About Nordic Swan Ecolabelled

Venues and conference facilities



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Nordic Ecolabelling

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Contact information

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic Swan Ecolabel. These organisations/companies operate the Nordic Ecolabelling system on behalf of their own country's government. For more information, see the websites:

Denmark

Ecolabelling Denmark

www.svanemaerket.dk

Iceland

Ecolabelling Iceland

www.svanurinn.is

Finland

Ecolabelling Finland

https://joutsenmerkki.fi/

Norway

Ecolabelling Norway

www.svanemerket.no

Sweden

Ecolabelling Sweden

www.svanen.se

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1 Summary

In June 2025 Nordic Ecolabelling decided to initiate the development of the new criteria for Nordic Swan Ecolabel Venues and conference facilities. The decision included the start of a Nordic project to develop the new criteria set.

As the first generation of new criteria within Nordic Swan Ecolabel Venue and conference facilities, the product development has focused on creating mandatory requirements with high environmental relevance for the operation of the venue. The criteria are designed to be applicable to many different types of venues and include requirements for reducing environmental impact through various measures emphasizing environmental sustainability.

The criteria for venues and conference facilities include 36 mandatory requirements, distributed across 9 different chapters:

- General
- Environmental management and communication
- Energy use and operation
- Water
- Food and beverage
- Cleaning
- Waste and resource efficiency
- Biodiversity
- Purchase of ecolabelled products and services

2 Justification of the product group definition

The product group Venues and conference facilities is defined to ensure that the Nordic Swan Ecolabel applies to businesses where event- and conference hosting is the primary activity and where environmental performance can be measured. Venues typically have significant environmental impacts through energy use, water use, transportation, waste generation, purchasing and food services. Targeting businesses dedicated to events ensures that the Nordic Swan Ecolabel drives improvements in the sector.

To maintain credibility and avoid overlap with other existing product group criteria, the criteria exclude operations where venue activities are secondary, such as hotels, offices, malls, or educational buildings with occasional meeting rooms. Only venues with event-related activities are eligible.

Permanent, stationary venues are required so that environmental performance can be tracked over time. Temporary or pop-up venues, for example outdoor festival areas, are excluded because they lack stable operations and measurable data.

When venues are located inside or next to other businesses, they must have a distinct identity and be able to document separate environmental data (energy, waste, chemicals,

purchasing, guests). This ensures that the certification reflects the venue's actual environmental footprint and does not blend with surrounding operations. If the venue does not have its own name, signage, or branding that differentiates it from the surrounding operations, it's excluded.

Overall, these requirements are focusing on venues that can document and improve their environmental impact.

3 Justification of the requirements

This chapter explains the motivation for the requirements. The referenced appendices are those included in the criteria document "Nordic Ecolabelling for venues and conference facilities".

The 36 mandatory requirements are organized into 9 main chapters, and a complete overview is provided in Table 1.

Table 1

Overview of requirements relevant to the venues, food and beverage and cleaning services. If a cleaning or a food and beverage service is certified with the Nordic Swan Ecolabel (NSE), some requirements are already fulfilled, see details in notes.

Requirement	Requirement applies to	Notes
General		
O1 Description of the venue	All venues	
Environmental management and communication		
O2 Annual follow-up	All venues and restaurants	
O3 Customer complaints	All venues	
O4 Communication with staff	All venues	
O5 Public transport	All venues	
Energy use and operation		
O6 Ban on fossil fuel	All venues	
O7 Energy consumption and sources	All venues	
O8 Energy devices and equipment	All venues, restaurants, food booths and bars	
O9 Heating, cooling and ventilation	All venues	
O10 Purchase and leasing of energy-intensive equipment	All venues	
O11 Measures for reduction of energy use and carbon emissions	All venues	
O12 Operation of ice rink arenas	Ice rink arenas only	
O13 Grass and artificial grass care	Stadiums with grass, hybrid grass or artificial grass	

Water		
O14 Water operation routines	All venues	
O15 Purchasing of sanitary fixtures	All venues responsible for purchasing sanitary fixtures	
Food and beverage		
O16 Organic food	Restaurants and Danish food booths	NSE services fulfil the requirement
O17 Organic beverage	Restaurants, food booths and bars serving beer or wine	NSE services fulfil the requirement
O18 Vegetarian dish	Restaurants and food booths	NSE services fulfil the requirement
O19 Prohibited and restricted fish and seafood	Restaurants	NSE services fulfil the requirement
O20 Certified coffee and tea	All venues, restaurants, food booths and bars	
O21 Palm oil in frying oil	Restaurants and food booths	NSE services fulfil the requirement
O22 Serving of drinking water	Conference facilities and restaurants	NSE services fulfil the requirement
Cleaning		
O23 Purchase of Nordic Swan Ecolabelled cleaning service	All venues with outsourced cleaning	
O24 Ecolabelled cleaning, dishwashing and laundry products	All venues, restaurants, food booths, bars and cleaning services	NSE services fulfil the requirement
O25 Air fresheners	All venues, restaurants, food booths, bars and cleaning services	NSE services fulfil the requirement
O26 ECA water, Ozone water and other disinfection	All venues, restaurants, food booths, bars and cleaning services	NSE services fulfil the requirement
Waste and resource efficiency		
O27 Waste sorting for guests	All venues	
O28 Food waste	Restaurants and food booths	NSE services fulfil the requirement
O29 Ban on single-use portion packaging	All venues, restaurants, food booths and bars	NSE services fulfil the requirement
O30 Reusable tableware	All venues with restaurants, food booths and bars with seating capacity less than 500 guests	NSE services fulfil the requirement
O31 Serving solutions for takeaway	All venues, restaurants, food booths and bars	NSE services fulfil the requirement
O32 Decorations, giveaways and confetti	All venues and restaurants	
O33 Repair and reuse	Venues that construct scenery, such as theatres, museums and exhibition halls	
Biodiversity		
O34 Biodiversity impact on outdoor areas	Venues with outdoor areas/gardens	
Purchase of ecolabelled products and services		
O35 Purchase of ecolabelled products	All venues, cleaning services and restaurants	
O36 Measures to increase ecolabelled purchasing	All venues	

3.1 General

Background to O1 Description of the venue

Nordic Ecolabelling requires a detailed description of the venue. The information provides the basis for the right advice and guidance in the application process.

An overview of suppliers ensures that the right requirements are set for the right suppliers. If some of the service providers are already Nordic Swan Ecolabelled, this will make the application process easier, and several requirements may already be met.

3.2 Environmental management and communication

Background to O2 Annual follow-up

The venue is responsible for complying with all requirements in the criteria during the validity period of the licence. However, certain changes of the operation evolve over time, necessitating ongoing follow-up to ensure that the progress and development upon which the licence was granted continue to be maintained. This requirement is therefore included to ensure that the venue complies with the requirements in the criteria document during the validity period of the Nordic Swan Ecolabel licence. Nordic Ecolabelling may review and control all requirements, or selected ones. It is always the latest version of the annual report that forms the basis for ensuring that the criteria are met. If the annual report reveals that circumstances have changed, Nordic Ecolabelling must be informed of this. Nordic Ecolabelling will inform about the control and deadline for submitting documentation in advance of an annual follow-up.

Background to O3 Customer complaints

The licensee must guarantee that the quality of the Nordic Swan Ecolabel product or service does not deteriorate during the validity period of the licence. Nordic Ecolabelling requires that your company has implemented a customer complaint handling system. To document your company’s customer complaint handling, you must upload your company’s routine describing these activities. The routine should be dated and signed and will normally be part of your company’s quality management system.

If your company does not have a routine for customer complaint handling, it is possible to upload a description of how your company perform these activities. During the on-site visit, Nordic Ecolabelling will check that the customer complaint handling is implemented in your company as described. The customer complaints archive will also be checked during the visit.

Background to O4 Communication with staff

Information to staff regarding the ecolabelling of the venue is useful to give a broad insight in the environmental aspects, and how the venue works to limit the environmental impact from

the operation. The venue must provide staff with basic information on the venues environmental work to achieve the Nordic Swan Ecolabel.

Background to O5 Public transport information

When large numbers of people travel to a venue, it results in significant environmental and climate impacts due to energy consumption, fossil fuel use, and particulate pollution, particularly when traveling individually by car. These impacts can be greatly reduced if participants have the option to use public transportation.

Many visitors are unfamiliar with local transport networks and may choose less sustainable transport options if information is difficult to find. Information about the connections to public long-distance transport services to the destination city or place is essential for ensuring smooth and efficient travel arrangements. This information helps attendees plan their journeys in advance, and providing details about connections to public transportation services to the venue further enhances convenience and accessibility. It encourages the use of more sustainable transport options, thereby reducing the venue's carbon footprint and promoting sustainable practices.

Highlighting the distances between public transport stops and the venue is crucial to nudge the guests to use public transport instead of private cars.

Informing about accessible travel options and entrances for participants with disabilities is a fundamental aspect of inclusivity. By accommodating the needs of all attendees, the venue becomes more welcoming and accessible, fostering a positive and supportive environment for everyone. By providing information, the venue can make sustainable travel choices more convenient and attractive.

Overall, the requirement seeks to increase awareness of sustainable transport options and support more environmentally responsible travel choices among visitors.

3.3 Energy use and operation

Background to O6 Ban on fossil fuel

Nordic Ecolabelling sees significant potential for emission reductions and long-term environmental benefits by transitioning away from fossil-based energy sources. Fossil fuels for space heating, hot water, outdoor heating, and local electricity generation cause direct greenhouse-gas and air-pollutant emissions. This is particularly relevant because heating and hot water are major energy uses in buildings. For venues currently relying on natural gas for heating and hot water, replacing fossil gas with renewable alternatives such as biogas, biogas oil, or other renewable energy sources represents an important opportunity to reduce climate impact and support the transition to fossil-free operations. The requirement applies equally to the use of all generators, patio heaters and similar equipment. However, both generators and patio heaters are permitted, provided they don’t use fossil fuel.

Outdoor heating can significantly increase a venue's energy use and climate impact. When outdoor heating is considered necessary, electric infrared heaters generally represent a more environmentally preferable solution than gas-fired heaters.

Electric infrared heaters provide heat directly to people and surfaces rather than heating the surrounding air. This targeted heating principle reduces energy losses, particularly in outdoor environments where wind and air movement can quickly disperse heat. As a result, infrared heaters can provide the desired thermal comfort using less energy than many conventional gas-fired outdoor heating systems. However, patio heaters using gas is permitted if biogas is used.

Fossil fuels may be used for backup power generation for large arenas and stadiums, as they are required to have an emergency power generator at their events.

The use of gas for in kitchens for cooking and peak-load/top-load purposes is also permitted. Peak or top load may be used whenever the temporary demand exceeds the venue's normal/base-load energy capacity. These are typical situations during extremely cold weather, during large events or occupancy spikes, when cooling demand suddenly increases (e.g. in ice rink arenas), when ventilation systems run at maximum capacity, during simultaneous use of many energy-intensive systems and during equipment start-up phases as many systems require more power when they start up than during regular operation.

The requirement does not apply to the fossil fuel share of electricity supplied through the grid or district heating systems, as the venue cannot influence the fuel composition of this supply. This requirement applies only to energy used for heating premises and producing hot water and therefore does not apply to vehicles or machinery, such as tractors and wheel loaders.

Background to O7 Energy consumption and sources

To measure is to know, and a well-established metering structure is crucial for monitoring individual energy categories to quickly identify and rectify errors.[1] Continuous monitoring of energy consumption allows for prompt troubleshooting, enabling immediate corrections and energy savings. Additionally, compiling annual usage is essential for accurate operational statistics, aiding in the planning of technical measures to reduce energy consumption. By maintaining operational statistics, we gain insights into the specific venue building.

Energy consumption figures vary depending on what is included in the measurements. For example, the number of food and beverage services can significantly affect the total, as kitchens typically use a large amount of energy. Vehicle charging stations also contribute to higher energy use. Most venues outsource their laundry (except for mops and cloths) to external providers. However, some operate their own laundry facilities, which results in higher energy consumption compared with venues that outsource.

It is permitted to deduct certain types of energy use from the total annual purchased energy, provided that the consumption can be documented with separate meter readings, independent third-party estimates, or other reliable data. Examples may be electricity used for vehicle charging. It is therefore important to describe what's included in the measurements.

[1] Kempe, Vidareutveckling av metoder för idrifttagning och driftuppföljning av installationssystem i flerbostadshus, 2014. Mall BeBo (bebostad.se)

Many venues share energy infrastructure between the venue and other buildings or operations and lack specific measurements. Energy consumption from such operations may be determined using reasonable allocation methodologies, estimates calculated by a qualified energy specialist, or other documented calculation methods. In such cases, the venue shall provide a detailed description of the shared infrastructure, including which buildings, operations, and energy-consuming systems are covered by the allocation method and how the energy consumption has been apportioned.

Background to O8 Energy devices and equipment

Operating a venue requires a significant amount of energy for lighting, sound, heating, and other needs.[2] Various smaller components consume energy at different types of venues. This requirement targets some of the most common elements, which can either be eliminated or replaced with more energy-efficient alternatives.

The use of coolers and refrigerators without lids or doors is relatively common in venues and restaurants, particularly in bar areas and temporary event setups, but is increasingly recognized as inefficient and avoidable through improved equipment design and operational routines. Keeping coolers and refrigerators covered when not in active use has significant potential to reduce unnecessary energy consumption. By preventing heat exchange with the surrounding environment, covered units operate more efficiently, resulting in lower electricity demand, reduced wear on equipment, and decreased climate impact. Coolers and refrigerators shall therefore have lids, doors, or be kept covered with an alternative solution.

A significant number of disposable batteries are consumed when the batteries in microphones and mice are replaced each time a new person uses them on stage.[3] Therefore, rechargeable batteries or rechargeable devices must be used as the standard solution by the Nordic Swan Ecolabelled venue. Standard solution refers to the battery type normally used in routine operation and in the venue's own equipment. Batteries kept only as backup or for emergency use are not considered the standard solution. It is accepted to have spare single-use batteries as backup. The requirement is intended to be applicable for the venue, and not for speakers, performers, or other external users or event organisers that brings their own equipment.

Background to O9 Heating, cooling and ventilation

Different venues have different needs when it comes to heat consumption, depending on the age of the building, windows, location, season and occupancy. Heating, cooling, and ventilation can account for a substantial share of a venue’s operational energy use. Systems operated at full capacity during unoccupied or lightly occupied periods consume unnecessary fan electricity and energy for heating or cooling supplied air.

