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Federal Department of  
Economic Affairs, Education and Research EAER  
**Federal Office for National Economic Supply FONES**

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# Report on Strategic Stockpiling 2015

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This report is available on the [www.bwl.admin.ch](http://www.bwl.admin.ch) website.

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# Contents

<b>1</b>	<b>SUMMARY .....</b>	<b>5</b>
<b>2</b>	<b>INTRODUCTION .....</b>	<b>6</b>
2.1	Background .....	6
2.2	Approach and methodology .....	6
<b>3</b>	<b>THE STOCKPILING SYSTEM.....</b>	<b>7</b>
3.1	Legal foundations.....	7
3.2	Instruments .....	7
3.3	Compulsory stock organisations .....	8
3.4	International Energy Agency IEA .....	9
3.5	Withdrawal of goods from strategic stockpiles.....	9
<b>4</b>	<b>FOODSTUFFS .....</b>	<b>10</b>
4.1	Overview .....	10
4.2	The trend in foodstuffs .....	11
4.3	Sugar.....	12
4.4	Rice .....	13
4.5	Cooking oils and fats.....	14
4.6	Grain for human consumption.....	15
4.7	Concentrated feed (sources of energy and protein) .....	16
4.8	Fertiliser .....	17
4.9	Coffee.....	18
4.10	Cooking salt .....	19
4.11	Raw materials for yeast production .....	20
4.12	Pesticides – under review .....	21
4.13	Seeds – under review .....	22
4.14	Infant formula – under review .....	23
<b>5</b>	<b>ENERGY .....</b>	<b>24</b>
5.1	Overview .....	24
5.2	The trend in energy.....	25
5.3	Gasoline .....	26
5.4	Kerosene.....	27
5.5	Diesel .....	28
5.6	Heating oils .....	29
5.7	Natural gas.....	30
5.8	Uranium fuel elements .....	31
<b>6</b>	<b>THERAPEUTIC PRODUCTS.....</b>	<b>32</b>
6.1	Overview .....	32
6.2	The trend in therapeutic products .....	34
6.3	Anti-infectives for human use.....	36
6.4	Anti-infectives for animal use .....	37
6.5	Virostatics.....	38
6.6	Strong analgesics and opiates.....	39

6.7	Haemostatics .....	40
6.8	Insulin .....	41
6.9	Blood bag systems.....	42
6.10	Respirator and surgical masks.....	43
6.11	Surgical gloves.....	44
6.12	Vaccines – under review .....	45
<b>7</b>	<b>INDUSTRIAL GOODS .....</b>	<b>46</b>
7.1	Overview .....	46
7.2	The trend in plastics.....	47
7.3	Polyethylene and additives .....	48
7.4	Polystyrene .....	49
7.5	Polyethylene terephthalate (PET).....	50
7.6	Ethanol – under review .....	51
<b>8</b>	<b>FINANCIAL ASPECTS .....</b>	<b>52</b>
8.1	Value of goods held under the strategic stockpiling system as at 30 June 2015.....	52
8.2	Guarantee funds .....	52
8.3	The trend in costs .....	53
<b>9</b>	<b>SCHEDULE OF LEGAL INSTRUMENTS .....</b>	<b>54</b>
<b>10</b>	<b>ABBREVIATIONS.....</b>	<b>55</b>

# 1 Summary

The Report on Strategic Stockpiling sets out how holdings of compulsory stocks have changed over the previous four-year period, their current status, and how they are likely to develop. The objectives and measures it contains reflect the current status at the time the report was drawn up. They may be amended in the course of the subsequent reporting period in response to changing economic and market circumstances.

Efforts are made to offset any shortage of foodstuffs within approximately three months by releasing compulsory stocks and promoting imports. In the second three months of a period of supply disruption, each person should continue to be supplied with at least 3,000 calories a day. Compulsory stocks of food cover directly consumable foodstuffs such as sugar and cooking oils, but also products which must be processed before consumption, such as grain for bread-making, and raw materials for yeast production. Stocks of production factors – fertilisers and feedstuffs – are also held. Depending on the goods concerned, stock volumes are sufficient to meet normal average Swiss demand for three or four months. With a view to amending the range of goods for which strategic stocks are held, a review is currently being held of whether coffee should continue to be included, and whether stocks might be extended in future to include pesticides, seeds and infant formula.

Where strategic stocks of energy are concerned, the focus is on supplies of mineral oil and natural gas. Despite their declining share of aggregate energy consumption, mineral oil products remain very important in Switzerland. They account for 96% of the energy required for transport, and approximately half of that needed for heating. The federal government requires that strategic stocks of gasoline, diesel and heating oil are sufficient to cover demand for four and a half months. Stocks of kerosene must be sufficient for three months. Heating oil could be substituted for natural gas in dual-fuel systems for four and a half months. In the electricity sector, the Swiss Energy Strategy 2050 is likely to bring about a revolution in the way in which Switzerland is supplied with electricity. In view of the plans to limit the operating life of nuclear power stations that are laid down in the Strategy, a decision will have to be made in consultation with the affected nuclear power station operators on when Switzerland should start reducing its compulsory stocks of uranium fuel elements.

Globalisation, cost pressures and regulatory requirements have resulted in a process of concentration in the production of therapeutic products in recent years. Individual technical problems in production or logistics are enough to cause supply disruption, and an increase in isolated short-term supply shortages of certain therapeutic products has been observed. Anti-infectives for human and veterinary medicine, as well as virostatic agents, have been subject to strategic stockpiling requirements for many years. These requirements were extended in the autumn of 2013 to include strong analgesics and opiates. Reserves are also held of blood clotting factors, insulin and certain medicinal products. In view of the increasing scarcity of certain vaccines, in the coming reporting period the FONES will review the list of substances of which stocks must be held.

In the industrial sector, strategic stocks are held of a variety of plastics in granulate form, as well as of a range of related additives. These materials can be used to manufacture packaging for foodstuffs and therapeutic products, as well as for industrial products.

## **2 Introduction**

### **2.1 Background**

The National Economic Supply (NES) organisation reviews the policy on strategic stocks on a regular basis. It sets out the findings of this review in a report on strategic stockpiling, in which it also looks ahead to the subsequent reporting period. The most recent report on strategic stockpiling was published in 2011 for the 2012 to 2015 period.

The report sets out how holdings of compulsory stocks have changed over the previous four-year period, their current status, and how they are likely to develop. Its principal target readership is the Federal Department of Economic Affairs, Education and Research (EAER), the NES units, and the holders of compulsory stocks and their compulsory stock organisations. In 2016, the report will be incorporated into the Report on National Economic Supply.

The objectives and measures contained in the report reflect the current status at the time it was drawn up. They may be amended in the course of the subsequent reporting period in response to changing economic and market circumstances.

### **2.2 Approach and methodology**

This report presents and assesses Switzerland's strategic stockpiles. Information on the individual holdings is structured in the same way for each product or group of products. The Federal Office of National Economic Supply (FONES) has based its assessment of current compulsory stock holdings on data supplied by the various NES units, and the compulsory stock organisations.

This assessment is conducted for the attention of the decision-making bodies responsible for compulsory stocks. It provides both a snapshot of the current situation and an outlook on future developments. The range of goods for which stocks must be held may be amended at any time as part of normal procedures.

## 3 The stockpiling system

### 3.1 Legal foundations

The fundamental principles of strategic stockpiling are laid down in the National Economic Supply Act and the Ordinances that derive from it. A schedule of the relevant legal instruments (which are available in German and French only) is given in the Appendix. Based on these legal foundations, the EAER or the FONES issue directives and guidelines which confer certain strategic stockpiling-related tasks on the various organisations and entities involved. A variety of ordinances and directives were amended during the reporting period in line with developments in stockpiling practices. The changes are listed individually in this report, in the sections on the different product groups.

### 3.2 Instruments

#### a. Compulsory stocks

The Federal Council requires stocks to be held of goods that it classifies as essential. This is the basis of the compulsory stocks system, which applies to certain foodstuffs, sources of energy, therapeutic products and fertilisers. For each of these goods, the EAER determines *how long* the stocks must meet average Swiss needs under normal circumstances. *Volumes* of compulsory stocks are laid down for those goods for which it does not make sense to set a time period as the basis for demand coverage.

Companies which import a minimum volume of such goods, or which are the initial distributors on the Swiss market, must hold compulsory stocks. The federal government supports this stockpiling by providing guarantees to companies applying for loans to finance their inventories, thereby enabling them access to low-interest credit. Companies are also able to claim additional tax write-offs on their compulsory stocks. More than 90% of those holding strategic stocks are subject to the compulsory system. The remainder hold such stocks on a voluntary basis.

#### b. Stockpiling on a voluntary basis

Essential goods for which the Federal Council does not prescribe compulsory stocks may be stockpiled on a voluntary basis. In such cases, the FONES concludes stockpiling agreements with the private-sector companies concerned. This instrument of voluntary stockpiling is used when reserves are to be held of vitally important goods for which there is normally only a low level of demand, or which are offered only by a small number of suppliers. These include certain medications, medicinal products and plastic granulate for the packaging industry. As is the case with compulsory stocks, companies can take out government-guaranteed bank loans to finance their stockpiled goods, and also make additional tax write-offs.

#### c. Minimum stocks

The federal government is able to force individual companies to hold minimum stocks of essential goods for a limited or indefinite period. This is of particular value as a means of rapidly influencing the stocks held by Swiss businesses when signs of a supply shortage emerge. Unlike those holding strategic stocks on a compulsory or voluntary basis, the companies which are obliged to hold minimum stocks are not granted any credit guarantees or tax breaks by the federal government.

#### d. Other means of maintaining stocks

To maintain stocks of essential goods, the FONES may enter into agreements with individual companies, sector organisations and public-sector institutions in the form of supply guarantee or similar contracts. Such agreements come into effect where strategic stocks cannot be held under the compulsory

or voluntary stockpiling systems, or the federal government is unable to prescribe minimum stocks. No credit guarantees or tax breaks are granted.

### 3.3 Compulsory stock organisations

As part of the system of compulsory strategic stocks, the affected sectors of the economy have the option of setting up organisations under private law to finance warehousing costs. These are known as compulsory stock organisations and take the legal form of an association or cooperative. Under the National Economic Supply Act, they can set up guarantee funds financed by contributions from the importers or initial distributors of strategic goods. They are subject to federal government supervision. The FONES ensures that contributions are appropriate and used for their intended purpose. The guarantee funds administered by the compulsory stock organisations are used to cover the costs and price risks incurred by the companies concerned as a result of holding compulsory stocks. The compulsory stock organisations also carry out certain tasks which are delegated to them by the FONES. Currently, these include conducting compulsory stock checks on company premises, as well as issuing and cancelling general import licences.

