million m<sup>3</sup> of saw timber as raw material in its own production each year. In order to say that our products are climate-smart,

we cannot only use natural renewable and sustainable raw materials, in fact it is crucial that we optimise production to ensure that nothing goes to waste. In this way, we can ensure that natural resources are not wasted by excessive felling and that the environmental and economic value of the raw material is safeguarded in the most effective way possible.

**Bioenergy**

Moelven has a target of providing at least 95 per cent of the thermal energy needed for the heating of premises and drying of timber from self-produced bioenergy. When bioenergy replaces fossil energy sources, this helps reduce greenhouse gas emissions. This means that it is also important that we streamline our own bioenergy consumption so that as many bioenergy fuels as possible from timber processing can be converted externally to replace fossil sources of energy.

**Energy consumption**

Moelven is an energy-intensive business. Of an annual energy requirement of around 1 TWh, approximately 75 per cent is self-produced bioenergy and the rest purchased electricity. This represents a significant cost and also constitutes a source of CO<sub>2</sub> emissions. In a world with a shortage of fossil-free and renewable sources of energy, we have a responsibility not to waste energy. We therefore work continuously to identify ways in which to streamline and reduce our own energy consumption. Our target is an annual energy efficiency improvement of 2 per cent.

**Waste**

We aim to generate minimal waste from our operations. However, it is not possible to prevent waste from being generated in industry or at construction sites. By sorting as much as possible and by facilitating reuse and recycling, Moelven helps create a more sustainable and circular material cycle. Our target is to achieve a sorting ratio of above 90 per cent for the Group and individual units in the longer term.

**Plastic consumption**

Moelven uses large volumes of plastic in its activities. Most of this is used as packaging in order to maintain the quality and characteristics of products and to protect them against weather. Plastic has many good qualities when used as a packaging material, but also represents an environmental challenge when it goes astray in nature as waste or microplastics or when burned when it becomes a source of CO<sub>2</sub> emissions. Moelven has a target to reduce plastic consumption and make this more sustainable. We work to ensure that at least 30 per cent of the total volume of plastic we use is made from recycled plastic.

**Our sustainability heroes**

The Sustainability Hero is awarded four times per year and is selected by the Sustainability Forum on the basis of the nominations received. The following four people have received the award so far.



**Viggo Engh**  
Logistics Manager,  
Moelven Byggmodul AS



**Johan Berglund**  
Operations Engineer,  
Moelven Industrier AB



**Per Børke**  
Logistics Director,  
Moelven Wood AS



**Tjalling Chaudron**  
Product Developer,  
Moelven Wood AB



**Energy**

The world has a deficit of fossil-free energy sources. Moelven is an energy-intensive business. Although ¾ of our energy consumption is self-produced bioenergy, we must continuously work to find ways to improve efficiency and reduce energy consumption.



**Transport**

Transport of goods is Moelvens biggest single cause of climate emissions, and therefore an important focus area. Increased use of modular vehicle combinations, boat and train, efficient logistics, modern low emission vehicles, as well as vehicles with fossil-free powertrains are important measures.



**HES**

The people who work in Moelven are our most important resource. No one should get sick or injured from working in Moelven.



**Employee participation**

We shall have leaders who create prerequisites for well-being, innovation and development. We shall have employees who take own responsibility, develop their competence and contribute with commitment.

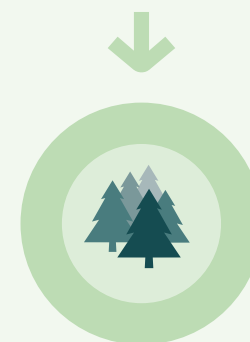
**Climate-smart products and services**  
Ambition: We and the materials we produce shall be climate positive

**Focus on people**  
Ambition: We shall be an attractive and safe workplace

**Safeguarding natural resources**  
Ambition: We shall use renewable, whole resources

**Local values**  
Ambition: We will create more green jobs

**Moelven**



**Certified products**

The basis for being able to build climate smart with wood starts with a responsible and sustainable forestry. Raw material certifications and chain of custody certifications in the value chain are therefore a very important focus area for Moelven.



**A responsible value chain**

Moelven's value platform involves a responsibility for both people and the environment. Moelven will work to secure responsible business practices by safeguarding human and labor rights, society and the environment, both within our own business and together with our partners in the value chain.



# The big picture

## 2023 – the year for climate action?

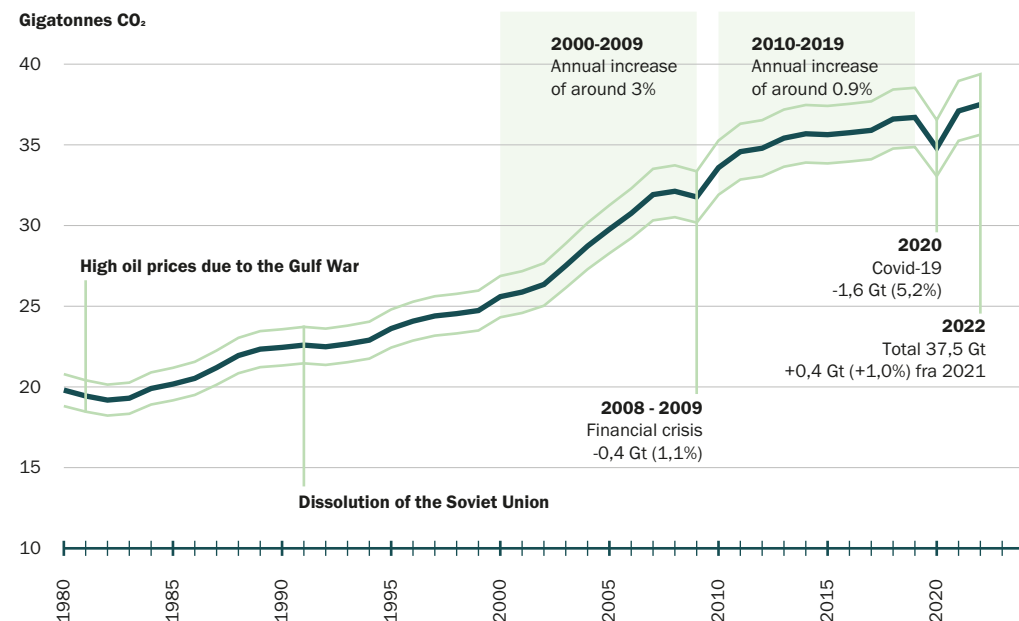
There were high levels of activity in the international climate and environment field in 2022 and several international agreements were entered into in addition to the ambitious climate targets for which there were already agreements. At the fifth session of the UN Environment Assembly, it was agreed to put in place a legally binding global agreement against plastic pollution in 2024. More than 100 UN member states also agreed on a binding ocean treaty to ensure the conservation and sustainable use of marine biodiversity in international waters. Towards the end of the year, on the final day of the COP15 Biodiversity Conference, the UN's new "Biodiversity Agreement" was put into place. A central aspect of the agreement is the goal of protecting 30 per cent of land, water and marine areas by 2030 and restoring 30 per cent of all partially harmed biodiversity by 2030. The agreement also includes a financing plan, which is also ambitious with a goal of raising at least USD 200 billion from public and private sector sources by 2030, while also reducing subsidies that are considered harmful to biodiversity by at least USD 500 billion.

In other words, there is no shortage of political ambition. Nor is there a shortage of sustainability ambitions in business. In just a few years, sustainability has become an important item on the agenda for the majority of businesses and the interest in joint efforts to reduce the overall impact on the climate and environment in value chains appears to be greater than ever. Changed framework conditions in many areas

should be expected in the coming years as climate agreements are turned into action.

Unfortunately, 2022 ended up being another year in which negative climate records were set. The extreme weather, droughts and floods in Scandinavia and Europe showed how vulnerable we are to climate change in our part of the world and also how important it is to ensure strong, sustainable solutions. The energy crisis in Europe, towards which the Russian attack on Ukraine and energy war against Europe were major contributors, resulted in a rapid return to "old sins" as several coal power plants were restarted to produce electricity. This came in addition to the already increasing emissions resulting from growth in the global economy following the COVID-19 pandemic. The estimate for 2022 is that global CO<sub>2</sub> emissions increased by 1 per cent, i.e. around the same rate as during the 2010-2019 period.

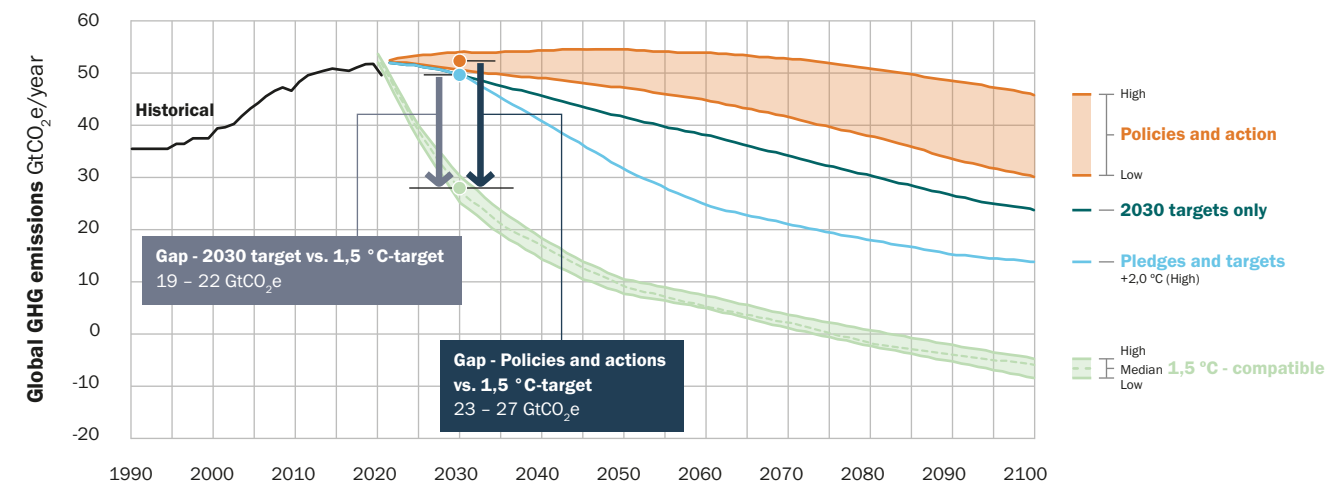
In the latest UN Climate Report, researchers have stated that the 1.5 degree limit in the Paris Agreement may be surpassed between 2030 and 2035. The average temperature has already risen by 1.1 degrees since pre-industrial times. Depending on how well the global community succeeds in reducing greenhouse gas emissions, the temperature increase will be reversed to some extent in certain scenarios so that the 1.5 degree increase limit will still be met in the slightly longer term. Researchers believe that we are heading towards a temperature increase of around 2.4 degrees if the targets for 2030 are met. One of the problems is that global society is lagging behind on the 2030 targets. There is a gap



The graph illustrates global CO<sub>2</sub> emissions from fossil sources. Thin lines indicate that there is an uncertainty factor of 5 per cent in the calculations. In order to achieve net zero emissions by 2050, the world is dependent on annual emissions being reduced by at least as much as during the COVID-19 pandemic each year as an average from 2022 to 2050. Source: Global Carbon Project, worldometers.info

## 2100 Warming projections

CO<sub>2</sub>-emissions and expected warming based on pledges and current policies



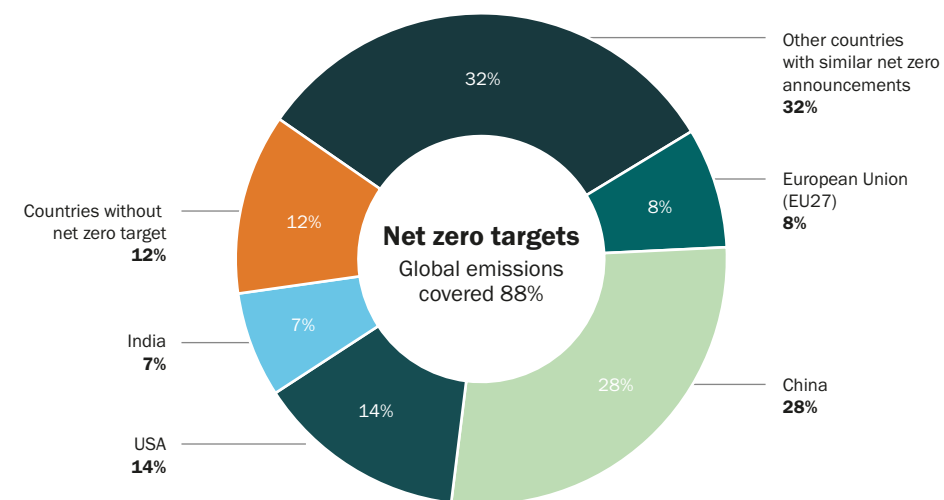
between countries' individual policies and actions and what it would take to achieve the 2030 targets. If only the sum of policies and initiatives is taken into account, researchers believe that a temperature increase of between 2.6 and 2.9 degrees would be likely by the year 2100.

A temperature increase of close to 3 degrees would have dramatic consequences on the ecosystems on the planet. There would be several tipping points along the way which would mean that the changes would become irreversible and

the pace of change would accelerate. The UN estimates that 3.3 to 3.6 billion people and a high proportion of biodiversity on Earth are extremely vulnerable to climate change. Thankfully, the goal of limiting global warming to 1.5 degrees can still be met, but it requires world leaders to act immediately. Currently, 88 per cent of global greenhouse gas emissions originate from countries that have adopted national laws and/or explicit zero-emission targets.

In addition to zero-emission targets, there are

The above graph illustrates estimated global CO<sub>2</sub> emissions and the expected temperature increase by 2100 based on pledges and current policies. Source: The Climate Action Tracker



The graph illustrates net zero-emission targets adopted in legislation, as part of initiatives or in discussion. Source: The Climate Action Tracker



also international agreements aimed at the other sustainable development goals set out in the Paris Agreement. This applies, among other things, to the protection and restoration of land and marine environments, bans on plastic, waste management, the circular economy and alleviating poverty.

This is good news for global society and provides grounds for some optimism, but both the business sector and individuals need to be prepared for changes compared to how we currently operate and live.

In early April 2022, on the 3rd and 12th respectively, the Global Footprint Network calculated that the Country Overshoot Day would occur in Sweden and Norway. This means that if the entire global population lived the way we do in Norway and Sweden, we would have used a whole year's worth of natural resources by those dates. This makes it easy to understand that we need to be prepared to change our consumption patterns. Some goods and services will become more expensive and others might vanish completely. Nevertheless, this is a small price to pay if this is what it takes for future generations to also benefit from a planet that is as similar as possible to the one we know today.

For companies like Moelven, it is not only the regulatory changes, but also the demands set down by stakeholder groups such as customers, suppliers, employees, the local community, etc. that will also have a major impact on the direction of future operations and strategic development. Many framework conditions will undoubtedly change in a direction that means that operations will become more demanding and costly. These changes will also lead to opportunities for those companies that have the conditions and ability to make use of these. At Moelven, we are convinced that a sustainable and renewable material like

wood, with its natural ability to absorb and store carbon, provides us with a fantastic starting point for being part of the solution to the climate crisis. Our most important task is therefore to manage and refine the raw material we harvest from the forest with minimal climate footprint so that we and our products remain climate-positive.

### The EU's green deal, the taxonomy and corporate reporting

The European Green Deal was launched by the European Commission at the end of 2019 and is a strategy for the EU to transition to a modern, competitive zero-emission economy in which economic growth is linked to the extraction of natural resources by 2050.

New jobs will be created in sectors such as renewable energy, production of electric vehicles and a sustainable construction sector. The taxonomy is an important tool in the EU Green Deal and the main aim is to utilise finance as a tool to steer societal development in a sustainable direction. Simply put, the taxonomy comprises a set of assessment criteria that will form the basis for defining what constitutes a sustainable activity. Accommodations will be made to ensure that activities that satisfy the criteria for sustainability have access to better capital, more favourable taxes, easier access to the market, etc. than activities that do not meet the criteria. In recent years, there has been a clear trend for financial institutions and investors to prioritise sustainable companies. In order to for an activity to be classified as sustainable, the activity must meet the following criteria:

1. Contributing significantly to at least one of six environmental objectives:
  - a. Limiting climate change.

- b. Climate change adaptation.
  - c. The sustainable use and protection of water and marine resources.
  - d. The transition to a circular economy.
  - e. Pollution prevention and control.
  - f. The protection and restoration of biodiversity and ecosystems.
2. Not significantly impeding the other environmental objectives.
  3. Fulfilling the minimum conditions concerning social rights.

Based on the established assessment criteria, Moelven carried out a survey in 2022 to examine the extent to which the Group's activities are covered under the taxonomy as of 2022.

The EU has issued a new reporting directive, the Corporate Sustainability Reporting Directive (CSRD), which requires listed companies and large corporations in the EU to publish extensive information about their business models, strategies, corporate governance, objectives, guidelines and internal control in relation to sustainability, risk assessments and how social and environmental challenges are managed. The requirements are initially aimed at large companies and financial operators but will also gradually enter into force for smaller companies. Smaller companies are also indirectly affected through requirements imposed by e.g. financial stakeholders and customers covered by the regulations. Frameworks such as the taxonomy and CSRD will help clarify the direction of sustainability work, thereby making it easier to work together to achieve the sustainable development goals and, not least, lead to the necessary changes being implemented more quickly. CSRD has already been incorporated into Norwegian legislation. For

Moelven, this means that we will perform a more thorough review of our objectives to ensure that we are working in line with the framework and actively playing our part in working together to achieve the sustainable development goals.

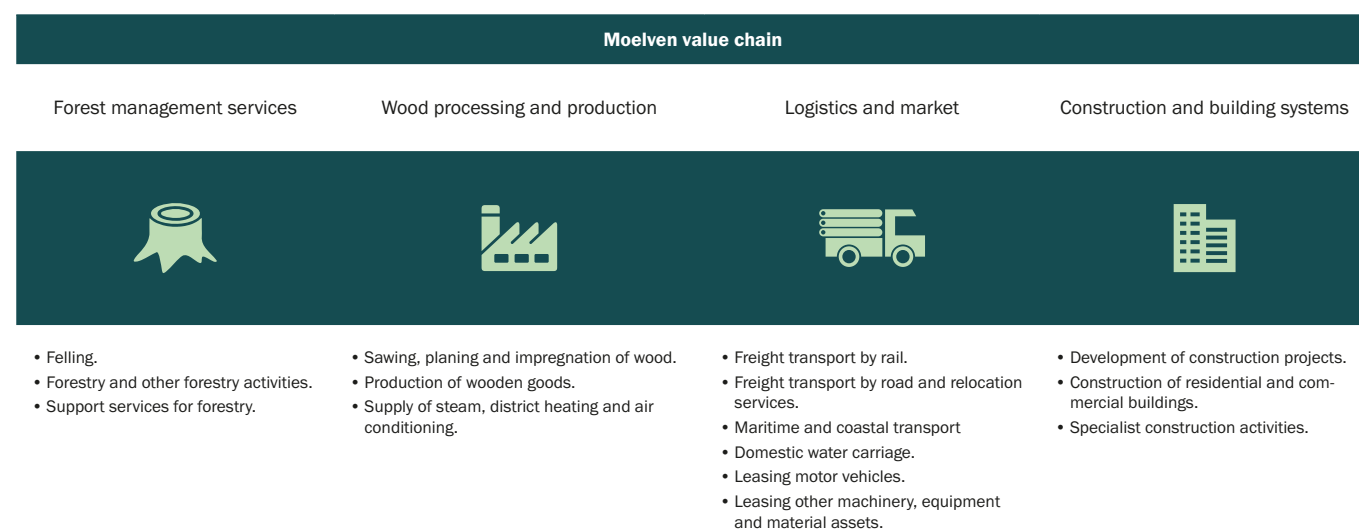
### Moelven's goals and priorities

At Moelven, we have prioritised our sustainability efforts based on the impact they have on the world and on us. We have also emphasised the areas in which we can make the greatest difference. In order to prioritise, we have conducted a stakeholder analysis in order to identify which stakeholder groups are impacted the most by our activities and what these stakeholders care about. We have also conducted materiality analyses in order to determine which areas have the greatest impact for both Moelven and the stakeholder groups.

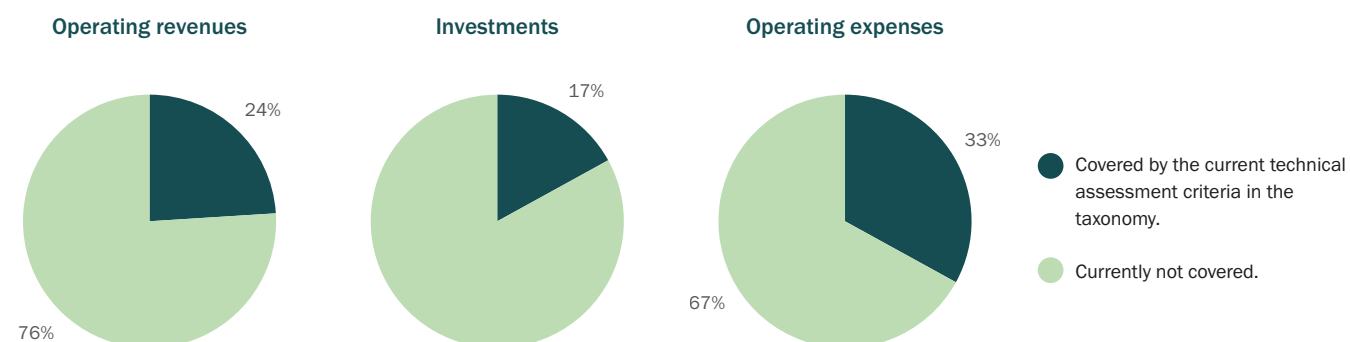
Most of our activities are based around a natural, renewable raw material, which is also nature's own solution for carbon capture and storage, namely wood.

The most important aspect of our sustainability strategy is therefore to work to refine the raw material with the smallest possible climate footprint and to work to ensure that the highest possible proportion of our finished products become part of permanent buildings and structures so they can continue to bind carbon for as long as possible. Around five to six times as much carbon as the company releases is bound by the Group's annual timber production.

The electricity we buy in Scandinavia is largely environmentally friendly and renewable electricity compared to many other places around the world. Increasing transmission capacity to and from abroad does, however, mean that the power systems are interconnected. An important aspect



These items represent financial activities in the Moelven value chain.



The figure above illustrates the proportion of the Group's operating revenues, operating expenses and investments that are covered by the current assessment criteria. The largest individual business activities covered by the taxonomy at Moelven relate to construction and civil engineering and forest management. Construction and civil engineering activities largely take place within the Building Systems division. Forest management falls under the Other Businesses area, where it is linked to timber purchases and forest management assignments that Moelven assumes in connection with this.



Stakeholder analysis and materiality analysis



of Moelven’s sustainability strategy therefore focuses on making energy consumption more efficient, both in terms of purchased electricity and self-produced bioenergy.

This work is ongoing, with a primary emphasis on the use of modern control systems to eliminate waste and prioritising energy efficiency when buying new production equipment. Nevertheless, there are areas in which increased electrification is considered the most important measure to reduce direct CO<sub>2</sub> emissions. For Moelven, this primarily relates to internal transport, which is the single largest cause of Scope 1 emissions from business activities. By replacing diesel-powered trucks and construction machinery, emissions can be reduced, but this would also lead to an increase in electricity consumption. Nevertheless, the reduction in CO<sub>2</sub> emissions due to lower diesel consumption will be greater than the increase in CO<sub>2</sub> emissions due to increased electricity consumption.

Moelven’s priority is therefore to reduce direct CO<sub>2</sub> emissions from operations.

The following four items describe the main focus areas of the Group’s sustainability work. In order to ensure that this work has a clear direction and in order to place our efforts into a global context, we have linked these focus areas to those of the UN Sustainable Development Goals that Moelven has the greatest opportunity to help influence and make a difference to.

• **Climate-smart products and services**

In order for Moelven and the materials we produce to be climate-positive, we need to work continuously to reduce CO<sub>2</sub> emissions, improve the efficiency of the energy consumption in our production and optimise raw material consumption. The higher the proportion of our products that are included in permanent buildings and structures, the more CO<sub>2</sub> we help remove from the atmosphere.



To help further prioritise this work, the different topics under each focus area have been classified as follows:

• **Safeguarding natural resources**

In order to ensure that our company contributes to safeguarding natural resources, we must ensure that we use renewable resources and that we take full advantage of them. Safeguarding natural resources also means looking after biodiversity. We do this by ensuring certifications and quality assurance in the supply chain, all the way from the forest to the market. Through the documentation work required by the certifications and the reporting of environmental data, we ensure that we are able to prioritise the work and direct our efforts to the right areas, while also ensuring that our customers and the general public know what it means for the climate and the environment when you buy and use products and services from Moelven. As well as optimising production with regard to efficiency and the exploitation of raw materials, residual raw materials and waste must also be sorted and managed in

such a way as to facilitate reuse and recycling.

• **Focus on people**

We aim to be a safe and attractive workplace and we will ensure that our operations and products are not harmful to people, biodiversity or ecosystems.

• **Local values**

We will create more green jobs. We do this not only by ensuring long-term and green value creation in our own business. We also contribute to the green transition through our community contributions in the form of the taxes and charges we pay and the ripple effects that are created in local communities through our use of local subcontractors. We have established specific targets for the sustainability work in the short-term. These are described in more detail under each topic in this report.