It is desirable for a company to have demand control or time-controlled procedures for heating its facilities in the most efficient way, despite the differing circumstances. This is

[2] 2022, A Net Zero Roadmap for the Events Industry: NZCE_Roadmap2022_Full-Report-1.pdf
[3] 2022: Kulturrom: Farvel til engangsbatteriene, https://kulturrom.no/wp-content/uploads/2023/10/Oppladbare-batterier-Sluttrapport1.pdf

especially relevant for venues because occupancy can vary greatly between events, rehearsals, preparation, breaks, and closed periods

Demand control adjusts airflow and thermal output according to measured conditions such as occupancy, CO_2 concentration, and temperature. It can therefore reduce overventilation and unnecessary conditioning while maintaining indoor air quality and thermal comfort. Nordic technical literature reports considerable potential: well-functioning demand-controlled ventilation can reduce ventilation energy use by more than 50%, although savings depend strongly on occupancy patterns, system design, climate, and commissioning.[4] Ventilation systems in large buildings with many rooms are particularly energy intensive. It is therefore important that the ventilation system is properly controlled according to demand, depending on how many guests are on the premises.

Time control offers a simpler alternative where occupancy follows predictable schedules. It can prevent systems from operating continuously but normally has lower environmental potential than demand control because schedules do not respond to unexpected changes in attendance or use. For venues with irregular events and strongly fluctuating occupancy, sensor-based demand control is therefore generally more effective. So, if time control is used, it is particularly important to have good and detailed timer controls for the best possible effect.

Background to O10 Purchase and leasing of energy-intensive equipment

Operating a venue requires significant energy for lighting, sound, heating, kitchen appliances, restaurant equipment, and other needs.[5,6] There is considerable potential to reduce energy consumption by selecting high-performing equipment. However, to maintain resource efficiency, both in terms of raw materials and waste, it is important not to replace well-functioning equipment before necessary. Therefore, this requirement applies only to new purchases.

LED lighting is a leading energy-efficient solution widely adopted across industries, including event management. LEDs consume significantly less energy compared to older technologies like fluorescent or incandescent lighting. LED retrofits in lighting systems contribute to better luminaire efficacy and long-term sustainability. The use of LED technology also enables advanced control systems, reducing overall energy consumption at events.[7]

Class D amplifiers are recognized for their energy efficiency, particularly in high-demand audio settings for example events. These amplifiers can convert up to 90% of electrical energy into sound, significantly reducing energy compared to traditional Class A or Class AB

[4] Mysen et al. – Commissioning for energy-optimal Demand-Controlled Ventilation – REHVA – 2015 – 20-24_RJ1502_WEB.pdf
[5] Event Energy Impacts | Event Impacts outdoor events https://www.eventimpacts.com/impact-types/environmental/content/energy
[6] Baker J. 2022: Embrace Battery Power for Eco-Friendly Outdoor Events
https://www.joulecase.com/blog/energy-and-carbon-impact-of-various-
[7] Circular Economy Aspects Regarding LED Lighting Retrofit—from Case Studies to Vision (mdpi.com)

amplifiers. In events where audio equipment is used extensively, Class D amplifiers reduce the energy footprint of large-scale sound systems.[8]

Laser projectors are recognized for their high energy efficiency and longevity compared to traditional lamp-based projectors. These systems are ideal for large-scale events due to their brighter images, lower maintenance, and significantly lower power consumption, making them a sustainable choice for event venues. Research on sustainable lighting and projection systems highlights their energy efficiency, longer lifespan, and lower environmental impact.[9]

The requirement on energy efficiency to kitchen appliances is based on Energy Labelling Regulation 2017/1369 with later supplements. The specific requirement concerning the energy label for each product group is set on the best performing appliances in the product category that are currently available on the market.

Background to O11 Measures for reduction of energy use and carbon emissions

Renewable electricity production: The venue can achieve points by producing its own energy for the operation. For example, by using solar energy via solar panels or solar cells. To achieve points, the energy must go into the operation of the venue. Renewable electricity generation includes for example solar PV, wind power, or other renewable energy sources.

Acceptable alternatives include physical on-site Power purchase agreement (PPA) and physical off-site greenfield PPA established within the same electricity market region.

Calculation of the share of renewable electricity must be done as follows:

$$Share\ of\ renewable\ electricity = \frac{Total\ annual\ renewable\ electricity\ generation}{Total\ annual\ electricity\ consumption}$$

Energy-controlling system: A central energy management system supports reduced energy consumption by continuously monitoring and optimizing energy use across the venue. By collecting energy data, identifying inefficiencies, and automatically controlling technical installations, the system can reduce energy waste, lower greenhouse gas emissions, and improve overall energy performance.[10]

Energy audit: An energy audit identifies where and how a venue uses energy, including areas with unnecessary consumption or inefficiencies. By mapping the actual energy performance of the building and its systems, the venue can detect avoidable energy waste and switch to more efficient or renewable solutions. This leads to reduced energy use and, in turn, lower climate and environmental impact.

Energy action plan: An energy action plan translates the findings from the energy audit into concrete, measurable energy-saving actions. By setting specific targets and defining how improvements will be implemented, the venue ensures systematic reductions in energy consumption over time. This supports long-term emission reductions and more sustainable operation.

[8] The Class D Audio Power Amplifier: A Review (mdpi.com)
[9] external_content.pdf (oapen.org)
[10] Directive - 2023/1791 - EN - EUR-Lex

Energy class: The total energy consumption of a venue is often closely connected to the building that it is situated in. On the other hand, the steerability of the venue is not always so high in relation to the building, as it e.g. can be rented or be heritage listed.

The national legislation in all EU countries is based on the Energy performance of buildings directive 2024/1275. This was implemented in May 2026 in all Union countries meaning that all countries must implement a uniform concept for the energy performance certificates. The scale has a range from G to A (or A0 for zero emission building). Legislation level for new buildings corresponds to energy class A. As calculations are not performed similarly in the Nordic countries the scales are not directly comparable. Nordic Ecolabelling has therefore chosen to set energy requirements based on national legislation. An Energy Performance Certificate (EPC) remains valid for 10 years across all Nordic countries from the date of issuance and is therefore accepted as documentation.

The Energy Performance of Buildings Directive (EU/2024/1275) sets the ambition that all public and commercial buildings must as a minimum have energy label F in 2027 and E in 2030. Nordic countries, except from Norway, has started the implementation from May 2026. Based on this the requirement we award buildings with minimum C and B (only for Denmark) in this requirement.

Sound and audio equipment, and video and project: See background to O10 (Purchase and leasing of energy-intensive equipment).

Lighting: Automatic demand-control of lighting, as sensor control with motion sensors, is the most efficient way to save energy from lighting. To achieve points, over 90% of the venue must have demand-controlled lighting in public areas.

Energy-efficient light fittings: Energy efficient light sources have significantly higher light output and longer life than other light sources.

Fossil-free garden maintenance machines: Nordic Ecolabelling promotes fossil-free fuels, and modern maintenance machines are often electric. The machines may be powered by electricity, batteries, hydrogen, or other biofuels such as biodiesel or biogas.

Leasing and purchase of vehicles: Fuel consumption from transports may be a significant source of the climate impact from a venue. To reduce emissions, it is necessary to shift to more energy-efficient transports and move away from fossil fuels. The steerability of vehicle types is greatest when new leasing contracts are established, or vehicles are purchased.

Biofuels, HVO100, RME100, FAME100, are renewable fuels and it is a good transitional solution for existing vehicles before all vehicles are converted to other engines, but when we set requirements for new purchases, we believe that they must be the most sustainable vehicles. HVO, RME, FAME have more disadvantages than electricity and gas, among other things related to the raw materials, and usually have a higher climate impact over the life cycle.

Electric cars have become increasingly available in recent years, especially among private cars and light goods vehicles. All Nordic countries have a high enough availability of electric

cars for Nordic Ecolabelling to set this requirement. Depending on the country, as much as 18–90 percent of newly registered private cars are electric.[11,12]

Nordic Ecolabelling considers long-term sustainable vehicles to primarily refer to electrified vehicles. However, natural gas/biogas (CNG/CBG) and hydrogen are also considered good alternatives at this moment. This is in line with the Swedish procurement agency's most advanced sustainability requirements for personal cars and light goods vehicles.[13,14]

Some companies have challenges related to electric vehicle infrastructure, especially in rural areas. Nordic Ecolabel therefore allows plug-in hybrid vehicles as a solution for newly purchased and newly leased vehicles.

Both electric and biofuel-powered heavy industrial vehicles are available and offer significant environmental benefits, but each technology faces unique challenges that need to be addressed to achieve widespread adoption[15,16], which is why these vehicles are exempt from the requirement.

Other, own measures: The venue is rewarded with points by implementing energy-saving measures. These measures must be measurable and show a reduction in total energy use. A theoretical calculation can be used as proof. Approved measures include those introduced in the past or planned to be introduced.

Examples of such measures include replacing old, energy-intensive equipment like heat pumps, air conditioning units, kitchen appliances, or light fixtures, replacing old windows or adding insulation, installing a centrally controlled system for heating and ventilation, installing automatic shut-off systems for heating and air conditioning when windows are opened, etc.

Background to O12 Operation of ice rink arenas

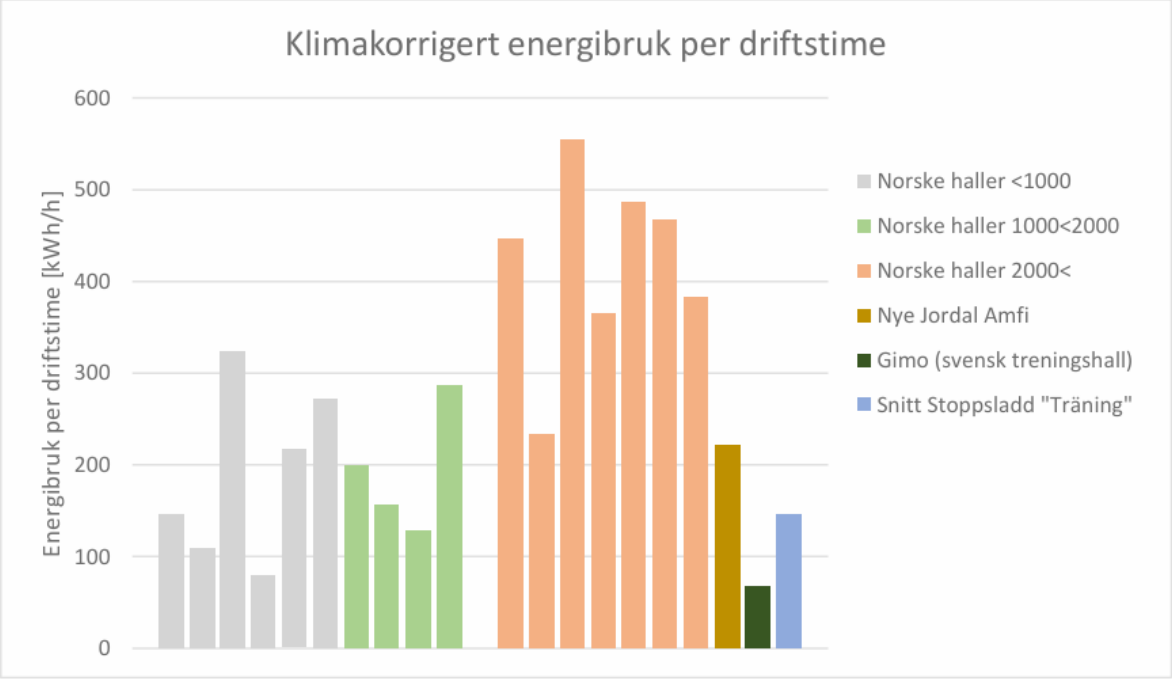
Nordic Ecolabelling wants Nordic Swan Ecolabelled ice rink arenas to be among the environmentally best in the industry and therefore sets comprehensive requirements for the operation of the arena.

Refrigerants: HFC refrigerants have very high GWP and are no longer allowed in new installations in the EU. Traditional refrigerants such as ammonia (NH_3) and CO_2-based systems (R744) are highly efficient and environmentally friendly (GWP =0). Both Ammonia and CO_2 can be used in effective systems. However, in cold climate CO_2 is typically preferred and CO_2 is increasingly used in Swedish ice rinks, with multiple studies documenting strong energy-efficiency gains and widespread adoption in recent years.[17]

[11] Carlier m., 2024: Share of electric cars in the fleet of Nordic countries | Statista
[12] Ritcher F. 2024: Which countries sell the most electric cars? | World Economic Forum
[13] Hållbarhetskrav för Energi/koldioxidkrav på lätta lastbilar | Upphandlingsmyndigheten
[14] Hållbarhetskrav för Energi/koldioxidkrav för fordon med maximalt fyra sittplatser utöver förarplatsen | Upphandlingsmyndigheten
[15] Alanazi A., 2023: Electric Vehicles: Benefits, Challenges, and Potential Solutions for Widespread Adaptation
[16] Reddy V. J. et al, 2024: Sustainable Vehicles for Decarbonizing the Transport Sector: A Comparison of Biofuel, Electric, Fuel Cell and Solar-Powered Vehicles
[17] Rogstam J. Evolution of CO_2 as refrigerant in ice rink applications. Available at: 57ce8da25bae01473154466o40H9.pdf

Energy consumption limit: Permanent ice rink arenas have a high energy consumption. The variation in energy consumption is described in a Norwegian study that shows energy consumption varying from 75 - 550 kWh/operation hour.[18] The data show large variations that also depend on the capacity of the ice rink arena. Based on the data in this study a level is defined to rule out the least energy efficient arenas.

Figure: Climate-corrected energy consumption per operating hour from Norwegian ice rink arenas with different capacity.



Energy efficiency - operation optimization: The energy consumption in an ice rink arena can be reduced significantly simply by optimizing daily operations. Therefore, it is important that the arena has routines in place to ensure regular monitoring of technical systems and equipment.[19,20]

Energy use can be reduced by lowering the indoor arena temperature (when outdoor temperature is low), since a lower temperature decreases the cooling demand. When doing this, it is essential to ensure that the dehumidifiers are also functioning correctly.

It is also important to monitor the regulation and performance of the cooling system. Temperatures that are set too low result in higher operational costs, and if the arena is able to increase the ice temperature, this can provide significant energy savings for each degree Celsius.