Organisation	Sector	Year of foundation
Agricura	Fertiliser	1950
Carbura	Liquid fuel	1932
Helvecura	Therapeutic products	1951
Provisiogas	Natural gas	2015
réserveuisse	Grain, food, and feedstuffs	2003 (1948 <sup>1</sup> )

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<sup>1</sup> Predecessor organisations



### **3.4 International Energy Agency IEA**

Founded in 1974, the International Energy Agency (IEA) is an independent organisation within the Organisation for Economic Cooperation and Development (OECD). One of the IEA's aims is to maintain supplies of oil to its members as best it can in the event of a crisis. IEA members are therefore obliged to hold reserves of mineral oil that correspond to at least 90 days' worth of net imports, based on their prior-year consumption. Furthermore, in a crisis situation, these countries must be able to take appropriate action to cut demand for fuels. If the IEA decides in an emergency to reduce oil consumption within its organisation, then Switzerland must also abide by the IEA's directives. The FONES thus already works closely with the Swiss Federal Office of Energy (SFOE) and with the Swiss oil industry so that it is prepared to cope with such a situation.

### **3.5 Withdrawal of goods from strategic stockpiles**

Strategic stocks may be released if supplies of one or more essential strategic goods become short, or if there severe shortages generally. This is intended to prevent or at least mitigate interruptions in the supply of key storable goods. Stocks can be released quickly, and this is a less disruptive form of market intervention the most of the other instruments of national supply, such as the introduction of quotas or rationing.

Where there are signs of future disruption to supplies of essential products or product groups, NES will conduct a status analysis. This involves working with industry associations, compulsory stock organisations, importers, trade organisations and domestic producers. Based on the findings of this analysis, the Delegate for National Economic Supply will request that the EAER releases the necessary goods.

The EAER will approve the release of strategic stocks by means of an ordinance, which simultaneously constitutes an execution mandate for the NES unit concerned and the FONES. Working on the basis of the ordinance, the unit will define the limits on withdrawal and the period for which the stocks will be available. Once the shortages are over, the ordinance will be repealed on application from NES.

In recent years, 2012 and 2015 provided examples of how the system works, when medication was repeatedly called up from the stocks to fill supply gaps. The shortages affected antibiotics, in particular, with supplies repeatedly running low throughout Europe as a result of suspended production and batch recalls. It is common in the therapeutic products sector for only one company to offer a particular medication. The sudden loss of a producer thus cannot (immediately) be offset by increased output by other market participants. The shortage in one brand of medication also created shortages of preparations with a similar range of indications. The use of strategic stocks nonetheless meant that Swiss hospitals always had the medication they needed.

In the autumn of 2015, the low water level in the Rhine combined with a technical failure at the Cressier refinery to create shortages in the supply of mineral oil. Oil was thus drawn for a time from strategic stocks.



## 4 Foodstuffs

### 4.1 Overview

Below is a list of the food items for which stocks must be held, alongside the demand coverage required by the federal government, and the actual level of holdings as at 30 June 2015. The list also includes goods for which no strategic stocks are held at present, but which are being considered for inclusion in the system.

Product	Demand coverage (DC)	Holdings <sup>2</sup>	Trend
Sugar	3 months	69,000t	DC from 4 to 3 months
Rice	4 months	14,000t	DC unchanged
Cooking oils and fats	4 months	32,750t	DC unchanged
Coffee	3 months	14,800t	Under review
Soft wheat for human consumption	4 months	160,000t	DC unchanged
Durum wheat for human consumption	4 months	34,500t	DC unchanged
Soft wheat for dual use <sup>3</sup>	3–4 months	140,000t	DC unchanged
Energy-rich feedstuffs	2 months	130,000t	DC unchanged
Protein-rich feedstuffs	2 months	52,000t	DC unchanged
Nitrogen fertilisers (pure N)	1/3 of that needed for one growing season	17,300t	DC unchanged
Cooking salt	---	4,000t	Cancel special agreement
Raw materials for yeast production	1 month	916t	DC unchanged
Pesticides	---	---	Under review
Seeds	---	---	Under review
Infant formula	---	---	Under review

<sup>2</sup> Figures rounded

<sup>3</sup> For human consumption, but can also be used as feed

## **4.2 The trend in foodstuffs**

### **a. Analysis of supplies; economic developments**

Action to secure food supplies faces a particular set of challenges, which include dependency on weather conditions and the limited shelf life of many foodstuffs. Where there are shortages, people immediately fear that it will not be possible to meet basic needs, which can result in overreaction. The risk of poorer harvests appears to be rising around the world as a result of extreme climatic conditions such as droughts, floods and storms. Furthermore, global agricultural trade is becoming increasingly concentrated on the major exporters such as Brazil, Canada and the European Union, as well as a small number of large corporations. Finally, logistics are becoming ever more complex, as food distribution is based on processes which are, in the main, highly centralised, increasingly fully-automated, and controlled by means of information and telecommunications technologies.

Although Switzerland's total share of global agricultural import volumes accounts for only around one percent, the per-capita figure is one of the highest in the world. In addition to finished goods, certain basic foodstuffs such as rice, and various factors of agricultural production – including fertilisers – are almost exclusively imported. A poor domestic harvest of grain or potatoes, be it in volume or quality terms, may necessitate top-up imports to cover demand. Switzerland's gross self-sufficiency level for foodstuffs of plant origin is just 40–45 percent. Yields are highly weather-dependent. Switzerland thus depends on imports for its supplies of plant-based foodstuffs and agricultural inputs.

For many years now, the international market has been shaped by a sharp rise in demand for foodstuffs as the global population grows and prosperity levels rise. This demand contrasts with limited supplies, which can be increased only slowly owing to restrictive environmental factors and finite natural resources. Even then, they cannot continue to expand indefinitely

### **b. Selection of products for which stocks are held**

According to the strategic orientation of the NES system determined in 2014, it should be possible to close gaps in supplies for one quarter by releasing goods from strategic stockpiles and by promoting imports. The target for the following quarter is to ensure that the population is supplied with at least 3,000 calories per person, per day.

Compulsory stocks of food currently include directly consumable foodstuffs such as sugar, rice and cooking oils, but also products which must be processed before consumption, such as grain for bread-making. Stocks of production factors – fertilisers and feedstuffs – are also held. The volumes of these stocks are intended to represent average Swiss needs for between three and four months.

## 4.3 Sugar

Product	Demand coverage (DC)	Holdings	Trend
Sugar	3 months	69,000t	DC from 4 to 3 months

### a. Description

Gross demand for sugar came to around 382,000 tonnes in Switzerland in 2014. Once the sugar exported in processed products is deducted, net consumption comes to 210,000 tonnes. Domestic production stood at 305,000 tonnes in 2014.

According to the Sixth Swiss Nutrition Report, sugar should be consumed in moderation as part of a balanced diet, and no more than 10% of daily energy intake should come from added sugar, honey and fruit juice.

### b. Assessment

Over 165 million tonnes of sugar is produced annually around the world. Around a quarter of this derives from sugar beet, while three quarters is produced from sugar cane. Switzerland is highly self-sufficient with regard to sugar. The land area used to cultivate sugar beet has increased by 9 percent in recent years. The sugar beet grown in Switzerland is processed in plants belonging to Swiss Sugar Ltd. During the season, they can handle 10,000 tonnes of sugar beet per day at the factory in Frauenfeld, and 9,600 tonnes per day in Aarberg.

Excluding demand for export as processed products, Switzerland's domestic sugar consumption can be covered by domestic output. In view of the high level of domestic production, demand coverage was reduced from four to three months in 2015. It is difficult to estimate how domestic sugar production will develop going forward owing to market deregulation in the EU and its effects on sugar prices. Stocks must still be held, however, in part because demand from the export industry has accounted, on average, for around half of domestic consumption in recent years.

### c. Trend

Strategic stocks remain necessary so that Switzerland is able to continue supplying the population and industry with sugar in the event of a crisis. Demand coverage is three months.

## 4.4 Rice

Product	Demand coverage (DC)	Holdings	Trend
Rice	4 months	14,000t	DC unchanged

### a. Description

Rice plays a part in the human diet as a low-fat, low-protein carbohydrate. It is also important because it is suitable for a gluten-free diet and can thus also be consumed by sufferers of coeliac disease. Rice is also known to be hypo-allergenic.

In Switzerland, rice is grown on a commercial basis only in the canton of Ticino. Domestic production satisfies less than 1% of total consumption, however. Around 54,000 tonnes of rice was imported in 2014. Global rice production comes to approximately 750 million tonnes annually, 90% of which is harvested in Asia. Just five percent of total output actually reaches the global market, as most is consumed in the countries in which it is produced.

Most of the rice imported into Switzerland comes from Italy, Thailand, India, Pakistan and the USA. The majority of overseas ships unload their rice cargoes at the port of Rotterdam, from where it is transported on freighters along the Rhine to Basel, and on by rail to the rice processing plants. Imports from Italy are delivered by road.

### b. Assessment

Rice imports increased slightly during the reporting period. Otherwise, the underlying situation has not changed significantly since 2011. Since rice cultivation in Switzerland will remain a marginal activity, future supplies can only be guaranteed by means of imports. As with all plant-based raw materials, rice cultivation is subject to climatic and biological risks which may result in poor harvests.

### c. Trend

Rice will continue to be covered by the strategic stockpiling system because of its importance as a dietary staple, its excellent shelf life, and Switzerland's dependence on imports. Stocks of rice still cover demand for four and a half months.

## 4.5 Cooking oils and fats

Product	Demand coverage (DC)	Holdings	Trend
Cooking oils and fats	4 months	32,750t	DC unchanged

### a. Description

According to current nutritional recommendations, vegetable oils and fats should be given preference over their animal-derived equivalents. Vegetable oils are among the most important suppliers of energy to the Swiss population. Fatty acids that are found primarily in vegetable oils and fats should satisfy between 10 and 15 per cent of daily energy needs. The Sixth Swiss Nutrition Report recommends that adults should consume 20 to 30 grammes of vegetable oils per day.

Goods of a variety of places of origin and means of production may be included in compulsory stocks, as may other types of oil or oil seeds, where appropriate. Stocks are largely held in tanks and large-scale containers. Oils can be kept for several years.

The most popular cooking oils are sunflower, rapeseed and palm oil. Olive, coconut, peanut, palm heart and soya oil are also important. In Switzerland, more sunflower oil is consumed than any other type of cooking oil. Most of this is imported. Domestic output covers almost 100% of demand for rapeseed oil, which accounts for around a quarter of the cooking oil market.

Cooking oils and fats are regarded as dietary staples. They are major providers of energy, as well as important raw materials for the food industry. In Switzerland, around 20% of cooking oil is sold in bottles for private household consumption. The remaining 80% is sold mainly in large-volume containers to industry and the catering sector.

