Food industry

Transition planning for companies operating in food processing sector

2026



About this Guideline

This non-binding Guideline was developed by the Baltic Banking Associations to support companies and financial institutions in preparing climate transition plans. It does not create any legal, regulatory, supervisory, or contractual obligations.

The recommendations and examples are for guidance only. They should be applied proportionately, considering each organisation's circumstances, sector, business model, and ambitions. They do not prescribe specific targets, timelines, technologies, business decisions, or financing outcomes. Each organisation remains responsible for complying with applicable requirements and deciding which measures are appropriate.

Banks aim to support companies as partners in the transition to a more sustainable economy. The Guideline is intended to encourage constructive dialogue and informed decision-making, not to establish supervisory or controlling functions.

The Baltic Banking Associations accept no responsibility for decisions made based on the Guideline. It reflects publicly available information and market practices at the time of publication.

Contents

1. Background....4
1.1 Climate impact of the sector....4
1.2 Sector-specific considerations....5
2. Baseline considerations....6
2.1 Emission scopes....6
2.2 Climate risks....7
2.3 Summary....9
3. Relevant EU and national targets....12
4. Target setting....13
4.1 Science-based approach....13
4.2 Key emission reduction measures....15
5. Important questions....18
6. References....19

1. Background

This annex covers specific transition planning aspects for businesses which are engaged in food processing industries. It also touches upon certain supply chain questions and establishment of external partnerships that would enable minimising the food industry's impact on climate.

The annex does not cover agriculture which is part of the food industry but has specific climate impact and thus – specific mitigation measures. Agriculture is covered in another sectoral annex. If your company operates in agriculture and food processing, you may combine the two annexes.

1.1 Climate impact of the sector

Table 1. Food industry GHG emissions in the Baltic states

Estonia[1]	Latvia[2]	Lithuania[3]
~73 kt CO_2e **~0.7% of Estonia's total GHG emissions** Total emissions from the manufacture of food products, beverages and tobacco reached approximately 73.0 kt CO_2e in 2024. Compared with 1990, emissions have decreased by around 89.5%, indicating a significant decline in emissions in this manufacturing subsector.	**~88 kt CO_2e** **~0.9% of Latvia's total GHG emissions** In 2024, Latvia's food products, beverages and tobacco subsector accounted for 14% of total emissions from manufacturing industries and construction.	**~273 kt CO_2e** **~1.5% of Lithuania's total GHG emissions** Total emissions from the manufacture of food products, beverages and tobacco have decreased significantly since 1990. Lithuania's latest inventory report indicates that emissions in this subsector in 2024 were 2.5 times lower than in 1990. Food production in Lithuania's manufacturing industry remains a moderately significant emission source.

[1] Greenhouse gas emissions and removals inventories datasets, EEA
[2] Greenhouse gas emissions and removals inventories datasets, EEA
[3] Greenhouse gas emissions and removals inventories datasets, EEA

Based on the national GHG emissions inventories, the climate impact of the food industry is lower than for multiple other industries such as energy, transport or heavy industries. However, the industry is an energy consumer and thus generates certain emissions. Also, it is closely linked to another sector – waste management – where, in turn, part of the GHG emissions is generated by food waste and food packaging materials.

1.2 Sector-specific considerations

While energy consumption needed for food production creates direct emissions and is under direct control of a food production company, the biggest impact industry has lies in upstream indirect emissions – sourcing of raw ingredients for further processing. Significant indirect emissions also lie in packaging and logistics (for raw ingredients as well as end-products)[4], water consumption (related to upstream sourcing, also essential for beverage production but also related to processing certain types of food)[5], and food waste[6]. These aspects relate to indirect emissions in food value chain, as well as cover preservation of natural resources (water).

Considering that, this sectoral annex covers target setting and action planning both for direct and indirect impacts the food industry companies may have. As noted above, the annex does not cover agriculture sector in detail (which makes a significant part of upstream GHG emissions for food sector) – that is covered in detail in Agriculture sectoral annex.

[4] Food producers and net zero: a review of progress
[5] The water footprints of global food and agriculture trade
[6] Global warming potential of food waste through the life cycle assessment: An analytical review

2. Baseline considerations

2.1 Emission scopes

Compared to other annexes, for food industry the focus is not so much on different types of companies but rather on different processes in the production cycle – from acquisition of the raw materials and ingredients for processing to storing, packaging and distributing the end product.

