

CHANGE THE COURSE

[For a better
world cup]



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Executive summary

This report represents a collaborative initiative between the Norwegian National Alpine Ski team and KPMG to analyze and minimize the ski teams' environmental impact, motivated by concerns over climate change, athlete welfare and the future of alpine skiing.

Recognizing the substantial greenhouse gas emissions resulting from extensive travel for competitions and training, the project aimed to identify strategies for reducing the carbon footprint of Norway's alpine ski teams and contributing to a more sustainable future for the sport.

The analysis focused primarily on travel emissions due to their significant impact. It highlighted that air travel constituted the largest portion of the teams' carbon emissions, with training trips to the Southern Hemisphere being particularly emission-intensive.

It became evident that meaningful reduction in emissions requires changes beyond the teams' direct control, including modifications to the World Cup calendar and the operational practices of the International Ski and Snowboard Federation (FIS). KPMG and the Alpine National Team have jointly identified a package of various measures that will affect climate emissions, economy, and athlete welfare. These are presented in more detail in this report.

Proposed Measures

Revised World Cup Calendar

To reduce travel emissions, a new calendar proposes starting the season in North America, which would align with pre-season training and minimize transatlantic travel. The calendar suggests clustering competitions geographically to decrease the need for air travel and encourage the use of more sustainable transportation options.

Operational Adjustments by FIS

Recommendations include delaying the season start, establishing a competition calendar in four-year blocks for better predictability, and implementing a transparent selection process for event organizers with an emphasis on environmental considerations.

Athlete Contributions

The report suggests that with FIS's support in restructuring the World Cup calendar, national teams could undertake measures such as rethinking pre-season training locations, limiting unnecessary travel, and prioritizing lower-emission transport options.

The analysis also highlights the importance of addressing athlete safety and overall welfare in the context of reducing emissions, suggesting that a more sustainable approach to organizing the World Cup could contribute to addressing these concerns.

Furthermore, the report acknowledges the need for a broader assessment of emissions, including those from equipment and event organization, and calls for ongoing monitoring and reporting to inform future sustainability efforts.

The collaboration between the Norwegian National Alpine Ski team and KPMG has laid the groundwork for a significant shift towards sustainability in alpine skiing. By adopting the proposed measures, FIS and national teams can lead by example in addressing climate change, ensuring the sport's resilience and sustainability for future generations.

Introduction

This report is the result of a joint effort between the Norwegian National Alpine Ski team and KPMG to understand and reduce the ski teams' climate footprints. We embarked on this project because of our shared passion for alpine skiing and our shared concern for its future and that of the planet as the climate changes.

Alpine skiing is loved by many and is an important part of our culture in Norway. It serves as a source of exercise and joy for people in many countries from elite professional skiers and recreational skiers, to enthusiastic fans.

The starting point for this project was the acknowledgment that Norway's men's and women's alpine ski teams travel a lot for training and competitions, and therefore emit a lot of greenhouse gases and contribute to global warming. In fact, skiing as a sport is paradoxically both dependent on snow, and responsible for large amounts of greenhouse gas emissions that cause climate change and are the reason there is less and less snow available.

Many individual athletes have been uncomfortable with this fact, and the team as a whole is determined to do better and take action to reduce its contribution to global warming. According to a report published in the journal 'Nature' in August 2023, 53% of the 2,234 ski resorts studied in 28 European countries are projected to be at very high risk for snow supply in a 2 °C global warming scenario. To ensure that alpine skiing and its benefits can continue in the future, it is essential that these challenges are faced head on.

Through comprehensive analysis and strategic insights, we aim to highlight the significant steps that can be taken to reduce emissions within the realm of our direct influence, while also identifying the broader structural changes necessary for a more sustainable future in the sport. Our analysis has showed that, while there are some steps the Norwegian teams can independently take to reduce their climate footprints, the largest and most important potential reductions are dependent on structural changes to the World Cup calendar and in the way the International Ski and Snowboard Federation (FIS) operates.

In the pages that follow, we present our findings and recommendations with the hope of sparking a broader dialogue and action within the skiing community and beyond. It is a call to all stakeholders — from athletes and teams to governing bodies and fans — to join forces in a united effort to safeguard the environment and ensure that alpine skiing can continue to thrive in a changing world.

A more sustainable World Cup

FIS Ski's mission is "To be the inspiration and catalyst which drives the appeal of competitive and recreational snowsports in a more sustainable manner". At the same time the Alpine World Cup organized by FIS is responsible for huge amounts of greenhouse gas emissions each year. Other structural concerns also negatively impact the sport's sustainability by harming athletes' physical and mental health, providing an unfair advantage to athletes with lucrative sponsor deals, and leaving national teams from smaller countries in financial difficulties.

The most effective way for FIS to address all of these problems at once is to create a World Cup calendar which creates predictability in income and costs, protects the welfare of athletes and staff, and minimizes greenhouse gas emissions from travelling while making it possible for individual teams and athletes to make their own further remissions reducing decisions.

The calendars proposed below are set up to minimize travel needs, have a higher likelihood of natural snow, promote athlete welfare and staff working conditions, and maintain high public interest in alpine skiing as long as possible throughout the season.

In order to measure emission reductions from the proposed new calendars, KPMG has calculated emissions from both the actual calendar from the 22/23-season and the newly proposed calendar. To be able to sufficiently compare the two calendars, KPMG has created a hypothetical scenario where one athlete travels to all competitions (regardless of them being cancelled) alongside a coach and a service man. Additionally, the athlete only travels by plane, diesel car or transporter (to transport equipment).

KPMG's analysis has shown that the proposed calendars for the men- and women teams would have the potential to make significant reductions to the climate emissions from travelling and transport for the Norwegian national teams. The men's team's emissions could be reduced by as much as 29% of the total travel emissions, per year, while the women's teams emissions could be cut by approximately 14%. Further explanation of methodology of calculations and comments on results can be found in Appendix.

Proposed new calendar: Men's Alpine Ski World Cup



Proposed new calendar: Women's Alpine Ski World Cup



The proposed World Cup calendars begin in North America in late November. This could further allow for combining competitions in North America with the fall training camps in Chile in the future, hence reducing the number of times that athletes, staff and equipment travels across the Atlantic throughout the season. However, these are potential emissions reductions that are dependent on national team decisions, and not included in these calculations. When comparing emissions between the two calendars, it is assumed that the athletes start the WC-season in Oslo.

A noticeable change in the proposed calendar is that all the North American runs take place in the first phase of the season, and the men's teams do not travel across the Atlantic again later in the season (in the 22/23 season this occurred in February).

After the first runs in North America, both the men's and women's teams travel to Europe, where they compete in another geographical cluster. In the proposed calendar, the men's teams travel to the Western Alps leading up to Christmas and the women's teams to the Eastern Alps.

After Christmas, the Classic's Tour kicks off in Austria, for both the men's and women's teams. This tour continues after New Year's until the end of January.

At the end of January, the men's teams would head south for the Southern Alps, and the women's teams would embark on the Western Alps, before there is a break in the calendar for two weeks for the World Championships.

In the middle of March, both teams would head on to the Scandinavia Tour, where there are typically still good snow conditions later in the season. Finally, at the beginning of April the season finale held in Soldeu for both the men's and women's teams. Soldeu is chosen as the example location for the season finale as this was the case for the 22/23-season. For future World Cups, location of the season finale is expected to be rotated between various cities and areas with suitable conditions.

With this calendar, teams would be able to travel to one area and remain there for several weeks, traveling from one competition to the next by car, bus, or train instead of by plane. It would also allow athletes to travel by car, instead of private plane or helicopter, while still allowing for adequate recovery time. This also reduces the travel time for all coaches and support staff, which is especially beneficial for those who handle the athletes' equipment and must often drive many long days in a row.