### b. Assessment

Oil seed crop areas in Switzerland have expanded steadily in recent years, especially where rapeseed is concerned. This is attributable to excellent returns, the use of a little more land area, and improved seed (hybrid varieties).

Switzerland self-sufficiency level with regard to vegetable oils and fats has reached about one fifth of total consumption. Some 90% of the required volume of rapeseed is now grown domestically, while the figures for sunflower and soya oils are 8% and 30% respectively

### c. Trend

Approximately three quarters of net consumption is covered by imports. Most of this enters Switzerland in raw or semi-finished form.

The self-sufficiency level for cooking oils and fats will not rise significantly in the immediate future. Strategic stocks will therefore continue to cover demand for four months.

## 4.6 Grain for human consumption

Product	Demand coverage (DC)	Holdings	Trend
Soft wheat for human consumption	4 months	160,000t	DC unchanged
Durum wheat for human consumption	4 months	34,500t	DC unchanged
Soft wheat for dual use	3–4 months	140,000t	DC unchanged

### a. Description

With its high protein and carbohydrate content, grain is one of our most important sources of energy. The nutritional advice in Switzerland is to eat three portions of carbohydrate-rich foods per day. Potatoes, pulses or rice may be eaten as an alternative to grain.

Soft wheat, spelt and rye are all regarded as bread grains. Strategic stocks are held of soft wheat, in particular. Some of this is intended for human consumption only, while a separate section of stocks has a dual use for both bread and feedstuffs. Changes in consumption habits driven by the appeal of other cultures mean that domestic cultivation of bread grain has tended to decline in recent years, although the self-sufficiency level remains high. Most of the grain for Swiss bread is milled in Switzerland. White flour accounts for 57% of total consumption. Some 27% of demand is met with semi-white flour, 8% with brown flour, and 8% with special flours and rye flour.

Durum (hard) wheat is used primarily to manufacture pasta. Durum wheat cultivation accounts for 10% of all wheat-growing around the world. Since production needs considerable warmth and rich soils, crops are found in particular in parts of North America, as well as in Eastern Europe. Durum wheat is imported as unprocessed grain but also as a finished product in the form of pasta. Some 78,000 tonnes of durum wheat and 50,000 tonnes of pasta were imported to Switzerland in 2014.

### b. Assessment

Where durum wheat is concerned, the closure of large pasta factories has significantly reduced domestic production capacity in recent years, while imports of finished pasta products have risen. There is likely to have been a year-on-year increase in pasta imports in 2015, but imports of unprocessed durum wheat will have declined.

Switzerland's self-sufficiency level for bread grain has remained stable at a high level for years. Despite population growth, the volume of domestic and imported grain being milled is not rising, and imports of pre-processed bread and baked goods are expanding steadily. Demand for grain-based products is likely to increase as a result of the growing population.

### c. Trend

The next few years will bring little change in the quantity of bread grain that is milled in Switzerland. The additional demand created by an enlarging population will be covered by higher imports of pre-processed bread and baked goods. Durum wheat consumption is on the decline, as pasta is increasingly being imported, and less produced in Switzerland. During the next planning period the Foodstuffs unit will review whether or not other goods should wholly or partially replace durum wheat in the strategic stockpiling system.

## 4.7 Concentrated feed (sources of energy and protein)

Product	Demand coverage (DC)	Holdings	Trend
Energy	2 months	130,000t	DC unchanged
Sources of protein	2 months	52,000t	DC unchanged

### a. Description

Sources of energy and protein are required as inputs in the domestic production of milk, meat and eggs. Protein and energy-rich concentrated feed is given to animals in addition to their basic roughage to ensure that they receive a balanced diet that is appropriate to their function. Pigs and poultry, in particular, are unable to process roughage and therefore rely on concentrated feed to supply the nutrients they need. When discussing feedstuffs, a distinction must be made between basic feedstuffs – which covers green fodder, silage, hay and dried green fodder in particular – and concentrated feed.

Soft wheat, barley, maize, soya and rape may all be used as concentrated feed. Added to this are the by-products of food manufacturing, which are processed into compound feed. The strategic stocks system covers only the basic products that may be used as concentrated feed. Different basic products may be held, depending on the type of animal. Domestic Swiss production meets a relatively low proportion of the country's aggregate demand for concentrated animal feed.

The crop area use for feed grain in Switzerland has been contracting for years, and the cultivation of protein-rich crops such as broad beans, high-protein peas and lupins is scarcely competitive. As a result, much concentrated protein feed is imported, especially soy meal. To date, GMO-free soy meal has been sourced almost entirely from Brazil. Energy-rich straight feedstuffs and additives such as amino acids must also be imported. Since January 2015, Swiss imports of soya products have originated largely from sustainable farming, including businesses in other European countries. The residual moisture content of these products is generally high, which can result in stocks overheating and having to be replaced at short notice. For this reason, the maximum permitted share of other sources of protein has been increased. Barley and grain maize are the two main energy feedstuffs cultivated in Switzerland. Domestic soft wheat and oats are used for both human and animal nutrition. More than half of Switzerland's total grain output is fed to animals.

### b. Assessment

There has been a slight increase in Switzerland's consumption of concentrated feed over the past two decades. The figures have fluctuated from year to year owing to changes in animal numbers, but have always remained between 1.50 and 1.75 million tonnes. Climate factors mean that supplies of highly concentrated protein feedstuffs cannot be guaranteed by domestic production. For this reason, more than 80% the required volume is purchased from abroad. The main sources of protein grown in Switzerland are rapeseed and peas.

### c. Trend

Recent years have seen a sharp rise in the proportion of imported concentrated feedstuffs compared with domestic production, with rising import volumes and contraction in the domestic crop area used for feed grain. Demand coverage for sources of both energy and protein thus remains unchanged. Stocks of protein sources, in particular, must be brought into line with the required level.



## 4.8 Fertiliser

Product	Demand coverage (DC)	Holdings	Trend
Nitrogen fertilisers (pure N)	1/3 of the requirement for one growing season	17,300t	DC unchanged

### a. Description

'Fertiliser' refers to substances which provide nutrients to plants and support their growth, as well as improve their yield and quality. The main plant nutrients of phosphorus, nitrogen and potassium are particularly important here.

Phosphorus is required as a building block of DNA and to supply the plant with energy. Nowadays, Swiss soils are very high in phosphorus. As long as this is bound into the soil, it is regarded as a reserve for times of reduced supply. Nitrogen is essential for plant yields, and because it is required to synthesise protein, it is also important in stock breeding. Finally, potassium promotes resistant cell tissue and is needed for the plant's water level.

Switzerland currently holds nitrogen as part of its strategic stockpiling system. The three-year average for mineral fertiliser use comes to 47,000 tonnes. This does not include the nitrogen contained in manure, compost and other fertilisers.

### b. Assessment

Demand for fertiliser has rising in recent years, as has production capacity. Much of the world's fertiliser is produced in the Middle East. It is generally traded in large volumes. The global market is growing fast. This makes it difficult to forecast possible developments and also exposes Switzerland's supplies to certain threats. In the event of Europe-wide disruption, even the (internationally speaking) relatively small volumes required by Swiss fertiliser distributors would be difficult to obtain on the open market.

Together with the regular stocks held by importers, traders and agricultural businesses, as well as manure and the nitrogen held in the soil, the current level of compulsory stocks of fertiliser would cover the nitrogen required for one harvest.

### c. Trend

Demand coverage for fertiliser corresponds to one third of the quantity required for one growing season, which amounts to between 16,000 and 18,000 tonnes of pure nitrogen.

## 4.9 Coffee

Product	Demand coverage (DC)	Holdings	Trend
Green coffee	3 months	14,800t	Under review

### a. Description

Strategic stocks consist of green coffee, although decaffeinated green coffee and instant coffee may also be held. The coffee is stored in sacks and, increasingly also in loose bulk form. Stocks are rotated at least every three years. Compulsory stocks are held by trading companies, coffee-roasters and the foodstuffs industry.

### b. Assessment

Coffee is cultivated primarily in Central and South America, Asia and Africa. It can therefore be harvested year-round. Brazil, Columbia, Vietnam and Indonesia are the world's biggest coffee-exporting countries. A sharp increase in consumption has been observed in recent years not only in coffee-growing countries, but also in the emerging markets of Eastern Europe and Asia. Despite this increased demand, it may be assumed that the price of coffee will continue to be determined primarily by supply-side factors. Climate-related damage to the coffee plants has always been the main cause of reduced supply, and therefore higher coffee prices.

Coffee is widely drunk and enjoyed in Switzerland, and with annual consumption corresponding to around 9kg of green coffee per capita, it is one of the world's biggest coffee markets in both volume and value terms. Coffee contains caffeine, minerals and antioxidants, and occupies an important place in Swiss consumer habits.

### c. Trend

For the next planning period, discussions will be held with the coffee industry to determine the extent to which strategic stocks should be maintained for supply policy reasons. Compulsory stocks will otherwise will be reduced in stages over the coming years.

## 4.10 Cooking salt

Product	Demand coverage (DC)	Holdings	Trend
Cooking salt	---	4,000t	Cancel special agreement

### a. Description

Salt is extracted at three sites in Switzerland today, and production is sufficient to cover all of the country's needs. Under the terms of a special agreement between the *Schweizerische Rheinsalinen* saltworks and the federal government, 4,000 tonnes of cooking salt is held in reserve.

Salt trading in Switzerland is a cantonal matter, and the state has always had an obligation to guarantee supplies of salt to the nation. In 2014, the *Schweizer Rheinsalinen* and *Saline de Bex SA* saltworks merged to form the *Schweizer Salinen* Swiss saltworks company.

### b. Assessment

In 1993, strategic stocks of salt were as high as 15,000 tonnes. In the nine years to 2002 they were then reduced gradually, and in 2004 the compulsory stock agreement was converted into an accord on the salt that would be held in storage by producers.

The agreed volume roughly corresponds to one month's average domestic consumption, but may be reduced on a relatively informal basis by mutual agreement between the company and the FONES.

The Rhine saltworks alone currently hold total stocks of up to 100,000 tonnes of salt in loose form at the two sites in Pratteln and Möhlin. This salt is used primarily as road salt and for industrial purposes, but in an emergency it could also be used directly as cooking salt, without requiring any further processing.

### c. Trend

The opening of a new salt storage facility, Saldom2, created capacity for an additional 120,000 tonnes of salt. In view of the greater stock levels being held by the Rhine saltworks, the current special stock agreement will be cancelled.

