Impact assessment

Background

Since energy drinks were allowed to be sold on the Norwegian market in 2009, the consumption of these drinks has steadily increased, including among children. The drinks are available in various venues, such as grocery stores, kiosks, gas stations, cafeterias, and vending machines. Manufacturers have developed several variants and larger sales units. In addition to profiling in stores and traditional media channels, marketing through digital media, influencers, and sports profiles is becoming increasingly common. The drinks have a taste that appeals to children and are easily accessible. This makes it easy to consume a lot of energy drinks in a short period of time, which can lead to a high intake of caffeine. Among children who drink energy drinks, these drinks have become a significant source of caffeine. This is despite the fact that energy drinks are products intended for adults and should be labeled with, among other things, "High caffeine content. Not recommended for children...".

To limit the consumption of energy drinks, the government announced in Meld. St. 15 (2022–2023) Public Health Report – national strategy for reducing social health disparities, that it will investigate possible measures to limit consumption, among them prohibiting sales below a certain age. During the processing of the report, the Parliament asked the government to propose the introduction of a 16-year age limit for the purchase and sale of energy drinks.

Based on the guidelines in the public health report and the request resolution from the Parliament, the Ministry of health and care services (from here and forward referred to as the Ministry) asked the Norwegian Food Safety Authority to assess possible measures to reduce the consumption of energy drinks among children and the Norwegian Institute of Public Health (FHI) to provide input related to the health risks of consuming energy drinks. The Ministry has used the assessments of these agencies and other relevant studies and reports in evaluating which measures will be best suited to reduce the intake of energy drinks among children. The Ministry has also looked at other countries' regulations and handling of energy drinks. Furthermore, the Ministry has based its considerations on the fact that children have the right to the highest attainable standard of health and to protection against conditions that negatively affect their health according to the Convention on the Rights of the Child and the Constitution § 104.

Health assessments related to the intake of energy drinks

The negative health effects of energy drinks are primarily due to their content of caffeine. Additionally, frequent consumption of energy drinks can be detrimental to dental health as the products are acidic (low pH). Acidic foods and beverages increase the risk of acid damage to teeth. Energy drinks with added sugar can contribute to increased sugar intake. In the sections below, the Ministry has focused on describing the health effects of caffeine, as the caffeine content in the drinks is the main argument for proposing a ban on the sale of energy drinks to children below 16 years of age.

Health effects of caffeine

Caffeine (1-,3-7-trimethylxanthine) is an alkaloid compound found naturally in plants such as coffee and cocoa beans, tea and mate leaves, guarana berries, and kola nuts, but it can also

be produced chemically. The physiological effects of caffeine can be both positive and negative. Caffeine is a central stimulant that can increase concentration, counteract fatigue, increase alertness, boost self-esteem, reduce appetite, and elevate mood. Caffeine has been shown to positively affect certain athletic performances. Consumption of caffeine can also cause restlessness, negatively affect sleep, cause headaches and stomach pain. Regular intake can lead to addiction. The European Food Safety Authority (EFSA) has estimated that these health effects can occur at a caffeine intake of 1.4 mg/kg body weight per day. In a Nordic risk assessment of caffeine intake in children, it was concluded that addiction can occur at an intake of 1-1.3 mg caffeine/kg body weight per day. Consumption of energy drinks can also lead to more serious health effects such as lack of impulse control, acting out, aggression, heart rhythm disturbances, increased blood pressure, cerebrovascular disease, and anxiety disorders. EFSA assesses that these health effects can occur at a caffeine intake of 3 mg caffeine/kg body weight per day. High acute intake of caffeine can lead to caffeine poisoning. The more serious health effects will hereafter be referred to as negative health effects of caffeine.

Children have lower tolerance for caffeine than adults mainly due to lower body weight, but they are also more sensitive to central stimulants than adults because the brain is still developing. Based on EFSA's estimates (as mentioned above), a child weighing approximately 40 kg can exceed the threshold for adverse health effects, such as sleep disturbances, at an intake above approximately 56 mg of caffeine. This corresponds to 1.8 dl of energy drink with a caffeine content of 32 mg/dl. Similarly, an intake above 120 mg of caffeine, which corresponds to 3.8 dl of energy drink with a caffeine content of 32 mg/dl, can lead to negative health effects on the cardiovascular system. This means that a single can (5 dl) of energy drink can trigger both adverse and negative health effects in many children.