- Processing and storage mainly cover **Scope 1 and 2** emissions from energy used to prepare, heat or cool the products.
- Ingredient sourcing and logistics of the products will cover **Scope 3, Categories 1** (Purchased goods and services), 4 and 9 (Upstream and Downstream transport & distribution).
- Packaging will cover **Scope 3, Category 5** (Waste generated in operations and disposed of by the company) and/or Category 12 (End-of-life treatment of sold products).

In Table 2 you can follow the main aspects to be considered in each process and how they relate to the emission categories. Additional environment-related aspects are also included in the table – to consider at certain operational stages.

Product use is not included in the table, although food waste is an integral issue for the industry. To minimise that, the company needs to engage with other stakeholders and initiate better, more responsible consumption practices along the value chain.

2.2 Climate risks

While emission reduction is at the forefront of the climate agenda, the companies need to consider their climate risks too. For food industry, transition risks put an increasing emphasis on less emission-intensive technologies and processes, while physical risks may significantly disrupt operations of the sector.

Transition risks (and opportunities):

- Policy-planning and regulatory requirements to decrease use of fossil fuels and increase use of RES, as well as improve energy consumption patterns and energy efficiency across processes relate to diverse sectors – including food industry. While creating risks they may also create efficiency opportunities that affect the bottom line of the company's operations[7];
- Market initiatives which call for better transparency on GHG-intensity of certain food products (e.g., in the Baltic states there are initiatives aimed at disclosing such information on supermarket price tags[8]). Food industry needs to be prepared to improve its operations and be open about them;
- While energy consumption is key for direct climate impact, packaging is another significant transition risk area as circularity and packaging regulations are also constantly evolving. The EU Packaging and Packaging Waste Regulation (PPWR)[9] and the upcoming Circular Economy Act[10] address the issue of using excess, environmentally unsustainable and potentially harmful, and non-recyclable packaging;
- Considering that certain types of food (in particular, animal-based) create significantly larger total emissions, including from the agricultural processes[11], there are diverse initiatives encouraging people to transition to more plant-based diets[12]. That may create both risks and opportunities for the food sector (depending on type and variety of food a specific company produces and willingness to invest in new areas) as well as change the availability and pricing structure of raw ingredients[13];
- This potential shift may create innovation opportunities in the food sector, as R&D processes aimed at synthesising plant-based proteins are gaining traction[14].

Even if certain demands or trends are not directly applicable to your company yet, being adopted by larger market players (for example, supermarket chains or HoReCa sector), they inadvertently trickle down to smaller companies.

[7] Multiple energy resources integration in the food industry: A technoeconomic analysis
[8] Assess Carbon Footprint of Your Shopping (in Latvian)
[9] Packaging and Packaging Waste Regulation
[10] Circular Economy
[11] Food and Climate Change: Healthy diets for a healthier planet
[12] Seven countries leading the way in plant-based food policies in 2024
[13] Sustainability transitions in the agri-food system
[14] Alternative protein R&D priorities

Physical risks:

- Key risks for the food industry are related to unfavourable weather conditions such as storms, heavy rainfalls, hailstorms, flooding or, vice versa, prolonged heatwaves and droughts, which damage or destroy crops thus limiting availability of raw products (e.g., grain, vegetables, fruits). The weather conditions may also decrease quality of the crops, thus affecting the amount or quality of the end product too. As a result, certain products may become scarce and/or very expensive as well as they may become poorer in nutrients[15];
- In addition to damaging crops and livestock, climate change may impact the surrounding ecosystems facilitating expansion of pathogens, invasive species, algae, and other unfavourable bodies which, in turn, damage the food cycle and limit accessibility or quality of raw ingredients for food production[16];
- At the same time, increasing average temperatures may lead (and during the last years have already led) to longer vegetation periods, which may improve availability of ingredients (unless the damaging conditions mentioned above occur)[17];
- Physical risks may also affect the supply chain – both availability of the products as well as their transportation routes, timeliness and requirements for logistics (e.g. increased need for refrigeration to avoid product losses, etc.)[18];
- For production facilities, it is important to assess local climate projections and see if the operational processes may not be affected by weather-induced damage to the buildings and machinery[19]. However, that is not specific to food industry but all manufacturing plants, regardless of the sector. Industry-specific factor may be related to increased refrigeration / cooling needs in storage processes caused by increasing temperatures and summer heatwaves, as well as improved pest control measures which, if not managed, may lead to food safety issues[20].