## 4.11 Raw materials for yeast production

Product	Demand coverage (DC)	Holdings	Trend
Raw materials for yeast production	1 month		DC unchanged
- Molasses and thick beet juice		900t	
- Monoammonium phosphate and phosphoric acid		6t	
- Ammonium sulphate and liquid ammonia		10t	

### a. Description

Yeast is an important ingredient in the production of bread, a staple food. Strategic stocks of molasses and thick beet juice are held by two companies. One of these also holds compulsory stocks of the monoammonium phosphate, phosphoric acid, ammonium sulphate and liquid ammonia that are also required to produce yeast.

An aqueous solution of 40% molasses and 60% thick beet juice is used as the culture medium. This solution has acids added to adjust its pH value to around 4.5, and is sterilised and filtered. Nutrient salts – principally ammonium salts and phosphates – are then added along with B-group vitamins. The latter are needed for the yeast to grow, but are not present in sufficient quantities in the juice and molasses solution.

### b. Assessment

Fresh yeast can be kept for only a short time. Normal fresh yeast remains fully effective as a raising agent for ten to twelve days at an ambient temperature of 2–8° C. To be able to produce bread, bakeries are thus reliant at all times on regular, fast and flexible deliveries of yeast. Yeast is produced at two sites in Switzerland.

With the compulsory stocks of molasses and thick beet juice, as well as other essential agents for yeast production, Switzerland will continue to be able to produce and distribute fresh yeast as a basis for bread-baking.

### c. Status / next steps

The raw materials for yeast production that are held as part of the strategic stockpiling system continue to meet demand for around one month.

## 4.12 Pesticides – under review

Product	Demand coverage (DC)	Holdings	Trend
Pesticides	---	---	Under review

### a. Description

The industrial production of pesticides began in the nineteenth century. Countless new products were developed right through to the 1950s. Since the 1960s, however, the intensive use of pesticides has faced increasing criticism. In the 1970s, Switzerland entered the era of integrated crop management (ICM), which sought to optimise pesticide use. ICM is now the established approach and has been integrated into the 'Proof of Ecological Performance' scheme.

'Pesticides' refers to chemical and biological products designed to provide protection against plant diseases, weeds, harmful insects, bacteria and other pests. Various studies indicate that not using these products would result in a significant drop in harvests and quality.

### b. Assessment

The Swiss pesticides market is characterised by a wide variety of products to combat an extensive range of plant diseases. Switzerland is also home to major manufacturers, distributors and wholesalers.

### c. Trend

In view of the large number of market participants and the great diversity of pests and active agents, it is impossible at present to make any statement on the security of pesticide supplies. The market remains under observation. There are no plans at present to include pesticides in the strategic stockpiling system.

#### 4.13 Seeds – under review

Product	Demand coverage (DC)	Holdings	Trend
Seeds	---	---	Under review

##### a. Description

Seeds and plants are required to cultivate plant-based food and feedstuffs. At the beginning of the 20th century, Switzerland began systematically to collect seeds in order to conserve genetic diversity. Today, the Swiss seed producers' association swissem classifies seeds and plants into eight main groups: grain, potatoes, red clover, grasses, maize, soya, high-protein peas and other cultures.

Switzerland's grain seed comes almost entirely from domestic production. The figure for maize is around 25%, for soya beans 60%, and for high-protein peas 45%. Seed for sugar beet is produced primarily in Italy and France.

##### b. Assessment

The seed and plant market is extremely specialised with a complex structure. There are also institutional testing procedures to complete and a significant number of legal requirements to be met. It would be very difficult and costly to keep stocks of seed.

##### c. Trend

The seed market is extremely important in ensuring national food and feedstuff supplies. The NES Foodstuffs unit will therefore review the situation in depth. There are no plans at present to include seeds in the strategic stockpiling system.

#### 4.14 Infant formula – under review

Product	Demand coverage (DC)	Holdings	Trend
Infant formula	---	---	Under review

##### a. Description

Breastfeeding is the most natural way to feed a baby. Differing beliefs about the practice – whether and how long – have fallen in and out of fashion over recent decades, and the advent of breast milk substitute products, in particular, changed things considerably.

The World Health Organization and other institutions such as the Federal Office of Public Health recommend that infants be breast-fed until the age of six months. Only then should mothers move on to purée or mash. According to the 2014 Swiss Infant Feeding Study, 95% of mothers in Switzerland breast-feed their child in the first few months after birth, with 31 weeks being the average. Some 5% of mothers do not breast-feed at all, and some of the breast-feeders give their children formula in addition.

The Swiss Special Foods Ordinance defines infant formula as a food that is intended for children aged up to 12 months. Formula must be diluted with drinking water before it can be given to the child. Infant formula begins with pre-milk, stage 1 milk, stage 2 and 3 follow-on milk, and growing-up milk.

##### b. Assessment

Demand for infant formula is stable and correlates with the birth rate. Approximately 5% of mothers are unable to breast-feed their child for health or personal reasons, and thus feed them entirely with formula. Some infants are both breast and bottle-fed.

In Switzerland, around 80% of the goods required to manufacture infant formula are imported. There are two major domestic producers of this special milk powder, and one minor one.

##### c. Trend

There are no strategic stocks of infant formula at present. In view of the great dependence on imports, and the needs of infants whose mothers cannot breast-feed, this matter must be examined further. One of the issues that will be clarified in the next reporting period will be whether or not Swiss producers have emergency production capacity.



## 5 Energy

### 5.1 Overview

Below is a list of the energy 'goods' of which stocks must be held to ensure supplies of crude oil, natural gas and electricity. It is shown alongside the demand coverage required by the federal government, and the actual level of holdings as at 30 June 2015.

Strategic stocks of mineral oil products also factor in the requirements of the International Energy Agency (IEA) (see Section 3.4). These determine that, as a minimum, stocks should be able to cover average net imports for a 90-day period.

No changes are planned to current demand coverage (DC) levels for Switzerland. DC is generally expressed as the period of time for which stocks should be able to meet average demand.

In view of the low proportion of total energy consumption accounted for by wood, it will not be subject to stockpiling requirements for the foreseeable future. Wood energy would, however, be included in the stock management system in the event of persistent general supply shortages. It could make a significant contribution to maintaining energy supplies, especially if supplies of energy for heating were to run low. Current stocks of firewood are thought to cover demand for approximately two years.

Product	Demand coverage (DC)	Holdings <sup>4</sup>	Trend
Gasoline	4.5 months	1,553,000m <sup>3</sup>	DC unchanged
Kerosene	3.0 months	438,000m <sup>3</sup>	DC unchanged
Diesel	4.5 months	1,042,000m <sup>3</sup>	DC unchanged
Heating oils	4.5 months	1,736,000m <sup>3</sup>	DC unchanged
Extra light heating oil (as a substitute for natural gas)	4.5 months <sup>5</sup>	372,000m <sup>3</sup>	DC unchanged
Uranium fuel elements		Sufficient to recharge 3 reactors	Declining

<sup>4</sup> Figures rounded

<sup>5</sup> Stocks of extra light heating oil, as a substitute for natural gas, can supply gas consumers with dual-fuel systems for 4.5 months. Currently, dual-fuel systems account for around 32% of all gas consumption (2014 figure).



## 5.2 The trend in energy

Where the security of energy supplies is concerned, the focus is on mineral oil, natural gas and electricity. The risk analysis revealed the challenges to lie in the procurement and production of sources of energy, and in their import and distribution within Switzerland. In the autumn of 2015, for example, the low water level in the Rhine, in addition to a technical failure at the Cressier refinery, created shortages in the supply of mineral oil. This supply gap was bridged using strategic stocks. The greatest risks to supplies are associated with access to resources in producer countries, the availability of import corridors and infrastructures, and the logistics, energy and ICT networks. These networks are required to get the energy to those who need it. Since potential reserves, global supplies and the number of natural gas and oil producers have increased in recent years, security of supply for these sources of energy can be judged as relatively high.

Despite its declining share of aggregate energy consumption, mineral oil products remain very important for transport in Switzerland. Around 96% of the energy required in the transport sector, and approximately half of that needed for heating, is covered by mineral oil products. The share of fossil fuels used to generate heat continues to decline. Demand for gasoline has also contracted in recent years, while that for diesel and kerosene has been rising. During the reporting period, strategic stocks of mineral oil products have been reduced by a total of around 250,000 m<sup>3</sup>, representing approximately 5% of total holdings.

There is overcapacity in the European refinery market at present, which is increasing the pressure on domestic Swiss refinery operations. The refinery at Collombey, in Canton Valais, was mothballed – at least temporarily – in mid-March 2015. The loss of output from one refinery reduces supply flexibility, because no crude oil has been received via the pipeline from Genoa since operations at Collombey were halted. Instead, greater use has been made of other import channels. The efficiency of current alternatives via the Rhine, rail and road routes, the Marseille-Geneva SAPPRO product pipeline and the crude oil pipeline to Cressier has made up the shortfall from Collombey, however. Supply structures have built-in redundancies and capacity reserves that improve the resilience of mineral oil supplies. Universal supplies might nonetheless be affected if several transport routes were to be obstructed at the same time.

The revised Ordinance on Strategic Stocks of Natural Gas came into force on 1 October 2015. This revision gave the natural gas industry the option of establishing a compulsory stock organisation and creating a guarantee fund to finance storage activities. Provisiogas began operating as a compulsory stock organisation when the new ordinance came into effect. The guarantee fund that it administers will be used in the future to secure financing for storage operations.

Until the revised ordinance came into force, the natural gas sector was the only branch of industry covered by the compulsory strategic stocks system which did not have a private-sector support organisation. Enforcing compliance with the required strategic stocks of natural gas had become increasingly difficult in recent years owing to shifts in the sector's operating framework. Deregulation, and the creation of wholesale markets in Europe with relatively low prices, meant that certain market participants were appearing on the Swiss gas market only for short periods, or sporadically at best. This created an opportunity for some companies to evade their strategic stock-holding obligations, and thus achieve a competitive advantage over other gas providers. The revised Ordinance on Strategic Stocks of Natural Gas ensures that the obligation to hold stocks applies to all market participants.

The Swiss Energy Strategy 2050 is likely to bring about a revolution in the coming years in the way in which Switzerland is supplied with electricity. One of the main aims of the Strategy is to achieve long-term security of supply. Switzerland is dependent on other countries for its nuclear energy, because the necessary uranium fuel elements must be imported. In view of the plans to limit the operating life of nuclear power stations that are laid down in the Energy Strategy 2050, a decision will have to be made on a case-by-case basis on when Switzerland should start reducing its strategic stocks of uranium fuel elements.

### 5.3 Gasoline

Product	Demand coverage (DC)	Holdings	Trend
Gasoline	4.5 months	1,553,000m <sup>3</sup>	DC unchanged

#### a. Description

Gasoline is used as a fuel for cars, smaller commercial vehicles and motorcycles. Of the various available vehicle fuels, unleaded 95 RON gasoline falls within the strategic stockpiling system. Unleaded 98 RON and other higher-quality fuels are authorised on the same terms. Quality requirements are laid down in the SN EN 228 standard. Gasoline may also contain biofuels such as ethanol.