Specific measures

These calendars are dependent on FIS's implementation of the following measures

MEASURE 01

Holding the World Cup opening in North America in November

Delaying the World Cup opening by three weeks and holding it in North America rather than Sölden would directly reduce the overall greenhouse gas emissions of the World Cup. Implementing this measure would allow for travelling directly from pre-season training in Chile, or Copper Mountain, to the season opening in North America and thereby athletes' total number of flights over the Atlantic. Pre- and early season training camps are responsible for the largest share of the travel emissions from the national teams and are directly associated with preparations for the World Cup. These trips are considered very important by the athletes, allowing them to test their equipment on real snow, and giving access to long, steep runs that are needed for speed training. This measure would allow athletes who are not willing to entirely cancel southern hemisphere training camps to at least limit their trips over the Atlantic to one per season.

This measure is also practical due to the weather conditions at in Europe in October and November. The opening race in Sölden has proven less and less feasible in recent years. A warming climate and worsening weather conditions means much of the snow has been artificial. Three of the last seven races for men in Sölden were cancelled, and the women's opening race was cancelled in the 22/23 season. The other races held in October and November, following the opening in Sölden, have also been plagued in recent years by unstable weather and bad snow conditions, leading to more and more use of energy intense artificial snow and more frequent cancellations.

MEASURE 02

Establish the competition calendar in 4-year blocks, and select event organizers from a pool

Returning to the old system of creating the competition calendar in 4-year blocks does not necessarily result in any calendar improvements and reduced emissions, but it acts as an enabler. 4-year predictability makes it easier and more realistic to adopt several of the measures identified and increases income predictability for event organizers and participating national teams.

Establishing the competition calendars four years at a time will make it easier for organizers who are not allocated a competition in a given year to feel secure in the knowledge that they will be part of the WC in one of the following years. This will allow for more strategic and holistic planning of the competition calendar, where considerations of likely snow cover and weather, greenhouse gas emissions, and the impact on athletes and staff are properly included.

In connection to the selection process of the World Cup calendar, we also propose establishing a pool of pre-qualified WC-event organizers as well as a group of key stakeholders which will participate in the process itself. This group of stakeholders could potentially consist of event organizers, national team representatives, FIS staff and delegates, amongst others.

Implement a transparent calendar setting process, with a list of evaluation criteria for potential organizers

Implementing a transparent calendar setting process, and selecting the annual event organizers from an established pool of pre-qualified actors and venues, will allow for a more holistic approach to organizing the World Cup.

We propose the following aspects to be considered when designing the calendar as a whole, to ensure a good, balanced season which promotes the health and safety of those involved, protects the integrity of the sport, and minimizes environmental impact:

- Total physical load on athletes and adequate recovery time
- Balance in event disciplines
- Limiting the economic burden on national team organisations, in order to avoid disproportionately favoring the more resourceful nations.
- The geographical location of competitions, aiming for having them in clusters to minimize traveling – minimizing emissions and maximizing recovery time.
- Limiting the necessity of athletes having to choose between limiting their environmental impact (driving for many hours) and their recovery between races (taking a private plane or helicopter)

Additionally, the following practical aspects should be disclosed by organizers and considered when choosing locations for the respective seasons:

- An energy-budget which includes the estimated need for additional production of artificial snow.
- The assessment of the possibility for combined events, either men's and women's teams in the same place, or the para-team competing in the days after the women's team to make use of the already prepared runs.
- Location accessibility
- Amenities in the area (hotel beds, training facilities, restaurants, etc)
- Equipment already in the area
- Facilities already in place
- Likelihood of cancellation due to bad weather, and an updated indication on how snow and skiing conditions are impacted by weather changes throughout the winter months.

Finally, FIS should ensure that considerations are made of both the environmental implications and climate risks/impacts related to holding events at specific locations at specific times during the season. These considerations should feed into the decisions made. When establishing the World Cup calendar, avoiding unnecessary environmental impacts (including the climate emissions), should be taken into account. Specific elements that could be considered are:

- The anticipated need for artificial snow, the creation of which uses significant amounts of energy
- Risk of cancellation (weather, snow conditions, climate, etc.)
- Accessibility and expected transport methods
- Machinery and equipment transport needs
- The likelihood that the event will cause significant nature intrusion or ecosystem disruption (i.e. are facilities already in place, or would holding the event require significant additional construction)
- Environmental performance of relevant hotels, food services
- Expected impacts on the local area, where relevant (protected areas or vulnerable eco-systems)

MEASURE 04

Arrange more competitions in geographical clusters

Holding competitions in geographical clusters will reduce the environmental impact of the World Cup season and reduce the necessary travel time for athletes and staff – allowing for more recovery time, improving athletes’ overall experience.

This measure will reduce greenhouse gas emissions in several ways. First, it will reduce the need for athletes and staff to fly from one competition to another, where they are required to travel long distances and still have adequate recovery time. It will also minimize the travelling needs for media workers, volunteers, and FIS staff. Lastly, the necessary transport of athletes’ equipment will be minimized through clustering. At the time of this report, the only available travel data was for the Norwegian Ski Federation’s own travel. Hence, it is not possible to calculate total potential emission reductions from implementing this measure. However, they are expected to be significant.

It should be noted that this measure should not be taken too far. Insights from interviewing Norway’s paralympic team shows that holding too many competitions in the same place over a short

period of time can lead to a lack of variety in the runs, give an unfair advantage to certain athletes, and increase athlete load. Having too many similar competitions can also be experienced as repetitive and boring, resulting in limited interest in the sport. Therefore, it is important to specify that several runs should be held in the same geographical region, but with variety in disciplines and characteristics of the slope.

Additionally, when designing the calendar, FIS should take a cluster approach for the para-teams as well. While this approach involves holding runs closer together geographically for the men’s and women’s teams, it would be slightly different for the para-teams. Rather than going to one place, and staying there for several weeks, their runs should be held across larger geographical areas – while still clustered in the same region to limit flying and travel time – to offer more variability.

MEASURE 05

Move the World Championship to the end of February/beginning of March

Moving the World Championship to February/March will have the dual effect of making it possible to schedule more World Cup events at European locations in February, when weather and snow conditions are favorable, in addition to hopefully maintaining the interest in the sport for a longer period of time, with a season that expands further into the spring.

This measure will open a greater window of flexibility for setting an appropriate World Cup calendar, visiting several key venues in central Europe. It will reduce emissions by reducing the overall need for artificial snow, since more event organizers will be able to avoid dates with bad conditions and be able to host competitions when there is more reliable snow cover.

Having the World Championship at the beginning of March will also likely have a positive impact on interest in alpine skiing and will at least increase the total number of attractive world cup runs that can be held before the World Championships take place.

Consider more combined events and shadowing of World Cup for para-team and E-cup

This assessment has not covered calculations of emissions linked to the individual venues and competitions during the World Cup. Preliminary calculations made in dialogue with the organizers at Kvitfjell nevertheless indicate that the most material sources of emissions at a typical WC-event is travel for crew and organizers, and snow production. More analysis and data is necessary to verify this assumption, but significant emission reductions are likely if the racing calendar included more combined events, synergies and more economies of scale.

To reduce emissions FIS should thus explore options for more combined events for the men's, women's and para-teams. Combined events could result in more efficient resource use and will likely reduce the total greenhouse gas emissions generated by the World Cup, since runs will be used more times once they are prepared. It would likely also limit the total amount of equipment and crew that needs to be transported to the area the events will be held and will, in some cases, reduce the amount of traveling required by team staff between events.