Already after a few days of continuous caffeine intake, children can develop a tolerance to caffeine and symptoms of dependence. If caffeine is cut out after a period, withdrawal symptoms such as headaches, restlessness, tremors, anxiety, fatigue/lack of energy, increased irritability, and/or flu-like symptoms may occur. In a survey by the Norwegian Institute of Public Health (FHI), 24% of those who reported drinking energy drinks said they had experienced typical withdrawal and dependence symptoms, such as discomfort or restlessness in the body, when they did not drink energy drinks. In the same survey, 43% of those who drank energy drinks reported experiencing negative symptoms after consuming energy drinks. The proportion reporting symptoms after consuming energy drinks increased with age, and girls reported significantly more often than boys that they had experienced tremors, palpitations, headaches, or nervousness as a result of consuming energy drinks.

Studies show that sleep deficit is a real health problem among Norwegian youth. Lack of sleep is associated with an increased risk of mental health issues (e.g., anxiety and depression), obesity, high school absenteeism, lower well-being, and poor academic performance. In a study among 10th graders in Oppland, over 80% of participants reported having slept six hours or less "the night before," which is at least two hours less than recommended. Participants who reported drinking energy drinks went to bed later and slept an average of 57 minutes less than those who did not drink energy drinks. The researchers found a dose-response relationship between the amount of energy drink participants

reported drinking and reduced sleep duration. Shortened sleep duration can therefore partly be attributed to energy drink consumption, which is also supported by data from the 2017 Ungdata survey. In the study among 10th graders in Oppland, there was also a clear correlation between energy drink consumption and sleep onset problems. Caffeine has also been shown to be a trigger for headaches. Both acute and regular consumption of energy drinks can contribute to 20% of adolescents aged 12-14 suffering from headaches.

In adults, single intakes of over 500-600 mg can pose a risk of caffeine poisoning, which corresponds to 3-4 cans of energy drink (5 dl each). In children below 18 years of age, and especially individuals with low caffeine tolerance, caffeine poisoning can occur at significantly lower intakes. Symptoms of caffeine poisoning can include headaches, nausea, stomach cramps, restlessness, rapid pulse, irregular heartbeat, and low blood pressure. In FHI's survey among youth aged 10-18, 33% of those who drink energy drinks reported having consumed three or more cans within 24 hours. About 5% of those who drank energy drinks reported in the same survey that they had contacted healthcare professionals due to problems experienced from consuming energy drinks. However, there is little systematic knowledge about how common the negative health effects of energy drink consumption are among Norwegian children, but there have been reports of cardiac arrest and deaths due to cardiac arrest associated with energy drink consumption in young and otherwise healthy individuals.

Other health effects of energy drinks
Studies show that the prevalence of acid damage among Norwegian 16-18-year-olds is between 32-64%, and that the prevalence has been increasing in recent years. Increased consumption of acidic foods and drinks is considered one of the causes of the observed increase. Acid damage is irreversible. Given the low pH of energy drinks, frequent consumption of these (both with and without sweeteners) can lead to acid damage to teeth. As far as the Ministry is aware of, there are no Norwegian studies where the intake of energy drinks has been mapped together with the prevalence and development of acid damage to children's teeth, making it difficult to draw conclusions about the impact of energy drinks on teeth. However, these correlations are being further investigated in the Tromsø health survey, Fit Future. The first results from these surveys are expected in 2025.

Foods and drinks with high sugar content are considered the main cause of tooth decay. Dental health statistics from 2024 show that 38.8% of 12-year-olds and 97.8% of 18-year-olds have had cavities. Based on the existing data, it is not possible to say how the intake of energy drinks affects the prevalence of tooth decay.

Energy drinks with added sugar can lead to increased energy intake, in addition to displacing more nutritious foods. High energy intake is associated with an increased risk of developing overweight and obesity. In 2018, about 21% of 15-year-old girls had overweight or obesity, while the corresponding figure for boys was 13%. The trend has been relatively stable in recent years, but there has been a slight increase in the proportion of 15-year-old girls with obesity, while the prevalence of obesity among 15-year-old boys has decreased. There is some uncertainty about how this has developed during the pandemic years. Surveys from Oslo show an increase in the proportion of overweight and obese 3rd and 8th graders during

the pandemic. Data from the Ungkost3 survey show that children who have a high intake of unhealthy foods and drinks that provide energy without contributing nutrients also eat less whole grains and fish/seafood.