#### b. Assessment

Gasoline sales continue to decline. There is a trend towards more fuel-efficient vehicles and diesel-powered cars. A decline in fuel tourism – European neighbours crossing the border into Switzerland to buy cheaper fuel – has also been observed. Strategic stocks of gasoline were reduced by approximately 170,000 m<sup>3</sup> between 2011 and 2014. The share of aggregate gasoline sales accounted for by biofuel increased slightly between 2011 and 2014, to approximately 0.2%. This share is expected to increase markedly for 2015.

#### c. Trend

Demand for gasoline is likely to continue declining over the years to come. Since demand coverage remains unchanged, gasoline stocks will be cut accordingly, with a reduction of approximately 200,000 m<sup>3</sup> expected between 2015 and mid-2017.

Demand coverage for gasoline remains unchanged at four and a half months.

## 5.4 Kerosene

Product	Demand coverage (DC)	Holdings	Trend
Kerosene	3 months	438,000m <sup>3</sup>	DC unchanged

### a. Description

Strategic stocks of kerosene must be held in accordance with international specifications. The fuel is subject to particularly stringent quality standards owing to the risks inherent in aviation.

### b. Assessment

Sales of kerosene have risen steadily since their trough in 2003 in the wake of the Swissair grounding. Stocks were increased by an additional 37,000 m<sup>3</sup> between 2011 and 2014.

Supplies to Geneva airport depend on deliveries via the SAPPRO pipeline, because the transport capacity of the railway line that runs alongside Lake Geneva is limited. At the same time, tank operators in Geneva are under pressure to make the land occupied by their facilities available for urban growth.

Further slight growth in sales is expected over the years to come, hand in hand with a general rise in air traffic. However, the trend will be slowed by restricted capacity to increase the number of flights, and the increasing use of more fuel-efficient aircraft.

Holdings of kerosene will be adjusted in line with the sales trend. However, a shortage of tank space currently limits the potential increase in stocks, and no additional space can be created at current locations, at least not immediately. Investigations into alternative sites are therefore underway.

### c. Trend

Demand coverage for kerosene remains unchanged at three months.

## 5.5 Diesel

Product	Demand coverage (DC)	Holdings	Trend
Diesel	4.5 months	1,042,000m <sup>3</sup>	DC unchanged

### a. Description

Diesel is used in particular to fuel cars, buses, heavy goods and other commercial vehicles, motor boats, ships, shunting locomotives and construction machinery. Strategic stocks are held of diesel meeting the defined winter standard SN EN 590 class 0. Higher-quality winter diesel is authorised on the same terms.

### b. Assessment

In view of the shift in demand away from gasoline and towards diesel, as well as the continued rise in heavy goods traffic, diesel sales are rising strongly. Stocks of diesel were therefore increased by 200,000 m<sup>3</sup> between the beginning of 2011 and the end of 2014. This additional inventory is held primarily in tanks that were previously used for gasoline or heating oil, and have now been refitted in line with the new demand situation.

However, as diesel consumption continues to rise unchecked, there was still a demand coverage shortfall of around 132,000 m<sup>3</sup> at the end of 2014. The mineral oil industry is working on a further expansion of these diesel stocks.

Diesel consumption can be expected to rise over the next few years. Stocks of diesel will be adjusted in line with the sales trend. An additional 160,000 m<sup>3</sup> of diesel will probably have to be added to these stocks between the end of 2014 and mid-2017.

### c. Trend

Stocks of diesel still cover demand for four and a half months.

## 5.6 Heating oils

Product	Demand coverage (DC)	Holdings	Trend
Heating oils	4.5 months	1,736,000m <sup>3</sup>	DC unchanged

### a. Description

Among heating oils, the extra light type is subject to the strategic stockpiling system. The oil must comply with either the Euro quality standard, with a sulphur content of up to 1000 ppm, or the eco quality standard. Higher-quality heating oils are authorised on the same terms.

### b. Assessment

Demand for heating oil has been on the decline for three reasons: many oil-fired heating systems being replaced by heat pumps and other heating systems; old buildings have been refurbished with better insulation and greener heating systems; and new buildings are being constructed to be energy-efficient. Strategic stocks were therefore reduced by 310,000 m<sup>3</sup> between the beginning of 2011 and the end of 2014. Despite this reduction in inventories, the sharp drop in sales means that actual holdings are still higher than specified by the federal government. Sales are expected to fall further in the future. It will probably be necessary to reduce strategic stocks of heating oil by a further 310,000 m<sup>3</sup> or so by 2017.

Euro-quality extra light heating oil currently accounts for an estimated 66% of the market, with eco-standard heating oil making up 34%, although the precise proportions differ from region to region. Eco-standard heating oil is seen as being of higher quality owing to its lower sulphur content. The latest generation of oil burners run on eco heating oil exclusively, so it is steadily gaining market share, and in the long run will take over from Euro-quality heating oil as the standard product.

There is very little demand for heavy heating oil. Sales opportunities have been declining for years owing to environmental conservation requirements and the drop in demand from the paper, board, glass and tile industries. The last remaining strategic stocks of heavy heating oil were thus released for good in 2015.

### c. Trend

Demand coverage for extra light heating oil remains at four and a half months.

## 5.7 Natural gas

Product	Demand coverage (DC)	Holdings	Trend
Extra light heating oil as a substitute for natural gas	4.5 months	372,000m <sup>3</sup>	DC unchanged

### a. Description

Unlike neighbouring countries, Switzerland is not currently establishing any underground gas storage facilities. The reasons for this are both geological and economic. No natural structures that are suitable to accommodate a gas reservoir have yet been found in Switzerland. Instead, extra light heating oil is held as part of the strategic stockpiling programme.

### b. Assessment

Substitute stocks correspond to around four and a half months of natural gas consumption by those systems which can run on both gas and heating oil. In Switzerland, 32% of natural gas is burned in dual-fuel systems which can be switched over to heating oil if necessary. Were supplies to be disrupted, in addition to complying with the contractually agreed switchover, such gas users would be obliged to change to heating oil for their energy needs, thereby freeing up supplies for those who are not able to convert. In 2013, natural gas accounted for around 13% of final energy consumption in Switzerland. Households make up 42% of total Swiss gas consumption, primarily for heating and cooking. The remainder fuels operating processes at service companies, small businesses and industrial firms.

Some of Switzerland's supply of natural gas is based on long-term supply contracts with western European partners. However, for several years now needs have also been met by short-term purchases via the spot market. The main reason for this is that the increase in global natural gas production has created oversupply, and that liquid natural gas (LNG) can now be transported from overseas to Europe by tanker. In 2014, some 46% of domestic demand was met from within the European Union, while 25% came from Russia and 18% from Norway. The remaining 11% was imported from sources outside Europe. The imports that are routed through Swiss gas companies are broadly diversified. In the future, these importers will be integrated even more closely into the European gas transport network. Building on the gas transit pipeline's physical reverse flow capability, there are plans to begin importing gas from the south from 2018 onwards, which will help to improve security of supply in times of shortage. New transport routes continue to be opened up in parallel with this technical expansion in the existing transport network. For example, a pipeline will connect gas-producing companies from the Middle East directly to the European transport network.

### c. Trend

Strategic stocks of extra light heating oil as a substitute for natural gas are sufficient to cover four and a half months of natural gas consumption by dual-fuel systems.

## 5.8 Uranium fuel elements

Product	Demand coverage (DC)	Holdings	Trend
Uranium fuel elements		Sufficient to recharge 3 reactors	Declining

### a. Description

The uranium fuel elements (fuel rods) that are used by Switzerland's nuclear power stations to generate electricity are specific to their own particular facilities, and cannot simply be exchanged between power plants.

### b. Assessment

On an annual basis, Switzerland's nuclear power stations require fuel elements produced from around 600 tonnes of natural uranium. This corresponds to approximately 1% of global consumption. These fuel elements are supplied to the plants by countries such as the UK, France, Russia, Canada and the USA. Each element remains in the reactor for three or four years. The oldest third or the oldest quarter of these fuel rods will be swapped out in a 12-month cycle. This is partly because their nuclear fuel content has fallen below the necessary level, and partly because of the build-up of fission products which absorb neutrons. The rods for this annual recharge have to be ordered and manufactured specifically for the type of plant concerned. However, there are only a small number of suitable producers.

As a rule, power plant operators thus store as much fresh nuclear fuel as they need for the next operating year. Additional stocks are held with suppliers abroad.

At current levels of demand, global uranium availability is estimated to suffice for at least the next 45 years, and possibly as many as 120. Even if the worldwide expansion of nuclear power is taken into account, up until the planned switch-off of Swiss nuclear reactors the market availability of uranium will primarily be a question of price. In the future, the market for uranium fuel elements will continue to be characterised by full dependence on imports, and more or less a monopoly on the supply side.

### c. Trend

In Switzerland, two companies maintain strategic stocks of fuel elements corresponding to one recharge for each of the three types of reactor among the country's total of five. In view of the plans to limit the operating life of nuclear power stations that are laid down in the Energy Strategy 2050, a decision will have to be made on a case by case basis on when Switzerland should start reducing its stocks of these elements.



## 6 Therapeutic products

### 6.1 Overview

Below is a list of the therapeutic products for which stocks must be held, alongside the demand coverage required by the federal government, and the current level of strategic stocks<sup>6</sup>. The list also includes goods for which no strategic stocks are held at present, but which are being considered for inclusion in the system.

Product	Demand coverage (DC)	Holdings	Trend
Anti-infectives for human use Commercially available doses			
- Systemic antibiotics Intestinal anti-infectives	3 months	5,741kg	DC unchanged
- Systemic antifungals	3 months	31kg	DC unchanged
- Tuberculostatics	3 months	89kg	DC unchanged
Anti-infectives for human use Active agents	2-3 months	4,798kg	Stock quantities unchanged
Anti-infectives for animal use			
- Single animal treatment	2 months	2,531kg	DC unchanged
- General (herd) treatment	2 months	3,822kg	DC unchanged
Neuraminidase inhibitors			
- Oseltamivir (active agent)	Treatment for 25% of the population; prevention for health staff for 40 days	1,300kg	Stock quantities unchanged
- Tamiflu <sup>®</sup> capsules 75, 45, 30 mg (bulk)		26.85 million	Stock quantities unchanged
- CH packs of Tamiflu <sup>®</sup> 75, 45, 30 mg		145,000	Stock quantities unchanged

<sup>6</sup> Quantities for systemic antifungal drugs, as well as strong analgesics and opiates as at 6 November 2015; other quantities as at 31 December 2014



Product	Demand coverage (DC)	Holdings	Trend
Strong analgesics and opiates	3 months	181kg	DC unchanged
Haemostatics	1-3 months	2,950g <sup>7</sup> 34,589,250 IU <sup>8</sup>	Stock quantities unchanged
Insulin	2 months	178 MU <sup>9</sup>	DC unchanged
Blood bag systems	3 months	40,050	Increase stock quantities
FFP2 and FFP3 respirator masks	745,000	166,800	Increase stock quantities
Surgical masks, types II and IIR	6.8 million	---	Increase stock quantities
Surgical gloves	104 million	4.95 million	Increase stock quantities
Vaccines	---	---	In preparation

<sup>7</sup> It is not possible to convert factor concentrates from grammes to units.