However, arranging combined events is not necessarily simple or even feasible in all cases. There are significant, practical constraints, due to technical requirements and aspects such as available accommodation for athletes, transportation, workload on volunteers,

and slopes withstanding a high level of usage from, for example, all men and women teams. These are very real limitations to the viability of combined WC-events, especially between men's and women's teams, and our recommendation is therefore for FIS and WC organizers to consider arranging an increased number of combined events at locations where this is assessed to be practically possible.

On the other hand, creating World Cup calendars that more systematically ensures that competitions "shadow" each other appears to have significant potential. This is especially the case for the para-teams and the women's teams as well as for the E-cup calendar. Synergies and systematic shadowing would here greatly improve the World Cup quality for para-athletes. Consultations in the development of these recommendations have documented that the athletes experience that events co-organized with (within a week prior to or after) women's events are typically the events with the best conditions in the season. Adopting this approach in a more way could both reduce emissions and improve competition quality for athletes. Some organizers already have experience and success with this, where both Kvitfjell and Kitzbühel biannually are hosting E-cup events the week after World Cup event.

Athlete contributions

The Norwegian national alpine ski teams recognize that climate change is a global crisis, as well as an existential threat to the sport of alpine skiing and are committed to reducing their carbon emissions in order to limit their impact.

If FIS implements the measures above and designs a new World Cup calendar, new possibilities of further reducing own emissions will arise for national teams and individual athletes.

Once FIS creates a calendar that makes it possible, the Norwegian men's and women's national teams will consider further reducing their World Cup emissions by implementing the following measures:

MEASURE 07

Restructure pre-season training to minimize travel

Long distance training camps generate a large share of the travel emissions for both the Norwegian men's and women's national teams.

With the current competition calendar, trips to New Zealand and Chile are essential to the athletes. This is especially important for downhill skiers, as they need extensive training at high speed in preparation for the season opening. Due to snow conditions in Europe in August/September, it is difficult to get sufficient training at an equal level of quality here. Not being sufficiently prepared for the season impacts negatively on the teams' ability to compete and increases the risk of sustaining serious injuries.

Adjusting the World Cup calendar (namely, by moving the season opening to mid-November and locating to North America) makes it easier consider alternative training plans that reduce emissions. These could include, for example, training in Chile in the weeks leading up

to a season opening in North America and travelling directly to the competition, limiting the teams' cross-Atlantic travel to one trip per year. Other changes could also be made and considered.

There are significant disadvantages in being a first mover in this respect. To unilaterally avoid travels to training camps at long-distance locations like Chile and New Zealand comes at a great price. Thus, from a competitive perspective, the Norwegian national team would not accept the risk of undermining their ability to compete at level terms. If all major national teams came to a collaborative agreement and collectively agreed on limiting long-distance training camps, and snow conditions made this feasible, the Norwegian national teams would look favorably at making more fundamental changes to the pre-season training.

MEASURE 08

Limit the number of trips home during the season

With a calendar composed of runs that are held in geographic clusters, we would also provide improved preconditions for rest, recovery, and athlete welfare during the season. This does in effect make it possible for the athletes on the Norwegian men's and women's teams to also commit to limiting their own trips home between competitions.

Trips home are important for athletes' and staff's mental health and for many a prerequisite for keeping momentum and competitive energy throughout the season. Having the ability to relax around friends and family is important to the overall sustainability of being an athlete. A well-planned calendar could allow for such breaks but also ensure conditions for rest and recovery are optimized also while on the road.

MEASURE 09

Selecting means of transport with lower emissions

With today's World Cup calendar, it is often necessary for World Cup athletes and staff to travel by plane and fossil fueled cars. With shorter travel distances, it would be possible to not only reduce the number of flights, but to also travel by train or for national teams to increase the share of electric vehicles in their fleets. When the calendar allows for it, the Norwegian national teams are willing to choose more environmentally friendly, but less convenient travel methods.

In a more long-term perspective, this will be a measure with a very large impact on our footprint. At the same time, it will be difficult in the short term to properly implement this on the transport routes with longer distances and where the footprint is most significant.

The need for increased knowledge

The proposed calendar changes are based on limited greenhouse gas emissions data, mainly limited to the travelling patterns for the Norwegian men's and women's national teams.

This data has been supplemented by insight from workshops with the Norwegian men's, women's, and para teams and meetings with trainers and staff in ski federation.

The World Cup also generate many greenhouse gas emissions through non-travel activities. This includes emissions from organizers of world cup events (artificial snow, food, running all the machines to prepare slopes, running hotels, etc.), ski gear manufacturing, and

other sponsor activities. In order to understand both the materiality of these emissions sources and climate change's consequence on the World Cup, monitoring, measuring and reporting on climate-related data and information is important.

The following measures are therefore recommended:

MEASURE 10

Assessing the implications of climate change for World Cup events

This measure is aimed at increasing the resilience of the sport, in addition to reducing greenhouse gas emissions. All potential competition venues should be assessed according to different climate change scenarios to understand the future need for artificial snow, and to better understand the probability of cancellation due to weather conditions at different times in the season. This could allow for more strategic scheduling, which would ensure that organizers are holding events when they are most likely to have snow, reducing emissions from creating artificial snow. It could also reduce the greenhouse gas emissions generated by unnecessary travel when athletes and staff travel to events that are then cancelled at the last minute.

MEASURE 11

Greenhouse gas accounting for national teams and competition organizers

This measure would not have a direct impact on the greenhouse gas emissions associated with the World Cup. However, it would allow for the identification of potential emission reducing measures, besides changing travel patterns. If national teams and competition organizers had a full overview of activities generating greenhouse gas emissions, it would allow for more strategic decision related to minimizing the sport's climate footprint.

Impact assessment of all proposed measures

MEASURE 01

Holding the World Cup opening in North America in November

Emissions reduction – Postponing the start of the World Cup and moving the opening to North America has the potential to lead to significant emissions reductions, as the season opening may even be combined with training trips to Chile. Additional effects might also be achieved through reduce emissions due to a reduced need for artificial snow creation.

Cost and economic impact – The direct costs of delaying the World Cup opening and moving it to North America are small. For many teams the potential synergies between training and competition in North America might even reduce costs. However, the World Cup opening is an important marketing event and either delaying or moving its location could lead to resistance from organizers and equipment manufacturers that may experience decreased revenues.

Collaboration – This would require significant collaboration involving many different entities. Changing the World Cup calendar is determined by FIS, which themselves needs to consider a range of important stakeholders like sponsors, TV rights holders, organizers, national teams, etc.

Quality and competitiveness – Delaying the World Cup start will not reduce the competitiveness of any athletes, as they will all be impacted equally. On the other hand, the Norwegian men's and women's national teams indicated that delaying the World Cup start would improve their experience, as they would prefer more training time and more natural snow than they get now.

Safety and working conditions – Delaying the World Cup opening will not have a direct effect on athlete safety. However, it could result in fewer cancellations and thus fewer closely scheduled competitions which would reduce the physical load placed on athletes. This is uncertain, however, as there could still be cancellations in an updated calendar.

Weather and climate – This measure is considered possible given weather and climate conditions. In fact, it would make the competition calendar more resilient to the expected coming climate change, as a delayed start will mean colder weather and moving the opening to locations in North America which typically have snow early will compound this effect.

MEASURE 02

Create the competition calendar in 4-year blocks, and select event organizers from a pool

Emissions reduction – This measure does not directly reduce emissions, but makes it more likely that FIS will be able to set up a calendar with lower travel emissions.

Cost and economic impact – In the long term, this measure is likely to reduce costs due to operational and travel efficiencies. There will, however, likely be some upfront costs to set up the process. On the other hand, the measure will improve the predictability of revenue and economic stability for organizers and national teams as they will know long in advance which years they will hold World Cup events.