In southern regions, food security is a crucial side-effect of climate change – it becomes increasingly difficult to grow certain traditional products at all[21]. In the Baltic states, considering up-to-date climate projections, this is not relevant yet, however, the processes may gradually and inadvertently change overall global food systems and trickle down to regions not initially affected by such changes.

[15] Severe climate change risks to food security and nutrition
[16] HOW IS CLIMATE CHANGE AFFECTING THE SAFETY OF OUR FOOD?
[17] Climate change impacts on food security in the European Union
[18] Effect of Climate Change on Food Industry Supply Chain Resilience in China on the Basis of Double Machine Learning Models
[19] Climate Risks in the Industrials Sector
[20] Climate change impacts on food security in the European Union
[21] Severe climate change risks to food security and nutrition

2.3 Summary

The following matrix covers key considerations on significance of Scope 1, 2, and 3 emissions for the sector. Respectively:

- “High” significance scopes and emission categories are those that contribute most to total emissions. These should be calculated as accurately as possible and are usually the priority emission categories to focus on in your transition plan;
- “Moderate” significance means that emissions in the respective scope or category are relatively important but are not the most important part and, potentially, not the first priority for emission reduction;
- “Low” significance means that the emissions in the respective scope or category are rather insignificant in general or compared to other scopes and can be either left out of the transition plan priorities or dealt with at a later stage.

Table 2. Summary on key considerations for each process stage

Scope	Sourcing	Processing	Storage	Packaging	Logistics
Scope 1	**Low, unless the company is also growing the ingredients** (agricultural operations). In that case, considerations from the annex on agriculture sector apply	**High.** Fuel combustion from owned or controlled machinery and equipment used for food processing. Emission levels depend on what fuel is used to operate the equipment	**High.** If the product requires cold storage, fluorinated GHGs are a significant source of emissions	**Moderate/Low.** Applies if packaging is automated and conducted using machinery	**Variable.** Application of this scope depends on the logistics approach the company uses – if it distributes the products itself with its own or controlled vehicles, it can create a significant amount of Scope 1 emissions. If logistics is performed by external business partners, the emissions will be attributed to Scope 3
Scope 2	–	**High/Moderate.** Purchased energy for onsite operations (e.g., grid electricity)	**Moderate.** Purchased energy for onsite operations (e.g., grid electricity for refrigerators and/or heating of the storage premises – depending on the product features and requirements)	**Moderate/Low.** Purchased energy for operating the machinery (if such is used for packaging)	**Variable.** The only case when Scope 2 applies is when the company distributes products itself with electric vehicles and includes charging of those vehicles in this scope

Scope 3	**High (usually the highest part of emissions in food sector). Category 1** (Purchased goods and services – i.e., ingredients and raw products bought for further processing), **Category 4** (Upstream transportation & distribution – if delivery is not included in Category 1)	**Moderate/High. Category 2** (Capital goods – purchased manufacturing equipment); **Category 3** (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions – in relation to energy consumed for production processes); Category 5 (Waste generated in operations)	–	**High/Moderate.** Category 5 (Waste generated in operations) and/or Category 12 (End-of-life treatment of sold products). Emissions in this category depend on the amount and type of packaging used	**High/Moderate.** Categories 4 or 9 (Upstream or downstream transportation & distribution – depending on who pays for the service). If the company distributes products itself (see above), then Category 3 applies (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions)
Other aspects	**High/Moderate.** Social and other environmental aspects in the supply chain (e.g., employment rights in the suppliers' companies, in particular, in companies operating in less developed countries; deforestation issues; consumption of excess fertilisers, pesticides, etc. and other potential issues)	**Moderate/Low.** Depends on operational practices a company employs. Some operations pose an increased pollution risk. In certain manufacturing processes, significant quantities of water are required, and the company may need to consider not only energy-efficiency but also water-efficiency of its operations. With regards to food waste, the company may decrease waste created during processing (e.g., find alternatives for lower quality but safe for consumption produce)	–	**High/Moderate.** Depending on packaging used, the company may facilitate circularity principles which have an effect both on GHG emissions and also extraction of new raw materials for packaging	**Moderate.** Transport safety and/or product safety aspects may apply (the latter, mainly for short life-cycle products which may become harmful to users if not used in time; in addition, that may lead to increased food waste)