There is a correlation between weight status and the risk of developing diet-related diseases and between having overweight or obesity as a child and having overweight or obesity as an adult. Children with overweight and obesity have an increased risk of type 2 diabetes, asthma, breathing difficulties, musculoskeletal problems, psychological challenges, and risk factors for cardiovascular disease, including high blood pressure, unfavorable blood lipids, and insulin resistance. In addition, stigmatization, psychological problems, and dissatisfaction with overweight and obesity can be a challenge. Because eating habits in children tend to persist into adulthood, it is important that children establish good dietary habits from a young age.

Development in the consumption of energy drinks in Norway

The Norwegian Institute of Public Health (FHI) has mapped the consumption of energy drinks among children aged 10-18 years from 2015 to 2023. The results from FHI's mapping show that there has been a significant increase in the consumption of energy drinks among children in recent years. In 2017, 25% of secondary school students drank energy drinks weekly. By 2022, this proportion had increased to 36%. The corresponding proportion of high school students who reported drinking energy drinks at least weekly increased from 30% to 52% in the same period. In 2022, the average age of first-time energy drink consumption was 13 years. Those who drink energy drinks also drink them more frequently than before. In FHI's survey, one in three of those who drank energy drinks reported having consumed three or more cans within 24 hours. More boys than girls reported drinking energy drinks, but consumption has increased more among girls than boys. Among youth from families with low socioeconomic status, a higher proportion reported drinking energy drinks (65%) than among youth from families with high socioeconomic status (48%). Recent data from the Ungdata survey 2023-2024 shows that 18% of boys and 16% of girls in 10th grade drink energy drinks at least five times a week. The Consumer Council conducted a new energy drink survey in 2024 among youth aged 13 to 18 years, and the results largely correspond with previous surveys.

FHI's mapping shows that most children who drink energy drinks buy them in grocery stores or other retail outlets, and that the 5 dl units are the most common to purchase (64% prefer this size). Furthermore, children report that the most common reason for drinking energy drinks is that they taste good (84%). Other reasons include getting energy (41%), becoming more alert (33%), being thirsty (28%), or because their friends drink them (27%). This was confirmed in the Consumer Council's survey from 2024. The reasons for drinking energy drinks, besides tasting good, vary somewhat with age. The highest proportion in the age group 10-12 years report drinking energy drinks because their friends do (49% in the age group 10-12 years compared to 36% in the age group 13-15 years and 15% in the age group 16-18 years), while more in the older age groups report drinking energy drinks to stay awake (43% in the age group 16-18 years, 27% in the age group 13-15 years, and 12% in the age group 10-12 years). Few believe that energy drinks are healthy (4%), but more believe that

they are safe to drink (32%). Of the children who reported drinking energy drinks, 26% knew that there are warning labels on the drinks.

Assessment of the need for an age limit

The Ministry aims to ensure that children can enjoy good health. Children have the right to the highest attainable standard of health according to the Convention on the Rights of the Child, and the authorities have a duty to consider the best interests of the child. Children are particularly dependent on how their environment facilitates a healthy diet, including through kindergarten and school, but also how the local community provides opportunities to make healthier dietary choices. Children may be more vulnerable than adults to factors that do not promote their health, such as price, taste, peer pressure, and advertising. The Ministry considers measures that help facilitate good health by making it easier for children to make healthier choices without having to actively choose them as important.

The Ministry believes that children should be protected from both adverse and negative health effects of energy drinks and that the level of protection should be high. There is no set limit for what constitutes a safe intake of caffeine for children, but the research literature indicates that intake should be as low as possible. EFSA has set the tolerance limits for adverse and negative health effects at 1.4 and 3.0 mg caffeine/kg body weight/day, respectively. The Ministry has based its assessment of suitable measures to provide children with a high level of protection on EFSA's tolerance limits. Furthermore, the Ministry has considered that structural measures reach more children than educational measures and that structural measures have generally proven to be more effective and more socially equalizing than educational measures, which require active action from each individual. The Ministry assumes that energy drinks are a product group that is not intended for children. This is evident from existing regulatory requirements to label the product group with "High caffeine content. Not recommended for children, pregnant or breastfeeding women.". Thus, the Ministry considers that energy drinks may not meet the food safety requirements for children under 16 years of age.

To achieve the Ministry's ambition that children should not be exposed to either adverse or negative health effects from energy drinks, the Ministry considers that an age limit on the product group is the measure that is most likely and most effectively can reduce intake to achieve the ambition. The Ministry considers that the measure will be suitable and could help safeguard the child's right to the highest attainable standard of health. In addition, it will be a strong signal to the population that energy drinks are not suitable for children. By introducing a ban on the sale of energy drinks to children under 16 years of age, the Ministry also believes it is reasonable to assume that the age of first-time energy drink consumption will be higher.