Collaboration – Implementing this measure would require significant collaboration with FIS and the national ski organizations.

Quality and competitiveness – Assuming this measure is implemented along with measure 3, it is expected to lead to a more balanced calendar which will improve the athlete experience. Additionally, planning the calendar 4 years in advance will lead to more stability and make it easier for organizers to plan high quality events.

Safety and working conditions – This measure will make it easier for FIS to plan a calendar that both secure and promote athlete welfare and is therefore expected, if implemented along with measure 3, to improve safety and working conditions.

Weather and climate – This measure is not dependent on any weather conditions nor climate. It is also expected to increase the extent to which weather and climate are taken into account in setting the World Cup calendar.

MEASURE 03

Implement a transparent calendar setting process, with a list of evaluation criteria for potential organizers

Emissions reduction – This measure, if implemented as suggested, will lead to significant emissions reductions as it will mean a calendar setting process that explicitly aims to schedule events near each other and limit travel needs.

Cost and economic impact – In the long term this measure is expected to reduce costs due to travel and operational costs. However, in the short term, there will be some upfront costs due to the calendar setting process becoming more extensive. There will also be some costs to event organizers who will likely have to increase their environmental monitoring and possibly even engage external experts.

Collaboration – Implementing this measure will require high levels of collaboration among FIS, all national teams involved, and event organizers.

Quality and competitiveness – This measure will lead to a more balanced calendar, taking into consideration athlete welfare, travel optimization, weather and snow conditions, balancing disciplines, and creating interest around the sport. It is therefore expected to improve the quality of the season for athletes.

Safety and working conditions – This measure will bring an explicit focus on athlete safety and mental health into the calendar setting process, which is expected to reduce the physical load they are placed under and improve their overall working conditions.

Weather and climate – This measure is not impacted by weather conditions or the climate and will lead to a competition calendar that is more aligned with the weather and more resilient to climate change.

Arrange more competitions in geographical clusters

Emissions reduction – Holding competitions in geographical clusters is expected to reduce greenhouse gas emissions in a several ways. Firstly, it will reduce the need for athletes and staff to fly long distances when travelling from one competition to another. It will also minimize the need to fly for others, including media, volunteers, FIS staff, those responsible for transporting athletes' equipment. At the time of this report, the only available travel data was for the Norwegian Ski Federation's own travel. Hence, it is not possible to calculate the potential emission reduction from implementing this measure, but they are expected to be significant. This measure is especially relevant for competitions in North America, as it would significantly reduce emissions by only travelling one time across the Atlantic Ocean.

Holding competitions in geographical clusters would also make it possible for individual teams and athletes to prioritize low greenhouse gas emissions in their decision making. Some athletes today, for example, travel by private helicopter and plane because it allows them more recovery time and provides a competitive advantage. A clustered calendar would limit this advantage and the felt need for it.

Cost and economic impact – This measure is expected to reduce travel costs for national teams, individuals, and FIS. At the same time, it will likely mean that some event organizers, or even entire regions, do not get World Cup events (or the corresponding income) every year. This loss of revenue in specific years would be somewhat mitigated by longer term revenue predictability due to the calendar being planned in 4-year blocks, if implemented along with measure 2.

Collaboration – This measure will require collaboration within FIS and event organizers. The measure is increasingly likely to succeed if it is adopted along with measure 2.

Quality and competitiveness – Based on insights from athletes in workshops, holding competitions in geographical clusters is expected to improve the quality for themselves. This is mainly due to improved recovery and overall experience through reduced travel time.

Holding competitions in geographic clusters for the para team, rather than holding many in the same place in a row, is also expected to greatly improve the quality for these athletes. This is because it would increase the variation of the ski runs in their season and reduce the advantage that certain athletes get when the calendar weighted towards their specialty.

Safety and working conditions – Holding the competitions in geographical clusters will mean that more time can be devoted to recovery, which will reduce the physical load the athletes are placed under and will likely reduce the risk of injury. This will also reduce the travel time, and thus improve the working conditions, for coaches and other staff.

Weather and climate – Weather and climate conditions will need to be considered when scheduling runs, but this measure is generally considered possible to adopt given weather and climatic conditions.

Move the World Championship to the beginning of March

Emissions reduction – Moving the World Championship from early February to early March does not have any direct effect on emissions. It might indirectly reduce emissions because it would allow for specific runs that are currently held with bad snow conditions (and therefore using artificial snow) to be held in February, when there is more natural snow, reducing the total energy use by cutting artificial snow production.

Cost and economic impact – This measure is not expected to have an impact on the costs associated with the World Cup. It may, however, impact the revenue from World Cup runs. Stakeholders who were consulted during this project were optimistic that holding the World Cup in March would lead public interest in the sport lasting longer in the season, meaning the February World Cup runs have the potential to bring in more revenue than they would if they were held after the World Championships. It would also have a positive impact on athletes, who are paid more by sponsors for their performance before February 15, as it would allow them to fit in more World Cup runs before this date. However, events held after the World Championship are expected to generate lower income and interest, which would be a challenge in this measure.

Collaboration – Moving the World Championships to March would require the agreement of a long list of different actors in alpine skiing, and the practical side would need cooperation for an even longer list, including – for example – the media.

Quality and competitiveness – Moving the World Championship to early March is not expected to have significant direct impact on the quality of the experience for athletes.

Safety and working conditions – Moving the World Championship to early March is not expected to have a significant impact on the safety or working conditions for athletes or staff. There would still be the same number of total competitions within the same timeframe, this measure only changes the order they occur in.

Weather and climate – There are locations that can host the World Championship at the beginning of March, so weather and climate are not likely to present problems for implementing this measure.

Consider more combined events and shadowing of World Cup for para-team and E-cup

Emissions reduction – Holding more combined events for the men’s and women’s teams at the same locations, or at least in locations that are near each other, is expected to lead to a small reduction in greenhouse gas emissions – dependent on how the measure is implemented. The men’s and women’s teams largely have their own coaches and staff, but holding the events near each other or at the same place will reduce the amount of travel certain key staff members need to do. This is especially relevant for the smaller national teams, who are more likely to have coaches and staff members that are essential to both the men’s and women’s teams. These effects would be more pronounced if the competitions were held in the same locations and not just within the same region.

Holding combined men’s and women’s events may also reduce the total emissions from run preparation and artificial snow production.

Holding para competitions directly after the women’s competitions also has the potential to reduce total emissions, as the runs are already prepared and the equipment would already be in place. This may also lead to a reduction in artificial snow emissions.

Cost and economic impact – This measure is expected to lead to some minor cost savings, due to operational efficiencies. It may also lead to increased revenue as these combined events will likely draw more media attention and higher viewership. For the para-teams this might result in a moderate increase of travel costs during the season, but it could be argued that this is a cost-effective way to season/competition quality.

Collaboration – This measure will require significant collaboration to implement, as holding more combined events will require approval from FIS, and the practical work will require coordination between the women’s, men’s and para’s staffs. Additionally, on the organizer side it will also require coordination between many different actors.

Quality and competitiveness – Holding more combined events is expected to improve the experience for athletes as it will likely result in a better competition quality as well as better atmosphere around the competitions. This is especially true for the para team, as the athletes have stated that their best organized competitions have been those that were held directly following the women’s competitions on the same courses. Competition quality could also be negatively impacted if combined events are arranged at venues where conditions are not appropriate for this.

Safety and working conditions – This method is not expected to have an impact on athlete or staff safety or working conditions.

Weather and climate – This measure is not directly related to weather or climate conditions, although it could make it easier to plan the calendar around weather conditions as FIS would only need to find one suitable location for multiple events.