[18] NTNU Senter for idrettsanlegg og teknologi, notat ishall.pdf

[19] Sänk energinotan för din ishall idag - utan investeringar | EKA Finland

[20] Reports | EKA Sweden

Correct operation of the cooling pump system can also reduce energy consumption substantially. Therefore, it is crucial that the frequency control (VFD) functions properly.[19]

Electric or fossil-free ice maintenance machines: Nordic Ecolabelling promotes fossil-free fuels, and modern maintenance machines are often electric. We therefore require that all new purchase of machines used in an ecolabelled arena shall be requested to be fossil-free. The new machines may be powered by electricity, batteries, hydrogen, or other biofuels such as biodiesel or biogas. Existing gas and diesel-powered ice rink maintenance machines must switch to biogas and biodiesel where technically feasible. Machines using gasoline are permitted, as a direct switch to fossil-free gasoline is not always possible, as not all machines are compatible with or approved for such fuels by the manufacturer and it may affect the engine performance.

Heat recovery: Modern ice rink arenas use the heat generated from the refrigeration system efficiently. It could be used for heating of locker rooms and public areas, hot water for showers or resurfaces or for heating of the ground/frost protection. Some rinks may be connected to the district heating network so excess heat is fed into the energy system and used in other buildings.[21,22] Some arenas rely on district cooling systems operated by external utility providers. In these cases, the venue operator and property owner may have limited or no control over how excess heat is recovered and utilised. District cooling is considered to fulfil the requirement.

Water reduction measures: Ice resurfacing is a recurring source of water consumption in ice rink arenas. Nordic measurements indicate that a typical resurfacing uses approximately 300–500 litres of water. Water applied to the rink must usually be heated, pumped, cooled, and frozen; excessive volume or unnecessarily frequent resurfacing therefore increases both water use and the arena's energy demand.

The requirement has environmental potential because operational measures – such as optimizing resurfacing frequency, adjusting water flow, monitoring litres per resurfacing, repairing leakage, or matching resurfacing to actual ice use – can reduce consumption without major investment. Lower water volumes also reduce the heat introduced to the ice and consequently the electricity required by the refrigeration system. Energy savings can also be a result of water savings. A Swedish study found resurfacing responsible for approximately 11% of the measured refrigeration heat load, although results vary by arena and operating practice.[23]

Background to O13 Grass and artificial grass care

Nordic Ecolabelling wants ecolabelled arenas with grass to be among the environmentally best in the industry and therefore sets comprehensive requirements for the operation of the arena.

[21] Reclaiming waste heat from ice rinks' refrigeration... | 2023/10/23
[22] Various waste heat recoveries and potential energy savings in an ice hall in Finland: Various waste heat recoveries and potential energy savings in an ice hall in Finland
[23] Kaya, R. (2017). Energy Usage in Ice Rink Resurfacing. Master's Thesis, KTH Royal Institute of Technology, Stockholm, Sweden. FULLTEXT01.pdf

Mowing: The environmental impact from the operation of the grass is significant due to its use and maintenance phase, where significant amount of fuel may be used for maintenance of the grass.[24] By using electric or fossil-free mowing machines, the impact will be reduced. Nordic Ecolabelling therefore require that machines used in an ecolabelled arena must be electric or fossil-free. The machines may be powered by electricity, batteries, hydrogen, or other biofuels such as biodiesel or biogas.

Energy source for heating of the grass: Stadium grass is typically heated using under-soil heating pipes installed 20–30 cm below the pitch. Warm water circulating through these pipes and the heat sources are usually district heating, recovered waste heat from the property, own produced electricity, heat pumps, gas boilers or electricity. Nordic Ecolabelling aims for ecolabelled stadiums to use the most environmentally friendly heating solutions. Therefore, only district heating, recovered waste heat from the property, own produced electricity and heat pumps are accepted as heat sources for pitch heating, while the use of gas and inefficient electric heating is not permitted in this context.

Water reduction measures: A football stadium both with grass and artificial grass uses a significant amount of water in the maintenance process. To measure is to know, and a well-established metering structure is crucial for monitoring and to quickly identify and rectify errors. Continuous monitoring of the water consumption enabling immediate corrections and water savings. There are several measures a stadium can implement to reduce the consumption.

Herbicides: Several herbicides can have negative effects on the environment, and historically, several toxic agents have been used, but the industry has developed, and herbicides now degrade more quickly and do not have long-term effects on the environment. Nevertheless, some can have negative effects on the environment, and it is unclear how their use over time will affect different ecosystems. Nordic Ecolabelling therefore prohibits the use of herbicides since weeds can be easily removed mechanically without the use of chemicals. Glyphosate (CAS No. 1071-83-6) is one herbicide widely used known for its effectiveness in weed control[25], and is therefore specially mentioned in the requirement. Its use has raised concerns due to negative impacts on the environment and biodiversity. Studies and regulatory assessments have highlighted risks such as contamination of soil and water, harm to non-target plant species, and possible long-term ecological effects. To promote safer practices and reduce environmental burden, the use of all herbicides including glyphosate is therefore not permitted.[26]

Artificial grass infill: 42,000 tons of microplastics added to products end up in the environment every year, with granules used in artificial turf making up 16,000 tons.[27] Microplastics[28] are very small fragments of plastic material, less than 5 mm. They can be harmful to health and the environment due to their size, surface properties, resistance to degradation and because they can carry harmful chemicals. In nature, microplastics come

[24] Life cycle assessment of football fields in Nordic climates: Comparing artificial and natural turf systems
[25] Glyphosate | EFSA
[26] Substance Information - ECHA
[27] Granules and mulches on sports pitches and playgrounds - ECHA
[28] https://www.nordic-swan-ecolabel.org/nordic-ecolabelling/environmental-aspects/chemicals-nano-and-microplastics/microplastics/

from pellets, paint, tires, textiles, personal care products and various plastic items. They have been found all over the world, at sea, in freshwater, sediments, sludge from waste-water treatment plants and agricultural soil. Microplastics have been detected in various aquatic organisms across the food chain, from zooplankton to vertebrates and in human tissues and organs such as blood and placenta. Nordic Ecolabelling uses the precautionary principle and strives to limit the use and release of microplastics wherever possible.

From 15 October 2031, it will be illegal to sell or distribute rubber granulate and other microplastic-based infill materials for artificial turf pitches in the EU/EEA. This applies to both new and existing products that can currently be sold. Operators may still use existing pitches with rubber granulate. The ban only applies to sales and distribution, meaning you cannot purchase new granulate once the ban enters into force.[29] Operators of football pitches must plan for future fields and maintenance, and new infill materials must be documented as compliant after 2031. In other words, after 2031 pitch owners will only be able to obtain infill that is not considered microplastic, and document that the material is biodegradable-, or is water-soluble in accordance with the approved and standardized test methods (OECD/ISO) specified in Annexes 15 and 16 to the regulation. The tests must be listed in the correct group (1–5) in the annexes.[29]

Nordic Ecolabelling wants Nordic Swan Ecolabelled football stadiums to be among the front-runners in replacing plastic granulate and switching to biodegradable or water-soluble alternatives and therefore requires that ecolabelled stadiums are two years ahead of the regulation. By making the requirement valid from 2029, the industry has time to prepare and test.

Rubber granulate has traditionally been used to give artificial turf football pitches properties similar to natural grass in terms of ball bounce, to provide a softer surface that reduces injuries, and because it withstands the Nordic climate and frequent use. In addition, it has been a cheap and readily available material. New materials that can replace rubber granules has been tested on different fields in the Nordic countries, and the granules includes wood-based infill, bio-based/bioplastics that meet biodegradability requirements, and natural materials such as olive pits, cork, coconut, and sand blends.[30] Input from football and stadium operators during the consultation has covered that the industry is not yet ready for a full transition away from rubber granulate. Key concerns include the high cost of replacing existing pitches and machinery, limited availability and experience with alternative materials, uncertainty regarding long-term performance, and the need to maintain player safety and pitch quality. The aim of these requirements is to encourage improvement and support the industry's transition towards more sustainable solutions.

Norway has introduced specific national regulations governing the design and operation of artificial turf pitches with plastic-containing infill, set out in the Pollution Control Regulations, chapter 23a.[31] The regulations include, among other things, requirements relating to measures to prevent the spread of infill material, edge zones and physical barriers, cleaning zones, drainage solutions, and routines for operation and maintenance.

[29] Regulation - 2023/2055 - EN - EUR-Lex
[30] Bærekraftig granulat for kunstgressbaner - Norges Fotballforbund
[31] https://lovdata.no/dokument/SF/forskrift/2004-06-01-931?q=forurensningsforskrifen

The other Nordic countries and the EU do not have equivalent national regulations governing the design and operation of artificial turf pitches. Instead, requirements may be imposed at local or municipal level in different countries. To help prevent the release of plastic infill from artificial turf pitches, Nordic Ecolabelling sets specific requirements for outdoor pitches based on the Norwegian regulation. This means that Norwegian applicants are already required to comply with this requirement.

Grass and artificial grass recycling: Grass and artificial grass have different lifetime, depending on climate, how its maintained and how much it is used etc. The grass needs to be renewed from time to time, and when it is done it is important that its recycled or reused to reduce the environmental impact.[24]

3.4 Water

Background to O14 Water operation routines

While clean water is not currently a scarce resource in the Nordic countries, it remains a vital and finite resource that must be used carefully due to its essential role in sustaining life.[32] Additionally, the environmental impact of clean water usage underscores the importance of its wise and efficient utilization.

To measure is to know, and a well-established metering structure is crucial for monitoring and to quickly identify and rectify errors and leaks. Not all venues have implemented measures to reduce the water consumption, and not all have meters to monitor consumption.[33] It is common for venues in connection to multiple buildings to share the same meter within the same property, making it challenging to pinpoint leakages. Having submeters for the venue and each individual building is important to monitor water usage. Submeters provide a more precise and accurate measurement of water consumption at the individual building. This accuracy is crucial for identifying specific patterns, detecting leaks, and optimizing water use. With submeters, it becomes easier to identify and locate leaks within a specific building. Rapid detection of leaks allows for prompt repairs, minimizing water wastage and potential damage to the building.

Monitoring water consumption also helps in understanding usage patterns and optimizing water management strategies. This information is valuable for implementing water-saving measures and promoting sustainable practices. Submeters allow for evaluating of the water performance of each building independently. This information can be used to set targets, measure improvements over time, and implement targeted conservation measures. Within a Nordic Swan Ecolabelled venue, it is essential to receive information about the water consumption. The actions will directly influence the water consumption. The venues awareness contributes to overall water conservation.

[32] European Environment Agency, Water resources across Europe – confronting water scarcity and drought, 2009. Water resources across Europe - confronting water scarcity and drought (europa.eu)
[33] Warfvinge, Wahlström, Klimatstegen för drift och förvaltning av befintliga byggnader, E2B2, 2022. Klimatstegen (e2b2.se)

Many venues share water infrastructure between the venue and other buildings or operations and lack specific measurements. Consumption from such operations may be determined using reasonable allocation methodologies, estimates calculated by a qualified energy specialist, or other documented calculation methods. In such cases, the venue shall provide a detailed description of the shared infrastructure, including which buildings, operations, and water-consuming systems are covered by the allocation method and how the water consumption has been apportioned.

Background to O15 Purchasing of sanitary fixtures

Water use in toilets, taps, showers, and urinals occurs throughout a fixture's service life, so procurement decisions can lock in consumption levels for many years. Reducing water use lowers freshwater abstraction and wastewater volumes. For hot-water fixtures, it also reduces energy used for heating and therefore associated with greenhouse-gas emissions. European Commission assessments identify the use phase – water consumption and, for taps and showers, water heating – as the dominant environmental impact of sanitary fixtures.[34]

Energy and water classification of appliances is an important tool for reducing water and energy use during the use phase of a venue building. However, it is important that well-functioning equipment are not changed until it is needed to ensure resource efficiency both in terms of raw material and waste. Therefore, this requirement only applies to new purchases. Since it applies only to new purchases, savings will accumulate gradually.

The purpose is to reduce water and energy use by either selecting energy efficient taps or taps with a limited water flow. Touchless taps save both energy and water by ensuring that taps are never left on. Relevant water flows are defined according to the technical specifications for water appliances.

[34] European Commission JRC – Tapware GPP Criteria Proposal and Technical Background Report – 2013 – JRC publication

3.5 Food and beverage

Background to O16 Organic food and O17 Organic beverage

Achieving the UN Sustainable Development Goals requires a transition to more sustainable food and farming systems that maintain ecosystems, are better adapted to climate change, and improve soil quality.[35] Organic farming is one way to achieve this.[36] Therefore, Nordic Ecolabelling is working to increase the proportion of organic food. See Nordic Ecolabelling webpage for more info.[37]

Organic farming places an emphasis on ecological balance, local eco-cycles and ecological, economic and social sustainability over the long term.[38] Organic methods increase biodiversity and thus help to maintain the ecosystem services on which agriculture depends.[39] The UN's nature panel IPBES also advocates organic farming as a system for promoting biodiversity and ecosystem functions.[40] The UN's climate panel IPCC points out that organic farming can contribute to sustainable land management.[41]

Price sensitivity has reduced organic demand, and the market is currently stagnating. However, there are major differences between the countries due to e.g., various political strategic initiatives, trends and demand, plus price versus profitability. Finland and Norway have seen a strong percentage growth in organic food in recent years but are still a long way behind Sweden and Denmark. Denmark has led the way in organic sales per person[42], while Sweden has led the way in switching to organic farming and is also the best in the Nordic region at public sector procurement.[43] Therefore due to different access to organic goods in the Nordic countries, the limit values are differentiated according to country.

[35] UN, 'UN Sustainable Development Goals' www.FN.no/Om-FN/FNs-baerekraftsmaal (07.12.2022)
[36] Eyhorn F, Muller A, Reganold JP, Frison E, Herren HR, Luttikholt L, Mueller A, Sanders J, Scialabba NEH, Seufert V, Smith P (2019) Sustainability in global agriculture driven by organic farming. Nature Sustainability 2:253–255. https://doi.org/10.1038/s41893-019-0266-6
[37] https://www.nordic-swan-ecolabel.org/nordic-ecolabelling/environmental-aspects/sustainable-raw-materials-biodiversity/organic-farming/
[38] Arbenz M, Gould D, Stopes C (2016) Organic 3.0 – for truly sustainable farming and consumption, IFOAM Organics International, Bonn and SOAAN, Bonn. www.ifoam.bio/sites/default/files/organic3.0_v.2_web_0.pdf
[39] Dainese M et al. (2019) A global synthesis reveals biodiversity-mediated benefits for crop production. Science Advances 5(10) eaax0121. https://doi.org/10.1126/sciadv.aax0121
[40] IPBES (2019) Summary for policy makers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf
[41] IPCC (2020) Summary for policy makers. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf
[42] Bioforsk Report Vol. 9 Nr.139 2014 Økologisk mat i de nordiske landene - tilgang på råvarer og faktorer som påvirker omsetning av økologisk mat, 2014, https://orgprints.org/id/eprint/30184/1/BIOFORSK%20RAPPORT_9_139_2014%20%C3%98kologisk%20mat%20i%20de%20nordiske%20landene.pdf
[43] EKOMATCENTRUM MARKNADSRAPPORT Ekologiskt i offentlig sektor 2019, http://ekomatcentrum.se/wp-content/uploads/2019/06/Rapport-Marknadsrapport-EMC-2019-2.pdf

Denmark has as the only Nordic country a specific legislation for organic food at large-scale kitchens and occasional events. Due to this legislation the requirement for organic food and beverages documentation is different for food and beverage services in Denmark.