The Ministry has primarily considered whether to propose an age limit of 16 or 18 years, while noting that actors who practice an age limit on their own initiative have set it at 14 years. Arguments in favor of an age limit of 18 years are that the risk of adverse and negative health effects of energy drinks is the same for all children under 18 years and that the consumption of energy drinks is higher in the age group 16-18 years than among those under 16 years. According to the Convention on the Rights of the Child, children are defined

as all individuals under 18 years. In other countries that have introduced an age limit on energy drinks the age limit is set at 18 years. On the other hand, many children in the age group 16-18 years can drink some energy drinks without being exposed to adverse health effects due to higher body weight. Children who are 14 years old have lower body weight than older children and are more susceptible to the adverse and negative health effects of caffeine than older children. In addition, younger children are more easily influenced by external factors that do not promote good health, such as price, taste, peer pressure, and advertising. The Ministry considers that it is more difficult for younger children to fully assess the health consequences of their own choices, such as the adverse and negative health effects of caffeine intake.

After a comprehensive assessment, including alternative measures (see further information in the link at the bottom, in the document, which is under public consultation in Norway, chapter 11) the Ministry has decided to propose a 16-year age limit. An age limit of 16 years is also in line with the Parliament's request resolution.

Content of the draft regulation

Purpose of the regulation

The Ministry proposes that the purpose of the regulation be formulated as "to protect children under 16 years from the negative health effects of energy drinks." The Ministry has chosen to use only the term "negative" health effects in § 1 of the regulation, rather than including both "adverse" and "negative" health effects as described in the consultation letter. The Ministry proposes this solution to make the language clearer and easier to understand for businesses and others who relate to the regulation without simultaneously having access to the consultation letter. However, it is the Ministry's opinion that both the adverse and negative health effects as described in this consultation letter, should be included under "negative" health effects in the regulation.

Scope

The Ministry proposes that § 2 first paragraph specifies that the regulation applies to the prohibition of the sale of energy drinks to children under 16 years for businesses as defined in the Food Act § 4 no.1. It is the businesses (sellers) in Norway that are the subjects of the obligation and who will be responsible for complying with the prohibition on the sale of energy drinks to children below 16 years of age. This also practically means a prohibition on the purchase of energy drinks for children below 16 years of age, even though the requirement and responsibility are directed at businesses selling the product. The prohibition will apply equally to all sales outlets and channels, including restaurants, cafeterias, online sales, sports shops, gyms, etc.

The Ministry assumes that a sale is the action from when a product is paid for until it is received by the customer. In a grocery store, the sales process is completed when the item is purchased and delivered to the customer simultaneously. For online sales, the time of sale and delivery of an item may differ because the item must be transported from the seller to the buyer. If the business selling the item delivers it to the buyer, it is clear that the seller is responsible for the entire sales process. If the business offers its products online and uses independent carriers, it is particularly important to ensure that age verification takes place

upon delivery of the item. It is important to emphasize that the seller still has the responsibility to ensure that the prohibition is complied with, even if the seller, for example, uses a hired transport company.

Businesses must also ensure that the prohibition is met when selling through other sales channels, such as vending machines. The Ministry recognizes that prohibiting the sale of energy drinks to children below 16 years of age from unattended vending machines with current age verification solutions can be challenging to solve in practice. It will be up to the businesses to assess whether they can have a vending machine and still comply with the age limit requirement.

Definition of Energy Drink
There is currently no EEA-based or specific Norwegian definition of the term energy drink in law or regulation. The Ministry therefore proposes to include a definition of energy drink in § 3 of the regulation. The Ministry's proposed definition should not be understood as a requirement to use a specific designation for these products.

A general understanding of the term energy drink is that it is a water-based non-alcoholic beverage that contains at least 150 mg of caffeine (from all sources) per liter, alone or together with other ingredients such as glucuronolactone, inositol, guarana alkaloids, ginseng, ginkgo extract, amino acids, and/or taurine. The drinks may be fortified with vitamins and/or minerals and are usually sweetened with sugar or sweeteners. They are different from, for example, sports drinks, where the purpose is to replace fluid loss and electrolytes after physical activity, or from coffee and/or tea.