“We must join forces throughout Norway to create a more resilient forestry industry” were the words spoken by CEO Morten Kristiansen when Prime Minister Jonas Gahr Støre (Labour) and Minister of Agriculture and Food, Sandra Borch (Centre), visited Moelven in January 2022. Photo: Moelven



# Climate accounts

As of 2017, Moelven's climate accounts have been drawn up in accordance with the GHG Protocol.

(Tonnes of CO <sub>2</sub> equivalents)	Change %	2022	2021
<b>Scope 1 (Emissions in the company)</b>			
Fuel oil		952	880
Biofuel oil		1	1
Diesel		13,499	13,888
Biodiesel		-	-
Petrol		86	16
LPG (gas)		1,820	1,014
Moelven-owned goods transport (from supplier)		5	6
	<b>3.5%</b>	<b>16,363</b>	<b>15,804</b>
<b>Direct biobased emissions (outside scope)</b>			
Bark		245,561	235,578
Sawdust		23,599	22,984
Hogged chips		101,081	109,183
Wood shavings		5,750	7,572
Cellulose chips		23,292	17,718
Pellets		326	369
Wood		0	0
Biofuel oil		1	1
Biodiesel		-	-
	<b>1.6%</b>	<b>399,609</b>	<b>393,406</b>
<b>Scope 2 (Emissions related to electricity consumption)</b>			
Location-based calculation	8.9%	2,462	2,261
Market-based calculation	-3.5%	86,843	89,989
<b>Scope 3 (Emissions outside the company)</b>			
Goods transport to customers performed by third parties		131,331	102,157
Third-party goods transport (from supplier to Moelven)		32,165	28,552
Estimated emissions from intermediate goods		40,060	43,500
Air travel		166	78
Work-related car transport		220	146
	<b>16.9%</b>	<b>203,942</b>	<b>174,433</b>
<b>Total emissions (scope 1, scope 2 location-based, scope 3)</b>	<b>15.7%</b>	<b>222,767</b>	<b>192,498</b>
<b>Total emissions (scope 1, scope 2 market-based, scope 3)</b>	<b>9.6%</b>	<b>307,148</b>	<b>280,226</b>

## The basis for calculating direct bio-based emissions

The Moelven Group annually consumes around 230 GWh of electrical energy and around 800 GWh of self-produced bioenergy. Electricity is purchased from external suppliers, while bioenergy is primarily produced using our own furnace installations. The biomass used in the furnace installations consists of residual raw materials such as bark and various chip products from timber production. Roughly speaking, it can be said that around 50 per cent of sawlogs becomes sawn timber, while the remaining

50 per cent consists of various chip products and shrinkage due to drying. There is also bark, which is not included in the volume when timber is being measured.

The largest furnace installations can be found at units that use saw timber as a raw material in production. Some units produce more bioenergy raw materials than they consume for their own energy production. The surplus is sold to others that require more bioenergy raw materials than they produce. Such surplus may be sold to both intercompany and external customers.

The climate accounts are based on emissions of CO<sub>2</sub>, as no emissions of other greenhouse gases have been identified or quantified, such as CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC, SF<sub>6</sub> or NF<sub>3</sub>. Emission factors have largely been obtained from Defra (Department for Environment, Food & Rural Affairs, UK). Emission factors for electricity are based on NVE factors in Norway, Energinet.dk's factors in Denmark and Energimarkedsstyrelsen (EI) in Sweden. For location-based emissions from Swedish companies, IEA CO<sub>2</sub> Emissions from Fuel Combustion 2016 have been used.

For calculations of bio-based emissions, EN 16449 has been used, based on values from the Norwegian Institute of Wood Technology and Erik Eid Hohle (Bioenerg). The ownership principle, where Moelven is the invoice recipient for the activity, has been used for system delimitation.

The volume distribution of fired biomass was corrected in 2022. The effect of the use of modular vehicle combinations has also been taken into account in relation to emissions from transport to customers. Comparative figures for 2021 have been corrected accordingly.

Volume balances are central to keeping control of the efficiency in production, but systems and procedures to measure volumes vary between different units. It has been necessary to standardise the reporting from the production companies in order to calculate CO<sub>2</sub> emissions from bioenergy production. All quantities are reported in m<sup>3</sup> of loose material (lm<sup>3</sup>). The volume reported from each production company is calculated on the basis of the following main options, or a combination thereof:

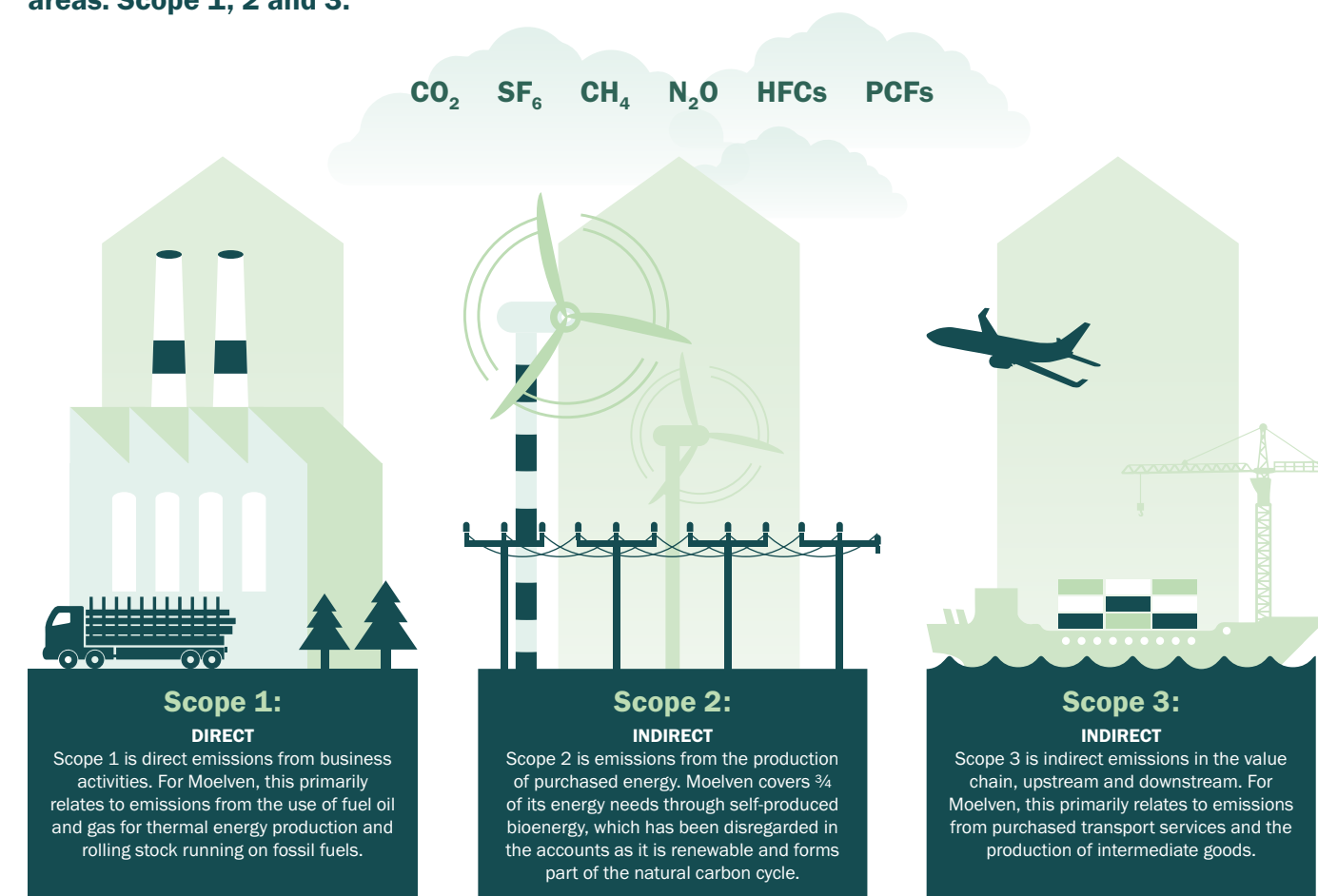
- 1) Companies that purchase bioenergy raw materials**  
Invoice received with specification of volumes. If the volume is specified using a different unit of measure than lm<sup>3</sup>, the volume will be converted to lm<sup>3</sup>. Consumption during the reporting period will be calculated as the difference between net stock at the beginning and at the end of the period.
- 2) Companies that produce bioenergy raw materials, option 1**  
At units where measuring instruments have been installed that display energy production figures, the readings will be taken and converted to a theoretical

raw material volume based on estimated moisture content and the composition of the fired biomass.

- 3) Companies that produce bioenergy raw materials, option 2**  
The total volume of residual raw material is calculated on the basis of measured recovery factor and experience-based factors for volume outcomes for various chip product types. The volume is corrected for chip products sold externally, such as cellulose chips. Consumption during the reporting period will be calculated as the difference between net stock at the beginning and at the end of the period.
- 4) Companies that produce bioenergy raw materials, option 3**  
The volume of fired biomass is logged. Loading is usually carried out using a wheel loader for which the capacity per bucket in lm<sup>3</sup> is known. The composition of bark and various chip products is calculated as the difference between net stock at the beginning and at the end of the period, corrected for any volumes sold externally.

## The climate accounts in brief

The GHG Protocol splits climate accounts into three focus areas: Scope 1, 2 and 3.



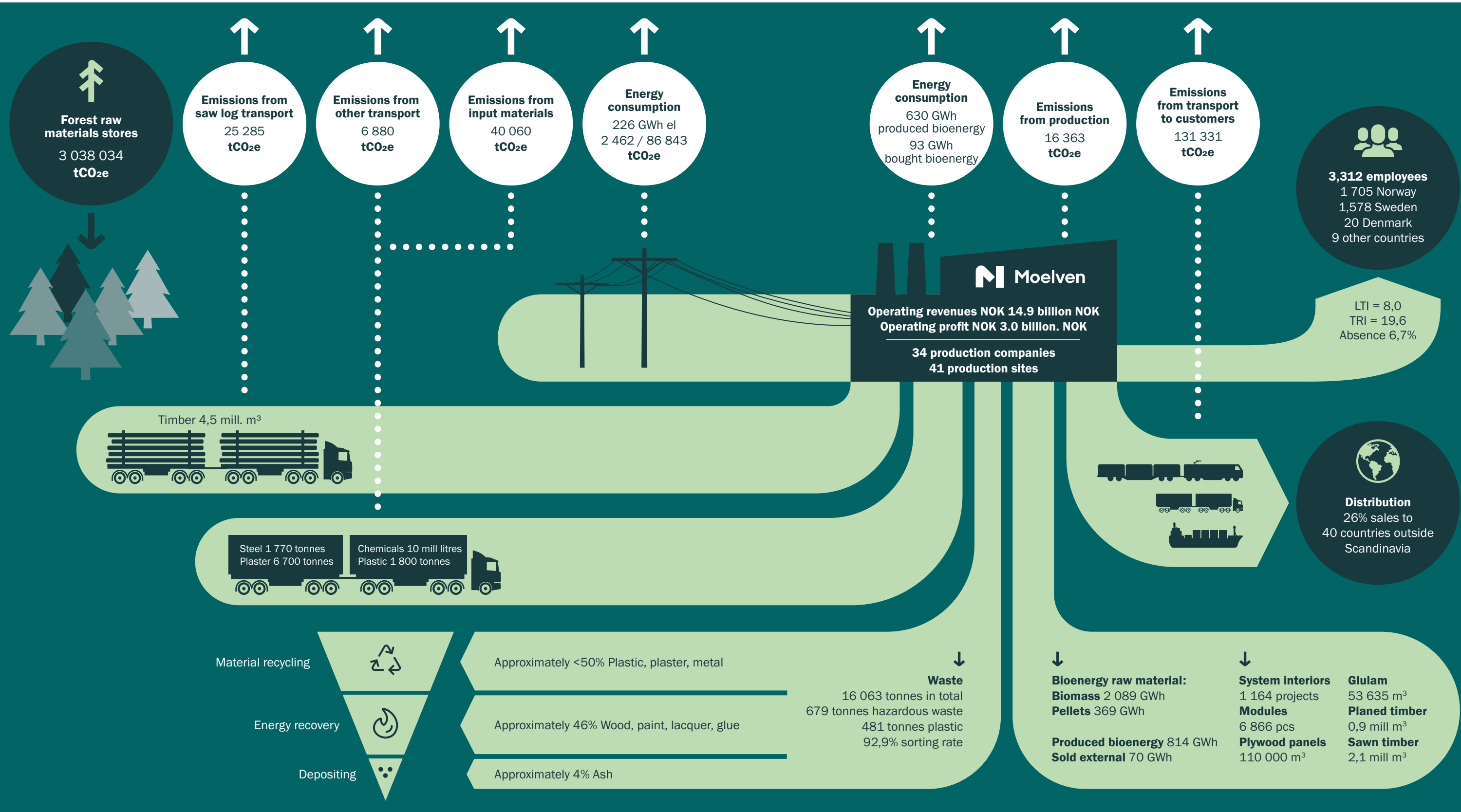


# Climate-smart, sustainable value creation

**CO<sub>2</sub> emissions from Moelven**  
0.3 million tonnes

**CO<sub>2</sub> emissions from bioenergy**  
0.4 million tonnes

**CO<sub>2</sub> stored in finished goods**  
1.4 million tonnes










# Priority areas, results and objectives

## Basic premise

– we are a reliable partner

Four priority areas	Important topics	Results				Objectives and remarks
			2022	2021	2020	
 <p><b>We and our materials shall be climate positive</b></p>	<ol style="list-style-type: none"> <li>1. Energy consumption in own production</li> <li>2. Goods transport</li> <li>3. Production of bioenergy</li> <li>4. Climate benefits from the forest</li> <li>5. Climate-smart design</li> </ol>	Electricity consumption (GWh)	226	235	249	2% annual reduction in energy consumption per unit produced.
		Self-produced thermal bioenergy (GWh)	814	819	795	95% of needs for thermal energy covered by self-produced bioenergy.
		Carbon footprint (tCO <sub>2</sub> e), including location-based Scope 2	222,767	192,498	159,888	7% annual reduction in carbon intensity.
		Carbon footprint (tCO <sub>2</sub> e), including market-based Scope 2	307,148	280,226	253,110	
		Carbon stored in finished goods (tCO <sub>2</sub> )	1,439,536	1,484,288	1,576,605	
		Transport				Digitalised logistics planning to optimise driving routes and minimise driving when empty. Trialling of transport methods based on renewable energy sources. Electrification of internal transport. Requirement for EURO 6 from 2022. Increased use of modular vehicle combinations, water and rail.
 <p><b>We shall use renewable resources and utilise the entire resource</b></p>	<ol style="list-style-type: none"> <li>1. Sustainable materials</li> <li>2. Resource optimisation</li> <li>3. Resource-efficient design and packaging</li> <li>4. Waste management in production</li> <li>5. Water consumption</li> </ol>	Controlled raw material	100%	100%	100%	Certify raw materials from sustainable forestry. 100% controlled raw materials throughout the value chain.
		Recycled plastic (tonnes)	418	581	392	Plastic is included as a separate fraction in waste sorting.
		Plastic consumed (tons)	1,807	2,049	1,909	Share of recycled plastic > 30%. Collaborate with customers and suppliers on concepts to minimise the need for packaging. Development and testing of alternative packaging materials.
		Sorting ratio	92.9%	92.6%	87.6%	90% sorting ratio for the Group and all units over time.
  <p><b>We shall be an attractive and safe workplace</b></p>	<ol style="list-style-type: none"> <li>1. HSE</li> <li>2. Engaged and competent employees</li> <li>3. Safe chemical use</li> </ol>	LTI	8.0	6.9	11.7	< 4 Number of injuries resulting in absence per million hours worked.
		TRI	19.6	21.2	25.1	< 16 Total number of injuries per million hours worked.
		Rate of absence due to injury	113	185	256	Number of occupational injury-related days of absence per million hours worked.
		Risk reports	4,169	7,265	3,843	> 1.2 per employee.
		Absence due to illness	6.7%	5.6%	6.20%	< 4.0%
		Employees	3,332	3,312	3,391	
 <p><b>We shall create more green jobs</b></p>	<ol style="list-style-type: none"> <li>1. Creating economic value in local communities</li> <li>2. The local environment</li> </ol>	Total tax contributions in Norway and Sweden (MNOK)	1,553	1,450	931	Sustainability is one of the four pillars of the Moelven strategy and will be included as a decision-making criterion in connection with investments and the development of the Group.
		Estimated social contributions (MNOK)	6,183	7,308	5,004	
		Violation of the Pollution Control Act or equivalent	None	None	None	Moelven shall not be responsible for any violation of pollution control legislation or equivalent. Moelven shall continuously work to improve its environmental footprint in the local community.
		Social sustainability				Moelven will work to ensure responsible business practices and transparency in relation to labour and human rights, society and the environment throughout the entire value chain.





Changes to the weather and climate may affect Moelven's access to raw materials.  
Photo: Moelven

## Climate risk

The risk is changing both for Moelven and society at large. The climate and environmental crisis has been a central issue for several years and climate risk is now high on the agenda of both businesses and public authorities. The social changes that will come to the fore as a part of the work to limit negative climate change may entail severe negative consequences for parties that fail to take part in the transition. At the same time, great opportunities are arising for those that contribute to the green transition. In recent years, the world experienced how a pandemic can quickly have huge consequences, not only for life and health, but also the world economy. Population groups have been differently affected, often with the most severe consequences for those who initially were weakest. Industries and companies went from a boom to a virtual full stop in activity in a matter of months, while others thrived. Climate change could affect the world community in the same way, but over a longer period of time, which makes us more capable of limiting the impact.

### Management

#### The Board of Directors' role

The duties and responsibilities of the Board of

Directors are in accordance with the legislation applicable at any time, as well as the instructions for the Board of Directors as established for Moelven Industrier ASA. The Board of Directors has the overall responsibility to ensure satisfactory control of the company's operations. The relationship to climate risk and climate opportunities falls within this. In accordance with the current rules of procedure, the Board annually reviews and adopts the company's policy for sustainable operations and code of conduct. These provide guidelines for how Moelven shall integrate considerations to the outside world in value creation. The sustainability policy also stipulates that Moelven shall publish its results and progress in the area through an annual sustainability report. The Board of Directors considers and adopts the sustainability report. No separate board committees have been established with regard to climate risk and sustainability.

#### The role of management

The CEO is responsible for the day-to-day management of Moelven's operations and follows the guidelines provided by the Board.

Up to and including 2022, the monitoring and control of climate and sustainability issues were



organised under economy and finance in corporate management, where responsibility for internal control and risk management is otherwise located. From 2023, sustainability is included as a staff/support role for the Group Executive Board, reporting directly to the CEO. In addition group- and/or division-wide functions for control and follow-up have been established where this is appropriate. Examples are raw materials supply, the raw materials certification schemes PEFC and FSC®, energy follow-up and HSE.

There are also examples of climate related issues that are closely integrated in the day-to-day operational activities. This particularly applies to product certifications, operating permits and similar. Moelven operates using a decentralised organisational model, under which most operational units are independent legal entities. The local boards and company management have independent responsibility for the follow-up of climate and sustainability issues at the unit level.

### Risk management and strategy

The purpose of Moelven's risk policy is to ensure systematic and proper management of the Group's most important risks and opportunities. Sustainability and climate risk fall under this.

For this area, international reporting recommendations have been established to help companies and owners better understand how climate change affects leadership, strategy, risk and objectives. Moelven has taken inspiration from these recommendations in its analysis of climate risk and opportunities.

When assessing climate risk, Moelven applies the following short-term, medium-term and long-term time perspectives: Short-term 0-5 years, medium long-term 5-10 years and long-term 10-30 years. The definition follows the time frame stipulated by the IEA in the World Energy Outlook. The short-term viewpoint is in line with Moelven's current strategic period. In the medium term, the business and assets are considered in terms of potential trends and risks towards 2030, with a change in global policy and markets relating to climate action. The long-term view is also relevant as several European countries have existing targets of virtually zero emissions in 2050.

The results of the assessment of climate risk and opportunities have been evaluated by the Group Executive Board and the Board of Directors and these assessments help form the basis for strategic and operational discussions. Further work on risks associated with the climate and other sustainability issues will be carried out and developed in line with the Group's risk policy and international recommendations.

### Identified risks

Moelven's climate risk generally relates to physical risks or transitional risks resulting from



the transition to a zero emission society.

Physical climate risk arises from changes to the weather and climate. With regard to Moelven, this will mainly affect raw material access and the frequency and severity of flooding. Raw material access may be influenced by extreme weather, which could potentially harm standing forests, which in turn could have an impact on quality, price levels and access to timber. One example is hurricane Gudrun in 2005, which felled forests equivalent to one year of ordinary harvesting in Sweden. Harvesting can be influenced by mild and wet winters due to accessibility challenges in the forests. This risk has affected Moelven in the past and it is assumed that the risk level will increase in line with climate changes. Forest fire is a risk factor that increases as average temperatures increase and we experience periods of drought. More extreme weather can also cause challenges for outdoor storage of materials and leads to increased requirements for certain end products. Flooding can also damage several of Moelven's sawmills that are situated in close proximity to rivers and waterways. This is a well-known issue that we have been strategically working on for a number of years.

Transitional risk constitutes a risk to Moelven in several areas. Changes to policy regulations and the increasing demands for sustainable solutions in society and markets alike lead to changed framework conditions for the business.

Moelven also faces a potential reputation risk, where there are great expectations that the forestry industry and bio-economy shall act as an accelerator for the green shift. In order for this to materialise, it is important that the instruments made available by the authorities help the industry to further develop through appropriate and long-term framework conditions. New requirements are being considered at EU level with regard to sustainable management and harvesting of forests and these could potentially have consequences for Moelven's access to raw

There are great expectations for the forestry industry and bioeconomy to act as an accelerator for the green transition. Wood used as a construction material in permanent structures acts as a carbon sink. Photo: Moelven



materials and operations, as well as external stakeholders' views of Moelven.

Moelven's activities entail a significant transport requirement for raw materials into the production units, and finished goods and by-products out from the production units and to the markets and customers. Moelven has, for a long time, been building up a significant logistics operation to handle this via road, rail and sea. Moelven undertakes ongoing work to streamline logistics and to be at the forefront of sustainable developments. Environmental requirements may nevertheless put pressure on parts of this business, both in the form of orders and restrictions, as well as price changes and fees. The transport industry is affected by international conditions and changes to international framework conditions for the transport industry may also have an impact on Moelven's logistics operations.

The timber processing industry requires large amounts of energy, especially for the drying of timber. The majority of these energy needs are met through self-produced bioenergy, but we also purchase around 230 GWh of electricity each year. Changes to electricity prices resulting from increased demand for energy and the transition from fossil to renewable power will therefore

affect Moelven.

Today wood materials are perceived to be among the most sustainable construction materials, but Moelven can risk increased competition in the area due to technology developments in other sectors. Examples are the use of carbon capture in the cement and concrete industry or the use of sustainable hydrogen in steel electrolysis. Moelven has little impact on this risk, but already has a well-established brand as a manufacturer of sustainable building materials. The risk is already present, with competing products that are clearly marketed as sustainable. The risk is expected to significantly increase if carbon capture is adopted for cement production in Norway, and that the plans for emissions-free production of steel is realised in Sweden.

Many argue that climate and environmental changes will mean that we will experience more frequent diseases that cannot be effectively treated using today's medicine and that could therefore develop into pandemics like the one we have recently experienced. This is however an area that is not considered in Moelven's climate risk and opportunity assessment.

Moelven works actively to mitigate identified risks, as summarised in the table on the following page:

Moelven's operations entail a considerable need for transport of raw materials, finished goods and by-products. Photo: Moelven

#	Risk	Risk type	Risk description	Risk level	Ability to impact	Time horizon	Risk-mitigating measures
A	Unpredictable access to raw materials	Acute physical climate risk and chronic physical climate risk	Physical climate risk in the form of increasing droughts, storm and extreme precipitation levels in the Nordic region. The market balance in the entire value chain is disturbed as a result of supply side shock in the raw materials market. Increased risk of forest fires in the Nordic region. Unpredictable outbreaks of pests and fungus.	High	Low	Short/Long (0-30 years)	Centralised and competent purchasing organisation with a solid market position and a presence in a large geographical area. Ability to manage the raw material flows between units for the best possible utilisation.
B	Extreme weather damage to industry and infrastructure	Physical acute climate risk	Larger and more frequent extreme weather events in the Nordic region. Damage or need for preventive measures that e.h. are limited to a geographical area will impact competitiveness.	High	Medium	Short/Long (0-30 years)	Flood embankments, contingency plans to both maintain deliveries and protection of plants and machinery. Strategic and continuous work for good quality and scaling of infrastructure (road and rail)
C	Changed raw material quality	Physical chronic climate risk	Increased temperature contributes to better growth conditions for trees, but also poorer quality.	Medium	Low	Long (10-30 years)	Contact and engagement with research communities. Internal competence development and product development.
D	The final product cannot withstand a more extreme climate	Physical chronic climate risk	Extreme weather requires more robust materials. Access to use effective impregnation agents may be limited to a greater extent.	Medium	Low	Long (10-30 years)	Product development, development of construction methods, cooperation with e.g. paint manufacturers.
E	Changed requirements for the storage of materials	Physical chronic climate risk	More extreme weather creates challenges in storing materials outdoors.	Medium	Low	Short / Medium (0-10 years)	Building of climate storage, umbrella roofs, development of packaging materials.
F	Increased electricity prices	Market	Phasing out fossil sources of energy and transitioning to renewable energy. Increased transmission capacity to other countries and increasing demand for energy lead to increased electricity prices in Scandinavia	Medium	Low	Short/Long (0-30 years)	Purchasing and hedging strategy.
G	Increased prices of fossil fuels	Statutes and regulations	Norwegian authorities increase the CO <sub>2</sub> tax to achieve goals of emission reductions in the transport sector.	Medium	Medium	Short / Medium (0-10 years)	Build expertise on and exploit alternative energy sources.
H	Fossil fuels subject to emissions restrictions	Statutes and regulations	New regulations that impose requirements on the restructuring of operational forms or investments in new plants and equipment.	Low	Medium	Long (10-30 years)	Adopt new and improved technology for the production of biomass for energy purposes.
I	Construction materials from other industries become eco-friendly	Technology	Other sectors adopt new technology, for example CCS in concrete production.	High	Low	Long (10-30 years)	Work for constant improvement of own climate footprint and documentation of the overall climate footprint. Participation in research and development of objective and good calculation methods for climate footprint over time.
J	Changed perception of the role of forests in the green shift	Reputation	Increased knowledge and commitment to the role the forest plays in the green transition, as well as potential new management requirements lead to increased costs and place new demands on documentation and communication.	High	Medium	Medium (5-10 years)	Contribute to research and social enlightenment, active participation in industry and stakeholder organisations.