Beer and wine are widely offered in food and beverage services, and organic alternatives are readily available on the Nordic market. By requiring at least one organic will be available if the serving point offers beer and wine the requirement aims to influence procurement practices and increase demand for organic beverages without significantly affecting customer choice, operations or costs. The market for organic beverages varies considerably between the Nordic countries, and many venues are bound by existing agreements with beverage suppliers that may limit the availability of organic alternatives. Requiring at least one organic option at each serving point ensures a baseline level of availability while taking current market conditions and operational limitations into account.

This measure supports increased demand for organic production and contributes to reduced use of synthetic pesticides and fertilizers, while maintaining low implementation burden for venues.

Background to O18 Vegetarian dish

Vegetarian products generally have a lower climate footprint and require significantly less energy and land to generate the same amount of protein and energy, compared to meat production.[44]

Agriculture and forestry account for almost a quarter of the world’s greenhouse gas emissions and cause a great amount of damage to and depletion of the planet’s resources. A new report[45] from the UN’s climate panel states that we need to implement radical changes to make agriculture more sustainable. They recommend, for example, that we change how we produce food, manage land and eat. The recommendation is to switch to a more plant-based diet, which will also reduce greenhouse gas emissions. Nordic Ecolabelling wishes to see Nordic Swan Ecolabelled venues offering guests vegetarian meals, as well as the food and beverage services contributing to the demand for plant-based food. To accommodate guests' wishes and needs, it is beneficial to have clear communication about what vegetarian food is being served, so that guests can make their choice on an informed basis and appetite. Studies show that the naming and description of plant-rich dishes using appetizing, flavour focused descriptions instead of labels such as vegetarian or vegan influence consumers' choices and increases more sustainable food choices.[46]

[44] Lagerberg-Fogelberg. 2008. På väg mot miljöanpassade kostråd- vetenskapligt underlag inför miljökonsekvensanalysen av Livsmedelsverkets kostråd. Report, 2008:9. Swedish National Food Agency, and Röös. 2012. Köttguiden 2012 – kloka val för miljö och djurvälfärd Utkast 2012-10-10. Swedish University of Agricultural Sciences (SLU).
[45] IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse gas fluxes in Terrestrial Ecosystems. 2019. Chapter 5.
[46] Pollicino et al. (2024), The Food Service Playbook for Promoting Sustainable Food Choices, World Resources Institute (WRI)

Background to O19 Prohibited and restricted fish and seafood

Marine ecosystems are threatened by overfishing, eutrophication, pollution and climate change. The fact that many fish stocks are overfished affects not only the individual stocks, but whole ecosystems. According to the UN's nature panel IPBES, overfishing is the key cause of diversity loss in the oceans.[47] This is followed by changes to land use. In freshwater, the order is reversed. To avoid use of the most endangered species of fish and shellfish and species that are produced in a not particularly eco-friendly way, Nordic Ecolabelling has drawn up a list of species that cannot be served:

Tropical prawns. These are not on the IUCN's list but must not be served because their fishing and farming causes major environmental problems, such as destruction of mangrove forests.[48,49] Mangrove forests are highly productive ecosystems that are home to a huge number of species of fish, shellfish and other animals. They also protect the coasts against flooding and erosion.

Species categorised as critically endangered (CR) or endangered (EN) on the red list of the International Union for Conservation of Nature (IUCN).[50] Several of the species are also on the OSPAR list of threatened and/or declining species. There is a ban on serving any species of shark or skate, even though not all of them are endangered, since there is a great deal of incorrect labelling.

Species categorised as critically endangered (CR) or endangered (EN) on the official red list of the country in which they are fished. Finland, Norway and Sweden have national red lists for both saltwater and freshwater fish, Denmark has a red list only for freshwater fish, and Iceland has no red list.

Fish and shellfish may in some cases come from sustainable fisheries or farms. For these species to be served, their sustainable production must be documented. They must therefore be certified with standards that meet Nordic Ecolabelling's Guidelines for assessing sustainability labelling of fish and shellfish. Nordic Ecolabelling currently approves the MSC standard, but not ASC.

An exception is made in Iceland for traditional serving of the shark species Somniosus microcephalus and the skate species Dipturus batis/Raja batis and Raja amblyraja radiata, because these are traditional dishes served on one day of the year. The shark is served in February and the skate on 23 December. In total, 8 tonnes of the shark species, 145 tonnes of the skate species Raja batis and 614 tonnes of the species Raja amblyraja radiata are caught each year.[51]

[47] IPBES (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services. www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services (15.08.2019)
[48] Thomas N, Lucas R, Bunting P, Hardy A, Rosenqvist A, Simard M (2017) Distribution and drivers of global mangrove forest change, 1996–2010. PLoSONE 12(6): e0179302. https://doi.org/10.1371/journal.pone.0179302
[49] Richards DR, Friess DA (2016) Rates and drivers of mangrove deforestation in Southeast Asia, 2000–2012. PNAS 113(2):344–349. https://doi.org/10.1073/pnas.1510272113
[50] https://www.iucnredlist.org/
[51] Statistics Iceland: https://statice.is/statistics/business-sectors/fisheries/catch/

Background to O20 Certified coffee and tea

The cultivation and production of coffee and tea have a huge effect the environment and nature, and coffee is among the most climate-impacting food raw materials by weight. E.g., coffee is ranked as number five on the list of the most climate-impacting raw materials in our food system per kg, after steak, chocolate, and lamb, and significantly higher than most other plant-based foods when assessed per kilogram of product.[52] Coffee is also number six on the list of raw materials that require the most farmland.[53] In addition, coffee production is one of the leading (7–8) reasons for deforestation worldwide[54], and therefore regulated by the EU deforestation regulation.[55]

Achieving the UN Sustainable Development Goals requires a transition to more sustainable food and farming systems that maintain ecosystems, are better adapted to climate change, and improve soil quality.[56] Third-party certification of raw materials and organic farming[57] is therefore important for documenting more sustainable production. There are several different certification schemes for coffee and tea, each of which focuses on one or more factors during the cultivation and production of the raw materials. Some impose a ban on synthetic pesticides and fertilisers, and/or have requirements concerning the introduction of sustainable agricultural practices, working conditions, procedures, monitoring, improvements, prices, and so on.

Nordic Ecolabelling promotes organic labelling, as such labelling schemes prohibit synthetic pesticides and fertilisers, and organic farming practices increase biodiversity. Rainforest Alliance and Fairtrade standards are not as strict in their environmental requirements as the organic labelling schemes. However, since coffee is a special commodity in terms of production locations and climate and social challenges, we also support the Rainforest Alliance and Fairtrade certification schemes, which contribute positively to the improvement of the coffee industry in general via several important social and environmental requirements. Organic labelling refers to the labelling schemes that mainly drive production in the desired direction from an environmental perspective.

Nordic Ecolabelling wishes to set an exemption from the requirement concerning certification if coffee and tea is purchased through direct trade. Direct trade involves purchasing raw materials directly from the farmer/coffee farm. The purchaser must ensure the traceability of the raw materials back to the farmer. By trading directly with the farmers, the purchaser can help to ensure that social and environmental conditions are controlled, managed and taken care of by the farmers.

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[52] Poore & Nemecek (2018): Greenhouse gas emissions per kilogram of food product
[53] PLATFORM ON SUSTAINABLE FINANCE: TECHNICAL WORKING GROUP PART B – Annex: Technical Screening Criteria, March 2022
[54] Wedeux B, Schulmeister-Oldenhove A (2021): STEPPING UP? THE CONTINUING IMPACT OF EU CONSUMPTION ON NATURE WORLDWIDE
[55] https://green-business.ec.europa.eu/deforestation-regulation-implementation_en
[56] 8 UN, 'UN Sustainable Development Goals' www.FN.no/Om-FN/FNs-baerekraftsmaal (07.12.2022)
[57] 2 Eyhorn F, Muller A, Reganold JP, Frison E, Herren HR, Luttikholt L, Mueller A, Sanders J, Scialabba NEH, Seufert V, Smith P (2019) Sustainability in global agriculture driven by organic farming. Nature Sustainability 2:253–255. https://doi.org/10.1038/s41893-019-0266-6

The Nordics represent one of the most certification-dense coffee markets globally. Organic certification dominates in value growth, with strong national label recognition. Rainforest Alliance and Fairtrade are common among medium and large roasters. Niche certifications like Bird Friendly and Demeter are not that common but attract environmentally conscious premium buyers.

The certification requirement is set to 80% to ensure flexibility. Nordic Ecolabelling often get question about how the requirements ensure fulfilment of the EU Regulation on Deforestation-free Products (EUDR) legislation. Nordic Ecolabelling is closely following the implementation of the EUDR legislation and the different certification schemes work in adapting their standards to secure EUDR alignment. Since implementation of the legislation is not yet fully in place, Nordic Ecolabelling has not yet decided on how handle the issue, since it is a general mandatory requirement for all licensees to follow legislation, including EUDR. Certification schemes could be used as an important tool in the risk assessment procedure of EUDR, but certification alone does not ensure compliance with the EUDR legislation.

Background to O21 Palm oil in frying oil

The establishment of palm oil plantations is one of the main causes of rainforest destruction, which threatens the living conditions of indigenous people, plants and animals. The rainforests are particular important for biodiversity, since they are the most species-rich ecosystems on the planet. Cutting down rainforest is also a serious threat to Earth’s climate. Other environmental problems relating to palm oil are the use of toxic substances in production, air pollution when burning native forest, soil erosion and sedimentation in rivers and watercourses, and discharges of wastewater from the palm oil mills. Palm oil production is also associated with social issues, including the risk of workers’ rights being violated.

Frying oil is a product that food services often use in large quantities. It is common for the food industry to use palm oil in frying oils, especially in large-scale industrial frying restaurant and fast-food operations, because of the palm oil's heat stability, long fryer life, and low cost. To reduce the use of palm oil, Nordic Ecolabelling prohibits the content of palm oil in frying oil.

Nordic Ecolabelling has assessed the Roundtable on Sustainable Palm Oil’s (RSPO) standard for sustainable palm oil production and judges that it does currently not fully satisfy our requirements concerning sustainability standards, since it does not give sufficient protection to biological areas and biodiversity. Nordic Ecolabelling therefore wishes to set as strict a requirement as possible concerning palm oil, where there are alternatives to its use.

Background to O22 Serving of drinking water

Serving tap water instead of bottled water can reduce environmental impacts by avoiding packaging production, transport and waste generation associated with bottled water. The

requirement contributes to lower resource consumption and greenhouse gas emissions while promoting the use of local drinking water resources.[58,59]

The Nordic countries generally provide safe, high-quality drinking water through public water supplies. As tap water is readily available and subject to extensive quality control, the purchase of packaged water is generally unnecessary where tap water is available.[60,61]

This requirement does not apply to carbonated water, as the requirement primarily relates to avoiding unnecessary packaging and transport where high-quality tap water is available. This is less directly applicable to carbonated water, which is not typically available from the tap. For future criteria generations, we will consider removing this exemption.

Tap water shall be easily available to guests, and this means that guests can access drinking water without having to specifically request it from staff. Drinking water shall be provided through clearly visible self-service stations, water dispensers, carafes on tables, or similar solutions, and guests shall not be required to purchase bottled water or specifically request water from staff.

Restaurants that provide both table service and takeaway, may sell bottled water, e. g. in connection with takeaway sales.

3.6 Cleaning

Background to O23 Purchase of Nordic Swan Ecolabelled cleaning service and O24 Ecolabelled cleaning, dishwashing and laundry products

A significant number of chemical products are used in the daily cleaning of the venue, exposing both workers and tenants to these chemicals regularly. Special cleaning products are excluded as they are used only occasionally for specific maintenance purposes, such as like floor treatments, cleaning of dishwasher and coffee machines and different other machine cleaners, descalers for machines, cleaners for drains, freezer rooms, ovens and grills, metal polish, stainless steel cleaner and polish, stain remover for carpets and interiors, cleaning agent for handball courts, furniture polish, and chewing gum remover, and therefore have lower relevance than products used for daily cleaning.

If the company use a Nordic Swan Ecolabelled service the requirement is fulfilled. This is because a Nordic Swan Ecolabelled cleaning service uses chemicals that meet strict chemical and health requirements, and a large proportion of them are ecolabelled. They also minimize the use of unnecessary chemical products, and the staff is trained in both the environment and cleaning methods. Choosing an ecolabelled cleaning has also an impact

[58] Bouhlel, Z. et al. (2023). Global Bottled Water Industry: A Review of Impacts and Trends. United Nations University Institute for Water, Environment and Health
[59] Parag, Y., Elimelech, E. & Opher, T. (2023). Bottled Water: An Evidence-Based Overview of Economic Viability, Environmental Impact, and Social Equity. Sustainability, 15(12), 9760.
[60] Norwegian Institute of Public Health (FHI). Drinking water in Norway. Available at: https://www.fhi.no/en/he/fr/hin/infectious-diseases/drinking-water-in-Norway/
[61] Improved quality and access to drinking water for all Europeans - Environment

on the energy used since it minimizes the environmental impact from transport. Besides, it has a quality system that ensures a high-quality cleaning.

Nordic Ecolabelling requires that, if all the products used for the general cleaning are ecolabelled certified. This is to ensure the use of products among the best in terms of environmental profile, where the whole life cycle of the product is considered, and strict requirements are set concerning the environment and health effects of the constituent substances. The environmental requirements include strict requirements as to the content of environmentally harmful substances and substances not readily degradable in aquatic environments.

The overview of all the chemical products used by the company is demanded to guarantee that there is control over the products used and to ensure that products that do not meet Nordic Ecolabelling’s requirements are not used.

Background to O25 Air fresheners

Nordic Swan Ecolabelling aims to minimise involuntary exposure to fragrance substances. Within the hotel and venue sector, it is common practice to use fragrance diffusers that disperse scents in areas such as reception and lobby spaces. In the longer term, Nordic Swan Ecolabelling will evaluate the use of such products and consider prohibiting the use of such scent-diffusing systems. However, in this first generation of the Nordic Swan criteria for venues, the focus is on restricting the use of fragrance substances with hazardous properties.