The Ministry proposes in the draft regulation to include all non-alcoholic beverages that contain caffeine in amounts over 150 mg/liter, with or without the addition of other ingredients. The minimum level of 150 mg caffeine/liter is proposed to avoid conflicting with other regulations, such as the flavoring regulation and the food information regulation. This includes water-based drinks, but also drinks based on, for example, milk or fruit. Soft drinks with a content below 150 mg caffeine/l will not be included. Juice will not be included as it is not allowed to add other ingredients than those defined in § 2 of the regulation on fruit juice and similar products (juice regulation) of March 13, 2013, no. 509. The Ministry believes that the ban on the sale of energy drinks to children below 16 years of age should apply to all drinks where the purpose is to provide caffeine in amounts over 150 mg/l and other stimulating ingredients. This is in line with how Latvia, Lithuania, Romania, and Poland have defined energy drinks in their national regulations on age limits. The Latvian regulation specifies that the regulation only applies to ready-to-drink beverages, while this is not specified in the regulations of the other countries.

The Ministry considers that powders and tablets that are to be mixed with liquid and have the same intended use as ready-to-drink energy drinks should be included in the regulation as the purpose of the product will be the same. The requirement for the amount of caffeine is specified for the ready-to-drink product.

Drinks based on coffee, tea, and cocoa and that have a food designation containing the words "coffee," "tea," or "cocoa" are proposed to be excluded from the definition of energy drink. In this context, the Ministry assumes that "based on" means that coffee, tea, or cocoa plays a prominent role in the products, either as an ingredient or as a flavor component. The Ministry considers, for example, that products such as iced coffee and iced tea, but also products such as "macchiato," "latte," "cappuccino," etc., will be covered by the exemption. The Ministry is aware that some of these products covered by the exemption contain more than 150 mg caffeine/l and that they are also consumed by children. However, the Ministry considers that it may be challenging to include this type of product in the proposal, partly because there is no requirement to declare the caffeine content in products where the substance occurs naturally. These products are also difficult to distinguish from other products consisting of coffee, tea, and/or cocoa. Furthermore, the Ministry considers that energy drinks are in a unique position when it comes to exposing children to caffeine. There are no other single products in the food sector with similar popularity, prevalence, and risk of adverse and negative health effects in children as energy drinks, and which are as easy to consume in equivalent amounts.

Age Limit
The Ministry proposes in § 4 that the sale of energy drinks to persons under 16 years should be prohibited. The Ministry considers that a ban on the sale of energy drinks to children under 16 years is necessary to protect children from the adverse and negative health effects of energy drinks as described above.

The seller is responsible for complying with the prohibition on the sale of energy drinks to persons under 16 years and must make a concrete assessment of the buyer's age in the sales situation. It is proposed in § 4 second paragraph that the seller should ask the buyer for identification when selling energy drinks if there is doubt about the buyer's age. It is not proposed to require identification in all situations, but the seller must assess whether there is doubt about the buyer's age. In cases where sales take place over the internet, the seller must have systems to ensure that sales do not occur to persons under 16 years, for example, identification requirements upon delivery.

In § 4, a corresponding age requirement for the seller of energy drinks is proposed, stating that the seller must be over 16 years. Such a requirement ensures that the seller has the same maturity and age as the person who can buy energy drinks. This can help prevent children under 16 years from accessing energy drinks and reduce the risk of selling energy drinks to children under 16 years. A limitation in this requirement is proposed, stating that persons selling energy drinks can be under 16 years if a person over 16 years supervises the sale daily. The Ministry considers that this can help address practical challenges with the age requirement. An example could be a 15-year-old who has a part-time/summer job in a store that sells energy drinks.

Assessment of EEA law
The regulation proposed must follow legal frameworks established in harmonized regulations included in the EEA Agreement. The proposed regulation is in line with harmonised regulations included in the EEA Agreement. In areas where harmonized regulations have not

been established, national rules may be introduced under certain conditions. Such national rules must not, however, hinder the trade of goods and services between countries in the EEA area.

The proposal to introduce a 16-year age limit for the sale of energy drinks does not, in the Ministry's view, constitute a trade barrier under Article 11 of the EEA Agreement. The age limit for the sale of energy drinks is a so-called sales arrangement, in line with the EFTA Court's decision in case E-9/00 (the Rusbrus case). Measures that constitute sales arrangements mean that national rules on specific forms of sale are not considered measures with equivalent effect to quantitative import restrictions when they apply to all businesses and affect the sale of domestic and imported goods in the same way, legally and factually, according to the so-called Keck doctrine. The Ministry's proposal is in line with this doctrine, as the proposal to introduce a 16-year age limit for the sale of energy drinks covers all energy drinks available on the market, will apply to all businesses selling energy drinks, and will affect the sale of imported and domestic goods in the same way.