**Identified opportunities**

The climate changes and the green shift provide significant new opportunities for Moelven. Sustainable forestry and the use of wood as a construction material are considered important instruments for the green transition. This leads to an increased demand for timber and excellent opportu-

nities to expand the market and offer new sustainable products and services. It is, however, difficult to quantify the opportunities, as these must be assessed on a case-by-case basis. Nevertheless, on a general basis, it is still assumed that the opportunities outweigh the risks.

#	Opportunity	Type of opportunity	Description of opportunity	Financial impact
A	Increased energy efficiency in own production	Resource efficiency	Technology developments make it possible to increase the utilisation of resources in production processes. This applies to both thermal energy and electricity.	Lower production costs. Income from sale of surplus heat.
B	New regulations and improved infrastructure enable increasingly sustainable transport	Resource efficiency	Use of up to 74 ton road transport in Norway on the entire road network, including the forest truck roads will trigger a major rationalisation potential.	Reduced costs linked to transport.
C	The use of renewable energy for own production	Renewable energy	Technology developments make renewable energy more efficient. Statutes and regulations facilitate the use of renewable energy.	Lower production costs.
D	Increased demand for bioenergy for heating	Market, products and services	Increased awareness among consumers about climate footprint for heating	Increased value of Moelven's products.
E	Increased demand for wood-based products and materials	Market, products and services	Stricter requirements and expectations for climate-friendly buildings. Increased demand for raw materials that replace fossil fuels (e.g. fuel, plastics, etc.). Forest fires and pest attacks disrupt the market balance and lead to increased demand in some regions, compensating for reduced access to goods in other regions.	Increased market share and sale of Moelven's products. Increased income from a broader portfolio.
F	Restrictions on imported wood	Market	Norwegian authorities implement restrictions on imported wood due to increased risk of the introduction of foreign pests	Less competition from foreign players. Increased market share.
G	Increased growth of forests	Market	A warmer climate improves the growth conditions for forest in Norway and Sweden	Increased access to raw materials and lower prices.
H	Changed raw material quality	Market	Increased temperature contributes to better growth conditions for forests, but also changes in quality. Depending on geography and customer segment, this may entail development opportunities.	Increased revenues from a more diverse product portfolio and/or greater volume.
I	Increased access to expertise and labour	Reputation	Increased attractiveness as an industry.	Increased competitiveness



Above: Together with the property developer K2A, Moelven Byggmodul AB has delivered 115 Nordic Swan eco-labelled apartments to Startbanan in Örebro.  
Below: Fredrik Jungermark is one of our 3,300 employees who show the world what can be made from wood. Photo: Andreas Hythén and Moelven



### AMBITION

We and the materials we produce shall be climate positive.

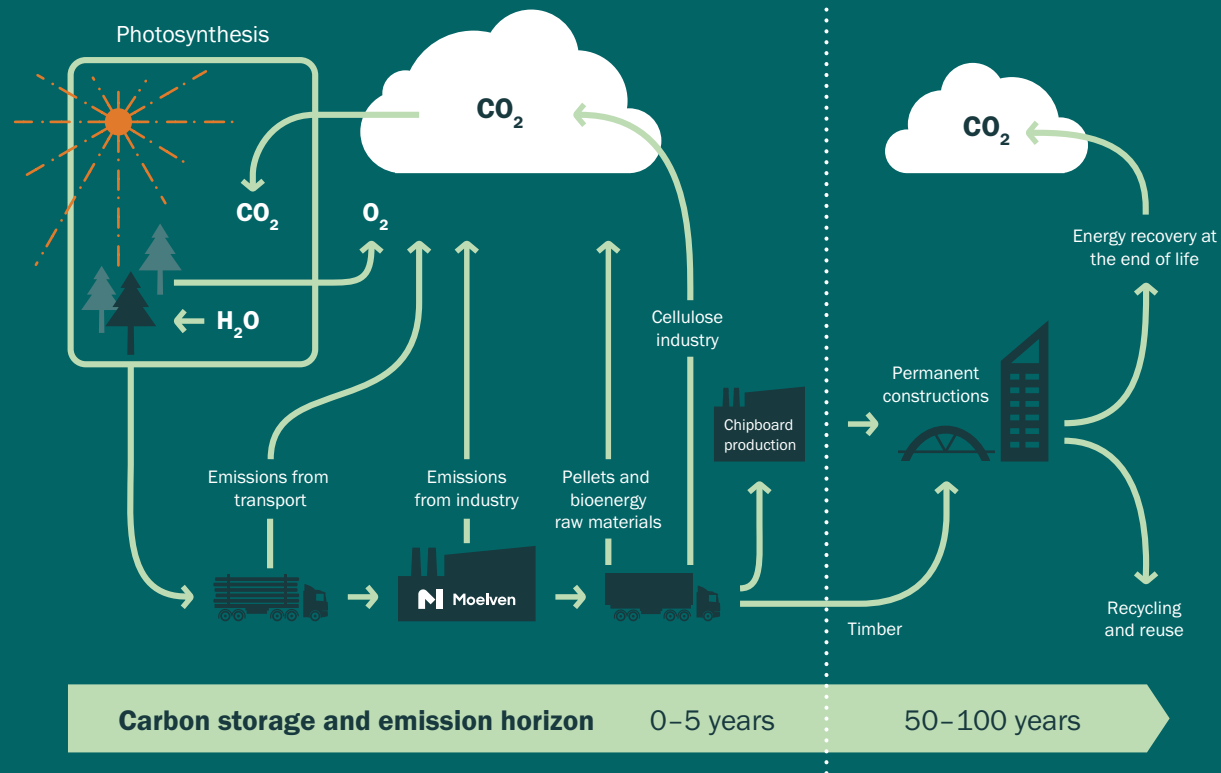


# CLIMATE-SMART PRODUCTS AND SERVICES



FOCUS AREA

# Climate-smart products and services



Moelven has supplied load-bearing structures made from glulam to the furniture factory The Plus at Magnor. Biogenic carbon corresponding to approximately 545 tonnes of CO<sub>2</sub> is stored in the glulam. This in turn corresponds to the CO<sub>2</sub> emissions of about 85 trips around the world in a petrol passenger car. Photo: Einar Aslaksen/Vestre



## UN Sustainable Development Goals



### Relevant sub-goals

**13.3** -Strengthen the ability of individuals and institutions to counter, adapt and reduce the consequences of climate changes and their ability for early warning, and strengthen knowledge and awareness of this.

## Moelven's policy

- Moelven shall actively work to reduce its climate and environmental footprint.
- The environmental impact of transport shall be minimised through coordination and optimisation of the product flow. The environment shall be considered in the choice of transport method and the group's current objectives for environmental standards shall be taken into account when choosing partners.
- Moelven shall have a good understanding of its role in the carbon cycle and demonstrate that we and our products are climate positive.
- Moelven shall actively participate in technological and market-related developments in the bioenergy sector, as well as investigate alternative sources of energy at those plants which burn fossil fuels for heating.
- Moelven's products shall undergo environmental assessments and certifications that meet the requirements of customers and the market.



# Climate benefits from the forest – Carbon storage and bioenergy

## Where and why is it important?

A large proportion of Moelven's climate-smart products and materials are based on using timber as a raw material. Forests are part of the natural carbon cycle. The forest absorbs large amounts of CO<sub>2</sub> from the atmosphere through photosynthesis. Oxygen is released again, while carbon is stored in the wood until it rots or is burned. In this way, the forest acts as a natural carbon sink. The carbon that is released when raw materials from forests are used as a bioenergy source is part of the natural, short-term carbon cycle. This means that bioenergy does not add CO<sub>2</sub> to the atmosphere in the same way as fossil fuels, in which carbon has been stored for millions of years before it is released.

Responsible and sustainable forestry not only ensures access to environmentally friendly and natural raw materials that store CO<sub>2</sub>, it also helps increase productivity and the ability to absorb CO<sub>2</sub>. Together with the planting of new forests, this means that the balance between annual harvesting and the growth of new forests is maintained.

By optimising the utilisation of raw materials so that the largest possible proportion of timber becomes products that can be used in permanent buildings, Moelven contributes to ensuring that the carbon storage that starts in the forest continues even after the tree has been processed to become construction materials. The climate impact will therefore be positive.

## Policy and approach

Moelven's strategic plans and sustainability policy state that the Group will certify raw materials from sustainable forestry and will use 100 per cent controlled raw materials throughout the entire value chain.

In Sweden, Moelven Skog AB is responsible for buying timber directly from forest owners. As a result, Moelven Skog AB is one of the companies within the Group with the greatest opportunity to influence forestry operations. This takes place in collaboration with forest owners, with a shared goal

of optimising the production capacity of the forest over time. This provides Moelven with access to more and better raw materials and the forest owners achieve better returns, while the balance between harvesting and growth is maintained.

Moelven Virke AS is responsible for purchasing timber in Norway. The purchases are mainly made through forest owners' associations. Moelven Virke AS is thus not directly involved in harvesting or managing forests like Moelven Skog AB. As a Group, Moelven nevertheless has a responsibility to its suppliers to treat and process the products in a sustainable manner and, irrespective of national borders, Moelven believes certification and traceability are very important when purchasing raw materials.

## Evaluation of results

The products manufactured by Moelven's timber-consuming entities store 4-6 times as much CO<sub>2</sub> as the emissions generated by the business. The overall value chain from forest to finished timber therefore has the potential to reduce the CO<sub>2</sub> concentration in the atmosphere compared to leaving the forest untouched. However, it is important to be aware that there are several uncertainty factors that affect the overall picture. Among other things, it must be assumed that a certain proportion of the products will be burned or reprocessed shortly after production so that stored CO<sub>2</sub> will be released into the atmosphere and there is also uncertainty around the extent of greenhouse gas emissions from soil after trees have been felled. Both the forestry and timber processing industries provide residual raw materials that can be used for the production of bioenergy. Moelven sells significant quantities of pulpwood, biomass and chip products to the bioenergy industry. The Group also produces a significant amount of thermal bioenergy itself, both for its own consumption and for sale as district heating. Using bioenergy as a substitute for fossil energy sources is an important means of reducing society's climate impact.



## AMBITIONS

- We and the materials we produce shall be climate positive.
- Certify raw materials from sustainable forestry.
- 100% controlled raw materials throughout the value chain.

## RESULTS

- 3.0 million tonnes of CO<sub>2</sub> stored in consumed timber.
- 1.4 million tonnes of CO<sub>2</sub> stored in sawn timber and plywood.
- 0.31 million tonnes of CO<sub>2</sub> emissions for Scope 1-3 according to the climate accounts, corresponding to 21.3% of CO<sub>2</sub> stored in manufactured finished goods.
- 2.4 TWh of energy potential in biomass sold externally.

## MEASURES

- Further develop the understanding of the role of the value chain in the carbon cycle.
- Improve reporting procedures to reduce uncertainty and increase the accuracy of data.
- Increase the focus on direct bio-based emissions.

## CALCULATION BASIS

The source used for calculating CO<sub>2</sub> is EN 16449. The source used for density is Bramming et al. (2006). Physical and mechanical properties in Norwegian spruce and pine. An activity in the SSFF project. Treteknisk Rapport 65, 2006.

It is estimated that a cubic metre saw timber of spruce has a basic density of 363 kg/m<sup>3</sup> and that pine has a basic density of 418 kg/m<sup>3</sup>. The base density is the dry weight of the wet volume (> 30 per cent wood moisture). The carbon content is assumed to be 50 per cent of the dry weight. The percentages of spruce and pine have been set as equal to the production volumes for each species.

Spruce: 363\*0.5\*44/12= 665.5 kg CO<sub>2</sub> / m<sup>3</sup> saw timber

Pine: 418\*0.5\*44/12= 766.3 kg CO<sub>2</sub> / m<sup>3</sup> saw timber

## IN THE FOREST



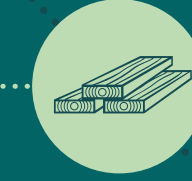
- FSC® FM (Forest Management)
- PEFC™ FM (Forest Management)
- EUTR (EU Timber Regulation)
- UKTR (UK Timber Regulation)

## INDUSTRY



- PEFC™ CoC (Chain of Custody)
- FSC® CoC (Chain of Custody)
- SBP (Sustainable Biomass Program)

## PRODUCTS



- Sunda Hus
- CE marking
- Environmental declaration (EPD and LCA)
- Hea O2 (Indoor air quality)
- Declaration of Performance (DOP)
- Building Product Declaration (BVD)
- Construction Product Assessment (BVB)
- FSC®
- PEFC™
- ENplus®
- BASTA (Chemical content)

## FINISHED BUILDINGS



- BREEAM
- Nordic swan
- Sunda Hus
- FDV (Management, operation and maintenance)

The regulatory and market-driven requirements and expectations for product documentation and certifications are becoming more and more complex. Moelven places great emphasis on providing good and comprehensive information about the products and the business so that our customers can feel confident in the products and services we deliver.

# What does it mean for me that the products I buy are certified?

This means that it is possible to document that the raw materials originate from sustainable forestry, that the production process complies with applicable laws, regulations and standards and that the products meet quality requirements.

## By buying certified products, you contribute to

- Responsible and sustainable forestry.
- Planting of new forests
- Protection of valuable forests and biodiversity.
- Minimising environmental impact.
- Your own knowledge of what products contain and where they originate from.
- Safeguarding social sustainability across the entire value chain, from forest to finished products.
- A good indoor environment
- Facilitation of outdoor activities and support for local communities



Read more.



Description	2022	2021
Total volume of timber consumed (m <sup>3</sup> )	4,328,153	4,421,822
Total volume of timber consumed - CO <sub>2</sub> stored (tonnes of CO <sub>2</sub> - equivalents)	3,038,034	3,105,022
Sawn timber and plywood produced (m <sup>3</sup> )	2,054,114	2,116,268
Sawn timber produced - CO <sub>2</sub> stored (tonnes of CO <sub>2</sub> equivalents)	1,439,536	1,484,288
Total CO <sub>2</sub> emissions (location-based) (tonnes of CO <sub>2</sub> equivalents)	222,767	168,862
Total CO <sub>2</sub> emissions (market-based) tonnes of CO <sub>2</sub> equivalents)	307,148	256,590
Biomass, including pellets for external bioenergy - industry (fm <sup>3</sup> )	1,109,603	1,117,127
Energy content in sold biomass, including pellets (GWh, lower calorific value)	2,458	2,311



# Moelven Byggmodul AB The Green Construction Company

## Establishing an interdisciplinary focus group

For a number of years, Moelven Byggmodul AB has been working on environmental certifications in construction projects. In order to remain the natural choice for anyone wanting to create climate-smart buildings, they are now establishing an interdisciplinary focus group tasked with promoting the climate efforts of the company as a whole. The company also aims to recruit a sustainability officer in 2023.

## Starting with a current situation analysis

As one of the first steps in this work, the consulting firm Tyréns has calculated the emissions of carbon dioxide during the construction of one of

Moelven Byggmodul AB's projects, the Fågelporten project in Nyköping. The calculations were performed based on the Swedish National Board of Housing, Building and Planning's criteria for environmental declarations.

## The results show

that 148 kg CO<sub>2</sub> equivalents were emitted per square metre of gross area during the production and assembly of the project. According to the study, this corresponds to just under half the emissions compared to traditional construction methods.

Over time, the Fågelporten project even has the potential to become a carbon sink, as the carbon stored in the building exceeds emissions.



"With a product based on a sustainable raw material, we have all the prerequisites for being a leading player when it comes to greener construction. We are now picking up the pace and looking at the existing climate-improving measures across all parts of the company," says Hedwig Ulander, Head of Business Development at Moelven Byggmodul AB.



Anneli Skudal pictured next to the poster showing that Moelven Modus AS is Eco-Lighthouse certified.

## Environmental certification achieved in record time

What does it mean for Moelven Modus AS' customers that the company is now Eco-Lighthouse certified? Well, they now know that they are buying circular office solutions from a company that works proactively on sustainability at all levels of production and delivery to end customers.

Anneli Skudal, Project Manager for Sustainability and Development, led the Eco-Lighthouse work with a clear objective of strengthening competitiveness, reducing costs arising from environmental measures, contributing to the green transition and influencing our suppliers and partners to reduce their impact on the climate and environment. Eco-Lighthouse will also help us increase our knowledge in relation to the areas of improvement we need to focus on with our suppliers going forward.

The company produces and assembles system interior solutions using many different materials, it is also transport-intensive and generates waste. With the Eco-Lighthouse certification, we know where we stand today, we

have policies in place for how we will contribute to the UN Sustainable Development Goals and we have also set high targets that we will achieve in 2023.

The certification was achieved in just six admittedly hectic months and more than 60 sustainability criteria have now been ticked off.

"The criteria range from anything from a safe and positive working environment to how we will minimise CO<sub>2</sub> emissions in connection with purchasing, production, transport and assembly. Our customers and suppliers should also expect to be asked how they believe we could improve further in terms of sustainability going forward," Skudal says.



# Climate-smart design

## Where and why is it important?

Moelven products have a low climate footprint compared to many competing materials. The products may have a climate impact during production, use and disposal. It is therefore important to consider the product's entire life cycle.

Certification and traceability are important, both as part of quality assurance routines and when it comes to providing our customers with enough information to make sustainable product and material choices.

The building and construction industry account for around 40 per cent of the world's energy consumption and around 40 per cent of the world's greenhouse gas emissions. Customers and consumers are increasingly concerned with the environmental and climate characteristics of the products they buy. Since the increased use of wood as a material in permanent structures contributes to reducing CO<sub>2</sub> emissions, Moelven has an important part to play in the production and development of climate-smart products and services that the market wants to use.

## Policy and approach

Approvals, certifications and product documentation allow customers and consumers to make informed choices and compare different products and materials. In addition to what follows from regulatory requirements, Moelven also places great emphasis on ensuring that all products have certifications and product documentation covering the various requirements and needs arising on the part of customers.

Moelven is subject to multiple regulatory requirements, both nationally and through the EU. The most important EU Directives applicable to

Moelven products are the Construction Products Regulations (CPR), which deal with various CE certifications, Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and the Biocidal Products Regulations (BPR).

The raw material certification schemes PEFC and FSC® are key certifications that document that the wood material comes from responsible forestry. Chain-of-Custody certifications impose requirements concerning traceability throughout the value chain. Read more about these certification schemes on pages 64 and 65.

Compliance with regulatory requirements and certification requirements is a prerequisite for being able to deliver products and services with a climate-smart design. Moelven also places great emphasis on documenting the advantages of wood as a construction material. When wood is used as a construction material in permanent buildings, the carbon sink is moved from the forest into the building. The carbon sink will remain for as long as the building remains and perhaps even longer if the wood products used in the building are recycled and reused. Glulam is strong, lightweight, malleable and has a high load-bearing capacity relative to its net weight. It is therefore well suited for use in load-bearing structures. Glulam can also be produced in very accurate dimensions, helping to minimise material use and avoid wasting natural resources. By using more wood in construction, we reduce the use of other construction materials with higher greenhouse gas emissions.

The climate and environmental footprint from Moelven's operations reduces the positive impact of the wood. In order to ensure that the end products have the greatest possible climate-positive potential, Moelven works continuously to



## AMBITIONS

- Moelven's products and materials must be climate-positive.

## RESULTS

- The spruce and pine products Moelven manufactures can be sold as certified.
- The spruce and pine products Moelven manufactures come with environmental assessments or product certification.
- The spruce and pine products produced by Moelven are covered by EPDs.

## MEASURES

- Continue the work on surveying and preparing environmental assessments and product certifications in the Group.
- Establish objectives to improve the climate footprint at product level.
- Continued focus on interior products and the environmental and climate advantages of using wood-based products.
- All input chemicals in Moelven's products must be documented.

reduce its own climate and environmental footprint. Product development and design can provide valuable contributions here. Throughout 2022, Moelven participated in a project together with RISE, Stora Enso and IsoTimber to develop, test and assess the possibilities of using fossil-free adhesives in plywood. As Scandinavia's only plywood manufacturer, Moelven Vänerply AB is in a unique position to test the concept in practice. In the fossil-free adhesive NeoLigno®, which has been developed by Stora Enso, oil-based components have been replaced with components made from lignin from wood.

Industrial construction can contribute considerably to streamlining construction processes. Through industrial production in controlled environments, it is also possible to achieve a lower climate footprint per m<sup>2</sup> of

finished building than using traditional construction methods. It is also easier to keep control of quality, resource utilisation, waste, etc. in a controlled environment. Moelven has concepts in place for both modular buildings and interior furnishings that are largely produced at the factory and assembled on site. Moelven Modus AS' wall system, Loop Wall, is also designed for reuse and can be dismantled and reassembled several times. This results in a considerable reduction of the climate footprint compared to demolishing in order to erect a new build.

## Evaluation of results

A large and growing proportion of Moelven's products and materials are certified under various certification schemes.



## A WALL SYSTEM DESIGNED TO BE REUSED.

Moelven Modus AS' product concept, Loop Wall, is a prefabricated wall system with a wooden core. The wall is easy to handle, as well as quick to assemble and reassemble. The system is designed for reuse, enabling changing needs in office layouts to be carried out again and again, almost without downtime. This is beneficial both to the economy and the environment when viewed in a life cycle perspective.

[Read more.](#)



## The path to a fossil-free home

Moelven is part of a collaborative project with RISE, Stora Enso and IsoTimber to develop and assess the possibilities of using fossil-free adhesives in plywood. As the only plywood manufacturer in Scandinavia, Moelven Vänerply AB is a key partner for fully testing the concept. Lignin occurs naturally in wood and acts as a kind of adhesive that binds the fibres of the wood together. Lignin has been considered a residual product in paper and mass production for a number of years and has largely been used in incineration. By developing, testing and using fossil-free alternatives like this, we can both minimise climate impact and increase the opportunities for recycling.







## Tools for making climate-smart choices

Do you want to learn more about how the products you buy affect the environment? An EPD can provide you with a reliable and comparable answer.

### What is an EPD?

An EPD (Environmental Product Declaration) is an environmental declaration showing what a product is made of and how it affects the environment throughout its life cycle based on objective and standardised methods. The standardised methods ensure that products in the same product category are comparable across regions and countries. This enables us to measure the impact of our choices so that we can make climate-smart choices. Never before has this been so important.

### We take responsibility

Around five years ago, Moelven started work to map the climate footprint from five different products in its range. By now, around 40 products have undergone the process and been approved for EPDs. But why are the EPDs so important and what information do they provide?

"In order to meet global climate requirements and protect the only planet we've got, we need to know how much and which resources we use. Only then can we make conscious and responsible choices. An EPD is verified by an independent third party and answers these questions. We recognised both the need and responsibility for obtaining this type of information about our products at an early stage," says Tjalling Chaudron, Product Developer at Moelven.

We use the EPDs to highlight how much of a resource we have used in production, whether it is fossil, renewable, water or electricity, and also to highlight any climate and environmental impact it

potentially has. This allows you e.g. to calculate how much CO<sub>2</sub> has been emitted to produce the construction materials for your specific construction project.