<sup>8</sup> International Unit according to the World Health Organization definition.

<sup>9</sup> Mega Unit according to the World Health Organization definition.

## **6.2 The trend in therapeutic products**

### **a. Analysis of supplies; economic developments**

Globalisation, cost pressures and regulatory requirements have resulted in a process of concentration in the production of therapeutic products in recent years. In particular, this has led to some parts of the production of active agents, and the manufacture of disposable medical items, being moved to Asia. Stocks are often held in centralised international facilities which are used to supply a number of countries. In most cases, any delivery problem would therefore affect not only Switzerland, but several states at the same time. Financial pressures and the consistent use of just-in-time supply systems mean that the stocks held by hospitals are now much smaller than used to be the case.

Technical problems with production, quality defects, logistical problems, as well as natural disasters may result in deliveries from a specific region or key supplier being disrupted. Since production in the pharmaceutical industry is generally planned months in advance, the loss of a manufacturer may mean that products cannot immediately be made available to the Swiss market, even if the remaining facilities quickly raise their own output.

A pandemic or bioterrorism incident would lead to a massive increase in demand for specific products – such as neuraminidase inhibitors, antibiotics, disinfectants, protective masks and surgical gloves – which could not be satisfied from available stocks.

Despite isolated cases in which the opposite trend may be observed, the process of concentration is likely to continue at all stages of the supply chain. New technologies which permit drugs to be customised to the patient will result in considerable expansion in the range of products available. The availability of generic drugs cannot, in itself, ensure sufficient substitution options. Furthermore, new approvals of generic drugs often result in a reduction in production capacity at the original manufacturer, so the expiry of a drug's patent does not necessarily result in greater security of supply.

In view of the small size of the Swiss market, the mandatory drug approval process may prove an additional obstacle, as companies may no longer be prepared to finance a separate approval just for Switzerland. If drugs which have not gained domestic approval cannot be used, the alternatives would be limited in the event of a supply shortage.

### **b. Selection of products for which stocks are held**

Therapeutic products are subject to strategic stockpiling requirements based on medical necessity and the risk of disruption to supplies.

The amended products appendix to the Ordinance on Strategic Stocks of Therapeutic Products came into force on 1 September 2013. It brought strong analgesics and opiates, as well as drugs to treat tuberculosis, within the strategic stockpiling system. The medicines must be held as ready-to-use consumer packs and must cover three months' normal usage. Work to build up these compulsory stocks was largely completed in 2015.

### **c. ATC codes**

A further major change has been reflected in the products appendix to the Ordinance on Strategic Stocks of Therapeutic Products since 1 September 2014: all of the drugs for human and animal use that are held as part of the strategic stockpiling system are now defined by their ATC or ATCvet code. This corresponds to the international standard for the systematic anatomical, therapeutic and chemical classification of active agents defined by the World Health Organization. The ATC code makes it possible to determine the range of products to be held as compulsory stocks much more precisely than the previous customs tariff number system. The systematic use of ATC codes can ensure that stocks reflect

the situation on the market and that newly approved products are automatically subject to strategic stockpiling requirements.

New directives issued by the Federal Department of Economic Affairs, Education and Research (EAER) to Helvecura came into force at the same time as the products appendix to the Ordinance on 1 September 2014. The adoption of the ATC code system generally also takes into account the dosage forms of the drugs held in compulsory stocks. Furthermore, the focus with regard to drugs for human medicine was shifted to approved ready-to-use products.

In the future, ATC codes are to be used not only for the compulsory stockpiling of anti-infectives, virostatics and opiates, but also for voluntary stocks.

### 6.3 Anti-infectives for human use

Product	Demand coverage (DC)	Holdings	Trend
Commercially available packaged doses			
– Systemic antibiotics Intestinal anti-infectives	3 months	5,741kg	DC unchanged
– Systemic antifungals	3 months	31kg	DC unchanged
– Tuberculostatics	3 months	89kg	DC unchanged
Active agents	2-3 months	4,798kg	Stock quantities unchanged

#### a. Description

Strategic stocks consist of anti-infectives in commercially available packaged doses, as well as in the form of active agents which can be used to treat all common infectious diseases, and in particular bacterial secondary infections in the event of a pandemic.

They are held in oral liquid (suspension), oral solid (tablet) and parenteral (injection) forms. Demand coverage for anti-infectives is three months for packaged doses, and two to three months for active agents. Total stocks of human anti-infectives thus continue to cover needs for five to six months.

#### b. Assessment

Switzerland depends on other countries for the greater part of its supplies of anti-infectives in both their commercial and active agent form. Concentration on a smaller number of production sites, just-in-time deliveries and the associated reduction in stocks held by suppliers and hospitals all pose a potential risk to supplies. The small number of suppliers for individual products and the limited range of alternatives might cause supply problems if an important product were to become unavailable.

The composition of compulsory stocks, with the various galenic forms, permits the targeted release of these products on to the market. In the event of a pandemic, the compulsory stocks of active agents should enable a steady supply of antibiotics to the Swiss population, because the available stocks of packaged doses would not be sufficient to meet the increased demand. At present Switzerland does not have the facilities to process the doxycycline and gentamicin that it has stockpiled. The pharmacy at the armed forces' logistics base will provide processing capacity for these active agents.

#### c. Trend

Compulsory stocks of commercial packaged doses of antibiotics, antifungals and tuberculostatics are sufficient for three months, while those of a range of antibiotic agents would last for two to three months. The most suitable form of stockpiling the drugs need to treat secondary infections in the event of a pandemic will have to be evaluated in the coming years.

## 6.4 Anti-infectives for animal use

Product	Demand coverage (DC)	Holdings	Trend
- Single animal treatment	2 months	2,531kg	DC unchanged
- Herd treatment	2 months	3,822kg	DC unchanged

### a. Description

Strategic stocks consist of premixed drugs and active agents to treat entire herds, as well as commercially available packaged doses to treat individual animals.

### b. Assessment

Switzerland is entirely dependent on other countries for supplies of anti-infectives for veterinary use. The approved drug premixes for herd treatment are often combined preparations of sulphonamides and antibiotics, and this is also reflected in the drugs that are held as compulsory stocks.

The supply chain for veterinary-use anti-infectives might very quickly be disrupted in key areas as a result of interruptions to production or deliveries, the closure of manufacturing locations, a lack of substitute products or owing to problems gaining approval for the Swiss market. In the future, anti-infectives for veterinary use will be manufactured at even few locations, further increasing the risk of supply shortages.

### c. Trend

Compulsory stock levels are based on actual consumption trends. Should the use of anti-infectives fall to avoid drug-resistance developing, compulsory stocks will be adjusted accordingly. The demand coverage of compulsory stocks of anti-infectives for veterinary use remains unchanged at two months.

## 6.5 Virostatics

Product	Demand coverage (DC)	Holdings	Trend
Neuraminidase inhibitors (Tamiflu®)			
- Oseltamivir (active agent)	Treatment for 25% of the population; prevention for health staff for 40 days	1,300kg	Stock quantities unchanged
- Tamiflu® capsules 75, 45, 30 mg (bulk)		26.85 million	Stock quantities unchanged
- CH packs of Tamiflu® 75, 45, 30 mg		145,000	Stock quantities unchanged

### a. Description

Neuraminidase inhibitors are anti-viral drugs which can be used to both prevent and treat infection with the influenza virus. When used therapeutically, they reduce the duration and severity of the illness, as well as the incidence of complications which must then be treated with antibiotics. When used as a pre- or post-exposure prophylactic, they offer effective protection against contracting influenza.

Active agents and capsules are held in bulk and in normal commercial pack form.

### b. Assessment

The use of neuraminidase inhibitors is the only possible drug treatment in the early stages of a pandemic if no effective flu vaccine is available, or if it is available in insufficient volumes to immunize the entire population. It is therefore likely that the market would have to be supplied with neuraminidase inhibitors from strategic stocks within a few days of the outbreak of a pandemic. For this first round of treatment it is crucial to have enough medication that can be administered immediately.

For cost and shelf-life reasons, most of the goods held as compulsory stocks are in the form of unprocessed powders or unpacked capsules. They must therefore be turned into a consumable form, or packed, before it can be delivered.

Stocks of ready doses are intended to meet the population's needs at the beginning of a pandemic, while the active agents in powder and unpacked capsule form can be prepared for use.

### c. Trend

Stock volumes must be sufficient to satisfy prevention and treatment requirements in accordance with the official pandemic plan. Stocks of neuraminidase inhibitors will therefore be retained at their current level.

## 6.6 Strong analgesics and opiates

Product	Demand coverage (DC)	Holdings	Trend
Strong analgesics and opiates	3 months	181kg	DC unchanged

### a. Description

Opiates are substances whose pharmacological effect is similar to morphine. They occur naturally in opium, for example, but are also produced both semi and fully synthetically as drugs such as hydromorphone and methadone. These substances have an analgesic effect and are used to treat intense acute or chronic pain, as well as in anaesthesia. The following active agents are subject to the strategic stockpiling system: fentanyl, hydromorphone, methadone, morphine, nicomorphine, oxycodone and pethidine, as well as certain combined preparations.

### b. Assessment

Switzerland's supplies of strong analgesics and opiates are assured by a small number of suppliers. Most of the active agents required for product manufacture originate in the Middle East, where the political situation in many countries is regarded as unstable. The risk of shortages is thus elevated.

There are generic substitutes for the common strong analgesics, although they occupy such a small share of the market that it would be virtually impossible to use them to offset the loss of a major manufacturer. Depending on patient tolerance, they may be used as a treatment substitute.

Strong analgesics and opiate usage is largely steady at present. Compulsory stocks are held in the form of commercially available packaged doses which can be released on to the market quickly if required.

### c. Trend

Strategic stocks of strong analgesics and opiates were brought up to near-requirement levels in 2015. Demand coverage is three months. Stocks will be made up of oral liquid, oral solid, parenteral, rectal and transdermal dosage forms.