Socioeconomic assessments of the proposed regulation

The introduction of a ban on the sale of energy drinks to children below 16 years of age will have consequences for the authorities and the food industry, but also for individuals. In its assessment of socioeconomic consequences, the Ministry has based its evaluation on the knowledge base about the health effects of energy drinks and the development in consumption, and that the rights under the Convention on the Rights of the Child give the authorities the opportunity to implement policies that promote good health. The Ministry also bases its assessments on experiences from other areas where age limits are practiced. The socioeconomic assessments of the proposed regulation are subject to uncertainty but have been carried out to the best of our ability.

Several of the adverse health effects from the intake of energy drinks, such as headaches, restlessness, tremors, and dependence, cause discomfort as long as they last but do not necessarily result in lasting health effects, although the risk increases with prolonged use. These health effects can still affect the individual's quality of life, work capacity, and/or lead to absenteeism from school or work. The individual's experience of having a good quality of life is important for society, but there is little available knowledge about the socioeconomic consequences of reduced quality of life, making it difficult to estimate. The Ministry considers that the effects of energy drink intake on sleep quality and sleep duration may have the greatest significance at the societal level, as sleep problems in children can affect their schooling. Getting sufficient quality sleep is essential for the development of mental and physical health in childhood and adolescence. There is a lack of data supporting that energy drink intake is a cause of sleep challenges, but several studies, including from Norway, indicate that it may be part of a larger picture. Other factors that can affect children's sleep include the use of digital screens. As far as the Ministry is aware, no specific cost estimates have been made regarding the effects sleep challenges can have on, for example, school absenteeism, work capacity during the school day, grades, or the possibility of further education. However, there are socioeconomic assessments from the workplace where sleep problems are examined in relation to work capacity and economic loss. Estimates from the USA show, for example, that reduced work capacity in adults due to sleep problems can

amount to as much as USD 63.2 billion per year. In summaries of causes, consequences, and economic costs associated with insufficient sleep conducted by RAND Corporation, it is stated that lack of sleep can contribute to reduced gross national product. The significant costs associated with sleep problems are supported by results from the Norwegian HUNT study, which shows that insomnia contributes to 6.7% of work disability. The highest part of the costs associated with sleep problems is assumed to be related to reduced work capacity while at work. The Ministry considers that results from these studies can provide some indications of the societal costs of sleep problems in schoolchildren.

Energy drink intake can also lead to more serious effects on the central nervous system, cardiovascular system, and high single doses can lead to caffeine poisoning. In addition to the consequences for the affected individual, incidents resulting from this can occupy capacity in the healthcare system. It is not known to what extent incidents caused by caffeine intake in children occupy resources in the healthcare system today. Healthcare professionals can contact the Poison Information Center for help in handling possible poisonings caused by caffeine intake, for example, from energy drinks. The Poison Information Center records these inquiries. The number of inquiries related to energy drinks has been relatively stable since registration began in 2015, but it is difficult to say how frequently caffeine poisoning from energy drink intake occurs based on these data, as it is assumed that a large proportion of such incidents do not contact the Poison Information Center. This may be because healthcare professionals do not know what caused the incident and therefore do not associate it with energy drink intake, and that there are no routines for healthcare professionals to contact regarding energy drink intake in such incidents. Furthermore, not all patients seek medical attention for possible caffeine poisoning. The data recorded by the Poison Information Center also do not provide an overview of what treatment those who have contacted healthcare professionals with caffeine poisoning receive or how severe the poisoning has been.

One of caffeine's physiological effects on the body is that it can be stimulating. Caffeine in small amounts can counteract the feeling of fatigue. For tired schoolchildren, access to energy drinks can be perceived as positive because the immediate effect of consuming energy drinks will give a feeling of being alert and ready to face the challenges of the school day. But caffeine intake can also have adverse and negative health consequences, both in the short and long term. The Ministry considers that the best interest of the child in this case would be to address the causes of the children's fatigue and lack of energy instead of masking a possible sleep challenge by alleviating the symptoms through energy drink intake. Such an approach will better facilitate children achieving the highest possible standard of health, cf. children's rights.