### In-house EPD generators

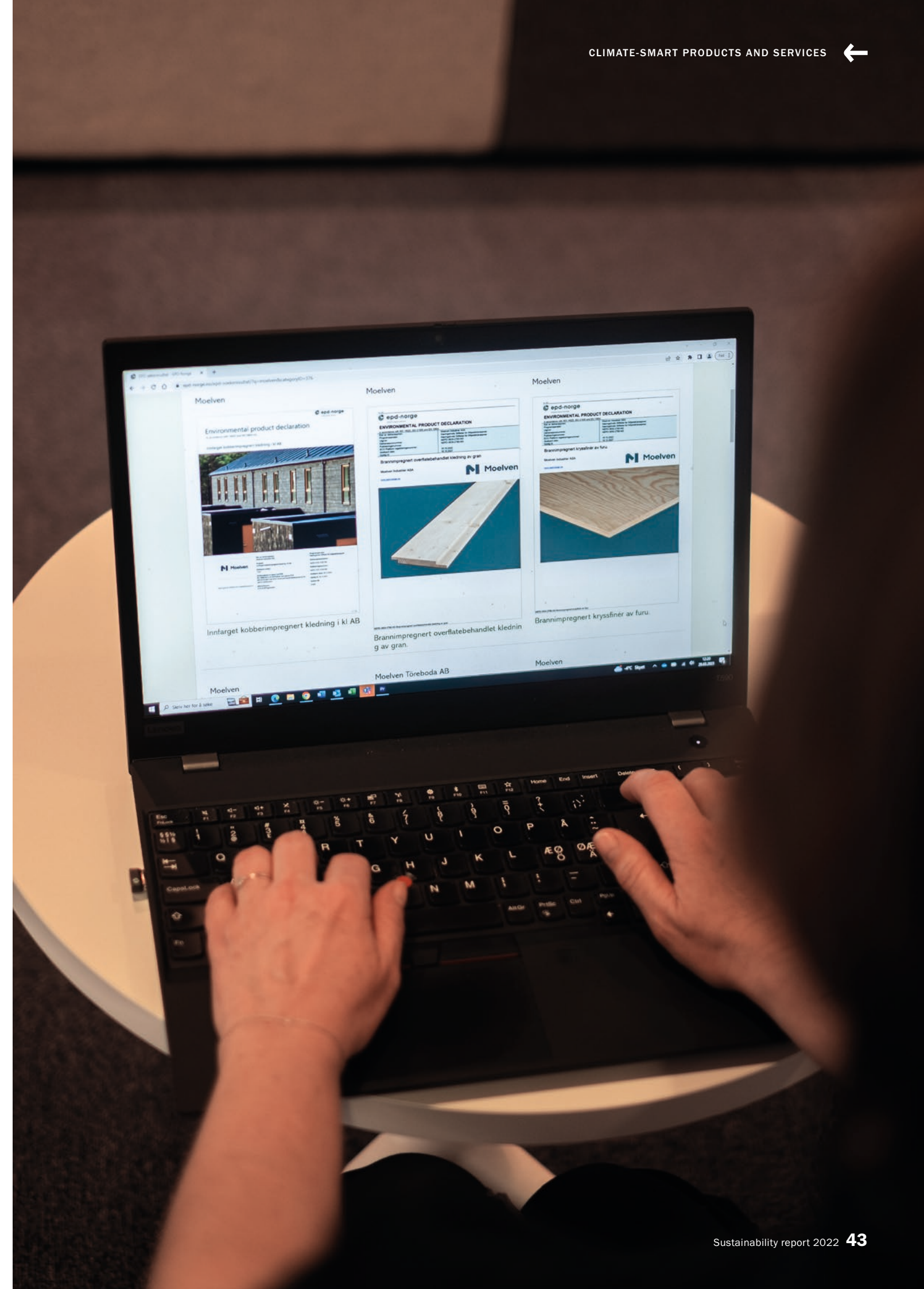
Moelven decided early on to use its own data in the EPDs. This meant that it was also natural for Moelven to develop its own EPD generator. This makes it both quicker and easier to generate declarations for new products.

It is common to use generic data for the different input factors, i.e. a mean value. But we decided early on that the figures that form the basis for our EPDs would contain data specific to our operations. Of course, this meant large amounts of work, but it has absolutely been worth it. Not only do we know that our figures are accurate, we can also see that our products often generate lower values than products using generic data only. It also provides an excellent starting point for working on improvements.

Moelven Modus AS is now also working on developing its own EPD generator. Moelven Modus AS' interior products are composed of several different types of materials such as glass, plaster and metal and this places different demands on the EPD generator than is the case in the wood processing part of the Group. Nevertheless, the result is the same: The EPDs will be specific to Moelven's products and will highlight the positive climate and environmental properties of the products, while providing an excellent starting point for continued improvements.

Product Developer Tjalling Chaudron (left), Master Data Manager Per Skreden and Quality Specialist Michaela Pfeiffer work together to develop the Moelven EPDs.

Today, there are more than 40 EPDs available for Moelven products, all using data we have collected ourselves. The work to collect this data has been extensive and has been ongoing for some time.







## Transport of goods

### Where and why is it important?

Moelven's activities include the transport of materials and products, often in large volumes and weights and across great distances. This includes the transport of raw materials to our industrial facilities, internal transport within the industrial sites and between Group units, as well as the transport of finished goods to the market.

Transport constitutes the largest individual source of CO<sub>2</sub> emissions for the Group and is a crucial area when it comes to both the environment and finances. A number of stakeholder groups are affected by the environmental impacts of transport. Such environmental impacts may include greenhouse gas emissions, particulate matter, noise, traffic safety, etc. Efficient and environmentally conscious logistics solutions are a prerequisite when it comes to being able to offer customers fast, accurate deliveries with as little environmental impact as possible.

### Policy and approach

The Moelven strategy and sustainability policy sets out clear targets and policies for transport and purchase of transport services. The different businesses within the Group have different needs for various types of transport services, which means that the improvement work also includes different focus areas.

### Internal transport

The products manufactured by Moelven take up large amounts of space and are often included as part of several different processes. This leads to a lot of internal transport within Moelven's industrial sites. Forklift trucks of various sizes are generally used. This is the most important individual source

of Scope 1 CO<sub>2</sub> emissions for the Group as a whole. Minimising internal transport and replacing diesel-powered forklift trucks with electric alternatives are therefore crucial improvement measures. The electrification of internal transport on a large scale does, however, require extensive investments in charging infrastructure and the adjustment of production processes in order to ensure that the required charging operations do not lead to a decline in productivity. From 2021 it has been decided that in the event of all procurements of forklifts for the company, electric solutions must be studied and considered wherever possible.

### Transport within the domestic markets in Scandinavia

Moelven buys transport services from several large transport companies, transport communities in Norway and haulage depots in Sweden.

Through close collaborations, often as the principal customer and sometimes as a co-owner, Moelven has great influence on how the companies conduct their operations, including with regard to developing more sustainable transport services. Moelven works actively with transport companies to plan transport routes that minimise idling.

An important aspect of Moelven's business concept is being able to offer a broad product range with short lead times and high delivery precision. Utilising modern digital technology to plan and coordinate transport allows us to optimise load factor and driving distances and thereby also the environmental impact of transport.

For several years, Moelven has assessed and worked on different alternatives for fossil-free



### AMBITIONS

- The environmental impact of transport must be minimised by coordinating and optimising product flow.
- The environment shall be considered in the choice of transport method and the group's current objectives for environmental standards shall be taken into account when choosing partners.
- All road transport must take place using vehicles in a minimum of EURO 6 class from 2022.
- Increasing the use of modular vehicle combinations where possible.
- Continuing to assess and test alternatives to fossil fuels.
- Electrical alternatives must be explored and considered where possible when acquiring new assets for internal transport.

### RESULTS

- EURO 6 class has been implemented by the transport companies Moelven collaborates with in Scandinavia.
- Two biogas combination vehicles are now being used for goods transport in Sweden.
- An electric lorry for local distribution in urban areas is being acquired for testing.
- Modular vehicle combinations are being used to an increasing degree and reduce the number of transport jobs.
- Increased use of rail transport with a lower climate footprint than road transport.

### MEASURES

- A Group-wide steering/ collaboration group for the optimisation of the logistics area has been established.
- Revision of established KPIs and measurement methods for transport activities with a view to both sustainability and the optimisation of logistics solutions.
- Continuing to focus on modular vehicle combinations and projects to test vehicles.
- Improving transport reporting, including in relation to the transport of products to customers.
- Surveying responsible business operations and environmental impact in the supply chain.

fuels. In collaboration with LBC Logistik AB, Moelven was the first to use a biogas combination vehicle in the Swedish forestry industry in 2020 and an additional biogas combination vehicle was put into service in 2022.

Political guidelines and the development of infrastructure are one of the greatest challenges faced by the transport industry when it comes to the green transition. Moelven has not considered specific technologies, but the industry appears to believe that all technologies are necessary for the green transition. The lorries used to transport goods for Moelven generally do not operate on fixed routes, which means that underdeveloped infrastructure prevents effective transport planning and leads to additional costs in the form of detours to reach the necessary fuelling stations. This is a significant obstacle, considering the desire to increase the proportion of lorries running on alternative fuels.

In Värmland and towards Mälardalen in Sweden, the infrastructure for liquefied biogas (LBG) is becoming sufficient and the proportion of biogas vehicles will likely increase, but it does not look as though liquefied biogas will be relevant for several years unless the pace of development increases.

However, for deliveries of smaller volumes in cities, electric vehicles may be an option and even necessary in the long term as a result of increasingly stringent regulations. This will impose new requirements on how logistics are organised, and Moelven has therefore initiated a trial project where the purpose is to see how electric trucks for local distribution of goods to the customer can be part of a larger, sustainable and cost-effective logistics concept. Infrastructure will also be crucial here.

### Biofuels/advanced biofuels

Biofuels/advanced biofuels currently constitute the simplest option for reducing the climate footprint from transport. These can be used with existing infrastructure and the vehicles can switch between running on traditional diesel and advanced biofuels. Biofuels are also available as a separate fuel, HVO100, or blended with regular diesel.

Sweden has been at the forefront for many years when it comes to blending biofuels with diesel. From the end of 2022, the blend will increase to 30.5 per cent for diesel supplied in Sweden.

The corresponding requirement in Norway is 29.5 per cent from 2023.

Biofuel blends have been a central aspect of the Swedish goal of reducing carbon emissions from road transport by 70 per cent by 2030, having adopted an escalation plan under which the blend ratio would reach 66 per cent by the same time. Heavy political pressure due to high fuel prices in 2022 meant that the planned increase in 2023 was paused. The outcome of political processes will have significant importance on the climate footprint

from Moelven's transport in years to come.

### Timber and wood chip transport

Moelven also uses rail and sea transport to ensure the reliability of timber supply, as well as market opportunities for wood chip and energy products from regions with no local demand. For example, rail is normally used for biomass deliveries in Norway and Sweden. Rail is a cost-effective mode of transport that also contributes to reducing the environmental footprint from transport when the conditions are right. Moelven, together with several other industry partners, is involved in the "Godspakke Innlandet" initiative.

### Transport to export markets

Moelven sells products to more than 40 countries outside of Scandinavia. Road transport departing from Moelven's industrial facilities is used to reach these markets. For goods shipped to Europe, the return capacity of foreign transport companies is often utilised. This will often take place through combined transport solutions, i.e. trailers are loaded onto the railway at combined terminals and transported by train for parts of the route, before being transported on road for the final part of the journey in the destination country.

The export volume by water increased in 2022 and, in this connection, a new terminal was put into use in Vålberg outside Karlstad, as well as the other transport channels used by Moelven. In Vålberg, goods are loaded onto the railway for transport to port. Since the autumn of 2022, the train has a scheduled departure each week. The Group also has several other train routes that are regularly used to transport finished goods to port.

The EU mobility package includes a number of rules relating to driving times and rest times for drivers, the use of tachographs in vehicles and rules relating to professional and market access to the road transport market. The most important changes entered into effect in all EU countries in 2022 and the part of the regulations relating to social conditions includes new requirements concerning minimum wages, mandatory return and accommodation during extended rest periods and these also been incorporated into the EEA agreement. The new regulations will contribute towards increased transparency and more responsible business operations in the international transport sector, but also led to increased transport costs and challenging access to transport capacity for parts of 2022.

Moelven has a conscious attitude in relation to the transport companies used and in 2022 the Group initiated a supply chain survey aimed at working conditions and the environment. Decent working conditions and the use of modern vehicles are of great importance to the drivers themselves, traffic safety and the environment.



### HVO 100

HVO is a renewable fuel similar to regular diesel. HVO stands for Hydrogenated Vegetable Oil, but the name is slightly misleading as the fuel can be created from both vegetable oils and animal fats from slaughterhouse waste.

The raw materials are processed using hydrogen gas under high pressure and high temperatures, creating a synthetic form of diesel, HVO, which can either be blended with fossil diesel or used in its pure form, HVO100.

### LIQUEFIED BIOGAS (LBG)

LBG is biogas in liquid form. Biogas is a wholly renewable product formed by the breakdown of organic matter. Several different sources can be used in production, such as treatment plants, landfills and agriculture. In order to liquefy biogas, the gas is cooled to -160°C, a temperature at which the condensation of gas leads to increased energy density.



Moelven is a co-owner of Woodtrans AS, the Group's largest carrier for the domestic transport of finished goods in Norway.



**Evaluation of results**

EURO 6 class has been implemented by the transport companies Moelven collaborates with in Scandinavia.

Major changes in the Scandinavian market have resulted in a shift towards exports and some significant changes to transport patterns. This is the main cause of the significant increase in the use of water transport to customers. The sharp increase in fuel prices combined with changes to the EU mobility package have resulted in significant price climbs for all types of transport,

both domestically in Norway and Sweden but even more so in the export markets. Reduced volumes in the Scandinavian market mean that it has also become more challenging to optimise transport with regard to load levels and routes. Initially in 2022, the changes to the EU mobility package led to scarcity in transport capacity for some units, but the situation thankfully stabilised towards the end of the year.

The supply chain survey initiated in 2022 will continue in 2023.



Glulam for projects often requires special load transport due to the large dimensions. The picture shows the transport of glulam produced at Moelven for delivery to a larger logistics building in Sweden. The load is 23.84 m long. Photo: Moelven

Transport of goods to customers (tkm*)	2022	2021
Road transport	634,277,621	914,110,982
Rail transport	125,729,858	106,264,661
Sea transport	2,003,344,371	465,465,461

Transport of timber to companies (tkm)	2022	2021
Road transport	304,959,141	330,585,682
Rail transport	2,733,175	13,591,227
Sea transport	35,885,335	61,648,455

Transport of other goods to the company (tkm)	2022	2021
Road transport	70,082,596	41,591,517

\* Tkm = tonne kilometre. Calculated by multiplying the weight of the goods by the transport distance in kilometres.



Electric truck at Edanesågen.



Modules from Moelven Byggmodul AS are being towed to Odda via the Hardanger Fjord. Here, the modules will be used as a construction rig for Stord Innkvartering. Photo: Henning Sæbbø/Stord Innkvartering



# Energy consumption in our own production

## Where and why is it important?

Moelven consumes a considerable amount of energy in its production. Even though around ¾ of the energy requirements are met by self-produced bioenergy, the proportion that is covered through the purchase of electricity remains the largest single contributor to greenhouse gas emissions, together with transport. Energy consumption in our own production is important both to Moelven and its stakeholders since it represents both an environmental challenge and a major expense.

## Policy and approach

Moelven works continuously to improve the efficiency of the energy consumption at its

facilities. This work will be achieved by actively participating in the technological and market development of the bioenergy sector, as well as by replacing fossil fuels with more alternative and environmentally friendly energy sources in areas where this is practically feasible.

Moelven has set itself a target of providing at least 95 per cent of the thermal energy needed for the heating of premises and drying of timber from self-produced bioenergy. However, within the timber processing part of the Group, which is the most energy-intensive, there are areas in which operations are dependent upon the use of electrical energy. The most important of these are the sawing and drying processes, for which the



If you drive past Moelven Valåsen AB in Karlskoga today, you will be able to see smoke coming out of two chimneys instead of one like before. This is the result of the decision to invest MNOK 60, taken at the end of 2020. The new energy centre brings us one step closer in our efforts to make the sawmill more sustainable. At the same time, we have also ensured the operation of the new sawmill line, which is now being designed at Moelven Valåsen.

operation of electric motors linked to the timber driers requires large amounts of energy, even though the need for thermal energy is covered by self-produced bioenergy. The energy consumption in these areas is strongly linked to production volumes. The efficiency efforts here are therefore largely aimed at reducing the energy needs for each unit produced. The 2023 to 2025 strategy plan emphasises a strategic investment in more energy-efficient driers. This involves replacing the oldest and least energy-efficient concrete driers with new driers, which will result in lower energy consumption per unit produced due to the improved controls and heat recovery, as well as improving capacity and allowing for the planned increase in production volumes. In order to implement the increase in production without a corresponding increase in total electricity consumption, innovation and active use of new technology will be essential. Moelven has worked actively for several years to use modern technology to optimise the quality and utilisation of raw materials, while also minimising energy consumption.

A detailed energy survey has also been carried out of all of the Group's operations in Sweden. The results from the survey form the basis for the Group's target of reducing electricity consumption not directly linked to production volume by 10 per cent compared to 2017 by the end of 2024. In addition, towards the end of 2022, an internal project was also initiated to review the Group's overall energy strategy with regard to purchasing/production, consumption, metering and streamlining of all energy categories. The aim of the project

is to lay the foundations for the design of an energy strategy that takes into account both the opportunities that can be found in the Group's value chain and the energy situation that will be faced by society in years to come.

Moelven also has a target of reducing the carbon footprint from its business activities in line with the national climate targets in the countries where Moelven carries out its production. Relevant measures to achieve this often involve a change to using electricity as an energy source and will, viewed in isolation, therefore lead to an increase in energy consumption.

In 2022, the Group's Board of Directors adopted an investment package of nearly NOK 210 million to improve the security, capacity, efficiency and not least the climate footprint of the wood industry of the future. The investments will take place at Moelven Treinteriør AS, Moelven Mjøsbruket AS, Moelven Våler AS and at Moelven Notnäs Ransby AB. According to plan, all of the projects will be operational in 2024. Strategic investments such as these contribute to modernise and strengthen the competitiveness of the companies. In addition, modern production equipment results in safer workplaces and lower energy consumption. A significant part of the investment programme is earmarked for the replacement of the timber driers. Calculations show that it is possible to save between 8 and 13 kWh per m<sup>3</sup> of timber. In the event of unchanged production volume for the driers included in this investment package, this constitutes reduced annual energy consumption of approx. 6 GWh, which is 2% of the Group's total annual consumption.

## Evaluation of results

Category – Volume (GWh)	2022	2021
Total fossil energy consumption	47	48
Total bioenergy production in the Group (lower calorific value)	814	819
Lost bioenergy	113	77
Total energy consumption, purchased	226	235
Purchase of district heating	93	96
Total sales of bioenergy	70	72
<b>Total energy consumption in the Group (GWh)</b>	<b>997</b>	<b>1048</b>
Consumed bioenergy (GWh)	723	765

Total energy consumption decreased in 2022 compared to the previous year. This is primarily due to cyclical developments in the second half of the year, which led to a need for some reductions in activity levels towards the end of the year. In 2022, it was decided that the driers at several sawmills would be subject to major upgrades and the investment of around NOK 210 million will

lead to great improvements in terms of efficiency and increased production.

Due to disruptions in production at some bioenergy plants, it was necessary to use backup solutions based on fossil fuel oil in 2022. This means that the desired reduction in the consumption of fuel oil was not realised in 2022.



## AMBITIONS

- Annual improvement in energy efficiency > 2%.
- 95% of the heating requirements for premises and drying will be covered by self-produced bioenergy.
- 10% reduction in non-volume dependent electricity consumption compared to 2017 by the end of 2024.

## RESULTS

- Fossil energy consumption reduced by 2% in 2022.
- Bioenergy production reduced by 0.6% in 2022.
- Electricity consumption reduced by 3.8% in 2022.

## MEASURES

- Review of the Group's total energy strategy with regard to purchase/production, consumption, metering and energy efficiency improvements for all energy categories.
- Revise existing targets and establish more activity-specific KPIs to analyse energy consumption and energy efficiency measures at Group, division, company and department level.
- Establish action plans to realise the revised objectives.



# Production of bioenergy

## Where and why is it important?

Bioenergy is energy that is produced from materials formed in ongoing biological processes. Emissions from bioenergy production are considered climate-neutral, as the CO<sub>2</sub> released corresponds to what the plants have absorbed from the atmosphere through photosynthesis.

When bioenergy is used instead of fossil sources of energy, the substitution effect helps reduce total CO<sub>2</sub> emissions. Moelven produces bioenergy in the form of heat and utilises the majority of this heat for the drying of timber. Some is also sold externally as district heating and some is used to heat our own premises. Biomass is also sold to external customers, who use it to produce bioenergy in the form of heat for their own production, district heating or electricity. In order to ensure profitable operations, Moelven needs to exploit the entire log. Bioenergy is a key focus area that contributes positively to the work of creating a zero-emission society, while also creating value from wood chip and bark products that would otherwise have been wasted.

## Policy and approach

The energy potential of the annual production of wood chips and bark products, including cellulose chips, is around 3.0 TWh. This therefore represents a significant energy resource, both in terms of our own production and in terms of the opportunities for sales in a growing market for

bioenergy in general.

Moelven actively works to reduce its climate and environmental footprint. The Group's sustainability policy also includes a stated aim of the Group actively participating in technological and market developments in the bioenergy sector, as well as investigating alternative energy consumption for the plants that currently use fossil fuels for heating. The Group's long-term strategy from autumn 2022 includes a target for an annual improvement in energy efficiency of at least 2 per cent. This applies to electrical energy and bioenergy combined. A project has been initiated to identify the potential of energy efficiency improvements for each unit and to draw up plans for how this potential will be realised. The project launched in Q4 2022 and will continue throughout the first half of 2023.

## Evaluation of results

In 2022, Moelven had total thermal bioenergy consumption of 723 GWh. Of this, 630 GWh was produced using our own bioenergy plants. The energy is mainly used for the drying of timber. Moelven also buys a certain amount of bioenergy from external companies. In 2022, this amounted to 93 GWh. In these cases, the bioenergy is generally produced using biomass from Moelven, but the bioenergy plant is owned by external parties.

Description	2022	2021
Energy content in sold biomass, including pellets (GWh, lower calorific value)	2,458	2,430
Bioenergy produced in Moelven (GWh, lower calorific value)	814	819
Consumed bioenergy (GWh)	723	765
Bioenergy bought from companies outside the Group (GWh)	93	96
Bioenergy sold to companies outside the Group (GWh)	70	72



## AMBITIONS

- To the extent possible, we will phase out the use of boilers running on fossil fuel and replace these with bioenergy plants.
- Implement an increase in activity in accordance with the Group strategy without increased energy consumption.
- Annual improvement in energy efficiency > 2%.
- 95% of the heating requirements for premises and drying will be covered by self-produced bioenergy.

## RESULTS

- 2,458 GWh (lower calorific value) of energy potential in biomass, including pellets sold to the external bioenergy industry.
- 814 GWh of thermal bioenergy produced using our own bioenergy plants.
- 70 GWh of thermal bioenergy sold to external parties.
- 73% of total energy needs met through bioenergy

## MEASURES

- Improve measurement and reporting of bioenergy production and consumption.
- Identification and preparation of an efficiency improvement plan is ongoing.

Moelven's own bioenergy plants primarily use bark and various types of chips as raw materials. In addition to the external sale of chips for energy purposes, Moelven also produces its own pellets.

Moelven makes a living from refining a renewable natural resource and that comes with a commitment. We can fully utilise the resources of the forest by using controlled wood from sustainable forestry, using the various parts of the wood for what they are best suited and using residual raw materials to produce e.g. pellets, chipboard and biofuel. Sustainable forestry also involves planting new trees after the final harvest. In this way, we make sure that future generations can also harvest renewable raw materials from the forest.

## Pulpwood

By processing pulpwood, the timber processing industry can create everything from hygiene products, paper and cardboard to clothing and animal feed. Pulpwood is of lower quality than saw timber and we therefore sell this part of the trunk to those who can best utilise it."



## Branches and tops

The branches and tops of the tree are used as biofuels and thereby help replace fossil fuels. One lorry load of branches and tops can heat up to four homes for a year. There is great potential to be found in this part of the tree and we are working to utilise this potential even further.

## Saw timber

Saw timber is the raw material for wood products with a long service life and has great climate benefits. However, only half of a log is turned into timber. The rest becomes wood chips. By using residual raw materials e.g. to produce pallets, bioenergy raw materials, chipboard raw materials and similar, we can fully utilise the resources of the forest.

## Stumps and roots

The stumps and roots are mostly left behind in the forest after felling. There, they provide homes for a variety of insects and fungi, often for several decades. They also help increase the carrying capacity of the land and bind it together.