## 6.7 Haemostatics

Product	Demand coverage (DC)	Holdings	Trend
Haemostatics	1 to 3 months	2,950g 34,589,250 IU <sup>10</sup>	Stock quantities unchanged

### a. Description

There are approximately 750 patients in Switzerland living with the congenital blood-clotting disorder haemophilia A and B. They must receive injections of haemostatic drugs as a substitute for the vital blood-clotting factors that they lack. Voluntary stocks of factors VIII and IX, as well as combination preparations, were established in 2012.

### b. Assessment

The Swiss market is supplied with products that are mainly of foreign origin, as there is only one Swiss producer. Although eight pharmaceutical companies operate in this sector, the loss of a single major supplier could jeopardise universal supplies. The principal risks are interrupted supplies because production has been suspended, shortages of the inputs used to make the factors, or a batch failing final quality controls. Haemostatics take a long time to make, so the latter problem would result in deliveries being interrupted for a considerable period.

The supply situation and the market for blood-clotting factors was reassessed in 2014. The analysis found that new products have been launched which are not subject to strategic stockpiling requirements. In view of their share of the market, these products are being considered for inclusion. The general introduction of the ATC code system is also under discussion.

### c. Trend

Current demand coverage, which varies between one and three months depending on the product, will be maintained.

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<sup>10</sup> International Unit according to the World Health Organization definition.



## 6.8 Insulin

Product	Demand coverage (DC)	Holdings	Trend
Insulin	2 months	178 MU <sup>11</sup>	DC unchanged

### a. Description

Insulin is essential for the body to be able to metabolise glucose (blood sugar). It is used to treat diabetes, a metabolic disorder in which the pancreas does not produce insulin, or produces too little, or insulin receptors have become desensitised. This causes blood sugar levels to rise above the physiological limit. Untreated, this will result in death.

In Type 1 diabetes, the body has ceased to produce insulin entirely, so the patient must always be given a substitute from an external source. In Type 2 diabetes, the pancreas continues to produce insulin, but not in sufficient quantities, or the body is unable to use it effectively to convert blood sugar into energy.

There are approximately half a million diabetics living in Switzerland. Around 8% of these suffer from Type 1 diabetes. Added to these is the considerable number of Type 2 diabetics who regulate their blood sugar levels with insulin or in combination with oral anti-diabetic medication. These patients depend on the continuous availability of insulin.

### b. Assessment

Only a limited number of pharmaceutical companies operate on the insulin market. Products may be substituted for one another within the same insulin sub-class. No generic alternatives are available at present.

The number of diabetes patients is likely to continue rising in the future, which will also increase demand for insulin. Where necessary, expanding the reach of strategic stocks may make it easier to bridge any interruptions in supply.

Using ATC codes for compulsory insulin stocks would also help to monitor market developments and ensure that all preparations are treated equally. However, companies keep stocks of these products on a voluntary basis, and they are not subject to any compulsory requirements. The pharmaceutical companies concerned are becoming generally less willing to hold these voluntary stocks, however.

Insulin is essential for many patients. If supply targets cannot be achieved by means of voluntary stockpiling, the introduction of compulsory stock requirements will have to be examined.

### c. Trend

Voluntary stocks of insulin cover demand for between one and a half and two months.

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<sup>11</sup> Mega Unit according to the World Health Organization definition.

## 6.9 Blood bag systems

Product	Demand coverage (DC)	Holdings	Trend
Blood bag systems	3 months	40,050	Increase stock quantities

### a. Description

There are a number of components to a blood bag system: a bag made of plastic film, containing an anticoagulant, a tube that is fixed to the bag, and a hypodermic needle for taking blood attached to the tube. This assembly is connected to two closed outlets and further bags. This all forms a closed system.

### b. Assessment

Blood bag systems are an important medical product in the taking, storage and transfusion of blood. Three firms still supply the Swiss market, and one of these has a market share of well over 50%.

The different companies' bag systems cannot be substituted for each other because they are system-specific. Blood donation services are able to change to a different system, but would have to modify the equipment they use to separate blood. This would take between four and eight weeks.

There is essentially one company which supplies the plastic film used to manufacture all bag systems. This means that all distributors would be affected if supplies were interrupted. Single bags, as opposed to systems, could be used as an alternative. However, these cannot be used to separate blood, so patients would have to be given transfusions of whole blood. Bottles with stoppers are another substitute, but these are now difficult to find on the market and thus represent only a limited alternative.

Supply-side concentration means that the loss of the market leader would lead to a critical supply shortage. Neither of the other companies would be able to fill the resulting gap. Whether voluntary stockpiling might offer a means of increasing existing stocks by one and a half months to three months' supply is being examined. In the interests of sharing the costs involved, the aim is to include blood donation services in the stockpiling system alongside importers. Talks are ongoing with Swiss Transfusion SRC.

### c. Trend

Strategic stocks currently cover demand for one and a half months. In view of the great importance of blood bags, and the market structure with only a few suppliers, demand coverage in the case of blood bag systems should be increased to three months.

## 6.10 Respirator and surgical masks

Product	Demand coverage (DC)	Holdings	Trend
FFP2 and FFP3 respirator masks	745,000	166,800	Increase stock quantities
Surgical masks, types II and IIR	6.8 million	---	Increase stock quantities

### a. Description

Respirator masks (also known as FFP [filtering face piece] masks) are particle-filtering half-masks with or without an exhalation valve. FFP masks are classified into three levels of protection. An FFP1 filter must protect against at least 80% of particles from a test aerosol. An FFP2 filter must protect against 94% and an FFP3 filter 99%. They become damp and unusable after approximately eight hours' wear. They are used primarily in industry as protection against dust and dirt particles. The FFP2 and FFP3 types are also used to a lesser extent in the healthcare sector, where medical staff are in close contact with patients with highly infectious diseases and must therefore be protected against germs.

Under the European standard, surgical masks are classified into types I, IR, II and IIR. They offer a certain protection to the wearer, but are designed principally to protect others. They are used primarily in the healthcare sector, e.g. in hospitals and dental practices. They become damp after two or three hours' wear.

### b. Assessment

In the event of a major incident, especially one connected with the emergence of a new pathogen, the lack of domestic production and low stocks mean that a surge in demand for masks could not be fully satisfied. Since they are produced mainly in Asia, it may be assumed that imports would all but dry up. Switzerland's influenza pandemic plan for 2013 stated that supplies of masks for use in any pandemic should be ensured as far as possible via NES instruments. At present, strategic stocks are limited to 166,800 FFP2 and FFP3 masks. FFP1 masks are not suitable for use in a medical environment. No stocks of surgical masks are held at this time.

### c. Trend

It is planned that 745,000 respirator and 6,800,000 surgical masks will be held in stock in inpatient health facilities, i.e. hospitals and residential and care homes, to protect staff with patient contact for the duration of a pandemic wave of twelve weeks. Discussions with healthcare organisations, in particular the Swiss Conference of Cantonal Directors of Public Health (GDK), were instigated in 2015.

## 6.11 Surgical gloves

Product	Demand coverage (DC)	Holdings	Trend
Surgical gloves	104 million	4.95 million	Increase stock quantities

### a. Description

Disposable surgical gloves are used primarily in the healthcare sector to protect patients and wearers against contamination with micro-organisms such as the influenza virus. They are also used to a lesser extent in industry. In addition to disinfectants they are one of the most important means of preventing infection.

### b. Assessment

Were a new pathogen to emerge that triggers an illness such as influenza or bird flu, the lack of domestic production and low stocks mean that a sharp increase in demand could not be fully satisfied. Surgical gloves are manufactured primarily in Asia. A surge in demand would likely result in a severe market shortage.

Switzerland's influenza pandemic plan for 2013 stated that supplies of surgical gloves for use in any pandemic should be ensured as far as possible via NES instruments with suppliers and users, especially hospitals. Under normal circumstances, the Swiss care sector uses around 100 million surgical gloves during a twelve-week period. Of this total, approximately 84 million are used in hospitals. In the event of a pandemic, normal usage in hospitals would decline, as non-urgent medical treatment would be postponed and patients thus discharged. On the other hand, there would be a greater demand for gloves in the care of those suffering from flu. According to the calculations of the Therapeutic Products unit, agreed with the Federal Office of Public Health, there should be a total of 104 million surgical gloves stockpiled in the event of a pandemic. This would be enough to meet higher pandemic-related demand for a twelve-week period.

### c. Trend

There are some 4.95 million surgical gloves held as part of the strategic stockpiling system. To ensure supplies in the event of a pandemic, current stock levels are to be raised to 104 million. Discussions with healthcare organisations, in particular the Swiss Conference of Cantonal Directors of Public Health (GDK), were instigated in 2015.

## 6.12 Vaccines – under review

Product	Demand coverage (DC)	Holdings	Trend
Vaccines	---	---	In preparation

### a. Description

Vaccines are used to produce active or passive immunity to prevent disease either individually or collectively, and thus protect the population against infection with viral and bacterial pathogens. Vaccines come under ATC code J07. Vaccination is one of the most important means of prevention and protection against infectious diseases. For this reason, the Federal Office of Public Health publishes an annual vaccination plan.

### b. Assessment

Vaccine shortages have become more frequent in recent times. This prompted a detailed analysis of vaccine supplies in Switzerland that considers both time-related and medical aspects. The analysis showed that the Swiss vaccines market is supplied by only a small number of large companies. Monopolies or duopolies exist for certain vaccines, which poses an additional risk of supply disruption.

To date, vaccine shortages have not had any serious consequences for public health. However, it cannot be ruled out that repeated or protracted disruption to deliveries will prevent the vaccination plan being carried out as intended. This would interfere with the implementation of strategies to combat a variety of infectious diseases and put the affected population groups at risk.

### c. Trend

There are plans to introduced compulsory stockpiling for selected vaccines. Consultations with stakeholders began in the autumn of 2015.

## 7 Industrial goods

### 7.1 Overview

Below is a list of the industrial goods for which stocks must be held, alongside the actual level of stocks as at 30 October 2015. The list also includes goods for which no strategic stocks are held at present, but which are being considered for inclusion in the system.

Product	Demand coverage (DC)	Holdings	Trend
Plastics			
- Polyethylene, various additives	---	81t	Under review
- Polystyrene	---	90t	Under review
- Polyethylene terephthalate (PET)	---	120t	Under review
Ethanol for medical use	---	---	Under review

## 7.2 The trend in plastics

Strategic stocks are held in granulate form of the plastics polyethylene, polystyrene, polypropylene and polyethylene terephthalate (PET). A variety of additives required for the manufacture of food packaging are also held, as are PET moulding blanks for bottles in addition to PET granulate. These materials can be used to manufacture packaging for foodstuffs and therapeutic products. The strategic stockpiling of polyethylene began in 2008, while stocks of polystyrene and PET date back to the 1990s.