Frequent energy drink intake can cause acid damage and cavities. In its consultation response to the proposal for a new regulation on the prohibition of marketing certain food products aimed at children, the Public Health Association writes that measures that reduce the risk of cavities and acid damage will help promote oral health and improve quality of life, as oral health and quality of life are closely linked. As far as the Ministry is aware, no specific cost or benefit calculations have been made regarding the prevalence of these conditions in children as a result of energy drink intake, but the Ministry considers that an age limit for the

sale of energy drinks could have a positive impact on dental health because the consumption of the drinks will be reduced. With less need for dental treatment related to acid damage and cavities, it is natural to believe that healthcare costs will be reduced. However, this assumes that energy drink intake is not replaced with the intake of other foods and drinks with the same effect on dental health, such as juice or soda.

Health authorities recommend that the intake of added sugar be limited to less than 10% of a person's total energy intake. In the report "Socioeconomic assessment of following dietary guidelines," the Norwegian Directorate of Health has assessed that society can save NOK 3.69 billion (2013 kroner) if the population reduces its intake of sugary drinks in accordance with dietary guidelines. The Brewery and Beverage Association states that in 2023, a total of 560,025,000 liters of soda were sold, while 72,995 liters of energy drinks were sold. The sales of soda without added sugar are slightly higher than sugary soda, while the ratio is reversed for energy drinks. The Ministry believes this provides an indication of the enormous socioeconomic benefits that reduced sugar consumption can have, even though the estimates apply to the entire population and all sugary drinks, not just energy drinks. The Ministry considers it likely that a ban on the sale of energy drinks to children under 16 years will reduce sugar intake in children who currently drink energy drinks with added sugar, which could positively affect the diet of these children. For further assessments of possible benefits of reduced added sugar intake, which in turn can lead to a reduction in overweight and obesity, reference is made to the societal assessments made in connection with the consultation on the new regulation on the prohibition of marketing certain food products aimed at children.

If the proposed regulation to ban the sale of energy drinks to children below 16 years of age comes into effect in 2026, most children below 16 years of age will be protected from the adverse and negative health effects of energy drinks by 2032 as a result of the ban. They will be protected by the ban during the period when the introduction to energy drinks is most common and when children are particularly vulnerable to the adverse and negative health effects that energy drink consumption can cause. It is assumed that the consumption of energy drinks among children below 16 years of age will decrease relatively quickly after the regulation comes into effect, and that fewer children will experience adverse and negative health effects related to energy drink intake already from the introduction of the regulation. The effects may occur at different times and be of small, medium, or significant importance.

Consequences for the authorities

The Ministry assesses that the likely costs for the authorities in connection with the proposal will primarily be related to increased resource use for conducting inspections and handling complaints. In addition, there will be costs for monitoring the consumption of energy drinks. At the request of the Ministry, the Norwegian Food Safety Authority has assessed the economic and administrative consequences of being proposed as the supervisory authority with responsibility for inspections under the regulation. The Norwegian Food Safety Authority has assessed a minimum solution and a recommended solution for supervision of the regulation. The Norwegian Institute of Public Health (FHI) has assessed the costs associated with a potential monitoring program.

Below are the outlined costs for a minimum solution for supervision and the Norwegian Food Safety Authority's recommended solution for supervision:

- 1.1-1.8 full-time equivalents for supervision upon introduction of the regulation, corresponding to between NOK 1 and 1.7 million per year.
- 2-4.8 full-time equivalents for supervision in the operational phase, corresponding to between NOK 1.9 and 4.4 million per year.
- NOK 425,000 annually for a potential monitoring program, including a 20% position.

The estimate for the number of full-time equivalents for conducting inspections under the regulation is uncertain and depends on the form and frequency of supervision chosen. It is assumed that the start-up phase is one year before supervision transitions to a permanent operational phase. It is assumed that supervision of the age limit requirement for energy drinks will be part of Norwegian Food Safety Authority's regular supervision of the relevant businesses where applicable.

FHI and the Norwegian Food Safety Authority recommend implementing a monitoring program to follow the development in energy drink consumption. FHI has prepared a recommendation on what such a monitoring program can include. Any additional funding to Mattilsynet and funds for implementing a monitoring program must be processed through the regular budget processes.

The Ministry assesses that the following benefits may be relevant:

- Positive effects on children's schooling (increased learning ability and better academic performance)
- Reduced number of cavities and acid damage to children's teeth
- Improved diet through reduced intake of added sugar
- Non-priced effects of reduced energy drink intake (including increased quality of life, improved personal finances), cf. discussion in section 14.3

The benefit to dental health and a diet with reduced intake of added sugar assumes that energy drink intake is not replaced by products with similar adverse health effects.