# SAFEGUARDING OUR NATURAL RESOURCES

For 124 years, the fundamental concept at Moelven has remained the same: to utilise natural resources from the forest to the greatest possible extent. Production Technician Hans Ohlsson at Moelven Skog AB helps supply our sawmills with certified timber from sustainable forestry. Photo: Johan Alp



## AMBITION

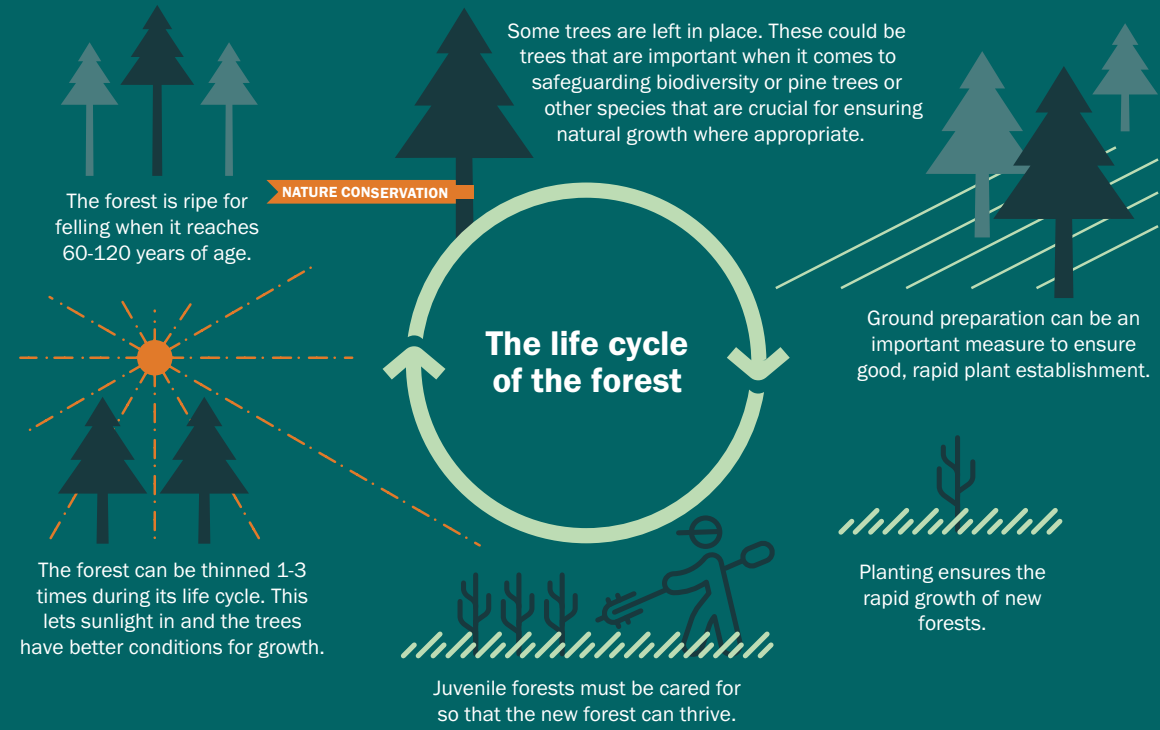
We shall use renewable,  
whole resources.





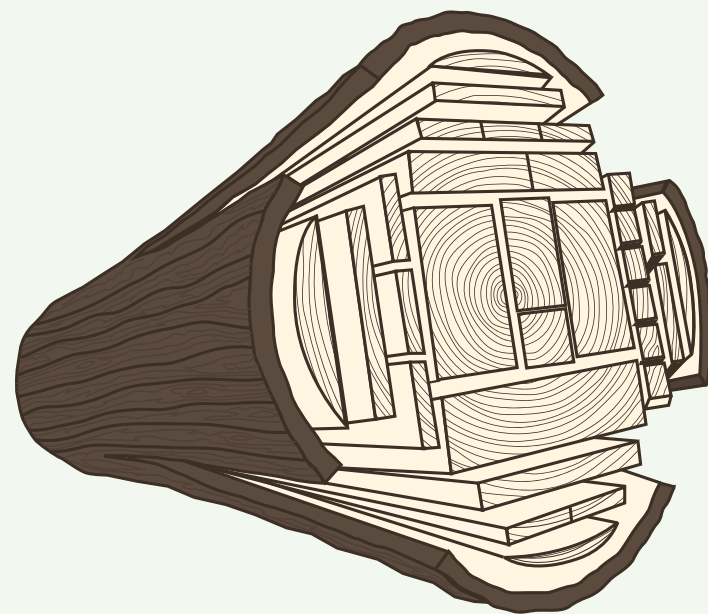
FOCUS AREA

# Safeguarding natural resources



Moelven Skog AB ensures that water sources like this and other cultural heritage are not affected by harvesting.

## What is saw timber used for?



**Bark**  
for heating and drying of timber

**Chips from planing**  
for particleboard production

**The outer layer of the log**  
is cut off and used in the production of cellulose.

**Structural timber,**  
roof truss, beams, exterior cladding, etc.

**Plank for cleaving**  
for exterior and interior panelling.  
In pine or carpentry quality for furniture and interior decoration, etc.

**Sawdust**  
for particleboard production, wood pellets and bioenergy fuel

**Cleaved sawdust, dry**  
(cleaving/splitting after drying)

**Wood chips, dry**  
Bioenergy raw material

**Side table**  
Good quality for mouldings, panelling, etc.  
Poor quality for packaging, formwork, etc.

**Wood products from surface wood**  
Often impregnated to become more durable

## UN Sustainable Development Goals



### Relevant sub-goals

**15.2** - Promote implementation of sustainable management of all types of forest, halt deforestation, restore degraded forests and to a significant degree increase forest reconstruction and replanting at a global level by 2020.

### Moelven's policy

- Moelven shall utilise entire timber logs, including all by-products.
- Moelven shall optimise raw material utilisation to improve resource efficiency and to maximise the value of the raw materials used.
- Moelven shall use certified raw materials from sustainable forestry. At a minimum, all timber purchased by Moelven shall be checked in accordance with the current requirements relating to controlled timber that have been stipulated in recognised Chain-of-Custody standards (PEFC CoC and/or FSC® CoC). Furthermore, Moelven shall aim for as much of its purchased timber as possible to be certified in accordance with recognised standards relating to sustainable forestry (PEFC and/or FSC®). At a minimum, this shall correspond to needs based on the group's sale of certified finished products.
- Moelven shall not be involved, directly or indirectly, in:
  - Unlawful logging or trade of wood or forestry products.
  - Destruction of high preservation value areas during forestry operations.
  - Forestry involving time-honoured or human rights violations.
  - The introduction of genetically modified organisms during our forestry operations.
  - Significant transformation of forests into plantations or non-forestry applications.
  - Violations of ILO fundamental conventions as defined in the ILO Declaration on Fundamental Principles and Rights at Work, 1998.
- Moelven shall design products that focus on resource efficiency and assess the need for and environmental impact of packaging.
- Moelven shall actively work to reduce waste and have a minimum sorting ratio of 90% for residual waste.
- Moelven shall actively work to minimise the use of plastic, and strive to find alternative and sustainable materials to plastic.



# Resource-efficient design and packaging

## Where and why is it important?

Moelven impacts the environment through its industrial activities, but also through the use and handling of products and packaging. Material use is optimised and waste quantities reduced through resource-efficient design and industrialised production in controlled environments in the factories, at the construction sites and during the usage phase. For practical reasons, many products must be stored and transported while exposed to the elements. The correct packaging is important in order to preserve quality, although this often also presents environmental challenges. Plastic has a number of good properties when used as a packaging material. At the same time, the long degradation time means that plastic that goes astray in nature leads to issues for flora and fauna and the incineration of plastic results in CO<sub>2</sub> emissions.

## Policy and approach

From Moelven's sustainability policy:

- The utilisation of raw materials must be optimised to improve resource efficiency and to maximise the value of the raw materials.
- Products must be designed with a focus on resource efficiency. Unnecessary packaging must be minimised.

- The use of plastic must be minimised. Alternative materials to plastic must be actively sought. Moelven's module concept and system interiors are examples of resource-efficient design. Efficient mass production with good planning streamlines both resource usage in the factories and waste quantities, and the actual waste management becomes easier as well. Both time spent and waste quantities are reduced on the construction site. The concept also provides excellent opportunities for recycling and reuse.

Exact cutting within the Group's timber processing activities contributes to reduced waste volumes for customers. The offcuts that arise in production can be effectively managed as part of the industrial process.

The WeatherPly™ product is a water-repellent construction plywood for exterior use in roofs and walls. WeatherPly™ is treated with a silicate on all sides including tongue and groove, which makes it weather-resistant, reduces water ingress and damage caused by sun/UV rays. The product therefore contributes to reducing the need to use coverings, for which plastic has traditionally been widely used.

In connection with internal transport of goods, every effort is made to ensure that the conditions allow for transport to take place without the need



## AMBITIONS

- Product development with a view to reducing climate footprint and resource consumption.
- Raw material utilisation must be optimised and we must facilitate the greatest possible degree of reuse and recycling of residual raw materials.
- Actively strive to minimise the use of plastic and find alternative materials.
- A share of at least 30% recycled plastic.

## RESULTS

- 1,807 tonnes of plastic consumed.
- Approximately Share of recycled plastic > 35%.
- 418 tonnes of plastic recovered.

## MEASURES

- Developing resource-efficient products and production methods.
- Systematically identify opportunities for reducing waste and for alternative packaging materials.
- Collaborate with the value chain to identify solutions to reduce the consumption of packaging.

Moelven Wood's product 'Værbitt' is a coloured CU-impregnated pine cladding. Værbitt is Moelven's solution for customers who want a durable and transparent coloured pine cladding with a long service life. It has durability class 1 - Very durable against rot, and is produced in fixed lengths that result in less cutting and waste on construction sites.



for packaging. This contributes both to reducing the amount of waste and the costs. At its own facilities, Moelven can also make sure that a waste management system is in place that ensures the highest possible degree of recycling and reuse. On the other hand, Moelven is largely unable to influence what happens to the packaging used for products that are distributed in the market. It is therefore important to use as little packaging as possible and that the packaging that is used is as environmentally friendly as possible. The products developed in the timber processing industry must in most cases be packed in some

sort of protection against the elements. As a rule, direct deliveries straight from the manufacturer to the customer with no intermediate storage where the products may be exposed to precipitation, dirt or sunlight are not possible. In order to preserve quality and thus value, packaging is used that meets specific requirements for waterproofing, UV protection and tearing strength. From 2022, Moelven has used a new type of plastic packaging created using 50 per cent consumer-recycled plastic. This plastic satisfies the strict requirements imposed on packaging and is 100 per cent recyclable.

## Evaluation of results

	2022	2021
Plastic packaging (tonnes)	534	2,008
Recycled plastic packaging (50% PCR plastic)	1,269	
Bioplastic packaging (tonnes)	45	45
Polyurethane (tonnes)	4	4
<b>Total plastic consumed (tonnes)</b>	<b>1,807</b>	<b>2,058</b>
Plastic recovered (tonnes)	418	581
Cardboard packaging (tonnes)	130	113

The change in plastic consumption from 2021 to 2022 is largely due to the fact that deliveries and production in 2022 consisted of a greater proportion of products requiring less packaging.



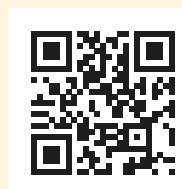
As a result of the sharp increase in volume for glulam projects, Moelven Töreboda AB has rethought the technical design and completion degree of its wooden bridges. There is neither space nor capacity to paint and assemble large delivery units directly at the factory. Together with the start-up company Timber Bridge Specialists (TBS), Moelven Töreboda AB has therefore developed a new design for road bridges made of homogeneous cross-tensioned glulam boards. The technology is based on constructive wood protection without painting with a board of standard glulam (not impregnated). All glulam is CNC-processed at the factory and then delivered as flat packages. The pictures show the first bridge that was delivered. It is a small road bridge for heavy traffic that was installed in 2022 in Junsele between Östersund and Umeå in Sweden.



## SWITCHING TO 50 PER CENT RECYCLED PLASTIC

In collaboration with the Swedish company Trioworld, Moelven is one of the first players in the industry to have swapped to using plastic packaging created from 50 per cent consumer-recycled plastic. This has resulted in a more circular solution, significantly reducing the carbon footprint from packaging. The new plastic is 100 percent recyclable.

Read more.



**"I'm here to protect your Timber products. Wood be nice to do it again. Please recycle me."**

Moelven's new cover plastic in production at Trioworld, a leading player in recycled plastic. The new cover plastic contains as much as 50 per cent recycled plastic and thus has a significantly smaller environmental footprint than virgin plastic.



# Waste management

## Where and why is it important?

Industrial, building and construction activities generate large parallel material flows that can be reused, recycled or used for energy recovery if they are processed and sorted correctly. Residual raw materials from the Group's timber processing activities, such as chips and fibre products, are resources for which processes have been established to ensure optimal utilisation. Fractions originating from packaging from purchased goods, auxiliary materials, worn tools and equipment, etc, must be managed in collaboration with external parties.

By sorting as much as possible and by facilitating reuse and recycling, Moelven helps create a more sustainable and circular material cycle. Low waste volumes and a high sorting ratio may be indications of efficient production and reduction of negative environmental impact, which in turn affect the Group's costs and profitability.

## Policy and approach

Moelven's sustainability policy contains the following guidelines and goals for waste:

- Moelven shall design products that focus on resource efficiency and assess the need for and environmental impact of packaging.
- Moelven shall work actively to reduce waste and has a long-term target of achieving a sorting ratio of a minimum of 90 per cent for residual waste.
- Moelven shall actively work to minimise the use of plastic and strive to find sustainable alternatives to plastic.

Complying with all of the laws and regulations that apply to the Group is a fundamental prerequisite for all operations in Moelven. The

sustainability policy approved by the Group's corporate management in 2022 focuses on activities and initiatives that go further than required by the legislation.

The different units within the Moelven Group are each responsible for the waste management that was previously performed in collaboration with local waste management companies. The Group has consolidated its waste collection contracts among the fewest possible parties in order to facilitate close collaboration and achieve the most environmentally friendly waste management for the Group as a whole. With joint waste collection partners, greater transfer value is also achieved between the companies and better opportunities for identifying circular solutions internally within the Group.

Several of Moelven's locations apply LEAN production methods. These are based on continuous improvement and a reduction of wasting in the organization. Waste impacts production costs and must therefore be reduced to a minimum.

## Evaluation of results

Waste management is becoming an ever greater priority in the Group. Good waste management with precise sorting into as many waste fractions as possible is an important prerequisite in the trend towards a more circular economy. The total waste volume was 16,109 tonnes in 2022. This is a marginal reduction compared to 2021. The volume of hazardous waste has been reduced significantly and was approximately 725 tonnes in 2022. The Group's goal is to achieve a sorting ratio of at least 90 per cent. The sorting ratio was 92.97 per cent in 2022, which is a marginal increase compared to 2021.



## AMBITIONS

- Actively work on waste reduction and waste management in accordance with the waste pyramid priorities.
- Sorting and recycling waste to the extent technically possible.

## RESULTS

- 16,109 tonnes of waste in total.
- 725 tonnes of hazardous waste.
- 418 tonnes of waste sorted as plastic.
- 92.9% sorting ratio.

## MEASURES

- Continue surveying waste and with the follow-up of KPIs.
- Further strengthen the coordination of waste management across the Group as a whole and continue the centralisation of waste collection contracts.
- Collaborations with other companies to reduce emissions from waste using solutions such as material recovery rather than incineration.
- Continue working to increase the sorting ratio to more than 90% for all companies.



A clearly visible QR code on the overview poster makes it easy for users to find the answers they are looking for.

Anneli Skudal and Rune Berby pictured next to the new waste overview at Moelven Modus AS.

## It is now even easier to correctly sort waste

The brand-new waste poster at Moelven Modus AS in Jessheim allows you to check where different types of waste need to go. What are halogen-free organic solvents? Scan the QR code on the poster to find the answer.

The poster is just one of several steps taken by Moelven Modus to improve waste sorting. The key is to make it as easy as possible for employees to sort waste. Here are some of the initiatives recommended by Anneli Skudal, Project Manager for Sustainability and Development.

- Clearly visible labelling of all waste containers.
- Many bins at various recycling stations for easy sorting. These can then be transported to the containers outside when full.
- Close monitoring of sorting reports in order to identify areas for improvement.

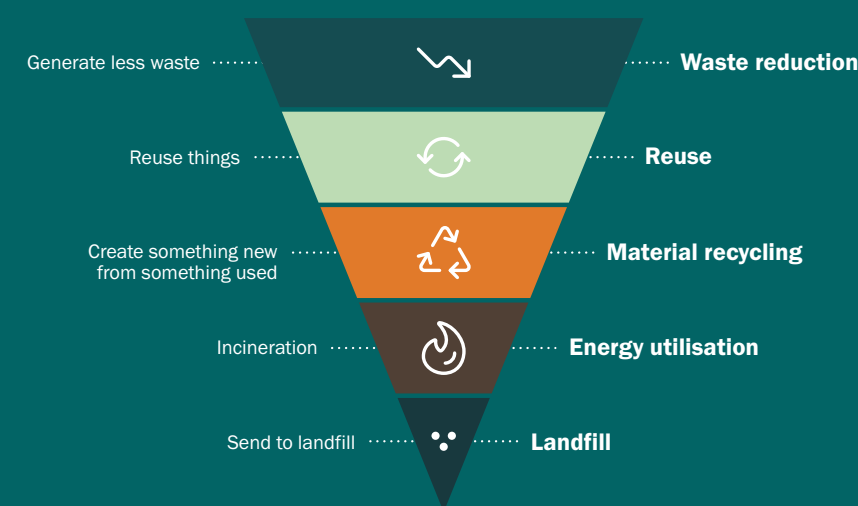
- Cardboard and plastic crushers to minimise waste volume.
- Lids on all containers outside to prevent rainwater and snow from making the waste unnecessarily heavy.

Moelven Modus uses many different components and materials in production and therefore requires proper procedures to ensure simple and effective waste management. These initiatives are perceived as a major step in the right direction to increase the company's sorting ratio and illustrate how simple steps can have a big impact.

	2022	2021
Hazardous waste	725	1,056
Other waste	15,384	15,132
<b>Total volume of waste</b>	<b>16,109</b>	<b>16,187</b>
Waste sorted as normal wood	4,466	4,728
Waste sorted as impregnated wood	277	638
Waste sorted as plastic	418	581
Waste sorted as metal	1,052	1,293
Waste sorted as plaster	1,204	1,157
Other waste sorted locally	6,866	5,483
Mixed industrial waste (not sorted locally)	1,133	1,193
<b>Total volume of waste</b>	<b>16,109</b>	<b>16,187</b>
	92.9%	92.6%

## THE WASTE PYRAMID

The waste pyramid illustrates priorities in waste management and is endorsed in both Norwegian waste policy and the EU Framework Directive on Waste. The goal is to manage waste issues as close to the top of the pyramid as possible. When Moelven facilitates internal transport without packaging, this is an example of waste reduction – without packaging, waste is simply not generated. An example from the lowest part of the pyramid is the delivery of ash from a heating plant to landfill. In some cases, this may be the best alternative, but it can also be avoided by identifying partners that can utilise the ash for other purposes, such as soil improvement.





# Resource optimisation

## Where and why is it important?

Moelven is a resource-intensive industrial company. For example, the industrial wood processing part of the Group has an annual raw material requirement of approximately 4.5 million m<sup>3</sup> of saw timber. There is therefore huge potential in resource rationalisation and optimisation, even with minor production changes.

Moelven works continuously to optimally utilise resources and ensure that no raw materials are wasted. This is an important topic for Moelven since it affects profitability. The forest is a renewable resource, but needs to be managed sustainably. The forest absorbs and stores CO<sub>2</sub> and provides the basis for existence for large parts of the biodiversity we depend on for ecosystems to balance. It is therefore important for both the climate and the environment that we avoid wasting this valuable natural resource.

## Policy and approach

Moelven focuses on resource optimisation throughout the value chain. This applies to both the utilisation ratios for material consumption and to process efficiency. Optimisation must already start at the time of felling in the forest by ensuring that the felling machines cut the saw timber into lengths that correspond largely to the length criteria for the products that will later be made from the log. At the sawmills, the logs are analysed to ensure the optimum extraction of materials. The saw is set to ensure that what is put in as a whole log comes out divided into planks, sideboards, chips and fibre products in a mix that, overall, results in the highest value utilisation for the raw material. To achieve this, each log is analysed with respect to things like



CEO Morten Kristiansen and Systems Engineer Ahmed Nasrullah study raw material pieces that have been mechanically identified and cut at Moelven Profil AS. Sorting is performed on the basis of faults, such as knots, cracks, resin pockets and similar. Approved-quality parts are dovetailed and turned into wooden components used in window production, while the discarded pieces end up as raw materials for bioenergy production.

size, tapering, twisting and twigs. The most advanced facilities use both external 3D scanning and X-ray scanning for this. The technology enables full traceability throughout the processing from log to the finished sawn timber.

The use of camera-assisted sorting helps improve resource utilisation. Cut timber is sorted through a process controlled by a computer that visually assesses each piece using cameras. Experience shows that these systems result in a significantly lower level of offcuts and expense than manual sorting.

Excellent opportunities for improvement and development can be found in advanced data analysis and the utilisation of real-time operating data. Data analysis based on historical readings and results provides the basis for planned improvements. Real-time operating data allows for process control, which was not previously possible. One of Moelven's priority areas is displaying real-time production data to the operators involved so that they have an opportunity to improve the work processes directly.

The system that is currently being deployed links data from several different systems, including HSE, and allows users to determine how the data will be compiled and presented. This is important as information needs differ in different parts of the company.

## Evaluation of results

Resource optimisation through log selection is not only based on maximising the sawn timber yield. An important principle for Moelven is to utilise the entire log and ensure that the full value of the raw material is exploited. Regardless of the selection method, all residual raw materials, including chips and bark, must be used internally or sold.

Nevertheless, sawn timber yield was still lower than normal in 2022. There are two main explanations for this. After the fire at the timber sorting facility at Moelven Soknabruket AS in September, temporary sorting solutions were established in the forest in collaboration with suppliers. This meant that sawn production could be maintained during the rebuilding of the timber sorting facility, but this resulted in both impaired production and a lower recovery factor than normal.

The other reason was that declining demand for planed timber in the Scandinavian market made it necessary to increase exports to avoid stock levels from getting too high. Increased production of sawn timber and planed timber for export markets at units that normally produce for the Scandinavian market also contributed towards lower resource utilisation than normal.



## AMBITIONS

- We will make optimum use of raw materials.

## RESULTS

- Technical system platform for system improvement work and process control established.
- Recovery factor below target.

## MEASURES

- Ensure organisational maturity for the digitalisation of working methods for digital industrial process control.
- Deploy technical system platform and working methods for systematic improvement work in areas where the organisational basis is in place.
- Follow up on relevant KPIs in order to optimise the use of residual raw materials.



## HOW A SAWMILL WORKS

Join us on the sustainable journey from seed to finished wood product

Read more and watch video.



The pulse meetings for each shift change are now supported by the new system and information is immediately available to everyone. From left: Stine Belsvik, Tomm Robin Tørmoen, Lars Ødegård and Erik Nymoen

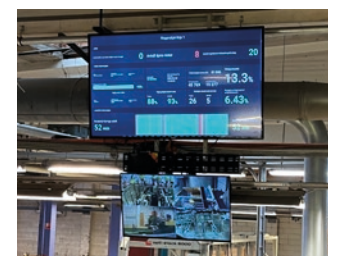
# Moelven Profil AS Digitalisation from research to industry

In 2017, "The Smart Digital Sawmill" project was launched at Moelven Valåsen AB in Karlskoga after the project, as one of eight innovation projects, received partial funding from the state-owned Vinnova in Sweden. The idea was to use modern digital solutions to look at how different systems could be linked and the total data could then be used to make the sawmill more efficient.

The project ran during the 2017-2020 period and resulted in several awards and a patent in addition to the valuable data.

Since 2020, work has been ongoing to develop the project from an innovation project into a standardised operational digitalisation concept. However, the correct organisation and the right expertise are prerequisites for conducting systematic improvement work with digital support.

The system, Cognite, provides users with a single platform for collecting, visualising, analysing and taking action based on near-real-time data. The ability to conduct systematic improvement work increases significantly when the effect of the



initiatives that are implemented can be measured in near real-time.

The project has also led to greater commitment and motivation on the part of employees. Employees have been part of the project since the launch and have had the opportunity to influence the process. Whiteboard meetings or pulse meetings have been fully digitised and data is automatically retrieved to highlight deviations and ensure that the improvement work runs without additional efforts to manually collect data, regardless of whether such data relates to efficiency in production or HSE.

Top left: Ajnur Mujanovic, Technical Manager at Moelven Profil AS, talks about the digitalisation project.

Above: The content shown on the screens can be adjusted based on needs, but all information stored in the system is available in near real-time to the company as a whole.





## Water consumption

### Where and why is it important?

Water is a scarce resource in many countries and is therefore an important part of our environmental custodianship. In Norway, we are lucky and nature provides large volumes of water, but we also use large volumes, which places pressure on the water supply. Rising water shortages worldwide mean that there is a focus on water consumption, including in Norway.

At Moelven, the majority of water consumption is linked to the irrigation of timber. Timber is irrigated during the summer season to maintain quality. Without irrigation, timber is more exposed to drying, as well as pest and fungal damage. Runoff water from timber contains substances that have been washed out of the bark and the wood. These substances can be useful for low-nutrient water but are often considered a disadvantage and a contaminant. Historically, sawmills have usually been constructed near rivers and lakes that could be used both as a transport route and as a source of energy. Moelven's sawmills are still situated near watercourses and have excellent access to water for irrigation without putting pressure on public water supply. For Moelven, it is therefore runoff and the consideration of the water levels in the watercourses during periods of drought that constitute the main reasons why this is an important focus area.

### Policy and approach

#### Moelven shall:

- Actively work to reduce its local environmental impact by focusing on continuous improvement.
- Not be responsible for any violation of the Pollution Control Act or similar legislation.

Moelven is subject to requirements from the authorities relating to regular monitoring and measurements of chemical substances in irrigation runoff. In order to operate within the constraints of applicable laws and permits, Moelven continuously follows up on this.

Moelven measures its own water consumption and, since 2021, the Group has established

Group-wide reporting to follow up on this area even more effectively.