All plastic granulates have the following in common:

Swiss factories import all granulates that are used in the production of downstream items. These granulates originate primarily from the European Union, specifically Germany, Belgium and the Netherlands. The European plastics manufacturing sector is going through a consolidation phase at present. Granulates for Switzerland are also increasingly being sourced direct from Asia, the Middle East and the USA.

The chemical industry uses 8% of all the crude oil extracted world wide as an input. About half of this is used to manufacture plastics. Supply shortages could occur in Switzerland if the necessary volume of oil and its refined products could no longer be imported into the European Union, necessitating cuts in granulate production.

Pandemics would create additional global demand for plastic granulate to manufacture packaging for therapeutic products and disinfectants. This might also lead to supply shortages at Swiss factories.

Government regulations on packaging for foodstuffs and medicines will remain the same, and may even become tougher. It is therefore important that a number of companies in Switzerland are able to produce packaging of the highest quality even in times of crisis.

Demand coverage for plastics will be subject to a thorough review in the next planning period.

### 7.3 Polyethylene and additives

Product	Demand coverage (DC)	Holdings	Trend
Polyethylene and various additives	---	81t	Under review

#### a. Description

Strategic stocks are held of polyethylene and a range of additives such as polypropylene. These additives serve to ensure that the statutory requirements for food packaging are met. Polypropylene is used to manufacture caps for disinfectant bottles. These products can be used to manufacture packaging for foodstuffs and therapeutic products, as well as for industrial goods.

#### b. Assessment

Polyethylene is the world's most commonly produced plastic, accounting for approximately 30% of the total. It is made entirely from crude oil which has been processed into granulate. The granulate then provides the input for a variety of manufacturing processes. The high-pressure process is used to produce low-density (soft) polyethylene (LDPE), which is used primarily for plastic films. The low-pressure process results in high-density (hard) polyethylene (HDPE), used to produce bottles and containers. Around 1.2 million additional disinfectant bottles would be required in the event of a pandemic.

The World Health Organization estimates that a new influenza pandemic is an ever-present threat. Were this scenario to occur, there would be a massive surge in global demand for disinfectant bottles and the matching caps. The required number of bottles and caps could be manufactured from current strategic stock levels. The available polyethylene granulate, and additives, can also be used to manufacture food packaging.

#### c. Trend

The strategic stockpiling of polyethylene granulates and additives will be subject to a thorough review during the next planning period.



## 7.4 Polystyrene

Product	Demand coverage (DC)	Holdings	Trend
Polystyrene	---	90t	Under review

### a. Description

Strategic stocks are held of polystyrene granulate, which can be used to manufacture containers for food packaging, such as yoghurt pots or tableware.

### b. Assessment

Polystyrene accounts for around 6% of the volume of plastic produced globally. The granulate is derived entirely from crude oil. Polystyrene has multiple uses. In addition to food packaging, its good electrical insulation properties make it suitable for electronic engineering purposes, but it can also be used as thermal insulation in the construction industry. These applications might find themselves in competition were supplies to run low.

It is important that food packaging of the very highest standards can continue to be made in Switzerland even if there is a shortage of polystyrene granulate.

### c. Trend

The strategic stockpiling of polystyrene granulate will be subject to a thorough review in the next planning period.

## 7.5 Polyethylene terephthalate (PET)

Product	Demand coverage (DC)	Holdings	Trend
Polyethylene terephthalate (PET)	---	120t	Under review

### a. Description

Strategic stocks consist of PET granulate and preform moulding blanks for PET bottles. These raw materials and semi-finished goods can be used to manufacture food and drink bottles, in addition to other types of packaging.

### b. Assessment

PET accounts for around 20% of global plastics output. It is made entirely from crude oil which has been processed into granulate. PET is used most commonly to make plastic bottles of all types, as well as textile fibres.

It will remain important in future that Switzerland has secure supplies of food packaging of the highest standard, even if PET granulate were to become less available.

### c. Trend

The strategic stockpiling of polyethylene terephthalate granulates and preform moulding blanks will be subject to a thorough review during the next planning period.

## 7.6 Ethanol – under review

Product	Demand coverage (DC)	Holdings	Trend
Ethanol	---	---	Under review

### a. Description

Ethanol continues to have an important medical use in skin and wound disinfection. It is also broadly used in the pharmaceutical industry to produce medication and to manufacture disinfectants. In addition, ethanol can be found in an enormous number of personal care products made by the cosmetic industry.

In the food and beverage sector, it is an ingredient in the production and dilution of flavours and essences, as well as in table vinegars. It is also used as a preservative.

### b. Assessment

Alcosuisse maintains two storage facilities of roughly equivalent size, in Delémont in the canton of Jura, and Schachen in the canton of Lucerne. Their combined capacity is around 30,000 tonnes of pure alcohol. This is sufficient to meet the country's needs for approximately nine months.

The complete overhaul of Swiss legislation on alcohol provides for the deregulation of the Swiss ethanol market and the privatisation of Alcosuisse. The sale strategy was adopted by the Federal Council in the spring of 2012. This would first turn Alcosuisse (a profit centre) into a limited company, to be sold when the market is deregulated. These legislative reforms are currently at the parliamentary consultation phase. Deregulation is not expected until mid-2017 at the earliest.

If and when Alcosuisse is privatised, steps must be taken to ensure that available stocks are enough to permit the necessary disinfectants to be manufactured in the event of a pandemic. The Therapeutic Products unit must consider what volume and quality (pharmaceutical grade according to the European pharmacopoeia) requirements stocks of ethanol would have to be kept to meet demand in the event of a pandemic.

### c. Trend

With the current supply system via Alcosuisse there is no need to establish strategic stocks of ethanol. The ongoing deregulation of the ethanol market is being observed closely, however, so that the build-up of such stocks can begin if privatisation results in a massive drop in inventories.

## 8 Financial aspects

### 8.1 Value of goods held under the strategic stockpiling system as at 30 June 2015

Product	Value in CHF m
Foodstuffs	560.0
Energy	2,405.6
Therapeutic products	18.2
<b>Total</b>	<b>2,983.8</b>

### 8.2 Guarantee funds

The economic sectors which are subject to strategic stockpiling requirements are able to found compulsory stock organisations under private law which manage guarantee funds for individual groups of goods. These guarantee funds are funded in two ways through levies on goods of which stocks must be held. Under the initial distribution system, contributions to the guarantee fund are charged on both imported and domestically produced goods. Under the border levies system these contributions are charged on imports only. These guarantee funds are then used to compensate individual companies for the costs of holding compulsory stocks. Standard criteria apply to these payments. Ultimately, it is the consumer who pays these costs via the product price.

This system only functions if all of the entities holding compulsory stocks within a given sector are members of the corresponding compulsory stock organisation, which is why the FONES has made membership mandatory.

All of the economic sectors covered by the strategic stockpiling system currently have guarantee funds, which are managed by their compulsory stock organisations: CARBURA for mineral oil products, Provisiogas for natural gas, Helvecura for therapeutic products, réservesuisse for grain and food and feedstuffs, and Agricura for fertiliser. CARBURA and réservesuisse levy guarantee fund contributions on imports, while Agricura, Helvecura and Provisiogas apply the initial distribution approach.

The balances of these guarantee funds do not belong to either the stock organisations' individual members or the Confederation. They constitute private segregated assets, the use of which is subject to restrictions under public law, and which fall under Confederation supervision. The FONES ensures that this funding is collected and disbursed appropriately.

### 8.3 The trend in costs

The costs of holding strategic stocks under the mandatory form of the system include payments to companies from the guarantee funds, and the administration costs of the compulsory stock organisations. Stock volumes in the foodstuffs and energy sectors have been reduced considerably over the past twenty years, and the range of goods for which stocks must be held has been streamlined. This considerably reduced costs. Compulsory stocks of therapeutic products have been increased, and new products added, in recent years. The additional costs incurred as a result were low in comparison with the cuts that had been achieved in other areas, however. Aggregate expenditures in connection with strategic stockpiling have declined sharply over the past few years, and the current very low level of interest rates is also helping to keep costs down. In 2014, they came to less than 13 Swiss francs per capita for the year.

Costs of the strategic stockpiling system		
Year	Total in CHF m	Per capita in CHF
1995	307	43
2000	164	23
2005	126	17
2010	116	15
2014	108	13

## 9 Schedule of legal instruments

- Federal Act of 8 October 1982 on the National Economic Supply (SR 531)
- Ordinance of 6 July 1983 on the Organisation of the National Economic Supply (SR 531.11)
- Ordinance of 2 July 2003 on Preparations for the National Economic Supply (SR 531.12)
- Ordinance of 6 July 1983 on the General Principles of the Maintenance of Reserves (SR 531.211)
- Ordinance of 6 July 1983 on the Segregation of Strategic Stocks and the General Lien of the Confederation (SR 531.212)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Sugar (SR 531.215.11)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Rice for Human Consumption (SR 531.215.12)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Cooking Oils and Fats, Including their Ingredients and Semi-Finished Goods (SR 531.215.13)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Coffee (SR 531.215.14)
- Ordinance of 25 April 2001 on the Strategic Stockpiling of Grain, Special Grain and Energy and Protein Sources for Feedstuffs (SR 531.215.17)
- Ordinance of 4 April 2007 on the Strategic Stockpiling of Fertilisers (SR 531.215.25)
- Ordinance of the FDHA of 23 November 2005 on Special Foods (SR 817.022.104)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Therapeutic Products (SR 531.215.31)
- Ordinance of 6 July 1983 on the Strategic Stockpiling of Liquid Heating and Motor Fuels (SR 531.215.41)
- Ordinance of 9 May 2003 on the Strategic Stockpiling of Natural Gas (SR 531.215.42)

### Note on language versions

The titles of acts and ordinances have been translated in this report for ease of reading. However, since English is not an official language of the Swiss Confederation, the texts themselves are available in German, French and Italian only. To access them, please visit <https://www.admin.ch/gov/en/start/federal-law/search.html>, and enter their SR number in the search field.

## 10 Abbreviations

ATC	Anatomic–Therapeutic–Chemical classification system for pharmaceutical drugs
ATCvet	Anatomic–Therapeutic–Chemical classification system for pharmaceutical drugs for veterinary use
DNES	Delegate for National Economic Supply
EAER	Federal Department of Economic Affairs, Education and Research
EU	European Union
FONES	Federal Office for National Economic Supply
GDK	Conference of Cantonal Directors of Public Health
IEA	International Energy Agency
IU	International Unit according to the World Health Organization definition.
MU	Mega Unit according to the World Health Organization definition.
NES	National Economic Supply
OECD	Organisation for Economic Co-operation and Development
PET	Polyethylene terephthalate
swisssem	Swiss seed producers' association
WHO	World Health Organization