Many perfumes contain substances that have negative effects on human health. To reduce the risk of individuals from being exposed to these perfumes involuntarily, Nordic Ecolabelling requires that air fresheners may not be classified as hazardous under the CLP Regulation. E. g. fragrance products classified with H400 (Hazardous to the aquatic environment), H334 (May cause allergy or asthma symptoms or breathing difficulties if inhaled), H317 (May cause an allergic skin reaction), or fragrance products labelled with EUH208 ("Contains [name of sensitising substance]. May produce an allergic reaction") are not permitted. This promotes a better indoor environment for guests and staff and supports the broader aim of reducing unnecessary exposure to potentially harmful chemicals.

Background to O26 ECA water, Ozone water and other disinfection

The use of disinfectant and alternatives to chemical disinfectant for ordinary cleaning, as well as “chemical-free cleaning" has also increased in recent years. The use of disinfectants in areas where there is no real need for disinfection can contribute to the development of resistance in microorganisms. Nordic Ecolabelling therefore does not allow the use of disinfectants in ordinary cleaning at Nordic Swan Ecolabelled venues.

New products have appeared on the market and among the alternatives to “chemical-free cleaning" and chemical disinfectants are ozone water and electrochemically activated water (ECA water). Ozone water is produced by adding ozone to water. Ozone itself is a toxic gas and dangerous to humans even at low concentrations. According to the 23rd ATP (Adaptation to Technical Progress) to the CLP Regulation1Ox. Gas 1 H270 may cause or intensify fire, oxidizer, Carc. 2 H351 suspected of causing cancer, Muta. 2 H341 Suspected

of causing genetic defects, Acute Tox 2 H330 fatal if inhaled, STOT SE 2 H370 causes damage to organs (nervous system). The new classification will enter into force on 1st February 2027. Nordic Swan Ecolabelling has decided to ban the use of ozone water, due to this classification.

Electrochemically activated water (ECA water) is often marketed as harmless and consists only of water and salt. This is not correct. The product is produced at the user site by sending electricity through salted water, which causes the formation of hypochlorite and hypochlorous acid. Hypochlorite and other reactive chlorine compounds are ingredients used in disinfectants and antibacterial products. The ingredients can form organic chlorine compounds, which are harmful to the user. Nordic Ecolabelling therefore does not allow the use of ECA water in ordinary cleaning at Nordic Swan Ecolabelled venues.

3.7 Waste and resource efficiency

Background to O27 Waste reduction and sorting

Operation of a venue generates a lot of waste from guests, food and beverage services, conferences, and daily operations. A large share of this waste consists of valuable materials that can be reused or recycled if they are correctly sorted at source. Nordic Ecolabelling sets strict requirements for the availability of waste sorting, and the aim is to encourage correct sorting of the fractions that are generated. By facilitating waste reduction and sorting throughout the venue, the requirement contributes to increased material recovery, reduced residual waste, improved resource efficiency, and supports the transition towards a more circular economy.

Providing clear and accessible waste-sorting solutions for both guests and staff increases the collection of recyclable materials and food waste, resulting in higher recycling rates and reduced consumption of virgin resources. Effective sorting of food waste also enables biological treatment, such as biogas production and nutrient recovery, while reducing unnecessary contamination of other waste fractions. Guests often generate waste in public areas, meeting rooms, and food service areas. Therefore, visible and user-friendly sorting systems are essential to achieve high sorting rates and ensure that packaging, food waste, paper, deposit containers, and other relevant fractions are handled correctly. Close cooperation between the venue and food and beverage service providers is particularly important to ensure that takeaway packaging is included in the waste management system and directed to the appropriate waste streams.

There are considerable national, and regional differences in the fractions that the different waste management contractors accept.

Background to O28 Food waste

By food waste we mean edible food waste, covering all food that are produced for human consumption, but are either discarded or removed from the food chain for purposes other

than human food, from the point when animals and plants are slaughtered or harvested.[62] Eatable food waste may arise due to factors such as incorrect storage, incorrect preparation, overproduction, or waste at serving or on the plate.

Inedible food waste is food waste that is not fit human consumption, such as bone remnants, shells, peelings, cores, etc.

Food waste as a general term may cover both eatable and non-eatable food, but in this context the main focus is to prevent edible food waste.

Food waste that is fit for human consumption is a significant problem all over the world, with around a third of all the food produced ending up in the bin.[63] Food waste presents a challenge to the climate and the environment, commercial profitability and social ethics. Food waste has moved further into the spotlight in recent years, and relevance and potential are high, with medium steerability, all depending on the type of food being served.

Food waste is ethically indefensible, bad for the environment and makes little financial sense for business. The aim of reducing food waste is incorporated in the UN Sustainable Development Goals (SDG), with Goal 12.3 expressing a target to halve food waste per person by 2030. All the Nordic countries are committed to this target. Food waste is already a priority theme in the food and beverage service industry. Nordic Ecolabelling therefore requires a food waste reduction policy.

The potential for reducing food waste in the food and beverage service sector is high, as a significant share of waste arises from planning, purchasing, portioning, storage and serving practices that can be actively influenced by the venue. Steerability is considered medium, as the reduction potential depends on the type of food service (e.g. restaurants, food booth, buffets versus à-la-carte etc.), but effective planning and routines, monitoring and staff awareness can significantly reduce avoidable food waste in most operations.

Regular evaluation is essential to ensure that food waste prevention measures remain effective over time. Annual review of results and revision of the policy when needed helps identify improvement opportunities, maintain focus on prevention efforts, and adapt measures to changing operations and guest behavior. This supports continuous reductions in food waste and the associated environmental impacts from food production, transport, and disposal.

Background to O29 Ban on single-use portion packaging

The production, transportation, and disposal of single-use portion packaging require raw materials, energy, and generate waste. Individual portions of products such as butter, jam, milk, sugar, ketchup, and condiments typically use significantly more packaging material per serving than bulk dispensing solutions. Replacing portion packaging with reusable or bulk-serving systems can therefore reduce packaging consumption and the amount of waste generated. The requirement supports the waste hierarchy by focusing on waste prevention

[62] Industry agreement on reducing food waste between the authorities and the food industry in Norway: https://www.regjeringen.no/contentassets/1c911e254aa0470692bc311789a8f1cd/matsvinnavtale.pdf
[63] Food and Agriculture Organization of the United Nations, FOA: http://www.fao.org/savefood/resources/keyfindings/en/

rather than waste management and recycling. By reducing the use of single-use portion packaging, the venue can decrease its consumption of packaging materials and contribute to a more resource-efficient and circular use of materials.

Single portion-sized and small food packages may also contribute to food waste. Venues with restaurants and kiosks have good alternatives to single-use portion packaging in serving situations, and Nordic Swan Ecolabelling therefore prohibits their use. The ban is in line with the objectives of the recently published Packaging and Packaging Waste Regulation (PPWR)[64] and preparing actors for future legislation. According to the Article 25 in the PPWR, single use plastic packaging for condiments, preserves, sauces, coffee creamer, sugar in HORECA sector shall be restricted from January 2030 (Annex V).

An exemption is made for portion packaging of milk and cream where the venue can document that bulk serving is not compatible with food safety requirements, or other documented hygiene risks. For future criteria generations, we will consider removing this exemption.

Coffee capsules: Nordic Ecolabelling has assessed the use of coffee capsules in restaurants, food services, conference facilities and venues as a part of an overall evaluation of environmental impact, evolving EU regulations, and Nordic Swan Ecolabel principles. Based on this assessment, coffee capsules are not permitted for use in these settings.

The cultivation and production of coffee have a significant impact on the environment and nature. Coffee is ranked as number five on the list of the most climate-impacting raw materials in our food system per kilograms, following products such as beef, chocolate, and lamb. It is also ranked as number six among raw materials that require the most farmland.[65] In addition, coffee production is one of the leading (7–8) drivers of deforestation worldwide[66], and is therefore regulated by the EU deforestation regulation.[67] While this may suggest a need to reduce coffee consumption overall, Nordic Ecolabelling considers such requirements difficult to implement due to limited controllability, especially in the Nordic countries, which are among the world's largest coffee consumers. However, measures can be taken to promote a shift towards more sustainable coffee, and third-party certification of raw materials and organic farming[68] will therefore play an important role in documenting more sustainable production.

There is variation in the amount of coffee, in grams, used across different machines, including both capsule machines and fully automatic machines. The amount of coffee used to brew a single cup varies depending on the type of beverage selected, the machine system, the capsule manufacturer, and the settings of fully automatic machines. In some cases, users may also adjust these settings themselves, resulting in low controllability.

[64] Regulation - EU - 2025/40 - EN - EUR-Lex: https://eur-lex.europa.eu/eli/reg/2025/40/oj/eng
[65] PLATFORM ON SUSTAINABLE FINANCE: TECHNICAL WORKING GROUP PART B – Annex: Technical Screening Criteria, March 2022
[66] Wedeux B, Schulmeister-Oldenhove A (2021): STEPPING UP? THE CONTINUING IMPACT OF EU CONSUMPTION ON NATURE WORLDWIDE
[67] https://green-business.ec.europa.eu/deforestation-regulation-implementation_en
[68] 2 Eyhorn F, Muller A, Reganold JP, Frison E, Herren HR, Luttikholt L, Mueller A, Sanders J, Scialabba NEH, Seufert V, Smith P (2019) Sustainability in global agriculture driven by organic farming. Nature Sustainability 2:253–255. https://doi.org/10.1038/s41893-019-0266-6

Life cycle assessments (LCAs) from a producer shows that capsule-based systems can have a relatively low climate impact, as the capsules included in the studies contain a reduced dose of coffee compared to fully automatic machines.[69,70] These analysis covers a single capsule supplier and, as mentioned earlier, there is a variation in coffee dose between machines. Also, available LCAs do not fully capture the broader environmental considerations. Nordic Ecolabelling's assessment therefore also considers a more general principle of reducing disposable packaging and acknowledges that the choice of machine also can have an impact on the flexibility in the selection of coffee beans, for example, the opportunity to choose certified coffee.

Packaging legislation[71] within the EU and the Nordic countries is guided by a fundamental objective: to prevent waste generation and reduce the use of disposable products wherever possible. Single-serve coffee capsules are explicitly treated as packaging under the regulation and are designed to be used once per beverage. This functional single-use design poses challenges in relation to the preventive principles of packaging legislation. In professional, high-volume environments such as restaurants and conference facilities, capsule systems also risk encouraging unnecessary consumption of packaging per serving, especially when compared to bulk solutions.

A key principle of the Nordic Swan Ecolabel is to promote efficient resource use and material recycling.[72] Coffee capsules are often made of aluminium, plastic, or composite materials[73], and despite the existence of take-back or recycling schemes, actual collection and recycling rates remain limited in practice.[74] This creates a risk that capsules are treated as residual waste, which is inconsistent with circular economy objectives.

For restaurants, food services, conference facilities and venues, there are already well-functioning and environmentally preferable alternatives to capsule systems, such as professional machines using whole coffee beans or ground coffee in bulk. These solutions are well suited for high-volume use and offer greater control over both resource efficiency and waste management. If we only look at the packaging and not at the environmental impact from the coffee beans themselves compared to capsule-based systems, these solutions significantly reduce packaging per cup.[74]

In addition, maintaining flexibility in coffee delivery solutions is important, particularly in view of future Nordic Ecolabelling requirements, where e.g. the use of certified coffee will be introduced. Bean-based systems are better adapted to such requirements, as they allow easier substitution without relying on system-specific capsule formats.

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[69] Nespresso (2025). Life cycle assessment of a cup of coffee made from a Nespresso Professional capsule compared with other coffee systems (France).
Executive summary. Study conducted by Quantis for Nestlé Nespresso

[70] Nespresso (2019). Comparative life cycle assessment of coffee systems – Original (B2C), Switzerland. Executive summary, Quantis

[71] EU Packaging and Packaging Waste Regulation: Regulation - EU - 2025/40 - EN - PPWR - EUR-Lex

[72] Nordic Swan Ecolabel. How the Nordic Swan Ecolabel contributes to a circular economy. https://www.svanemaerket.dk/en/business/about-nordic-swan-ecolabel/circular-economy

[73] Nespresso. FAQ – What are the capsules made of? https://www.contact.nespresso.com/faq-3/czp/en

[74] Moresi, M., & Cimini, A. (2025). Streamlined life cycle assessment of packaging waste in coffee preparation and consumption. Italian Journal of Food Science, 37(4), 436-477. https://doi.org/10.15586/ijfs.v37i4.3256

As there is clear potential to reduce the use of coffee capsules by switching to bean-based or bulk coffee solutions, and these are well suited for high-volume use and significantly reduce packaging waste, Nordic Ecolabelling excludes coffee capsules in hotel, restaurants, food services, conference facilities and venues.

Background to O30 Reusable tableware

The aim of the requirement is to reduce the consumption of disposable items and save resources as disposable items are often unnecessary, and often only used a few minutes. The conference industry has made significant progress in reducing the use of disposable service items. This shift is not only positive for the environment but also economically beneficial. However, some venues still rely on disposable products, some because of the investment cost, and in part due to old habits. To address this, Nordic Ecolabelling aims to establish a mandatory requirement that ensures no ecolabelled venues use disposable items unnecessarily.

Venues with services with seating, where guests don't take away the food and beverages have good alternatives to the use of disposable items in serving situations[75], and Nordic Ecolabelling therefore requires all tableware to be reusable in this context where the venue host less than 500 guests.

Background to O31 Serving solutions for takeaway

Nordic Ecolabelling wishes to promote use of reusables in serving of beverages and food for takeaway because reusable systems often show environmental benefits over single-use systems.[76] Environmental impact of reusables is mainly related to number of rotations, transport, production and end-of life.[77] Reusables are currently evolving on the market, due to the reuse and refill obligations set in the recently published Packaging and Packaging Waste Regulation (PPWR). By setting requirements for reusables, Nordic Ecolabelling prepares licensees for future legislation.