### Evaluation of results

The total water consumption for the Group was 2,093,987 m<sup>3</sup> in 2022, a reduction of around 13 per cent compared to the previous year. Since the reporting procedures in this area are relatively new, the figures are still characterised by greater uncertainty than in areas with more established procedures. The water largely comprises surface water from lakes and rivers. Less than 2 per cent is groundwater and around 19 per cent is mains water. The use of mains water in 2022 increased as a result of leaks and failures at washing facilities. Bore water and mains water are largely used for industrial processes with stricter requirements for water quality than what can be achieved by taking water directly from local watercourses. This applies largely to the drying process, in which water is added to the surface of the wood that is dried in order to control the process. Mains water is also used for drinking water and other non-industrial processes.

Automated climate-controlled irrigation is used at several Moelven production locations. Climate-controlled timber irrigation allows us to use the right water quantity for the climate conditions at all times. This means that the irrigation turns off in the event of precipitation or during the night when humidity is high. This leads to lower water consumption and contributes to less runoff and washout of various substances from the timber and also reduces the energy consumption used for the water pumps.



### AMBITIONS

- Monitor our own water consumption and water consumption in the local environment.
- Acquire knowledge of the correlations between Moelven's activities and the water cycle in the local area.
- Acquire knowledge of where and how water is used in our activities.
- Determine targets relating to our own water management.

### RESULTS

- 2,093,987 m<sup>3</sup> of water consumed in 2022 compared to 2,407,508 in the previous year.

### MEASURES

- Monitoring water consumption at all production units.
- Establishing goals to reduce water consumption.
- Evaluating different water risks at production units.
- Installing climate-controlled timber irrigation.

The image shows a chamber drier at Moelven Mjøsbuket AS. A lot of water is used during the warm-up phase of the drying process, as well as during final conditioning. During warm-up, the objective is to raise the temperature in the timber as quickly as possible without the timber starting to dry out. This is because there is a risk of fracture when timber dries too quickly at low temperatures. The timber becomes more elastic at higher temperatures and can withstand the tensions that arise. Water is therefore sprayed to maintain high humidity in the chamber. When the wood is cut into e.g. panels, it is important to make sure that the wood is tension-free. A conditioning phase is therefore important once the timber has been fully dried. During conditioning, we spray water to raise the humidity in the surface layers of the timber in order to reduce any tension that has occurred during drying. New driers include modern basing systems that evaporate water more efficiently so that we avoid using more water than is required for the process.



Water consumption	2022	2021
<b>Total volume of waster consumed (1000 m<sup>3</sup>)</b>	<b>2,093,987</b>	<b>2,407,508</b>
Water consumption - Surface water (rivers and lakes) [m <sup>3</sup> ]	1,668,531	2,116,959
Water consumption - Groundwater [m <sup>3</sup> ]	24,969	40,994
Water consumption - Mains water [m <sup>3</sup> ]	400,487	249,555



# Sustainable materials

## Where and why is it important?

Moelven is a major purchaser of timber, and thus has a responsibility to contribute to responsible forestry. Responsible forestry helps ensure that the forest is managed with regard to the basis for sustained use of the forest and includes the planting of new trees after harvesting, consideration of the biodiversity of the forest and the conditions for outdoor recreation.

## Policy and approach

From Moelven's sustainability policy:

- Moelven shall utilise entire timber logs, including all by-products.
- Moelven shall optimise raw material utilisation to improve resource efficiency and to maximise the value of the raw materials used.
- Moelven shall use certified raw materials from sustainable forestry. At a minimum, all timber purchased by Moelven shall be checked in accordance with the current requirements relating to controlled timber that have been stipulated in recognised Chain-of-Custody standards (PEFC CoC and/or FSC® CoC). Furthermore, Moelven shall aim for as much of its purchased timber as possible to be certified in accordance with recognised standards relating to sustainable forestry (PEFC and/or FSC®). At a minimum, this shall correspond to needs based on the group's sale of certified finished products.
- Moelven shall not be involved, directly or indirectly, in:
  - Unlawful logging or trade of wood or forestry products.
  - Destruction of high preservation value areas during forestry operations.
  - Forestry involving time-honoured or human rights violations.
  - The introduction of genetically modified organisms during our forestry operations.
  - Significant transformation of forests into plantations or non-forestry applications.
  - Violations of ILO fundamental conventions as defined in the ILO Declaration on Fundamental Principles and Rights at Work, 1998.
- Moelven's products shall undergo environmental assessments and certifications that meet the requirements of customers and the market.

(non-governmental organisations) that work to promote responsible forestry and issue certificates to parties that meet the defined requirements. The organisation promotes responsible forestry through third-party certification. Common to both standards is three-part certification (see illustration).

Moelven currently has two multi-site certificates issued under the PEFC and FSC® schemes through so-called Chain-of-Custody (CoC) certificates that follow the movement of the wood from timber to finished product.

In Norway, Moelven purchases timber via the forest owners' associations as wholesalers, while purchases in Sweden take place directly from private forest owners. Moelven Skog AB is responsible for such purchases and also provides a number of different forestry services, including felling, and is therefore certified in accordance with FSC® Forest Management and the Swedish PEFC standard. The Group company Vänerbränsle AB, which sells Moelven's chip and fibre products in Sweden currently holds one certificate.

Certifications that document sustainable materials are becoming increasingly important in both the retail and project market, primarily in the housing and commercial premises segment. Different environmental certifications for buildings, such as the Nordic Swan Eco-Label, BREEAM and Miljöbyggnad, require the use of certified wood.



All companies within the Timber and Wood divisions, as well as the glulam companies and Moelven Modus AS, are certified in accordance with the PEFC (Programme for the Endorsement of Forest Certification) and FSC® (Forest Stewardship Council) traceability standard.

PEFC and FSC® are international NGOs



## AMBITIONS

- Moelven will use renewable resources and utilise the entire resource.
- Moelven will use certified raw materials from sustainable forestry and will not buy raw materials from controversial sources.

## RESULTS

- 100 per cent of the timber is checked in accordance with the applicable requirements for controlled wood and a high proportion is PEFC certified or FSC® certified.

## MEASURES

- Increase the proportion of certified timber from Swedish forests for our Swedish sawmills. Continue checks and increase the proportion of certified retail products.

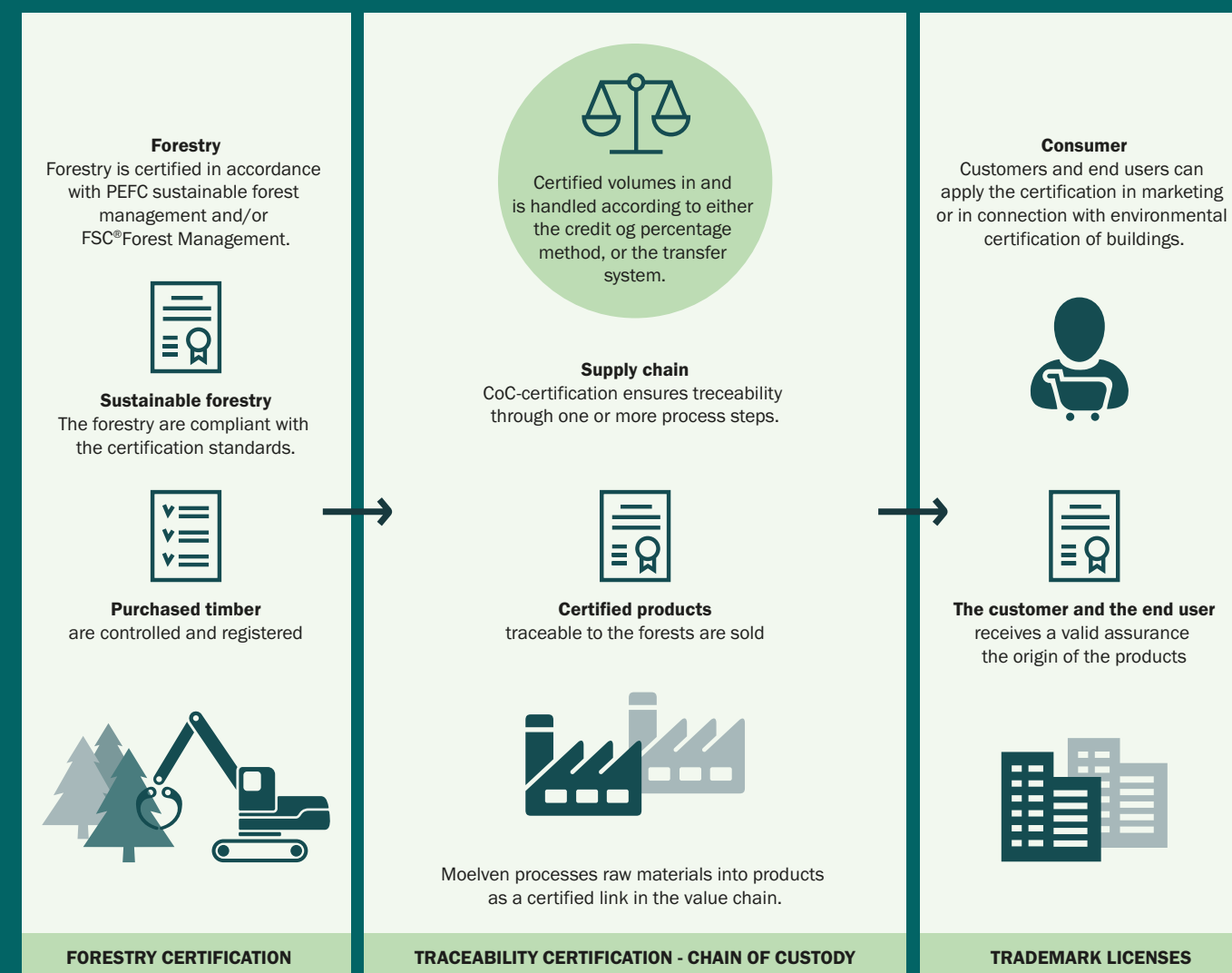
In Barkaby to the north of Stockholm, Moelven Byggmodul AB has supplied wooden modules for an entire block.  
Photo: Photo: Andreas Hythén

## Evaluation of results

100 per cent of all of timber the Moelven sources is checked in accordance with the applicable requirements for controlled wood. In Norway, all felling is in practice PEFC CoC certified and a proportion of it is certified twice in accordance with both PEFC CoC and FSC® CoC. In these circumstances, the customer must choose which certification should be entered into the account for the given volume. The principles for certified forestry are different in Sweden to those in Norway. Nevertheless, around 65 per cent of total

forestry land is certified in accordance with PEFC or FSC® and the proportion is increasing every year. Moelven's systems for buying timber ensure that it comes from responsible forestry. Moelven also purchases processed wood products that are a part of Moelven's product range. The certification ratio for these goods is very high and Moelven continuously strives to buy only certified products wherever possible. For products that are not certified, Moelven works with a DDS system to ensure that the products originate from responsible forestry.

## CERTIFICATION IN THREE PARTS



In the certification, Moelven operates as a link in the value chain, and the company is thus responsible for ensuring traceability. Since traceability throughout the entire production process is not feasible at an individual level, Moelven practices the mass balance principle (credit account) to ensure that all of the products it sells are correctly certified. This means that Moelven cannot sell larger volumes of finished products than can be produced based on the purchased quantity of the corresponding raw material. It is not the suppliers that are certified, it is specified product groups from the supplier. The certification is checked at the invoice level per product line. Moelven's customers can find the certification status of the purchased products on the packing slip and invoice.





Sabor Mokhtari, Ida Sandin and Ronny Vikström from Moelven Byggmodul AB in Torsby and Moelven Valåsen's Sofie Edgren are four of our employees who seize opportunities and make a difference.

Photo: Andreas Hythén and Moelven



### AMBITION

We shall be an attractive and safe workplace.

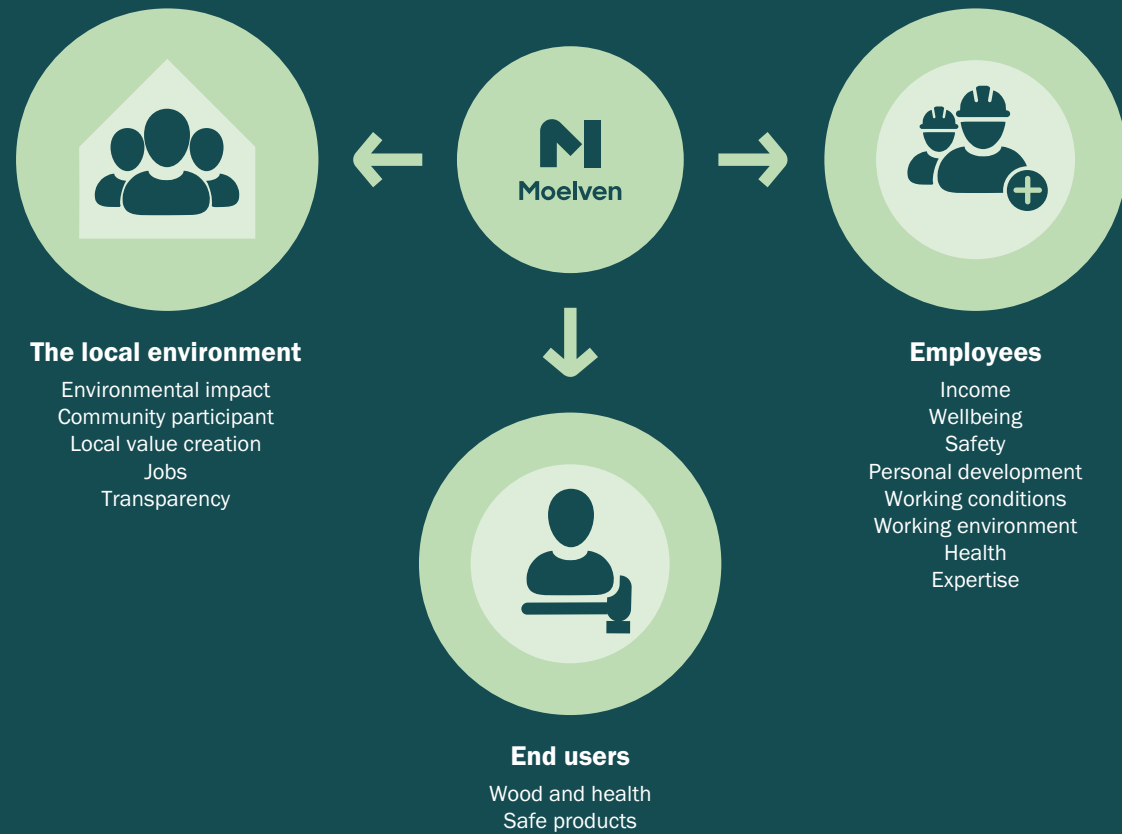


# FOCUS ON PEOPLE



FOCUS AREA

## Focus on people



### UN Sustainable Development Goals



**Relevant sub-goals**  
**3.9** - Significantly reduce the number of deaths and cases of disease caused by hazardous chemicals and polluted air, water and soil by 2030.



**Relevant sub-goals**  
**4.4** - Achieve a significant increase in the number of young people and adults with skills, including in technical and vocational subjects, that are relevant for employment, decent work and entrepreneurship by 2030.

### Moelven's policy

- Moelven has a vision of zero workplace injuries, and believes that all injuries are preventable.
- All Moelven employees shall participate in HSE training.
- Moelven shall have active employees that take personal responsibility, develop their expertise and contribute with commitment to their day-to-day work.
- Moelven shall have active managers who communicate and are trustworthy, focus on profits and who create the conditions for innovation and development.

Ingela Löf is an HSE Engineer at Moelven Component AB.



# Health, safety and the environment

## Moelven invests in employees

In recent years, there has been a major focus on employee participation and leadership at Moelven. This, combined with intensified systematic work within HSE, constitutes the pillars for ensuring that all employees return home safe and sound. Systematic HSE work results in an improved working environment, as it ensures that employees have safe and secure working conditions. Managers and decision-makers are given more information and knowledge about the working environment and potential risks so that they can make more informed decisions. A focus on employees and leadership contributes to increased job satisfaction, well-being and motivation. The results can be seen through lower injury rates and absence due to illness, as well as increased productivity.

Systematic HSE work is an ongoing undertaking and Moelven will continue to focus on this as its ultimate priority going forward. People are the most important thing.

## Policy and approach

At Moelven, our overall objective is zero injuries. We have established a few milestones within four focus areas to help us get there: The LTI rate, TRI rate, number of incidents recorded and absence due to illness.

Through an increased focus on HSE with the prioritised action plan "HSE towards 2023", one of the biggest areas we work on is risk mitigation and awareness of everyday hazards. At Moelven, we work with a large proportion of machinery and materials that can potentially cause serious injuries. We have therefore undertaken major work to implement safety devices on machinery and equipment. The work also enables employees to make smarter and safer choices on a daily basis. In order to ensure that this work remains a priority, Moelven has established dedicated HSE roles in all companies. The employees who fill these roles have increased their expertise on HSE in general and how they, as individuals, can contribute to a safer Moelven through their day-to-day work.

Reporting of hazardous conditions, discussions about serious incidents that have occurred and initiatives to create a safer working day are areas to which each and every one of our 3,332 employees contribute. In recent years, we have had a focus on active employee participation and active leadership, which has contributed greatly towards ensuring team-building and the confidence to speak up and care about colleagues.

Another important area for Moelven is ensuring that we are all fully present at work. Following several years of increased absence due to COVID-19, non-remote work will be a major priority

going forward and will include initiatives such as:

- Health-promoting initiatives to prevent absence due to illness
- Close follow-up in the event of illness
- Tools for the adaptation of work

The goal is to reduce absence due to illness in the years to come. Moelven will continue its excellent health insurance for employees, helping to ensure that those who need it can access treatment and return to work sooner.

We highlight the employees that have made an extra effort to promote a positive working environment, health or safety in the workplace by naming the HSE Hero of the month. Nominations are submitted from all parts of the Group and this is one of the initiatives we have implemented to highlight the big and small actions that are taken on a daily basis.

## Systematic improvement work

Systematic HSE is another important element of Moelven's operations. Clear requirements and guidelines, at group and company level, are part of this. The management system for HSE, quality and the external environment, Landax, provides managers with support for systematic improvement work. Here, all guidelines, requirements and policies relating to HSE can be found in one place. The system is also used in the work on risk management, non-conformity management and improvements.

Moelven strengthens the knowledge of its employees through courses and information published via the Workplace knowledge platform. Here, we focus on the sharing of knowledge regarding challenges and good practices across the companies. Regular courses on the use of Landax are also held.

HSE is now a natural part of activities in all areas of the Moelven Group. HSE is the first item on the agenda for board meetings, divisional meetings in the companies and for group management team meetings. The Safety Committee and HSE Committee forums work on relevant guidelines and group-wide HSE matters. Moelven participates in various HSE forums together with other industry players in Norway and Sweden. In this way, we can share our experiences with others and the work to ensure a safe and positive working environment benefits a larger part of society.

## HSE roles

The HSE roles that have been established and formalised at the companies have a dedicated responsibility to contribute to making work safe and secure. Nevertheless, all Moelven employees share a responsibility to contribute towards our success

## Some of our HSE Heroes



**Kathrin Svehaugen**  
Production Employee,  
Moelven Trysil AS



**Joakim Jensen**  
Skilled Worker,  
Moelven Modus Vestland



**Elsa Pedersen**  
Logistics Trainee,  
Moelven Edanesågen AB

You can see more brilliant HSE Heroes at Moelven here.



in HSE work. This responsibility has been assumed through active leadership and active employee participation.

## Risk assessments

Risk assessments are the foundations for a safe and secure working environment and set out the premises relating to the need for training, procedures and processes, as well as various safety measures. We therefore prioritise risk assessments and risk mitigation. We have identified and assessed risk factors in all departments in recent years. Such assessments have been conducted in collaboration with employees and safety representatives. Risks are documented and assessed in Landax and we have carried out 9751 risk assessments in the last two years. There is a high focus on risk mitigation through requirements for action plans and new assessments to ensure that the chosen measures have yielded the desired effect. All risk assessments classified as red have been reviewed by local company boards for accountability and prioritisation of measures. The work on risk management is a continuous effort with the purpose of gradually creating an increasingly safe working day for our employees.

## HSE courses

Moelven employees receive fundamental training on HSE through in-house training courses. The courses are adapted for the roles and set the standard for how we want things to be at Moelven. The new courses launched during the autumn of 2022 and must be completed annually by each employee. This helps increase HSE knowledge in general.

## Technical safety inspections

Technical safety inspections were carried out at all Moelven facilities in 2021. The findings from these inspections have formed the basis for the work to make our machinery and equipment safer. Several of the findings were corrected immediately. Some of the non-conformities were significant enough to require extensive work to identify solutions and significant investments. This work has been ongoing throughout 2021 and 2022. Most of the non-conformities had been remedied by the end of 2022. The work to remedy the rest of the findings will continue as a priority area for companies in Moelven.

## Learning through internal audits

Over the last year, the internal auditors at Moelven have carried out audits of several HSE topics, such as guidelines, technical equipment and HSE procedures. This audit work is part of continuous improvement work. Internal audits contribute towards a better overview of the company's processes and control mechanisms, which leads to greater assurance that rules and guidelines are complied with. The audits can also help identify inefficiencies or weaknesses in the company's

## Organization of the Safety Committee, HSE professional forum and HSE roles

The Safety Committee consists of the group management, HSE manager and employee representatives. The HSE professional forum consists of representatives from all divisions and the HSE manager.

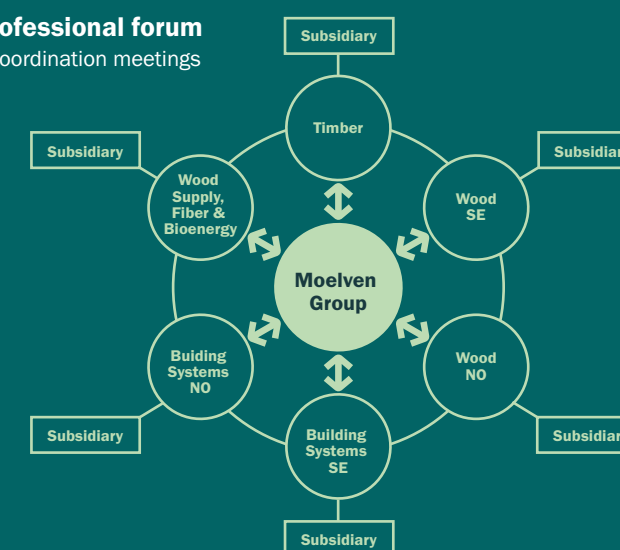
### The Safety Committee

5-6 meetings annually



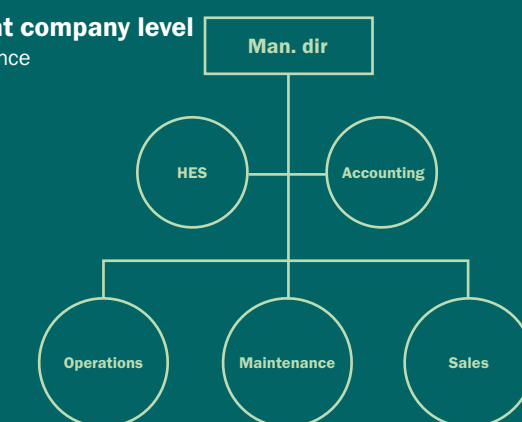
### HSE professional forum

Weekly coordination meetings



### HSE roles at company level

Yearly conference





processes, which the companies can use as part of their improvement work.

The findings from the audits are also used as input for Moelven's overall improvement work. Good practices and proposed solutions are shared across the companies.

**Incident investigation**

Learning across companies and employees is an important part of ensuring that all employees return home safe and sound. Moelven investigates incidents as a tool to examine safety barriers and root causes in the event of serious incidents. Such investigations result in a report containing an evaluation of barriers and proposals for improvement for the company in question. We also prepare learning sheets describing the incident and preventive measures.

The purpose of the learning sheets is to generate knowledge about incidents, raise awareness about risks in the working day and specific measures that each individual can take to prevent similar incidents from occurring at their unit. The investigation of incidents and preparation of learning sheets has now become an established method to highlight risks and learn from incidents across the Group.

The companies themselves will conduct root cause analyses for all injuries and other circumstances that entail a high potential for harm. The purpose of root cause analyses is to identify the underlying cause and provide a better basis for doing something about the actual cause of the incident.

**Evaluation of results**

**Injury statistics**

Moelven has taken great steps forward to ensure that employees have a safe and positive working environment. The initiatives that have been implemented to prevent adverse events have been numerous in recent years. An increased focus through knowledge, systematic improvement work

and clear requirements has yielded results.

In 2021, we reduced the number of injuries by 15 per cent compared to the previous year. This decline continued in 2022, when we reduced the number of injuries by 12 per cent. Nevertheless, we ended up with a higher LTI rate in 2022 than the previous year. This is because more injuries resulted in absence.

Injuries in 2022 resulted in an LTI rate of 8.0. The target was an LTI rate of <6.0. This shows us that we still need to focus on and prioritise the work on health, safety and the environment at Moelven.

If we look at all injuries with and without absence (TRI), we actually met our 2022 target. This is the second year running in which we have managed to meet the target. In 2022, the target for the number of injuries was <24. We ended with an TRI rate of 19.6. Even though we met our target in terms of number of injuries, one injury is always one injury too many at Moelven. We operate with a zero vision and our goal is for everyone to return home safe and sound from working at Moelven.