The proposal may also result in important distribution effects. It is likely that this measure will contribute to reducing social inequalities in health, including oral health, because the measure will cover all children and potentially have a greater health effect among children from lower socioeconomic groups.

Consequences for the business sector

All businesses that sell energy drinks will be affected by the proposal. With the introduction of a ban on the sale of energy drinks to children below 16 years of age, all actors in the energy drink value chain will lose sales to these children. The Ministry does not know the proportion of sales made to children below 16 years of age, but consumption surveys provide an indication. In FHI's survey, 22% of secondary school children reported drinking energy drinks less than once a week, 17% said they drink it 1-2 times a week, 10% 3-4 times a week, 4.4% 5-6 times a week, 2.1% every day, and 2.4% several times a day. Consequently, many in the age group 13-16 years are more or less regular buyers of energy drinks. According to

Statistics Norway (SSB), there were 267,522 children in grades 7-10 in Norway in 2023. Given that one can of energy drink (5 dl) has a retail price of approximately NOK 30 and 2.1% drink energy drinks daily (equivalent to 5,600 children), the daily sales of energy drinks purchased by this group would amount to approximately NOK 168,000 per day for all actors combined. There are significant uncertainties in such an estimate. The price of energy drinks varies greatly, VAT is not taken into account in the example, and daily sales will be distributed across several levels. The figure does not indicate how much the loss will be for each actor but shows that the introduction of a ban on the sale of energy drinks to children below 16 years of age will have economic consequences for the actors. The introduction of the ban may lead to changed purchasing patterns that can provide businesses with opportunities for economic growth within other product groups and segments. As far as the Ministry is aware, there are few, if any, actors in the food industry that only sell energy drinks in the Norwegian market. Nevertheless, actors may need to restructure their production due to reduced energy drink sales, which can have consequences for tasks and staffing. For businesses where sales and delivery do not occur simultaneously, such as online purchases, businesses must ensure that the deliverer also has control mechanisms to comply with the age limit. This may require different control arrangements to ensure compliance with the ban than in cases where payment and delivery occur simultaneously. The costs of the various control arrangements may vary and differ between traditional store sales and online sales. The Ministry assesses that the consideration of children's health outweighs the potential loss that business actors will incur by not being able to sell these products to children below 16 years of age.

Those who sell energy drinks must have internal control to ensure compliance with the ban on selling energy drinks to children below 16 years of age. All food businesses must have an internal control system today, and a ban on selling energy drinks to children below 16 years of age can be added as an element in already existing internal control systems. The Ministry assesses that this will not require new systems or other follow-up from the business beyond some administrative work.

The proposed regulation will contribute to more equal competition conditions for the industry than the current practice where some actors practice a ban on sales to children, while others do not. The proposed regulation will provide more equal competition conditions regarding the practice of the ban, which the Ministry assesses as positive.

The Ministry assesses that a ban on the sale of energy drinks to children below 16 years of age may be perceived as intrusive, especially for children who are currently between 13-16 years old and have developed a habit of drinking energy drinks. The Ministry considers that this will primarily be evident in the first years after the regulation is established. Children who are currently aged 10-13 years will likely not have the same experience of restrictions related to the regulation as today's 13-16-year-olds, because they have not started drinking energy drinks and because they will not experience that an offer is being taken away from them or limited to the same extent. The Ministry assesses that the proposal will have more positive than negative consequences for children in the long term, as it can contribute to improved quality of life by reducing both adverse and negative health effects from energy drink intake, such as discomfort, sleep disturbances, dependence, stress, and anxiety, and lead to fewer

negative health effects on the cardiovascular system and fewer cases of caffeine poisoning. Reduced consumption of energy drinks can contribute to better dental health for individuals and reduced sugar intake. However, this assumes that energy drinks are not replaced by other food and/or drinks, or that the drinks are replaced by healthier alternatives. If energy drinks are not replaced by other food and/or drinks, it can have a positive effect on the individual's finances because the money is no longer spent on energy drinks or similar products. A disadvantage of a ban on the sale of energy drinks may be that young people will need to obtain identification to ensure they can buy energy drinks when they are over 16 years old. This can incur a one-time cost. For example, obtaining a national ID card currently costs NOK 750.

Further information about the proposal can be found in this document which is under public consultation in Norway (only in Norwegian language):
https://www.regjeringen.no/no/dokumenter/horing-forslag-til-ny-forskrift-om-forbud-mot-salg-av-energidrikk-til-barn-under-16-ar/id3091503/