Restructure pre-season training to minimize travel

Emissions reduction – Minimizing long distance travel and training sessions in the southern hemisphere is expected to significantly reduce the national teams’ emissions, with the level of emissions saved dependent on the reduction/restructuring of travelling.

The impact of this measure would be at its highest if European teams were able to completely eliminate long-distance training camps and train exclusively in Europe. This would, however, have other negative implications and seems less feasible today. A secondary option that will minimize emissions, is to coordinate timing and locations between fall training and season opening. This would be especially effective if measure 1 was implemented and the season opening was held in North America. The national teams could then train in North America (e.g. Copper Mountain) before the first competitions – which would limit travel needs to only two inter-continental flights per year. Alternatively, teams could train in Chile before heading to North America – which would involve three inter-continental flights. Both of these scenarios would represent a significant reduction in emissions.

Cost and economic impact – Minimizing long distance travel would reduce national team travel costs.

Collaboration – Reducing or eliminating long distance training camps is a decision that each individual team can make. However, it will require the agreement of many people including athletes and coaches so there is some collaboration required. Additionally, although it is technically possible to implement alone, it is unlikely that any individual team would be willing to do so. Thus, the full adoption of this measure would likely require significant collaboration between teams.

Quality and competitiveness – Based on the level of implementation

for this measure, it may weaken the competitiveness of the national teams if they were to train in bad snow conditions in Europe while other teams travel to other parts of the world. The Norwegian para team already trains in Switzerland and Austria leading up to the World Cup, and some athletes have stated that they would be better prepared for the season if they could train in Chile or New Zealand.

To address this issue, the pre-season training trip can be combined with the potential season opening in North America, which would still allow athletes to train on real snow.

There can be no doubt that completely eliminating the training camps in Chile and New Zealand would negatively impact the athlete experience. Even if adequate snow conditions could be found in Europe before the season opening, athletes have indicated that these camps are important to them. However, limiting these long-distance training camps to training in Chile in August and in North America right before a World Cup opening in North America could be a potential compromise.

Safety and working conditions – If training camps in Chile and New Zealand were cancelled without finding adequate replacements, this measure would have a substantial negative impact on athlete safety. Alpine skiers are dependent on adequate preparation before the season begins to be able to safely compete, with some arguing that the injuries in the 2023-2024 season are partly due to lack of preparation. This risk would need to be addressed in the implementation of this measure, to ensure that athlete safety does not decline as a result of changing the training schedule.

Weather and climate – Climate and weather is highly relevant for this measure. Climate change is making it harder to find good training conditions in Europe in the fall, and this problem is only expected to get worse. Thus, it is uncertain from a climate perspective whether good alternatives for training camps can be found in Europe or North America.

MEASURE 08

Limit the number of trips home during the season

Emissions reduction – This effectiveness of this measure is dependent on whether or not FIS creates a calendar with competitions organized in geographical clusters. If this were the case, and athletes and staff stayed in the area for the entire cluster rather than travelling home every time there was enough time to do so between events, this measure could significantly reduce greenhouse gas emissions. Even a reduction in the number of annual trips home throughout the season would have an impact on emissions.

This measure has less of an impact however, if the World Cup calendar is not set up in clusters and the athletes and staff frequently need to fly long distances anyway.

Cost and economic impact – This measure is expected to reduce travel costs for individuals and national teams but may increase overall costs due to the cost of spending the night near competition locations.

Collaboration – This measure in and of itself would not require collaboration beyond coordination at the national team level to ensure athletes and staff have somewhere to stay between competitions.

Quality and competitiveness – This measure has the potential to worsen the World Cup experience for athletes who implement it and negatively impact their competitiveness.

Safety and working conditions – Reducing travel home between competitions is not expected to have an impact on athlete safety, although it is expected to negatively impact overall working conditions. Athletes have stated that it is much easier to relax at home than in hotels while on the road. This is a challenge that must be actively addressed.

Weather and climate – This measure is not impacted by weather and climate.

MEASURE 09

Selecting means of transport with lower emissions

Emissions reduction – Using means of transport with lower emissions when possible, such as electric vehicles or train, could moderately reduce emissions. The impact of this measure will depend on the transportation method that would've otherwise been used and to which extent the electric vehicle, or train, is being used.

Cost and economic impact – This measure is not expected to have a significant economic impact. Currently, the national teams are sponsored by Audi. The car manufacturer has previously communicated that they would only produce electric vehicles from 2026 but later changed their ambition to also continue offering vehicles with internal combustion engines. However, it is possible that Audi would provide the team with electric vehicles when more infrastructure is in place, in order to reach their own climate ambitions. In that case, the economic impact is expected to be minor.

Collaboration – Implementation of this measure would require some collaboration at this point of time. This is mainly due to electric vehicles requiring more time used on charging due to lacking charging infrastructure, which would lead to loss of competitiveness for athletes if this wasn't also followed by other national teams. If the necessary infrastructure is established throughout Europe, the level of required collaboration will be reduced.

Quality and competitiveness – If the World Cup calendar organized in clusters with shorter distances between competitions, this measure would not have a material impact on athlete competitiveness. With the World Cup calendar as it is today, athletes who chose to travel by using lower impact means of transportation, such as trains or electric vehicles, would be at a competitive disadvantage because of the required time used on charging. This limits recovery time between events, which weakens athletes competitiveness.

Safety and working conditions – As with quality and competitiveness, selecting lower impact means of transportation would not be expected to have an effect on safety and working conditions if the calendar was set up in geographic clusters. Similarly, it would negatively impact athlete safety and working conditions by reducing recovery time if it was implemented with the calendar as it is now.

Weather and climate – This measure is generally considered to be possible given weather and climate considerations. That being said, electric cars do not work optimally in very cold environments, which could be a problem. There would always have to be some gasoline or diesel powered cars in the vehicle fleet to ensure that athletes and staff can complete necessary travels through the season.

MEASURE 10

Assessing the implications of climate change for specific events

Emissions reduction – This measure is not expected to cause any direct emissions reductions but is aimed at creating a better knowledge base. It may indirectly reduce emissions, if the information allows the competition calendar to be created in a way that eliminates the need for artificial snow.

Cost and economic impact – This measure will have some costs, as FIS will have to engage external experts to conduct the analyses. However, it may save costs in the long run if it leads to fewer cancelled runs and lower production of artificial snow.

Collaboration – Some information may be required from organizers, but it is largely possible for a single actor (such as FIS) to decide to implement this measure and coordinate the work themselves.

Quality and competitiveness – This measure will make it possible for FIS to schedule a more predictable season with fewer cancellations, which will improve the athlete experience and have an overall positive impact on the sport.

Safety and working conditions – This measure is not expected to impact athlete safety or working conditions.

Weather and climate – The implementation of this measure is not dependent on the weather or climate. In fact, conducting the suggested assessments will lead to a World Cup calendar that explicitly considers the weather and climate.

MEASURE 11

Greenhouse gas accounting for national teams and competition organizers

Emissions reduction – Conducting partial or full greenhouse gas accounting for the national teams and competition organizers is not expected to have any direct effects on greenhouse gas emissions. The insight gained from this analysis will, however, make it possible to identify more important emissions sources and take action to reduce or eliminate them in the future.

Cost and economic impact – This measure will likely require hiring someone to conduct the greenhouse gas accounts, paying for a system which someone will have to learn how to use, or engaging external experts to do the work.

Collaboration – This measure does not require any collaboration and is a step that each individual team and organizer can take independently.

Quality and competitiveness – This measure is not expected to have any impact on event quality or athlete competitiveness.