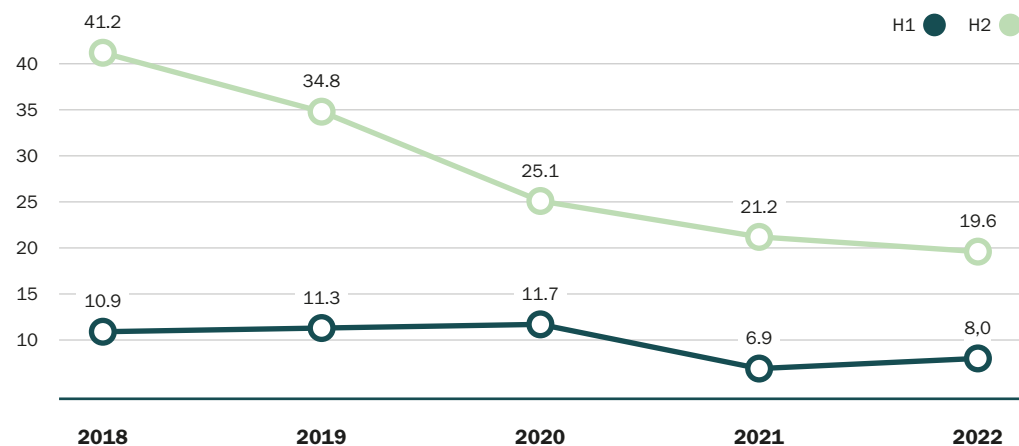
**Reporting frequency**

In order to reduce the number of injuries, we must do something about hazardous conditions and near-accidents that are reported. High reporting



Photo: Kristina Meyn Krogvold/Ringsaker municipality

**Development in number of injuries, 2018-2022**



**THE FOCUS ON FURTHER DEVELOPING A POSITIVE SAFETY CULTURE HAS YIELDED RESULTS**

The "HSE towards 2023" action plan was adopted in 2020. The prioritised action plan consists of the following items:

1. Strengthen the HSE organisation and organisation of HSE work.
2. Strengthen HSE work by rolling out active leadership and active employee participation.
3. Implement risk management within operations.
4. Develop and implement HSE courses at all levels in the organisation. Establish a course portfolio of different HSE training courses.
5. Implement technical safety inspections at production facilities.
6. Establish an internal audit organisation that annually examines compliance with internal and external requirements and rules at the company level.
7. Continuous improvement and organisational learning.

We have systematically worked on these items during the 2020-2022 period. The clear focus has given Moelven a boost in several areas.

**LTI RATE**

Injuries resulting in absence per million hours worked. The LTI rate in 2022 was 8.0. The target was <6.0.

**TRI RATE**

Number of injuries resulting and not resulting in absence per million hours worked. The TRI rate in 2022 was 19.6. The target was <24.

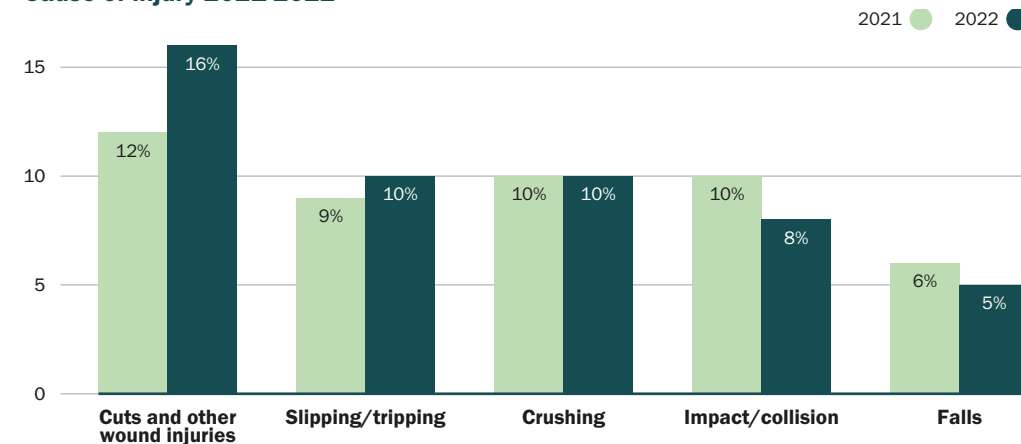
rates are proof of the risks identified by employees during the working day. An increase in the reporting of near-accidents and hazardous conditions is linked to a reduction in the number of injuries. It is therefore crucial that we continue encouraging reporting and ensure that those who submit reports receive feedback. This is done through management courses, training on the use of Landax and structured agenda items for department meetings.

The reporting of hazardous conditions and near-accidents is an important area for Moelven and we have targets in place for the number of reports. In 2022, this target was 1.1 report per employee/year. In 2022, Moelven employees submitted 1.3 reports per employee/year. This is a positive result and helps us to do something about hazardous conditions before they lead to accidents.

All incidents and hazardous conditions are recorded using the group-wide reporting system. Causes, measures and responsibilities are documented and provide us with a good overview of injury types, severity and possible causes. In 2022, most injuries were cuts and wounds caused by various types of small tools. On this basis, we have initiated several targeted measures to make the working day safer. By analysing trends using our reporting system, we can implement measures in the areas in which we identify the greatest potential for injuries or the highest injury rate.

Our reporting system provides us with a good overview of trends, who is affected, possible causes and injury category. In 2021, the following injuries types were most frequently seen in our reporting statistics:

**Cause of injury 2021-2022**



**Absence due to illness**

Absence due to illness in 2022 was 6.7 per cent, of which 2.8 per cent was long-term absence. Some short-term absence can still be attributed to COVID-19, but also other infectious diseases. Due to the experience from COVID-19, Moelven encouraged employees to stay home if they felt ill and not to return to work before they were well again in 2022.

The work to reduce absence due to illness is continuous. Absence due to illness is closely linked to employees' job satisfaction, sense of belonging and trust in colleagues in the workplace. Due to an increase in absence due to illness in 2022, the Group has chosen to focus on measures

to increase attendance in 2023 through large and small initiatives to improve the physical and psychosocial working environment. Absence due to illness is monitored through targeted measures in collaboration with the occupational health service and the companies' HSE committees, as well as in dialogue with employees.

In 2022, employee surveys were conducted at all Moelven companies and Moelven is now working on measures at company and group level alike. The results of the survey for the Group show improvements in several areas.

HSE focus areas	2022 Target	2022 Result	2024 Target
LTI rate	Less than 6	8.0	Less than 4
TRI rate	Less than 24	19.6	Less than 16
Number of registered incidents	1.1 report per employee/year	1.3 per employee/year	1.2 per employee/year
Absence due to illness	4.0%	5.6%	4.0%

*An increase in the reporting of near-accidents and hazardous conditions is linked to a reduction in the number of injuries. It is therefore crucial that we continue encouraging reporting and ensure that those who submit reports receive feedback.*



# Safe chemical use

## Where and why is it important?

Moelven uses chemicals in its production both to increase the service life of certain products and materials and to increase the processing rate and simplify further processing and maintenance of the products. Some of the chemicals that are used may have a potential impact on health and the environment in the event of direct contact during the production phase, but should not constitute a risk in the production phase or usage phase when used correctly.

Health-friendly use of chemicals is an important topic at Moelven as the chemicals we use can pose a risk in the event of incorrect handling. It is also a topic that many customers and consumers care about. It is therefore important for Moelven to provide comprehensive and clear information about the use of these chemicals in order to ensure the products are used properly and to gain the trust of end users.

## Policy and approach

There are a number of laws and regulations relating to the use of chemicals, whether relating to handling during the production process or the properties of the finished products. The most important EU Directives applicable to Moelven's products are:

- CPR - Construction Products Regulations
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals
- BPR - Biocidal Products Regulations

Norwegian and Swedish legislation requires companies that use chemicals to assess the need for the chemicals that are used and whether they can be replaced with less hazardous substances. There are also several regulations focusing on labelling, storage and more.

Moelven works continuously to ensure that relevant regulatory requirements have been incorporated in applicable procedures and that all products made by Moelven are in accordance with the requirements set out in directives, legislation and regulations.

Handling of chemicals in production processes is included as an agenda item in risk reviews and HSE audits at the units. In 2022, campaigns, training and audits aimed at chemical handling were prepared for implementation in 2023. In addition to regulatory and safety considerations, Moelven also has separate objectives in place regarding development and improvement work. These are aimed at the following focus areas:

- **CLP labelling and safety documentation of all chemicals used.**
- **Expertise**  
Continuous skills development is necessary to ensure that Moelven is not only able to handle and use chemicals correctly, but also in order to make the right choices with regard to the chemicals we use now and in the future.
- **Prioritisation of environmentally friendly chemicals**  
When available, environmentally friendly alternatives should be prioritised.
- **Product development**  
We will use development and innovation to actively seek and explore environmentally friendly alternatives.

## Evaluation of results

The chemicals and treatment products covered by the sustainability reporting were chosen based on consumption, potential health impacts and the stakeholder and materiality analysis. The changes in quantities consumed from 2021 to 2022 are due to variations in production volumes and utilisation.

structure is, and will remain there, which makes them largely inaccessible to plants, animals and people. Surface treatment with a terrace stain or oil will reduce such leaching out.

To preserve durability and the environment, as well as human safety in structures, Moelven is keen to ensure the proper use of wood in the right place. This will allow the chemicals that are used all the time to be minimised.

Waste Cu-impregnated wood must be delivered to authorised collection points for treated wood, for example a municipal recycling station.



## AMBITIONS

- Moelven will prioritise the use of safe and environmentally friendly chemicals where possible.
- Employees must not handle chemicals without adequate training and information about safe handling and the procedures applicable in the event of accidents.
- Moelven will work actively to identify environmentally friendly substitutes for substances that can have a negative impact on people and the environment.
- Moelven will work actively to eliminate products and substances that contain CMR substances both in production and trade products.

## RESULTS

- The main groups of chemicals have been surveyed and are subject to reporting procedures.
- A chemical substance index will be available at all sites at which chemicals are handled.

## MEASURES

- Continuous skills development with regard to both HSE and product/process development.
- Continuous efforts to minimise use and explore alternatives.
- Continuously quality-assure and, if necessary, update the MOM and HSE documentation for the products and ensure that employees know where such documentation is available.
- Risk assessments for chemical handling and implementation of corrective measures as needed.
- Regular measurements and risk assessments to prevent and mitigate potential negative impacts on people and the environment.
- Continue the work to identify chemicals in production processes and products.
- Internal audits with a focus on chemical handling will be conducted in 2023.
- Procedures for measuring and reporting chemical use will be reviewed with a view to improvement and standardisation in 2023.

Name	Description	2022	2021
<b>Impregnating fluid (litres)</b>	<b>Area of application:</b> Provides resistance to moisture, rot and fungus attacks and increases a product's service life.	1,176,288 (Cu)	1,151,778 (Cu)
	<b>Potential health impacts:</b> Moelven's Cu-impregnated products contain the element copper (Cu). Besides this, the products contain no heavy metals.  Moelven also supplies glulam based on TMF-impregnated materials. The impregnation fluid does not contain heavy metals and consists of biodegradable antifungicides. No negative health impacts have been identified when the pressure-impregnated products supplied by Moelven are used properly.	18,850 (TMF)	20,650 (TMF)
<b>Paint, primer and stain (litres)</b>	<b>Area of application:</b> Paint, primer and stain are aesthetically pleasing, provide resistance to moisture, rot and fungus attacks and increase a product's service life.	1,233,165	1,624,254
	<b>Potential health impacts: Industrial application of paint, primer and stain is performed more efficiently and in a safer environment compared to painting after installation. This reduces the risk of impact on health, while also ensuring that the handling of spills and waste can be done more effectively.</b>		
<b>Fire impregnation (litres)</b>	<b>Area of application:</b> Moelven's unique Fireguard impregnation provides resistance and passive protection against fire and is used for both interior and exterior products.	260,000	200,000
	<b>Potential health impacts:</b> The product has been shown to be an environmentally friendly impregnation agent, it meets the requirements of the EU Construction Products Directive and waste can be handled as ordinary treated wood. No hazardous chemicals are emitted during use or in the event of fire.		
<b>Glue (kg)</b>	<b>Area of application:</b> Adhesives are used as a binding agent in many products, for example glulam. Moelven mainly uses MUF (melamine-urea-formaldehyde) and some PRF (phenol-resorcinol-formaldehyde) in glulam. All glulam is labelled based on the type of glue used.	6,430,642	6,654,604
	<b>Potential health impacts: Moelven generally uses glues produced from oil that does not originate from fossil sources and thus has a low environmental impact. Glulam has no health impacts for the user when used properly.</b>		
<b>Royal impregnation (litres)</b>	<b>Area of application:</b> Royal impregnated wood is wood that has been treated with a combination of pressure impregnation using water-soluble agents and an oil treatment during which the wood is boiled in oil. This contributes to high-quality materials with limited maintenance requirements and a long service life.	48,433	45,992
	<b>Potential health impacts:</b> The "royal treatment" is done by drying the Cu-impregnated products before "boiling" them in coloured linseed oil. It may therefore contain copper. No adverse impacts on health have been identified in connection with correct use of linseed oil and pressure-impregnated products.		
<b>Osmo (litres)</b>	<b>Area of application:</b> Osmo is a wood treatment product based on natural oil and waxes. The oil penetrates the wood and protects it from within. The wax creates an elastic, microporous surface that protects the wood from external impacts, and the wood thus retains its natural appearance and is protected.	5,088	10,538
	<b>Potential health impacts:</b> There are no known potential health impacts from using Osmo. It consists of sunflower, soya, lentil and thistle oil and is approved for use in contact with foodstuffs.		

## Cu-impregnated products

Cu-impregnation contains copper (Cu), an element that is found naturally in soil. Copper is a vital trace element for humans, higher animals and many plants. Contact with oxygen and moisture is what gives copper pressure-impregnated materials their characteristic green colour. In the form of soluble salts, even small quantities of copper act as a toxin to lower organisms such as algae, fungi and bacteria, which means it gives the materials a very high resistance to rot.

Small quantities of copper salts in pressure impregnated wood will leach out during use. These will bind to the upper soil layer, where the



## Diversity and equality at Moelven

Moelven’s strategy plan stipulates that we will work to build a culture that promotes diversity through inclusion, with a particular focus on equality.

One of the objectives for our future development is to increase the proportion of women in management positions. In order to achieve this target, we need to look beyond the obvious – the recruitment process itself – and think about how we can ensure that our industry is attractive to women that possess the right expertise. In 2022, we recruited more women to management positions at Moelven.

Moelven’s Code of Conduct states that we will have an inclusive work culture and actively work to ensure a positive working environment characterised by equality and diversity. Our culture and the way we endorse the work are crucial to success in this area. Moelven accepts no form of harassment or discrimination on the basis of gender, race, religion, age, disability, sexual orientation, political conviction, national or ethnic origin or other factors. This has been the approach at Moelven for a number of years and guidelines and internal control procedures have been established to ensure compliance.

One of the measures is a requirement to conduct an anonymous employee survey at all Group companies each year. There are also established reporting procedures in place that enable all employees to anonymously report any

violations of laws, regulations, intragroup guidelines or other misconduct.

In 2021, Moelven’s employee survey was further developed, largely on the basis of the knowledge and experiences gained from the active employee participation and active leadership processes. The revised employee survey was conducted for the second time at all units in the Group in 2022. The employee survey is also part of the annual cycle in the Group’s HR strategy and helps us to identify misconduct, while strengthening employees’ opportunities to speak up if they are subject to harassment.

Data from employee surveys is analysed and forms an important basis for risk assessments and planning of continued work to ensure equality and anti-discrimination.

Legislation in Norway and Sweden requires companies of a certain size to conduct pay surveys focusing on pay differences between genders for equal work. These surveys are conducted for the units covered by the regulations and are published as part of the companies’ annual reports.

The table below shows the results from the survey conducted in 2022 for the Group’s parent company, Moelven Industrier ASA:

Gender representation in the company	Female	Male	Total
Members of the Board of Directors	2	5	7
Employees	31	44	75
Temporary employees	3	6	9
Part-time employees	2	4	6
Percentage	41.3%	58.7%	100%
Absence due to illness	3.13%	0.79%	
Absence due to children’s illness (days)	5	18	23
Parental leave (days)	246	87	333

Women’s pay as a proportion of men’s pay (by role level)	2022
1 - Group Executive Board	1)
2 - CEO staff/support	2)
3 - Middle managers with HR responsibility	2)
4 - Middle managers with professional responsibility	92%
5 - Salaried employees	2)
6 - Operations	2)
7 - Trainees/apprentices	106%

Percentage of women by role level	2021
1 - Group Executive Board	33%
2 - CEO staff/support	0%
3 - Middle managers with HR responsibility	20%
4 - Middle managers with professional responsibility	48%
5 - Salaried employees	50%
6 - Operations	80%
7 - Trainees/apprentices	29%

The pay differences identified through the survey are consistent with what must be expected considering differences in professional fields and education levels within each role category.

## Moelven Export Sales AB A company with women at the helm

Did you know that Moelven’s export company is being developed by women? The sales company Moelven Export Sales AB was formed in 2018.

The aim of the company was to expand Moelven’s opportunities for selling sawn and planed wood products to Asia on a regular basis. The company is also exploring possibilities in new markets, such as the USA.

### Unique expertise in the international sale of wood

The team consists of three women with extensive and proven experience, combined with cultural and market knowledge, as well as experience in sales, customer relations, branding, logistics and launching in new markets.



**Suzan Ljungemo**  
International Sales Director

Joined Moelven on 01/04/2018.  
More than 25 years of experience in sales, product development, certification, office start-ups in China and regular travel to Asia and Europe.



**Katherine Liu**  
Sales Manager, China

Joined Moelven on 03/02/2020.  
Studied at Nanjing Forestry University.  
Eight years’ experience as a Sales Manager at ITG Group.



**Viktoria Olofsson**  
Market Assistant

Joined Moelven on 07/01/2019.  
Translates Mandarin and English.  
Has lived and studied in London, Beijing and Taipei.



”  
*We complement each other through varied expertise. We take responsibility for the entire agreement, including documentation, logistics and follow-up. We have a positive team dynamic and the size of the team allows us to quickly and easily make joint decisions.*

**Suzan Ljungemo**  
International Sales Director

Katherine Liu in front of Moelven’s timber parcels at the customer C&D. Regardless of the market, Moelven Export Sales AB works actively, with regular customer visits and close discussions with the market.





## Leadership encourages active employee participation

Terje Melheim is the Employee & Management Development Manager at Moelven. Active leadership enables employees to assume responsibility, become engaged and contribute towards development.

Active employee participation has taken root at Moelven and we often talk about how to take responsibility, contribute with commitment and develop both individually and as a business. Active employee participation is a way of living in line with our values at Moelven. Each and every employee at Moelven lives the values through the big and small choices they make every day.

The goal for leadership at Moelven is to encourage active employee participation. In order to succeed, we require active leadership in which we communicate and act credibly, encourage involvement, provide direction and stimulate development and innovation.

Throughout the autumn of 2022, Moelven developed an internal management development programme. Management development modules in management communication, foundational management, managing other managers and HSE management will be completed for the first time during the spring of 2023.

Management development will enable Moelven as an organisation to implement different management levels with different challenges. The management development modules will therefore be aimed at different groups. New modules will be piloted from autumn 2023 to find out where they could fit into the overall programme. One of these modules will focus on management team development.

Management development follows some important principles. All content is owned by Moelven, even if external parties contribute to the development and implementation. We meet to practice and the time we spend together is valuable.

In order to ensure that the initiatives are effective, learning groups will be supported for all modules so that people can work and practice between sessions and so that managers and employees are linked in a structured way as part of the development.





## Taking responsibility together with SOS Children's Villages

Together with SOS Children's Villages, Moelven continues to provide opportunities to children and adolescents in some of the poorest countries in the world.

For the third year running, Moelven will support SOS Children's Villages with a fixed contribution of NOK 500,000.

"At Moelven, our people are our most important asset." They are the ones who make a difference and that is also the case for the children in SOS Children's Villages. By providing children and adolescents with opportunities, we can help them change the world. This is something we are both proud of and happy to be part of," says Group CEO Morten Kristiansen at Moelven Industrier ASA.

When the many children under the care of SOS Children's Villages in Ukraine had to flee the war-torn regions, Moelven chose to donate an additional NOK 1 million for emergency aid.

"SOS Children's Villages carries out crucial work to ensure that the children that have to flee their homes are given a safe and secure place to live and the opportunity to continue their

education. It was important to us to contribute," says Kristiansen.

### An important team player for children and young people worldwide

"Having supporters like Moelven is incredibly important to the work we do for children and young people worldwide. The annual support is an important contribution towards our initiatives in areas with the greatest need and where children are suffering the most. Having a partner that also volunteers to provide additional support in a crisis, as happened in Ukraine, also allows us to rapidly scale up support and measures when needed. This provides a sense of security for us and, not least, our colleagues and the children and families we exist to support around the globe," says Secretary General Sissel Aarak from SOS Children's Villages.

The support for Ukraine gave SOS Children's Villages the opportunity to implement emergency measures where there was a need to safeguard children and young people. Photo: SOS Children's Villages in Ukraine







# LOCAL VALUES

Moelven operates in numerous small communities in Norway and Sweden, often as a key employer and contributor to the local economy. Hanna Wickberg from Moelven Skog AB and Christoffer Nilsson from Moelven Byggmodul AB are two employees who contribute towards vibrant local communities.  
Photo: Johan Alp and Andreas Hythén



## AMBITION

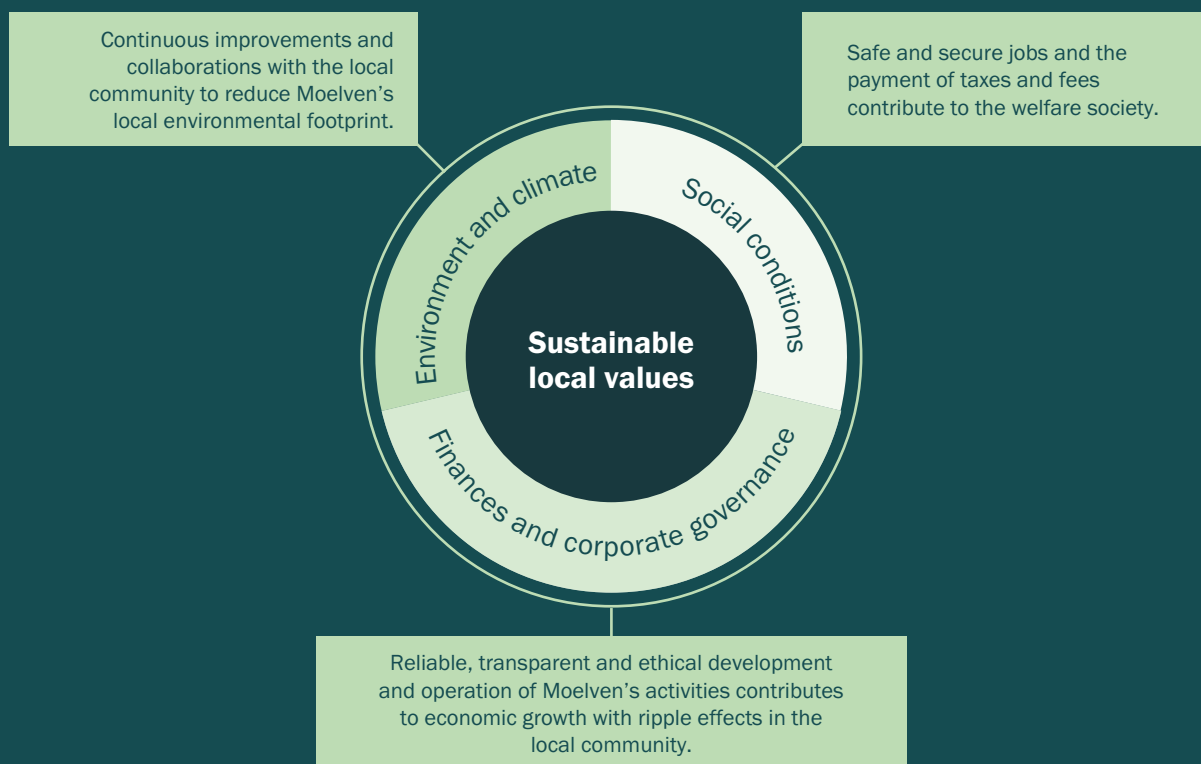
We will create more green jobs.







FOCUS AREA  
**Local values**



## The local environment

### Where and why is it important?

Moelven has almost 30 incineration plants that produce thermal bioenergy both for its own industrial production and for resale to external customers. Energy produced by burning wood and chips is part of a far shorter carbon cycle than energy from fossil energy sources and is therefore defined as renewable energy. Moelven covers just over ¾ of its energy requirements for industrial activities using self-produced, renewable energy. This, combined with the natural carbon storage in its products, comprise the most important reasons for the Group's high levels of raw material utilisation and the climate benefits of using wood as a construction material. However, bioenergy production does impact the local environment through, among other things, emissions of particulate matter, NOx and CO.

Moelven also affects the local environment through e.g. goods transport to and from our industrial sites and noise from our facilities. We also use a lot of water to irrigate timber to prevent it from drying out and becoming damaged during storage. Irrigation water is largely taken from adjacent watercourses. Both water consumption and runoff have an impact on the environment and are subject to local regulations.