However, the use of reusables cups is not the best option for every venue, due to the limited number of market players who distribute and wash reusables. Logistical challenges may arise, and the environmental benefits diminish with increased transport distances. Life-cycle analysis comparing single-use contra multiple use is not always unambiguous.[78] Nordic Ecolabelling therefore permits use of disposable items made of selected raw materials. Hence, Nordic Ecolabelling allows the use of rPET when serving beverages, bio-based

[75] Sinkko, T., Amadei, A., Venturelli, S., Ardente, F. 2024; Exploring the environmental performance of alternative food packaging products in the European Union, Life cycle impacts of single-use and multiple-use packaging JRC136771_01.pdf
[76] European Commission: Directorate-General for Environment, Gionfra, S., Pollitt, H., Stenning, J., Fazekas, D. et al., *Links between production, the environment and environmental policy*, Publications Office,
[77] Resuable vs single-use packaging – A review of environmental impacts" Coelho M. P, et al 2020. Reloop Platform & Zero Waste. Europe.zwe_reloop_report_reusable-vs-single-use-packaging-a-review-of-environmental-impact_en.pdf.pdf_v2.pdf
[78] Sinkko, T., Amadei, A., Venturelli, S., Ardente, F. 2024; Exploring the environmental performance of alternative food packaging products in the European Union, Life cycle impacts of single-use and multiple-use packaging JRC136771_01.pdf

plastic that can be recycled in current recycling systems, Nordic Swan Ecolabelled cups and bottles/cans in deposit return systems.

PET is made from raw materials like oil and natural gas, which are non-renewable resources. rPET is produced by recycling PET products and reduces the need for new raw materials. The production of rPET generally requires less energy compared to producing new PET from raw materials.[79] rPET products are products made wholly or partly from recycled polyethylene terephthalate (rPET) rather than virgin (newly produced) PET plastic. For products used as serving solutions (trays, cups, salad bowls, lids, etc.), the levels of 30-50% rPET is quite common, 50-80% rPET is increasingly common, and 100% rPET are available for many clear trays, bowls, and cold-drink cups, although not all can achieve this, depending on product type.

Products made of bio-based plastics that can be recycled in current recycling systems in Nordics are permitted. Bioplastics like PLA, which can be compostable or degradable, cannot always be recycled with current recycling systems. EN 13432 ensures that packaging products can break down under industrial composting conditions. Therefore, composting facilities must have controlled temperature, humidity, and air supply to ensure effective composting of these materials. PLA is allowed to use if it is broken down under industrial composting conditions, and if the venue have an agreement with a partner to reuse the compost for soil improvement. This is required because in some cases PLA causes issues with existing recycling processes degrading the quality of the recycled plastic. Most biogas facilities do not want bioplastics in their systems because they cause problems and end up being sorted out of the process as reject. There are a few industrial compost facilities that can handle these products, but not enough to cover the Nordic market. PLA can be recycled, but only through specialized processes, and there are some challenges associated with it. So, to be allowed to use in ecolabelled venues it alternatively must be documented that it can be recycled in a closed loop.[80]

For both bio-based and compostable packaging, requirements are set in the PPWR. Commission will study technical and environmental performance of bio-based plastics in the future (Article 8). For compostable packaging there are principles and compostable is restricted to certain product types such as tea bags etc. (Article 9). According to Article 9, the use of packaging from biodegradable materials shall be designed for material recycling in accordance with Article 6, without affecting the recyclability of other waste streams, by 12 February 2028. Nordic Ecolabelling is following delegated acts in the PPWR and reserve the right to change the requirement for PLA when delegated acts are validated. An appropriate transition period would be granted.

When serving food, use of reusable tableware, Nordic Swan Ecolabelled products, food containers made of rPET or bio-based plastic that can be recycled in current recycling systems, and tableware made from renewable sources such as paper, cardboard, bagasse and palm leaves etc. is allowed. There are many suitable products available on the market for serving food made of renewable materials.

[79] Understanding the Differences Between PET& rPET Plastic
[80] Is PLA Actually Recyclable? - greenprint

The end-of-life management of disposable paper- and fibre-based food service products depends on local waste management infrastructure and varies across the Nordic countries. E. g. in Finland, Norway, and Sweden paper products including any coatings or barrier layers are generally accepted in paper and cardboard recycling streams when empty and not heavily contaminated, and the paper fibres can be recovered during the recycling process.[81,82] In contrast, some Danish municipalities require disposable paper cups with plastic linings to be sorted as residual waste[83] due to challenges related to sorting and recycling mixed-material products. As a result, the environmental benefits associated with recycling disposable paper products depend on the availability and effectiveness of local collection and recycling systems.

The end-of-life management of renewable fibre-based food service products, such as bagasse and palm leaf products, depends on local waste management infrastructure and the design of the product, including any coatings or barrier layers. As a result, these products are not always suitable for material recycling and shall often be managed as residual waste. Their primary environmental benefit lies in the use of renewable and bio-based by-products, such as bagasse from sugar production, which utilize existing resources and can reduce the use of virgin fossil-based materials. Compared with conventional food service products made from virgin fossil-based plastics, these products may also contribute to reducing the demand for non-renewable raw materials and increasing the use of renewable resources. The venue shall have routines for ensuring a collection system, securing collection, reuse and recycling of all the different takeaway packaging materials.

There are several exceptions to the requirement to make it practically feasible. Lids used on prepacked food and beverages, e.g. a salad bowl, are exempted to make the content visible to the customers. Also, small cups under 25 ml since the selection of rPET products are limited in this size. Plastic may also be used in cardboard/paper products as a laminate or plastic windows, for example in a baguette bag as a film. In such cases the plastic will still be sorted and sent for incineration, as the situation is today. Products with plastic windows are, however, relevant for use where the food should be visible.

Single-use plastic plates, single-use plastic cutlery, plastic straws, plastic stirrers, plastic balloon sticks, cups and containers for food and drinks made of expanded polystyrene (EPS), all products made of oxo-degradable plastic are banned due to EU rules on single-use plastics[84], and are therefore not mentioned in the requirement. The EU Directive on the reduction of the impact of certain plastic products on the environment entered into force on 3 July 2021, and the requirement concerning cutlery, drinking straws, cocktail sticks and toothpicks in plastic is governed by the directive (Article 5, part B of the Annex).

Recycled polypropylene (rPP) is currently not included as an approved material in these criteria. As regulatory frameworks continue to evolve and food-contact recycling processes for rPP are still under development and assessment, Nordic Swan Ecolabelling will monitor the progress in this area and consider the inclusion of food-grade rPP in future revisions.

[81] Disposable containers, carton - HSY
[82] Sortere | Den nasjonale guiden til kildesortering
[83] Hvordan sorteres Engangskop eller -krus (pap)
[84] EU restrictions on certain single-use plastics - European Commission

This will be evaluated when food-grade rPP is more mature, established, and broadly available across relevant markets.

Background to O32 Decorations, giveaways and confetti

Nordic Ecolabelling requires a strict routine to ensure that its own events are planned and executed in a way that minimizes waste from decorations, giveaways and confetti. This is because single use products and disposable items are used for a very short period of time, and production of these items consumes valuable resources and energy, exacerbating their environmental footprint. Decorations that must be reused or upcycled includes floral arrangements (besides cut flowers), tablecloths, decorative pieces, LED candles and furniture. Other decorations must be reused, upcycled or recycled.

Confetti are nearly impossible to clean up completely. This may result in confetti ending up in waterways, where it can be ingested by marine life. To reduce the environmental impact, it is important to consider more sustainable alternatives than plastics and metal. Biodegradable confetti made from materials like paper or dried leaves offers a festive option without the environmental harm that metal and plastics do.[85] The Nordics are moving steadily toward reducing or phasing out environmentally harmful confetti, especially for outdoor events.

Background to O33 Repair and reuse

Venues such as museums, theatres, and exhibition halls often use large quantities of materials for temporary exhibitions, sets, displays, decorations, and installations. These materials have environmental impacts related to the extraction of raw materials, manufacturing, transportation, and end-of-life treatment. By extending the lifetime of materials and components through reuse, repair, refurbishment, and upcycling, the need for new materials can be reduced.

Promoting repair and reuse is important for responsible venues that construct scenery. Repair and reuse contribute to resource conservation by extending the lifespan of products and materials. This helps reduce the demand for new resources, promoting a more sustainable and circular economy. Encouraging to repair and reuse items helps minimize waste generation. It redirects items away from incineration or landfills, reducing the environmental impact associated with waste disposal. Further, repairing, and reusing items result in lower environmental impact compared to the production of new goods. Engaging in repair and reuse practices can lead to a mindset shift encouraging to be more mindful of consumption habits. It contributes to an educational aspect of sustainable living. There is great potential to increase repair and reuse in many types of venue industries, especially within theatres[86], museums and exhibition halls. Repair at a workspace and reuse of own materials are the most widespread, but there is still potential for more. Offer used materials are less widespread. Some have a few agreements on selected items. Others are more random. The agreements are often offered through networks, Facebook groups, personal connections etc. Some industry organizations are working towards shared industry physical

[85] Balloons and Confetti: Hidden Threats to Nature
[86] Theatre Green Book. (n.d.). Theatre Green Book: An industry-wide initiative to work more sustainably in response to the climate crisis. Retrieved September 2, 2026, from: Theatre Green Book|

spaces, so more venues can both offer, buy or receive. In general, there is an increased focus on this in many of the venue industries.

To promote the adoption of such incentives, the Nordic Swan Ecolabel has incorporated specific measures that facilitate making environmentally responsible choices.

3.8 Biodiversity

Background to O34 Biodiversity impact on outdoor areas

Biodiversity deteriorates rapidly, and changes in land use result in limited habitats, overexploitation of plants and animals, climate change, pollution and foreign, invasive species.[87] The UN's Sustainable Development Goal 15.5 deals specifically with biological diversity and states that the world must reduce the deterioration of habitats, stop the loss of biodiversity, and prevent the extinction of endangered species.[88]

While both pesticides and herbicides are used to manage unwanted organisms, pesticides target a broader range of pests, including insects (insecticides), rodents (rodenticides), and fungi (fungicides), while herbicides specifically target unwanted plants or weeds.[89,90,91] Historically, several toxic agents have been used, but the industry has developed, and herbicides now degrade more quickly and do not have long-term effects on the environment. Nevertheless, several herbicides and pesticides can have negative effects on the environment, and it is unclear how their use over time will affect different ecosystems. Nordic Ecolabelling therefore prohibits the use of herbicides since weeds can be easily removed mechanically without the use of chemicals.

Foreign invasive species are one of the five biggest causes of biodiversity loss.[92] Nordic Ecolabelling therefore wants these species to be removed, and if they return, they must be removed again. In this way, the species are controlled. Removing these species in favour of local species is good for biodiversity. Objectives to prevent the spread and removal of invasive foreign species are found both in the UN's Sustainable Development Goals and under the UN Convention on Biological Diversity. These are plant and animal species that can change the living conditions of species that are found naturally in one place or displace the local species. They can crossbreed with local species, and they can carry diseases. Many alien species of trees and ornamental plants have been imported for horticulture, and have since spread with the wind, with animals or via garden waste. The species that are most at risk of spreading and damaging biodiversity are usually banned from being imported and traded today but are still found in many gardens and parks. It is not illegal to keep them, but you have a duty to prevent them from spreading. The way that this is followed up varies greatly.

[87] Biodiversity — European Environment Agency (europa.eu)
[88] Goal 15 | Department of Economic and Social Affairs (un.org)
[89] Förordning - 528/2012 - EN - EUR-Lex (europa.eu)
[90] CCOHS: Pesticides - General
[91] Chemical safety: Pesticides (who.int)
[92] Biodiversity: new IPBES report finds invasive alien species a growing and costly threat worldwide - European Commission (europa.eu)

Features of high natural value, such as old trees and watercourses, should be preserved and maintained. In some cases, they are mapped by the municipality because they are protected by law. This applies, for example, to old oaks. Nevertheless, the degree of mapping varies between municipalities. There are also features of high value that are not legally protected, including other large trees, such as beech and birch. Nordic Ecolabelling wants the building operator to take responsibility and ensure that trees that are over 50 years old and natural watercourses are protected as far as possible.

3.9 Purchase of ecolabelled products and services

Background to O35 Purchase of ecolabelled products

All copy paper, toilet paper, kitchen rolls and paper towels, used at the venue shall be ecolabelled, as these have a lower environmental impact compared with non-ecolabelled purchases.[93] Nordic Ecolabelling's environmental requirements for paper, including tissue paper, napkins and kitchen towels, cover everything from forestry and the choice of raw materials to low energy consumption and low carbon emissions, emissions to air and water and control of the use of chemicals and eutrophying and acidifying substances such as sulphur and nitrogen oxides. Labelling only with the PEFC or FSC logo is not sufficient, however, as these labels only cover the forest raw material. Paper labelled with the Nordic Swan Ecolabel, or the EU Ecolabel ensures that, as well as the forest raw material being sustainable, the manufacturing process has low emissions to air and water. It is manufactured with efficient energy use and a limited amount of chemicals. "Tissue paper" in this requirement includes toilet paper, kitchen rolls and paper towels. In Finland ecolabelled towel rolls are commonly used instead of paper towels.

Hand soap and hand detergents are used in large quantities, which means the venue effectively reduces the release of unwanted chemicals into the sewage system by using ecolabelled hand soap. Ecolabelled hand soaps meet strict requirements related to both environmental and health considerations, including limits on allergenic and bioaccumulative substances. Since there is a wide range of suitable products available on the market, the use of ecolabelled hand soap is required.

Background to O36 Measures to increase ecolabelled purchasing

Nordic Ecolabelling wants to encourage good environmental practices and purchases of ecolabelled products. Venues are responsible for procuring a wide range of products in both large and small quantities. Choosing ecolabelled products is therefore highly impactful: the sheer volume and variety of these purchases mean that their overall environmental significance becomes substantial. In combination, these choices contribute to reducing pressure on the environment and promoting more sustainable resource use, as ecolabelled products and services have documented a lower environmental impact compared to non-ecolabelled products and services.[94]

[93] https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel/about-eu-ecolabel_en

[94] https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel/about-eu-ecolabel_en

As procurement represents a large share of a venue's indirect environmental impact, increasing demand for ecolabelled products and services can also help drive market transformation by encouraging suppliers to offer more sustainable solutions. The requirement therefore has environmental benefits both through direct reductions in the venue's environmental footprint and through its influence on broader market development.

4 Environmental impact of venues and conference facilities

The relevant environmental impacts found in the life cycle of venues and conference facilities are set out in a MECO scheme, see Table 6. A MECO describes the key areas that have impact on the environment and health throughout the life cycle of the product – including consumption of materials/resources (M), energy (E), chemicals (C) and other impact areas (O).

Nordic Ecolabelling sets requirements concerning the topics and processes in the life cycle that have a high environmental impact – also called hotspots. Based on the MECO analysis, an RPS tool is used to identify where ecolabelling can have the greatest effect. R represents the environmental relevance. P is the potential to reduce the environmental impact, and S is the steerability on how compliance with a requirement can be documented and followed up. The criteria contain requirements in those areas in the life cycle that have been found to have high RPS, since there is potential to achieve positive environmental gains.