Safety and working conditions – This measure is not expected to have any impact on safety or working conditions.

Weather and climate – This measure's implementation is not expected to be impacted by weather or climate conditions.

Appendix A

Emissions mapping

Alpine skiing is loved by many and is an important part of our culture in Norway. It serves as a source of exercise and joy for people in many countries from elite professional skiers to recreational skiers, to enthusiastic fans. The sport is a cultural cornerstone in winter countries, as well as the main livelihood of numerous people working year-round as producers of clothes and equipment, as event organizers and staff, and within national ski associations – in addition to those working as athletes, trainers, and support staff.

In recent years alpine skiing has faced growing challenges, with two major issues being economic difficulties and increasing concern about athlete injuries. Alpine skiing has also faced mounting scrutiny over its environmental footprint. In addition, practical challenges caused by climate change which are concerning to the entire ski industry – according to a report published in the journal 'Nature' in August 2023, 53% of the 2,234 ski resorts studied in 28 European countries are projected to be at very high risk for snow supply under global warming of 2 °C. To ensure that alpine skiing and its benefits can continue in the future, it is essential that these challenges are faced head on.

Skiing as a sport is paradoxically both dependent on snow, and responsible for large amounts of greenhouse gas emissions that cause climate change and are the reason there is less and less snow available.

In 2023 the Norwegian Broadcasting Corporation (NRK) published two articles about the Norwegian alpine ski teams, one covering the risks that climate change poses to the sport, and one covering the greenhouse gas emissions the teams generate by travelling around the world. After those articles, the Norwegian Alpine Ski Team decided to team up with its sponsor, KPMG, to assess their climate impact and develop a plan to reduce it.

Mapping the Norwegian National Team's Emissions

We had two main goals going into this project: understand the climate footprint of alpine ski team, and use this insight to identify ways the team can reduce its climate emissions. Therefore, the first step of the project was for KPMG to map and analyze the men's and women's teams' greenhouse gas emissions.

This analysis is based on internal travel and transport data provided by the Norwegian Ski Federation and is therefore limited to covering only the emissions generated by travel and transport paid for by the federation. A preliminary analysis by KPMG indicated that these travel emissions are most material, and with a wish to ensure

progress before the end of the 2023/2024 World Cup season. A strategic decision was therefore made to limit the assessment to these emissions at this stage, avoiding a substantial delay in order to collect data a high level of assumptions in the climate calculations made. Moving forward, a more comprehensive assessment should be conducted, including emissions from equipment purchase and use and from the preparation and execution of FIS World Cup events. More detail around this is highlighted through the presentation of recommended actions.

Other ski team activities that cause emissions but are not associated with competitions organized by the Ski federation should also be mapped and analyzed. Likely emissions sources include hotel stays, food, and transportation of services workers and athletes paid for by sponsors. We acknowledge that if emission generating activities were included, the national teams' emissions would be substantially higher, and we would be able to identify additional emissions reduction measures related to, for example, the use and end-of-life handling of equipment.

The footprint

Participating in the World Cup requires extensive travel and equipment transport, which generates large amounts of greenhouse gas emissions.

Over the 2022/2023 season, the men's elite team's travel to competitions and training camps generated emissions of greenhouse gasses estimated at just under 300 tons of carbon dioxide equivalents (CO₂e)¹. For comparison, one person flying round trip to Bergen generates approximately 166kg, or 0.166 tons, of CO₂e. The pre-season training trip to New Zealand generated the most emissions (68 tons CO₂e) of any individual trip, accounting for almost a quarter (23%) of the total emissions for the season. Training camps to New Zealand and Chile are scheduled to enable trainings on real snow before the World Cup season. This is the main reason that the Norwegian men's national team, as well as national teams from other countries, travels to the Southern Hemisphere for training. As snow conditions in Europe are not reliable in the early fall, and there are limited ski runs in the world that are long enough and steep enough for athletes to reach the speeds they need to train for competitions, these trips are viewed as necessary. Other trips with high emissions include those to Palisades Tahoe, Copper Mountain, and Beaver Creek in the US. Competitions that are held in geographical clusters tended to generate lower travel emissions, as the athletes didn't have to fly to the next competition and tended to stay in the area between competitions. This is seen in, for example, Val Gardena and Madonna di Campiglio.

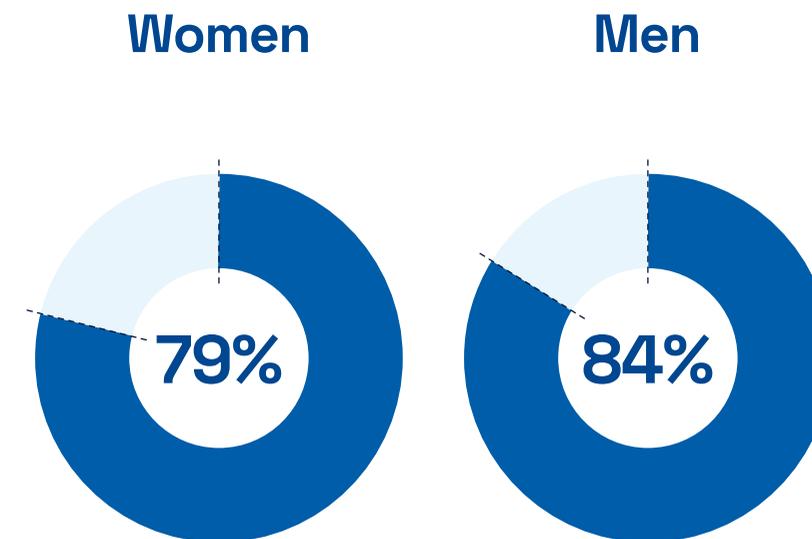
The Norwegian women's elite team emitted a total of 224 tons of CO₂e due to travel for the 2022/2023 season. Similarly to the men's team, the pre-season training camp to Chile was the largest single source of emissions (79 tons of CO₂e), making up 35% of the team's total emissions. Also as with the men's team, this training camp has been set up to ensure the athletes get sufficient speed training before the World Cup starts, at a time of year when snow conditions in Europe are not reliably good. Other trips with high emission levels include those to Killington and Copper Mountain in the US as well as trips to Levi and Soldeu. For the US trips, long flights and a high number of travelers are the most significant driving factors for emissions, while for the Levi and Soldeu trips, many travelers and driving distances with the transporter contribute to emissions. The results from the women's team are similar to those of the men's team in terms of certain trips leading to high emissions and significantly lower emission levels resulting from competitions held close to each other in the same time period.

Analysis of the national teams' means of transportation shows that flights account for most of the teams' total emissions, respectively 84% (men's team) and 79% (women's team). For the women's team, travel by transporter (small van) accounts for 13% of their emissions, and diesel cars account for the remaining 8%. The men's team uses the transporter less, as this only accounts for 4% of their emissions, while diesel cars account for 12%.

These results indicate that when developing actions to reduce the teams' emissions, the most significant sources are flights, especially long-distance trips, followed by possible ways to reduce emissions from road transport. We have chosen to place our emphasis on measures and actions that will address the main emission drivers. Climate action and impact is our focus, but the measures we suggest have also been assessed in other aspects, such as their possible economic and safety impact. This will be elaborated on later in the report.