### Policy and approach

Moelven also affects the local environment through our activities, such as energy production in incinerator plants, transport, waste management and water consumption. Moelven's sustainability policy clearly states that

- Moelven shall be a natural part of the local community and contribute to economic value creation.
- Moelven shall work actively to reduce its local environmental impact by focusing on continuous improvements.
- Moelven shall not be responsible for any violation of the Pollution Control Act or similar legislation.

### Evaluation of results

Moelven's bioenergy plants vary in size from 1 to 15 MW, with an average of around 7.8 MW. These incineration plants primarily use residual raw materials such as bark and various chip fractions from the timber processing industry to produce bioenergy.

Concentrations of significant fumes and dust are surveyed on an annual basis. At some facilities this is done through continuous measurement and at other facilities measurements are taken at different points during the year. Naturally, there will, therefore, be some variation in these and an analysing the figures as a whole is of little value. Follow-up takes place based on local data. High CO values may indicate that a combustion process is not optimised and therefore any reduction will be considered to be a very positive thing from both an environmental and a financial perspective.

In 2022, the installed capacity increased as a result of the new energy plant at Moelven Valåsen AB, as well as some other smaller boilers.

Incinerator plants	2022	2021
Incinerator plants - total installed capacity [MW]	180	173
Average capacity per plant (boiler 1 + boiler 2) [MW]	8	8
Number of boilers reported	28	27

## A mutually beneficial collaboration

Moelven Van Severen AS supplies bioenergy raw materials to Statkraft's district heating plant in Namsos. This is one of many examples in which residual raw materials from sawn timber production are used in the production of district heating. Sawing and planing result in fine, dry wood shavings, the majority of which can be compacted into briquettes that are used in Statkraft's heating plants. Surplus heating from Moelven Van

Severen's own heating plant is also loaded into the district heating network. District heating in Namsos is therefore unusually short-travelled and heating that would otherwise have been wasted can be used. Around 4,000 tonnes of chips from production are used each year to heat public sector buildings, private commercial buildings and residential homes in Namsos. This is something we are happy to be part of at Moelven!



### AMBITIONS

- Minimise NOx, SOx and CO emissions.

### RESULTS

- No breaches of the Pollution Control Act or similar legislation in 2022 that resulted in fines.

### MEASURES

- Further expand the mapping of local environmental impact and compliance with applicable laws, regulations and permits linked to environmental impact.



## UN Sustainable Development Goals



### Relevant sub-goals

**8.2** - Increase economic productivity through diversification, technological modernisation and innovation, including with emphasis on profitable and work-intensive sectors.

**8.8** - Protect labour rights and promote a safe and secure working environment for all employees, including migrant workers and in particular female migrants, as well as employees in difficult employment conditions.

## Moelven's policy

- Moelven shall be a natural part of the local community and contribute to economic value creation.
- Moelven shall work actively to reduce its local environmental impact by focusing on continuous improvements.
- Moelven shall not violate the Pollution Act or similar legislation.
- Moelven shall have an inclusive work culture and shall actively work to ensure a positive working environment that is characterised by equality and diversity. We do not accept any form of harassment or discrimination on the basis of gender, race, religion, age, disability, sexual orientation, political beliefs, national or ethnic origin or other factors.



# Economic value creation in local communities

## Where and why is it important?

Secure jobs, a good and fair social system for health, education and welfare and a well functioning social infrastructure are important to all of us. In Scandinavia, we generally experience a high standard of living, high levels of education and a good welfare system. This is the result of a community in which private businesses make important contributions through creating jobs and paying taxes and fees.

Moelven is a significant contributor in many of the local communities in which the Group carries out activities. The way in which the Group's activities are run and developed have direct ripple effects in the local community in the form of jobs, revenue for local government and activities for other businesses. At the same time, Moelven relies on good relationships with the local community in order to attract the right people so that the Group can develop and grow in line with opportunities.

## Policy and approach

Moelven's operational activities consist of 34 legal entities across 41 production sites in Norway and Sweden. Common to most of the production companies is their geographical location in rural areas with close links to the forest and forestry industry. The companies are often important cornerstone companies in their areas. Moelven emphasises buying local wherever possible and creating local job opportunities.

The organisational structure, using legal entities, creates ripple effects in the local economy through the companies' value creation and tax contributions, through the purchase of goods and services that in turn generate revenue for other businesses and not least by being a safe and predictable workplace.

## Evaluation of results

Through the use of calculation keys for social contributions, a company's social contributions can be estimated based on revenue, cost of goods, payroll costs and tax contributions corrected for public subsidies. 2022 was a good year for Moelven, with an operating profit of NOK 1.76 billion. The total value creation for Moelven's Norwegian operations in 2022 was NOK 2,939 million and for Swedish operations the figure was NOK 3,244 million.

The data used to calculate Moelven's social contributions in Norway and Sweden is the accounting data from Moelven's Norwegian and Swedish companies. Because the two countries have different tax systems, there is some uncertainty linked to the figures. The calculation only shows the direct tax the Group contributes. The model does not include secondary and tertiary effects (ripple effects) contributed by Moelven and is therefore a conservative estimate of the total social contribution.

Moelven Notnäs Ransby AB consists of two departments located in Torsby and Ransby. The company had 108 employees at the end of 2022 and contributed NOK 50 million in social contributions throughout the year. This means that Moelven Notnäs Ransby AB contributes to around 82 nurses or 190 daycare places. Both of the departments have been operating for a number of years and Moelven Ransby celebrated 50 years of operations during the autumn of 2022. The sawmill has always been an important player in Nordvärmland and nearly 350 people from the local community attended the celebrations.

	Moelven Østerdalsbruket AS	Norway	Sweden	Group
Operating revenue	1,013	7,370	8,161	14,439
Value creation	489	2,939	3,244	6,183
Number of employees	108	1,700	1,620	3,332
Corporate tax*	17	320	327	647
Total paid Employer's National Insurance Contributions	17	143	231	374
Tax paid on wages	16	310	211	521
Public subsidies	-	5	6	11
<b>Tax contribution</b>	<b>50</b>	<b>778</b>	<b>775</b>	<b>1,553</b>

\* Tax payable based on profit for the year



## AMBITIONS

- Provide secure jobs in the local community.

## RESULTS

- Estimated tax contribution of NOK 1.55 billion in 2022.

## MEASURES

- Creating and providing safe and secure jobs that make positive contributions to the local community and building a sustainable future using wood.

# What could Moelven's tax contributions pay for?

The total tax contribution from the Moelven Group in 2022 was NOK 1.55 billion. This could, for example, fund:



The calculations have been performed on the basis of figures for the average annual nurses' salary (Statistics Norway), scholarship grants for full-time students in Norway (Lånekassen) and the average costs per daycare place for children between 0 and 2 years of age (Norwegian Directorate for Education and Training).



Moelven Notnäs Ransby AB celebrated its 50th anniversary at Ransbysågen in 2022.



## MOELVEN SKOG CREATES 500 JOBS

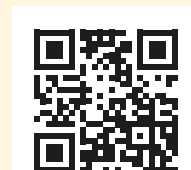
Moelven Skog AB employs a total of 500 FTEs in Värmland, Dalarna, Örebro and Västra Götaland. Around 80 of these are our own employees, while the rest are contracted forestry managers, forestry planners, timber lorry drivers and forestry machinery operators. Through its activities, Moelven Skog helps to maintain vibrant local communities and we also need people to live and work in smaller regions in order to offer our services to forest owners. Together, we create local value!

## Local values from the investment promise of our time

In June, Moelven announced that it will modernise and develop capacity at Moelven Edanesågen AB and Moelven Valåsen AB. Overall, the Group will invest more than SEK 600 million in the two sawmills in the years to come.

With around 800 local residents, this investment is huge for the small village of Edane in the Municipality of Arvika. When the project is finished during the first half of 2024, Moelven Edanesågen will see a significant increase in production capacity. In turn, this will contribute to a vibrant local community and increased competitiveness.

Read more about the investments.





## A reliable partner

### Where and why is it important?

“We deliver” is one of our core values. By this, we refer to the fact that Moelven is reliable and keeps its promises. In order to live up to our mission – *Moelven harvests raw materials from the forest and creates the products and solutions the world needs* – we rely on the trust placed in us by the community and our various stakeholder groups as a social and business partner. We build trust by cooperating and communicating with everyone around us. This also forms the basis for sustainability work and communication on how we affect the outside world.

Moelven views anti-corruption work and compliance with competition legislation as important parts of the work aimed at achieving long-term sustainable development. This minimises the risk of ending up in a situation that could negatively affect reputation or finances.

### Policy and approach

The Board of Directors has considered and approved policies within the following areas as relevant to this topic:

- Compliance with competition legislation
- Transparent corporate culture and procedures for reporting misconduct
- Compliance with the EU General Data Protection Regulation
- Ethics
- Sustainability

Anti-corruption and ethics are key components of Moelven’s corporate strategy. A positive and reliable reputation is crucial to our business and will ensure credibility in relation to customers, suppliers, lenders and other stakeholders. It will also help in ensuring that we are perceived as an attractive employer.

Moelven dissociates itself from all forms of corruption and improper actions that impede free competition and market balance. In the Group’s business activities we must always maintain a healthy ethical and moral profile in relation to associates, customers, suppliers and other business associates. This means e.g. that employees must neither accept nor offer bribes or other benefits for business or personal gain.

The code of conduct and Moelven’s attitude towards competition law have been communicated to company executives, the sales and marketing organisation and financial managers in physical meetings, and have also been communicated to other employees.

Another important area that must be safeguarded in order for us to be a reliable

partner is the processing of personal data. All stakeholders should be confident that Moelven will process personal data in a safe and secure manner. Moelven therefore has internal privacy policies and procedures to ensure compliance with the requirements of the General Data Protection Regulation (GDPR). These are reviewed annually in accordance with applicable regulations.

In the Moelven Group, there must be no discrimination based on gender, ethnic origin, language, sexual orientation, religion or philosophy. Job descriptions, areas of responsibility, expertise and work effort form the basis for determining pay, promotion and recruitment. Moelven will also adapt conditions for people with reduced functional abilities.

Moelven has also established policies and procedures for reporting misconduct. Moelven wants to make it clear to all employees that the Group’s corporate culture is based on transparency. It must be acceptable to report concerns and wrongdoing, and these must be discussed and resolved. The guidelines also give the right to anonymity and describe how reports should be submitted if the whistleblower wishes to remain anonymous.

### Evaluation of results

No need to implement special measures to ensure compliance with legislation and Moelven’s own policies has been identified other than the established procedures and ongoing work on Active Employee Participation and Active Management. Moelven’s employee survey includes a separate element for identifying any harassment. All incidents are managed locally using established procedures and policies.



### AMBITIONS

- Compliance with the UN Declaration of Human Rights and Moelven’s Code of Conduct requirements throughout the entire value chain.
- No instances of discrimination or abusive treatment of employees.
- No instances of corruption or price fixing.

### RESULTS

- No reported violations of the UN Declaration of Human Rights or Moelven’s Code of Conduct.
- No reported instances of discrimination or abusive treatment of employees.
- No reported instances of corruption or price fixing.
- One identified instance of negative impact in the supply chain. Measures have been implemented in collaboration with the supplier in question and the matter has been rectified.

### MEASURES

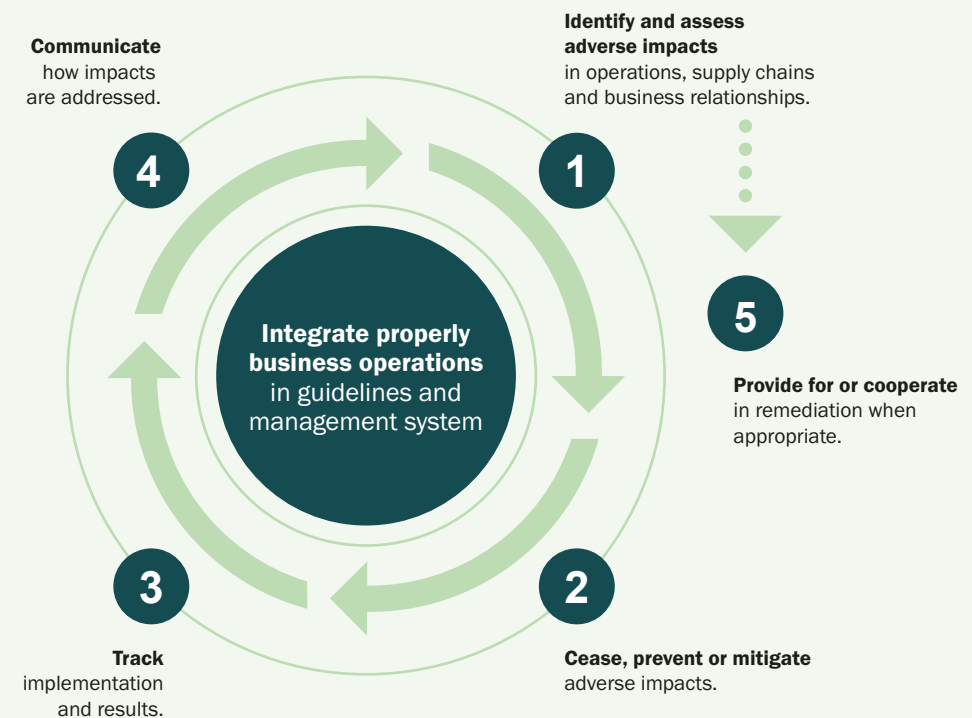
- Continuous monitoring of compliance with the Group’s Anti-Corruption Policy and Code of Conduct.
- Regular delivery of training programmes on competition law.
- Implementation of checks of the supply chain’s compliance with the UN Declaration of Human Rights and Moelven’s Code of Conduct.

## The Transparency Act and a responsible supply chain

The Transparency Act, which entered into force in Norway on 1 July 2022, requires companies to identify the risk of violations of fundamental human rights and decent working conditions in supply chains. Moelven does not accept any conditions on the part of suppliers or customers that entail such violations or other unethical conditions. Moelven’s work on responsible business operations in the supply chain has largely focused on identifying the suppliers used by the company in 2022, as well as which of these are already sufficiently covered by existing control procedures aimed at responsible business operations in the supply chain. Moelven’s work on responsibility and transparency in the supply chain is based on the OECD Due Diligence Guide for Responsible Business Conduct.

From a central level, procedures and tools are being provided to safeguard compliance with the requirements in the Transparency Act, including for suppliers that are not covered by existing control procedures. A dedicated web-based IT system is used to collect and analyse data. A survey was issued to 183 suppliers in 2022 based on known information about risks associated with the industry and geography. The size of the purchases is also emphasised when selecting suppliers. It has been estimated that the 500 largest suppliers account for just over 80 per cent of the total purchases, measured in NOK. The information obtained forms the basis for the continued follow-up of suppliers. A similar survey will be issued in 2023 with an expanded number of suppliers and industries.

### DUE DILIGENCE PROCESS & SUPPORTING MEASURES



### GDPR

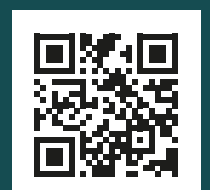
Moelven has shared procedures in place concerning the processing of personal data. The procedures apply to all employees and others who perform work or services on behalf of Moelven. Anyone who is employed or handles personal data at Moelven has an individual responsibility and obligation to ensure that the data is processed in accordance with applicable routines and regulations. The regulations are relatively comprehensive, so guides have been produced for selected areas. Data protection officers have also been appointed at corporate, divisional, and company levels, as has a corporate-level expert privacy group.

Further information can be found here.



### REPORTING

The general rule at Moelven is that issues should be raised with the person concerned. If this fails to resolve the issue, or if you believe that the issue needs to be raised with someone who can do something about the situation, the Group’s whistleblowing procedures should be followed. You are always entitled to notify the authorities, although in most cases it would be better to raise the issue internally first. Any whistleblowing matter may also be reported directly to the Group’s Whistleblowing Ombudsman via e-mail to [varsling@moelven.com](mailto:varsling@moelven.com) or via





## Global Compact

The UN Global Compact is a UN organisation for sustainable business and is the world's largest business initiative for sustainability. The initiative has more than 20,800 member companies in 160 countries. Today, local UN Global Compact networks can be found in around 70 countries and on every continent, including in Norway.

Moelven committed to the UN Global Compact initiative for corporate social responsibility and its principles on human rights, labour rights, the environment and anti-corruption in 2021.

### Human rights

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. make sure that they are not complicit in human rights abuses.

### Labour

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour; and
6. the elimination of discrimination in respect of employment and occupation.

### Environment

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and spread of environmentally friendly technologies.

### Anti-corruption

10. Businesses should work against corruption in all its forms, including extortion and bribery.

WE SUPPORT



## EcoVadis and CDP

Moelven reports to EcoVadis and CDP. Both of these are international evaluation schemes used to identify and evaluate the status of companies in relation to various areas, taking into account social sustainability, climate and environmental impact and corporate governance.



The world's most environmentally friendly furniture factory, The Plus at Magnor, is made of 2,700 m<sup>3</sup> of glulam and solid wood.  
Photo: Einar Aslaksen/Vestre



## Key figures for the last 5 years

Amounts in NOK millions	2022	2021	2020	2019	2018
<b>THE GROUP</b>					
Operating revenue	14,439	14,872	11,665	10,297	11,021
EBITDA	2,106	3,389	1,011	630	935
Depreciation	331	351	344	296	282
Impairment	18	52	4	-2	66
Operating profit	1,756	2,986	662	335	586
Financial items	-3	5	-59	-96	-8
Result before tax	1,754	2,991	604	240	578
Total capital	7,904	8,269	5,833	5,518	5,302
Equity in per cent	59.9	55.5	49.1	42.9	45.9
Operating margin in per cent	12.2	20.1	5.7	3.3	5.3
Investments	501	420	272	479	497
Number of employees	3,332	3,312	3,391	3,399	3,524
<b>TIMBER</b>					
Operating revenue	4,944	5,046	3,445	3,119	3,263
EBITDA	1,239	1,794	366	243	449
Depreciation	106	103	103	97	99
Impairment	-	-	4	-	7
Operating profit	1,132	1,691	259	146	343
Financial items	1	-9	1	-5	-4
Result before tax	1,133	1,682	260	141	339
Total capital	2,907	3,079	1,743	1,513	1,663
Operating margin in per cent	22.9	33.5	7.5	4.7	10.5
Investments	177	194	88	116	137
Number of employees	653	630	636	629	620
<b>WOOD</b>					
Operating revenue	5,528	6,164	4,730	4,018	3,977
EBITDA	757	1,504	482	265	318
Depreciation	112	117	111	102	108
Impairment	0	3	-	-2	59
Operating profit	645	1,384	372	165	152
Financial items	13	-20	-19	-29	-16
Result before tax	658	1,364	353	136	136
Total capital	3,392	3,866	2,802	2,514	2,467
Operating margin in per cent	11.7	22.5	7.9	4.1	3.8
Investments	234	155	130	117	198
Number of employees	1,084	1,108	1,099	1,114	1,108
<b>BUILDING SYSTEMS</b>					
Operating revenue	3,833	3,913	3,347	3,003	3,743
EBITDA	84	160	166	135	191
Depreciation	69	140	90	78	62
Impairment	-	49	-	-	-
Operating profit	15	19	76	57	128
Financial items	-2	4	-5	-4	-1
Result before tax	13	23	71	53	127
Total capital	1,775	1,694	1,909	1,751	1,751
Operating margin in per cent	0.4	0.5	2.3	1.9	3.4
Investments	36	54	22	56	93
Number of employees	1,408	1,383	1,490	1,494	1,647
<b>OTHER ACTIVITIES</b>					
Operating revenue	4,741	4,553	3,802	3,728	3,548
EBITDA	-31	-6	-4	-14	-24
Depreciation and impairment	43	41	41	19	13
Impairment	18	-	-	-	-
Operating profit	-93	-47	-45	-32	-37
Financial items	-14	31	-36	-58	13
Result before tax	-107	-16	-81	-90	-25
Investments	54	18	32	190	69
Number of employees	187	191	166	162	149



Glulam from Moelven is a sustainable and renewable construction material created from certified raw materials from responsible forestry in Norway and Sweden.  
Photo: Kristina Meyn Krogvold/Ringsaker municipality



# Restatements of information

Chapter of the Sustainability Report 2022	Page	Original text/data in the Sustainability Report 2021	Corrections in the Sustainability Report 2022	Cause
Climate accounts	18	2021 data	2021 data	Correction of errors detected in 2022. Improved data and emission factors.
Climate benefits from the forest	36	2021 data	2021 data	Correction of errors detected in 2022.
Production of bioenergy	50	2021 data	2021 data	Correction of errors detected in 2022.
Resource-efficient design and packaging	57	2021 data	2021 data	Correction of errors detected in 2022.



KPMG AS  
P.O. Box 7000 Majorstuen  
Sørkedalsveien 6  
N-0306 Oslo

Telephone +47 45 40 40 63  
Internet www.kpmg.no  
Enterprise 935 174 627 MVA

To the Board of Directors of Moelven Industrier ASA

## Independent Limited Assurance Report on Moelven Industrier ASA's Greenhouse Gas Statement 2022

### Scope of the engagement

We have been engaged by the Board of Directors of Moelven Industrier ASA ("the Company") to issue an assurance report on the greenhouse gas statement, and associated additional information in the company's sustainability report, the year ended 31 December 2022 ("Greenhouse Gas Statement, p. 32-33).

We have performed the assurance engagement to obtain limited assurance that the Report is prepared, in all material respects, in accordance with the Greenhouse Gas Protocol.

The scope of our limited assurance engagement excludes future events or the achievability of the objectives, targets and expectations of the Company. The scope also excludes information contained in webpages referred to in the Report unless specified in this limited assurance report.

### Conclusion

Our conclusion has been formed on the basis of, and is subject to, the matters outlined in this limited assurance report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Based on the procedures performed and the evidence obtained nothing has come to our attention that causes us to believe that the greenhouse gas statement in the sustainability report is not prepared, in all material respects, in accordance with the Greenhouse Gas Protocol as described in page 32 of the Report.

### Management's responsibility

The Board of Directors and the Managing Director ("management") are responsible for the preparation of the greenhouse gas statement, and the information and assertions contained within it, in accordance with the Greenhouse Gas Protocol as described in page 32 of the Report.

Management is also responsible for such internal control as management determines is necessary to enable the preparation of a Report that are free from material misstatement, whether due to fraud or error, and for preventing and detecting fraud and for identifying and ensuring that the Company complies with laws and regulations applicable to its activities.

#### Offices in:

© KPMG AS, a Norwegian limited liability company and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

Statsautoriserede revisorer - medlemmer av Den norske Revisorforening

KPMG Confidential

Oslo	Elverum	Molde	Straume
Alta	Finnsnes	Tromsø	Tynset
Arendal	Hamar	Trondheim	Ulsteinvik
Bergen	Haugesund	Skien	Sandefjord
Bodø	Knarvik	Sandnessjøen	Ålesund
Bryne	Kristiansand	Stavanger	
Drammen	Mo i Rana	Stord	





### Our independence and quality control

We are independent of the Company as required by laws and regulations and the International Ethics Standards Board for Accountants' Code of International Ethics for Professional Accountants (including International Independence Standards) (IESBA Code), and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We apply International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### Auditor's Responsibility

Our responsibility is to perform a limited assurance engagement and to express a conclusion based on the work performed.

We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE) 3410 – "Assurance Engagements on Greenhouse Gas Statements" issued by the International Auditing and Assurance Standards Board. That Standard requires that we plan and perform the engagement to obtain limited assurance about whether the Report is free from material misstatement.

### Procedures performed

A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other evidence gathering procedures, as appropriate. The procedures selected depend on our understanding of the Report and other engagement circumstances, and our considerations of areas where material misstatements are likely to arise. Our procedures included:

- Comparing the information presented in the report to the relevant criteria in the GHG Protocol.
- A risk analysis, including a media search and site visits of two factories, to identify relevant sustainability issues for the Company in the reporting period.
- Inquiries of management to gain an understanding of the Company's processes for identifying significant uncertainties and methodology in preparing the greenhouse gas statement.
- Interviews with relevant staff at group level and selected business unit level that are responsible for providing information regarding greenhouse gas statement.
- Reviewing relevant internal and external documentation, on a limited test basis, in order to determine the reliability of the greenhouse gas statement.
- Comparing the information presented in the Report to corresponding information in the relevant underlying sources to determine whether all the relevant information contained in such underlying sources has been included in the greenhouse gas statement.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement, and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

### Inherent limitations

Due to the inherent limitations of any internal control, it is possible that errors or misstatements in the information presented in the Report may occur and not be detected. Our engagement is not designed to



detect all weaknesses in the internal controls over the preparation of the Report, as the engagement has not been performed continuously throughout the period and the procedures performed were undertaken on a test basis.

Oslo, March 16. 2023  
KPMG AS

Stein Erik Lund  
State Authorized Public Accountant

*Note: This translation from Norwegian has been prepared for information purposes only.*



Moelven strives to communicate actively and transparently with the market and to provide all interested parties with equal access to financial information.  
www.moelven.no includes performance reporting, financial status and information on the policies Moelven is governed by.

The GRI index shows the correlation between Moelven's reporting and the requirements set down in the GRI standard.



This report has been produced using 100% recycled paper that is FSC® and Nordic Swan Eco-labelled.







Bring nature home and decorate with wood and you will receive multiple health benefits from the forest as part of the deal.  
Photo: Lipkin

**Moelven Industrier ASA**

Box 134

NO-2391 Moelv

[moelven.com](http://moelven.com)