Climate risks	**Transition risks.** Market initiatives and trends aimed at transitioning from animal-based to plant-based foods; the necessity and difficulties to obtain reliable information on suppliers' GHG emissions – for overall supply chain and product impact transparency **Physical risks.** Mostly related to availability of certain raw ingredients which may be affected by weather conditions damaging crops and/or logistics delays or other issues	**Transition risks.** Energy mix and transitioning to RES-powered equipment, introduction of increased energy efficiency measures **Physical risks.** Mainly related to specific conditions at the location of the production plant (e.g. flooding risk, etc.)	**Transition risks.** Energy mix and transitioning to RES-powered equipment, introduction of increased energy efficiency measures. Necessity to change refrigerants to alternatives with lower Global Warming Potential (impact on climate) **Physical risks.** With increased warming, may require higher refrigeration intensity and/or better pest control measures	**Transition risks.** Implementation of the Packaging and Packaging Waste Regulation; ability to minimise packaging and/or find better alternatives **Physical risks.** Not specifically applicable	**Transition risks.** Necessity to minimise transport emissions (see transport annex for more detail). Depending on the product specifics – necessity to change refrigerants to alternatives with lower Global Warming Potential (impact on climate). These risks may affect the company itself or its logistics partners **Physical risks.** Related to potential damage to transport infrastructure which may delay deliveries

Depending on the processes and emission sources as highlighted above, there are several decarbonisation measures that food industry companies may implement. Those are considered in Section 4.2.

3. Relevant EU and national targets

The food-processing sector does not have dedicated GHG caps in any Baltic state. Targets are cross-sectoral (non-ETS obligations, energy-efficiency and RES requirements, packaging mandates).

Table 3. Relevant National/EU Targets/Commitments

Theme	Estonia[22]	Latvia[23]	Lithuania[24]
Dedicated sector target	None. Subject to general non-ETS obligation (-24% vs 2005 across all non-ETS sectors). No dedicated food-industry target.	None. Food processing falls under general industry, waste and energy policies. Subject to general non-ETS obligations. No standalone food-industry climate indicator.	None. Non-ETS industry reduction target applies to food processing as part of broader industrial sectors.
2050 direction	Electrified and renewable-heat-powered processing; circular packaging; food waste prevention.	Renewable-powered processing; circular packaging; minimised food waste.	90% renewable energy in total consumption by 2050; food industry fully renewable; packaging waste minimised.

[22] Updated National Energy and Climate Plan to 2030 (Estonia)
[23] Updated National Energy and Climate Plan 2021–2030 (Latvia)
[24] Final Updated National Energy and Climate Action Plan 2021–2030 (Lithuania)

4. Target setting

4.1 Science-based approach

On the EU level, the key focus for climate targets in food industry is on energy use in processing phase. A report for FoodDrinkEurope[25] highlights that to achieve the Paris Agreement goals, the food industry should ensure electricity takes at least 50% of the total energy mix in food production and the proportion of renewable resources should be minimum 60%. A similar approach is outlined in the EU sectoral decarbonisation pathways which put focus on electrification of the sector and use of renewable energy.
Value chain emissions are also considered in relation to agriculture which generates most resources for the food industry. Specific agriculture-related targets and emission reduction measures are covered in detail in Agriculture sectoral annex.

In addition, you may set targets for packaging and food waste reduction which are significantly linked to food industry and also have nationally set targets as described before.

To set targets, start from inputs, not outputs. For food manufacturing, tonnes of product inputs sourced are more significant than tonnes of end-product, because emissions are driven primarily upstream – i.e. the majority of them happen before the product is manufactured.