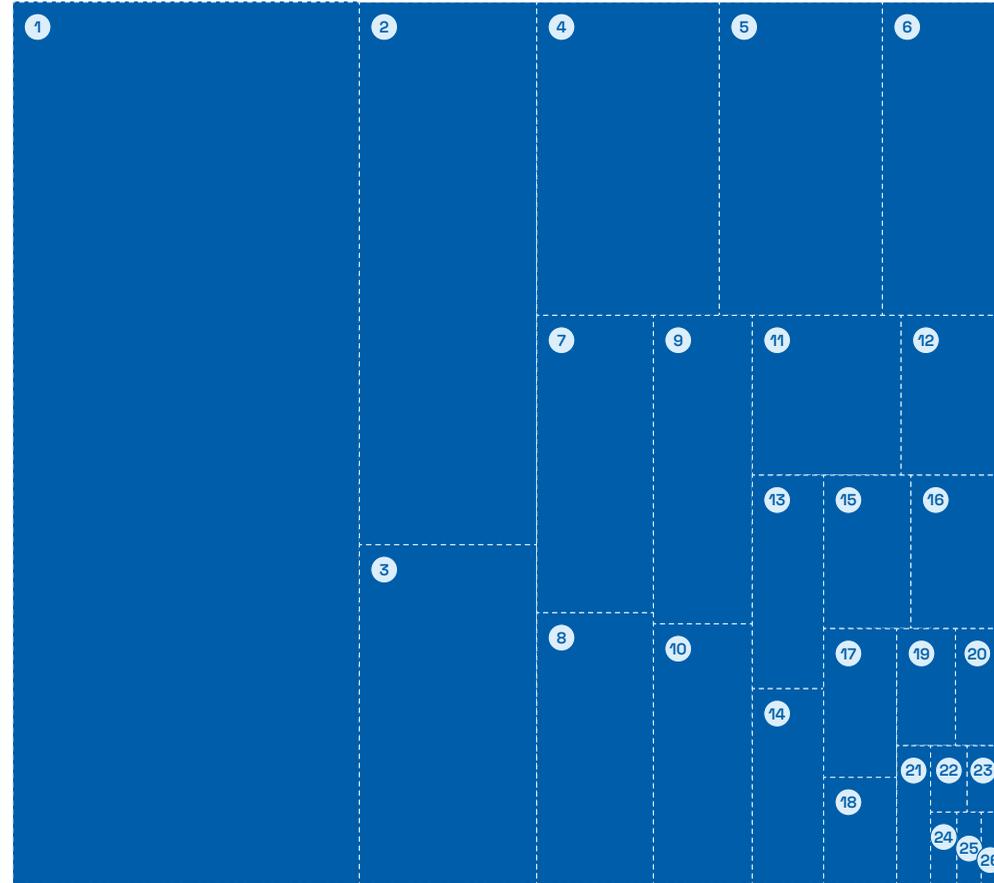
It should be noted that the emission calculations are based on travel data from the Ski Federation and the athletes themselves, and as such, the data's scope and completeness has not been scrutinized by KPMG and is presumed to be representative of the teams' actual emissions. Controlling and assuring the absolute accuracy of the data has not been prioritized, as the data quality is viewed as sufficient and has primarily been used to identify the most emission-intensive aspects and calculations that might serve as a basis for the identification of actions.

Emissions from flights alone



¹A carbon dioxide equivalent or CO₂ equivalent, abbreviated as CO₂e is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases (such as nitrous oxide (NOX) and methane) to the equivalent amount of carbon dioxide with the same global warming potential.

Emissions in kg CO₂e Women's National Team 22/23

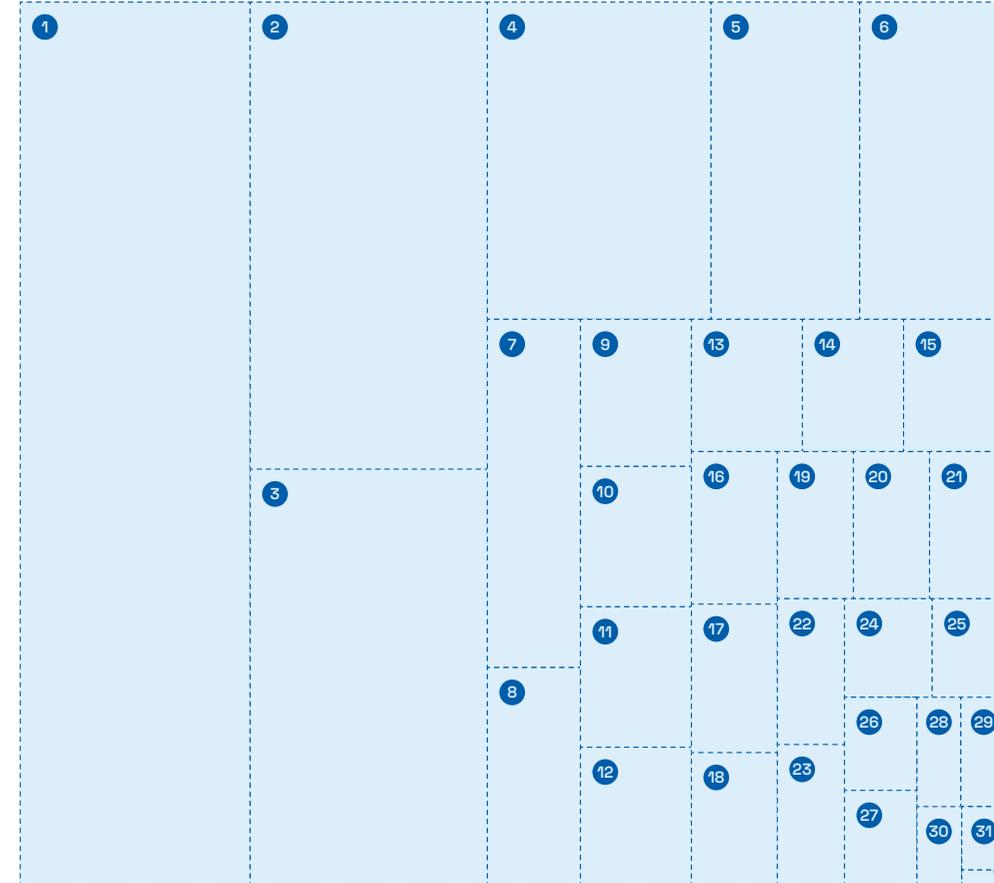


Total 223.85 tons CO₂e

1	Chile	78 594,47
2	Killington	24 757,62
3	Copper Mountain	15 452,93
4	Levi	14 754,56
5	Soldeu	13 162,79
6	Meribel	9 432,80
7	Sestriere	8 939,51
8	Sölden	8 211,08
9	Schnalstal	7 849,98
10	Spindelrø Mlyn	6 614,18
11	Semmering	6 166,63
12	Lake Louise	4 009,12
13	Folgefonna	3 958,5
14	Saas-Fee	3 651,3
15	Åre	3 432,57
16	Pfelders	3 406,56
17	St. Anton	2 769,22
18	St. Moritz	2 031,46
19	Crans Montana	1 774,28
20	Cortina D'Ampezzo	1 253,29
21	Flachau	1 244,97
22	Zagreb	607,67
23	Trysil	532,35
24	Kranjska Gora	476,39
25	Kvitfjell	462,29
26	Kronplatz	307,3

*Emission mapping is entirely based on data provided to KPMG by the Ski Federation. As the sole purpose of this mapping was to ensure that the provided measures would result in material emission reductions, controlling the data accuracy was not prioritized. Therefore, there has not been allocated time or resources to control the accuracy of these calculations.