Table 2 Venue RPS

Overall priority	Area	Comments
HIGH	Energy use and CO_2 emissions from operation and maintenance (other than kitchen) R: high P: high S: medium overall prio: high	See Energy consumption related to the operation of building Table 3-Table 5 for a more detailed RPS analysis for energy and CO_2 emissions. Relevance: Operation and maintenance of the venue include heating, refrigeration, hot water, ventilation, lighting/sound systems for theatre and shows, and so on. Energy use and CO_2 emissions are high, and increasing due to energy intensive events held at the venue. Also, if the venue for example is used for ice sports, the energy demand of freezing the ice is big. Same go for open stadiums, if the audience stand or grass area is heated during cold weather. Having a building which uses less energy or is operated in an optimal way ensures a reduced environmental impact. The energy labelling regulations also apply to venues. Potential to decrease the environmental impact is also considered high. Usual measures to lower the energy use can be used also on venues (LED and automatic lightning, energy reducing renovations, etc.). A literature screening shows that a lot of consideration can be made in design and maintenance to lower the environmental burden of large stadiums.[95] Steerability of energy use and CO_2 impact is medium to high, depending on the type of venue and the venue operator's possibility to lower the impact. If the venue is old or owned by another party, the operator can have small possibilities to lower the energy use and CO_2 emissions, unless major renovations are performed. Potential and steerability in different types of venues: Here some examples: Conference centres: Information is included in the background for NSE conferences. Theatres, culture and opera houses: The venue can invest in energy effective equipment

[95] https://www.mdpi.com/2255132

		for audio playback, lighting, streaming etc. Also, there are energy-efficient solutions for events with high energy demands, such as during a stage show. Ice rink arenas: Energy-efficient refrigeration systems can be used for ice rinks. Upgrading to more efficient systems, such as those using CO_2 or ammonia as refrigerants, can also significantly reduce energy consumption. Implementing heat recovery systems can capture waste heat from the refrigeration process and reuse it for heating other parts of the facility, such as locker rooms or spectator areas. It is also of importance, how the ice is cowered if the rink area is temporarily used for other kind of events.[96,97,98] Football arenas: To keep the grass green during cold periods, can undersoil heating systems be used; these systems use heated water circulated through pipes beneath the grass. They are more energy-efficient than electric heating systems because they operate at lower temperatures and can be integrated with renewable energy sources like heat pumps. Lawn mowers can be electric, which lower the CO_2 emissions. The grass can also be replaced with artificial grass - but this can lead to environmental burden shift.[99] Potential and steerability are low in protected buildings.
	Food (venue restaurants) R: high P: high S: medium-low overall prio: high	The RPS of food is documented in NSE criteria for restaurants. Here a short summary of R and P: Relevance: The environmental burden of food is considerable and well documented. For example, more red meat in the diet gives bigger environmental impact. Potential: Ecological food and food based on vegetarian ingredients has a smaller environmental impact than meat and, to a lesser extent, fish. Also, aspects as avoidance of bottled water and minimizing food waste are significant. Food waste is described in detail below. Steerability: Steerability is medium, since there are major local and Nordic differences in the availability of for example ecological food. In venues that hosts permanent restaurants, the possibility to influence them is quite low. The restaurants usually have contracts with the venue, and this limits the steerability. To get the restaurants to lower their environmental footprint is a long process, but ecolabelling of venue might over time influence also the restaurants to improvements. There is a possibility to pitch venues to Ecolabel their restaurants, which gives even more environmental benefits.
	Disposables R: high P: high S: medium overall prio: high	Relevance of disposable items is high, and the use of disposables is not in line with circular economy. Disposable items are widely used in venues, and this creates a large amount of waste, naturally depending on the amount of people and their need for food and drinks during the event, so the relevance highly increases with the size of the event. The industry is increasingly focusing on the reuse of scenography. Potential to decrease the use of disposables is high. Some venues can easily use washable cups and cutlery in the dining area, and items can easily be collected for washing up. Reusable drinking cups as pant glass is often a clever solution. Steerability to reduce the use of disposables is considered medium. At some venues there are high possibilities to use no disposables, but on other venues there are more challenges. For example, bottled water causes a lot of waste, which in most events in the Nordics could be avoided by providing easy access to tap water and encouraging visitors to bring their own fillable water bottles. There are, however, local/national rules which might restrict possibilities to bring own bottles to the venue. If disposables cannot be avoided, there is still potential for improvement in using ecolabelled disposables.
	Waste R: high P: high S: medium to high	Relevance of waste is considered to be high, since many guests generate large amounts of waste. This is especially highlighted in venues that use disposable items. The ordinary maintenance of the venue generates a fair amount of waste as well, like other building operations.

[96] How to enhance energy efficiency in arenas and ice rinks | Municipal Climate Change Action Centre
[97] https://kth.diva-portal.org/smash/get/diva2:1829289/FULLTEXT01.pdf
[98] 230519_iihf_sustainable-ice-rink_guide.pdf
[99] Dirty_tackle_The_growing_carbon_footprint_of_football.pdf

	overall prio: high	Potential of reducing the waste is also high, since it is possible to reduce quantities of waste, and on sorting the waste to be recycled. For example, introducing pant system for reusable items can replace disposables. Steerability is medium to high, depending on how well the venue can control the waste generation and sorting.
	Chemicals (other than dishwashing) R: high P: high S: high overall prio: high	Relevance: Please check the NSE criteria for chemicals and cleaning service. The relevance is high, since daily cleaning is one of the major maintenance operations at a venue. Potential: The potential is also set high, since the supply of ecolabelled cleaning products on the market is good. There are also many dosing solutions on the market, with lower chemical consumption as a result. Chemical-free cleaning methods and effective microfiber cloths can also reduce consumption. Steerability: The venues usually have their own cleaning and kitchen services, or they are operated by contractors, so the steerability is high. In best cases, the venue can use an ecolabelled cleaning service or at least use ecolabelled cleaning chemicals. Ice rink arenas - Ice rinks can have harmful chemical impacts due to pollutants from ice resurfacing machines and the use of traditional refrigerants like HFCs, which affect air quality and climate. The steerability is high to medium, as safer alternatives like ammonia and improved ventilation systems can be chosen to mitigate these risks.[100] Switching systems have a cost. Football arenas: - The maintenance of the pitch often requires pesticides[101], or in case artificial grass is used, there can be leaks of microplastic and harmful chemicals.[102,103]
MEDIUM	Water R: medium P: medium S: low/medium overall prio: medium	Relevance: There are variations across different businesses, and therefore the relevance is set to medium due to different type of venues. Potential: The potential is also medium, since water consumption has seen considerable reductions in recent years due to new water-saving technologies. To integrate water-saving fixtures during major renovations can significantly enhance water conservation efforts. Steerability: The steerability to install new water saving fixtures at venues is low, since such installations are more cost-effective and practical when done as part of comprehensive renovation projects[104], and these are seldom done. Ice rink arenas: a typical ice rink uses about 1 million litres of water per year and ice sheet, for resurfacing to maintain the ice quality. By recycling the resurfacing water from the melting pit, the water management of an ice arena can be significantly improved.[105] Football arenas: Using smart irrigation systems with moisture sensors and weather-based controllers can optimize water use for pitch maintenance.
	Chemicals: dishwashing R: high P: medium S: medium overall prio: medium	Relevance and Potential: Dishwashing is usually done only in venues that have permanent restaurants. Large dishwashers have automatic dosing, and most facilities use these. If a big event is held on the venue, the dishwashing capacity might not be sufficient, and disposable products are used. Focus should therefore be set on minimizing the disposables. Steerability: It is easy to choose ecolabelled dishwashing chemicals for the professional kitchen as venues, if reusable cups are used. If disposables are used, the steerability is set to low. Please check for more background in the NSE criteria for dishwasher detergents for professional use (080).
	Food waste R: high P: high to medium	Relevance: Food waste presents a challenge to the climate and the environment, commercial profitability and social ethics. Food waste has moved further into the spotlight in recent years, and relevance is high.

[100] Could Hockey Players Be Exposed to More Than Just Hard Hits? | Pro Hockey News
[101] The unhealthy link between football and pesticides
[102] Health-risk-artificial turf pitches-oct-06
[103] Synthetic Turf — Research — Department of Plant Science
[104] https://www.eea.europa.eu/publications/performance-of-water-utilities-beyond-compliance/download
[105] 230519_iihf_sustainable-ice-rink_guide.pdf

	S: medium overall prio: medium	Potential: the potential to decrease the impact of food in events is high to medium, by for example serving smaller portions with less left-over. Steerability: There are simple ways to reduce food waste within the venue's food services and restaurants. The venue can often predict the amount of food needed based on sold tickets. Also, the portion sizes can be determined by the type of the event held at the venue. Optimizing the portion sizes and the food options are some means to lower the food waste, in some cases as well selling remaining dishes cheaper after hours.
	Transports (visitors) R: high P: medium S: low overall prio: medium	Relevance: Since venues usually host events with a lot of visitors, the demand for visitor transportation is big, which in the worst cases can mean driving with own cars to the venue. Potential: The venue's location is crucial. If public transportation is nearby, visitors are more likely to use it instead of driving. Easy accessibility and bicycle parking can also reduce transportation impact. However, the potential is limited if the venue is far from public transport hubs. Steerability: Transport requirements should be tailored to the size of the venue and its geographical location. Different types of venues must be assessed within their broader context in regard to the steerability to transportation requirements. Some venue can reduce transportation impact by promoting public transport use, offering free public transport with tickets, organizing event buses, and encouraging biking.
LOW	Ecolabelled products / Furniture, merchandises, handouts R: medium P: low S: low overall prio: low	Relevance and Potential: This is described in respective NSE criteria backgrounds. The relevance is medium, since merchandises and handouts seldom are focus on events. There are however many products related to the events, that in theory could get an ecolabel, but the actual possibility to access them is not good. The highest potential to lower the environmental impact is often to avoid merchandises and handouts. Steerability: There could for example be ecolabelled furniture used in the venues. Merchandises as T-shirts, hoodies and tote bags could be ecolabelled - but the actual ecolabelled options in the markets are not that many. Venues can possibly be encouraged to reuse more materials, like nametags etc. Printed paper products that could be easily ecolabelled, but these are nowadays seldom used. Possible sponsors can lower the steerability, if they demand merchandises which does not fulfil environmental criteria.
	Sponsorship R: medium P: low S: low overall prio: low	Relevance: The environmental impact of sponsoring can be considerable. Depending on the sponsoring company's carbon footprint, a sponsorship deal can generate up to 100 kg of CO_2e per sponsored euro.[106] Sports being used as an advertising billboard for polluting businesses that promote goods and services that cause disproportionate harm to the climate and environment. Whether it is fossil fuel companies, car manufacturers, or airlines, high-carbon advertising and sponsorships have become standard at every level of sport -from sponsorship deals with individual athletes, to elite-level international federations and tournaments. Potential: The venue can screen possible sponsors to assess their climate impact. This can be done by robust due diligence tests and screening, setting guiding principles for prospective commercial partners to reduce any risk of partnering with polluters. An easy step can be to screen out highly polluting commercial partners such as oil and gas companies, car manufacturers and airlines. Sustainability has been identified as no. 1 trend in the sponsorship community, according to the European Sponsorship Association[107], who also has drawn up best practice guidelines. Steerability: Many venues (and events held on the venue) are dependent on sponsoring and there are therefore limited possibilities to say "no" to tempting sponsoring offers. A report from put sponsorships above ticket sales as the largest single revenue source for events and forecasted further growth.[108] For the sponsor, a venue provides an opportunity for year-round exposure.[109]

[106] https://www.newweather.org/wp-content/uploads/2024/03/Dirty-Snow-why-we-need-to-drop-polluter-sports-sponsors.pdf
[107] Sustainable Sponsorship – European Sponsorship Association
[108] Events Industry Market Size, Share, Trends | Forecast 2035
[109] The Ultimate Guide to Venue Sponsorship (Insights & Advice)

Additionally, the energy and climate related impacts related to venues can overall be grouped as follows:

- Energy consumption related to the operation of building, e.g. heating, cooling, hot water and ventilation, see details in Table 3.
- Energy consumption related to the activities hosted at the venue; light, sound systems, heating of grass area at stadiums, ice freezing for ice sports etc., see details in Table 4.
- Related services, e.g. transport of people and goods, food etc., see details in Table 5.

Table 3 Energy consumption related to the operation of building

Area and RPS	Related NSE requirements	Evaluation/Comments
Energy performance of the building R = high P = medium/high S = medium Total: medium	Building operation: O8 Energy action plan Hotels O9 Energy consumption O10 Limit values for energy consumption	There is medium RPS for setting energy requirements for the buildings related to the venue. The existing energy performance (EPC) certificate system can most likely be used in many cases. However, some of the building types in the product group definition are not covered by mandatory legislation rules of EPC's. Many building types can however make EPC's on a voluntary basis. Other building types, e.g. ice skating arenas and stadiums will need alternative energy requirements, e.g. energy audits+action plan and process related requirements on the most energy intensive equipment.
Energy measurement R = high P = medium/high S = medium/low Total: medium	Building operation: O9 Energy metering	Making the building owner aware of the actual energy consumption is important. RPS is found to be medium. The requirement from building operation can probably be used directly in many cases. However, in very large buildings, e.g. stadiums, it must be assessed if the detailed level is reasonable.
Ventilation R = high P = medium/high S = medium/high Total: medium	Events: O8 Energy and CO_2-reducing measures for venues (section on demand-controlled ventilation)	Venues will often gather very many people, meaning that the need for ventilation can be intense. Demand control should be required if it is not already standard in the industry. The overall idea in O8 events can be used as a basis for setting the requirement.
Cooling systems R = high P = medium/high S = medium/low Total: medium		Many people close together can result in high needs for cooling. It should be evaluated in more detail during the revision to what extent the buildings in question are using this measure. Both the cooling agents used and the type of demand control used can be considered to set requirements for.