Thus, Scope 3 emissions (see Table 2 above and guidance in the general guidelines) are essential to calculate your base year emissions ($Emissions_{base}$). Particular focus should be paid to upstream activities – supply of raw inputs (ingredients). That also includes your suppliers' emissions for land use change (emissions from converting, for example, forest or marshland to farming land) and on-going non-land use emissions tied to production (like fertiliser use, emissions from manure, etc.). These types of emissions are outlined in more detail in the Agriculture annex.

To calculate emission intensity for further target setting, use the following formula:

$$Intensity_{base} = Emissions_{base} \div Activity_{base}$$

Activity ($Activity_{base}$) = tonnes of product inputs sourced in the base year, examples are raw milk equivalent, sugar, cocoa, fats, grains, etc. – depending on ingredients you use for further processing.

[25] Decarbonisation road map for the European food and drink manufacturing sector

Next, project volume of your future activity and convert pathway intensity into an emissions "budget" (maximum acceptable emissions in a given target year).

Start with projecting your target year activity level ($Activity_{target}$) – i.e. what is the business activity you project and what is the volume of inputs (ingredients) to ensure that. Further, assess the acceptable emissions budget for that specific target year – you can compute that based on target intensity indicators listed in Table 4 (intensity targets for food sector depending on different climate scenarios as per Paris Agreement).

Table 4. Intensity targets by Scenario by Transition Pathway Initiative Centre[26]

Scenario	Unit	2030	2040	2050
1.5°C	tCO_2e per tonne of product input	1.315	0.807	0.414
Below 2°C		1.821	1.063	0.643
2°C		1.906	1.295	0.958

Use the following formula:

$$Emissions_{(e.g.2030)} = Intensity\ (1.315) * Activity_{2030}$$

The obtained result defines how much you may emit while sourcing the projected amount of inputs. Clearly, your business growth rate may differ from the projected amount – increase is allowed according to the science-based approach, provided that the intensity targets listed in Table 4 are met.

For more information you may also visit Food & Beverage Sector Guidance by the Transition Plan Taskforce, the European Climate Law-aligned EU sectoral decarbonisation pathways, and the report for FoodDrinkEurope, and Carbon Performance assessment of food producers: note on methodology (to dive deeper into the methodology outlined).

[26] Carbon Performance assessment of food producers: note on methodology

4.2 Key emission reduction measures

Depending on the operational stages as highlighted above, there are several decarbonisation measures that food industry companies are recommended to implement.

Sourcing. Depending on type of ingredients purchased and the logistics, the company may consider three types of actions:

- **For suppliers.** It may be complicated to obtain detailed information from the supplier about its agricultural practices, workers' rights, land use approach and other aspects which, although may seem far-fetched, have a real and tangible impact on climate and other sustainability-related aspects. However, you can ask the company to provide documented proof that it follows sustainability principles in its operations. For example, the company may have certificates such as Fairtrade, B Corp, Ecovadis assessment, EKOagros or other relevant labels[27], reported GHG emissions of its own, or other proof that the company takes care of its climate and other sustainability-related impacts. That gives assurance that you are cooperating with a company which values these aspects. However, please note that you should check the references and information about a certain certificate and its scope to avoid being misled[28];
- **For ingredients.** Depending on food processing area you are operating in, you may consider refocusing your actions. Animal-based produce, as mentioned before, is always more emission-intensive compared to plant-based foods[29]. If you are dependent on animal-based foods, reconsider if you could substitute at least part of it with plant-based alternatives. If you plan to enter the food production market, then this is a good point in time to choose the better direction;
- **For logistics.** Try to source ingredients from less distant areas to decrease the distance travelled to deliver you the products[30]. The closer a product is to you, the less emissions its transportation will create (however, the total emissions might not always be lower – for example, growing a product out of season or in a colder climate may require more energy and create higher emissions; therefore, consider case by case). If, nevertheless, products need to be transported across larger distances choose less emission-intensive modes of transport if possible (sea and/or rail instead of road transport or air)[31].