Emissions in kg CO₂e Men's National Team 22/23



Total 292.12 tons CO₂e

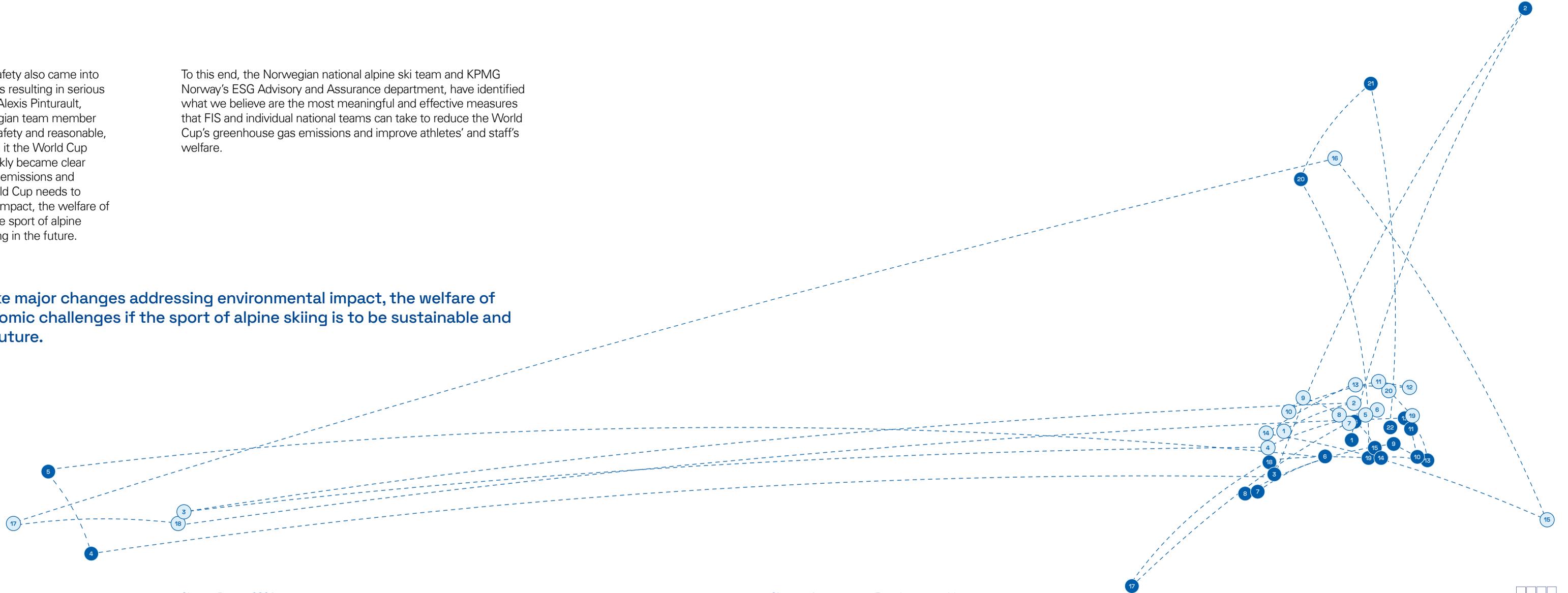
1	New Zealand	67 954,65
2	Palisades Tahoe	37 262,56
3	Chile (Santiago)	32 959,15
4	Copper Mountain	23 841,01
5	Soldeu	15 827,48
6	Beaver Creek	15 683,11
7	Reiteralm	10 912,28
8	Sölden	6 791,42
9	Val D'Isere	5 477,93
10	Saas Fee	5 244,73
11	Lake Louise	5 236,51
12	Levi	5 120,6
13	Garda	4 938,67
14	Folgefonna	4 555,66
15	Kobdalis	4 541,92
16	Bormio	4 403,33
17	Val Gardena	4 307,27
18	Madonna Di Gampiglo	3 798,61
19	Hinterreit	3 774,32
20	Chamonix	3 759,76
21	Courchevel	3 680,32
22	Juvass	3 263,48
23	Schladming	3 160,7
24	Kvitfjell	2 924,11
25	Wengen	2 377,96
26	Cortina D'Ampezzo	2 293,57
27	Kranjska Gora	2 287,93
28	Adelboden	1 626,21
29	Kitzbüehel	1 576,5
30	Alta Badia	1 179,64
31	Trysil	903,25
32	Garmisch-Partenkirchen	201,14

Additional considerations

As we worked on these assessments, athlete safety also came into the spotlight following a series of major accidents resulting in serious injuries, including the season-ending injuries for Alexis Pinturault, Marco Schwarz, Charlie Raposo, and the Norwegian team member Aleksander Aamodt Kilde. The issue of athlete safety and reasonable, healthy working conditions for everyone involved in the World Cup came up repeatedly throughout our work. It quickly became clear that, more than just addressing greenhouse gas emissions and challenges due to the changing climate, the World Cup needs to make major changes addressing environmental impact, the welfare of athletes and staff, and economic challenges if the sport of alpine skiing is to be sustainable and continue flourishing in the future.

To this end, the Norwegian national alpine ski team and KPMG Norway's ESG Advisory and Assurance department, have identified what we believe are the most meaningful and effective measures that FIS and individual national teams can take to reduce the World Cup's greenhouse gas emissions and improve athletes' and staff's welfare.

The World Cup needs to make major changes addressing environmental impact, the welfare of athletes and staff, and economic challenges if the sport of alpine skiing is to be sustainable and continue flourishing in the future.



Appendix B

Calculation of emissions from proposed calendar changes

To be able to compare emission differences in the actual calendar and the proposed new structure, KPMG have constructed two hypothetical scenarios, one for each respective calendar.

For both calendars, we use the following assumptions:

- The travel team consists of one athlete, one coach and a service worker.
 - This team is assumed to travel to all locations on the World Cup Calendar, regardless of possible cancellations or competition type. It should be noted that this travel pattern is not representative of all alpine athletes. It does, however, enable comparability between the two calendars, where other variables than the location of events and means of transportation are kept alike.
- When travelling by road it is assumed that the team use one diesel car and a transporter (small van >7m³). Flights over the Atlantic include three people, while flights in Europe mainly include the coach and the athlete, with the transporter either driving to Oslo or the next location.
- Travelling patterns in both calendars are decided based on what is considered as “natural” travelling behavior for a person entering all these competitions. This has led to some different return trips back to Oslo, although the number of trips are the same:
 - Women – Actual- and new calendar: **8 returns home**
 - Men – Actual- and new calendar: **7 returns home**
- For all calendars, the team is assumed to begin their season from Oslo. As highlighted by measure 7, re-structuring the pre-season training and start the season in North America would enable athletes to travel directly from training camps in either Chile or Copper Mountain to the first competition of the season. However, this possibility is not taken into account when comparing the emissions of calendars.

In terms of calendar differences, the men’s event in Cortina d’Ampezzo is replaced by Åre in order to enable the Scandinavian tour at the end of their season. For the women, both calendars consist of the same events but they’re in different orders. In relation to cancellations, the proposed calendar changes includes no “blank week” for cancellations. The thought is, however, that either the first or last competitions of tours can be held as tentative, in preparation for possible cancellations earlier in the season. This could for example be Kranjska Gora or Bormio.

The selection of locations used in the calculation of emissions generated through the new calendar structure, are the actual competition venues from the 22/23 season. Implementing a new calendar would likely also include a change in the selection of venues in order to cater for seasonal snow conditions and the practical feasibility at the respective locations. It is thus likely that FIS would achieve even greater reductions of emissions if an optimization of venue locations and seasonal snow conditions was ensured in a criteria-based process. In this exercise the 22/23 locations were used to ensure comparability, and to demonstrate the isolated impact of a calendar revisions without any other changes. The calculations are thus based on actual venues, while the proposed calendar is limited to specifying only the regions where competitions would be held during specific periods in the season, as the aim is to highlight the benefits of arranging competitions in regional clusters. For future World Cup calendars, the locations and timing of competitions will change each year and must consider snow conditions and the probability of cancellation due to weather, on each respective location.

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