White goods R = low/medium P = low/medium S = medium Total: low/medium	Building operation: O12 Purchasing of white goods	Easy to implement for new purchases but not possible for old white goods. Can have an effect in the long run but limited effect in a short perspective. O12 in building operation can be used as a basis, but it must be assessed if all relevant professional white goods are covered.
Operation optimization R = high P = medium S = low/medium Total: medium	Building operation: O10 Energy efficiency – continuous operation optimization O11 Routines/system for energy savings	Medium RPS is found but the question is if it becomes too detailed in a criteria focusing on venues and not the building itself. The extent of the requirement in building operation should probably be limited significantly to focus on specific hotspots. Alternatively, a requirement can be made that only relates to the most energy consuming activities of the venues. If these are covered by other specific requirement then this can become irrelevant.
Fossil-free energy supply R = high P = medium S = low Total: low/medium	Events O5 Fossil-free energy supply Hotels O8 Fossil fuel	The main issue is venues that have natural gas as their main energy source. Low/medium RPS is found as the venues cannot change energy source until the distribution network is changed. However, the decisions previously taken in the hotel criteria must be taken into account in this case. Based on this, it must be evaluated if properties connected to the natural gas network should be excluded as it is the case in the criteria for hotels.
Lighting management R = medium P = medium S = medium Total: low/medium	New Buildings O4 Lighting management	Outdoor Demand control can be required relatively easily. Medium RPS. Indoor demand control can be more difficult as most areas of a venue are most likely used for activities that require that light can be controlled. Low RPS.
Locally produced electricity R = medium P = low/medium S = low/medium Total: low/medium		RPS is low/medium as it strongly depends on the location and type of venue in question. Often there can be restrictions from the authorities in the cities regarding placement of solar PV. Can only be considered as a point requirement or requirement with other options to choose from. If implemented the production required should be in correspondence with the energy use of the building. The best option is to ask for simulations of this.

Table 4 Energy consumption related to the activities hosted at the venue

Area and RPS	Related NSE requirements	Comments
Light, video and sound systems R = high P = medium S = medium/low Total: medium	Events O7 New purchases	Medium RPS for setting requirements for all new purchases. Existing equipment cannot be controlled. O7 New purchases in Events can be used directly.
Energy devices and equipment (outdoor heaters, open coolers/freezers, disposable batteries) R = high P = medium S = medium Total: medium	Events O6 Energy devices and equipment	Medium RPS for setting requirements. The requirement O6 Energy devices and equipment in Events can be used directly. It restricts heaters, open coolers/freezers and disposable batteries.
Heating of grass areas in stadiums R = high P = medium S = medium Total: medium	IR	Medium RPS for heating of grass in stadiums. If this type of venue is implemented in the criteria then this is a “most have requirement”. Stadiums can be heated by direct working electricity[110] or water pipes where heat can be supplied by district heating, heat pumps etc.[111] In general it seems more environmentally beneficial to heat with water-based system as e.g. district heating or heat pumps can be implemented. However, as the systems are working in the wintertime (where heat pump efficiency is lower) the overall efficiency must be evaluated more in detail before making final conclusions. Restrictions must be considered for the efficiency of the system, choice of technology, heating season and type of energy supply. If the energy system is electricity-based the possibility to require solar PV could be considered. However, as the need for heating is in the winter months the potential is most likely limited.
Cooling/freezing of ice skating arenas R = high P = medium S = medium Total: medium	IR	Medium RPS for ice freezing in ice skating arenas. If this type of venue is implemented in the criteria then this is a “most have requirement”. Refrigerants HFC refrigerants like R404A are being phased out due to their high greenhouse gas potential. Traditional refrigerants such as ammonia (NH_3), which is highly efficient and environmentally friendly (GWP =0). CO_2-based systems (R744), which are gaining popularity due to their low environmental impact ((GWP =0).

[110] https://devi.com/dk/om-devi/case-historier/spillets-succes-begynder-med-banen

[111] https://saltex.eu/da/varmeanlaeg-til-kunstgraesbaner

		HFC refrigerants and similar must as a minimum be excluded. Both Ammonia and CO_2 can be used in effective systems. However, in cold climate CO_2 is typically preferred and 4 out of 5 new ice arenas in Sweden are build using CO_2. The variation in energy consumption is described in a study that shows energy consumption varying from 290 - 1100 kWh/m^2 ice.[112] Two of the best performing ice rinks, Gimo and new Jordal have in common that they are very energy efficient, but also that no new technology has been used. All the subsystems included in thermal energy (dehumidification, ventilation, tap water, cooling system) are put together in a way that makes the excess heat to be utilized to the maximum.[113] There is definitely a potential for setting requirements and thereby ruling out the worst performing arenas, probably by setting a kWh/m^2 threshold limit and setting restrictions on cooling agents. A principal discussion must be taken on to what extent NSE only wishes to label the newest and best performing arenas.

Table 5 Related services

Area and RPS	Related NSE requirements	Comments
Transport and accessibility R = medium P = low S = low Total: low	Events O9 Transportation and accessibility O10 Public transport information	Requirements similar to Events, O9/O10 can in principle be set, but not recommended due to low RPS.
Transport of employees and goods R = medium P = medium S = medium Total: medium	Events O11 Leasing, and purchase of vehicles	The requirement from events can be used directly. Since a venue will most likely have their own cars the RPS is probably higher here than in events in many cases.

[112] https://www.godeidrettsanlegg.no/sites/default/files/bilder/notat%20ishall.pdf
[113] https://www.godeidrettsanlegg.no/sites/default/files/bilder/notat%20ishall.pdf

MECO scheme for Venues and conference facilities

Table 6 MECO analysis for Venues and conference facilities. (This analysis is also based on other MECO analysis for Nordic Swan Ecolabelling criteria; 117 Events, 055 Hotels and other accommodation, and 116 Building operations.)

	Raw material	Building operations and equipment	Operation and maintenance	End of life	Transport
Material	**Food & drinks: Typical serving per person[114]:** - Protein: 170-225 g - Vegetables: 85-115 g - Starch: 115-170 g - Salad: 60-85 g - Bread: 1-2 slices - Dessert: 1 portion - Drinks: 2-3 units. **Construction items per person[115]:** - Aluminium truss etc.: 2-5 kg - Plastics (cups, chairs): 0.1-0.5 kg - PVC banners: 0.05-0.2 kg Modular / re-usable systems cut material demand by 30-45% in case studies. **Other per person[116]:**	See own NSE background for building operations, 116. See also background in NSE Hotel & other accommodation, 055. Football arenas: To keep the grass green during cold periods, can undersoil heating systems be used; these systems use heated water circulated through pipes beneath the grass. They are more energy-efficient than electric heating systems because they operate at lower temperatures and can be integrated with renewable energy sources like heat pumps. Lawn mowers can be electric, which lower the CO_2 emissions. The grass can also be replaced with artificial grass - but this can lead to environmental burden shift.[117] Energy-efficient refrigeration systems can be used for ice rinks. Upgrading to more efficient systems, such as those using CO_2 or ammonia as refrigerants, can also significantly reduce energy consumption. Implementing heat	The use of disposables is not in line with circular economy. Disposable items are widely used in venues, and this creates a large amount of waste, naturally depending on the amount of people and their need for food and drinks during the event, so the relevance highly increases with the size of the event. The industry is increasingly focusing on the reuse of scenography. Consumables (cups, textiles, cutlery) 0.2-0.5 kg per person. Single use scenarios rise to 0.5-1 kg per person.[115,121] There are many products related to the events, that in theory could get an ecolabel, but the actual possibility to	Many guests generate large amounts of waste. This is especially highlighted in venues that offers food, beverages and use disposable items. The ordinary maintenance of the venue generates a fair amount of waste as well, like other building operations. Waste generated per person[122]: - Food 0.1-0.3 kg - Single use items & packaging: 0.3-0.7 kg Residual (unsorted) share: 60-70% at European festivals.	

[114] International Caterers Association (2023) “Standard Portion Guide”.
[115] Reusable-cups & modular-stage LCA (Glastonbury 2020) and similar festival reports.
[116] WRAP (2018) “Environmental Impact of UK Events – Material Flow Baseline”.
[117] New Weather Institute in association with Scientist for Global Responsibility. Dirty_tackle_The_growing_carbon_footprint_of_football.pdf
[121] Holmstedt L. (2012) Way Out West LCA case study.
[122] Green Events Europe (2019) “Waste Streams & Sorting at Festivals”.

	Paper: 0.15 kg (UK festival median).	recovery systems can capture waste heat from the refrigeration process and reuse it for heating other parts of the facility, such as locker rooms or spectator areas. It is also of importance, how the ice is cowered if the rink area is temporarily used for other kind of events.[118,119,120]	access them is not good. The highest potential to lower the environmental impact is often to avoid merchandises and handouts.		
Energy	The environmental burden of food is considerable and well documented. For example, more red meat in the diet gives bigger environmental impact. **Food production intensities (CO_2e)[123]:** - Beef: 48-68 kg - Pork: 4.4-4.6 kg - Poultry: 3.0-4.8 kg - Cheese: 1.6-5.4 kg - Milk 0.6-4.7 kg **Material energies (MJ per kg)[124]:** - Paper: 5-7 MJ kg - Plastics: 70-95 MJ kg	Environmental sustainability in stadium design & Construction. Strong evidence base for design-phase decisions; identifies key gaps to address in refurbishments/new builds.[125] The existing energy performance (EPC) certificate system can most likely be used in many cases. However, some of the building types in the product group definition are not covered by mandatory legislation rules of EPC's. Many building types can however make EPC's on a voluntary basis. Other building types, e.g. ice rink arenas and stadiums will need alternative energy requirements, e.g. energy audits and action plan and process related	Operation and maintenance of the venue include heating, refrigeration, hot water, ventilation, lighting/sound systems for theatre and shows, and so on. Energy use and CO_2 emissions are high, and increasing due to energy intensive events held at the venue. Theatres, culture and opera houses: The venue can invest in energy effective equipment for audio playback, lighting, streaming etc. Also, there are energy-efficient solutions for events with high energy	Plastic incineration: 30 - 40 MJ kg organic waste – low net energy; Electronic waste requires specialised plants.[121,130]	Passenger transport: Flights: 0.12-0.20 kg CO_2 pkm[i]; Cars (single): 0.12-0.18 kg; Train: 0.011-0.04 kg. Venue location & timing dominate travel footprint.[131]

[118] How to enhance energy efficiency in arenas and ice rinks | Municipal Climate Change Action Centre
[119] comparative analysis of modern energy systems for ice rinks
[120] ihf international ice hockey federation iihf guide 2023
[123] Den Store Klimadatabase (2024) – GHG intensities for foods.
[124] Ecoinvent v3.8 – life-cycle inventory for materials & energy.
[125] Environmental Sustainability in Stadium Design and Construction: A Systematic Literature Review
[130] EEA Technical Report 13/2024 "Waste Incineration".
[131] Atescan-Yuksek et al. (2024) "LCA-Based Framework for Impact of Location & Timing" (ResearchGate).

	- Aluminium: 180-250 MJ kg virgin - Textiles: 50-80 MJ kg - Softwood 8-12 MJ kg	requirements on the most energy intensive equipment. Making the building owner aware of the actual energy consumption is important and energy measurement is relevant. LED fixtures & modular stages cut infrastructure electricity up to 50%.[122]	demands, such as during a stage show.[126,127,128] For Light, video and sound systems req. “New purchases” in Events can be used directly. The requirement “Energy devices and equipment” in Events can be used directly. It restricts heaters, open coolers/freezers and disposable batteries. Electricity 2-10 kwh per m^2/day HVAC: 5-15 kWh per 100 guests. Diesel CO_2 factor 2.68 kg l. Virtual / hybrid formats avoid 80-92% of CO_2 relative to onsite conferences.[129]		
Chemicals	Agricultural inputs (fertiliser, pesticides); plastic additives (BPA, phthalates); coatings & inks; flame retardants.[132]	Paint/adhesive VOCs 100-500 g/L within Directive limits.[129]	Dishwashing is usually done only in venues that have permanent restaurants. Large dishwashers have automatic dosing, and most facilities use these. If a big event is held on the venue, the dishwashing capacity might not be sufficient,	Ice rink arenas - Ice rinks can have harmful chemical impacts due to pollutants from ice resurfacing machines and the use of traditional refrigerants like HFCs, which affect air quality	Diesel freight emits NOx & PM; electric fleets cut local pollutants.[121]

[126] IAVM Sustainability – Establish your baseline and annual reporting structure for energy, water, waste, transport, procurement, and social indicators.
[127] Environmentally_sustainable_events_a_critical_review_of_the_literature
[128] sustainable-event-management-best-practices-environmental-impact-and-case-studies
[129] EU VOC Directive 2004/42/EC – solvent emission limits.
[132] Nordic Swan Ecolabel criteria & background documents (2023).

			and disposable products are used. Focus should therefore be set on minimizing the disposables. Daily cleaning is one of the major maintenance operations at a venue. The supply of ecolabelled cleaning products on the market is good. There are also many dosing solutions on the market, with lower chemical consumption as a result. Chemical-free cleaning methods and effective microfiber cloths can also reduce consumption. Cleaning agents (chlorine, phosphates, ethanol). Generator exhaust adds NOx & PM.[140]	and climate. The steerability is high to medium, as safer alternatives like ammonia and improved ventilation systems can be chosen to mitigate these risks.[133] Switching systems have a cost. Football arenas: - The maintenance of the pitch often requires pesticides[134], or in case artificial grass is used, there can be leaks of microplastic and harmful chemicals.[135, 136] PVC incineration releases HCl & dioxins; E waste holds heavy metals, strict sorting needed.[137]	
Other	**Water footprint:** - Beef: 15400 L/kg - Cheese: 5 000 L/kg.[138]	Water: To integrate water-saving fixtures during major renovations can significantly enhance water conservation efforts but such installations are more cost-effective and practical when done	Ice rink arenas: a typical ice rink uses about 1 million litres of water per year and ice sheet, for resurfacing to maintain the ice quality. By recycling the resurfacing water from the melting pit, the water	Poor clean up multiplies litter. Donation & re use schemes half residual waste in case studies.[122]	Traffic congestion & grid load (EV charging). Choice of venue with renewables and public transport options lowers impact.[132]

[133] Could Hockey Players Be Exposed to More Than Just Hard Hits? | Pro Hockey News
[134] The unhealthy link between football and pesticides
[135] Health-risk-artificial turf pitches-oct-06
[136] Synthetic Turf - Research - Department of Plant Science
[137] European Environment Agency “Transport and Environment Report 2024” – CO_2 per p-km
[138] Mekonnen & Hoekstra (2012) “Water Footprint of Farm Animals”.

	Land use change: deforestation for feed & grazing.	as part of comprehensive renovation projects[139], and these are seldom done. Site set up may seal soil & disturb wildlife; fossil machinery adds local emissions.[140]	management of an ice arena can be significantly improved[120] Football arenas: Using smart irrigation systems with moisture sensors and weather-based controllers can optimize water use for pitch maintenance including recycling of rainwater. Light, sound & crowding stress fauna; micro plastics from textiles & disposables.		

[139] https://www.eea.europa.eu/publications/performance-of-water-utilities-beyond-compliance/download
[140] Joule Case (2022) “Energy & Carbon Impact of Outdoor Events”

[i] European Environment Agency “Transport and Environment Report 2024” – CO_2 per p-km