[27] Food sustainability certifications in Europe: a guide for consumers and companies
[28] Why Certification is NOT Enough: Food Safety Scandals at Certified Companies
[29] Food and Climate Change: Healthy diets for a healthier planet
[30] Logistics Best Practices for Regional Food Systems: A Review
[31] Sustainable Transport Logistics – the Types of Freight in Comparison

Processing. One of the climate impacts of food industry is related to energy consumption during food processing. Cutting, baking, steaming, boiling, mixing and performing many other operations on an industrial scale requires energy. It may be autonomous (e.g., generated by own boiler plants or combusted locally) or acquired from the grid (e.g., electricity or heating purchased from its suppliers). In any case, the company should consider the following emission reduction options[32]:

- Improve energy efficiency of its operations to consume less resources regardless of their source (that may include both energy efficiency of the equipment as well as efficiency of food processing – for example, finding ways to use lower temperature for processing while maintaining the same quality and product safety features);
- Decrease or phase out use of fossil resources (such as natural gas) replacing it with renewable resources instead;
- Transition its operations from combustion fuels to electricity (preferably green electricity and/or install solar or other renewable technologies to generate own electricity).

Storage. While energy consumption in the previous stage is more related to GHG emissions created by combustion of certain resources, the impact of storage is mostly related to use of refrigerants required to keep products frozen or sufficiently cool. On the EU level, there is a commitment to transition to non-fluorinated refrigerants and gradually phase out more harmful substances (already started in 2020)[33]. The expected transition affects users of these substances. Considering that, there are several actions you can take[34]:

- Reviewing what type of refrigerants you use in your freezers and refrigerators (also ask your logistics partners what they use in vehicles adjusting for transportation of refrigerated food). Change them to more climate-friendly alternatives;
- Use more energy efficient equipment;
- Reviewing the storage conditions of the products – maybe you can decrease the required temperature, while maintaining the same quality and product safety features;
- Optimising your storage approach – you may decrease the storage time and thus need less storage space and refrigerators, thus reducing the resulting GHG emissions.

[32] European Climate Law-aligned EU sectoral decarbonisation pathways
[33] Refrigeration
[34] Improving energy use in food storage, cold chains, transport and processing

Packaging. The key climate impact of packaging is related to its production and, further, the waste it creates. According to the EU Packaging and Packaging Waste Regulation[35], a company shall take the following actions:

- Eliminate and optimise packaging. Use the minimum needed to meet product quality and safety needs;
- Choose packaging materials which do not contain substances of concern (the European Chemicals Agency will prepare a report on presence of such substances in packing and its components by the end of 2026);
- Choose reusable and/or recyclable or, if relevant, compostable packaging;
- Ensure that plastic packaging complies with the requirements of the Regulation on presence of recycled materials in it;
- Specifically for food packaging – choose packaging with limited (according to thresholds defined in the Regulation) or no per- and polyfluorinated alkyl substances (PFAS) in its content.

Implementation of reforms in packaging may also require dialogue and close cooperation with other stakeholders – e.g., distributors, retailers, and waste management companies to find the best options that satisfy all needs and are climate-friendly.

Logistics. Similar to sourcing, the closer a client is to you, the less emissions its transportation will create. Try to choose zero-emission or low-emission modes of transport and partners which can ensure such distribution. If, nevertheless, products need to be transported across larger distances choose less emission-intensive modes of transport if possible (sea and/or rail instead of road transport or air)[36].

Although waste is not the primary topic of this annex, food industry may have a significant impact on minimising food waste thus reducing the associated GHG emissions. You may have a look at the recommendations to food manufacturers by the EU for Food Losses and Food Waste[37] or Waste Mission[38].

[35] Packaging and Packaging Waste Regulation
[36] Sustainable Transport Logistics – the Types of Freight in Comparison
[37] Recommendations for Action in Food Waste Prevention
[38] Strategies for Reducing Waste in Food Manufacturing

5. Important questions

Key questions you should be able to answer your financial partner (a bank, investor, etc.) or other cooperation partners:

- **Where you are now:** What are the most energy consuming processes in your production facilities? What type of energy resources do you use? How much your business depends on heating / refrigerating products? What is the geography of your supply chains? Have you measured other indicators – such as water consumption, food waste, etc.? What type of packing do you use for your products? How do you deliver it to the customers?
- **Where do you see the largest improvement opportunities:** Is it possible to change the energy sources and what are the most suitable options? When do you plan to implement them? When do you plan to phase out fossil resources from your energy mix? What are the facilitating and/or hindering factors for that? Do you see potential actions that require engagement of other stakeholders – logistics partners, retailers, restaurants and cafes, consumers? Are there instruments in place to engage them and how do you plan to approach that?
- **What are the key climate risks for your business and how do you manage those?** Are there supply-chain related risks you may face in nearer or more distant future? Do you already prepare for them? Do you see the necessity to adjust your products and/or production processes or use of the facilities due to climate risks?
- **What investment do you need to achieve the climate targets and what is your business plan for that?** What could be the drawbacks or uncertainties for its implementation? How do you plan to overcome them?

6. References

- Amicarelli, V., Lagioia, G., & Bux, C. (2021). Global warming potential of food waste through the life cycle assessment: An analytical review. Environmental Impact Assessment Review, 91, Article 106677. https://doi.org/10.1016/j.eiar.2021.106677
- Budnevich Portales, C., Jahn, V., Dietz, S., & Amin, A. (2024). Food producers and net zero: A review of progress. TPI Global Climate Transition Centre, London School of Economics and Political Science. https://www.transitionpathwayinitiative.org/publications/uploads/2024-food-producers-and-net-zero-a-review-of-progress.pdf
- Cabinet of Ministers of the Republic of Latvia. (2024). Aktualizētais Nacionālais enerģētikas un klimata plāns 2021.–2030. gadam [Updated national energy and climate plan for 2021–2030]. Likumi.lv. https://likumi.lv/ta/id/353615
- Cameron, I., Lopez, A., & Yule, A. (2021). Decarbonisation road map for the European food and drink manufacturing sector. Ricardo Energy & Environment. https://www.fooddrinkeurope.eu/wp-content/uploads/2021/09/Decarbonising-the-European-food-and-drink-manufacturing-sector_v2.pdf
- Carlin, D., Arshad, M., & Baker, K. (2023). Climate risks in the industrials sector. United Nations Environment Programme Finance Initiative. https://www.unepfi.org/wordpress/wp-content/uploads/2023/04/Climate-Risks-in-the-Industrials-Sector.pdf
- DHL Freight. (2023). Sustainable transport logistics—The types of freight in comparison. DHL Freight Connections. https://dhl-freight-connections.com/en/sustainability/sustainable-transport-logistics-the-types-of-freight-in-comparison/
- Dietz, S., & Jahn, V. (2024). Carbon performance assessment of food producers: Note on methodology. Transition Pathway Initiative Centre, London School of Economics and Political Science. https://www.transitionpathwayinitiative.org/publications/uploads/2024-carbon-performance-assessment-of-food-producers-note-on-methodology.pdf
- EU Platform on Food Losses and Food Waste. (2019). Recommendations for action in food waste prevention. European Commission. https://food.ec.europa.eu/document/download/7143f94e-600f-4df5-acef-5b332e7e44ec_en?filename=fs_eu-actions_action_platform_key-rcmnd_en.pdf
- European Commission. (n.d.). Circular economy. https://environment.ec.europa.eu/strategy/circular-economy_en
- European Commission. (n.d.). Logistics and multimodal transport. https://transport.ec.europa.eu/transport-themes/logistics-and-multimodal-transport_en
- European Commission. (n.d.). Refrigeration. https://climate.ec.europa.eu/areas-action/fluorinated-greenhouse-gases/climate-friendly-alternatives-f-gases/refrigeration_en

- European Commission. (2020). Farm to Fork strategy: For a fair, healthy and environmentally-friendly food system. https://food.ec.europa.eu/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf
- European Commission. (2025). Making finance flows consistent with climate goals. https://climate.ec.europa.eu/areas-action/eu-funding-climate-action/making-finance-flows-consistent-climate-goals_en
- European Environment Agency. (n.d.). EEA greenhouse gases—Data viewer. https://www.eea.europa.eu/en/analysis/maps-and-charts/greenhouse-gases-viewer-data-viewers
- European Parliament & Council of the European Union. (2025). Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC. Official Journal of the European Union, L, 2025/40. https://eur-lex.europa.eu/eli/reg/2025/40/oj/eng
- Food Forward NDCs & NBSAPs. (n.d.). Improving energy use in food storage, cold chains, transport and processing. https://foodforwardndcsnbsaps.panda.org/food-supply-chains/improving-energy-use-in-food-storage-cold-chains-transport-and-processing/
- Good Food Institute Europe. (2025). Alternative protein R&D priorities: Towards taste and price parity. https://gfieurope.org/wp-content/uploads/2023/04/Scitech-research-priority-briefing_GFI-Europe_January-2025.pdf
- Government of the Republic of Estonia. (2025). Estonia's national energy and climate plan (NECP) to the year 2030: Update. https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/927eb9c5-13cc-4c9a-85f3-b1b901145455/details
- Jensen, L., & Hourdin, C. (2025). Climate change impacts on food security in the European Union. European Parliamentary Research Service. https://www.europarl.europa.eu/RegData/etudes/BRIE/2025/775874/EPRS_BRI(2025)775874_EN.pdf
- Jin, S., Liu, D., & Huang, L. (2025). Effect of climate change on food industry supply chain resilience in China on the basis of double machine learning models. Foods, 14(21), Article 3623. https://doi.org/10.3390/foods14213623
- King, R. (2025). The water footprints of global food and agriculture trade: Why the 'virtual water' use hidden in supply chains is critical to sustainability. Chatham House. https://www.chathamhouse.org/sites/default/files/2025-12/2025-12-19-water-footprints-global-food-agriculture-trade-king.pdf
- Ministry of Energy of the Republic of Lithuania. (2024). Final updated national energy and climate action plan of the Republic of Lithuania for the period 2021–2030. https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/356eab7b-c371-400a-8d3b-e4cbc27e72de/details
- Mirzabaev, A., Bezner Kerr, R., Hasegawa, T., Pradhan, P., Wreford, A., Tirado von der Pahlen, M. C., & Gurney-Smith, H. (2023). Severe climate change risks to food security and nutrition. Climate Risk Management, 39, Article 100473. https://doi.org/10.1016/j.crm.2022.100473

- Mittal, A., Krejci, C. C., & Craven, T. J. (2018). Logistics best practices for regional food systems: A review. Sustainability, 10(1), Article 168. https://doi.org/10.3390/su10010168
- Mukherjee, K., Rowan, M., & Fattori, V. (2021). How is climate change affecting the safety of our food? Food Safety Magazine. https://openknowledge.fao.org/server/api/core/bitstreams/ef0d7f01-4591-4a9c-bc53-6884ef2d4379/content
- Preinfalk, E., Bednar-Friedl, B., Mayer, J., Lauk, C., & Mayer, A. (2024). Sustainability transitions in the agri-food system: Evaluating mitigation potentials, economy-wide effects, co-benefits and trade-offs for the case of Austria. Ecological Economics, 226, Article 108357. https://doi.org/10.1016/j.ecolecon.2024.108357
- ProVeg International. (2024). Seven countries leading the way in plant-based food policies in 2024. https://proveg.org/news/seven-countries-leading-the-way-in-plant-based-food-policies-in-2024/
- QAssurance. (2025). Why certification is not enough: Food safety scandals at certified companies. https://www.qassurance.com/why-certification-is-not-enough-food-safety-scandals-at-certified-companies/
- Rimi. (n.d.). Izvērtē savu pirkumu oglekļa pēdas nospiedumu! [Assess the carbon footprint of your purchases!]. https://www.rimi.lv/izverte-savu-oglekla-pedas-nospiedumu-ieperkoties
- Savvakis, N., Sifakis, N., Kotakidis, X., & Arampatzis, G. (2023). Multiple energy resources integration in the food industry: A technoeconomic analysis. Journal of Cleaner Production, 426, Article 139055. https://doi.org/10.1016/j.jclepro.2023.139055
- Totaro, A. I. (2025). Food sustainability certifications in Europe: A guide for consumers and companies. Circular Economy for Food. https://circulareconomyforfood.eu/en/food-sustainability-certifications-in-europe-a-guide-for-consumers-and-companies/
- Transition Plan Taskforce. (2024). Food & beverage sector guidance. https://www.ifrs.org/content/dam/ifrs/knowledge-hub/resources/tpt/food-beverage-sector-guidance-apr-2024.pdf
- United Nations. (n.d.). Food and climate change: Healthy diets for a healthier planet. https://www.un.org/en/climatechange/science/climate-issues/food
- We Do Stories. (2026). Strategies for reducing waste in food manufacturing. Waste Mission. https://wastemission.com/blog/reducing-waste-food-manufacturing/